2015–2017 RANGER XP/CREW 570/900/1000
Service Manual

FOREWORD

The information printed within this publication includes the latest product information at time of print. The most recent version of this Service Manual is available in electronic format at www.polarisdealers.com.

This Service Manual is designed primarily for use by certified Polaris Master Service Dealer® technicians in a properly equipped shop and should be kept available for reference. All references to left and right side of the vehicle are from the operator's perspective when seated in a normal riding position.

Some procedures outlined in this manual require a sound knowledge of mechanical theory, tool use, and shop procedures in order to perform the work safely and correctly. Technicians should read the text and be familiar with the service procedures before starting any repair. Certain procedures require the use of special tools. Use only the proper tools as specified. If you have any doubt as to your ability to perform any of the procedures outlined in this Service Manual, contact an authorized dealer for service.

We value your input and appreciate any assistance you can provide in helping make these publications more useful. Please provide any feedback you may have regarding this manual. Authorized dealers can submit feedback using 'Ask Polaris'. Click on 'Ask Polaris', and then click on 'Service Manual / Service Literature Question'.

Consumers, please provide your feedback in writing to: Polaris Industries Inc. ATTN: Service Publications Department, 2100 Hwy 55, Medina, MN 55340.

Publication Printed August 2016 (PN 9927645 R04)

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SAFETY WARNINGS

Throughout this manual, important information is brought to your attention by the following symbols:

⚠ WARNING

SAFETY ALERT WARNING indicates a potential hazard that may result in severe injury or death to the operator, bystander or person(s) inspecting or servicing the vehicle.

⚠ CAUTION

SAFETY ALERT CAUTION indicates a potential hazard that may result in minor personal injury or damage to the vehicle.

CAUTION

CAUTION indicates special precautions that must be taken to avoid vehicle damage or property damage.

NOTE

NOTE provides key information by clarifying instructions.

IMPORTANT

IMPORTANT provides key reminders during disassembly, assembly and inspection of components.

TRADEMARKS

POLARIS ACKNOWLEDGES THE FOLLOWING PRODUCTS MENTIONED IN THIS MANUAL:

Loctite, Registered Trademark of the Loctite Corporation

Nyogel, Trademark of Wm. F. Nye Co.

Fluke, Registered Trademark of John Fluke Mfg. Co.

Mity-Vac, Registered Trademark of Neward Enterprises, Inc.

Torx, Registered Trademark of Textron

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Warn, Trademark of Warn Industries

FOX, Registered Trademark of FOX RACING SHOX

RydeFX, Registered Trademark of ArvinMeritor

Some Polaris factory publications can be downloaded from www.polarisindustries.com, purchased from www.purepolaris.com or by contacting the nearest Polaris dealer.

REVISION INDEX

REV	DATE	CHANGES
R01	08/01/16	Initial release
R02	10/31/16	Drive Belt Alignment procedure added, Driven Clutch Retaining Bolt torque updated.
R03	11/30/16	Battery Terminal Bolt and 900 / 1000 Intake Plenum Hose Clamp torque updated
R04	12/08/16	Compressor Drive Belt Replacement Video added.
R05		

2017 VEHICLE UPDATES

APPLICABLE MODEL	VEHICLE SYSTEM	UPDATE DESCRIPTION
XP 1000 Models	Engine	New engine option, HVAC option added
XP 1000 Models	Drivetrain	Propshaft CV Joints
XP 1000 Models	Electrical	Drive Mode options added

For more detailed information on vehicle updates, refer to the applicable Model Year Update training module at: **www.mytrainingandrewards.com** .

2015–2017 RANGER XP/CREW 570/900/1000

Service Manual

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CHAPTER 1
GENERAL INFORMATION

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REFERENCE INFORMATION

SERVICE RULES

In order to perform service work efficiently and prevent costly errors, technicians should read the text in this manual and familiarize themselves with the procedures before beginning. Notes, Cautions and Warnings have been included for clarification of text and safety concerns. Knowledge of mechanical theory, tool use and shop procedures are necessary to perform some procedures in this manual safely and correctly.

Use only genuine Polaris service parts, including fasteners that require replacement if removed. Do NOT substitute fasteners or hardware.

Cleanliness of parts and tools as well as the work area is of primary importance. Dirt and foreign matter will cause damage to precision parts. Clean the vehicle before beginning service. Clean all parts before installing.

If difficulty is encountered in removing or installing a component, look to see if a cause for the difficulty can be found. If it is necessary to tap the part into place, use a soft face hammer and tap lightly.

Always follow torque specifications as outlined throughout this manual. Incorrect torquing may lead to serious machine damage or in the case of steering, driveline, and chassis components, can result in loss of control during operation of the vehicle, which may result in severe personal injury or death.

If a torquing sequence is indicated for nuts, bolts or screws of a certain component, start all fasteners and hand tighten. Following the method and sequence indicated, tighten evenly to the specified torque value. When removing nuts, bolts or screws from a component with several fasteners, loosen them all about 1/4 turn before removing them to prevent distortion of that component.

Replace all oil seals, sealing washers, gaskets, and O-rings with new ones during assembly. Be sure the mating surfaces for the gasket are clean and smooth to avoid leaks and maintain specified tolerances.

Some procedures require removal of retaining rings or clips. Removal can weaken and deform these parts, therefore, they should always be replaced with new parts. When installing new retaining rings and clips, use care not to expand or compress them beyond what is required for installation.

Polaris lubricants and greases have been specially formulated to provide maximum performance and protection when applied properly. In some applications, warranty coverage may be void if improper lubricants are used.

Parts requiring grease should be cleaned thoroughly and fresh grease applied before reassembly. Deteriorating grease loses lubricity and may contain abrasive foreign matter. Always replace locking hardware such as lock nuts or lock washers, fasteners that have pre-applied locking agent, or any other fasteners as noted in this service manual with genuine Polaris hardware from an authorized Polaris dealer. Working with batteries can be hazardous. Review all battery warnings and cautions.

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PUBLICATION NUMBERS

MODEL	MODEL NO.	OWNER'S MANUAL
2015 *RANGER* 570 / EPS FULLSIZE	R15RTA57AA, AC, AR / R15RTE57AU	9925545
2015 *RANGER* CREW 570 / EPS FULLSIZE	R15RUA57AA / R15RUE57AC	9925545
2015 *RANGER* XP 900 / EPS	R15RTA87AA, AC, AR / R15RTE87AA, AB, AK, AM, AR, AS, AV, AW, A2, A5	9925415
2015 *RANGER* CREW 900 / EPS	R15RUA87AA, AR / R15RUE87AC, AM, AS, AW	9925415
2016 *RANGER* 570 / EPS FULLSIZE	R16RTA57A1, A4, A9, B1, B4, B9 / R16RTE57AP, AU, BP, BU	9926460
2016 *RANGER* CREW 570 / EPS FULLSIZE	R16RVA57A1, B1 / R16RVE57A9, B9	9926460
2016 *RANGER* XP 900 / EPS	R16RTA87A1, A4, A9, B1, B4, B9 / R16RTE87A1, A4, A9, AK, AM, AS, AV, B1, B4, B9, BK, BM, BS, BV / R16RTM87AL, BL / R16RTU87A9, AB, AS, B9, BB, BS	9926461
2016 *RANGER* CREW 900 / EPS	R16RUA87A1, B1 / R16RVA87A1, B1 / R16RUE87A9, AM, AS, AV, B9, BM, BS, BV / R16RVE87A9, AM, AS, AV, B9, BM, BS, BV	9926461
2017 *RANGER* XP 900 / EPS	R17RTA87A1, A9, B1, B9 / R17RTE87A4, B4	9927168
2017 *RANGER* XP 900 EU	R17RTE87F1, FU / R17RTS87F1 / FU	9927388
2017 *RANGER* XP 900 EPS EU	R17RTS87C1, CU	9927390
2017 *RANGER* CREW XP 900 / EPS	R17RVA87A1, B1 / R17RVE87A9, B9	9927168
2017 *RANGER* XP 1000 / EPS	R17RTA99A1, B1 / R17RTE99A9, AS, AW, AY, B9, BS, BW, BY / R17RTU99AT, BT	9927168
2017 *RANGER* CREW XP 1000 / EPS	R17RVA99A1, B1 / R17RVE99A9, AS, AY, B9, BS, BY, NY	9927168
2017 *RANGER* XP 1000 High Lifter	R17RTM99AM, BM	9927392
2017 *RANGER* CREW XP 1000 High Lifter	R17RVM99AM. BM	9927392
2017 *RANGER* XP 1000 Northstar	R17RTU99AV, BV	9927174
2017 *RANGER* CREW XP 1000 Northstar	R17RVU99AV, BV	9927174

NOTE

When ordering service parts be sure to use the correct parts manual.
Polaris factory publications can be found at www.polarisindustries.com or purchased from www.purepolaris.com.

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REPLACEMENT KEYS

Replacement keys can be made from the original key. To identify which series the key is, take the first two digits on the original key and refer to the chart to the right for the proper part number.
(i.e. In this example, the first two digits are 31 which would use key blank PN 4110141.

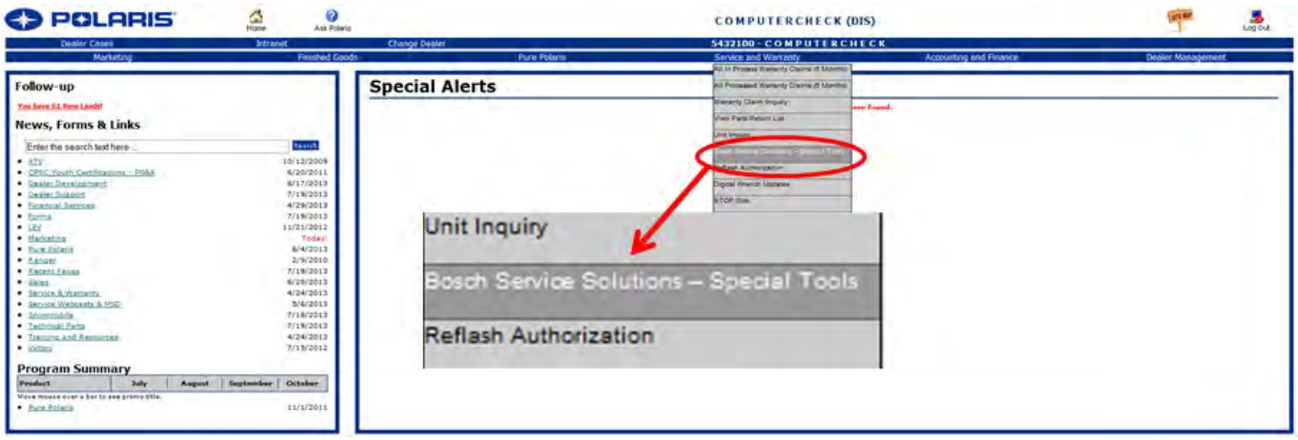


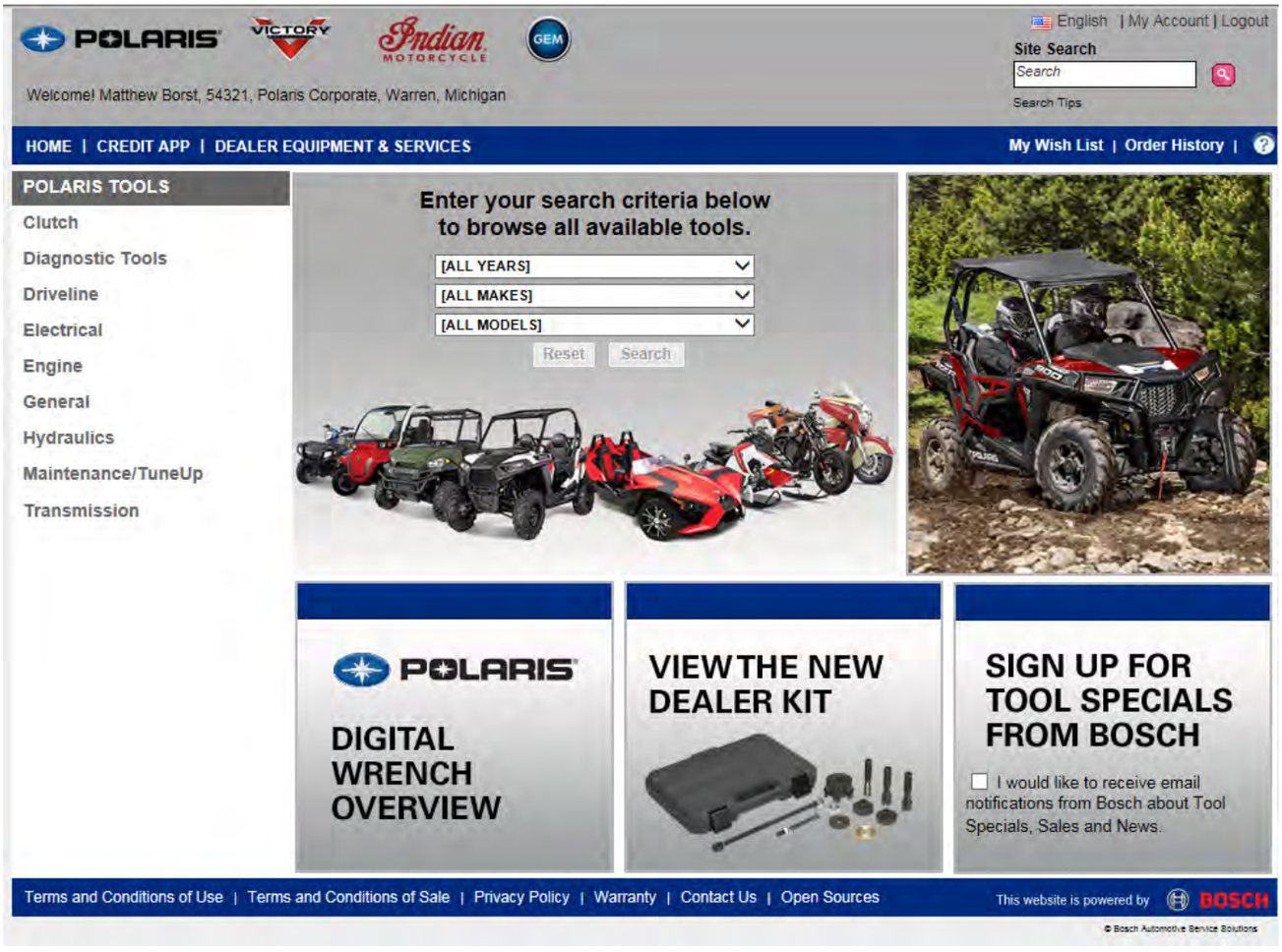
SERIES#	PART NUMBER
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21	4010278
22	4010321
23	4010321
27	4010321
28	4010321
31	4110141
32	4110148
67	4010278
68	4010278

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SPECIAL TOOLS WEBSITE

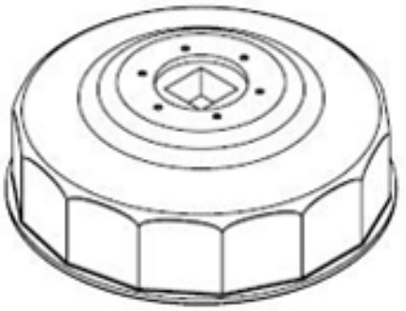
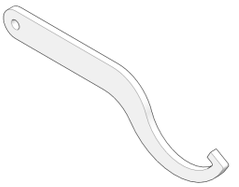
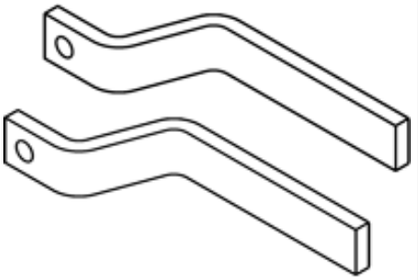
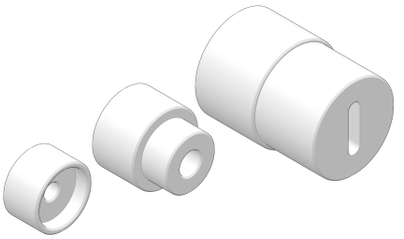
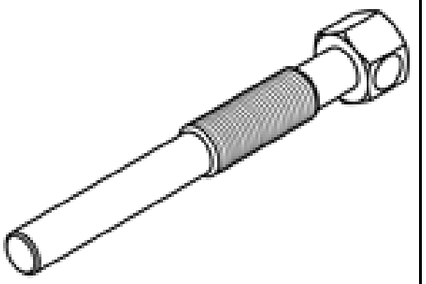
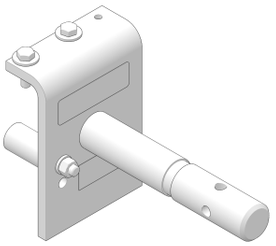
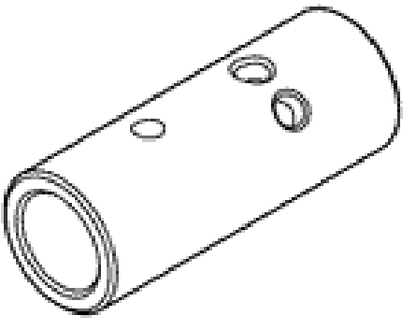
Special tools may be required while servicing this vehicle. Some of the tools listed or depicted are mandatory, while other tools may be substituted with a similar tool, if available. Polaris recommends the use of Polaris Special Tools when servicing any Polaris product. Dealers may order special tools through Polaris' official tool supplier, Bosch Automotive Service Solutions, by phone at 1-800-345-2233 or on-line at *http://polaris.service-solutions.com/*



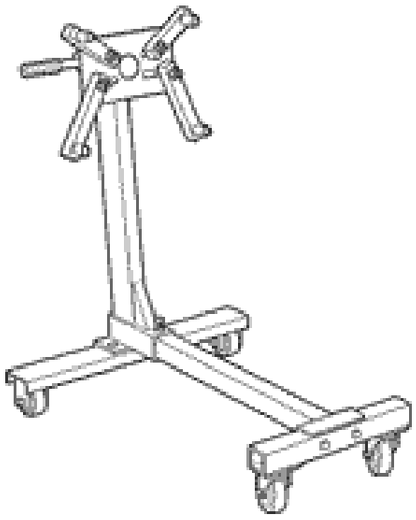
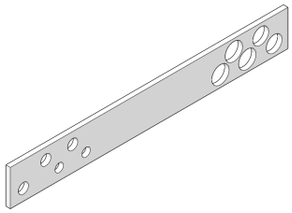
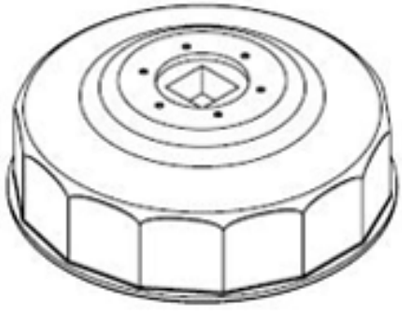
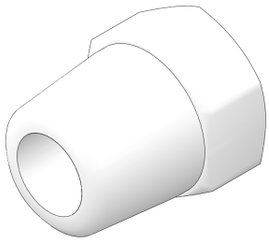
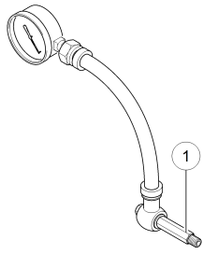
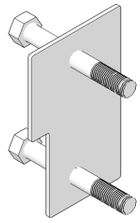


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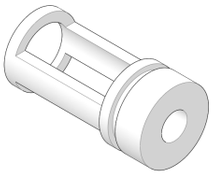
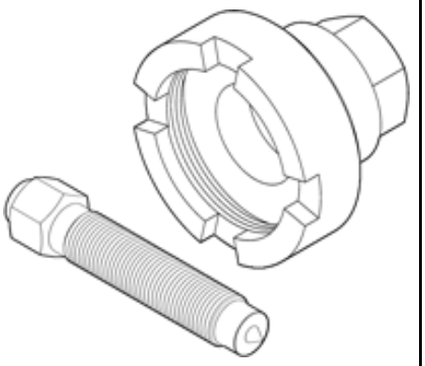
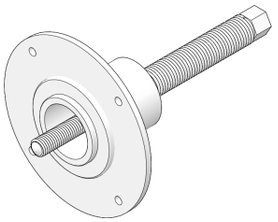
SPECIAL TOOLS INDEX

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Engine Stand Adapter (Mounts To The Engine) PU-50824 	Engine Stand Sleeve Adapter (Use With 2” Bore Stand) PU-50625 	Engine Stand Sleeve Adapter (Use With 2.375” Bore Stand) PW-47054 

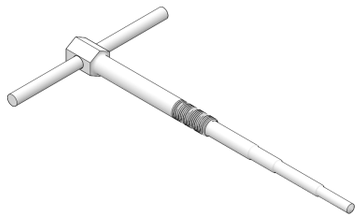
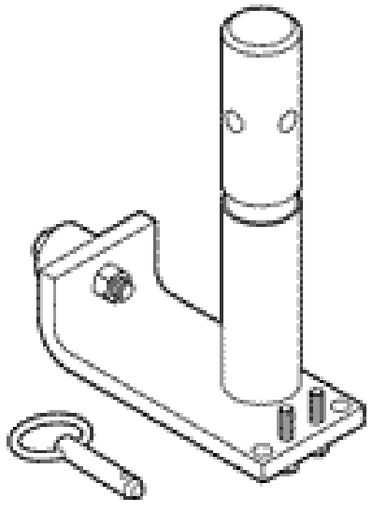
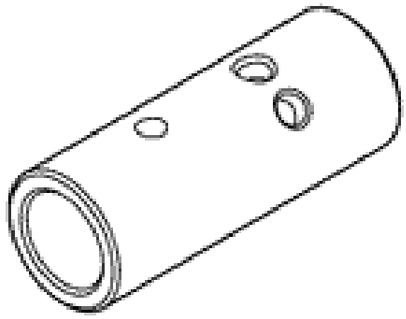
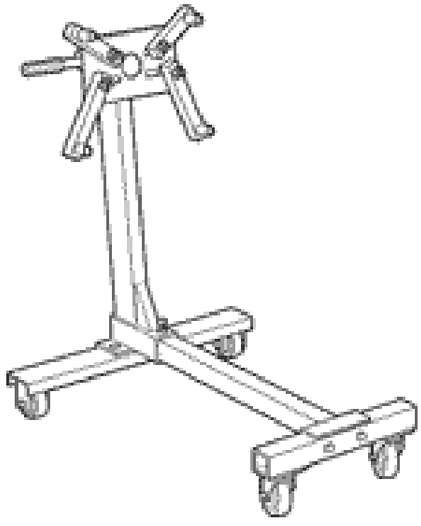
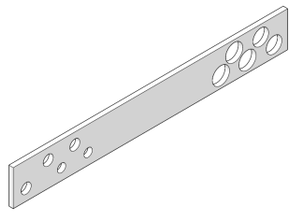
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CHAPTER 3 — ENGINE / COOLING SYSTEM (570)		
Engine Stand (2” Bore) PU-50624 	Clutch Center Distance Tool PU-50658-A 	Oil Filter Wrench PU-50105 
Oil Pressure Gauge Adapter PU-50569 	Oil Pressure Gauge PV-43531 	Cylinder Holding & Camshaft Timing Plate PU-50563 

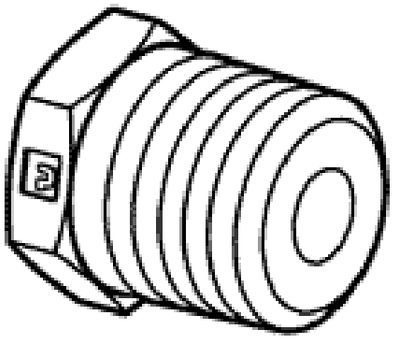
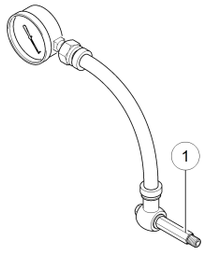
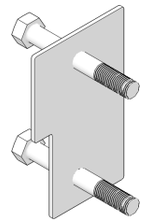
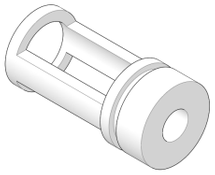
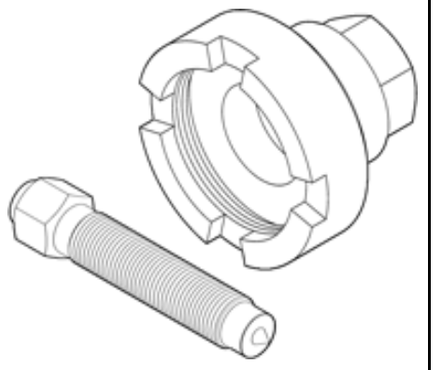
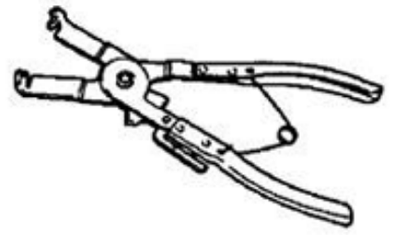
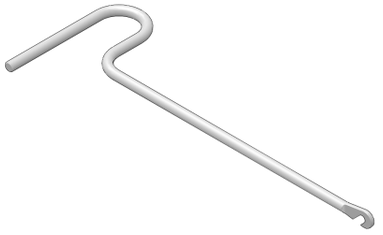
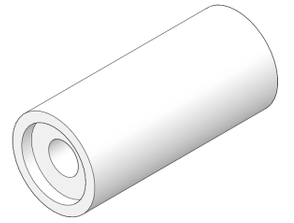
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CHAPTER 3 — ENGINE / COOLING SYSTEM (570)		
Valve Spring Compressor Adapter PV-43513-A 	Flywheel Holding Tool PU-51220 	Flywheel Puller PA-49316 
Crankshaft Removal / Installation Tool Kit PU-50784 		

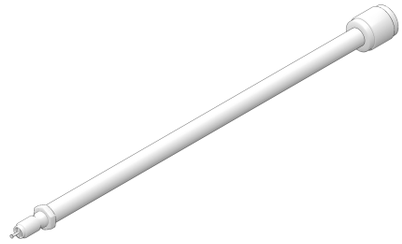
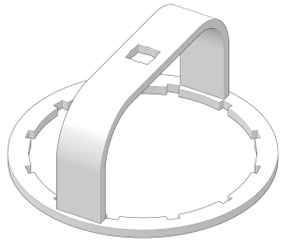
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CHAPTER 3 — ENGINE / COOLING SYSTEM (900/1000)		
Drive Clutch Puller 2872085 	Engine Stand Adapter (Mounts To The Engine) PU-50562 	Engine Stand Sleeve Adapter (Use With 2” Bore Stand) PU-50625 
Engine Stand Sleeve Adapter (Use With 2.375” Bore Stand) PW-47054 	Engine Stand (2” Bore) PU-50624 	Clutch Center Distance Tool PU-50658-A 

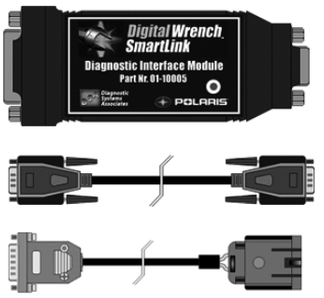
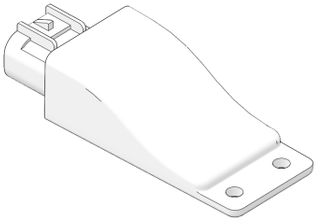
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CHAPTER 3 — ENGINE / COOLING SYSTEM (900/1000)		
Oil Pressure Gauge Adapter PU-50565 	Oil Pressure Gauge PV-43531 	Cylinder Holding & Camshaft Timing Plate PU-50563 
Valve Spring Compressor Adapter PV-43513-A 	Flywheel Puller PA-49316 	Piston Ring Compressor Pliers PV-43570-1 
Spring Puller PU-45485 	Mityvac® Pressure Test Tool 2870975 	Water Pump Mechanical Seal Installer PU-50564 

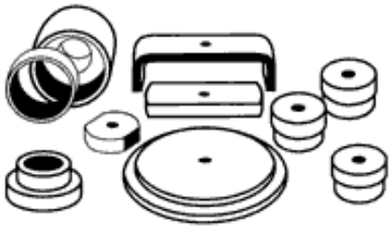
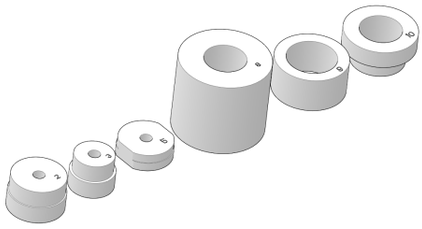
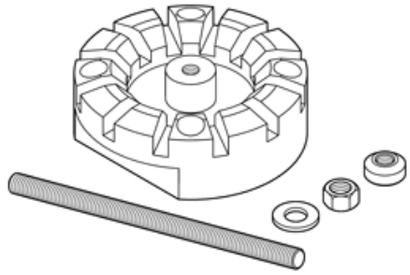
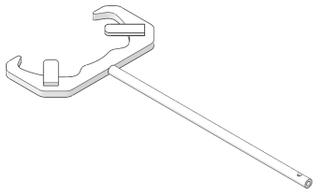
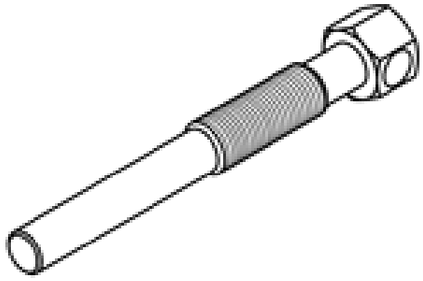
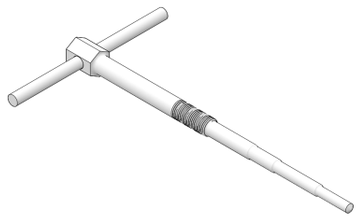
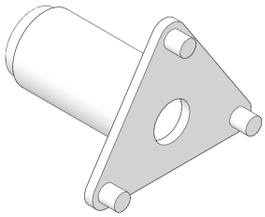
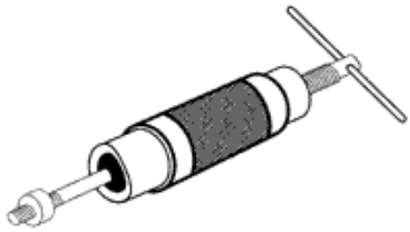
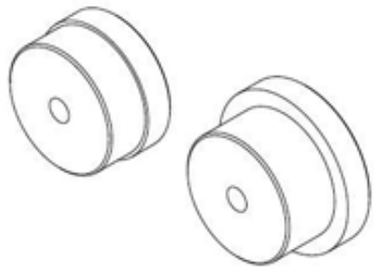
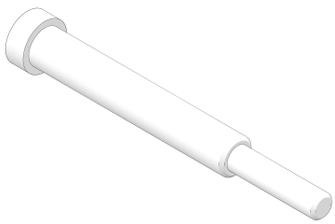
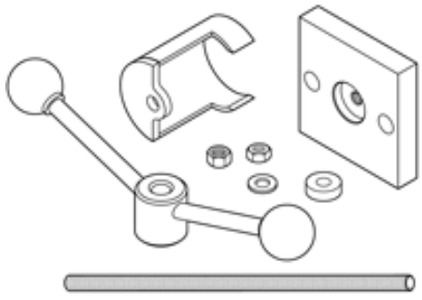
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CHAPTER 3 — HVAC		
Refrigerant Recovery / Recycle /Recharging Machine PU-51021	Recharge Service Kit (for PU-51021) PU-51021-1	HVAC Belt Tool PU-52087
Crankshaft Pulley Holder PU-52254		
CHAPTER 4 — FUEL SYSTEM		
Fuel Pressure Gauge Kit PU-43506-A 	Fuel Pressure Gauge Adapter PS-48762 	Fuel Pump Service Tool PU-50326 
Digital Wrench® Diagnostic Kit PU-47063-B 	Digital Wrench® Software PU-48731  Polaris Digital Wrench License Serial Number 9999999999 Polaris Digital Wrench software is available only to authorized Polaris Dealers. This card contains your License Serial Number required to install the software. The Digital Wrench Software Installer must be downloaded from the Polaris Dealer Website at http://www.polarisdealers.com. Follow the instructions on the web site to download and install the Digital Wrench Software. Retain this card for future installations or when future computer upgrades are performed IMPORTANT: Keep this card in a safe place!	Digital Wrench® Standard Interface Cable PU-47151 

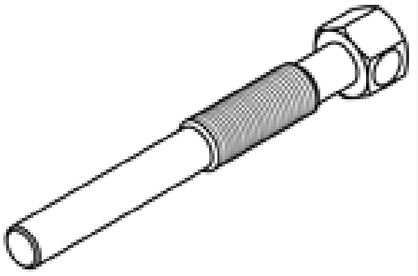
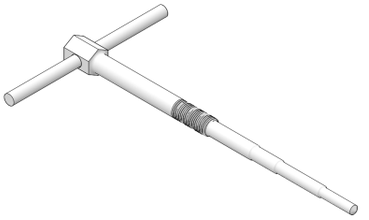
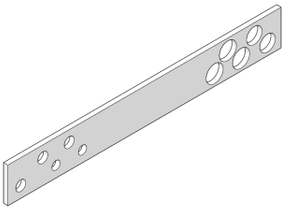
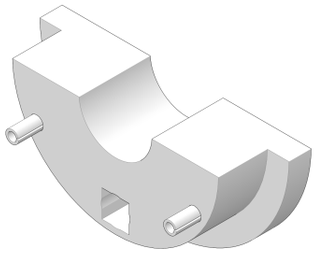
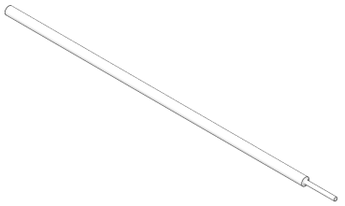
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CHAPTER 4 — FUEL SYSTEM		
Digital Wrench® USB-Serial Adapter Cable PU-50621 	Digital Wrench® SmartLink Module Kit PU-47471 	Digital Wrench® PC Interface Cable PU-47470 
Digital Wrench® Vehicle Interface Cable PU-47469 	Digital Wrench® SmartLink Module PU-47468 	Wireless Vehicle Link (WVL) PU-51435 

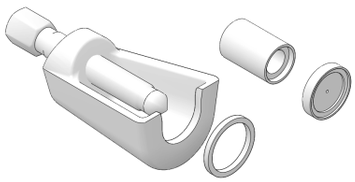
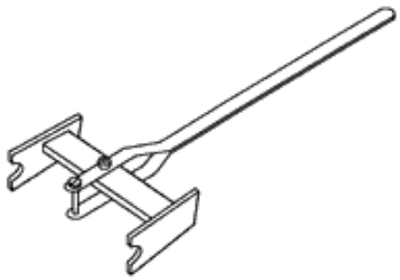
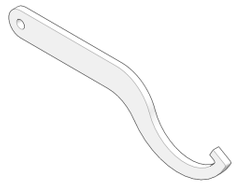
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CHAPTER 5 — PVT SYSTEM		
Clutch Bushing Replacement Tool Kit 2871025 	Clutch Bushing Replacement Tool Kit 2871226 	Clutch Holding Fixture 2871358-A 
Drive Clutch Holding Tool 9314177-A 	Drive Clutch Puller PA-48595 	Drive Clutch Puller 2872085 
Drive Clutch Spider Removal and Installation Tool 2870341 	Piston Pin Puller 2870386 	Bushing Replacement Tool PA-47336 
Roller Pin Tool 2870910 	Universal Clutch Compressor PU-50518 	

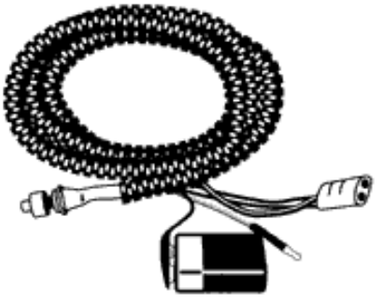
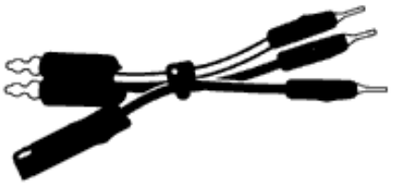
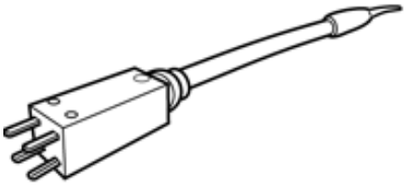
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CHAPTER 6 — TRANSMISSION		
Drive Clutch Puller PA-48595 	Drive Clutch Puller 2872085 	Clutch Center Distance Tool PU-50658-A 
Snorkel Tool PA-50231 	Rear Output Seal Driver 2871698	Rear Driveshaft Seal Guide 2871699
CHAPTER 7 — FINAL DRIVE		
Roll Pin Removal Tool 2872608 	Axle Boot Clamp Tool PU-48951 	CV Boot Clamp Pliers 8700226 

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CHAPTER 8 — STEERING / SUSPENSION		
Ball Joint Tool PU-50506 	Spring Compressor Tool 2870623 	Shock Spanner Wrench 2871095 
CHAPTER 9 — BRAKE SYSTEM		
Mityvac® Pressure Test Tool 2870975 		
CHAPTER 10 — BODY / FRAME		
Multi-Function Pliers 2876389 		

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CHAPTER 11 — ELECTRICAL		
PV-43568 Fluke™ 77 Digital Multimeter PF-51237 	Static Timing Light Harness 2871745 	Hall Effect Sensor Probe Harness 2460761 
Battery Conductance Analyzer (MDX-610P) PU-50296 	Connector Test Kit PV-43526 	Timing Light 2870630 
Relay Bypass PU-49466 		

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MASTER TORQUE LIST

CHAPTER 2 — MAINTENANCE	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Crankcase Drain Plug (570)	**14 lb-ft (19 Nm)**
Crankcase Drain Plug (900)	**12 lb-ft (16 Nm)**
Spark Plug (570)	**9 lb-ft (12 Nm)**
Spark Plug (900)	**7 lb-ft (10 Nm)**
Valve Cover Bolts	**7 lb-ft (10 Nm)**
Outer Clutch Cover Screws	**45-50 lb-in (5 Nm)**
Tensioner Mounting Bolts	**7 ft-lb (10 Nm)**
Plunger Bolt	**15 ft-lb (20 Nm)**
Transmission Fill / Drain Plug	**10-14 lb-ft (14-19 Nm)**
Front Gearcase Fill / Drain Plug	**8-10 lb-ft (11-14 Nm)**
Radiator Hose Clamp	**3 lb-ft (4 Nm)**
Wheel Nuts (Steel Wheels)	**60 lb-ft (81 Nm)**
Wheel Nuts (Cast Aluminum Wheels)	**120 lb-ft (163 Nm)**
Front Wheel Hub Castle Nuts	**80 lb-ft (108 Nm)**
Rear Wheel Hub Castle Nuts	**110 lb-ft (149 Nm)**
Tie Rod Jam Nut	**13 lb-ft (18 Nm)**
Shock Mounting Bolts	**40 lb-ft (54 Nm)**

CHAPTER 3 — ENGINE / COOLING SYSTEM (570)	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Thermostat Cover Bolts	**8 lb-ft (11 Nm)**
Coolant Bleed Screw	**6 lb-ft (8 Nm)**
Water Pump Cover Fastener	**9 lb-ft (12 Nm)**
Water Pump Impeller	**Finger Tight**
Stater Cover and Water Pump Cover	**9 lb-ft (12 Nm)**

CHAPTER 3 — ENGINE / COOLING SYSTEM (570)	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Wheel Nuts (Steel Wheels)	**60 lb-ft (81 Nm)**
Wheel Nuts (Cast Aluminum Wheels)	**120 lb-ft (163 Nm)**
Rear Engine Coupler Fastener (In Sequence)	**55 lb-ft (75 Nm)**
Front Engine Mount Fasteners	**40 lb-ft (54 Nm)**
Isolator Center Bolt	**40 lb-ft (54 Nm)**
Exhaust Head Pipe Bolts	**18 lb-ft (25 Nm)**
Starter Motor Fastener	**7 lb-ft (10 Nm)**
CPS Fastener	**9 lb-ft (12 Nm)**
Oil Gallery Plug	**11 lb-ft (15 Nm)**
Intake Camshaft Sprocket Bolt	**14 lb-ft (19 Nm)**
Cam Chain Guide Fasteners	**9 lb-ft (12 Nm)**
Camshaft Carrier Bolts	**8 lb-ft (11 Nm)**
Cam Chain Tensioner	**30 lb-ft (41 Nm)**
Spark Plug - 570	**9 lb-ft (12 Nm)**
Valve Cover Bolts	**9 lb-ft (12 Nm)**
Cylinder Head Step 1	**21 lb-ft (28 Nm)**
Cylinder Head Step 2	**26 lb-ft (35 Nm)**
Cylinder Head Step 3	**Additional 135°**
Cylinder Head Step 4 (M6 Bolts)	**8 lb-ft (11 Nm)**
Oil Pump Cover Bolt	**8 lb-ft (11 Nm)**
Crankcase Breather Fasteners	**9 lb-ft (12 Nm)**
Bearing Retainer Fastener	**8 lb-ft (11 Nm)**
Crankcase Bolts (In Sequence)	**22 lb-ft (30 Nm)**
One Way Clutch Retaining Bolts	**9 lb-ft (12 Nm)**
Flywheel Retaining Nut	**133 lb-ft (180 Nm)**

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CHAPTER 3 — ENGINE / COOLING SYSTEM (570)	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Stator Mounting Bolts	**9 lb-ft (12 Nm)**
Stator Wire Retainer	**6 lb-ft (9 Nm)**

CHAPTER 3 — ENGINE / COOLING SYSTEM (900/1000)	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Starter Motor Bolts	**7 lb-ft (10 Nm)**
Transmission Joint Bracket Bolts	**44 lb-ft (60 Nm)**
Engine / Transmission Mounting Bolts Step 1–2	**64 lb-ft (87 Nm)**
Engine / Transmission Mounting Bolts Step 3	**5 lb-ft (7 Nm)**
Engine / Transmission Mounting Bolts Step 4–7	**44 lb-ft (60 Nm)**
Front Engine Mount Fasteners	**40 lb-ft (54 Nm)**
Intake Plenum Hose Clamps	**17 lb-in (2 Nm)**
Lower Intake Plenum Fastener	**22 lb-ft (30 Nm)**
Fuel Rail Mounting Bolts	**7 lb-ft (10 Nm)**
Crankcase Gallery Plug	**11 lb-ft (15 Nm)**
Camshaft Carrier Bolts	**7 lb-ft (10 Nm)**
Connecting Rod Bolts Step 1 (900)	**9 lb-ft (12 Nm)**
Connecting Rod Bolts Step 2 (900)	**22 lb-ft (30 Nm)**
Connecting Rod Bolts Step 3 (900)	**Additional 90°**
Connecting Rod Bolts (1000)	**Step 1: 9 ft-lbs (12 Nm)** **Step 2: 13 ft-lb (18 Nm)** **Step 3: Tighten add'n 105°**
Lower Crankcase Bolts Step 1 (M10)	**9 lb-ft (12 Nm)**

CHAPTER 3 — ENGINE / COOLING SYSTEM (900/1000)	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Lower Crankcase Bolts Step 2 (M10)	**21 lb-ft (28 Nm)**
Lower Crankcase Bolts Step 3 (M10)	**Additional 90°**
Lower Crankcase Bolts (M8)	**26 lb-ft (35 Nm)**
Lower Crankcase Bolts (M6)	**9 lb-ft (12 Nm)**
Upper Crankcase Bolts (M8)	**26 lb-ft (35 Nm)**
Upper Crankcase Bolts (M6)	**7 lb-ft (10 Nm)**
Oil Pump Mounting Bolts	**7 lb-ft (10 Nm)**
Oil Pump Pick-Up Retaining Screws	**7 lb-ft (10 Nm)**
Oil Sump Cover Bolts (M6)	**9 lb-ft (12 Nm)**
Oil Sump Cover Bolts (M8)	**26 lb-ft (35 Nm)**
Crankcase Drain Plug	**12 lb-ft (16 Nm)**
Oil Cooler Retaining Bolts	**7 lb-ft (10 Nm)**
One Way Clutch Retaining Screws	**9 lb-ft (12 Nm)**
Flywheel Retaining Bolt	**133 lb-ft (180 Nm)**
Stator Cover Screws	**9 lb-ft (12 Nm)**
Cylinder Head Bolts Step 1	**9 lb-ft (12 Nm)**
Cylinder Head Bolts Step 2	**26 lb-ft (35 Nm)**
Cylinder Head Bolts Step 3	**Additional 180°**
Cylinder Head Bolts (M6)	**7 lb-ft (10 Nm)**
Cam Chain Tensioner	**30 lb-ft (40 Nm)**
Camshaft Sprocket Bolts (900)	**11 lb-ft (15 Nm)**
Camshaft Sprocket Bolts (1000)	**14 ft-lb (19 Nm)**

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CHAPTER 3 — ENGINE / COOLING SYSTEM (900/1000)	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Spark Plug (900/1000)	**7 lb-ft (10 Nm)**
Valve Cover Bolts	**7 lb-ft (10 Nm)**
Engine Intake Duct Clamps	**35 lb-in (4 Nm)**
Air Box Fasteners	**8 lb-ft (11 Nm)**
Exhaust Headpipe Mounting Bolts	**18 lb-ft (24 Nm)**
Thermostat Cover Bolts	**7 ± 1 lb-ft (10 ± 1 Nm)**
Coolant Bleed Screw	**7 ± 1 lb-ft (10 ± 1 Nm)**
Water Pump Mounting Bolts	**7 lb-ft (10 Nm)**
Water Pump Impeller Bolt	**7 lb-ft (10 Nm)**
Water Pump Cover Bolts	**7 lb-ft (10 Nm)**

CHAPTER 3 — HVAC	
ITEM	**TORQUE VALUE**
Alternator Mounting Fasteners	**37 lb-ft (50 Nm)**
Alternator Cover Fasteners	**48 lb-in (5.4 Nm)**
Compressor Low Pressure Hose	**25 lb-ft (34 Nm)**
Compressor High Pressure Hose	**18 lb-ft (24 Nm)**
Compressor Mounting Fasteners	**37 lb-ft (50 Nm)**
Compressor Oil Drain Plug	**10 ft-lb (14 Nm)**
HVAC Timing Wheel Fasteners	**9 lb-ft (12 Nm)**
HVAC Cover Mount Fasteners	**9 lb-ft (12 Nm)**
HVAC Drive Pulley Fastener	**44 lb-ft (60 Nm) + 180°**
Upper Condenser Hose	**18 ft-lb (24 Nm)**
Lower Condenser / Receiver-Drier Hose	**12 ft-lb (16 Nm)**

CHAPTER 3 — HVAC	
ITEM	**TORQUE VALUE**
Condenser Upper Mounting Bolt	**14 ft-lb (19 Nm)**
Condenser Lower Mounting Bolts	**8 ft-lb (11 Nm)**
Expansion Valve High / Low Pressure Hoses	**12 ft-lb (16 Nm)**
Expansion Valve Tubes	**22 ft-lb (30 Nm)**
Heater Valve Fasteners	**8 lb-ft (11 Nm)**

CHAPTER 4 — FUEL SYSTEM	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Fuel Tank Bracket Fasteners	**8 lb-ft (11 Nm)**
Fuel Pump PFA Nut	**70 lb-ft (95 Nm)**
ECU Retaining Screws	**24 lb-in (2.7 Nm)**
ETC Housing Retaining Bolts	**7 lb-ft (10 Nm)**
Intake Boot Clamp	**3 lb-ft (4 Nm)**
CPS Retaining Bolt	**9 lb-ft (12 Nm)**
T-MAP Retaining Bolt	**7 lb-ft (10 Nm)**
ECT Sensor	**17 lb-ft (23 Nm)**
Throttle Pedal Assembly Nuts	**18 lb-ft (24 Nm)**
Throttle Pedal Bracket Nuts	**18 lb-ft (24 Nm)**
Fuel Rail Mounting Screws	**7 lb-ft (10 Nm)**
Ignition Coil Retaining Bolt	**8 lb-ft (11 Nm)**

CHAPTER 5 — PVT SYSTEM	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Inner Clutch Cover Bolts	**10 lb-ft (14 Nm)**
Drive Clutch Retaining Bolt (570)	**47 lb-ft (64 Nm)**
Drive Clutch Retaining Bolt (900/1000)	**96 lb-ft (130 Nm)**
Driven Clutch Retaining Bolt	**43 lb-ft (58 Nm)**

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CHAPTER 5 — PVT SYSTEM	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Outer Clutch Cover Retaining Screws	**4 lb-ft (6 Nm)**
PVT Duct Hose Clamps	**3 lb-ft (4 Nm)**
Grease Zerk Fitting	**4 lb-ft (6 Nm)**
Airbox Mounting Screws	**8 lb-ft (11 Nm)**
Shift Weight Nuts	**20 lb-in (2.3 Nm)**
Drive Clutch Spider	**290 lb-ft (393 Nm)**
Drive Clutch Jam Nut	**250 lb-ft (339 Nm)**
Drive Clutch Cover Bolts	**9 lb-ft (12 Nm)**
Driven Clutch Retaining Ring Bolts	**9–12 lb-ft (12–16 Nm)**
Driven Clutch Torx Screws	**48 lb-in (5 Nm)**

CHAPTER 6 — TRANSMISSION	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Engine / Transmission Mounting Bolts Step 1–2	**64 lb-ft (87 Nm)**
Engine / Transmission Mounting Bolts Step 3	**5 lb-ft (7 Nm)**
Engine / Transmission Mounting Bolts Step 4–7	**44 lb-ft (60 Nm)**
Rear Transmission Mount Bolt	**40 lb-ft (54 Nm)**
Intake Plenum Hose Clamps	**17 lb-in (2 Nm)**
Lower Intake Plenum Fastener	**22 lb-ft (30 Nm)**
Differential Cover Screws	**18–22 lb-ft (24–30 Nm)**
Bearing Cover Retaining Screws	**8–10 lb-ft (11–14 Nm)**
Snorkel Locking Screw	**8–10 lb-ft (11–14 Nm)**
Shift Fork Screws	**17 lb-ft (23 Nm)**
Transmission Case Bolts	**15–20 lb-ft (20–27 Nm)**
Sector Cover Bolts	**9–12 lb-ft (12–16 Nm)**

CHAPTER 6 — TRANSMISSION	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Transmission Fill / Drain Plug	**10-14 lb-ft (14-19 Nm)**
Bellcrank Nut	**12–18 lb-ft (16–24 Nm)**

CHAPTER 7 — FINAL DRIVE	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Ball Joint Pinch Bolts	**42 lb-ft (57 Nm)**
Tie Rod End Fastener	**40 lb-ft (54 Nm)**
Front Caliper Mounting Bolts	**30 lb-ft (41 Nm)**
Front Wheel Hub Castle Nuts	**80 lb-ft (108 Nm)**
Wheel Nuts (Steel Wheels)	**60 lb-ft (81 Nm)**
Wheel Nuts (Cast Aluminum Wheels)	**120 lb-ft (163 Nm)**
Flex Bearing Mounting Fasteners	**40 lb-ft (54 Nm)**
Front Gearcase Cover Plate Screws	**7–11 lb-ft (10–15 Nm)**
Front Gearcase Mounting Bolts	**30 lb-ft (41 Nm)**
Bearing Carrier Fasteners	**40 lb-ft (54 Nm)**
Rear Wheel Hub Castle Nuts	**110 lb-ft (149 Nm)**
Rear Caliper Mounting Bolts	**46 lb-ft (62 Nm)**

CHAPTER 8 — STEERING / SUSPENSION	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Steering Gear Box Pinch Bolt	**35 lb-ft (47 Nm)**
Steering Wheel Tilt Assembly Fasteners	**40 lb-ft (54 Nm)**
Steering Wheel Nut	**65 lb-ft (88 Nm)**
EPS Unit Mount Bolts	**30 lb-ft (41 Nm)**
EPS Unit Frame Bolts	**14 lb-ft (19 Nm)**

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CHAPTER 8 — STEERING / SUSPENSION	
PART DESCRIPTION	**TORQUE SPECIFICATION**
EPS Unit Pinch Bolts	**15 lb-ft (20 Nm)**
Tie Rod Jam Nut	**13 lb-ft (18 Nm)**
Shock Mounting Bolts	**40 lb-ft (54 Nm)**
Lower A-Arm Fasteners	**40 lb-ft (54 Nm)**
Ball Joint Pinch Bolts	**42 lb-ft (57 Nm)**
Wheel Nuts (Steel Wheels)	**60 lb-ft (81 Nm)**
Wheel Nuts (Cast Aluminum Wheels)	**120 lb-ft (163 Nm)**
Upper A-Arm Fasteners	**40 lb-ft (54 Nm)**
Front Caliper Mounting Bolts	**30 lb-ft (41 Nm)**
Stabilizer Bar Fasteners	**17 lb-ft (23 Nm)**

CHAPTER 9 — BRAKE SYSTEM	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Caliper Bleed Screws	**47 lb-in (5.3 Nm)**
Brake Line Banjo Bolts	**15 lb-ft (20 Nm)**
Master Cylinder Mounting Bolts	**23 lb-ft (31 Nm)**
Brake Pedal Mount Bracket Nuts	**18 lb-ft (24 Nm)**
Front Caliper Mounting Bolts	**30 lb-ft (41 Nm)**
Wheel Nuts (Steel Wheels)	**60 lb-ft (81 Nm)**
Wheel Nuts (Cast Aluminum Wheels)	**120 lb-ft (163 Nm)**
Front Brake Disc Mounting Bolts	**18 lb-ft (24 Nm)**
Front Wheel Hub Castle Nuts	**80 lb-ft (108 Nm)**
Rear Caliper Mounting Bolts	**46 lb-ft (62 Nm)**
Rear Brake Disc Mounting Bolts	**28 lb-ft (38 Nm)**
Rear Wheel Hub Castle Nuts	**110 lb-ft (149 Nm)**

CHAPTER 10 — BODY / FRAME	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Half Door Hinge to Frame Fasteners	**8 lb-ft (10 Nm)**
Half Door Hinge Fasteners	**14 lb-ft (19 Nm)**
Full Door Hinge Fasteners	**17 lb-ft (23 Nm)**
Heater Mounting Fasteners	**6–8 lb-ft (8–10 Nm)**
Roof Fasteners	**12–15 lb-in (1.35–1.7 Nm)**
Windshield Mount Fasteners	**15 lb-ft (20 Nm)**
Tip Out Windshield Mount Fasteners	**20 lb-ft (27 Nm)**
Wiper Motor Shaft Fastener	**15 lb-ft (20 Nm)**
Wiper Arm Fastener	**10 lb-ft (14 Nm)**
Cargo Box Hinge Fasteners	**14 lb-ft (19 Nm)**
Front Brushguard Fasteners	**30 lb-ft (41 Nm)**
Rear Brushguard Fasteners	**12 lb-ft (16 Nm)**
Nerf Bar Fasteners	**12–15 lb-ft (16–20 Nm)**
Winch Fasteners	**25 lb-ft (34 Nm)**

CHAPTER 11 — ELECTRICAL	
PART DESCRIPTION	**TORQUE SPECIFICATION**
Terminal Block Nuts	**20-25 lb-in (2.3-2.8 Nm)**
Starter Motor Fasteners	**7 lb-ft (10 Nm)**
Thermostat Cover Bolts	**7 ± 1 lb-ft (10 ± 1 Nm)**

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VEHICLE IDENTIFICATION

MODEL NUMBER DESIGNATION

Example: A15SEA57AD

GROUP	MODEL YEAR		MAKE / CHASSIS CODE			ENGINE CODE		REGION	OPTION
1st	2nd	3rd	4th*	5th*	6th*	7th*	8th*	9th	10th**
A	1	5	S	E	A	5	7	A	D

* = digits that would transfer to 17 digit VIN and are used in digits 4-8 respectively
** = 10th digit will be used on color/featured versions of models (not including the base)
First 3 digits and 10th digit are used in model number only. They are not used with the 17 digit VIN.
Digits 1 through 8 determine Digital Wrench calibration.

ENGINE DESIGNATION NUMBER

570 MODELS: 1204971 - 17 567cc Single Cylinder, Liquid Cooled, 4-Stroke DOHC, Electric Start

900 MODELS: 1204847- 17 875 cc Twin Cylinder, Liquid Cooled, 4-Stroke DOHC, Electric Start

1000 MODELS: 1205197- 17 999 cc Twin Cylinder, Liquid Cooled, 4-Stroke DOHC, Electric Start

VEHICLE IDENTIFICATION NUMBER (VIN) DESIGNATION

Example: 4XASEA570F3000000

WORLD MFG. ID			VEHICLE DESCRIPTORS						VEHICLE IDENTIFIERS							
			MAKE / CHASSIS		CATEGORY	ENGINE SIZE	ENGINE MODIFIER	CHECK DIGIT	MODEL YEAR *	MFG. LOCATION	INDIVIDUAL SERIAL NO.					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
4	X	A	S	E	A	5	7	0	F	3	0	0	0	0	0	0
* Model Year: A = 2010; B = 2011; C = 2012; D = 2013; E = 2014; F = 2015; G = 2016; H = 2017																

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VEHICLE AND ENGINE SERIAL NUMBER LOCATIONS

Whenever corresponding about a Polaris *RANGER* utility vehicle, be sure to refer to the vehicle identification number (VIN) and the engine model number and serial number.

VEHICLE IDENTIFICATION NUMBER (VIN)

The VIN can be found stamped on a portion of the upper left frame rail above the airbox.

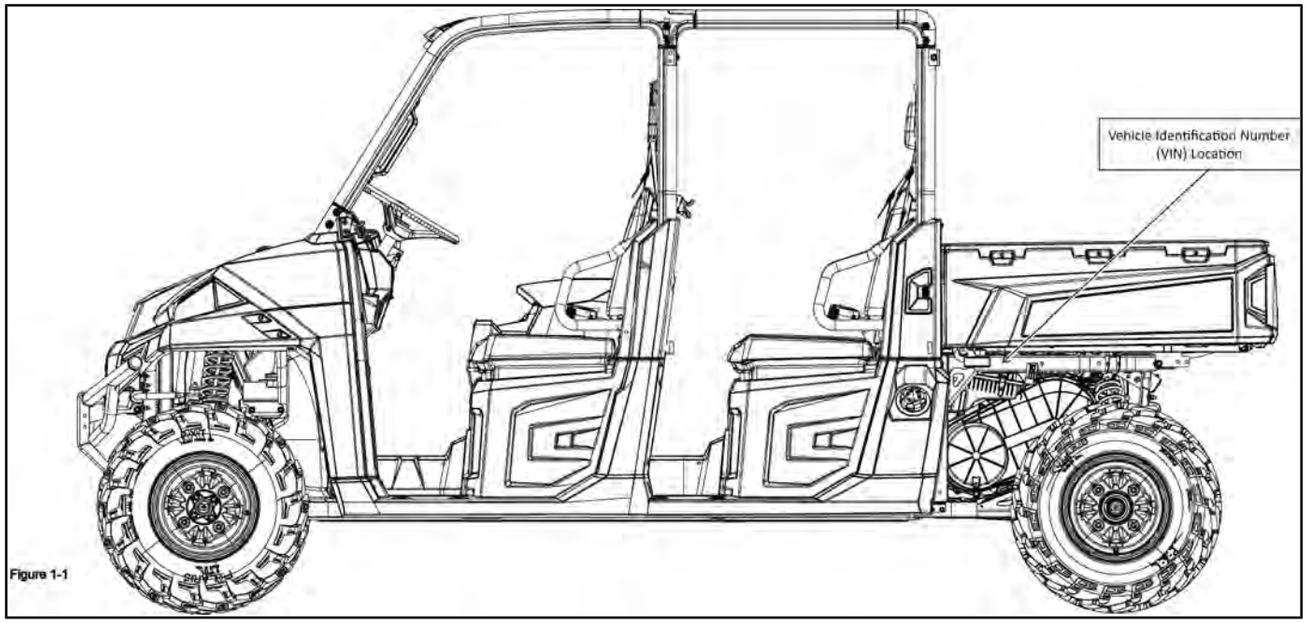
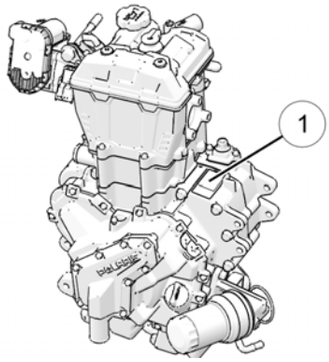
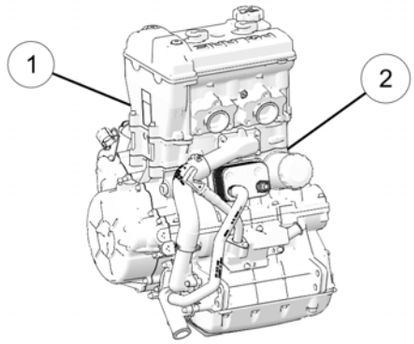


Figure 1-1

ENGINE SERIAL NUMBER

570 Models: The engine model and serial number ① can be found on a decal applied to the engine's magneto cover.

900 / 1000 Models: The engine model and serial number can be found on a decal applied to the MAG side of the cylinder head ① or stamped into the crankcase on the PTO side of the engine ②. Refer to Figure 1-2.

570 Models	900 / 1000 Models
	

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VEHICLE SPECIFICATIONS

2015-2016 *RANGER* XP 570 / EPS OVERVIEW

CATEGORY	DIMENSION / CAPACITY
Length	116.6 in / 296.2 cm
Width (cargo box)	60 in / 152.4 cm
Width (tires)	58 in / 147.3 cm
Height	76 in / 193 cm
Wheel Base	81 in / 205.7 cm
Ground Clearance	12 in / 30.5 cm
Turning Radius	161 in / 409 cm
Dry Weight	1360 lb / 617 kg
Cargo Box Capacity	*49-State:* 1000 lb / 454 kg *50-State:* 600 lb / 272 kg
Cargo Box Dimensions (inside dimensions)	36 x 50 x 11.5 in (91 x 127 x 29 cm)
Vehicle Payload (includes weight of riders, cargo and accessories)	*49-State:* 1500 lb / 681 kg *50-State:* 1100 lb / 499 kg
Hitch Towing Capacity	2000 lb / 907 kg
Hitch Tongue Capacity	150 lb / 68 kg





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2015-2016 RANGER XP 570 / EPS SPECIFICATIONS

ENGINE	
Platform	Liquid Cooled, 4-Stroke DOHC, Electric Start
Engine Displacement	34.6 ci (567 cc)
Number of Cylinders	1
Bore & Stroke (mm)	3.898 x 2.898 in (99 x 73.6 mm)
Compression Ratio	10:1
Compression Pressure	80-120 psi (552–827 kPa) (compression release)
Engine Idle Speed	1200 ± 100 RPM
Engine Max Operating RPM	7750 RPM
Lubrication	Wet Sump
Oil Requirements	PS4 2W-50 synthetic
Oil Capacity	2 Qt (1.9 L)
Coolant Capacity	5 Qt (4.7 L)
Exhaust System	Single Headpipe / Single Silencer
FUEL SYSTEM	
Fuel System Type	Bosch ME17 EFI
Fuel Delivery	Electronic Fuel Pump (in tank)
Fuel Pressure	58 ± 2 psi (400 ± 14 kPa)
Fuel Capacity	10 Gal (37.8 L)
Fuel Requirement	87 Octane (minimum)
ELECTRICAL	
Alternator Rated Output	650 Watts @ 7000 RPM
Headlights	Halogen: Low 55W / High 60W x 2
Tail Lights	LED (10): 0.2 Watts x 2
Brake Lights	LED (10): 2.9 Watts x 2
Ignition System	Bosch ME17 (ECU Controlled)
Spark Plug Gap	0.0315 in (0.8 mm)
Battery	Johnson Controls / 575 CCA / 12V
DC Outlets	(2) - Standard 12 Volt
Relays *Not in Fuse/Relay Box	Chassis / EFI / Fan / Fuel Pump / EPS (OPT) / Rear Diff Solenoid*
Circuit Breaker	20 Amp: Fan Motor
Fuses *Not in Fuse/Relay Box	10 Amp: Brake Lights:, Drive, Fuel Pump 20 Amp: Accessory, ECM, Lights 30 Amp: EPS (OPT)*

DRIVETRAIN	
Transmission Type	Polaris Automatic PVT
Transmission Gear Ratio: High Low Reverse	 Front: 4.541:1 / Rear: 13.579:1 Front: 9.646:1 / Rear: 28.839:1 Front: 8.638:1 / Rear: 25.826:1
Front Gearcase Lubricant Requirements	Demand Drive Fluid 6.7–7.6 oz (200–225 mL)
Transmission Lubricant Requirements	Full Synthetic AGL 33.8 oz (1000 mL)
Clutch (PVT) Type	Drive: Polaris, Basic, Non-Braking Bearing
	Driven: Team Rapid Reaction
Clutch Center Distance	10.5 in (26.7 cm)
STEERING / SUSPENSION	
Toe Out	1/8 - 1/4 in (3.2 - 6.35 mm)
Front Suspension	Dual A-arm
Front Travel	10 in (25.4 cm)
Rear Suspension	Independent (IRS)
Rear Travel	10 in (25.4 cm)
WHEELS / BRAKES	
Front Wheel Size / Type	12 x 6 / Steel 12 x 6 / Cast Aluminum
Rear Wheel Size / Type	12 x 8 / Steel 12 x 8 / Cast Aluminum
Front Tire Make / Model / Size	Carlisle / AT489 / 25 x 10 R12 Carlisle / PXT / 26 x 9 R12
Rear Tire Make / Model / Size	Carlisle / AT489 / 25 x 11 R12 Carlisle / PXT / 26 x 11 R12
Tire Air Pressure	Front: 10 psi (69 kPa)
	Rear: 12 psi (83 kPa)
Brake System	4 Wheel Hydraulic Disc
Brake Fluid	DOT 4

For the clutch chart, see **“Clutch Chart”, page 1.42**

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2015-2016 *RANGER* XP CREW 570 / EPS OVERVIEW

CATEGORY	DIMENSION / CAPACITY
Length	148 in / 376 cm
Width (cargo box)	60 in / 152.4 cm
Width (tires)	58 in / 147.3 cm
Height	76 in / 193 cm
Wheel Base	113 in / 287 cm
Ground Clearance	12 in / 30.5 cm
Turning Radius	214 in / 543.5 cm
Dry Weight	1570 lb / 712 kg
Cargo Box Capacity	*49-State:* 1000 lb / 454 kg *50-State:* 600 lb / 272 kg
Cargo Box Dimensions (inside dimensions)	36 x 50 x 11.5 in (91 x 127 x 29 cm)
Vehicle Payload (includes weight of riders, cargo and accessories)	*49-State:* 1750 lb / 759 kg *50-State:* 1350 lb / 712 kg
Hitch Towing Capacity	2000 lb / 907 kg
Hitch Tongue Capacity	150 lb / 68 kg





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2015-2016 RANGER XP CREW 570 / EPS SPECIFICATIONS

ENGINE	
Platform	Liquid Cooled, 4-Stroke DOHC, Electric Start
Engine Displacement	34.6 ci (567 cc)
Number of Cylinders	1
Bore & Stroke (mm)	3.898 x 2.898 in (99 x 73.6 mm)
Compression Ratio	10:1
Compression Pressure	80-120 psi (552–827 kPa) (compression release)
Engine Idle Speed	1200 ± 100 RPM
Engine Max Operating RPM	7750 RPM
Lubrication	Wet Sump
Oil Requirements	PS4 2W-50 synthetic
Oil Capacity	2 Qt (1.9 L)
Coolant Capacity	5.8 Qt (5.5 L)
Exhaust System	Single Headpipe / Single Silencer
FUEL SYSTEM	
Fuel System Type	Bosch ME17 EFI
Fuel Delivery	Electronic Fuel Pump (in tank)
Fuel Pressure	58 ± 2 psi (400 ± 14 kPa)
Fuel Capacity	10 Gal (37.8 L)
Fuel Requirement	87 Octane (minimum)
ELECTRICAL	
Alternator Rated Output	650 Watts @ 7000 RPM
Headlights	Halogen: Low 55W / High 60W x 2
Tail Lights	LED (10): 0.2 Watts x 2
Brake Lights	LED (10): 2.9 Watts x 2
Ignition System	Bosch ME17 (ECU Controlled)
Spark Plug Gap	0.0315 in. (0.8 mm)
Battery	Johnson Controls / 575 CCA / 12V
DC Outlets	(2) - Standard 12 Volt
Relays *Not in Fuse/Relay Box	Chassis / EFI / Fan / Fuel Pump / EPS (OPT) / Rear Diff Solenoid*
Circuit Breaker	20 Amp: Fan Motor
Fuses *Not in Fuse/Relay Box	10 Amp: Brake Lights:, Drive, Fuel Pump 20 Amp: Accessory, ECM, Lights 30 Amp: EPS (OPT)*

DRIVETRAIN	
Transmission Type	Polaris Automatic PVT
Transmission Gear Ratio: High Low Reverse	 Front: 4.541:1 / Rear: 13.579:1 Front: 9.646:1 / Rear: 28.839:1 Front: 8.638:1 / Rear: 25.826:1
Front Gearcase Lubricant Requirements	Demand Drive Fluid 6.7–7.6 oz (200–225 mL)
Transmission Lubricant Requirements	Full Synthetic AGL 33.8 oz (1000 mL)
Clutch (PVT) Type	Drive: Polaris, Basic, Non-Braking Bearing
	Driven: Team Rapid Reaction
Clutch Center Distance	10.5 in (26.7 cm)
STEERING / SUSPENSION	
Toe Out	1/8 - 1/4 in (3.2 - 6.35 mm)
Front Suspension	Dual A-arm
Front Travel	10 in (25.4 cm)
Rear Suspension	Independent (IRS)
Rear Travel	10 in (25.4 cm)
WHEELS / BRAKES	
Front Wheel Size / Type	12 x 6 / Steel 12 x 6 / Cast Aluminum
Rear Wheel Size / Type	12 x 8 / Steel 12 x 8 / Cast Aluminum
Front Tire Make / Model / Size	Carlisle / AT489 / 25 x 10 R12 Carlisle / PXT / 26 x 9 R12
Rear Tire Make / Model / Size	Carlisle / AT489 / 25 x 11 R12 Carlisle / PXT / 26 x 11 R12
Tire Air Pressure	Front: 14 psi (97 kPa)
	Rear: 16 psi (110 kPa)
Brake System	4 Wheel Hydraulic Disc
Brake Fluid	DOT 4

For the clutch chart, see **“Clutch Chart”, page 1.42**

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2015-2017 *RANGER* XP 900 / EPS OVERVIEW

CATEGORY	DIMENSION / CAPACITY
Length	116 in / 295 cm
Width (cargo box)	60 in / 152.4 cm
Width (tires)	58 in / 147.3 cm
Height	76 in / 193 cm
Wheel Base	81 in / 205.7 cm
Ground Clearance	12 in / 30.5 cm
Turning Radius	161 in / 409 cm
Dry Weight	1360 lb / 617 kg
Cargo Box Capacity	*49-State:* 1000 lb / 454 kg *50-State:* 600 lb / 272 kg
Cargo Box Dimensions (inside dimensions)	36.5 x 54 x 11.5 in (93 x 137 x 29 cm)
Vehicle Payload (includes weight of riders, cargo and accessories)	*49-State:* 1500 lb / 681 kg *50-State:* 1100 lb / 499 kg
Hitch Towing Capacity	2000 lb / 907 kg
Hitch Tongue Capacity	150 lb / 68 kg





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2015-2017 *RANGER* XP 900 / EPS SPECIFICATIONS

ENGINE	
Platform	4-Stroke DOHC Twin Cylinder, Liquid Cooled, Electric Start
Engine Displacement	875 cc
Number of Cylinders	2
Bore & Stroke (mm)	93 x 64.4 mm
Engine Idle Speed	1250 ± 50 RPM
Engine Max Operating RPM	7250 RPM
Lubrication	Wet Sump
Oil Requirements	PS-4 or PS-4 Extreme Duty
Oil Capacity	2.5 Qt (2.4 L)
Coolant Capacity	5 Qt (4.7 L)
Exhaust System	2 to 1 Headpipe / Single Silencer
FUEL SYSTEM	
Fuel System Type	Bosch ME17 EFI
Fuel Delivery	Electronic Fuel Pump (in tank)
Fuel Pressure	58 +/- 2 psi (400 +/- 14 kPa)
Fuel Capacity	10 Gal (37.8 L)
Fuel Requirement	87 Octane (minimum)
ELECTRICAL	
Alternator Rated Output	660 Watts @ 3000 RPM
Headlights	Halogen: Low 55W / High 60W x 2
Tail Lights	L.E.D. (10): 0.2 Watts x 2
Brake Lights	L.E.D. (10): 2.9 Watts x 2
Ignition System	Bosch ME17 (ECU Controlled)
Spark Plug Gap	0.030 in. (0.75 mm)
Battery	Johnson Controls / 575 CCA / 12V
DC Outlets	(2) - Standard 12 Volt
Relays *Not in Fuse/Relay Box	Chassis / EFI / Fan / Fuel Pump EPS (OPT) / Rear Diff Solenoid*
Circuit Breaker	20 Amp: Fan Motor
Fuses *Not in Fuse/Relay Box	10 Amp: Brake Lights:, Drive, Fuel Pump 20 Amp: Accessory, ECM, Lights 30 Amp: EPS (OPT)*

DRIVETRAIN	
Transmission Type	Polaris Automatic PVT
Transmission Gear Ratio: High Low Reverse	 Front: 3.48:1 / Rear: 10.40:1 Front: 8.56:1 / Rear: 25.59:1 Front: 7.67:1 / Rear: 22.92:1
Front Gearcase Lubricant Requirements	Demand Drive Fluid 6.75 oz (200 mL)
Transmission Lubricant Requirements	AGL 41 oz (1200 mL)
Clutch (PVT) Type	Drive: Polaris, Basic, Non-Braking Bearing
	Driven: Team Rapid Reaction
Clutch Center Distance	10.5 in (26.7 cm)
STEERING / SUSPENSION	
Toe Out	1/8 - 1/4 in (3.2 - 6.35 mm)
Front Suspension	Dual A-arm
Front Travel	10 in (25.4 cm)
Rear Suspension	Independent (IRS)
Rear Travel	10 in (25.4 cm)
WHEELS / BRAKES	
Front Wheel Size / Type	12 x 6 / Steel 12 x 6 / Cast Aluminum
Rear Wheel Size / Type	12 x 8 / Steel 12 x 8 / Cast Aluminum
Front Tire Make / Model / Size	Carlisle / AT489 / 25 x 10 R12 Carlisle / PXT / 26 x 9 R12
Rear Tire Make / Model / Size	Carlisle / AT489 / 25 x 11 R12 Carlisle / PXT / 26 x 11 R12
Tire Air Pressure	Front: 10 psi (69 kPa) Front: 12 psi (83 kPa) (Hunter/ NorthStar/Trail)
	Rear: 12 psi (83 kPa)
Brake System	4 Wheel Hydraulic Disc
Brake Fluid	DOT 4

For the clutch chart, see **“Clutch Chart”, page 1.42** .

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2015-2017 *RANGER* CREW XP 900 / EPS OVERVIEW

CATEGORY	DIMENSION / CAPACITY
Length	148 in / 376 cm
Width (cargo box)	60 in / 152.4 cm
Width (tires)	58 in / 147.3 cm
Height	76 in / 193 cm
Wheel Base	113 in / 287 cm
Ground Clearance	12 in / 30.5 cm
Turning Radius	214 in / 543.5 cm
Dry Weight	1570 lb / 712 kg
Cargo Box Capacity	*49-State:* 1000 lb / 454 kg *50-State:* 600 lb / 272 kg
Cargo Box Dimensions (inside dimensions)	36 x 50 x 11.5 in (91 x 127 x 29 cm)
Vehicle Payload (includes weight of operator, passenger, cargo and accessories)	*49-State:* 1750 lb / 759 kg *50-State:* 1350 lb / 712 kg
Hitch Towing Capacity	2000 lb / 907 kg
Hitch Tongue Capacity	150 lb / 68 kg





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2015-2017 *RANGER* CREW XP 900 / EPS SPECIFICATIONS

ENGINE	
Platform	4-Stroke DOHC Twin Cylinder, Liquid Cooled, Electric Start
Engine Displacement	875 cc
Number of Cylinders	2
Bore & Stroke (mm)	93 x 64.4 mm
Engine Idle Speed	1250 ± 50 RPM
Engine Max Operating RPM	7250 RPM
Lubrication	Wet Sump
Oil Requirements	PS-4 or PS-4 Extreme Duty
Oil Capacity	2.5 Qt (2.4 L)
Coolant Capacity	5.8 Qt (5.5 L)
Exhaust System	2 to 1 Headpipe / Single Silencer
FUEL SYSTEM	
Fuel System Type	Bosch ME17 EFI
Fuel Delivery	Electronic Fuel Pump (in tank)
Fuel Pressure	58 +/- 2 psi (400 +/- 14 kPa)
Fuel Capacity	10 Gal (37.8 L)
Fuel Requirement	87 Octane (minimum)
ELECTRICAL	
Alternator Rated Output	660 Watts @ 3000 RPM
Headlights	Halogen: Low 55W / High 60W x 2
Tail Lights	L.E.D. (10): 0.2 Watts x 2
Brake Lights	L.E.D. (10): 2.9 Watts x 2
Ignition System	Bosch ME17 (ECU Controlled)
Spark Plug Gap	0.030 in. (0.75 mm)
Battery	Johnson Controls / 575 CCA / 12V
DC Outlets	(2) - Standard 12 Volt
Relays *Not in Fuse/Relay Box	Chassis / EFI / Fan / Fuel Pump EPS (OPT) / Rear Diff Solenoid*
Circuit Breaker	20 Amp: Fan Motor
Fuses *Not in Fuse/Relay Box	10 Amp: Brake Lights:, Drive, Fuel Pump 20 Amp: Accessory, ECM, Lights 30 Amp: EPS (OPT)*

DRIVETRAIN	
Transmission Type	Polaris Automatic PVT
Transmission Gear Ratio: High Low Reverse	 Front: 3.48:1 / Rear: 10.40:1 Front: 8.56:1 / Rear: 25.59:1 Front: 7.67:1 / Rear: 22.92:1
Front Gearcase Lubricant Requirements	Demand Drive Fluid 6.75 oz (200 mL)
Transmission Lubricant Requirements	AGL 41 oz (1200 mL)
Clutch (PVT) Type	Drive: Polaris, Basic, Non-Braking Bearing
	Driven: Team Rapid Reaction
Clutch Center Distance	10.5 in (26.7 cm)
STEERING / SUSPENSION	
Toe Out	1/8 - 1/4 in (3.2 - 6.35 mm)
Front Suspension	Dual A-arm
Front Travel	10 in (25.4 cm)
Rear Suspension	Independent (IRS)
Rear Travel	10 in (25.4 cm)
WHEELS / BRAKES	
Front Wheel Size / Type	12 x 6 / Steel 12 x 6 / Cast Aluminum
Rear Wheel Size / Type	12 x 8 / Steel 12 x 8 / Cast Aluminum
Front Tire Make / Model / Size	Carlisle / AT489 / 25 x 10 R12 Carlisle / PXT / 26 x 9 R12
Rear Tire Make / Model / Size	Carlisle / AT489 / 25 x 11 R12 Carlisle / PXT / 26 x 11 R12
Tire Air Pressure	Front: 14 psi (97 kPa)
	Rear: 16 psi (110 kPa)
Brake System	4 Wheel Hydraulic Disc
Brake Fluid	DOT 4

For the clutch chart, see **“Clutch Chart”, page 1.42**.

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2016 *RANGER* XP 900 HIGH LIFTER OVERVIEW

CATEGORY	DIMENSION / CAPACITY
Length	123 in / 312cm
Width (cargo box)	60 in / 152.4 cm
Width (tires)	66.5 in / 169 cm
Height	77 in / 195.6 cm
Wheel Base	83 in / 210.8 cm
Ground Clearance	13 in / 33 cm
Turning Radius	161 in / 409 cm
Dry Weight	1562 lb / 709 kg
Cargo Box Capacity	*49-State:* 1000 lb / 454 kg *50-State:* 600 lb / 272 kg
Cargo Box Dimensions (inside dimensions)	36.5 x 54 x 11.5 in (93 x 137 x 29 cm)
Vehicle Payload (includes weight of riders, cargo and accessories)	*49-State:* 1500 lb / 681 kg *50-State:* 1100 lb / 499 kg
Hitch Towing Capacity	2000 lb / 907 kg
Hitch Tongue Capacity	150 lb / 68 kg





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2016 *RANGER* XP 900 HIGH LIFTER SPECIFICATIONS

ENGINE	
Platform	4-Stroke DOHC Twin Cylinder, Liquid Cooled, Electric Start
Engine Displacement	875 cc
Number of Cylinders	2
Bore & Stroke (mm)	93 x 64.4 mm
Engine Idle Speed	1250 ± 50 RPM
Engine Max Operating RPM	7250 RPM
Lubrication	Wet Sump
Oil Requirements	PS-4 or PS-4 Extreme Duty
Oil Capacity	2.5 Qt (2.4 L)
Coolant Capacity	5 Qt (4.7 L)
Exhaust System	2 to 1 Headpipe / Single Silencer
FUEL SYSTEM	
Fuel System Type	Bosch ME17 EFI
Fuel Delivery	Electronic Fuel Pump (in tank)
Fuel Pressure	58 +/- 2 psi (400 +/- 14 kPa)
Fuel Capacity	10 Gal (37.8 L)
Fuel Requirement	87 Octane (minimum)
ELECTRICAL	
Alternator Rated Output	660 Watts @ 3000 RPM
Headlights	Halogen: Low 55W / High 60W x 2
Tail Lights	L.E.D. (10): 0.2 Watts x 2
Brake Lights	L.E.D. (10): 2.9 Watts x 2
Ignition System	Bosch ME17 (ECU Controlled)
Spark Plug Gap	0.030 in. (0.75 mm)
Battery	Johnson Controls / 575 CCA / 12V
DC Outlets	(2) - Standard 12 Volt
Relays *Not in Fuse/Relay Box	Chassis / EFI / Fan / Fuel Pump EPS (OPT) / Rear Diff Solenoid*
Circuit Breaker	20 Amp: Fan Motor
Fuses *Not in Fuse/Relay Box	10 Amp: Brake Lights:, Drive, Fuel Pump 20 Amp: Accessory, ECM, Lights 30 Amp: EPS (OPT)*

DRIVETRAIN	
Transmission Type	Polaris Automatic PVT
Transmission Gear Ratio: High Low Reverse	 Front: 4.03:1 / Rear: 12.05:1 Front: 8.56:1 / Rear: 25.59:1 Front: 7.67:1 / Rear: 22.92:1
Front Gearcase Lubricant Requirements	Demand Drive Fluid 6.75 oz (200 mL)
Transmission Lubricant Requirements	AGL 41 oz (1200 mL)
Clutch (PVT) Type	Drive: Polaris, Basic, Non-Braking Bearing
	Driven: Team Rapid Reaction
Clutch Center Distance	10.5 in (26.7 cm)
STEERING / SUSPENSION	
Toe Out	1/8 - 1/4 in (3.2 - 6.35 mm)
Front Suspension	Dual A-arm
Front Travel	8 in (20.3 cm)
Rear Suspension	Independent (IRS)
Rear Travel	8.8 in (22.4 cm)
WHEELS / BRAKES	
Front Wheel Size / Type	14 x 7 / Cast Aluminum
Rear Wheel Size / Type	14 x 8 / Cast Aluminum
Front Tire Make / Model / Size	High Lifter Outlaw² / 28 x 9.5 R14
Rear Tire Make / Model / Size	High Lifter Outlaw² / 28 x 11 R14
Tire Air Pressure	Front: 10 psi (69 kPa)
	Rear: 12 psi (83 kPa)
Brake System	4 Wheel Hydraulic Disc
Brake Fluid	DOT 4

For the clutch chart, see **“Clutch Chart”, page 1.42**

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2017 *RANGER* XP 1000 / EPS OVERVIEW

CATEGORY	DIMENSION / CAPACITY
Length	116 in / 295 cm
Width (cargo box)	60 in / 152.4 cm
Width (tires)	58 in / 147.3 cm
Height	76 in / 193 cm
Wheel Base	81 in / 205.7 cm
Ground Clearance	12 in / 30.5 cm
Turning Radius	161 in / 409 cm
Dry Weight	1360 lb / 617 kg
Cargo Box Capacity	*49-State:* 1000 lb / 454 kg *50-State:* 600 lb / 272 kg
Cargo Box Dimensions (inside dimensions)	36.5 x 54 x 11.5 in (93 x 137 x 29 cm)
Vehicle Payload (includes weight of riders, cargo and accessories)	*49-State:* 1500 lb / 681 kg *50-State:* 1100 lb / 499 kg
Hitch Towing Capacity	2000 lb / 907 kg
Hitch Tongue Capacity	150 lb / 68 kg





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2017 *RANGER* XP 1000 / EPS SPECIFICATIONS

ENGINE	
Platform	4-Stroke DOHC Twin Cylinder, Liquid Cooled, Electric Start
Engine Displacement	999 cc
Number of Cylinders	2
Bore & Stroke (mm)	93 x 73.5 mm
Engine Idle Speed	1200 ± 100 RPM
Engine Max Operating RPM	8000 RPM
Lubrication	Wet Sump
Oil Requirements	PS-4 or PS-4 Extreme Duty
Oil Capacity	2.5 Qt (2.4 L)
Coolant Capacity	5.44 Qt (5.1 L)
Exhaust System	2 to 1 Headpipe / Single Silencer
FUEL SYSTEM	
Fuel System Type	Bosch ME17 EFI
Fuel Delivery	Electronic Fuel Pump (in tank)
Fuel Pressure	58 ± 2 psi (400 ± 14 kPa)
Fuel Capacity	10 Gal (37.8 L)
Fuel Requirement	87 Octane (minimum)
ELECTRICAL	
Alternator Rated Output	660 Watts @ 3000 RPM
Headlights	Halogen: Low 55W / High 60W x 2
Tail Lights	L.E.D. (10): 0.2 Watts x 2
Brake Lights	L.E.D. (10): 2.9 Watts x 2
Ignition System	Bosch ME17 (ECU Controlled)
Spark Plug Gap	0.030 in. (0.75 mm)
Battery	Johnson Controls / 575 CCA / 12V
DC Outlets	(2) - Standard 12 Volt
Relays *Not in Fuse/Relay Box	Chassis / EFI / Fan / Fuel Pump EPS (OPT) / Rear Diff Solenoid*
Circuit Breaker	20 Amp: Fan Motor
Fuses *Not in Fuse/Relay Box	10 Amp: Brake Lights:, Drive, Fuel Pump 20 Amp: Accessory, ECM, Lights 30 Amp: EPS (OPT)*

DRIVETRAIN	
Transmission Type	Polaris Automatic PVT
Transmission Gear Ratio: High Low Reverse	 Front: 3.48:1 / Rear: 10.73:1 Front: 8.56:1 / Rear: 25.79:1 Front: 7.67:1 / Rear: 20.41:1
Front Gearcase Lubricant Requirements	Demand Drive Fluid 6.75 oz (200 mL)
Transmission Lubricant Requirements	AGL 41 oz (1200 mL)
Clutch (PVT) Type	Drive: Polaris, Basic, Non-Braking Bearing
	Driven: Team Rapid Reaction
Clutch Center Distance	10.5 in (26.7 cm)
STEERING / SUSPENSION	
Toe Out	1/8 - 1/4 in (3.2 - 6.35 mm)
Front Suspension	Dual A-arm
Front Travel	10 in (25.4 cm)
Rear Suspension	Independent (IRS)
Rear Travel	10 in (25.4 cm)
WHEELS / BRAKES	
Front Wheel Size / Type	12 x 6 / Steel 12 x 6 / Cast Aluminum
Rear Wheel Size / Type	12 x 8 / Steel 12 x 8 / Cast Aluminum
Front Tire Make / Model / Size	Carlisle / AT489 / 25 x 10 R12 Carlisle / PXT / 26 x 9 R12
Rear Tire Make / Model / Size	Carlisle / AT489 / 25 x 11 R12 Carlisle / PXT / 26 x 11 R12
Tire Air Pressure	Front: 10 psi (69 kPa)
	Rear: 12 psi (83 kPa)
Brake System	4 Wheel Hydraulic Disc
Brake Fluid	DOT 4

For the clutch chart, see **“Clutch Chart”, page 1.42**

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2017 *RANGER* CREW XP 1000 / EPS OVERVIEW

CATEGORY	DIMENSION / CAPACITY
Length	148 in / 376 cm
Width (cargo box)	60 in / 152.4 cm
Width (tires)	58 in / 147.3 cm
Height	76 in / 193 cm
Wheel Base	113 in / 287 cm
Ground Clearance	12 in / 30.5 cm
Turning Radius	214 in / 543.5 cm
Dry Weight	1570 lb / 712 kg
Cargo Box Capacity	*49-State:* 1000 lb / 454 kg *50-State:* 600 lb / 272 kg
Cargo Box Dimensions (inside dimensions)	36 x 50 x 11.5 in (91 x 127 x 29 cm)
Vehicle Payload (includes weight of operator, passenger, cargo and accessories)	*49-State:* 1750 lb / 759 kg *50-State:* 1350 lb / 712 kg
Hitch Towing Capacity	2000 lb / 907 kg
Hitch Tongue Capacity	150 lb / 68 kg





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2017 *RANGER* CREW XP 1000 / EPS SPECIFICATIONS

ENGINE	
Platform	4-Stroke DOHC Twin Cylinder, Liquid Cooled, Electric Start
Engine Displacement	999 cc
Number of Cylinders	2
Bore & Stroke (mm)	93 x 73.5 mm
Engine Idle Speed	1200 ± 100 RPM
Engine Max Operating RPM	8000 RPM
Lubrication	Wet Sump
Oil Requirements	PS-4 or PS-4 Extreme Duty
Oil Capacity	2.5 Qt (2.4 L)
Coolant Capacity	5.8 Qt (5.5 L)
Exhaust System	2 to 1 Headpipe / Single Silencer
FUEL SYSTEM	
Fuel System Type	Bosch ME17 EFI
Fuel Delivery	Electronic Fuel Pump (in tank)
Fuel Pressure	58 ± 2 psi (400 ± 14 kPa)
Fuel Capacity	10 Gal (37.8 L)
Fuel Requirement	87 Octane (minimum)
ELECTRICAL	
Alternator Rated Output	660 Watts @ 3000 RPM
Headlights	Halogen: Low 55W / High 60W x 2
Tail Lights	L.E.D. (10): 0.2 Watts x 2
Brake Lights	L.E.D. (10): 2.9 Watts x 2
Ignition System	Bosch ME17 (ECU Controlled)
Spark Plug Gap	0.030 in. (0.75 mm)
Battery	Johnson Controls / 575 CCA / 12V
DC Outlets	(2) - Standard 12 Volt
Relays *Not in Fuse/Relay Box	Chassis / EFI / Fan / Fuel Pump EPS (OPT) / Rear Diff Solenoid*
Circuit Breaker	20 Amp: Fan Motor
Fuses *Not in Fuse/Relay Box	10 Amp: Brake Lights:, Drive, Fuel Pump 20 Amp: Accessory, ECM, Lights 30 Amp: EPS (OPT)*

DRIVETRAIN	
Transmission Type	Polaris Automatic PVT
Transmission Gear Ratio: High Low Reverse	 Front: 3.48:1 / Rear: 10.40:1 Front: 8.56:1 / Rear: 25.59:1 Front: 7.67:1 / Rear: 22.92:1
Front Gearcase Lubricant Requirements	Demand Drive Fluid 6.75 oz (200 mL)
Transmission Lubricant Requirements	AGL 41 oz (1200 mL)
Clutch (PVT) Type	Drive: Polaris, Basic, Non-Braking Bearing
	Driven: Team Rapid Reaction
Clutch Center Distance	10.5 in (26.7 cm)
STEERING / SUSPENSION	
Toe Out	1/8 - 1/4 in (3.2 - 6.35 mm)
Front Suspension	Dual A-arm
Front Travel	10 in (25.4 cm)
Rear Suspension	Independent (IRS)
Rear Travel	10 in (25.4 cm)
WHEELS / BRAKES	
Front Wheel Size / Type	12 x 6 / Steel
Rear Wheel Size / Type	12 x 8 / Steel
Front Tire Make / Model / Size	Carlisle / PXT / 26 x 9 R12
Rear Tire Make / Model / Size	Carlisle / PXT / 26 x 11 R12
Tire Air Pressure	Front: 10 psi (69 kPa)
	Rear: 16 psi (110 kPa)
Brake System	4 Wheel Hydraulic Disc
Brake Fluid	DOT 4

For the clutch chart, see **“Clutch Chart”, page 1.42**

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2017 *RANGER* XP 1000 HIGH LIFTER OVERVIEW

CATEGORY	DIMENSION / CAPACITY
Length	123 in / 312 cm
Width (cargo box)	60 in / 152.4 cm
Width (tires)	66.5 in / 169 cm
Height	77 in / 195.6 cm
Wheel Base	83 in / 210.8 cm
Ground Clearance	13 in / 33 cm
Turning Radius	161 in / 409 cm
Dry Weight	1562 lb / 709 kg
Cargo Box Capacity	*49-State:* 1000 lb / 454 kg *50-State:* 600 lb / 272 kg
Cargo Box Dimensions (inside dimensions)	36.5 x 54 x 11.5 in (93 x 137 x 29 cm)
Vehicle Payload (includes weight of riders, cargo and accessories)	*49-State:* 1500 lb / 681 kg *50-State:* 1100 lb / 499 kg
Hitch Towing Capacity	2000 lb / 907 kg
Hitch Tongue Capacity	150 lb / 68 kg





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2017 *RANGER* XP 1000 HIGH LIFTER SPECIFICATIONS

ENGINE	
Platform	4-Stroke DOHC Twin Cylinder, Liquid Cooled, Electric Start
Engine Displacement	999 cc
Number of Cylinders	2
Bore & Stroke (mm)	93 x 73.5 mm
Engine Idle Speed	1200 ± 100 RPM
Engine Max Operating RPM	8000 RPM
Lubrication	Wet Sump
Oil Requirements	PS-4 or PS-4 Extreme Duty
Oil Capacity	2.5 Qt (2.4 L)
Coolant Capacity	5 Qt (4.75 L)
Exhaust System	2 to 1 Headpipe / Single Silencer
FUEL SYSTEM	
Fuel System Type	Bosch ME17 EFI
Fuel Delivery	Electronic Fuel Pump (in tank)
Fuel Pressure	58 ± 2 psi (400 ± 14 kPa)
Fuel Capacity	10 Gal (37.8 L)
Fuel Requirement	87 Octane (minimum)
ELECTRICAL	
Alternator Rated Output	660 Watts @ 3000 RPM
Headlights	Halogen: Low 55W / High 60W x 2
Tail Lights	L.E.D. (10): 0.2 Watts x 2
Brake Lights	L.E.D. (10): 2.9 Watts x 2
Ignition System	Bosch ME17 (ECU Controlled)
Spark Plug Gap	0.030 in. (0.75 mm)
Battery	Johnson Controls / 575 CCA / 12V
DC Outlets	(2) - Standard 12 Volt
Relays *Not in Fuse/Relay Box	Chassis / EFI / Fan / Fuel Pump EPS (OPT) / Rear Diff Solenoid*
Circuit Breaker	20 Amp: Fan Motor
Fuses *Not in Fuse/Relay Box	10 Amp: Brake Lights:, Drive, Fuel Pump 20 Amp: Accessory, ECM, Lights 30 Amp: EPS (OPT)*

DRIVETRAIN	
Transmission Type	Polaris Automatic PVT
Transmission Gear Ratio: High Low Reverse	 Front: 4.03:1 / Rear: 12.05:1 Front: 8.56:1 / Rear: 25.59:1 Front: 7.67:1 / Rear: 22.92:1
Front Gearcase Lubricant Requirements	Demand Drive Fluid 6.75 oz (200 mL)
Transmission Lubricant Requirements	AGL 41 oz (1200 mL)
Clutch (PVT) Type	Drive: Polaris, Basic, Non-Braking Bearing
	Driven: Team Rapid Reaction
Clutch Center Distance	10.5 in (26.7 cm)
STEERING / SUSPENSION	
Toe Out	1/8 - 1/4 in (3.2 - 6.35 mm)
Front Suspension	Dual A-arm
Front Travel	8 in (20.3 cm)
Rear Suspension	Independent (IRS)
Rear Travel	8.8 in (22.4 cm)
WHEELS / BRAKES	
Front Wheel Size / Type	14 x 7 / Cast Aluminum
Rear Wheel Size / Type	14 x 8 / Cast Aluminum
Front Tire Make / Model / Size	High Lifter Outlaw² / 28 x 9.5 R14
Rear Tire Make / Model / Size	High Lifter Outlaw² / 28 x 11 R14
Tire Air Pressure	Front: 10 psi (69 kPa)
	Rear: 12 psi (83 kPa)
Brake System	4 Wheel Hydraulic Disc
Brake Fluid	DOT 4

For the clutch chart, see **“Clutch Chart”, page 1.42**

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2017 *RANGER* CREW XP 1000 HIGH LIFTER OVERVIEW

CATEGORY	DIMENSION / CAPACITY
Length	148 in / 376 cm
Width (cargo box)	60 in / 152.4 cm
Width (tires)	66.5 in / 169 cm
Height	76 in / 193 cm
Wheel Base	113 in / 287 cm
Ground Clearance	12 in / 30.5 cm
Turning Radius	214 in / 543.5 cm
Dry Weight	1570 lb / 712 kg
Cargo Box Capacity	*49-State:* 1000 lb / 454 kg *50-State:* 600 lb / 272 kg
Cargo Box Dimensions (inside dimensions)	36.5 x 54 x 11.5 in (93 x 137 x 29 cm)
Vehicle Payload (includes weight of riders, cargo and accessories)	*49-State:* 1750 lb / 795 kg *50-State:* 1350 lb / 612 kg
Hitch Towing Capacity	2000 lb / 907 kg
Hitch Tongue Capacity	150 lb / 68 kg





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2017 *RANGER* CREW XP 1000 HIGH LIFTER SPECIFICATIONS

ENGINE	
Platform	4-Stroke DOHC Twin Cylinder, Liquid Cooled, Electric Start
Engine Displacement	999 cc
Number of Cylinders	2
Bore & Stroke (mm)	93 x 73.5 mm
Engine Idle Speed	1200 ± 100 RPM
Engine Max Operating RPM	8000 RPM
Lubrication	Wet Sump
Oil Requirements	PS-4 or PS-4 Extreme Duty
Oil Capacity	2.5 Qt (2.4 L)
Coolant Capacity	5.8 Qt (5.5 L)
Exhaust System	2 to 1 Headpipe / Single Silencer
FUEL SYSTEM	
Fuel System Type	Bosch ME17 EFI
Fuel Delivery	Electronic Fuel Pump (in tank)
Fuel Pressure	58 ± 2 psi (400 ± 14 kPa)
Fuel Capacity	10 Gal (37.8 L)
Fuel Requirement	87 Octane (minimum)
ELECTRICAL	
Alternator Rated Output	660 Watts @ 3000 RPM
Headlights	Halogen: Low 55W / High 60W x 2
Tail Lights	L.E.D. (10): 0.2 Watts x 2
Brake Lights	L.E.D. (10): 2.9 Watts x 2
Ignition System	Bosch ME17 (ECU Controlled)
Spark Plug Gap	0.030 in. (0.75 mm)
Battery	Johnson Controls / 575 CCA / 12V
DC Outlets	(2) - Standard 12 Volt
Relays *Not in Fuse/Relay Box	Chassis / EFI / Fan / Fuel Pump EPS (OPT) / Rear Diff Solenoid*
Circuit Breaker	20 Amp: Fan Motor
Fuses *Not in Fuse/Relay Box	10 Amp: Brake Lights:, Drive, Fuel Pump 20 Amp: Accessory, ECM, Lights 30 Amp: EPS (OPT)*

DRIVETRAIN	
Transmission Type	Polaris Automatic PVT
Transmission Gear Ratio: High Low Reverse	 Front: 4.03:1 / Rear: 12.05:1 Front: 8.56:1 / Rear: 25.59:1 Front: 7.67:1 / Rear: 22.92:1
Front Gearcase Lubricant Requirements	Demand Drive Fluid 6.75 oz (200 mL)
Transmission Lubricant Requirements	AGL 41 oz (1200 mL)
Clutch (PVT) Type	Drive: Polaris, Basic, Non-Braking Bearing
	Driven: Team Rapid Reaction
Clutch Center Distance	10.5 in (26.7 cm)
STEERING / SUSPENSION	
Toe Out	1/8 - 1/4 in (3.2 - 6.35 mm)
Front Suspension	Dual A-arm
Front Travel	10 in (25.4 cm)
Rear Suspension	Independent (IRS)
Rear Travel	10 in (25.4 cm)
WHEELS / BRAKES	
Front Wheel Size / Type	14 x 7 / Cast Aluminum
Rear Wheel Size / Type	14 x 8 / Cast Aluminum
Front Tire Make / Model / Size	High Lifter Outlaw² / 28 x 9.5 R14
Rear Tire Make / Model / Size	High Lifter Outlaw² / 28 x 11 R14
Tire Air Pressure	Front: 14 psi (96 kPa)
	Rear: 16 psi (110 kPa)
Brake System	4 Wheel Hydraulic Disc
Brake Fluid	DOT 4

For the clutch chart, see **“Clutch Chart”, page 1.42** .

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CLUTCH CHART

YEAR/MODEL	ALTITUDE	SHIFT WEIGHT	DRIVE SPRING	DRIVEN SPRING
All 570 Models	0-1800 Meters (0-6000 Feet)	25-52 (5632409)	Black (7043594)	7044015
	1800-3700 Meters (6000 - 12000 Feet)	25-48 (5633217)	Black (7043594)	7044015
2015 900 Models (Except EBS and CREW Models)	0-1800 Meters (0-6000 Feet)	30-75 (5139684)	Wht / Orange (7043924)	7044317
	1800-3700 Meters (6000 - 12000 Feet)	30-67 (5139467)	Wht / Orange (7043924)	7044317
2015 900 CREW Models	0-1800 Meters (0-6000 Feet)	27-89 (5138015)	Wht / Blu (7044111)	7044015
	1800-3700 Meters (6000 - 12000 Feet)	27-83 (5632754)	Wht / Blu (7044111)	7044015
2015 HUNTER PKG/ EDITION w/EBS	0-1800 Meters (0-6000 Feet)	30-75 (5139684)	Wht / Orange (7043924)	7044318
	1800-3700 Meters (6000 - 12000 Feet)	30-67 (5139467)	Wht / Orange (7043924)	7044318
2016-2017 900 Models (Except EBS Models)	0-1800 Meters (0-6000 Feet)	27-81 (5140011)	Wht / Blu (7044111)	7044021
	1800-3700 Meters (6000 - 12000 Feet)	30-75 (5139684)	Wht / Blu (7044111)	7044021
2016 HUNTER/TRAIL EDITION w/EBS	0-1800 Meters (0-6000 Feet)	27-81 (5140011)	Wht / Blu (7044111)	3234452
	1800-3700 Meters (6000 - 12000 Feet)	30-75 (5139684)	Wht / Blu (7044111)	3234452
2017 1000 Models	0-1800 Meters (0-6000 Feet)	27-98 (5140604)	Black (7044655)	3235964
	1800-3700 Meters (6000 - 12000 Feet)	27-89 (5138015)	Black (7044655)	3235964

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MISC. SPECIFICATIONS AND CHARTS

CONVERSION TABLE

UNIT OF MEASURE	MULTIPLIED BY	CONVERTS TO
ft-lbs	x 12	= in-lbs
in-lbs	x 0.0833	= ft-lbs
ft-lbs	x 1.356	= Nm
in-lbs	x 0.0115	= kg-m
Nm	x 0.7376	= ft-lbs
kg-m	x 7.233	= ft-lbs
kg-m	x 86.796	= in-lbs
kg-m	x 10	= Nm
inch	x 25.4	= mm
mm	x 0.03937	= inch
inch	x 2.54	= cm
mile (mi)	x 1.6	= km
km	x 0.6214	= mile
ounces (oz)	x 28.35	= grams (g)
fluid ounces (fl oz)	x 29.57	= cubic centimeters (cc)
cubic centimeters (cc)	x .03381	= fluid ounces
grams (g)	x 0.035	= ounces
pounds (lb)	x 0.454	= kg
kilogram (kg)	x 2.2046	= lbs
cubic inches (cu in)	x 16.387	= cc
cubic centimeters (cc)	x 0.061	= cubic inches
US quarts	x 0.946	= liters (L)
liters (L)	x 1.057	= US quarts
US gallons	x 3.785	= liters (L)
liters (L)	x 0.264	= US gallons
PSI	x 6.895	= kilopascals (kPa)
kilopascals (kPa)	x 0.145	PSI
π (3.14) x Radius² x Height =		= cylinder volume
°C to °F:	9/5 (°C + 32)	= °F
°F to °C:	5/9 (°F − 32)	= °C

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STANDARD BOLT TORQUE SPECIFICATION

BOLT SIZE	GRADE 2 FT-LB (NM)	GRADE 5 FT-LB (NM)	GRADE 8 FT-LB (NM)
1/4-20	5 (7)	8 (11)	12 (16)
1/4-28	6 (8)	10 (14)	14 (19)
5/16-18	11 (15)	17 (23)	25 (35)
5/16-24	12 (16)	19 (26)	29 (40)
3/8-16	20 (27)	30 (40)	45 (62)
3/8-24	23 (32)	35 (48)	50 (69)
7/16-14	30 (40)	50 (69)	70 (97)
7/16-20	35 (48)	55 (76)	80 (110)
1/2-13	50 (69)	75 (104)	110 (152)
1/2-20	55 (76)	90 (124)	120 (166)

METRIC BOLT TORQUE SPECIFICATION

BOLT SIZE	GRADE				
	4.6	4.8	8.8 / 8.9	10.9	12.9
	FT-LB (NM) DRY THREADS				
M3	0.3 (0.5)	0.5 (0.7)	1 (1.3)	1.5 (2)	1.5 (2)
M4	0.8 (1.1)	1 (1.5)	2 (3)	3 (4.5)	4 (5)
M5	1.5 (2.5)	2 (3)	4.5 (6)	6.5 (9)	7.5 (10)
M6	3 (4)	4 (5.5)	7.5 (10)	11 (15)	13 (18)
M8	7 (9.5)	10 (13)	18 (25)	26 (35)	33 (45)
M10	14 (19)	18 (25)	37 (50)	55 (75)	63 (85)
M12	26 (35)	33 (45)	63 (85)	97 (130)	111 (150)
M14	37 (50)	55 (75)	103 (140)	151 (205)	177 (240)
M16	59 (80)	85 (115)	159 (215)	232 (315)	273 (370)
M18	81 (110)	118 (160)	225 (305)	321 (435)	376 (510)

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SAE TAP / DRILL SIZES

THREAD SIZE	DRILL SIZE	THREAD SIZE	DRILL SIZE
#0–80	3/64	1/2–13	27/64
#1–64	53	1/2–20	29/64
#1–72	53	9/16–12	31/64
#2–56	51	9/16–18	33/64
#2–64	50	5/8–11	17/32
#3–48	5/64	5/8–18	37/64
#3–56	45	3/4–10	21/32
#4–40	43	3/4–16	11/16
#4–48	42	7/8–9	49/64
#5–40	38	7/8–14	13/16
#5–44	37	1–8	7/8
#6–32	36	1–12	59/64
#6–40	33	1 1/8–7	63/64
#8–32	29	1 1/8–12	1 3/64
#8–36	29	1 1/4–7	1 7/64
#10–24	24	1 1/4–12	1 11/64
#10–32	21	1 1/2–6	1 11/32
#12–24	17	1 1/2–12	1 27/64
#12–28	4.6 mm	1 3/4–5	1 9/16
1/4–20	7	1 3/4–12	1 43/64
1/4–28	3	2–4 1/2	1 25/32
5/16–18	F	2–12	1 59/64
5/16–24	I	2 1/4–4 1/2	2 1/32
3/8–16	O	2 1/2–4	2 1/4
3/8–24	Q	2 3/4–4	2 1/2
7/16–14	U	3–4	2 3/4
7/16–20	25/64		

METRIC TAP / DRILL SIZES

TAP SIZE	DRILL SIZE	DECIMAL	NEAREST FRACTION
3 x .50	#39	0.0995	3/32
3 x .60	3/32	0.0937	3/32
4 x .70	#30	0.1285	1/8
4 x .75	1/8	0.125	1/8
5 x .80	#19	0.166	11/64
5 x .90	#20	0.161	5/32
6 x 1.00	#9	0.196	13/64
7 x 1.00	16/64	0.234	15/64
8 x 1.00	J	0.277	9/32
8 x 1.25	17/64	0.265	17/64
9 x 1.00	5/16	0.3125	5/16
9 x 1.25	5/16	0.3125	5/16
10 x 1.25	11/32	0.3437	11/32
10 x 1.50	R	0.339	11/32
11 x 1.50	3/8	0.375	3/8
12 x 1.50	13/32	0.406	13/32
12 x 1.75	13/32	0.406	13/32

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DECIMAL EQUIVALENTS

FRACTION	DECIMAL	MM TO INCHES
1/64	0.0156″	
1/32	0.0312″	1 mm = 0.0394″
3/64	0.0469″	
1/16	0.0625″	
5/64	0.0781″	2 mm = 0.0787″
3/32	0.0938″	
7/64	0.1094″	3 mm = 0.1181″
1/8	0.1250″	
9/64	0.1406″	
5/32	0.1563″	4 mm = 0.1575″
11/64	0.1719″	
3/16	0.1875″	5 mm = 0.1969″
13/64	0.2031″	
7/32	0.2188″	
15/64	0.2344″	6 mm = 0.2362″
1/4	0.25″	
17/64	0.2656″	7 mm = 0.2756″
9/32	0.2813″	
19/64	0.2969″	
5/16	0.3125″	8 mm = 0.3150″
21/64	0.3281″	
11/32	0.3438″	9 mm = 0.3543″
23/64	0.3594″	
3/8	0.375″	
25/64	0.3906″	10 mm = 0.3937″
13/32	0.4063″	
27/64	0.4219″	11 mm = 0.4331″
7/16	0.4375″	
29/64	0.4531″	
15/32	0.4688″	12 mm = 0.4724″
31/64	0.4844″	
1/2	0.500″	13 mm = 0.5118″
33/64	0.5156″	
17/32	0.5313″	
35/64	0.5469″	14 mm = 0.5512″
9/16	0.5625″	
37/64	0.5781″	15 mm = 0.5906″
19/32	0.5938″	
39/64	0.6094″	
5/8	0.625″	16 mm = 0.6299″
41/64	0.6406″	
21/32	0.6563″	17 mm = 0.6693″
43/64	0.6719″	
11/16	0.6875″	
45/64	0.7031″	18 mm = 0.7087″
23/32	0.7188″	
47/64	0.7344″	19 mm = 0.7480″
3/4	0.750″	
49/64	0.7656″	
25/32	0.7813″	20 mm = 0.7874″
51/64	0.7969″	
13/16	0.8125″	21 mm = 0.8268″
53/64	0.8281″	
27/32	0.8438″	
55/64	0.8594″	22 mm = 0.8661″
7/8	0.875″	
57/64	0.8906″	23 mm = 0.9055″
29/32	0.9063″	
59/64	0.9219″	
15/16	0.9375″	24 mm = 0.9449″
61/64	0.9531″	
31/32	0.9688″	25 mm = 0.9843″
63/64	0.9844″	
1	1.000″	

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CHAPTER 2
MAINTENANCE

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GENERAL INFORMATION - MAINTENANCE

SERVICE NOTES - MAINTENANCE

Inspect, clean, lubricate, adjust and replace parts as necessary. When inspection reveals the need for replacement parts, use genuine Polaris parts available from your Polaris dealer.

Inspection, adjustment and lubrication of important components are explained in the periodic maintenance chart.

IMPORTANT
Service and adjustments are critical. If you're not familiar with safe service and adjustment procedures, have a qualified dealer technician perform these operations.

SPECIAL TOOLS - MAINTENANCE

TOOL DESCRIPTION	PART NUMBER
Oil Filter Wrench	**PU-50105**
Shock Spanner Wrench	**2871095**

Bosch Automotive Service Solutions: 1-800-328-6657 or https://polaris.service-solutions.com/

TORQUE SPECIFICATIONS - MAINTENANCE

PART DESCRIPTION	TORQUE SPECIFICATION
Crankcase Drain Plug (570)	**14 lb-ft (19 Nm)**
Crankcase Drain Plug (900)	**12 lb-ft (16 Nm)**
Spark Plug (570)	**9 lb-ft (12 Nm)**
Spark Plug (900)	**7 lb-ft (10 Nm)**
Valve Cover Bolts	**7 lb-ft (10 Nm)**
Outer Clutch Cover Screws	**45-50 lb-in (5 Nm)**
Tensioner Mounting Bolts	**7 ft-lb (10 Nm)**
Plunger Bolt	**15 ft-lb (20 Nm)**
Spark Arrestor	**8 lb-ft (11 Nm)**
Transmission Fill / Drain Plug	**10-14 lb-ft (14-19 Nm)**
Front Gearcase Fill / Drain Plug	**8-10 lb-ft (11-14 Nm)**
Radiator Hose Clamp	**3 lb-ft (4 Nm)**
Wheel Nuts (Steel Wheels)	**60 lb-ft (81 Nm)**
Wheel Nuts (Cast Aluminum Wheels)	**120 lb-ft (163 Nm)**
Front Wheel Hub Castle Nuts	**80 lb-ft (108 Nm)**
Rear Wheel Hub Castle Nuts	**110 lb-ft (149 Nm)**
Tie Rod Jam Nut	**13 lb-ft (18 Nm)**
Shock Mounting Bolts	**40 lb-ft (54 Nm)**
Battery Terminal Bolt	**6 lb-ft (8 Nm)**

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SERVICE SPECIFICATIONS - MAINTENANCE

GENERAL SPECIFICATIONS		
ITEM	**STANDARD**	**SERVICE LIMIT**
Battery Type / CCA	**Johnson Controls / 575 CCA / 12V**	-
Brake Pad Thickness, Front	**0.297 ± .007" (7.54 ± .178 mm)**	**0.150" (3.8 mm)**
Brake Disc Thickness, Front	**0.188" (4.78 mm)**	**0.170" (4.32 mm)**
Brake Pad Thickness, Rear	**0.298 ± .007" (7.56 ± .178 mm)**	**0.150" (3.8 mm)**
Brake Disc Thickness, Rear	**0.188" (4.78 mm)**	**0.170" (4.32 mm)**
Fuel Pressure (KOEO)	**58 ± 2 psi (400 ± 14 kPa)**	-
Idle Speed	570: **1200 ± 100 RPM** 900: **1250 ± 50 RPM** 1000: **1200 ± 100 RPM**	-
Oil Pressure (Minimum)	**10 PSI @ 1200 RPM** (Minimum) **40 PSI @ 7000 RPM** (Minimum)	-
Spark Plug Type / Gap	**NGK MR7F / 0.030 in (0.75 mm)**	-
Tire Pressure (Base / CREW)	Front: **10 psi (69 kPa) / 14 psi (97 kPa)** Rear: **12 psi (83 kPa) / 16 psi (110 kPa)**	-
Tire Tread Depth (Minimum)	-	**0.118 in (3 mm)**
Cylinder Leakage	-	**20%**
Intake Valve Clearance (Cold)	**0.006 ± .002 in (0.15 ± 0.05 mm)**	-
Exhaust Valve Clearance (Cold)	**0.008 ± .002 in (0.20 ± 0.05 mm)**	-
Wheel Toe Out	**1/8-1/4 in (3.2-6.4 mm)**	-

FLUID SPECIFICATIONS		
ITEM	**FLUID TYPE**	**CAPACITY**
Engine Oil	**PS-4 2W-50 Synthetic**	570: **2 Qt (1.9 L)** 900-1000: **2.5 Qt (2.4 L)**
Transmission Oil	**AGL Gearcase Lubricant**	**41 oz (1200 mL)**
Front Gearcase	**Demand Drive Fluid**	**6.75 oz (200 mL)**
Engine Coolant	**50 / 50 Extended Life Antifreeze**	**5 Qt (4.7 L)**
Fuel	**87 Octane (minimum)**	**10 Gal (37.8 L)**
Brake / Clutch Fluid	**DOT 4**	-

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PERIODIC MAINTENANCE CHART

PERIODIC MAINTENANCE OVERVIEW

Inspection, adjustment and lubrication of important components are explained in the periodic maintenance chart.

Inspect, clean, lubricate, adjust and replace parts as necessary. When inspection reveals the need for replacement parts, use genuine Pure Polaris parts available from your Polaris dealer.

NOTE

Service and adjustments are critical. If you're not familiar with safe service and adjustment procedures, have a qualified dealer perform these operations.

Maintenance intervals in the following chart are based upon average riding conditions and an average vehicle speed of approximately 10 miles per hour. Vehicles subjected to severe use must be inspected and serviced more frequently.

Severe Use Definition

- Frequent immersion in mud, water or sand
- Racing or race-style high RPM use
- Prolonged low speed, heavy load operation
- Extended idle
- Short trip cold weather operation

Pay special attention to the oil level. A rise in oil level during cold weather can indicate contaminants collecting in the oil sump or crankcase. Change oil immediately if the oil level begins to rise. Monitor the oil level, and if it continues to rise, discontinue use and determine the cause or see your dealer.

BREAK-IN PERIOD

The break-in period consists of the first 25 hours of operation, or the time it takes to use 14 gallons (53 liters) of fuel. Careful treatment of a new engine and drive components will result in more efficient performance and longer life for these components.

- Drive vehicle slowly at first while varying the throttle position. Do not operate at sustained idle.
- Pull only light loads.
- Perform regular checks on fluid levels and other areas outlined on the daily pre-ride inspection checklist.
- Change both the engine oil and filter after 25 hours or one month.
- See "Owner's Manual" for additional break-in information.

MAINTENANCE CHART KEY

The following symbols denote potential items to be aware of during maintenance:

■ = CAUTION: Due to the nature of these adjustments, it is recommended this service be performed by an authorized Polaris dealer.

► = SEVERE USE ITEM: See information provided above.

E = Emission Control System Service (California).

NOTE

Inspection may reveal the need for replacement parts. Always use genuine Polaris parts.

⚠ WARNING

Improperly performing the procedures marked ■ could result in component failure and lead to serious injury or death. Have an authorized Polaris dealer perform these services.

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PRE-RIDE INSPECTION

The following items should be inspected pre-ride:

ITEM	INSPECTION / CHECK
Air Filter	• Air Filter / Air box is clean • Filter is properly installed • Air Box cover is secured and fastened
Steering System	• Check for proper EPS operation • Check for tightness/play in the steering wheel when turned lock to lock
Front / Rear Suspension	• Inspect bushings • Check for damaged to the control arms / trailing arms • Check for leaking shocks
Tires	• Check for proper air pressure in all tires • Inspect for tire damage / nails in tire • Verify there is adequate tread depth
Wheels / Lug Nuts	• Ensure rim is not cracked / bent • Verify proper lug nut torque
Headlights / Taillights	• Ensure all lights are operational • Adjust headlight aim as required
Brake System	• Check brake fluid level is between MIN and MAX • Check brake pedal is not soft when pushed • Verify brakes stop and hold the vehicle • Inspect for leaks
Frame / Body Fasteners	Check for loose body / frame fasteners
Engine Oil Level	Verify oil level is in the SAFE range on the dipstick
Intake Drain	Inspect / drain intake as needed
Coolant Level	• Verify coolant level is filled to the FULL COLD mark on coolant reservoir (if engine is cold) • Inspect hoses and radiator for leaks
Auxiliary Brake (if equipped)	Inspect / adjust as needed
Engine Intake Pre-Filter Screen (LH side)	Inspect / clean often
PVT Intake Pre-Filter Screen (RH side)	Inspect / clean often
Power Steering Unit	Inspect / clean often
Spark Arrester	Clean when driving in mud and water; replace a cracked or damaged arrester before operating

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10 - 50 HOUR MAINTENANCE INTERVAL

ITEM		MAINTENANCE INTERVAL (WHICHEVER COMES FIRST)			REMARKS
		HRS	CALEN-DAR	MILES (KM)	
► ■	Brake Pad Wear	10 H	Monthly	100 (160)	Inspect periodically
	Battery	25 H	Monthly	200 (320)	Check terminals; clean; test
	Fuel System	25 H	Monthly	200 (320)	Inspect; cycle key to pressurize fuel pump; check lines and fittings for leaks and abrasion
►	Demand Drive Fluid (Extreme Use)	25 H	1 M	-	Change fluid every 25 hours if ADC is subjected to extreme use
►	Front Gearcase Lubricant (Demand Drive Fluid)	25 H	1 M	-	Initial fluid level inspection; add lubricant if needed
►	Transmission Lubricant (AGL Gearcase Lubricant)	25 H	1 M	-	Initial fluid level inspection; add lubricant if needed
► **E**	Engine Oil & Filter Change (Break-In Period)	25 H	-	250 (400)	Perform a break-in oil and filter change at 25 hours or one month; perform every 100 hours or 6 months thereafter
►	General Lubrication	50 H	3 M	500 (800)	Lubricate all grease fittings, pivots, etc.
	Shift Cable / Linkage	50 H	6 M	500 (800)	Inspect, lubricate, adjust
■	Steering	50 H	6 M	500 (800)	Lubricate
►	Front / Rear Suspension	50 H	6 M	500 (800)	Lubricate

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50 - 500 HOUR MAINTENANCE INTERVAL

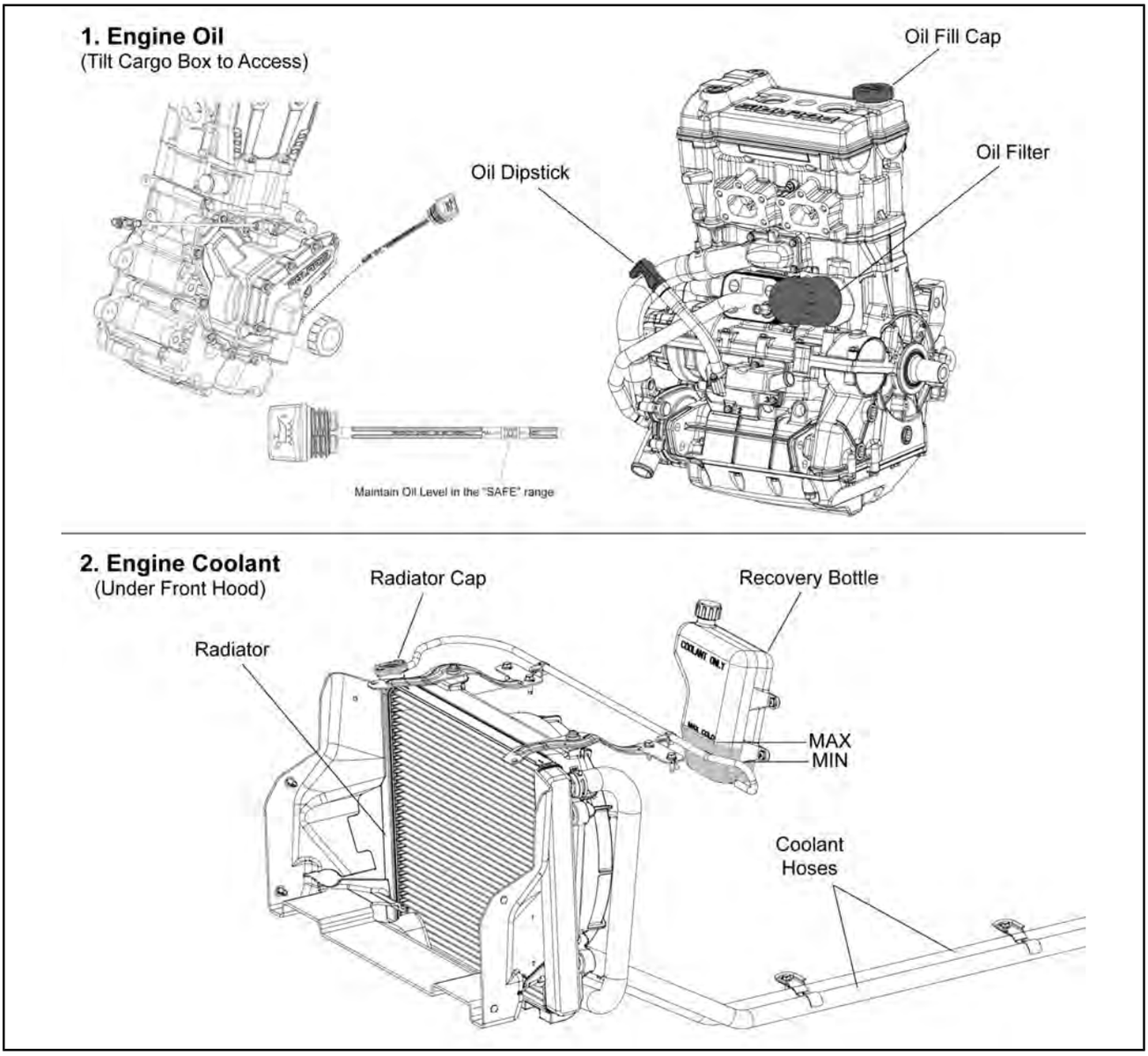
ITEM		MAINTENANCE INTERVAL (WHICHEVER COMES FIRST)			REMARKS
		HRS	CALENDAR	MILES (KM)	
■ E	Throttle Pedal	50 H	6 M	500 (800)	Inspect for free movement; replace pedal assembly if needed
E	Air Intake Ducts / Adapters	50 H	6 M	500 (800)	Inspect ducts for proper sealing/air leaks
	Drive Belt	50 H	6 M	500 (800)	Inspect; replace as needed
	Cooling System	50 H	6 M	500 (800)	Inspect coolant strength seasonally; pressure test system yearly
►	Radiator	50 H	6 M	500 (800)	Inspect; clean external surfaces
►	Oil Lines, fasteners	50 H	6 M	500 (800)	Inspect for leaks and loose fittings
► E	Engine Oil and Filter Change	100 H	6 M	1000 (1600)	Replace oil and filter during engine oil change
►	Front Gearcase Lubricant (Demand Drive Fluid)	100 H	12 M	1000 (1600)	Change lubricant
►	Transmission Lubricant (AGL Gearcase Lubricant)	100 H	12 M	1000 (1600)	Change lubricant
■ E	Fuel System	100 H	12 M	1000 (1600)	Cycle key to pressurize fuel pump; check for leaks at fill cap, fuel lines/rail, and fuel pump; replace lines every two years
►	Cooling Hoses	100 H	12 M	1000 (1600)	Inspect for leaks
►	Engine Mounts	100 H	12 M	1000 (1600)	Inspect, torque to specification
	Exhaust Silencer / Pipe	100 H	12 M	1000 (1600)	Inspect
	Drive Shafts	100 H	12 M	1000 (1600)	Remove and grease
■ E	Spark Plug	100 H	12 M	1000 (1600)	Inspect; replace as needed
►	Wiring	100 H	12 M	1000 (1600)	Inspect for wear, routing, security; apply dielectric grease to connectors subjected to water, mud, etc.
■	Clutches (Drive and Driven)	100 H	12 M	1000 (1600)	Inspect; clean; replace worn parts
■	Front Wheel Bearings	100 H	12 M	1000 (1600)	Inspect; replace as needed
	Ratcheting Cam Chain Tensioner	200 H	-	2000 (3200)	Check; replace as needed
■	Brake Fluid	200 H	24 M	2000 (3200)	Change every two years (DOT 4)
	Suspension Bushings	250 H	24 M	2000 (3200)	Inspect; replace if necessary
	Spark Arrestor	300 H	36 M	3000 (4800)	Clean out
■ E	Spark Plug Replacement	500 H	36 M	5000 (8000)	Replace; torque to specification
■ E	Valve Clearance	500 H	-	5000 (8000)	Inspect; adjust as needed
►	Coolant	-	60 M	-	Replace coolant
■	Toe Adjustment	-			Inspect periodically; adjust when parts are replaced
	Headlight Aim	-			Adjust as needed

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MAINTENANCE QUICK REFERENCE

	ITEM	LUBE REC.	METHOD	FREQUENCY*
1	Engine Oil	Polaris PS-4 or Polaris PS-4 Extreme Duty 4-Cycle Engine Oil	Add oil to proper level on dipstick	Perform a break-in oil and filter change at 25 hrs or one month; perform every 100 hrs thereafter
2	Engine Coolant	Polaris 50/50 Extended Life Antifreeze	Maintain coolant level in coolant reservoir bottle.	Check level daily; change coolant every five years

* More often under severe use, such as operated in water or under severe loads.



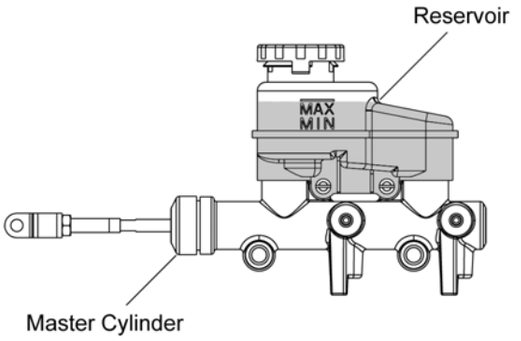
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MAINTENANCE QUICK REFERENCE

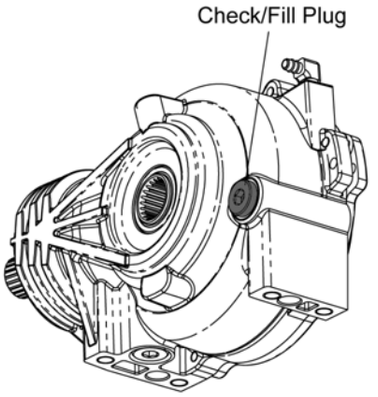
	ITEM	LUBE REC.	METHOD	FREQUENCY*
3	Brake Fluid	Polaris DOT 4 Brake Fluid	Maintain fluid level between “MAX and “MIN” lines on the master cylinder reservoir	Check level during pre-ride inspection; change fluid every two years
4	Front Gearcase	Polaris Demand Drive Fluid	Add lubricant until it is visible at the fill hole threads	Initial level check at 25 hours or 1 month; Change lubricant at 100 hours or every 12 months, whichever comes first
5	Transmission	Polaris AGL Gearcase Lubricant		

* More often under severe use, such as operated in water or under severe loads.

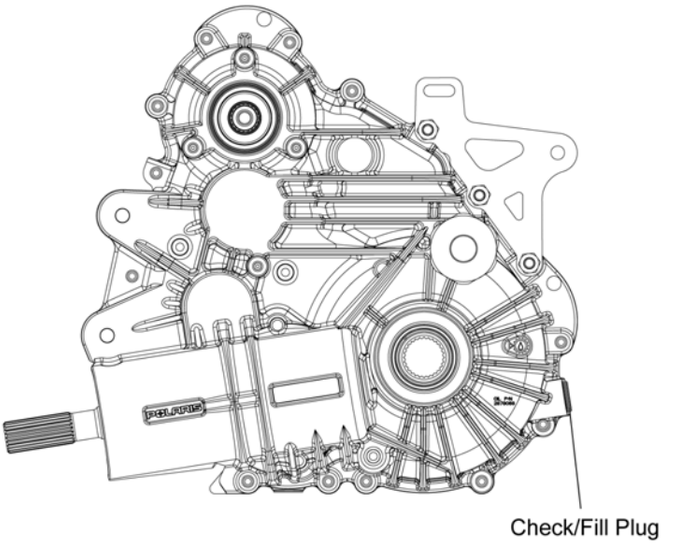
3. Brake Fluid
(Front LH Wheel Well)



4. Front Gearcase
(Front RH Wheel Well)



5. Transmission
(Rear of Vehicle)



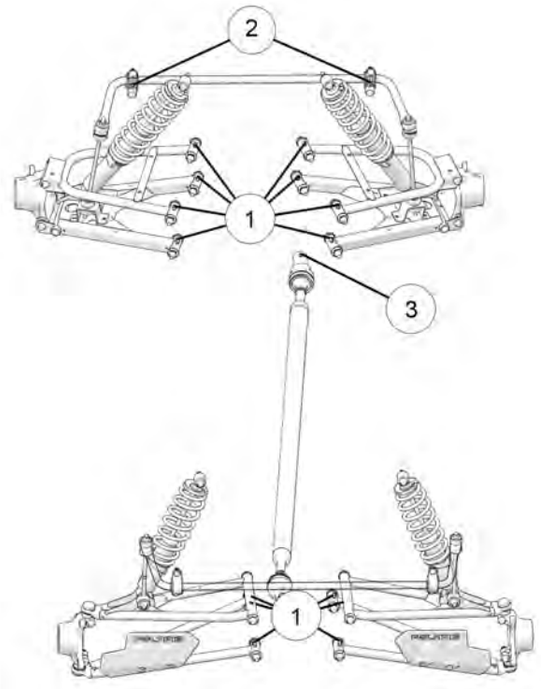
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GREASE LUBRICATION POINTS

There are grease fittings at each A-arm pivot point, each rear stabilizer bar bushing, and on the propshaft yoke. Apply grease until all traces of water have been purged out at each of these areas.

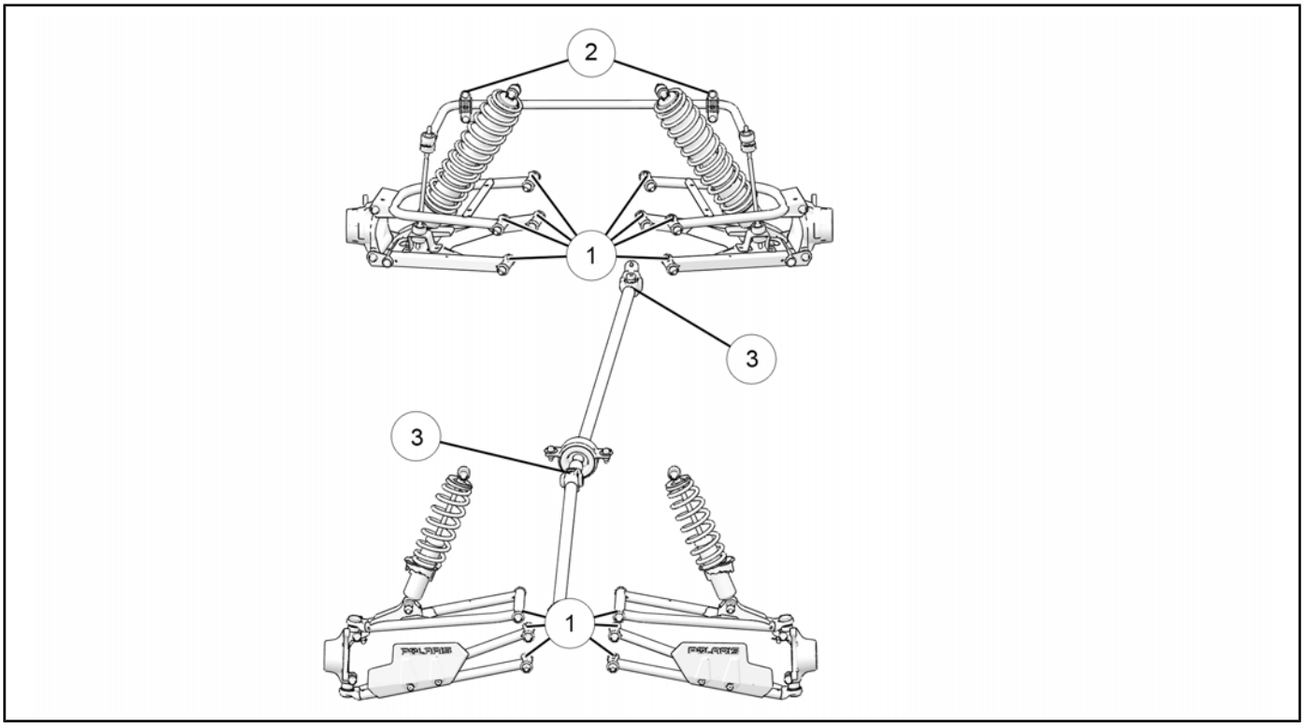
	ITEM	METHOD	RECOMMENDED LUBE	FREQUENCY
①	A-arm Pivot Bushings	Grease all fittings on each side of the vehicle	Polaris All Season Grease	Grease fittings every 500 miles (800 km); Grease before long periods of storage, and after thoroughly washing or submerging the vehicle
②	Stabilizer Bar Bushings			
③	Propshaft Yoke	Grease the fitting (3 pumps maximum)		

Non-CREW Models



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CREW Models



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SERVICE PRODUCTS AND LUBRICANTS

POLARIS LUBRICANTS, MAINTENANCE AND SERVICE PRODUCTS

PART NO.	DESCRIPTION
Engine Lubricant	
2870791	Fogging Oil (12 oz. Aerosol)
2876244	PS-4 Synthetic 4-Cycle Engine Oil (Quart)
2876245	PS-4 Synthetic 4-Cycle Engine Oil (Gallon)
2878920	PS-4 Extreme Duty Synthetic 4-Cycle Engine Oil (Quart)
2878919	PS-4 Extreme Duty Synthetic 4-Cycle Engine Oil (Gallon)
2540086	Engine Oil Filter
2879723	Engine Oil Change Kit (PS-4)
2879324	Engine Oil Change Kit (PS-4 Extreme Duty)
Gearcase / Transmission Lubricants	
2878068	AGL Gearcase Lubricant (1 Qt.) (12 Count)
2878069	AGL Gearcase Lubricant (1 Gal.) (4 Count)
2878070	AGL Gearcase Lubricant (2.5 Gal.) (2 Count)
2877922	Demand Drive Fluid (Quart)
2877923	Demand Drive Fluid (2.5 Gallon)
2870465	Oil Pump for 1 Gallon Jug
Grease / Specialized Lubricants	
2871312	Grease Gun Kit
2871322	Premium All Season Grease (3 oz. cartridge) (24 Count)
2871423	Premium All Season Grease (14 oz. cartridge) (10 Count)
2871460	Starter Drive Grease (12 Count)
2871515	Premium U-Joint Lube (3 oz.) (24 Count)
2871551	Premium U-Joint Lube (14 oz.) (10 Count)
2871329	Dielectric Grease (Nyogel™)
Coolant	
2880514	50/50 EL Anti-Freeze (Quart) (12 Count)
2880513	50/50 EL Anti-Freeze (Gallon) (4 Count)
2880512	50/50 EL Anti-Freeze (55 Gal Drum)

NOTE

Each item can be purchased separately at your local Polaris dealer.

PART NO.	DESCRIPTION
Additives / Sealants / Thread Locking Agents / Misc.	
2871950	Loctite® Threadlock 242 (6 ml.) (12 count)
2871326	Premium Carbon Clean (12 oz.) (12 count)
2870652	Fuel Stabilizer (16 oz.) (12 count)
2872189	DOT 4 Brake Fluid (12 count)
2871557	Crankcase Sealant, 3-Bond 1215 (5 oz.)

NOTE

The number count indicated by each part number in the table above indicates the number of units that are shipped with each order.

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GENERAL VEHICLE INSPECTION AND MAINTENANCE

PRE-RIDE / DAILY INSPECTION

Perform the following pre-ride inspection daily, and when servicing the vehicle at each scheduled maintenance.

- Engine Oil - Check for proper level on dipstick (refer to **“Engine Oil Level”, page 2.15** procedure)
- Tires - check condition and pressures
- Fuel tank - fill to proper level
- All brakes - check operation, fluid level and adjustment
- Throttle Pedal - check for proper operation
- Headlights/Taillights/Brakelights - check operation of all indicator lights, instrument cluster and switches
- Ignition switch - check for proper function
- Wheels - check for tightness of wheel nuts and axle nuts; check to be sure axle nuts are secured by cotter pins
- Air Filter - inspect filter element condition; replace if necessary
- Intake Pre-Filter Screens - Inspect both screens and clean with warm soapy water and low pressure compressed air if necessary
- Steering - check for free operation noting any unusual looseness in any area
- Loose parts - visually inspect vehicle for any damaged or loose nuts, bolts or fasteners
- Engine coolant - check for proper level at the recovery bottle
- Drive Shaft Boots - Inspect inner and outer boots for tears or damage on both front and rear drive shafts
- Check all suspension components for wear or damage

FRAME, NUTS, BOLTS, AND FASTENERS

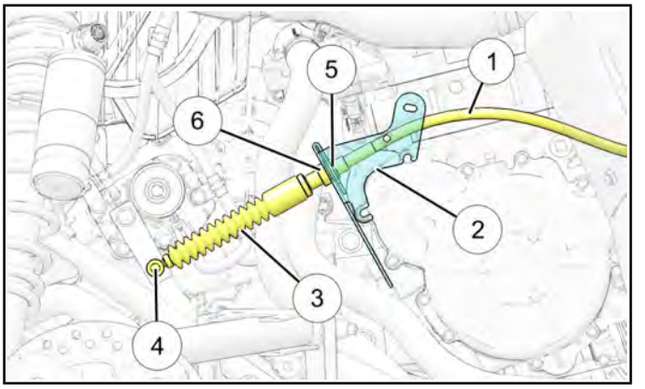
Periodically inspect the torque of all fasteners in accordance with the maintenance schedule. Check that all cotter pins are in place. Refer to specific fastener torques listed in each chapter.

SHIFT CABLE INSPECTION / ADJUSTMENT

Shift cable adjustment may be necessary if symptoms include:

- No gear position or AWD display on instrument cluster
- Ratcheting noise on deceleration
- Inability to engage into a gear
- Excessive gear lash (noise)
- Gear selector moving out of desired range

1. Locate the shift cable ① attached to the transmission case in the right rear wheel well area.
2. Inspect shift cable, clevis pin, pivot bushings ④, and dust boot ③. Replace if worn or damaged.



3. If adjustment is required, loosen the upper jam nut ⑤ and pull the cable out of the mount ② to move the lower jam nut ⑥.
4. Adjust the shift cable so there is the same amount of cable travel when shifting slightly past HIGH gear and PARK.
5. Thread the upper or lower jam nut as required to obtain proper cable adjustment.

NOTE

This procedure may require a few attempts to obtain the proper adjustment.

6. Once the proper adjustment is obtained, place the shift cable and lower jam nut into the mount. Tighten the upper jam nut against the mount.
7. Start engine and shift through all gears to ensure the shift cable is properly adjusted. If transmission still ratchets after cable adjustment, the transmission will require service.

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ENGINE MAINTENANCE

ENGINE OIL LEVEL (570)

The engine has a wet-sump design, meaning the engine oil is contained in the bottom of the crankcase. To check the oil level follow the procedure listed below:

Access the oil dipstick and oil fill cap by tilting the rear cargo box.

FLUID CAPACITY

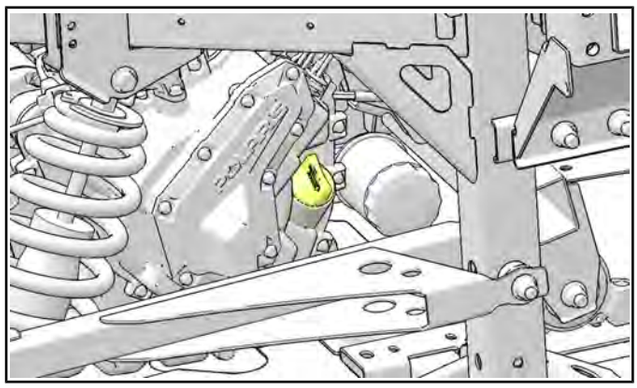
Recommended Engine Oil:
PS-4 Synthetic (PN 2876244)
Ambient Temp Range: -35° F to 100° F
PS-4 Extreme Duty Synthetic (PN 2878920)
Ambient Temp Range: 0° F to 120° F
Capacity: 2 Qt (1.9 L)

1. Remove all cargo from the cargo box.

CAUTION

Always remove all cargo from the cargo box before lifting the box to access the engine.

2. Position the vehicle on a level surface and place the transmission in PARK.
3. Stop the engine and allow it to cool down before removing the dipstick.
4. Pull up on the cargo box release lever to tilt the box.
5. From the right side of the vehicle, unlock the dipstick. Remove the dipstick and wipe it dry with a clean cloth.

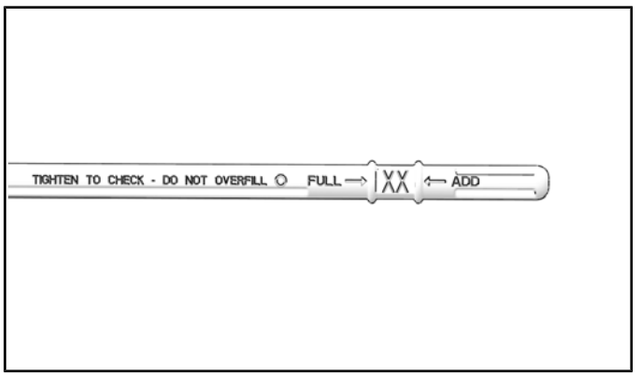


6. Reinstall the dipstick and screw it into place.

NOTE

The dipstick must be screwed completely in to ensure accurate measurement.

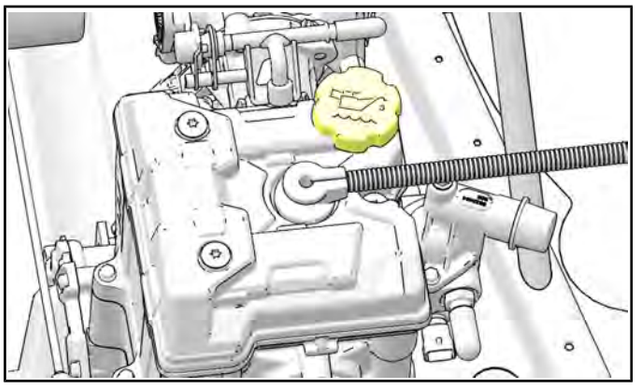
7. Remove the dipstick and check the oil level.
8. Add the recommended oil as necessary to bring the oil level within the SAFE range on dipstick. Do not overfill (see NOTE below).



NOTE

A rising oil level between checks during cold weather operation can indicate contaminants such as gas or moisture collecting in the crankcase. If the oil level is over the upper mark, change the oil immediately.

9. If necessary, add engine oil through the oil fill cap located on top of the valve cover.



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ENGINE OIL LEVEL (900 / 1000)

The engine has a wet-sump design, meaning the engine oil is contained in the bottom of the crankcase. To check the oil level follow the procedure listed below:

Access the oil dipstick and oil fill cap by tilting the rear cargo box.

Polaris recommends the use of PS-4 Synthetic or PS-4 Extreme Duty Synthetic 4-Cycle Engine Oil.

FLUID CAPACITY

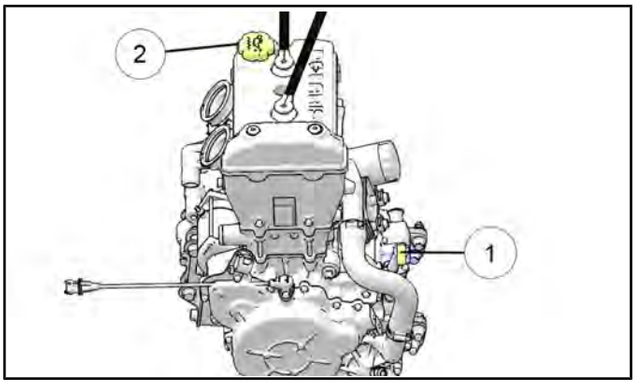
Recommended Engine Oil:
PS-4 Synthetic (PN 2876244)
Ambient Temp Range: -35° F to 100° F
PS-4 Extreme Duty Synthetic (PN 2878920)
Ambient Temp Range: 0° F to 120° F
Capacity: 2.5 Qt (2.4 L)

1. Remove all cargo from the cargo box.

CAUTION

Always remove all cargo from the cargo box before lifting the box to access the engine.

2. Position the vehicle on a level surface and place the transmission in PARK.
3. Stop the engine and allow it to cool down before removing the dipstick.
4. Pull up on the cargo box release lever to tilt the box.
5. From the right side of the vehicle, unlock the dipstick lever (A). Remove the dipstick and wipe it dry with a clean cloth.

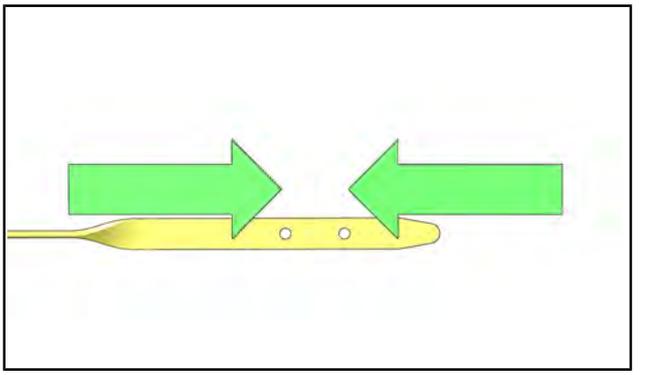


6. Reinstall the dipstick and push it into place. Do not lock the dipstick

NOTE

Make certain the dipstick is inserted all the way into the dipstick tube to keep the depth of the dipstick consistent.

7. Remove the dipstick and check the oil level.
8. Add the recommended oil as necessary to bring the oil level within the SAFE range on dipstick. Do not overfill (see NOTE below).



NOTE

A rising oil level between checks during cold weather operation can indicate contaminants such as gas or moisture collecting in the crankcase. If the oil level is over the upper mark, change the oil immediately.

9. Add engine oil through the oil fill cap (B) located on top of the valve cover.
10. When finished, reinstall dipstick and lock the lever.

ENGINE OIL AND FILTER CHANGE (570)

Always change engine oil and filter at the intervals outlined in the Periodic Maintenance Chart. Always change the oil filter whenever changing the engine oil.

The engine oil dipstick is located on the right front side of the engine. The engine oil fill cap is located on top of the valve cover. Access the oil dipstick and oil fill cap by tilting the rear cargo box

The crankcase drain plug is located on the bottom of the crankcase. Access the drain plug through the skid plate access hole located directly under the crankcase.

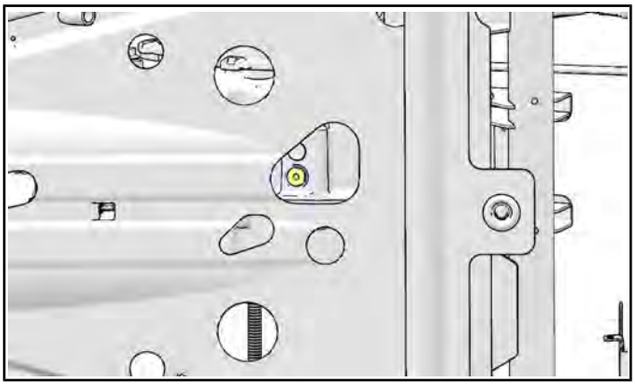
1. Position vehicle on a level surface and place the transmission in PARK.
2. Stop the engine and allow it to cool down.
3. Clean the area around the crankcase drain plug.

⚠ CAUTION

Use caution when performing this procedure. Do not allow hot engine oil to come into contact with skin, as serious burns may result.

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4. Place a drain pan under the engine crankcase and remove the drain plug. Allow the oil to drain completely.

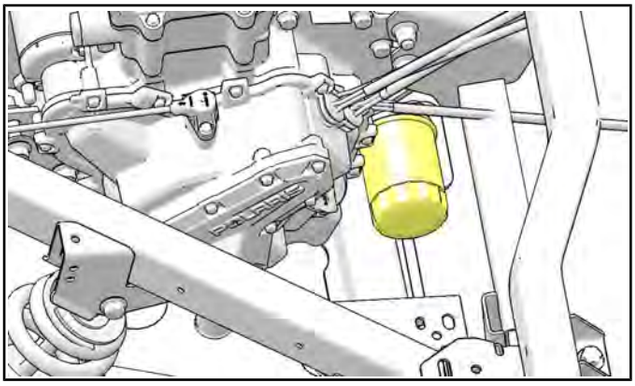


5. Remove all cargo from the cargo box.

CAUTION

Always remove all cargo from the cargo box before lifting the box to access the engine.

6. Pull up on the cargo box release lever to tilt the box.
7. Using the Oil Filter Wrench (**PU-50105**), turn the oil filter counter-clockwise to remove it.



Oil Filter Wrench:
PU-50105: 2.5” (64 mm)

8. Using a clean dry cloth, clean the filter sealing surface on the engine crankcase.
9. Lubricate the O-ring on the new oil filter with a film of fresh engine oil. Check to make sure the O-ring is in good condition. Install it to specification.

TORQUE

Oil Filter:**Turn by hand until filter O-ring contacts sealing surface, then turn an additional 3/4 turn.**

10. Replace the sealing washer on drain plug.

NOTE

The sealing surface on the drain plug should be clean and free of burrs, nicks or scratches.

11. Reinstall the engine crankcase drain plug. Torque drain plug to specification.

TORQUE

Crankcase Drain Plug:
14 lb-ft (19 Nm)

12. Remove dipstick.
13. Add oil as necessary to bring the oil level to the upper mark on the dipstick. Do not over fill the engine, the maximum oil capacity is 2 qts(1.9 l).

NOTE

The dipstick must be screwed completely in to ensure accurate measurement.

14. Verify the transmission is still in PARK.
15. Start the engine and allow it to idle for 30 seconds.
16. Stop the engine and inspect for oil leaks. Wait at least 15 seconds before removing the dipstick.
17. Remove the dipstick and wipe it dry with a clean cloth (refer to **“Engine Oil Level”, page 2.15** procedure).
18. Reinstall the dipstick.

NOTE

Make certain the dipstick is screwed all the way into the dipstick tube to keep the depth of the dipstick consistent.

19. Remove the dipstick and check the oil level.
20. Add the recommended oil as necessary to bring the oil level within the SAFE range on dipstick. Do not overfill.



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21. When finished, reinstall the oil fill cap and install the oil dipstick .
22. Dispose of used oil and filter properly.

ENGINE OIL AND FILTER CHANGE (900 / 1000)

Always change engine oil and filter at the intervals outlined in the Periodic Maintenance Chart. Always change the oil filter whenever changing the engine oil.

The engine oil dipstick is located on the right front side of the engine. The engine oil fill cap is located on top of the valve cover. Access the oil dipstick and oil fill cap by tilting the rear cargo box

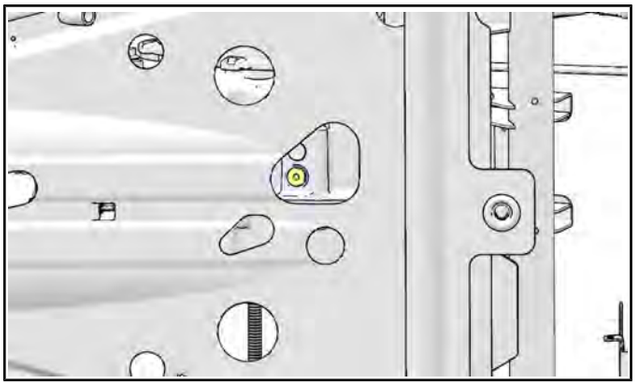
The crankcase drain plug is located on the bottom of the crankcase. Access the drain plug through the skid plate access hole located directly under the crankcase.

1. Position vehicle on a level surface and place the transmission in PARK.
2. Stop the engine and allow it to cool down.
3. Clean the area around the crankcase drain plug.

⚠ CAUTION

Use caution when performing this procedure. Do not allow hot engine oil to come into contact with skin, as serious burns may result.

4. Place a drain pan under the engine crankcase and remove the drain plug. Allow the oil to drain completely.

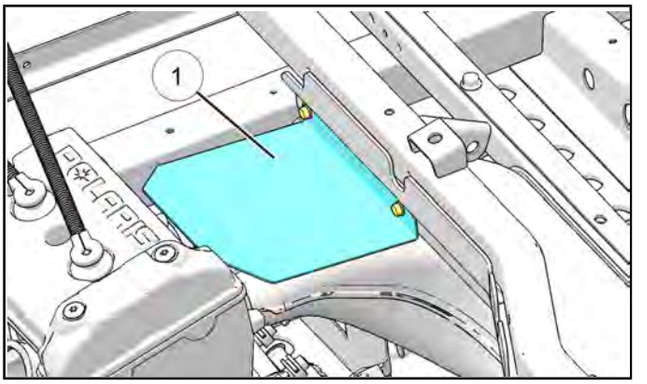


5. Remove all cargo from the cargo box.

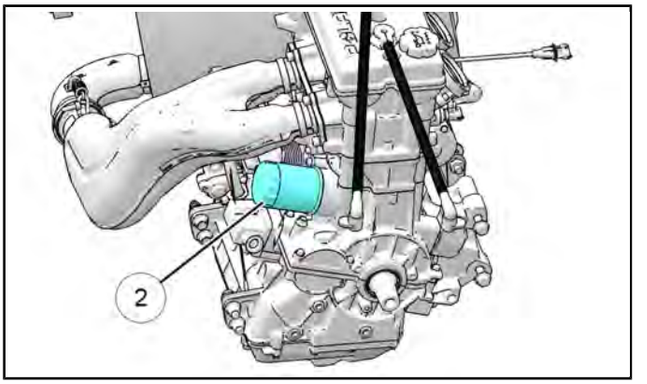
CAUTION

Always remove all cargo from the cargo box before lifting the box to access the engine.

6. Pull up on the cargo box release lever to tilt the box.
7. Remove the two screws retaining the upper exhaust heat shield ① and remove the heat shield to access the oil filter.



8. Using the Oil Filter Wrench (**PU-50105**), turn the oil filter ② counter-clockwise to remove it.



Oil Filter Wrench:
PU-50105: 2.5” (64 mm)

9. Using a clean dry cloth, clean the filter sealing surface on the engine crankcase.
10. Lubricate the O-ring on the new oil filter with a film of fresh engine oil. Check to make sure the O-ring is in good condition. Install it to specification.

TORQUE

Oil Filter:**Turn by hand until filter O-ring contacts sealing surface, then turn an additional 3/4 turn.**

11. Replace the sealing washer on drain plug.

NOTE

The sealing surface on the drain plug should be clean and free of burrs, nicks or scratches.

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12. Reinstall the engine crankcase drain plug. Torque drain plug to specification.

TORQUE
Crankcase Drain Plug: **12 lb-ft (16 Nm)**

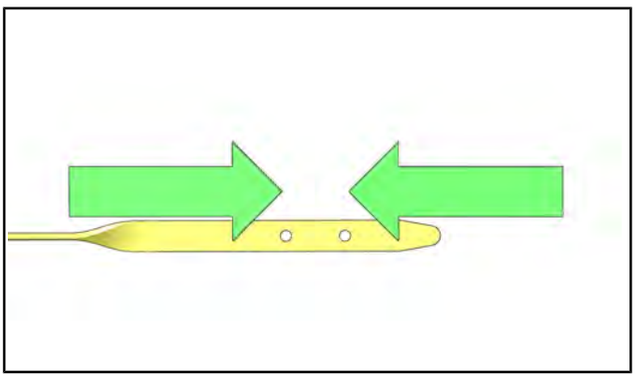
13. Remove oil fill cap (refer to **"Engine Oil Level", page 2.15** procedure). Fill engine with recommended engine oil.

FLUID CAPACITY
Recommended Engine Oil: **PS-4 Synthetic (PN 2876244)** *Ambient Temp Range: -35° F to 100° F* **PS-4 Extreme Duty Synthetic (PN 2878920)** *Ambient Temp Range: 0° F to 120° F* **Capacity: 2.5 Qt (2.4 L)**

14. Verify the transmission is still in PARK.
15. Start the engine and allow it to idle for 30 seconds.
16. Stop the engine and inspect for oil leaks. Wait at least 15 seconds before removing the dipstick.
17. Unlock the dipstick lever. Remove the dipstick and wipe it dry with a clean cloth (refer to **"Engine Oil Level", page 2.15** procedure).
18. Reinstall the dipstick and push it into place. Do not lock the dipstick

NOTE
Make certain the dipstick is inserted all the way into the dipstick tube to keep the depth of the dipstick consistent.

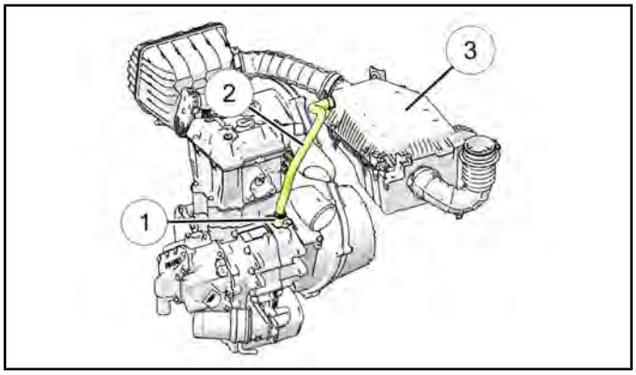
19. Remove the dipstick and check the oil level.
20. Add the recommended oil as necessary to bring the oil level within the SAFE range on dipstick. Do not overfill.



21. When finished, reinstall the oil fill cap, oil dipstick and lock the lever.
22. Dispose of used oil and filter properly.

ENGINE CRANKCASE BREATHER HOSE INSPECTION (570)

This engine is equipped with a breather valve ①. The valve is located on the front of the engine. The valve should only allow air to pass from the engine to the breather hose ② and finally to the intake ③ and NOT from the air intake to the engine. Replace as necessary.

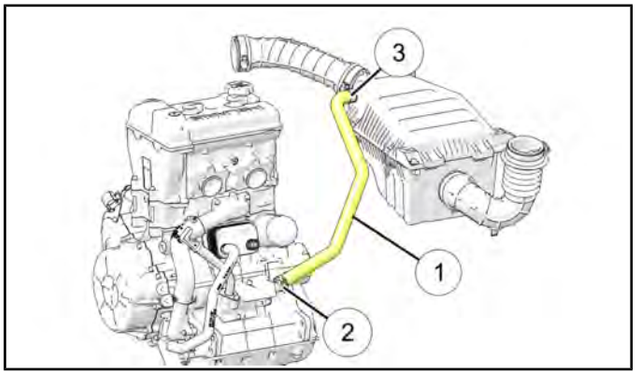


NOTE
Make sure hoses are not kinked or pinched.

ENGINE CRANKCASE BREATHER HOSE INSPECTION (900 / 1000)

The engine crankcase is equipped with a breather hose. Inspect the breather hose for possible kinks or wear. The hose is form fitted for proper fit.

Follow the breather hose ① from the crankcase fitting ② to the airbox ③.



NOTE
Make sure hoses are not kinked or pinched.

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ENGINE CYLINDER LEAKDOWN TEST

A cylinder leak-down test is the best indication of engine condition. Follow tester manufacturer's instructions to perform a cylinder leak-down test. Never use high pressure leakage testers as crankshaft seals may dislodge and leak.

Cylinder Leakage Service Limit:
20%
If leakage exceeds service limit, inspect the engine for the cause.

VALVE CLEARANCE INSPECTION (570)

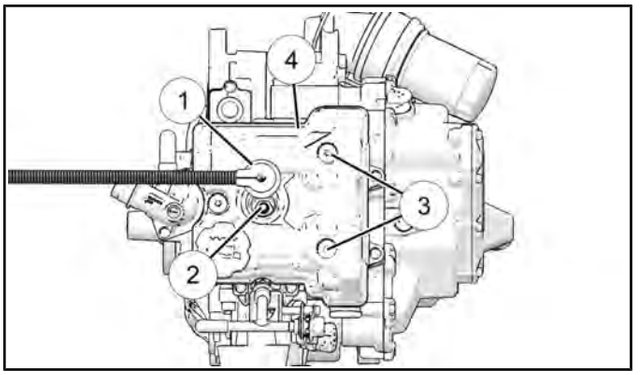
NOTE

Inspect and adjust valve clearance while the engine is cold and the piston positioned at Top Dead Center (TDC) on compression stroke.

1. Tilt the rear cargo box to access the valve cover.
2. Disconnect the negative (-) battery cable.
3. Remove the spark plug high tension lead ① and remove the spark plug ②.

CAUTION

Place a clean shop towel into the spark plug cavity to prevent dirt from entering.

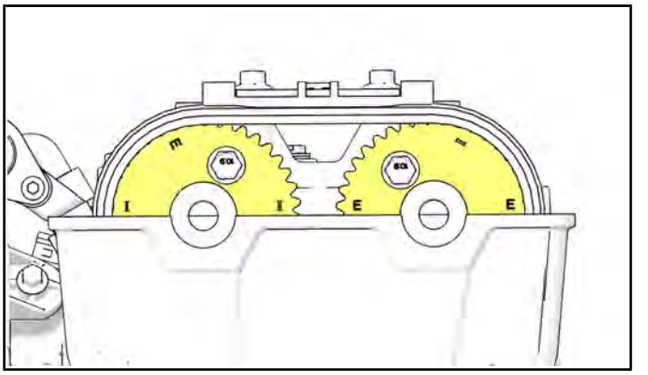


4. Remove the rocker cover bolts ③, cover ④ and gasket.

NOTE

It may be necessary to tap the cover lightly with a soft-faced hammer to loosen it from the cylinder head.

5. Remove the PVT cover to access the drive clutch. (refer to **"Belt Removal", page 5.13** procedure).
6. Use drive clutch to rotate the crankshaft until the cam chain sprocket timing marks are aligned with the gasket surface as shown.



IMPORTANT

Intake cam sprocket should have "I" marks aligned with the gasket surface and the exhaust cam sprocket should have "E" marks aligned with the gasket surface.

7. Measure the valve clearance of each valve using a feeler gauge. Record the measurement if clearance is out of specification.
8. If the valve clearance is out of specification, refer to **"Valve Clearance Check / Adjustment", page 3.65**.

MEASUREMENT

Intake Valve Clearance (cold):
0.006 ± .002 in (0.15 ± 0.05 mm)
Exhaust Valve Clearance (cold):
0.008 ± .002 in (0.20 ± 0.05 mm)

9. Reinstall the spark plugs. Torque spark plugs to specification.

TORQUE

Spark Plug:
9 lb-ft (12 Nm)

10. Inspect the valve cover gasket and replace if necessary.
11. Install valve cover and the bolts. Torque bolts to specification.

TORQUE

Valve Cover Bolts:
7 lb-ft (10 Nm)

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12. Install the spark plug wire. Ensure spark plug high tension lead is pushed down all the way so it engages onto the spark plug.

NOTE

The engine will misfire if the spark plug lead is installed incorrectly.

13. Install the outer clutch cover and retaining screws (Refer to **"Belt Installation", page 5.14** procedure). Torque the screws to specification.

TORQUE

Outer Clutch Cover Screws:
45-50 lb-in (5 Nm)

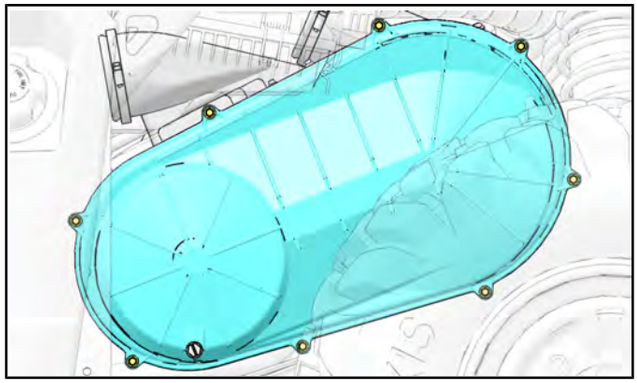
14. Connect the negative (-) battery cable to the battery.
15. Start the engine to ensure proper operation.

VALVE CLEARANCE INSPECTION (900 / 1000)

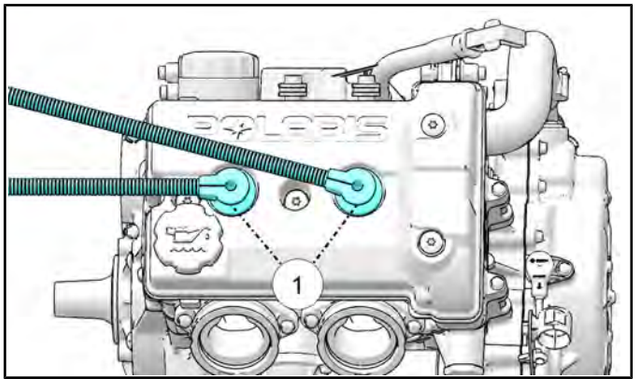
NOTE

Valve clearance inspection should be performed on a cold engine, at room temperature.

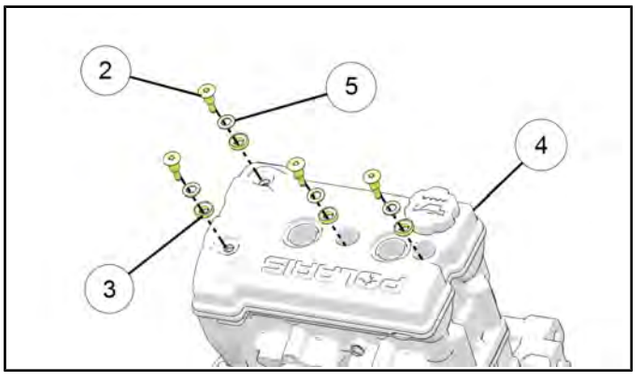
1. Tilt the rear cargo box to access the valve cover.
2. Disconnect the negative (-) battery cable.
3. Remove the eight screws that retain the outer clutch cover and remove the cover from the vehicle in order to rotate the engine (refer to **"Belt Removal", page 5.13** procedure).



4. Remove the spark plug wires ① from the engine.



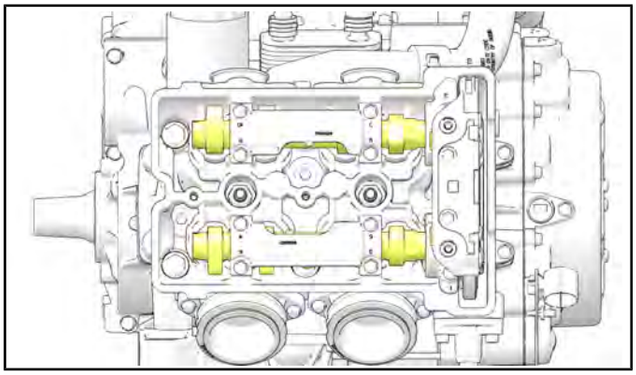
5. Remove the four T-40 bolts ② and rubber isolators ③ retaining the valve cover ④. Note the location and use of the grounding washer ⑤ for assembly.



NOTE

Replace rubber isolators (F) upon assembly.

6. The engine will need to be rotated four times to inspect all eight valve clearances. Two valves can be measured at each camshaft lobe position.

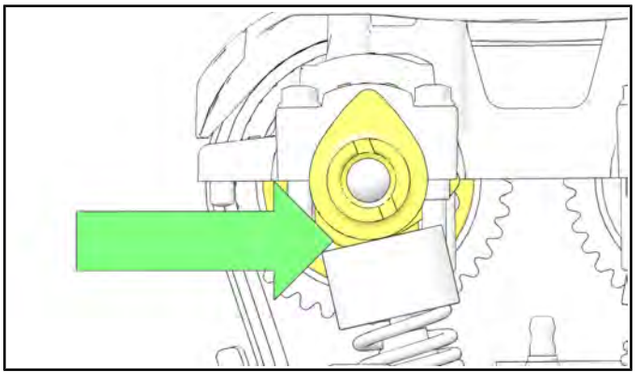


NOTE

Remove spark plugs to aid engine rotation.

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7. Rotate the drive clutch counter-clockwise until the cam lobes above the valves you are inspecting are facing up.
8. Measure the valve clearance using a feeler gauge.



9. If the valve clearance is out of specification, refer to **"Valve Clearance Check / Adjustment", page 3.65** (570) or **"Valve Clearance Adjustment", page 3.169** (900) procedures.

MEASUREMENT
Intake Valve Clearance (cold): **0.006 ± .002 in (0.15 ± 0.05 mm)** Exhaust Valve Clearance (cold): **0.008 ± .002 in (0.20 ± 0.05 mm)**

10. Repeat steps 7-9 until all eight valves have been inspected.
11. If previously removed, apply anti-seize compound (900 models only) to the spark plug threads and reinstall the spark plugs. Torque spark plugs to specification.

TORQUE
Spark Plug: **7 lb-ft (10 Nm)**

12. Inspect the valve cover seal and replace if necessary.
13. Replace the rubber isolators around each T-40 bolt.
14. Install valve cover and the four T-40 bolts. Torque bolts to specification.

TORQUE
Valve Cover Bolts: **7 lb-ft (10 Nm)**

15. Install the spark plug wire (s). Ensure wires are pushed down all the way so they engage onto the spark plug(s).

NOTE
The engine will misfire if the spark plug wires are installed incorrectly. The spark plug wires are marked with PTO and MAG and should be installed to the corresponding cylinder.

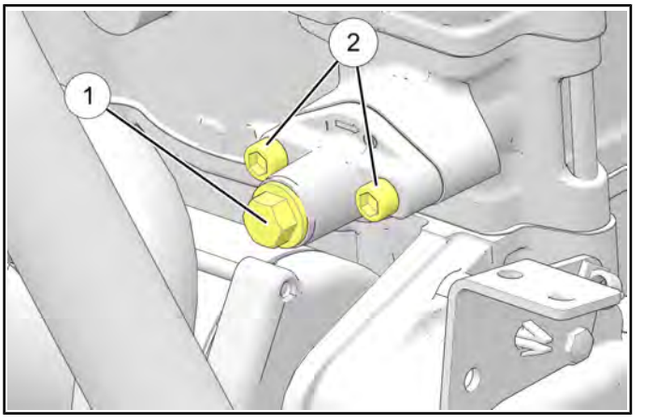
16. Install the outer clutch cover and eight retaining screws (Refer to **"Belt Installation", page 5.14** procedure). Torque the screws to specification.

TORQUE
Outer Clutch Cover Screws: **45-50 lb-in (5 Nm)**

17. Connect the negative (-) battery cable to the battery.
18. Start the engine to ensure proper operation.

CAM CHAIN TENSIONER INSPECTION

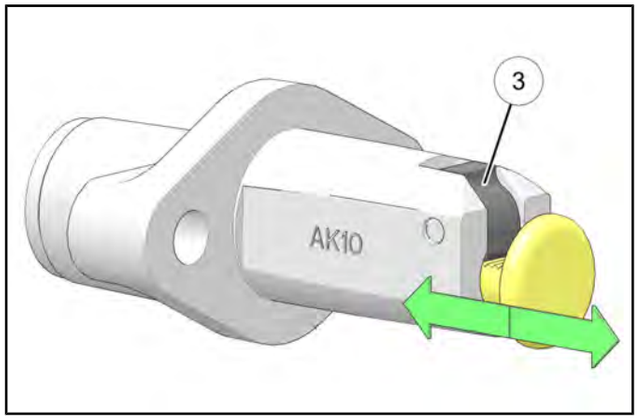
1. Locate the cam chain tensioner on the MAG side of the engine near the starter.
2. Remove the plunger bolt ① and the spring.



3. Remove the two tensioner mounting bolts ②.

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4. Push on the tensioner lock ③ and manually move the plunger in and out. It should move freely. If it does not move freely, replace the tensioner assembly.



5. Retract the plunger all the way in and install into the cylinder.



6. Install the two mounting bolts. Torque fasteners to specification.

TORQUE
Tensioner Mounting Bolts: **7 ft-lb (10 Nm)**

7. Install the plunger bolt. Torque fastener to specification.

TORQUE
Plunger Bolt: **15 ft-lb (20 Nm)**

EXHAUST - SPARK ARRESTOR

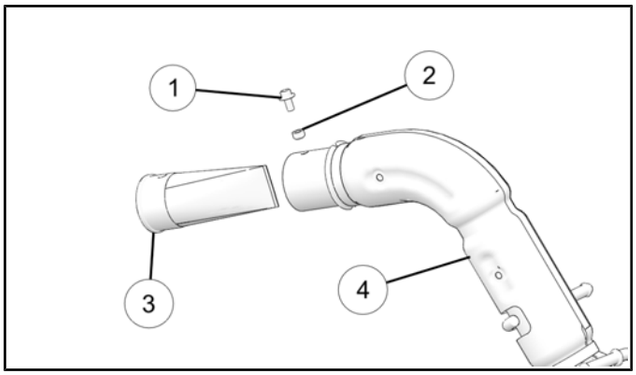
⚠ WARNING

Do not clean spark arrestor immediately after the engine has been run, as the exhaust system becomes very hot. Serious burns could result from contact with the exhaust components. Allow components to cool sufficiently before proceeding. Wear eye protection and gloves.

Never run the engine in an enclosed area. Exhaust contains poisonous carbon monoxide gas that can cause loss of consciousnessor death in a very short time.

Periodically clean spark arrestor to remove accumulated carbon.

1. Remove the retaining screw ① and nut ②.
2. Remove the spark arrestor ③ from the end of the silencer ④.
3. Use a non-synthetic brush to clean the arrestor screen. A synthetic brush may melt if components are warm. If necessary, blow debris from screen with compressed air.
4. Inspect the screen for wear and damage. Replace if needed.
5. Reinstall the arrestor and torque the retaining screw to specification.



TORQUE
Spark Arrestor: **8 lb-ft (11 Nm)**

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COOLING SYSTEM MAINTENANCE

LIQUID COOLING SYSTEM OVERVIEW

The engine coolant level is controlled or maintained by the recovery system. The recovery system components are the recovery bottle, radiator filler neck, radiator pressure cap and connecting hose.

As coolant operating temperature increases, the expanding (heated) excess coolant is forced out of the radiator past the pressure cap and into the recovery bottle. As engine coolant temperature decreases the contracting (cooled) coolant is drawn back from the tank past the pressure cap and into the radiator.

NOTE

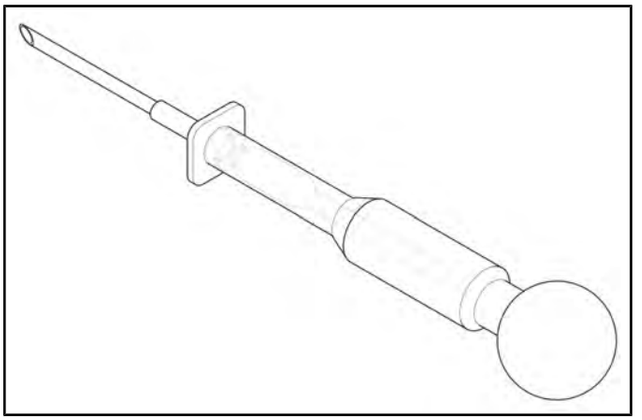
Some coolant level drop on new machines is normal as the system is purging itself of trapped air. Observe coolant levels often during the break-in period.

Overheating of engine could occur if air is not fully purged from system.

Polaris Premium 50/50 Extended Life coolant is already premixed and ready to use. Do not dilute with water.

COOLANT STRENGTH / TYPE

Test the strength of the coolant using an antifreeze hydrometer.



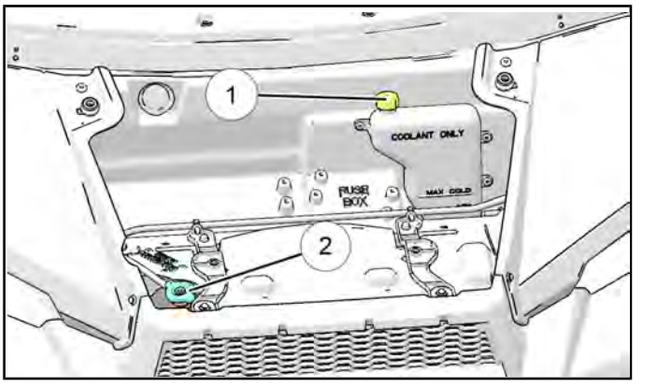
- A 50/50 mixture of extended life antifreeze and distilled water will provide the optimum cooling, corrosion protection, and antifreeze protection.
- Do not use tap water, straight antifreeze, or straight water in the system. Tap water contains minerals and impurities which build up in the system.
- Straight water or antifreeze may cause the system to freeze, corrode, or overheat.

FLUID CAPACITY

Recommended Anti-Freeze/Coolant:
Premium Pre-Mixed Extended Life Antifreeze
(PN 2880514) (Quart)
(PN 2880513) (Gallon)

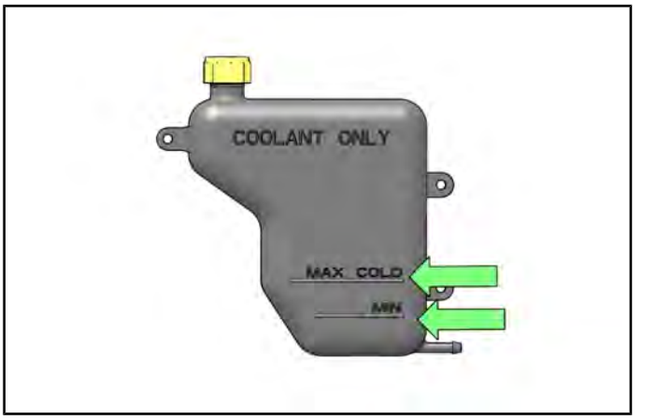
COOLANT LEVEL INSPECTION

The recovery bottle ① and radiator pressure cap ② are located under the hood.



With the engine at operating temperature, the coolant level should be between the “MAX” and “MIN” marks on the recovery bottle. If not, perform the following:

1. Position the vehicle on a level surface
2. Remove the hood from the front cab.
3. Check the coolant level in the recovery bottle. The coolant level must be maintained between the “MAX” and “MIN” levels indicated on the recovery bottle



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4. If the coolant level is below the “MIN” mark, inspect the coolant level in the radiator.

NOTE

If overheating is evident, allow system to cool completely and check coolant level in the radiator and inspect for signs of trapped air in system.

⚠ CAUTION

Never remove the pressure cap when the engine is warm or hot. Escaping steam can cause severe burns. The engine must be cool before removing the pressure cap.

5. Remove the pressure cap. Using a funnel, add coolant to the top of the radiator filler neck.
6. Reinstall the pressure cap.

NOTE

Use of a non-standard pressure cap will not allow the recovery system to function properly.

7. Remove the recovery bottle cap and add coolant using a funnel.
8. Fill the recovery bottle to the “MAX” mark with the recommended pre-mix coolant. You may use a 50/50 or 60/40 mixture of antifreeze and distilled water as required for freeze protection in your area.

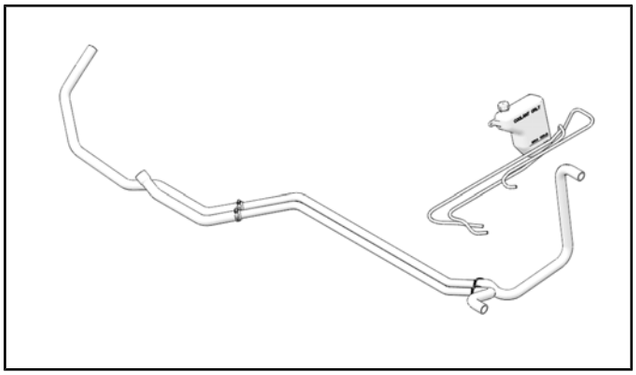
FLUID CAPACITY

Recommended Anti-Freeze/Coolant:
Premium Pre-Mixed Extended Life Antifreeze
(PN 2880514) (Quart)
(PN 2880513) (Gallon)

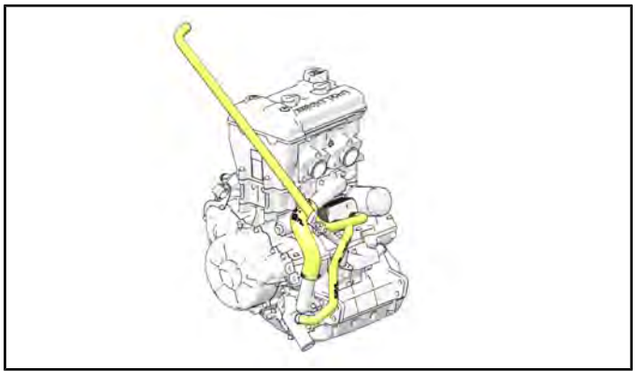
9. Reinstall the recovery bottle cap.
10. If coolant was required, start engine and check for leaks. Make sure radiator fins are clean to prevent overheating.

COOLING SYSTEM HOSES

1. Inspect all vehicle hoses for cracks, deterioration, abrasion or leaks. Replace if necessary.



2. Inspect all engine hoses for cracks, deterioration, abrasion or leaks. Replace if necessary.



3. Check tightness and condition of all hose clamps. Do not over-tighten hose clamps at radiator, or radiator fitting may distort.

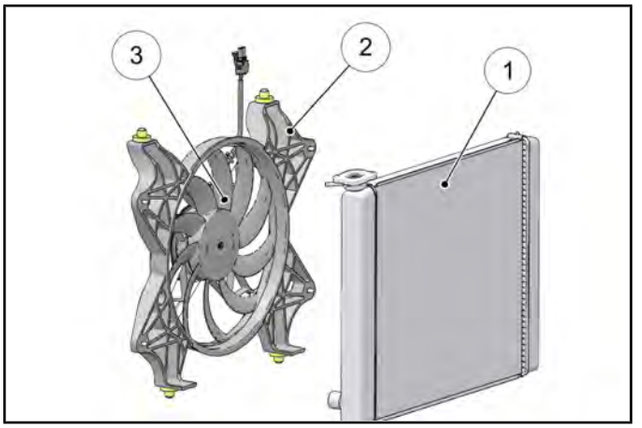
TORQUE

Radiator Hose Clamp:
3 lb-ft (4 Nm)

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RADIATOR INSPECTION / CLEANING

1. Check radiator air passages for restrictions or damage.



① Radiator
② Shroud
③ Fan

2. Carefully straighten any bent radiator fins.
3. Remove any obstructions with low pressure compressed air or low pressure water.

CAUTION

Washing the vehicle with a high-pressure washer could damage the radiator fins and impair the radiators effectiveness. Use of a high-pressure washer is not recommended.

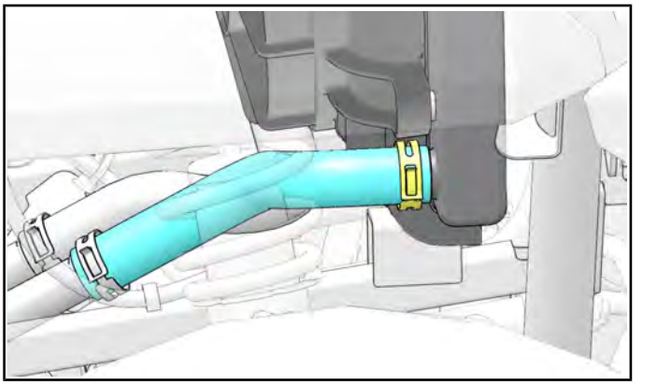
COOLANT DRAIN / FILL

1. Allow the vehicle to cool down if recently operated.
2. Remove the hood from the front cab.

⚠ CAUTION

Escaping steam can cause burns. Never remove the pressure cap while the engine is warm or hot. Always allow the engine to cool before removing the pressure cap.

3. Slowly remove the pressure cap to relieve any cooling system pressure.
4. Place a drain pan under the lower radiator hose.
5. Slide the clamp back and remove the lower radiator hose to drain the coolant from the radiator.



6. Allow the coolant to completely drain. Properly dispose of the used coolant.
7. Reinstall coolant hose and reposition the spring clamp.
8. Remove the pressure cap. Using a funnel, add the recommended coolant to the top of the filler neck and fill the recovery bottle to the MAX level.
9. Refer to **“Cooling System Bleeding Procedure”, page 3.182**.

FLUID CAPACITY

Recommended Anti-Freeze/Coolant:
Premium Pre-Mixed Extended Life Antifreeze
(PN 2880514) (Quart)
(PN 2880513) (Gallon)

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FUEL SYSTEM AND AIR INTAKE MAINTENANCE

FUEL SYSTEM WARNING

⚠ WARNING

Gasoline is extremely flammable and explosive under certain conditions.

Always stop the engine and refuel outdoors or in a well ventilated area.

Do not smoke or allow open flames or sparks in or near the area where refueling is performed or where gasoline is stored.

Do not overfill the tank. Do not fill the tank neck.

If you get gasoline in your eyes or if you swallow gasoline, seek medical attention immediately.

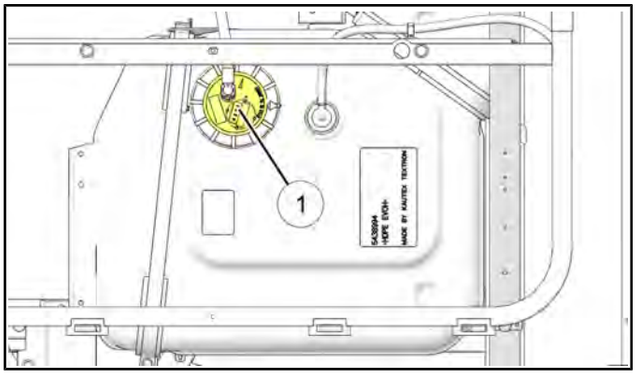
If you spill gasoline on your skin or clothing, immediately wash it off with soap and waterand change clothing.

Never start the engine or let it run in an enclosed area. Engine exhaust fumes are poisonous and can result in loss of consciousness ordeath in a short time.

Never drain the fuel when the engine is hot.Severe burns may result.

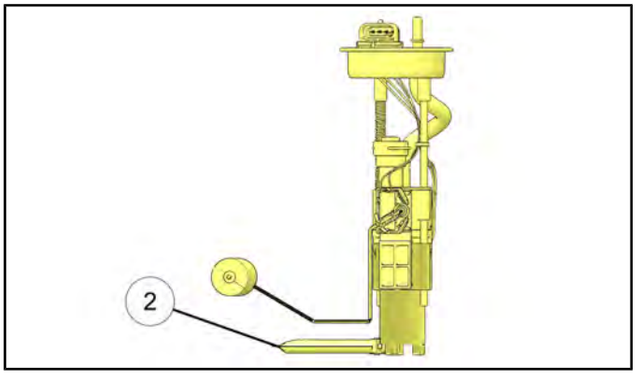
FUEL PUMP / FUEL FILTERS

The fuel pump assembly ① is located in the fuel tank under the driver's seat.



NOTE

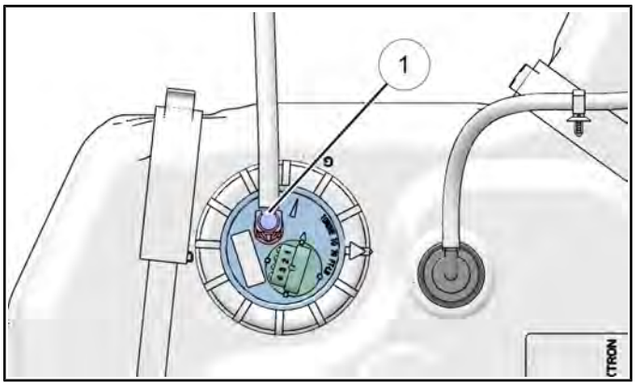
The serviceable, high-volume, high-pressure, fuel pump assembly includes a non-serviceable preliminary filter ②. The fuel pump must be replaced as an assembly. Refer to **"Fuel Pump Replacement", page 4.17** procedure.



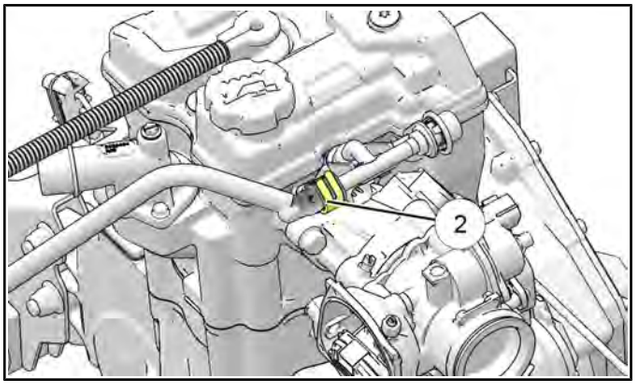
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FUEL LINES

1. Check the quick-connect fuel line ① at the fuel pump for signs of wear, deterioration, damage or leakage. Replace line if necessary.



2. Tilt the rear cargo box and check the quick-connect fuel line ② at the fuel rail for signs of wear, deterioration, damage or leakage. Replace line if necessary.



3. Be sure fuel lines are routed and retained properly.

NOTE

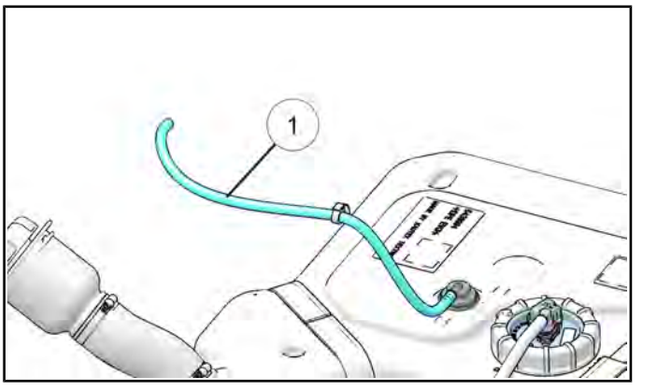
Make sure lines are not kinked or pinched.

VENT LINE

NOTE

If the vent line fitting is removed from the fuel tank, it must be replaced. The fitting will not hold properly once it is removed.

1. Check the fuel tank vent line ① for signs of wear, deterioration, damage or leakage. Replace every two years.



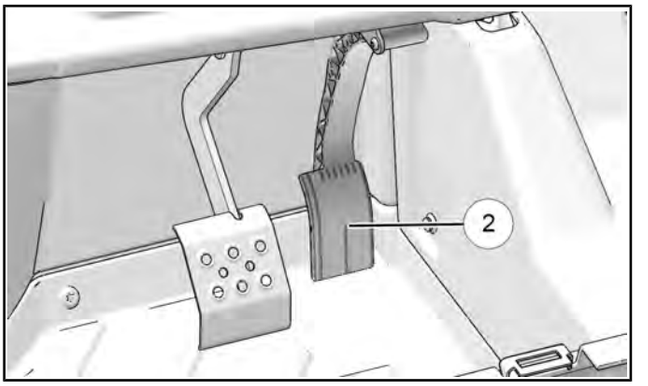
2. Be sure vent line is routed properly and secured.

NOTE

Be sure vent line is not kinked or pinched.

Throttle Pedal Inspection

Inspect the throttle pedal ② for free movement. Be sure the throttle pedal returns normally when released. Refer to **"Pedal Position Sensor (PPS) Test"**, page 4.29 procedure if experiencing a lack of throttle response.

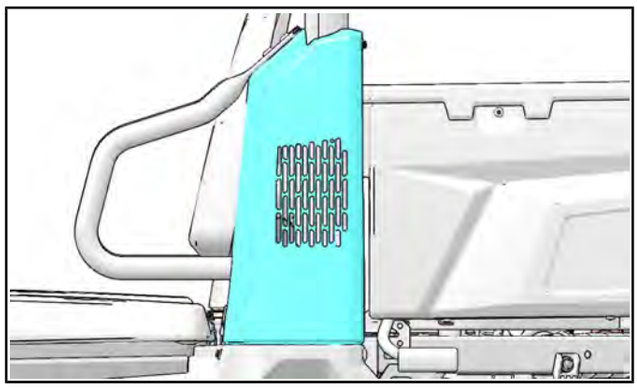


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ENGINE INTAKE PRE-FILTER SCREEN SERVICE

It is recommended that the engine intake pre-filter be inspected daily. The filter should be inspected using the following procedure:

1. The engine intake pre-filter is located just behind the driver hip bolster on the left side of the vehicle. The pre-filter is adhered to the back of the body panel.

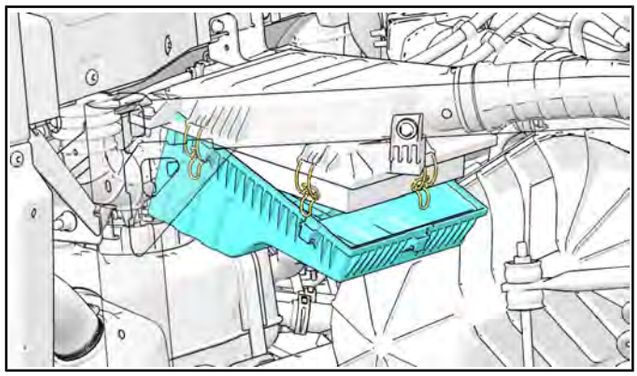


2. Inspect the pre-filter. Wipe away any deposits with a clean cloth.
3. If necessary, remove the body panel and clean the pre-filter with soapy water and dry with low pressure compressed air.

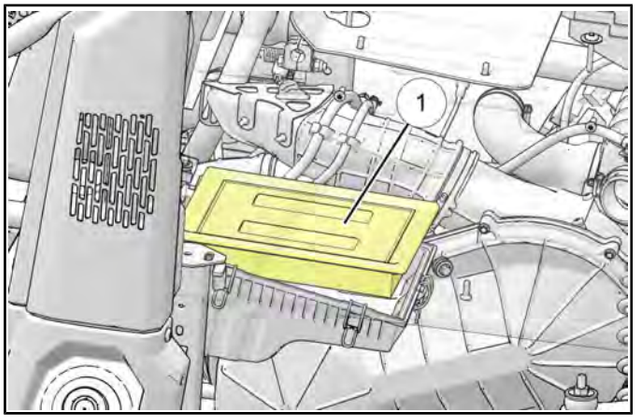
AIR FILTER SERVICE

Inspect the air filter at the intervals outlined in the Periodic Maintenance Chart. In extremely dusty conditions, air filter replacement will be required more often.

1. Tilt the rear cargo box to access the airbox.
2. Release the (5) airbox cover latches and lower the bottom cover to access the air filter element.



3. Remove the air filter element ①.



NOTE

Leave the front portion of the lower airbox cover in the hinges. It is not necessary to remove the lower cover when servicing the air filter.

4. Inspect the airbox for oil or water deposits. Wipe away any deposits with a clean shop towel.

NOTE

If the filter has been soaked with fuel or oil it must be replaced.

5. Inspect the air filter and replace if necessary.

NOTE

DO NOT attempt to clean the air filter.

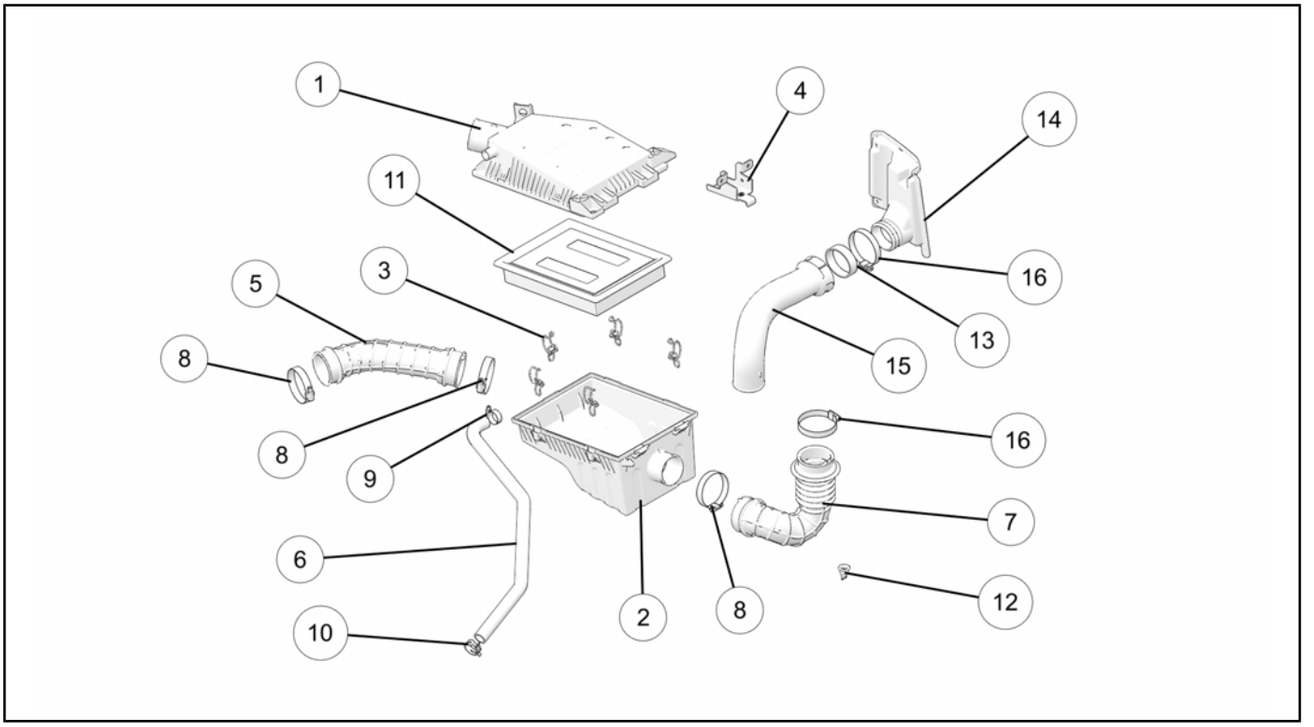
6. Place the air filter into the airbox. Reposition the lower airbox cover and install the five retaining latches.

NOTE

Make sure the hinge pins are properly seated when reassembling the airbox

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ENGINE AIR INTAKE EXPLODED VIEW



REF	DESCRIPTION	REF	DESCRIPTION
①	LID, AIRBOX	⑨	CLAMP, HOSE
②	BASE, AIRBOX	⑩	CLAMP, SPRINGBAND
③	CLIP, AIRBOX	⑪	FILTER, MAIN AIRBOX
④	BRACKET, AIRBOX MOUNT	⑫	PLUG, DRAIN
⑤	HOSE, ENGINE INTAKE	⑬	HOSE, INTAKE BOOT
⑥	HOSE, ENGINE VENT	⑭	FENDER, INTAKE REAR
⑦	HOSE, AIRBOX INTAKE	⑮	DUCT, AIR INTAKE
⑧	CLAMP, HOSE	⑯	CLAMP, HOSE

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TRANSMISSION AND FRONT GEARCASE MAINTENANCE

TRANSMISSION LUBRICATION

NOTE

It is important to follow the transmission maintenance intervals described in the Periodic Maintenance Chart.

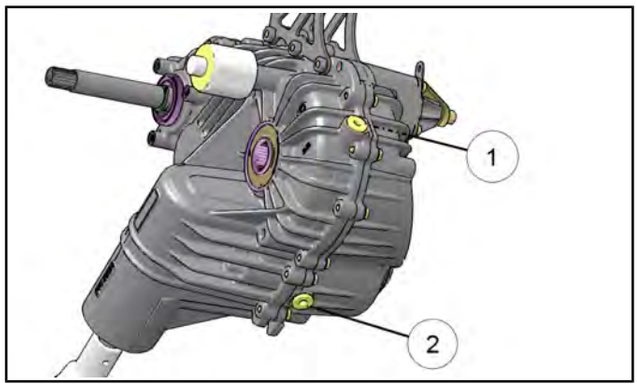
The transmission lubricant level should be checked and changed in accordance with the maintenance schedule.

- Be sure vehicle is positioned on a level surface when checking or changing the lubricant.
- Check vent hose to be sure it is routed properly and unobstructed.

Transmission Lubricant Level Check

The fill plug is located on the rear portion of the transmission gearcase. Access the fill plug at the rear of the vehicle. Maintain lubricant level even with the bottom of the fill plug hole.

1. Position vehicle on a level surface.
2. Remove the fill plug ① and check the lubricant level.



3. If lubricant level is not even with bottom threads, add recommended lubricant as needed. Do not overfill.
4. Reinstall the fill plug and torque to specification.

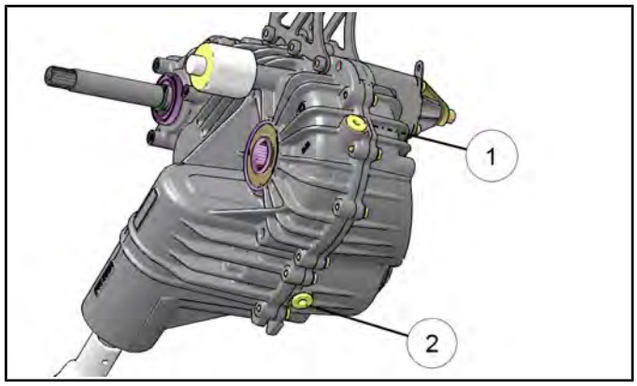
TORQUE

Transmission Fill / Drain Plug:
10-14 lb-ft (14-19 Nm)

Transmission Lubricant Change

The drain plug is located on the bottom of the transmission gearcase. Access the drain plug through the drain hole in the skid plate.

5. Remove the fill plug.
6. Place a drain pan under the transmission drain plug.
7. Remove drain plug ② and allow lubricant to drain completely.



8. Clean the drain plug magnetic surface.
9. Reinstall drain plug with a new O-ring and torque to specification.
10. Add the recommended amount of lubricant through the fill plug hole. Maintain the lubricant level at the bottom of the fill plug hole when filling the transmission. Do not overfill.

FLUID CAPACITY

Recommended Transmission Lubricant:
AGL Gearcase Lubricant
(PN 2878068) (Quart)
Capacity: 41 oz (1200 mL)

11. Reinstall fill plug with a new O-ring and torque to specification.

TORQUE

Transmission Fill / Drain Plug:
10-14 lb-ft (14-19 Nm)

12. Check for leaks. Dispose of used lubricant properly.

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FRONT GEARCASE LUBRICATION

NOTE

It is important to follow the front gearcase maintenance intervals described in the Periodic Maintenance Chart.

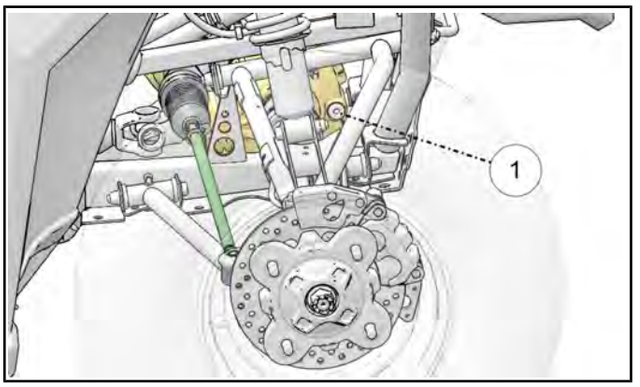
The front gearcase fluid level should be checked and changed in accordance with the maintenance schedule.

- Be sure vehicle is positioned on a level surface when checking or changing the fluid.
- Check vent hose to be sure it is routed properly and unobstructed.

Front Gearcase Fluid Level Check

The fill plug is located on the bottom right side of the front gearcase. Access the fill plug through the right front wheel well. Maintain fluid level even with the bottom of the fill plug hole.

1. Position vehicle on a level surface.
2. Locate the gearcase fill plug ① through the right front wheel well area.



3. Remove the fill plug and check the fluid level.
4. If fluid level is not even with the bottom threads, add the recommended fluid as needed. Do not overfill.
5. Reinstall the fill plug and torque to specification.

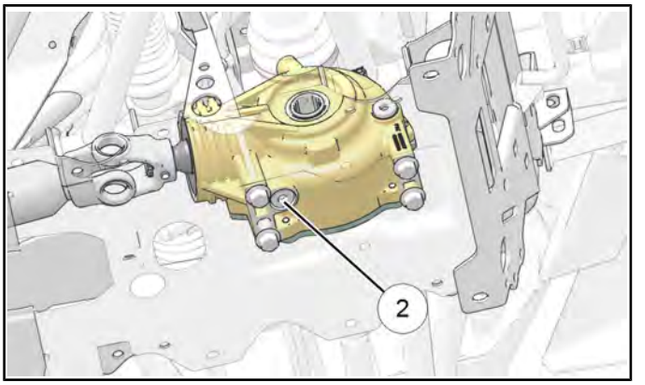
TORQUE

Front Gearcase Fill / Drain Plug:
8-10 lb-ft (11-14 Nm)

Front Gearcase Fluid Change:

The drain plug is located on the bottom of the front gearcase. Access the drain plug through the access hole in the frame underneath the front gearcase.

6. Remove the fill plug.
7. Place a drain pan under the front gearcase drain plug.
8. Remove the drain plug ② and allow fluid to drain completely.



9. Clean the drain plug magnetic surface.
10. Reinstall drain plug with a new O-ring and torque to specification.
11. Add the recommended amount of fluid through the fill hole. Maintain the fluid level even with the bottom threads of the fill plug hole.

FLUID CAPACITY

Recommended Front Gearcase Fluid:
Polaris Demand Drive Fluid
(PN 2877922) (Quart)
Capacity: 6.75 oz (200 mL)

12. Reinstall fill plug with a new O-ring and torque to specification.

TORQUE

Front Gearcase Fill / Drain Plug:
8-10 lb-ft (11-14 Nm)

13. Check for leaks. Dispose of used fluid properly.

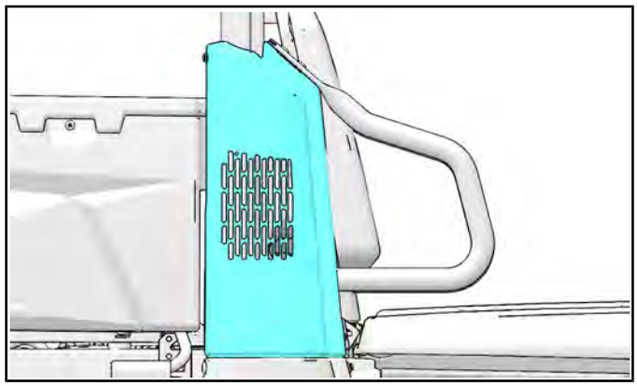
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PVT / FINAL DRIVE / WHEEL AND TIRE MAINTENANCE

PVT INTAKE PRE-FILTER SERVICE

It is recommended that the PVT intake pre-filter be inspected daily. The filter should be inspected using the following procedure:

1. The PVT intake pre-filter is located just behind the passenger hip bolster on the right side of the vehicle. The pre-filter is adhered to the back of the body panel.



2. Inspect the pre-filter. Wipe away any deposits with a clean cloth.
3. If necessary, remove the body panel and clean the pre-filter with soapy water and dry with low pressure compressed air.

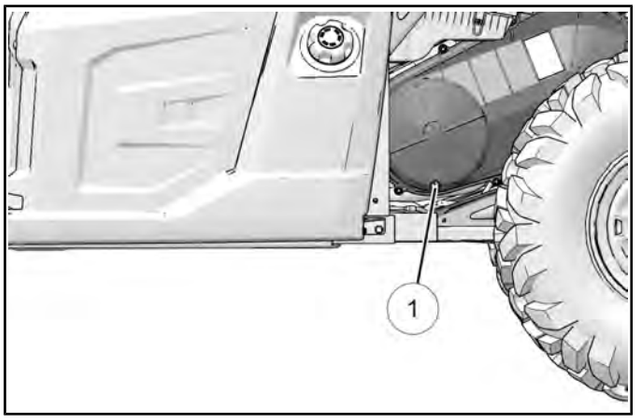
PVT DRYING

NOTE

After operating in water, the vehicle's PVT system should be checked immediately. Use the following instructions to dry it out before operating.

The PVT drain plug (C) is located at the bottom of the outer clutch cover. Access the drain plug through the left rear wheel well.

1. Using a flat blade screwdriver, remove the PVT drain plug ① and O-ring from the outer clutch cover.



2. Allow the water to drain out completely.
3. Reinstall the drain plug and O-ring.
4. Place the transmission in PARK, apply the brake and start the engine.
5. Apply varying throttle for 10-15 seconds to expel the moisture and air-dry the belt and clutches.

NOTE

Do not hold the throttle pedal wide open for more than 5 seconds.

6. Allow the engine RPM to return to idle, then shift the transmission into low gear.
7. Test the PVT system for belt slippage. If the belt slips, repeat the process or remove the outer clutch cover to inspect the PVT system (Refer to **"PVT System Service", page 5.8** for service and removal procedures).

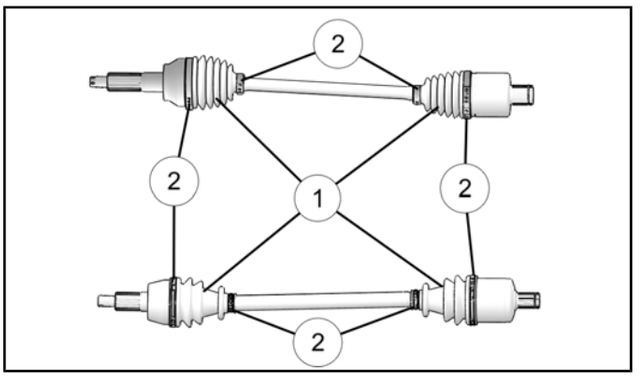
NOTE

If the vehicle has ingested a large amount of water into the PVT system and has not been operated for a period of time, be sure to check the PVT system components for water damage.

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DRIVE SHAFT BOOT INSPECTION

Inspect the front and rear drive shaft boots ① for damage, tears, wear or leaking grease. If the boots exhibit any of these symptoms, they should be replaced. Check to see the boot clamps ② are properly positioned.

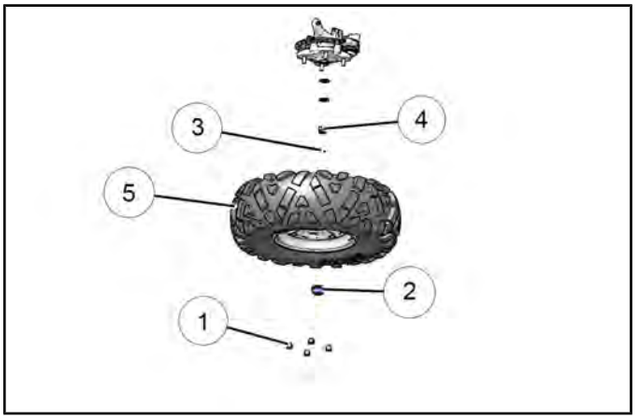


WHEEL REMOVAL

1. Position the vehicle on a level surface.
2. Place the transmission in PARK and stop the engine.
3. Loosen the wheel nuts ① slightly. If wheel hub removal is required, remove the wheel cap ②, cotter pin ③ and loosen the hub nut ④ slightly.

NOTE

Limited Edition models with aluminum wheels require a thin wall socket to loosen or tighten the wheel nuts without damaging the finish of the rim. The wheel nut requires a 19 mm thin wall socket with an O.D. less than 24.7 mm to allow it to clear the rim.



4. Elevate the appropriate side of the vehicle by placing a suitable stand under the frame.
5. Remove the wheel nuts ① and remove the wheel ⑤.

WHEEL INSTALLATION

1. Verify the transmission is still in PARK.
2. Install the wheel on the wheel hub with the valve stem toward the outside. Be sure rotation arrow on the tire (if applicable) point toward forward rotation.
3. Attach the wheel nuts ① and finger tighten them.
4. Carefully lower the vehicle to the ground.

NOTE

Limited Edition models with aluminum wheels require a thin wall socket to loosen or tighten the wheel nuts without damaging the finish of the rim. The wheel nut requires a 19 mm thin wall socket with an O.D. less than 24.7 mm to allow it to clear the rim.

5. Torque wheel nuts ① and/or hub nut ④ to the proper specification.

TORQUE

Wheel Nuts (Steel Wheels):
60 lb-ft (81 Nm)
Wheel Nuts (Cast Aluminum Wheels):
120 lb-ft (163 Nm)
Front Wheel Hub Castle Nuts:
80 lb-ft (108 Nm)
Rear Wheel Hub Castle Nuts:
110 lb-ft (149 Nm)

NOTE

Do not lubricate the stud or the lug nut.

6. If wheel hub nut was removed, install a new cotter pin ③ after the hub castle nut has been tightened. If the holes do not line up, turn the castle nut counter-clockwise until the cotter pin can be installed.

CAUTION

If wheels are improperly installed it could affect vehicle handling and tire wear. On vehicles with tapered wheel nuts, make sure tapered end of nut goes into taper on wheel.

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TIRE INSPECTION

- Improper tire inflation may affect vehicle maneuverability.
- When replacing a tire always use original equipment size and type.
- The use of non-standard size or type tires may affect vehicle handling.

⚠ WARNING

Operating with worn tires will increase the possibility of the vehicle skidding easily with possible loss of control. Worn tires can cause an accident.

Always replace tires when the useable tread depth has worn out.

TIRE PRESSURE

Remove the valve stem cap and check tire pressure using the tire pressure gauge included in the vehicle's tool kit.

CAUTION

Maintain proper tire pressure.Refer to the warning tire pressure decal applied to the vehicle.

Tire Pressure Inspection (Cold)	
Front	Rear
Base: **10 psi (69 kPa)** CREW: **14 psi (97 kPa)**	Base: **12 psi (83 kPa)** CREW: **16 psi (110 kPa)**

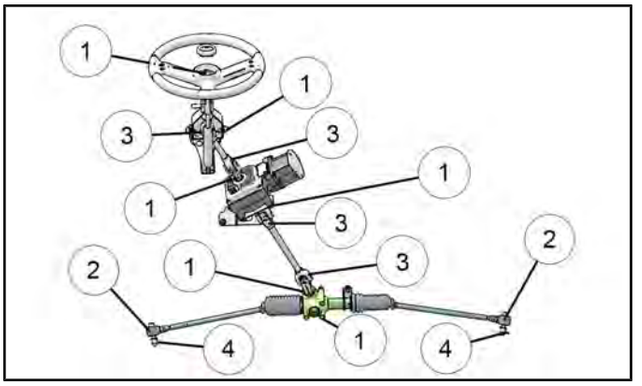
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STEERING MAINTENANCE

STEERING INSPECTION

Steering system components should be checked periodically for loose fasteners ①, worn tie rod ends ②, loose steering shaft U-joints ③, worn A-arm ball joints and general damage. Also check to make sure all cotter pins ④ are in place. If cotter pins are removed, they must be replaced.

Replace any worn or damaged steering components. Steering should move freely through the entire range of travel without binding. Check routing of all cables, hoses, and wiring to be sure the steering mechanism is not restricted or limited.



NOTE

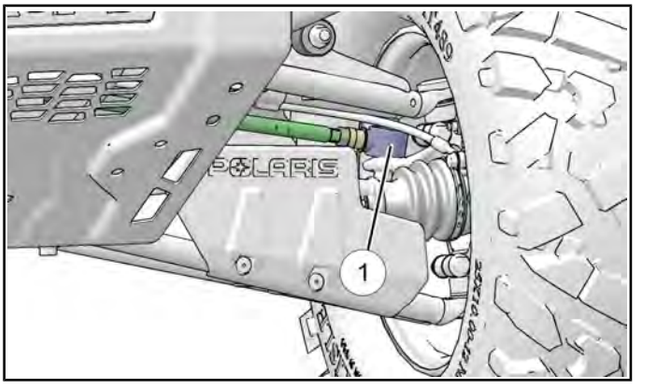
Check front end alignment whenever steering components are replaced.

⚠ WARNING

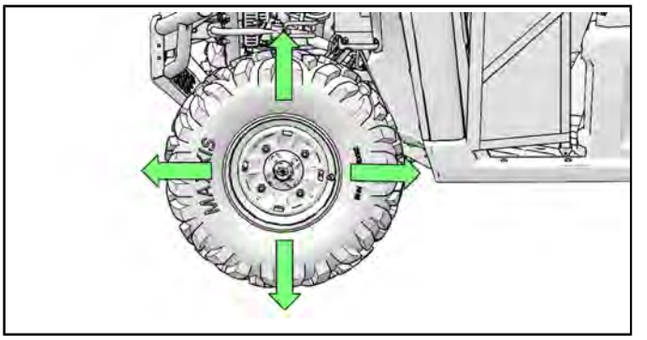
Due to the critical nature of the procedures outlined in this chapter, Polaris recommends steering component repair and adjustment be performed by an authorized Polaris MSD certified technician.

TIE ROD END / WHEEL HUB INSPECTION

- To check for play in the tie rod end ①, grasp the steering tie rod, pull in all directions feeling for movement.



- Replace any worn steering components. Steering should move freely through entire range of travel without binding.
- Elevate front end of machine so front wheels are off the ground. Check for any looseness in front wheel/hub assembly by grasping the tire firmly at top and bottom first, and then at front and rear. Try to move the wheel and hub by pushing inward and pulling outward.



- If abnormal movement is detected, inspect the hub and wheel assembly to determine the cause (loose wheel nuts or loose front hub nut).

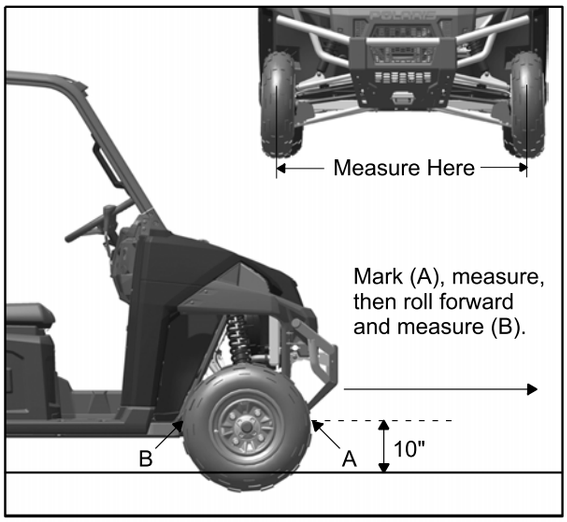
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WHEEL TOE ALIGNMENT INSPECTION

NOTE

Make sure tire pressures are set the same on the right and left tires.

1. Place machine on a smooth level surface and set steering wheel in a straight ahead position. Secure the steering wheel in this position.
2. Place a chalk mark on the center line of the front tires approximately 10 in (25.4 cm) from the floor or as close to the hub/axle center line as possible.



NOTE

It is important the height of both marks be equally positioned to get an accurate measurement.

3. Measure the distance between the marks and record the measurement. Call this measurement “A”.
4. Rotate the tires 180° by moving the vehicle forward. Position chalk marks facing rearward, even with the hub/axle center line.
5. Again measure the distance between the marks and record. Call this measurement “B”. Subtract measurement “B” from measurement “A”. The difference between measurements “A” and “B” is the vehicle toe alignment. The recommended vehicle toe tolerance is **1/8-1/4 in (3.2-6.4 mm)** toe out. This means the front of the tire (A) is **1/8-1/4 in (3.2-6.4 mm)** wider than the measurement at the rear (B).

MEASUREMENT
Wheel Toe-Out (A) - (B): **1/8-1/4 in (3.2-6.4 mm)**

WHEEL TOE ADJUSTMENT

If toe alignment is incorrect, repeat steps 3-5 of “Wheel Toe Alignment Inspection”, but instead measure the distance between vehicle center and each wheel. This will tell you which tie rod needs adjusting.



Measure Distances
(measurements should be equal)

NOTE

Be sure steering wheel is straight ahead before determining which tie rod needs adjustment.

CAUTION

During tie rod adjustment, it is very important that the following precautions be taken when tightening tie rod end jam nuts. If the rod end is positioned incorrectly it will not pivot, and may break.

To adjust toe alignment:

- Hold tie rod end to keep it from rotating.
- Loosen jam nuts at both end of the tie rod.

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- Shorten or lengthen the tie rod until alignment is as required to achieve the proper toe setting as specified in **“Wheel Toe Alignment Inspection”**.

IMPORTANT

When tightening the tie rod end jam nuts, the rod ends must be held parallel to prevent rod end damage and premature wear. Damage may not be immediately apparent if done incorrectly.

- After alignment is complete, torque jam nuts to specification.

TORQUE

Tie Rod Jam Nut:
13 lb-ft (18 Nm)

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SUSPENSION MAINTENANCE

SUSPENSION INSPECTION

Compress and release the suspension. Damping should be smooth throughout the range of travel.

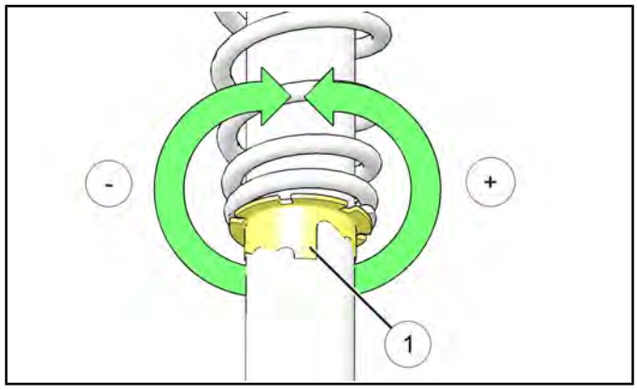
- Check all suspension components and mounting fasteners for wear or damage.
- Inspect each shock body for leakage.

SPRING PRE-LOAD ADJUSTMENT

The front and rear shock absorber springs are adjustable. Rotate the adjuster cam ① either direction to increase or decrease spring tension. Always adjust both left and right sides equally.

NOTE

Adjusting all shock cams equally will only affect ride height as the weight transfer will not be changed.



Vehicle loads effect suspension spring pre-load requirements. Use Spanner Wrench to adjust pre-load as necessary to avoid bottoming of the shocks.

Shock Spanner Wrench:
2871095

SHOCK POSITION ADJUSTMENT

The front and rear shock position may be adjusted to provide a stiffer suspension operation if necessary.

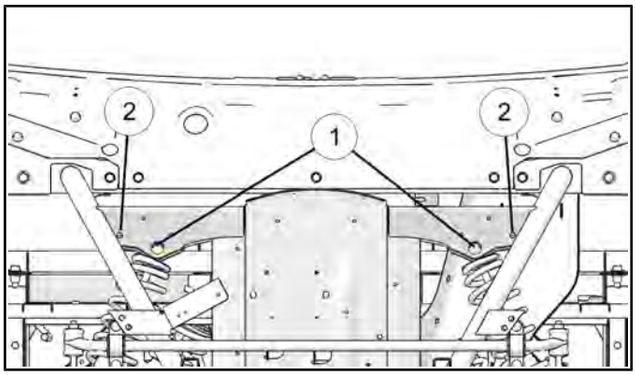
1. Elevate vehicle and safely support the main frame.

CAUTION

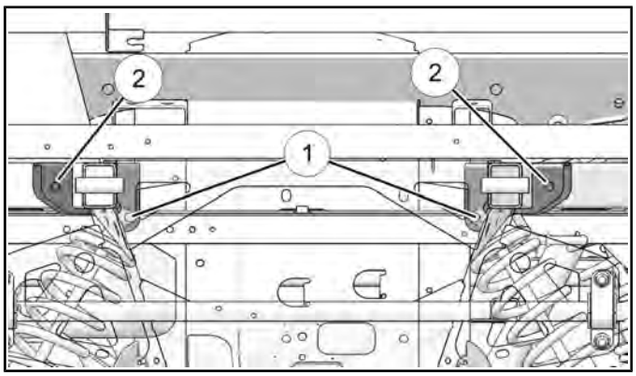
Serious injury may result if machine tips or falls. Be sure machine is secure before adjusting.

2. Remove the upper shock mounting bolts ① from each side of the vehicle.
3. Reposition the upper shock mounts to the outside mounting holes ②.

FRONT SHOCK



REAR SHOCK



4. Reinstall the upper shock mounting bolts and torque to specification.

TORQUE

Shock Mounting Bolts:
40 lb-ft (54 Nm)

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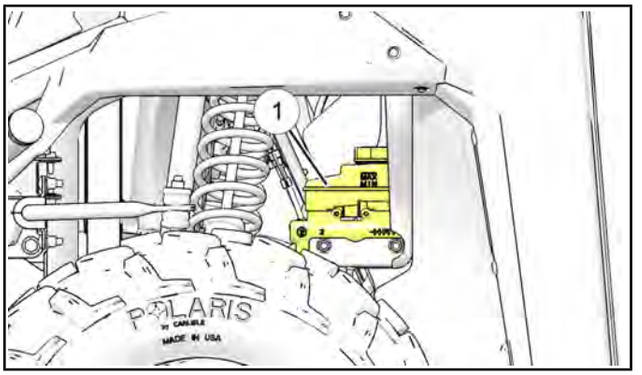
BRAKE SYSTEM MAINTENANCE

BRAKE FLUID INSPECTION

Always check the brake pedal travel and inspect the brake fluid reservoir level before each operation. If the fluid level is low, add DOT 4 brake fluid only.

Brake fluid should be changed every two years. The fluid should also be changed anytime the fluid becomes contaminated, the fluid level is below the minimum level, or if the type and brand of the fluid in the reservoir is unknown.

The brake master cylinder reservoir ① can be accessed through the front left wheel well.



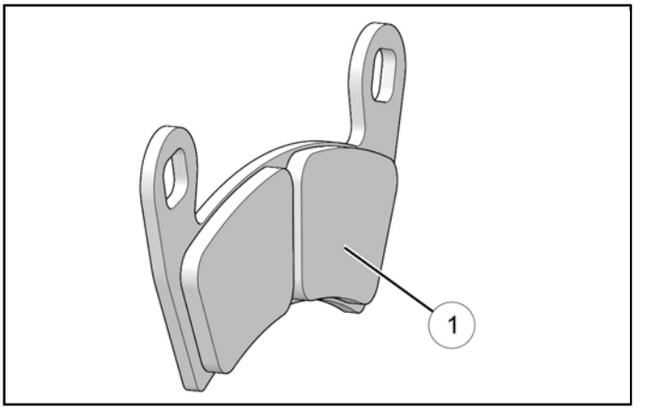
1. Position the vehicle on a level surface.
2. Place the gear selector in Park.
3. View the brake fluid level in the reservoir. The level should be between the MAX and MIN level lines.
4. If the fluid level is lower than the MIN level line, add brake fluid until it reaches just below the MAX level line.
5. Install the reservoir cap and apply the brake pedal forcefully for a few seconds and check for fluid leakage around the master cylinder fittings and the brake caliper fittings.

BRAKE HOSE AND FITTING INSPECTION

Check brake system hoses and fittings for cracks, deterioration, abrasion, and leaks. Tighten any loose fittings and replace any worn or damaged parts.

BRAKE PAD / DISC INSPECTION

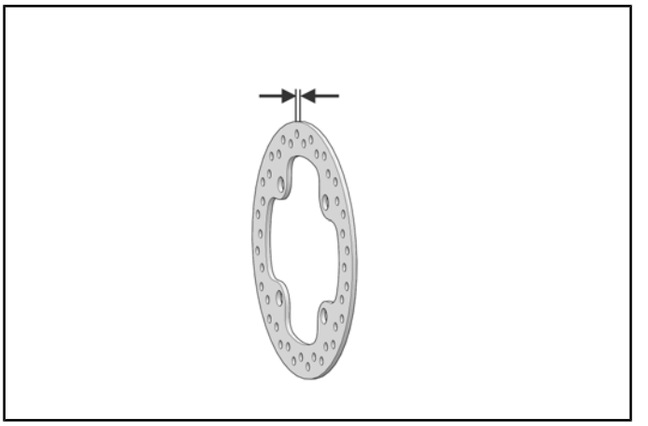
1. Check the brake pads ① for wear, damage, or looseness.



2. Inspect the brake pad surface for excessive wear.
3. Pads should be changed when the friction material is worn below specification.

MEASUREMENT
Brake Pad Thickness (Minimum): **0.150" (3.8 mm)**

4. Check surface condition of the brake discs.
5. Measure the thickness of the front and rear brake discs.



6. The disc (s) should be replaced if thickness is less than the specified service limit.

MEASUREMENT
Brake Disc Thickness (Minimum): **0.170" (4.32 mm)**

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ELECTRICAL AND IGNITION SYSTEM MAINTENANCE

BATTERY MAINTENANCE

Keep battery terminals and connections free of corrosion. If cleaning is necessary, remove the corrosion with a stiff wire brush. Wash with a solution of one tablespoon baking soda and one cup water. Rinse well with tap water and dry off with clean shop towels. Coat the terminals with dielectric grease or petroleum jelly.

⚠ WARNING

CALIFORNIA PROPOSITION 65 WARNING: Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.WASH HANDS AFTER HANDLING.

⚠ WARNING

Battery electrolyte is poisonous. It contains sulfuric acid. Serious burns can result from contact with skin, eyes or clothing. Antidote:

External: Flush with water.

Internal: Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call physician immediately.

Eyes: Flush with water for 15 minutes and get prompt medical attention.

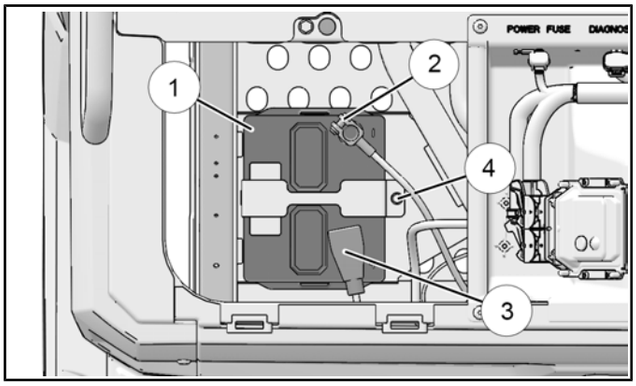
Batteries produce explosive gases. Keep sparks, flame, cigarettes, etc. away. Ventilate when charging or using in an enclosed space. Always shield eyes when working near batteries. KEEP OUT OF REACH OF CHILDREN.

NOTE

Batteries must be fully charged before use or battery life will be reduced by 10-30% of full potential. Charge battery according to “Charging Procedure” provided in Chapter 10. Do not use the vehicle’s stator/alternator to charge a new battery.

BATTERY REMOVAL

1. Remove the passenger seat (right rear passenger seat on the CREW models) and storage container to access the battery ①.



2. Disconnect the black (negative) battery cable ②.
3. Disconnect the red (positive) battery cable ③.

CAUTION

To reduce the chance of sparks, disconnect the black (negative) cable first. When reinstalling the battery, connect the black (negative) cable last.

4. Remove the fastener ④ retaining the battery hold-down strap and lift the battery out of the vehicle.

BATTERY INSTALLATION

NOTE

Using a new battery that has not been fully charged can damage the battery and result in a shorter life. It can also hinder vehicle performance. Follow the battery charging procedure in Chapter 10 “Electrical” before installing the battery.

1. Ensure the battery is fully charged.
2. Place the battery ① in the vehicle. Install the hold-down strap and retaining fastener ④.
3. Coat the terminals with dielectric grease or petroleum jelly.
4. Install and tighten the red (positive) cable ③ first. Torque to specification.

TORQUE

Battery Terminal Bolt:
6 lb-ft (8 Nm)

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5. Install and tighten the black (negative) cable ② last.

CAUTION

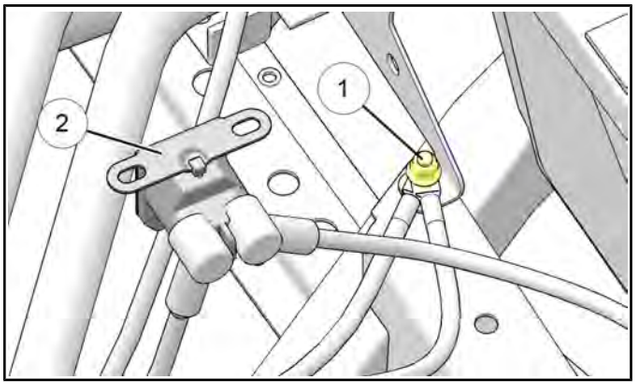
To reduce the chance of sparks, disconnect the black (negative) cable first. When reinstalling the battery, connect the black (negative) cable last.

6. Verify the cables are properly routed and reinstall the storage container and passenger seat.

CHASSIS / ENGINE ELECTRICAL GROUND

Inspect the ground cable connections. Remove ground terminals and clean if necessary.

1. Remove the passenger seat base and storage bin to access the chassis ground terminal ①, located below the starter solenoid ② next to the battery.



2. Inspect the chassis ground terminals. Be sure they are clean and tight.
3. Inspect the engine ground terminal, attached to the upper starter mounting bolt. The other end of the engine ground cable is attached to the chassis ground terminal).
4. Inspect the engine ground terminals. Be sure they are clean and tight.

SPARK PLUG SERVICE (570)

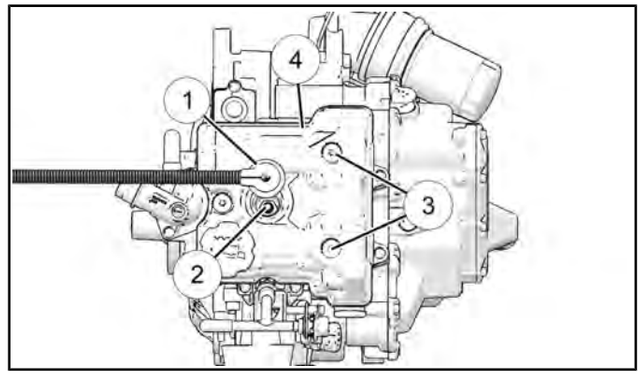
Inspect and replace the spark plug at the intervals outlined in the Periodic Maintenance Chart.

1. Tilt the rear cargo box to access the top of the engine.

⚠ WARNING

A hot engine can cause serious burns. Allow engine to cool or wear protective gloves when removing the spark plug.

2. Clean plug area so no dirt and debris can fall into engine when plug is removed. Rinse plug wells with water and dry with compressed air.
3. Remove spark plug high tension lead ①.



4. Remove spark plug ②.
5. Inspect electrodes for wear and carbon buildup. Look for a sharp outer edge with no rounding or erosion of the electrodes.
6. Clean with electrical contact cleaner or a glass bead spark plug cleaner only.

CAUTION

A wire brush or coated abrasive should not be used.

7. Measure gap with a wire gauge. Adjust gap if necessary by carefully bending the side electrode.
8. If necessary, replace spark plug with proper type.

CAUTION

Severe engine damage may occur if the incorrect spark plug is used.

Recommended Spark Plugs:
NGK MR7F

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9. Install spark plugs and torque to specification.

TORQUE
Spark Plug: **9 lb-ft (12 Nm)**

10. Install spark plug high tension lead. Ensure lead is pushed down all the way so it engages onto the spark plug.

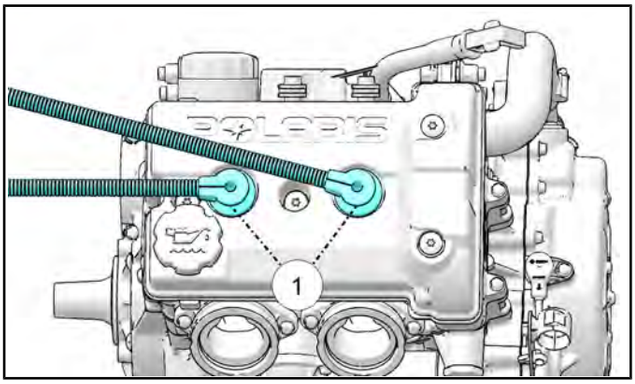
SPARK PLUG SERVICE (900 / 1000)

Inspect and replace the spark plugs at the intervals outlined in the Periodic Maintenance Chart.

1. Tilt the rear cargo box to access the top of the engine.

⚠ WARNING
A hot engine can cause serious burns. Allow engine to cool or wear protective gloves when removing the spark plugs.

2. Remove the spark plug caps ①.



NOTE
MAG and PTO reference decals on spark plug wires for reassembly.

3. Clean out plug wells with compressed air to remove any loose dirt or debris.
4. Rinse plug wells with water and dry with compressed air.

NOTE
Spark plug wells have drain holes built into the cylinder head to allow water to drain out.

5. Remove spark plugs using a 5/8” spark plug socket with an extension.
6. Inspect electrodes for wear and carbon buildup. Look for a sharp outer edge with no rounding or erosion of the electrodes.
7. Clean with electrical contact cleaner or a glass bead spark plug cleaner only.

CAUTION
A wire brush or coated abrasive should not be used.

8. Measure gap with a wire gauge. Adjust gap if necessary by carefully bending the side electrode.
9. If necessary, replace spark plug with proper type.

CAUTION
Severe engine damage may occur if the incorrect spark plug is used.

Recommended Spark Plugs: **NGK MR7F**

10. Apply anti-seize compound to the spark plug threads.
11. Install spark plugs and torque to specification.

TORQUE
Spark Plug: **7 lb-ft (10 Nm)**

12. Install the plug caps to the appropriate cylinder by referencing the MAG and PTO spark plug wire decals (B). Ensure wires are pushed down all the way so they engage onto the spark plugs.

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NOTES

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CHAPTER 3
ENGINE / COOLING SYSTEM

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570 ENGINE

GENERAL INFORMATION - ENGINE (570)

SERVICE NOTES - ENGINE (570)

A commercially available engine lift or hoist is required for engine removal. Arrange for assistance when removing and installing the engine. Always be sure the engine and chassis are securely supported at all times.

Once the engine is removed from frame, an engine stand is recommended for engine disassembly and assembly.

The following components can be serviced or removed with the engine installed:

- Camshaft
- Camshaft Sprockets
- Cylinder Head and Gaskets
- Cylinder and Gaskets
- Piston and Rings
- Flywheel
- Starter Motor / Idler Gear Asm
- Stator (Alternator)
- Thermostat
- Valve Cover
- Water Pump
- Camshaft Timing Chain and Guides
- Crankshaft Seal (PTO)
- Oil Pump / Oil Pump Sprocket or Chain

The following components require engine removal for service:

- Counterbalance Shaft and Bearings
- Crankshaft and Bearings
- Crankcase
- Oil Pressure Regulator
- Oil Pump Pickup Assembly

ALL of the top-end engine components can be serviced while the engine is mounted in the chassis.

SPECIAL TOOLS - ENGINE (570)

TOOL DESCRIPTION	PART NUMBER
Stator Cover Removal Handles	**PA-49317**
Water Pump Mechanical / Oil Seal Installation Kit	**PU-50869**
Drive Clutch Puller	**PA-48595**
Engine Stand Adapter (Mounts To The Engine)	**PU-50824**
Engine Stand Sleeve Adapter (Use With 2” Bore Stand)	**PU-50625**
Engine Stand Sleeve Adapter (Use With 2.375” Bore Stand)	**PW-47054**
Engine Stand (2” Bore)	**PU-50624**
Clutch Center Distance Tool	**PU-50658-A**
Oil Filter Wrench	**PU-50105**
Oil Pressure Gauge Adapter	**PU-50569**
Oil Pressure Gauge	**PV-43531**
Cylinder Holding & Camshaft Timing Plate	**PU-50563**
Valve Spring Compressor Adapter	**PV-43513-A**
Flywheel Holding Tool	**PU-51220**
Flywheel Puller	**PA-49316**
Crankshaft Removal / Installation Tool Kit	**PU-50784**

Bosch Automotive Service Solutions: 1-800-345-2233 *http://polaris.service-solutions.com/.*

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TORQUE SPECIFICATIONS - ENGINE (570)

PART DESCRIPTION	TORQUE SPECIFICATION
Thermostat Cover Bolts	**8 lb-ft (11 Nm)**
Coolant Bleed Screw	**6 lb-ft (8 Nm)**
Water Pump Cover Fastener	**9 lb-ft (12 Nm)**
Water Pump Impeller	**Finger Tight**
Stater Cover and Water Pump Cover	**9 lb-ft (12 Nm)**
Wheel Nuts (Steel Wheels)	**60 lb-ft (81 Nm)**
Wheel Nuts (Cast Aluminum Wheels)	**120 lb-ft (163 Nm)**
Rear Engine Coupler Fastener (In Sequence)	**55 lb-ft (75 Nm)**
Front Engine Mount Fasteners	**40 lb-ft (54 Nm)**
Isolator Center Bolt	**40 lb-ft (54 Nm)**
Exhaust Head Pipe Bolts	**18 lb-ft (25 Nm)**
Starter Motor Fastener	**7 lb-ft (10 Nm)**
CPS Fastener	**9 lb-ft (12 Nm)**
Oil Gallery Plug	**11 lb-ft (15 Nm)**
Intake Camshaft Sprocket Bolt	**14 lb-ft (19 Nm)**
Cam Chain Guide Fasteners	**9 lb-ft (12 Nm)**
Camshaft Carrier Bolts	**8 lb-ft (11 Nm)**
Cam Chain Tensioner	**30 lb-ft (41 Nm)**
Spark Plug - 570	**9 lb-ft (12 Nm)**
Valve Cover Bolts	**9 lb-ft (12 Nm)**
Cylinder Head Step 1	**21 lb-ft (28 Nm)**
Cylinder Head Step 2	**26 lb-ft (35 Nm)**
Cylinder Head Step 3	**Additional 135°**
Cylinder Head Step 4 (M6 Bolts)	**8 lb-ft (11 Nm)**
Oil Pump Cover Bolt	**8 lb-ft (11 Nm)**
Crankcase Breather Fasteners	**9 lb-ft (12 Nm)**

PART DESCRIPTION	TORQUE SPECIFICATION
Bearing Retainer Fastener	**8 lb-ft (11 Nm)**
Crankcase Bolts (In Sequence)	**22 lb-ft (30 Nm)**
One Way Clutch Retaining Bolts	**9 lb-ft (12 Nm)**
Flywheel Retaining Nut	**133 lb-ft (180 Nm)**
Stator Mounting Bolts	**9 lb-ft (12 Nm)**
Stator Wire Retainer	**6 lb-ft (9 Nm)**

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SERVICE SPECIFICATIONS - ENGINE (570)

CAMSHAFT / CYLINDER HEAD / CYLINDER		INCHES (MM)
Camshaft	Cam Lobe Height - Intake	1.5704" ± 0.0038" (39.89 ± 0.097 mm)
	Cam Lobe Height - Exhaust	1.5405" ± 0.0038" (39.13 ± 0.097 mm)
	Camshaft Journal O.D. - All (Standard)	0.9029" - 0.9037 " (22.933 - 22.954 mm)
	Camshaft Journal O.D. - All (Service Limit)	0.9025" (22.923 mm)
	Camshaft Journal Bore I.D. - All (Standard)	0.9055" - 0.9063" (23.000 - 23.021 mm)
	Camshaft Journal Bore I.D. - All (Service Limit)	0.9072" (23.044 mm)
	Camshaft Oil Clearance (Standard)	0.0018" - 0.0034" (0.046 - 0.088 mm)
	Camshaft Oil Clearance (Service Limit)	0.0047" (0.121 mm)
	Camshaft End Play (Standard)	0.0069" - 0.0128" (0.175 - 0.325 mm)
	Camshaft End Play (Service Limit)	0.0157" (0.4 mm)
Cylinder Head	Cylinder Head - Surface Warp Limit	0.0024" (0.060 mm)
	Cylinder Head - Standard Height	4.745" ± 0.0020" (120.53 ± 0.05 mm)
Valve Seat	Valve Seat - Contacting Width - Intake (Standard)	0.0393" ± 0.0039" (1.0 ± 0.10 mm)
	Valve Seat - Contacting Width - Intake (Service Limit)	0.0551" (1.4 mm)
	Valve Seat - Contacting Width - Exhaust (Standard)	0.0590" ± 0.0039" (1.5 ± 0.10 mm)
	Valve Seat - Contacting Width - Exhaust (Service Limit)	0.0748" (1.9 mm)
	Valve Seat Angles	30.0° ± 1.5° / 45.0° ± 0.5° / 60.0° ± 1.5°
Valve Guide	Valve Guide Inner Diameter	0.2165" - 0.2171" (5.500 - 5.515 mm)
Valve	Valve Lash (Cold) - Intake	0.006" ± 0.002" (0.152 ± 0.050 mm)
	Valve Lash (Cold) - Exhaust	0.008" ± 0.002" (0.203 ± 0.050 mm)
	Valve Stem Diameter - Intake	0.2155" - 0.2161" (5.475 - 5.490 mm)
	Valve Stem Diameter - Exhaust	0.2147" - 0.2153" (5.455 - 5.470 mm)
	Valve Stem Oil Clearance - Intake	0.0003" - 0.0015" (0.010 - 0.040 mm)
	Valve Stem Oil Clearance - Exhaust	0.0011" - 0.0023" (0.030 - 0.060 mm)
	Valve Stem Overall Length - Intake	3.7704" (95.77 mm)
	Valve Stem Overall Length - Exhaust	3.7964" (96.43 mm)
Valve Spring	Valve Spring Free Length (Standard)	1.7263" (43.85 mm)
	Valve Spring Free Length (Service Limit)	1.683" (42.75 mm)
Cylinder	Cylinder - Surface Warp Limit (mating with cylinder head)	0.00098" (0.025 mm)
	Cylinder Bore - Standard	3.8976" ± 0.0003" (99.0 mm ± 0.008 mm)
	Cylinder Out of Round Limit	0.001" (0.025 mm)
	Cylinder Taper Limit	0.001" (0.025 mm)
	Cylinder to Piston Clearance	0.00019" - 0.00216" (.005 - .055 mm)

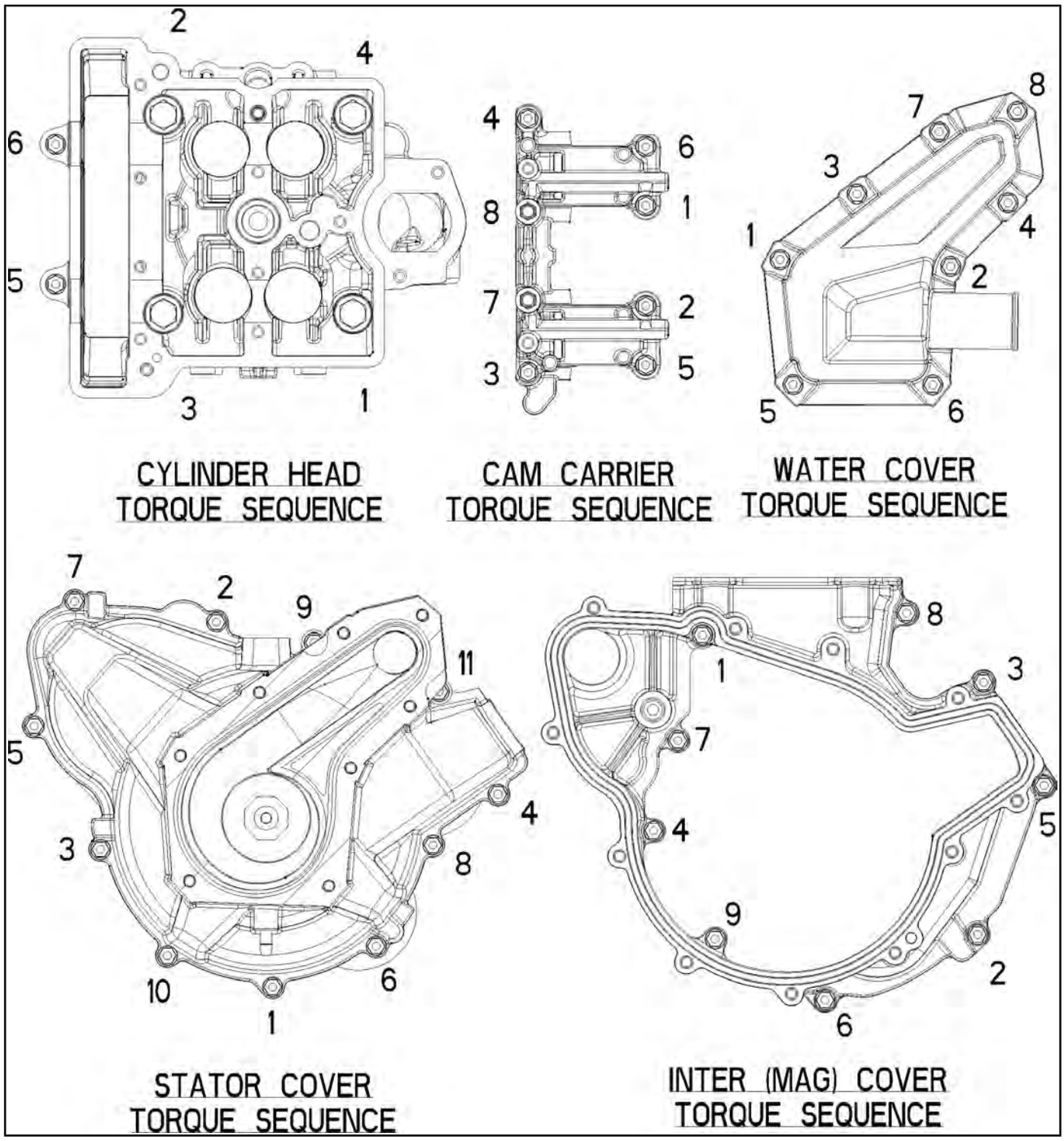
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PISTON / RINGS / CONN ROD / CRANK / BALANCE SHAFT			INCHES (MM)
Piston	Piston - Standard O.D.		3.8957 - 3.8968″ (98.953 - 98.980 mm)
	Piston Pin Bore I.D. (Standard)		0.8662 - 0.8665″ (22.004 - 22.010 mm)
	Piston Pin Bore I.D. (Service Limit)		0.8677" (22.042 mm)
Piston Pin	Piston Pin O.D. (Standard)		0.8659" - 0.8661" (21.995 - 22.000 mm)
	Piston Pin O.D. (Service Limit)		0.8651" (21.975 mm)
Piston Ring	Installed Gap	Top Ring (Standard)	0.0059" - 0.0122" (0.15 - 0.31 mm)
		Top Ring (Service Limit)	0.0137" (0.35 mm)
		Second Ring (Standard)	0.0094" - 0.0196" (0.24 - 0.50 mm)
		Second Ring (Service Limit)	0.0220" (0.56 mm)
		Oil Control Rails (Standard)	0.0098" - 0.0401" (0.25 - 1.02 mm)
		Oil Control Rails (Service Limit)	0.0480" (1.22 mm)
	Ring to Groove Clearance	Top Ring (Standard)	0.0011" - 0.0037" (0.030 - 0.095 mm)
		Top Ring (Service Limit)	0.0042" (0.108 mm)
		Second Ring (Standard)	0.0007" - 0.0029" (0.020 - 0.076 mm)
		Second Ring (Service Limit)	0.0035" (0.089 mm)
Connecting Rod	Connecting Rod Small End I.D. (Standard)		0.8665" - 0.8670" (22.010 - 22.023 mm)
	Connecting Rod Small End I.D. (Service Limit)		0.8682" (22.053 mm)
	Connecting Rod Big End I.D.		See Service Procedure Listed In This Chapter
Crankshaft	Main Journal O.D. (Service Limit)		1.6137" (40.990 mm)
	Crankshaft Runout Limit (PTO and MAG)		See Service Procedure Listed In This Chapter
Balance Shaft	Bearing Journal O.D. (Standard)		1.1798 - 1.1802″ (29.969 - 29.979 mm)

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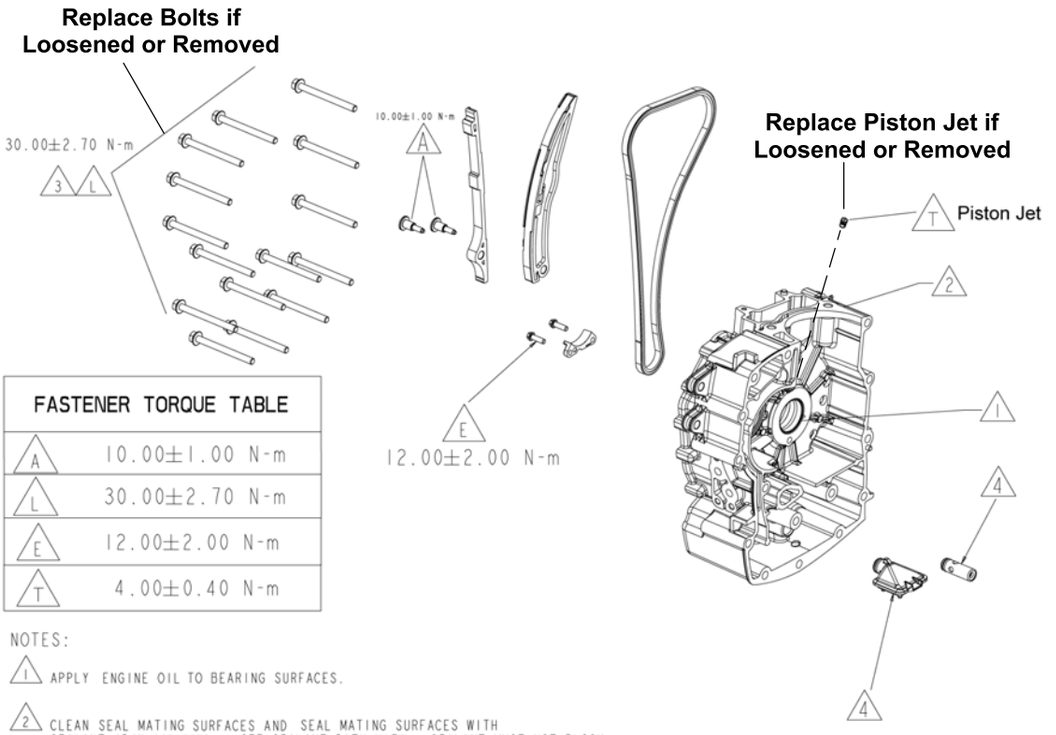
ENGINE DETAIL - TORQUE VALUES / SEQUENCES / ASSEMBLY NOTES (570)

TORQUE SEQUENCE



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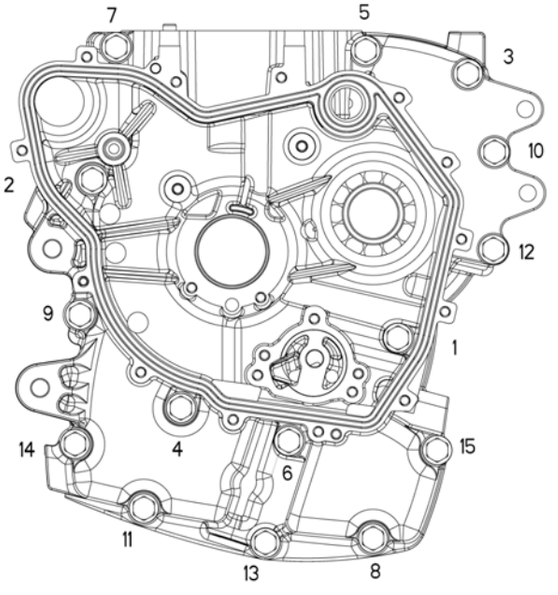
CRANKCASE / TIMING CHAIN GUIDES / OIL PICKUP / REGULATOR VALVE



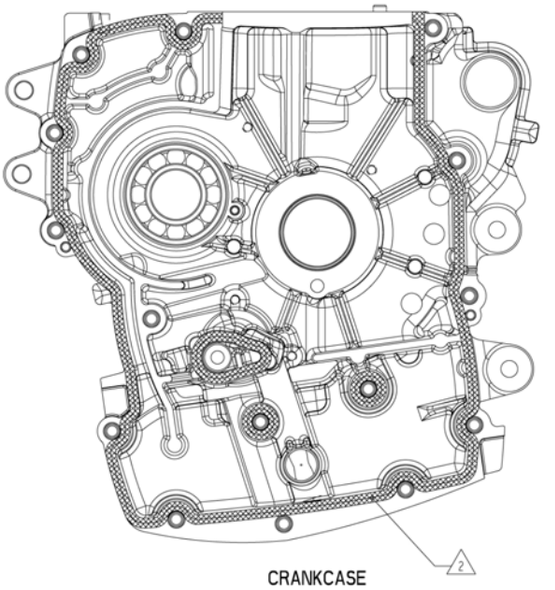
FASTENER TORQUE TABLE	
A	10.00±1.00 N-m
L	30.00±2.70 N-m
E	12.00±2.00 N-m
T	4.00±0.40 N-m

NOTES:

1. APPLY ENGINE OIL TO BEARING SURFACES.
2. CLEAN SEAL MATING SURFACES AND SEAL MATING SURFACES WITH SEALANT (P/N 2871557). SEE SEALANT PATH VIEW. SEALANT MUST NOT BLOCK OIL PASSAGES.
3. TORQUE IN SEQUENCE PER CRANKCASE TORQUE VIEW.
4. INSTALL UNTIL FULLY SEATED IN BORE/HOLE. ENGINE OIL MAY BE USED TO FACILITATE INSTALLATION.



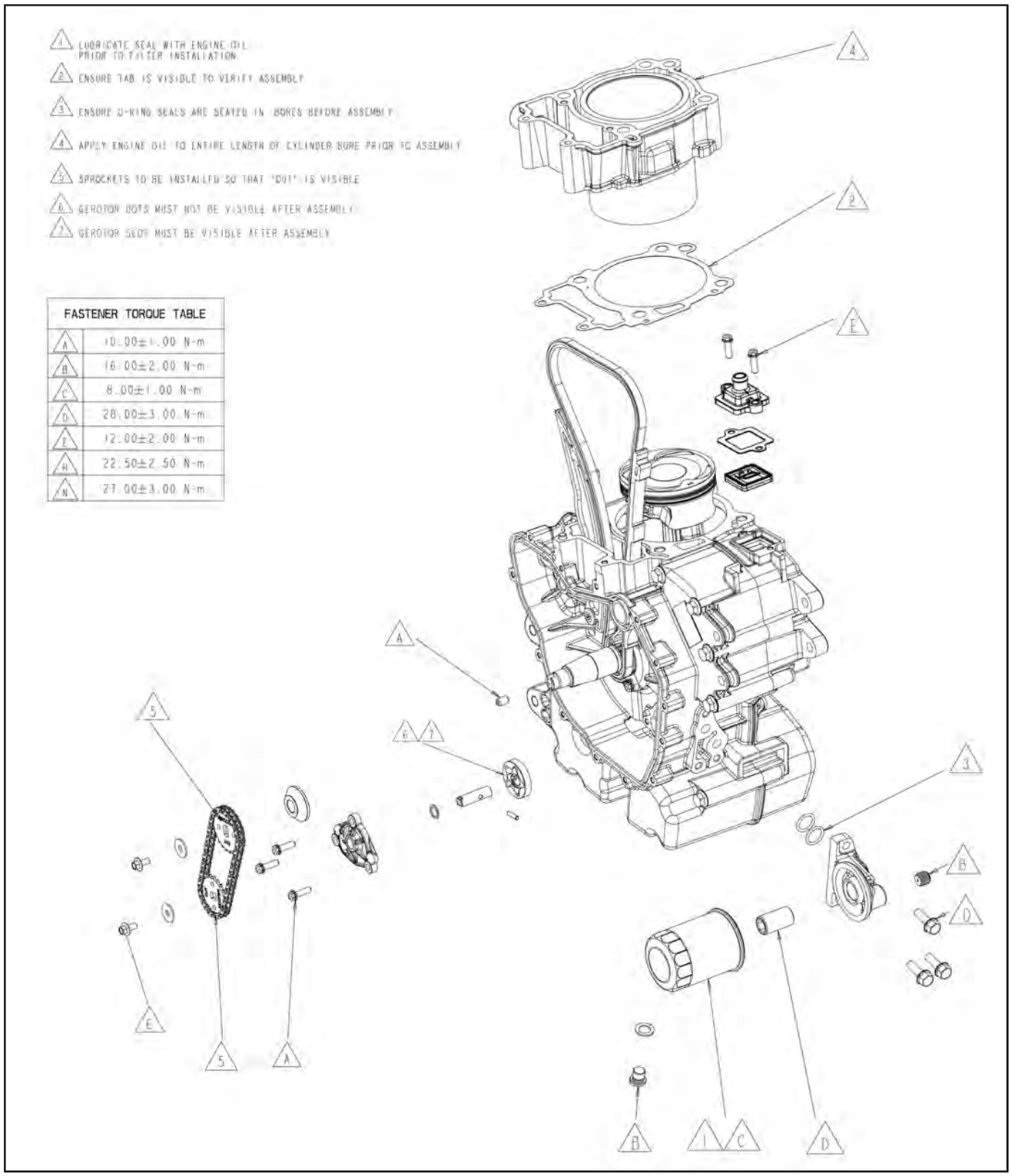
CRANKCASE TORQUE SEQUENCE



CRANKCASE SEALANT PATH

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CYLINDER / OIL FILTER / OIL PUMP / BREATHER



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CAMSHAFTS / CYLINDER HEAD / FLYWHEEL / STATOR COVER - BLACK HEAD BOLTS

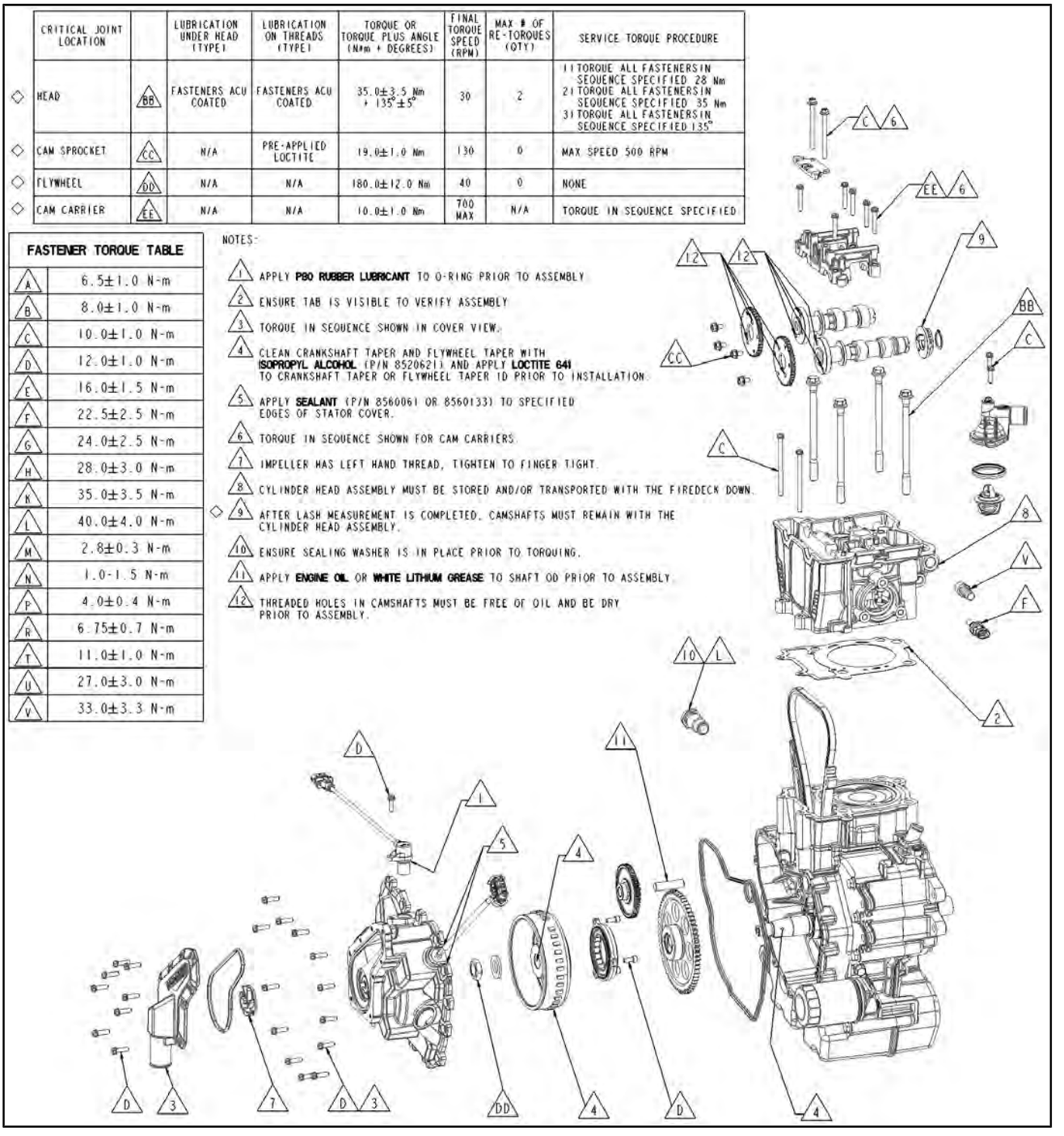
Apply a drop of Loctite 641 (Yellow) to the crankshaft taper before assembly. Loctite 603 (Green) can be used if 641 is not available.

	CRITICAL JOINT LOCATION		LUBRICATION UNDER HEAD (TYPE)	LUBRICATION ON THREADS (TYPE)	TORQUE OR TORQUE PLUS ANGLE (N•m + DEGREES)	FINAL TORQUE SPEED (RPM)	MAX # OF RE-TORQUES (QTY)	SERVICE TORQUE PROCEDURE
◇	HEAD	BB	FASTENERS ACU COATED	FASTENERS ACU COATED	35.0±3.5 Nm + 135°±5°	30	2	1) TORQUE ALL FASTENERS IN SEQUENCE SPECIFIED 28 Nm 2) TORQUE ALL FASTENERS IN SEQUENCE SPECIFIED 35 Nm 3) TORQUE ALL FASTENERS IN SEQUENCE SPECIFIED 135°
◇	CAM SPROCKET	CC	N/A	PRE-APPLIED LOCTITE	19.0±1.0 Nm	130	0	MAX SPEED 500 RPM
◇	FLYWHEEL	DD	N/A	N/A	180.0±12.0 Nm	40	0	NONE
◇	CAM CARRIER	EE	N/A	N/A	10.0±1.0 Nm	700 MAX	N/A	TORQUE IN SEQUENCE SPECIFIED

FASTENER TORQUE TABLE	
A	6.5±1.0 N-m
B	8.0±1.0 N-m
C	10.0±1.0 N-m
D	12.0±1.0 N-m
E	16.0±1.5 N-m
F	22.5±2.5 N-m
G	24.0±2.5 N-m
H	28.0±3.0 N-m
K	35.0±3.5 N-m
L	40.0±4.0 N-m
M	2.8±0.3 N-m
N	1.0-1.5 N-m
P	4.0±0.4 N-m
R	6.75±0.7 N-m
T	11.0±1.0 N-m
U	27.0±3.0 N-m
V	33.0±3.3 N-m

NOTES:

1. APPLY **P80 RUBBER LUBRICANT** TO O-RING PRIOR TO ASSEMBLY.
2. ENSURE TAB IS VISIBLE TO VERIFY ASSEMBLY.
3. TORQUE IN SEQUENCE SHOWN IN COVER VIEW.
4. CLEAN CRANKSHAFT TAPER AND FLYWHEEL TAPER WITH **ISOPROPYL ALCOHOL** (P/N 8520621) AND APPLY **LOCTITE 641** TO CRANKSHAFT TAPER OR FLYWHEEL TAPER ID PRIOR TO INSTALLATION.
5. APPLY **SEALANT** (P/N 8560061 OR 8560133) TO SPECIFIED EDGES OF STATOR COVER.
6. TORQUE IN SEQUENCE SHOWN FOR CAM CARRIERS.
7. IMPELLER HAS LEFT HAND THREAD, TIGHTEN TO FINGER TIGHT.
8. CYLINDER HEAD ASSEMBLY MUST BE STORED AND/OR TRANSPORTED WITH THE FIREDECK DOWN.
9. ◇ AFTER LASH MEASUREMENT IS COMPLETED, CAMSHAFTS MUST REMAIN WITH THE CYLINDER HEAD ASSEMBLY.
10. ENSURE SEALING WASHER IS IN PLACE PRIOR TO TORQUING.
11. APPLY **ENGINE OIL** OR **WHITE LITHIUM GREASE** TO SHAFT OD PRIOR TO ASSEMBLY.
12. THREADED HOLES IN CAMSHAFTS MUST BE FREE OF OIL AND BE DRY PRIOR TO ASSEMBLY.



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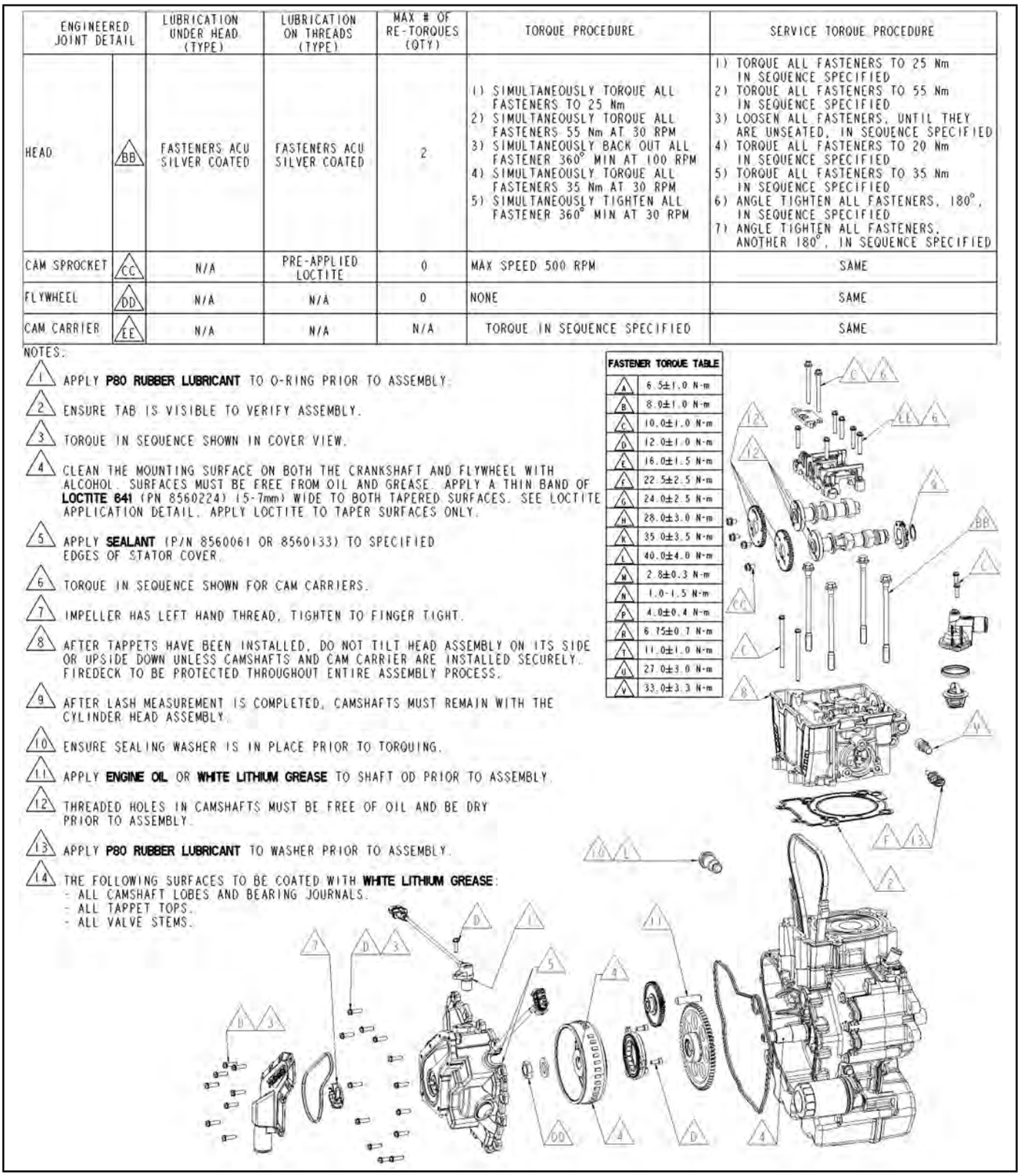
CAMS / CYL HEAD / FLYWHEEL / STATOR COVER - SILVER HEAD BOLTS

ENGINEERED JOINT DETAIL		LUBRICATION UNDER HEAD (TYPE)	LUBRICATION ON THREADS (TYPE)	MAX # OF RE-TORQUES (QTY)	TORQUE PROCEDURE	SERVICE TORQUE PROCEDURE
HEAD	BB	FASTENERS ACU SILVER COATED	FASTENERS ACU SILVER COATED	2	1) SIMULTANEOUSLY TORQUE ALL FASTENERS TO 25 Nm 2) SIMULTANEOUSLY TORQUE ALL FASTENERS 55 Nm AT 30 RPM 3) SIMULTANEOUSLY BACK OUT ALL FASTENER 360° MIN AT 100 RPM 4) SIMULTANEOUSLY TORQUE ALL FASTENERS 35 Nm AT 30 RPM 5) SIMULTANEOUSLY TIGHTEN ALL FASTENER 360° MIN AT 30 RPM	1) TORQUE ALL FASTENERS TO 25 Nm IN SEQUENCE SPECIFIED 2) TORQUE ALL FASTENERS TO 55 Nm IN SEQUENCE SPECIFIED 3) LOOSEN ALL FASTENERS, UNTIL THEY ARE UNSEATED, IN SEQUENCE SPECIFIED 4) TORQUE ALL FASTENERS TO 20 Nm IN SEQUENCE SPECIFIED 5) TORQUE ALL FASTENERS TO 35 Nm IN SEQUENCE SPECIFIED 6) ANGLE TIGHTEN ALL FASTENERS, 180°, IN SEQUENCE SPECIFIED 7) ANGLE TIGHTEN ALL FASTENERS, ANOTHER 180°, IN SEQUENCE SPECIFIED
CAM SPROCKET	CC	N/A	PRE-APPLIED LOCTITE	0	MAX SPEED 500 RPM	SAME
FLYWHEEL	DD	N/A	N/A	0	NONE	SAME
CAM CARRIER	EE	N/A	N/A	N/A	TORQUE IN SEQUENCE SPECIFIED	SAME

NOTES:

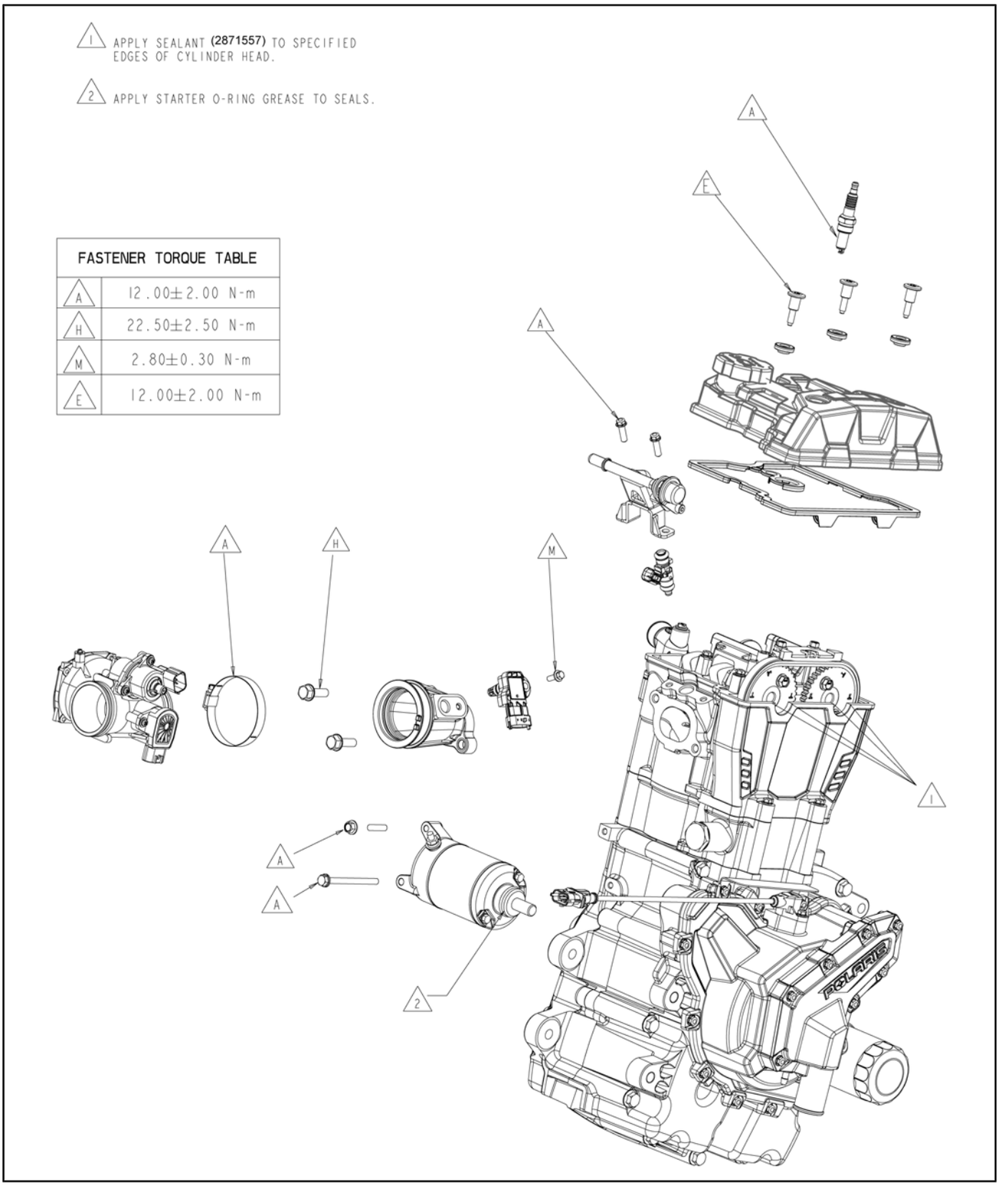
1. APPLY **P80 RUBBER LUBRICANT** TO O-RING PRIOR TO ASSEMBLY.
2. ENSURE TAB IS VISIBLE TO VERIFY ASSEMBLY.
3. TORQUE IN SEQUENCE SHOWN IN COVER VIEW.
4. CLEAN THE MOUNTING SURFACE ON BOTH THE CRANKSHAFT AND FLYWHEEL WITH ALCOHOL. SURFACES MUST BE FREE FROM OIL AND GREASE. APPLY A THIN BAND OF **LOCTITE 641** (PN 8560224) (5-7mm) WIDE TO BOTH TAPERED SURFACES. SEE LOCTITE APPLICATION DETAIL. APPLY LOCTITE TO TAPER SURFACES ONLY.
5. APPLY **SEALANT** (P/N 8560061 OR 8560133) TO SPECIFIED EDGES OF STATOR COVER.
6. TORQUE IN SEQUENCE SHOWN FOR CAM CARRIERS.
7. IMPELLER HAS LEFT HAND THREAD, TIGHTEN TO FINGER TIGHT.
8. AFTER TAPPETS HAVE BEEN INSTALLED, DO NOT TILT HEAD ASSEMBLY ON ITS SIDE OR UPSIDE DOWN UNLESS CAMSHAFTS AND CAM CARRIER ARE INSTALLED SECURELY. FIREDECK TO BE PROTECTED THROUGHOUT ENTIRE ASSEMBLY PROCESS.
9. AFTER LASH MEASUREMENT IS COMPLETED, CAMSHAFTS MUST REMAIN WITH THE CYLINDER HEAD ASSEMBLY.
10. ENSURE SEALING WASHER IS IN PLACE PRIOR TO TORQUING.
11. APPLY **ENGINE OIL** OR **WHITE LITHIUM GREASE** TO SHAFT OD PRIOR TO ASSEMBLY.
12. THREADED HOLES IN CAMSHAFTS MUST BE FREE OF OIL AND BE DRY PRIOR TO ASSEMBLY.
13. APPLY **P80 RUBBER LUBRICANT** TO WASHER PRIOR TO ASSEMBLY.
14. THE FOLLOWING SURFACES TO BE COATED WITH **WHITE LITHIUM GREASE**:
    - ALL CAMSHAFT LOBES AND BEARING JOURNALS.
    - ALL TAPPET TOPS.
    - ALL VALVE STEMS.

FASTENER TORQUE TABLE	
A	6.5±1.0 N-m
B	8.0±1.0 N-m
C	10.0±1.0 N-m
D	12.0±1.0 N-m
E	16.0±1.5 N-m
F	22.5±2.5 N-m
G	24.0±2.5 N-m
H	28.0±3.0 N-m
K	35.0±3.5 N-m
L	40.0±4.0 N-m
M	2.8±0.3 N-m
N	1.0-1.5 N-m
P	4.0±0.4 N-m
R	6.75±0.7 N-m
T	11.0±1.0 N-m
U	27.0±3.0 N-m
V	33.0±3.3 N-m



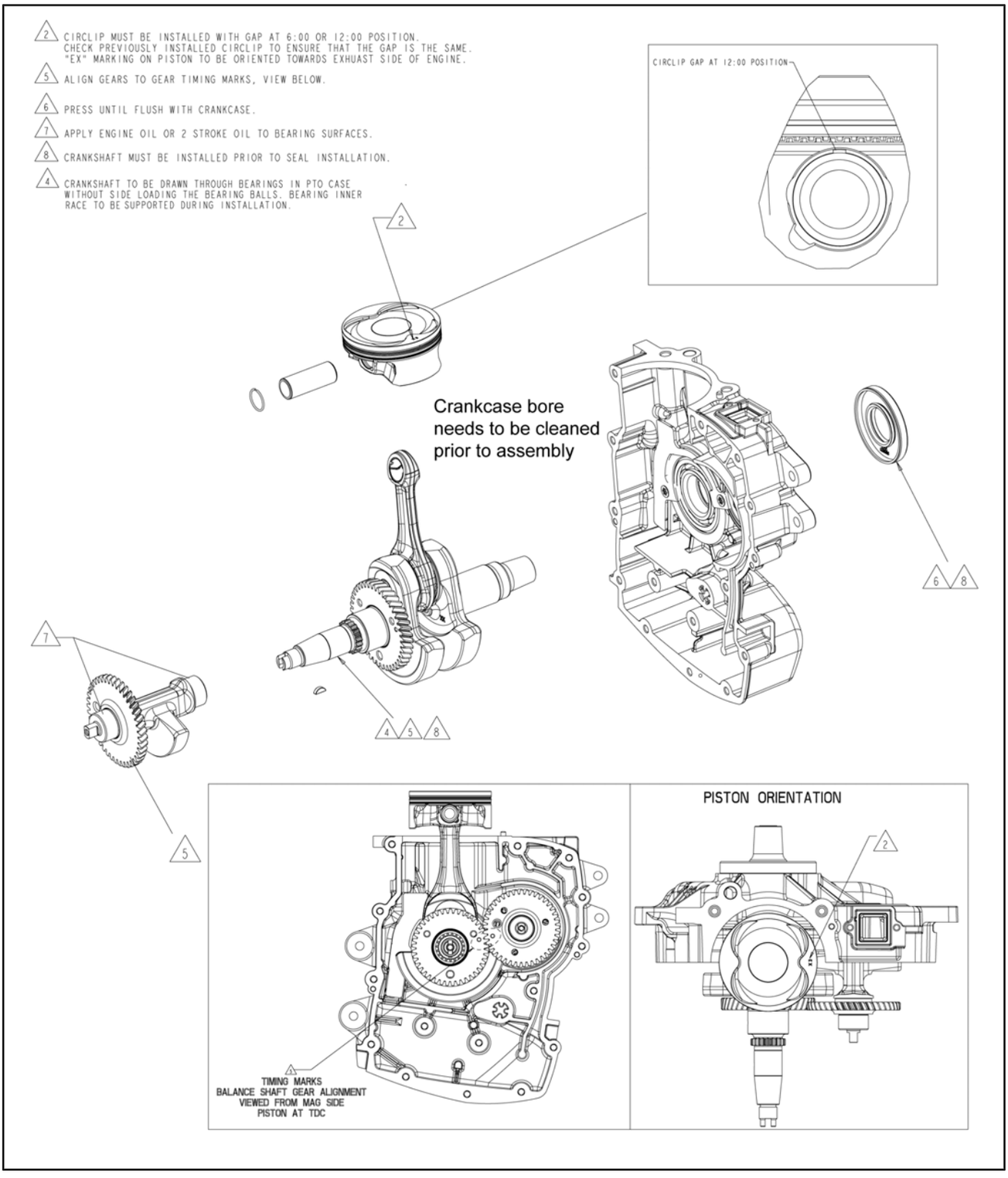
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SPARK PLUG / STARTER / THROTTLE BODY / VALVE COVER



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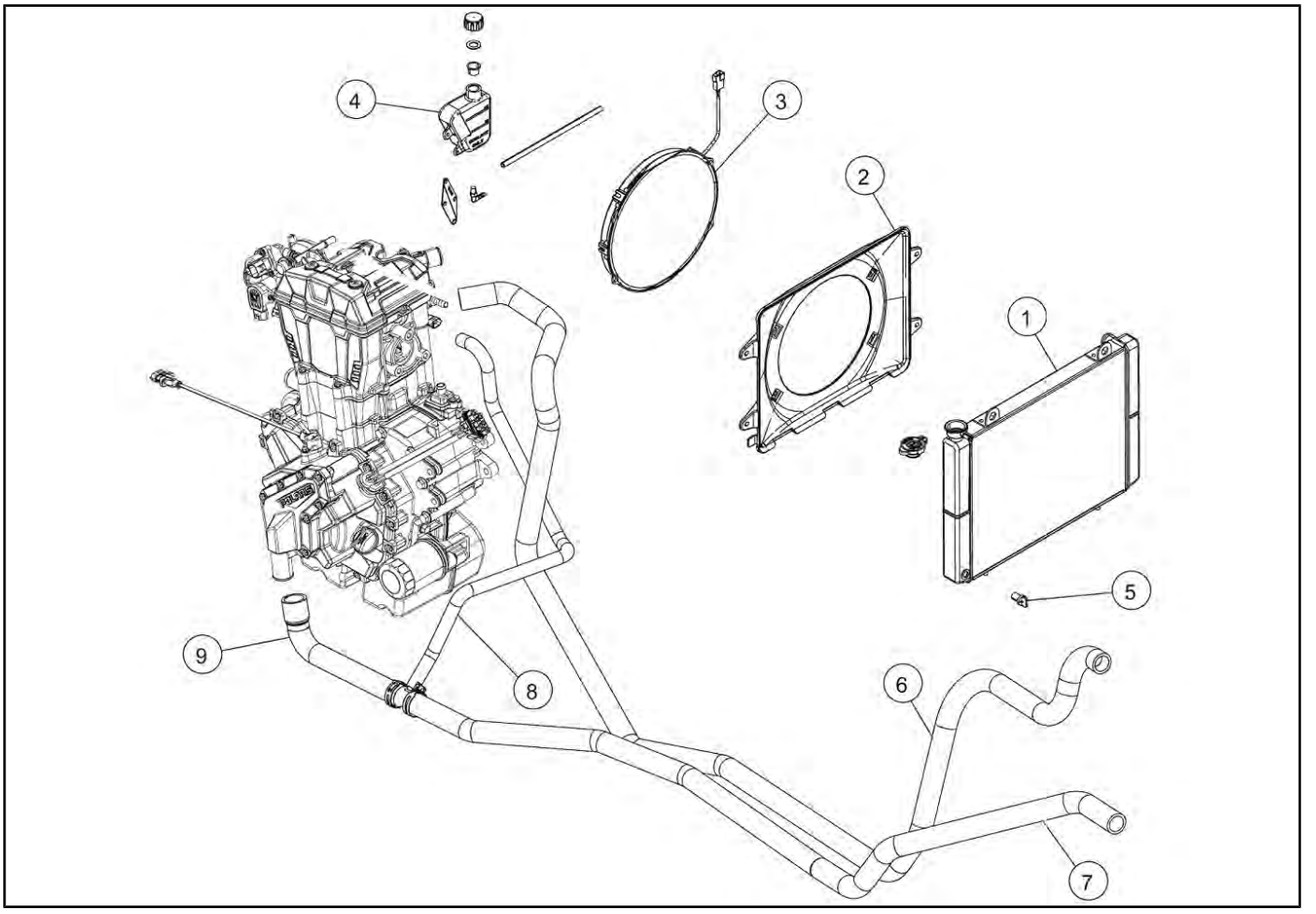
PISTON / CRANKSHAFT / BALANCE SHAFT



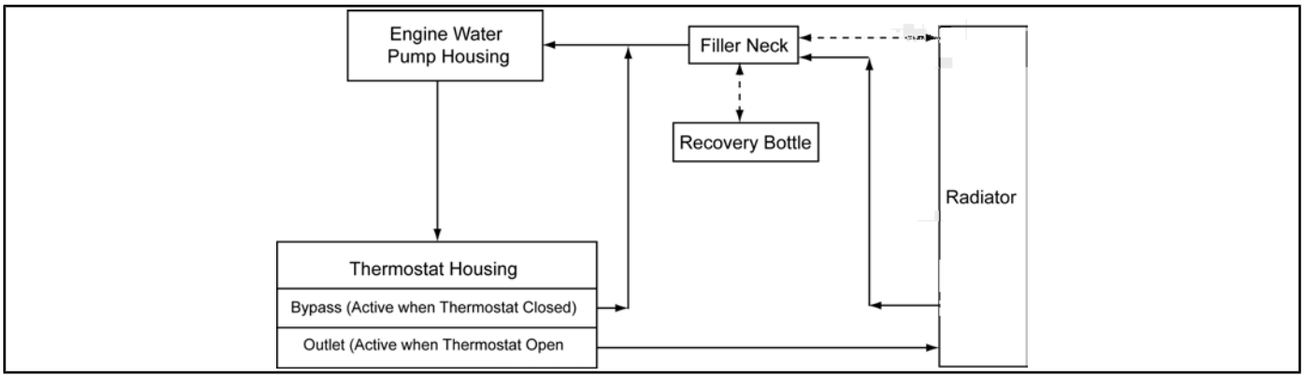
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ENGINE COOLING SYSTEM SERVICE (570)

COOLING SYSTEM ASSEMBLY VIEW AND COOLANT FLOW DIAGRAM



1. Radiator	4. Recovery Bottle	7. Lower Radiator Hose
2. Fan Shroud	5. Radiator Drain Plug	8. Bypass Hose
3. Cooling Fan	6. Upper Radiator Hose	9. Water Pump Hose



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COOLING SYSTEM SPECIFICATIONS

CONDITION	COOLANT TEMPERATURE
Room Temperature	68° F (20° C)
Thermostat Open	180° F (82° C)
Fan Off	192° F (89° C)
Fan On	198° F (92° C)
Thermostat Full Open Lift	203° F (95° C)
Engine Temperature Overheat Indicator	233° F (112° C)
Engine Protection Ignition Misfire	236° F (113° C)
Engine Protection Shutdown	257° F (125° C)

ITEM		SPECIFICATION
Cooling System Capacity	570	3.5 Qt (3.3 L)
	570 Crew	5.0 Qt (4.7 L)
Pressure Cap Relief		13 PSI

Polaris Extended Life Antifreeze:
2880514 - Quart
2880513 - Gallon

Recommended Coolant

Use only high quality antifreeze/coolant mixed with distilled water in a 50/50 ratio, depending on freeze protection required in your area.

CAUTION

Using tap water in the cooling system will lead to a buildup of deposits which may restrict coolant flow and reduce heat dissipation, resulting in possible engine damage. Polaris Premium 50/50 Extended Life Antifreeze is recommended for use in all cooling systems and comes pre-mixed, ready to use.

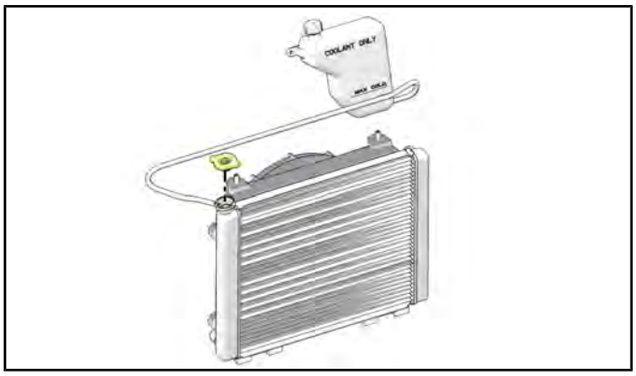
COOLING SYSTEM PRESSURE TEST

1. Remove the hood from the front cab.

⚠ WARNING

Escaping steam can cause burns. Never remove the pressure cap while the engine is warm or hot. Always allow the engine to cool before removing the pressure cap.

2. Remove the pressure cap from the radiator and pressure test the cooling system using pressure test tool (**2870975**).



3. The system must maintain 10 psi for five minutes or longer. If pressure loss is evident within five minutes, check the radiator, all cooling system hoses, clamps and water pump seal for leakage.

RADIATOR CAP PRESSURE TEST

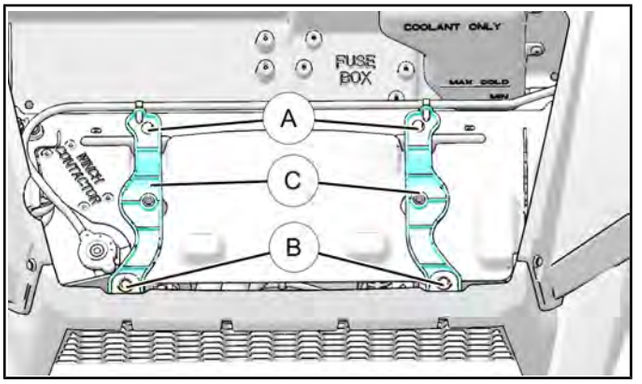
1. Open the front hood (See Warning under **"Cooling System Pressure Test", page 3.19**).
2. Remove radiator pressure cap and test using a pressure cap tester (commercially available).
3. Replace cap if it does not meet the specification.

Radiator Cap Relief Pressure
13 psi (90 kPa)

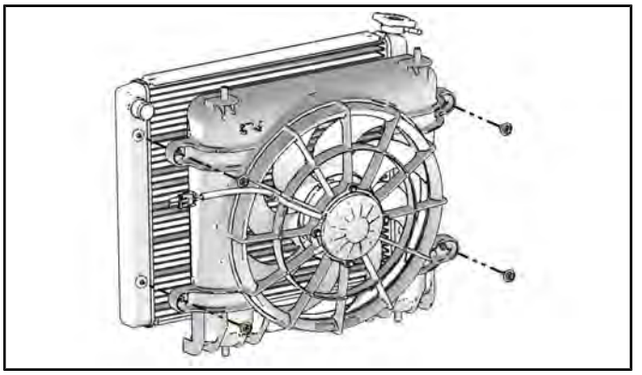
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RADIATOR FAN REMOVAL

1. Remove the hood from the front cab.
2. Remove the upper radiator bracket bolts (A) and T-40 Torx- head bolts (B).



3. Remove the two upper radiator brackets (C) and position them to allow fan removal.
4. Remove the bolts that retain the fan shroud to the radiator.



5. Disconnect the fan motor electrical connector.
6. Lift up on the radiator/fan assembly to separate the fan shroud from the radiator.
7. Carefully pull the radiator fan up through the flexible portion of the hood liner. Take care not to damage the radiator cooling fins.
8. Service the radiator fan as needed.
9. Reverse this procedure for installation. Upon installation, be sure the lower radiator mounts are placed properly in the frame support.

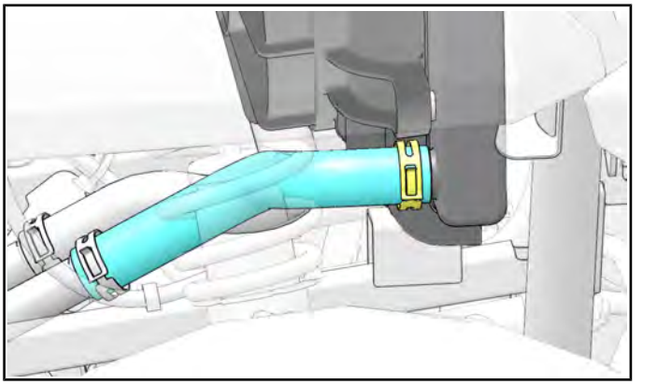
RADIATOR REMOVAL / COOLANT DRAIN

1. Allow the vehicle to cool down if recently operated.
2. Remove the hood from the front cab.

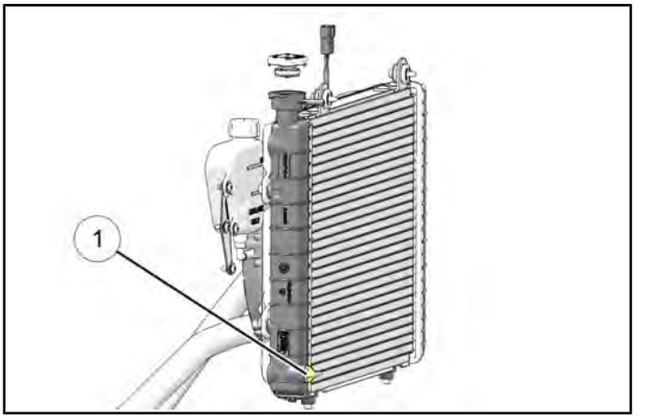
⚠ WARNING

Escaping steam can cause burns. Never remove the pressure cap while the engine is warm or hot. Always allow the engine to cool before removing the pressure cap.

3. Remove pressure cap to relieve any system pressure.
4. Place a drain pan under the lower radiator hose.
5. 2015: Slide the clamp back and remove the lower radiator hose to drain the coolant from the radiator. Allow the coolant to completely drain. Properly dispose of the used coolant.

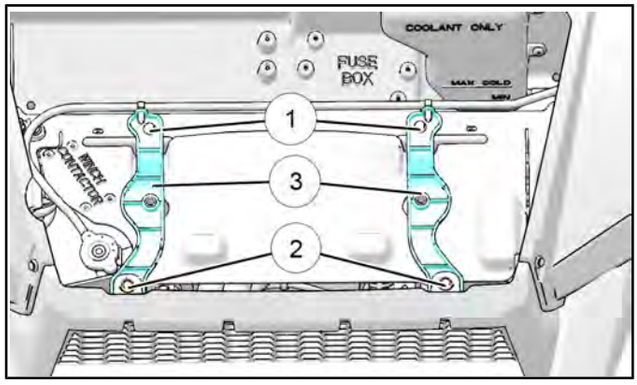


6. 2016: Drain the coolant from the radiator by opening the drain valve ① in the lower left corner of the radiator. Properly dispose of the coolant.

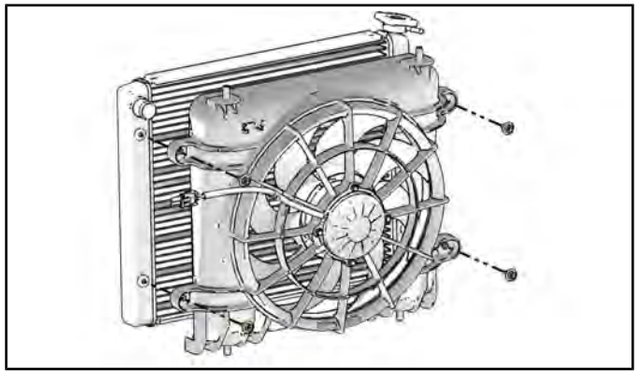


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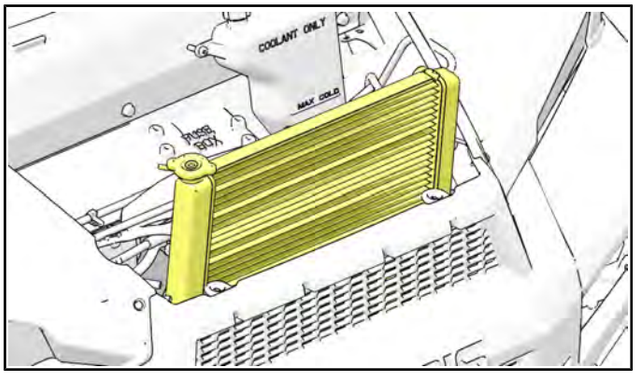
7. Remove the (4) upper radiator bracket bolts ① and (2) front fascia fasteners ②.



8. Remove the two upper radiator brackets ③ and position them to allow radiator removal.
9. Remove the recovery bottle return line from the radiator.
10. Lift up on the flexible portion of the hood liner to access the upper radiator hose and remove the hose from the radiator.
11. Remove the four bolts that retain the fan shroud to the radiator.



12. Lift up on the radiator/fan assembly to separate the fan shroud from the radiator.
13. Carefully remove the radiator (F) through the flexible portion of the hood liner. Take care not to damage the radiator cooling fins.



14. Service the radiator as needed.
15. Reverse this procedure for installation. Upon installation, be sure the lower radiator mounts are placed properly in the frame support.
16. After reassembly, fill the radiator and recovery bottle with coolant. Bleed the cooling system. Refer to the **“Cooling System Bleeding Procedure”, page 3.22**.

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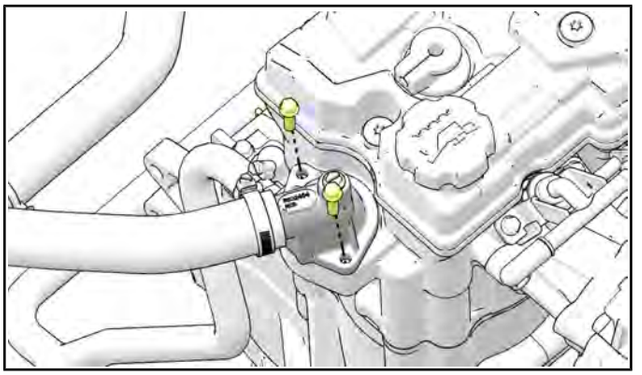
THERMOSTAT REPLACEMENT

1. Open the hood.

⚠ WARNING

Allow the engine to cool before servicing. The cooling system is under pressure and serious burns may result.

2. Remove the pressure cap to relieve any system pressure. Refer to **"Radiator Cap Pressure Test", page 3.19** procedure.
3. Drain coolant to a level below the thermostat housing.
4. Tilt the cargo box.
5. Remove the two bolts retaining the thermostat cover.



6. Lift the cover from the engine and remove the thermostat.
7. Reverse this procedure for installation. Replace thermostat seal if worn or damaged. Torque thermostat cover bolts to specification.

TORQUE

Thermostat Cover Bolts:
8 lb-ft (11 Nm)

8. Be sure to properly fill and bleed cooling system as outlined in this chapter.

COOLING SYSTEM BLEEDING PROCEDURE

⚠ WARNING

Always wear safety glasses and proper shop clothing when performing the procedures in this manual. Failing to do so may lead to possible injury or death.

CAUTION

Use caution when performing these procedures. Coolant may be hot and may cause severe injury or burns.

NOTE

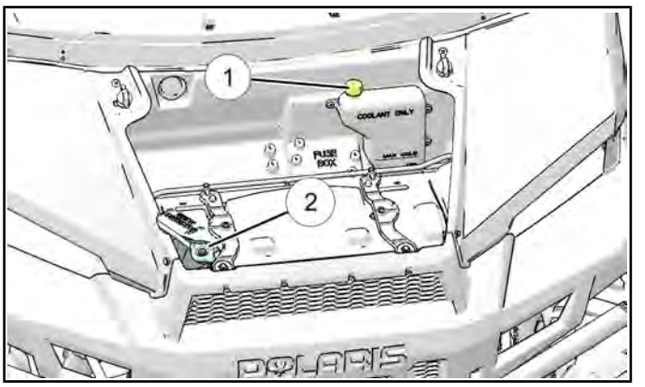
If the coolant level is LOW in the radiator, or if there are leaks in the system, the coolant system will not draw coolant from the reservoir tank. It may be necessary to safely raise the front of the vehicle 12" (30 cm) to bleed the cooling system.

1. Allow engine and cooling system to completely cool.

CAUTION

Be sure the engine has cooled and no pressure is built up in the cooling system before removing the pressure cap. The coolant may be hot and could cause severe injury or burns.

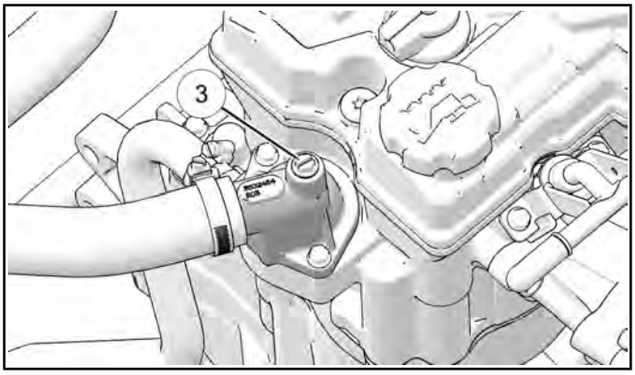
2. Remove the hood.
3. Remove the recovery bottle cap ① and fill the bottle to the MAX line.



4. Remove the pressure cap ② and add the necessary amount of Polaris Premium Antifreeze to the radiator filler neck.
5. Remove the cargo box access cover to gain access to the coolant bleed screw that is on top of the thermostat housing.

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6. Open the bleed screw ③ to allow any trapped air to escape.



7. Fill the radiator until a steady stream of coolant begins to drain out of the bleed screw.
8. Tighten the bleed screw to specification, top off coolant and properly install the pressure cap.

TORQUE

Coolant Bleed Screw:
6 lb-ft (8 Nm)

9. Start the engine and allow it to idle until the coolant fan has cycled.
10. Allow engine and cooling system to completely cool down (see **CAUTION**).
11. Remove the pressure cap. Add the necessary amount of Polaris Premium Antifreeze to the radiator filler neck.
12. Open the bleed screw to allow any trapped air to escape. Close the bleed screw once a steady stream of coolant begins to drain out.
13. Tighten the bleed screw to specification, top off coolant and properly install the pressure cap.

TORQUE

Coolant Bleed Screw:
6 lb-ft (8 Nm)

14. Fill the recovery bottle to the MAX line.
15. Reinstall the hood.
16. Reinstall cargo box access cover.

WATER PUMP COVER AND IMPELLER SERVICE (STATOR COVER REMAINS ON ENGINE)

NOTE

The water pump cover, gasket and impeller can be serviced with the stator cover installed on the engine.

1. Allow engine and cooling system to completely cool.

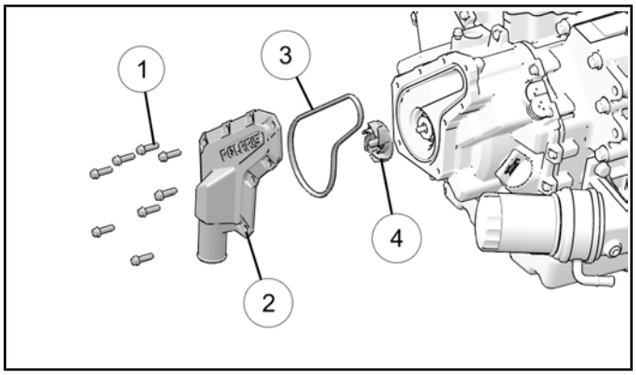
CAUTION

Be sure the engine has cooled and no pressure is built up in the cooling system before removing the pressure cap. The coolant may be hot and could cause severe injury or burns.

2. Disconnect the (-) negative battery cable.
3. Remove all debris and thoroughly clean water pump area and right-hand side of engine block.
4. Open the hood.
5. Remove the pressure cap from the filler neck.
6. Completely drain cooling system and engine as outlined in this chapter.
7. Raise and safely support the vehicle. Remove the right rear wheel.
8. Remove the eight bolts ① attaching the water pump cover to the stator cover.
9. Remove the water pump cover ② and water pump cover gasket ③. Discard the water pump gasket
10. Using an 8mm socket, remove the water pump impeller ④.

NOTE

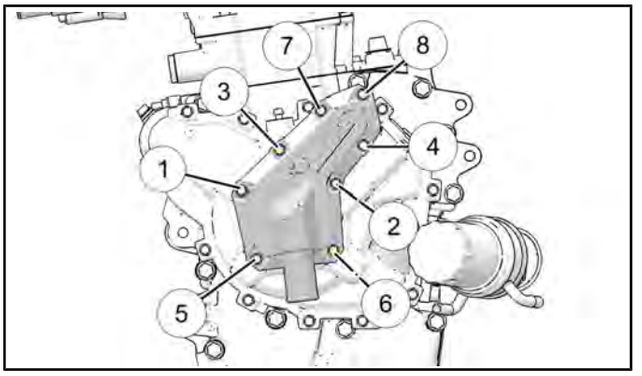
The water pump impeller ④ uses reverse (left) threads.



11. Inspect the water pump cover and impeller for damage. Replace as necessary.

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12. Follow this procedure in reverse to assemble the water pump impeller and cover. Always use a *new* water pump cover gasket. Torque all fasteners in sequence to specification.



TORQUE
Water Pump Cover Fastener: **9 lb-ft (12 Nm)** **(Apply Loctite® 204™ to bolt threads)** Water Pump Impeller: **Finger Tight** ***LH threads**

13. Fill and bleed cooling system as outlined in this chapter.

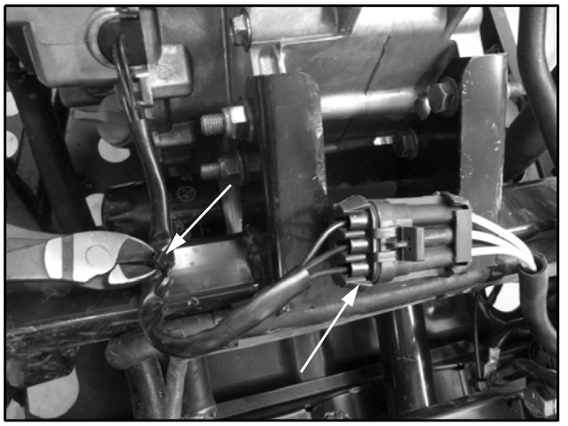
WATER PUMP MECHANICAL SEAL / OIL SEAL REPLACEMENT

NOTE
The stator cover must be removed from the engine to service the water pump drive shaft, oil seal, mechanical seal and bearing.

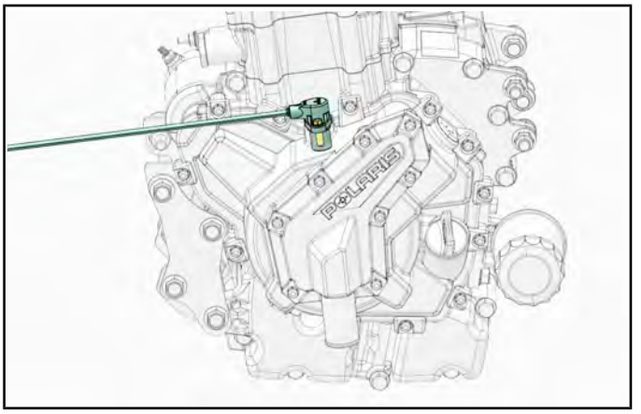
1. Allow engine and cooling system to completely cool.

CAUTION
Be sure the engine has cooled and no pressure is built up in the cooling system before removing the pressure cap. The coolant may be hot and could cause severe injury or burns.

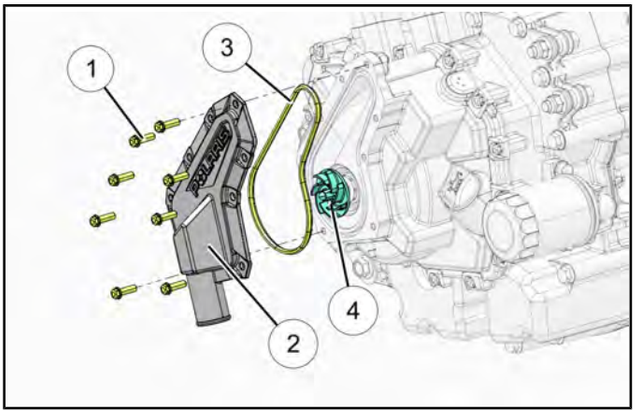
2. Disconnect the (-) negative battery cable.
3. Remove all debris and thoroughly clean water pump area and right-hand side of engine block.
4. Open the hood.
5. Remove the pressure cap from the filler neck.
6. Completely drain cooling system and engine as outlined in this chapter.
7. Raise and safely support the vehicle. Remove the right rear wheel.
8. Disconnect the stator wire connector and cut the tie strap securing the wiring to the front engine mount bracket.



9. Remove the CPS sensor from the stator cover on the right-hand side of the engine. Inspect CPS O-ring and replace if needed.



10. Remove the eight bolts ① retaining the water pump cover to the stator cover.



11. Remove the water pump cover ② and water pump cover gasket ③. Discard the water pump gasket.

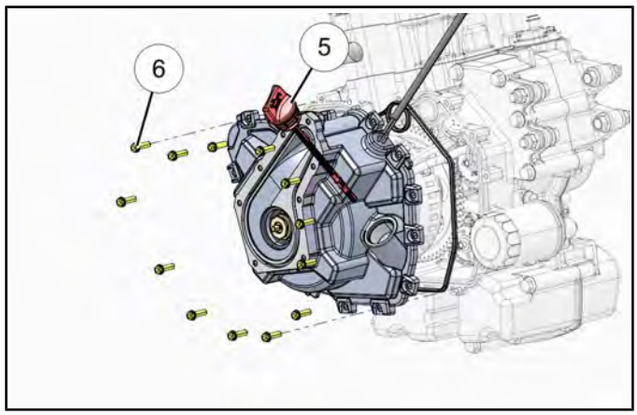
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12. Remove the water pump impeller ④.

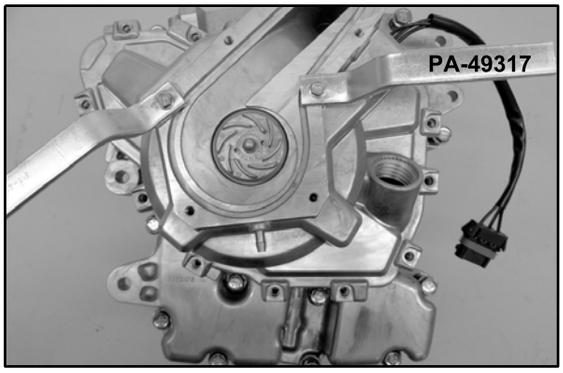
NOTE

The water pump impeller uses reverse (left) threads.

13. Remove the oil dipstick ⑤.



14. Remove the 13 bolts ⑥ securing the stator cover to the engine.
15. If needed, install the stator cover removal handle tool (**PA-49317**) to the water pump cover bolt holes to aid in stator cover removal.



CAUTION

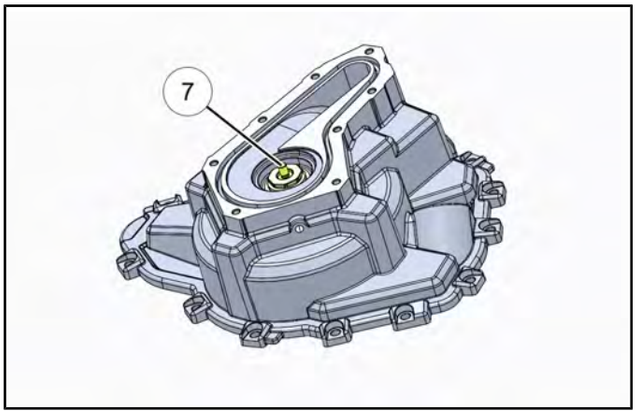
The flywheel contains powerful magnets. Use caution when removing the stator cover. DO NOT place fingers between cover and crankcase at any time during the removal process or injury could result.

16. Remove and discard the stator cover gasket.

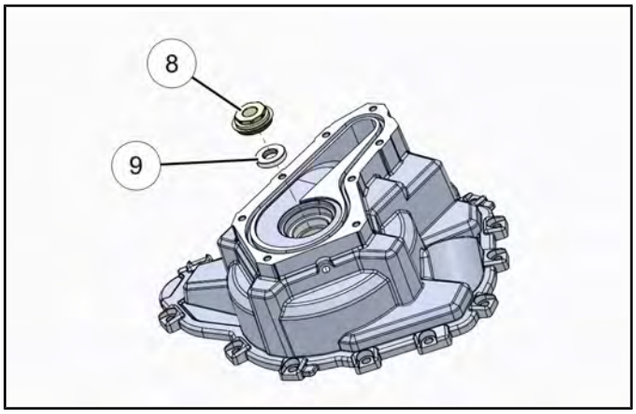
CAUTION

Be sure engine coolant does not contaminate the engine oil during stator cover service.

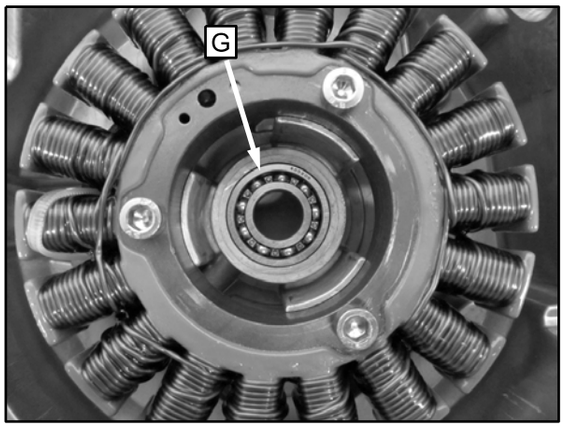
17. Bring the stator cover assembly to a clean work bench.
18. Using a brass drift, remove the water pump drive shaft ⑦. Be sure not to damage the threads. Inspect shaft for wear or damage, replace if necessary.



19. Extract the mechanical seal ⑧ and the oil seal ⑨ from the stator cover.



20. Press out the water pump drive shaft bearing (G) from the stator cover. Discard bearing and replace with new.



Water Pump Assembly

21. Thoroughly clean the stator cover.

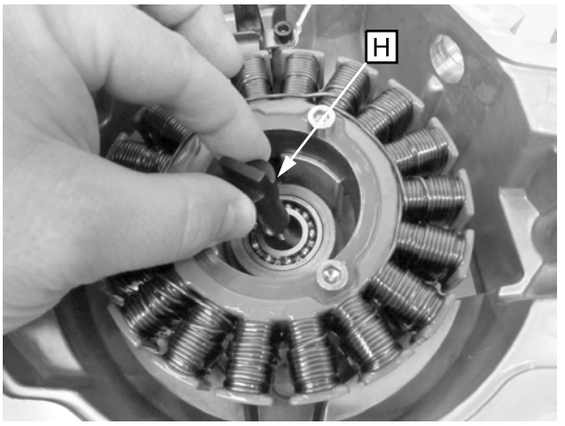
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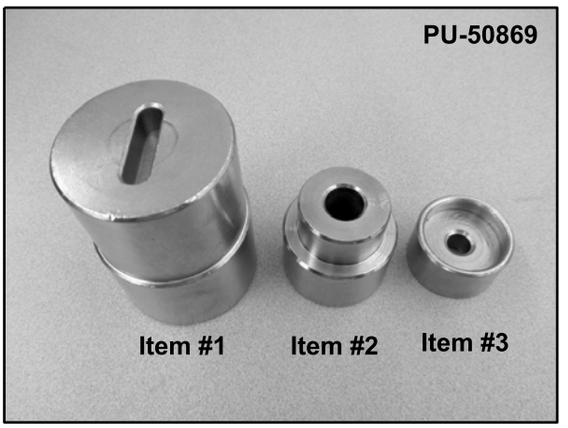
22. Press in a *new* water pump drive shaft bearing (G) until it is fully seated in the cover.

CAUTION

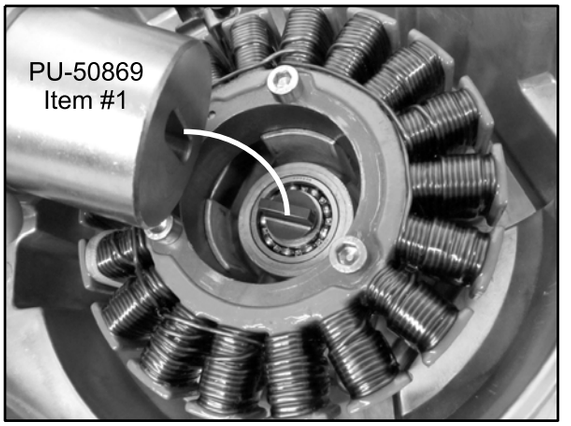
Be sure bearing is fully seated in cover or severe engine damage may result.

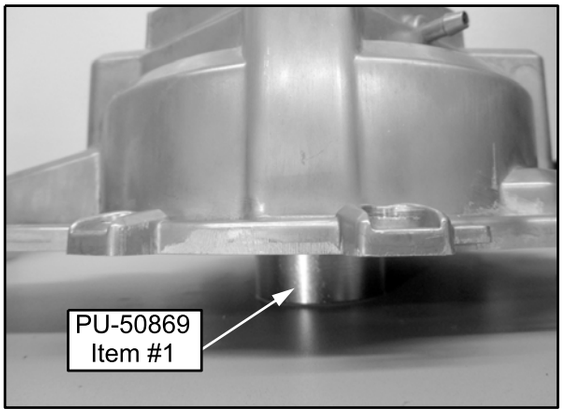
23. Clean and de-grease the water pump drive shaft (H).
24. Press in the water pump drive shaft (H) into the bearing using **PU-50869** Item #1.





25. Install the water pump drive shaft holding tool (Item #1) in kit **PU-50869**. Hold the tool in position and flip the assembly up-side-down so the special tool **PU-50869** is supporting the assembly.





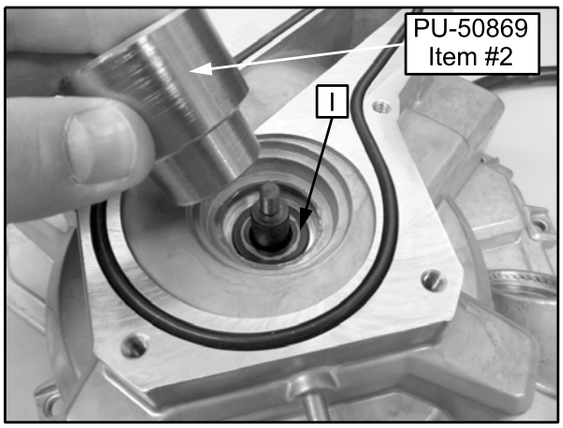
26. Lubricate the *new* water pump oil seal with clean engine oil.
27. Use the water pump oil seal installation tool in kit

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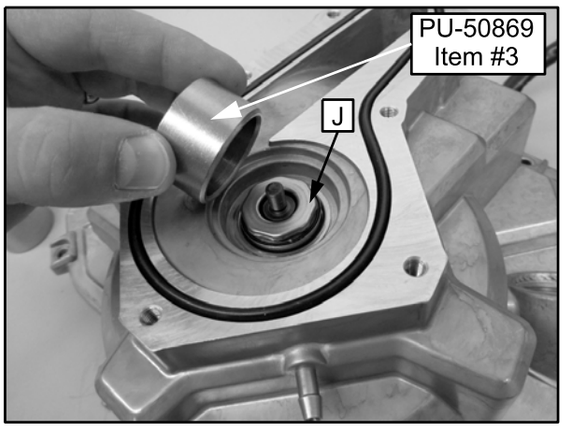
28. **PU-50869** to fully install the *new* water pump oil seal (I).

CAUTION

Be sure the oil seal is fully seated in cover or severe engine damage may result

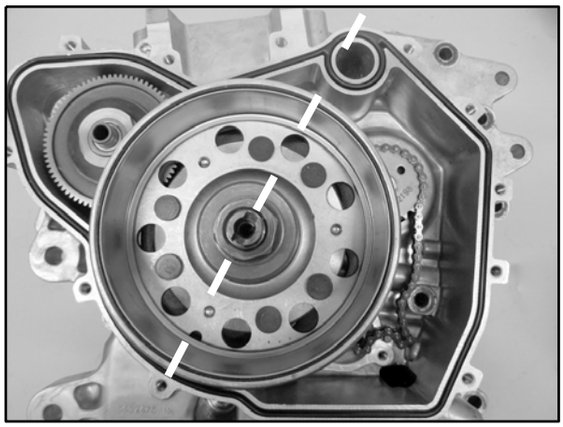


29. Use the water pump mechanical seal installation tool in kit **PU-50869** to fully install the *new* water pump mechanical seal (J) until it is fully seated in the cover.



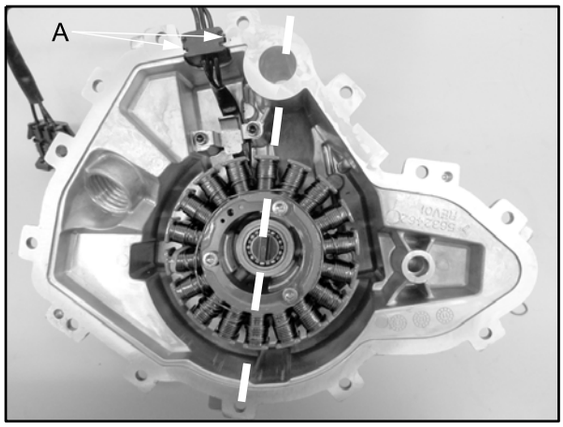
30. Install a *new* stator cover gasket onto the engine.

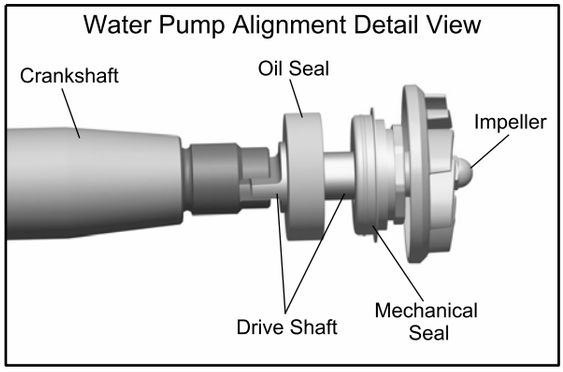
31. Align the water pump drive slot as shown below.



32. Align the water pump drive shaft blade as shown below.

33. Apply a small amount of crankcase sealant to the area indicated below (A).

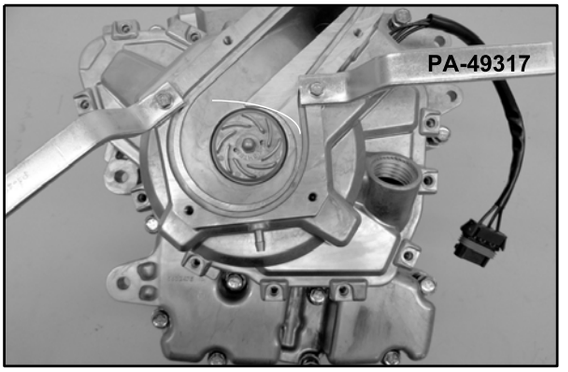




34. If needed, install the stator cover removal handles tool **PA-49317** to the water cover bolt holes to aid in stator cover installation.

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35. While installing the stator cover to the engine, slightly rotate the water pump impeller to verify the crankshaft slot and the water pump drive shaft blade are properly engaged. Verify the stator cover is laying flat on the engine case.



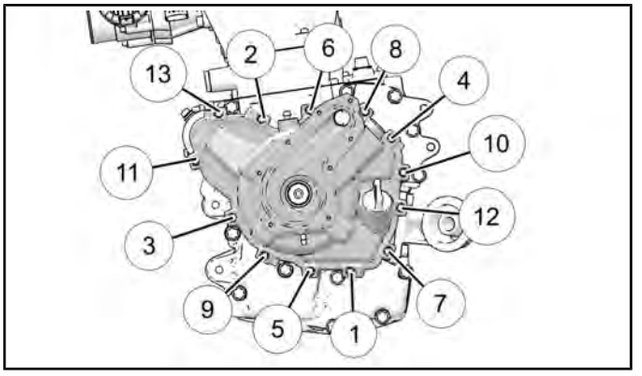
CAUTION

The flywheel contains powerful magnets. Use caution when installing the stator cover.DO NOT place fingers between cover and crankcase at any time during the removal and installation process or injury could result.

CAUTION

If the water pump drive shaft blade and slot in the crank shaft are not in alignment during the installation process, severe engine damage may result.

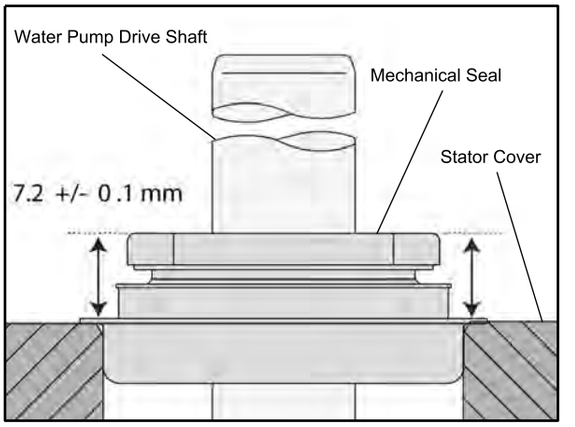
36. Install and torque the stator cover fasteners in sequence to specification.



TORQUE

Stator Cover and Water Pump Cover: **9 lb-ft (12 Nm)**
(Apply Loctite® 204™ to bolt threads)

37. Measure the installed height of the *new* mechanical seal as shown below. If not within specification, remove and discard the mechanical seal and properly install new mechanical seal as outlined in this chapter.



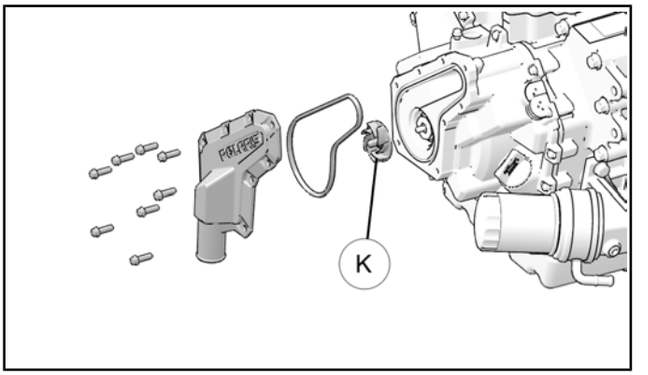
MEASUREMENT

Mechanical Water Pump Seal Installed Height:
0.280 - 0.287" (7.2 +/- 0.1 mm)

38. Install the water pump impeller (K). **Finger Tight *LH threads**

NOTE

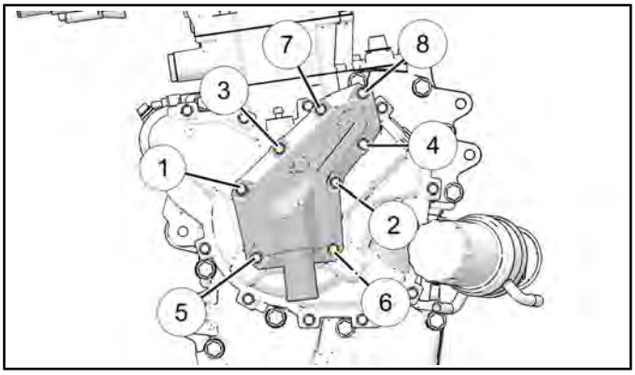
The water pump impeller (K) uses reverse (LH) threads.



39. Install a **new** water pump cover gasket.

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40. Install the water pump cover to the stator cover. Torque all fasteners in sequence to specification.



TORQUE
Water Pump Cover Fastener: **9 lb-ft (12 Nm)** **(Apply Loctite® 204™ to bolt threads)** Water Pump Impeller: **Finger Tight** ***LH threads**

41. Install the oil dipstick.
42. Install the coolant hose to the water pump cover and tighten hose clamp.
43. Connect the stator wire connector and install a new tie strap securing the wiring to the front engine mount bracket.
44. Install the CPS sensor into the stator cover. Inspect CPS O-ring and replace if needed.
45. Install the right-hand rear wheel and torque the wheel nuts to specification. Safely lower vehicle.

TORQUE
Wheel Nuts (Steel): **60 lb-ft (81 Nm)** Wheel Nuts (Cast Aluminum): **120 lb-ft (163 Nm)**

46. Install both seats and the engine service panel.
47. Connect the (-) negative battery cable.
48. If the engine oil was contaminated during this service procedure, perform an engine oil change as outlined in Chapter 2. DO NOT run the engine until coolant has been added to the cooling system.
49. Fill cooling system with recommend coolant and bleed the system of air as outlined in this chapter.
50. Check for leaks.

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ENGINE SERVICE (570)

ACCESSIBLE ENGINE COMPONENTS

The following components can be serviced or removed with the engine installed:

- Camshaft
- Camshaft Sprockets
- Cylinder Head and Gaskets
- Cylinder and Gaskets
- Piston and Rings
- Flywheel
- Starter Motor / Idler Gear Asm
- Stator (Alternator)
- Thermostat
- Valve Cover
- Water Pump
- Camshaft Timing Chain and Guides
- Crankshaft Seal (PTO)
- Oil Pump / Oil Pump Sprocket or Chain

The following components require engine removal for service:

- Counterbalance Shaft and Bearings
- Crankshaft and Bearings
- Crankcase
- Oil Pressure Regulator
- Oil Pump Pickup Assembly

ENGINE REMOVAL

NOTE

Some engine repair procedures can be performed without removing the engine assembly from the vehicle. Refer to “Accessible Engine Components” for further information.

The use of an overhead or portable engine hoist is the only recommended method for removing and installing the engine.

Have an assistant help guide the engine in and out of the vehicle while using an engine hoist to prevent personal injury or damage to vehicle components.

CAUTION

Correct Drive Clutch Puller PA-48595

⚠ WARNING

Always wear safety glasses and proper shop clothing when performing the procedures in this Service Manual.Failing to do so may lead to possible injury.

1. If vehicle was recently operated, allow it to cool down before attempting to perform any work.
2. Thoroughly clean the engine and chassis.
3. Drain the engine oil and engine coolant prior to engine removal. Refer to **“Engine Oil and Filter Change”, page 2.16** and **“Radiator Removal / Coolant Drain”, page 3.20** procedures.
4. Remove the seat.
5. Disconnect the (-) negative battery cable from the battery.
6. Remove the rear cargo box as an assembly. Refer to **“Cargo Box Removal”, page 10.33** procedure. Remove the box tilt shock lower mount pin and remove the box tilt shock from the frame.
7. Loosen the clamps securing the intake duct to air box rubber boot and the throttle body to the engine. Disengage the assembly from the boots and place off to the left side.

NOTE

Be sure dirt and debris do not enter the engine, air box or throttle body. Use clean shop towels to plug engine and air box intake holes.

8. Remove the outer clutch cover, driven clutch, drive belt, drive clutch and inner clutch cover. Refer to **“PVT Disassembly”, page 5.10** procedure.

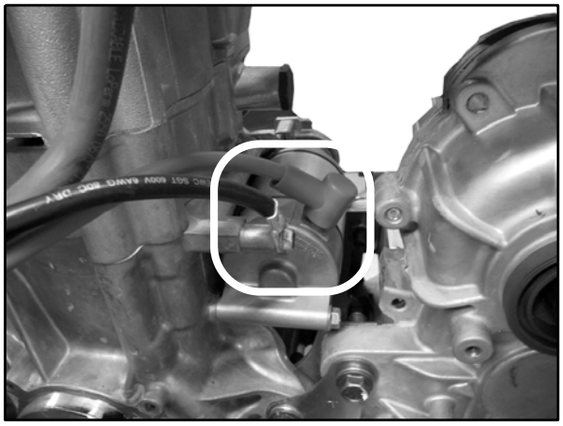
NOTE

Be sure to use the correct Drive Clutch Puller (**PA-48595**) to prevent damage to crankshaft.

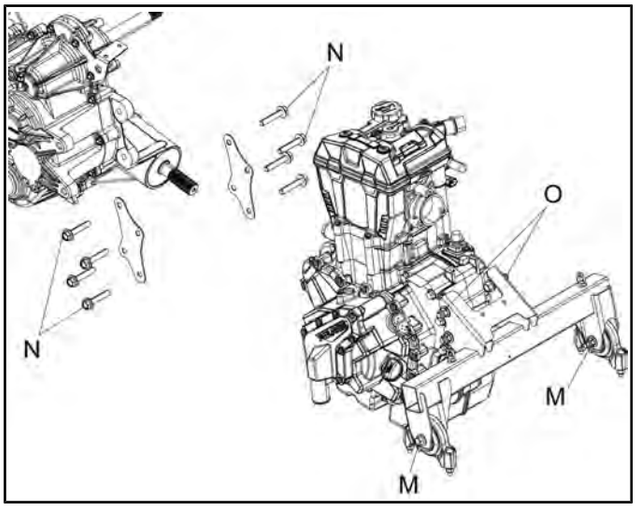
9. Disconnect the stator wire connector and cut the tie strap securing the wiring to the front engine mount bracket. Replace tie strap for engine installation.
10. Remove the CPS sensor from the stator cover on the right-hand side of the engine. Plug CPS hole with clean shop towel. Inspect CPS O-ring and replace if needed.
11. Disconnect the IAC valve (A), TPS (B), T-MAP sensor (C), harness leads from the throttle body.
12. Disconnect the fuel injector harness lead (D) from the fuel injector.
13. Place a shop to beneath the fuel line quick connector to catch any fuel. Disconnect the fuel line (E) from the fuel rail by pressing in on the quick connector tabs.
14. Move fuel line to the left-hand side of the engine compartment. Make note of line routing for installation.
15. Remove the spark plug wire from the engine.
16. Remove (+) positive cable from the starter motor. If desired, remove the remaining starter motor bolt and remove the starter motor from the engine.

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17. Remove (-) negative cable from the starter mounting nut.



18. Disconnect the upper engine coolant hose (H), bypass hose (I) and ECT (J) harness connector.
19. Remove the two bolts securing the muffler to the frame. Remove the three hex bolts (K) securing the exhaust head pipe to the engine. Maneuver the exhaust assembly out of the mounting grommet and remove the exhaust assembly as one.
20. Place a support between the main frame and transmission case. Do not pinch any lines.
21. Use an overhead or portable engine hoist and suitable engine straps to secure the engine in its current position.
22. Remove the four bolts and nuts (M) securing the engine to the front motor mount bracket.
23. Remove the eight bolts (N) securing the coupler brackets to the engine and transmission.
24. Loosen the two bolts and nuts (O) so the engine mount bracket can be slightly tilted away from engine.

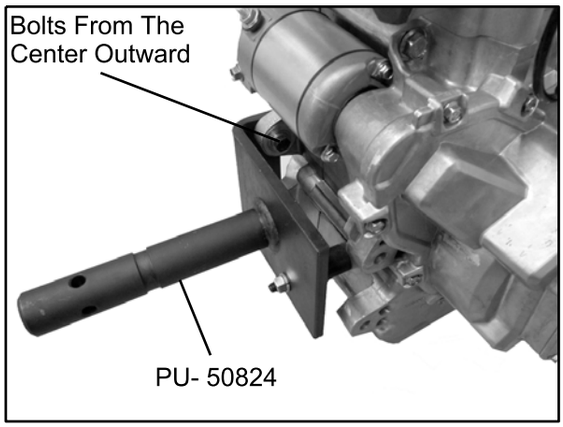


25. With the help of an assistant and the engine hoist, raise the engine vertically out of the vehicle frame.

NOTE

Have an assistant help guide the engine in and out of the vehicle while using an engine hoist to prevent personal injury or damage to the vehicle components.

26. Install the engine stand adapter (**PU-50824**) onto the engine PTO side mounting ears as shown below.



27. Select the proper engine stand sleeve adapter and install it onto the engine stand adapter.

- Sleeve adapter for a 2” bore engine stand:
- (**PU-50625**)
- Sleeve adapter for a 2.375” bore engine stand:
- (**PW-47054**)

28. Place engine onto the engine stand (**PU-50624**) for service.

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ENGINE INSTALLATION

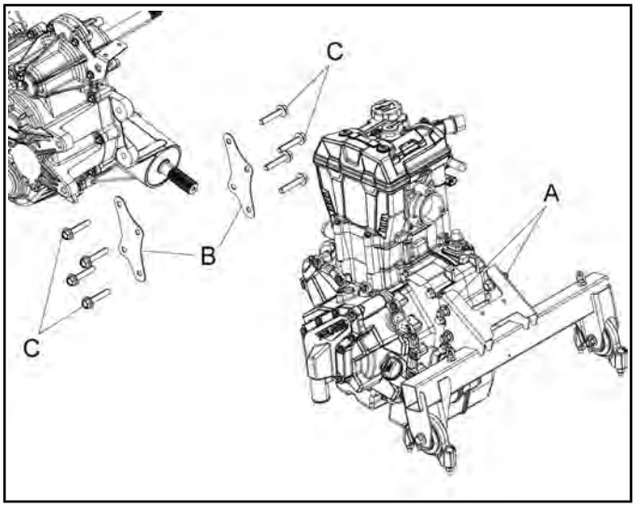
Use the following procedure to reinstall the engine assembly.

1. Attach engine with suitable lifting straps to an overhead or portable engine hoist.
2. Remove the engine stand adapter plate.
3. Use the overhead or portable engine hoist and suitable engine straps to lower the engine into the vehicle frame.

NOTE

Have an assistant help guide the engine in and out of the vehicle while using an engine hoist to prevent personal injury or damage to vehicle components.

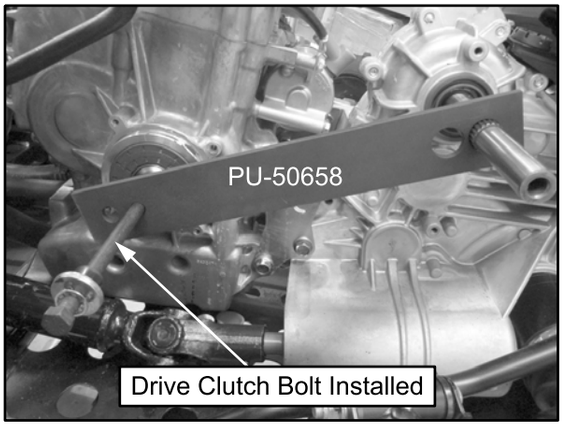
4. By hand, install the four front engine mount bolts and nuts (A). Do not tighten at this time.
5. Install the four engine to transmission coupler plates (B) and install the eight bolts and washers (C). Do not tighten fasteners at this time.



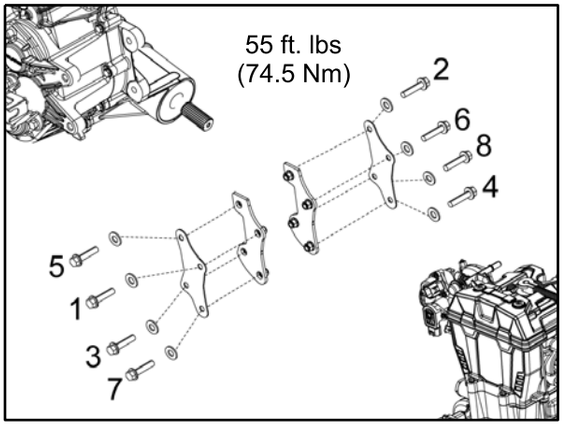
NOTE

DO NOT torque fasteners at this time.

6. Install the Clutch Center Distance Tool (**PU-50658-A**) onto the crankshaft and transmission input shaft using hole pattern 3 to properly position the clutch center distance.
7. The pictures below show the tool (**PU-50658-A**) properly installed.



8. In sequence, torque NEW eight engine coupler bracket fasteners to specification.



TORQUE

Rear Engine Coupler Fastener (In Sequence):
55 lb-ft (75 Nm)

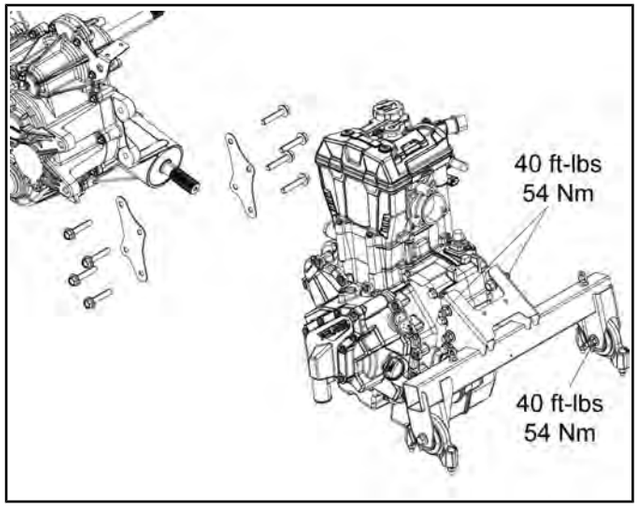
9. In a criss-cross pattern, torque NEW four front engine mount fasteners to specification.

TORQUE

Front Engine Mount Fasteners:
40 lb-ft (54 Nm)

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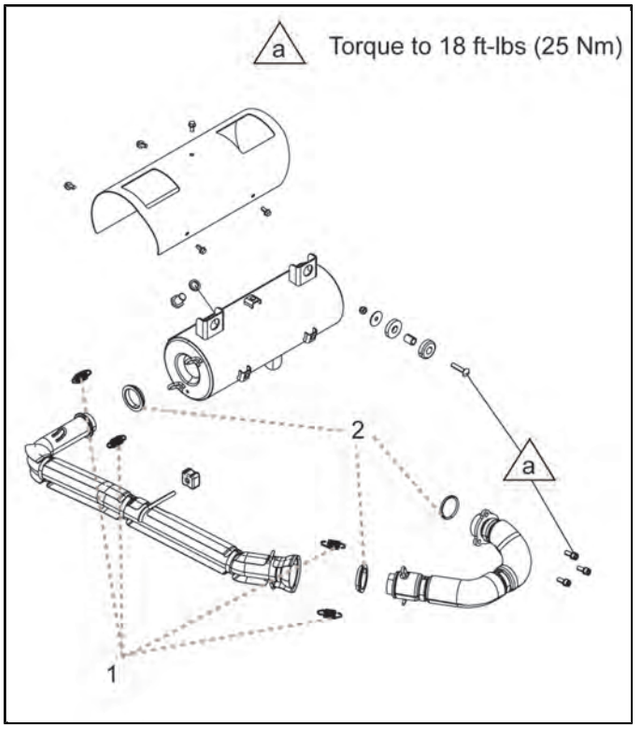
10. Torque NEW two front center isolator bolts to specification.



TORQUE
Isolator Center Bolt: **40 lb-ft (54 Nm)**

11. Remove the lifting straps and overhead or portable engine hoist and remove the support previously installed under the transmission case during the engine removal process.

12. Reposition the head pipe assembly in the chassis and install new muffler and head pipe seals. Install the three head pipe bolts and torque to specification.



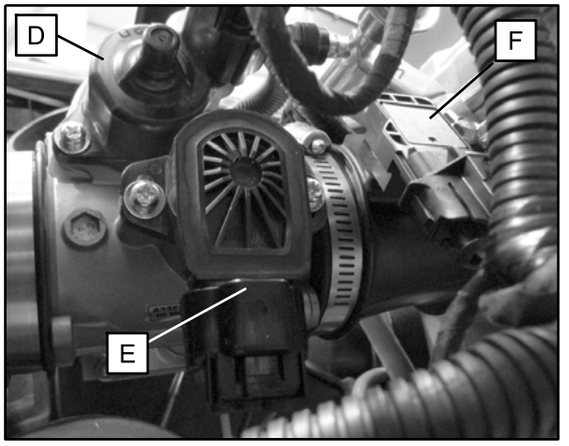
TORQUE
Exhaust Head Pipe Bolts: **18 lb-ft (25 Nm)**

13. Install the two springs securing the muffler to the head pipe.
14. Install the three coolant hoses onto the engine.
15. Install the throttle body and air box. Tighten the hose clamps that secure the throttle body to the intake duct, intake boot and air box.
16. Install the lower stater motor bolt through the lower starter motor mounting boss.
17. Instal the starter motor onto the engine.
18. Install the starter motor and battery cables as outlined in Chapter 10.

TORQUE
Starter Motor Fastener: **7 lb-ft (10 Nm)**

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19. Connect the harness leads to the ETC (D), TPS (E), T-MAP sensor (F). Verify routing is correct.



20. Connect the fuel injector harness lead to the fuel injector.
21. Connect the fuel line to the fuel rail.
22. Connect the ignition coil harness connector and install the spark plug wire.
23. Install the CPS and mounting bolt into the stator cover and torque to specification.

TORQUE
CPS Fastener: **9 lb-ft (12 Nm)**

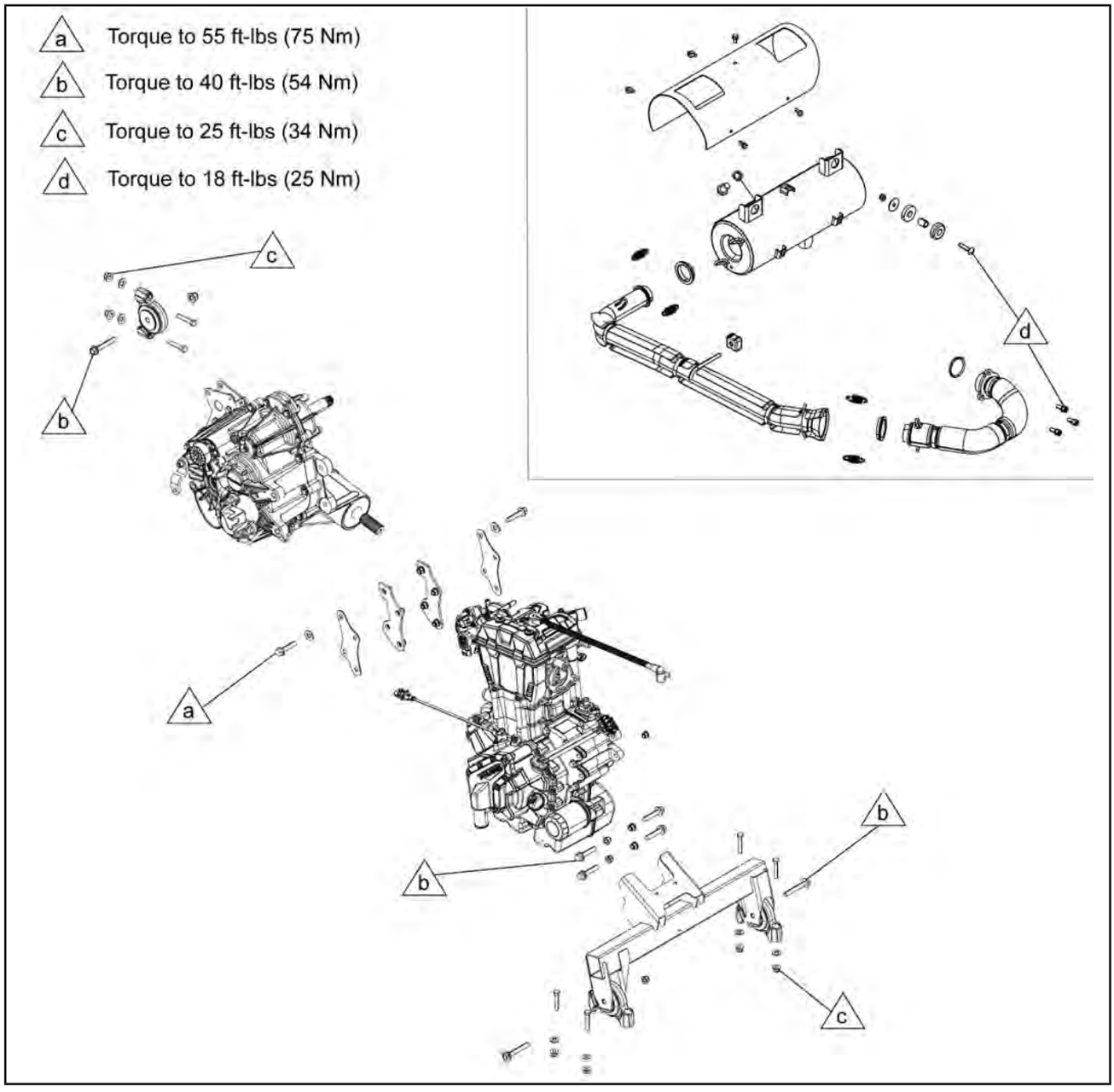
24. Connect the stator wire connector and install a new tie strap to secure the wiring to the front engine mount bracket.
25. Install the inner clutch cover as outlined in chapter 6.
26. Install the drive clutch, driven clutch, belt and outer clutch cover as outlined in Chapter 6. Be sure all hose and wire routing is correct. Torque all fasteners to specification as outlined in Chapter 6.
27. Install the intake baffle assembly. Secure the 3 clamps that attach the assembly to the crankcase vent, air box lid and inner clutch cover.
28. Install the rear bumper and cargo box assembly as outlined in Chapter 5.
29. Install the left-hand rear wheel and torque wheel nuts to specification.

TORQUE
Wheel Nuts (Steel): **60 lb-ft (81 Nm)** Wheel Nuts (Cast Aluminum): **120 lb-ft (163 Nm)**

30. Remove the pressure cap and fill the cooling system through the filler neck with properly mixed anti-freeze / coolant.
31. If the engine oil was completely drained, add approximately 2 quarts (1.9 L) of Polaris PS-4 Synthetic Engine Oil into the crankcase.
32. Install a new oil filter. Lubricate the seal with engine oil prior to installation. Refer to **"Engine Oil and Filter Change", page 2.16** procedure.
33. Connect the (-) negative battery cable to the battery.
34. Install the engine service panel and seats.
35. Follow the **"Cooling System Bleeding Procedure", page 3.22** as outlined in this chapter.
36. Start engine and check for any oil or coolant leaks.
37. Check the engine oil level. Refer to **"Engine Oil Level", page 2.15** procedure.
38. Refer customer to **"Engine Break-In Period", page 3.36** upon returning vehicle to customer.

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ENGINE MOUNTING AND TORQUE VALUES



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ENGINE BREAK-IN PERIOD

The break-in period consists of the first 25 hours of operation, or the time it takes to use 15 gallons (57 liters) of fuel. Careful treatment of a new engine and drive components will result in more efficient performance and longer life for these components.

⚠ CAUTION

Use only Polaris PS-4 Synthetic Engine Oil.Never substitute or mix oil brands. Serious engine damage and voiding of warranty can result.Do not operate at full throttle or high speeds for extended periods during the first three hours of use. Excessive heat can build up and cause damage to close fitted engine parts.

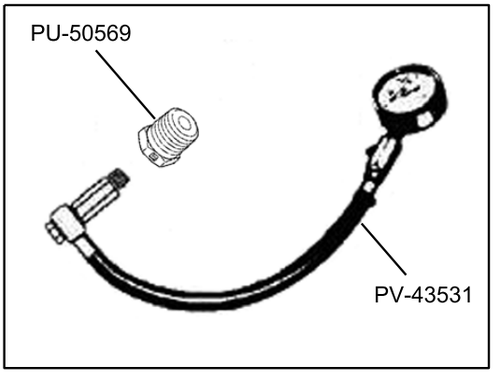
1. Fill fuel tank with unleaded fuel which has a minimum pump octane number of 87 = (R+ M)/2.
2. Check oil level indicated on the dipstick. Refer to **"Engine Oil Level", page 2.15** procedure. Add oil if necessary.
3. Drive slowly at first to gradually bring engine up to operating temperature.
4. Vary throttle positions. Do not operate at sustained idle or sustained high speed.
5. Perform regular checks on fluid levels, controls and all important bolt torques.
6. Change oil and oil filter after break-in period at 25 hours.

ENGINE LUBRICATION SPECIFICATIONS

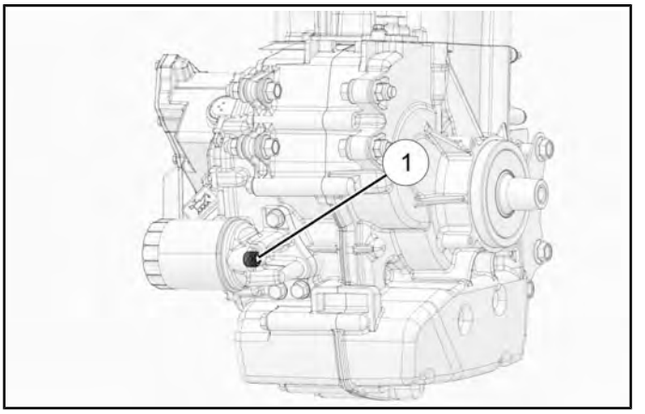
FLUID CAPACITY
Oil Capacity: 2 Qt (1.9 L)
Oil Filter Wrench: PU-50105
Oil Type:: Polaris PS-4 Synthetic
Oil Pressure (Minimum): 10 PSI @ 1200 RPM
40 PSI @ 7000 RPM

OIL PRESSURE TEST

1. Attach Oil Pressure Gauge Adapter (**PU-50569**) to Oil Pressure Gauge (**PV-43531**).



2. Remove the seats and engine service panel.
3. Clean the area around the main oil gallery plug ①, located on the oil filter adapter housing.



4. Remove the plug and insert the oil pressure adapter.
5. Start engine and allow it to reach operating temperature, monitoring gauge indication.

NOTE

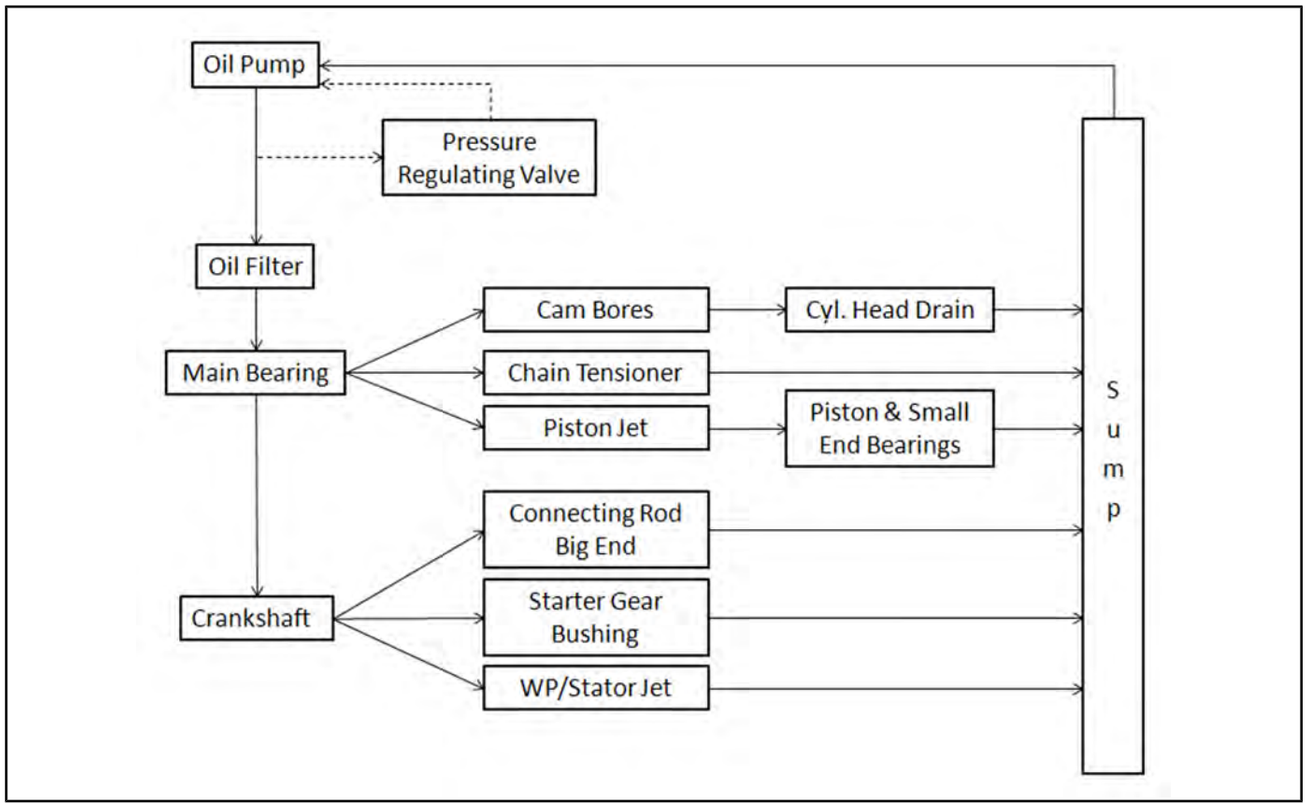
Test results are based on the use of the recommended engine oil (Polaris PS-4) at operating temperature, and may vary considerably if any other oil is used or if engine is not up to temperature.

6. Upon assembly, torque the crankcase gallery plug to specification.

TORQUE
Oil Gallery Plug:
11 lb-ft (15 Nm)

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ENGINE OIL FLOW CHART

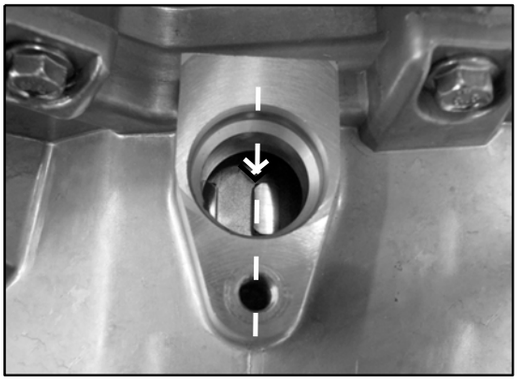


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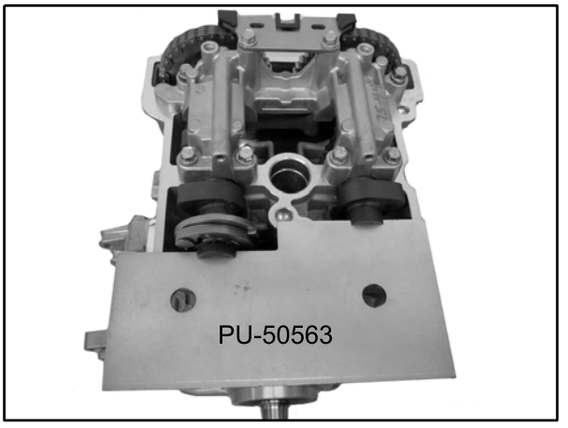
SETTING TDC (TOP-DEAD-CENTER)

There are three ways to ensure the piston is at TDC. Remove the outer clutch cover to access the drive clutch to aid in engine rotation (manually turn the drive clutch counter clockwise).

1. With the CPS sensor removed, rotate the engine until the “V” marked on the flywheel is aligned with the CPS mounting hole. **This will set TDC, but not necessarily TDC of the compression stroke.** View the timing marks on the camshaft sprockets to ensure the engine is at TDC of the compression stroke.

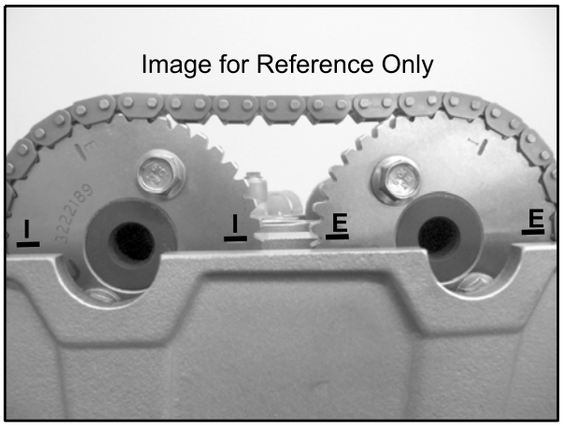


2. With the valve cover and thermostat housing removed, rotate the engine so the cam lobes are facing outward and the Cylinder Holding and Camshaft Timing Plate (**PU-50563**) can be installed into the slots of the camshafts as shown below. This will set TDC of the compression stroke.



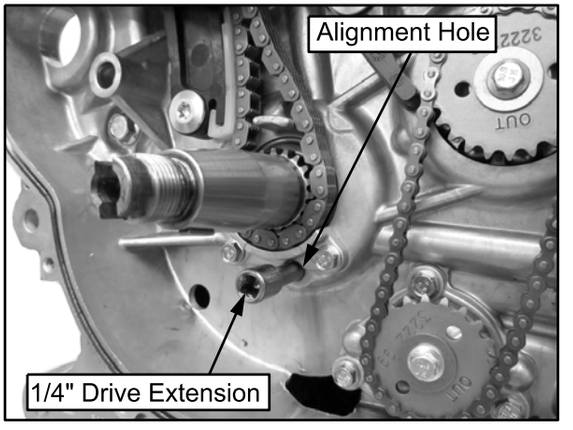
NOTE

Intake cam sprocket should have “I” marks aligned with gasket surface and the exhaust cam sprocket should have “E” marks aligned with gasket surface.



3. With the stator cover and flywheel removed, rotate the engine and position the piston at TDC by aligning the timing hole in crank case with a timing hole in the crankshaft.

4. Insert a 1/4” drive socket extension through the crankcase and into the crankshaft locating hole. **This will set TDC, but not necessarily TDC of the compression stroke.** View the timing marks on the cam shaft sprockets to ensure the engine is at TDC of the compression stroke.



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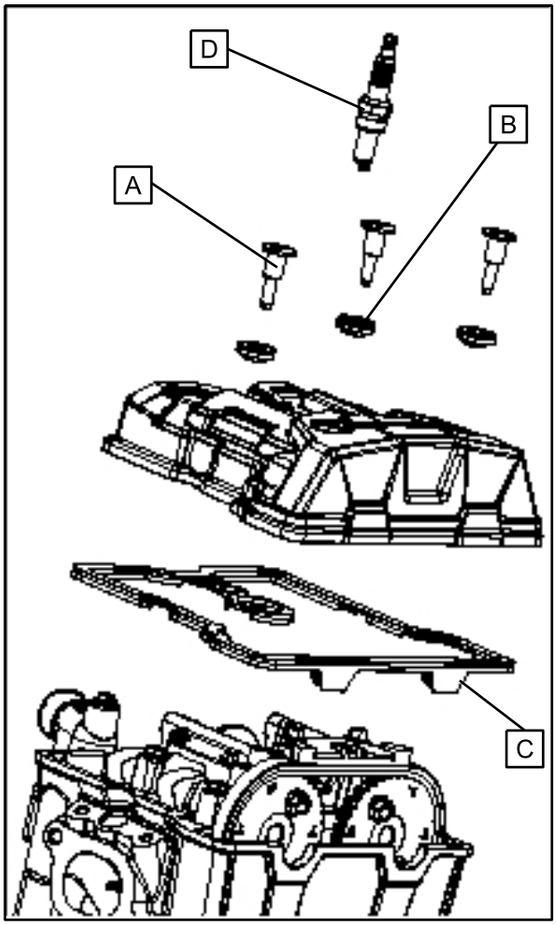
ENGINE DISASSEMBLY / INSPECTION - TOP END (570)

VALVE COVER REMOVAL

NOTE

The valve cover, camshafts, cylinder head, cylinder and piston can be serviced with the engine installed in the chassis.

1. If needed, remove the spark plug wire from the engine.
2. Remove dirt and debris from valve cover area.
3. Remove the three valve cover shoulder bolts (A) and isolators (B) using a T40 driver.
4. Carefully lift valve cover from the engine and remove it out of the right-hand rear wheel well area.



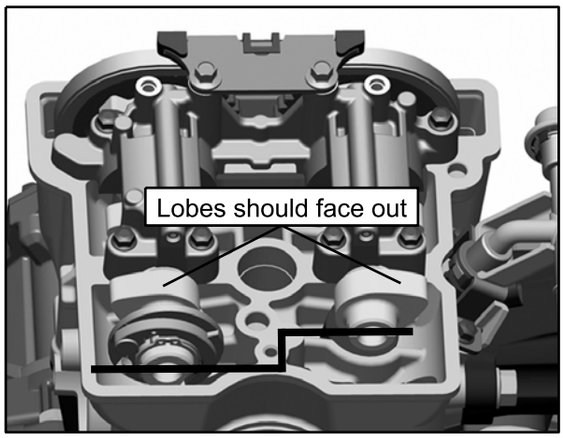
5. Replace isolators (B) and valve cover seal (C) if oil leaks are evident.
6. Remove the spark plug (D). Stuff spark plug hole with a shop towel to prevent anything from falling into the combustion chamber (if further engine disassembly is required).

CAMSHAFT / CARRIER REMOVAL

NOTE

The camshafts can be removed with the engine installed in the chassis.

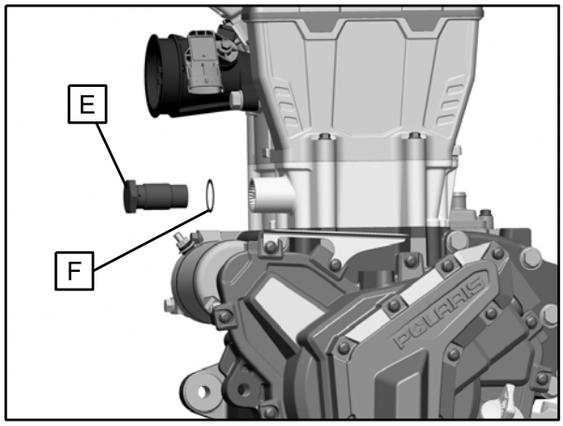
1. Rotate the engine so the piston is at Top Dead Center (TDC) on the compression stroke.



NOTE

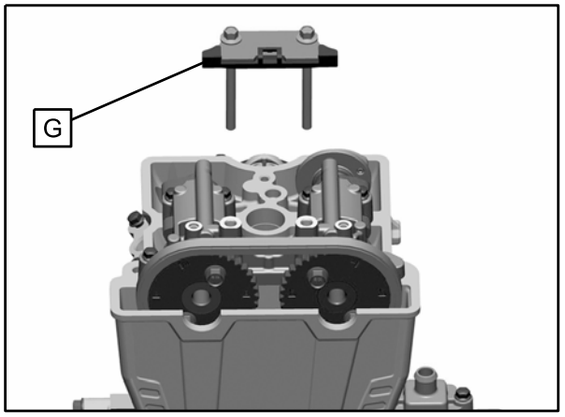
To verify TDC, refer to **“SETTING TDC”, page 3.38** procedure.

2. Remove the hydraulic cam chain tensioner (E) from the cylinder. Replace the sealing washer (F) upon reassembly.

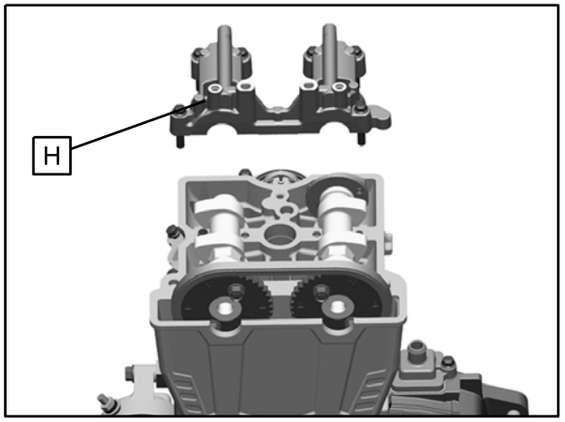


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3. Remove the two bolts retaining the fixed cam chain guide (G) and remove the assembly from the engine. Inspect the guide for wear and replace if necessary.



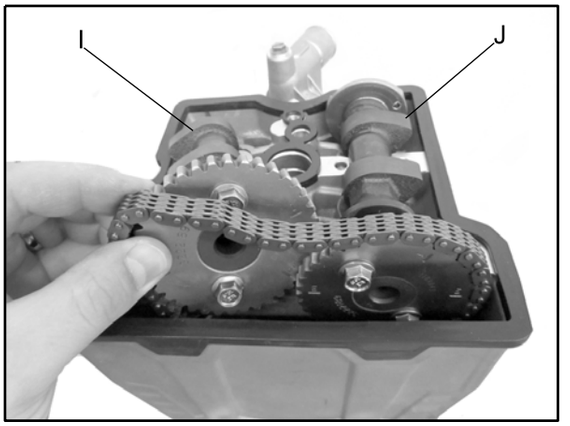
4. Remove the remaining six bolts that retain the camshaft carrier (H) and carefully lift the carrier off the camshafts.



NOTE

The crankcase has a lower guide to prevent the chain from falling off the crankshaft.

5. Attach a hook or other tool to the camshaft chain to prevent it from dropping down into the engine.
6. Mark the intake (I) and exhaust (J) camshafts to ensure proper assembly.
7. Lift upward on the intake camshaft while rotating it counter-clockwise. Walk the timing chain off of the sprocket. Carefully remove the intake camshaft from the engine.



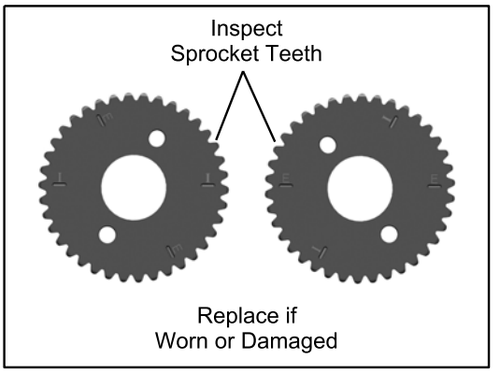
8. Remove the cam chain from the exhaust camshaft sprocket (J) and remove the exhaust camshaft from the engine.

CAMSHAFT SPROCKET INSPECTION

NOTE

Camshaft sprocket removal is not necessary unless the replacement of the sprockets is required.

Inspect cam sprocket teeth for wear or damage. Replace timing chain and sprockets as a set if worn or damaged.



NOTE

Replace intake camshaft sprocket bolt if loosened or removed.

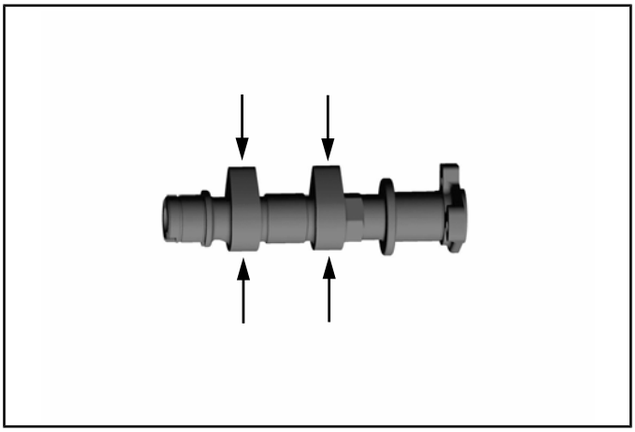
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TORQUE
Intake Camshaft Sprocket Bolt: **14 lb-ft (19 Nm)**

CAMSHAFT INSPECTION

Inspect all main journals and cam lobes as described below and compare to specifications. Replace camshafts or cylinder head if worn beyond service limit or if any surface is pitted or damaged.

1. Visually inspect each cam lobe for wear or damage.
2. Measure the height of each cam lobe from the base circle to highest point on the lobe using a micrometer. Compare to specification.



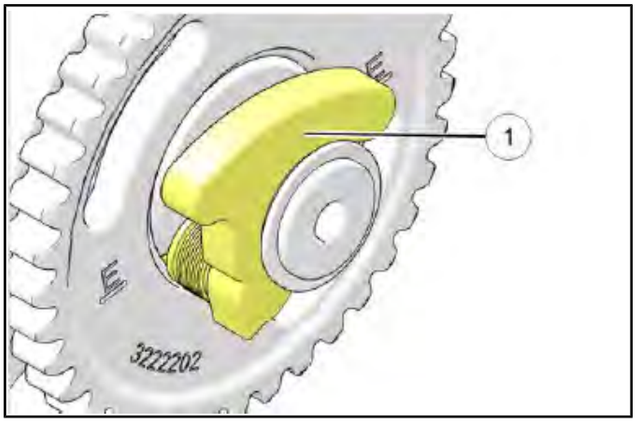
NOTE
Replace camshafts if damaged or if any part is worn past the service limit.

MEASUREMENT
Camshaft Lobe Height: **Intake: 1.5704" ± 0.0038" (39.89 ± 0.097 mm)** **Exhaust: 1.5405" ± 0.0038" (39.13 ± 0.097 mm)**

EXHAUST CAMSHAFT DECOMPRESSION MECHANISM

NOTE
Removal of the decompression mechanism is not necessary unless replacement is required.

1. Thoroughly clean and inspect the decompression mechanism ① located on the exhaust camshaft.
2. Replace the decompression assembly if any excessive wear or binding is evident.



3. Be sure the decompression mechanism functions smoothly and easily returns under spring pressure to the resting position against gravity.

3

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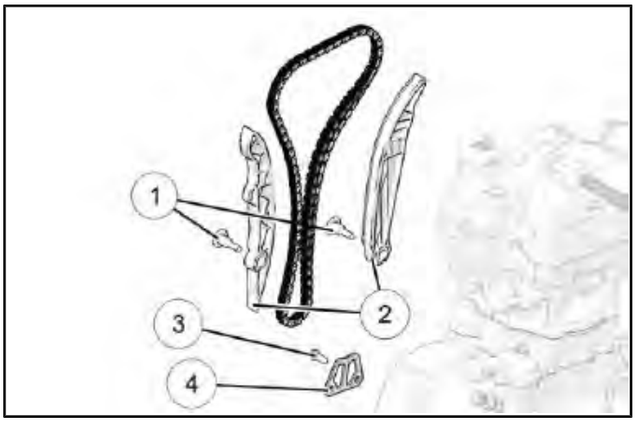
CAM CHAIN AND GUIDE SERVICE

NOTE

The crankcase has a removable lower cam chain drive guide that prevents the chain from disengaging the crankshaft during engine service.

The cam chain, cam chain guides and cam chain tensioner can be replaced with the engine installed in the vehicle.

1. If not already performed, remove the valve cover, stator cover, flywheel, cam chain tensioner, cam carrier and camshafts as outlined in this chapter.
2. Remove the two fasteners ① that secure the cam chain guides ② to the crankcase.
3. Remove the fastener ③ that secures the lower cam chain guide ④ to the crankcase.
4. Inspect the cam chain guides and replace if excessive wear is evident.
5. Upon installation, torque all fasteners to specification and reassemble engine and vehicle as outlined in this chapter.



TORQUE

Cam Chain Guide Fasteners:
9 lb-ft (12 Nm)

CYLINDER HEAD REMOVAL

NOTE

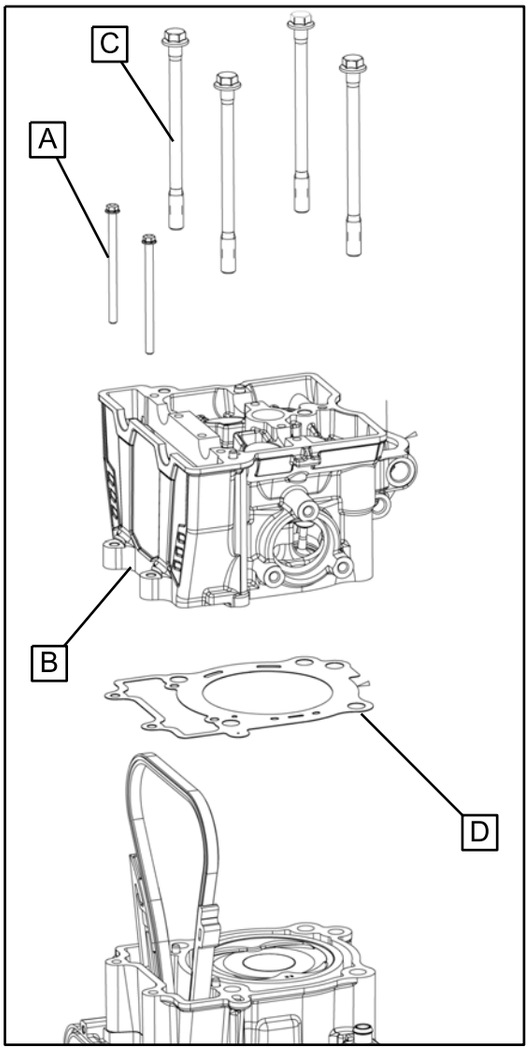
The cylinder head can be serviced with the engine installed in the chassis.

Do not rotate head assembly up side-down until the valve tappets have been removed.

1. Remove and discard the two outer M6 bolts (A) that retain the cylinder head (B) and the cylinder.
2. Loosen the four cylinder head bolts (C) evenly 1/8 turn (60 degrees) at a time until all are loose.
3. Remove and discard the cylinder head bolts (C). Replace with *new* upon assembly.
4. Tap cylinder head lightly with a soft faced hammer until loose. Tap only in reinforced areas or on thick parts of the cylinder head casting.

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5. Remove the cylinder head (B) and head gasket (D).



CYLINDER HEAD DISASSEMBLY

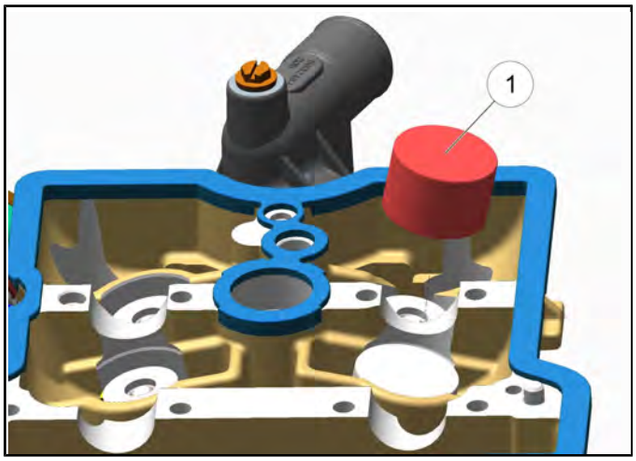
⚠ WARNING

Wear eye protection during cylinder head disassembly and reassembly or when working with the valve springs.

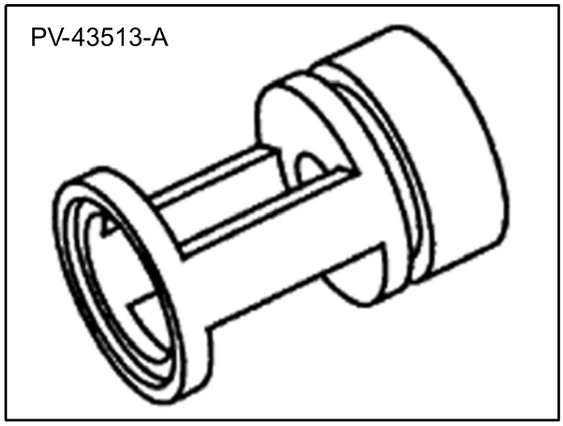
NOTE

Keep mated parts together and in order with respect to their location in the cylinder head for assembly purposes. It is important to install cylinder head components back in the same location. Mark each component or place them in an organized rack as you remove them.

1. Remove the valve tappet ① from the cylinder head.

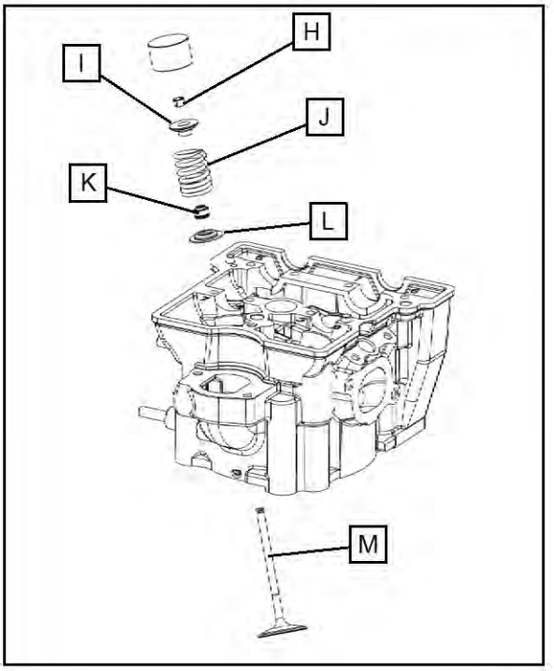


2. Compress the valve spring by hand using valve spring compressor adapter (**PV-43513-A**).



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3. Push down on the spring and remove the split keepers (H).



4. Slowly release valve spring pressure and remove the compressor adapter.
5. Remove the valve retainer (I), valve spring (J), valve stem seal (K) and valve spring seat (L). Discard the valve seal.

NOTE

Replace valve seals whenever cylinder head is disassembled. Hardened, cracked or worn seals will cause excessive oil consumption.

6. Lift up the cylinder head and push the valve (M) out, keeping it in order for reassembly in the same valve guide.
7. Repeat the previous steps to remove the remaining valves.
8. Clean the combustion chamber and head gasket surface.

CYLINDER HEAD INSPECTION

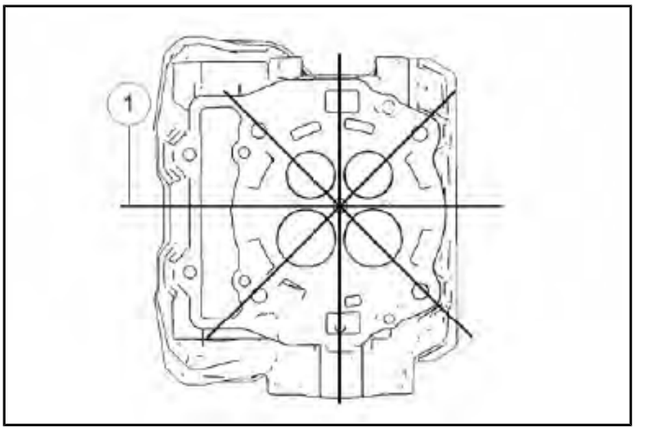
Thoroughly clean cylinder head surface to remove all traces of gasket material and carbon.

⚠ CAUTION

Use care not to damage gasket sealing surface. All gasket surfaces must be clean, dry and free of any oil or grease upon assembly. Clean sealing surfaces with rubbing alcohol or electrical contact cleaner. Do not touch sealing surfaces of the new head gasket.

CYLINDER HEAD WARP INSPECTION

1. Lay a straight edge ① across the surface of the cylinder head at several different points and measure warp by inserting a feeler gauge between the straight edge and the cylinder head surface. If warp exceeds the service limit, replace the cylinder head.



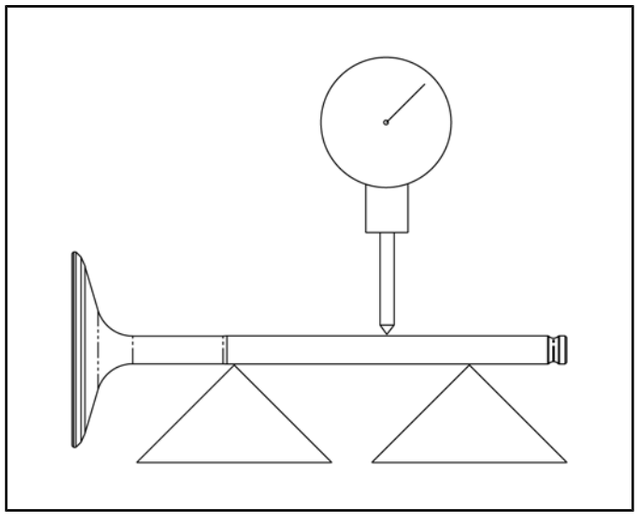
MEASUREMENT

Cylinder Head Warp Limit:
.0024" (0.06 mm)

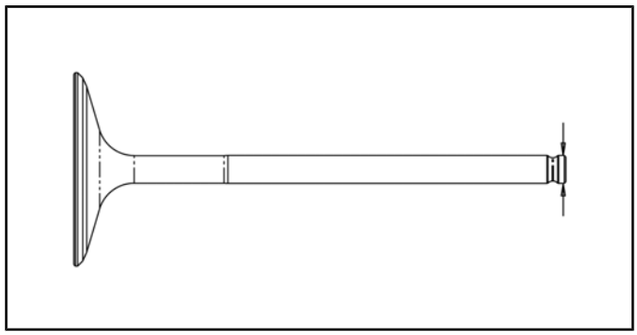
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VALVE INSPECTION

1. Remove all carbon from valves with a soft wire wheel or brush.
2. Check valve face for excessive runout, pitting, and burnt spots.
3. To check for bent valve stems, mount valve in “V” blocks and measure with a dial indicator.



4. Check the end of the valve stem for flaring, pitting, wear or damage.

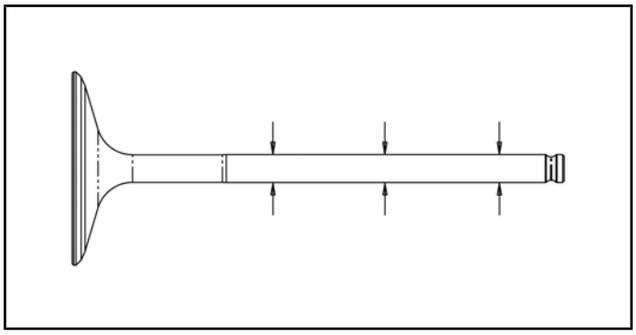


5. Inspect split keeper groove for wear or flaring in the keeper seat area.

NOTE

The valves can be re-faced or end ground, if necessary. They must be replaced if extensively worn, burnt, bent or damaged.

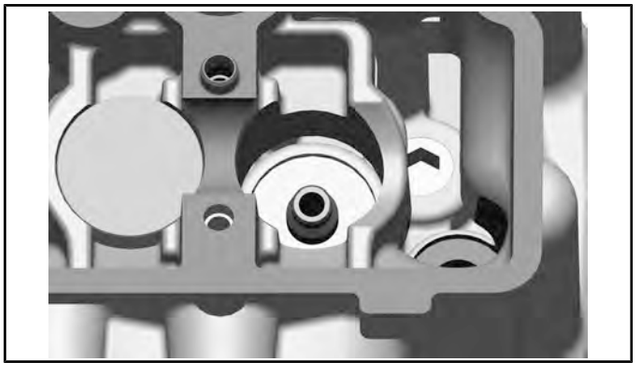
6. Measure diameter of valve stem with a micrometer in three places, then rotate 90° and measure again (take six measurements total). Compare to specifications.



MEASUREMENT

Valve Stem Diameter:
Intake: 0.2155" - 0.2161" (5.475 - 5.490 mm)
Exhaust: 0.2147" - 0.2153" (5.455 - 5.470 mm)

7. Measure valve guide inside diameter at the top middle and end of the guide using a small hole gauge and a micrometer. Measure in two directions.



MEASUREMENT

Valve Guide I.D.:
0.2165" - 0.2171" (5.500 - 5.515 mm)

8. Be sure to measure each guide and valve combination individually.

NOTE

The valve guides cannot be replaced.

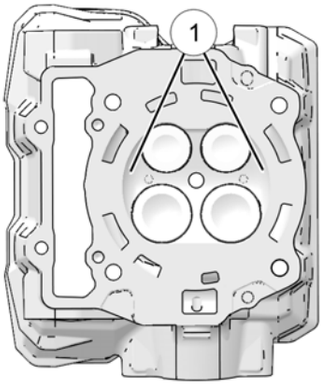
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COMBUSTION CHAMBER CLEANING

⚠ WARNING

Wear eye protection during combustion chamber cleaning.

1. Clean all accumulated carbon deposits from combustion chambers and valve seat area ①.



NOTE

Carbon Clean Fuel Treatment (2871326) can be used to help remove carbon deposits.

Do not use a metal scraper, a coarse wire brush or abrasive cleaners to clean the cylinder head. Damage may result.

2. Visually inspect cylinder head gasket surface and combustion chamber for cracks or damage. Pay close attention to the areas around spark plug and valve seats.

VALVE SEAT RECONDITIONING

Valve seat reconditioning should be performed by a technician proficient in cylinder head reconditioning techniques. Reconditioning techniques vary, so follow the instructions provided by the valve reconditioning equipment manufacturer. Do not grind seats more than necessary to provide proper seat surface, width, and contact point on valve face.

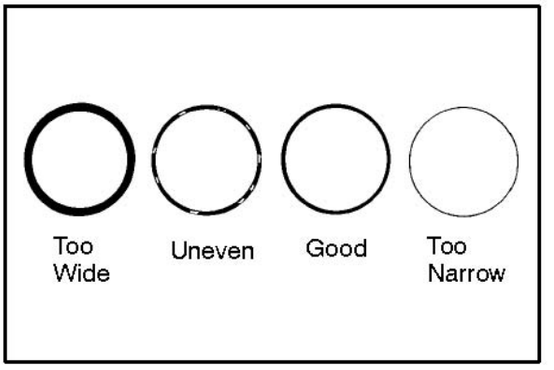
⚠ WARNING

Wear eye protection or a face shield during cylinder head disassembly and reassembly.

Valve Seat Inspection

Inspect valve seat in cylinder head for pitting, burnt spots, roughness, and uneven surface. If any of the above conditions exist, the valve seat must be reconditioned. *If the valve seat is cracked the cylinder head must be replaced.*

Valve seat width and point of contact on the valve face is very important for proper sealing. The valve must contact the valve seat over the entire circumference of the seat, and the seat must be the proper width all the way around. If the seat is uneven, compression leakage will result. If the seat is too wide, seat pressure is reduced, causing carbon accumulation and possible compression loss. If the seat is too narrow, heat transfer from valve to seat is reduced. The valve may overheat and warp, resulting in burnt valves.



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Renewing Valve Seats

1. Install pilot into valve guide.
2. Apply cutting oil to valve seat and cutter.
3. Place 46° cutter on the pilot and make a light cut.
4. Inspect the cut area of the seat:

   * If the contact area is less than 75% of the circumference of the seat, rotate the pilot 180° and make another light cut.

   * If the cutter now contacts the uncut portion of the seat, check the pilot. Look for burrs, nicks, or runout. If the pilot is bent it must be replaced.

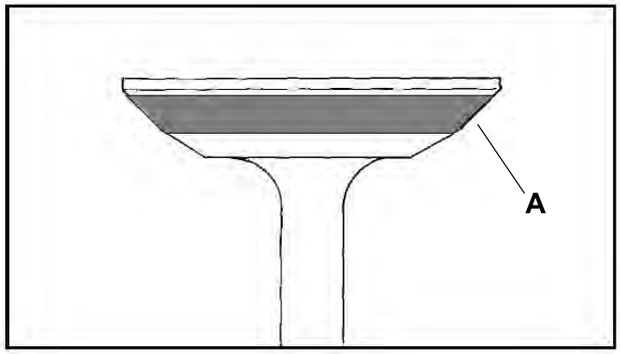
   * If the contact area of the cutter is in the same place, the valve guide is distorted from improper installation.

   * If the contact area of the initial cut is greater than 75%, continue to cut the seat until all pits are removed and a new seat surface is evident.

NOTE

Remove only the amount of material necessary to repair the seat surface.

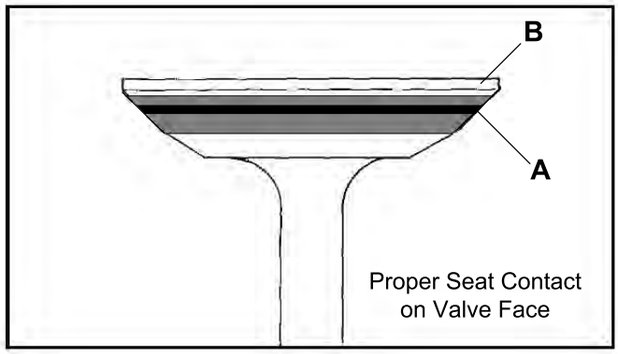
5. To check the contact area of the seat on the valve face, apply a thin coating of Prussian Blue paste to the valve seat. If using an interference angle (46°) apply black permanent marker to the entire valve face (A).



6. Insert valve into guide and tap valve lightly into place a few times.
7. Remove valve and check where the Prussian Blue indicates seat contact on the valve face. The valve seat should contact the middle of the valve face or slightly above, and must be the proper width.

NOTE

When using an interference angle, the seat contact point on the valve will be very narrow, and is a normal condition. Look for an even and continuous contact point all the way around the valve face (A).

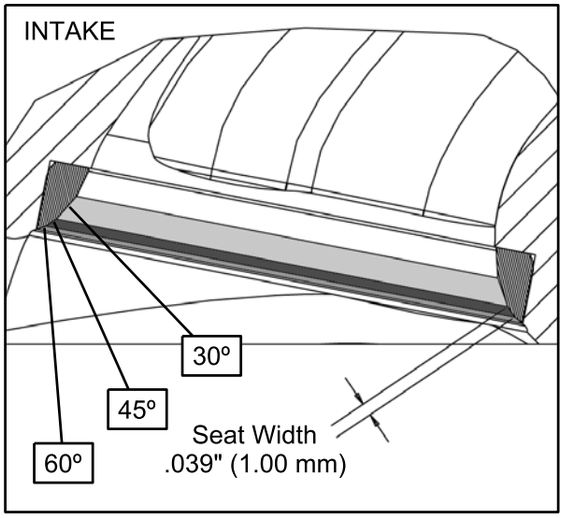


MEASUREMENT

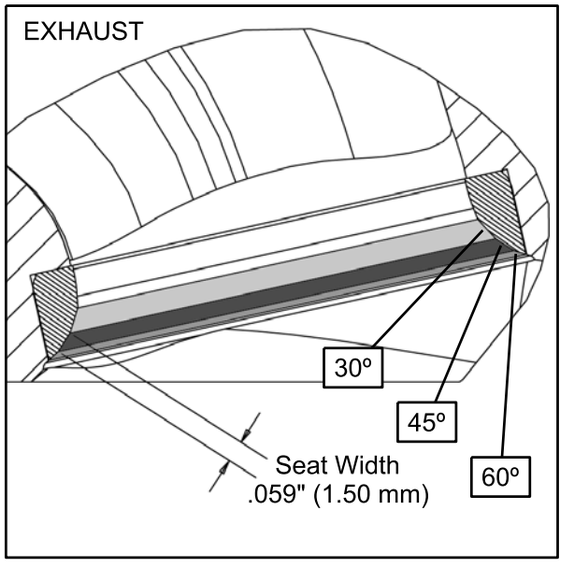
Valve Seat Width
Intake:
Std.: .0393" (1.00 mm)
Service Limit: .0551" (1.4 mm)
Exhaust:
Std.: .0590” (1.50 mm)
Service Limit: .0758" (1.9 mm)

* If the indicated seat contact is at the top edge of the valve face and contacts the margin area (B) it is too high on the valve face. Use the 30° cutter to lower the valve seat.
* If too low, use the 60° cutter to raise the seat. When contact area is centered on the valve face, measure seat width.
* If the seat is too wide or uneven, use both top and bottom cutters to narrow the seat.
* If the seat is too narrow, widen using the 45° cutter and re-check contact point on the valve face and seat width after each cut.

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MEASUREMENT
Intake Seat Cutter Diameter: **1.567 in. (39.80 mm)**



MEASUREMENT
Exhaust Seat Cutter Diameter: **1.364 in. (34.65 mm)**

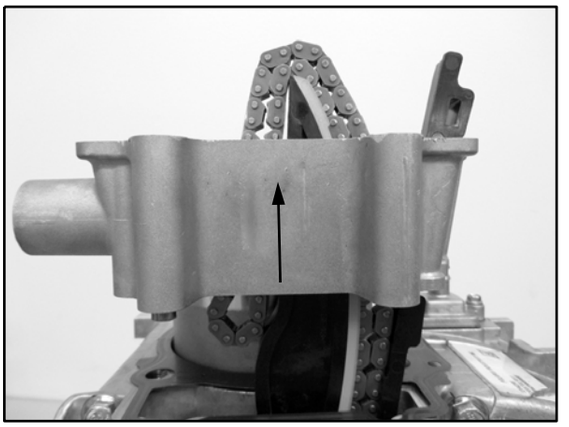
8. Clean all filings from the area with hot soapy water. Rinse and dry with compressed air.
9. Lubricate valve guides with clean engine oil and apply oil or water based lapping compound to the face of the valve.

NOTE
Lapping is not required if an interference angle reconditioning method is used.

10. Insert the valve into its respective guide and lap using a lapping tool or a section of fuel line connected to the valve stem.
11. Rotate the valve rapidly back and forth until the cut sounds smooth. Lift the valve slightly off of the seat, rotate 1/4 turn, and repeat the lapping process. Do this four to five times until the valve is fully seated, and repeat process for the other valves.
12. Thoroughly clean cylinder head and valves.

CYLINDER REMOVAL

1. Remove and discard the head gasket (1).
2. Position the cam chain and guides vertically.
3. Tap cylinder (2) lightly with a plastic hammer in the reinforced areas only until loose.
4. Rock cylinder forward and backward and lift it from the crankcase, supporting piston (4) and connecting rod.
5. Remove the cylinder from the engine.

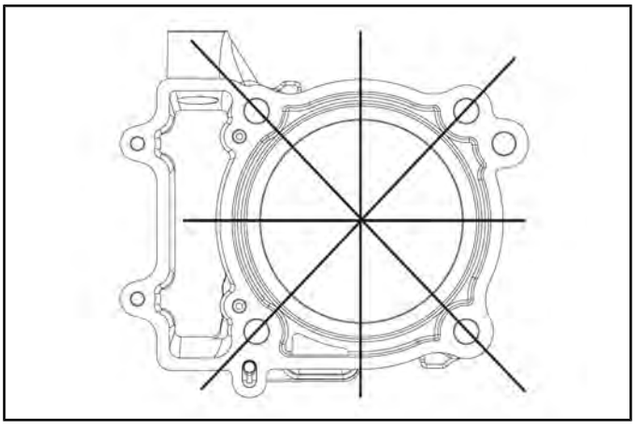


6. Remove and discard cylinder base gasket (3).

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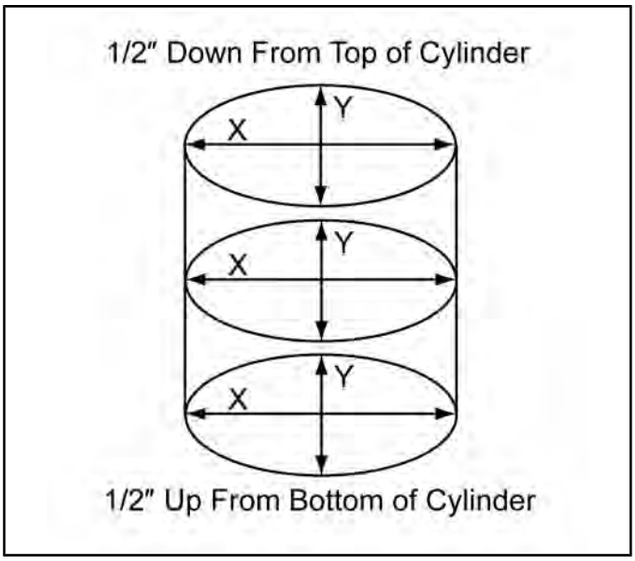
CYLINDER INSPECTION

1. Remove all gasket material from the cylinder sealing surfaces.
2. Inspect the top of the cylinder for warpage using a straight edge and feeler gauge.



MEASUREMENT
Cylinder Warpage: **.00098" (.025 mm)**

3. Inspect cylinder for wear, scratches, or damage.
4. Inspect cylinder for taper and out of round with a telescoping gauge or a dial bore gauge. Measure in two different directions, front to back and side to side, on three different levels (1/2" down from top, in the middle, and 1/2" up from bottom).



5. Record measurements taken in Step 4. If cylinder is tapered, or out of round beyond .001, cylinder must be re-bored oversize, or replaced.

MEASUREMENT
Cylinder Taper: **Limit: .001" Max. (0.025 mm)**
Cylinder Out of Round: **Limit: .001" Max. (.025 mm)**
Standard Bore Size: **3.8976 +/- 0.0003" (99.0 +/- 0.008 mm)**

3

PISTON REMOVAL

1. Note piston directional indicator "EX" positioned toward the exhaust side of engine.
2. Remove piston circlip and push piston pin out of piston. If necessary, heat the crown of the piston *slightly* with a heat gun.

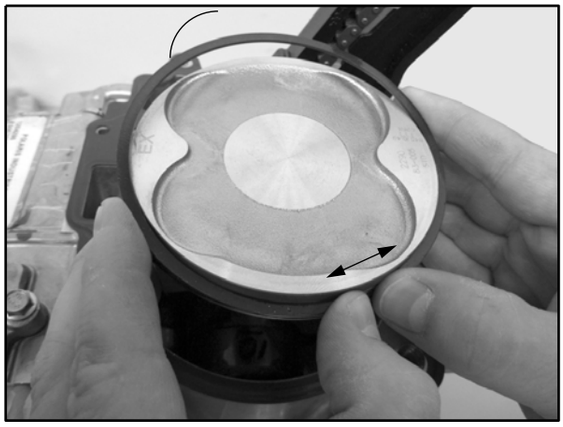
CAUTION
Do not apply heat to the piston rings, they may lose radial tension.

3. Remove top ring.

   ***Using a piston ring pliers**: Carefully expand ring and lift it off the piston.

CAUTION
Do not expand the ring more than the amount necessary to remove it from the piston.

   ***By hand:** Placing both thumbs as shown, spread the ring open and push up on the opposite side.

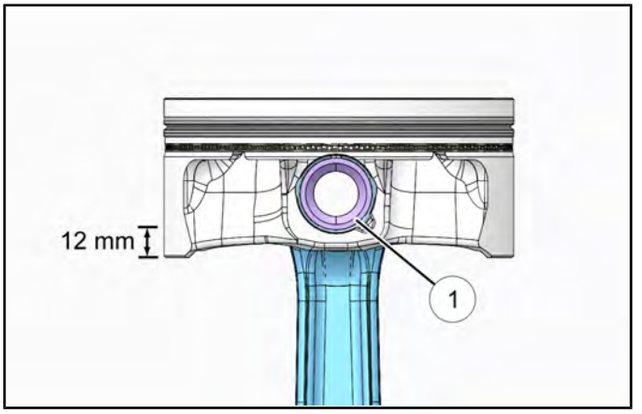


4. Repeat procedure for second ring.
5. Remove oil control ring top rail first, then bottom rail.
6. Remove oil control ring expander.

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PISTON-TO-CYLINDER CLEARANCE

1. Measure the outside diameter of the piston 12 mm from the skirt and at a right angle to the direction of the piston pin ①.

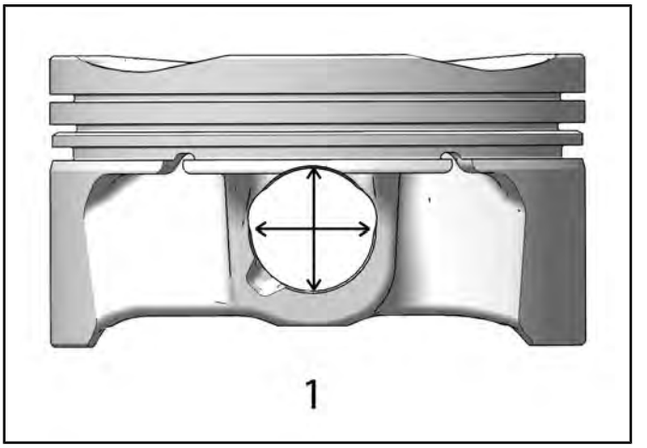


2. Subtract this measurement from the maximum cylinder size measurement from cylinder inspection.

MEASUREMENT
Piston to Cylinder Clearance: **.00019 - .00216″ (.005 - .055 mm)** Piston O.D.: **3.8957 - 3.8968″ (98.953 - 98.980 mm)**

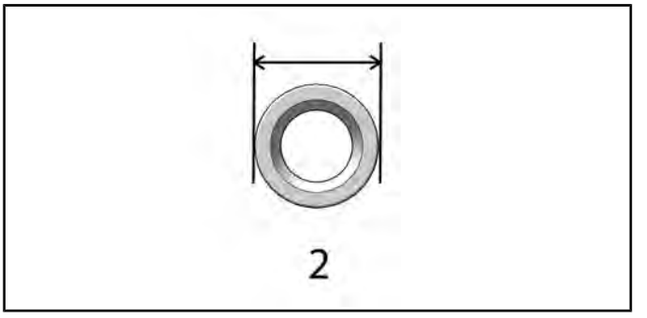
PISTON / ROD INSPECTION

1. Measure piston pin bore inside diameter I.D. ①.



MEASUREMENT
Piston Pin Bore Std.: **0.8662 - 0.8665″ (22.004 - 22.010 mm)** Service Limit: **0.8651″ (21.975 mm)**

2. Measure piston pin O. D ②. Replace piston and/or piston pin if out of tolerance.



MEASUREMENT
Piston Pin O.D. Std.: **0.8659 - 0.8661″ (21.995 - 22.0 mm)** Service Limit: **0.8651″ (21.975 mm)**

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3. Measure connecting rod small end ID. Inspect bearing surface for damage.

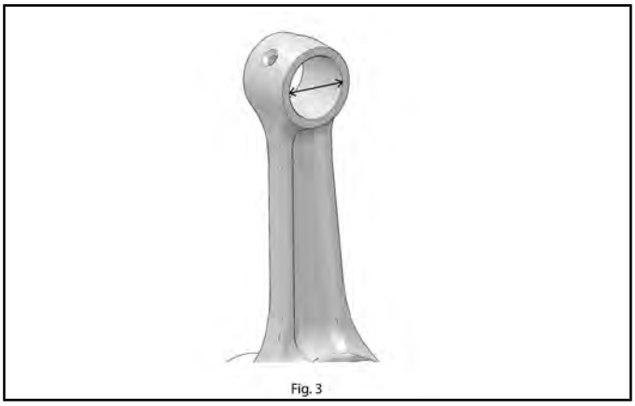
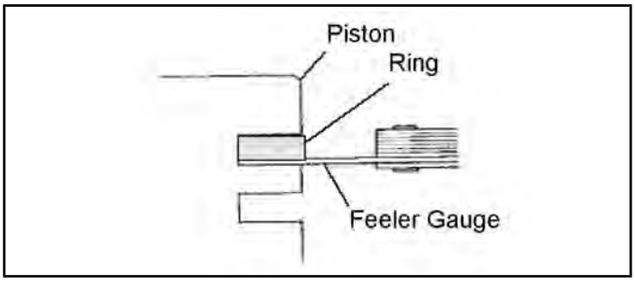


Fig. 3

MEASUREMENT
Piston Pin Degree of Fit
Pin should be a push-fit by hand with piston at room temperature or warmed slightly
Connecting Rod Small End ID:
Std.: **0.8665 - 0.8670″ (22.010 - 22.023 mm)**

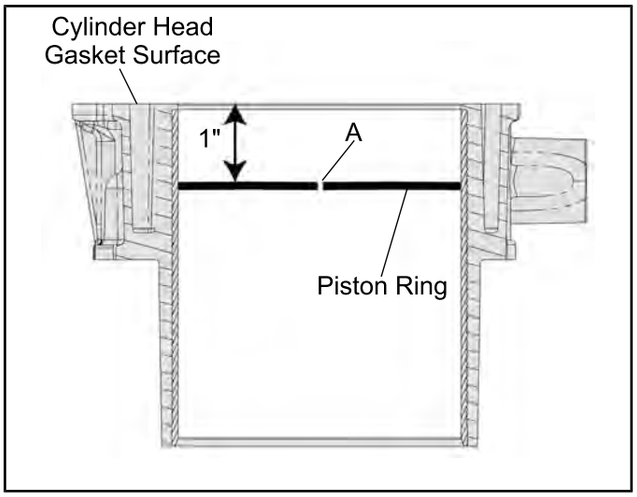
4. Measure piston ring to groove clearance by placing the ring in the ring land and measuring with a thickness gauge. Replace piston and rings if ring-to-groove clearance exceeds service limits.



MEASUREMENT
Piston Ring-to-Groove Clearance
Top Ring:
Std.: **0.0011 - 0.0037" (0.030 - 0.095 mm)**
Service Limit: **0.0042" (0.108 mm)**
Second Ring:
Std.: **0.0007 - 0.0029" (.020 - 0.076 mm)**
Service Limit: **0.0035" (0.89 mm)**

PISTON RING INSTALLED GAP

1. Place each piston ring inside cylinder. Use a piston to push the ring squarely into place 1” (25.4 mm) down from the cylinder head gasket surface.
2. Measure installed gap with a feeler gauge at location (A).



MEASUREMENT
Piston Ring Installed Gap
Top Ring:
Std: **0.0059 - 0.0122" (0.15 - 0.31 mm)**
Limit: **0.0137" (0.35 mm)**
Second Ring:
Std: **0.0094 - 0.0196" (0.24 - 0.50 mm)**
Limit: **0.022" (0.56 mm)**
Oil Ring Rails:
Std: **0.0098” - 0.0401" (0.25 - 1.02 mm)**
Limit: **0.0480" (1.22 mm)**

NOTE
Always check piston ring installed gap after re-boring a cylinder or when installing new rings.

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HONING TO OVERSIZE

CAUTION

If cylinder wear or damage is excessive, it will be necessary to oversize the cylinder using a new oversized piston and rings. This may be accomplished by either boring the cylinder and then finish honing to the final bore size, or by rough honing followed by finish honing.

CAUTION

For oversize honing always wet hone using honing oil and a coarse roughing stone. Measure piston (Refer to **"Piston-to-Cylinder Clearance", page 3.50**) and calculate finished bore size. Always leave .002 - .003" (.05 - .07 mm) for finish bore sizing with a fine stone.

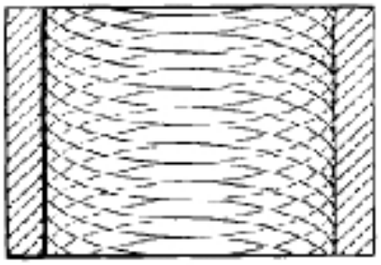
A finished cylinder should have a 45 degree cross-hatch pattern to ensure piston ring seating, aid in oil retention and reduce ring vibration during initial break-in. Hone cylinder according to hone manufacturer's instructions, or these guidelines:

- Use a motor speed of approximately 300-500 RPM, run the hone in and out of the cylinder rapidly until cutting tension decreases. Remember to keep the hone drive shaft centered (or cylinder centered on arbor) and to bring the stone approximately 1/2" (1.3 cm) beyond the bore at the end of each stroke.
- Release the hone at regular intervals and inspect the bore to determine if it has been cleared, and to check piston fit.

NOTE

Do not allow cylinder to heat up during honing.

Example: Cross Hatch pattern



CYLINDER HONE SELECTION / HONING PROCEDURE

CAUTION

Selecting a hone which will straighten as well as remove material from the cylinder is very important. Using a common spring loaded finger type glaze breaker for honing is never advised. Polaris recommends using a rigid hone or arbor honing machine which also has the capability of oversizing.

Cylinders may be wet or dry honed depending upon the hone manufacturer's recommendations. Wet honing removes more material faster and leaves a more distinct pattern in the bore.

It is very important that the cylinder be thoroughly cleaned after honing to remove all grit material. Wash the cylinder in a solvent, then in hot, soapy water. Pay close attention to areas where the cylinder sleeve meets the aluminum casting. Use electrical contact cleaner if necessary to clean these areas. Rinse thoroughly, dry with compressed air, and oil the bore immediately with engine oil.

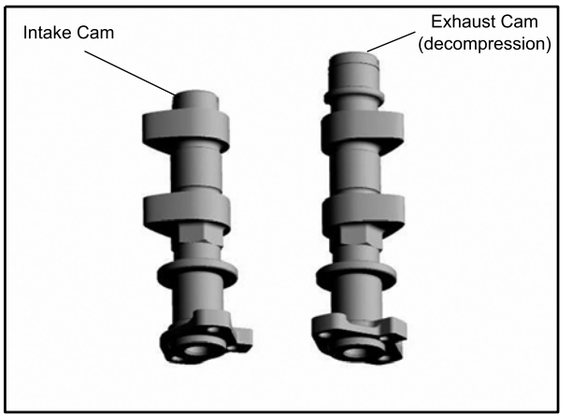
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CAMSHAFT INSTALLATION / TIMING

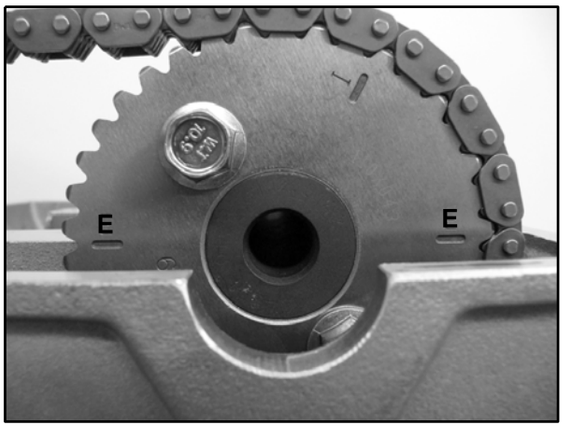
NOTE

If any valve train components were replaced, refer to **“Valve Clearance Check / Adjustment”, page 3.65** procedure prior to “Camshaft Installation / Timing”.

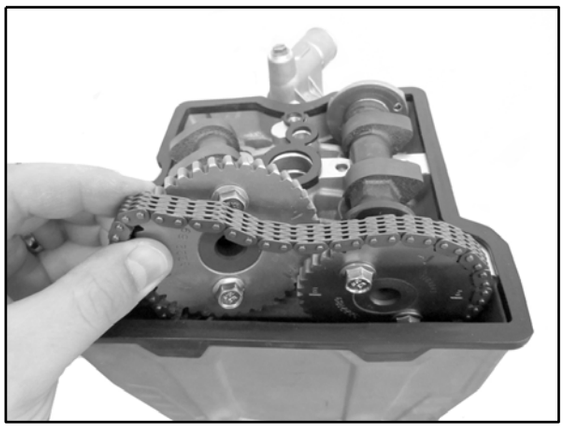
1. Rotate the engine and position the piston at TDC.
2. Reference the intake and exhaust markings made during disassembly.

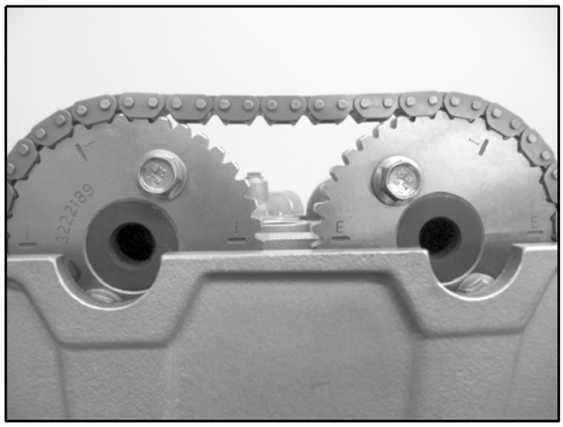


3. Lubricate all camshaft lobes and bearing journal surfaces with Polaris PS-4 engine oil prior to installation.
4. Place the exhaust cam into the cylinder head and align the timing marks as shown below.



5. Wrap the cam chain around the exhaust cam sprocket and hold the exhaust cam in its current position.
6. Carefully install the intake cam at an angle to allow for cam chain installation. Roll the cam shaft into its bearing pockets and verify that the timing marks are in alignment as shown below.





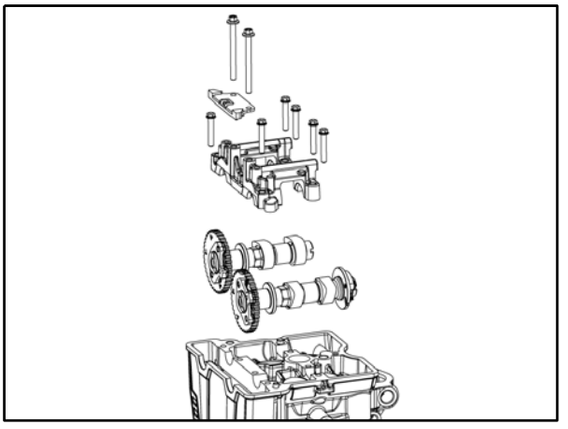
NOTE

Intake cam sprocket should have “I” marks aligned with gasket surface and the exhaust cam sprocket should have “E” marks aligned with gasket surface.

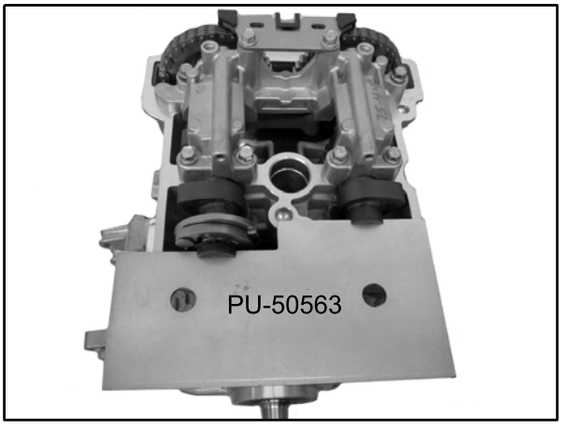
7. Carefully install the camshaft carrier onto the camshafts.

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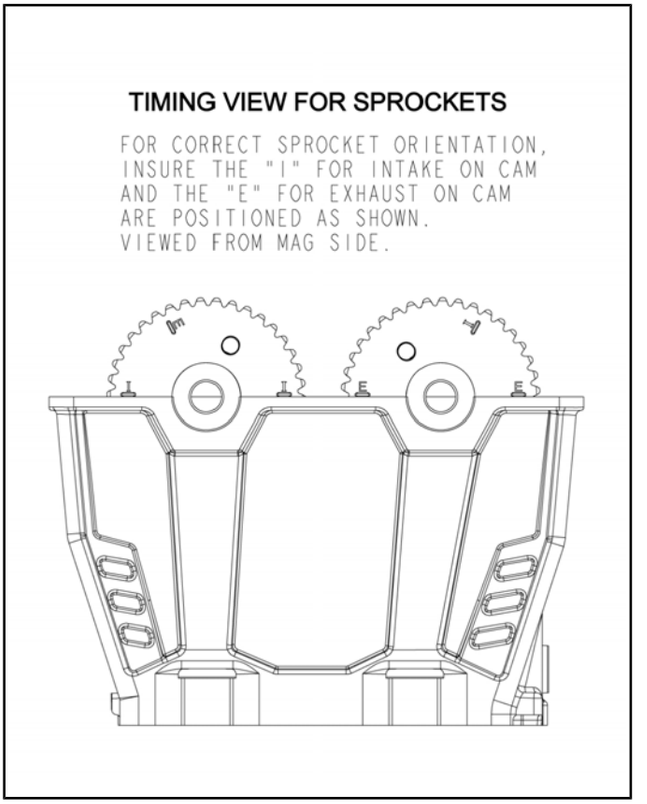
8. Install the upper cam chain guide and the eight bolts that retain the camshaft carrier. Tighten the bolts evenly until snug. Do not torque at this time.



9. Install the Cylinder Holding and Camshaft Timing Plate (**PU-50563**) into the end of camshafts as shown.



10. Verify cam timing is correct and the piston is a TDC.



11. If timing marks are not aligned:

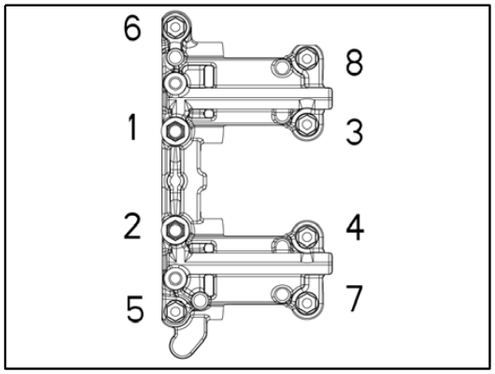
- Remove the Camshaft Timing Plate (**PU-50563**) from the end of the camshafts.
- Remove the cam carrier bolt and cam carrier.
- Correct the camshaft timing as needed.
- Reinstall the cam carrier.
- Re-check cam timing.

12. Remove the Cylinder Holding & Camshaft Timing Plate (**PU-50563**) from the end of the camshafts.

13. If needed, install the camshaft carrier and bolts.

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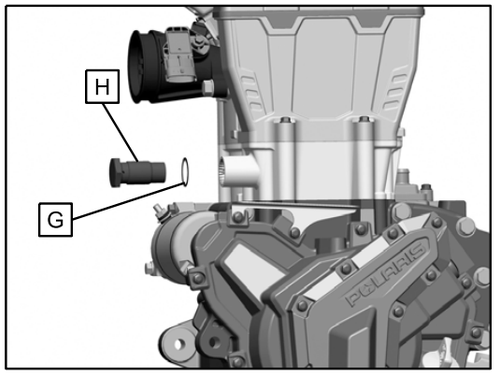
14. Torque the camshaft carrier bolts in sequence to specification.



TORQUE
Camshaft Carrier Bolts: **8 lb-ft (11 Nm)**

15. Insure the *new* sealing washer (G) is in place.

16. Install the hydraulic cam chain tensioner (H) into the cylinder and torque to specification.

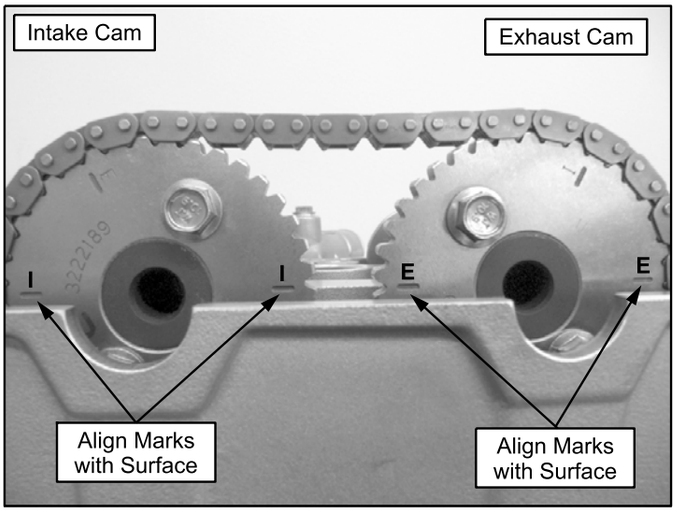


TORQUE
Cam Chain Tensioner: **30 lb-ft (41 Nm)**

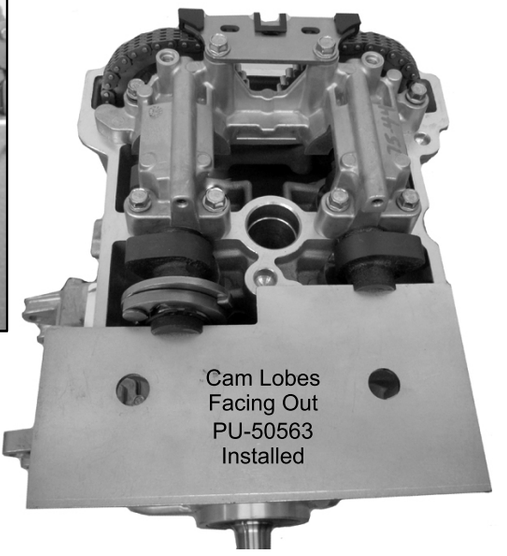
17. Rotate crankshaft through two revolutions and verify camshaft timing is correct.

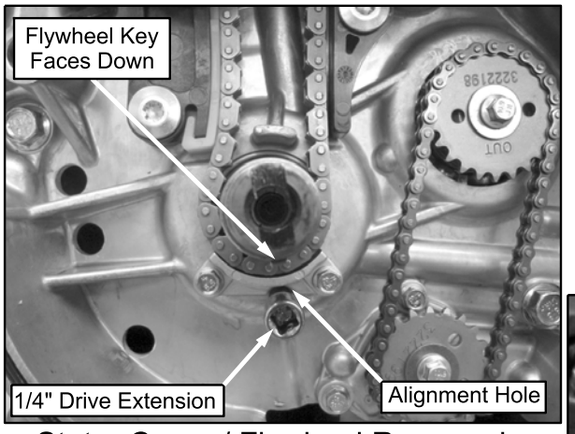
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CAMSHAFT TIMING - QUICK REFERENCE



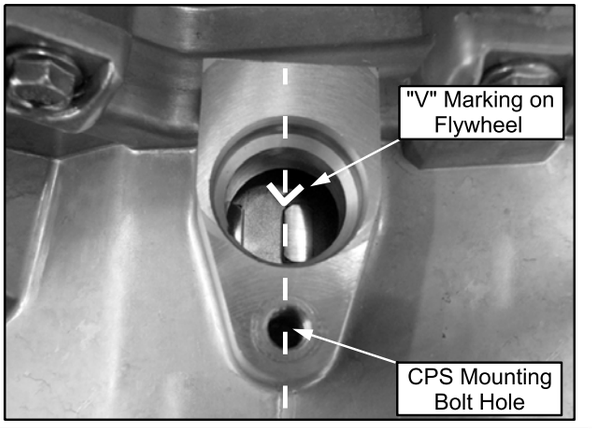
TOP END





Stator Cover / Flywheel Removed

Stator Cover / Flywheel Installed



BOTTOM END

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VALVE COVER INSTALLATION

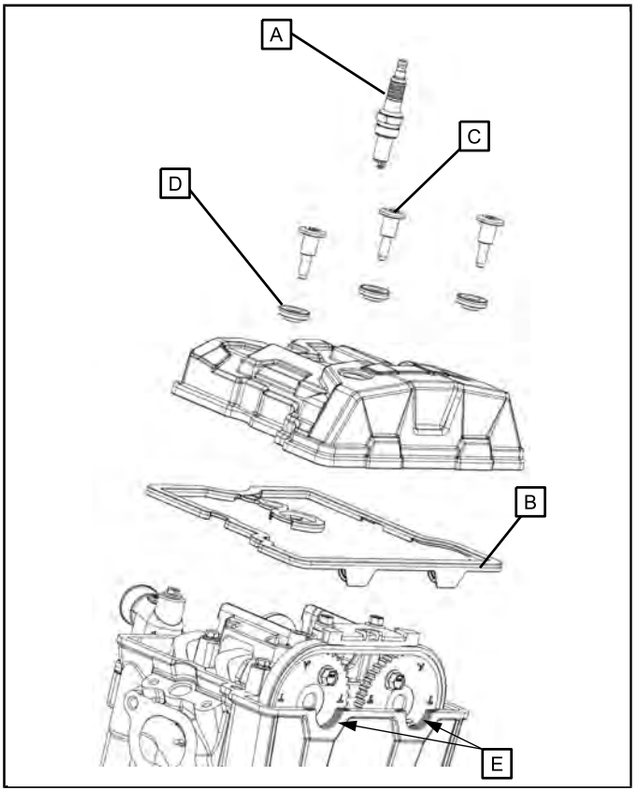
1. Install the spark plug (A) and torque to specification.

TORQUE
Spark Plug: **9 lb-ft (12 Nm)**

2. Prepare valve cover sealing surfaces by cleaning thoroughly to remove all residue.
3. Apply a small amount of crankcase sealant to the cylinder head half-moon cutouts (E) as shown.

Crankcase Sealant: **2871557**

4. Install a *new* valve cover seal (B).
5. Install the three valve cover shoulder bolts (C) and isolators (D) using a T40 driver.



6. Torque valve cover bolts to specification.

TORQUE
Valve Cover Bolts: **9 lb-ft (12 Nm)**

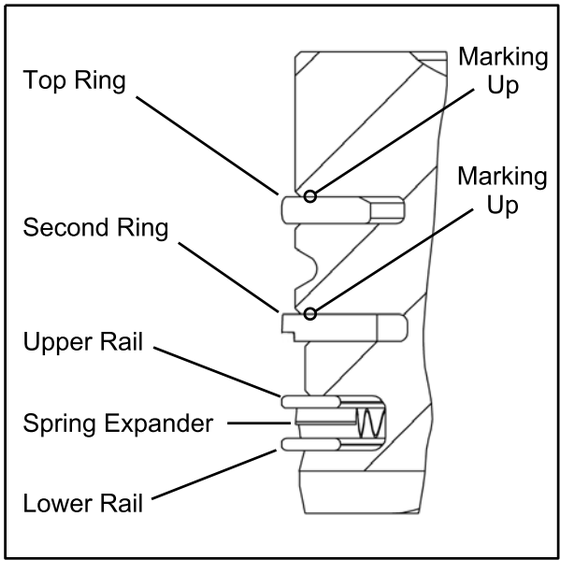
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ENGINE ASSEMBLY - TOP END (570)

PISTON RING INSTALLATION

NOTE

Apply clean engine oil to all ring surfaces and ring lands upon installation. Always check piston ring installed gap before rings are installed on piston. Refer to **"Piston Ring Installed Gap", page 3.51** procedure. Clean accumulated carbon from piston ring grooves and oil ring lube holes if piston has been in service.



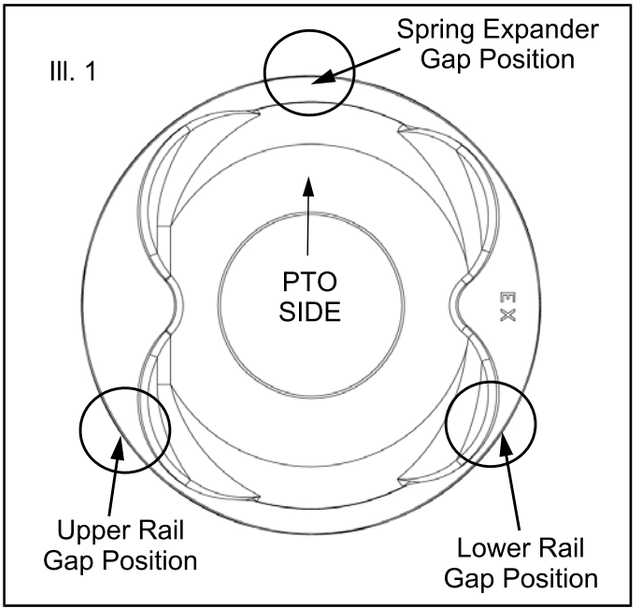
1. Place oil control ring expander in oil ring groove. Rotate expander in groove until butt ends are on PTO side of piston.

NOTE

Ends must butt squarely together and must not overlap.

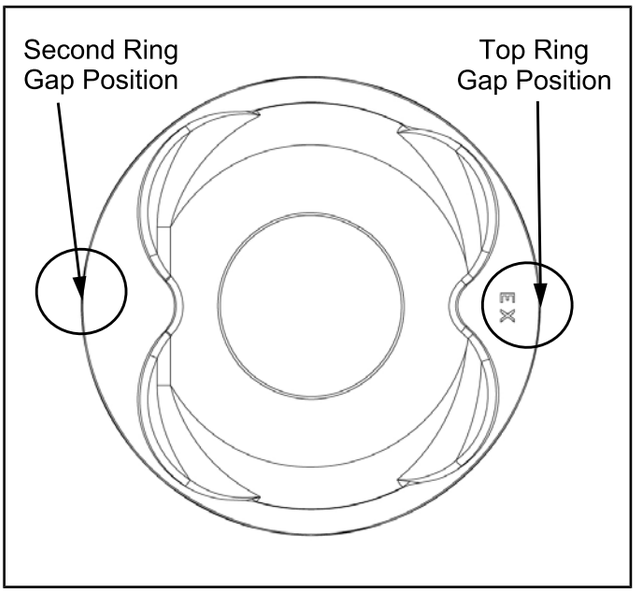
2. Install lower rail with end gap positioned as shown in illustration 1.

3. Install upper rail with end gap positioned as shown.



4. Install second ring with marking facing top of piston. Rotate ring to position the end gap toward intake side of piston as shown below.

5. Install top ring with mark facing top of piston. Rotate ring to position the end gap toward exhaust side of piston as shown below.



6. Be sure top and second rings rotate freely in their grooves and do not bind when compressed by hand.

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PISTON / CONNECTING ROD ASSEMBLY

1. Lubricate connecting rod small end, piston pin bore and piston pin with engine oil.

CAUTION

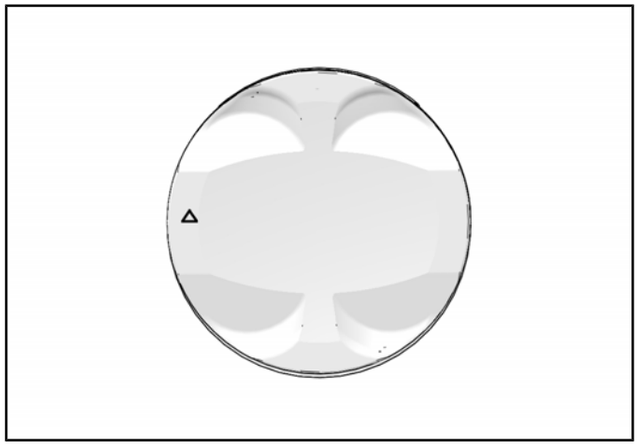
Do not re-use circlips. Circlips become deformed during the removal process.Do not compress the new clip more than necessary to prevent loss of radial tension. Severe engine damage may result if circlips are re-used or deformed during installation.

2. Install a new circlip on one side of piston with gap at the top (12:00 position) or bottom (6:00 position).

NOTE

Never re-use a piston pin circlip.

3. When installing the piston, be sure the piston marking “EX” is positioned towards the exhaust side of the engine.



4. Place piston (A) on connecting rod (B). Push piston pin (C) through rod and piston until it seats against the installed circlip.

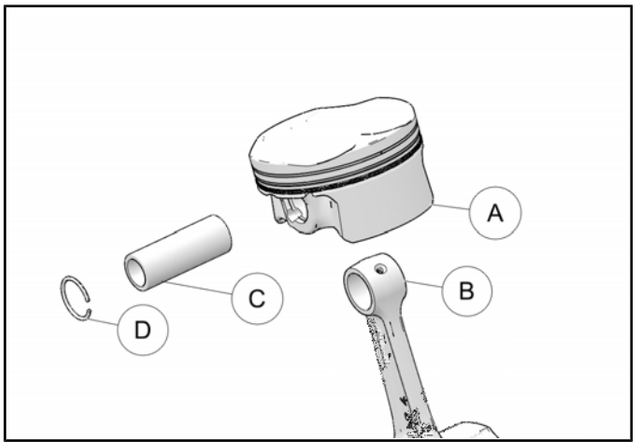
NOTE

Do not tap on pin or cause any sideways force to connecting rod. Warm piston crown with a heat gun if pin cannot be installed by hand, or use a piston pin installation tool.

⚠ CAUTION

DO NOT apply heat to piston rings or a loss of radial tension could result.

5. Install the remaining circlip (D) with gap at the top (12:00 position) or bottom (6:00 position). Push the piston pin in both directions to make sure the clips are properly seated in the groove.



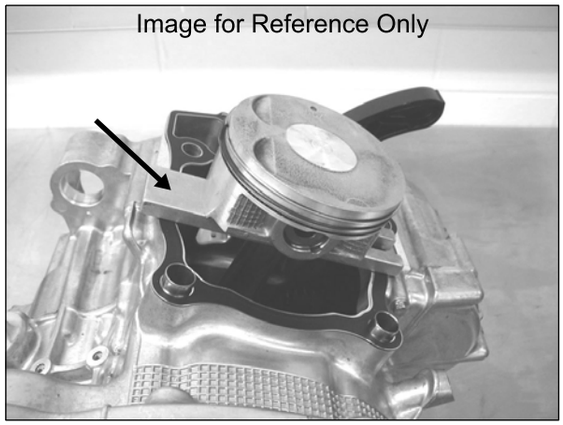
CYLINDER INSTALLATION

1. Clean base gasket sealing surface on cylinder and crankcase to remove all oil, grease, or old sealant.
2. Install a new base gasket.

NOTE

Base gasket and surfaces must be DRY and oil free. Use care upon assembly to keep oil away.

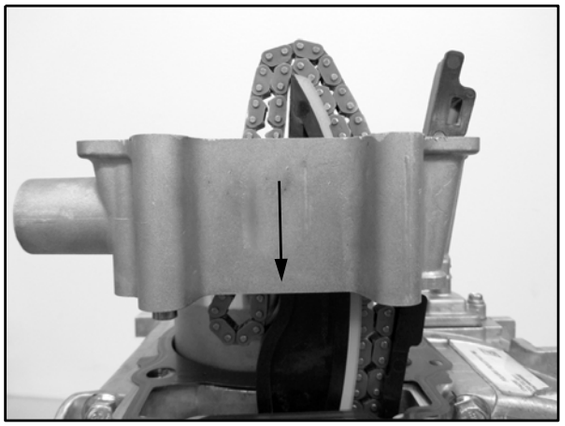
3. Slide a commercially available Piston Support Block under piston skirt as shown to support piston during cylinder installation.



4. Apply clean engine oil to cylinder bore and bottom tapered portion of cylinder sleeve.

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5. Verify all ring end gaps are correctly located on piston. Place cam chain and guides in alignment with chain room.
6. Carefully compress rings with fingers or commercially available spring compression tool and install cylinder with a slight front to back rocking motion until all rings are captive in cylinder and past the taper of the sleeve.
7. Remove support block and ring compressor.
8. Push cylinder downward until fully seated on base gasket.



9. Hold the cylinder in place and rotate the engine and position the piston at TDC.

NOTE

If cam chain and flywheel are installed (top end work only is being performed) hold cam chain tight while rotating the engine to avoid damage to the chain, drive sprocket teeth, or tensioner blade.

CYLINDER HEAD ASSEMBLY

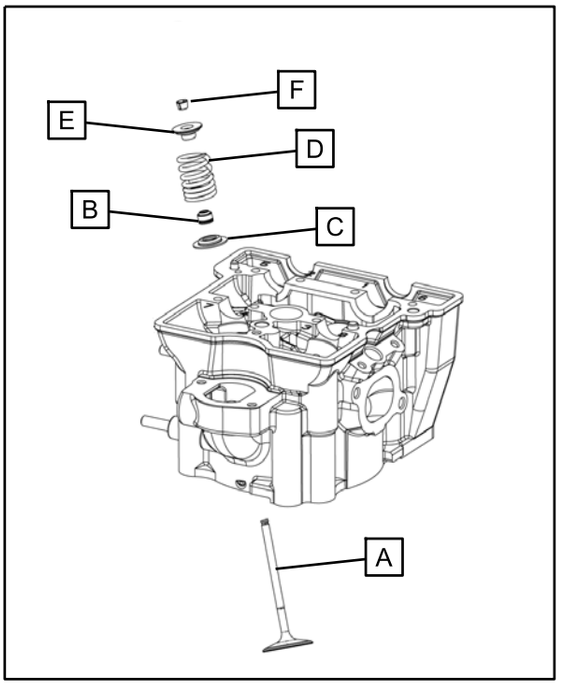
NOTE

Assemble the valves one at a time to maintain proper order.

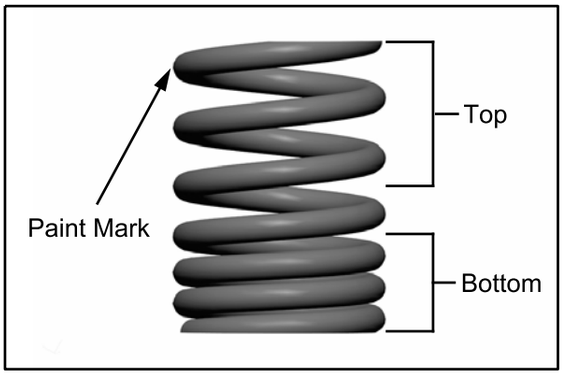
⚠ WARNING

Wear eye protection during cylinder head disassembly and reassembly or when working with the valve springs.

1. Apply engine oil to valve guides and seats.
2. Lubricate the valve stems with clean engine oil.
3. Install the valve (A) in the cylinder head, through the guide.



4. Carefully install a new valve seal (B) on the valve guide with a rotating motion. Push firmly until seated in retaining groove and square with the guide
5. Dip the seat (C), valve spring (D) and retainer (E) in clean engine oil.
6. Install the valve spring seat (C).
7. Install the valve spring (D) with tightly spaced coils facing down toward the cylinder head.

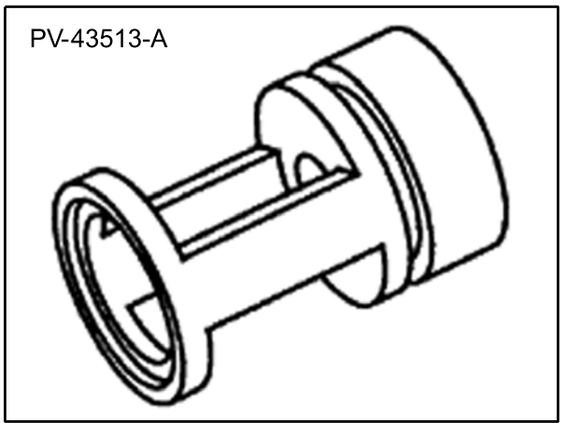


NOTE

Valve springs to be installed with the paint mark facing up.

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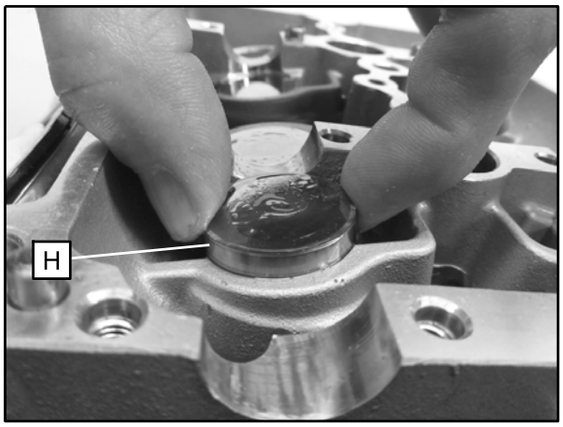
8. Place the valve retainer (E) on the spring.
9. Compress the valve spring by hand using valve spring compressor adapter (**PV-43513-A**). Compress spring only enough to allow split keeper installation.



NOTE

To prevent damage to the valve seals, do not compress the valve spring more than necessary to install the keepers.

10. Install split keepers (F) with gap even on both sides.
11. Repeat this procedure for remaining valves.
12. Exercise each valve through its travel to ensure the valve keepers are seated correctly.
13. Install the valve tappet (H) for each valve in the order they were removed.

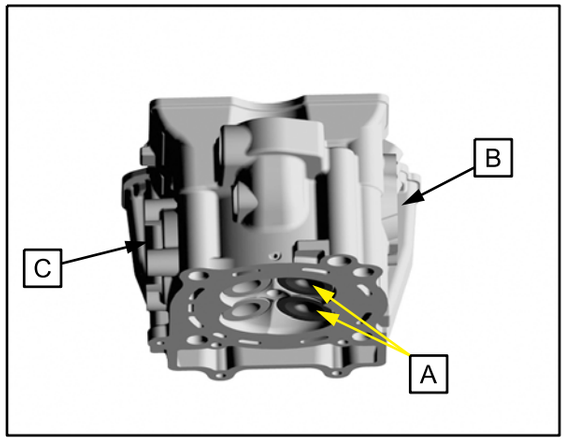


NOTE

If any valve train components were replaced, refer to **“Valve Clearance Check / Adjustment”, page 3.65** procedure prior to “Camshaft Installation / Timing” procedure.

VALVE SEALING TEST

1. Clean and dry the combustion chamber area (A).
2. Pour a small amount of clean solvent into each intake port (B) and check for leakage around the valves. The valve seats should hold fluid with no seepage.
3. Repeat for exhaust valves by pouring fluid into each exhaust port (C).



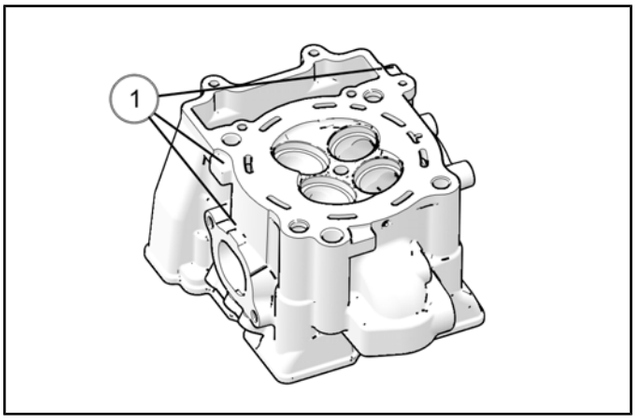
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CYLINDER HEAD IDENTIFICATION

Refer to the images below to aid in 2015 and Prior VS. 2016 To Current Crank Case Identification.

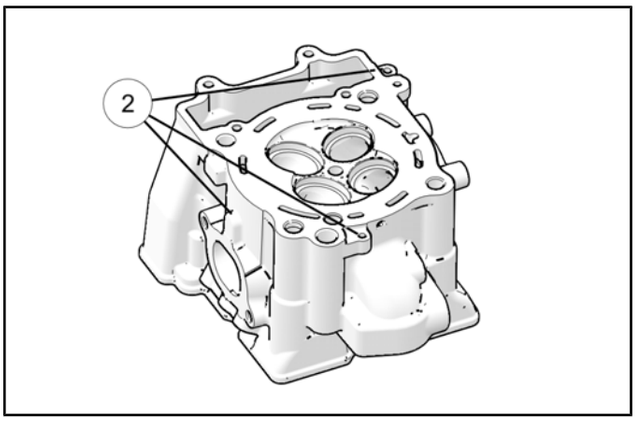
NOTE

2015 and Prior Cylinder Head ①.



NOTE

2016 to Current Cylinder Head ②.

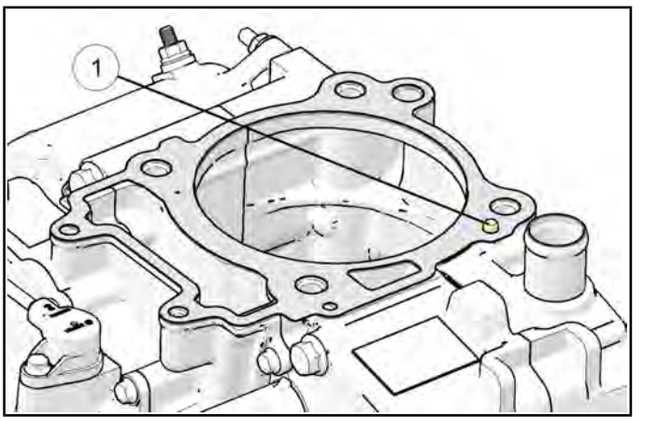


CRANKCASE IDENTIFICATION

Refer to the images below to aid in 2015 and Prior VS. 2016 To Current Crank Case Identification.

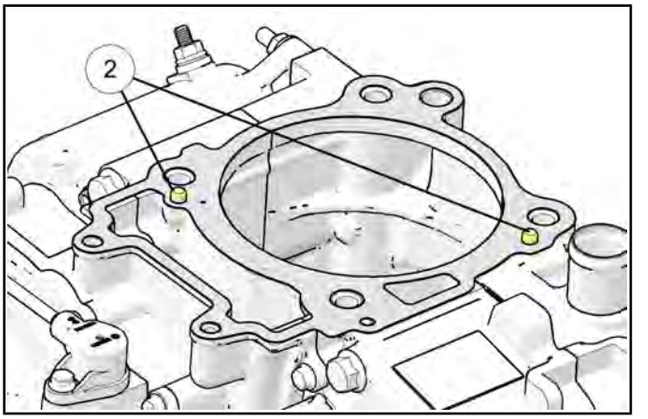
NOTE

2015 and Prior Crankcases use ① dowel in the main crank case.



NOTE

2016 to Current Crankcases use ② dowels.



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CYLINDER HEAD INSTALLATION

NOTE

Head gasket and surfaces must be DRY and oil free. Use care during assembly to keep oil and finger prints off of gasket.

1. Prepare cylinder head gasket sealing surfaces by cleaning thoroughly to remove all residue. The new head gasket must be installed clean and dry, free from oil or grease.

NOTE

Do not touch sealing surfaces of the new head gasket.

2. Guide cam chain (D) through a new head gasket (E) and install the gasket on the cylinder, locating it on the alignment pins.
3. Carefully set the cylinder head (F) in place on alignment pins.

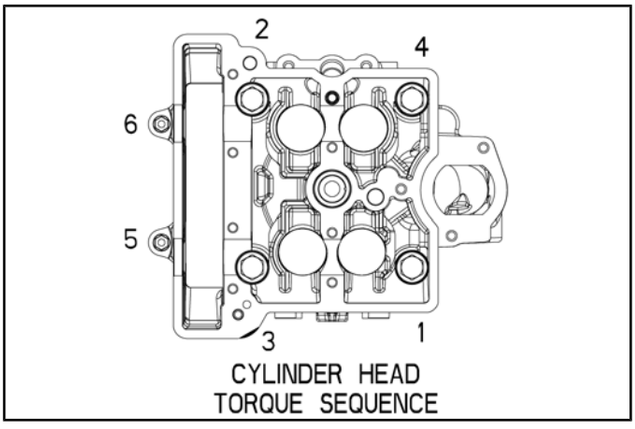
NOTE

Install *new* cylinder head bolts.

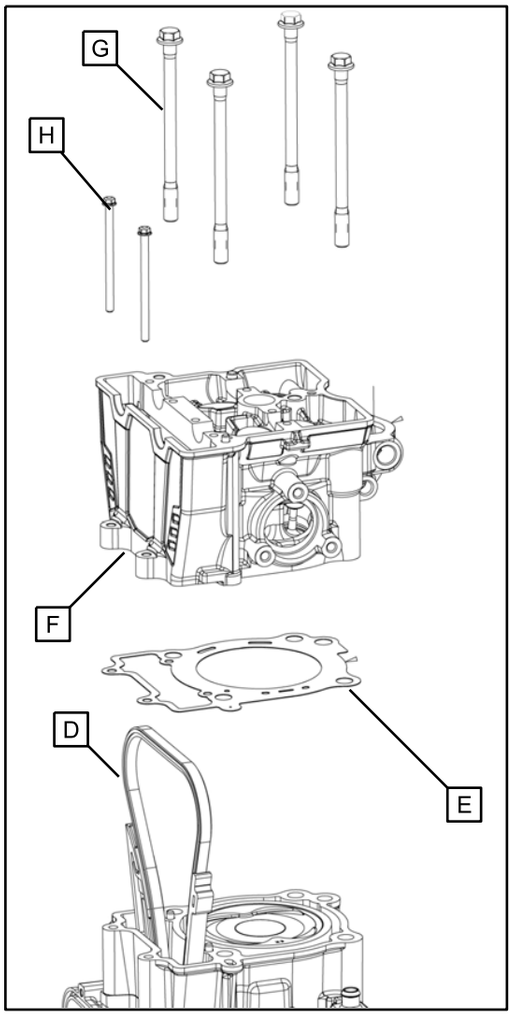
4. Install and finger tighten the four *new* cylinder head bolts (G) evenly.
5. Install and finger tighten the two *new* outer M6 bolts (H) evenly.
6. Torque the *new* cylinder head bolts in sequence to specification.

TORQUE

Cylinder Head Torque Procedure:
Torque in sequence
Step 1: **21 lb-ft (28 Nm)**
Step 2: **26 lb-ft (35 Nm)**
Step 3: **Additional 135°**
Step 4 (M6 bolts): **8 lb-ft (11 Nm)**



CYLINDER HEAD TORQUE SEQUENCE



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CYLINDER HEAD INSTALLATION - SILVER BOLTS

NOTE

Head gasket and surfaces must be DRY and oil free. Use care during assembly to keep oil and finger prints off of gasket.

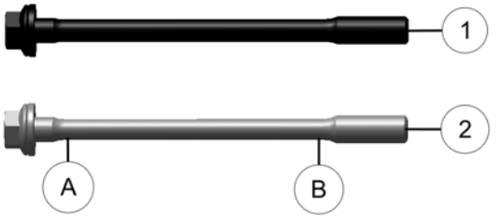
1. Verify the cylinder head bolts are **SILVER**. If uncertain, measured bolts in the reduced diameter portion of the Cylinder head bolt shank (between A and B); verify the are the correct color and diameter before proceeding.

MEASUREMENT

Diameter Between A - B:

① Black: 9.00 +/- .1 mm

② Silver: 8.20 +/- .1 mm



CAUTION

Torquing cylinder head bolts using the incorrect procedure may lead to engine component damage.

2. Prepare cylinder head gasket sealing surfaces by cleaning thoroughly to remove all residue. The new head gasket must be installed clean and dry, free from oil or grease.

NOTE

Do not touch sealing surfaces of the new head gasket.

3. Guide cam chain ④ through a new head gasket ⑤ and install the gasket on the cylinder, locating it on the alignment pins.
4. Carefully set the cylinder head ⑥ in place on alignment pins.

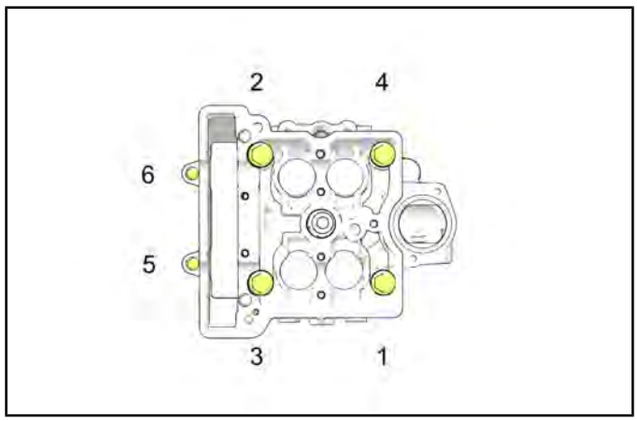
NOTE

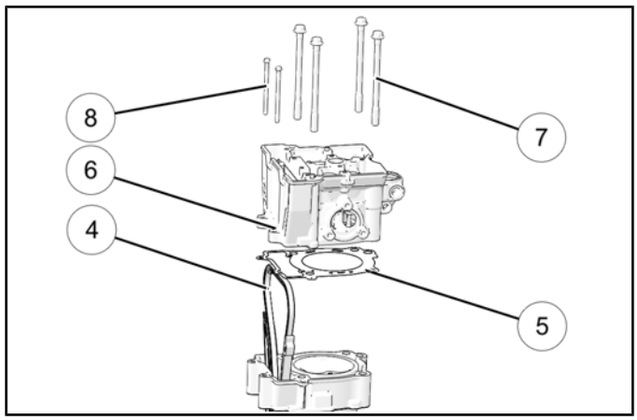
Install *new* cylinder head bolts.

5. Install and finger tighten the four *new* cylinder head bolts ⑦ evenly.
6. Install and finger tighten the two *new* outer M6 bolts ⑧ evenly.
7. Torque the *new* cylinder head bolts in sequence to specification.

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TORQUE
Cylinder Head Bolts:
Apply light coat of engine oil to bolt threads and under bolt head
Torque in Sequence for all steps
Step 1: 18 ft-lbs (25 Nm)
Step 2: 30 ft-lbs (40 Nm)
Step 3: Loosen all fasteners until they are unseated
Step 4: 15 ft-lbs (20 Nm)
Step 5: 26 ft-lbs (35 Nm)
Step 6: Additional 180°
Step 7: Additional 180°
Torque The Outer M6 Head Bolts 89 ± 9 in-lbs (10 ± 1 Nm)

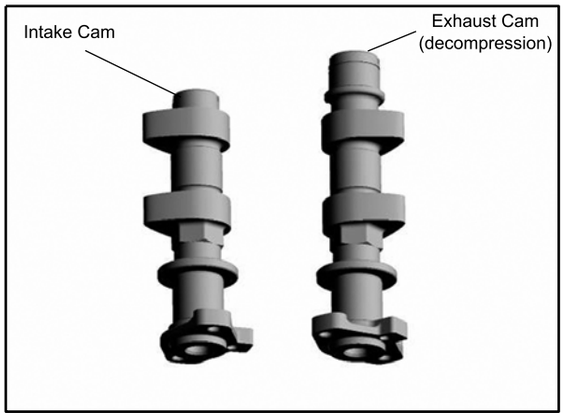




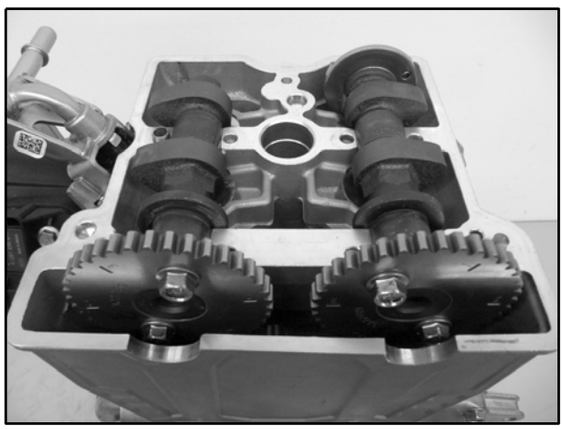
VALVE CLEARANCE CHECK / ADJUSTMENT

NOTE
Always inspect valve clearance prior to camshaft installation or final engine assembly.

1. Install the cam chain guides and cam chain before camshaft installation (if removed) as outlined in this chapter.
2. Reference the camshaft intake and exhaust markings made during disassembly. If installing new camshafts or if camshafts were not marked, you can reference the part number stamped on the end of the shafts.



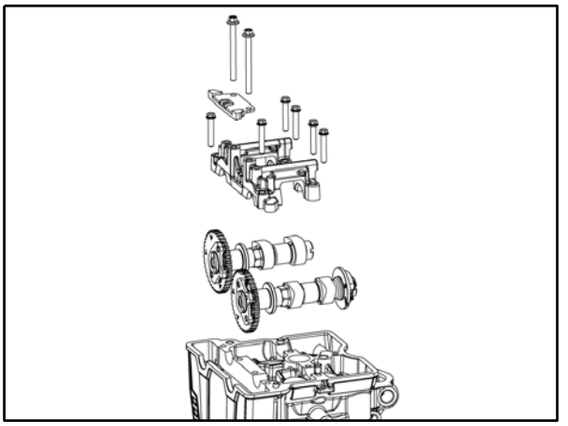
3. Lubricate the camshaft bearing journal surfaces with Polaris PS-4 engine oil prior to installation.
4. Carefully install the camshafts into the cylinder head. The camshaft lobes should face out.



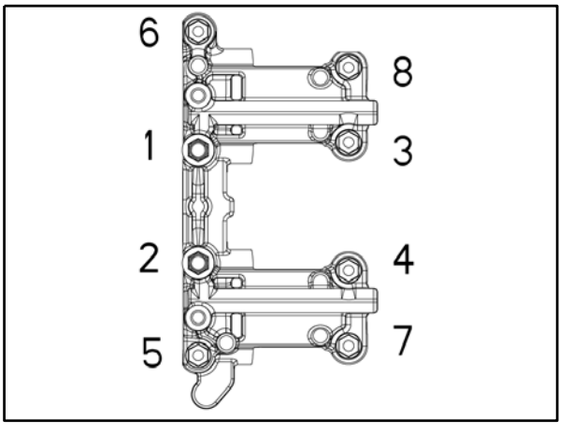
5. Carefully install the camshaft carrier onto the camshafts.

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6. Install the upper cam chain guide and the eight bolts that retain the camshaft carrier.

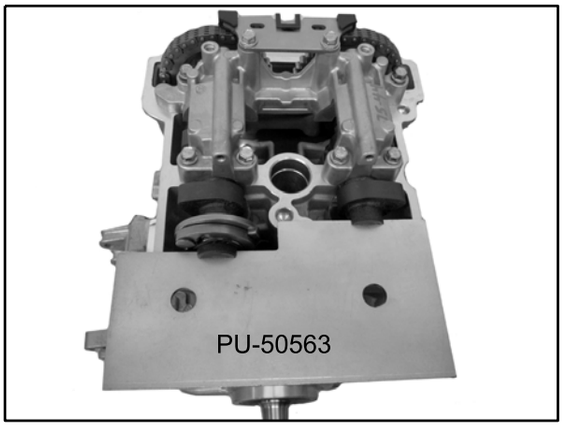


7. Torque the camshaft carrier bolts in sequence to specification.



TORQUE
Camshaft Carrier Bolts: **8 lb-ft (11 Nm)**

8. Install the Cylinder Holding and Camshaft Timing Plate (**PU-50563**) into the end of camshafts as shown below. The thermostat housing must be removed to install the timing plate **PU-50563**.



9. Measure the valve clearance of each valve using a thickness (feeler) gauge. Record the measurement if clearance is out of specification.

MEASUREMENT
Intake Valve Clearance (cold): **.006 ± .002″ (0.150 ± .050 mm)**

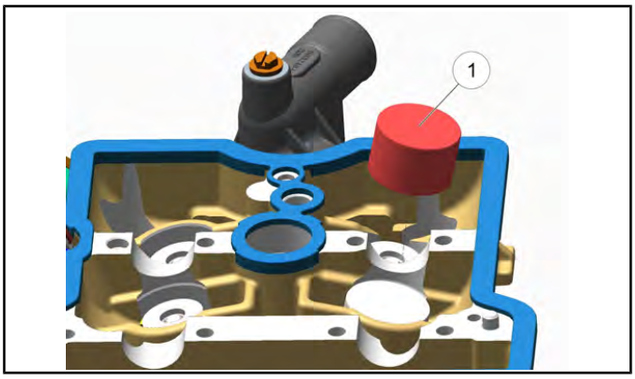
MEASUREMENT
Exhaust Valve Clearance (cold): **.008 ± .002″ (0.200 ± .050 mm)**

10. If any of the valve clearance measurements are out of specification, remove the camshaft carrier and camshafts and proceed with this procedure.

NOTE
If all valve clearance measurements are within specification, remove the camshaft carriers and proceed to “Camshaft Installation / Timing”.

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11. Remove the valve tappet ① from a valve that was out of specification.



NOTE

Keep mated parts together and in order with respect to their location in the cylinder head for assembly purposes. Mark each component or place them in an organized rack as you remove them.

12. Record the 3 digit number engraved on top of the tappet.
13. Reference the valve clearance measurement recorded for that valve, along with the 3-digit tappet number.
14. Refer to the appropriate tappet selection matrix (Intake or Exhaust) on the following pages and select the proper tappet.
15. Install the new tappet.

NOTE

Lubricate the outer portion of the valve tappet upon installation.

16. Repeat steps until all necessary valves have been adjusted.
17. Reinstall the camshafts and camshaft carriers and tighten the bolts evenly to specification.

TORQUE

Camshaft Carrier Bolts:
8 lb-ft (11 Nm)

18. Measure and confirm that valve clearance is now within specification for each valve.
19. If valve clearance is not within specification, repeat this procedure.
20. If all valve clearance measurements are now within specification, remove the camshaft carriers and proceed to “Camshaft Installation / Timing”.

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INTAKE VALVE LASH - TAPPET SELECTION MATRIX

Tappet Thickness: Example 440 equals thickness of 4.40 mm. Part Number: 5138477-XXX (X's represent 3 digits on tappet)

MEASUREMENT

Intake Valve Clearance (cold):
0.006 ± 0.002" (0.15 ± 0.5 mm)

Intake Valve Clearance Before Adjusting (mm)	Existing Valve Lash Tappet Marking (3 digits on tappet)																																		
	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525
	Correct Valve Lash Tappet Marking (3 digits on tappet)																																		
0.000-0.024	428	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512
0.025-0.049	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515
0.050-0.074	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518
0.075-0.099	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520
0.100-0.200 (Standard)																																			
0.201-0.225	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532
0.226-0.250	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535
0.251-0.275	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538
0.276-0.300	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540
0.301-0.325	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542
0.326-0.350	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545
0.351-0.375	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545	
0.376-0.400	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545		
0.401-0.425	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545			
0.426-0.450	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545				
0.451-0.475	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545					
0.476-0.500	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545						
0.501-0.525	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545							
0.526-0.550	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545								
0.551-0.575	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545									
0.576-0.600	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545										
0.601-0.625	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545											
0.626-0.650	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545												
0.651-0.675	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545													
0.676-0.700	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545														
0.701-0.725	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545															
0.726-0.750	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																
0.751-0.775	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																	
0.776-0.800	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																		
0.801-0.825	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																			
0.826-0.850	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																				
0.851-0.875	512	515	518	520	522	525	528	530	532	535	538	540	542	545																					
0.876-0.900	515	518	520	522	525	528	530	532	535	538	540	542	545																						
0.901-0.925	518	520	522	525	528	530	532	535	538	540	542	545																							
0.926-0.950	520	522	525	528	530	532	535	538	540	542	545																								
0.951-0.975	522	525	528	530	532	535	538	540	542	545																									
0.976-1.000	525	528	530	532	535	538	540	542	545																										

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EXHAUST VALVE LASH - TAPPET SELECTION MATRIX

Tappet Thickness: Example 440 equals thickness of 4.40 mm. Part Number: 5138477-XXX (X's represent 3 digits on tappet)

MEASUREMENT
Exhaust Valve Clearance (cold): **.008 ± .002″ (0.200 ± .50 mm)**

Exhaust Valve Clearance Before Adjusting (mm)	Existing Valve Lash Tappet Marking (3 digits on tappet)																																		
	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525
	Correct Valve Lash Tappet Marking (3 digits on tappet)																																		
0.000-0.024	420	422	425	428	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505
0.025-0.049	422	425	428	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508
0.050-0.074	425	428	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510
0.075-0.099	428	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512
0.100-0.124	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515
0.125-0.149	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518
0.150–0.250 (Standard)																																			
0.251–0.275	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530
0.276–0.300	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532
0.301–0.325	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535
0.326–0.350	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538
0.351-0.375	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540
0.376-0.400	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542
0.401-0.425	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545
0.426-0.450	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545	
0.451-0.475	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545		
0.476-0.500	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545			
0.501-0.525	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545				
0.526-0.550	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545					
0.551-0.575	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545						
0.576-0.600	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545							
0.601-0.625	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545								
0.626-0.650	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545									
0.651-0.675	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545										
0.676-0.700	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545											
0.701-0.725	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545												
0.726-0.750	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545													
0.751-0.775	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545														
0.776-0.800	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545															
0.801-0.825	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																
0.826-0.850	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																	
0.851-0.875	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																		
0.876-0.900	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																			
0.901-0.925	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																				
0.926-0.950	512	515	518	520	522	525	528	530	532	535	538	540	542	545																					
0.951-0.975	515	518	520	522	525	528	530	532	535	538	540	542	545																						
0.976-1.000	518	520	522	525	528	530	532	535	538	540	542	545																							

3

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ENGINE DISASSEMBLY / INSPECTION - LOWER END (570)

CRANKCASE DISASSEMBLY

NOTE

The engine top end, starter motor, stator cover, starter drive, flywheel, stator, cam chain, oil pump and sprockets can be serviced with the engine installed in the vehicle.

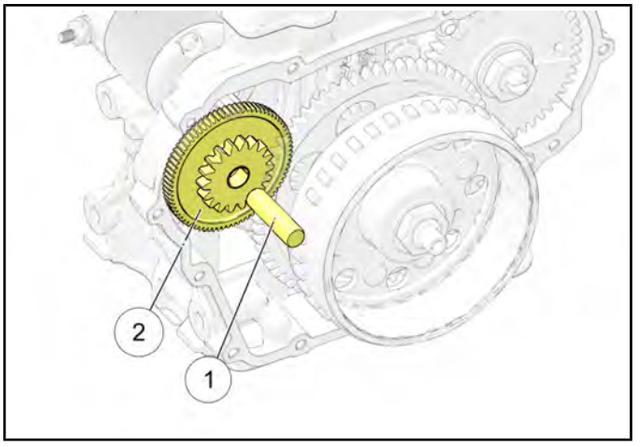
FLYWHEEL / STATOR COVER REMOVAL

1. Remove the engine to transmission coupler through bolts.

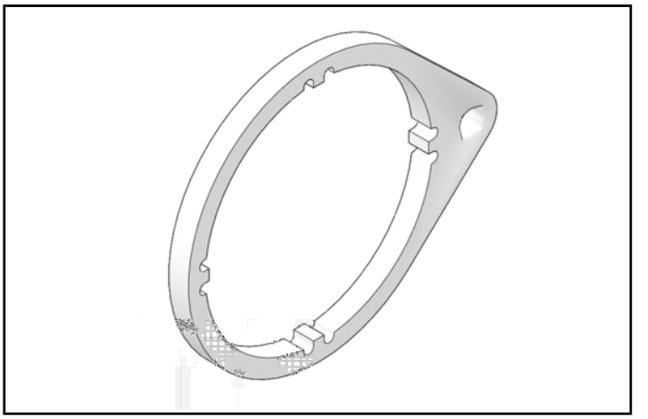
CAUTION

The flywheel contains powerful magnets. Use caution when removing the stator cover.DO NOT place fingers between cover and crankcase at any time during the removal process or injury could result.

2. Disconnect stator harness connector.
3. Disconnect CPS connector.
4. Remove stator cover fasteners.
5. Remove starter shaft ① and drive gear ②. Inspect gear teeth for damage. Inspect fit of shaft inside gear and replace gear assembly if clearance is excessive. Inspect shaft and shaft bearing surfaces in case and stator housing for wear.



6. Hold flywheel special service tool **PU-51220** and remove flywheel nut and washer. Discard the flywheel nut and replace for assembly.



NOTE

The flywheel nut has standard rotation (right hand) threads.

7. Back the center screw of flywheel puller **PA-49316** completely out and screw puller onto flywheel completely.

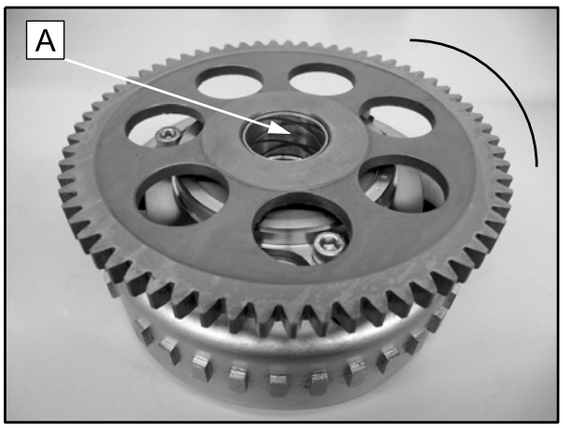


8. Tighten center bolt of tool **PA-49316** and remove flywheel.

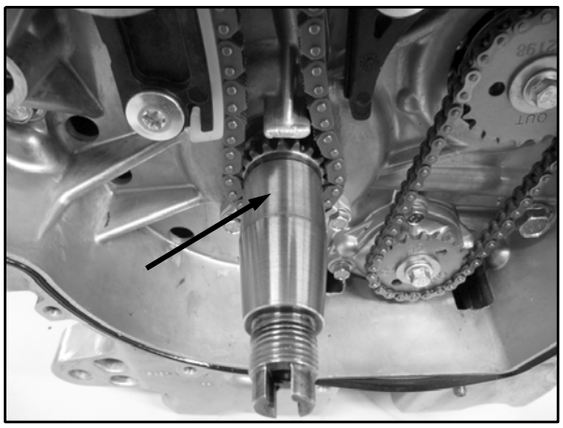
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STARTER ONE-WAY CLUTCH REMOVAL / INSPECTION

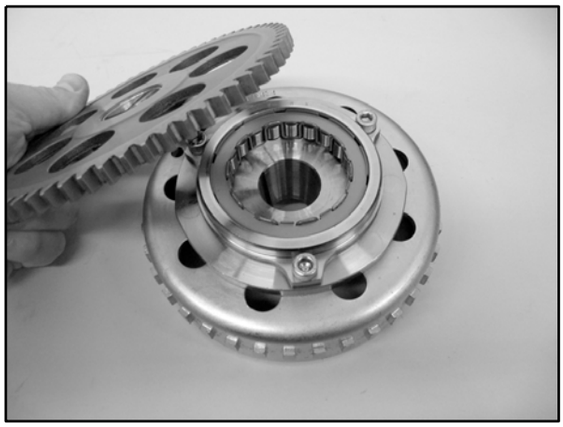
1. Remove flywheel as outlined in this chapter.
2. Place flywheel on work bench. Grasp gear and rotate clockwise. It should turn smoothly without binding.
3. Rotate gear counterclockwise. The gear should immediately lock in position and not slip.
4. Inspect inside of hub (A) for wear, galling, or uneven surface.



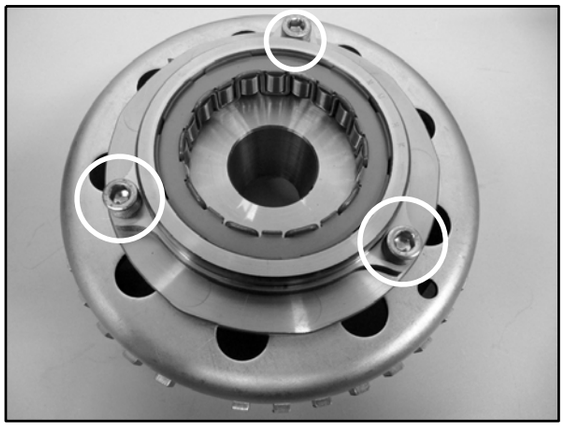
5. Inspect crankshaft bearing surface for abnormal wear.



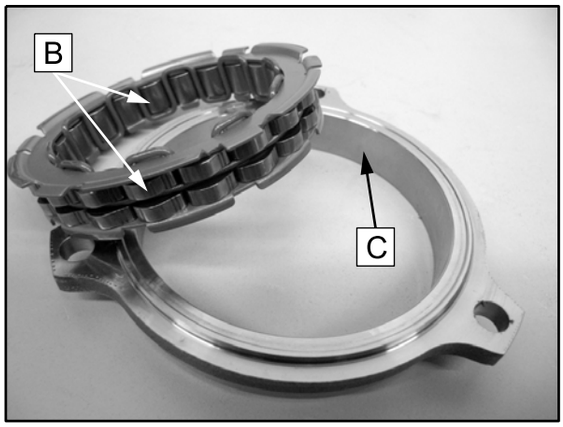
6. Remove starter gear from the flywheel assembly.



7. Remove the three one-way clutch retaining bolts.

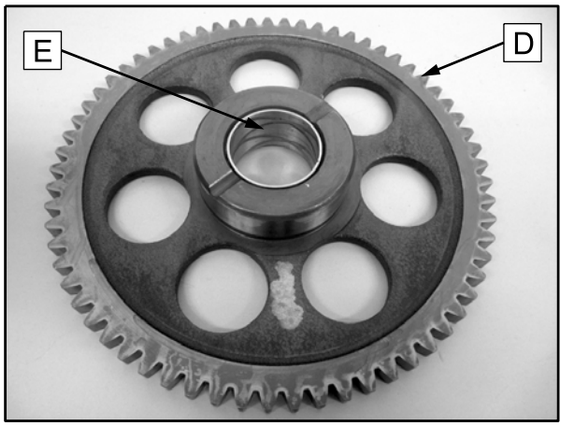


8. Remove clutch and inspect both sides of drive rollers (B) and roller contact surface (C) inside hub for wear, damage, or uneven surface.



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9. Inspect drive surface of starter gear (D) and bearing surface (E) for wear, damage, or uneven surface. If any starter clutch component is worn or damaged, replace clutch, clutch hub, and starter gear.



STATOR REMOVAL

NOTE

Test stator wire continuity before removing it from the housing.

1. Remove the stator cover.

CAUTION

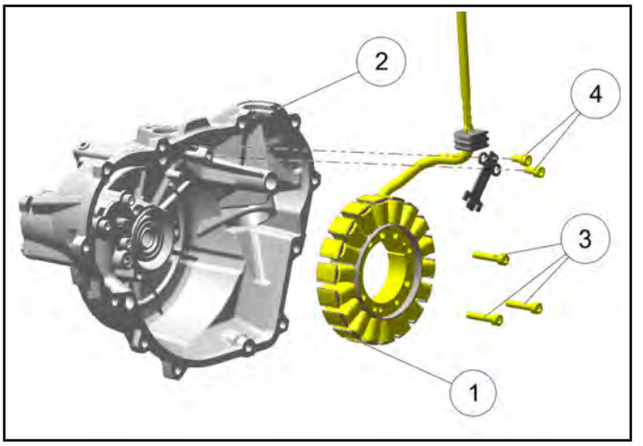
The flywheel contains powerful magnets. Use caution when removing the stator cover.DO NOT place fingers between cover and crankcase at any time during the removal process or injury could result.

2. Remove and discard the stator cover gasket.

CAUTION

Be sure engine coolant does not contaminate the engine oil during stator cover service.

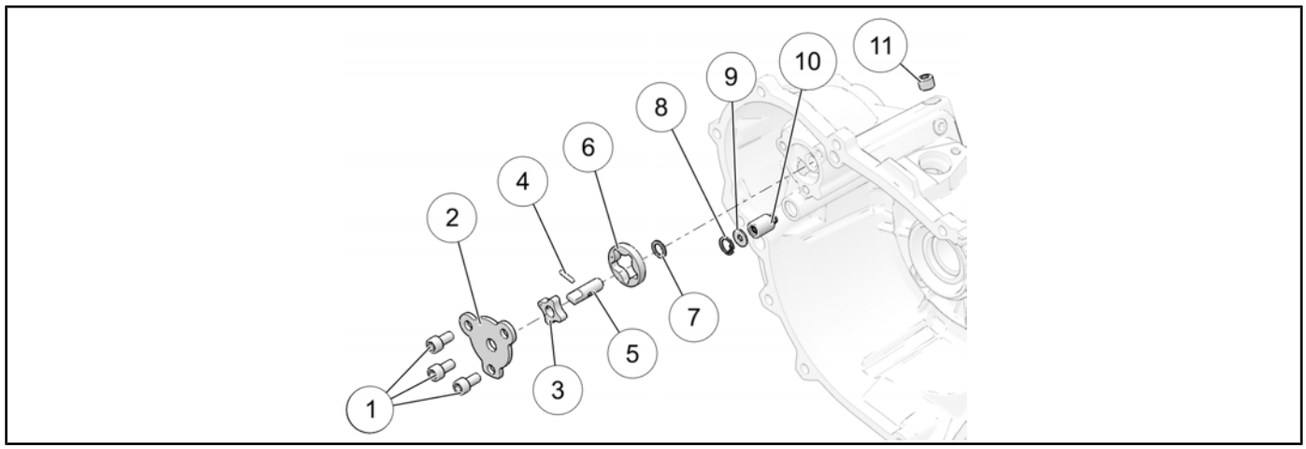
3. Remove the three bolts ③ that secure the stator ① to the stator cover ②.



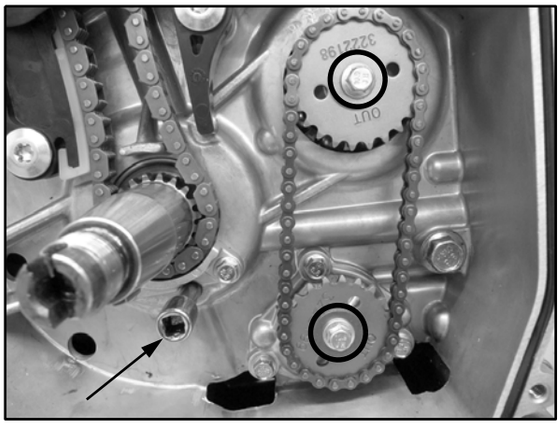
4. Remove the two bolts that secure the stator wire routing bracket ④ to the stator cover.
5. Remove the stator from the stator cover.

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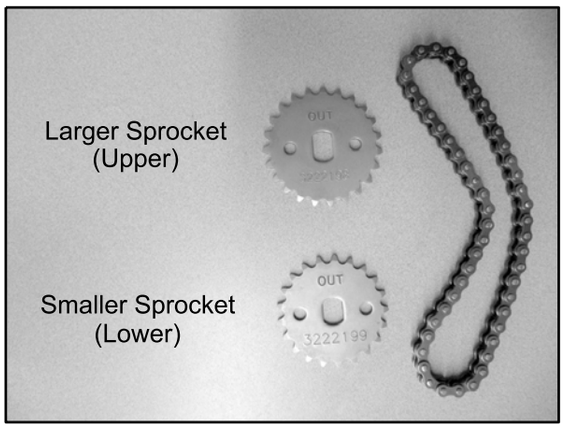
OIL PUMP REMOVAL



1. Remove the stator cover. Refer to **"Stator Removal", page 3.72** procedure.
2. Remove the two oil pump sprocket bolts and washers. Discard the bolts and replace with new for assembly. Remove the sprockets and chain from the engine.



3. Inspect the oil pump chain for worn or missing rollers or damage. Chain should be replaced as a set with sprockets if sprocket teeth are worn.

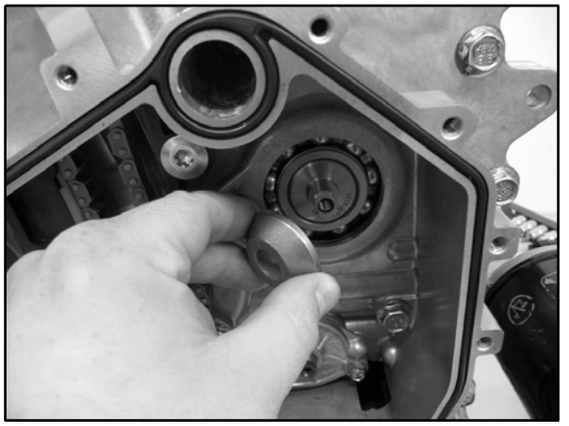


NOTE

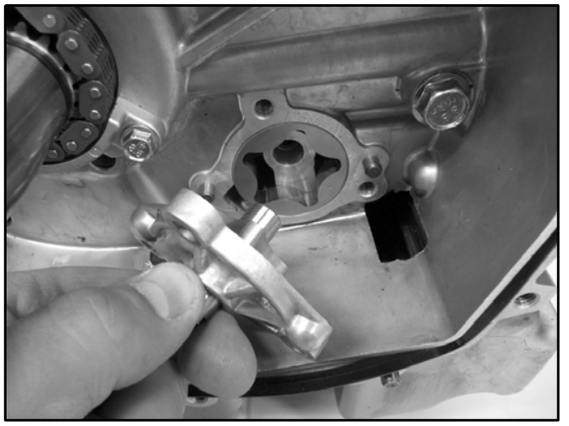
The larger oil pump sprocket mounts to the balance shaft extension, the smaller oil pump sprocket mounts to the oil pump shaft.

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4. Remove the upper oil pump sprocket spacer.



5. Remove the three bolts securing the oil pump cover to the crankcase.
6. Grasp the oil pump shaft and pull it outward to remove the shaft, oil pump cover and inner oil pump geroter. This will prevent the oil pump drive pin from falling out and into the crankcase.



NOTE

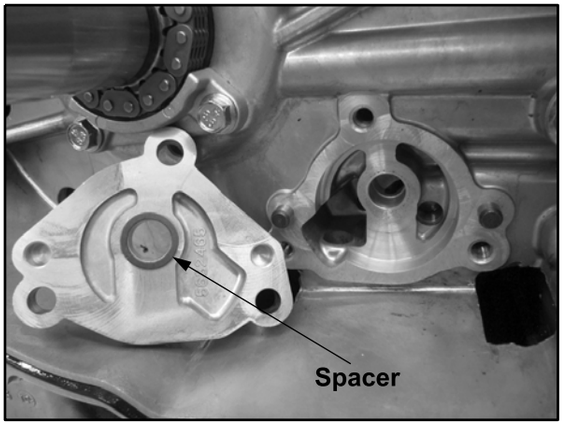
The gerotor set has two orientation dots that must be installed inward upon assembly (Figure 1 on the next page).

7. Remove the center geroter, pin and shaft from the oil pump cover.

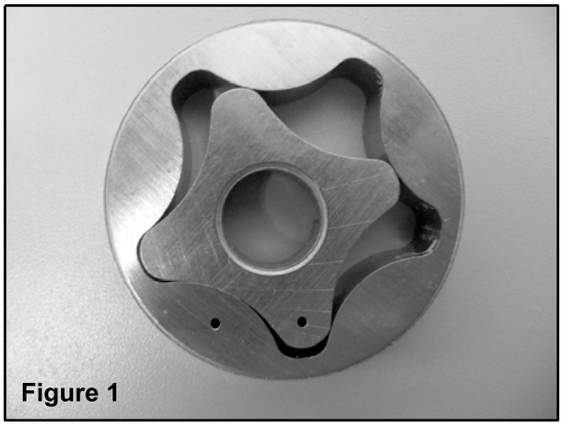
NOTE

There is a spacer in between the inner oil pump geroter and the oil pump cover.

8. Remove the oil pump geroter that is in the engine case (if needed).
9. Clean the geroters to remove oil.
10. Inspect surfaces of pump cavity in crankcase and surface of pump cover for scoring or wear.



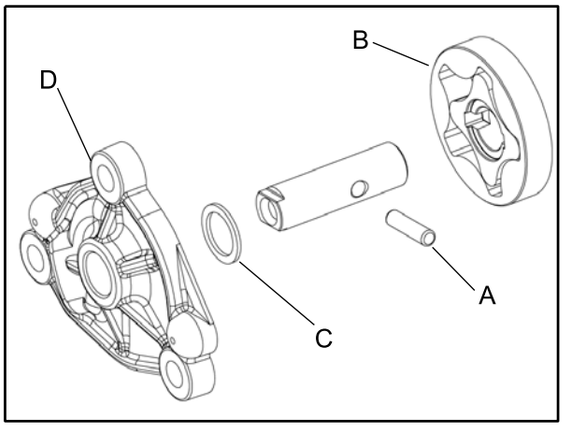
11. Inspect gerotor for scoring or other damage. Replace parts as a set if damaged.



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OIL PUMP ASSEMBLY

1. Clean and dry all parts thoroughly. Apply clean engine oil to all parts. Do not use gasket sealer on the pump cover mating surfaces.
2. Align the gerotor according to the orientation dots.
3. Place the drive pin (A) through the oil pump drive shaft.
4. Slide the gerotor (B) onto the drive shaft and lock them into position on the drive pin.
5. Install the washer (C) onto the drive shaft.
6. Install the oil pump cover (D) onto the shaft assembly.



7. Grasp the complete oil pump assembly by the drive shaft and install the assembly into the crankcase.
8. Install the three oil pump cover bolts and torque to specification.

TORQUE

Oil Pump Cover Bolt:
8 lb-ft (11 Nm)

FLUID CAPACITY

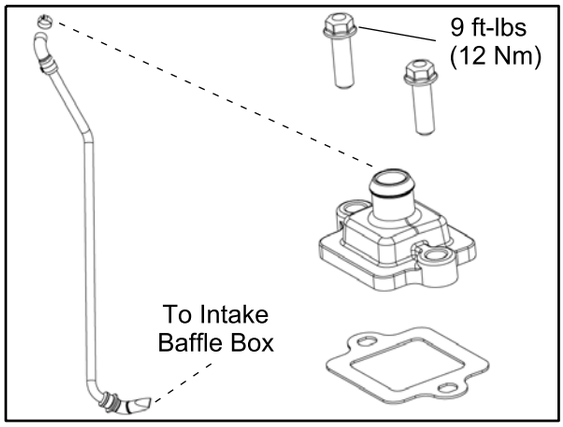
Oil Capacity: 2 Qt (1.9 L)
Oil Filter Wrench: PU-50105
Oil Type:: Polaris PS-4 Synthetic
Oil Pressure (Minimum): 10 PSI @ 1200 RPM
40 PSI @ 7000 RPM

CRANKCASE BREATHER SERVICE

NOTE

The crankcase breather is serviceable with the engine assembled and installed in the vehicle chassis.

1. Remove the crankcase vent tube (if not already performed).
2. Remove the two fasteners securing the engine breather cover to the engine.
3. Remove the breather cover gasket and replace if damaged.
4. For reassembly, thoroughly clean the crankcase and breather cover mating surfaces. Install a new gasket and torque the two fasteners to specification.



TORQUE

Crankcase Breather Fasteners:
9 lb-ft (12 Nm)

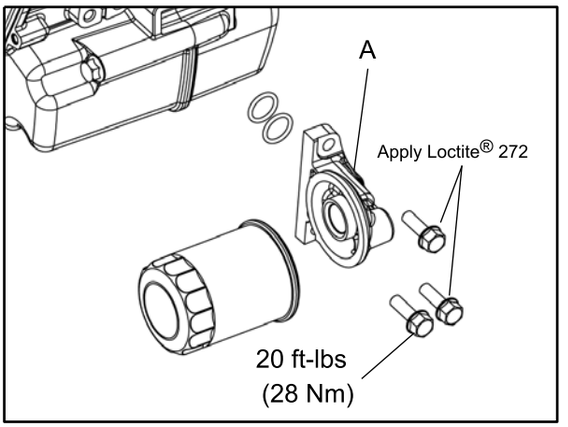
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CRANKCASE SEPARATION

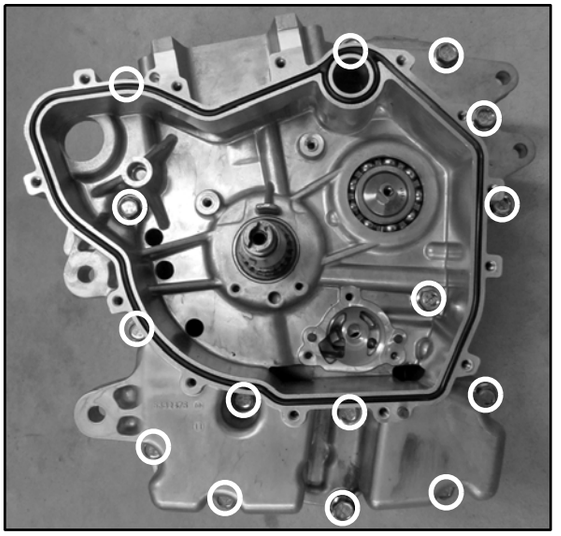
NOTE

Before the crankcase can be separated, be sure the entire top end and oil pump assembly are removed from the engine as outlined in this chapter.

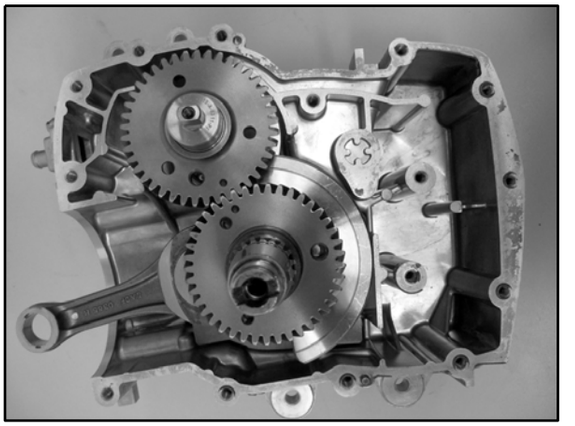
1. Rotate the engine on the engine stand so the magneto side is facing upward.
2. Remove the oil filter and the three fasteners that secure oil filter adapter (A) to the crankcase. Discard O-rings and through clean the adaptor for reassembly.



3. Remove and discard the fifteen flange bolts from magneto side crankcase evenly in a criss-cross pattern.



4. Separate crankcase by tapping with a soft faced hammer in reinforced areas and lift MAG crankcase off PTO case.



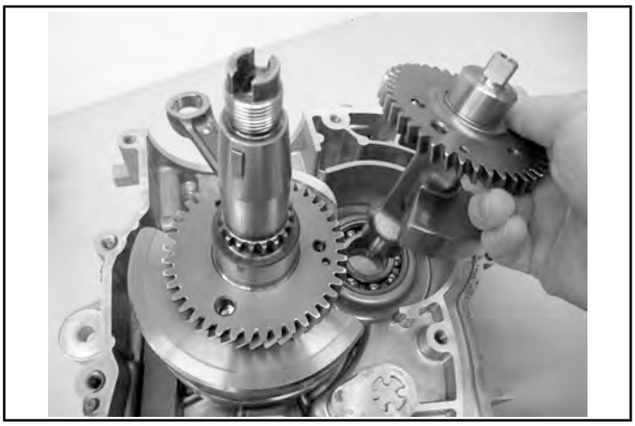
BALANCE SHAFT REMOVAL / INSPECTION

1. Rotate crankshaft to align the timing marks as shown below.

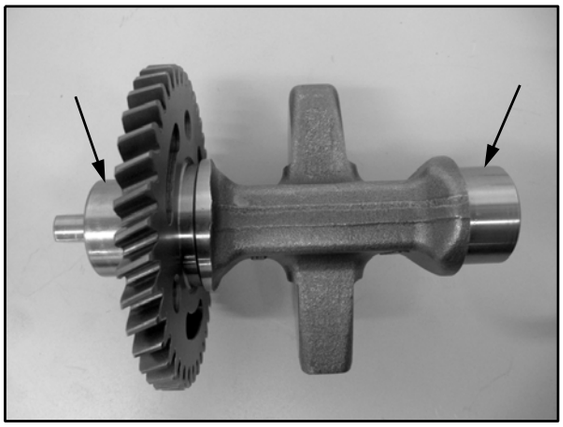


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2. Pull upward on the balance shaft and remove it from the crankcase.



3. Inspect drive gear for broken or damaged teeth.
4. Inspect bearing surfaces for scoring or signs of wear.



5. Inspect / replace the balance shaft bearings in both crankcase halves. See **"PTO Crankcase Bearing Service", page 3.78** and **"MAG Crankcase Bearing Service", page 3.79** procedures.

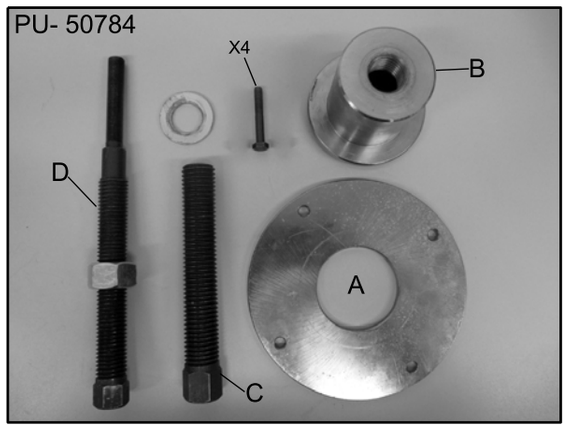
NOTE

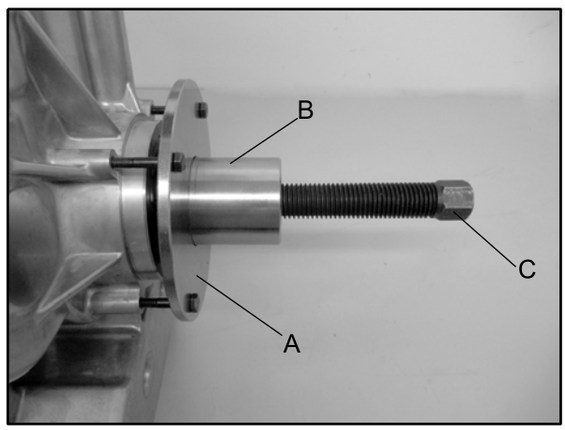
Due to extremely close tolerances and minimal wear, counterbalance shaft ball bearings must be inspected visually and by feel. Look for signs of discoloration, scoring or galling. Turn the inner race of each bearing. The bearings should turn smoothly and quietly. The outer race of each bearing should fit tightly in the crankcase bore. The inner race should be firm with minimal side to side movement and no detectable up and down (radial) movement.

CRANKSHAFT REMOVAL

1. Remove the engine from the engine stand and place the assembly on a sturdy work bench.
2. Install the crankshaft removal / installation tool **PU-50784** on to the PTO side crank case.

- Install plate "A" over adapter "B".
- Evenly attach the assembly onto the PTO side crankcase using the four bolts as shown below.
- Thread the crankshaft removal screw "C" into adapter "B".





3. With the help of an assistant holding the crankshaft, slowly tighten the screw "C" until the crankcase is completely separated from the crankshaft.
4. Remove all special tools from the crankcase.

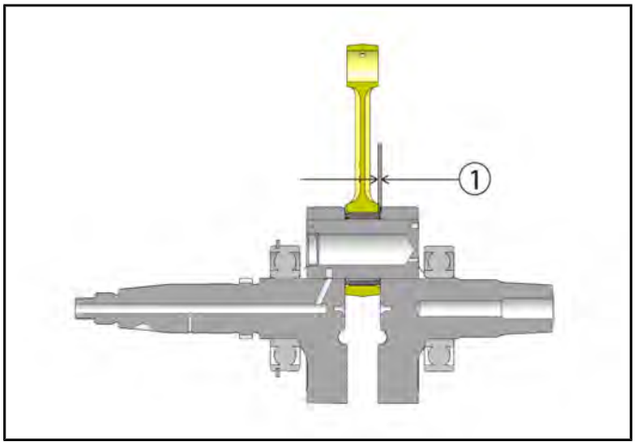
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CRANKSHAFT INSPECTION

NOTE

The connecting rod uses plain bearings. The connecting rod bearings are not serviceable. If ANY excessive wear or movement is present or if the rod does not rotate on the crankshaft freely, the crankshaft assembly must be replaced.

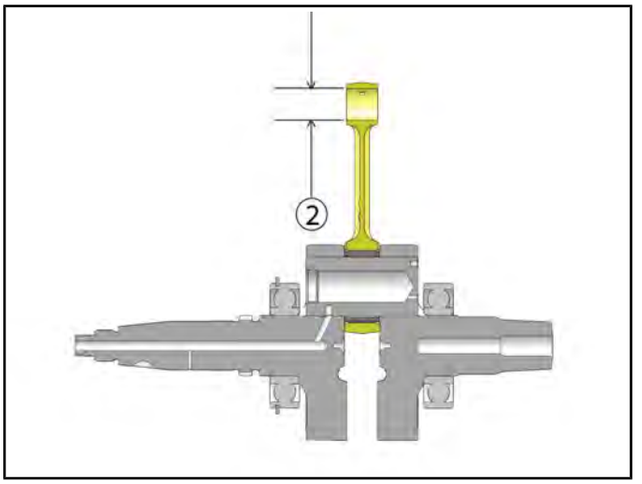
1. Use a feeler gauge to measure the connecting rod big end side clearance ①.



MEASUREMENT

Connecting Rod Big End Side Clearance:
0.00590-.01771″ (.15 - .45mm)

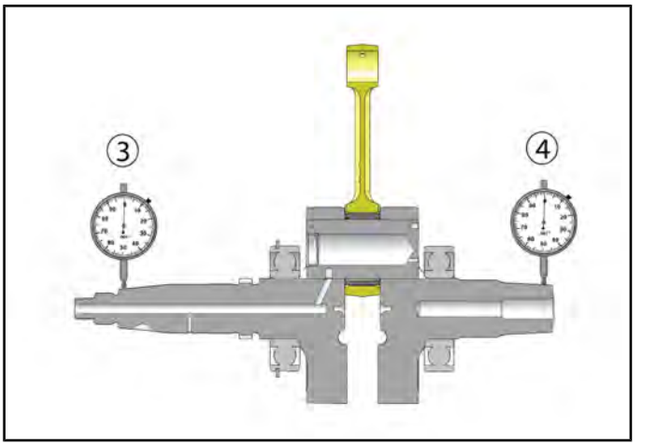
2. Measure the connecting rod small end I.D. ②.



MEASUREMENT

Small End I.D.
Std: **0.8665 - 0.8670″ (22.010 - 22.023 mm)**
Service Limit: **0.08682″ (22.053 mm)**

3. Place the crankshaft in a truing stand or V-blocks and measure the runout where indicated below with a dial indicator.



MEASUREMENT

Maximum Runout:
Mag side (3):**0.00118″ (0.03 mm)**
PTO side (4):**0.00590″ (0.15 mm)**

PTO SIDE CRANKCASE BEARING SERVICE

Bearing Removal

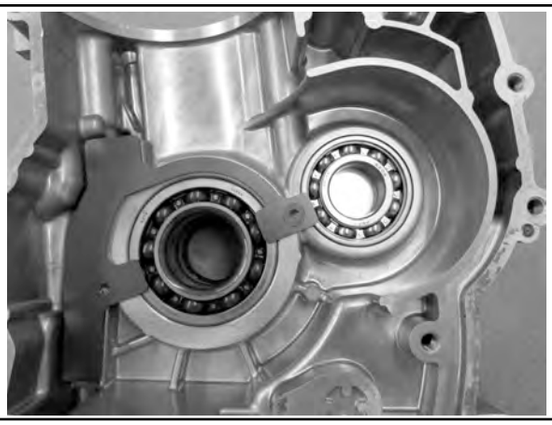
NOTE

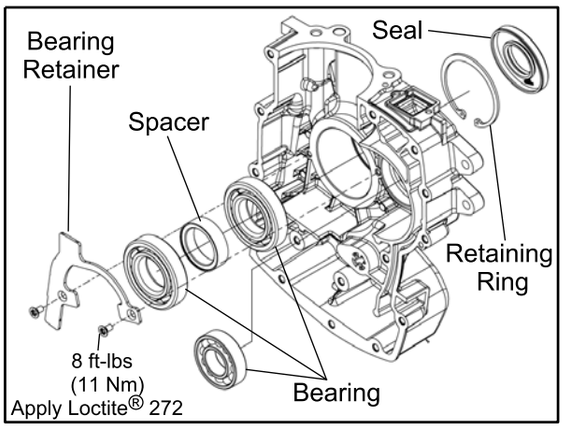
Due to extremely close tolerances and minimal wear, the bearings must be inspected visually, and by feel. Look for signs of discoloration, scoring or galling. Turn the inner race of each bearing. The bearings should turn smoothly and quietly. The outer race of each bearing should fit tightly in the crankcase. The inner race should be firm with minimal side to side movement and no detectable up and down movement.
Bearings are stressed during the removal process and must not be re-used!

1. Remove and discard the PTO side crankshaft seal. Replace with new for assembly.
2. If not already performed, remove the two screws that secure the bearing retainer to the case.
3. Remove the retaining ring.

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4. Support the crankcase and drive, press, or extract the three bearings with a blind bearing remover.





Installation

NOTE

To ease bearing installation, warm the crankcase evenly with a heat gun or place in an oven and heat to 220-250° F. Place bearings in clean plastic wrap and set in a freezer for 10-20 minutes.
Apply Loctite® 641 (Yellow), or Loctite® 603 (Green) if unavailable, to the bearings during installation.

5. Clean all bearing bores and inspect for excessive wear.

NOTE

Apply Loctite® 641 to the inner race of each of the crank bearings.

6. Lubricate all bearing bores with clean engine oil.
7. Fully seat the *new* balance shaft bearing until bottomed in the bearing bore.
8. Install the retaining ring for the crankshaft bearings.
9. Fully seat the *new* outer PTO crankshaft bearing until bottomed against the retaining ring.
10. Install the bearing spacer.
11. Press in the *new* inner PTO bearing until it is bottomed against the bearing spacer.
12. Apply Loctite® 272™ to the two bearing retainer bolts.
13. Install the bearing retainer and torque the fastener to specification.

TORQUE

Bearing Retainer Fastener: **8 lb-ft (11 Nm)**
Apply Loctite® 272™

3

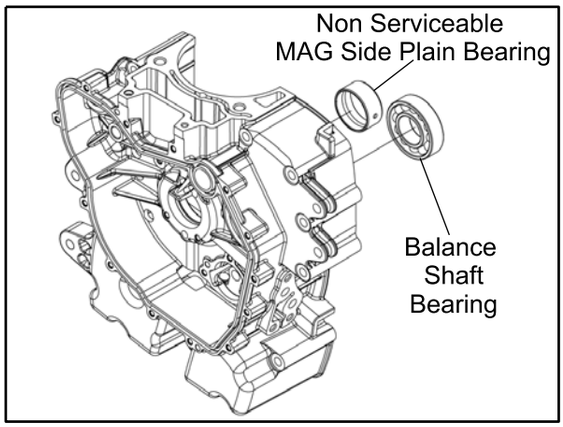
MAG SIDE CRANKCASE BEARING SERVICE

Bearing Removal

1. Support the crankcase and drive, press, or extract the balance shaft bearing with a blind bearing remover.

NOTE

The MAG side crankshaft plain bearing is not serviceable. Crankcase replacement is required if the bearing is damaged or has excessive wear. The crankshaft is reusable if it meets specifications and MAG side bearing surface is not groved, pitted, damaged or excessively worn.



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NOTE

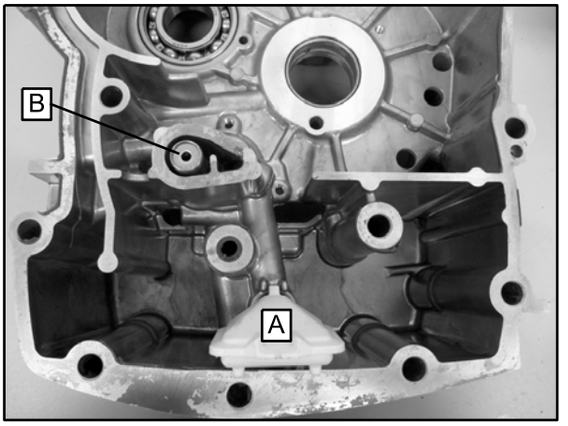
Due to extremely close tolerances and minimal wear, the bearings must be inspected. Look for discoloration, scoring or galling. The inner race of each bearing should turn smoothly and quietly. The outer race of each bearing should fit tightly in the crankcase. The inner race should be firm with minimal side to side movement and no detectable up and down movement. Bearings are stressed during the removal process and must not be re-used!

Installation

2. Clean all bearing bores and inspect for excessive wear.
3. Lubricate all bearing bores with clean engine oil and apply Loctite® 641 (Yellow), or Loctite® 603 (Green) if unavailable, to the bearings.
4. Fully seat the *new* balance shaft bearing until bottomed in the bearing bore.

OIL PICKUP ASSEMBLY INSPECTION

The oil pickup assembly is located in the Mag side crankcase (A).



1. Pull and twist to remove the oil pickup assembly from the crankcase.
2. Inspect the assembly for cracks and excessive wear. Replace if necessary.
3. Remove and discard the O-ring.
4. Thoroughly clean the pickup assembly
5. Replace the o-ring and lubricate with clean engine oil.
6. Press the pickup assembly into the crankcase until fully seated.

OIL PRESSURE REGULATOR (BYPASS) VALVE INSPECTION

The oil pressure regulator (bypass) valve is located in the Mag side crankcase (B).

1. Use a brass drift to press out the oil pressure valve from the crankcase.
2. Replace the oil pressure valve if the inner plunger binds, sticks or does not operate smoothly.
3. Remove and discard the o-ring.
4. Thoroughly clean the valve.
5. Replace the o-ring and lubricate with clean engine oil.
6. Press the oil pressure valve into the crankcase until fully seated.

CRANKCASE INSPECTION

1. Remove all traces of gasket sealer from the crankcase mating surfaces. Inspect the surfaces closely for nicks, burrs or damage.
2. Be sure alignment pins are in place where used.
3. Be sure oil passages are clean and free of any cleaning solvent.

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ENGINE ASSEMBLY - LOWER END (570)

CRANKCASE ASSEMBLY – PTO SIDE

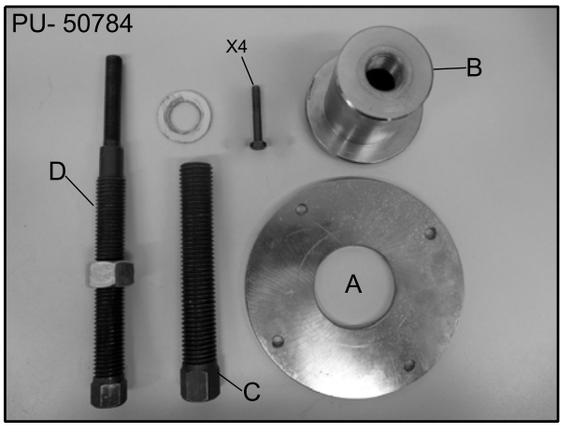
1. Lubricate all crankcase bearings with engine oil. Clean sealing surface to remove all oil sealant.

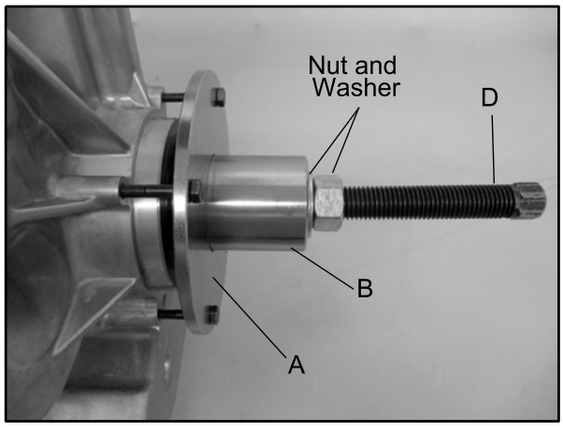
NOTE

Apply Loctite® 641 to the inner race of each of the crank bearings.

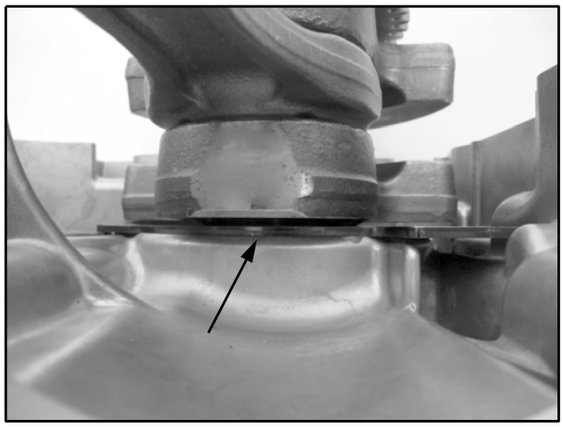
2. Place crankcase on a sturdy work bench.
3. Carefully set the PTO crankcase onto the PTO side of the crankshaft.
4. Align the connecting rod with the cylinder area of the crankcase.
5. Install the crankshaft removal / installation tool (**PU-50784**) on to the PTO side crankcase.

- Install plate “A” over adapter “B”
- Evenly attach the assembly onto the PTO side crankcase using the four bolts as shown.
- Place the nut and large washer onto the crankshaft installation screw “D”.
- Insert the crankshaft installation screw “D” through the threaded portion of the adaptor “B”.
- Fully thread the crankshaft installation screw “D” into the clutch bolt threads of the crankshaft.
- With the help of an assistant holding the crankshaft, firmly hold the crankshaft installation screw “D” with a wrench while tightening the large nut against the adaptor “B”.





6. With the help of an assistant, slowly tighten the nut until the crankshaft is completely seated into the crankcase bearings.
7. Remove the crankshaft removal / installation tool (**PU-50784**) from the crankcase.
8. Be sure crankshaft is fully seated and rotates smoothly.



NOTE

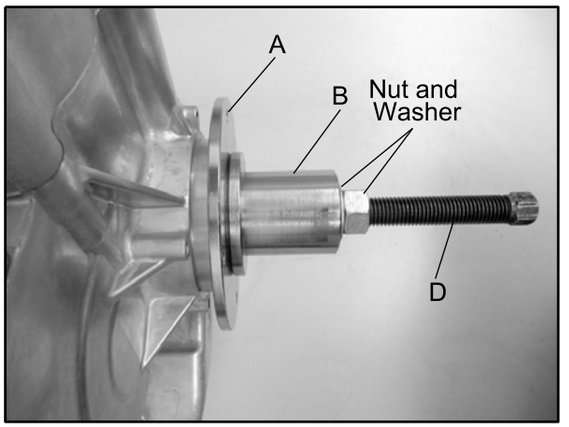
The crankshaft seal can be replaced with the engine installed in the chassis. The engine does not have to be removed and the crankcase does not have to be separated to replace the crankshaft seal.

9. Lubricate a *new* crankshaft seal and slide it over the PTO end of the crankshaft with numbers facing OUT. Be sure seal lip does not fold back when moving over the crankshaft flange.

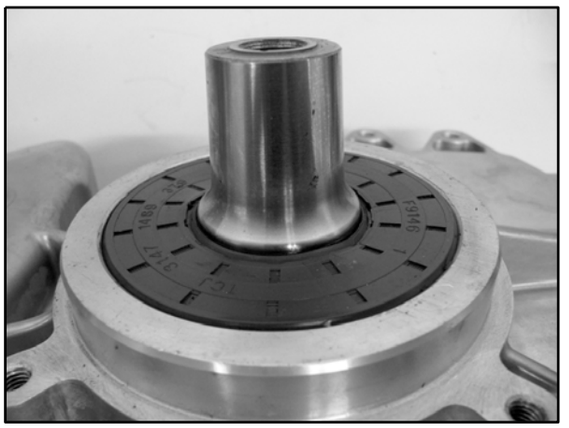
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10. Use the crankshaft removal / installation tool (**PU-50784**) to properly drive the crankshaft seal into the crankcase.

- Center plate “A” over the crankshaft so it is resting on the crankshaft seal.
- Center adaptor “B” over the crankshaft end.
- Place the nut and large washer onto the crankshaft installation screw “D”.
- Insert the crankshaft installation screw “D” through the threaded portion of the adaptor “B”.
- Fully thread the crankshaft installation screw “D” into the clutch bolt threads of the crankshaft.
- Firmly hold the crankshaft installation screw “D” with a wrench while tightening the large nut against the adaptor “B”.



11. Drive seal until flush with seal bore.

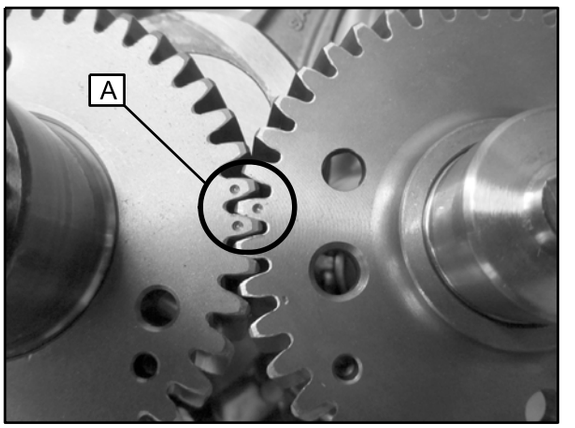


12. Turn PTO crankcase over and support with crankshaft upright.

BALANCE SHAFT INSTALLATION / TIMING

1. Position balance shaft in the crankcase.
2. Rotate crankshaft to align the timing marks (A) as shown below.
3. Fully seat the balance shaft into the crankcase and verify timing marks are correct.





FINAL CRANKCASE ASSEMBLY

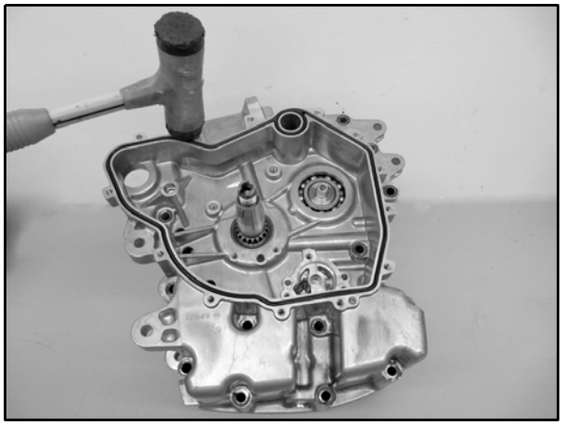
1. Prepare lower crankcase by cleaning sealing surface. Be sure the oil pickup and oil pressure valve are fully installed.
2. Apply a thin film of Crankcase Sealant evenly to a clean and oil-free crankcase mating surface. Be sure alignment pins are in place.

Crankcase Sealant: **2871557**

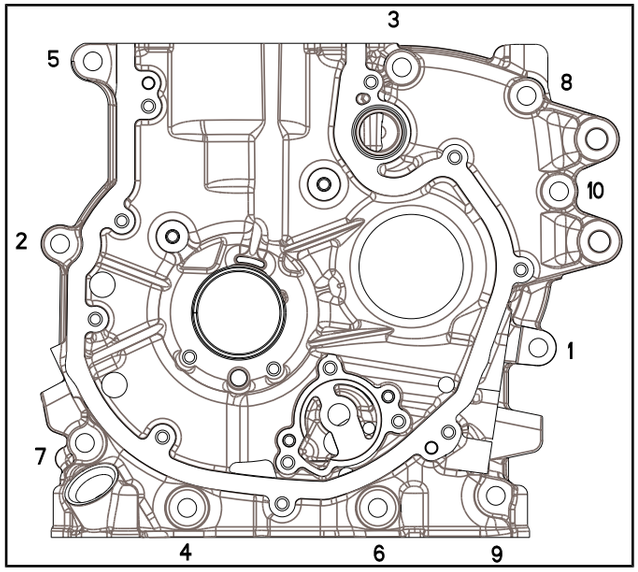
3. Carefully assemble MAG crankcase to PTO crankcase immediately. Do not allow sealant to dry.

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4. Tap crankcase evenly until fully seated with a soft sided hammer.

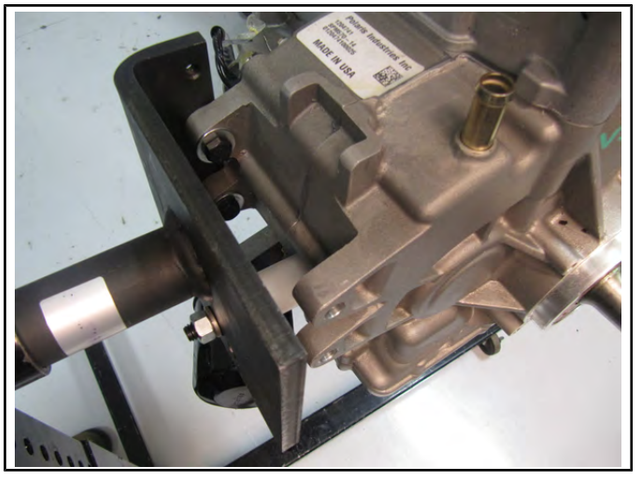


5. Install the *new* crankcase bolts finger tight in MAG side crankcase.
6. Tighten all bolts evenly until snug.
7. Torque the *new* crankcase bolts to in sequence to specification.



TORQUE
Crankcase Bolts (In Sequence): **22 lb-ft (30 Nm)**

8. Install the engine stand adapter (**PU-50824**) onto the engine ears as shown below.



9. Select the proper engine stand sleeve adapter and install it onto the engine stand adapter.

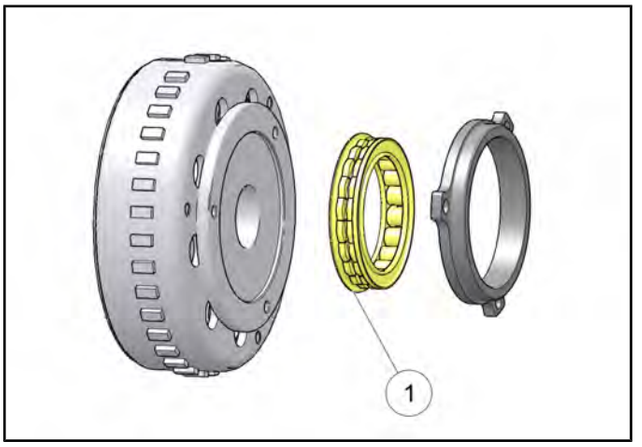
- Sleeve adapter for a 2″ bore engine stand:
- (**PU-50625**)
- Sleeve adapter for a 2.375” bore engine stand:
- (**PW-47054**)

10. Place engine onto the engine stand (**PU-50624**) for top end engine assembly as outlined in this chapter.

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STARTER ONE-WAY CLUTCH INSTALLATION

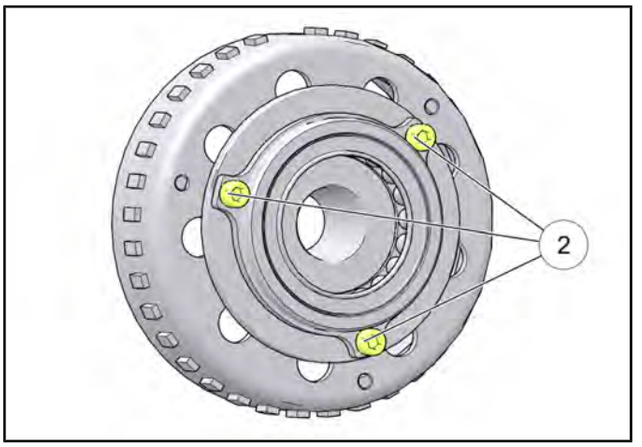
1. Install one-way clutch in clutch hub with flange of clutch ① facing the flywheel.



NOTE

The one-way clutch can be installed into the hub incorrectly. This will cause engine cranking issues.

2. Clean screw threads in flywheel to remove all oil or grease.
3. Apply Loctite® 272™ on the one way clutch retaining bolts threads ②. Place hub on flywheel and install bolts.
4. Torque screws to specification.

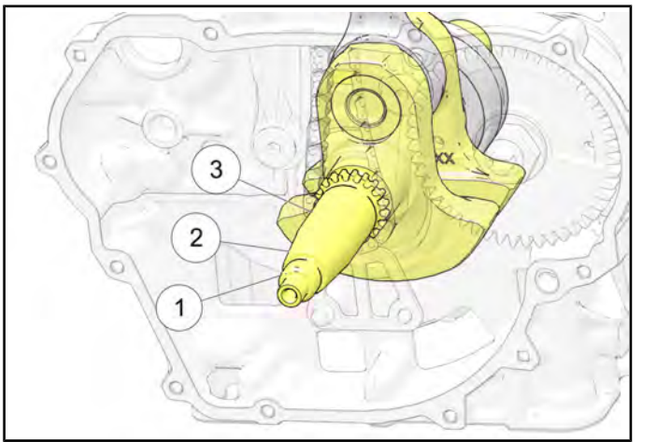


TORQUE

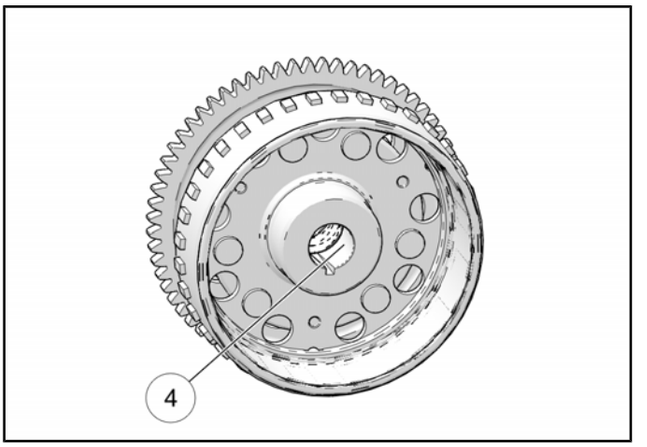
One Way Clutch Retaining Bolts:
9 lb-ft (12 Nm)
Apply Loctite® 272™

FLYWHEEL INSTALLATION

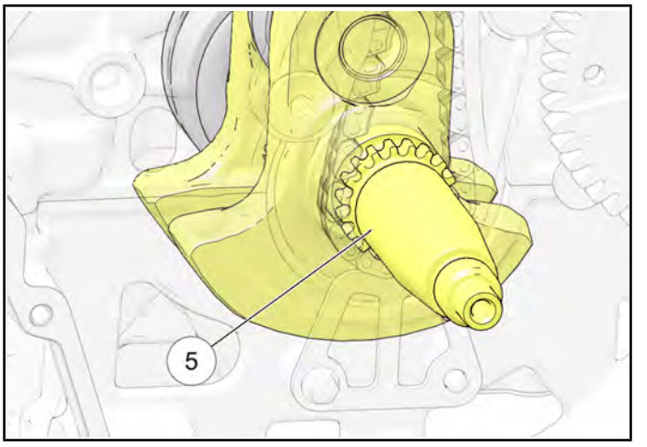
1. Inspect and clean the threads ①, taper ② and flat ③ of crankshaft to remove all oil or grease.



2. Clean flywheel taper ④ to remove all oil or grease.

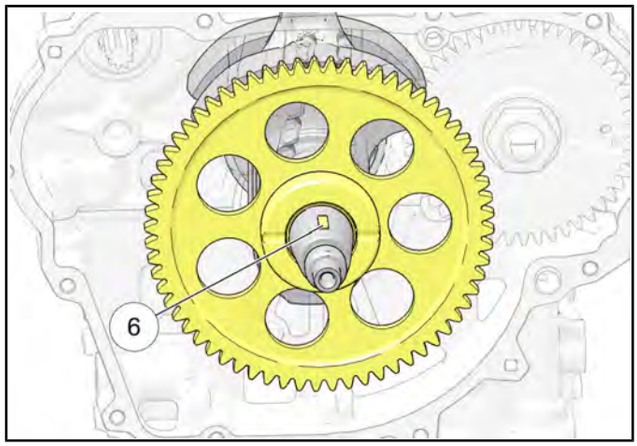


3. Apply a small amount of PS4 engine oil to the flat area ⑤ on the MAG side crankshaft. DO NOT apply engine oil to the crankshaft taper.

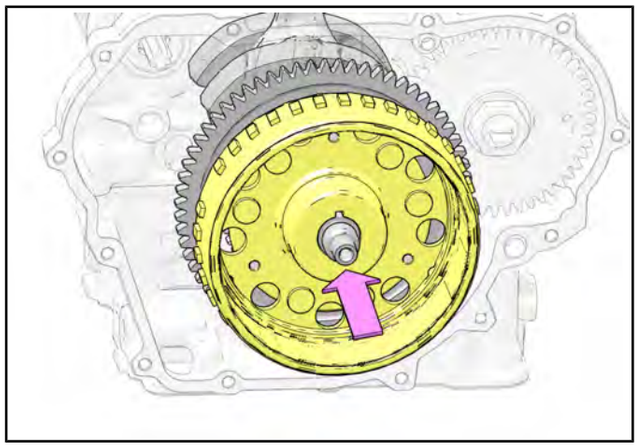


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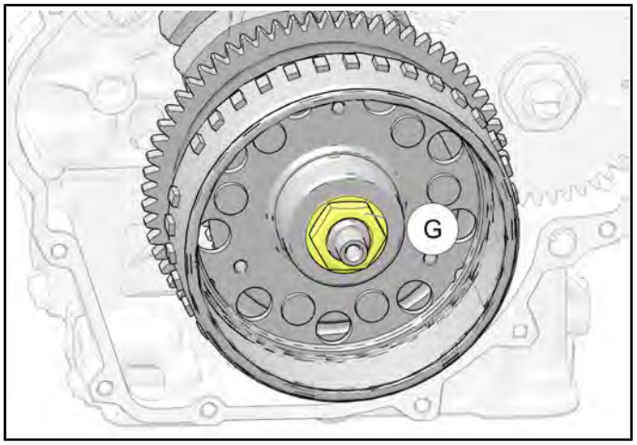
4. Rotate crankshaft so the flywheel key ⑥ is facing upward.
5. Fully install starter gear onto the crankshaft as shown.



6. Align the flywheel keyway with flywheel key on the crankshaft.
7. Apply Loctite® 641 (Yellow), or Loctite® 603 (Green) if unavailable, using an applicator to external taper surface on the crankshaft. Apply bead 5-6 mm from the center of the taper and offset to the smaller end on the crankshaft. Be careful to not apply any Loctite to the starter gear bearing
8. Apply Loctite® 641 (Yellow), or Loctite® 603 (Green) if unavailable, using an applicator to internal taper surface on flywheel. Apply bead 5-6 mm from the center of the taper, offset to the larger diameter of the taper on the flywheel. By hand, lightly press the flywheel inward while rotating the starter gear counter clock-wise. Fully install the flywheel until seated on the crankshaft taper.

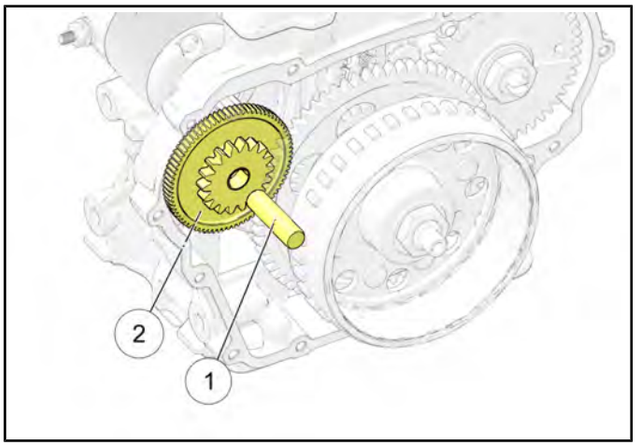


9. Install the flywheel washer.
10. Hold flywheel with commercially available strap wrench.
11. Torque the NEW flywheel nut (G) to specification.



TORQUE
Flywheel Retaining Nut: **133 lb-ft (180 Nm)**

12. Install starter idler gear ② and shaft ①.



13. Wipe off excess Loctite and let stand for 1 hour before starting engine.
14. If failure repeats after reassembly repeat procedure and let stand for 24 hours before starting.

NOTE
Loctite® cures with time, the longer the unit is let stand before engine starting the better the joint will be

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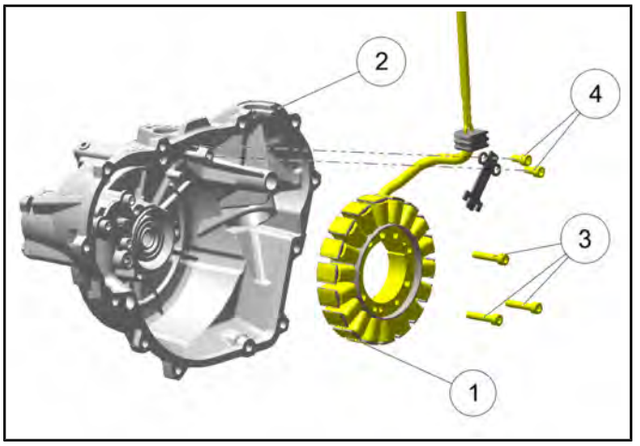
STATOR / STATOR COVER INSTALLATION

1. Clean and degrease stator screws and threads in the stator housing.
2. Clean mounting surfaces of stator ① and housing ②.
3. Apply crankcase sealant to edges of rubber stator grommet.
4. Set the stator in housing and press wire grommet into slot on housing.
5. Apply Loctite® 242™ to end (8-10 threads) of the stator screws ③ and the wire routing bracket screws ④.
6. Install a new stator cover gasket.
7. Install the stator cover.

CAUTION

The flywheel contains powerful magnets. Use caution when installing the stator cover.DO NOT place fingers between cover and crankcase at any time during the installation process or injury could result.

8. Install the stator cover screws and torque to specification.



TORQUE

Stator Mounting Bolts:
9 lb-ft (12 Nm)
Apply Loctite® 242™

Stator Wire Retainer:
6 lb-ft (9 Nm)
Apply Loctite® 242™

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900 / 1000 ENGINE

GENERAL INFORMATION - ENGINE (900 / 1000)

SERVICE NOTES - ENGINE / COOLING SYSTEM (900/1000)

The following components can be serviced or removed with the engine installed:

- Camshaft(s)
- Camshaft Sprocket(s)
- Cylinder Head
- Flywheel
- Oil Cooler
- Starter Motor / Idler Gear Asm
- Stator (Alternator)
- Thermostat
- Valve Cover
- Water Pump

The following components require engine removal for service:

- Camshaft Timing Chain
- Connecting Rod(s)
- Counterbalance Shaft / Bearings
- Crankcase
- Crankshaft / Main Bearings
- Crankshaft Seal (PTO)
- Cylinder
- Oil Pump / Oil Pump Sprocket or Chain
- Piston / Rings

SPECIAL TOOLS - ENGINE / COOLING SYSTEM (900/1000)

TOOL DESCRIPTION	PART NUMBER
Drive Clutch Puller	**2872085**
Engine Stand Adapter (Mounts To The Engine)	**PU-50562**
Engine Stand Sleeve Adapter (Use With 2” Bore Stand)	**PU-50625**
Engine Stand Sleeve Adapter (Use With 2.375” Bore Stand)	**PW-47054**
Engine Stand (2” Bore)	**PU-50624**
Clutch Center Distance Tool	**PU-50658-A**
Oil Pressure Gauge Adapter	**PU-50565**
Oil Pressure Gauge	**PV-43531**
Cylinder Holding & Camshaft Timing Plate	**PU-50563**
Valve Spring Compressor Adapter	**PV-43513-A**
Flywheel Puller	**PA-49316**
Piston Ring Compressor Pliers	**PV-43570-1**
Spring Puller	**PU-45485**
Mityvac® Pressure Test Tool	**2870975**
Water Pump Mechanical Seal Installer	**PU-50564**

Bosch Automotive Service Solutions: 1-800-345-2233 or http://polaris.service-solutions.com/

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TORQUE SPECIFICATIONS - ENGINE / COOLING SYSTEM (900/1000)

PART DESCRIPTION	TORQUE SPECIFICATION
Starter Motor Bolts	**7 lb-ft (10 Nm)**
Transmission Joint Bracket Bolts	**44 lb-ft (60 Nm)**
Engine / Transmission Mounting Bolts Step 1–2	**64 lb-ft (87 Nm)**
Engine / Transmission Mounting Bolts Step 3	**5 lb-ft (7 Nm)**
Engine / Transmission Mounting Bolts Step 4–7	**44 lb-ft (60 Nm)**
Front Engine Mount Fasteners	**40 lb-ft (54 Nm)**
Intake Plenum Hose Clamps	**17 lb-in (2 Nm)**
Lower Intake Plenum Fastener	**22 lb-ft (30 Nm)**
Fuel Rail Mounting Bolts	**7 lb-ft (10 Nm)**
Crankcase Gallery Plug	**11 lb-ft (15 Nm)**
Camshaft Carrier Bolts	**7 lb-ft (10 Nm)**
Connecting Rod Bolts Step 1 (900)	**9 lb-ft (12 Nm)**
Connecting Rod Bolts Step 2 (900)	**22 lb-ft (30 Nm)**
Connecting Rod Bolts Step 3 (900)	**Additional 90°**
Connecting Rod Bolts Step 1 (1000)	**9 lb-ft (12 Nm)**
Connecting Rod Bolts Step 2 (1000)	**13 lb-ft (18 Nm)**
Connecting Rod Bolts Step 3 (1000)	**Additional 105°**
Lower Crankcase Bolts Step 1 (M10)	**9 lb-ft (12 Nm)**
Lower Crankcase Bolts Step 2 (M10)	**21 lb-ft (28 Nm)**
Lower Crankcase Bolts Step 3 (M10)	**Additional 90°**
Lower Crankcase Bolts (M8)	**26 lb-ft (35 Nm)**

PART DESCRIPTION	TORQUE SPECIFICATION
Lower Crankcase Bolts (M6)	**9 lb-ft (12 Nm)**
Upper Crankcase Bolts (M8)	**26 lb-ft (35 Nm)**
Upper Crankcase Bolts (M6)	**7 lb-ft (10 Nm)**
Oil Pump Mounting Bolts	**7 lb-ft (10 Nm)**
Oil Pump Pick-Up Retaining Screws	**7 lb-ft (10 Nm)**
Oil Sump Cover Bolts (M6)	**9 lb-ft (12 Nm)**
Oil Sump Cover Bolts (M8)	**26 lb-ft (35 Nm)**
Crankcase Drain Plug	**12 lb-ft (16 Nm)**
Oil Cooler Retaining Bolts	**7 lb-ft (10 Nm)**
One Way Clutch Retaining Screws	**9 lb-ft (12 Nm)**
Flywheel Retaining Bolt	**133 lb-ft (180 Nm)**
Stator Cover Screws	**9 lb-ft (12 Nm)**
Cylinder Head Bolts Step 1	**9 lb-ft (12 Nm)**
Cylinder Head Bolts Step 2	**26 lb-ft (35 Nm)**
Cylinder Head Bolts Step 3	**Additional 180°**
Cylinder Head Bolts (M6)	**7 lb-ft (10 Nm)**
Cam Chain Tensioner	**30 lb-ft (40 Nm)**
Camshaft Sprocket Bolts (900)	**11 lb-ft (15 Nm)**
Camshaft Sprocket Bolts (1000)	**14 lb-ft (19 Nm)**
Spark Plug (900/1000)	**7 lb-ft (10 Nm)**
Valve Cover Bolts	**7 lb-ft (10 Nm)**
Engine Intake Duct Clamps	**35 lb-in (4 Nm)**
Air Box Fasteners	**8 lb-ft (11 Nm)**

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PART DESCRIPTION	TORQUE SPECIFICATION
Exhaust Headpipe Mounting Bolts	**18 lb-ft (24 Nm)**
Thermostat Cover Bolts	**7 ± 1 lb-ft (10 ± 1 Nm)**
Coolant Bleed Screw	**7 ± 1 lb-ft (10 ± 1 Nm)**
Water Pump Mounting Bolts	**7 lb-ft (10 Nm)**
Water Pump Impeller Bolt	**7 lb-ft (10 Nm)**
Water Pump Cover Bolts	**7 lb-ft (10 Nm)**

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SERVICE SPECIFICATIONS - ENGINE / COOLING SYSTEM (900/1000)

900 ENGINE

CAMSHAFT / CYLINDER HEAD / CYLINDER		
Camshaft	Cam Lobe Height - Intake (Standard)	1.5256" ± 0.0015" (38.75 ± 0.04 mm)
	Cam Lobe Height - Intake (Service Limit)	1.5220" (38.66 mm)
	Cam Lobe Height - Exhaust (Standard)	1.4961" ± 0.0015" (38.00 ± 0.04 mm)
	Cam Lobe Height - Exhaust (Service Limit)	1.4925" (37.91 mm)
	Camshaft Journal O.D. - All (Standard)	0.9035" - 0.9046" (22.949 - 22.978 mm)
	Camshaft Journal O.D. - All (Service Limit)	0.9025" (22.923 mm)
	Camshaft Journal Bore I.D. - All (Standard)	0.9055" - 0.9063" (23.000 - 23.021 mm)
	Camshaft Journal Bore I.D. - All (Service Limit)	0.9072" (23.044 mm)
	Camshaft Oil Clearance (Standard)	0.0009" - 0.0028" (0.022 - 0.072 mm)
	Camshaft Oil Clearance (Service Limit)	0.0039" (0.1 mm)
	Camshaft End Play (Standard)	0.0040" - 0.0100" (0.101 - 0.254 mm)
	Camshaft End Play (Service Limit)	0.0157" (0.4 mm)
Cylinder Head	Cylinder Head - Surface Warp Limit	0.0039" (0.1 mm)
	Cylinder Head - Standard Height	4.717" ± 0.0019" (119.8 ± 0.05 mm)
Valve Seat	Valve Seat - Contacting Width - Intake (Standard)	0.0393" ± 0.0039" (1.0 ± 0.10 mm)
	Valve Seat - Contacting Width - Intake (Service Limit)	0.0551" (1.4 mm)
	Valve Seat - Contacting Width - Exhaust (Standard)	0.0590" ± 0.0039" (1.5 ± 0.10 mm)
	Valve Seat - Contacting Width - Exhaust (Service Limit)	0.0748" (1.9 mm)
	Valve Seat Angles	30.0° ± 1.5° / 45.0° ± 0.5° / 60.0° ± 1.5°
Valve Guide	Valve Guide Inner Diameter	0.2165" - 0.2171" (5.500 - 5.515 mm)
Valve	Valve Lash (Cold) - Intake	0.006" ± 0.002" (0.15 ± 0.5 mm)
	Valve Lash (Cold) - Exhaust	0.008" ± 0.002" (0.20 ± 0.5 mm)
	Valve Stem Diameter - Intake	0.2155" - 0.2161" (5.475 - 5.490 mm)
	Valve Stem Diameter - Exhaust	0.2147" - 0.2153" (5.455 - 5.470 mm)
	Valve Stem Oil Clearance - Intake	0.0003" - 0.0015" (0.010 - 0.040 mm)
	Valve Stem Oil Clearance - Exhaust	0.0011" - 0.0023" (0.030 - 0.060 mm)
	Valve Overall Length - Intake	3.7704" (95.77 mm)
	Valve Overall Length - Exhaust	3.8023" (96.58 mm)
Valve Spring	Valve Spring Free Length (Standard)	1.7213" (43.72 mm)
	Valve Spring Free Length (Service Limit)	1.6830" (42.75 mm)
Cylinder	Cylinder - Surface Warp Limit (mating with cylinder head)	0.002" (0.05 mm)
	Cylinder Bore - Standard	3.6614" ± 0.0003" (93 mm ± 0.008 mm)
	Cylinder Out of Round Limit	0.001" (0.025 mm)
	Cylinder Taper Limit	0.001" (0.025 mm)
	Cylinder to Piston Clearance	0.0014" - 0.0026" (0.035 - 0.065 mm)

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PISTON / RINGS / CONNECTING ROD / CRANKSHAFT / BALANCE SHAFT			
Piston	Piston - Standard O.D. - Measured 90 degrees to pin, 0.51 in. (13 mm) up from piston skirt. See text.		3.6592 ± 0.0003" (92.950 ± 0.008 mm)
	Piston Pin Bore I.D. (Standard)		0.7876" - 0.7878" (20.004 - 20.009 mm)
	Piston Pin Bore I.D. (Service Limit)		0.7893" (20.05 mm)
Piston Pin	Piston Pin O.D. (Standard)		0.7872" - 0.7874" (19.995 - 20.000 mm)
	Piston Pin O.D. (Service Limit)		0.7866" (19.98 mm)
Piston Ring	Installed Gap	Top Ring (Standard)	0.008" - 0.014" (0.20 - 0.36 mm)
		Top Ring (Service Limit)	0.020" (0.5 mm)
		Second Ring (Standard)	0.015" - 0.025" (0.37 - 0.63 mm)
		Second Ring (Service Limit)	0.028" (0.70 mm)
		Oil Control Rails (Standard)	0.010" - 0.040" (0.25 - 1.02 mm)
		Oil Control Rails (Service Limit)	0.059" (1.50 mm)
	Ring to Groove Clearance	Top Ring (Standard)	0.0012" - 0.0037" (0.030 - 0.095 mm)
		Second Ring (Standard)	0.0012" - 0.0030" (0.030 - 0.076 mm)
		Service Limit	0.0047" (0.12 mm)
Connecting Rod	Connecting Rod Small End I.D. (Standard)		0.7879" - 0.7884" (20.015 - 20.025 mm)
	Connecting Rod Small End I.D. (Service Limit)		0.7897" (20.06 mm)
	1 - Marking	Connecting Rod Big End Bore I.D.	1.7318" - 1.7321" (43.989 - 43.996 mm)
	2 - Marking	Connecting Rod Big End Bore I.D.	1.7321" - 1.7323" (43.996 - 44.003 mm)
	3 - Marking	Connecting Rod Big End Bore I.D.	1.7323" - 1.7326" (44.003 - 44.010 mm)
Crankshaft	B - Marking	Main Journal O.D. (Standard)	1.6140" - 1.6143" (40.996 - 41.004 mm)
	G - Marking	Main Journal O.D. (Standard)	1.6137" - 1.6140" (40.988 - 40.995 mm)
	Y - Marking	Main Journal O.D. (Standard)	1.6134" - 1.6137" (40.980 - 40.987 mm)
	Main Journal O.D. (Service Limit)		1.6126" (40.960 mm)
	B - Marking	Rod Journal O.D. (Standard)	1.6118" - 1.6122" (40.942 - 40.950 mm)
	G - Marking	Rod Journal O.D. (Standard)	1.6115" - 1.6118" (40.934 - 40.941 mm)
	Y - Marking	Rod Journal O.D. (Standard)	1.6112" - 1.6115" (40.926 - 40.933 mm)
	Rod Journal O.D. (Service Limit)		1.6104" (40.906 mm)
	Crankshaft Runout Limit (PTO and MAG)		Less than 0.001" (0.025 mm)
	Auxiliary Sprocket Installed Depth		4.9527" ± 0.0078" (125.8 ± 0.2 mm)
Balance Shaft	Bearing Journal O.D. (Standard)		1.4939" - 1.4946" (37.946 - 37.962 mm)
	Bearing Journal O.D. (Service Limit)		1.4921" (37.900 mm)

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1000 ENGINE

CAMSHAFT / CYLINDER HEAD / CYLINDER			
ITEM		**STANDARD**	**SERVICE LIMIT**
Camshaft	Cam Lobe Height - Intake	**1.5390 - 1.5429" (39.09 - 39.19 mm)**	**1.5370" (39.04 mm)**
	Cam Lobe Height - Exhaust	**1.5142 - 1.5181" (38.46 - 38.56 mm)**	**1.5122" (38.41 mm)**
	Camshaft Journal O.D. - All	**.9036 - .9055" (22.954 - 22.999 mm)**	**.9033" (22.944 mm)**
	Camshaft Carrier Bore I.D. - All	**.9055 - .9063" (23.000 - 23.021 mm)**	**.9072" (23.044 mm)**
	Camshaft Oil Clearance	**.0000 - .0026" (0.001 - 0.067 mm)**	**.0039" (0.1 mm)**
	Camshaft End Play	**.0040 - .0100" (0.101 - 0.254 mm)**	**.0157" (0.4 mm)**
Cylinder	Cylinder - Surface Warp Limit (cylinder head surface)	-	**.002″ (0.05 mm)**
	Cylinder Bore - Standard	**3.6614 ± .0003" (93 mm ± 0.008 mm)**	-
	Cylinder Out of Round Limit	-	**.001″ (0.025 mm)**
	Cylinder Taper Limit	-	**.001″ (0.025 mm)**
	Cylinder to Piston Clearance	**.0009 - .0019" (0.025 - 0.050 mm)**	-
Cylinder Head	Cylinder Head - Surface Warp Limit	-	**.0039″ (0.1 mm)**
	Cylinder Head - Standard Height	**4.717 ± .0019" (119.82 ± 0.05 mm)**	-
Valve	Valve Lash (Cold) - Intake	**.006 ± .002" (0.15 ± 0.05 mm)**	-
	Valve Lash (Cold) - Exhaust	**.008 ± .002" (0.20 ± 0.05 mm)**	-
	Valve Stem Diameter - Intake	**.2155 - .2161" (5.475 - 5.490 mm)**	-
	Valve Stem Diameter - Exhaust	**.2147 - .2153" (5.455 - 5.470 mm)**	-
	Valve Stem Oil Clearance - Intake	**.0003 - .0015" (0.010 - 0.040 mm)**	-
	Valve Stem Oil Clearance - Exhaust	**.0011 - .0023" (0.030 - 0.060 mm)**	-
	Valve Stem Overall Length - Intake	**3.7704" (95.77 mm)**	-
	Valve Stem Overall Length - Exhaust	**3.8023" (96.58 mm)**	-
Valve Guide	Valve Guide Inner Diameter	**.2165 - .2171" (5.500 - 5.515 mm)**	-
Valve Seat	Valve Seat - Contacting Width - Intake	**.0393 ± .0039" (1.0 ± 0.10 mm)**	**.0551" (1.4 mm)**
	Valve Seat - Contacting Width - Exhaust	**.0590 ± .0039" (1.5 ± 0.10 mm)**	**.0748" (1.9 mm)**
	Valve Seat Angles	**30.0° ± 1.5° 45.0° ± 0.5° 60.0° ± 1.5°**	-

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PISTON / RINGS / CONNECTING ROD / CRANKSHAFT / BALANCE SHAFT				
ITEM			**STANDARD**	**SERVICE LIMIT**
Piston	Standard O.D. - Measured 90° to pin, 0.39 in. (10 mm) up from piston skirt		**3.6597 ± .0003" (92.959 ± 0.008 mm)**	-
	Piston Pin Bore I.D. (Standard)		**.7877 - .7881" (20.009 - 20.018 mm)**	**.7893" (20.05 mm)**
	Piston Pin O.D.		**.7873 - .7875" (20.000 - 20.005 mm)**	**.7866" (19.98 mm)**
Piston Ring	Installed Gap	Top Ring	**.010 - .014" (0.25 - 0.35 mm)**	**.0196" (0.5 mm)**
		Second Ring	**.015 - .025" (0.37 - 0.63 mm)**	**.028" (0.70 mm)**
		Oil Control Rails	**.008 - .028" (0.20 - 0.70 mm)**	**.0354" (0.9 mm)**
	Ring to Groove Clearance	Top Ring	**.0007 - .0023" (0.020 - 0.060 mm)**	**.0047" (0.12 mm)**
		Second Ring		
Connecting Rod	Connecting Rod Small End I.D.		**.7879 - .7885" (20.015 - 20.030 mm)**	**.7897" (20.06 mm)**
	1 - Marking	Conn. Rod Big End Bore I.D.	**1.7318 - 1.7321" (43.989 - 43.996 mm)**	-
	2 - Marking	Conn. Rod Big End Bore I.D.	**1.7321 - 1.7323" (43.996 - 44.003 mm)**	-
	3 - Marking	Conn. Rod Big End Bore I.D.	**1.7323 - 1.7326" (44.003 - 44.010 mm)**	-
Crankshaft	B - Marking	Main Journal O.D.	**1.6140 - 1.6143" (40.996 - 41.004 mm)**	**1.6129" (40.970 mm)**
	G - Marking	Main Journal O.D.	**1.6137 - 1.6140" (40.988 - 40.995 mm)**	**1.6129" (40.970 mm)**
	Y - Marking	Main Journal O.D.	**1.6134 - 1.6137" (40.980 - 40.987 mm)**	**1.6129" (40.970 mm)**
	B - Marking	Rod Journal O.D.	**1.6118 - 1.6122" (40.942 - 40.950 mm)**	**1.6104" (40.906 mm)**
	G - Marking	Rod Journal O.D.	**1.6115 - 1.6118" (40.934 - 40.941 mm)**	**1.6104" (40.906 mm)**
	Y - Marking	Rod Journal O.D.	**1.6112 - 1.6115" (40.926 - 40.933 mm)**	**1.6104" (40.906 mm)**
	Crankshaft Runout Limit (PTO and MAG)		-	**Less than .001″ (0.025 mm)**
Balance Shaft	Bearing Journal O.D. (Standard)		**1.4939 - 1.4946" (37.946 - 37.962 mm)**	**1.4921" (37.900 mm)**

FLUID CAPACITY

Oil Capacity *: 2.5 Qt (2.4 L)

Oil Type: PS-4 5W-50 Full Synthetic
Ambient Temp Range: -35° F to 100° F
PS-4 10W-40 Extreme Duty Full Synthetic
Ambient Temp Range: 0° F to 120° F

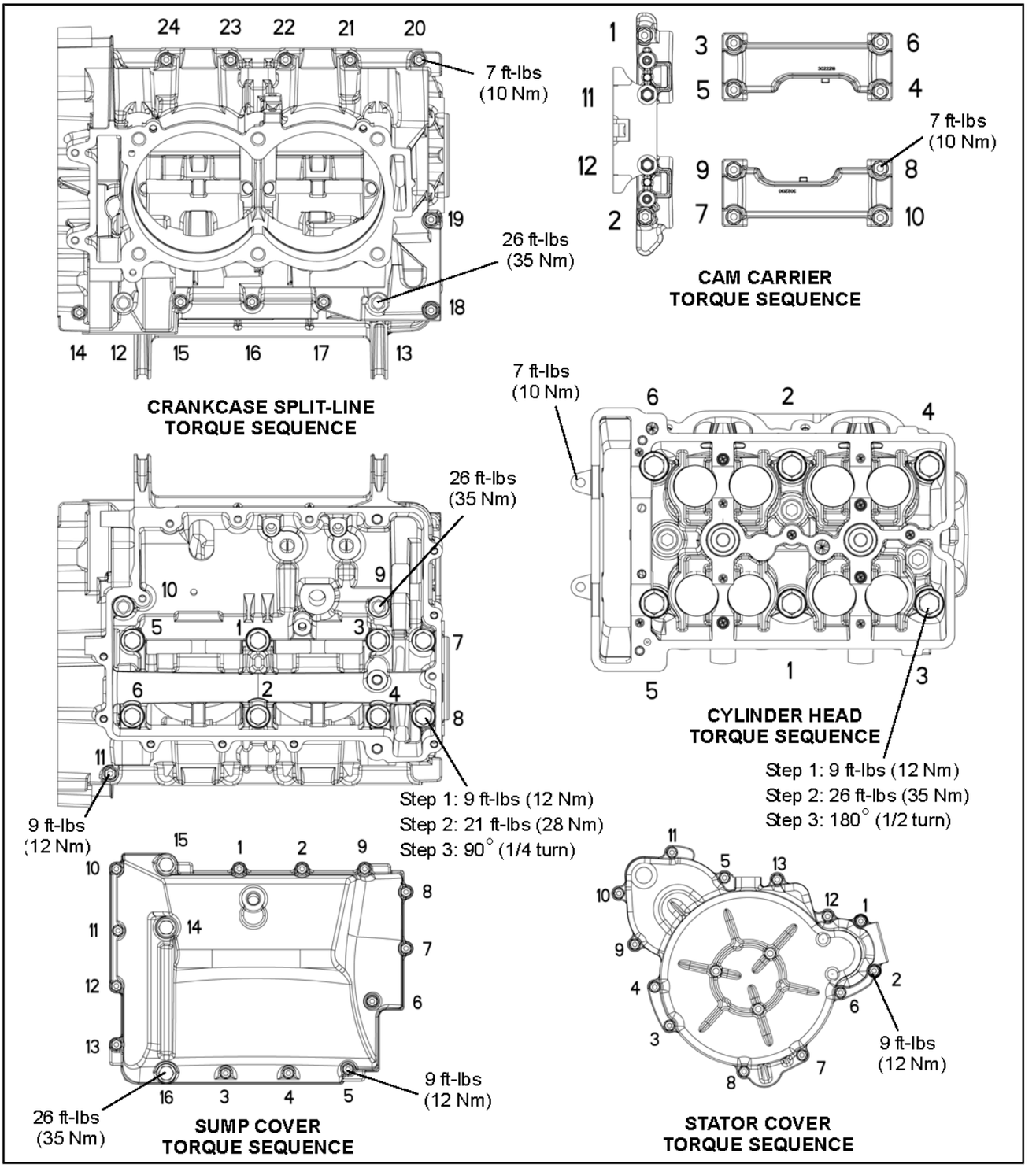
Oil Pressure Minimum Specification (using Polaris engine oil at operating temperature)
10 PSI (69 kPa) @ 1200 RPM
40 PSI (276 kPa) @ 7000 RPM

***Additional oil may be required after complete engine disassembly. Check level after filling and add oil as needed.**

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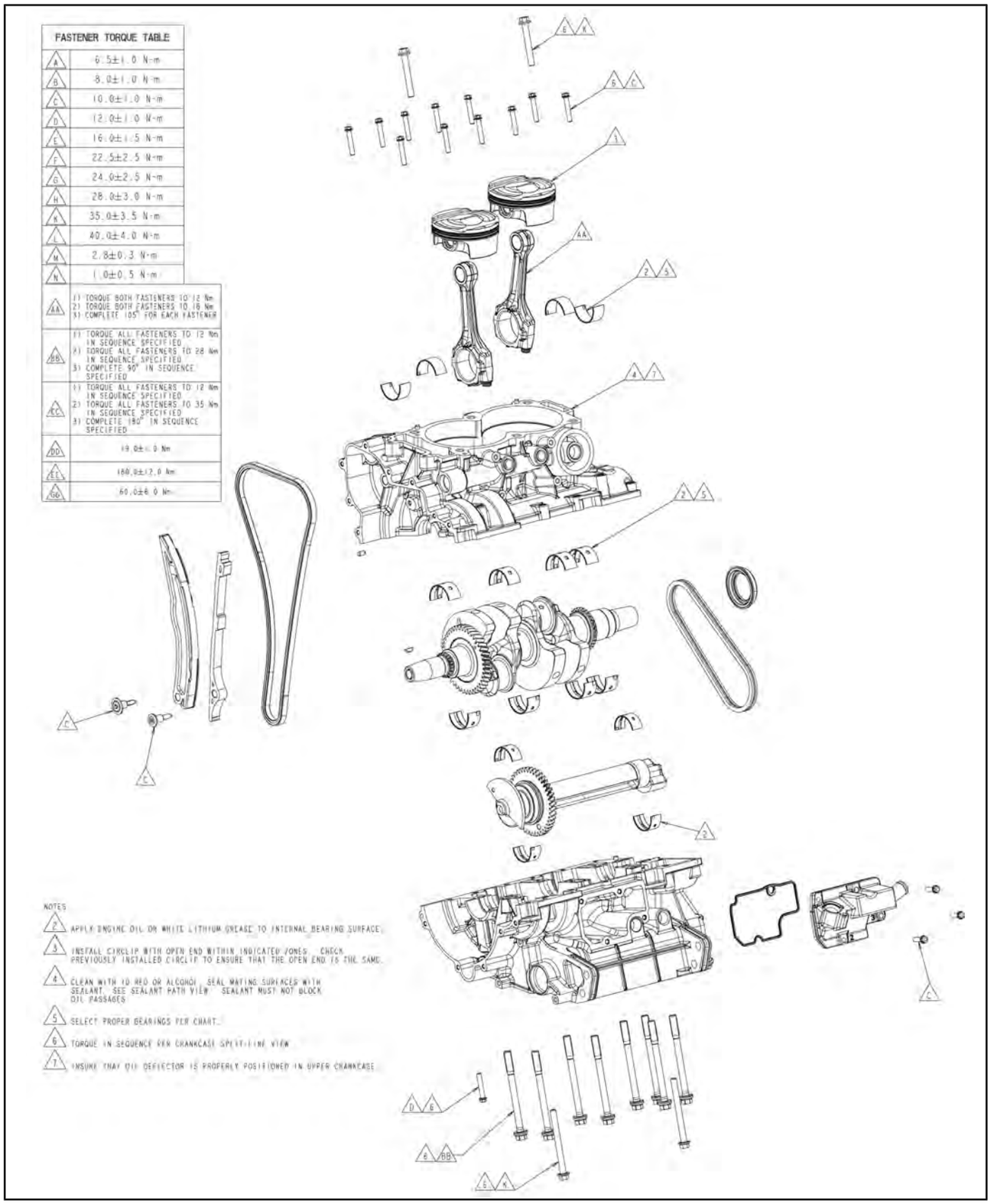
ENGINE DETAIL - TORQUE VALUES / SEQUENCES / ASSEMBLY NOTES (900 / 1000)

MAIN ENGINE COMPONENTS - TORQUE SPECIFICATION AND SEQUENCE



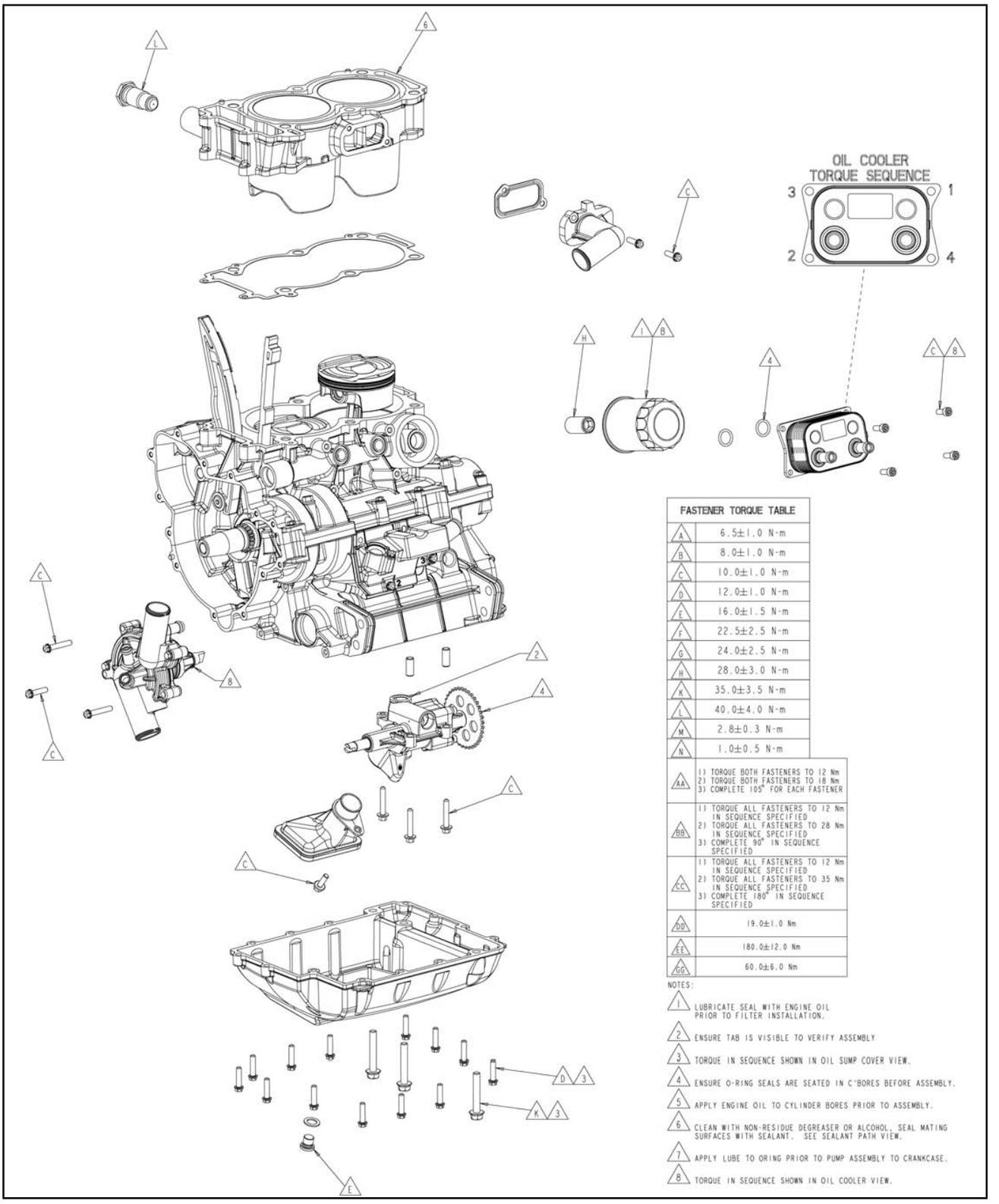
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BALANCE SHAFT / CONNECTING RODS / CRANKCASE / CRANKSHAFT / PISTONS



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CYLINDER / OIL COOLER / OIL FILTER / OIL PUMP / OIL SUMP / WATER PUMP



FASTENER TORQUE TABLE	
A	6.5±1.0 N-m
B	8.0±1.0 N-m
C	10.0±1.0 N-m
D	12.0±1.0 N-m
E	16.0±1.5 N-m
F	22.5±2.5 N-m
G	24.0±2.5 N-m
H	28.0±3.0 N-m
K	35.0±3.5 N-m
L	40.0±4.0 N-m
M	2.8±0.3 N-m
N	1.0±0.5 N-m
AA	1) TORQUE BOTH FASTENERS TO 12 Nm 2) TORQUE BOTH FASTENERS TO 18 Nm 3) COMPLETE 105° FOR EACH FASTENER
BB	1) TORQUE ALL FASTENERS TO 12 Nm IN SEQUENCE SPECIFIED 2) TORQUE ALL FASTENERS TO 28 Nm IN SEQUENCE SPECIFIED 3) COMPLETE 90° IN SEQUENCE SPECIFIED
CC	1) TORQUE ALL FASTENERS TO 12 Nm IN SEQUENCE SPECIFIED 2) TORQUE ALL FASTENERS TO 35 Nm IN SEQUENCE SPECIFIED 3) COMPLETE 180° IN SEQUENCE SPECIFIED
DD	19.0±1.0 Nm
EE	180.0±12.0 Nm
GG	60.0±6.0 Nm

NOTES:

1. LUBRICATE SEAL WITH ENGINE OIL PRIOR TO FILTER INSTALLATION.
2. ENSURE TAB IS VISIBLE TO VERIFY ASSEMBLY
3. TORQUE IN SEQUENCE SHOWN IN OIL SUMP COVER VIEW.
4. ENSURE O-RING SEALS ARE SEATED IN C'BORES BEFORE ASSEMBLY.
5. APPLY ENGINE OIL TO CYLINDER BORES PRIOR TO ASSEMBLY.
6. CLEAN WITH NON-RESIDUE DEGREASER OR ALCOHOL. SEAL MATING SURFACES WITH SEALANT. SEE SEALANT PATH VIEW.
7. APPLY LUBE TO ORING PRIOR TO PUMP ASSEMBLY TO CRANKCASE.
8. TORQUE IN SEQUENCE SHOWN IN OIL COOLER VIEW.

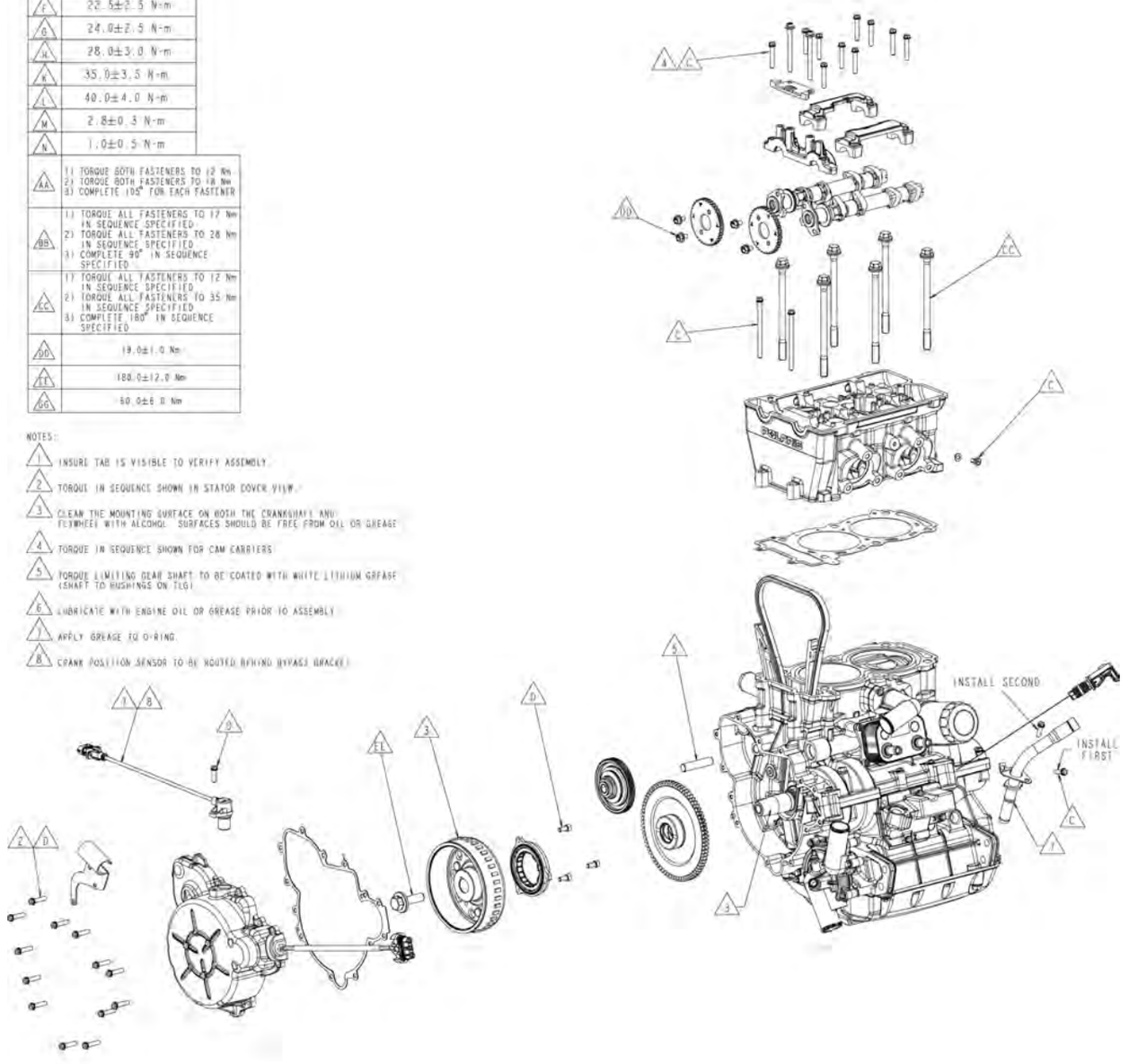
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CAMSHAFTS / CYLINDER HEAD / FLYWHEEL / IDLER GEARS / STATOR COVER

FASTENER TORQUE TABLE	
A	6.5±1.0 N·m
B	8.0±1.0 N·m
C	10.0±1.0 N·m
D	12.0±1.0 N·m
E	16.0±0.5 N·m
F	22.5±2.5 N·m
G	24.0±2.5 N·m
H	28.0±3.0 N·m
K	35.0±3.5 N·m
L	40.0±4.0 N·m
M	2.8±0.3 N·m
N	1.0±0.5 N·m
AA	1) TORQUE BOTH FASTENERS TO 12 Nm 2) TORQUE BOTH FASTENERS TO 18 Nm 3) COMPLETE 105° FOR EACH FASTENER
BB	1) TORQUE ALL FASTENERS TO 12 Nm IN SEQUENCE SPECIFIED 2) TORQUE ALL FASTENERS TO 28 Nm IN SEQUENCE SPECIFIED 3) COMPLETE 90° IN SEQUENCE SPECIFIED
CC	1) TORQUE ALL FASTENERS TO 12 Nm IN SEQUENCE SPECIFIED 2) TORQUE ALL FASTENERS TO 35 Nm IN SEQUENCE SPECIFIED 3) COMPLETE 180° IN SEQUENCE SPECIFIED
DD	19.0±1.0 Nm
EE	180.0±12.0 Nm
GG	60.0±6.0 Nm

NOTES:

1. INSURE TAB IS VISIBLE TO VERIFY ASSEMBLY.
2. TORQUE IN SEQUENCE SHOWN IN STATOR COVER VIEW.
3. CLEAN THE MOUNTING SURFACE ON BOTH THE CRANKSHAFT AND FLYWHEEL WITH ALCOHOL. SURFACES SHOULD BE FREE FROM OIL OR GREASE.
4. TORQUE IN SEQUENCE SHOWN FOR CAM CARRIERS.
5. TORQUE LIMITING GEAR SHAFT TO BE COATED WITH WHITE LITHIUM GREASE (SHAFT TO BUSHINGS ON TLG).
6. LUBRICATE WITH ENGINE OIL OR GREASE PRIOR TO ASSEMBLY.
7. APPLY GREASE TO O-RING.
8. CRANK POSITION SENSOR TO BE ROUTED BEHIND BYPASS BRACKET.



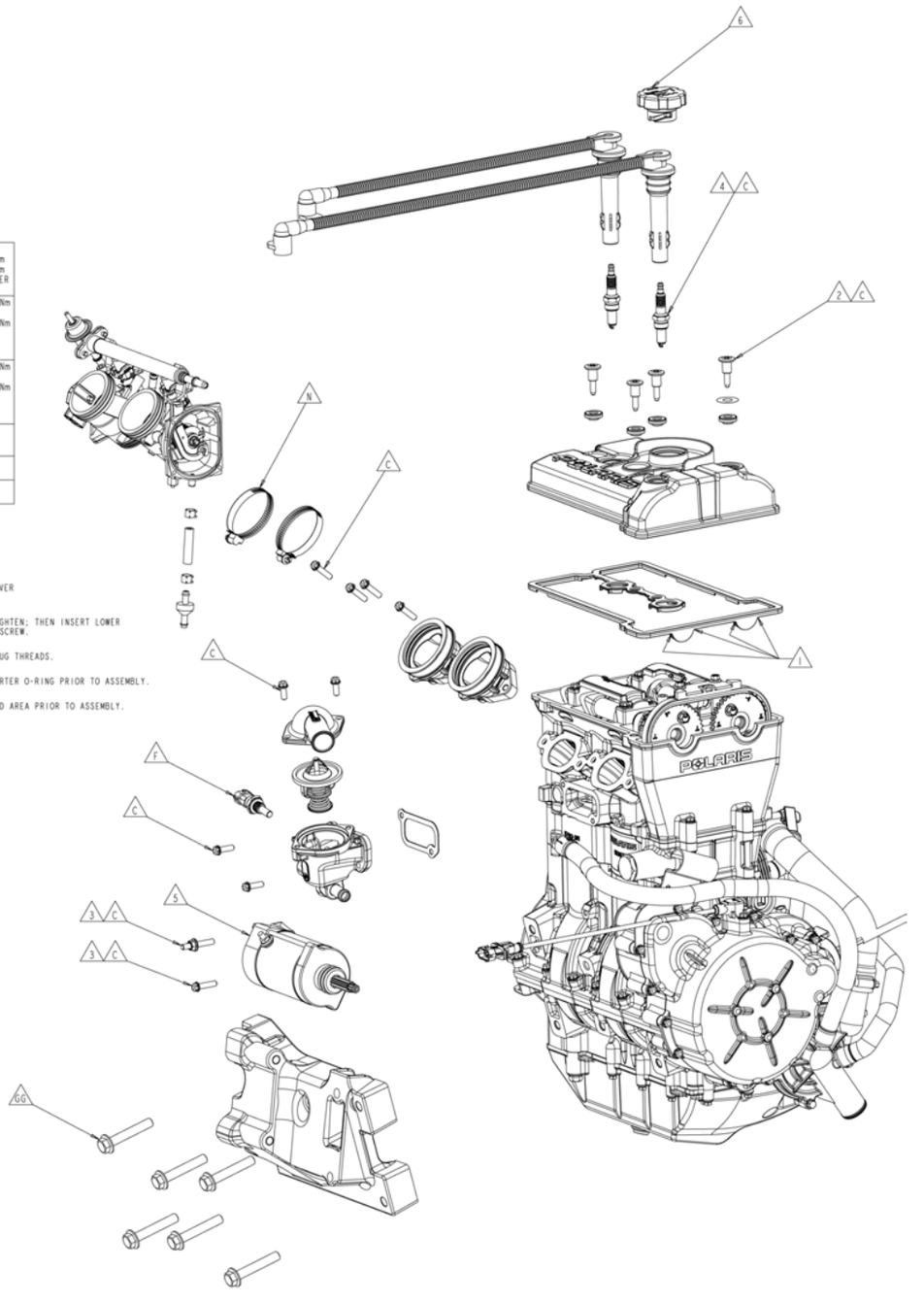
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SPARK PLUGS / STARTER / THERMOSTAT HOUSING / THROTTLE BODY / VALVE COVER

FASTENER TORQUE TABLE	
A	6.5±1.0 N-m
B	8.0±1.0 N-m
C	10.0±1.0 N-m
D	12.0±1.0 N-m
E	16.0±1.5 N-m
F	22.5±2.5 N-m
G	24.0±2.5 N-m
H	28.0±3.0 N-m
K	35.0±3.5 N-m
L	40.0±4.0 N-m
M	2.8±0.3 N-m
N	1.0±0.5 N-m
AA	1) TORQUE BOTH FASTENERS TO 12 Nm 2) TORQUE BOTH FASTENERS TO 18 Nm 3) COMPLETE 105° FOR EACH FASTENER
BB	1) TORQUE ALL FASTENERS TO 12 Nm IN SEQUENCE SPECIFIED 2) TORQUE ALL FASTENERS TO 28 Nm IN SEQUENCE SPECIFIED 3) COMPLETE 90° IN SEQUENCE SPECIFIED
CC	1) TORQUE ALL FASTENERS TO 12 Nm IN SEQUENCE SPECIFIED 2) TORQUE ALL FASTENERS TO 35 Nm IN SEQUENCE SPECIFIED 3) COMPLETE 180° IN SEQUENCE SPECIFIED
DD	19.0±1.0 Nm
EE	180.0±12.0 Nm
GG	60.0±6.0 Nm

NOTES:

1. APPLY SEALANT TO ALL FOUR INSIDE CORNERS OF VALVE COVER GASKET.
2. APPLY LUBE TO SHOULDER OF VALVE COVER FASTENERS PRIOR TO ASSEMBLY.
3. INSERT TOP SCREW FIRST AND HAND TIGHTEN; THEN INSERT LOWER SCREW AND TORQUE; THEN TORQUE TOP SCREW.
4. APPLY ANTI-SEIZE PASTE TO SPARK PLUG THREADS.
5. APPLY STARTER O-RING GREASE TO STARTER O-RING PRIOR TO ASSEMBLY.
6. APPLY ENGINE OIL TO FILL CAP THREAD AREA PRIOR TO ASSEMBLY.



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ENGINE SERVICE (900 / 1000)

ACCESSIBLE ENGINE COMPONENTS

The following components can be serviced or removed with the engine installed:

- Camshaft(s)
- Camshaft Sprocket(s)
- Cylinder Head
- Flywheel
- Oil Cooler
- Starter Motor / Idler Gear Asm
- Stator (Alternator)
- Thermostat
- Valve Cover
- Water Pump

The following components require engine removal for service:

- Camshaft Timing Chain
- Connecting Rod(s)
- Counterbalance Shaft / Bearings
- Crankcase
- Crankshaft / Main Bearings
- Crankshaft Seal (PTO)
- Cylinder
- Oil Pump / Oil Pump Sprocket or Chain
- Piston / Rings

ENGINE REMOVAL

NOTE

Some engine repair procedures can be performed without removing the engine assembly from the vehicle. Refer to **"Accessible Engine Components", page 3.99** for further information.

The use of an overhead or portable engine hoist is the only recommended method for removing and installing the engine.

Have an assistant help guide the engine in and out of the vehicle while using an engine hoist to prevent personal injury or damage to vehicle components.

⚠ WARNING

Always wear safety glasses and proper shop clothing when performing the procedures in this manual. Failing to do so may lead to possible injury or death.

1. If vehicle was recently operated, allow it to cool down before attempting to perform any work.
2. Thoroughly clean the engine and chassis.
3. Drain the engine oil and coolant prior to engine removal. Refer to **"Engine Oil and Filter Change", page 2.16** and **"Radiator Removal / Coolant Drain", page 3.20** procedures.
4. Remove rear cargo box from vehicle. Refer to **"Cargo Box Removal", page 10.33** procedure.
5. Lift up the passenger seat and disconnect the (-) negative battery cable from the battery.
6. Remove the PVT outer cover, drive and driven clutch, and inner cover. Refer to **"PVT Disassembly", page 5.10** procedure.

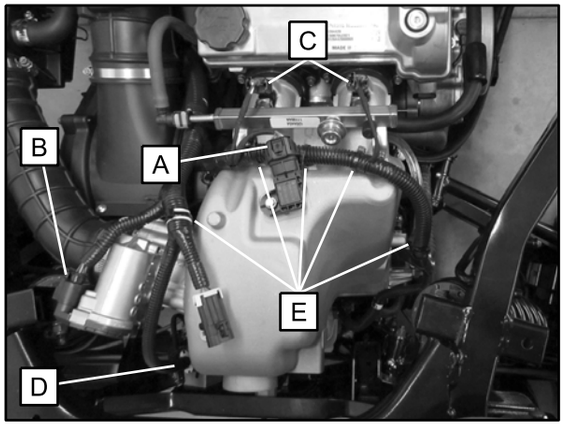
CAUTION

Correct Drive Clutch Puller P/N 2872085

NOTE

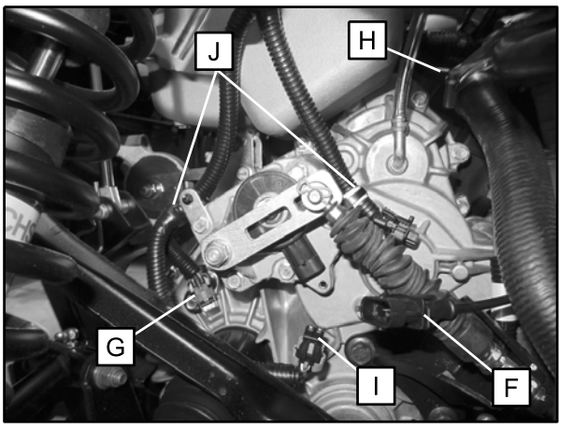
Be sure to use the correct Drive Clutch Puller (PN **2872085**) to prevent damage to crankshaft.

7. Remove the exhaust system from the vehicle. Refer **"Exhaust Removal / Installation", page 3.176** procedure.
8. Disconnect the harness from the T-MAP sensor (A), ETC (B), fuel injectors (C), rear differential relay and solenoid (D). Remove the five plastic tie straps (E) retaining the harness to the intake plenum.



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9. Disconnect the CPS (F), vehicle speed sensor (G), ECT sensor (H) and transmission switch (I). Remove the two plastic tie straps (J) retaining the harness to the transmission.

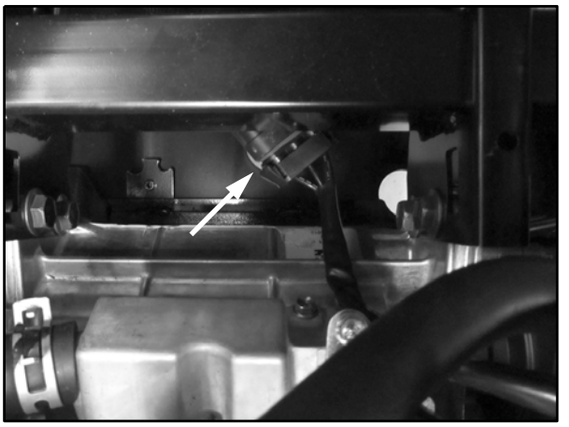


10. Using an 8mm socket, remove the two bolts retaining the fuel rail and fuel injectors. Remove the fuel rail assembly from the intake and position the assembly to allow engine removal.
11. Remove the spark plug wires from the engine.

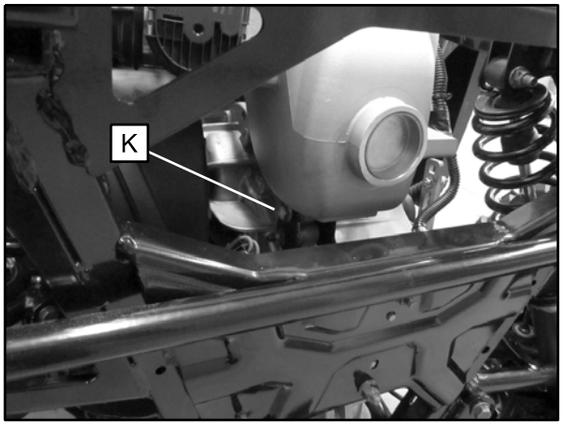
NOTE

The spark plug wires are marked with MAG and PTO. Note during installation procedure.

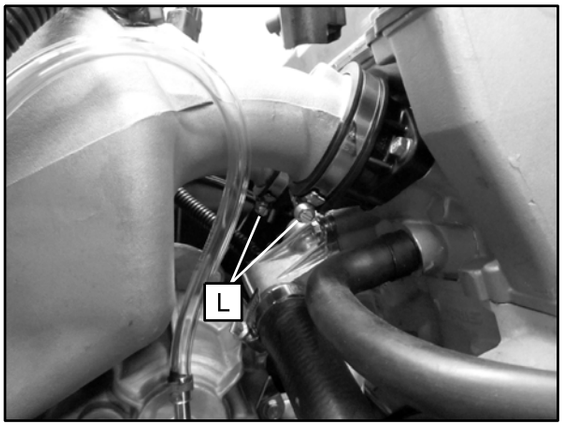
12. Disconnect the stator harness in front of the engine.



13. Using a 13mm socket and wrench, remove the fastener (K) securing the bottom of the intake plenum to the rear transmission mount.



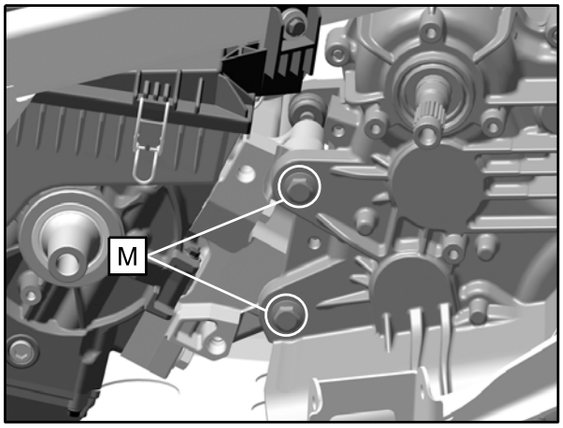
14. Using a long screwdriver, loosen both hose clamps (L) that retain the intake plenum runners to the cylinder head intake adaptors. Remove the intake plenum and electronic throttle control as an assembly.

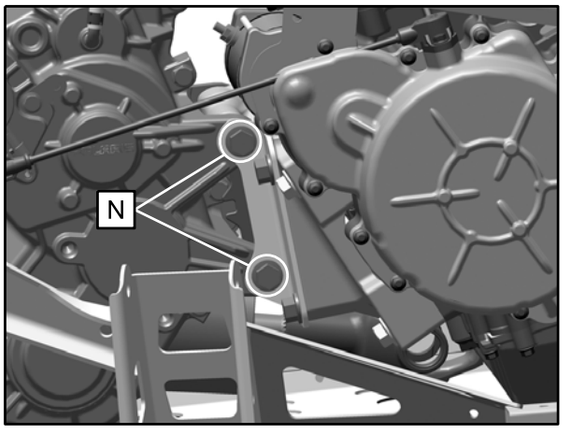


15. Use an overhead or portable engine hoist and suitable engine straps to secure engine in its current position.

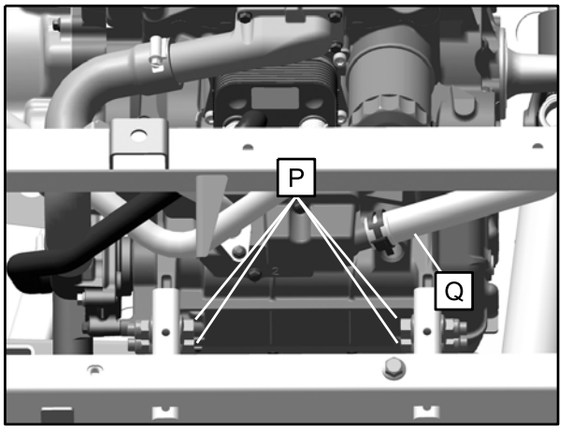
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16. Using a 15mm socket, remove the four bolts from the left side (M) and right side (N), securing the transmission to the engine.





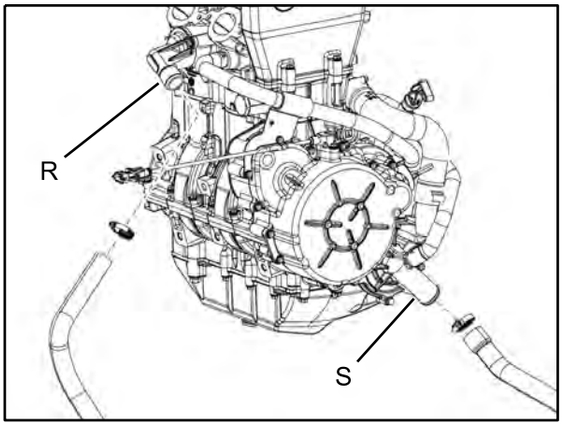
17. Using a 15mm socket, remove the four fasteners (P) securing the front of the engine to the mount bracket.



18. Remove the crankcase breather hose (Q) from the engine.

19. Remove (+) positive and (-) negative cables from the starter motor.

20. Place a suitable drain pan under the vehicle. Remove the coolant hoses from the thermostat cover (R) and water pump inlet (S). Dispose of used engine coolant properly.



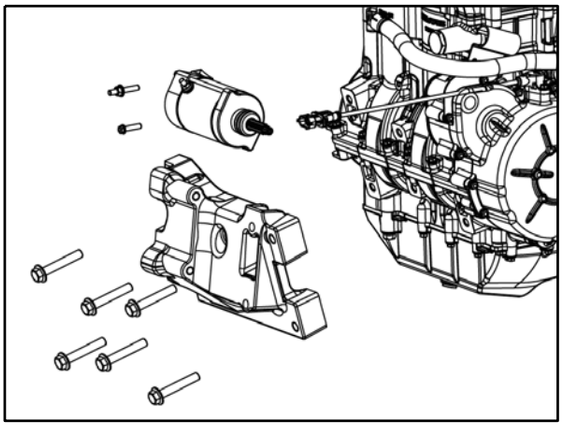
21. With the help of an assistant and the engine hoist, raise the engine vertically out of the vehicle frame.

NOTE

Have an assistant help guide the engine in and out of the vehicle while using an engine hoist to prevent personal injury or damage to vehicle components.

22. Remove the starter motor bolts and starter motor from the engine.

23. Remove the six transmission joint bracket bolts and transmission joint bracket from the engine.



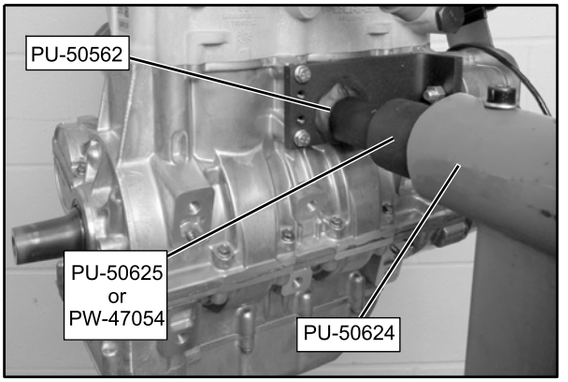
24. Install the engine stand adapter (**PU-50562**) onto the engine where the starter motor was located.

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25. Select the proper engine stand sleeve adapter and install it onto the engine stand adapter.

- Sleeve adapter for a 2” bore engine stand:
- (**PU-50625**)
- Sleeve adapter for a 2.375” bore engine stand:
- (**PW-47054**)

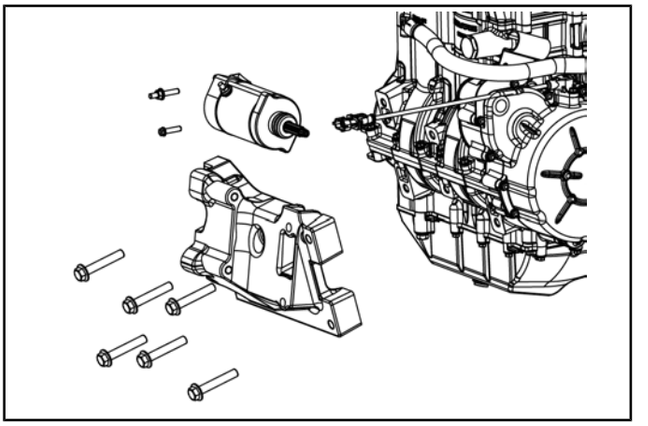
26. Place engine onto the engine stand (**PU-50624**) for service.

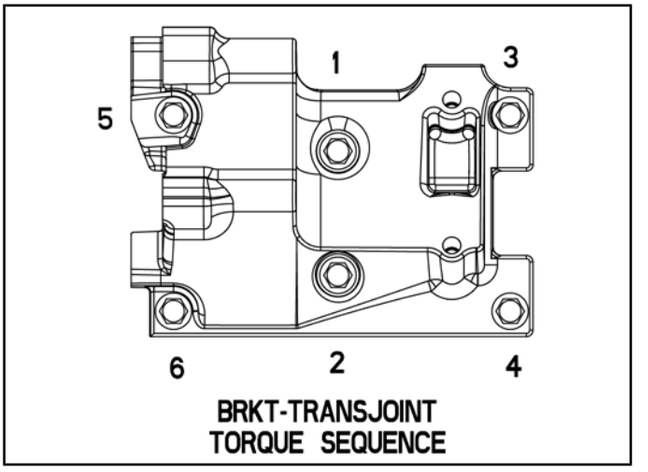


ENGINE INSTALLATION

Use the following procedure to reinstall the engine assembly.

1. Attach engine with suitable lifting straps to an overhead or portable engine hoist.
2. Remove the engine stand adapter plate and install the starter motor back onto engine. Torque starter motor bolts to specification.
3. Install transmission joint bracket onto engine and torque fasteners to specification in sequence.





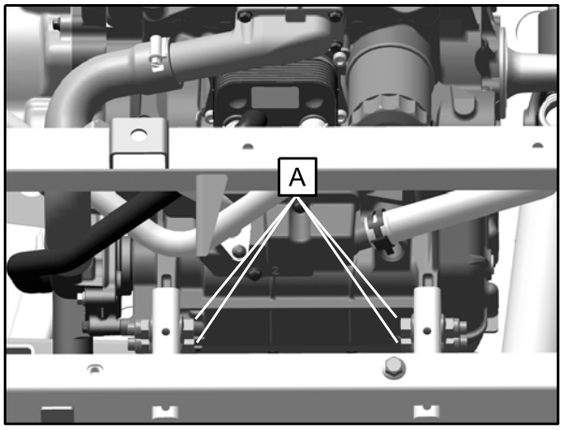
TORQUE
Starter Motor Bolts: **7 lb-ft (10 Nm)** Trans Joint Bracket Bolts: **44 lb-ft (60 Nm)**

4. Use the overhead or portable engine hoist and suitable engine straps to lower the engine into the vehicle frame.

NOTE
Have an assistant help guide the engine in and out of the vehicle while using an engine hoist to prevent personal injury or damage to vehicle components.

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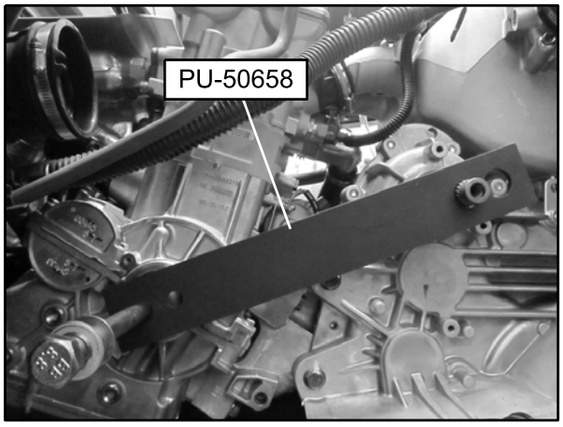
5. Align both the front and rear engine mounting locations. Install the four front engine mounting fasteners (A) and hand tighten.



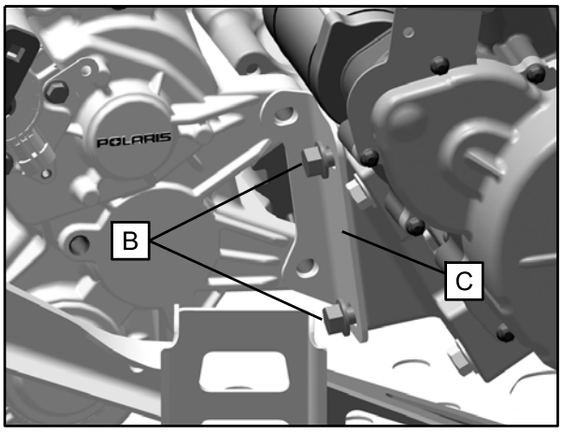
NOTE

DO NOT torque fasteners at this time.

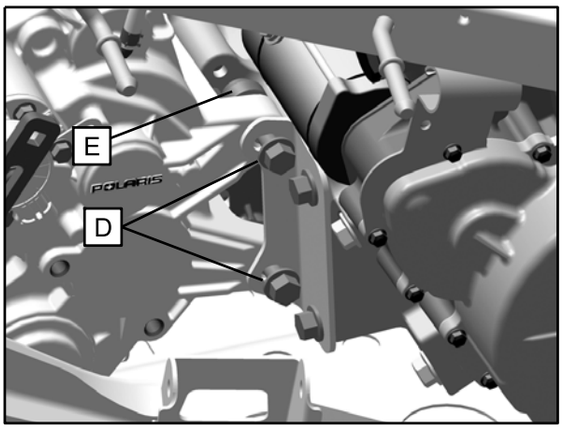
6. Align transmission joint bracket mounting holes with the front transmission mounting holes.
7. Install the Clutch Center Distance Tool (**PU-50658-A**) onto the crankshaft and transmission input shaft using hole pattern 4 to properly position the clutch center distance.



8. Loosen the two bolts (B) retaining the transmission coupler bracket (C) to the engine on the right side.



9. Install NEW two bolts (D) and transmission joint retainer plate (E) on the right side. Hand tighten the bolts so they remain loose at this time.

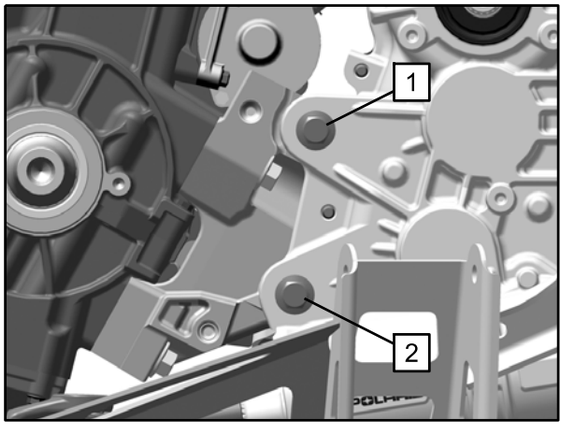


NOTE

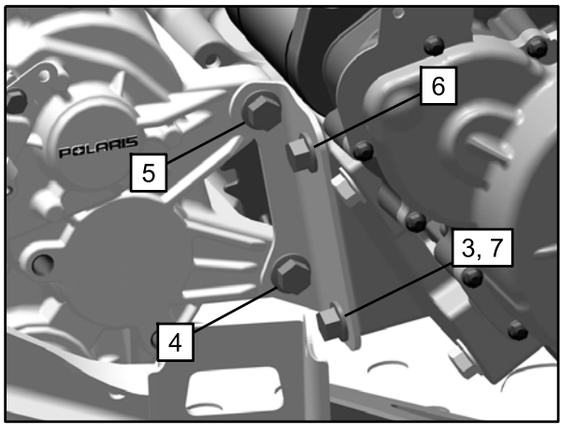
DO NOT torque fasteners at this time.

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10. Install NEW two longer bolts into left side mounting holes. Torque left side mounting bolts to specification using the numbered sequence shown.



11. Torque right side mounting bolts to specification using the numbered sequence shown.

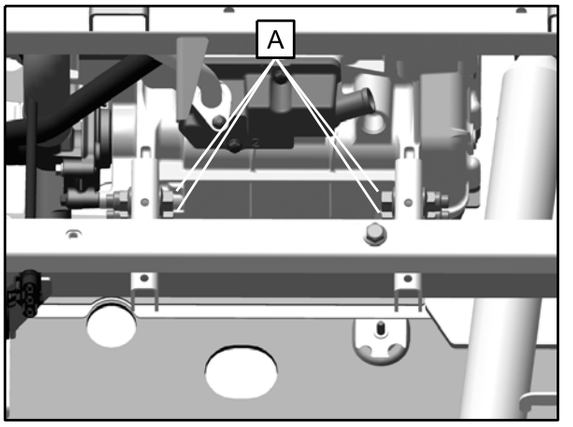


TORQUE

Engine / Transmission Mounting Bolts:
Step 1-2: **64 lb-ft (87 Nm)**
Step 3: **5 lb-ft (7 Nm)**
Step 4-7: **44 lb-ft (60 Nm)**

12. Remove the clutch center distance tool.

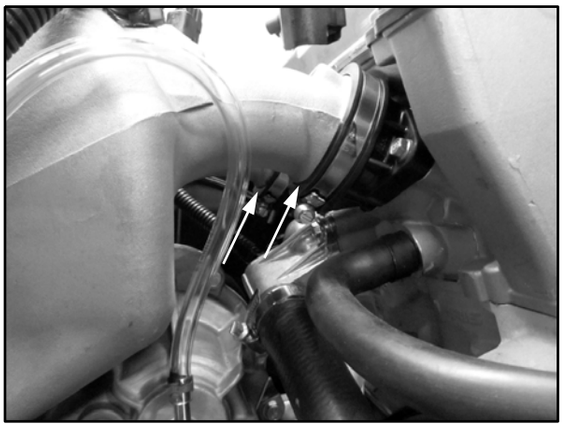
13. Torque the four front engine mount fasteners (A) to specification.



TORQUE

Front Engine Mount Fasteners:
40 lb-ft (54 Nm)

14. Remove the lifting straps and overhead or portable engine hoist.
15. Install the breather hose onto the crankcase at the front of the engine.
16. Install the two coolant hoses onto the engine.
17. Install (+) positive cable to the starter motor and (-) negative cable to the starter motor mounting bolt.
18. Install the intake plenum and throttle body assembly. Place the intake plenum runners into the cylinder head intake adapters.



NOTE

Be sure the intake plenum runners are fully seated in the intake adapters before tightening the hose clamps.

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19. Loosely install the fastener securing the bottom of the intake plenum to the rear transmission mount. Do NOT torque fastener yet.
20. Tighten the hose clamps to specification.

TORQUE
Intake Plenum Hose Clamps: **17 lb-in (2 Nm)**

21. Torque the lower intake plenum fastener to specification.

TORQUE
Lower Intake Plenum Fastener: **22 lb-ft (30 Nm)**

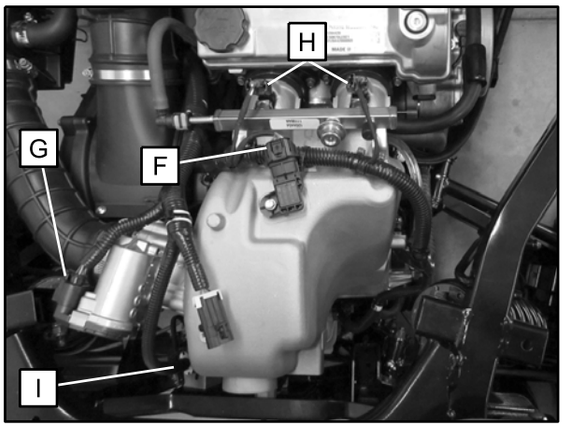
22. Lightly lubricate both fuel injector O-rings and install the fuel injector / fuel rail assembly.

NOTE
Take care not to damage the O-rings upon installation.

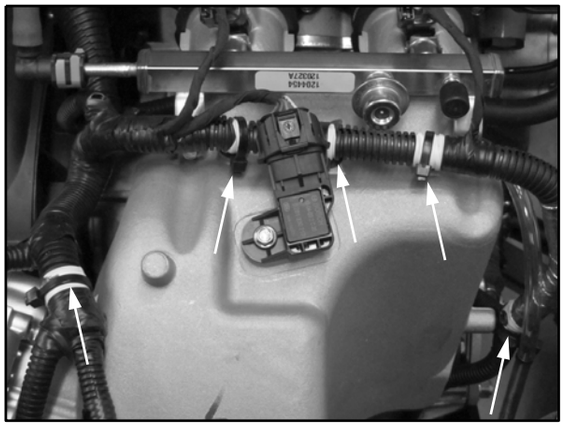
23. Install the two bolts that retain the fuel rail assembly to the intake plenum and torque bolts to specification.

TORQUE
Fuel Rail Mounting Bolts: **7 lb-ft (10 Nm)**

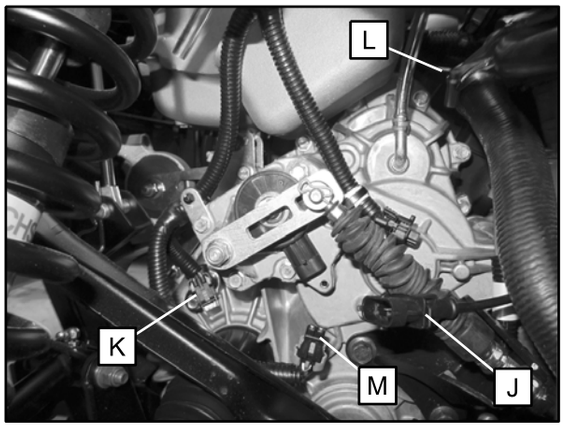
24. Connect the stator harness at the front of the engine.
25. Connect the vehicle harness to the T-MAP sensor (F), ETC (G), fuel injectors (H), rear differential relay and rear differential solenoid (I).



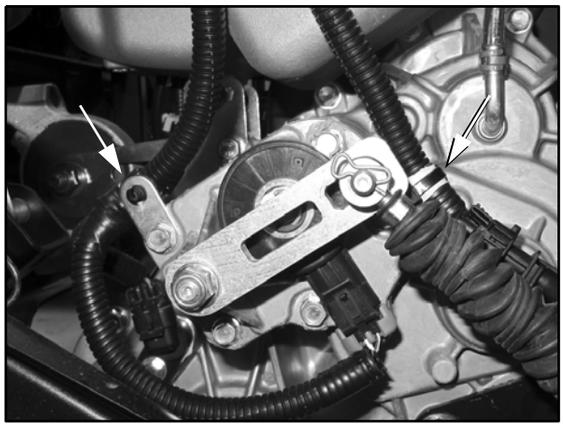
26. Install five new plastic tie straps to retain the harness to the intake plenum.



27. Connect the CPS (J), vehicle speed sensor (K), ECT sensor (L) and transmission switch (M).



28. Install two new plastic tie straps to retain the harness to the transmission.



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29. Install the spark plug wires to the appropriate cylinder by referencing the MAG and PTO spark plug wire decals.

NOTE

Ensure plug wires caps are pushed down all the way so they engage onto the spark plugs.

30. Install the exhaust system. Refer to **"Exhaust Removal / Installation", page 3.176** procedure.
31. Install the PVT inner clutch cover, drive clutch, driven clutch, drive belt and outer clutch cover. Refer to **"PVT Assembly", page 5.11** procedure.
32. Install the rear cargo box assembly. Refer to **"Cargo Box Assembly", page 10.33** procedure.

NOTE

Be sure to connect the tail light harness upon installation.

33. Connect the (-) negative battery cable.
34. Remove the radiator pressure cap and fill the cooling system with properly mixed anti-freeze / coolant.
35. Install a new oil filter. Lubricate the seal with engine oil prior to installation. Refer to **"Engine Oil and Filter Change", page 2.16** procedure.
36. Add approximately 2.5 quarts (3.3 L) of Polaris PS-4 or PS-4 Extreme Duty Synthetic Engine Oil to the engine. Additional oil may be required after complete engine disassembly. Check level after filling and add oil as needed.
37. Follow the **"Cooling System Bleeding Procedure", page 3.182** as outlined in this chapter.
38. Start engine and check for any oil or coolant leaks.
39. Check the engine oil level. Refer to **"Engine Oil Level", page 2.15** procedure.
40. Refer customer to **"Engine Break-In Period", page 3.106** upon returning vehicle to customer.

ENGINE BREAK-IN PERIOD

The break-in period consists of the first 25 hours of operation. Careful treatment of a new engine and drive components will result in more efficient performance and longer life for these components.

⚠ CAUTION

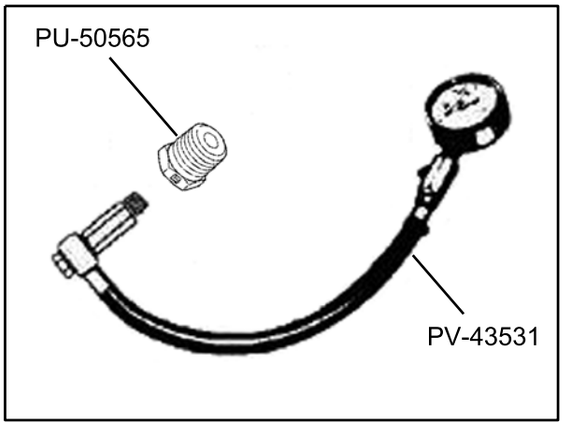
Use only Polaris PS-4 or PS-4 Extreme Duty Synthetic 4-Cycle Engine Oil.Never substitute or mix oil brands. Serious engine damage and voiding of warranty can result. Do not operate at full throttle or high speeds for extended periods during the first three hours of use. Excessive heat can build up and cause damage to close fitted engine parts.

1. Fill fuel tank with unleaded fuel which has a minimum pump octane number of 87 = (R+ M)/2.
2. Check oil level indicated on dipstick. Add oil if necessary. Refer to **"Engine Oil Level", page 2.15** procedure.
3. Drive slowly at first to gradually bring engine up to operating temperature.
4. Vary throttle positions. Do not operate at sustained idle or sustained high speed.
5. Perform regular checks on fluid levels, controls and all important bolt torques.
6. Change oil and oil filter after 25 hour break-in period.

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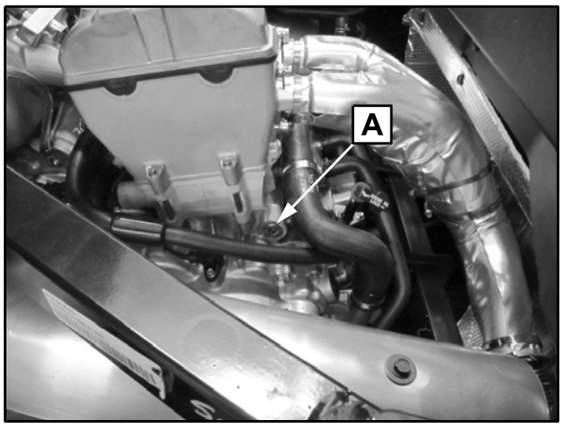
OIL PRESSURE TEST

1. Attach the Oil Pressure Gauge Adapter (**PU-50565**) to the Oil Pressure Gauge (**PV-43531**).



Oil Pressure Gauge Adapter: **PU-50565**
Oil Pressure Gauge: **PV-43531**

2. Tilt the rear cargo box to the raised position.
3. Clean the area around the main oil gallery plug (A), located in the upper crankcase on the MAG side of the engine.
4. Remove the plug (A) and insert the oil pressure adapter.



5. Start engine and allow it to reach operating temperature, monitoring gauge indication.

NOTE

Test results are based on the use of the recommended engine oil (Polaris PS-4 or PS-4 Extreme Duty) at operating temperature, and may vary considerably if any other oil is used or if engine is not up to temperature.

Oil Pressure Specification (Engine Hot):
Minimum @ 1200 RPM: 10 PSI

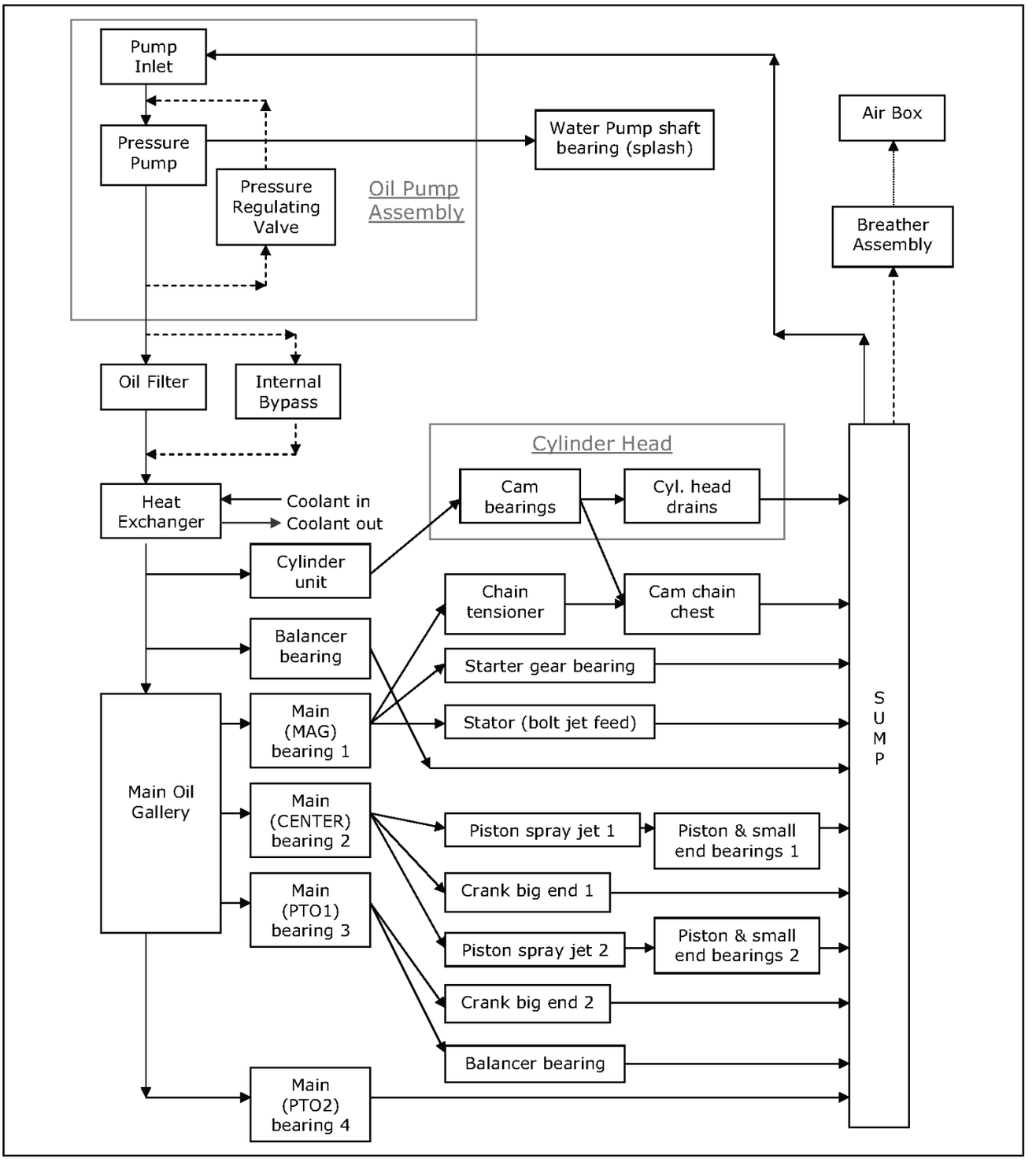
6. Upon assembly, torque the crankcase gallery plug to specification.

TORQUE

Crankcase Gallery Plug:
11 lb-ft (15 Nm)

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ENGINE OIL FLOW CHART



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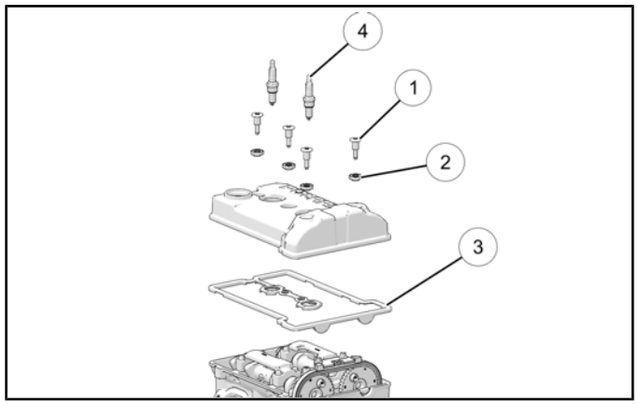
ENGINE DISASSEMBLY / INSPECTION - TOP END (900 / 1000)

VALVE COVER REMOVAL

NOTE

The valve cover can be removed with the engine installed in the chassis.

1. Remove the four valve cover shoulder bolts ① and isolators ② using a T40 driver.



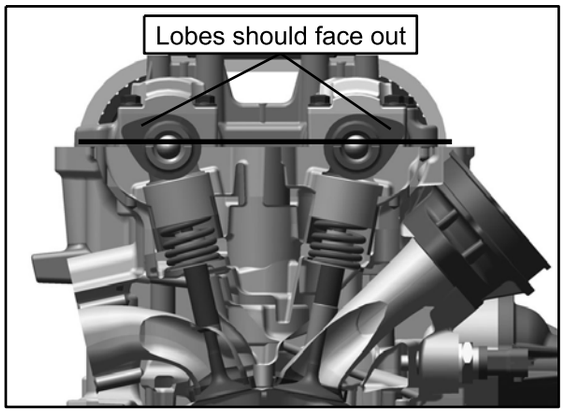
2. Replace isolators ② when they are removed and replace valve cover seal ③ if oil leaks are evident.
3. Remove the spark plugs ④. Stuff spark plug holes with shop towels to prevent anything from falling into the combustion chamber.

CAMSHAFT REMOVAL

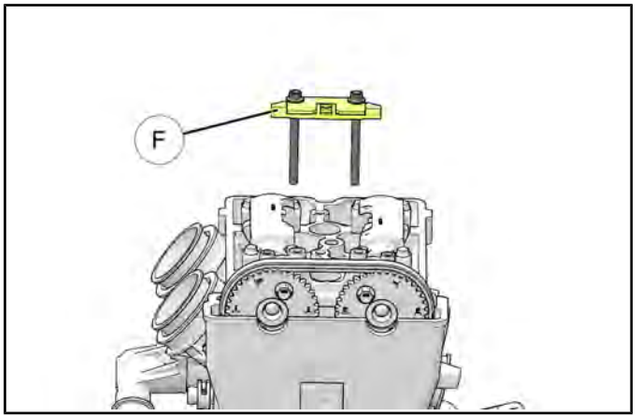
NOTE

The camshafts can be removed with the engine installed in the chassis.

1. Rotate the engine so the PTO cylinder is at Top Dead Center (TDC) to relieve most of the valve spring pressure. The camshaft lobes should face out and the slots on the end of the camshafts should line up.

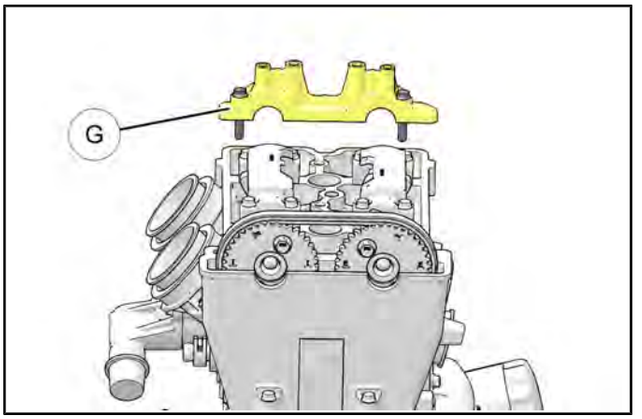


2. Remove the two bolts retaining the fixed cam chain guide (F) and remove the assembly from the engine.

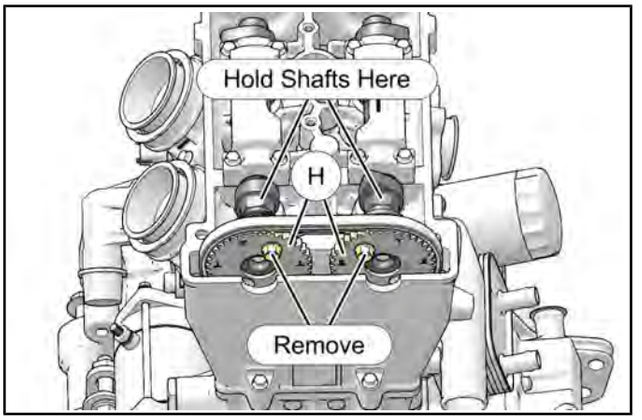


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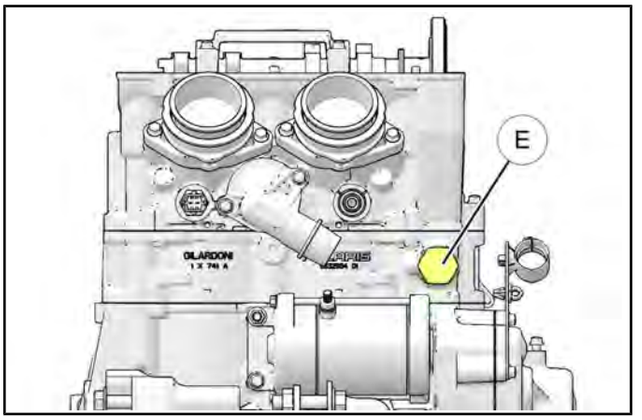
3. Remove the remaining two bolts that retain the front camshaft carrier (G) and carefully lift the carrier off the camshafts.



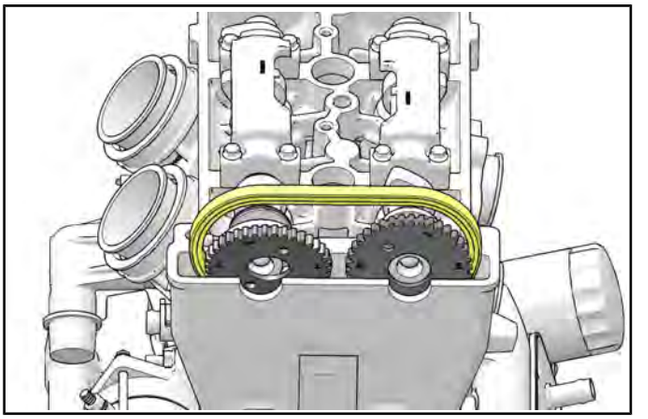
4. Hold camshafts with an open-end wrench, and remove the top bolt from the camshaft sprockets (H).



5. Rotate the engine to allow access to the remaining bolt on each camshaft sprocket.
6. Remove the hydraulic cam chain tensioner (E) from the cylinder. Use a *new* tensioner gasket upon assembly.



7. Remove the remaining bolt from each camshaft sprocket (H)
8. Lift the chain and sprockets off the camshafts to allow each sprocket to be removed.

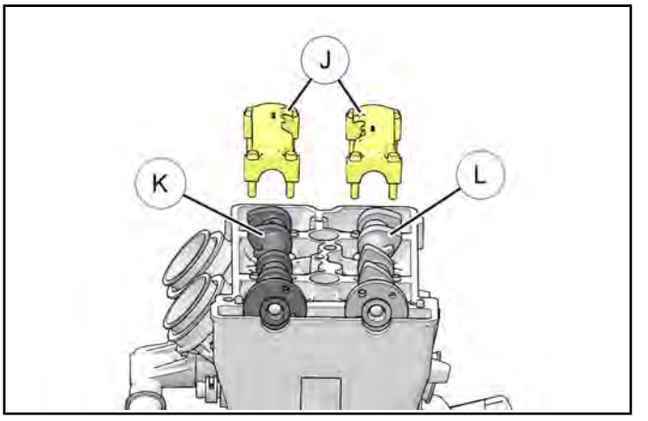


9. Using a paperclip or other tool, hold cam chain up.

NOTE

The crankcase has a built-in lower guide to prevent the chain from falling off the crankshaft.

10. Evenly loosen the four bolts retaining each rear camshaft carrier (J) and carefully lift the carriers off the camshafts.

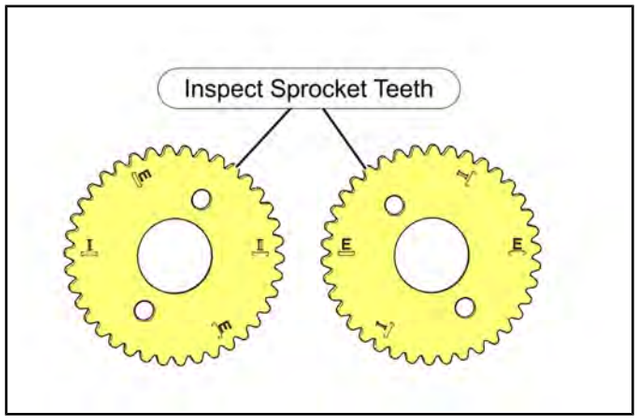


11. Mark the intake (K) and exhaust (L) camshafts to ensure proper assembly.
12. Carefully remove camshafts from the cylinder head.

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CAMSHAFT SPROCKET INSPECTION

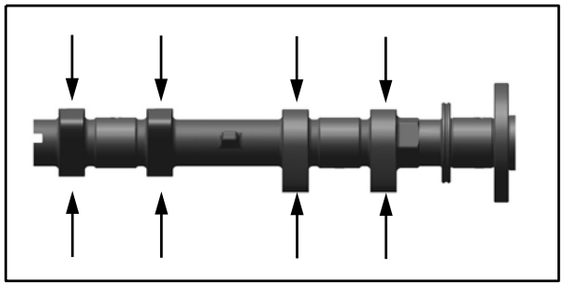
Inspect cam sprocket teeth for wear or damage. Replace timing chain and sprockets if worn or damaged.



CAMSHAFT / CAMSHAFT BORE INSPECTION (900)

Inspect all main journals and cam lobes as described below and compare to specifications. Replace camshaft (s) or cylinder head if worn beyond service limit or if any surface is pitted or damaged.

1. Visually inspect each cam lobe for wear or damage.
2. Measure the height of each cam lobe from the base circle to highest point on the lobe using a micrometer. Compare to specification.



NOTE

Replace camshafts if damaged or if any part is worn past the service limit.

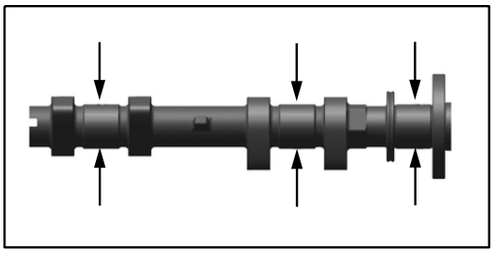
MEASUREMENT

Camshaft Lobe Height:
Intake: **1.5256" ± .0015" (38.75 ± .040 mm)**
Service Limit: **1.5220" (38.66 mm)**
Exhaust: **1.4961" ± .0015" (38.00 ± .040 mm)**
Service Limit: **1.4925" (37.91 mm)**

3. Visually inspect each camshaft journal for scoring, wear or damage.

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4. Measure the diameter of the camshaft journals using a micrometer. Compare to specification.



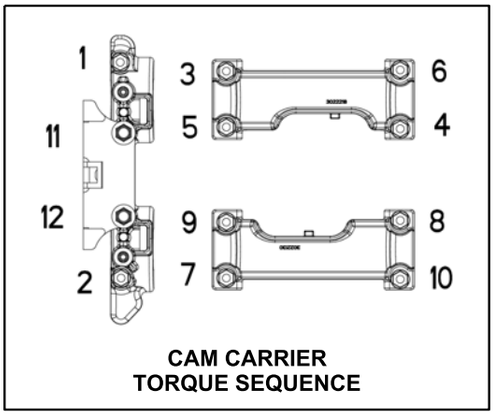
NOTE

Replace camshafts if damaged or if any part is worn past the service limit.

MEASUREMENT

Camshaft Journal O.D.:
0.9035" - 0.9046" (22.949 - 22.978 mm)
Service Limit: **0.9025" (22.923 mm)**

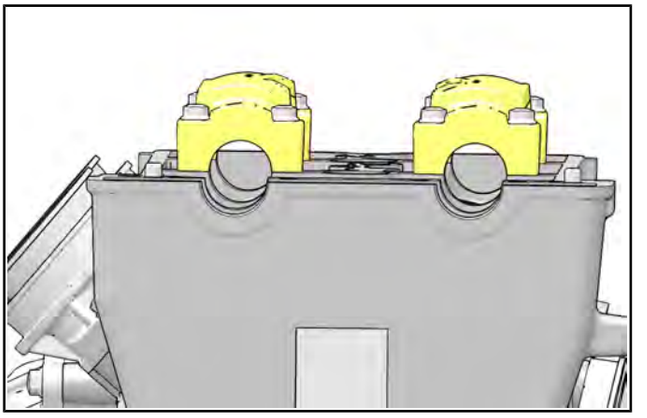
5. Temporarily install the camshaft carriers to measure the camshaft bore. Torque bolts in sequence to specification. Replace cylinder head if worn.



CAM CARRIER TORQUE SEQUENCE

TORQUE

Camshaft Carrier Bolts:
7 lb-ft (10 Nm)



NOTE

Replace cylinder head if camshaft journal bores are damaged or if worn past the service limit.

MEASUREMENT

Camshaft Carrier Bore I.D.:
0.9055" - 0.9063" (23.000 - 23.021 mm)
Service Limit: **0.9072" (23.044 mm)**

6. Calculate oil clearance by subtracting camshaft journal O. D. s from camshaft carrier bore I. D. s. Compare to specification.

MEASUREMENT

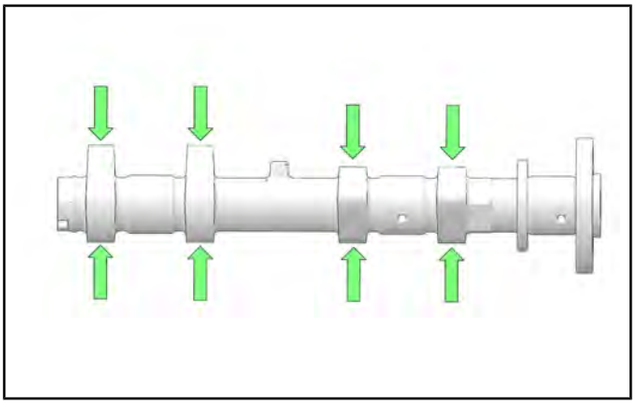
Calculated Camshaft Oil Clearance:
0.0009" - 0.0028" (.022 - .072 mm)
Service Limit: **0.0039" (.10 mm)**

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CAMSHAFT / CAMSHAFT BORE INSPECTION (1000)

Inspect all main journals and cam lobes as described below and compare to specifications. Replace camshaft (s) or cylinder head if worn beyond service limit or if any surface is pitted or damaged.

1. Visually inspect each cam lobe for wear or damage.
2. Measure the height of each cam lobe from the base circle to highest point on the lobe using a micrometer. Compare to specification.



NOTE

Replace camshafts if damaged or if any part is worn past the service limit.

MEASUREMENT

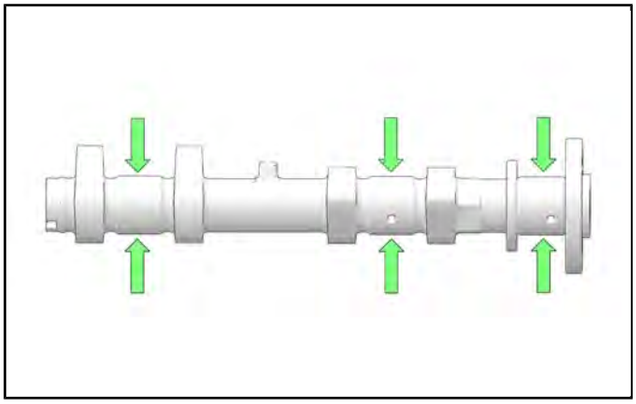
Camshaft Lobe Height:
Intake:
1.5390 - 1.5429" (39.09 - 39.19 mm)

Service Limit:
1.5370" (39.04 mm)

Exhaust:
1.5142 - 1.5181" (38.46 - 38.56 mm)

Service Limit:
1.5122" (38.41 mm)

3. Visually inspect each camshaft journal for scoring, wear or damage.
4. Measure the diameter of the camshaft journals using a micrometer. Compare to specification.



NOTE

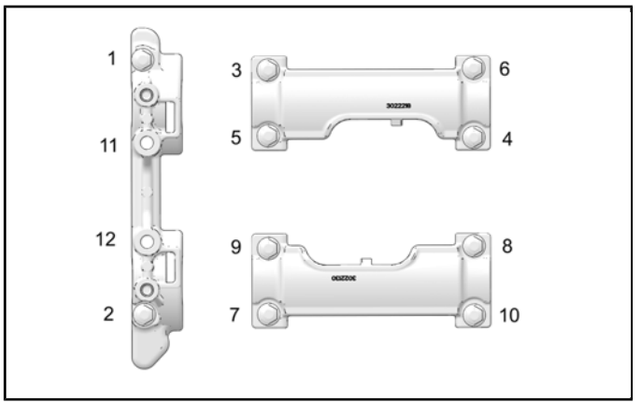
Replace camshafts if damaged or if any part is worn past the service limit.

MEASUREMENT

Camshaft Journal O.D.:
.9036 - .9055" (22.954 - 22.999 mm)

Service Limit:
.9033" (22.944 mm)

5. Temporarily install the camshaft carriers to measure the camshaft bore. Torque bolts in sequence to specification. Replace cylinder head if worn.

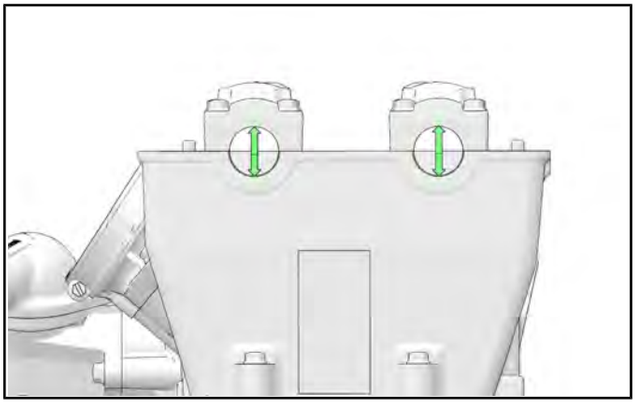


TORQUE

Camshaft Carrier Bolts:
7 ft-lb (10 Nm)

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6. Measure camshaft bore and compare to specifications.



NOTE

Replace cylinder head if camshaft journal bores are damaged or if worn past the service limit.

MEASUREMENT

Camshaft Carrier Bore I.D.:
.9055 - .9063" (23.000 - 23.021 mm)

Service Limit:
.9072" (23.044 mm)

7. Calculate oil clearance by subtracting camshaft journal O. D. s from camshaft carrier bore I. D. s. Compare to specification.

MEASUREMENT

Calculated Camshaft Oil Clearance:
.0000 - .0026" (0.001 - 0.067 mm)

Service Limit:
.0039" (0.1 mm)

CYLINDER HEAD REMOVAL

NOTE

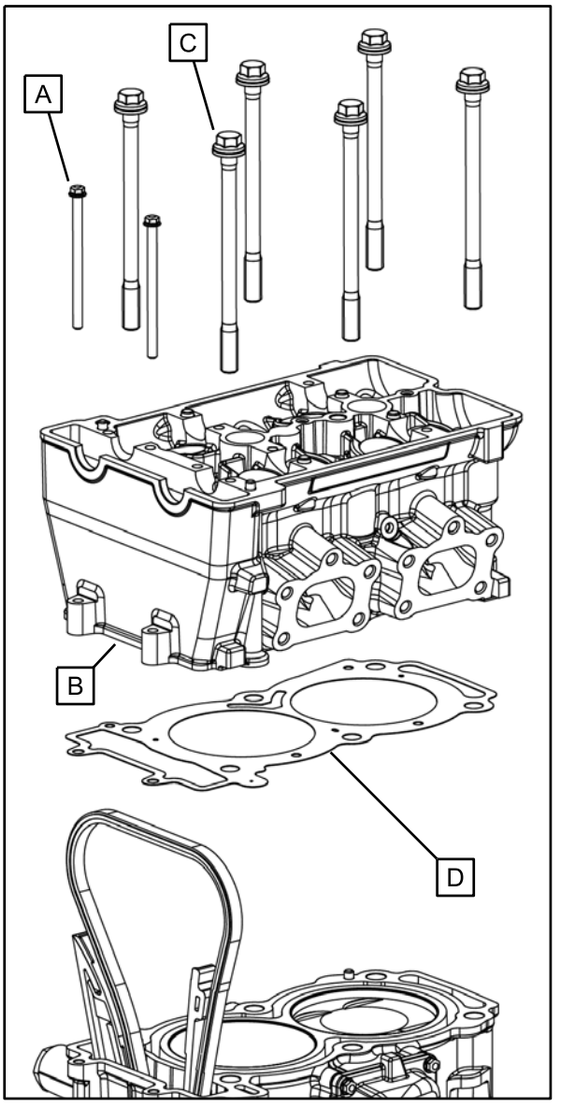
The cylinder head can be serviced with the engine installed in the chassis.

1. Disconnect coolant hose from thermostat housing if connected.
2. Remove the two outer M6 bolts (A) that retain the cylinder head (B) to the cylinder.
3. Loosen the six cylinder head bolts (C) evenly 1/8 turn at a time until all are loose.
4. Remove and discard the cylinder head bolts (C).
5. Tap cylinder head lightly with a soft faced hammer until loose.

NOTE

Tap only in reinforced areas or on thick parts of the cylinder head casting.

6. Remove the cylinder head (B) and head gasket (D).



NOTE

Once the cylinder head is removed, nothing retains the cylinder to the engine. DO NOT rotate the engine without using the Cylinder Holding & Camshaft Timing Plate (**PU-50563**). Refer to **"Cylinder / Piston Removal", page 3.133** procedure.

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CYLINDER HEAD INSPECTION

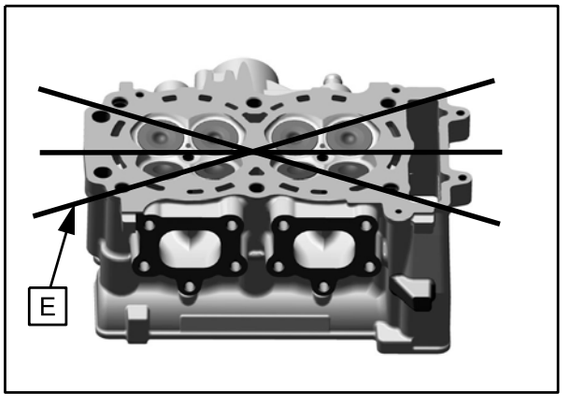
Thoroughly clean cylinder head surface to remove all traces of gasket material and carbon.

⚠ CAUTION

Use care not to damage gasket sealing surface. All gasket surfaces must be clean, dry and free of any oil or grease upon assembly. Clean sealing surfaces with rubbing alcohol or electrical contact cleaner. Do not touch sealing surfaces of the new head gasket.

CYLINDER HEAD WARP INSPECTION

1. Lay a straight edge (E) across the surface of the cylinder head at several different points and measure warp by inserting a feeler gauge between the straight edge and the cylinder head surface. If warp exceeds the service limit, replace the cylinder head.



MEASUREMENT

Cylinder Head Warp Limit: **.0039" (0.10 mm)**

CYLINDER HEAD DISASSEMBLY

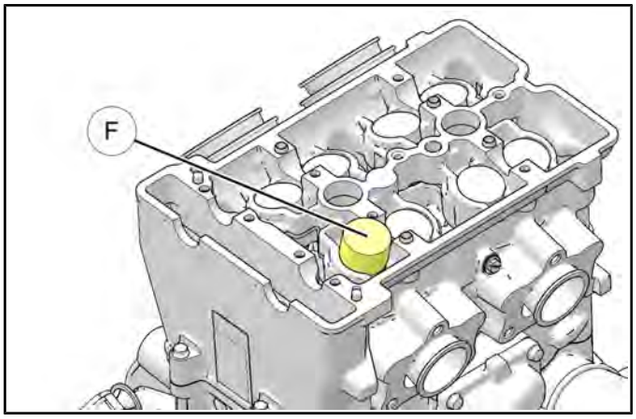
⚠ WARNING

Wear eye protection during cylinder head disassembly and reassembly or when working with the valve springs.

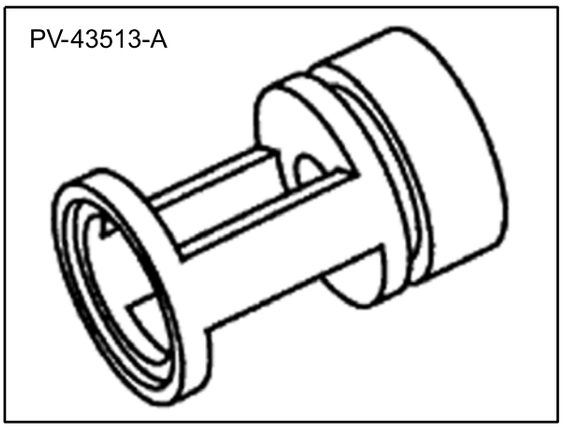
NOTE

Keep mated parts together and in order with respect to their location in the cylinder head for assembly purposes. It is important to install cylinder head components back in the same location. Mark each component or place them in an organized rack as you remove them.

1. Remove the valve tappet (F) from the cylinder head.

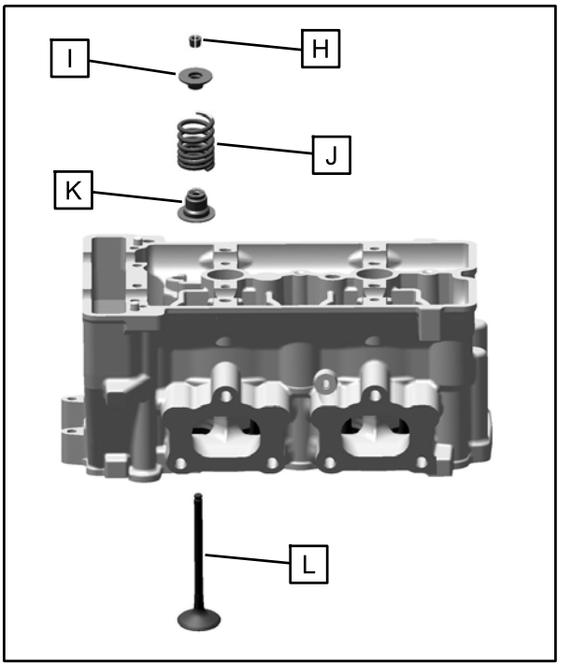


2. Compress the valve spring by hand using valve spring compressor adapter (**PV-43513-A**).



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3. Push down on spring and remove split keepers (H).

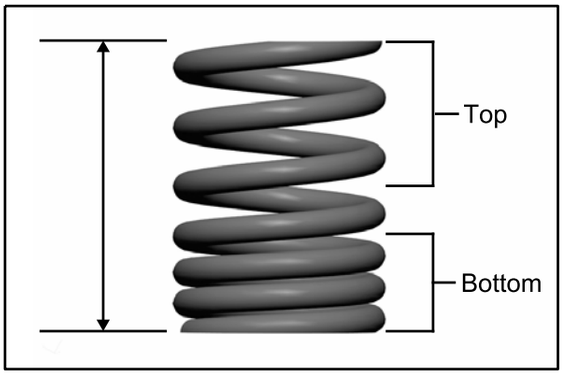


4. Slowly release valve spring pressure and remove the compressor adapter.
5. Remove the valve retainer (I), valve spring (J) and the valve stem seal / seat (K). Discard the valve seal.

NOTE

Replace valve seals whenever cylinder head is disassembled. Hardened, cracked or worn seals will cause excessive oil consumption.

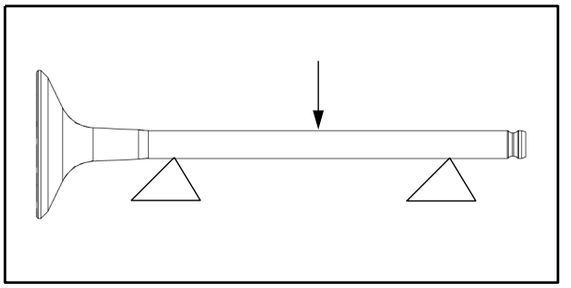
6. Lift up the cylinder head and push the valve (L) out, keeping it in order for reassembly in the same valve guide.
7. Repeat the previous steps to remove the remaining valves.
8. Clean the combustion chamber and head gasket surface.
9. Measure the free length of each valve spring with a Vernier caliper and compare to specification.



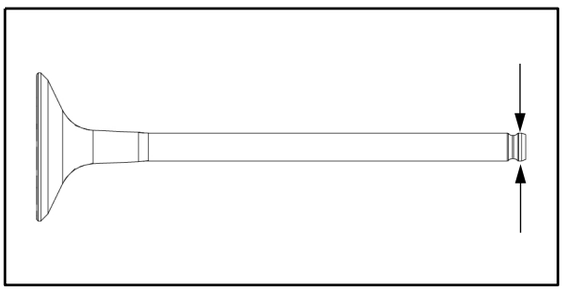
MEASUREMENT
Valve Spring Free Length: Standard: **1.7213" (43.72 mm)** Service Limit: **1.6830" (42.75 mm)**

VALVE INSPECTION

1. Remove all carbon from valves with a soft wire wheel or brush.
2. Check valve face for runout, pitting, and burnt spots. To check for bent valve stems, mount valve in a drill or use “V” blocks and a dial indicator.



3. Check the end of the valve stem for flaring, pitting, wear or damage.



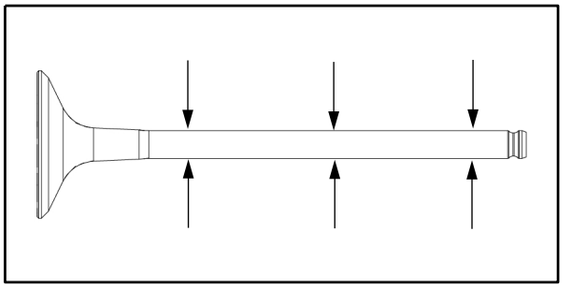
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4. Inspect split keeper groove for wear or flaring in the keeper seat area.

NOTE

The valves can be re-faced or end ground, if necessary. They must be replaced if extensively worn, burnt, bent or damaged.

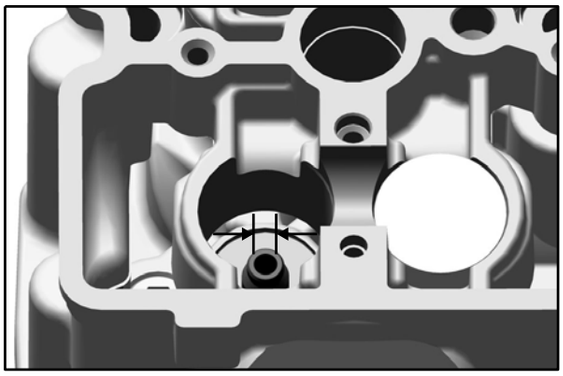
5. Measure diameter of valve stem with a micrometer in three places, then rotate 90° and measure again (take six measurements total). Compare to specifications.



MEASUREMENT

Valve Stem Diameter:
Intake: **0.2155" - 0.2161" (5.475 - 5.490 mm)**
Exhaust: **0.2147" - 0.2153" (5.455 - 5.470 mm)**

6. Measure valve guide inside diameter at the top, middle and end of the guide using a small hole gauge and a micrometer. Measure in two directions.



MEASUREMENT

Valve Guide I.D.:
0.2165" - 0.2171" (5.500 - 5.515 mm)

7. Be sure to measure each guide and valve combination individually.

NOTE

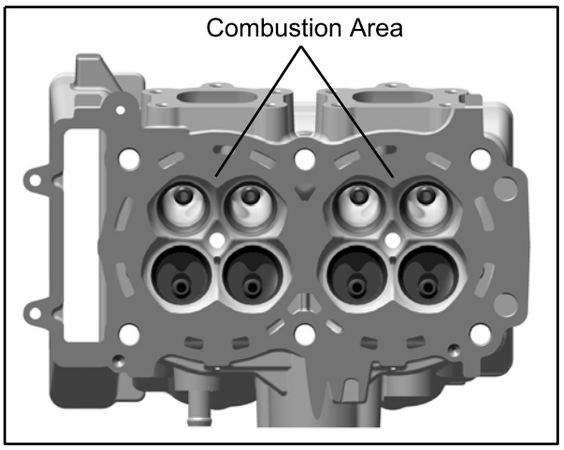
The valve guides cannot be replaced.

COMBUSTION CHAMBER CLEANING

WARNING

Wear eye protection during combustion chamber cleaning.

1. Clean all accumulated carbon deposits from combustion chambers and valve seat area.



NOTE

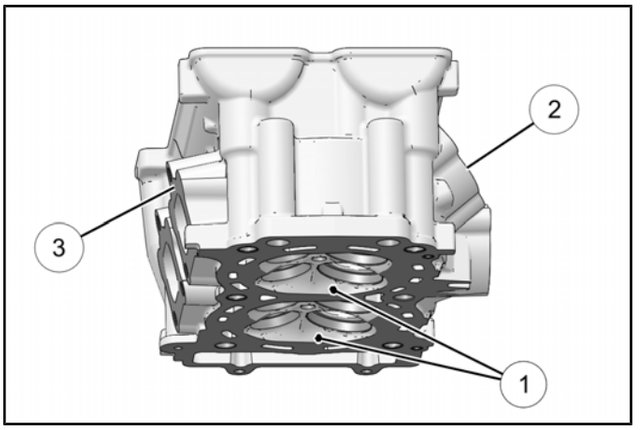
Carbon Clean Fuel Treatment (2871326) can be used to help remove carbon deposits.
Do not use a metal scraper, a coarse wire brush or abrasive cleaners to clean the cylinder head. Damage may result.

2. Visually inspect cylinder head gasket surface and combustion chamber for cracks or damage. Pay close attention to areas around spark plug and valve seats.

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VALVE SEALING TEST

1. Clean and dry the combustion chamber area ①.
2. Pour a small amount of clean solvent into each intake port ② and check for leakage around the valves. The valve seats should hold fluid with no seepage.



3. Repeat for exhaust valves by pouring fluid into each exhaust port ③.

VALVE SEAT RECONDITIONING (900)

Valve seat reconditioning should be performed by a technician proficient in cylinder head reconditioning techniques. Reconditioning techniques vary, so follow the instructions provided by the valve reconditioning equipment manufacturer. Do not grind seats more than necessary to provide proper seat surface, width, and contact point on valve face.

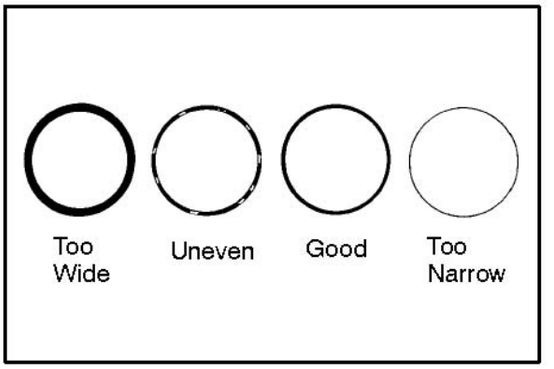
⚠ WARNING

Wear eye protection or a face shield during cylinder head disassembly and reassembly.

Valve Seat Inspection

Inspect valve seat in cylinder head for pitting, burnt spots, roughness, and uneven surface. If any of the above conditions exist, the valve seat must be reconditioned. *If the valve seat is cracked the cylinder head must be replaced.*

Valve seat width and point of contact on the valve face is very important for proper sealing. The valve must contact the valve seat over the entire circumference of the seat, and the seat must be the proper width all the way around. If seat is uneven, compression leakage will result. If seat is too wide, seat pressure is reduced, causing carbon accumulation and possible compression loss. If seat is too narrow, heat transfer from valve to seat is reduced. The valve may overheat and warp, resulting in burnt valves.



Renewing Valve Seats

1. Install pilot into valve guide.
2. Apply cutting oil to valve seat and cutter.
3. Place 46° cutter on the pilot and make a light cut.

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4. Inspect the cut area of the seat:

   * If the contact area is less than 75% of the circumference of the seat, rotate the pilot 180° and make another light cut.

   * If the cutter now contacts the uncut portion of the seat, check the pilot. Look for burrs, nicks, or runout. If the pilot is bent it must be replaced.

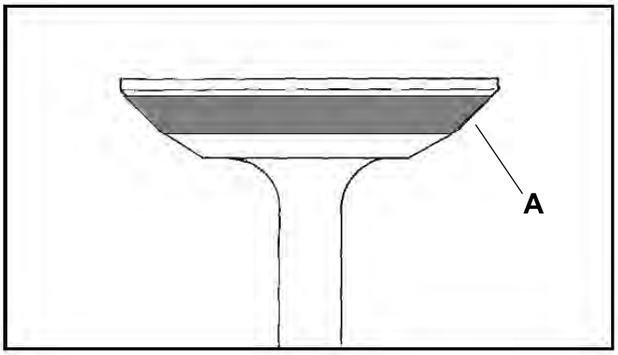
   * If the contact area of the cutter is in the same place, the valve guide is distorted from improper installation.

   * If the contact area of the initial cut is greater than 75%, continue to cut the seat until all pits are removed and a new seat surface is evident.

NOTE

Remove only the amount of material necessary to repair the seat surface.

5. To check contact area of the seat on the valve face, apply a thin coating of Prussian Blue paste to the valve seat. If using an interference angle (46°) apply black permanent marker to the entire valve face (A).



6. Insert valve into guide and tap valve lightly into place a few times.

7. Remove valve and check where the Prussian Blue indicates seat contact on the valve face. The valve seat should contact the middle of the valve face or slightly above, and must be the proper width.

   * If the indicated seat contact is at the top edge of the valve face and contacts the margin area (B) it is too high on the valve face. Use the 30° cutter to lower the valve seat.

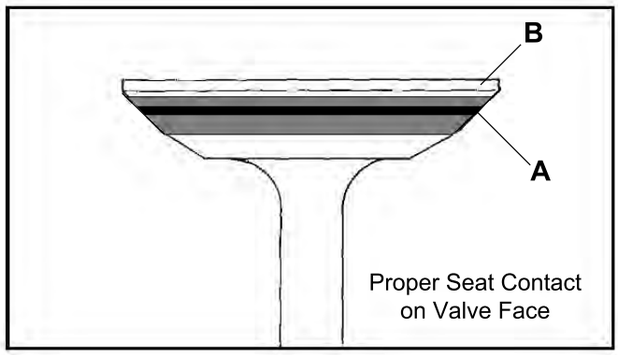
   * If too low, use the 60° cutter to raise the seat. When contact area is centered on the valve face, measure seat width.

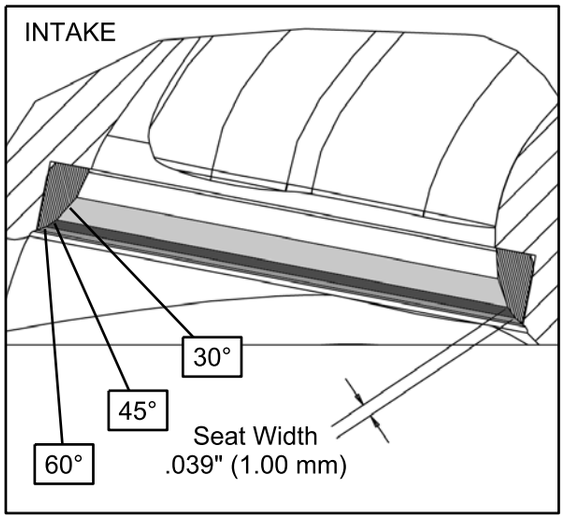
   * If the seat is too wide or uneven, use both top and bottom cutters to narrow the seat.

   * If the seat is too narrow, widen using the 45° cutter and re-check contact point on the valve face and seat width after each cut.

NOTE

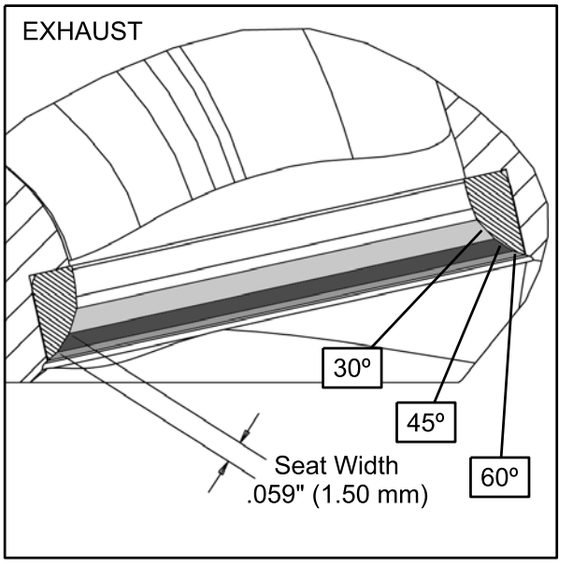
When using an interference angle, the seat contact point on the valve will be very narrow, and is a normal condition. Look for an even and continuous contact point all the way around the valve face (A).





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MEASUREMENT
Intake Seat Cutter Diameter: **1.457 in. (37.00 mm)**



MEASUREMENT
Exhaust Seat Cutter Diameter: **1.260 in. (32.00 mm)**

MEASUREMENT
Valve Seat Width: Intake: **0.039" (1.00 mm)** Service Limit: **0.055" (1.4 mm)** Exhaust: **0.059" (1.50 mm)** Service Limit: **0.075" (1.9 mm)**

8. Clean all filings from the area with hot soapy water. Rinse and dry with compressed air.
9. Lubricate valve guides with clean engine oil and apply oil or water based lapping compound to the face of the valve.

NOTE
Lapping is not required if an interference angle reconditioning method is used.

10. Insert the valve into its respective guide and lap using a lapping tool or a section of fuel line connected to the valve stem.
11. Rotate the valve rapidly back and forth until the cut sounds smooth. Lift the valve slightly off of the seat, rotate 1/4 turn, and repeat the lapping process. Do this four to five times until the valve is fully seated, and repeat process for the other valve(s).
12. Thoroughly clean cylinder head and valves.

VALVE SEAT RECONDITIONING (1000)

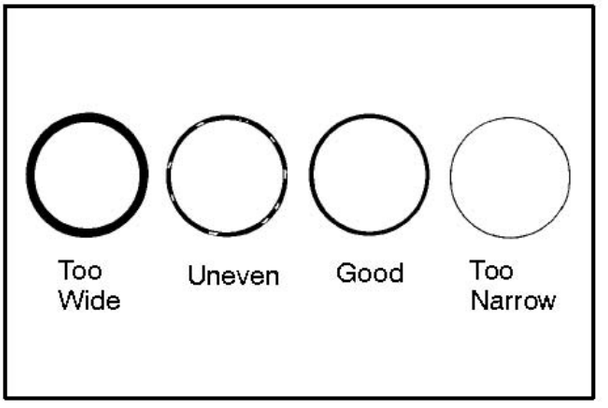
Valve seat reconditioning should be performed by a technician proficient in cylinder head reconditioning techniques. Reconditioning techniques vary, so follow the instructions provided by the valve reconditioning equipment manufacturer. Do not grind seats more than necessary to provide proper seat surface, width, and contact point on valve face.

⚠ WARNING
Wear eye protection or a face shield during cylinder head disassembly and reassembly.

Valve Seat Inspection

Inspect valve seat in cylinder head for pitting, burnt spots, roughness, and uneven surface. If any of the above conditions exist, the valve seat must be reconditioned. *If the valve seat is cracked the cylinder head must be replaced.*

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Renewing Valve Seats

1. Install pilot into valve guide.

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2. Apply cutting oil to valve seat and cutter.
3. Place 46° cutter on the pilot and make a light cut.
4. Inspect the cut area of the seat:

   * If the contact area is less than 75% of the circumference of the seat, rotate the pilot 180° and make another light cut.

   * If the cutter now contacts the uncut portion of the seat, check the pilot. Look for burrs, nicks, or runout. If the pilot is bent it must be replaced.

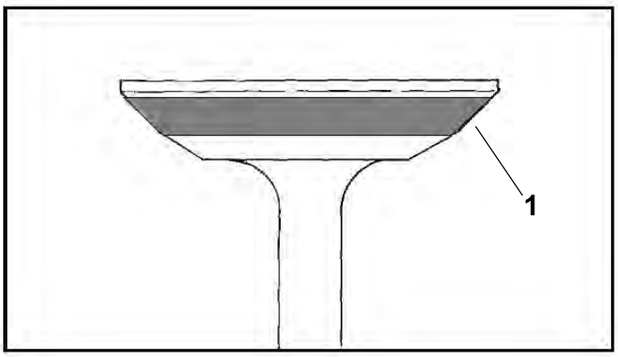
   * If the contact area of the cutter is in the same place, the valve guide is distorted from improper installation.

   * If the contact area of the initial cut is greater than 75%, continue to cut the seat until all pits are removed and a new seat surface is evident.

NOTE

Remove only the amount of material necessary to repair the seat surface.

5. To check contact area of the seat on the valve face, apply a thin coating of Prussian Blue™ paste to the valve seat. If using an interference angle (46°) apply black permanent marker to the entire valve face ①.



6. Insert valve into guide and tap valve lightly into place a few times.
7. Remove valve and check where the Prussian Blue™ indicates seat contact on the valve face. The valve seat should contact the middle of the valve face or slightly above, and must be the proper width.

   * If the indicated seat contact is at the top edge of the valve face and contacts the margin area ② it is too high on the valve face. Use the 30° cutter to lower the valve seat.

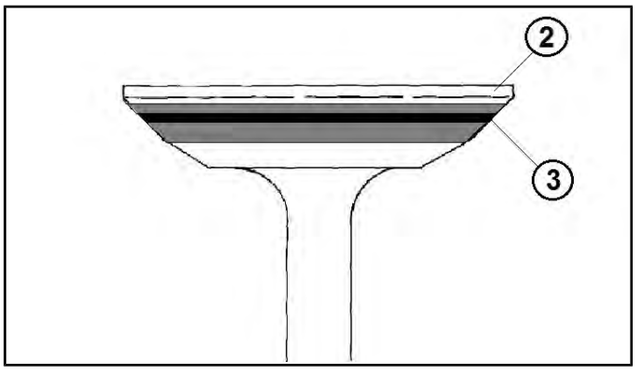
   * If too low, use the 60° cutter to raise the seat. When contact area is centered on the valve face, measure seat width.

   * If the seat is too wide or uneven, use both top and bottom cutters to narrow the seat.

   * If the seat is too narrow, widen using the 45° cutter and re-check contact point on the valve face and seat width after each cut.

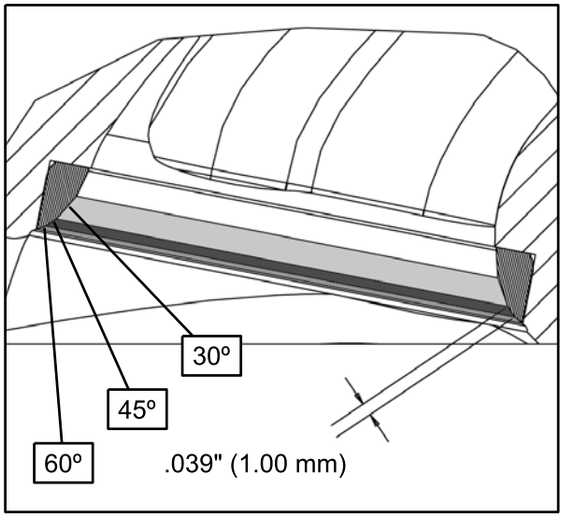
NOTE

When using an interference angle, the seat contact point on the valve will be very narrow, and is a normal condition. Look for an even and continuous contact point all the way around the valve face ③.

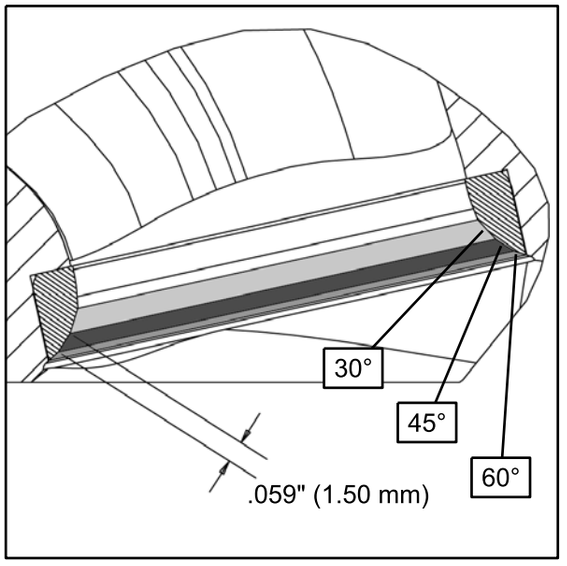


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Intake Seat Cutter Diameter: 1.567″ (39.80 mm)



Exhaust Seat Cutter Diameter: 1.364″ (34.65 mm)



MEASUREMENT

Valve Seat Width:
Intake:
.0393 ± .0039" (1.0 ± 0.10 mm)

Service Limit:
.0551" (1.4 mm)

Exhaust:
.0590 ± .0039" (1.5 ± 0.10 mm)

Service Limit:
.0748" (1.9 mm)

8. Clean all filings from the area with hot soapy water. Rinse and dry with compressed air.
9. Lubricate valve guides with clean engine oil and apply oil or water based lapping compound to the face of the valve.

NOTE

Lapping is not required if an interference angle reconditioning method is used.

10. Insert the valve into its respective guide and lap using a lapping tool or a section of fuel line connected to the valve stem.
11. Rotate the valve rapidly back and forth until the cut sounds smooth. Lift the valve slightly off of the seat, rotate 1/4 turn, and repeat the lapping process. Do this four to five times until the valve is fully seated, and repeat process for the other valve(s).
12. Thoroughly clean cylinder head and valves.

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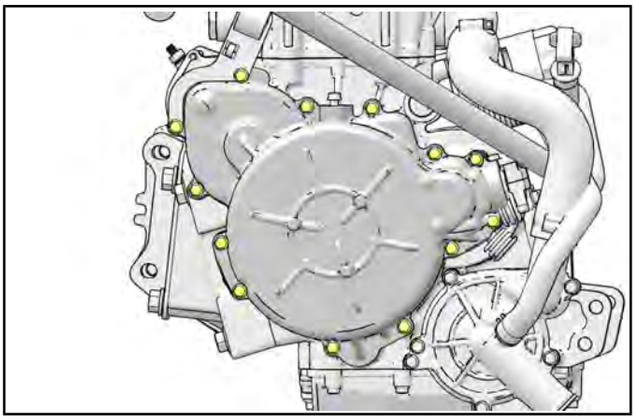
ENGINE DISASSEMBLY / INSPECTION - LOWER END (900 / 1000)

STATOR COVER REMOVAL / INSPECTION

NOTE

The stator cover can be removed with the engine installed in the chassis.

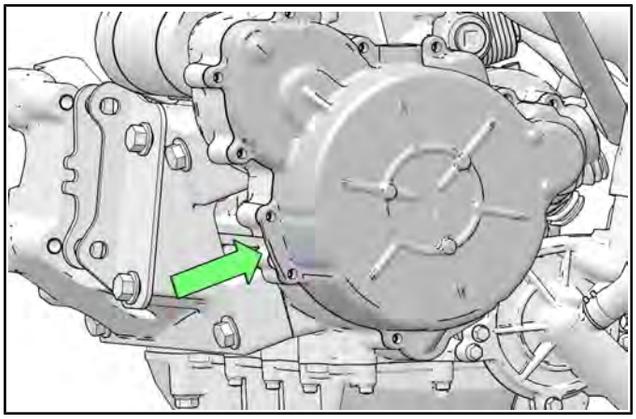
1. Remove the thirteen screws retaining the stator cover.

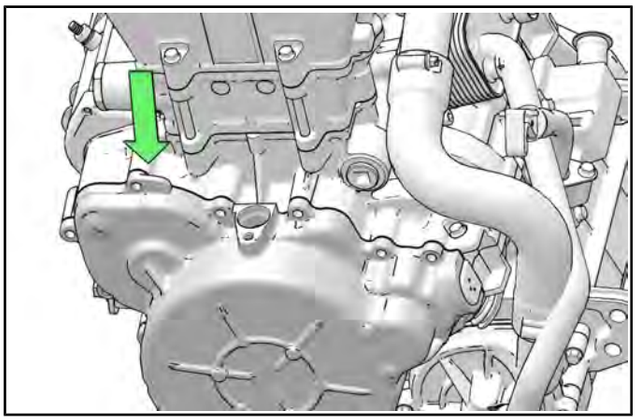


CAUTION

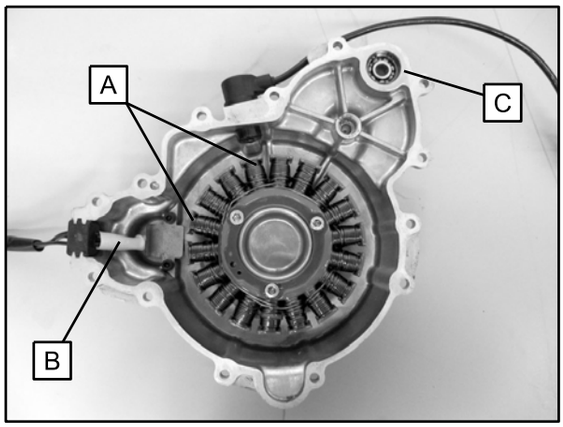
The flywheel contains powerful magnets. Use caution when removing and installing the stator cover. DO NOT place fingers between cover and crankcase at any time during the removal / installation process or injury could result.

2. Carefully pry the stator cover off the engine using the two pry areas as shown below.





3. Inspect the condition of the stator windings (A) and output wires (B). Replace if necessary.



4. Inspect the ball bearing (C) that supports the starter motor shaft.

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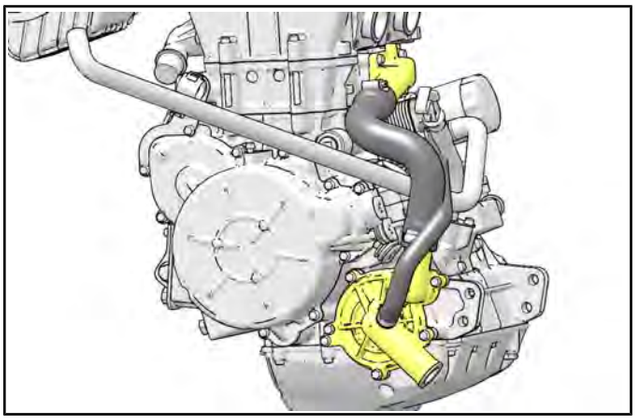
5. If bearing replacement is required, remove the retaining ring and heat the stator cover around the bearing evenly with a heat gun. Tap cover on a soft work surface to remove the bearing from the housing. A blind bearing puller can also be used. Replace bearing if removed.

WATER PUMP HOUSING REMOVAL

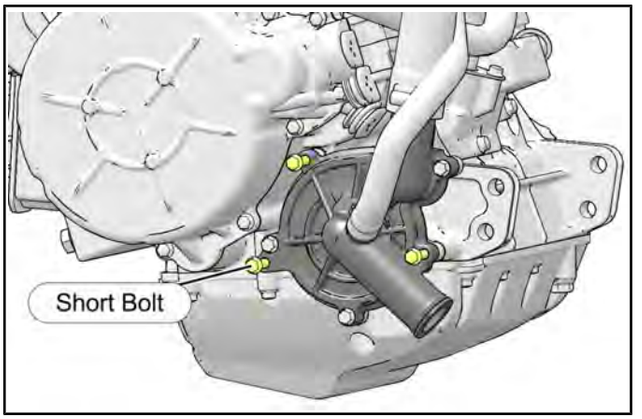
NOTE

The water pump housing can be serviced with the engine installed in the chassis. Refer to **"Water Pump Service", page 3.185** procedure.

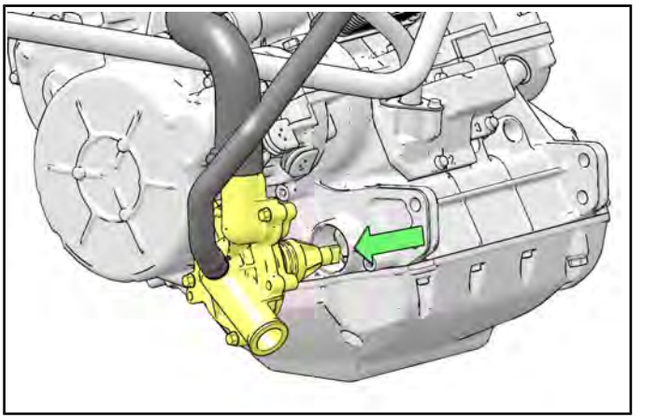
1. Remove the coolant lines from the thermostat housing, cylinder inlet and oil cooler. Leave them all attached to the water pump housing.



2. Remove the three gold colored bolts retaining the water pump housing to the engine. Note the location of the shorter bolt.



3. Remove the water pump assembly from the engine by using a twisting motion as you pull out on the housing.



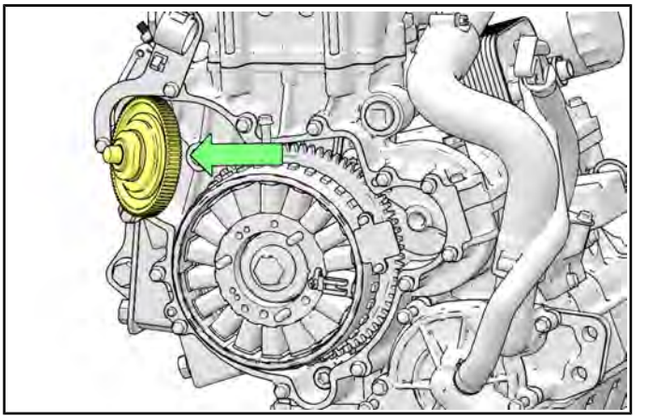
4. If water pump service is required (impeller or mechanical seal), refer to "ENGINE COOLING SYSTEM".

FLYWHEEL REMOVAL

NOTE

The flywheel can be serviced with the engine installed in the chassis.

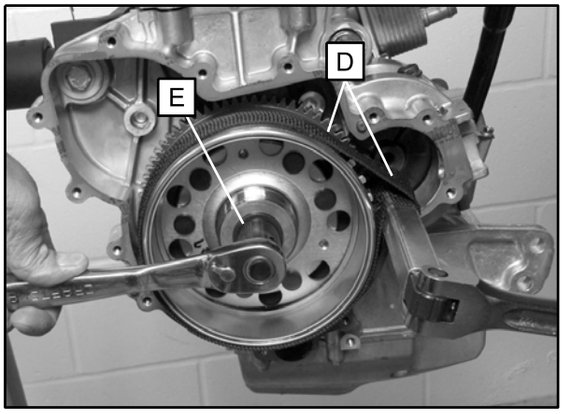
1. Remove the stator cover assembly.
2. Remove the starter torque limit gear as an assembly.



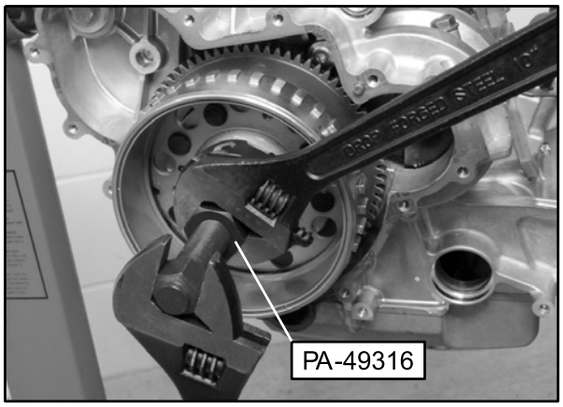
3. Inspect gear teeth for damage. Inspect fit of shaft inside gear and replace gear assembly is clearance is excessive. Inspect the shaft and bearing surfaces in the crankcase and stator cover for excessive wear.

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4. Using a commercially available strap wrench (D), hold the flywheel and remove the flywheel retaining bolt (E).



5. Fully install Flywheel Puller (**PA-49316**) on the threads of the flywheel (left hand thread - turn flywheel puller counterclockwise to install).
6. Hold puller body and tighten the center bolt to remove the flywheel.

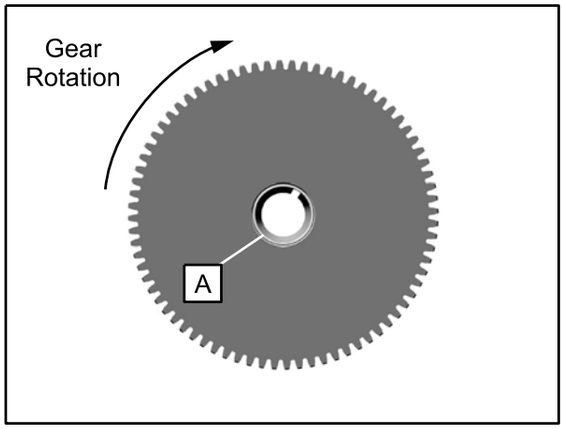


Starter One-Way Clutch Inspection

NOTE

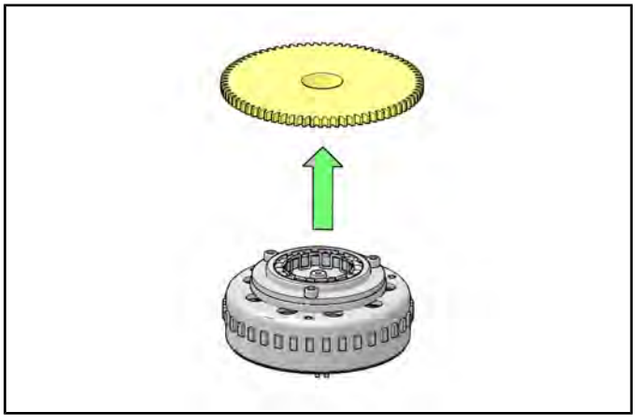
The starter one-way clutch can be serviced with the engine installed in the chassis.

7. Remove the stator cover and flywheel. Refer to **"Stator Cover Removal / Inspection", page 3.123** and **"Flywheel Removal", page 3.124** procedures.
8. Place flywheel on a work bench with the one-way clutch facing up. Grasp clutch gear and rotate clockwise. It should turn smoothly without binding.
9. Rotate one-way gear counterclockwise. The gear should immediately lock in position and not slip.
10. Inspect the one-way gear bushing (A) for wear or galling. If service is required, refer to **"Starter One-Way Clutch Disassembly", page 3.125** procedure.

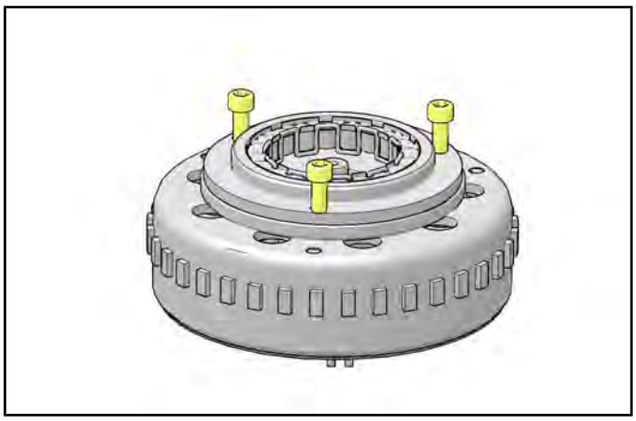


STARTER ONE-WAY CLUTCH DISASSEMBLY

1. Lift up to remove starter one-way gear.

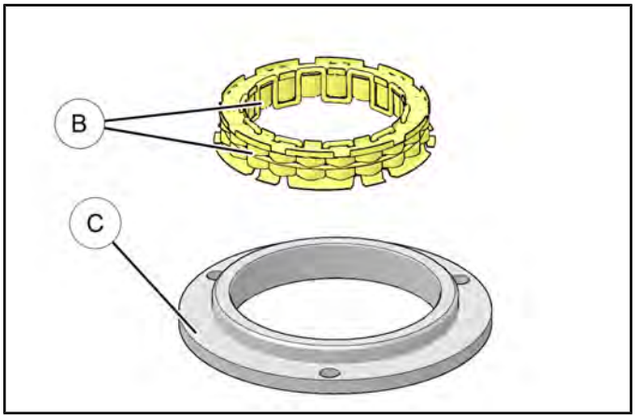


2. Remove the three one-way clutch retaining screws.

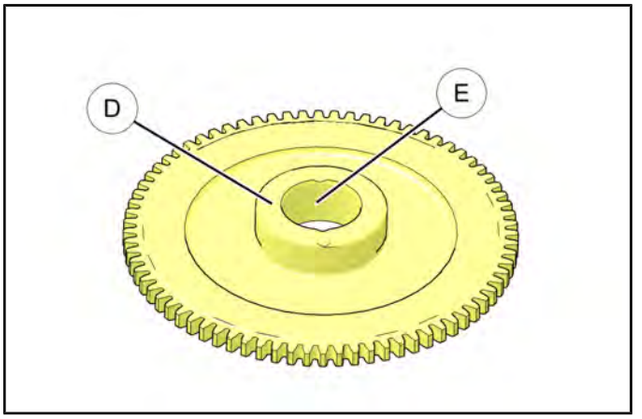


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3. Remove the one-way clutch and inspect both sides of drive rollers (B). Inspect the roller contact surface (C) inside the hub for wear, damage or uneven surface.

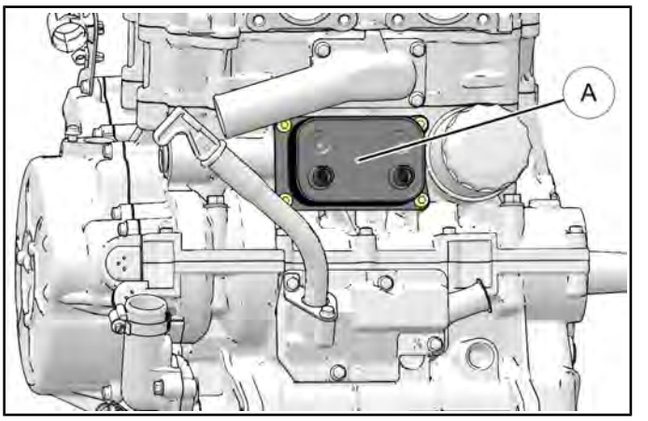


4. Inspect drive surface of starter gear (D) and bushing (E) for wear, damage or uneven surface. If any starter one-way clutch component is worn or damaged, replace the clutch and starter gear as an assembly.

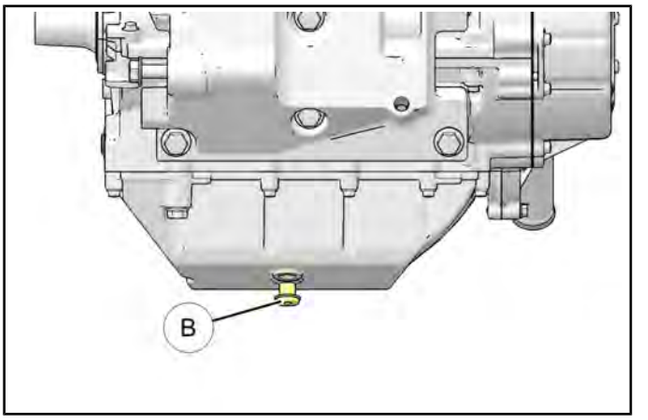


CRANKCASE DISASSEMBLY / INSPECTION

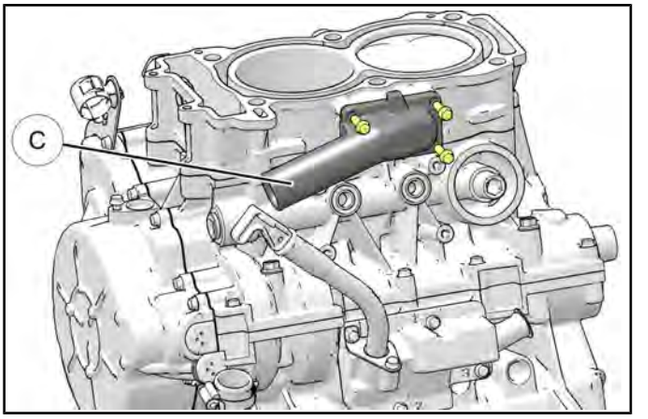
1. Remove the oil cooler (A) from the crankcase.



2. Remove the crankcase drain plug (B) to drain any oil remaining in the engine.

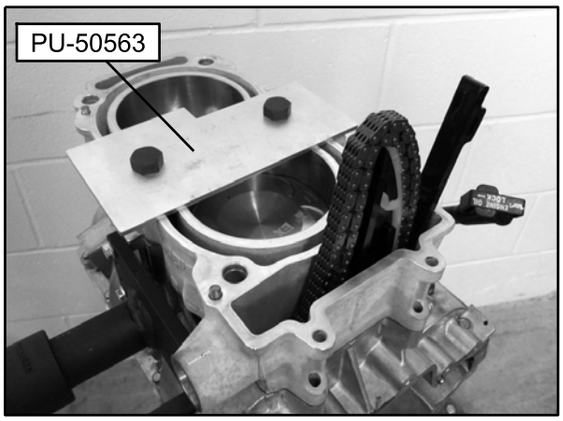


3. Remove the oil filter.
4. Remove the water inlet cover (C) from the cylinder.

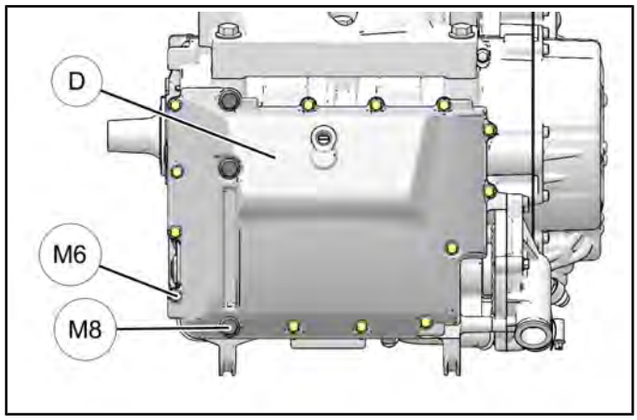


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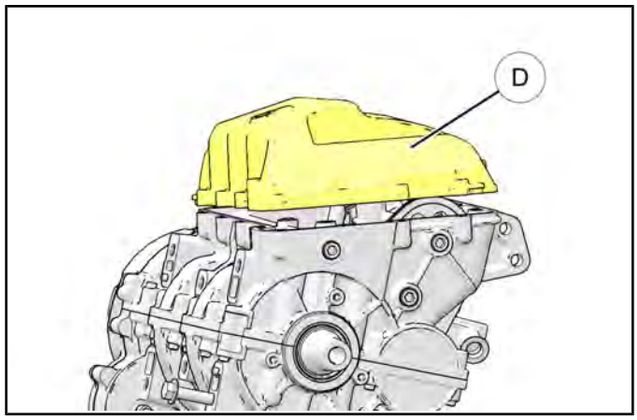
5. Install the Cylinder Holding & Camshaft Timing Plate (**PU-50563**) onto the cylinder. The cylinder holding tool retains the cylinder and pistons when the engine is rotated.



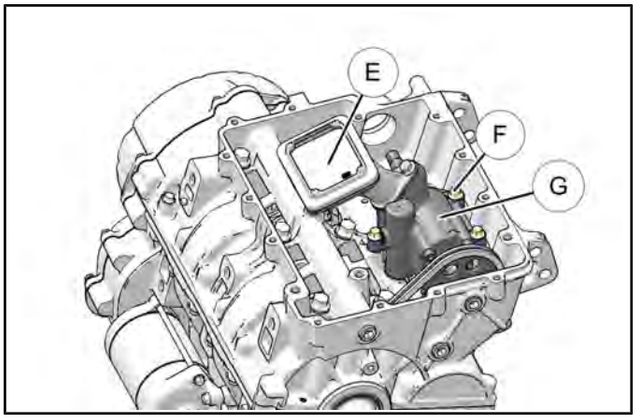
6. Rotate engine to access the crankcase sump cover.
7. Remove the thirteen M6 and three M8 bolts retaining the sump cover (D) to the crankcase.



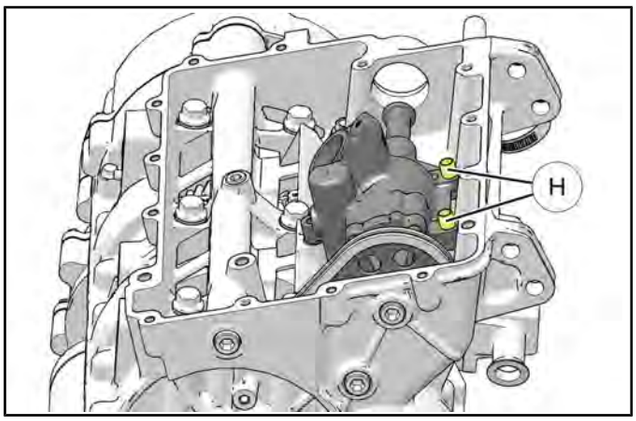
8. Remove the sump cover (D) from the crankcase.



9. Remove and clean oil pump pick-up (E).
10. Remove the three bolts (F) that retain the oil pump (G) to the crankcase.



11. Use one of the oil pump retaining bolts or a pen magnet to extract the dowel pins (H) from the oil pump. Doing so allows for oil pump removal without having to remove the pump drive sprocket.

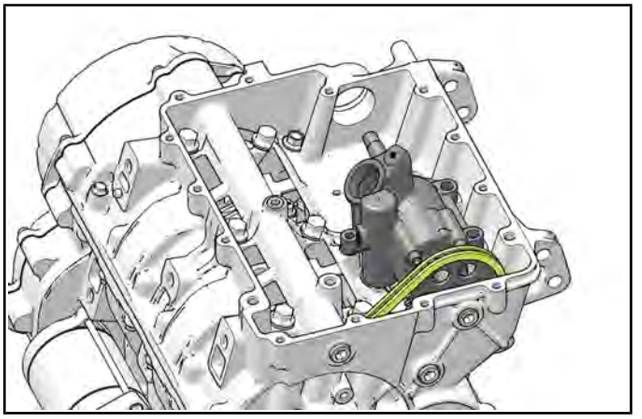


NOTE

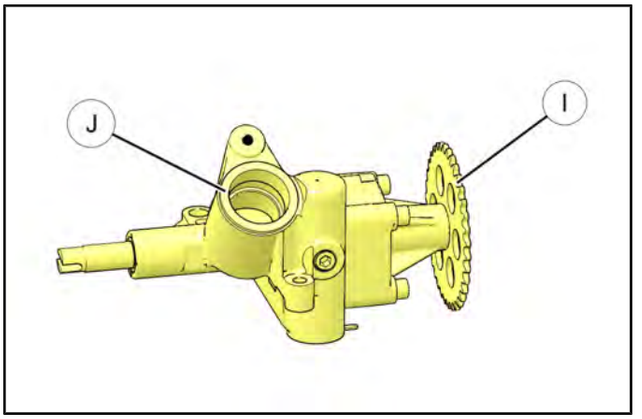
If unable to extract the dowel pins from the oil pump, the oil pump sprocket must be removed. Access the sprocket bolt by removing the case plug.

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12. Lift the oil pump drive chain and remove the oil pump.



13. Visually inspect the oil pump and drive sprocket (I) for wear or damage. Replace oil pump drive chain and sprocket if worn or damaged. If any part of the oil pump is damaged, the entire assembly must be replaced. Replace the oil pump seal (J) during crankcase assembly.

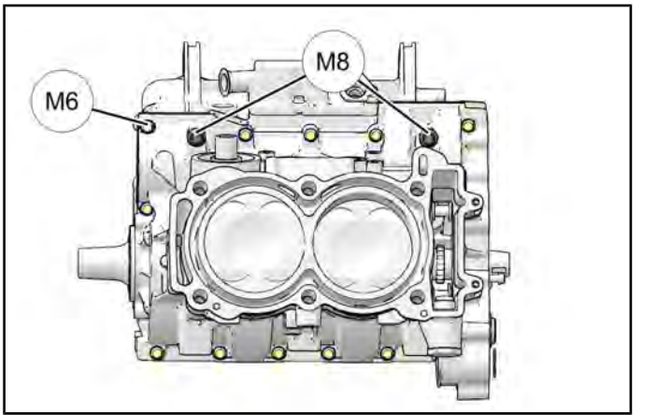


NOTE

Oil pump assembly is non-serviceable

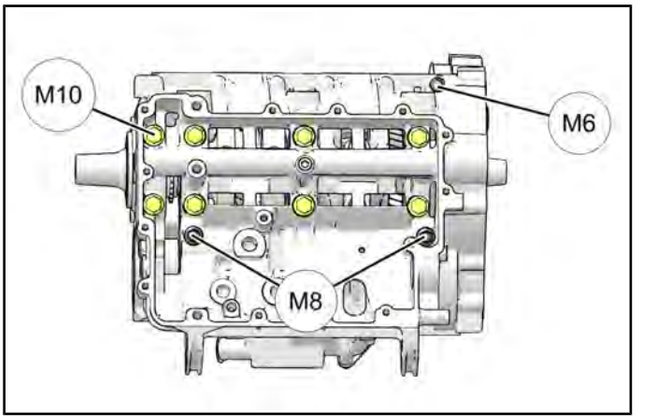
14. Rotate the engine so the cylinder is facing up.

15. Remove the eleven M6 and two M8 upper crankcase bolts.

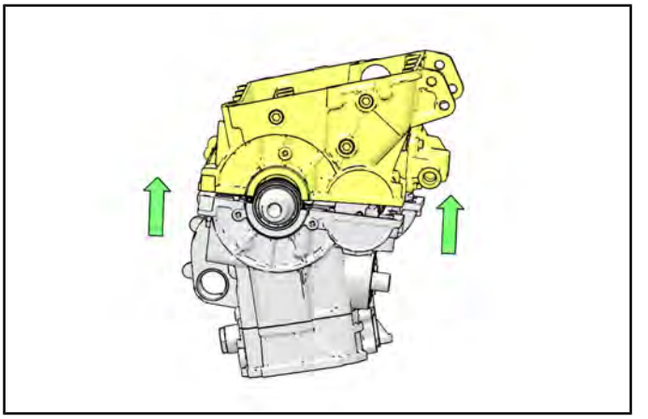


16. Rotate the engine so the cylinder is facing down.

17. Remove the eight M10, two M8 and one M6 lower crankcase bolts. Discard the eight M10 bolts.



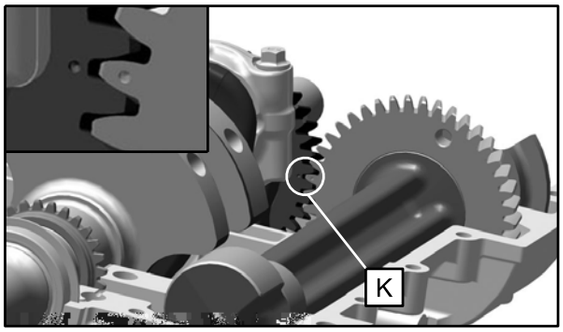
18. Tap on the lower crankcase in reinforced areas with a soft faced hammer to loosen. Carefully lift up and remove the lower crankcase half.



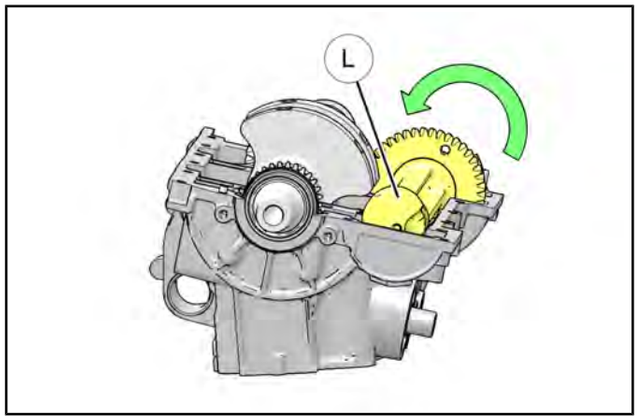
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BALANCE SHAFT REMOVAL / INSPECTION

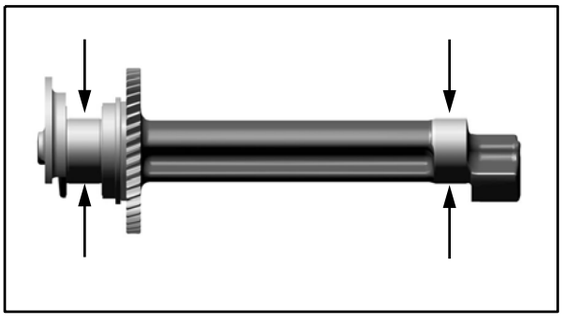
1. Perform “Crankcase Disassembly / Inspection” procedure.
2. Note timing marks (K) on balance shaft and crankshaft drive gears. Shafts must be properly timed upon assembly.



3. Carefully rotate the balance shaft (L) and remove it from the crankcase.



4. Inspect the balance shaft gear teeth for damage.
5. Measure each bearing journal in two locations, 90 degrees apart. Replace balance shaft if either journal is worn below the service limit specification. If worn past the service limit, replace the balance shaft assembly.

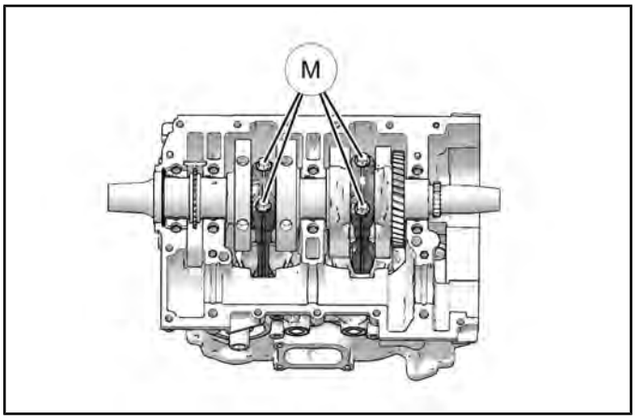


MEASUREMENT
Balance Shaft Diameter (MAG & PTO): **1.4939" - 1.4946" (37.946 - 37.962 mm)** Service Limit: **1.4921" (37.900 mm)**

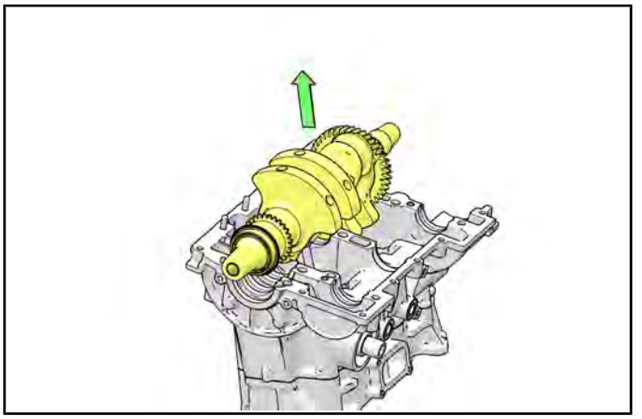
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CRANKSHAFT REMOVAL / INSPECTION

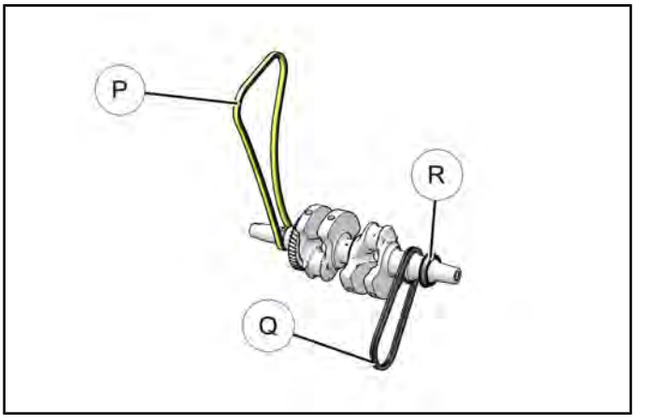
1. Perform “Crankcase Disassembly / Inspection” procedure.
2. Perform “Balance Shaft Removal / Inspection” procedure.
3. For ease of assembly, mark each connecting rod and end cap.
4. Loosen, remove and discard the four connecting rod bolts (M). Remove the end caps from the crankshaft.



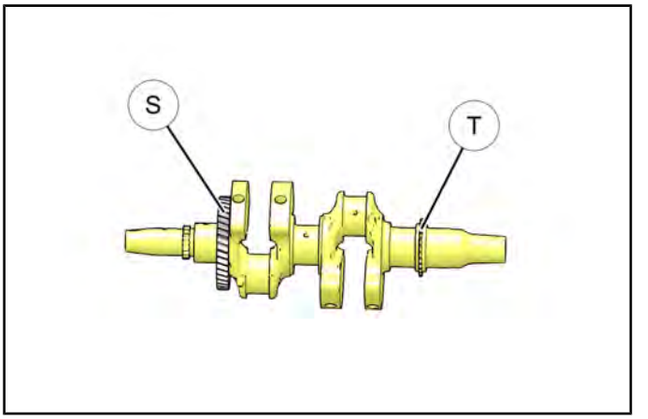
5. Carefully lift the crankshaft (N) out of the crankcase.



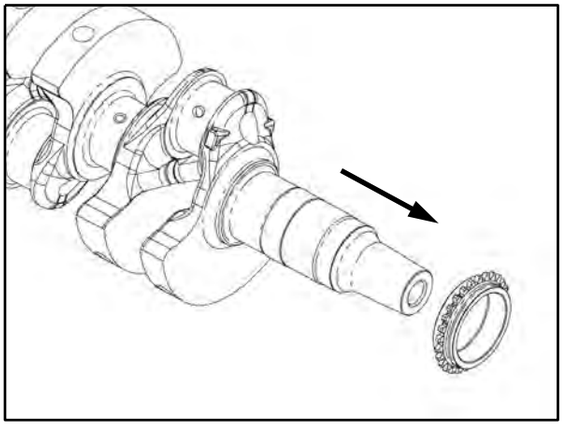
6. Remove the cam chain (P), oil pump drive chain (Q) and PTO main seal (R) from the crankshaft.



7. Inspect the crankshaft gear (S) and auxiliary sprocket (T) for broken or worn teeth.

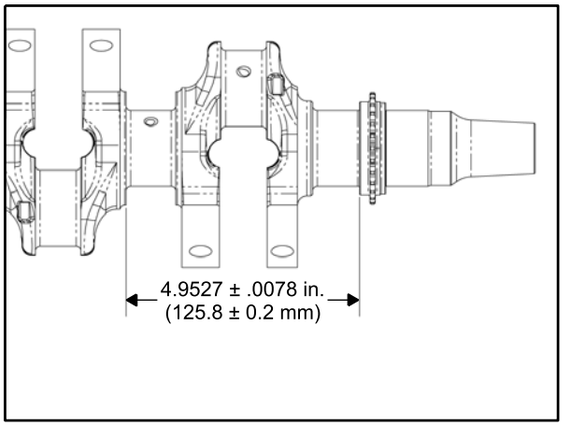


8. If the crankshaft gear (S) is damaged, the crankshaft assembly must be replaced.
9. If the auxiliary sprocket (T) is damaged, remove the sprocket with a 3-jaw puller.



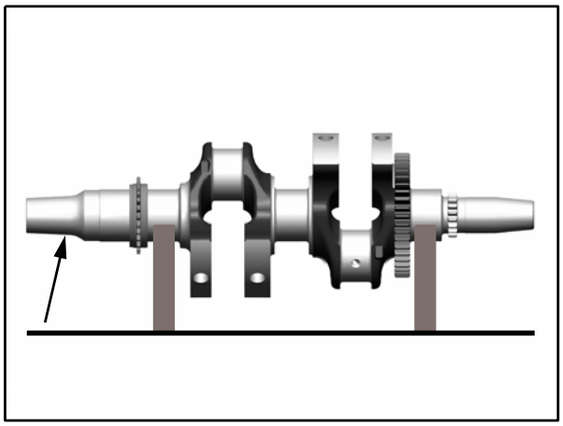
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10. Using an arbor press, install new sprocket in any orientation to the depth shown in the following illustration.



MEASUREMENT
Auxiliary Sprocket Installed Depth: **4.9527 ± .0078 in. (125.8 ± 0.2 mm)**

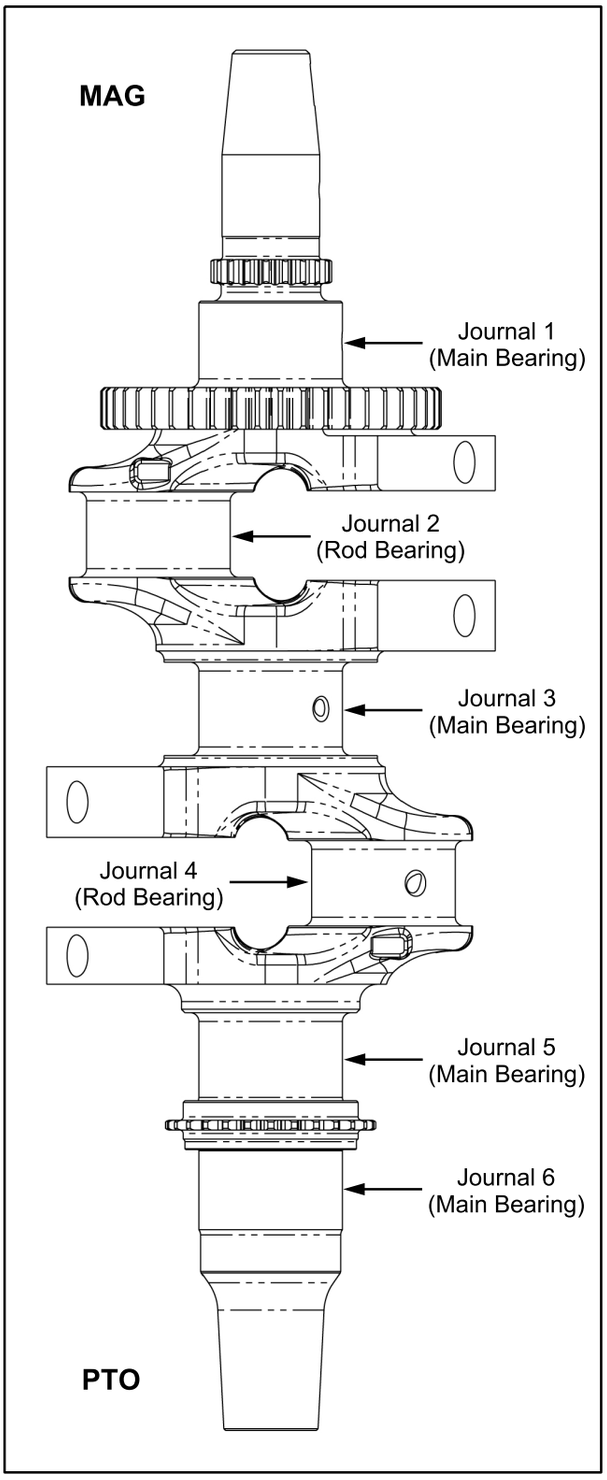
11. Support crankshaft on V-blocks or on-centers in a crankshaft stand or lathe. Measure crankshaft runout where indicated and replace if runout exceeds maximum listed below.



MEASUREMENT
Crankshaft Maximum Runout: **.001 in. (0.025 mm)**

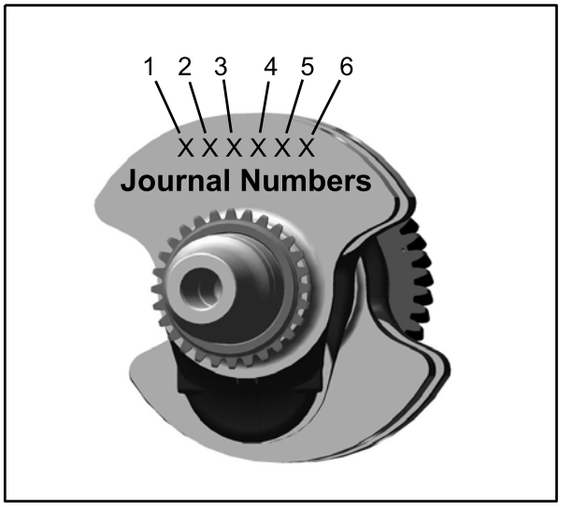
12. Visually inspect surface of crankshaft main and connecting rod journals. Replace crankshaft if any journal is scratched or pitted.

13. Measure each main journal and connecting rod journal in two locations, 90 degrees apart. Replace crankshaft if any journal is worn below the service limit specification.



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14. Refer to the six letters stamped onto the PTO end of the crankshaft.



15. Use the table below to see if the crankshaft bearing journals are within specification. If worn past the service limit, replace the crankshaft assembly.

Crankshaft Bearing Journal Diameters

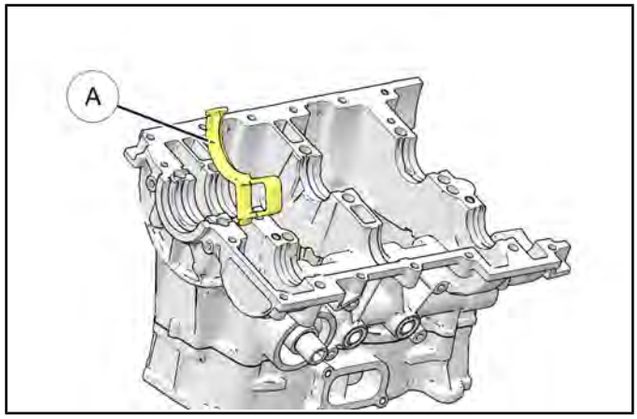
B		
Main Bearing	Standard	1.6140 - 1.6143″ (40.996 - 41.004 mm)
	Service Limit	1.6126″ (40.960 mm)
Connecting Rod Bearing	Standard	1.6118 - 1.6122″ (40.942 - 40.950 mm)
	Service Limit	1.6104″ (40.906 mm)
G		
Main Bearing	Standard	1.6137 - 1.6140″ (40.988 - 40.995 mm)
	Service Limit	1.6126″ (40.960 mm)
Connecting Rod Bearing	Standard	1.6115 - 1.6118″ (40.934 - 40.941 mm)
	Service Limit	1.6104″ (40.906 mm)
Y		
Main Bearing	Standard	1.6134 - 1.6137″ (40.980 - 40.987 mm)
	Service Limit	1.6126″ (40.960 mm)
Connecting Rod Bearing	Standard	1.6112 - 1.6115″ (40.926 - 40.933 mm)
	Service Limit	1.6104″ (40.906 mm)

16. Whether installing a new crankshaft or re-installing the original, refer to the bearing selection chart provided in the **“Crankshaft Main Bearing Selection”, page 3.143** and **“Connecting Rod Bearing Selection”, page 3.143** procedures.

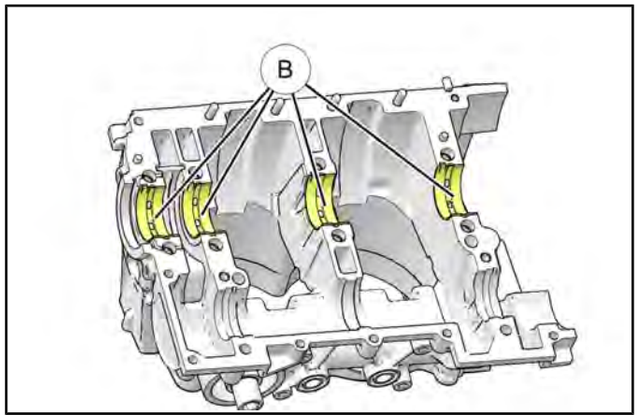
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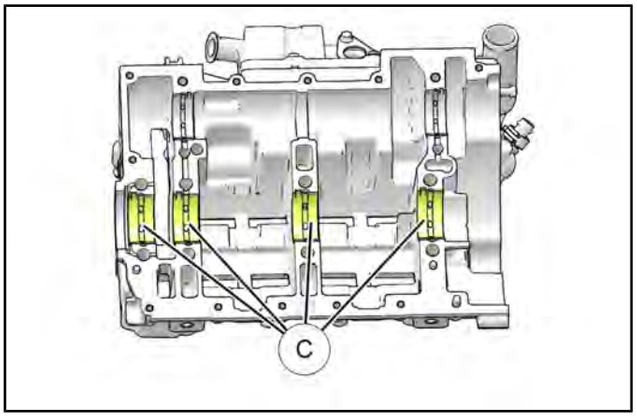
CRANKCASE INSPECTION

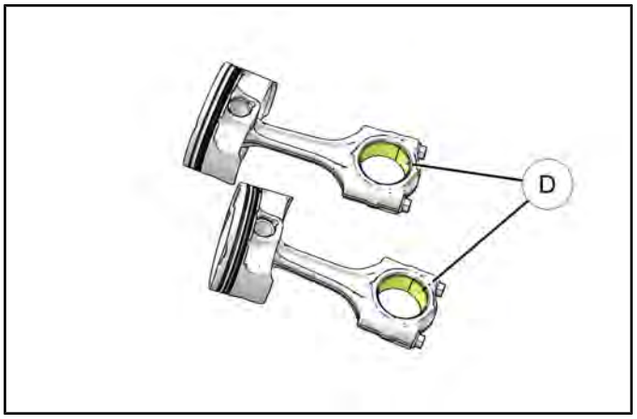
1. Remove the oil drain diverter (A) from the upper crankcase.



2. Remove all traces of crankcase sealer from the crankcase mating surfaces. Inspect the surfaces closely for nicks, burrs or damage.
3. Be sure alignment pins are in place where used.
4. Be sure oil passages are clean and free of any cleaning solvent. Refer to **"Engine Oil Flow Chart", page 3.108**.
5. Remove and discard the plain bearings located in the upper crankcase (B), lower crankcase (C) and connecting rods (D). Replace the crankcase assembly if a bearing bore is galled or if bearing inserts have rotated in the case. Refer to bearing selection procedures upon assembly.







NOTE

Always replace plain bearings when the crankcase or connecting rods have been disassembled. Refer to the bearing selection chart provided in the **"Crankshaft Main Bearing Selection", page 3.143** and **"Connecting Rod Bearing Selection", page 3.143** procedures.

CYLINDER / PISTON REMOVAL

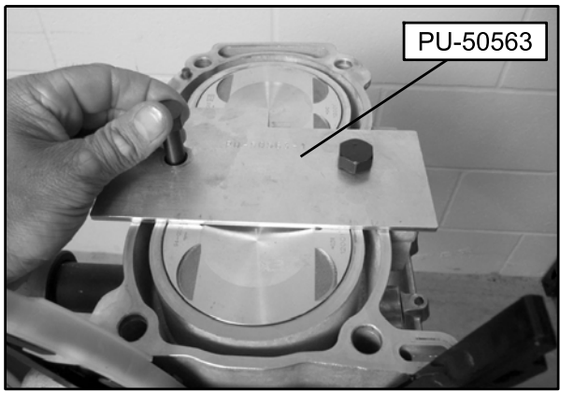
⚠ CAUTION

Pistons must be removed from the cylinders with the connecting rods attached.DO NOT attempt to service the cylinder or pistons without disassembling the crankcase. Although you can remove the cylinder and pistons without disassembly, you will not be able to reassemble the engine because of the unique cylinder skirt and crankcase design.

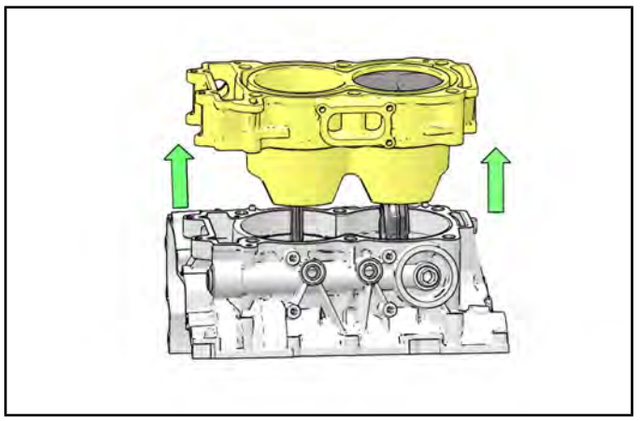
1. Perform "ENGINE DISASSEMBLY / INSPECTION - TOP END" and the "ENGINE DISASSEMBLY / INSPECTION - LOWER END" procedures.
2. Rotate the engine so the cylinder is facing up.

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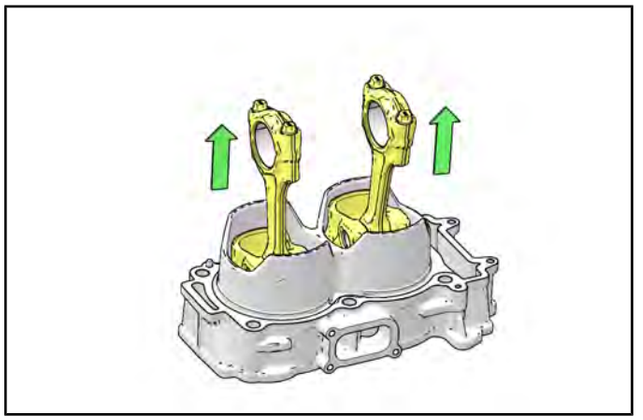
3. Remove the Cylinder Holding & Camshaft Timing Plate (**PU-50563**) from the cylinder.



4. Carefully lift the cylinder and pistons from the upper crankcase.



5. Remove the piston / connecting rod assemblies from the cylinder.

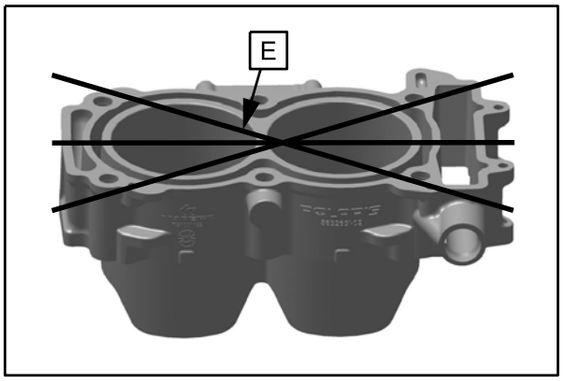


NOTE

If the pistons are to be reused, mark the pistons so they are reassembled in the same cylinder bore and direction from which they were removed (MAG / PTO).

CYLINDER INSPECTION

1. Lay a straight edge (E) across the top surface of the cylinder at several different points and measure warp by inserting a feeler gauge between the straight edge and the cylinder surface. If warp exceeds the service limit, replace the cylinder.



MEASUREMENT
Cylinder Warp Limit: **.002" (0.05 mm)**

2. Inspect cylinder for wear, scratches, or damage.

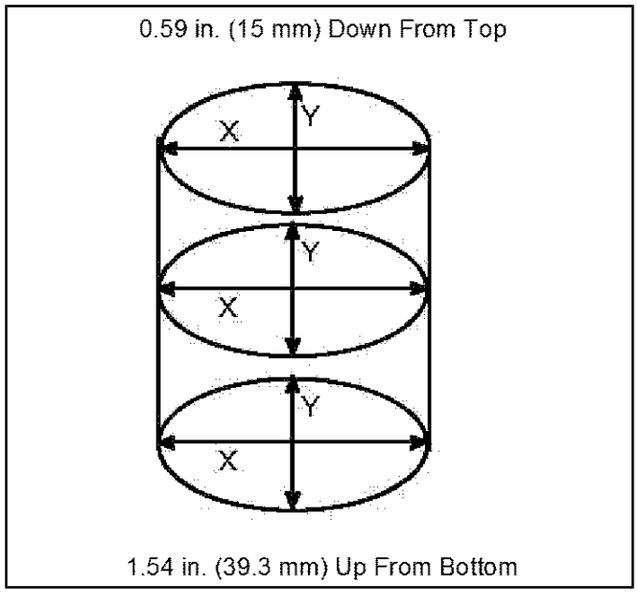
NOTE

DO NOT hone the cylinders or attempt to repair a damaged cylinder by honing.

3. Inspect taper and out of round with a dial bore gauge.

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4. Inspect cylinder for taper and out of round with a dial bore gauge. Measure in two different directions (front to back and side to side), on three levels (0.59 in. down from top, the middle, and 1.54 in. up from bottom). Record measurements. If cylinder is tapered or out of round beyond the service limit, the cylinder must be replaced.



MEASUREMENT
Cylinder Taper: Service Limit: **0.001" (.025 mm)** Cylinder Out of Round: Service Limit: **0.001" (.025 mm)**

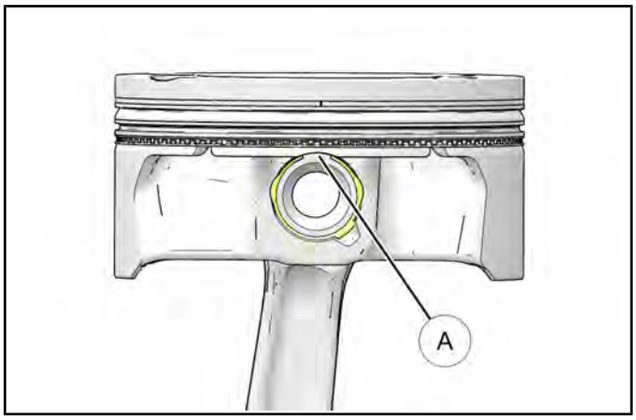
MEASUREMENT
Standard Bore Size: **3.6614" ± .0003" (93 mm ± .008 mm)**

PISTON DISASSEMBLY / INSPECTION (900)

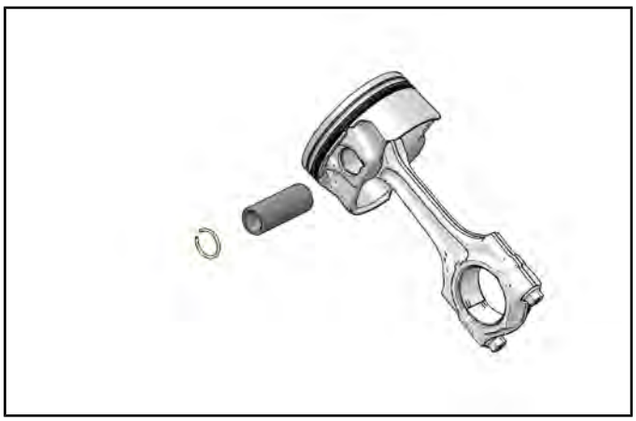
NOTE

New pistons are directional (intake vs. exhaust), but can be placed in either cylinder.

1. Note location of the piston circlip gap (A) at the top (12:00 position) or bottom (6:00 position).



2. Remove piston circlip and push piston pin out of piston. If necessary, heat the crown of the piston slightly with a heat gun if pin cannot be removed by hand. Discard circlips.

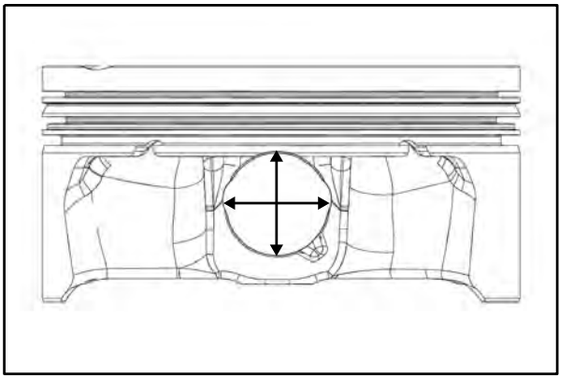


⚠ CAUTION

DO NOT apply heat to piston rings or a loss of radial tension could result.

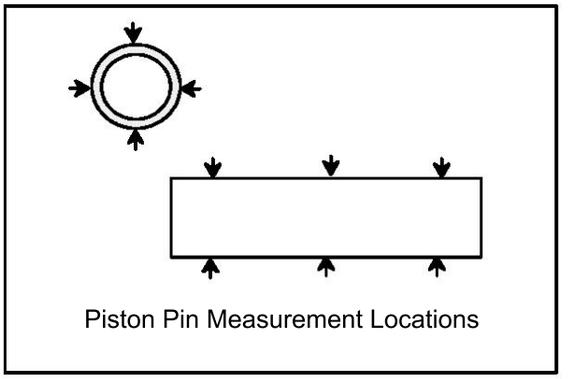
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3. Measure piston pin bore I.D. in two directions (90° apart). Replace piston and piston pin if out of specification.



MEASUREMENT
Piston Pin Bore I.D.: **0.7876" - 0.7878" (20.004 - 20.009 mm)** Service Limit: **0.7893" (20.05 mm)**

4. Measure piston pin O.D. in two directions (90° apart) at three locations on the length. Replace piston and piston pin if out of specification.



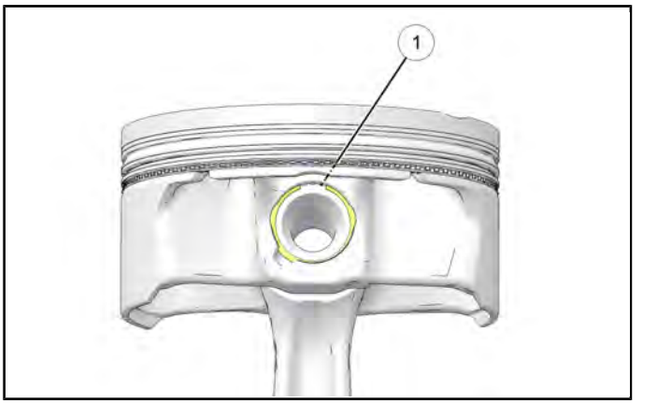
Piston Pin Measurement Locations

MEASUREMENT
Piston Pin O.D.: **0.7872" - 0.7874" (19.995 - 20.000 mm)** Service Limit: **0.7866" (19.98 mm)**

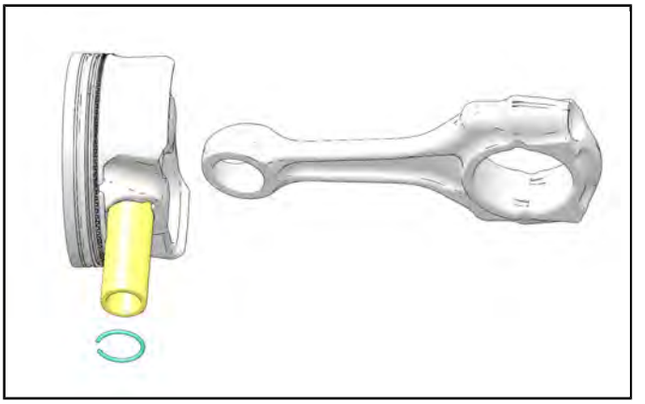
PISTON DISASSEMBLY / INSPECTION (1000)

NOTE
New pistons are directional (intake vs. exhaust), but can be placed in either cylinder.

1. Note location of the piston circlip gap ① at the top (12:00 position) or bottom (6:00 position).



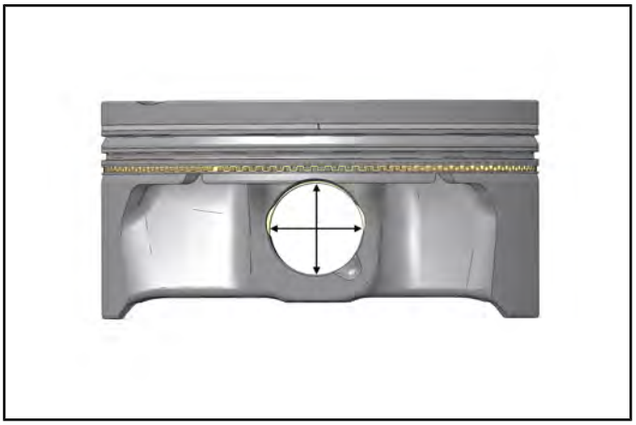
2. Remove piston circlip and push piston pin out of piston. If necessary, heat the crown of the piston slightly with a heat gun if pin cannot be removed by hand. Discard circlips.



CAUTION
DO NOT apply heat to piston rings or a loss of radial tension could result.

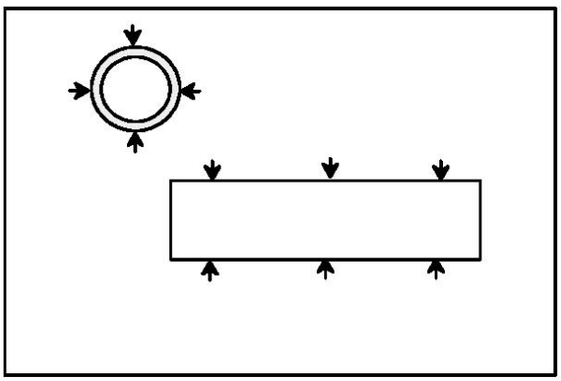
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3. Measure piston pin bore I. D. in two directions (90° apart). Replace piston and piston pin if out of specification.



MEASUREMENT
Piston Pin Bore I.D.:
.7877 - .7881" (20.009 - 20.018 mm)
Service Limit:
.7893" (20.05 mm)

4. Measure piston pin O.D. in two directions (90° apart) at three locations on the length. Replace piston and piston pin if out of specification.



MEASUREMENT
Piston Pin O.D.:
.7873 - .7875" (20.000 - 20.005 mm)
Service Limit:
.7866" (19.98 mm)

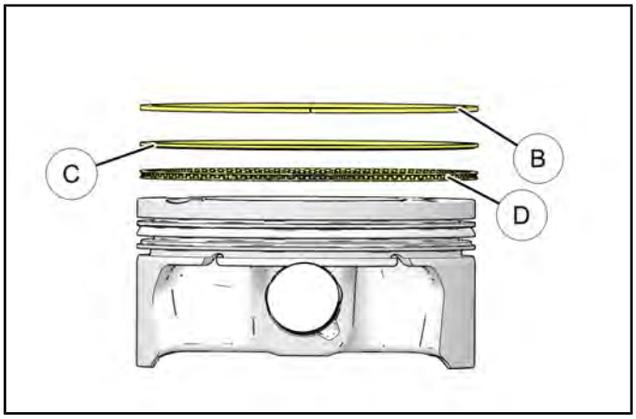
PISTON RING REMOVAL

1. Carefully remove top compression ring (B) by hand or using a ring removal pliers (**PV-43570-1**).

⚠ CAUTION

DO NOT expand the ring more than necessary to remove it from the piston or the ring may break or lose radial tension.

- **Piston ring pliers:** Carefully expand ring and lift it off the piston.
- **By hand:** Placing both thumbs on the ring ends, spread the ring open and push up on opposite side. Do not scratch ring lands.

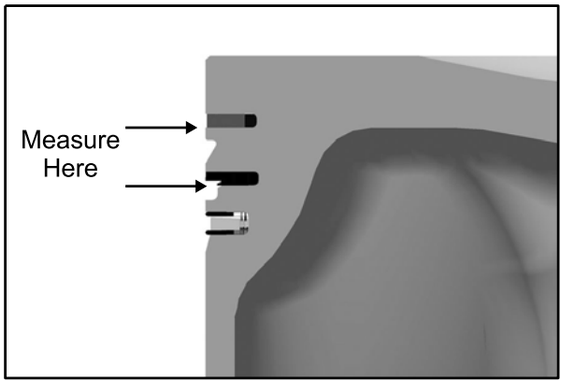


2. Repeat procedure for second compression ring (C).
3. The oil control ring (D) is a three piece design consisting of a top and bottom steel rail and a center expander section. Remove top rail first, then bottom rail, then the expander.

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PISTON RING TO GROOVE CLEARANCE INSPECTION

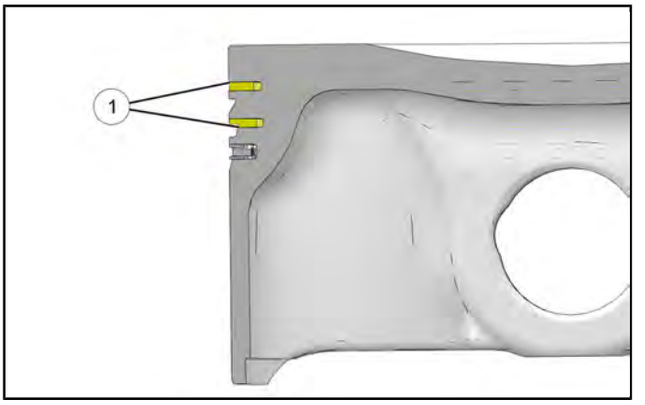
1. Measure piston ring to groove clearance by placing the ring in the ring land and measuring with a thickness (feeler) gauge. Replace piston and rings if ring-to-groove clearance exceeds service limits.



MEASUREMENT
Piston Ring to Groove Clearance: Top Ring: **0.0012" - 0.0037" (0.030 - 0.095 mm)** Second Ring: **0.0012" - 0.0030" (0.030 - 0.076 mm)** Service Limit: **0.0047" (0.12 mm)**

PISTON RING TO GROOVE CLEARANCE INSPECTION

1. Measure piston ring to groove clearance ① by placing the ring in the ring land and measuring with a thickness (feeler) gauge. Replace piston and rings if ring-to-groove clearance exceeds service limits.



MEASUREMENT
Piston Ring to Groove Clearance: Top / Second Ring: **.0007 - .0023" (0.020 - 0.060 mm)** Service Limit: **.0047" (0.12 mm)**

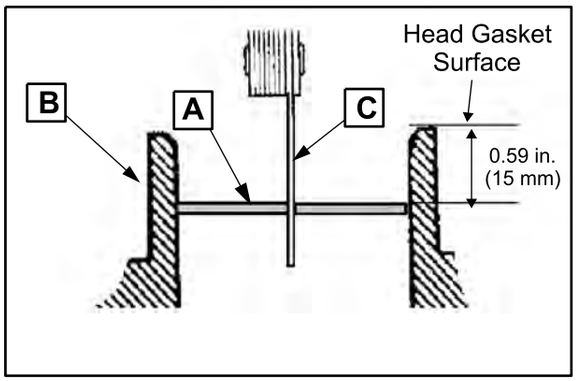
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PISTON RING INSTALLED GAP (900)

1. Place each piston ring (A) inside the cylinder (B). Use the piston to push the ring squarely into cylinder, as shown below.
2. Measure installed gap with a feeler gauge (C) at both the top and bottom of the cylinder.

NOTE

A difference between top and bottom end gap measurements is a general indication of cylinder taper (wear). The cylinder should be measured for taper and out of round.



3. If the installed gap measurement exceeds the service limit, replace the rings.

MEASUREMENT

Piston Ring Installed Gap:
Top Ring: **0.008" - 0.014" (0.20 - 0.36 mm)**
Service Limit: **0.020" (0.50 mm)**
Second Ring: **0.015" - 0.025" (0.37 - 0.63 mm)**
Service Limit: **0.028" (0.70 mm)**
Oil Control Rails: **0.010" - 0.040" (0.25 - 1.02 mm)**
Service Limit: **0.059" (1.50 mm)**

NOTE

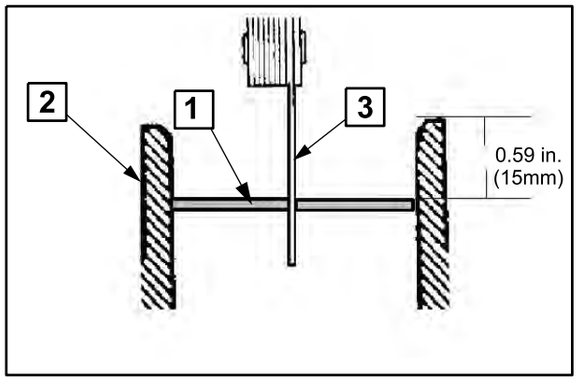
Always check piston ring installed gap when installing new rings and/or a new cylinder.

PISTON RING INSTALLED GAP (1000)

1. Place each piston ring ① inside the cylinder ②. Use the piston to push the ring squarely into cylinder, as shown below.
2. Measure installed gap with a feeler gauge ③ at both the top and bottom of the cylinder.

NOTE

A difference between top and bottom end gap measurements is a general indication of cylinder taper (wear). The cylinder should be measured for taper and out of round.



3. If the installed gap measurement exceeds the service limit, replace the rings.

MEASUREMENT

Piston Ring Installed Gap:
Top Ring: **.010 - .014" (0.25 - 0.35 mm)**
Service Limit: **1.6118 - 1.6122" (40.942 - 40.950 mm)**

Second Ring: **1.6118 - 1.6122" (40.942 - 40.950 mm)**
Service Limit: **.028" (0.70 mm)**

Oil Control Rails: **.008 - .028" (0.20 - 0.70 mm)**
Service Limit: **.0354" (0.9 mm)**

NOTE

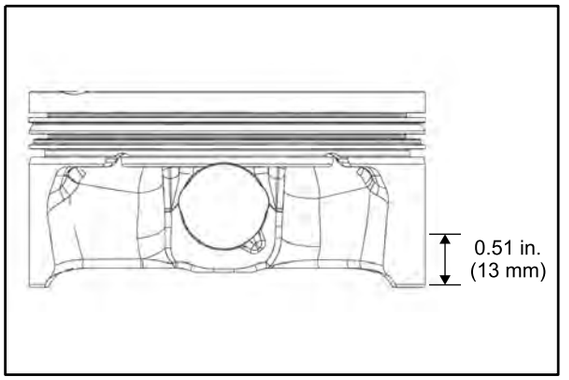
Always check piston ring installed gap when installing new rings and/or a new cylinder.

PISTON-TO-CYLINDER CLEARANCE (900)

Measure piston outside diameter at a point 13 mm up from the bottom of the piston, at a right angle to piston pin bore.

Subtract measurement from maximum measurement obtained in Step 4 of "**Cylinder Inspection, page 3.134**" procedure.

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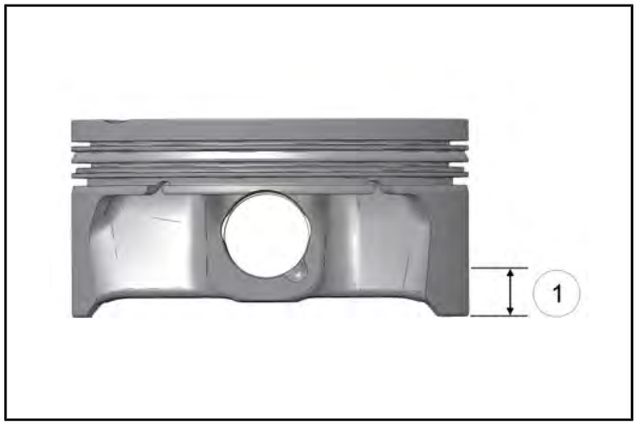
MEASUREMENT
Piston O.D. (Standard): **3.6592 ± .0003" (92.950 ± .008 mm)**

MEASUREMENT
Piston to Cylinder Clearance: **.0014" - .0026" (.035 - .065 mm)**

PISTON-TO-CYLINDER CLEARANCE (1000)

Measure piston outside diameter at a point 10 mm ① up from the bottom of the piston, at a right angle to piston pin bore.

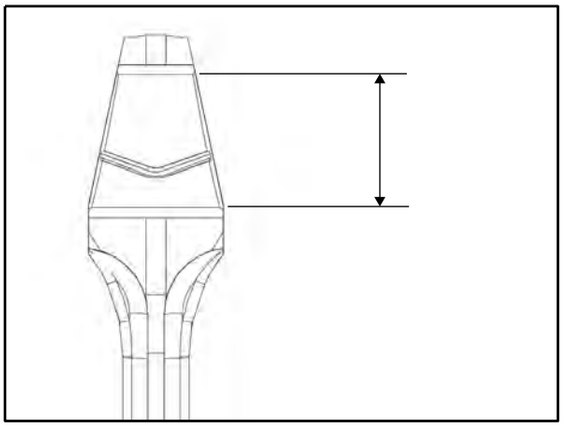
Subtract measurement from maximum measurement obtained in Step 4 of "**Cylinder Inspection, page 3.134**" procedure.



MEASUREMENT
Piston O.D. (Standard): **3.6597 ± .0003" (92.959 ± 0.008 mm)** Piston to Cylinder Clearance: **.0009 - .0019" (0.025 - 0.050 mm)**

CONNECTING ROD INSPECTION

1. Inspect the small end and big end of connecting rod (and matching rod cap) for damage, galling of surface or pitting.
2. Measure small end I.D. in two directions as shown. Record measurements and compare to specifications. Replace connecting rod if worn past the service limit specification.

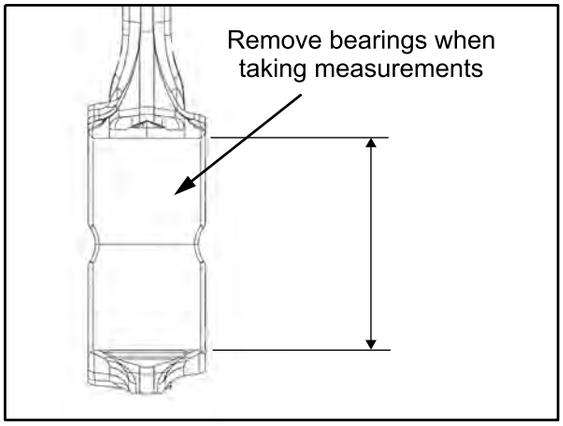


MEASUREMENT
Connecting Rod Small End I.D.: **0.7879" - 0.7884" (20.015 - 20.025 mm)** Service Limit: **0.7897" (20.06 mm)**

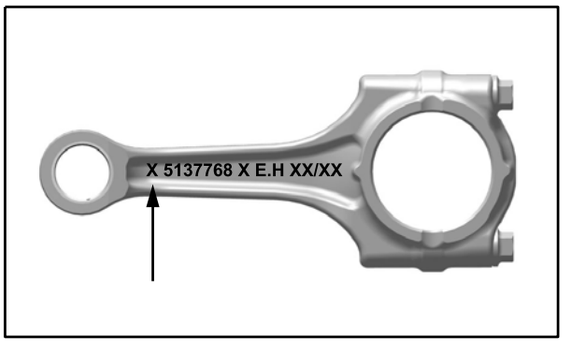
3. Install matching rod cap on connecting rod **(without bearings)** and install the bolts.
4. Tighten bolts by hand, then torque to **9 ft-lbs (12 Nm)** prior to taking any measurements.

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5. Using a dial bore gauge, measure big end I.D. in two directions shown. Record measurements and compare to specifications.



6. Refer to the number printed onto the side of the connecting rod, closest to the small bore end. This number represents the bore diameter.



7. The table below lists the big end bore diameter specifications.

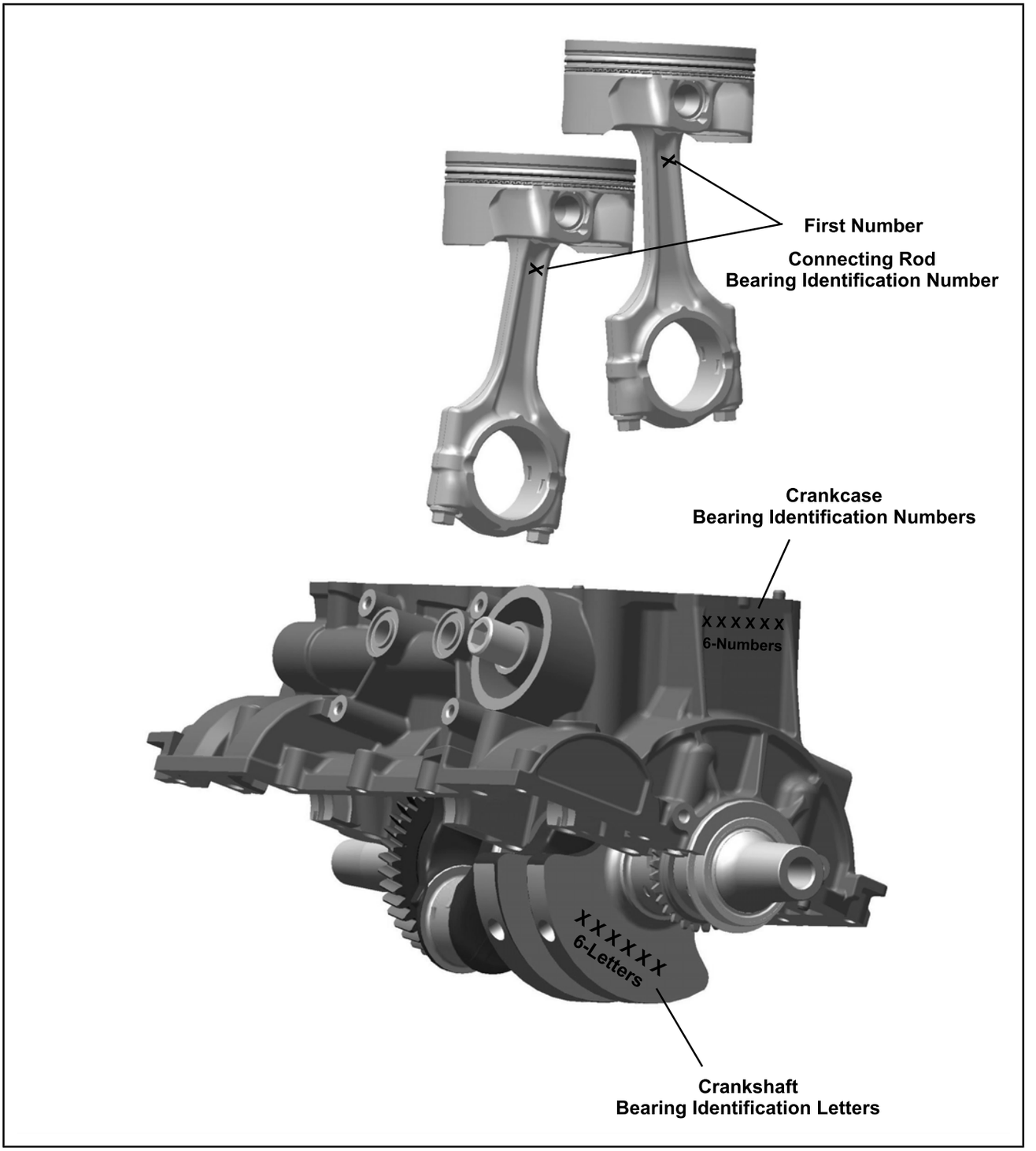
CONNECTING ROD BIG END BORE DIAMETERS		
1	**2**	**3**
1.7318-1.7321 in (43.989-43.996 mm)	1.7321-1.7323 in (43.996-44.003 mm)	1.7323-1.7326 in (44.003-44.010 mm)

8. Whether using new connecting rods or re-installing the original ones, refer to the bearing selection chart provided in the **“Connecting Rod Bearing Selection”, page 3.143** procedure in this chapter.

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ENGINE ASSEMBLY - LOWER END (900 / 1000)

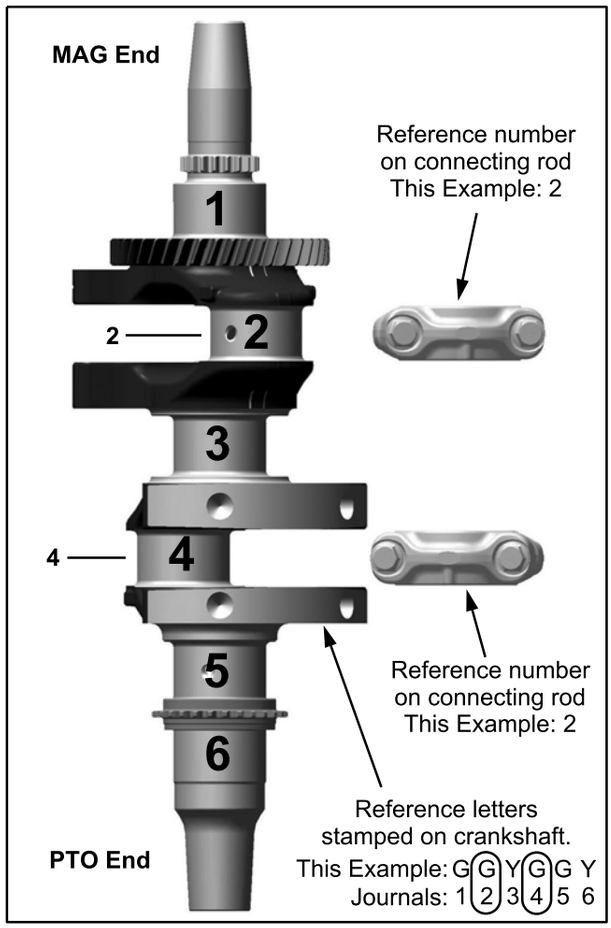
BEARING SELECTION IDENTIFICATION LETTERS AND NUMBERS



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CONNECTING ROD BEARING SELECTION

In order to select the proper bearing for the connecting rods, you must reference the number on each connecting rod and match that up with the rod journal letters on the crankshaft.



In this example, you would use the number *2* as the connecting rod code. You would use letters *G* and *G* as the crankshaft codes (crank journals 2 and 4).

Based off the bearing selection chart, you would use:

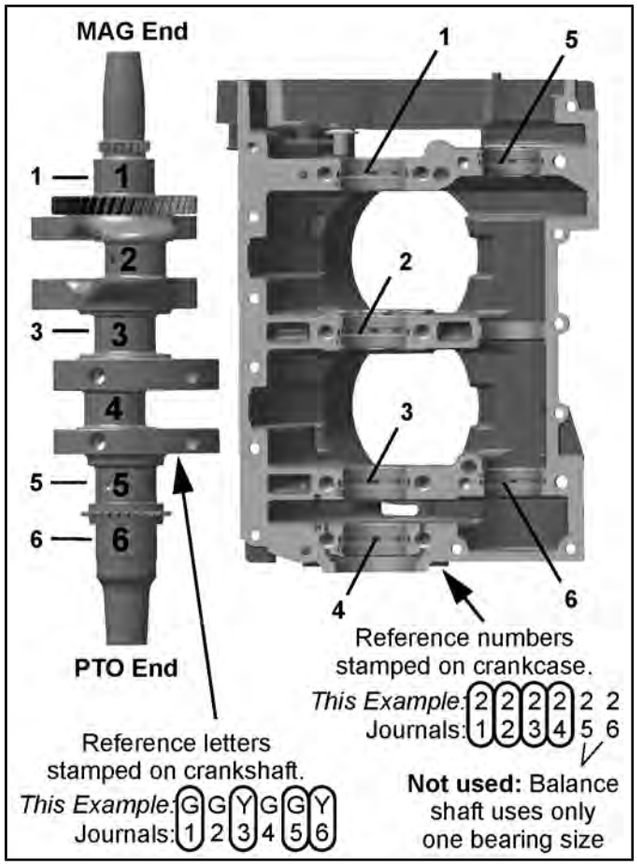
Green bearing for each connecting rod

Bearing Selection Chart – Rod Bearings

	CRANKSHAFT			
Rod	Code	B	G	Y
	1	Blue	Blue	Green
	2	Blue	Green	Yellow
	3	Green	Yellow	Yellow

CRANKSHAFT MAIN BEARING SELECTION

In order to select the proper main bearings for the crankshaft, you must reference the six numbers on the crankcase and match that up with the main journal letters on the crankshaft.



In this example, you would use the number *2* as the crankcase codes (case journals 1, 2, 3, 4). You would use letters *G*, *Y*, *G*, *Y* as the crankshaft codes (crank journals 1, 3, 5 and 6).

Based off the bearing selection chart, you would use:

Green bearing for Main #1

Yellow bearing for Main #2

Green bearing for Main #3

Yellow bearing for Main #4

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Bearing Selection Chart - Main Bearings

	CRANKSHAFT			
Case	Code	B	G	Y
	1	Blue	Blue	Green
	2	Blue	Green	Yellow
	3	Green	Yellow	Yellow

UPPER CRANKCASE PREPARATION

NOTE

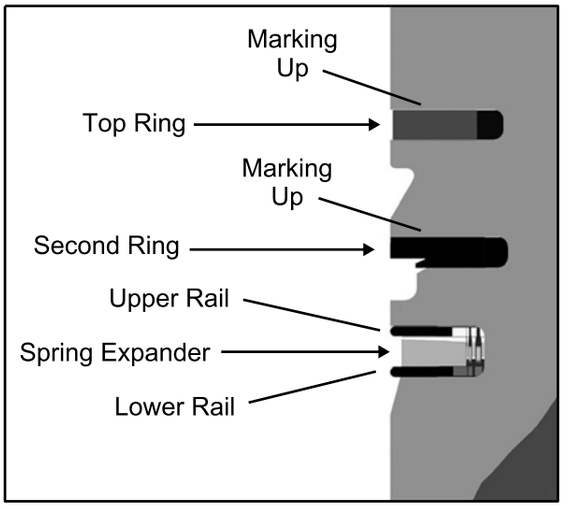
Always replace plain bearings when the crankcase or connecting rods have been disassembled. Refer to the bearing selection chart provided in the **"Crankshaft Main Bearing Selection", page 3.143** and **"Connecting Rod Bearing Selection", page 3.143** procedures.

1. Remove all traces of crankcase sealer from the crankcase mating surfaces. Inspect the surfaces closely for nicks, burrs or damage.
2. Clean bolt hole threads to remove any oil or crankcase sealant.
3. Inspect crankcase bearing bores. Replace the crankcase assembly if a bearing bore is galled or if bearing inserts have rotated in the case.
4. Be sure alignment pins are in place where used.
5. Refer to **"Engine Oil Flow Chart", page 3.108** at the beginning of this chapter and trace the oil paths through the crankcase and cylinder.
6. Flush all oil passages with solvent and then warm soapy water. Rinse with clear, warm water and dry with compressed air.
7. Be sure passages are clean and dry before assembling the upper crankcase.

PISTON RING INSTALLATION

NOTE

Apply clean engine oil to all ring surfaces and ring lands upon installation. Always check piston ring installed gap before rings are installed on piston. Refer to **"Piston Ring Installed Gap", page 3.139** procedure. Clean accumulated carbon from piston ring grooves and oil ring lube holes if piston has been in service.



1. Place oil control ring expander in oil ring groove. Rotate expander in groove until butt ends are on PTO side of piston (see illustration below).

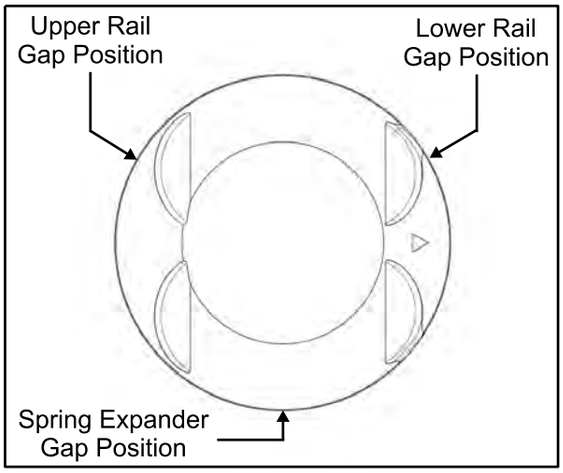
NOTE

Ends must butt squarely together and must not overlap.

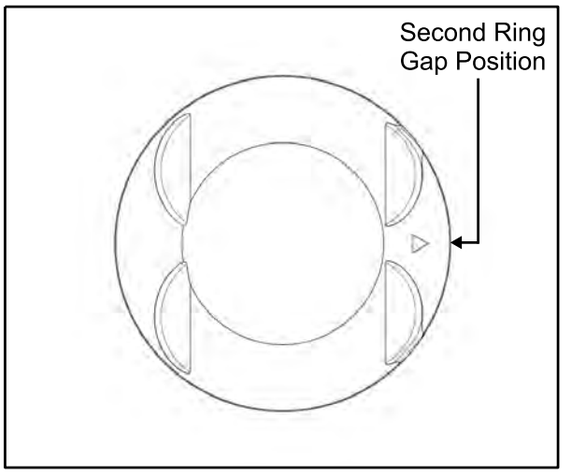
2. Install lower rail with end gap positioned on the intake side of piston.

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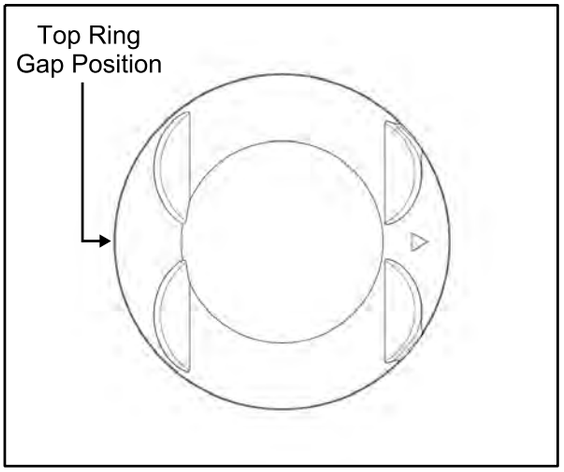
3. Install upper rail with end gap positioned on the exhaust side of piston.



4. Install second ring with marking facing top of piston. Rotate ring to position the end gap toward intake side of piston as shown below.



5. Install top ring with mark facing top of piston. Rotate ring to position the end gap toward exhaust side of piston as shown below.



6. Be sure top and second rings rotate freely in their grooves and do not bind when compressed by hand.

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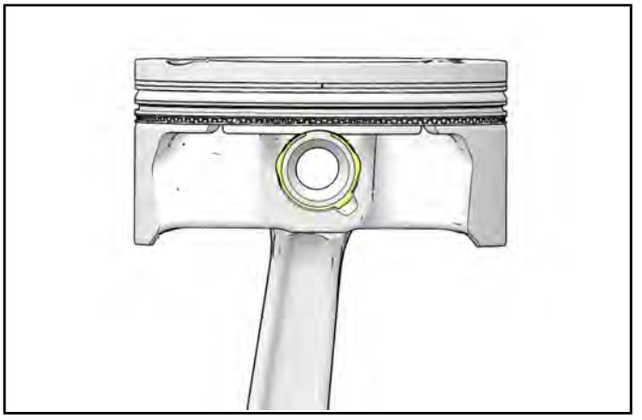
PISTON / CONNECTING ROD ASSEMBLY

1. Lubricate connecting rod small end, piston pin bore and piston pin with engine oil.

CAUTION

Do not re-use circlips. Circlips become deformed during the removal process.Do not compress the new clip more than necessary to prevent loss of radial tension. Severe engine damage may result if circlips are re-used or deformed during installation.

2. Install a new circlip on one side of piston with gap at the top (12:00 position) or bottom (6:00 position).



NOTE

Never re-use a piston pin circlip.
If reinstalling the original connecting rods, orientate the rods the same as when removed. If new connecting rods are being installed, they can be installed either way (there is no piston pin offset in the rod), however it is recommended they be installed with rods facing the same direction.

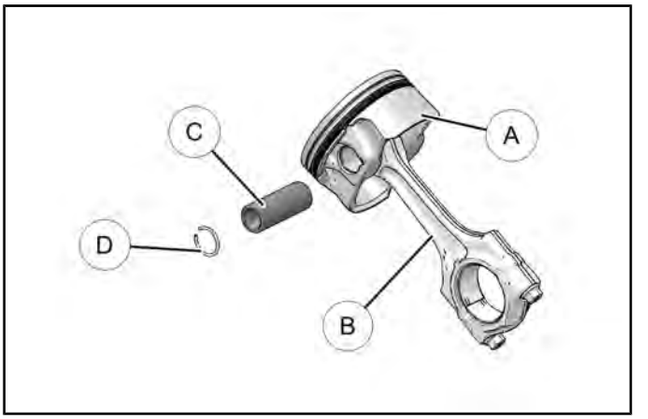
3. Place piston (A) on connecting rod (B). Push piston pin (C) through rod and piston until it seats against the installed circlip.

NOTE

Do not tap on pin or cause any sideways force to connecting rod. Warm piston crown with a heat gun if pin cannot be installed by hand, or use a piston pin installation tool.

⚠ CAUTION

DO NOT apply heat to piston rings or a loss of radial tension could result.



4. Install the remaining circlip (D) with gap at the top (12:00 position) or bottom (6:00 position). Push the piston pin in both directions to make sure the clips are properly seated in the groove.

CYLINDER / PISTON INSTALLATION

⚠ CAUTION

Pistons must be installed into the cylinders with the connecting rods attached.DO NOT attempt to service the cylinder or pistons without disassembling the crankcase. Although you can remove the cylinder and pistons without disassembly, you will not be able to reassemble the engine because of the unique cylinder skirt and crankcase design.

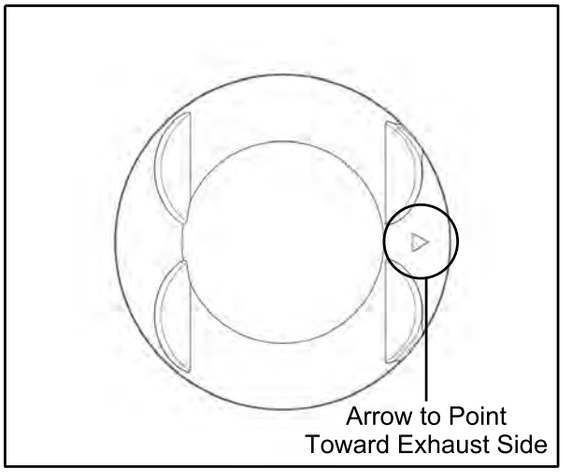
NOTE

If the pistons are being reused, reassemble in the same cylinder bore and direction from which they were removed (MAG / PTO).
New pistons are directional (intake vs. exhaust), but can be placed in either cylinder.

1. Apply clean engine oil to each piston assembly, cylinder bore and bottom tapered portion of each cylinder sleeve.
2. Verify that all ring end gaps are correctly located on each piston. Refer to **“Piston Ring Installation”, page 3.144** procedure.

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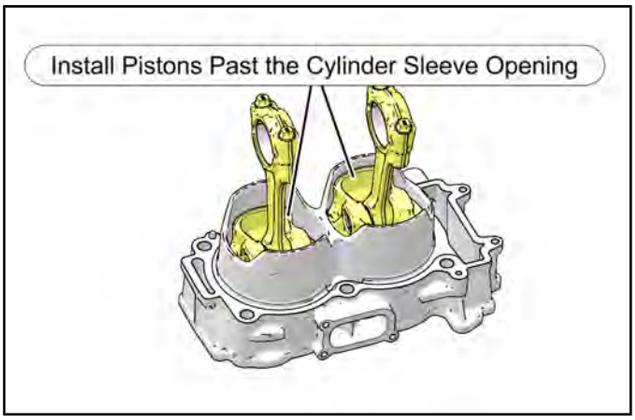
3. Note the piston orientation mark (arrow) located on top of the piston. Arrow should point toward the exhaust side.



NOTE

Orientation arrow is also located on the bottom side of piston as an additional reference.

4. Carefully compress the piston rings with your fingers and install the piston / connecting rod assemblies into the cylinder from the bottom side.



NOTE

Use a slight front to back rocking motion until all rings are captive in cylinder and past the cylinder sleeve opening.

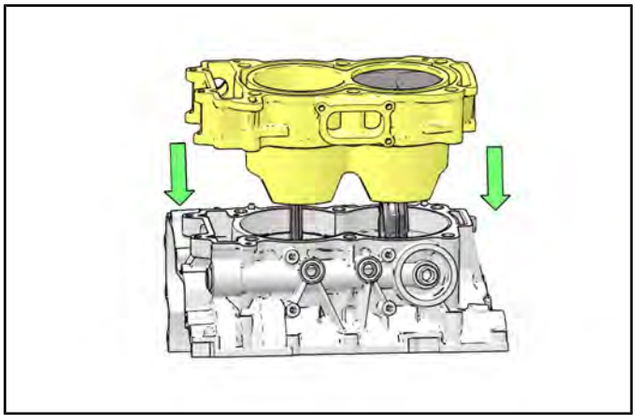
5. Rotate the engine so the crankcase to cylinder mounting surface is facing up.

6. Clean base gasket sealing surface on cylinder and crankcase to remove all oil and grease.

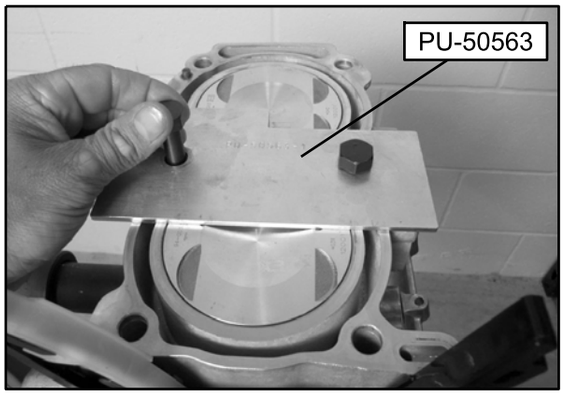
NOTE

Base gasket and surfaces must be DRY and oil free. Use care upon assembly to keep oil away.

7. Reinstall dowel pins in crankcase if previously removed.
8. Install a new cylinder base gasket.
9. Verify piston orientation (arrow pointing toward exhaust) one last time prior to installation.
10. Carefully place the cylinder and pistons into the upper crankcase.



11. Install the Cylinder Holding & Camshaft Timing Plate (**PU-50563**) onto the cylinder. The cylinder holding tool retains the cylinder and pistons when the engine is rotated.



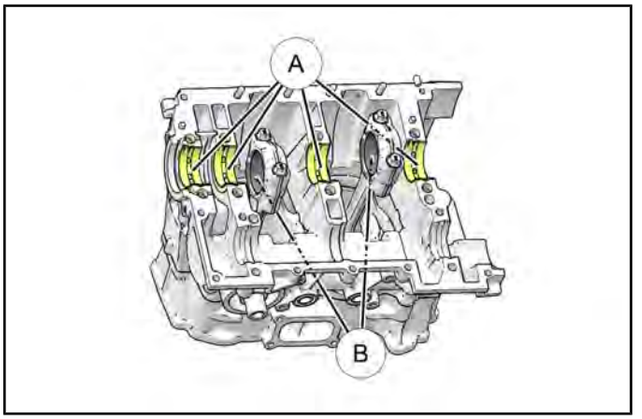
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CRANKSHAFT INSTALLATION (900)

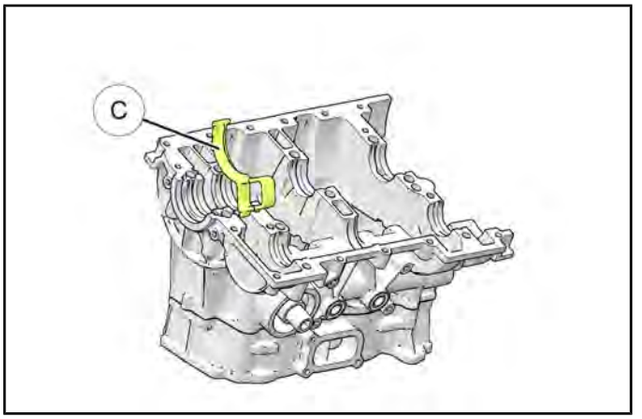
NOTE

Whether installing a new crankshaft or re-installing the original, refer to the bearing selection charts. Refer to the bearing selection chart provided in the **"Crankshaft Main Bearing Selection", page 3.143** and **"Connecting Rod Bearing Selection", page 3.143** procedures.

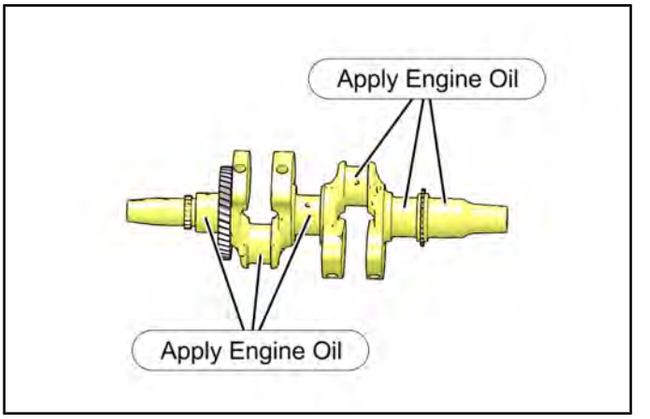
1. Rotate the engine so the cylinder is facing down.
2. Clean the bearing bore surfaces of upper crankcase (main bearings), connecting rods and connecting rod caps.
3. Align tab of new main bearing (A) with the slot in main bearing bore of crankcase. Press bearing insert firmly into place. Repeat for all main bearings.
4. Align tab of new connecting rod bearings (B) with the slot in the connecting rod stem and connecting rod end cap. Press bearing insert firmly into place. Repeat for the other connecting rod.



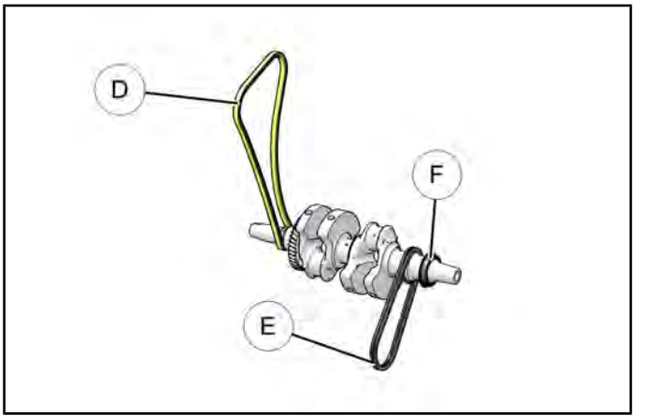
5. Install oil drain diverter (C) into the upper crankcase.



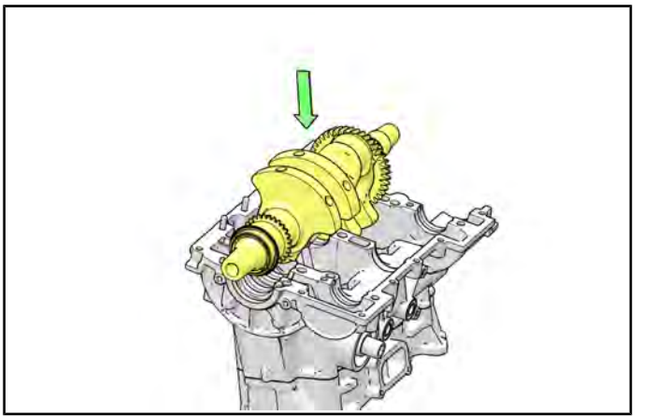
6. Apply Polaris PS-4 engine oil to each main and rod bearing journal of crankshaft.



7. Loop cam chain (D) and oil pump drive chain (E) over crankshaft sprockets.
8. Apply Polaris PS-4 engine oil to the new crankshaft oil seal (F) and install the seal on the PTO end of the crankshaft.

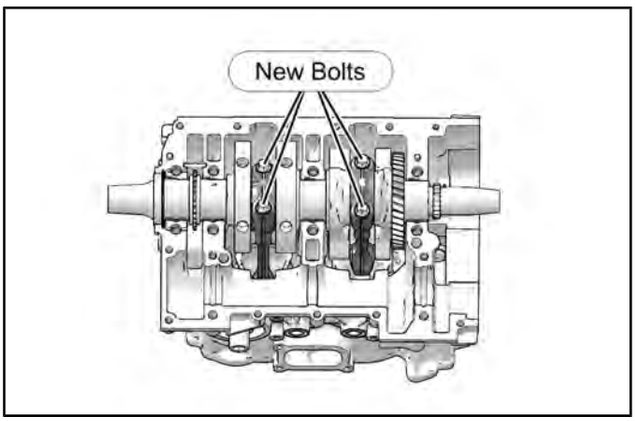


9. Carefully lower the crankshaft into upper crankcase. Guide connecting rods onto the rod journals of crankshaft as necessary.



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10. Adjust the PTO crankshaft seal so it rests properly in the upper crankcase.
11. Clean bolt hole threads in connecting rod to remove all oil.
12. Install matching rod cap on connecting rod using markings made upon disassembly.
13. Install *new bolts* and tighten evenly until snug.



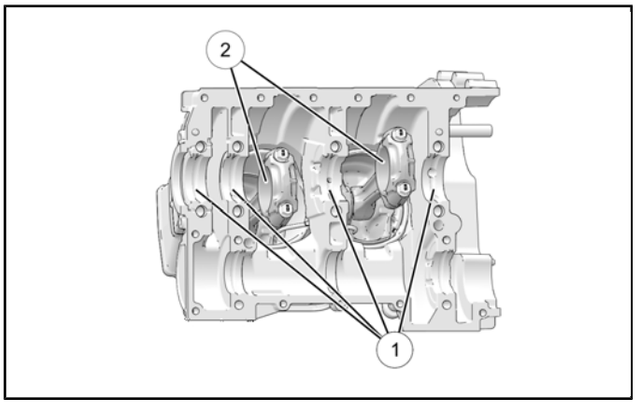
14. Torque connecting rod bolts to specification.

TORQUE
Connecting Rod Bolts: Step 1: **9 lb-ft (12 Nm)** Step 2: **22 lb-ft (30 Nm)** Step 3: **Additional 90°**

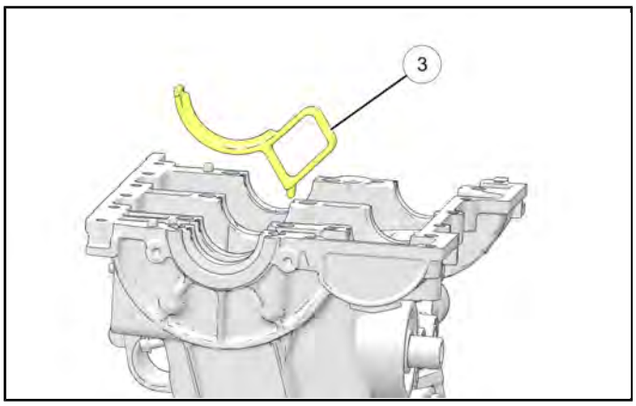
CRANKSHAFT INSTALLATION (1000)

NOTE
Whether installing a new crankshaft or re-installing the original, refer to the bearing selection charts in the **"Crankshaft Main Bearing Selection", page 3.143** and **"Connecting Rod Bearing Selection", page 3.143** procedures.

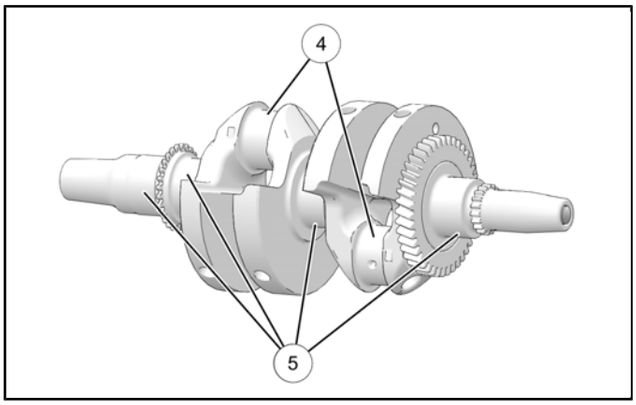
1. Rotate the engine so the cylinder is facing down.
2. Clean the bearing bore surfaces of upper crankcase (main bearings), connecting rods and connecting rod caps.
3. Align tab of new main bearing ① with the slot in main bearing bore of crankcase. Press bearing insert firmly into place. Repeat for all main bearings.
4. Align tab of new connecting rod bearings ② with the slot in the connecting rod stem and connecting rod end cap. Press bearing insert firmly into place. Repeat for the other connecting rod.



5. Install oil drain diverter ③ into the upper crankcase.



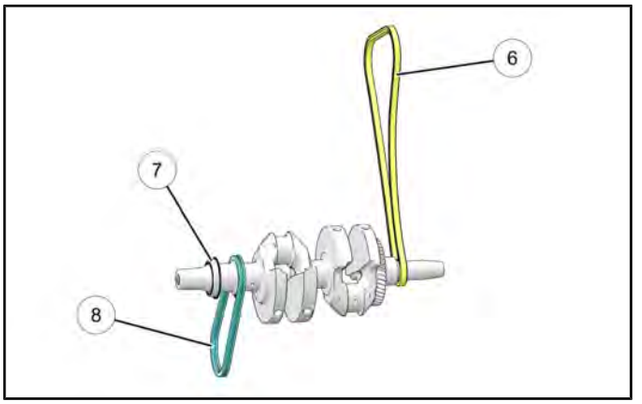
6. Apply Polaris PS-4 engine oil to each rod bearing journal ④ and main bearing journal ⑤ of crankshaft.



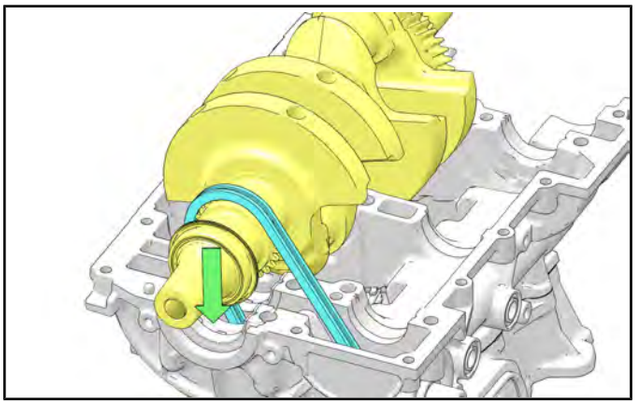
7. Loop cam chain ⑥ and oil pump drive chain ⑧ over crankshaft sprockets.

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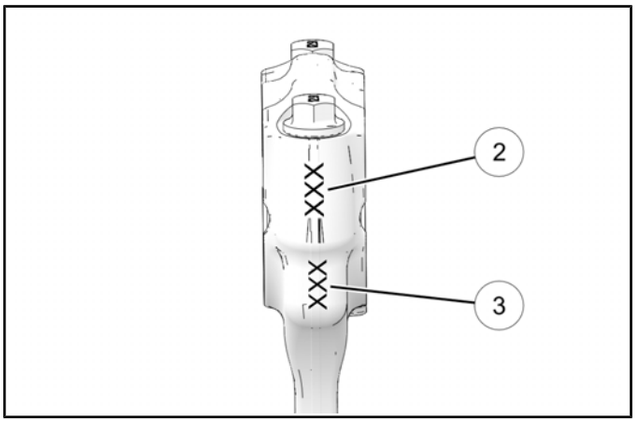
8. Apply Polaris PS-4 engine oil to the new crankshaft oil seal ⑦ and install the seal on the PTO end of the crankshaft.



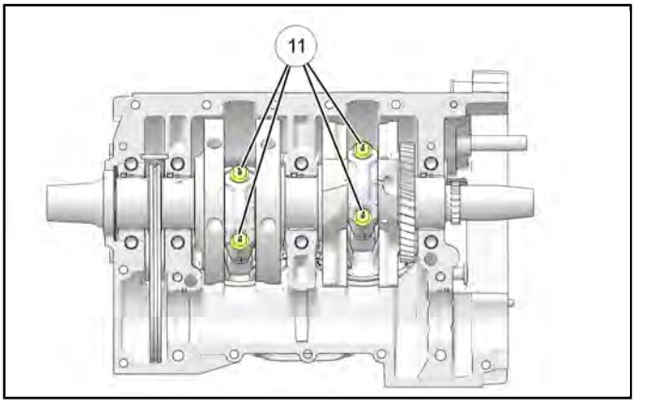
9. Carefully lower the crankshaft into upper crankcase. Guide connecting rods onto the rod journals of crankshaft as necessary.



10. Adjust the PTO crankshaft seal so it rests properly in the upper crankcase.
11. Clean bolt hole threads in connecting rod to remove all oil.
12. Install matching rod cap on connecting rod with 3 digit serial number stampings aligned ② & ③.



13. Install *new bolts* ⑪ and tighten evenly until snug.

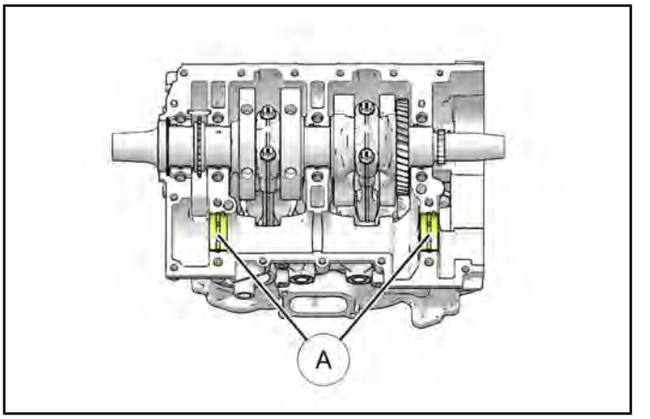


14. Torque connecting rod bolts to specification.

TORQUE
Connecting Rod Bolts:
Step 1: 9 ft-lbs (12 Nm)
Step 2: 13 ft-lb (18 Nm)
Step 3: Tighten add'n 105°

BALANCE SHAFT INSTALLATION

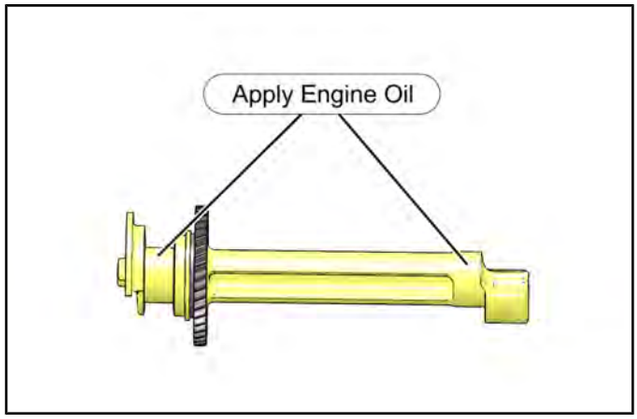
1. Clean the upper crankcase balance shaft bearing bore surfaces.
2. Align tab of new balance shaft bearings (A) with the slot in each bearing bore of crankcase. Press bearing insert firmly into place.



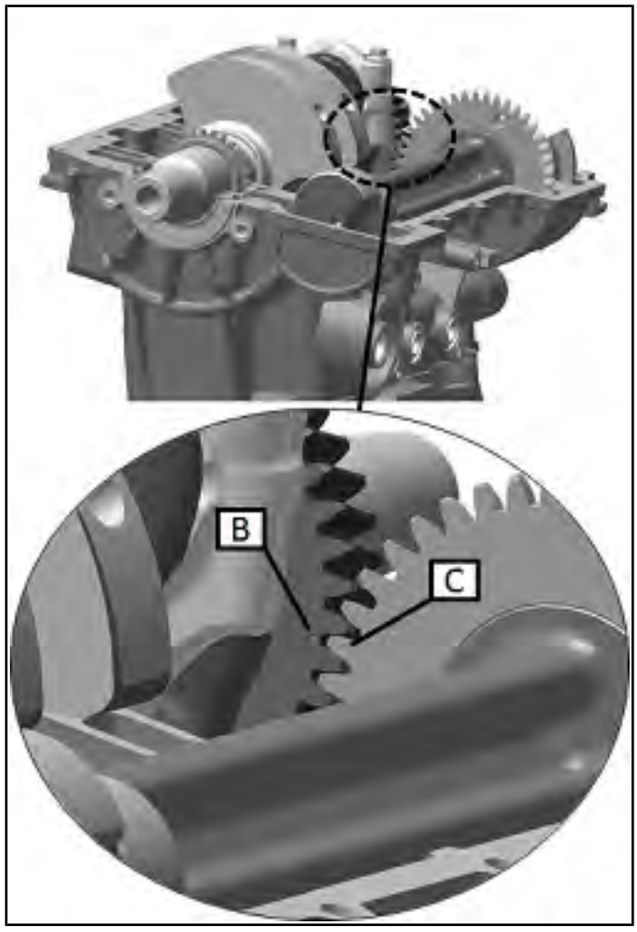
3. Rotate the crankshaft until the alignment dot (B) on the crankshaft MAG end gear is visible.

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4. Apply Polaris PS-4 engine oil to both balance shaft journals.



5. Install the balance shaft, placing the tooth with the alignment dot (C) in-line with the dot (B) on the crankshaft gear (see reference images below).



LOWER CRANKCASE PREPARATION

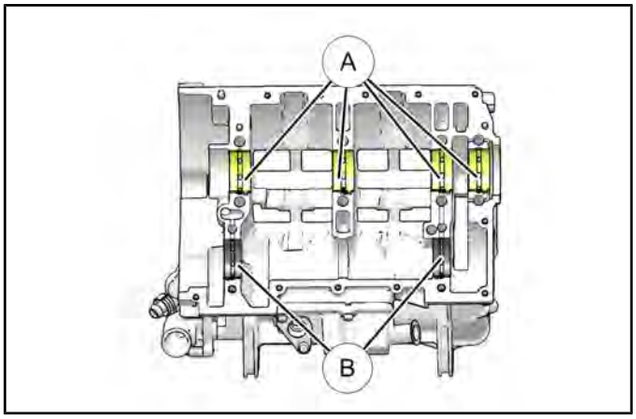
NOTE

Always replace plain bearings when the crankcase or connecting rods have been disassembled. Refer to the bearing selection chart provided in the **"Crankshaft Main Bearing Selection", page 3.143** and **"Connecting Rod Bearing Selection", page 3.143** procedures.

1. Remove all traces of crankcase sealant from the crankcase mating surfaces. Inspect the surfaces closely for nicks, burrs or damage.
2. Clean bolt hole threads to remove any oil or crankcase sealant.
3. Inspect crankcase bearing bores. Replace the crankcase assembly if a bearing bore is galled or if bearing inserts have rotated in the case.
4. Be sure alignment pins are in place where used.
5. Refer to **"Engine Oil Flow Chart", page 3.108** at the beginning of this chapter and trace the oil paths through the crankcase and cylinder.
6. Flush all oil passages with solvent and then warm soapy water. Rinse with clear, warm water and dry with compressed air.
7. Be sure passages are clean and dry before assembling the crankcase.

CRANKCASE ASSEMBLY

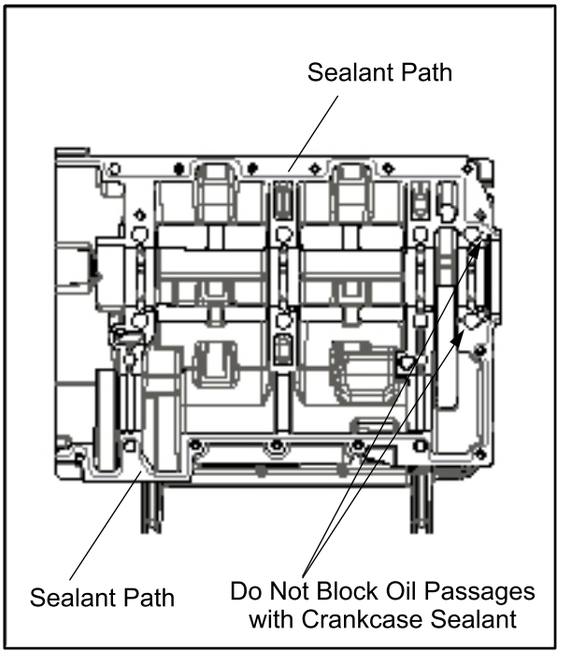
1. Check to be sure the PTO crankshaft seal is resting properly in the upper crankcase.
2. Align tab of new main bearings (A) and new balance shaft bearings (B) with the slot in each bearing bore of the lower crankcase. Press bearing inserts firmly into place.



3. Apply Polaris PS-4 engine oil to the new bearings installed in the lower crankcase half.

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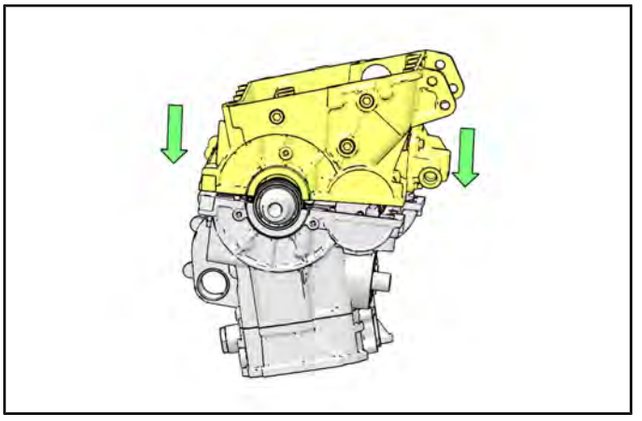
4. Clean crankcase mating surfaces to remove any oil.
5. Apply a thin, continuous film of Crankcase Sealant **(PN 2871557)** to upper crankcase mating surface as shown. Do not allow sealant to dry before assembly.



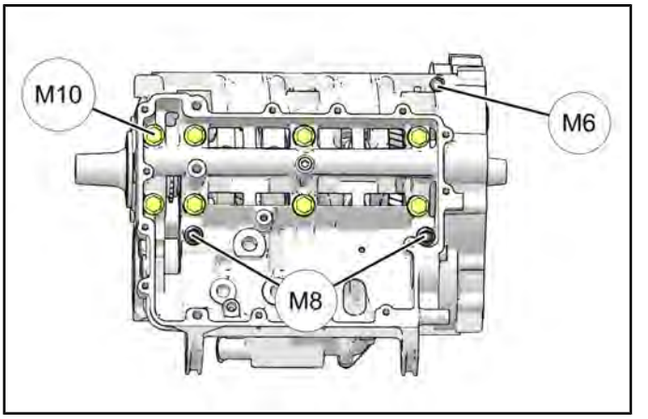
NOTE

DO NOT block oil passages with crankcase sealant.

6. Carefully place lower crankcase on upper case, making sure the oil pump drive chain is fed through the lower crankcase.



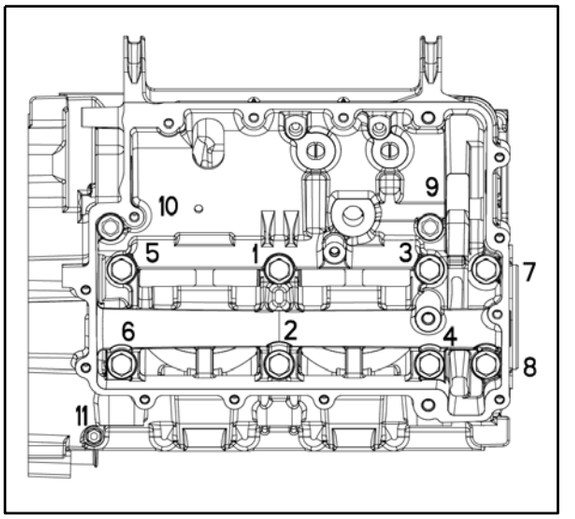
7. Tap lower crankcase with a rubber hammer to seat the case halves together.
8. Inspect crankcase mating surfaces to be sure they are joined properly. Investigate the cause of any gaps.
9. Install the eight M10, two M8 and one M6 lower crankcase bolts. Tighten all bolts lightly by hand.



NOTE

Install new M10 lower crankcase bolts.

10. Torque lower crankcase bolts in sequence to specification. Repeat sequence to verify final torque.



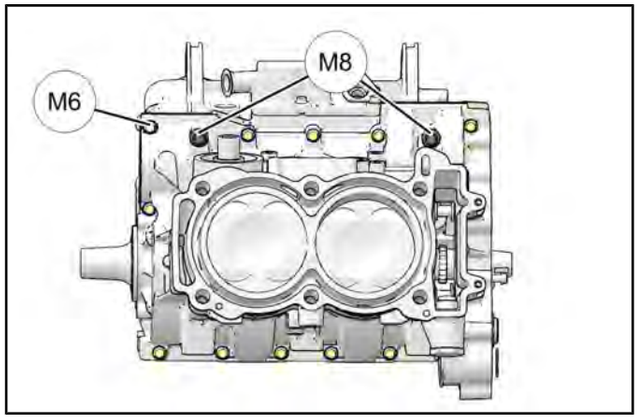
TORQUE

Lower Crankcase Bolts:
M10 Bolts:
Step 1: **9 lb-ft (12 Nm)**
Step 2: **21 lb-ft (28 Nm)**
Step 3: **Additional 90°**
M8 Bolts: **26 lb-ft (35 Nm)**
M6 Bolts: **9 lb-ft (12 Nm)**

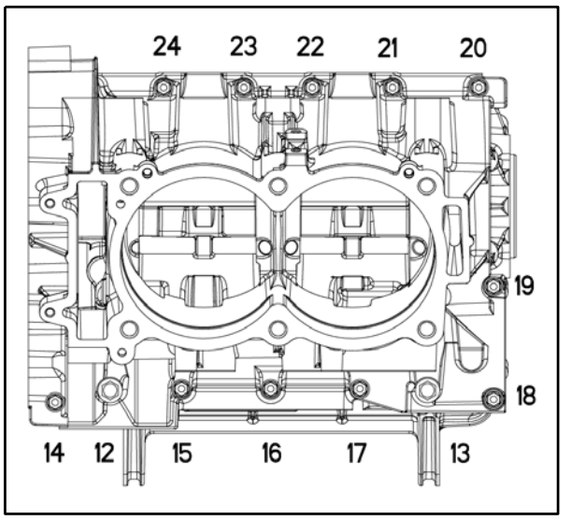
11. Rotate the engine so the cylinder is facing up.

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12. Install the eleven M6 and two M8 upper crankcase bolts. Tighten all bolts lightly by hand.

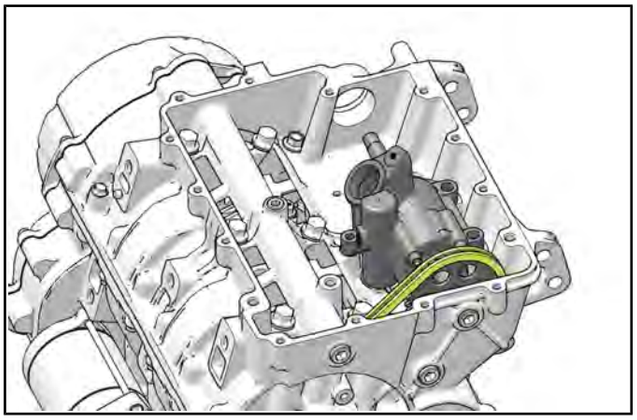


13. Torque the upper crankcase bolts in sequence to specification (start with #12). Repeat the sequence to verify final torque.

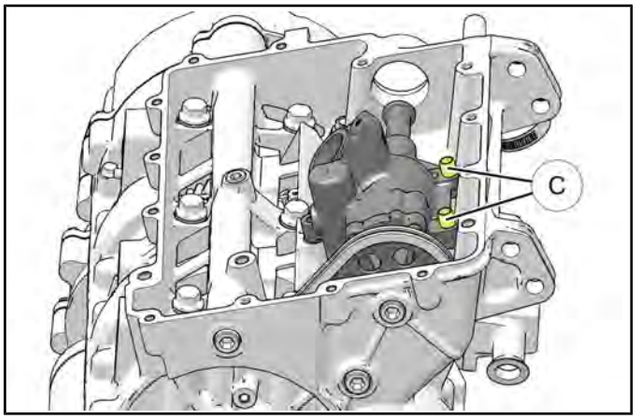


TORQUE
Upper Crankcase Bolts: *M8 Bolts:* **26 lb-ft (35 Nm)** *M6 Bolts:* **7 lb-ft (10 Nm)**

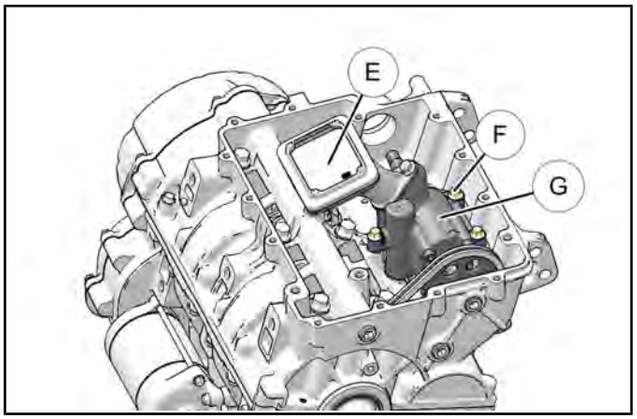
14. Rotate the engine so the cylinder is facing down.
15. Install a new seal on the oil pump.
16. Lift the oil pump drive chain and install the oil pump.



17. Install dowel pins (C) into oil pump mounting holes.



18. Install the three bolts (D) that retain oil pump (E) to the crankcase. Torque mounting bolts to specification.



TORQUE
Oil Pump Mounting Bolts: **7 lb-ft (10 Nm)**

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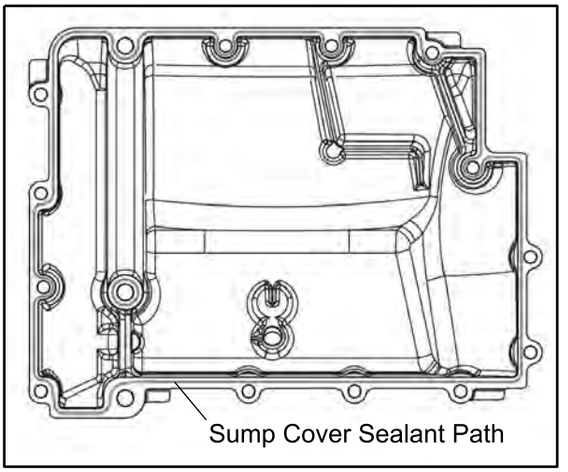
19. Reinstall oil pump pick-up (F) if previously removed. Torque mounting screws to specification.

TORQUE
Oil Pump Pick-Up Retaining Screws: **7 lb-ft (10 Nm)**

20. Clean the gasket sealing surfaces on oil sump cover and crankcase to remove old gasket material and any oil.

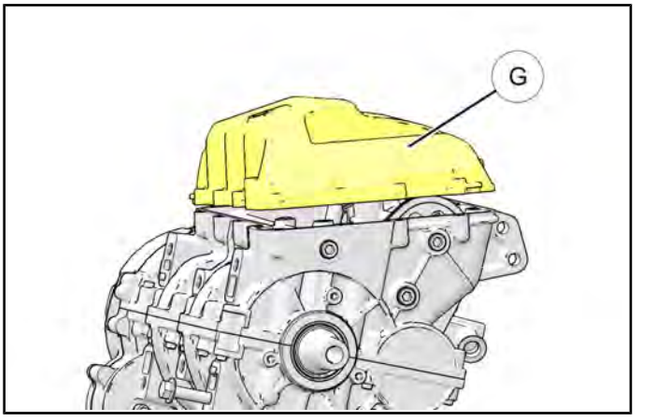
NOTE
Gasket surfaces must be DRY and oil free. Use care upon assembly to keep oil away.

21. Apply a thin, continuous film of Crankcase Sealant **(PN 2871557)** to sump cover mating surface as shown. Do not allow sealant to dry before assembly.

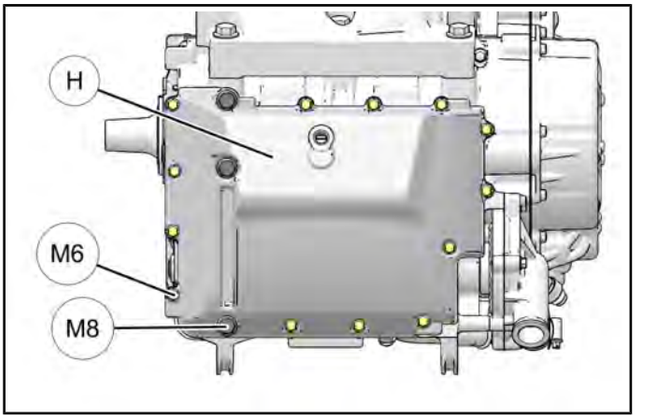


NOTE
Dipstick must be removed before oil pan is assembled to the engine. Failure to do this will damage the dipstick.

22. Install the oil sump cover (G) onto the crankcase.

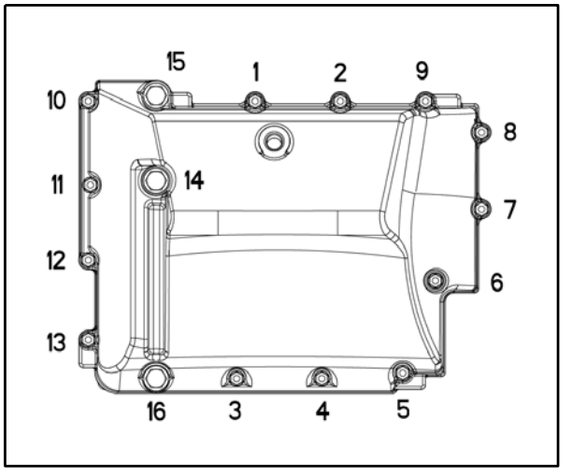


23. Install the thirteen M6 and three M8 bolts that retain the oil sump cover (H) to the crankcase.



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24. Torque the oil sump cover bolts in sequence to specification. Repeat the sequence to verify final torque.

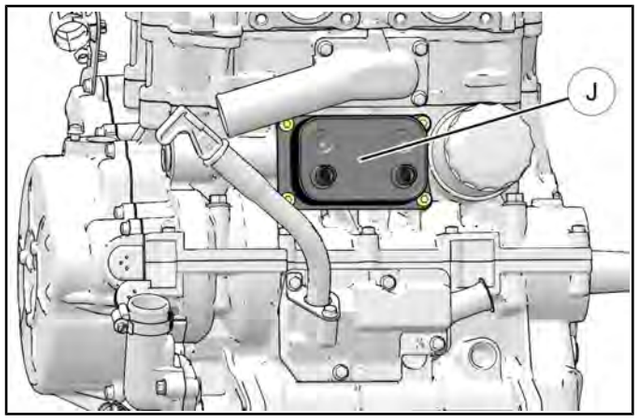


TORQUE
Oil Sump Cover Bolts: *M6 Bolts:* **9 lb-ft (12 Nm)** *M8 Bolts:* **26 lb-ft (35 Nm)**

25. Reinstall the crankcase drain plug if previously removed. Torque drain plug to specification.

TORQUE
Crankcase Drain Plug: **12 lb-ft (16 Nm)**

26. Rotate the engine so the cylinder is facing up.
27. Reinstall the oil cooler (J), if previously removed. Use *new O-rings* upon installation.



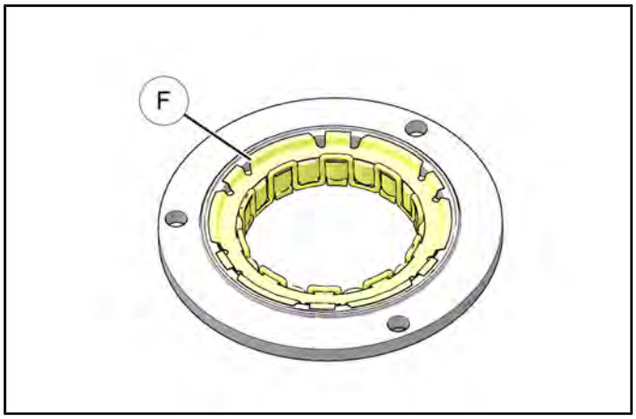
28. Torque oil cooler retaining bolts to specification.

TORQUE
Oil Cooler Retaining Bolts: **7 lb-ft (10 Nm)**

29. Proceed to “Flywheel Installation” and then “Cylinder Head Installation”.

STARTER ONE-WAY CLUTCH ASSEMBLY

1. Install one-way clutch in clutch hub with flange of clutch (F) engaged in recess.

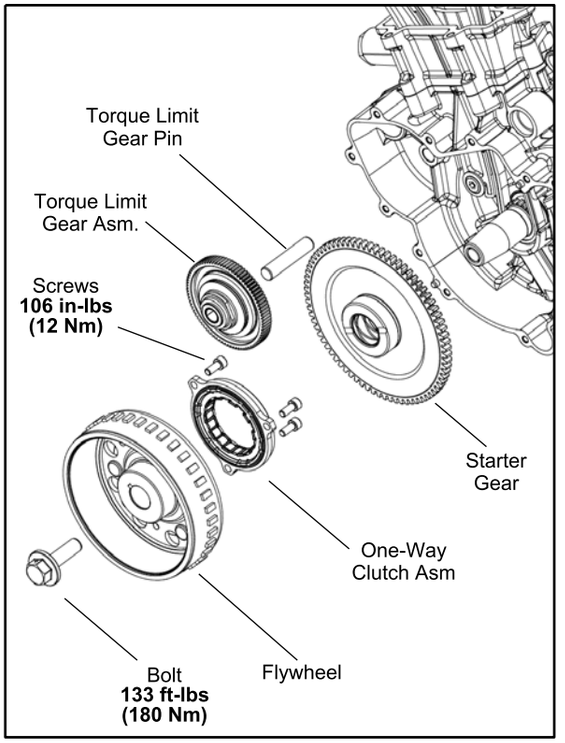


2. Clean screw threads in flywheel to remove all oil or grease.
3. Place one-way clutch on flywheel and install the three screws. Torque screws to specification.

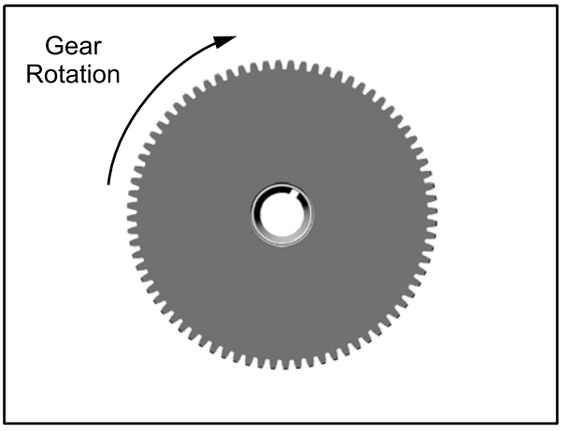
TORQUE
One-Way Clutch Retaining Screws: **9 lb-ft (12 Nm)**

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4. Reassemble starter one-way clutch and gear using the following illustration.



5. If starter gear was replaced, inspect the torque limit gear.
6. After assembly, be sure the starter gear rotates in the clockwise direction only.

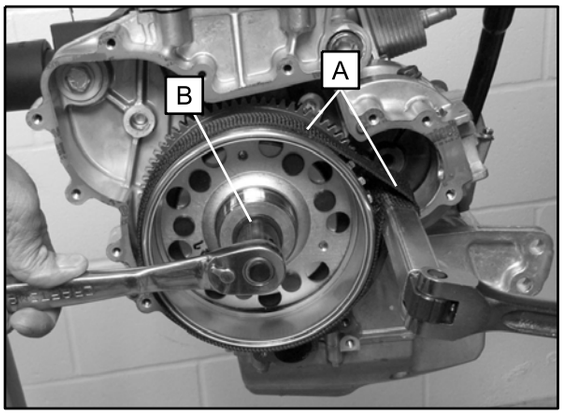


FLYWHEEL INSTALLATION

1. If previously removed, reinstall the flywheel key.
2. Clean taper of crankshaft to remove all oil or grease.
3. Clean flywheel taper to remove all oil or grease.
4. Align flywheel key-way with key and install the flywheel, seating it fully on taper.
5. Apply Loctite® 641 (Yellow), or Loctite® 603 (Green) if unavailable, using an applicator to external taper surface on the crankshaft. Apply bead 5-6 mm from the center of the taper and offset to the smaller end on the crankshaft. Be careful to not apply any Loctite to the starter gear bearing
6. Apply Loctite® 641 (Yellow), or Loctite® 603 (Green) if unavailable, using an applicator to internal taper surface on flywheel. Apply bead 5-6 mm from the center of the taper, offset to the larger diameter of the taper on the flywheel. By hand, lightly press the flywheel and install flywheel retaining bolt. Using a commercially available strap wrench (A), hold the flywheel and torque the flywheel retaining bolt (B) to specification.

NOTE

If the Cylinder Holding & Camshaft Timing Plate (**PU-50563**) is installed, remove it before tightening the flywheel.

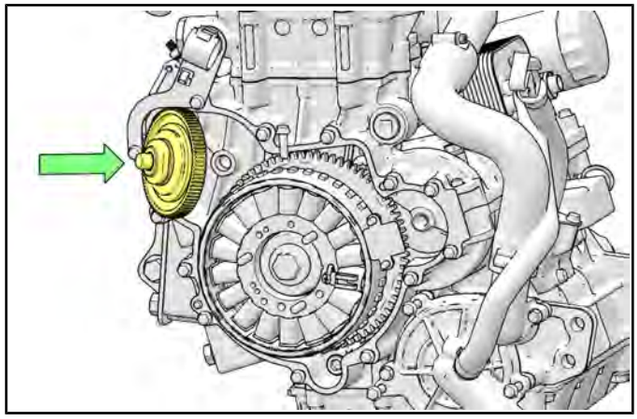


TORQUE

Flywheel Retaining Bolt:
133 lb-ft (180 Nm)

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7. Install the starter torque limit gear as an assembly.



8. Wipe off excess Loctite and let stand for 1 hour before starting engine.
9. If failure repeats after reassembly repeat procedure and let stand for 24 hours before starting.

NOTE

Loctite® cures with time, the longer the unit is let stand before engine starting the better the joint will be

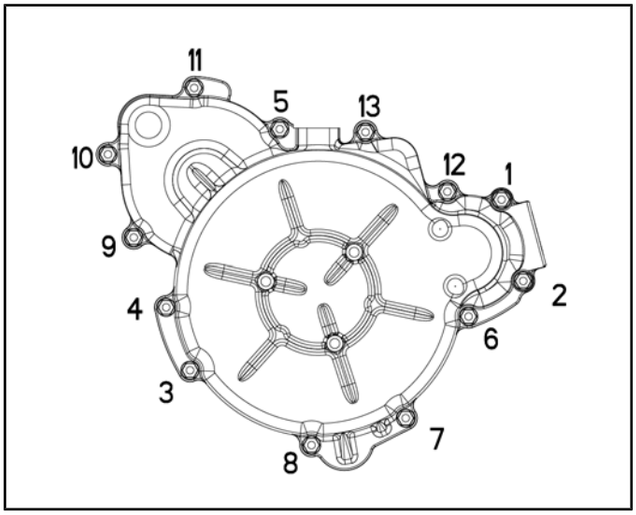
STATOR COVER INSTALLATION

1. Apply gasket tack adhesive to help hold gasket in place during assembly.
2. Install a new stator cover gasket over alignment pins.

CAUTION

The flywheel contains powerful magnets. Use caution when removing and installing the stator cover. DO NOT place fingers between cover and crankcase at any time during the removal / installation process or injury could result.

3. Install stator cover and thirteen screws. Torque screws in sequence to specification.



TORQUE

Stator Cover Screws:
9 lb-ft (12 Nm)

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ENGINE ASSEMBLY - TOP END (900 / 1000)

CYLINDER HEAD ASSEMBLY

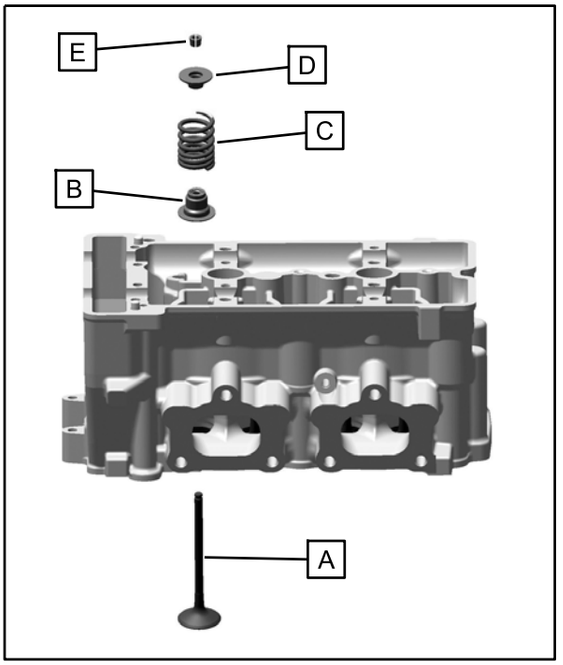
NOTE

Assemble the valves one at a time to maintain proper order.

⚠ WARNING

Wear eye protection during cylinder head disassembly and reassembly or when working with the valve springs.

1. Apply engine oil to valve guides and seats.
2. Coat valve stem with Premium Starter Grease (2871460).
3. Install the valve (A) in the cylinder head, through the guide.

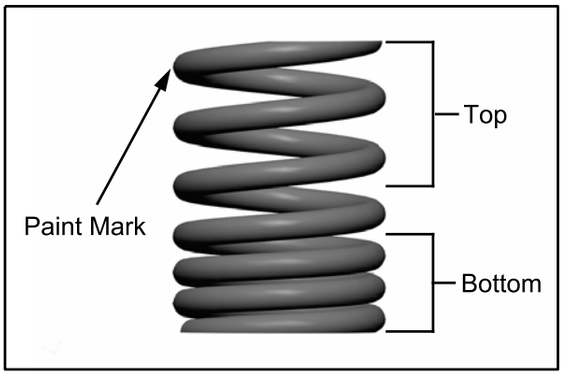


4. Carefully install a new valve seal / seat (B) on the valve guide with a rotating motion. Push firmly until seated in retaining groove and square with the guide

NOTE

Valve seals should be installed AFTER the valves are in the head to avoid valve seal damage.

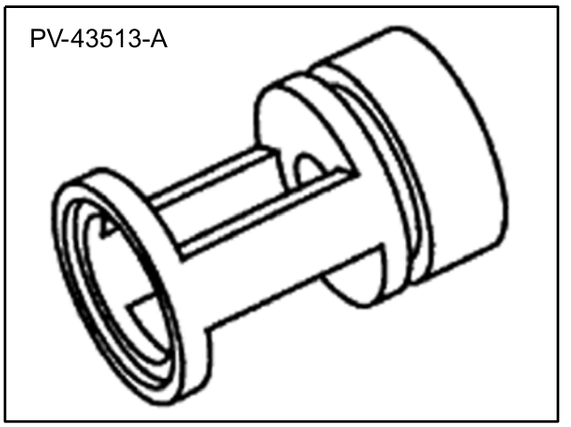
5. Dip the valve spring (C) and retainer (D) in clean engine oil.
6. Install the valve spring (C) with tightly spaced coils facing down toward the cylinder head.



NOTE

Valve springs to be installed with paint mark facing up.

7. Place the valve retainer (D) on the spring.
8. Compress the valve spring by hand using valve spring compressor adapter (**PV-43513-A**). Compress spring only enough to allow split keeper installation.



NOTE

To prevent damage to the valve seals, do not compress the valve spring more than necessary to install the keepers.

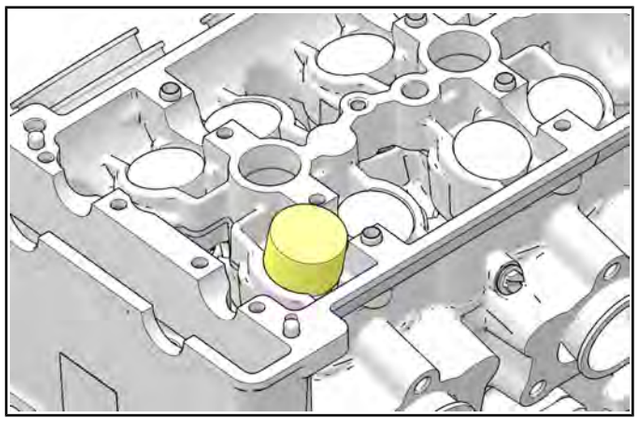
9. Install split keepers (E) with gap even on both sides.
10. Repeat this procedure for remaining valves.

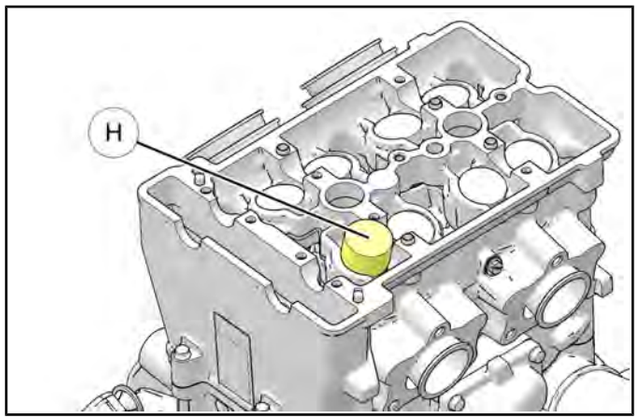
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11. Install the valve tappet (H) for each valve in the order they were removed. Refer to **"Valve Clearance Adjustment", page 3.169** procedure.

NOTE
Oil the tappet prior to installing.

Shim 230 is for reference only. Refer to "**"Valve Clearance Adjustment", page 3.169** for proper shim selection.

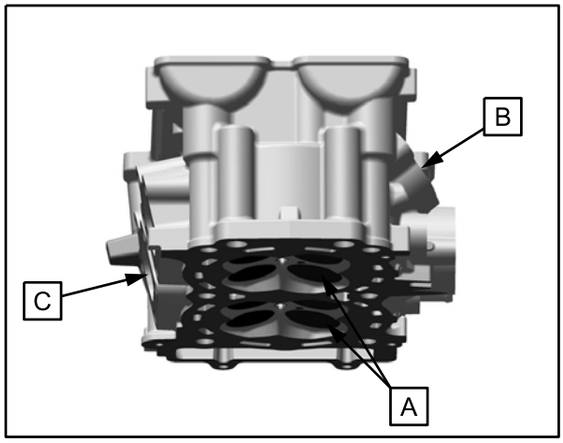




If any valve train components were replaced, refer to **"Valve Clearance Adjustment", page 3.169** procedure prior to **"Camshaft Installation / Timing", page 3.161** procedure.

VALVE SEALING TEST

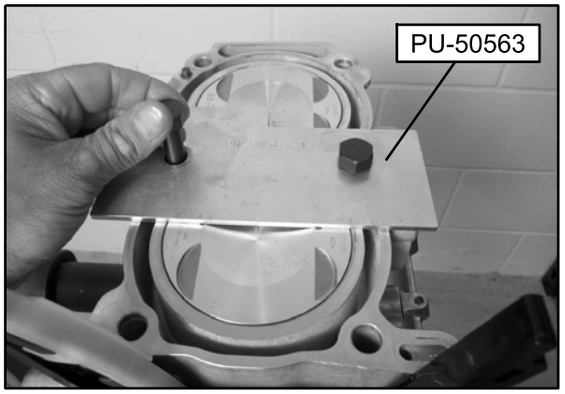
1. Clean and dry the combustion chamber area (A).
2. Pour a small amount of clean solvent into each intake port (B) and check for leakage around the valves. The valve seats should hold fluid with no seepage.
3. Repeat for exhaust valves by pouring fluid into each exhaust port (C).



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CYLINDER HEAD INSTALLATION

1. If necessary, rotate the engine so the cylinder is facing up.
2. If installed, remove the Cylinder Holding & Camshaft Timing Plate (**PU-50563**) from the cylinder.



NOTE

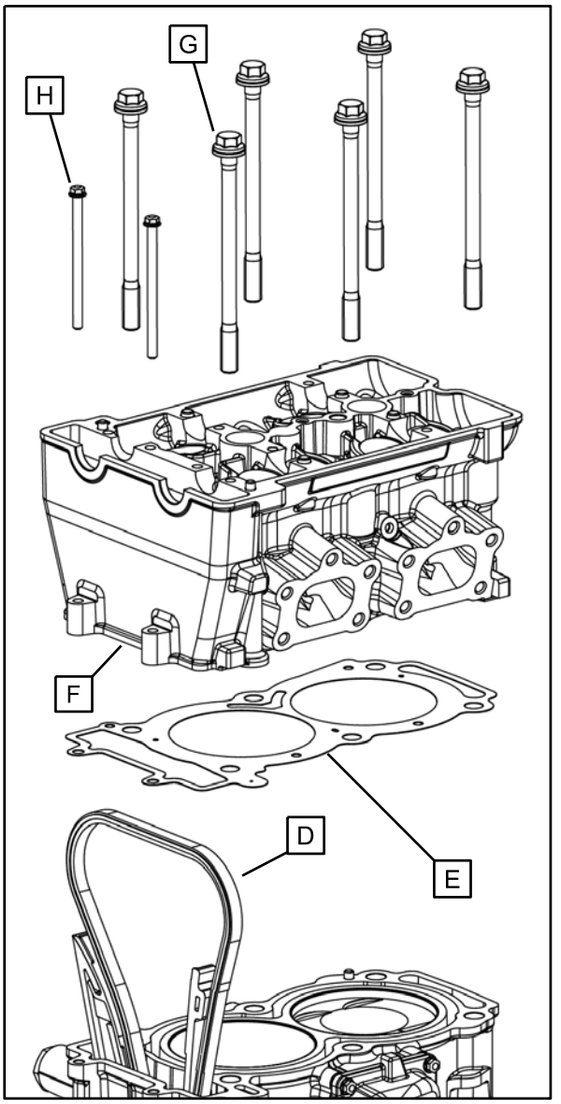
Once the cylinder head is removed, nothing retains the cylinder to the engine. DO NOT rotate the engine without using the Cylinder Holding & Camshaft Timing Plate (**PU-50563**).

3. Prepare cylinder head gasket sealing surfaces by cleaning thoroughly to remove all residue. The head gasket must be installed clean and dry, free from oil or grease.

NOTE

Do not touch sealing surfaces of gasket.

4. Guide cam chain (D) through a new head gasket (E) and install the gasket on the cylinder, locating it on the alignment pins.
5. Carefully set the cylinder head (F) in place on alignment pins.
6. Install *new bolts* and finger tighten the six cylinder head bolts (G) evenly.
7. Install and finger tighten the two outer M6 bolts (H) evenly.

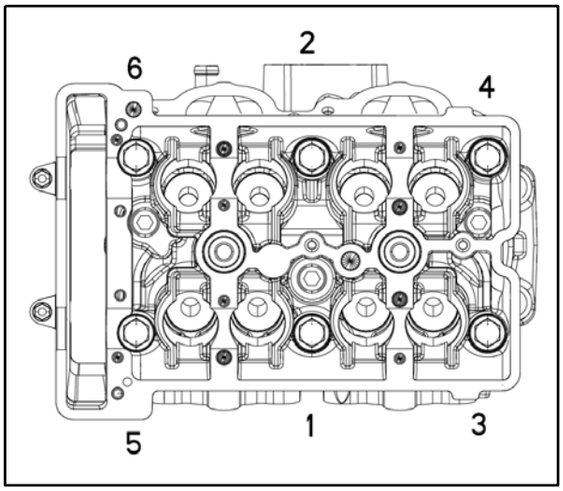


NOTE

Install new cylinder head bolts.

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8. Torque cylinder head bolts in sequence to specification.



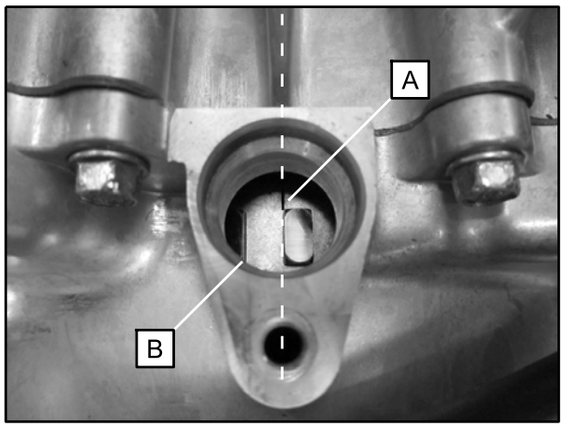
TORQUE
Cylinder Head Bolts: Step 1: **9 lb-ft (12 Nm)** Step 2: **26 lb-ft (35 Nm)** Step 3:**Additional 180°** Outer M6 Head Bolts: **7 lb-ft (10 Nm)**

CAMSHAFT INSTALLATION / TIMING (900)

NOTE

If any valve train components were replaced, refer to **“Valve Clearance Adjustment”, page 3.169** procedure prior to this procedure.

1. Rotate the engine until the flywheel Top Dead Center (TDC) mark (A) is aligned or centered in the Crankshaft Position Sensor (CPS) mounting hole (B). This places the PTO cylinder at TDC for camshaft installation.

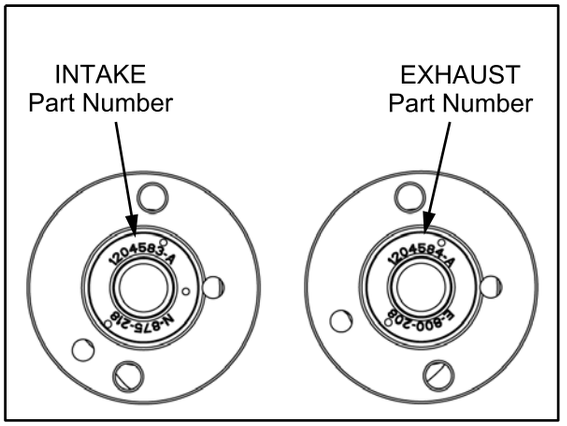


NOTE

DO NOT use the “V” mark located on the flywheel opposite of the “I” mark. Only the “I” mark should be used as a TDC reference.

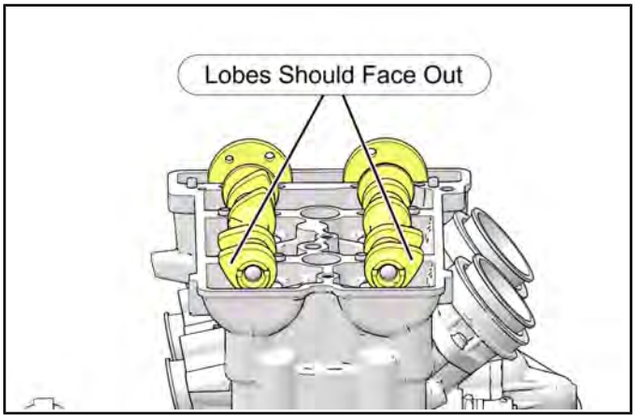
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2. Reference the intake and exhaust markings made during disassembly. If installing new camshafts or if camshafts were not marked, you can reference the part number stamped on the end of the shafts.

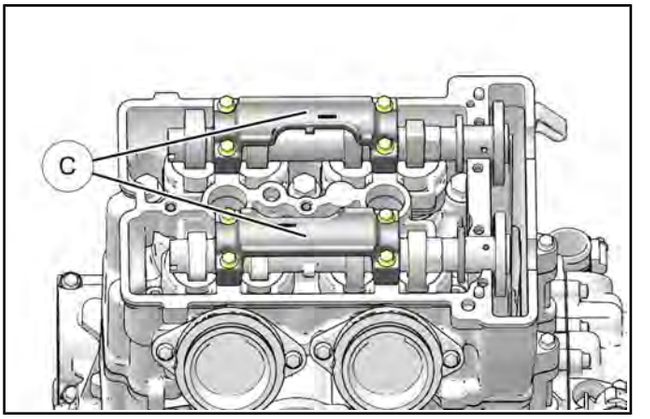


Intake Camshaft PN: **1204583** Exhaust Camshaft PN: **1204584**

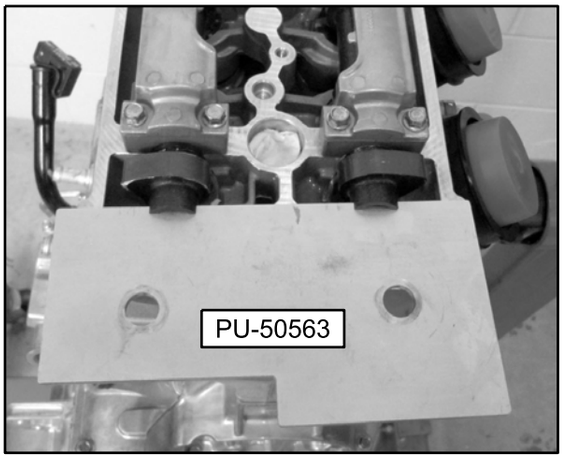
3. Lubricate all camshaft lobes and bearing journal surfaces with Polaris PS-4 engine oil prior to installation.
4. Carefully install the camshafts into the cylinder head. The PTO camshaft lobes should face out as shown.



5. Carefully install the rear camshaft carriers onto the camshafts. Carrier openings should face each other when installed properly.
6. Install the four bolts that retain each rear camshaft carrier (C) and tighten the bolts evenly until snug.



7. Install the Cylinder Holding & Camshaft Timing Plate (**PU-50563**) into the end of camshafts as shown. Use an open-end wrench to rotate camshafts slightly if needed.



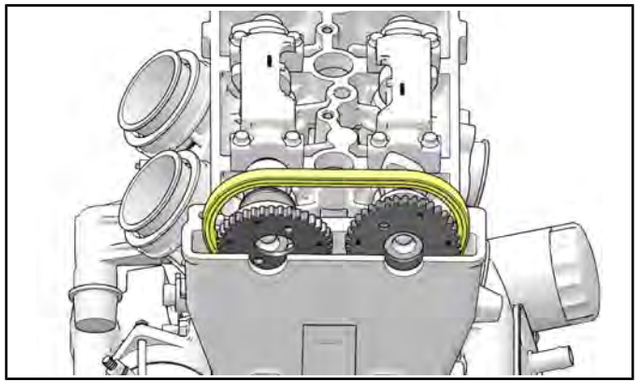
8. Verify TDC mark on the flywheel is still properly aligned (see Step 1).
9. Pull cam chain upward, making sure it is engaged with the drive sprocket on the crankshaft.
10. While lifting the cam chain up, engage the cam sprockets into the chain with the “I” and “E” marks facing out.

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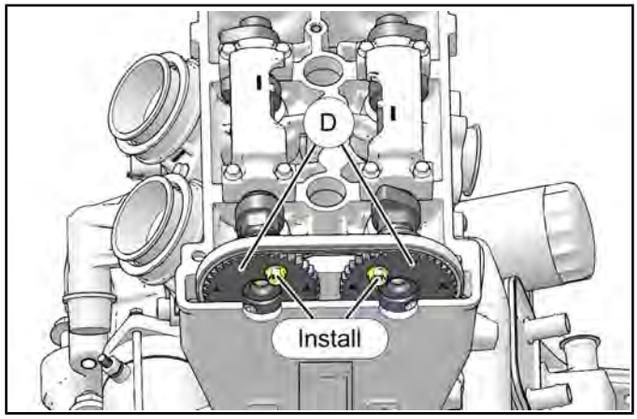
11. Install the sprockets onto the camshafts and align the sprocket marks with the valve cover gasket surface (see sprocket timing illustration).

NOTE

Intake cam sprocket should have “I” marks aligned with gasket surface and the exhaust cam sprocket should have “E” marks aligned with gasket surface.
Install the exhaust cam sprocket first (opposite the cam chain tensioner) to ensure proper cam timing.



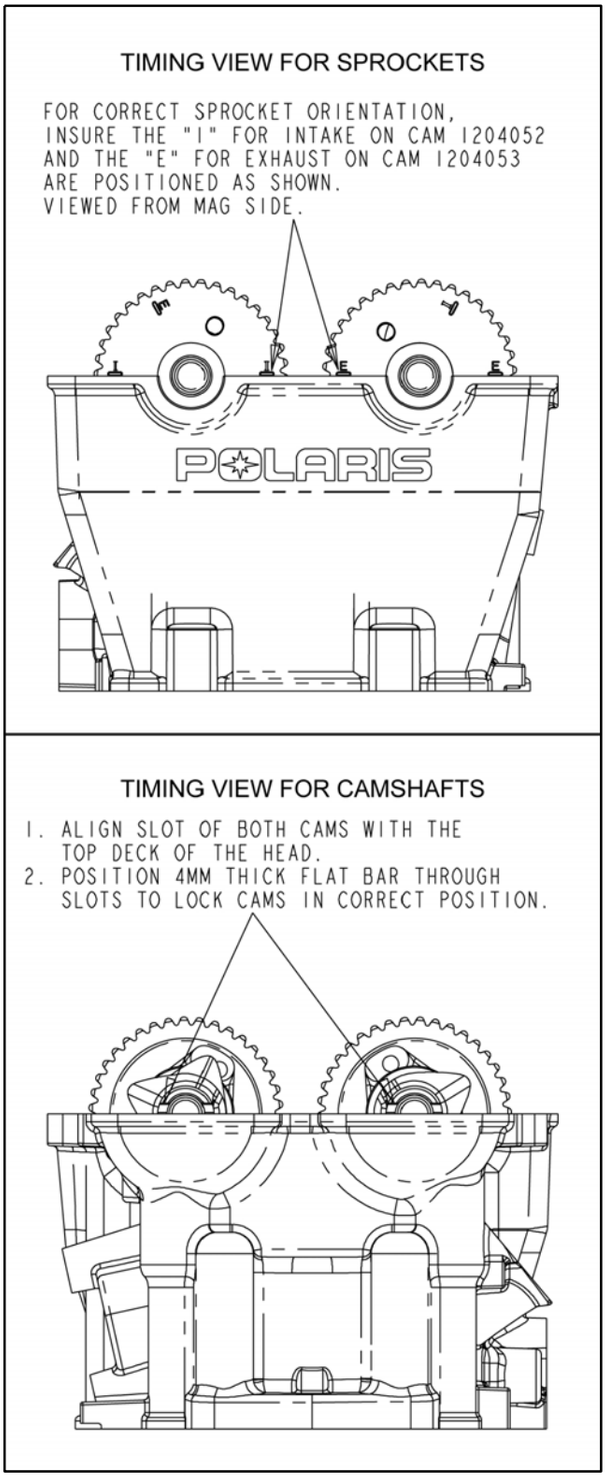
12. Use *new* camshaft sprocket retaining bolts upon assembly. Install the top bolt in each camshaft sprocket (D). Do not torque the bolts at this time.



NOTE

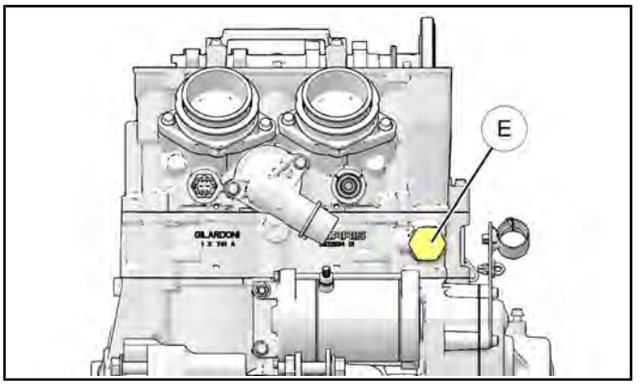
Use new sprocket retaining bolts upon assembly.

13. Verify cam timing is correct. Flywheel TDC mark should still be aligned (see Step 1) and cam sprocket markings should line up as shown.



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14. If timing marks are not aligned, remove sprockets and correct alignment.
15. Remove the Cylinder Holding & Camshaft Timing Plate (**PU-50563**) from the end of the camshafts.
16. Apply Polaris PS-4 engine oil to the cam chain tensioner bore prior to assembly.
17. Using a *new* gasket, install the hydraulic cam chain tensioner (E) into the cylinder and torque to specification.

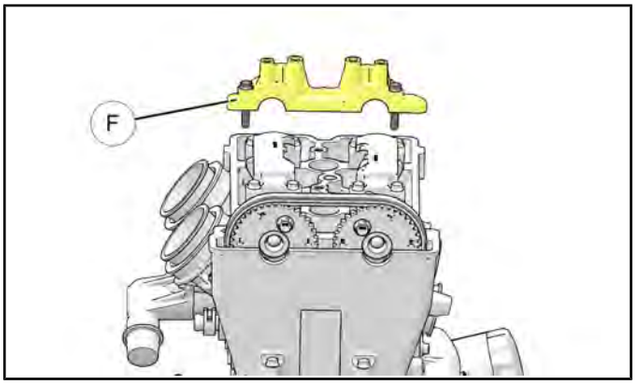


TORQUE
Cam Chain Tensioner: **30 lb-ft (40 Nm)**

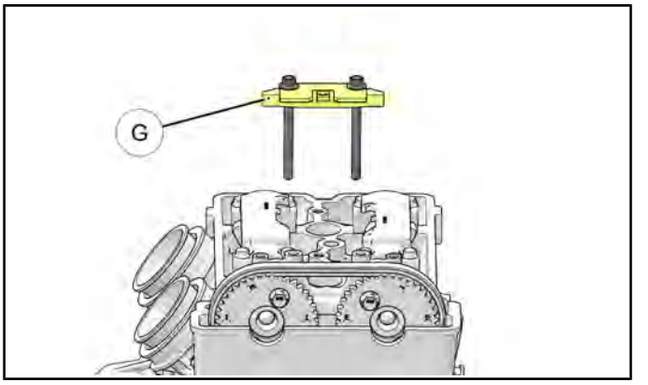
18. Rotate the engine using the flywheel and install the remaining bolt in each camshaft sprocket. Hold camshafts in place with an open-end wrench and torque the sprocket bolts to specification.

TORQUE
Camshaft Sprocket Bolts: **11 lb-ft (15 Nm)**

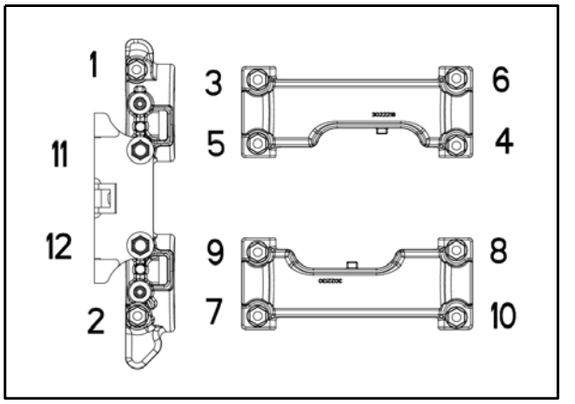
19. Rotate the engine using the flywheel and torque the remaining sprocket bolts to specification.
20. Install the front camshaft carrier (F) and two outer retaining bolts.



21. Install the fixed cam chain guide (G) and two retaining bolts.



22. Torque the camshaft carriers bolts in sequence to specification.



TORQUE
Camshaft Carrier Bolts: **7 lb-ft (10 Nm)**

23. Rotate crankshaft through two revolutions and verify camshaft timing is correct.

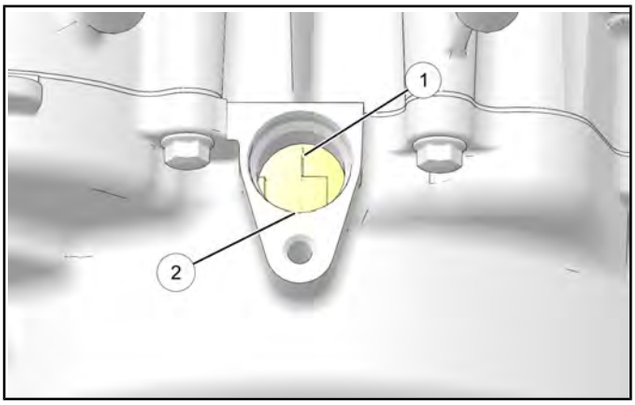
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CAMSHAFT INSTALLATION / TIMING (1000)

NOTE

If any valve train components were replaced, refer to **"Valve Clearance Adjustment", page 3.169** procedure prior to this procedure.

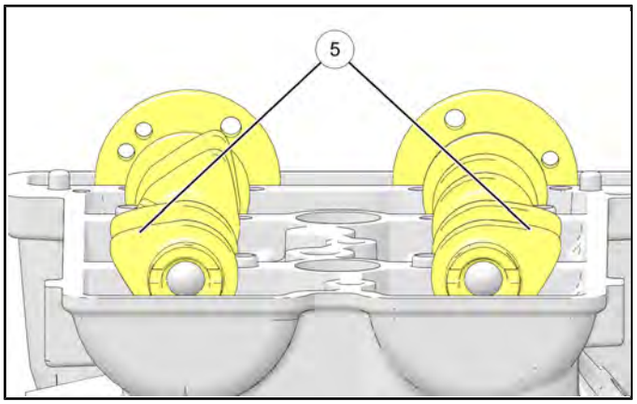
1. Rotate the engine until the flywheel Top Dead Center (TDC) mark ① is aligned or centered in the Crankshaft Position Sensor (CPS) mounting hole ②. This places the PTO cylinder at TDC for camshaft installation.



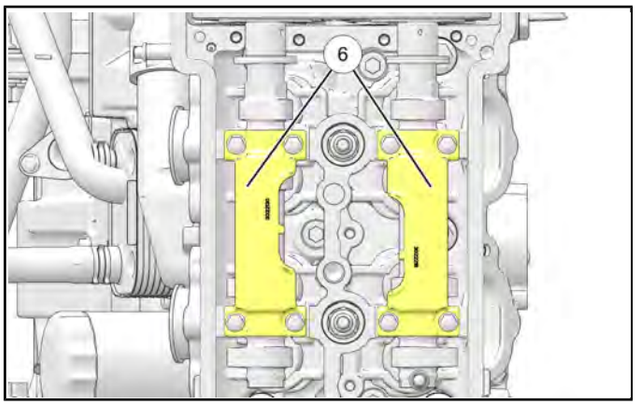
NOTE

DO NOT use the "V" mark located on the flywheel opposite of the "I" mark. Only the "I" mark should be used as a TDC reference.

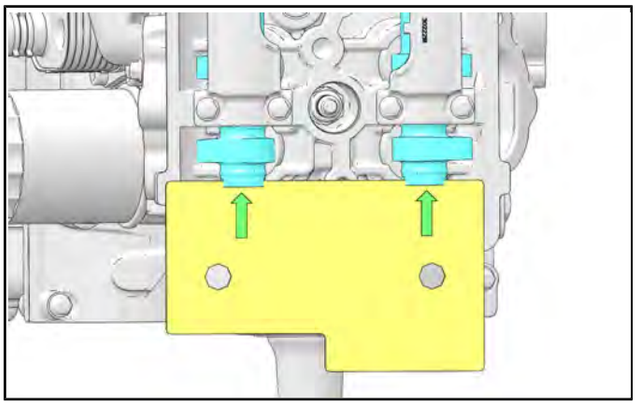
2. Reference the intake and exhaust markings made during disassembly. If installing new camshafts or if camshafts were not marked, you can reference the part number stamped on the end of the shafts and compare to the electronic parts catalog.
3. Lubricate all camshaft lobes and bearing journal surfaces with Polaris PS-4 engine oil prior to installation.
4. Carefully install the camshafts into the cylinder head. The PTO camshaft lobes ⑤ should face out as shown.



5. Carefully install the rear camshaft carriers onto the camshafts. Carrier openings should face each other when installed properly.
6. Install the four bolts that retain each rear camshaft carrier ⑥ and tighten the bolts evenly until snug.



7. Install the Cylinder Holding & Camshaft Timing Plate (**PU-50563**) into the end of camshafts as shown. Use a 13/16" open-end wrench to rotate camshafts slightly if needed.



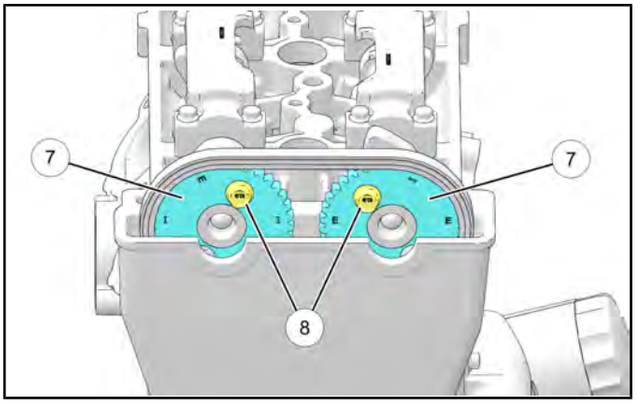
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8. Verify the TDC mark on the flywheel is still properly aligned (see Step 1).
9. Pull cam chain upward, making sure it is engaged with the drive sprocket on the crankshaft.
10. While lifting the cam chain up, engage the cam sprockets into the chain with the “I” and “E” marks facing out.
11. Install the sprockets onto the camshafts and align the sprocket marks with the valve cover gasket surface. Refer to “**Camshaft Timing - Quick Reference, page 3.168**” topic.

NOTE

Intake cam sprocket should have “I” marks aligned with gasket surface and the exhaust cam sprocket should have “E” marks aligned with gasket surface.
Install the exhaust cam sprocket first (opposite the cam chain tensioner) to ensure proper cam timing.

12. Use *new* camshaft sprocket retaining bolts upon assembly. Install the top bolt ⑧ in each camshaft sprocket ⑦. Do not torque the bolts at this time.



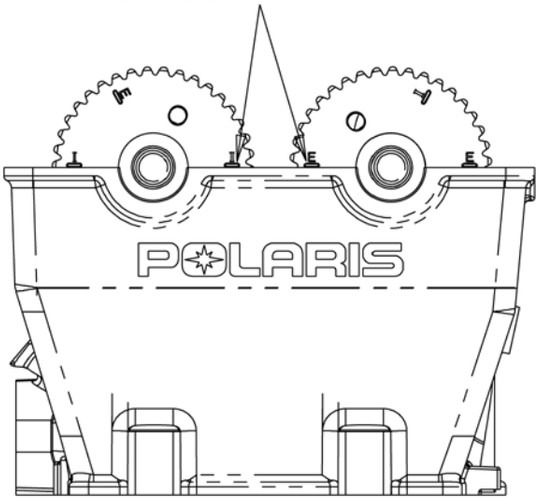
NOTE

Use new sprocket retaining bolts upon assembly.

13. Verify cam timing is correct. Flywheel TDC mark should still be aligned (see Step 1) and cam sprocket markings should line up as shown.

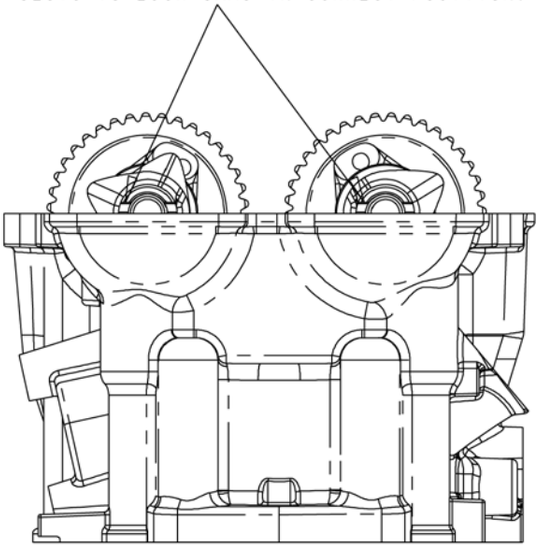
TIMING VIEW FOR SPROCKETS

FOR CORRECT SPROCKET ORIENTATION,
INSURE THE "I" FOR INTAKE ON CAM 1204052
AND THE "E" FOR EXHAUST ON CAM 1204053
ARE POSITIONED AS SHOWN.
VIEWED FROM MAG SIDE.



TIMING VIEW FOR CAMSHAFTS

1. ALIGN SLOT OF BOTH CAMS WITH THE TOP DECK OF THE HEAD.
2. POSITION 4MM THICK FLAT BAR THROUGH SLOTS TO LOCK CAMS IN CORRECT POSITION.

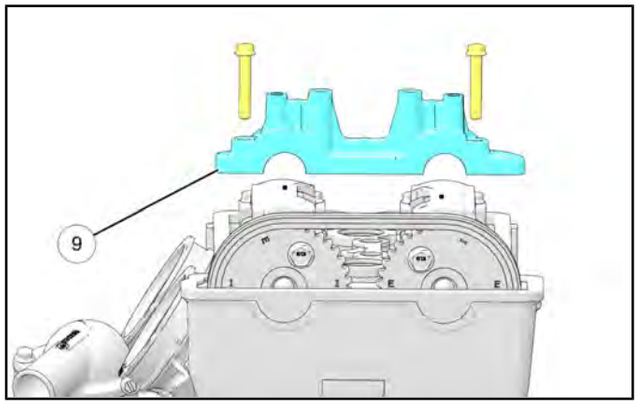


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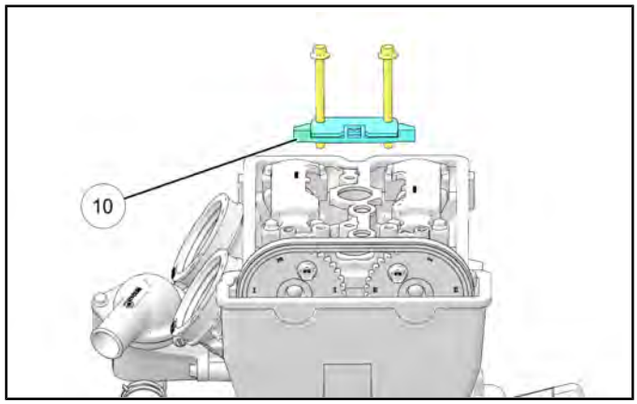
14. If timing marks are not aligned, remove sprockets and correct alignment.
15. Remove the Cylinder Holding & Camshaft Timing Plate (**PU-50563**) from the end of the camshafts.
16. Rotate the engine using the flywheel and install the remaining bolt in each camshaft sprocket. Torque the sprocket bolts to specification.

TORQUE
Camshaft Sprocket Bolts: **14 ft-lb (19 Nm)**

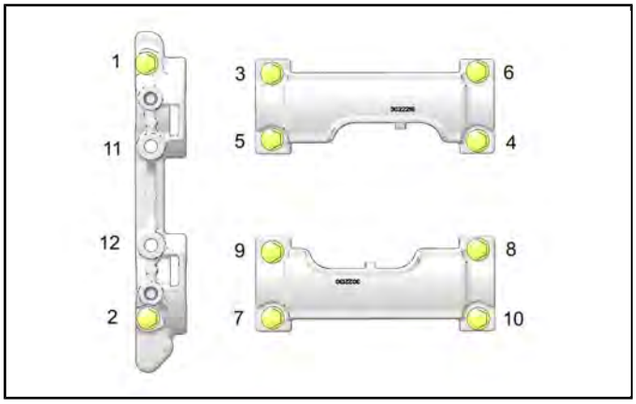
17. Rotate the engine using the flywheel and torque the remaining sprocket bolts to specification.
18. Install the front camshaft carrier ⑨ and two outer retaining bolts.



19. Install the fixed cam chain guide ⑩ and two retaining bolts.

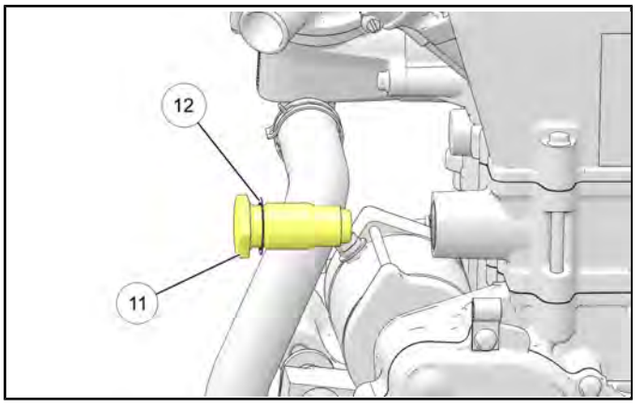


20. Torque the camshaft carriers bolts in sequence to specification.



TORQUE
Camshaft Carrier Bolts: **7 ft-lb (10 Nm)**

21. Apply Polaris PS-4 engine oil to the cam chain tensioner bore prior to assembly. Use a *new* tensioner sealing washer ⑫.
22. Install the hydraulic cam chain tensioner ⑪ into the cylinder and torque to specification.

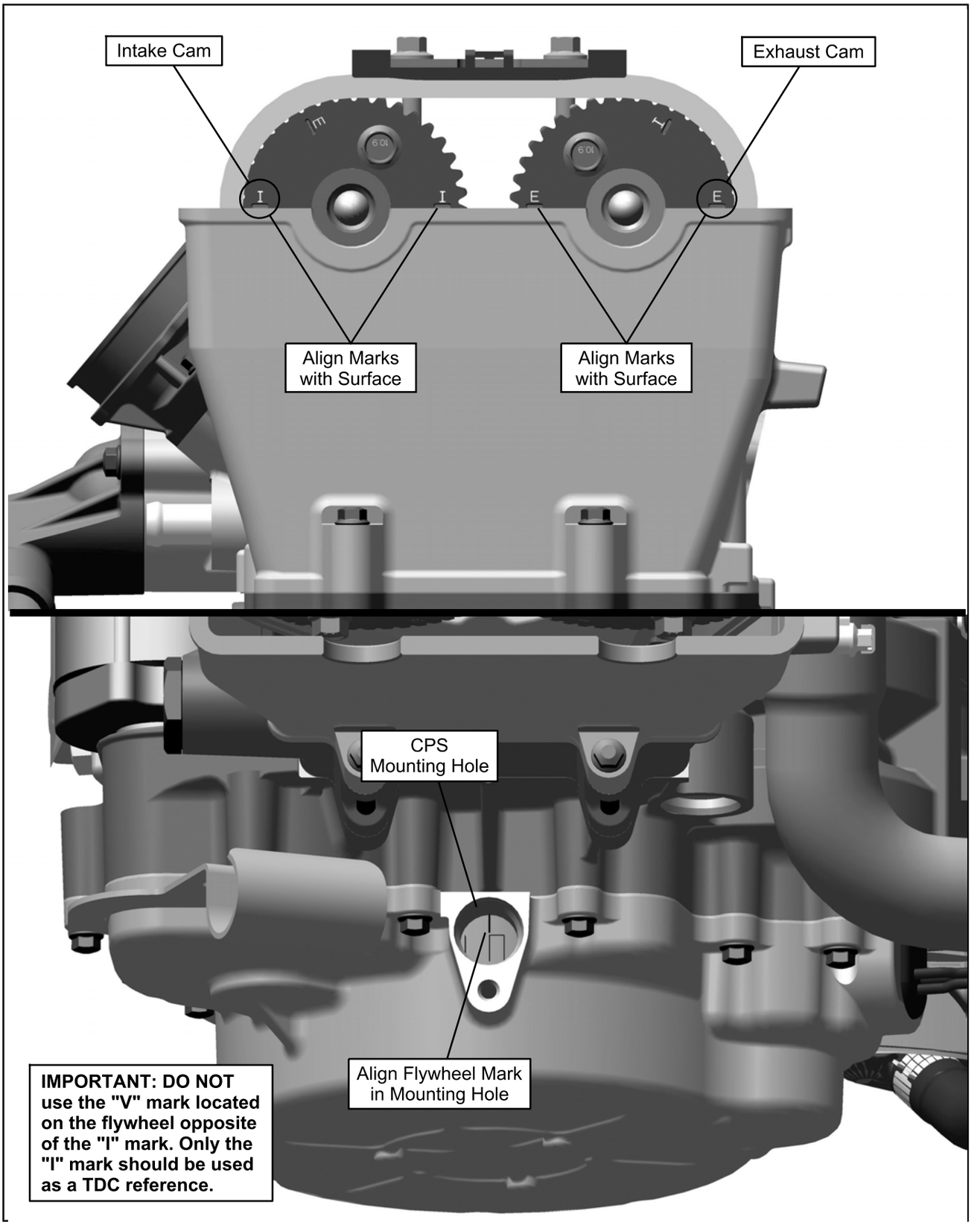


TORQUE
Cam Chain Tensioner: **30 lb-ft (40 Nm)**

23. Rotate crankshaft through two revolutions and verify camshaft timing is correct.

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CAMSHAFT TIMING - QUICK REFERENCE



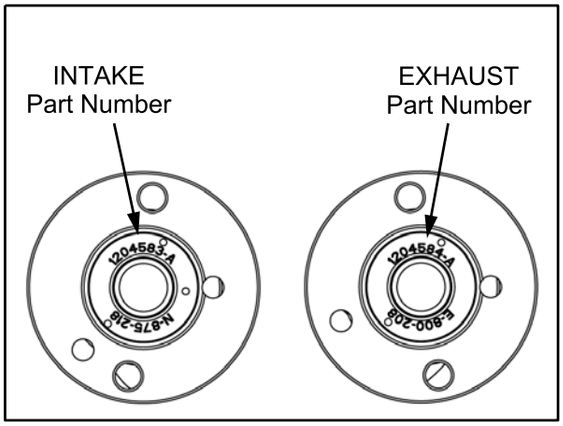
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VALVE CLEARANCE ADJUSTMENT

NOTE

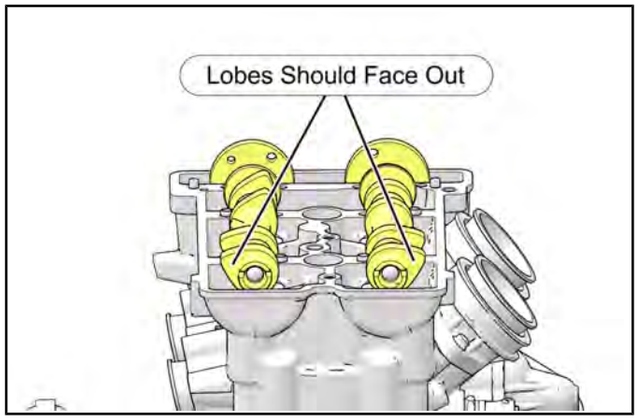
Always inspect valve clearance prior to camshaft installation or final engine assembly.

1. Reference the camshaft intake and exhaust markings made during disassembly. If installing new camshafts or if camshafts were not marked, you can reference the part number stamped on the end of the shafts.

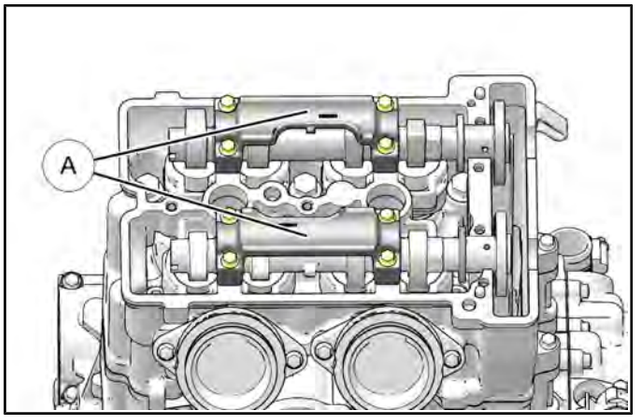


Intake Camshaft PN: **1204583**
Exhaust Camshaft PN: **1204584**

2. Lubricate the camshaft bearing journal surfaces with Polaris PS-4 engine oil prior to installation.
3. Carefully install the camshafts into the cylinder head. The PTO camshaft lobes should face out as shown.



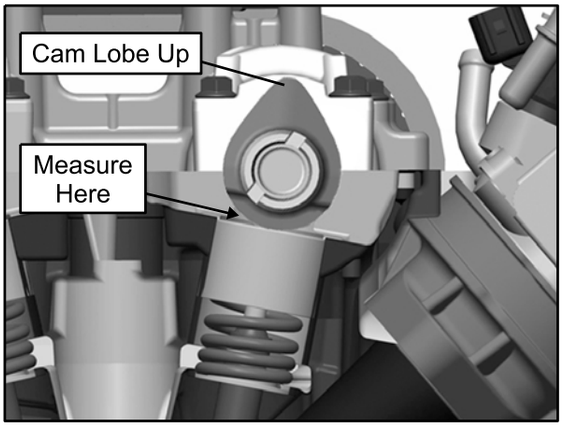
4. Carefully install the rear camshaft carriers onto the camshafts. Carrier openings should face each other when installed properly.
5. Install the four bolts that retain each rear camshaft carrier (A) and tighten the bolts evenly to specification.



TORQUE

Camshaft Carrier Bolts:
7 lb-ft (10 Nm)

6. Rotate the camshaft until the cam lobes above the valves you are inspecting are facing up.



7. Measure the valve clearance using a thickness (feeler) gauge. Record the measurement if clearance is out of specification.

MEASUREMENT

Intake Valve Clearance (cold):
.006 ± .002 in. (0.15 ± 0.05 mm)
Exhaust Valve Clearance (cold):
.008 ± .002 in. (0.20 ± 0.05 mm)

8. Repeat steps 6 and 7 until all eight valves have been inspected.

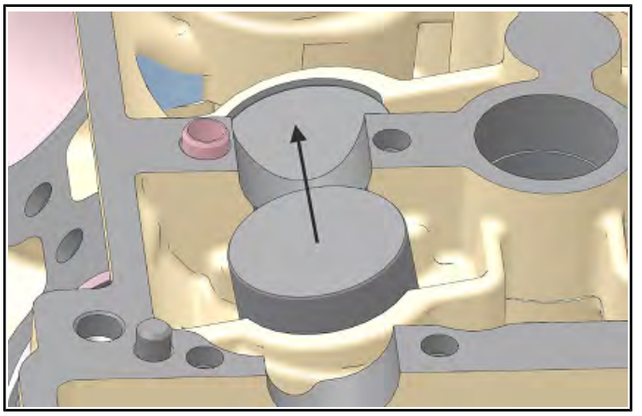
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9. If any of the valve clearance measurements are out of specification, remove the camshaft carriers and camshafts and proceed with this procedure.

NOTE

If all valve clearance measurements are within specification, remove the camshaft carriers and proceed to “Camshaft Installation / Timing”.

10. Remove the valve tappet from a valve that was out of specification.



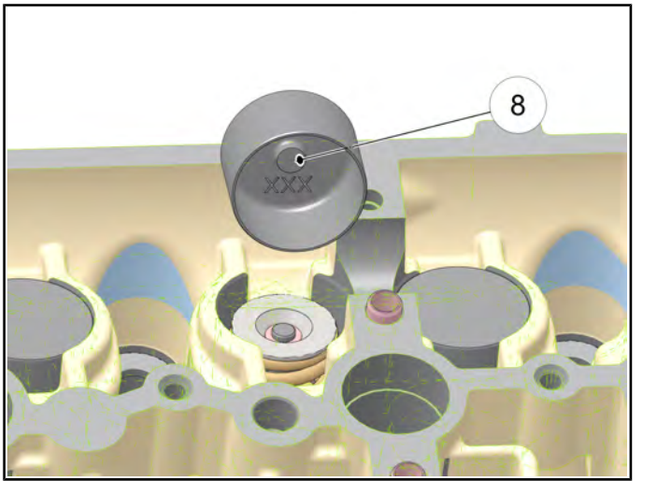
NOTE

Keep mated parts together and in order with respect to their location in the cylinder head for assembly purposes. Mark each component or place them in an organized rack as you remove them.

⚠ CAUTION

If performing this procedure with the cylinder head installed on the engine, cover the spark plug holes and the cam chain opening to prevent a valve adjustment shim from falling into the cylinder or crankcase.

11. Record the 3 digit number on the bottom of the tappet ⑧.



12. Reference the valve clearance measurement recorded for that valve, along with the 3-digit tappet number.
13. Refer to the appropriate tappet selection matrix (Intake or Exhaust) on the following pages and select the proper tappet.
14. Install the appropriate tappet.

NOTE

Lubricate the outer portion of the valve tappet upon installation.

15. Repeat steps 10-14 until all necessary valves have been adjusted.
16. Reinstall the camshafts and camshaft carriers and tighten the bolts evenly to specification.

TORQUE

Camshaft Carrier Bolts:
7 lb-ft (10 Nm)

17. Measure and confirm that valve clearance is now within specification for each valve.
18. If valve clearance is not within specification, repeat this procedure.
19. If all valve clearance measurements are now within specification, remove the camshaft carriers and proceed to “Camshaft Installation / Timing”.

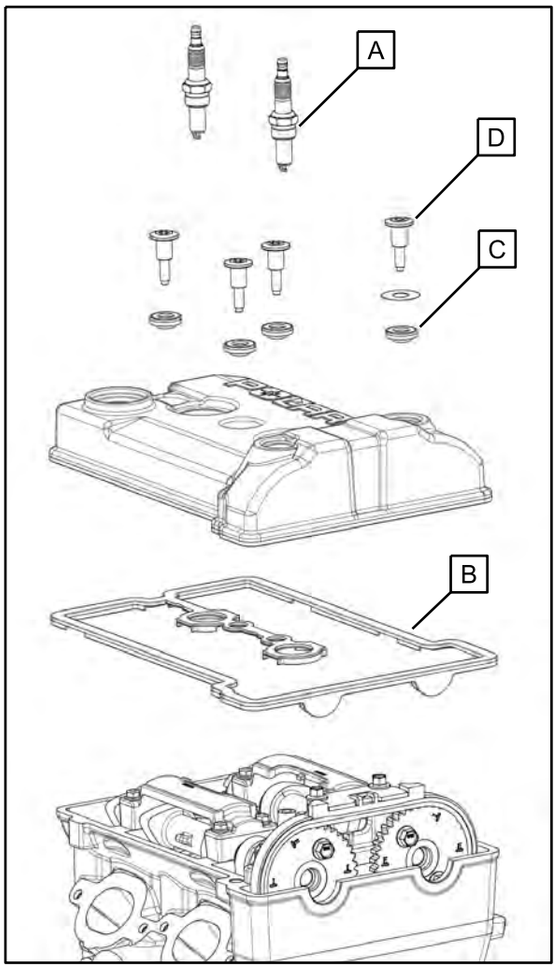
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VALVE COVER INSTALLATION

1. Apply anti-seize compound to spark plug threads.
2. Install spark plugs (A) and torque to specification.

TORQUE
Spark Plugs: **7 lb-ft (10 Nm)**

3. Prepare valve cover sealing surfaces by cleaning thoroughly to remove all residue.
4. Inspect the valve cover seal (B) and replace if necessary.
5. Replace the isolators (C) around each T40 bolt.
6. Install the four valve cover shoulder bolts (D) and isolators (C) using a T40 driver.



7. Torque valve cover bolts to specification.

TORQUE
Valve Cover Bolts: **7 lb-ft (10 Nm)**

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INTAKE VALVE LASH - TAPPET SELECTION MATRIX

Tappet Thickness: Example 440 equals thickness of 4.40 mm. Part Number: 5138477-XXX (X’s represent 3 digits on tappet)

MEASUREMENT
Intake Valve Clearance (cold): **0.006 ± .002 in (0.15 ± 0.05 mm)**

Intake Valve Clearance Before Adjusting (mm)	Existing Valve Lash Tappet Marking (3 digits on tappet)																																		
	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525
	Correct Valve Lash Tappet Marking (3 digits on tappet)																																		
0.000-0.024	428	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512
0.025-0.049	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515
0.050-0.074	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518
0.075-0.099	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520
0.100-0.200 (Standard)																																			
0.201-0.225	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532
0.226-0.250	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535
0.251-0.275	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538
0.276-0.300	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540
0.301-0.325	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542
0.326-0.350	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545
0.351-0.375	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545	
0.376-0.400	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545		
0.401-0.425	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545			
0.426-0.450	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545				
0.451-0.475	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545					
0.476-0.500	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545						
0.501-0.525	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545							
0.526-0.550	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545								
0.551-0.575	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545									
0.576-0.600	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545										
0.601-0.625	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545											
0.626-0.650	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545												
0.651-0.675	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545													
0.676-0.700	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545														
0.701-0.725	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545															
0.726-0.750	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																
0.751-0.775	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																	
0.776-0.800	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																		
0.801-0.825	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																			
0.826-0.850	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																				
0.851-0.875	512	515	518	520	522	525	528	530	532	535	538	540	542	545																					
0.876-0.900	515	518	520	522	525	528	530	532	535	538	540	542	545																						
0.901-0.925	518	520	522	525	528	530	532	535	538	540	542	545																							
0.926-0.950	520	522	525	528	530	532	535	538	540	542	545																								
0.951-0.975	522	525	528	530	532	535	538	540	542	545																									
0.976-1.000	525	528	530	532	535	538	540	542	545																										

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EXHAUST VALVE LASH - SHIM SELECTION MATRIX

Tappet Thickness: Example 440 equals thickness of 4.40 mm. Part Number: 5138477-XXX (X's represent 3 digits on tappet)

MEASUREMENT
Exhaust Valve Clearance (cold): **0.008 ± .002 in (0.200 ± .50 mm)**

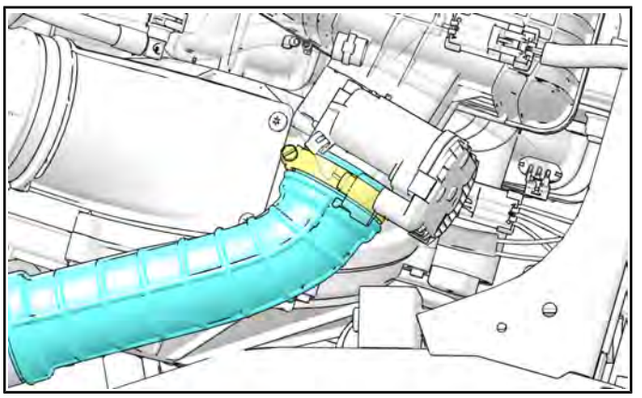
Exhaust Valve Clearance Before Adjusting (mm)	Existing Valve Lash Tappet Marking (3 digits on tappet)																																		
	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525
	Correct Valve Lash Tappet Marking (3 digits on tappet)																																		
0.000-0.024	420	422	425	428	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505
0.025-0.049	422	425	428	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508
0.050-0.074	425	428	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510
0.075-0.099	428	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512
0.100-0.124	430	432	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515
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0.150–0.174	435	438	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520
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0.200–0.224	440	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525
0.225–0.249	442	445	448	450	452	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528
0.250–0.350 (standard)																																			
0.351-0.375	455	458	460	462	465	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540
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0.476-0.500	468	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545			
0.501-0.525	470	472	475	478	480	482	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545				
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0.651-0.675	485	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545										
0.676-0.700	488	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545											
0.701-0.725	490	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545												
0.726-0.750	492	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545													
0.751-0.775	495	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545														
0.776-0.800	498	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545															
0.801-0.825	500	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																
0.826-0.850	502	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																	
0.851-0.875	505	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																		
0.876-0.900	508	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																			
0.901-0.925	510	512	515	518	520	522	525	528	530	532	535	538	540	542	545																				
0.926-0.950	512	515	518	520	522	525	528	530	532	535	538	540	542	545																					
0.951-0.975	515	518	520	522	525	528	530	532	535	538	540	542	545																						
0.976-1.000	518	520	522	525	528	530	532	535	538	540	542	545																							

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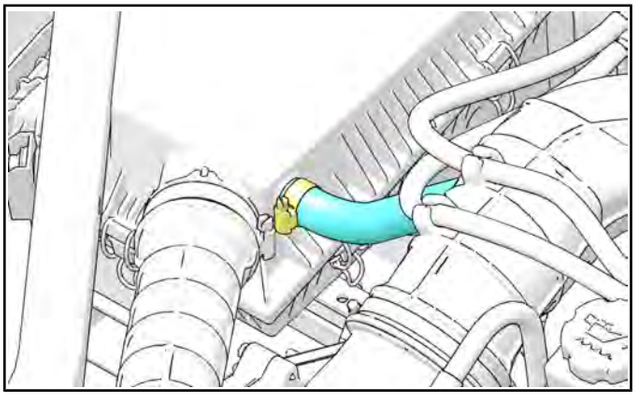
INTAKE / EXHAUST SERVICE (900 / 1000)

INTAKE REMOVAL

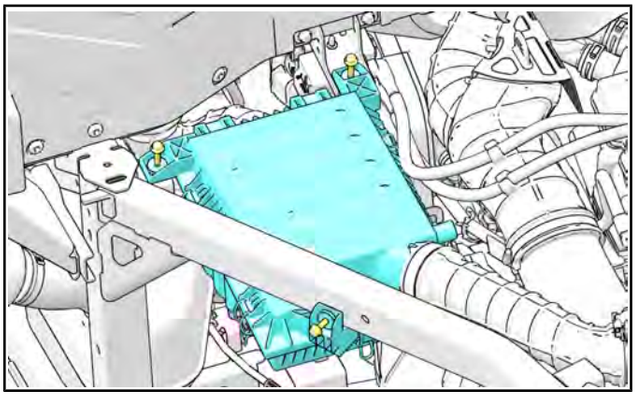
1. Pull the cargo box handle and lift out of the way.
2. Remove the clamp holding the engine intake hose to the throttle body. Place clean cloth inside throttle body inlet to prevent any contaminants from entering the engine.



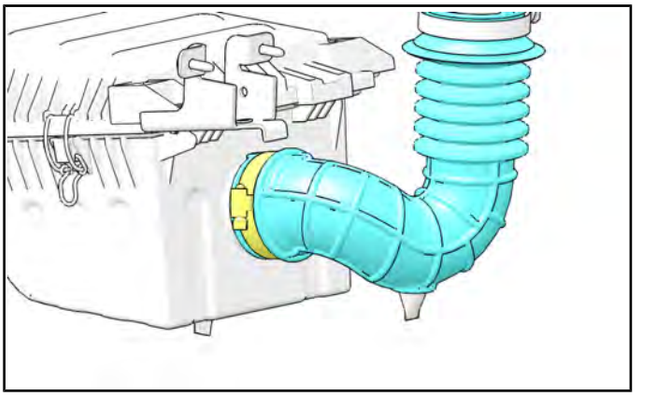
3. Remove the clamp holding the engine crankcase breather hose.



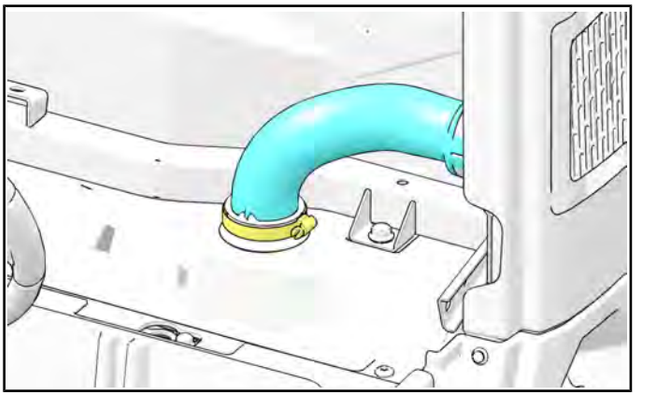
4. Remove the fasteners holding the air box assembly to the frame of the vehicle.



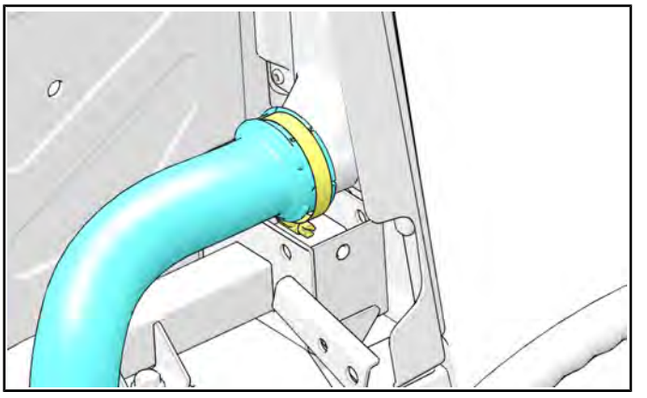
5. Remove the clamp holding the air box intake hose to the air box assembly. Remove the air box and engine intake hose assembly from the vehicle.



6. Remove the clamp holding the air box intake hose to the intake duct. Pull the air box intake hose from close-off panel.



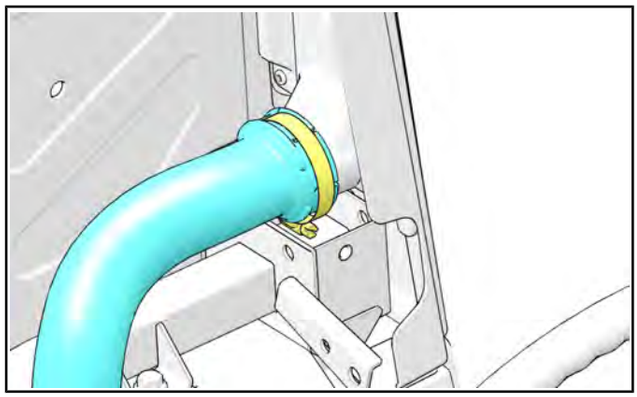
7. Remove the clamp holding the intake duct to the LH upper fender.



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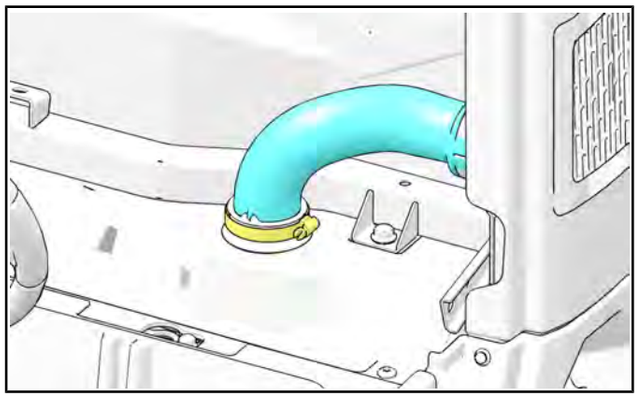
INTAKE INSTALLATION

1. Install the clamp onto the intake duct, and then install the intake duct into the LH upper fender. Torque the clamp to specification.



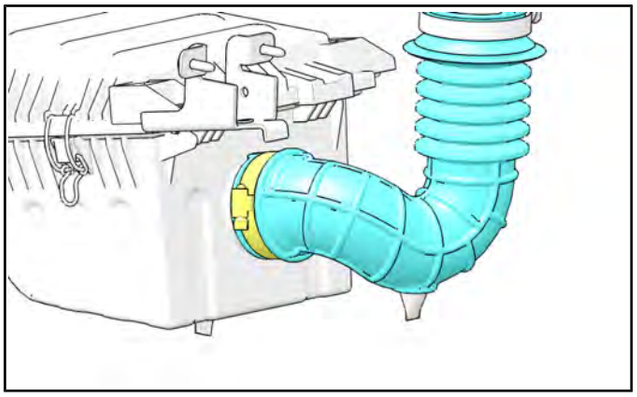
TORQUE
Intake Duct Clamps: **35 lb-in (4 Nm)**

2. Install the air box intake hose into the close-off panel. Install the clamp holding the air box intake hose to the intake duct. Torque the clamp to specification.



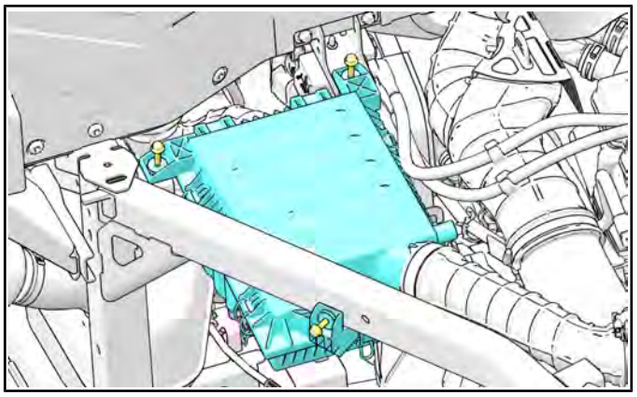
TORQUE
Intake Duct Clamps: **35 lb-in (4 Nm)**

3. Place the air box assembly with engine intake hose into the vehicle. Install the clamp holding the air box intake hose to the air box assembly. Torque the clamp to specification.



TORQUE
Intake Duct Clamps: **35 lb-in (4 Nm)**

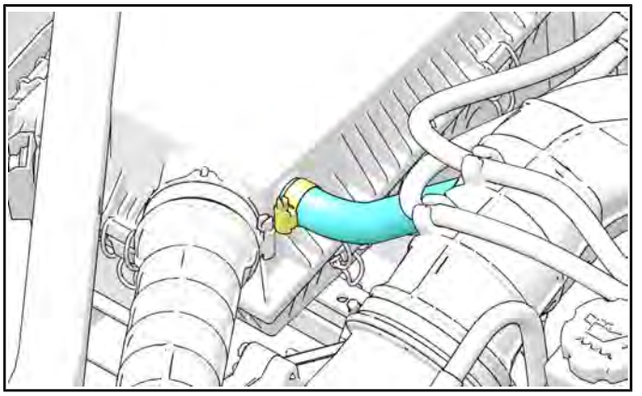
4. Install the fasteners holding the air box assembly to the frame of the vehicle. Torque the fasteners to specification.



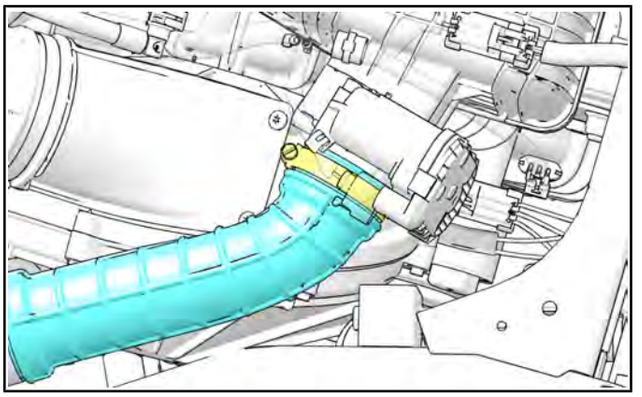
TORQUE
Air Box Fasteners: **8 lb-ft (11 Nm)**

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5. Install the clamp holding the engine crankcase breather hose to the air box assembly.



6. Remove clean cloth in the throttle body inlet preventing anything from entering engine. Install the clamp holding the engine intake hose to the throttle body. Torque clamp to specification.

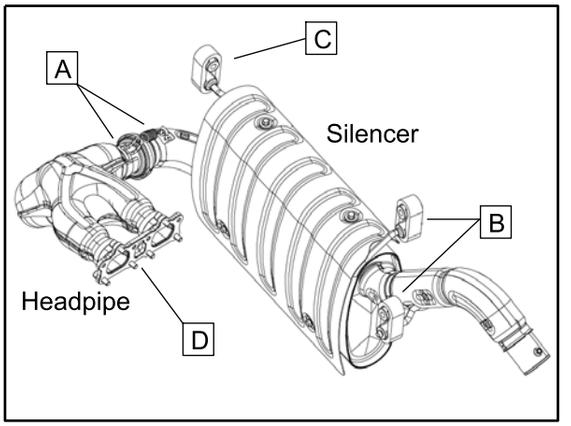


TORQUE
Intake Duct Clamps: **35 lb-in (4 Nm)**

7. Lower the cargo box and secure in position.

EXHAUST REMOVAL / INSTALLATION

1. Tilt the rear cargo box to the raised position. Remove upper cargo box shock clip and pin. Allow cargo box to rest fully open.
2. Using spring puller **PU-45485**, remove the two exhaust springs (A) connecting silencer to headpipe.



3. Pull the two rear isolator mounts (B) toward the right side of the vehicle to disengage from frame mounting posts.
4. Pull silencer toward the rear of the vehicle to disengage silencer mounting post from front isolator mount (C).
5. Remove silencer through right side of vehicle frame.
6. Remove the six mounting bolts (D) retaining the headpipe to the engine.
7. Remove the headpipe from the vehicle.
8. To reinstall the exhaust system, reverse the removal steps.

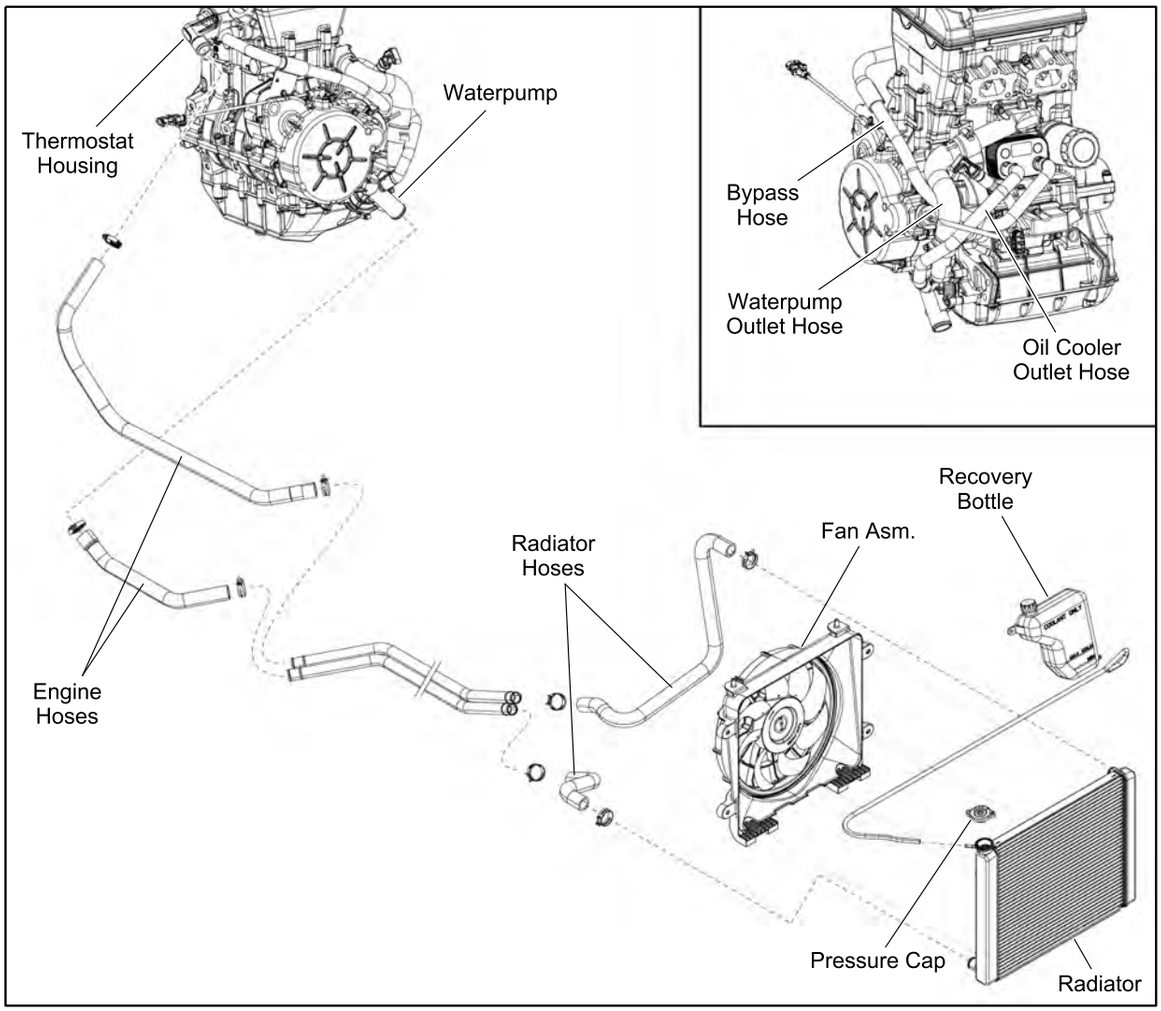
NOTE
Install new exhaust gaskets and torque all hardware to specification.

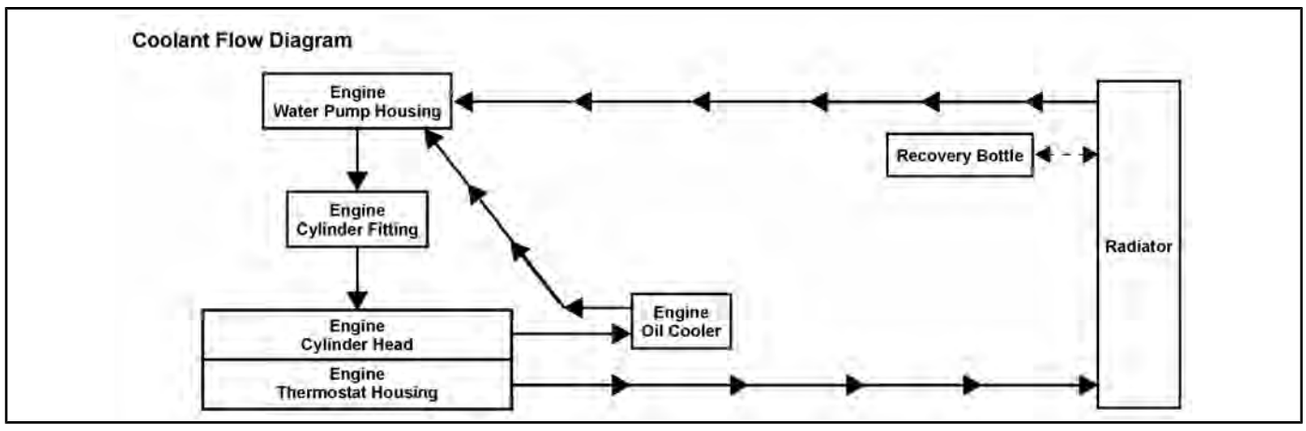
TORQUE
Headpipe Mounting Bolts: **18 lb-ft (24 Nm)**

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COOLING SYSTEM SERVICE (900 / 1000)

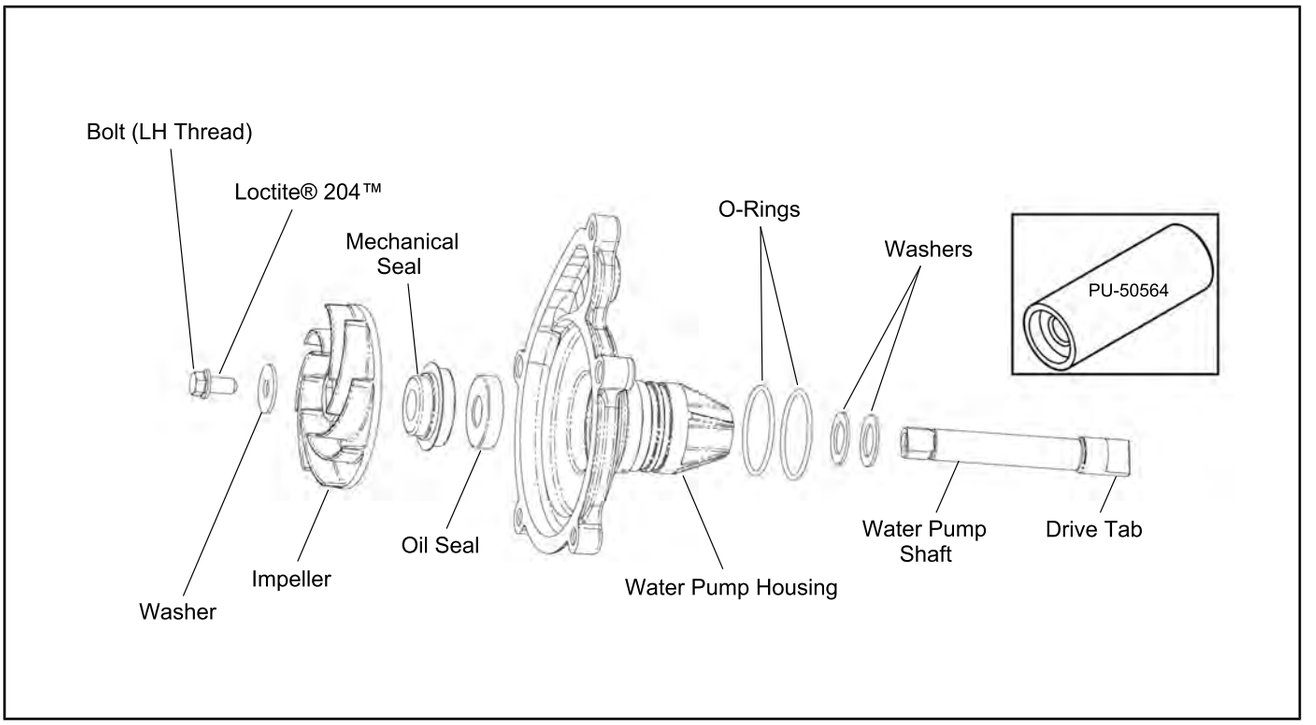
COOLING SYSTEM EXPLODED VIEW





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WATER PUMP EXPLODED VIEW



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COOLING SYSTEM SPECIFICATIONS

CONDITION	COOLANT TEMPERATURE ° F (°C)
Room Temperature	68° F (20° C)
Thermostat Open	180° F (82° C)
Fan Off	194° F (90° C)
Fan On	205° F (96° C)
Thermostat Full Open Lift	203° F (95° C)
Engine Temperature Overheat Indicator	232° F (111° C)
Engine Protection Level 1 - Power Limit	232° F (111° C)
Engine Protection Ignition Misfire	237° F (114° C)
Engine Protection Level 2 - Power Limit	244° F (118° C)
Engine Protection Shutdown	252° F (122° C)

ITEM	SPECIFICATION
Cooling System Capacity	5 Qt (4.7 L)
Pressure Cap Relief	13 PSI

Polaris Extended Life Antifreeze
2880514 - Quart
2880513 - Gallon

Recommended Coolant

Use only high quality antifreeze/coolant mixed with distilled water in a 50/50.

CAUTION

Using tap water in the cooling system will lead to a buildup of deposits which may restrict coolant flow and reduce heat dissipation, resulting in possible engine damage. Polaris Premium 50/50 Extended Life Antifreeze is recommended for use in all cooling systems and comes pre-mixed, ready to use.

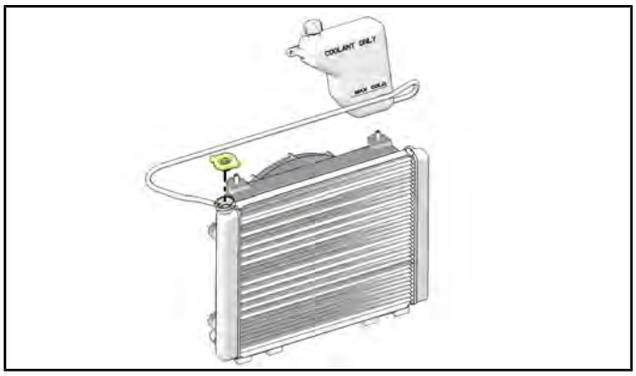
COOLING SYSTEM PRESSURE TEST

1. Remove the hood from the front cab.

⚠ WARNING

Escaping steam can cause burns. Never remove the pressure cap while the engine is warm or hot. Always allow the engine to cool before removing the pressure cap.

2. Remove the pressure cap from the radiator and pressure test the cooling system using pressure test tool (**2870975**).



3. The system must maintain 10 psi for five minutes or longer. If pressure loss is evident within five minutes, check the radiator, all cooling system hoses, clamps and water pump seal for leakage.

RADIATOR CAP PRESSURE TEST

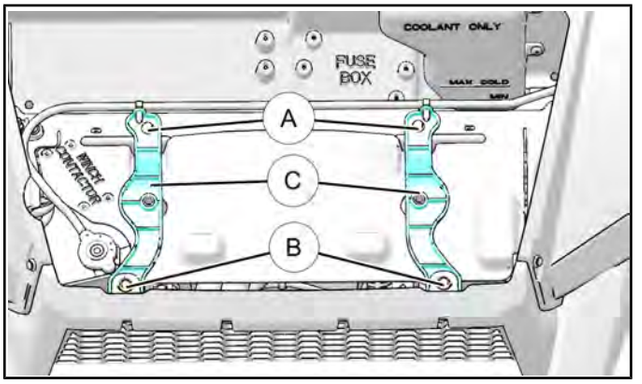
1. Open the front hood (See Warning under **"Cooling System Pressure Test", page 3.19**).
2. Remove radiator pressure cap and test using a pressure cap tester (commercially available).
3. Replace cap if it does not meet the specification.

Radiator Cap Relief Pressure
13 psi (90 kPa)

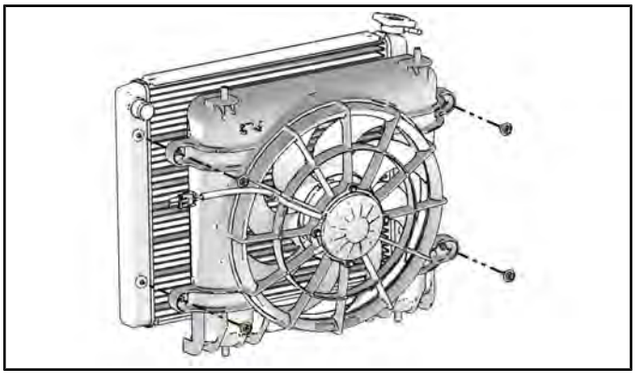
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RADIATOR FAN REMOVAL

1. Remove the hood from the front cab.
2. Remove the upper radiator bracket bolts (A) and T-40 Torx- head bolts (B).



3. Remove the two upper radiator brackets (C) and position them to allow fan removal.
4. Remove the bolts that retain the fan shroud to the radiator.



5. Disconnect the fan motor electrical connector.
6. Lift up on the radiator/fan assembly to separate the fan shroud from the radiator.
7. Carefully pull the radiator fan up through the flexible portion of the hood liner. Take care not to damage the radiator cooling fins.
8. Service the radiator fan as needed.
9. Reverse this procedure for installation. Upon installation, be sure the lower radiator mounts are placed properly in the frame support.

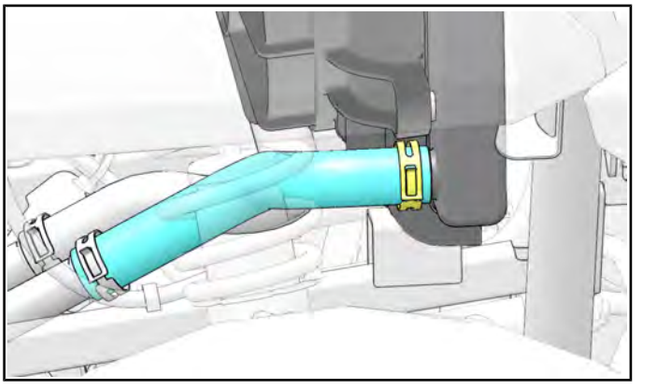
RADIATOR REMOVAL / COOLANT DRAIN

1. Allow the vehicle to cool down if recently operated.
2. Remove the hood from the front cab.

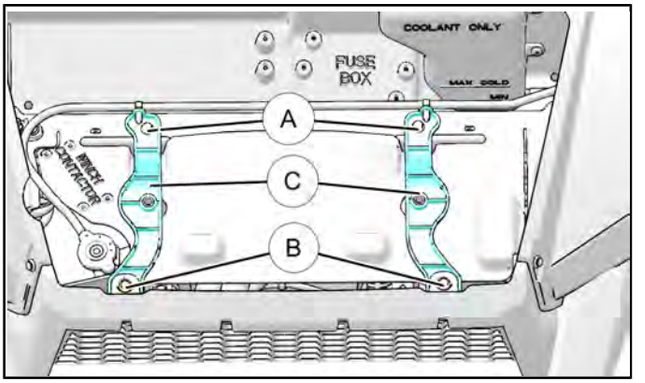
⚠ WARNING

Escaping steam can cause burns. Never remove the pressure cap while the engine is warm or hot. Always allow the engine to cool before removing the pressure cap.

3. Remove pressure cap to relieve any system pressure.
4. Place a drain pan under the lower radiator hose.
5. Slide the clamp back and remove the lower radiator hose to drain the coolant from the radiator. Allow the coolant to completely drain. Properly dispose of the used coolant.



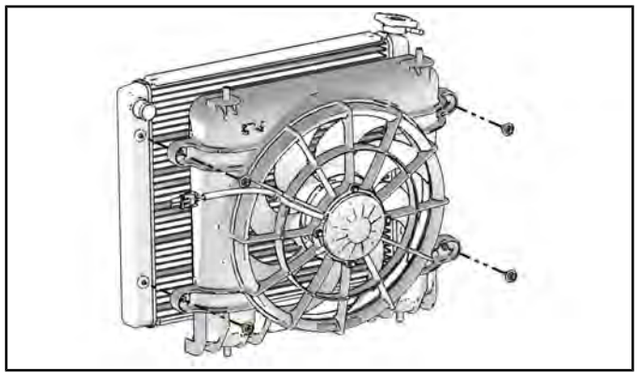
6. Remove the upper radiator bracket bolts (A) and T-40 Torx- head bolts (B).



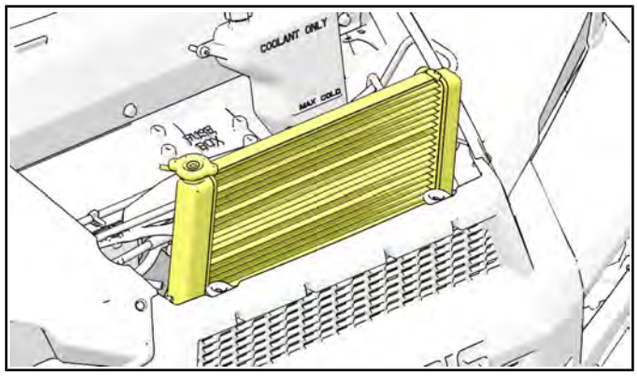
7. Remove the two upper radiator brackets (C) and position them to allow radiator removal.
8. Remove the recovery bottle return line from the radiator.
9. Lift up on the flexible portion of the hood liner to access the upper radiator hose and remove the hose from the radiator.

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10. Remove the four bolts that retain the fan shroud to the radiator.



11. Lift up on the radiator/fan assembly to separate the fan shroud from the radiator.
12. Carefully remove the radiator through the flexible portion of the hood liner. Take care not to damage the radiator cooling fins.



13. Service the radiator as needed.
14. Reverse this procedure for installation. Upon installation, be sure the lower radiator mounts are placed properly in the frame support.
15. After reassembly, fill the radiator and recovery bottle with coolant. Bleed the cooling system. Refer to the **"Cooling System Bleeding Procedure", page 3.182**.

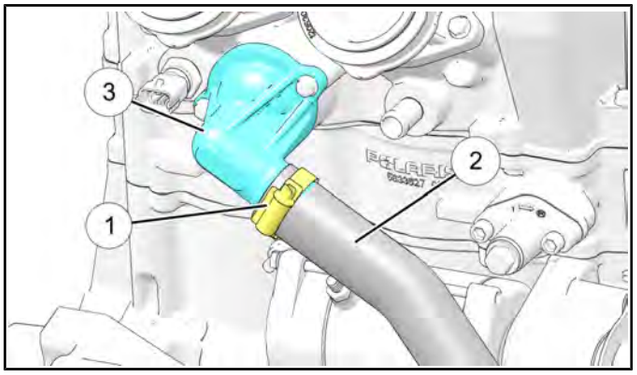
THERMOSTAT REPLACEMENT

1. Remove the hood from the front cab.

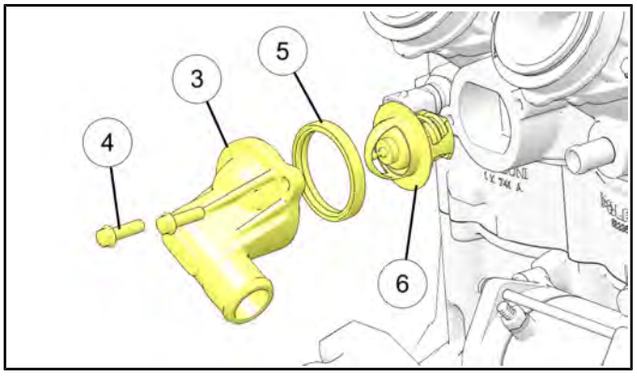
⚠ WARNING

Escaping steam can cause burns. Never remove the pressure cap while the engine is warm or hot. Always allow the engine to cool before removing the pressure cap.

2. Remove the pressure cap to relieve any system pressure.
3. Drain coolant to a level below the thermostat housing. Refer to **"Radiator Removal / Coolant Drain", page 3.20** procedure.
4. Tilt the rear cargo box to the raised position. Remove upper cargo box shock clip and pin. Allow cargo box to rest fully open.
5. Loosen the hose clamp ① and remove the coolant hose ② from the thermostat cover ③.



6. Remove the two bolts ④ that retain the thermostat cover ③ to the engine.



7. Remove the thermostat cover ③, seal ⑤ and thermostat ⑥ from the engine.

NOTE

Thermostat has a pop-off relief to allow the bypass system to operate until thermostat opens.

8. Clean thermostat mating surfaces on the engine and thermostat cover.
9. Install a new thermostat and seal into the cover and install the cover onto engine.
10. Install the thermostat cover bolts and torque the bolts to specification.

TORQUE

Thermostat Cover Bolts:
7 ± 1 lb-ft (10 ± 1 Nm)

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11. Install coolant hose back on the thermostat cover and securely tighten the hose clamp.
12. Fill cooling system and proceed to “Cooling System Bleeding Procedure” provided in this chapter.

COOLING SYSTEM BLEEDING PROCEDURE

⚠ WARNING

Always wear safety glasses and proper shop clothing when performing the procedures in this manual. Failing to do so may lead to possible injury or death.

NOTE

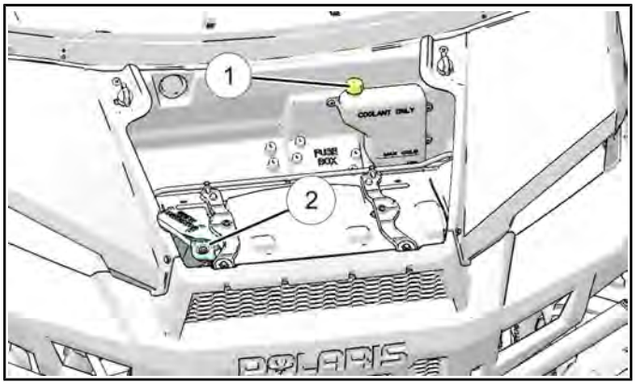
If the coolant level is LOW in the radiator, or if there are leaks in the system, the coolant system will not draw coolant from the reservoir tank.

1. Allow engine and cooling system to cool down.

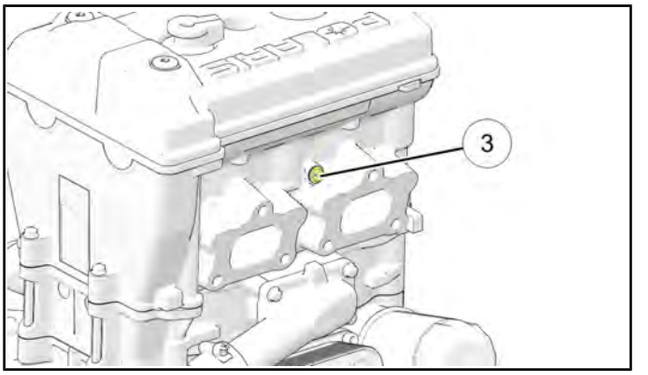
CAUTION

Escaping steam can cause burns. Never remove the pressure cap while the engine is warm or hot. Always allow the engine to cool before removing the pressure cap.

2. Remove the hood from the front cab.
3. Remove the recovery bottle cap ① and fill the bottle to the MAX line.



4. Remove the pressure cap ② and add the necessary amount of Polaris Premium Antifreeze to the radiator filler neck.
5. Tilt the rear cargo box to the raised position.
6. Remove the upper exhaust heat shield to access the coolant bleed screw.
7. Open the bleed screw ③ to allow any trapped air to escape. Close the bleed screw once a steady stream of coolant begins to drain out.



8. Tighten the bleed screw to specification, top off coolant and properly install the pressure cap.

TORQUE

Coolant Bleed Screw:
7 ± 1 lb-ft (10 ± 1 Nm)

9. Start the engine and allow it to idle until the coolant fan has cycled two times.
10. Allow engine and cooling system to completely cool down (see **CAUTION**).
11. Remove the pressure cap. Add the necessary amount of Polaris Premium Antifreeze to the radiator filler neck.
12. Open the bleed screw to allow any trapped air to escape. Close the bleed screw once a steady stream of coolant begins to drain out.
13. Tighten the bleed screw to specification, top off coolant and properly install the pressure cap.

TORQUE

Coolant Bleed Screw:
7 ± 1 lb-ft (10 ± 1 Nm)

14. Fill the recovery bottle to the MAX line.
15. Reinstall the upper exhaust heat shield.
16. Reinstall the hood.

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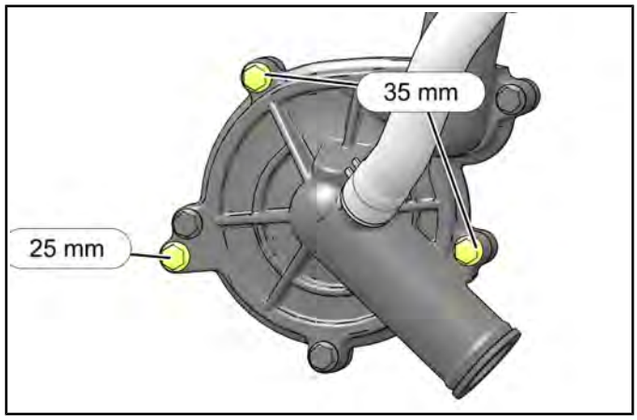
WATER PUMP REMOVAL

1. Allow engine and cooling system to cool down.

CAUTION

Be sure the engine has cooled and no pressure is built up in the cooling system before removing the pressure cap. The coolant may be hot and could cause severe injury or burns.

2. Remove passenger seat base and storage bin.
3. Disconnect the (-) negative battery cable.
4. Remove all debris and thoroughly clean water pump area and RH side of engine block.
5. Remove the hood.
6. Remove the pressure cap from the radiator.
7. Drain cooling system as outlined in this chapter.
8. Remove the exhaust system as outlined in this chapter.
9. Disconnect the three coolant hoses that are attached to the water pump. Note location and routing for installation. Be sure to catch and dispose of coolant properly.
10. Remove the three bolts retaining water pump to engine block. Note different bolt lengths for installation.



11. Remove water pump from engine by gently twisting and rocking the water pump housing while pulling outward.
12. Plug the water pump drive access hole in the engine block with a clean shop towel.

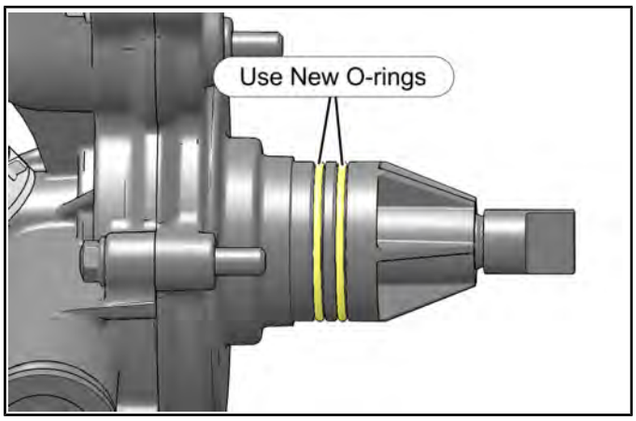
WATER PUMP INSTALLATION

1. Replace the two sealing O-rings on the water pump housing.

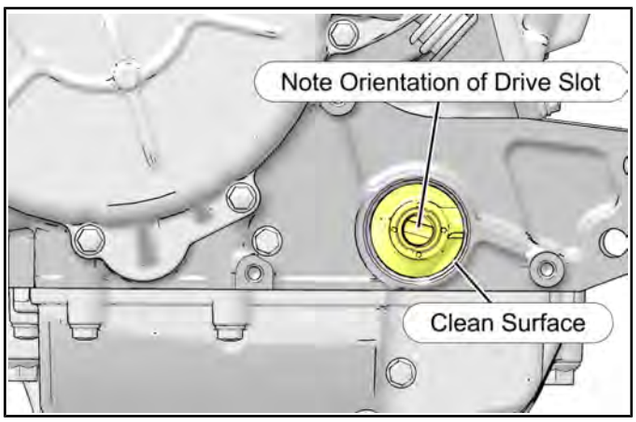
NOTE

Do not reuse the water pump O-rings. Always use NEW O-rings each time the water pump is removed.

2. Lubricate new O-rings with fresh engine oil.

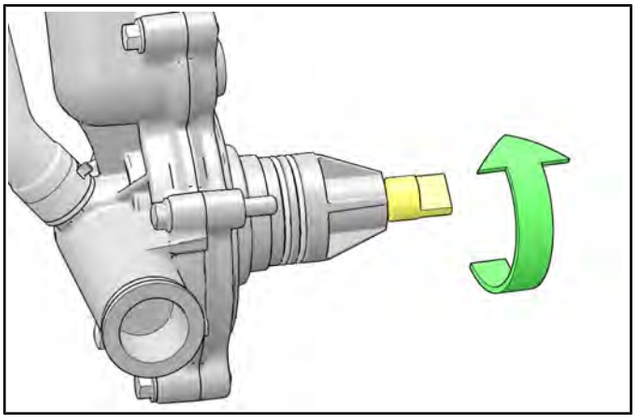


3. Remove the shop towel from the water pump drive access hole in the engine block.
4. Clean the O-ring sealing surface in the engine block using a clean shop towel.
5. Use a shop light to illuminate the water pump drive access hole in engine crankcase.
6. Note orientation of the water pump drive slot.



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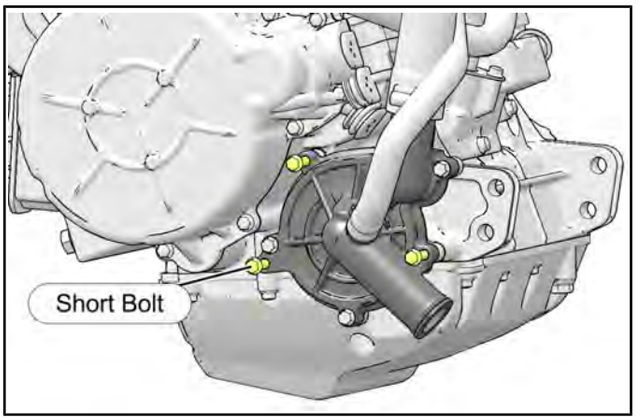
7. Rotate water pump drive tab so it matches the angle of the drive slot in the engine.



CAUTION

The water pump drive tab and slot must be aligned properly during installation. Severe engine or water pump damage will occur if the tab and slot are not in alignment during water pump installation.

8. Slide water pump into engine crankcase.
9. Be sure water pump is fully seated and the drive tab and slot are properly engaged.
10. Install the three water pump mounting bolts, noting location of shorter bolt and torque to specification.



TORQUE

Water Pump Mounting Bolts:
7 lb-ft (10 Nm)

11. Install the three coolant hoses that attach to the water pump. Be sure orientation and routing are correct.
12. Install the exhaust system as outlined in this chapter.
13. Connect the (-) negative battery cable.
14. Fill and bleed cooling system as outlined in this chapter.
15. Install the hood, storage bin and passenger seat base (Chapter 5).

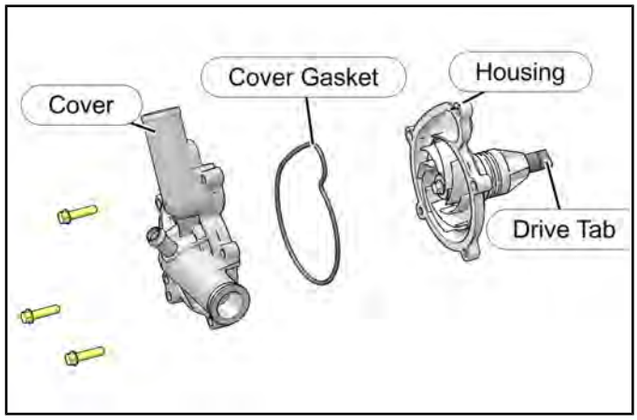
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WATER PUMP SERVICE

NOTE

The water pump cover gasket can be replaced while the water pump housing is still installed in the engine.

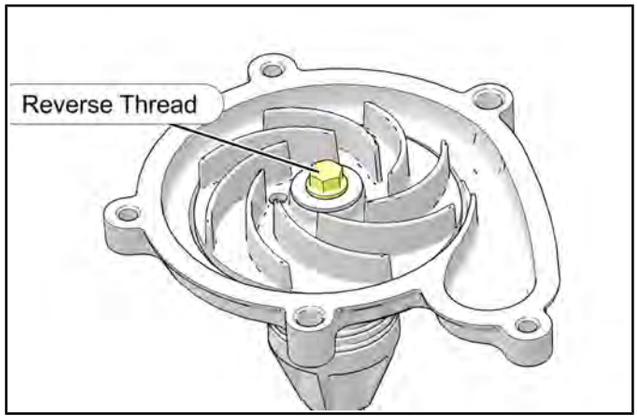
1. Remove water pump assembly as outlined in this chapter.
2. Remove the three bolts retaining water pump cover to water pump housing. Discard cover gasket.



3. Place the water pump drive tab vertically into a soft jaw vice.
4. Remove the bolt and washer retaining the water pump impeller to the shaft. Inspect the impeller veins and water pump housing for damage. Replace if needed.

NOTE

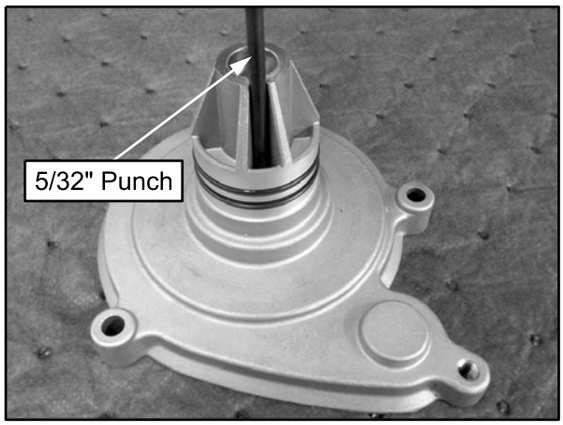
The water pump impeller bolt is left hand threaded (reverse thread).



5. Remove impeller from water pump shaft.
6. Using an appropriate arbor press, properly support the water pump housing and press out the water pump shaft from the impeller side.
7. Extract the mechanical seal and the oil seal from the water pump housing.

NOTE

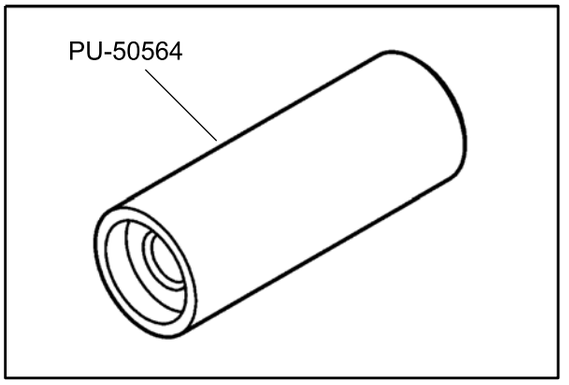
A 5/32" (4 mm) diameter punch will fit in the lubrication slot to aid in the removal of the oil seal. Be sure not to damage the water pump shaft bearing surface.



8. Inspect the water pump shaft bore for excessive wear or damage. Replace water pump housing assembly if necessary.
9. Clean and inspect water pump shaft for excessive wear or damage. Replace water pump housing assembly if necessary, as shaft can not be purchased separately.
10. Thoroughly clean mechanical seal and oil seal bores.
11. Install a NEW oil seal into the water pump housing until fully seated.
12. Fully install the water pump shaft and two washers into the housing.
13. Place water pump drive tab vertically into soft jaw vice as previously shown in this procedure.

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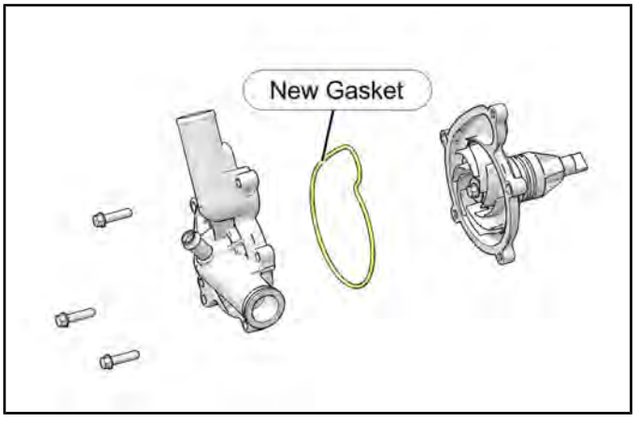
14. Install a NEW mechanical seal into the water pump housing using special tool **PU-50564**. Press the new mechanical seal in until it is flush with the water pump housing.



15. Rotate water pump shaft after seal installation to verify free movement.
16. Place impeller onto the water pump shaft.
17. Apply Loctite® 204 to the threads of the impeller bolt. Install washer and impeller bolt and torque to specification.

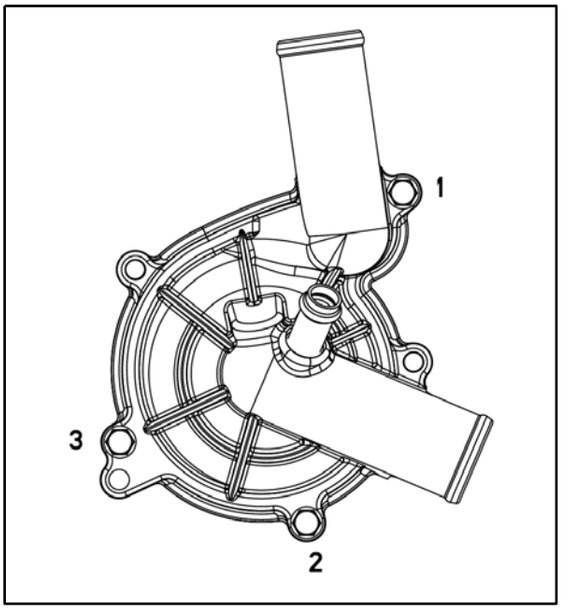
TORQUE
Water Pump Impeller Bolt: **7 lb-ft (10 Nm)** **(Apply Loctite® 204 to bolt threads)**

18. Clean water pump cover and housing gasket surfaces.
19. Install a new water pump cover gasket.



20. Install the water pump cover and three retaining bolts. Torque bolts in sequence to specification.

TORQUE
Water Pump Cover Bolts: **7 lb-ft (10 Nm)** **(Apply Loctite® 204 to bolt threads)**



21. Install two new water pump (O-rings) and lubricate them with fresh engine oil (see illustration below).
22. Install water pump assembly into engine as shown in the “Water Pump Installation” procedure.

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TROUBLESHOOTING - ENGINE / COOLING SYSTEM

ENGINE

Spark Plug Fouling

- Spark plug cap loose or faulty
- Incorrect spark plug heat range or gap
- PVT system calibrated incorrectly/ components worn or mis-adjusted
- Fuel quality poor (old) or octane too high
- Low compression
- Restricted exhaust
- Weak ignition (loose coil ground, faulty coil, or stator)
- Restricted air filter (main or pre-cleaner) or breather system
- Improperly assembled air intake system
- Restricted engine breather system
- Oil contaminated with fuel

Engine Turns Over But Fails To Start

- No fuel
- Dirt in fuel line or filter
- Fuel will not pass through fuel valve
- Fuel pump inoperative/restricted
- Tank vent plugged or pinched
- Engine flooded
- Low compression (high cylinder leakage)
- No spark (Spark plug fouled) ignition component failure

Engine Does Not Turn Over

- Dead battery
- Starter motor does not turn
- Engine seized, rusted, or mechanical failure

Engine Runs But Will Not Idle

- Restricted fuel supply
- Low compression
- Crankcase breather restricted

Engine Idles But Will Not Accelerate

- Spark plug fouled/weak spark
- Broken throttle cable
- Obstruction in air intake
- Air box removed (reinstall all intake components)
- Incorrect flywheel installation or sheared flywheel key.
- Restricted exhaust system
- Cam worn excessively

Engine Has Low Power

- Spark plug fouled
- Cylinder, piston, ring, or valve wear or damage (check compression)
- PVT not operating properly
- Restricted exhaust muffler
- Cam worn excessively

Piston Failure - Scoring

- Lack of lubrication
- Dirt entering engine through cracks in air filter or ducts
- Engine oil dirty or contaminated

Excessive Smoke and Carbon Buildup

- Excessive piston-to-cylinder clearance
- Wet sumping due to over-full crankcase
- Worn rings, piston, or cylinder
- Worn valve guides or seals
- Restricted breather
- Air filter dirty or contaminated

Piston Failure - Scoring

- Lack of lubrication
- Dirt entering engine through cracks in air filter or ducts
- Engine oil dirty or contaminated

Slow Engine Cranking

- Weak battery
- Loose Electrical connections
- Decompression Mechanism not functioning properly.

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Low Compression

- Cylinder head gasket leak
- No valve clearance (cam wear)
- Cylinder or piston worn
- Piston rings worn, leaking, broken, or sticking
- Bent valve or stuck valve
- Valve spring broken or weak
- Valve not seating properly (bent or carbon accumulated on sealing surface)
- Rocker arm sticking

Backfiring

- Fouled spark plug or incorrect plug or plug gap
- Exhaust system air leaks
- Valve sticking
- Ignition system faulty:
- Spark plug cap cracked / broken
- Ignition coil faulty
- Ignition or kill switch circuit faulty
- Poor connections in ignition system
- Ignition timing incorrect
- Sheared flywheel key

COOLING SYSTEM

Overheating

- Low coolant level
- Air in cooling system
- Wrong type/mix of coolant
- Faulty pressure cap or system leaks
- Restricted system (mud or debris in radiator fins causing restriction to air flow, passages blocked in radiator, lines, pump, or water jacket, accident damage)
- Lean mixture (vents, fuel pump or fuel valve)
- Fuel pump output weak
- Electrical malfunction
- Water pump failure/ Loose impeller
- Thermistor failure
- Cooling fan inoperative or turning too slowly (perform current draw test)
- Low oil level
- Spark plug incorrect heat range
- Faulty hot light circuit
- Thermostat stuck closed or not opening completely
- Radiator is missing its internal diverter plate not allowing coolant to flow through entire radiator

Temperature Too Low

- Thermostat stuck open

Leak at Water Pump Weep Hole

- Faulty water pump mechanical seal (coolant leak)
- Faulty pump shaft oil seal (oil leak)

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HVAC SYSTEM

GENERAL INFORMATION - HVAC

HVAC SYSTEM FASTENER TORQUES

ITEM	TORQUE VALUE
Alternator Mounting Fasteners	**37 lb-ft (50 Nm)**
Alternator Cover Fasteners	**48 lb-in (5.4 Nm)**
Compressor Low Pressure Hose	**25 lb-ft (34 Nm)**
Compressor High Pressure Hose	**18 lb-ft (24 Nm)**
Compressor Mounting Fasteners	**37 lb-ft (50 Nm)**
Compressor Oil Drain Plug	**10 ft-lb (14 Nm)**
HVAC Timing Wheel Fasteners	**9 lb-ft (12 Nm)**
HVAC Cover Mount Fasteners	**9 lb-ft (12 Nm)**
HVAC Drive Pulley Fastener	**44 lb-ft (60 Nm) + 180°**
Upper Condenser Hose	**18 ft-lb (24 Nm)**
Lower Condenser / Receiver-Drier Hose	**12 ft-lb (16 Nm)**
Condenser Upper Mounting Bolt	**14 ft-lb (19 Nm)**
Condenser Lower Mounting Bolts	**8 ft-lb (11 Nm)**
HPCO Switch	**6 ft-lb (8 Nm)**
Heater / Evaporator Unit Mounting Fasteners	**10 lb-ft (14 Nm)**
Expansion Valve High / Low Pressure Hoses	**12 ft-lb (16 Nm)**
Expansion Valve Tubes	**22 ft-lb (30 Nm)**
Heater Valve Fasteners	**8 lb-ft (11 Nm)**

SPECIAL TOOLS - HVAC

TOOL DESCRIPTION	PART NUMBER
Refrigerant Recovery / Recycle /Recharging Machine	**PU-51021**
Recharge Service Kit (for PU-51021)	**PU-51021-1**
HVAC Belt Tool	**PU-52087**
Crankshaft Pulley Holder	**PU-52254**

Bosch Automotive Service Solutions: 1-800-345-2233 or http://polaris.service-solutions.com.

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HVAC SYSTEM OVERVIEW

AIR CONDITIONING DESCRIPTION

In an air conditioning system heat is removed from the cab by circulating R-134a refrigerant through a closed system containing five major components. At these five points in the system the refrigerant goes through pressure and temperature changes.

The compressor takes in heated, low pressure refrigerant gas through the suction valve (low pressure side) and pressurizes the heated refrigerant and forces it through the discharge valve (high pressure side) on the condenser. Should the pressure on the high pressure side become too high, the HPCO (High Pressure Cut-Out) switch will cycle the compressor clutch off.

Ambient air passing through the condenser removes the heat from refrigerant resulting in physical state change in the refrigerant from a gas to a liquid.

The liquid refrigerant moves on to the receiver / drier where impurities such as moisture and dirt are filtered out. The receiver / drier also serves as the storage tank for the liquid refrigerant. The liquid refrigerant (still under high pressure) flows to the expansion valve.

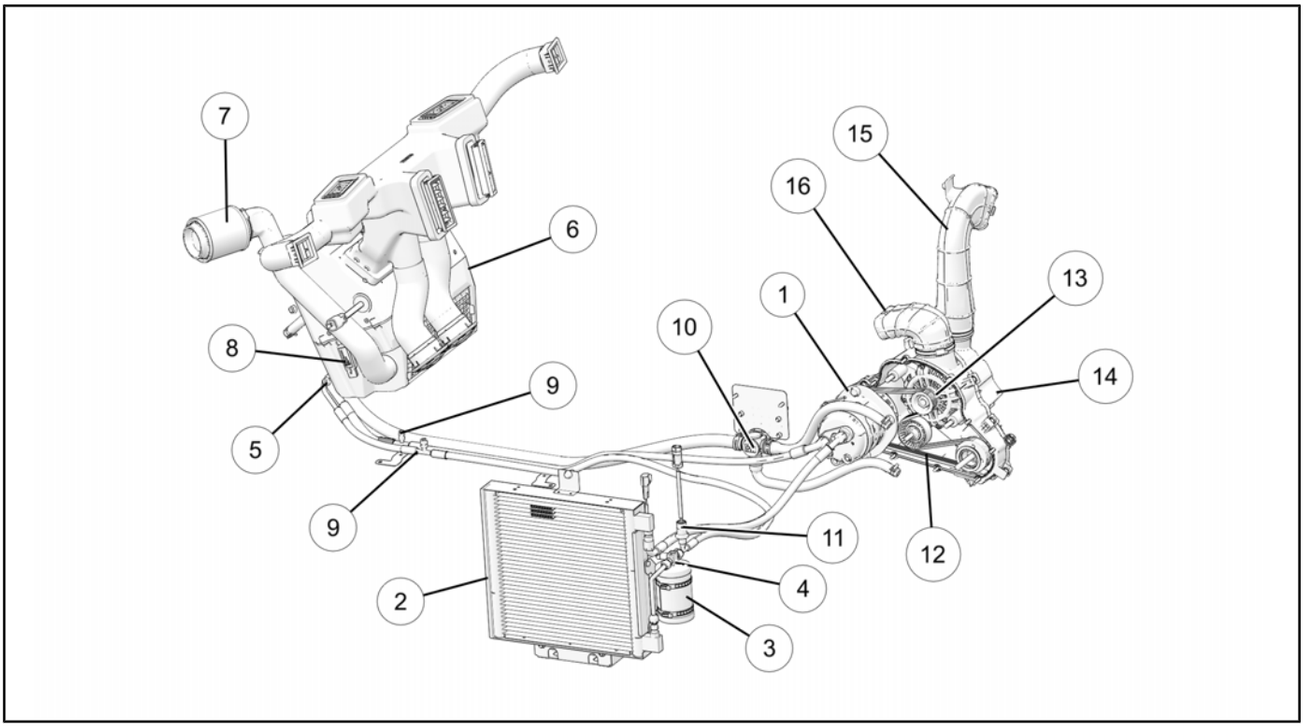
The expansion valve meters the amount of refrigerant into the evaporator coil. As the refrigerant passes through the expansion valve, an extreme pressure and temperature drop occurs. It becomes a low temperature, low-pressure liquid and saturated vapor. The low pressure liquid immediately starts to boil and vaporize as it enters the evaporator. The warmer air of the machine's cab is drawn through or blown into the evaporator by the evaporator blower.

Since the refrigerant is colder than the air, it absorbs the heat from the air and produces cooled air, which is pushed into the cab by the blower. The moisture in the air condenses on the evaporator coil and drips into the drain pan, which directs the water out of the cab.

The refrigerant cycle is completed when the heated low pressure gas is again drawn into the compressor. The compressor cycles on and off to maintain the desired cab temperature. The Electronic De-icing Thermostat is a micro controller based module that measures evaporator coil temperature and cycles the compressor clutch to maintain a constant evaporator pressure.

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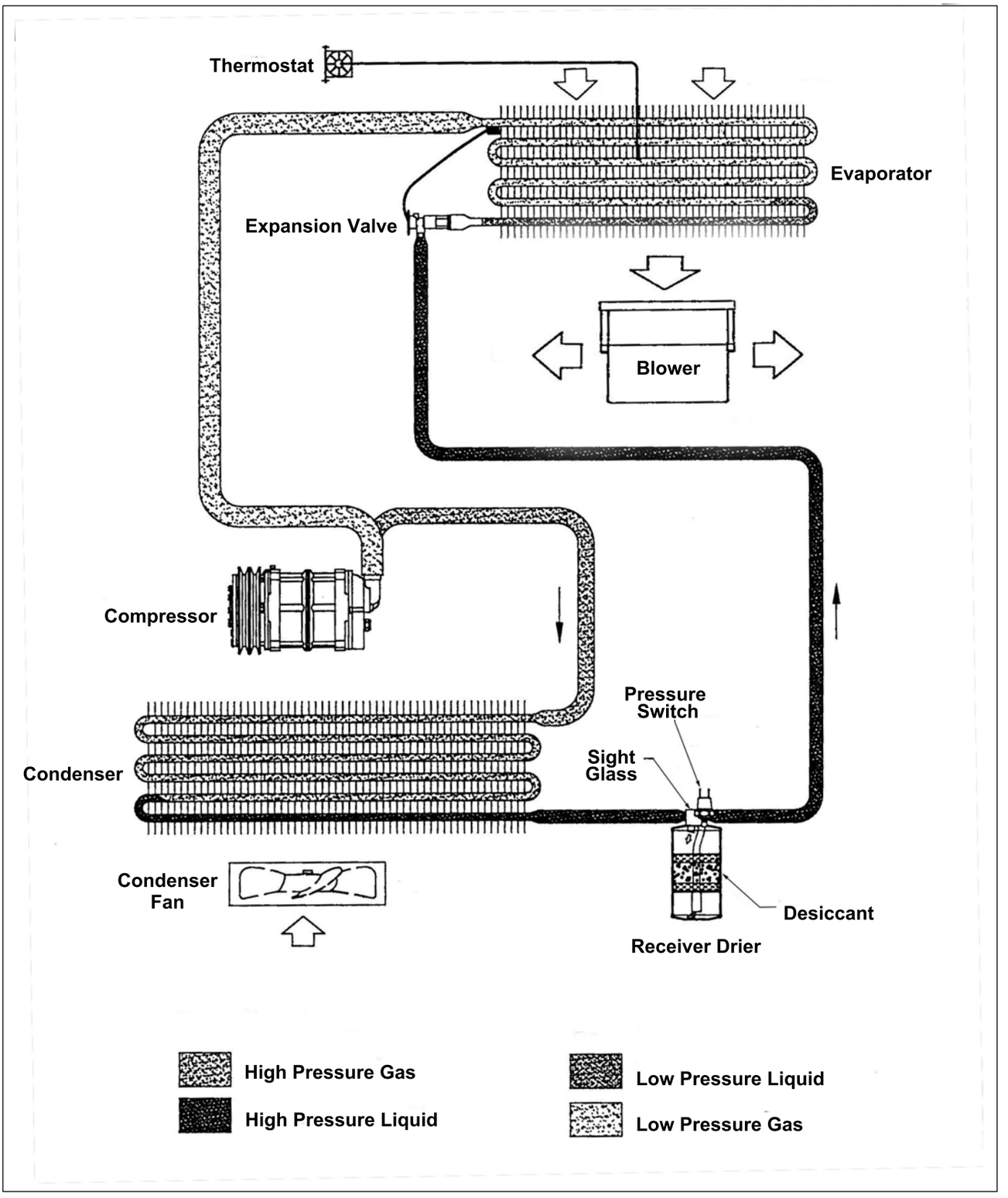
HVAC ASSEMBLY VIEW



REF	DESCRIPTION	NOTES
1	Compressor	
2	Condenser	
3	Receiver / Drier	
4	Pressure Relief Valve	
5	Expansion Valve	
6	Heater / Evaporator Unit	
7	Cabin Air Filter	
8	Electronic De-icing Thermostat (EDT)	
9	A/C Charge Port	
10	Heater Valve	
11	High Pressure Cut-Out Switch (HPCO)	
12	Compressor Drive Belt	
13	Alternator	
14	Alternator Cover	
15	Alternator Air Inlet	
16	Alternator Air Outlet	

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A/C SYSTEM DIAGRAM



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SAFETY EQUIPMENT

In servicing A/C and heater systems you will be exposed to high pressures, temperatures and several chemical hazards. Moving belts and pulleys are normal shop hazards.

In addition to exercising caution in your work, WEAR SAFETY GLASSES OR A FACE SHIELD when you are using R-134a or a leak detector, adjusting service valves or the manifold gage set connectors. Safety glasses or a transparent face shield are practical safety items and one or the other is absolutely required.

⚠ WARNING

In the event of a leak, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes. In contact with a flame, R-134a refrigerant gives off a toxic gas.

R-134a inside a canister or in an A/C system is a liquid under pressure. When it escapes or releases into the air, ITS TEMPERATURE DROPS TO -5.8° C (21.6° F) “INSTANTLY”. If it spills on your skin or in your eyes you should flood the area with cool water and SEEK MEDICAL ATTENTION FAST! It is a good idea to wear gloves to prevent frost bite if you should get refrigerant on your hands.

⚠ WARNING

HFC R-134a refrigerant can be dangerous if not properly handled. Liquid R-134a may cause blindness if it contacts the eyes and may cause serious frostbite if it contacts the skin.

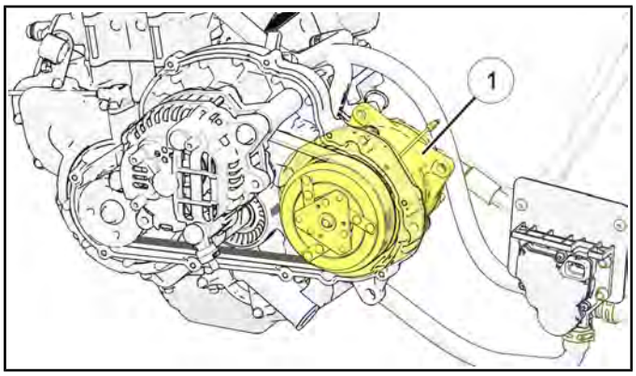
Gaseous R-134a becomes lethal (phosgene gas) when it contacts open flame or very hot substances.

NEVER smoke when there is the possibility of even small amounts of R-134a in the air.

Any servicing work that involves release or addition of R-134a to the system must be done by a competent refrigeration dealer who has the proper equipment, knowledge, and experience to service refrigeration equipment.

HVAC SYSTEM COMPONENTS

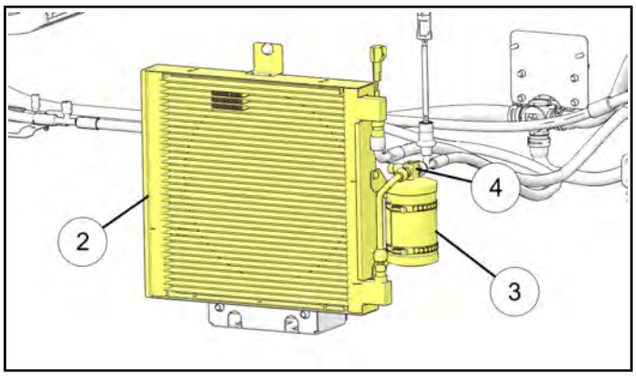
Compressor: The compressor ① is the pump that circulates the refrigerant throughout the system. It raises the pressure of the refrigerant for heat transfer through the condenser and evaporator.



NOTE

The A/C system (Compressor) is recommended to be turned on for at least 5 minutes weekly throughout the year to lubricate the internal components.

Condenser: The condenser ② is the unit that receives the high pressure, high temperature refrigerant vapor from the compressor and condenses it into a high temperature liquid.

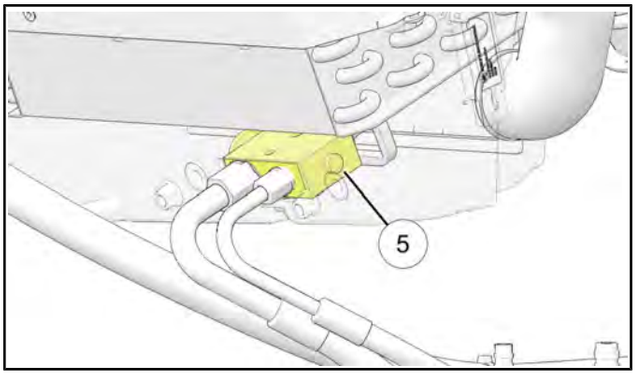


Receiver / Drier: The receiver / drier ③ is the unit that receives the liquid refrigerant from the condenser and removes moisture and foreign matter from the system. It also serves as a storage tank for the extra liquid refrigerant until it is needed by the evaporator.

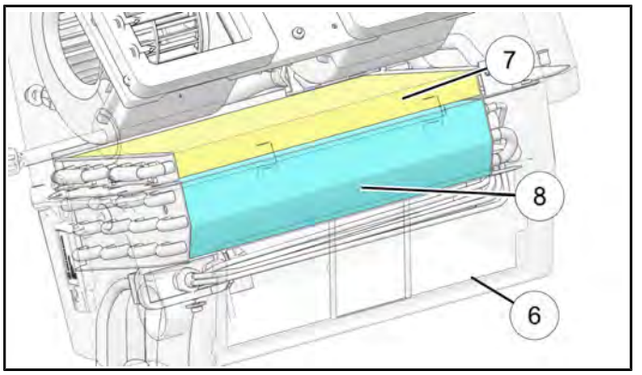
Pressure Relief Valve: The pressure relief valve ④ is located on the receiver drier assembly. This small brass valve is a safety feature that is designed to open and release the A/C charge if the pressure reaches 535 psi (3.7 MPa).

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Expansion Valve: The expansion valve ⑤ controls the amount of refrigerant entering the evaporator coil.



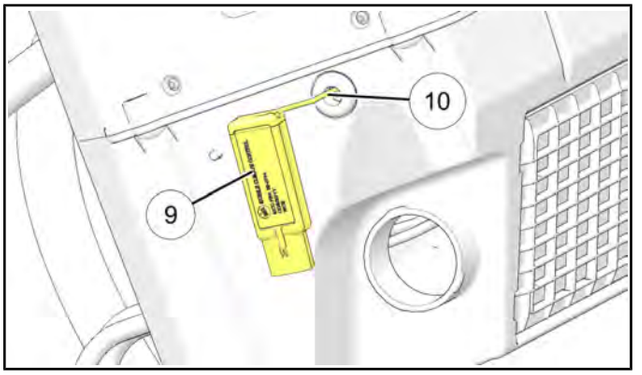
Heater / Evaporator Unit: The heater / evaporator unit ⑥ is located below the dash on the passenger side. The unit delivers the cold air for the A/C and warm air for heat into the cab. The unit contains the heat and A/C coils, thermostat, and expansion valve.



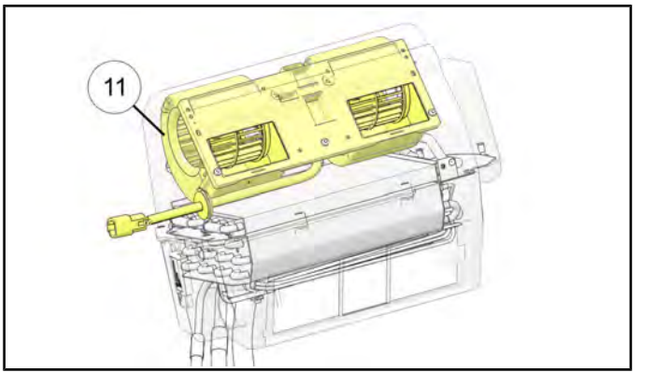
Heater Coil: The heater coil ⑦ supplies the warm air into the cab by passing air through the coil.

Evaporator Coil: The evaporator coil ⑧ cools and dehumidifies the air before it enters the cab.

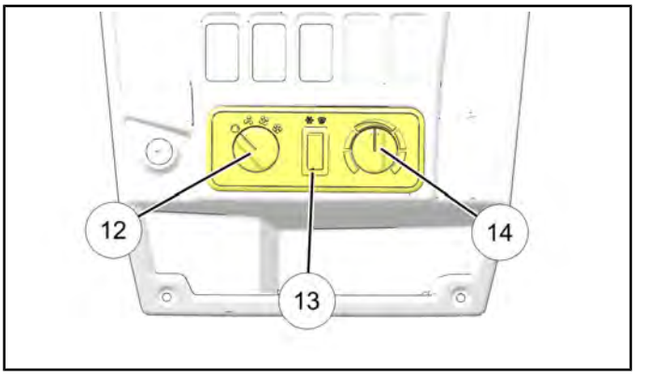
Thermostat: The thermostat ⑨ and probe ⑩ controls the temperature of the evaporator coil.



Heater / Evaporator Blower: The blower ⑪ is used to pull air through the heater and evaporator coils and into the cab.



Control Panel: The panel has three separate components.



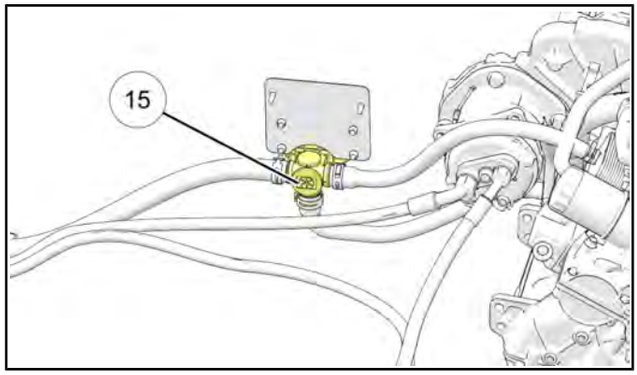
Fan Switch: This is a four position rotary switch ⑫ . When the fan switch is in the off position the A/C will not engage, but the heater valve will operate, as it is controlled by the ignition power.

A/C Switch: The rocker switch ⑬ will be illuminated when the A/C is engaged.

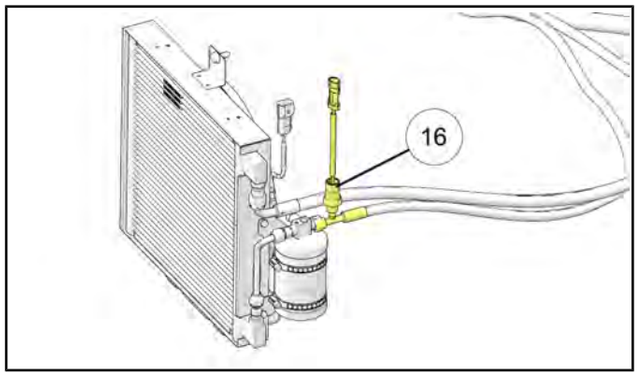
Potentiometer: The potentiometer ⑭ controls the Heater Valve from fully Off to fully On. This can be used in conjunction with the A/C for defrost of the windows and temperature control.

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Heater Valve: The heater valve ⑮ is used to control the amount of engine coolant that flows to the heater coil.



Pressure Switch: The high pressure switch ⑯ will disengage the compressor clutch at high pressure readings over 400 psi. (2.8 MPa) and will engage the clutch when pressures lower to 325 psi (2.2 MPa).

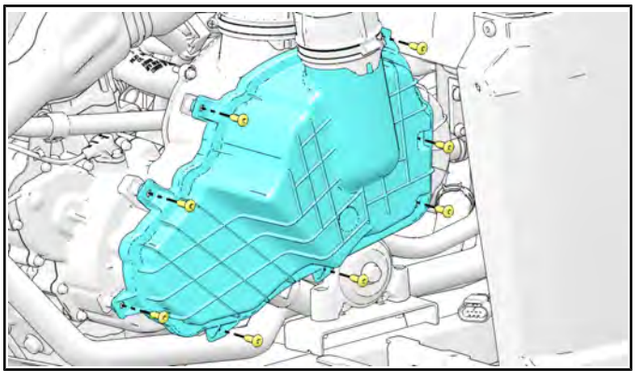


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HVAC MAINTENANCE

COMPRESSOR DRIVE BELT INSPECTION

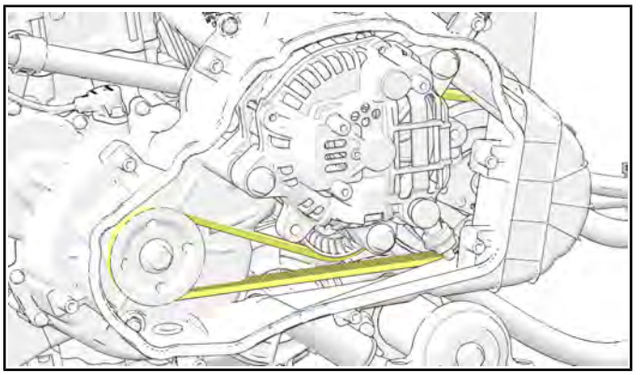
1. Position the vehicle on a level surface, place the transmission in PARK and stop the engine.
2. Tilt the rear cargo box to the upright position.
3. Remove the fasteners holding the alternator cover to the vehicle.



4. Inspect the drive belt for cracks, damage, wear, separation or oil. Check for debris or buildup in the drive belt splines. If any of these conditions exist, replace the belt.

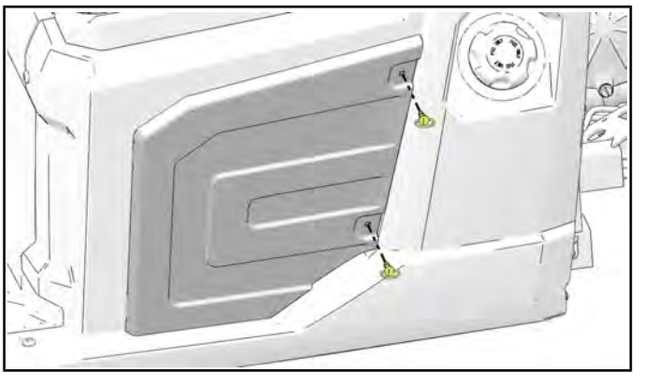
NOTE

ALWAYS use the specified drive belt. Using a non-specified belt can shorten the belt life.

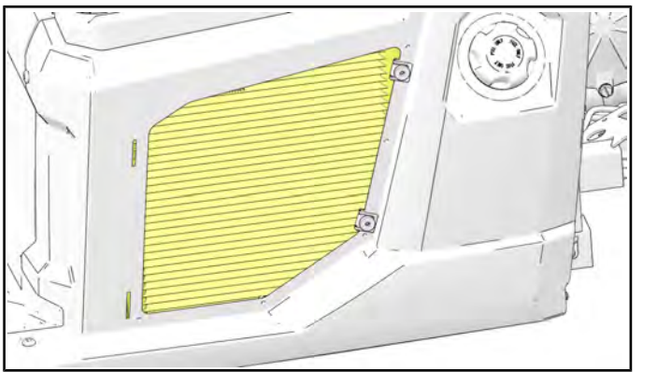


A/C CONDENSER CLEANING

1. Position the vehicle on a level surface, place the transmission in PARK and stop the engine.
2. Turn the two fasteners counterclockwise 1/4 turn and remove the grass screen.



3. Carefully use low pressure air or water to clean the condenser cooling fins.

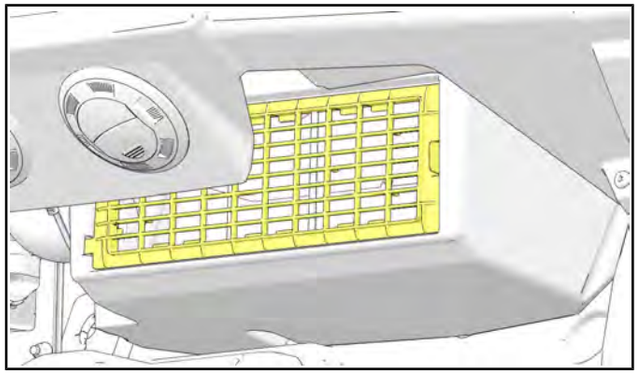


4. Reinstall the grass screen and turn the two 1/4 turn fasteners clockwise.

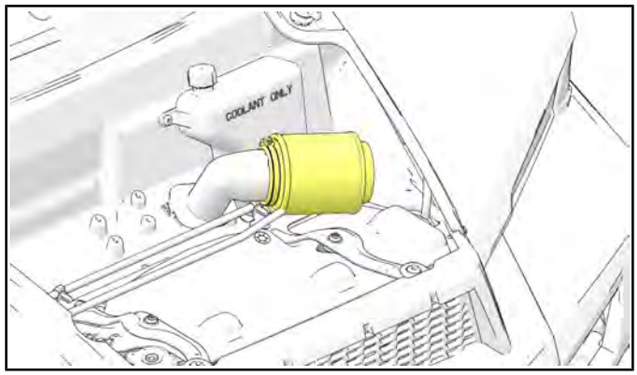
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HVAC FILTER INSPECTION / REPLACEMENT

1. Remove the filter cover and filter on the underside of the dash.



2. Remove the hood and the cabin air filter.



3. Clean the filter with low air pressure. Check for damage, replace if damaged.

REFRIGERANT

This system uses R-134a refrigerant. Running or mixing any other refrigerant will contaminate and damage your A/C Recovery / Recycling / Recharging Machine ① as well as the A/C system on the vehicle.

System Capacity: R134a 1.8 lbs (.816 kg)



3

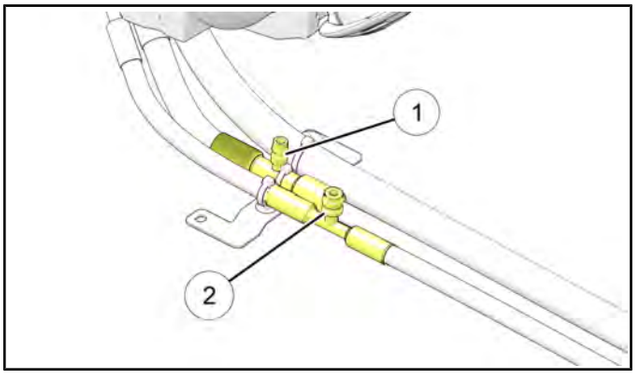
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RECLAMATION AND CHARGING WITH RECOVERY / CHARGING UNIT

NOTE

Only A/C trained technicians should perform the reclaiming and recharging.
This test is run with the engine OFF, and the A/C switch in the OFF position.

1. Remove the caps on the low pressure port ① and high pressure port ② .



NOTE

Do not use the high pressure port for testing or charging.

⚠ WARNING

In the event of a leak, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes. In contact with a flame, R-134a refrigerant gives a toxic gas.

HFC R-134a refrigerant can be dangerous if not properly handled. Liquid R-134a may cause blindness if it contacts the eyes and may cause serious frostbite if it contacts the skin.

Gaseous R-134a becomes lethal (phosgene gas) when it contacts open flame or very hot substances.

NEVER smoke when there is the possibility of even small amounts of R-134a in the air.

Any servicing work that involves release or addition of R-134a to the system must be done by a competent refrigeration dealer who has the proper equipment, knowledge, and experience to service refrigeration equipment.

2. Use an approved recovery / charging unit to evacuate the system.
3. Connect the reclaimer to the A/C charge ports on the utility vehicle.
4. Connect the Blue hose to the low pressure port and open the valve.
5. Connect the Red hose to the high pressure port and open the valve.
6. Turn the reclaimer unit to the ON position and follow the on screen instructions.

NOTE

The reclaimer unit, has a complete step by step set of instructions to follow for reclimation and recharging of the A/C system. A trained technician should follow these instructions as they may very slightly depending on the model and brand of reclaimer used.

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HVAC SYSTEM SERVICE

COMPRESSOR DRIVE BELT REPLACEMENT

SERVICE VIDEO

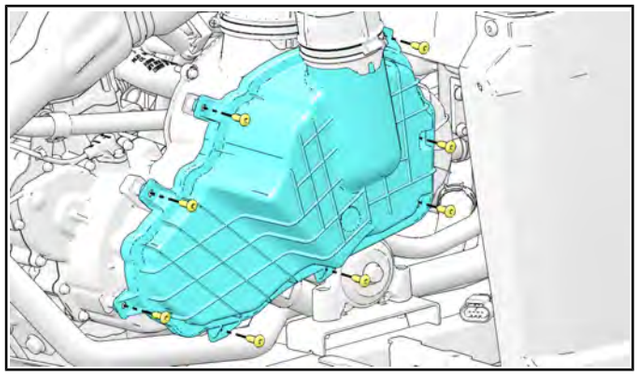
A service video has been created to help highlight this procedure. To view the video, either:

- Scan the QR Code with a mobile device
- From a computer, right click **HERE** and open link in a new window.

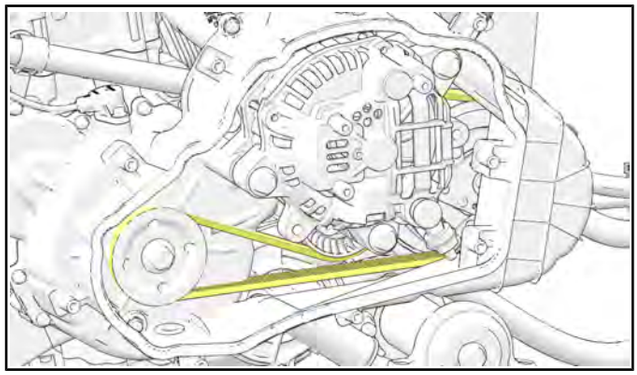
NOTE

The compressor drive belt is a single use belt as it stretches onto the pulleys during installation. Do NOT reuse a drive belt that has been removed. Always replace with a NEW belt.

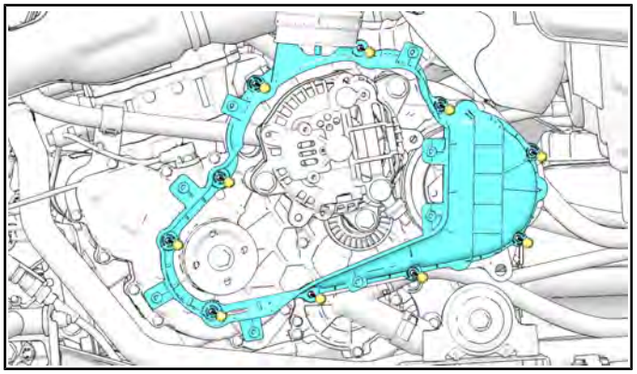
1. Position the vehicle on a level surface, place the transmission in PARK and stop the engine.
2. Tilt the rear cargo box to the upright position.
3. Remove the fasteners holding the alternator cover to the vehicle.



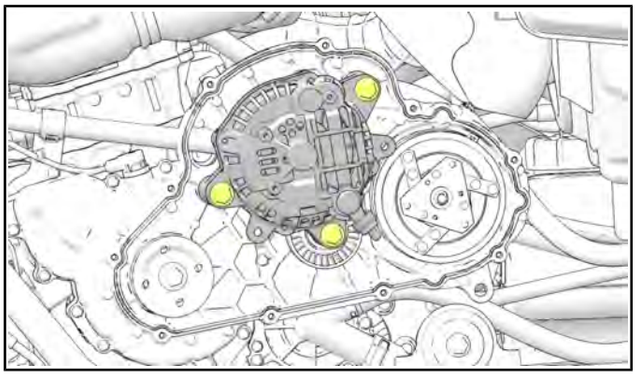
4. Cut the compressor drive belt to remove it from the vehicle.



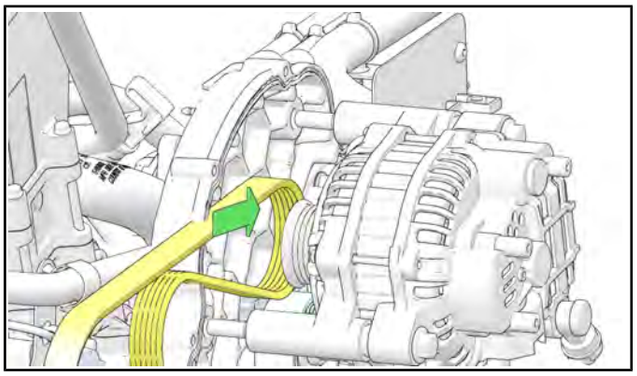
5. To aid with belt installation, remove the fasteners holding the inner alternator cover to the engine. Disconnect the air outlet hose and remove the cover from the vehicle.



6. Loosen the three alternator fasteners enough to slide the alternator outward with enough room for the compressor drive belt to slide belt.

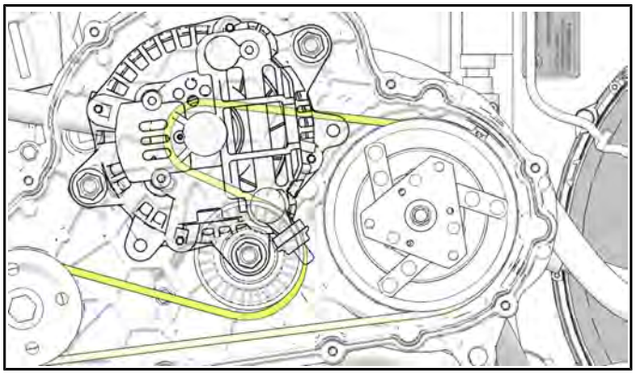


7. Route the belt between the alternator pulley and the engine HVAC cover to install around the compressor pulley.

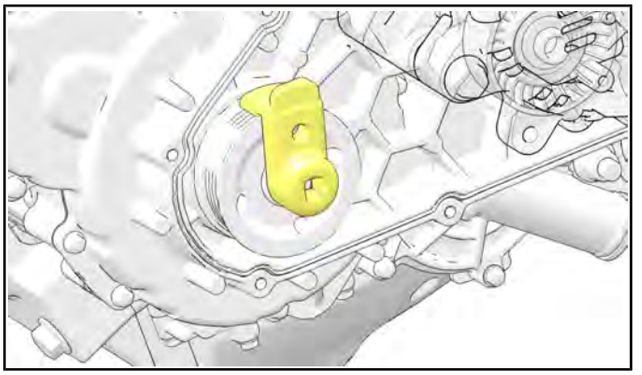


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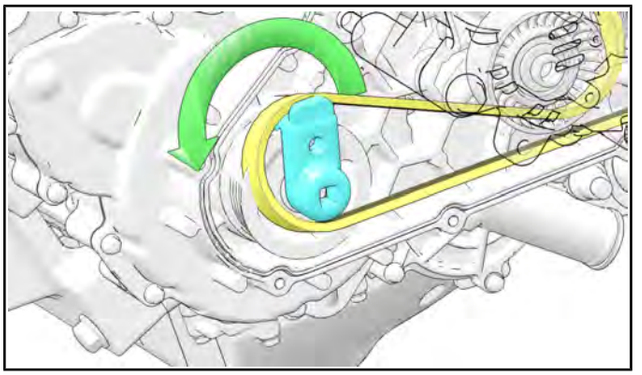
8. Re-tighten the alternator fasteners and route the belt around the alternator, compressor and idler pulleys.



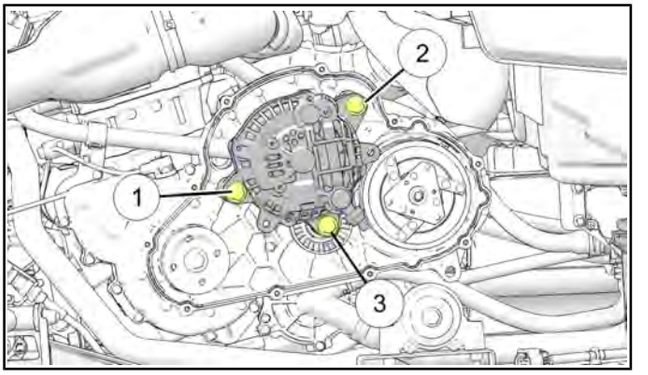
9. Install drive belt installation tool **PU-52087** onto the crankshaft drive pulley. Ensure the pin is inserted into one of the pulley holes.



10. Route the belt over the wedge of the tool and then turn the tool counter-clockwise using 3/8-in drive ratchet until the belt is fully seated on the pulley.



11. Verify the belt is properly routed around all of the pulleys.
12. Remove the belt installation tool from the crankshaft drive pulley.
13. Torque the alternator fasteners to specification in the sequence as shown.



TORQUE
Alternator Mounting Fasteners: **37 lb-ft (50 Nm)**

14. Install the inner alternator cover and torque the fasteners to specification. Reconnect the alternator air outlet hose.

TORQUE
Alternator Cover Fasteners: **48 lb-in (5.4 Nm)**

15. Install the outer alternator cover and torque the fasteners to specification.

TORQUE
Alternator Cover Fasteners: **48 lb-in (5.4 Nm)**

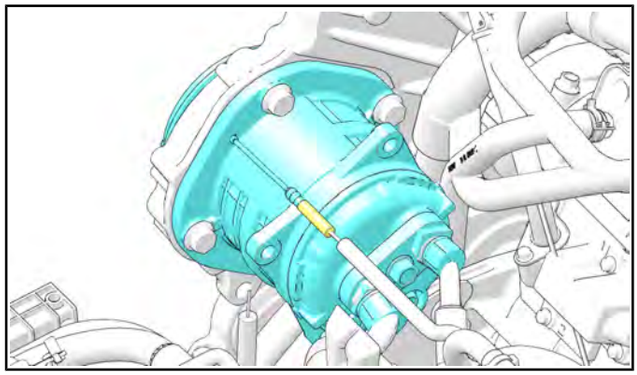
COMPRESSOR REPLACEMENT

⚠ WARNING
In the event of a leak, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes. In contact with a flame, R-134a refrigerant gives off a toxic gas.

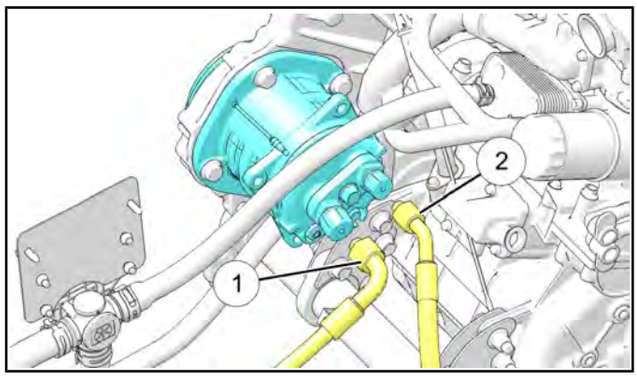
1. Evacuate the refrigerant using an A/C recovery system.
2. Remove the compressor drive belt. Refer to **"Compressor Drive Belt Replacement", page 3.199** procedure.

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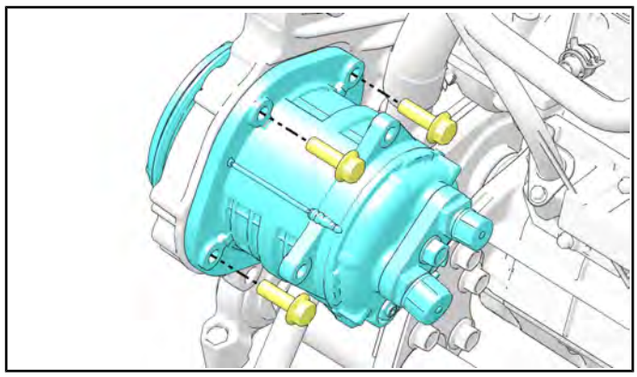
3. Disconnect the compressor clutch wire.



4. Remove the low pressure hose ① from the compressor.



5. Remove the high pressure hose ② from the compressor.
6. Cap and plug the compressor hoses and the fittings with the proper A/C caps and plugs.
7. Remove the compressor mounting fasteners.



8. To install, reverse the procedure.

TORQUE
Compressor Low Pressure Hose: **25 lb-ft (34 Nm)**
Compressor High Pressure Hose: **18 lb-ft (24 Nm)**
Compressor Mounting Fasteners: **37 lb-ft (50 Nm)**

9. Recharge the A/C system.

COMPRESSOR OIL SPECIFICATIONS

The compressor is factory filled with 150 - 170 cc's of PAG 100 oil (Poly Alkelene Glycol).

It is only necessary to check, replenish or replace the compressor oil in the following cases:

- When the evaporator, condenser or receiver-drier is replaced.
- When refrigerant has leaked from the system.
- When refrigerant is suddenly released from the cooling cycle.
- When any oil related problems occur in the cooling cycle.

NOTE
When one of the components (the evaporator, condenser or receiver-drier) is replaced, 1.0 ounce (30 cc) of PAG 100 oil should be added for each component replaced. If the A/C compressor is changed, no oil should be added to the system, because the compressor comes factory filled with oil. Only PAG 100 oil should be used. Never mix R-12 and R-134a Oils.

COMPRESSOR OIL INSPECTION

The compressor oil should be checked as follows when oil is being added to an in service utility work machine.

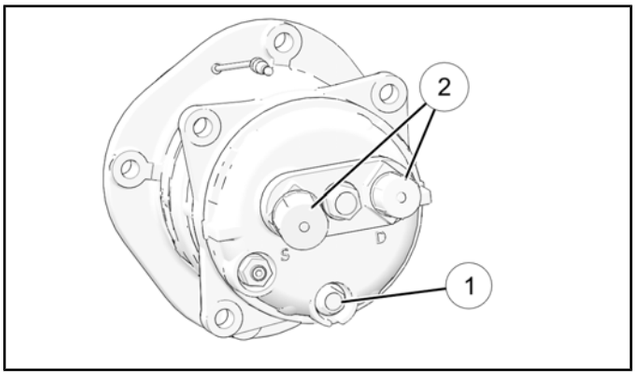
There is a close affinity between oil and refrigerant. During normal operation, part of the oil circulates with the refrigerant in the system. Therefore, when checking the amount of oil in the system or replacing any system component, the compressor must be run in advance to insure return of oil to the compressor.

If the amount of refrigerant in the system has decreased, charge the system.

1. Open the cab door and windows.

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2. Run the blower at maximum speed.
3. Run the compressor for at least 20 minutes at idle.
4. Remove the compressor from the vehicle.
5. Remove the oil drain plug ① and drain the oil through the connectors ② and the oil drain hole.



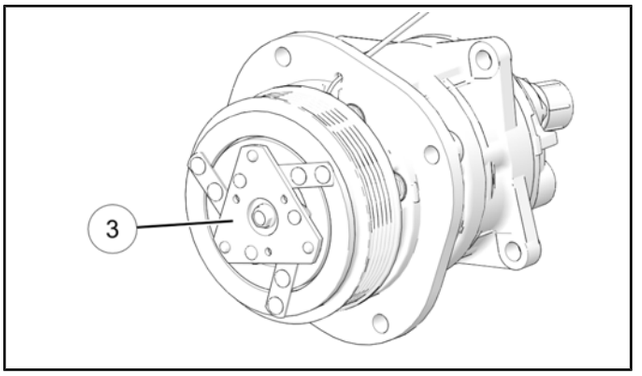
6. Tighten the oil drain plug to specification.

TORQUE

Compressor Oil Drain Plug:
10 ft-lb (14 Nm)

NOTE

Extract the remaining oil through the discharge-side connector by rotating the drive pulley ③ several times by hand.



7. Measure the drained oil in a measuring cylinder.
8. Check the oil for contamination, dirt, metal shavings, or varnish color, discard the oil if contaminated.

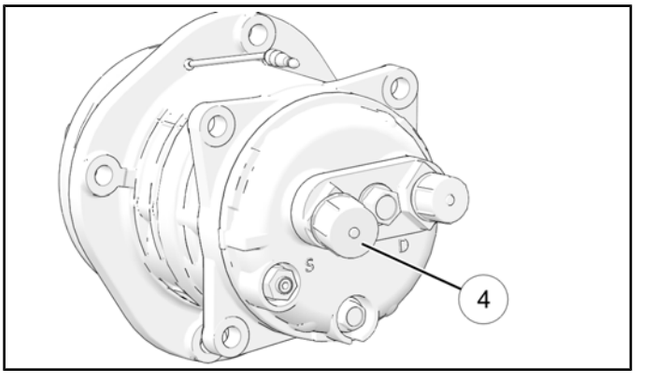
NOTE

If metal shavings are found in the compressor oil, replace the compressor assembly.

9. Add new compressor oil through the suction side connector ④ . Add 150 - 170 cc's of PAG 100 oil.

NOTE

The suction port on the compressor is marked with an S and is the larger.



ALTERNATOR INSPECTION

1. Disconnect the negative (-) battery cable before servicing the electrical system.
2. Inspect the electrical harness for cracks, abrasions and damaged or corroded connectors. ALWAYS keep the connectors and terminals clean.
3. Start the engine place the Digital Multimeter leads between the power cable and a clean part of the engine chassis. Ensure the voltage is within specification.

Alternator Output: 14.4 ± 0.3 V

⚠ WARNING

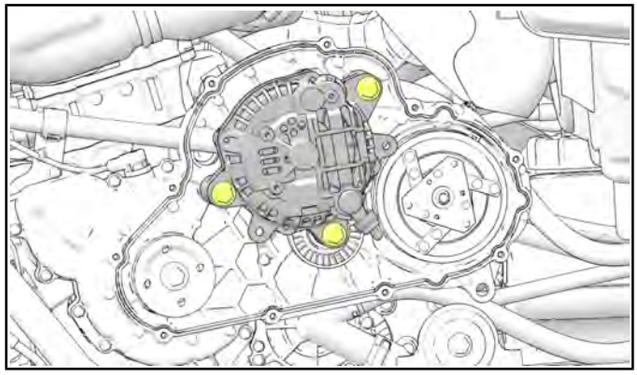
Loose clothing, hair or other items can be caught in the compressor drive belt. Take care not to allow loose items to get caught in the moving compressor drive belt.

ALTERNATOR REPLACEMENT

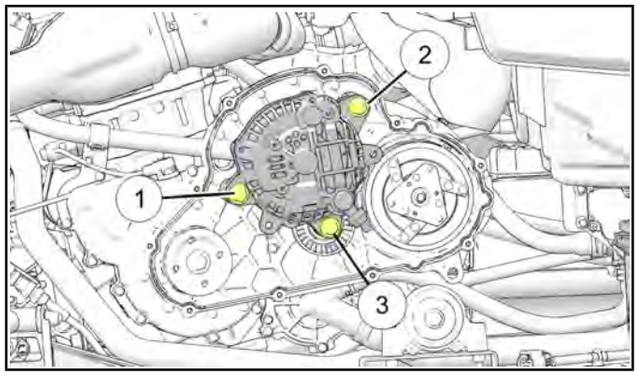
1. Disconnect the negative (-) battery cable before servicing the electrical system.
2. Remove the compressor drive belt. Refer to **"Compressor Drive Belt Replacement", page 3.199** procedure.
3. Disconnect the wire harness connector and power cable from the alternator.

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4. Remove the alternator mounting fasteners.



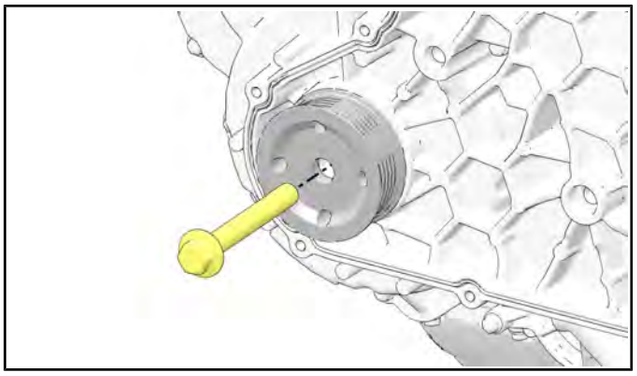
5. For installation, reverse removal procedure.
6. Torque the alternator fasteners to specification in the sequence as shown.



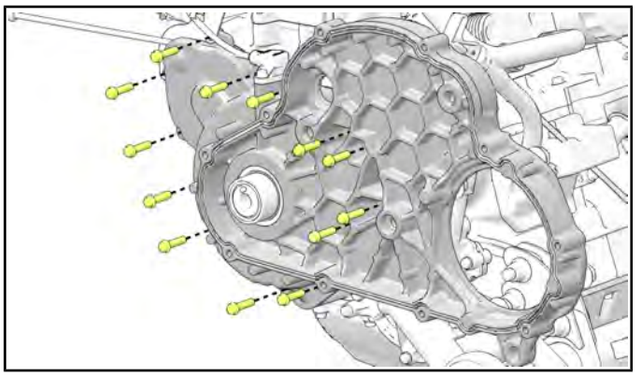
TORQUE
Alternator Mounting Fasteners: **37 lb-ft (50 Nm)**

HVAC COVER MOUNT REPLACEMENT

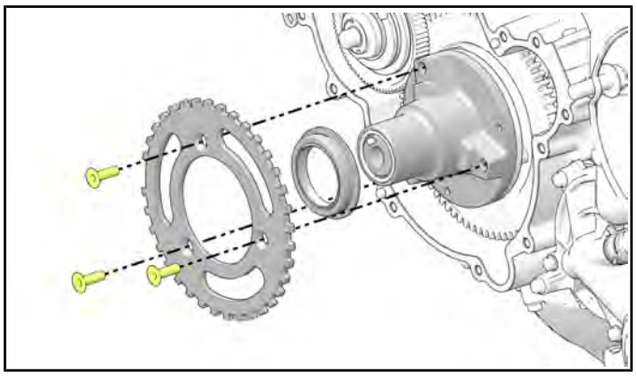
1. Remove the compressor drive belt. Refer to **"Compressor Drive Belt Replacement", page 3.199** procedure.
2. Remove the alternator. Refer to **"Alternator Replacement", page 3.202** procedure.
3. Remove the compressor. Refer to **"Compressor Replacement", page 3.200** procedure.
4. Remove the drive pulley fastener and pulley from the cover mount, using Crankshaft Pulley Holder **PU-52254** to assist.



5. Remove the fasteners holding the HVAC cover mount to the engine.



6. If necessary, remove the fasteners holding the timing wheel and adapter hub to the engine.

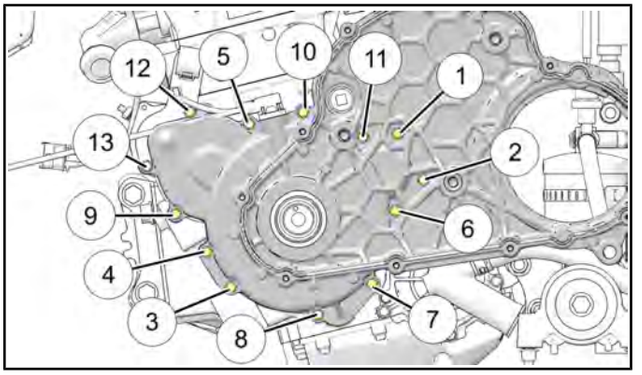


7. For installation, reverse removal procedure.
8. Torque **NEW** timing wheel fasteners to specification.

TORQUE
HVAC Timing Wheel Fasteners: **9 lb-ft (12 Nm)**

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9. Torque the HVAC cover mount fasteners to specification in the sequence shown.



TORQUE

HVAC Cover Mount Fasteners:
9 lb-ft (12 Nm)

10. Torque the drive pulley fastener to specification using Crankshaft Pulley Holder **PU-52254**.

TORQUE

HVAC Drive Pulley Fastener:
44 lb-ft (60 Nm) + 180°

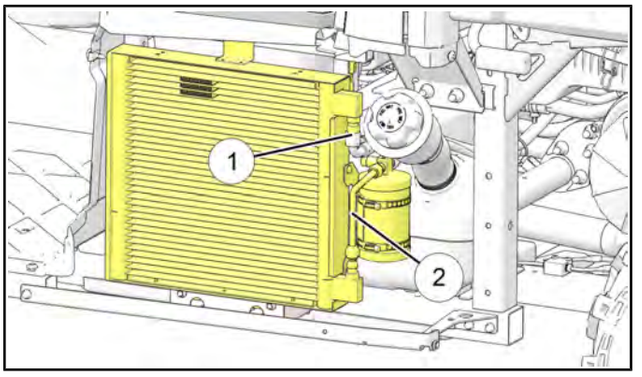
CONDENSER REPLACEMENT

1. Remove the refrigerant from the A/C system.

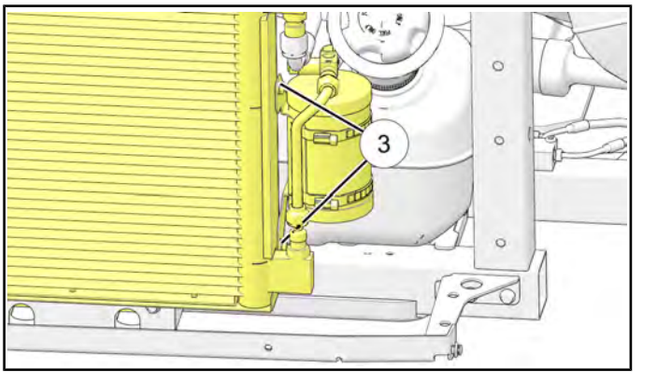
⚠ WARNING

In the event of a leak, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes. In contact with a flame, R-134a refrigerant gives a toxic gas.

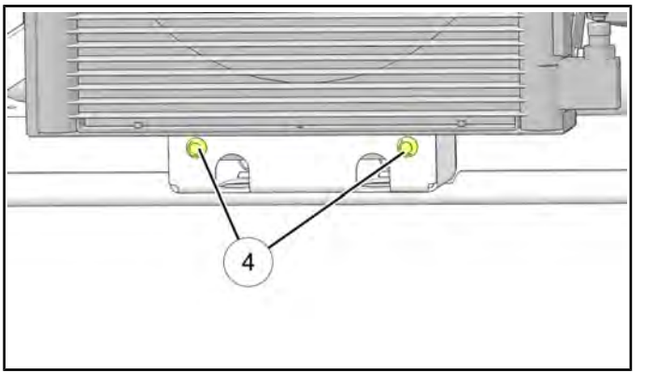
2. Remove the left rear fender.
3. Disconnect the outlet hose ① from the condenser.



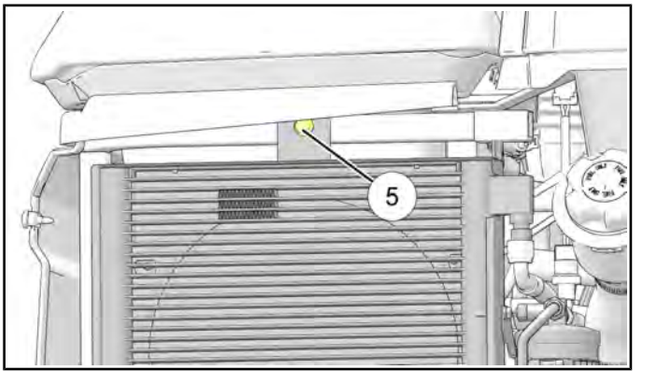
4. Disconnect the inlet tube ② from the condenser
5. Cap and plug the tube and the condenser fittings with the proper A/C caps and plugs.
6. Remove the two bolts ③ and move the drier out of the way.



7. Remove the two bolts ④ from the bottom of the condenser.



8. Remove the bolt ⑤ from the top of the condenser.



9. Remove the condenser from the vehicle.

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10. **Installation:** Reverse procedure. Tighten fasteners to specification.

TORQUE
Upper Condenser Hose: **18 ft-lb (24 Nm)** Lower Condenser / Receiver-Drier Hose: **12 ft-lb (16 Nm)** Condenser Upper Mounting Bolt: **14 ft-lb (19 Nm)** Condenser Lower Mounting Bolts: **8 ft-lb (11 Nm)**

11. Recharge A/C system.

RECEIVER / DRIER REPLACEMENT

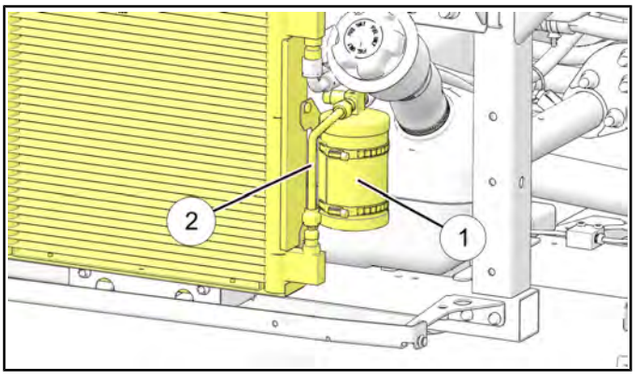
⚠ WARNING

In the event of a leak, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes. In contact with a flame, R-134a refrigerant gives a toxic gas.

1. Remove the left rear fender.
2. Remove the refrigerant from the A/C system.

NOTE

Whenever the A/C system is opened to the atmosphere or there has been a leak in the system, the receiver / drier ① must be changed.

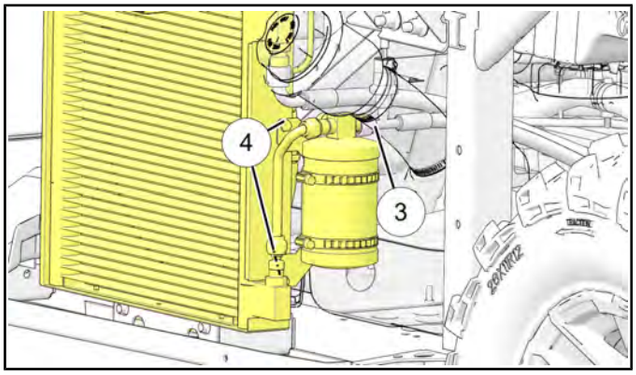


3. Remove the tube line ② from receiver / drier.

NOTE

Never leave hose fittings, compressor fittings or components uncapped while working on the A/C system.

4. Remove the hose ③ from the receiver / drier.



5. Cap and plug the hoses and the receiver / drier fittings with the proper A/C caps and plugs.
6. Remove the bolts ④ .
7. Remove the receiver / drier.

NOTE

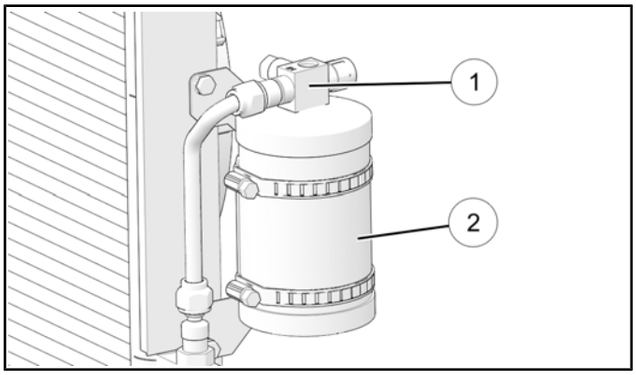
When replacing a receiver / drier in an A/C system 1 ounce (30cc) of PAG 100 oil must be added to the system when recharging.

8. To install, reverse procedure. Torque fasteners to specification.

TORQUE
Lower Condenser / Receiver-Drier Hose **12 ft-lb (16 Nm)**

PRESSURE RELIEF VALVE REPLACEMENT

The pressure relief valve ① is located on the receiver drier assembly ② .



The pressure relief valve is designed to open and release the A/C charge if the pressure reaches 535 psi (3.7 MPa). This will cause the A/C system to shut down, saving the compressor.

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The Pressure Relief Valve is a secondary protection device in the A/C system, with the Pressure Switch shutting down the system at 384 psi (2.6 MPa).

NOTE

If a Pressure Relief Valve is found open, check the A/C system for problems. Replace the complete receiver / drier unit.

HIGH PRESSURE CUT-OUT (HPCO) SWITCH OVERVIEW

Overview:

The HPCO switch will cycle the compressor off if pressure is too high on the high pressure side.

Location:

The HPCO switch is located on the AC hose coming off the receiver / drier.

HPCO SWITCH REPLACEMENT

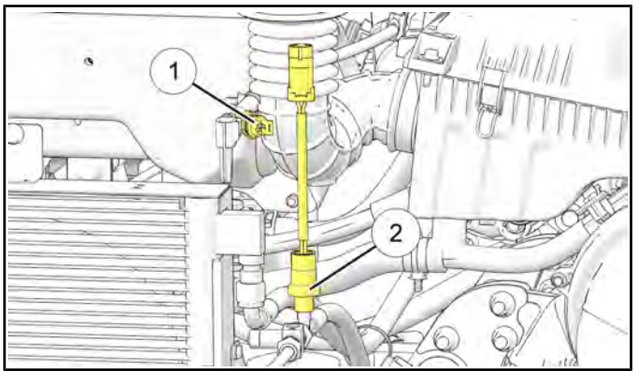
NOTE

Replacement of the high pressure cut out switch does NOT require discharging/recharging the R-134a refrigerant.

1. Disconnect the pressure switch connector ① from the wire harness.

⚠ WARNING

In the event of a leak, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes. In contact with a flame, R-134a refrigerant gives a toxic gas.



2. Remove the pressure switch ② .
3. Reverse removal for installation and torque the HPCO switch to specification.

TORQUE
HPCO Switch: **6 ft-lb (8 Nm)**

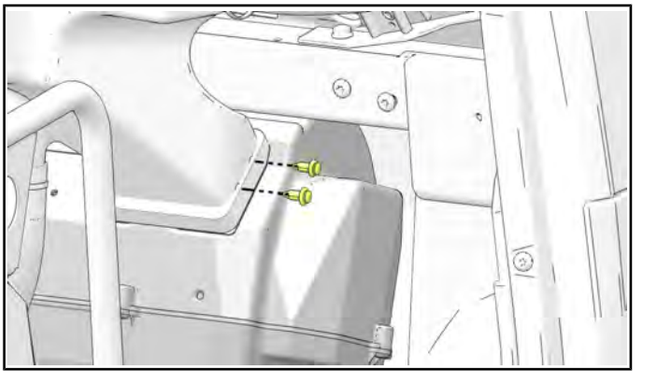
HEATER / EVAPORATOR UNIT REPLACEMENT

1. Remove the refrigerant from the A/C system.

⚠ WARNING

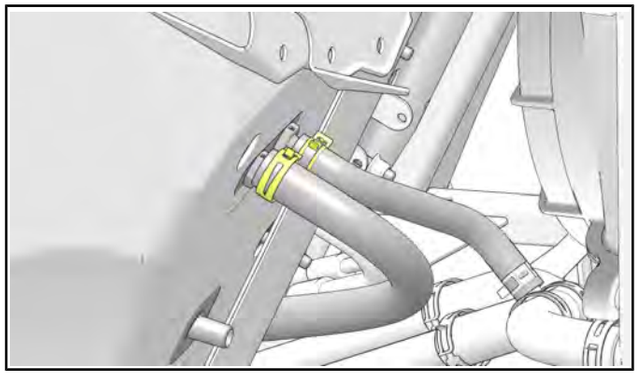
In the event of a leak, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes. In contact with a flame, R-134a refrigerant gives a toxic gas.

2. Drain the cooling system. Refer to **"Radiator Removal / Coolant Drain", page 3.180** procedure.
3. Remove the upper and lower dash. Refer to **"Dash Panels / Glove Box Removal", page 10.36** procedure.
4. Disconnect the blower unit connector to the wire harness.
5. Remove the push rivets holding the ducting to the heater / evaporator unit.

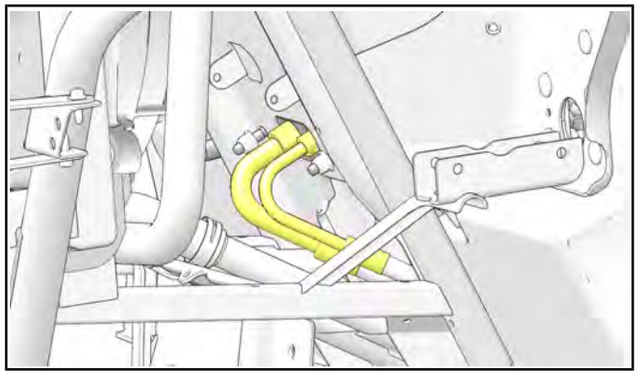


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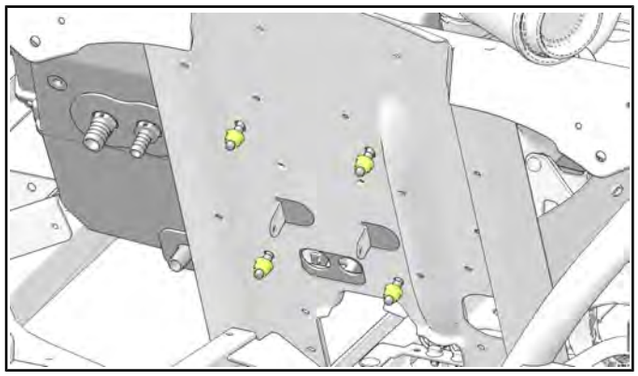
6. Remove the clamps holding the coolant hoses to the heater / evaporator unit through the front wheel opening.



7. Remove the A/C hoses from the expansion valve through the front wheel opening.



8. Remove the fasteners holding the heater / evaporator unit to the vehicle.



9. For installation, reverse removal procedure. Torque heater / evaporator unit mounting fasteners to specification.

TORQUE
Heater / Evaporator Unit Mounting Fasteners: **10 lb-ft (14 Nm)**

10. Recharge the A/C system.

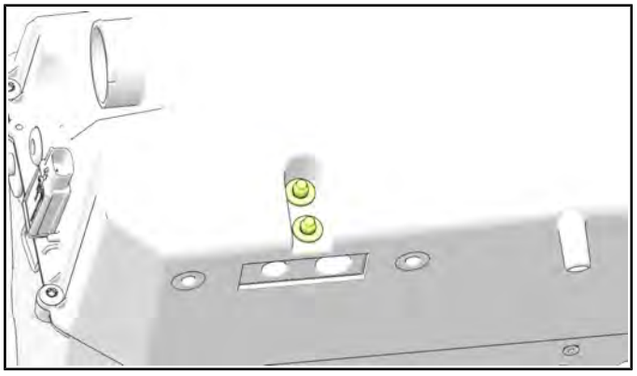
EXPANSION VALVE / EVAPORATOR COIL REPLACEMENT

1. Remove the refrigerant from the A/C system.

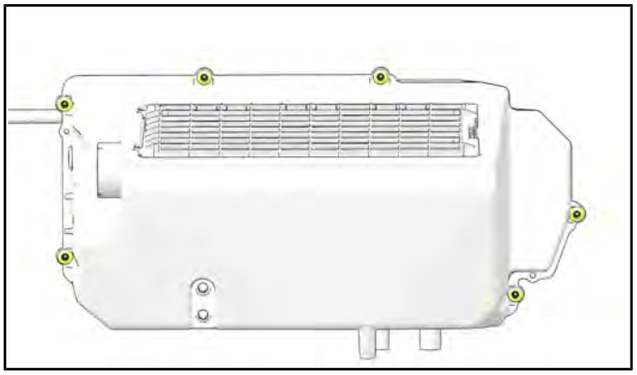
⚠ WARNING

In the event of a leak, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes. In contact with a flame, R-134a refrigerant gives a toxic gas.

2. Remove the heater / evaporator unit from the vehicle. Refer to **"Heater / Evaporator Unit Replacement", page 3.206** procedure.
3. Remove the fasteners holding the expansion valve to the heater / evaporator unit bottom cover.



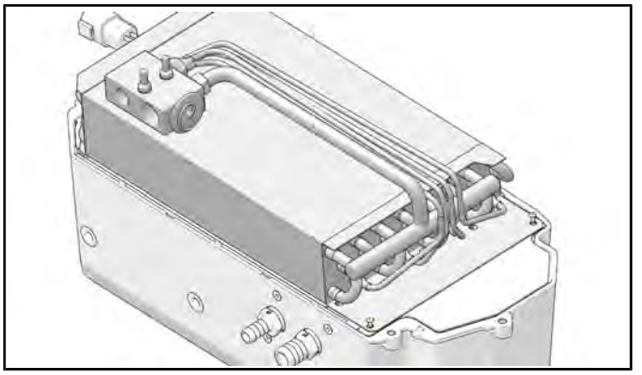
4. Remove the fasteners holding the top cover of the unit to the bottom cover.



5. Cap and plug the hoses and the expansion valve fittings with the proper A/C caps and plugs.

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6. If removing the evaporator coil, remove the fasteners holding the evaporator coil to the heater coil.



7. To Install, reverse procedure. Tighten fasteners to specification.

TORQUE
Expansion Valve Pressure Hoses: **12 ft-lb (16 Nm)** Expansion Valve Tubes: **22 ft-lb (30 Nm)**

8. Recharge the A/C system.

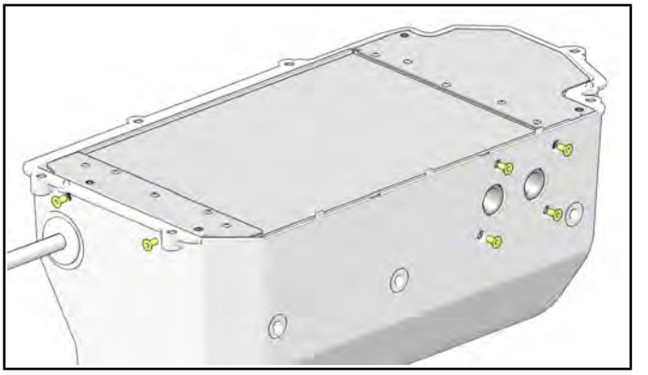
HEATER COIL REPLACEMENT

1. Remove the refrigerant from the A/C system.

⚠ WARNING

In the event of a leak, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes. In contact with a flame, R-134a refrigerant gives a toxic gas.

2. Remove the heater / evaporator unit from the vehicle. Refer to **"Heater / Evaporator Unit Replacement", page 3.206** procedure.
3. Remove the evaporator coil. Refer to **"Expansion Valve / Evaporator Replacement", page 3.207** procedure.
4. Remove the fasteners holding the heater coil to the sides of the heater / evaporator unit top cover.



5. For installation, reverse removal procedure. Tighten heater coil mounting fasteners until fully secure.
6. Recharge the A/C system.

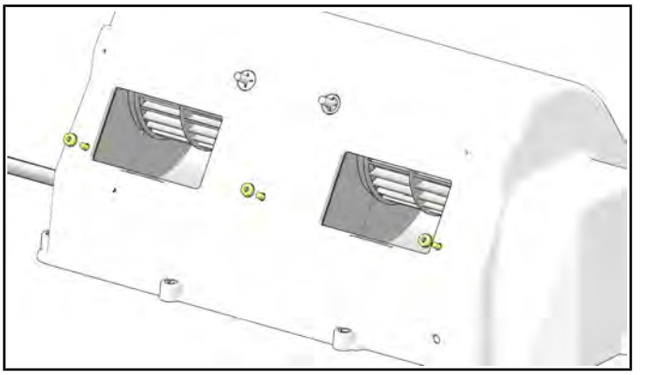
BLOWER UNIT REPLACEMENT

1. Remove the refrigerant from the A/C system.

⚠ WARNING

In the event of a leak, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes. In contact with a flame, R-134a refrigerant gives a toxic gas.

2. Remove the heater / evaporator unit from the vehicle. Refer to **"Heater / Evaporator Unit Replacement", page 3.206** procedure.
3. Remove the heater coil from the heater / evaporator unit. Refer to **"Heater Coil Replacement", page 3.208** procedure.
4. Remove the fasteners holding the heater coil to the heater / evaporator unit top cover.



5. For installation, reverse removal procedure. Tighten blower motor mounting fasteners until fully secure.
6. Recharge the A/C system.

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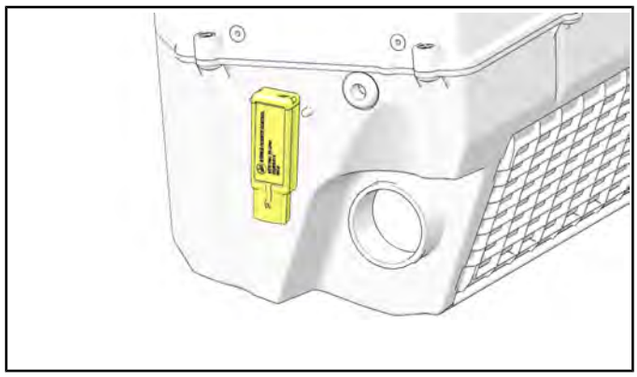
A/C THERMOSTAT OVERVIEW

The Electronic De-icing Thermostat (EDT) is a micro controller based module that measures evaporator coil temperature and cycles the compressor clutch to maintain a constant evaporator pressure.

NOTE

The EDT has a six second delay before start up to protect the compressor clutch.

The EDT will turn the clutch on when the evaporator coil temperature is above 35.6°F (2°C). If the EDT does not detect any malfunction, it will continue to operate and the status LED will be lit continuously. When the evaporator temperature is below 28.4°F (-2°C), the EDT will turn off the clutch and status LED.



When the EDT detects an error from the temperature sensor, the status LED will blink. Refer to the chart below.

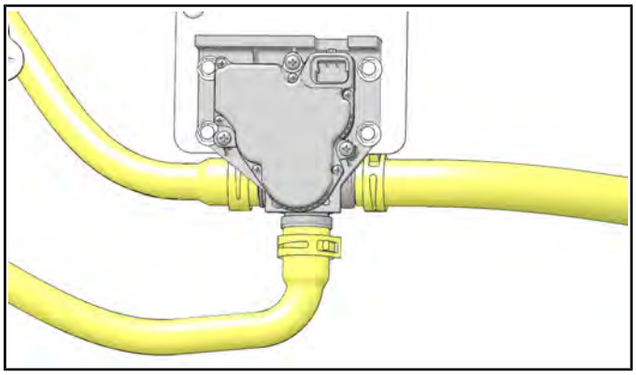
MALFUNCTION	DETECTION INTERVAL	STATUS LED
Temperature sensor open and short detection	Continuous	1x per second
Clutch circuit open, short or over current	At A/C start up	2x per second
Compressor clutch short to ground	Continuous	3x per second

NOTE

The EDT will attempt to restart every 20 seconds until the fault is repaired.

HEATER VALVE REPLACEMENT

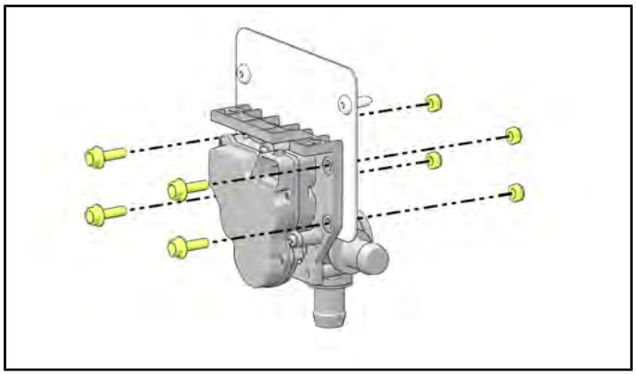
1. Remove the passenger seat and storage bin.
2. Disconnect the wiring harness from the heater valve.
3. Remove the hose clamps and coolant hoses from the heater valve.



NOTE

Plug the hoses to prevent contamination and coolant loss from the system.

4. Remove the fasteners retaining the heater valve to the mounting bracket and remove the heater valve from the vehicle.



5. For installation, reverse removal procedure. Torque heater valve fasteners to specification.

TORQUE

Heater Valve Fasteners:
8 lb-ft (11 Nm)

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HVAC CONTROL SERVICE

HVAC CONTROL OPERATION OVERVIEW

Power is supplied to the HVAC system through the 30 amp HVAC fuse located in the fuse / relay box under the center console. The condenser fan is powered by a 20 amp circuit breaker through the Condenser Fan relay.

The HVAC relay is powered by the 30 Amp HVAC fuse. When they key is in the ON position, the HVAC relay is energized. Power is sent on the Red/Green wires to the blower switch, the temperature knob (temp pot 10k) and the water valve. Power only travels from the blower switch to the AC switch on the white wire when the knob is in the low, medium or high setting. If the AC switch is ON, power is sent out on the blue wire to power the condenser fan relay and the thermostat on the AC evaporator. The evaporator thermostat will send power on the white wire to the HPCO (high pressure cut-out) switch located in the AC hose. The switch is normally closed. When the switch is closed, power is sent to the AC compressor. When the pressure in the AC line gets too high, the switch opens and the compressor cycles off. The condenser fan will always be running when the AC system is on and it is powered by a 20 Amp circuit breaker just outside the relay box.

As the temperature knob is moved towards the warm setting, the voltage through the potentiometer is interpreted by the water valve to control the flow of warm water through the heater core to warm the air.

The HVAC control panel is a single unit. If any of the individual switches are found to not be functioning properly, the whole panel must be replaced.

A/C SWITCH TESTING

The AC switch turns the Air Conditioning system on and off.

The AC Switch can be tested using an ohmmeter.

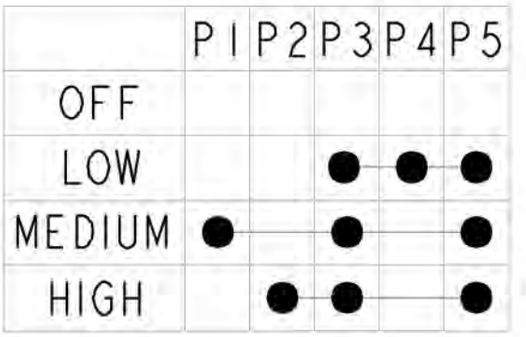
1. Disconnect harness from AC Switch.
2. With the meter in the ohms mode, place the leads on pins P1 and P3.
3. With the switch off, the reading should be OL.
4. With the switch on the reading should be less than 1 Ω.

FAN SWITCH TESTING

The fan switch controls the blower fan speed.

The fan switch can be tested using an ohmmeter.

1. Disconnect the harness going to the Fan Switch.
2. With the meter in the ohms mode, place the meter leads onto the switch contacts.
3. Use the table to determine if the switch needs to be replaced.



TEMPERATURE POTENTIOMETER TESTING

The Temperature Control potentiometer controls the temperature of the air blowing from the HVAC system.

The Temperature Control potentiometer can be tested using an ohmmeter.

1. Disconnect the harness going to the Temperature Control potentiometer.
2. With the meter in the ohms mode, place the meter leads onto the potentiometer flying lead contacts.
3. Use the table to determine if the switch needs to be replaced.

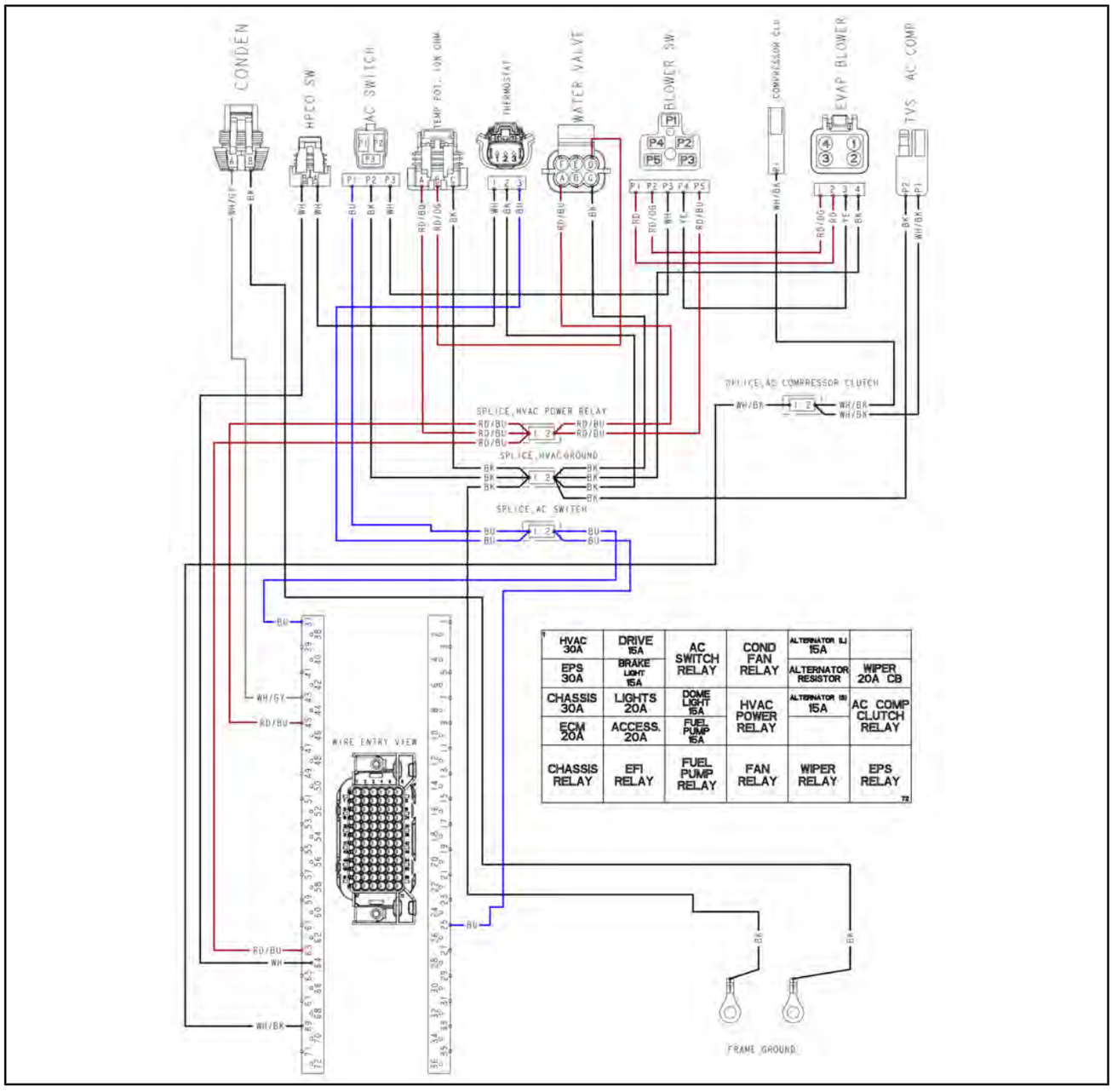
KNOB POSITION	PINS	OHMS READING
Full Cold	A to B	~ 81.5k Ω
Between Cold/ Hot	A to B	~ 86.5k Ω
Full Hot	A to B	~ 91.5k Ω
Any Position	A to C	~ 10k Ω

CAUTION

Keep hands away from fan blades during operation. Serious personal injury could result.

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HVAC BREAKOUT DIAGRAM



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TROUBLESHOOTING - HVAC

BLOWER MOTOR DOES NOT OPERATE

SYMPTOM	POSSIBLE CAUSE	SOLUTION
1. Blown fuse	Inspect the fuse / wiring.	Replace fuse / repair wiring
2. Broken wiring / connection	Check the fan motor ground and connectors.	Repair the wiring or connector
3. Fan motor malfunction	Check the lead wires form the motor with a circuit tester.	Replace Motor
4. Resistor malfunction	Check resistor using a circuit tester.	Replace Resistor
5. Fan switch malfunction	Check power into and out of the fan switch.	Replace Fan Switch

BLOWER MOTOR OPERATES NORMALLY BUT AIR FLOW IS INSUFFICIENT

SYMPTOM	POSSIBLE CAUSE	SOLUTION
1. Evaporator inlet obstruction	Check evaporator for plugging.	Remove obstruction and clean evaporator fins
2. Air leak	Check to make sure air hoses are properly hooked to Louvers, and air ducts.	Repair or adjust
3. Defective thermostat. switch (frozen evaporator)	Check thermostat using a circuit tester.	Replace thermostat
4. Plugged cab filters	Check cab filter condition.	Clean or replace filters

INSUFFICIENT COOLING (AIR FLOW AND COMPRESSOR OPERATION ARE NORMAL)

SYMPTOM	POSSIBLE CAUSE	SOLUTION
1. System low on refrigerant.	The high side pressure will be low and bubbles may be present in sight glass on receive drier.	Repair any leaks and recharge the A/C system
2. Excessive refrigerant.	The high pressure side pressure will be high.	Recover and recharge system to the correct refrigerant level.

COMPRESSOR DOES NOT OPERATE AT ALL OR OPERATES IMPROPERLY

SYMPTOM	POSSIBLE CAUSE	SOLUTION
1. Loose drive belt.	The belt is vibrating or oscillating.	Adjust tension.
2. Internal compressor malfunction.	The compressor is locked up and the belt slips.	Replace compressor.
3. Low battery voltage.	Clutch slips.	Recharge the battery.
4. Faulty coil.	Clutch slips.	Replace the magnetic clutch.
5. Oil on the clutch surface.	Clutch slips.	Replace or clean the clutch surface.
6. Open coil.	Clutch does not engage and there is no reading when a circuit tester is connected between the coil and terminals.	Replace clutch.
7. Broken wiring / poor ground.	Clutch will not engage. Inspect the ground and connections.	Repair.
8. Wiring harness components.	Test the conductance of the pressure switch, thermostat, Relay, etc.	Check operation.

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GAUGE PRESSURE RELATED TROUBLESHOOTING

Normal compressor suction (low side) and discharge (high side) pressure at ambient temperatures of 86 - 96°F (30 - 38°C) and compressor speed of approximately 2000 rpm are:

- High pressure side pressure: 210 - 265 psi (1448 - 1827 kPa)
- Low pressure side pressure: 15 - 33 psi (103 - 228 kPa)

As a rule of thumb the high side pressure will be around eight times greater then the low side pressure.

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Low pressure side too high		
1. Expansion valve opens too far.	Frost is present on the suction hose.	Replace expansion valve.
2. Dective compressor.	The high and low pressure side gauge pressures equalize when the magnetic clutch is engaged.	Replace compressor.
Low pressure side too low		
1. Low refrigerant charge.	The high side pressure will be low and bubbles may be present in sight glass on receive drier.	Repair leaks and recharge the refrigerant to the correct level.
2. Clogged or closed expansion valve.	The expansion valve's inlet side is frosted. Moisture or other Contaminants can be the cause.	Clean or replace the expansion Valve.
3. Restriction between drier and expansion valve.	Frost on the line between drier and expansion valve. A Negative low pressure reading may be shown.	Flush system or replace hose.
4. Thermostat malfunction.	The evaporator is frozen.	Adjust themostat's temperature setting or probe placement or replace thermostat.
5. Receiver drier restriction	Excessive frost on receiver drier.	Replace receiver drier.
High pressure side too high		
1. Poor condenser performance.	Dirty or clogged condenser fins. Condenser fans not Operating.	Clean fins, and / or repair the fan.
2. Excessive refrigerant.	The high pressure side pressure will be high.	Evacuate and recharge to correct refrigerant level.
3. Excessive oil charge.	The high pressure side will be high.	Evacuate system. Remove oil from condenser and compressor. Add correct oil charge back into compressor. Flush system with nitrogen. Replace drier.
4. Air in system.	Pressure is high on both high and low sides.	Evacuate and recharge with Refrigerant.
5. Restriction in drier, condenser or high pressure line.	High pressure side will be high, and low pressure side will be low.	Evacuate and flush system replacing defective parts.
High pressure side too low		
1. Low refrigerant charge.	The high side pressure will be low and bubbles may be present in sight glass on receive drier.	Repair any leaks and recharge the refrigerant to the correct level.
System pressures equal		
1. Clutch not operating.	See compressor clutch related topics above.	
2. Compressor not pumping.	Equal high and low pressures.	Replace compressor.

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TEMPERATURE / PRESSURE CHART

TEMP °F	PSIG	TEMP °F	PSIG
16	15.69	93	110.20
18	17.04	94	112.10
20	18.43	95	114.10
22	19.87	100	124.30
24	21.35	102	128.50
26	22.88	104	132.90
28	24.47	106	137.30
30	26.10	108	141.90
32	27.79	110	146.50
34	29.52	112	151.30
36	31.32	114	156.10
38	33.17	116	161.10
40	35.07	118	166.10
42	37.03	120	171.30
44	39.05	122	176.60
45	40.09	124	182.00
50	45.48	126	187.50
55	51.27	128	193.10
60	57.47	130	198.90
65	64.10	135	213.70
70	71.19	140	229.40
75	78.75	145	245.80
80	86.80	150	263.00
85	95.40	155	281.10
90	104.40	160	300.10
91	106.30	165	320.10
92	108.20	170	340.80

Evaporator

Pressures represent gas temperatures inside the coil, not the coil surface. For an estimate of the temperature of the air coming off the coil add 8 - 10°F (-13 to -12°C) to the temperature on the chart.

Condenser

Temperatures are not ambient temperatures but condensing temperatures. Add 4.4° C (40° F) to the ambient temperature to get the condensing temperature and then refer to the pressure chart to see appropriate pressure for ambient temperature.

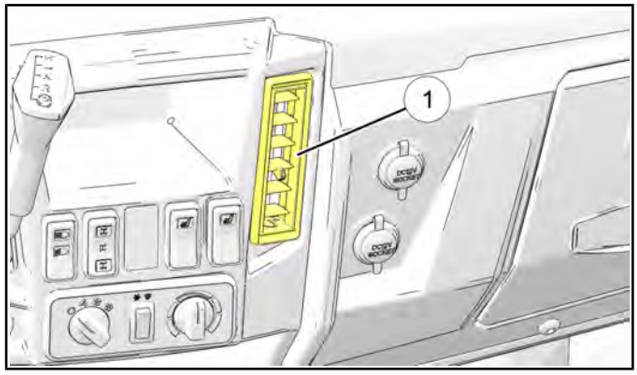
Example: Ambient Temperature = 90ºF
90ºF + 40ºF = 130ºF condenser temperature / 200 PSIG

Conditions and pressures will vary from system to system.

9927645 R04 - 2015–2017 RANGER XP/CREW 570/900/1000 Service Manual
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POOR A/C PERFORMANCE

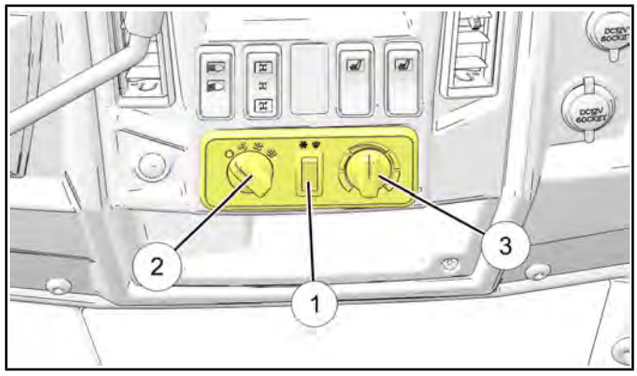
1. Start the utility vehicle. Engage the A/C system with the blower fan on high. Run the vehicle at full rpm for approximately 15 minutes, with the cab door closed.
2. Check the temperature at the louvers ① with a thermometer.



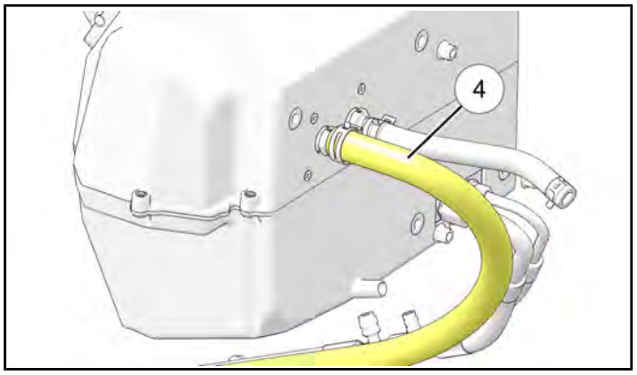
3. The louver temperature should be between 55 - 70°F (13 - 31°C) depending on the humidity in the air.
4. If temperature is too high, check the blower fan for proper operation or noise, and replace if necessary.

ENGINE COOLANT BYPASSING THE HEATER VALVE

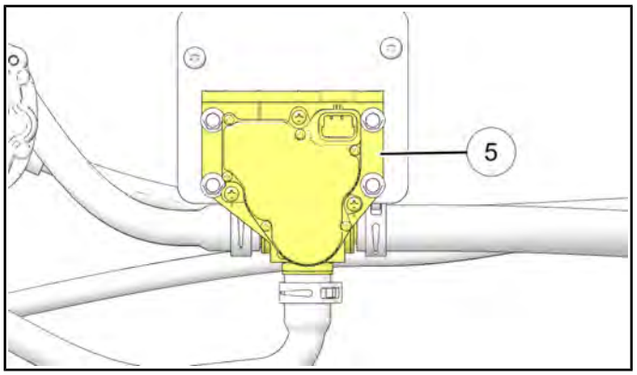
1. Push the A/C switch ① to the OFF position. Turn the fan switch ② to the High Speed position. Turn the temperature control ③ to the High A/C position.



2. Start the utility vehicle and run at high idle, for ten minutes.
3. Check the heater hose ④ for temperature. If the hose is hot, the heater valve is leaking by, and needs to be replaced.



4. Push the A/C switch to the OFF position. Turn the fan switch to position 1. Turn the temperature control to the High A/C position.
5. Listen for the heater valve ① as the key is turned to the ON position without starting the utility vehicle. The heater valve should rotate.
6. Turn the key to the OFF position. Turn the temperature control to the High Heater position.
7. Listen for the heater valve ⑤ as the key is turned to the ON position without starting the utility vehicle. The heater valve should rotate. If it does not rotate, check the potentiometer for proper function.



8. Replace the heater valve.

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NOTES

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CHAPTER 4
FUEL SYSTEM

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GENERAL INFORMATION - FUEL SYSTEM

SERVICE NOTES - FUEL SYSTEM

⚠ WARNING

* Gasoline is extremely flammable and explosive under certain conditions.* EFI components are under high pressure. Verify system pressure has been relieved before disassembly.* Never drain the fuel system when the engine is hot. Severe burns may result.* Do not overfill the tank. The tank is at full capacity when the fuel reaches the bottom of the filler neck. Leave room for expansion of fuel.* Never start the engine or let it run in an enclosed area. Gasoline powered engine exhaust fumes are poisonous and can cause loss of consciousness and death in a short time.* Do not smoke or allow open flames or sparks in or near the area where refueling is performed or where gasoline is stored.* If you get gasoline in your eyes or if you should swallow gasoline, seek medical attention immediately.* If you spill gasoline on your skin or clothing, immediately wash with soap and water and change clothing.* Always stop the engine and refuel outdoors or in a well ventilated area.

- For more convenient and accurate testing of EFI components, it is recommended dealers utilize the Digital Wrench® Diagnostic Software (dealer only). Some testing may be done manually using the procedures provided in this chapter.
- **80% of all EFI problems are caused by wiring harness connections.**
- For the purpose of troubleshooting difficult running issues, a known-good ECU from another *RANGER* of the same model and year may be used without damaging system or engine components.
- Never attempt to service any fuel system component while engine is running or ignition switch is "on."
- Cleanliness is essential and must be maintained at all times when servicing or working on the EFI system. Dirt, even in small quantities, can cause significant problems.
- Do not use compressed air if the system is open. Cover any parts removed and wrap any open joints with plastic if they will remain open for any length of time. New parts should be removed from their protective packaging just prior to installation.
- Clean any connector before opening to prevent dirt from entering the system.
- Although every precaution has been taken to prevent water intrusion failure, avoid direct water or spray contact with system components.
- Do not disconnect or reconnect the wiring harness connector to the control unit or any individual components with the ignition "on." This can send a damaging voltage spike through the ECU.
- Do not allow the battery cables to touch opposing terminals. When connecting battery cables attach the positive (red) cable to positive (+) battery terminal first, followed by negative (black) cable to negative (-) battery terminal.
- Never start the engine when the cables are loose or poorly connected to the battery terminals.
- Never disconnect battery while engine is running.
- Never use a battery boost-pack to start the engine.
- Do not charge battery with key switch "on."
- Always disconnect negative (-) battery cable lead before charging battery.
- Always unplug ECU from the wire harness before performing any welding on the unit.

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SPECIAL TOOLS - FUEL SYSTEM

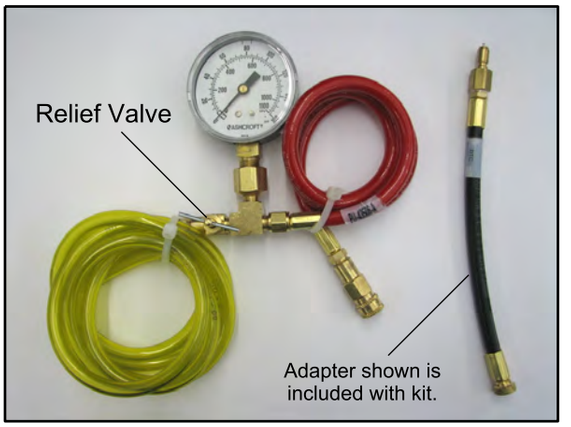
TOOL DESCRIPTION	PART NUMBER
Fuel Pressure Gauge Kit	**PU-43506-A**
Fuel Pressure Gauge Adapter	**PS-48762**
Fuel Pump Service Tool	**PU-50326**
Digital Wrench® Diagnostic Kit (PU-48731, PU-47151, PU-50621, PU-47471)	**PU-47063-B**
Digital Wrench® Software	**PU-48731**
Digital Wrench® Standard Interface Cable	**PU-47151**
Digital Wrench® USB-Serial Adapter Cable	**PU-50621**
Digital Wrench® SmartLink Module Kit (PU-47470, PU-47469, PU-47468)	**PU-47471**
Digital Wrench® PC Interface Cable	**PU-47470**
Digital Wrench® Vehicle Interface Cable	**PU-47469**
Digital Wrench® SmartLink Module	**PU-47468**
Wireless Vehicle Link (WVL)	**PU-51435**

Bosch Automotive Service Solutions: 1-800-328-6657 or https://polaris.service-solutions.com/

Fuel Pressure Gauge Kit - PU-43506-A

NOTE

The EFI fuel system remains under high pressure, even when the engine is not running. Before attempting to service any part of the fuel system, pressure should be relieved. The Fuel Pressure Gauge Kit has an integrated pressure relief valve that can be used to bleed off pressure once you have completed the fuel pressure test.



Fuel Pressure Gauge Adapter - PS-48762

Used in conjunction with PU-43506-A to check fuel pressure.



Digital Wrench® Diagnostic Kit - PU-47063-B

This dealer-only software installs on laptop computers equipped with a CD drive and is designed to replace multiple shop tools often used to test EFI components. It also includes step-by-step diagnostic procedures to aid technician repair and troubleshooting.

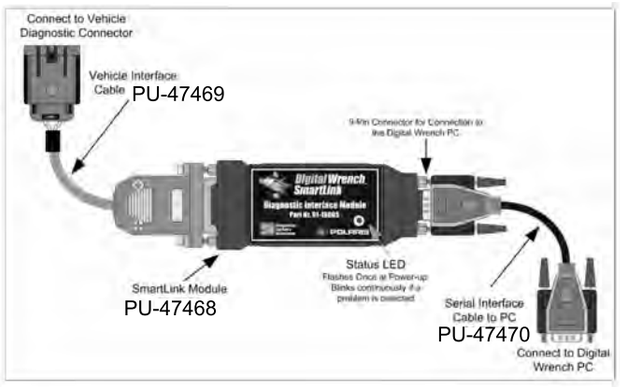
NOTE

If the PC you are using is not equipped with a 9-pin serial port, a USB to serial port adapter will be necessary. A USB to serial port adapter can be purchased through Bosch Automotive Service Solutions (PU-50621) or DSA at: *www.diagsys.com*

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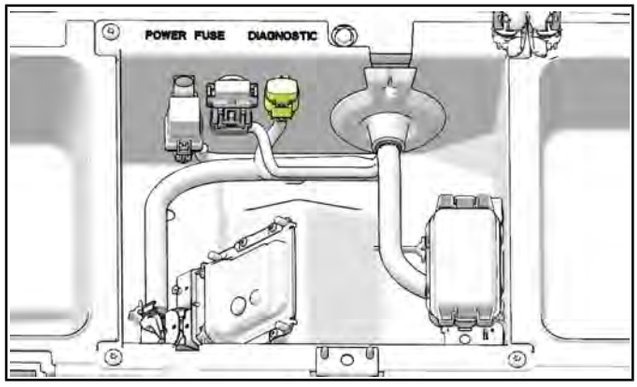
Digital Wrench® SmartLink Module Kit - PU-47471

This module kit contains the necessary cables and hardware to communicate between the vehicle ECU and the Digital Wrench® diagnostic software. Polaris dealers can also order the following kit components separately: **SmartLink Module PU-47468**, **Vehicle Interface Cable PU-47469** and **PC Interface Cable PU-47470**. This module kit is used on all 8 pin connector-based Polaris EFI systems. This kit is available to Polaris dealers through our tool supplier Bosch Automotive Service Solutions: 1-800-345-2233 or http://polaris. service-solutions.com.



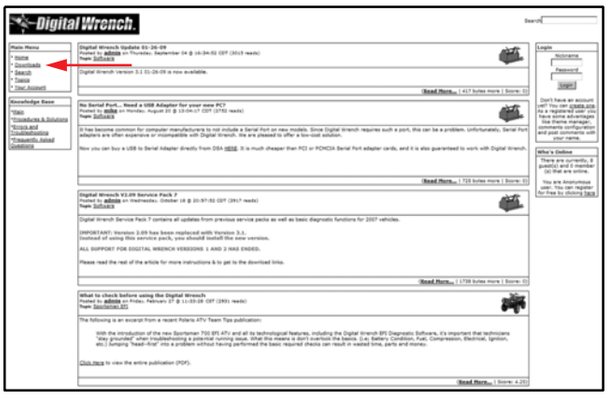
Digital Wrench® - Diagnostic Connector

The diagnostic connector is located under the passenger seat connected to a sealed plug. To access the diagnostic connector on 2 seat models with a center console the center console must be removed.



Digital Wrench® - Download Website

Located at: *www.polaris.diagsys.com*



Download Digital Wrench® Updates:



NOTE

For the most recent information on Digital Wrench® software and update downloads please visit the website: *www.polaris.diagsys.com*

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TORQUE SPECIFICATIONS - FUEL SYSTEM

PART DESCRIPTION	TORQUE SPECIFICATION
Fuel Tank Bracket Fasteners	**8 lb-ft (11 Nm)**
Fuel Pump PFA Nut	**70 lb-ft (95 Nm)**
ECU Retaining Screws	**24 lb-in (2.7 Nm)**
ETC Housing Retaining Bolts	**7 lb-ft (10 Nm)**
Intake Boot Clamp	**3 lb-ft (4 Nm)**
CPS Retaining Bolt	**9 lb-ft (12 Nm)**
T-MAP Retaining Bolt	**7 lb-ft (10 Nm)**
ECT Sensor	**17 lb-ft (23 Nm)**
Throttle Pedal Assembly Nuts	**18 lb-ft (24 Nm)**
Throttle Pedal Bracket Nuts	**18 lb-ft (24 Nm)**
Fuel Rail Mounting Screws	**7 lb-ft (10 Nm)**
Ignition Coil Retaining Bolt	**8 lb-ft (11 Nm)**

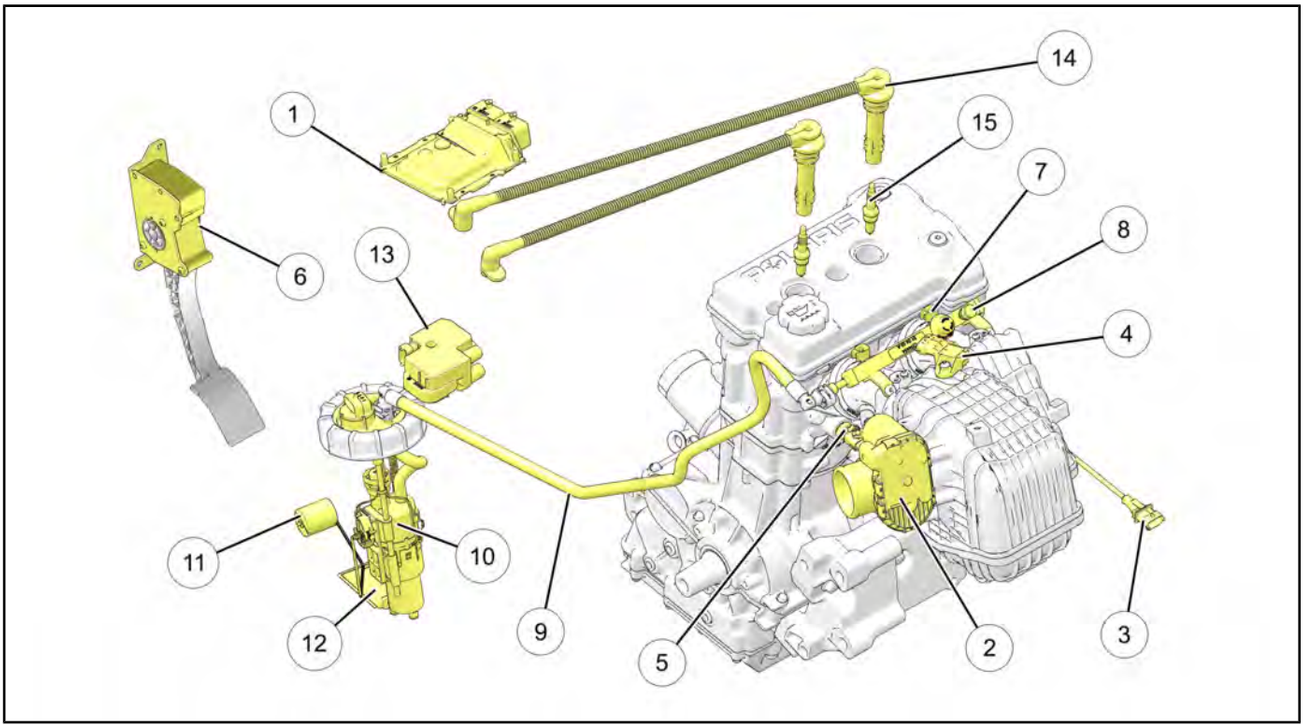
SERVICE SPECIFICATIONS - FUEL SYSTEM

PART DESCRIPTION	SERVICE SPECIFICATION
Fuel Pump Output	**9.25 gal (35 L)/hr**
Fuel Pressure	**58 ± 2 psi (400 ± 14 kPa)**
Fuel Sender Resistance - Empty	**90 Ω ± 4.5 Ω**
Fuel Sender Resistance - Full	**6 Ω ± 1 Ω**
CPS Resistance	**1000 Ω ± 10%**
Fuel Injector Resistance	**11.4 Ω - 12.6 Ω**

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ELECTRONIC FUEL INJECTION

FUEL SYSTEM EXPLODED VIEW



REF	DESCRIPTION	REF	DESCRIPTION
①	Electronic Control Unit (ECU)	⑨	Fuel Supply Line
②	Electronic Throttle Control (ETC)	⑩	Fuel Pump / Regulator
③	Crankshaft Position Sensor (CPS)	⑪	Fuel Level Sender
④	Temp / Manifold Absolute Pressure Sensor (T-MAP)	⑫	Fuel Filter
⑤	Engine Coolant Temperature Sensor (ECT)	⑬	Ignition Coil
⑥	Pedal Position Sensor (PPS)	⑭	Spark Plug Wires
⑦	Fuel Injectors	⑮	Spark Plugs
⑧	Fuel Rail Assembly		

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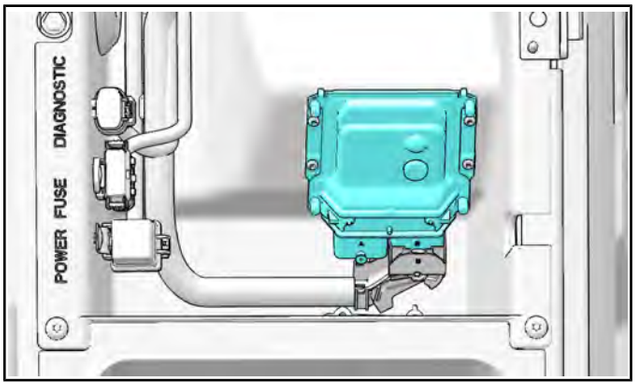
FUEL SYSTEM COMPONENTS

The Electronic Fuel Injection (EFI) system is a complete engine fuel and ignition management design. This system includes the following principal components:

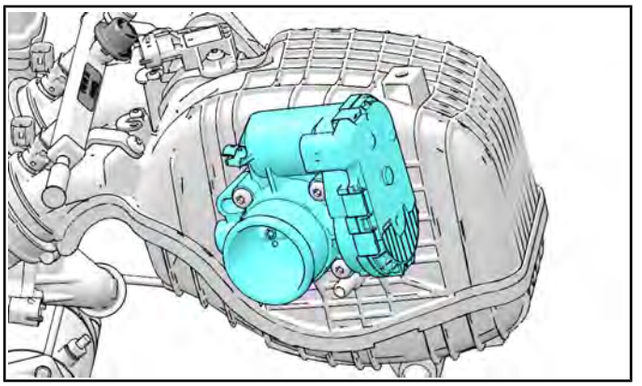
- Check Engine Light
- Crankshaft Position Sensor (CPS)
- Engine Control Unit (ECU)
- Engine Coolant Temperature Sensor (ECT)
- Electronic Throttle Control (ETC)
- Fuel Injectors
- Fuel Pressure Regulator
- Fuel Pump
- Fuel Rail / Supply Line
- Ignition Coil
- Intake Plenum
- Pedal Position Sensor (PPS)
- Temp / Manifold Absolute Pressure Sensor (T-MAP)
- Wire Harness Assembly

FUEL SYSTEM COMPONENT LOCATIONS

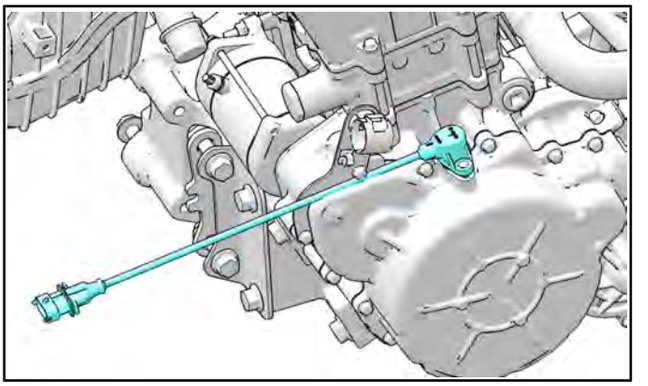
1. **Electronic Control Unit (ECU)**
   - Located under the passenger seat. (Rear passenger seat on CREW).



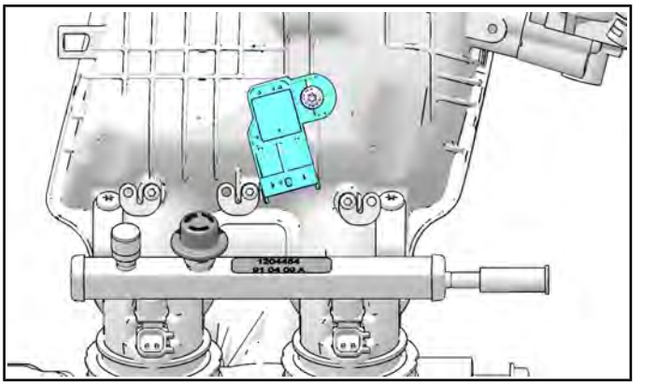
2. **Electronic Throttle Control (ETC)**
   - Located between the intake boot and intake plenum.



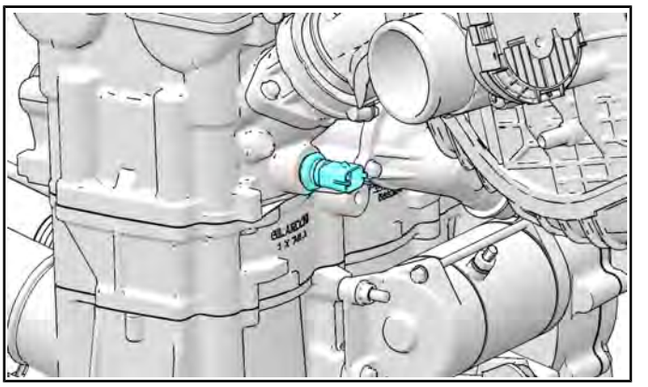
3. **Crankshaft Position Sensor (CPS)**
   - Located on top of the stator cover.



4. **Temperature / Manifold Absolute Pressure Sensor (T-MAP)**
   - Located on top of the intake plenum.

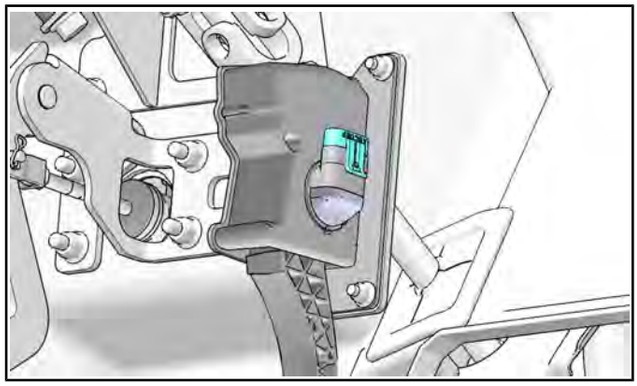


5. **Engine Coolant Temperature Sensor (ECT)**
   - Located on the cylinder head below the intake manifold.

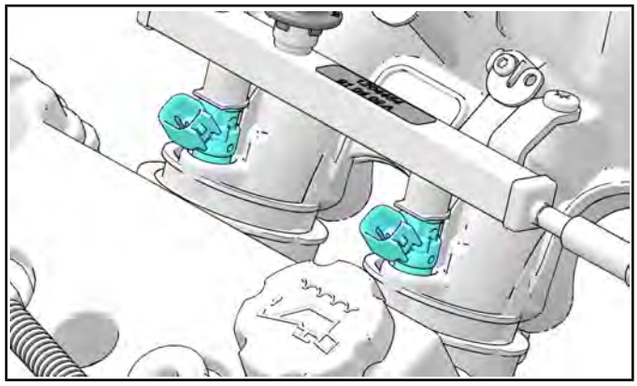


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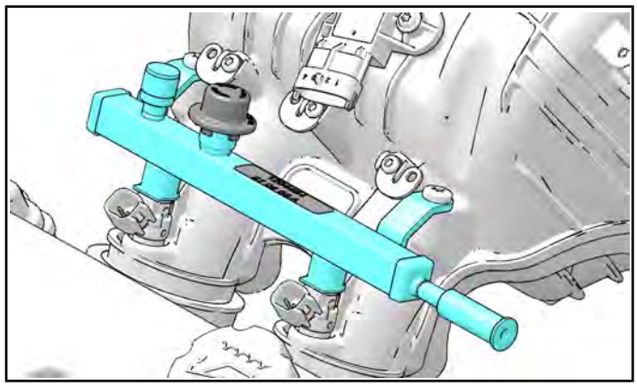
6. **Pedal Position Sensor (PPS)**
   - Located on the side of the throttle pedal assembly (cover removed).



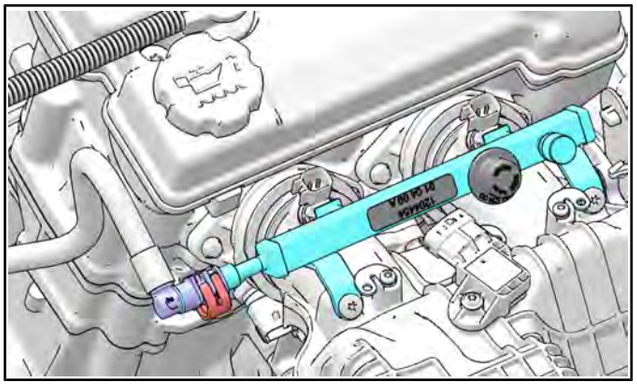
7. **Fuel Injectors**
   - Located on the top of the intake plenum in the intake track, retained on top by the fuel rail.



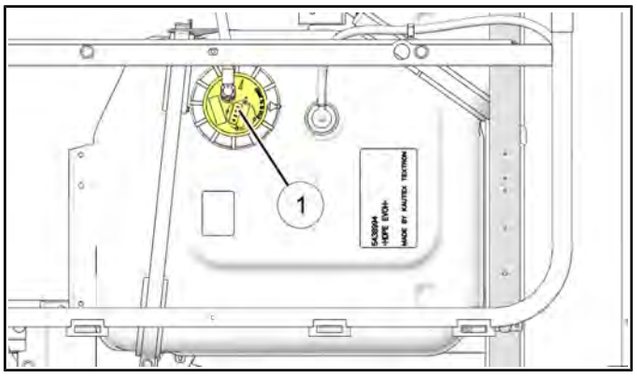
8. **Fuel Rail Assembly**
   - Located on the intake plenum, on top of the fuel injectors.

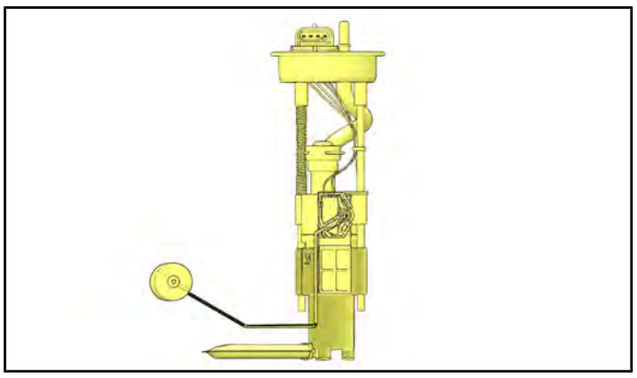


9. **Fuel Supply Line**
   - Connected to the left end of the fuel rail and top of the fuel pump.



10. **Fuel Pump / Regulator / Fuel Level Sender Assembly ①**
    - Located under the driver's seat.

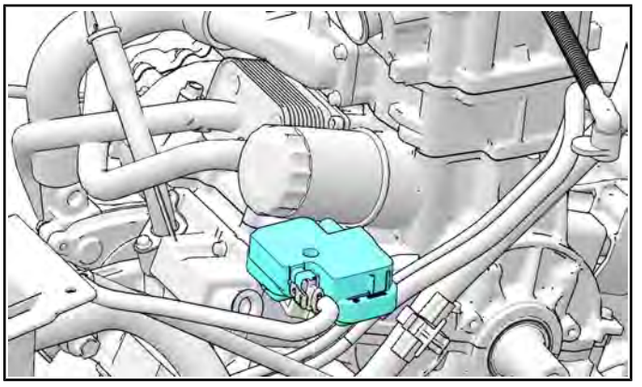




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11. **Ignition Coil / High Tension Leads**
    - Located next to the airbox behind the driver's seat.



FUEL SYSTEM OPERATION OVERVIEW

The EFI system is designed to provide peak engine performance with optimum fuel efficiency and lowest possible emissions. The ignition and injection functions are electronically controlled, monitored and continually corrected during operation to maintain peak performance.

The central component of the system is the Bosch ME17 Electronic Control Unit (ECU) which manages system operation, determining the best combination of fuel mixture and ignition timing for the current operating conditions.

An electric fuel pump is used to move fuel from the tank, through the fuel supply line, to the fuel rail. A fuel pressure regulator located in the tank maintains system operating pressure. At the engine, fuel fed to the fuel rail supplies fuel to the injectors, which inject into the intake ports. The ECU controls the amount of fuel by varying the length of time that the injectors are "on." This range can vary depending on fuel requirements. The controlled injection of the fuel occurs every other crankshaft revolution, or once for each 4-stroke cycle. When the intake valve opens, the fuel/air mixture is drawn into the combustion chamber, ignited and burned.

The ECU controls the amount of fuel being injected and the ignition timing by monitoring the primary sensor signals for intake air temperature, manifold absolute pressure (load), engine temperature, engine speed (RPM) and throttle pedal position. These primary signals are compared to the programming in the ECU computer chip, and the ECU adjusts the fuel delivery and ignition timing based on these values.

During operation, the ECU has the ability to re-adjust temporarily; providing compensation for changes in overall engine condition and operating environment, so it will be able to maintain the ideal air/fuel ratio.

During certain operating periods such as cold starts, warm up, acceleration, etc., a richer air / fuel ratio is automatically calculated by the ECU.

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INITIAL PRIMING / STARTING PROCEDURE

NOTE

The injection system must be purged of all air prior to the initial start up, and / or any time the fuel system has been disassembled.

If the fuel system is completely out of fuel or has been disassembled and repaired:

1. Cycle the key switch from “OFF” to “ON” 6 times, waiting for approximately 3 seconds at each “ON” cycle to allow the fuel pump to cycle and shut down.
2. Once step 1 is completed, turn the key switch to “START” until the engine starts or 5 seconds has passed.
3. If the engine failed to start, repeat step 1 for 2 more cycles and attempt to start the engine.

   If the engine fails to start, a problem may still exist, and should be diagnosed.

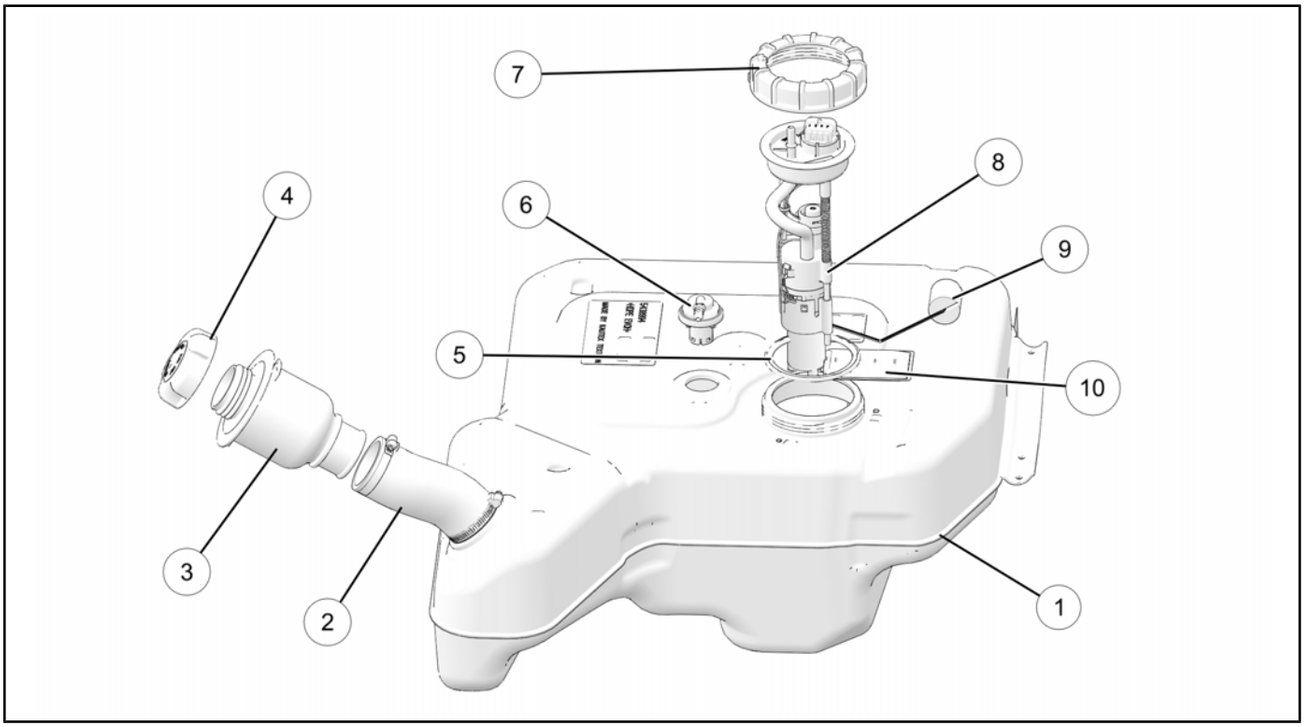
NOTE

Accurate testing of EFI components is recommended utilizing the Digital Wrench® Diagnostic Software (dealer only).

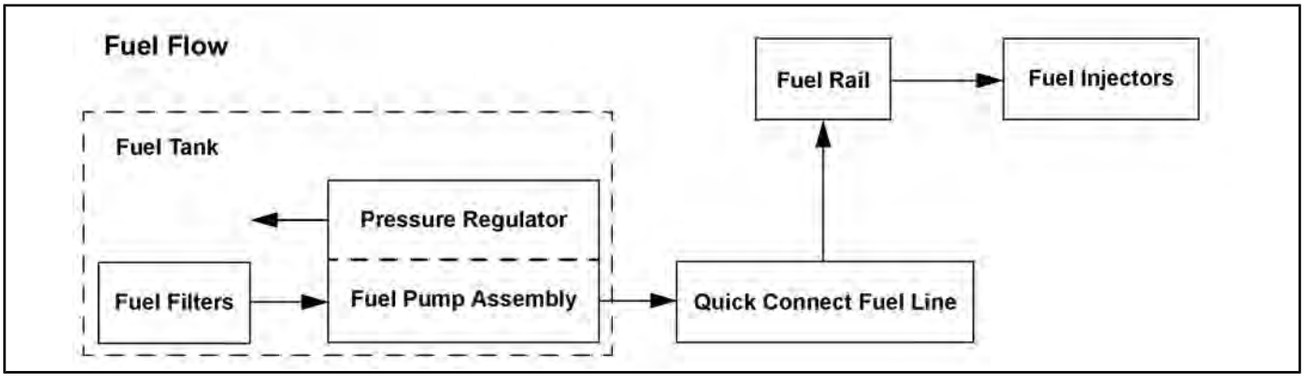
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FUEL TANK SERVICE

FUEL TANK EXPLODED VIEW



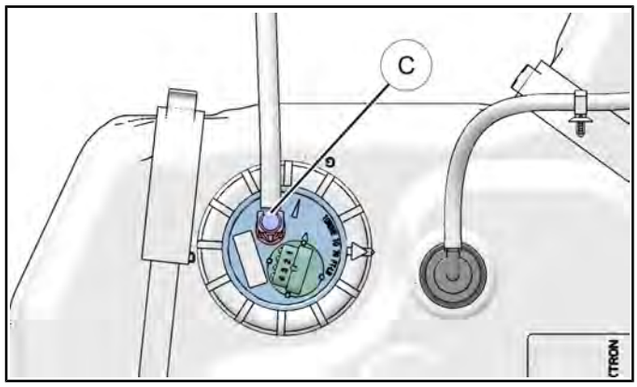
REF	DESCRIPTION	REF	DESCRIPTION
①	Fuel Tank Asm	⑥	Tank Vent / Rollover Valve
②	Fuel Fill Hose	⑦	Fuel Sender Nut
③	Fuel Inlet	⑧	Fuel Pump / Regulator
④	Fuel Cap	⑨	Fuel Level Float Arm
⑤	Gasket	⑩	Preliminary Fuel Filter

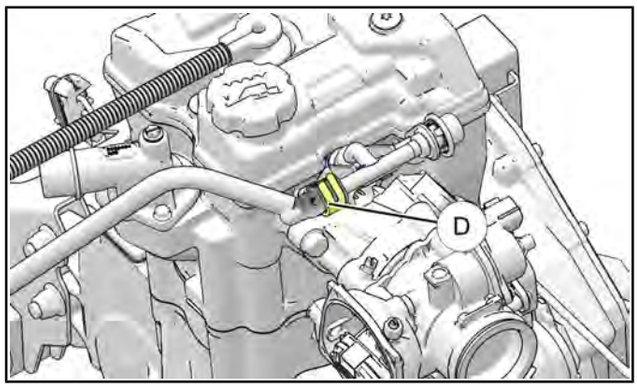


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FUEL LINE REMOVAL / INSTALLATION

1. Place a shop towel around the fuel line to catch any dripping fuel.
2. To remove either end of the fuel line, pull open tabs (C, D) while moving the connector out to release the line.





3. Pull the fuel line outward to remove.
4. To reinstall the line, verify the connections are clean and free of debris.
5. Place the fuel line back over the fitting and slide the connector locking mechanism back into place. Verify the connector tabs snap back into place by pulling out lightly on connector.
6. Be sure fuel line is routed and retained properly.

FUEL TANK REMOVAL

⚠ WARNING

Always wear safety goggles when working with high pressure or flammable fluids. Failure to do so could result in serious injury or complications.

1. Remove the driver and passenger seat base and storage bins.
2. Disconnect the negative battery cable from the battery, located under the passenger seat.
3. Remove the main floor. Refer to **"Main Floor Removal", page 10.39** procedure.

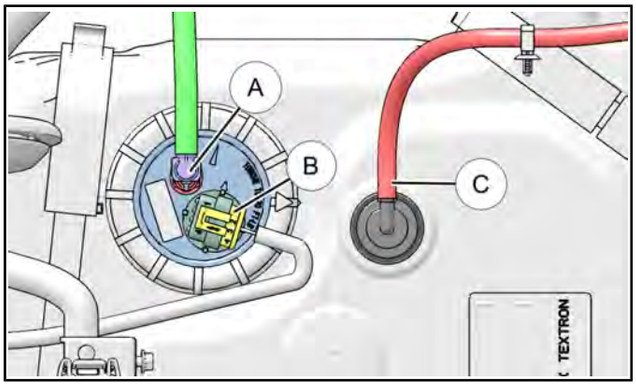
NOTE

Syphon as much fuel from the tank as possible before attempting to remove it from the vehicle.

4. While holding a shop towel over the fuel line connectors, disconnect the fuel line (A) from the fuel pump. Refer to **"Fuel Line Removal / Installation", page 4.13** procedure.

NOTE

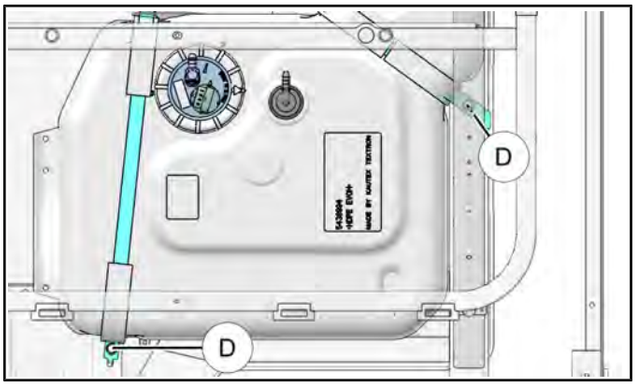
A small amount of fuel may come out of the fuel lines or pump fitting. Properly drain fuel into a suitable container.



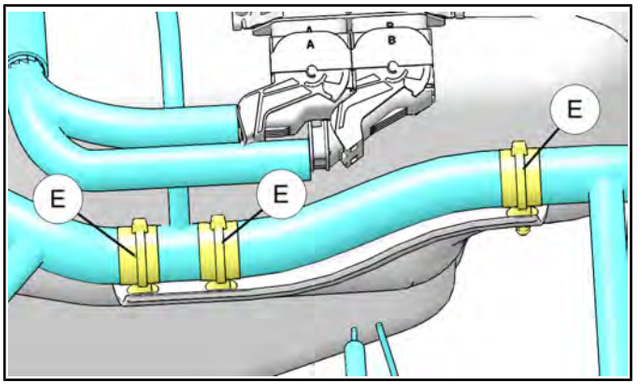
5. Remove the fuel tank vent line (C) from the tank fitting.
6. Disconnect the fuel pump electrical harness (B).

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7. Remove the two fuel tank bracket fasteners (D) that retain the fuel tank in the chassis. Swing the tank brackets clear of the fuel tank for removal.



8. Remove the three plastic ties (E) retaining the main wire harness to the fuel tank.



9. Slide the fuel tank toward front of vehicle and remove the tank from vehicle.

FUEL TANK INSTALLATION

1. Reinstall the fuel tank into the chassis taking care not to damage brake lines or the wire harness.
2. Install three plastic tie straps to retain the wire harness to the fuel tank.
3. Install fuel tank brackets and two fasteners retaining fuel tank to chassis. Torque fasteners to specification.

TORQUE
Fuel Tank Bracket Fasteners: **8 lb-ft (11 Nm)**

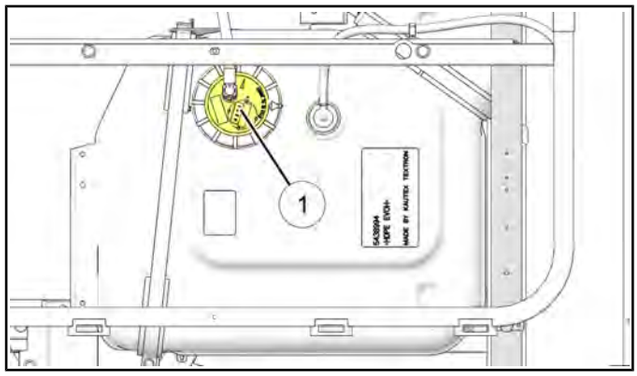
4. Reconnect the fuel pump electrical harness.
5. Install the fuel line and vent line, and verify they are secure.
6. Install the main floor.
7. Reconnect the negative battery cable. Test the fuel pump by turning on the key and listening for the pump to activate.
8. Install storage bins and driver and passenger seat bases.

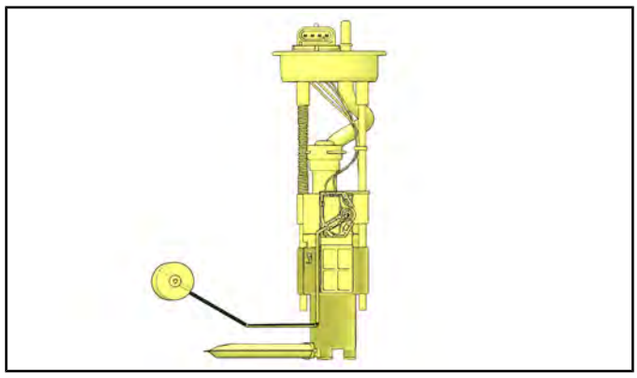
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FUEL PUMP SERVICE

OPERATION OVERVIEW

An electric fuel pump assembly is used to transfer fuel to the EFI system from inside the fuel tank. This assembly includes the fuel pump, fuel filter, regulator and fuel level sender. The pump is rated for a minimum output of **9.25 gal (35 L)/hr** at **58 ± 2 psi (400 ± 14 kPa)**.





When the key switch is turned to "ON", the ECU activates the fuel pump, which pressurizes the system for start-up.

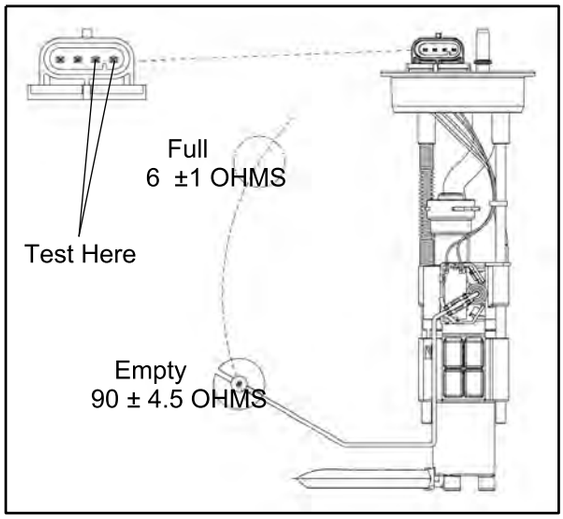
The ECU switches off the pump preventing the continued delivery of fuel in these instances:

- If the key switch is not promptly turned to the "start" position.
- If the engine fails to start.
- If the engine is stopped with the key switch "on" (as in the case of an accident).

In these situations, the “check engine” light will illuminate, but turn off after 4 cranking revolutions if the system functions properly. Once the engine is running, the fuel pump remains on to maintain fuel pressure.

FUEL SENDER TEST

1. Remove the fuel pump assembly from the fuel tank. Refer to **“Fuel Pump Replacement”, page 4.17** procedure.
2. Using an Ohm meter, measure the resistance of the fuel sender as shown below.



3. Allow the sender float to sit in the **empty position** and compare to specification.

Fuel Sender - Empty: **90 Ω ± 4.5 Ω**

4. Slowly move the sender float to the **full position** and compare to specification.

Fuel Sender - Full: **6 Ω ± 1 Ω**

5. If the readings are out of specification, or if the reading is erratic or LCD display “sticks”, check the following before replacing the fuel pump assembly:

- Loose float
- Float contact with tank
- Bent float rod

6. If none of the conditions exist, the fuel sender assembly is faulty. Replace the fuel pump assembly. Refer to **“Fuel Pump Replacement”, page 4.17** procedure.

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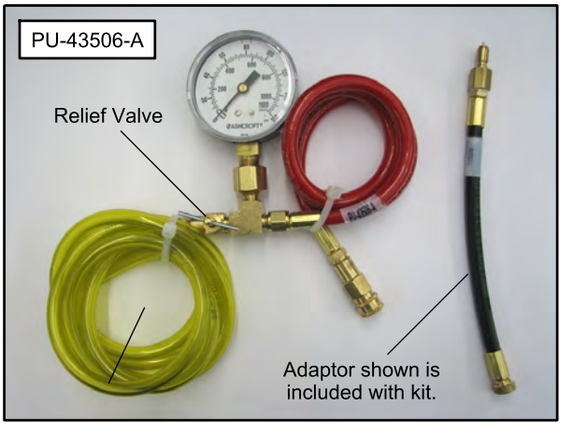
FUEL PUMP TEST

If a fuel delivery problem is suspected, make certain the fuel pump filter is not plugged, that the pump is being activated through the ECU, all electrical connections are properly secured, the fuses are good, and a minimum of 7.0 volts is being supplied. If during starting the battery voltage drops below 7.0 volts, the ECU will fail to operate the system.

⚠ WARNING

Fuel is extremely flammable and may cause severe burns, injury, or death. Do not use any device that produces a flame or electrical devices that may spark around fuel or fuel vapors.

1. Couple Fuel Pressure Gauge Adapter (**PS-48762**) to the Fuel Pressure Gauge Kit (**PU-43506-A**).





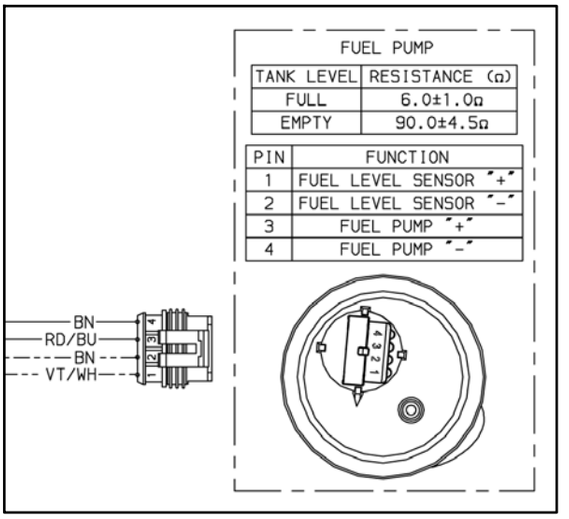
2. Lift the rear cargo box to the raised position.
3. Install the Fuel Pressure Gauge Adapter (**PS-48762**) in-line between the fuel pump outlet and the fuel line.
4. Turn on key switch to activate the pump and check the system pressure on the gauge. If fuel pressure is within specification, the ignition switch, ECU, fuel pump and pressure regulator are working properly. Turn the key switch off and turn the relief valve on the tester to relieve the system pressure.

Fuel Pressure: **58 ± 2 psi (400 ± 14 kPa)**

NOTE

If the fuel pressure is out of specification, replace the fuel pump assembly.

5. If the pump did not activate (Step 5), disconnect the harness connector from the fuel pump. Connect a DC voltmeter across terminals “3” and “4” in the plug on the vehicle fuel pump harness. Turn on the key switch and observe voltage to ensure a minimum of 7 volts is present.



NOTE

If the voltage was below 7 VDC, test the battery, ignition switch, relay(s), wiring harness and ECU.

6. If the reading is between 7 and 14 volts, turn key switch off and connect an ohmmeter between terminals “3” and “4”' at the white fuel pump connector to check for continuity within the fuel pump.

NOTE

If there was no continuity between the pump terminals, replace the fuel pump assembly.

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7. If voltage at the plug was within the specified range, and there was continuity across the pump terminals, reconnect the plug to the fuel pump, making sure you have a clean connection. Turn on the key switch and listen for the pump to activate.

NOTE

If the pump starts, repeat steps 3, 4 and 5 to verify correct pressure.

8. If the pump still does not operate, check for correct ECU operation by plugging in a known-good ECU of the same model.

NOTE

If the pump still does not operate, replace the fuel pump assembly.

FUEL PUMP REPLACEMENT

1. Move the vehicle to a well ventilated area. Shift the transmission into Park and turn the ignition key off.
2. Remove the driver seat and storage bin to access the fuel pump.

⚠ WARNING

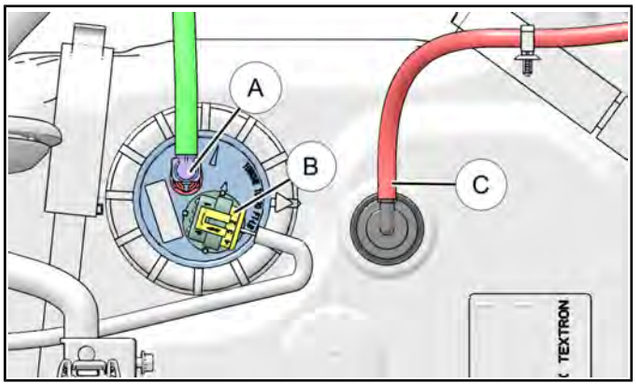
Always wear safety goggles when working with high pressure or flammable fluids. Failure to do so could result in serious injury or complications.

3. Be sure the top of the fuel tank is clean. If it requires cleaning, hand wash the top of the tank around the fuel pump to ensure no debris will enter the fuel system when the fuel pump is removed.

⚠ WARNING

Failure to clean area around fuel pump may lead to debris entering the fuel tank during service. Excessive debris in fuel tank may cause premature wear of fuel pump and/or cloggingof internal fuel filters.

4. Ensure that static has been discharged by touching a ground source such as the engine or frame.
5. While holding a shop towel over the fuel line connector, disconnect the fuel supply line (A) from the pump. Refer to **“Fuel Line Removal / Installation”, page 4.13** procedure.



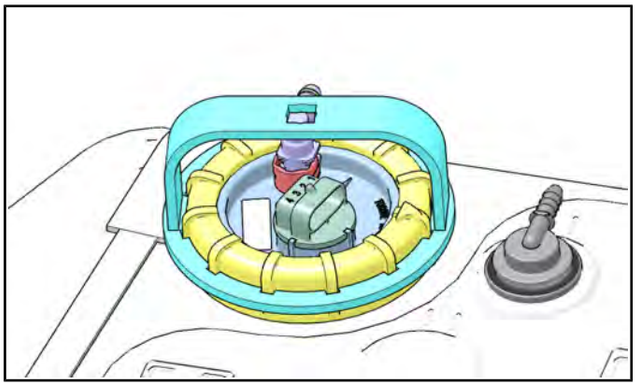
CAUTION

It is possible for pressurized fuel to be present when disconnecting the fuel line.It is recommended to allow the vehicle to sit for a period of one hour after shutting off the engine before servicing the fuel pump. This allows the exhaust to cool and fuel pressure to drop.

NOTE

A small amount of fuel may come out of the fuel lines or pump fitting. Properly drain fuel into a suitable container.

6. Disconnect the fuel pump electrical harness (B).
7. Place the Fuel Pump Service Tool (**PU-50326**) over the fuel pump nut. Using a 1/2” drive ratchet or breaker bar, loosen and remove the nut. Discard the nut.

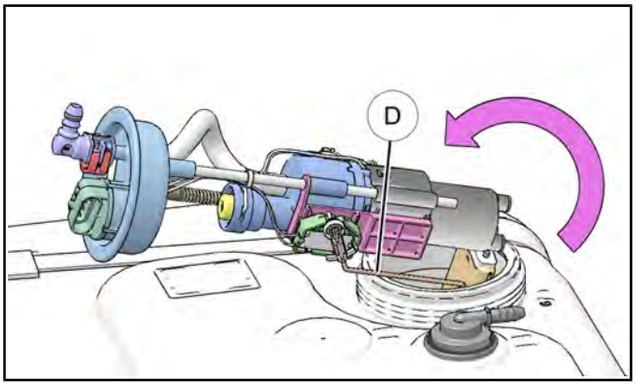


NOTE

Apply downward force on the fuel pump flange while removing the fuel pump nut.

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8. Remove the four T-40 Torx head screws securing the ECU storage bin and slide the bin towards the passenger side for clearance.
9. Carefully lift the fuel pump out of the fuel tank. As the fuel pump assembly is being removed, be aware of float arm and pump pre-filter. Hold the float arm (D) to the pump body as you lift and tilt the pump to ensure that the float arm is not bent when removed from the tank.

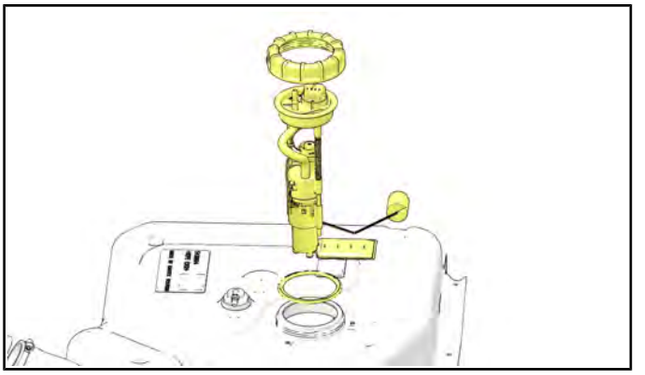


10. Transfer old fuel pump to a suitable container capable of safely holding fuel. Fuel pump will retain some fuel.
11. Inspect the inside of the fuel tank for debris (may require flashlight and mirror). If debris like mud or sand is present, fuel tank should be flushed and cleaned out prior to installation of new fuel pump assembly.

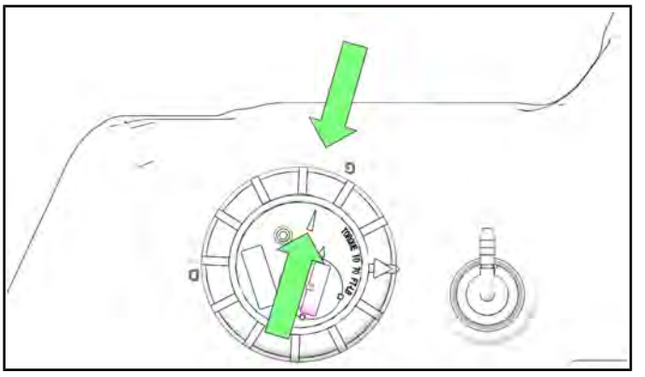
NOTE

It is recommended to remove the fuel tank from the vehicle and rinse it with a small amount of clean fuel. Do not use water or any other chemicals to remove debris.

12. Remove new fuel pump assembly, gasket and nut from packaging. Use care not to bend float arm during un-packaging. Do not lift or carry fuel pump assembly by the float arm.
13. Use cleaning wipes provided to clean fuel tank surface and threads. Remove all debris, grease and oil. Allow surfaces to dry completely.
14. Install new gasket onto fuel pump assembly using care not to damage gasket or bend float arm.



15. Install fuel pump into fuel tank, hold float arm to the pump body and tilt assembly to ensure float arm does not get caught or bent during installation.
16. Gently push down on fuel pump flange ensuring flange is centered.
17. Roughly align orientation mark on fuel pump between the orientation marks on fuel tank to ensure float arm does not get bent or snagged.



⚠ WARNING

Failure to align the orientation marks may lead to interferences with the fuel level float armand cause incorrect function.

18. While maintaining downward pressure, thread new nut onto fuel tank and hand tighten. Use care when starting nut, ensuring threads are properly aligned. Verify orientation marks are still aligned between fuel pump and fuel tank.
19. Torque nut to specification using the Fuel Pump Service Tool (**PU-50326**) and a calibrated torque wrench.

TORQUE

Fuel Pump Nut:
70 lb-ft (95 Nm)

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20. Verify alignment of fuel pump and tank orientation marks.
21. Connect the fuel supply line to the pump. Refer to **“Fuel Line Removal / Installation”, page 4.13** procedure.

NOTE

Be sure to engage the retainers on each fuel line until each snaps into place. Pull on fuel lines lightly to confirm connection.

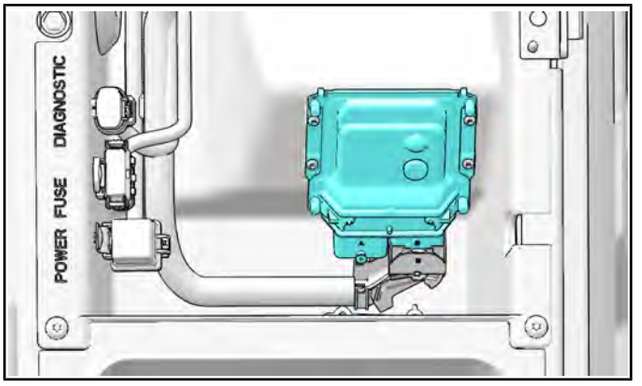
22. Connect the fuel pump electrical harness.
23. Test the fuel pump by turning on the key and listening for the pump to activate. Cycle the key several times to prime the system.
24. Install storage bin and driver’s seat base.

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ELECTRONIC CONTROL UNIT (ECU)

OPERATION OVERVIEW

The ECU is the brain or central processing computer of the entire EFI fuel and ignition management system. During operation, sensors continuously gather data which is relayed through the wiring harness to input circuits within the ECU. Signals to the ECU include: ignition power (on/off), intake air temperature, manifold absolute pressure (load), engine coolant temperature, crankshaft position and engine speed (RPM), throttle pedal position and battery voltage. The ECU compares the input signals to the programmed maps in its memory and determines the appropriate fuel and ignition requirements for the immediate operating conditions. The ECU then sends output signals to set injector duration and ignition timing.



During operation, the ECU continually performs a diagnostic check of itself, each of the sensors, and system performance. If a fault is detected, the ECU turns on the “Check Engine” light on the instrument cluster and stores the fault code in its fault memory. Depending on the significance or severity of the fault, normal operation may continue, or "Fail-Safe" operation (slowed speed, richer running) may be initiated. A technician can determine the cause of the “Check Engine” light by referencing the **“Instrument Cluster Trouble Code Display”, page 4.35** and **“Diagnostic Trouble Code Table”** or by using Digital Wrench®. The ECU requires a minimum of 7.0 volts to operate. The memory in the ECU is operational the moment the battery cables are connected.

To prevent engine over-speed and possible failure, maximum engine RPM is controlled by the interface between the ECU and Electronic Throttle Control (ETC).

570 Engine Max Operating RPM: 7750 900 Engine Max Operating RPM: 7250

ECU SERVICE

Never attempt to disassemble the ECU. It is sealed to prevent damage to internal components. Warranty is void if the case is opened or tampered with in any way.

All operating and control functions within the ECU are pre-set. No internal servicing or readjustment may be performed. If a problem is encountered, and you determine the ECU to be faulty, contact the Polaris Service Department for specific handling instructions. Do not replace the ECU without factory authorization.

For the purpose of troubleshooting, a known-good ECU from another Polaris *RANGER* Fullsize 570 / XP 900 of the same model may be used without system or engine component damage.

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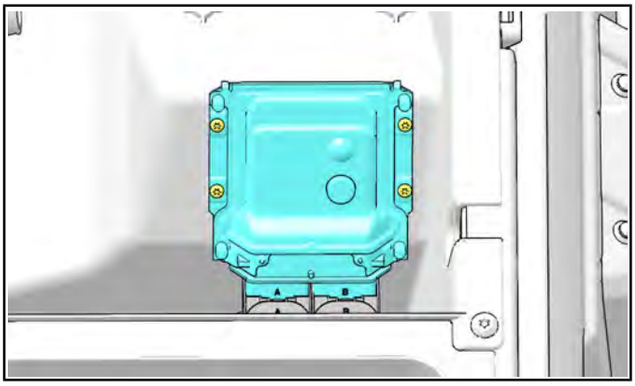
ECU REPLACEMENT

Although the need for ECU replacement is unlikely, a specific replacement procedure is required to ensure that all essential data contained within the original ECU is transferred to the replacement ECU.

NOTE

Refer to this procedure and carefully follow all instructions provided in Digital Wrench®.

1. Remove the passenger seat base.
2. Connect the Vehicle Interface Cable to the Digital Wrench® diagnostic connector. Go to the Special Tests menu and select ECU Replacement. Carefully follow the ECU replacement instructions.
3. Remove the four T-25 Torx head screws retaining ECU to center tray.



4. With the ignition turned off, disconnect the wire harness from the ECU. Lift the connector locking lever and rotate it up until the connector is free from the ECU.

NOTE

Upon removing the ECU connector, you should hear a “click” when the connector is fully open.

5. Remove the ECU from the vehicle.
6. To reinstall, reverse this procedure and tighten the mounting screws to specification.

NOTE

Upon installing the ECU connector, you should hear a “click” when the connector is fully closed.

TORQUE

ECU Retaining Screws:
24 lb-in (2.7 Nm)

ETC LEARN PROCEDURE

IMPORTANT

This procedure MUST be performed on the vehicle whenever the ECU is replaced or reflashed or the throttle body is replaced.

1. After the reflash / ECU replacement / throttle body change, leave the key on (engine not running) for 60 seconds. Do NOT crank the engine during this time.
2. Turn the key off and wait 3 minutes. During this time, the ECU will write values into memory and then completely shut down.
3. Turn key back on and start the vehicle. The vehicle should operate normally.
4. If the procedure was interrupted at any time, start back at step 1.

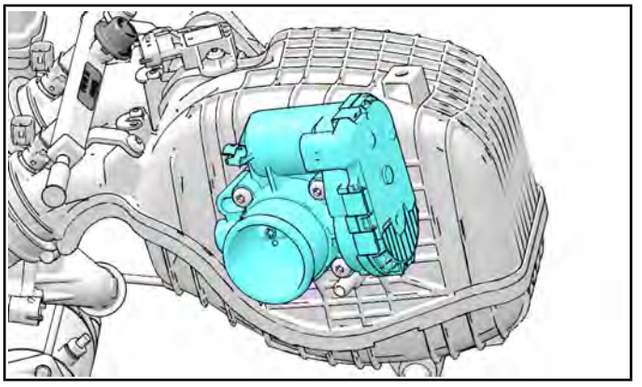
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ELECTRONIC THROTTLE CONTROL (ETC)

OPERATION OVERVIEW

NOTE

DO NOT attempt to service the ETC. The ETC is a non-serviceable component and can only be tested using Digital Wrench®. If the ETC is faulty, the entire assembly must be replaced.



Mounted to the intake plenum, the ETC acts as an electronically controlled throttle body. The ETC controls engine throttle operation to provide the proper air/fuel ratio needed for engine operation at all RPM ranges. The ETC controls engine RPM based off input provided by the Pedal Position Sensor (PPS) and Electronic Control Unit (ECU).

ETC TEST

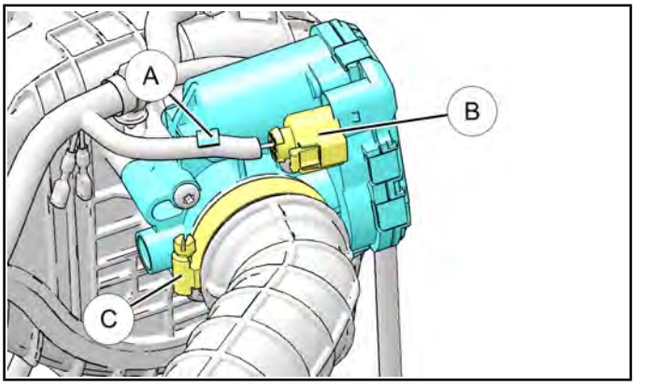
Never attempt to disassemble the ETC assembly. Warranty is void if the end cover is opened or tampered with in any way.

All operating and control functions within the ETC are pre-set. No internal servicing or adjustments may be performed. If a problem is encountered, and you determine the ETC to be faulty, contact the Polaris Service Department for specific handling instructions. Do not replace the ETC without factory authorization.

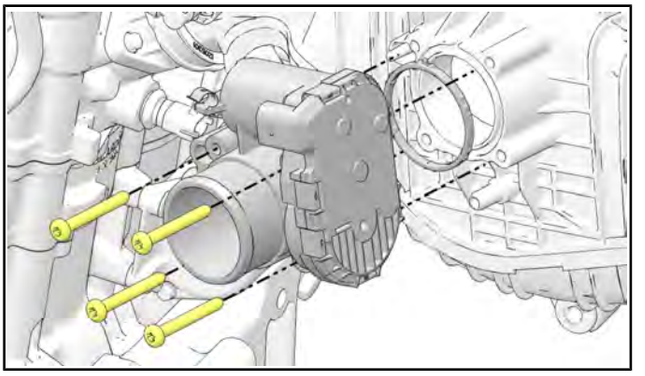
Use Digital Wrench® to perform all troubleshooting of this component. Use a Volt Ohm meter to test the vehicle harness continuity between the ETC connector and ECU connector. Refer to the wire diagram for pin-out details. If the ETC is faulty, the entire ETC assembly must be replaced.

ETC REPLACEMENT

1. Lift the rear cargo box to the raised position.
2. Remove wire harness from ETC retainer clip (A) and remove the ETC connector (B).



3. Loosen the clamp (C) retaining the intake boot to the ETC. Remove the boot from the ETC.
4. Remove the four bolts retaining the ETC housing to intake plenum.
5. Remove the ETC housing and gasket from intake plenum.



6. Reverse these steps for installation. Torque the ETC housing retaining bolts and intake boot clamp to specification.

TORQUE

ETC Housing Retaining Bolts:
7 lb-ft (10 Nm)

Intake Boot Clamp:
3 lb-ft (4 Nm)

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ETC LEARN PROCEDURE

IMPORTANT

This procedure MUST be performed on the vehicle whenever the ECU is replaced or reflashed or the throttle body is replaced.

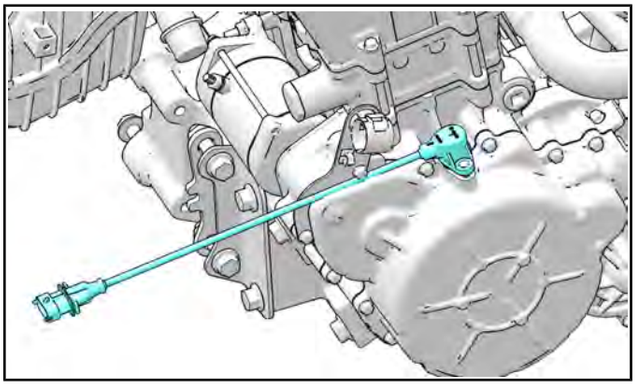
1. After the reflash / ECU replacement / throttle body change, leave the key on (engine not running) for 60 seconds. Do NOT crank the engine during this time.
2. Turn the key off and wait 3 minutes. During this time, the ECU will write values into memory and then completely shut down.
3. Turn key back on and start the vehicle. The vehicle should operate normally.
4. If the procedure was interrupted at any time, start back at step 1.

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CRANKSHAFT POSITION SENSOR (CPS)

OPERATION OVERVIEW

Mounted on top of the stator cover, the crankshaft position sensor is essential to engine operation, constantly monitoring the rotational speed (RPM) and position of the crankshaft.



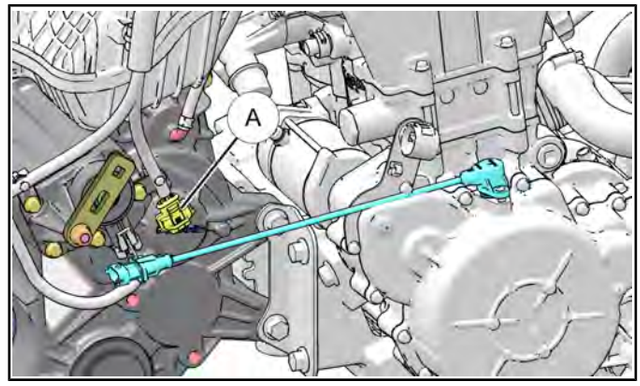
A ferromagnetic 35-tooth encoder ring with a missing tooth is built onto the flywheel. The inductive speed sensor is mounted 1.0 ± 0.26 mm (0.059 ± 0.010 in.) away from the encoder ring. During rotation, an AC pulse is created within the sensor for each passing tooth. The ECU calculates engine speed from the time interval between the consecutive pulses.

The encoder ring missing tooth creates an “interrupt” input signal, corresponding to specific crankshaft position. This signal serves as a reference for the control of ignition timing by the ECU. Synchronization of the CPS and crankshaft position takes place during the first two revolutions each time the engine is started. This sensor must be properly connected at all times. If the sensor fails or becomes disconnected for any reason, the engine will stop running.

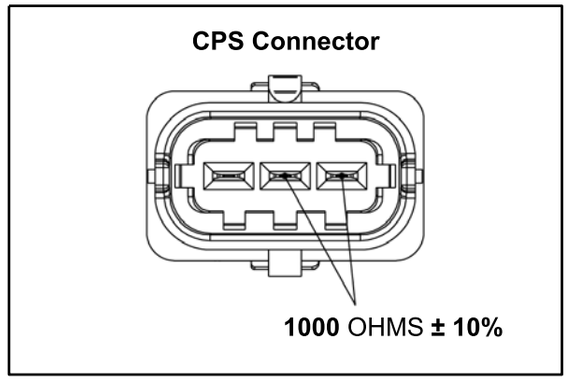
CPS TEST

The CPS is a sealed, non-serviceable assembly. If fault code diagnosis indicates a problem with this sensor, test as follows:

1. Locate the CPS harness connector above the shift cable on the right side of the vehicle and disconnect the harness.



2. Connect an ohmmeter between the CPS pin terminals shown below. A resistance value of **1000 Ω ± 10%** at room temperature should be obtained.



CPS Resistance Specification:**1000 Ω ± 10%**

3. If the resistance is correct:

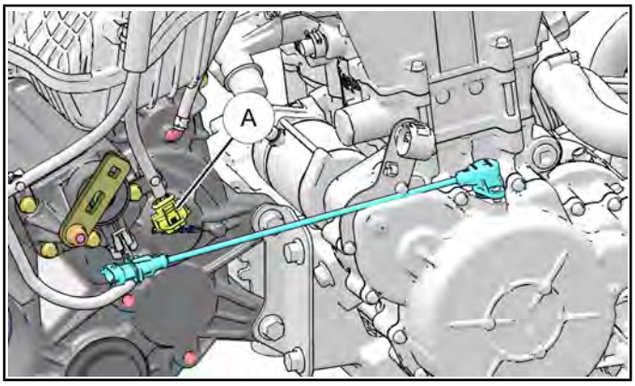
- Test the main harness circuit between the sensor connector terminals and the corresponding pin terminals at the ECU (see wiring diagram).
- Check the sensor mounting, air gap, flywheel encoder ring for damage or runout, and flywheel key. Inspect CPS and flywheel encoder ring for damage. Refer to **“CPS Replacement”, page 4.25** procedure.

4. If the resistance is incorrect, follow the **“CPS Replacement”, page 4.25** procedure.

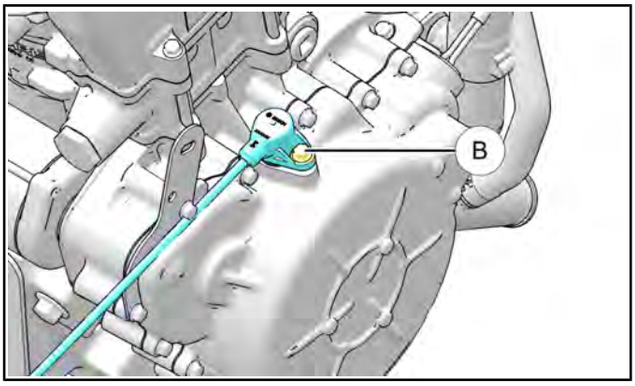
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CPS REPLACEMENT

1. Lift the rear cargo box to raised position.
2. Disconnect the CPS harness connector (A).



3. Remove CPS wire lead from wire clip.
4. Remove CPS retaining bolt and remove the sensor from the stator cover.



5. Install new sensor using a light coating of oil on the O-ring to aid installation.
6. Torque CPS retaining bolt to specification.

TORQUE
CPS Retaining Bolt: **9 lb-ft (12 Nm)**

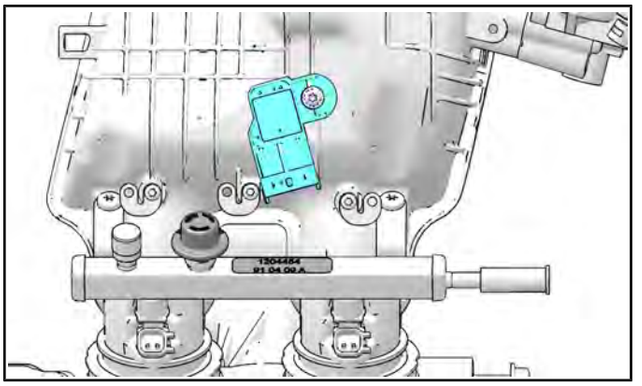
7. Route CPS wire lead through wire clip and reconnect CPS harness connector.

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TEMP / MANIFOLD ABSOLUTE PRESSURE SENSOR (T-MAP)

OPERATION OVERVIEW

Mounted on the intake plenum, the T-MAP sensor performs two functions in one unit.



Air passing through the intake is measured by the T-MAP and relayed to the ECU. These signals, comprised of separate air temperature and manifold absolute pressure readings, are processed by the ECU and compared to its programming for determining the fuel and ignition requirements during operation. The T-MAP sensor provides the ECU with engine load data.

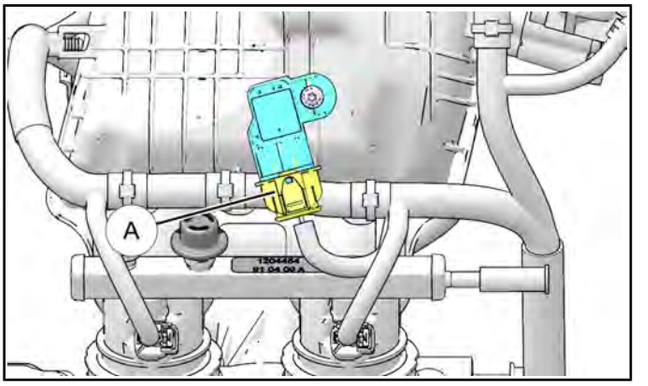
T-MAP SENSOR TEST

The T-MAP sensor is a non-serviceable item. If it is faulty, it must be replaced.

NOTE
This sensor should only be tested using the Digital Wrench® Diagnostic Software (dealer only).

T-MAP SENSOR REPLACEMENT

1. Lift the rear cargo box to the raised position.
2. Disconnect the vehicle harness (A) from the T-MAP sensor.



3. Remove the T-MAP sensor retaining bolt and remove the sensor from the intake plenum.
4. Apply lubricant to the new sensor o-ring and install the new T-MAP sensor into intake plenum.
5. Install the T-MAP sensor retaining bolt and torque to specification.

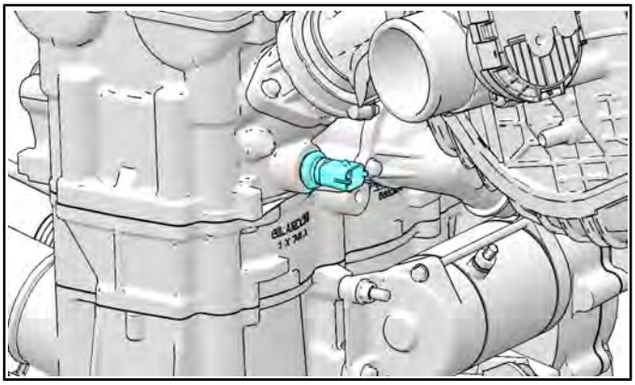
TORQUE
T-MAP Retaining Bolt: **7 lb-ft (10 Nm)**

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ENGINE COOLANT TEMPERATURE SENSOR (ECT)

OPERATION OVERVIEW

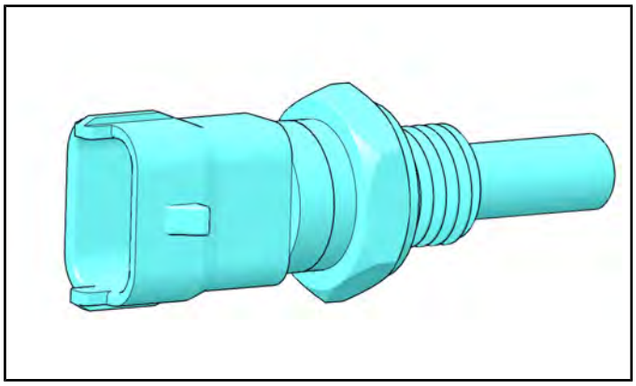
Mounted in the cylinder head, the engine temperature sensor measures coolant temperature. The engine temperature sensor is a Negative Temperature Coefficient (NTC) type sensor, as the temperature increases the resistance decreases.



Coolant passes through the cylinder head and by the sensor probe, varying a resistance reading which is relayed to the ECU. This signal is processed by the ECU and compared to its programming for determining the fuel and ignition requirements during operation. The ECU also uses this signal to determine when to activate the cooling fan during operation.

ECT SENSOR TEST

To quickly rule out other components and wiring related to the ECT, disconnect the harness from the ECT sensor and start the engine. After a few seconds, the fan should turn on and the “Check Engine” indicator should display on the instrument cluster. This indicates all other components are working properly.



Refer to **“Coolant Temperature Sensor”, page 11.25** for additional ECT sensor information. Polaris dealers can test the sensor by using Digital Wrench® Diagnostic Software (dealer only).

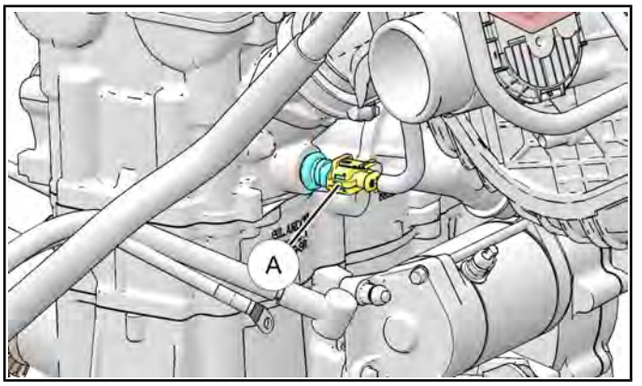
ECT Sensor Resistance Readings

TEMPERATURE °F (°C)	RESISTANCE
68 °F (20 °C)	2.5k Ω ± 6%
86 °F (30 °C)	1.7k Ω ± 6%
104 °F (40 °C)	1.2k Ω ± 6%
122 °F (50 °C)	834 Ω ± 6%
140 °F (60 °C)	596 Ω ± 6%
158 °F (70 °C)	435 Ω ± 6%
176 °F (80 °C)	323 Ω ± 6%
194 °F (90 °C)	243 Ω ± 6%
212 °F (100 °C)	186 Ω ± 6%

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ECT SENSOR REPLACEMENT

1. Lift the rear cargo box to the raised position.
2. Drain the coolant so the level is below the sensor. Refer to **“Coolant Drain / Fill”, page 2.26** procedure..
3. Remove the fuel line from fuel rail. Refer to **“Fuel Line Removal / Installation”, page 4.13** procedure.
4. Disconnect the vehicle harness from the ECT sensor.



5. Using a wrench, loosen and remove ECT sensor from engine.
6. Apply thread sealant to the new sensor threads and install it into the cylinder head.
7. Torque the new ECT sensor to specification and connect the vehicle harness to the sensor.

TORQUE
ECT Sensor: **17 lb-ft (23 Nm)**

8. Reconnect the fuel line to the fuel rail.
9. Add the required amount of coolant and bleed the system. Refer to **“Cooling System Bleeding Procedure”, page 3.182**.

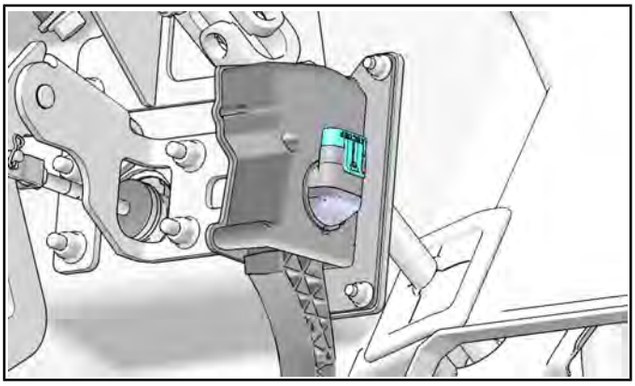
9927645 R04 - 2015–2017 RANGER XP/CREW 570/900/1000 Service Manual
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PEDAL POSITION SENSOR (PPS)

OPERATION OVERVIEW

NOTE

DO NOT attempt to service the PPS. The PPS is a non-serviceable component and can only be tested using Digital Wrench®. If the PPS is faulty, the entire throttle pedal assembly must be replaced.



Mounted to the throttle pedal assembly, the PPS acts as a throttle position sensor. The PPS provides throttle pedal position to the Electronic Control Unit (ECU) to increase or decrease engine RPM using the Electronic Throttle Control (ETC). The PPS is the primary input used to control engine speed during vehicle operation.

PPS TEST

The PPS can be tested utilizing Digital Wrench® by verifying that throttle position readout varies as the pedal is pressed. Reference the Data Display section and be sure Throttle Position is displayed.

SENSOR 1	
PEDAL POSITION	**VOLTAGE READING**
Pedal Released	1.2 V
Pedal WOT	4.2 V

SENSOR 2	
PEDAL POSITION	**VOLTAGE READING**
Pedal Released	0.6 V
Pedal WOT	2.1 V

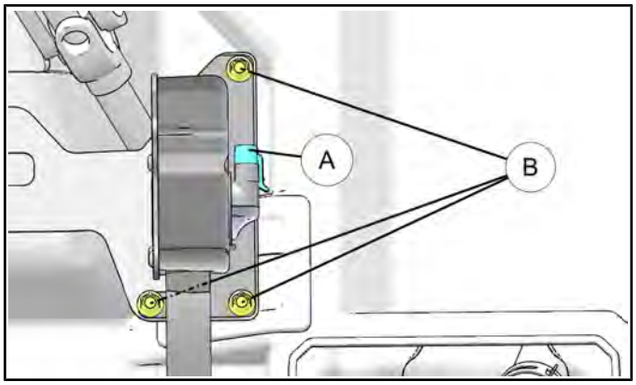
The Pedal Position Sensor is calibrated to the throttle pedal. If the PPS is faulty, the throttle pedal assembly must be replaced.

PPS REPLACEMENT

NOTE

The PPS is calibrated to the throttle pedal. If the PPS is faulty, the throttle pedal assembly must be replaced.

1. Disconnect the PPS harness (A).



2. Remove the three fasteners (B) retaining the throttle pedal bracket to the chassis.
3. Install new pedal assembly and torque the fasteners to specification

TORQUE

Pedal Bracket Nuts:
18 lb-ft (24 Nm)

4. Connect the PPS harness.

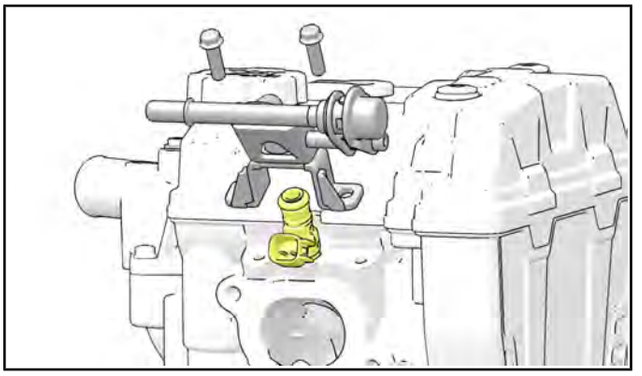
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FUEL INJECTOR SERVICE

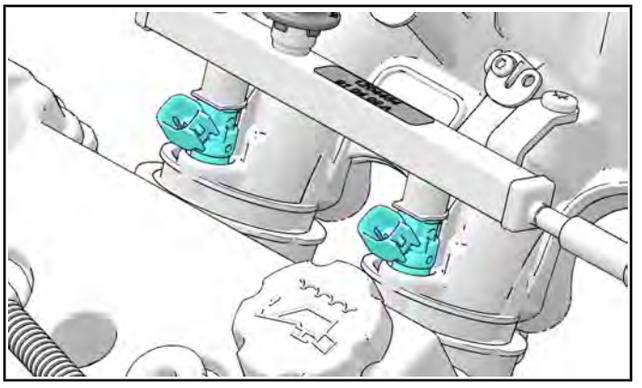
OPERATION OVERVIEW

The fuel injectors are mounted into the intake plenum, with the fuel rail retaining them from the top end. O-rings on both ends of the injector prevent external fuel leaks and also insulate the injectors from heat and vibration.

570



900



When the key switch is on, the fuel rail is pressurized, and the EFI relay provides voltage to the injectors. During engine operation, the ECU completes the ground circuit, energizing the injectors. The valve needle in each injector is opened electromagnetically, and the pressure in the fuel rail forces fuel down through the inside. The “director plate” at the tip of the injector contains a series of calibrated openings which directs the fuel into the intake port in a cone-shaped spray pattern.

The amount of fuel injected is controlled by the ECU and determined by the length of time the valve needle is held open, also referred to as the “injection duration” or “pulse width”. It may vary in length depending on the speed and load requirements of the engine.

The ECU gathers fuel injection timing information from the Crankshaft Position Sensor (CPS) and the Temperature / Manifold Absolute Pressure Sensor (T-MAP) to allow for sequential fuel injection.

FUEL INJECTOR TROUBLESHOOTING

Injector problems typically fall into three general categories- electrical, dirty / clogged, or leakage. An electrical problem usually causes one or both of the injectors to stop functioning. Several methods may be used to check if the injectors are operating.

- With the engine running at idle, feel for operational vibration, indicating that they are opening and closing.
- When temperatures prohibit touching, listen for a buzzing or clicking sound with a screwdriver or mechanic's stethoscope.
- Disconnect the electrical connector from an injector and listen for a change in idle performance (only running on one cylinder) or a change in injector noise or vibration.

NOTE

Do not apply voltage directly to the fuel injector(s). Excessive voltage will burn out the injector(s). Do not ground the injector(s) with the ignition on. Injector(s) will open/turn on if relay is energized.

If an injector is not operating, it can indicate either a bad injector, or a wiring/electrical connection problem. Check as follows:

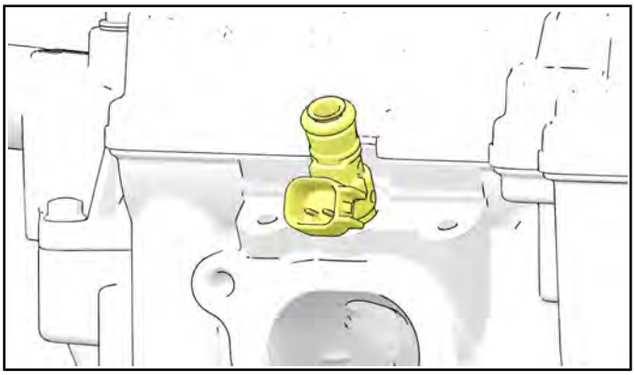
Injector leakage is very unlikely, but in rare instances it can be internal (past the tip of the valve needle), or external (weeping around the injector body). The loss of system pressure from the leakage can cause hot restart problems and longer cranking times.

Injector problems due to dirt or clogging are unlikely due to the design of the injectors, the high fuel pressure, the use of filters and the detergent additives in the gasoline. Symptoms that could be caused by dirty/clogged injectors include rough idle, hesitation/stumble during acceleration, or triggering of fault codes related to fuel delivery. Injector clogging is usually caused by a buildup of deposits on the director plate, restricting the flow of fuel, resulting in a poor spray pattern. Some contributing factors to injector clogging include; dirty air filters, higher than normal operating temperatures, short operating intervals and dirty, incorrect, or poor quality fuel. Cleaning of clogged injectors is not recommended; they should be replaced. Additives and higher grades of fuel can be used as a preventative measure if clogging has been a problem.

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FUEL INJECTOR TEST (570)

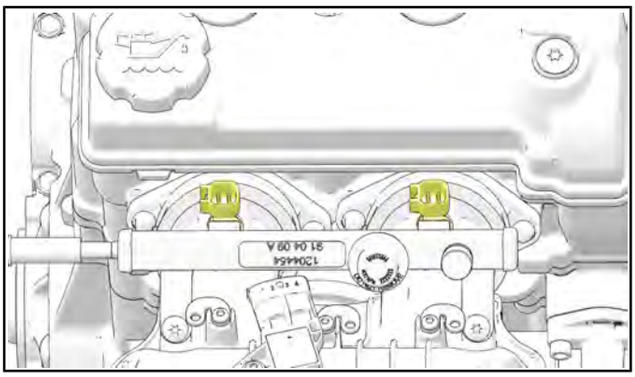
The fuel injector is non-serviceable. If diagnosis indicates a problem with the injector, test the resistance of the fuel injector by measuring between the two pin terminals.



Fuel Injector Resistance Specification:
11.4 Ω - 12.6 Ω

FUEL INJECTOR TEST (900)

The fuel injectors are non-serviceable. If diagnosis indicates a problem with either injector, test the resistance of the fuel injector(s) by measuring between the two pin terminals:



Fuel Injector Resistance Specification:**11.4 Ω - 12.6 Ω**

NOTE

Be sure to connect the PTO harness lead to the PTO injector and the MAG harness lead to the MAG injector to ensure proper engine operation. The MAG wire colors are Red/Blue and Black; the PTO wire colors are Red/Blue and White.

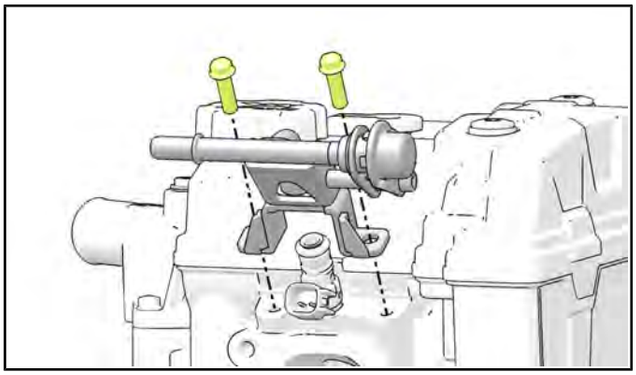
FUEL INJECTOR REPLACEMENT (570)

1. Lift the rear cargo box to the raised position.
2. Be sure the engine has cooled enough to perform this procedure.
3. Used compressed air to remove any debris from around fuel injectors.

⚠ CAUTION

Always wear safety glasses and proper shop clothing when performing the procedures in this manual. Failing to do so may lead to possible injury or death.

4. Remove the passenger seat and storage bin and disconnect the negative battery cable.
5. Hold a shop towel over the fuel line fittings and remove the fuel supply line from the fuel rail. Refer to **"Fuel Line Removal / Installation", page 4.13** procedure.
6. Disconnect the harness from the fuel injector.
7. Remove the two screws that mount the fuel rail to the cylinder head.

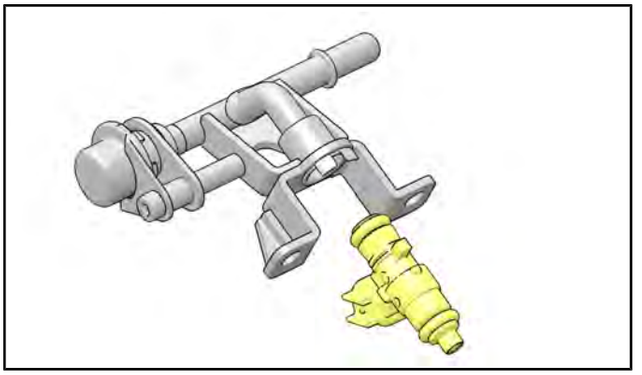


8. Carefully pull up on the fuel rail and injector to remove them from the engine as an assembly. If the injector stays in the cylinder head, grab the injector with your fingers and gently pull and twist the injector unit it can be removed from the cylinder head. Take care not to damage the fuel injector ends during removal.
9. Gently pull and twist to free the injector from the fuel rail.
10. Upon installation of the new fuel injector, lightly lubricate the injector O-rings to aid installation.

4

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11. Install the new injector into the fuel rail. Be sure to align boss in the injector with the slot in the fuel rail.



12. Thoroughly clean the area around the fuel injector port on the cylinder head.
13. Lightly lubricate the injector O-rings and reinstall the fuel rail / injector assembly into the cylinder head.
14. Install the fuel rail mounting screws and torque to specification.

TORQUE
Fuel Rail Mounting Screws: **7 lb-ft (10 Nm)**

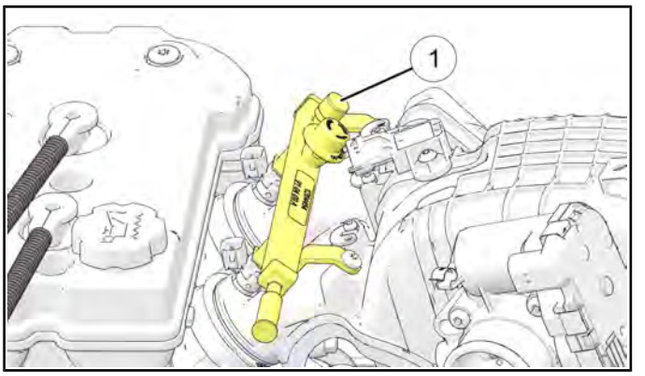
15. Reinstall the fuel line to the fuel rail.
16. Connect the harness leads to the fuel injectors.
17. Reconnect the negative battery cable and reinstall the storage bin and passenger seat base.
18. Turn the key to the on position and wait for fuel pump to prime the fuel system.
19. Start the engine briefly and inspect the fuel rail and injectors for fuel leaks.

FUEL INJECTOR REPLACEMENT (900)

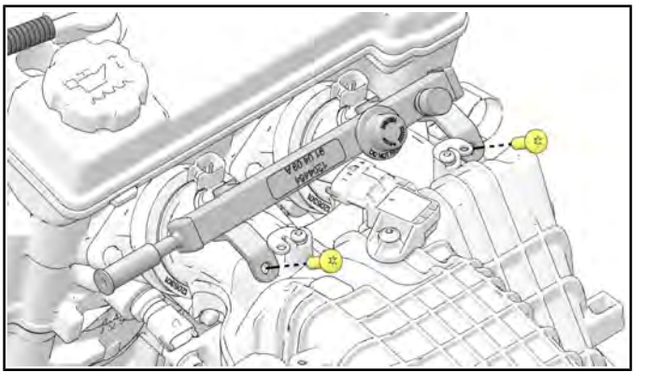
1. Lift the rear cargo box to the raised position.
2. Be sure the engine has cooled enough to perform this procedure.
3. Used compressed air to remove any debris from around fuel injectors.

⚠ CAUTION
Always wear safety glasses and proper shop clothing when performing the procedures in this manual. Failing to do so may lead to possible injury or death.

4. Remove the passenger seat and storage bin and disconnect the negative battery cable.
5. Remove the plastic cap ① from the pressure relief / test valve on the fuel rail. Hold a shop towel over the valve press the relief pin with a small screwdriver to depressurize the fuel rail. Reinstall the plastic cap.



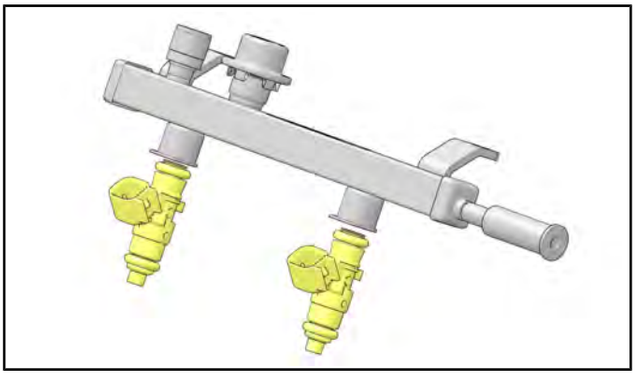
6. Remove the fuel line from the fuel rail. Refer to **"Fuel Line Removal / Installation", page 4.13** procedure.
7. Disconnect the fuel injector harness leads.
8. Remove the two screws that mount the fuel rail to the intake plenum.



9. Carefully pull up on the fuel rail and injectors and remove them from the intake plenum as an assembly. Take care not to damage the fuel injector ends during removal.

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10. Pull out on the fuel injector retaining clip and pull the injector out of the fuel rail. Repeat on the other injector if removal is necessary.



11. Upon installation of the new fuel injectors, lightly lubricate the injector O-rings to aid installation.
12. Install the new injector (s) into the fuel rail and reinstall the retaining clip.

NOTE

Be sure the retaining clip is positioned on the injector and fuel rail as shown above.

13. Thoroughly clean the area around the fuel injector ports on the intake plenum.
14. Lightly lubricate the injector O-rings and reinstall the fuel rail / injector assembly into the intake plenum.
15. Install the fuel rail mounting screws and torque to specification.

TORQUE

Fuel Rail Mounting Screws:
7 lb-ft (10 Nm)

16. Reinstall the fuel line to the fuel rail.
17. Connect the harness leads to the fuel injectors.

NOTE

Be sure to connect the PTO harness lead to the PTO injector and the MAG harness lead to the MAG injector to ensure proper engine operation.

18. Reconnect the negative battery cable and reinstall the storage bin and passenger seat base.
19. Turn the key to the on position and wait for fuel pump to prime the fuel system.
20. Start the engine briefly and inspect the fuel rail and injectors for fuel leaks.

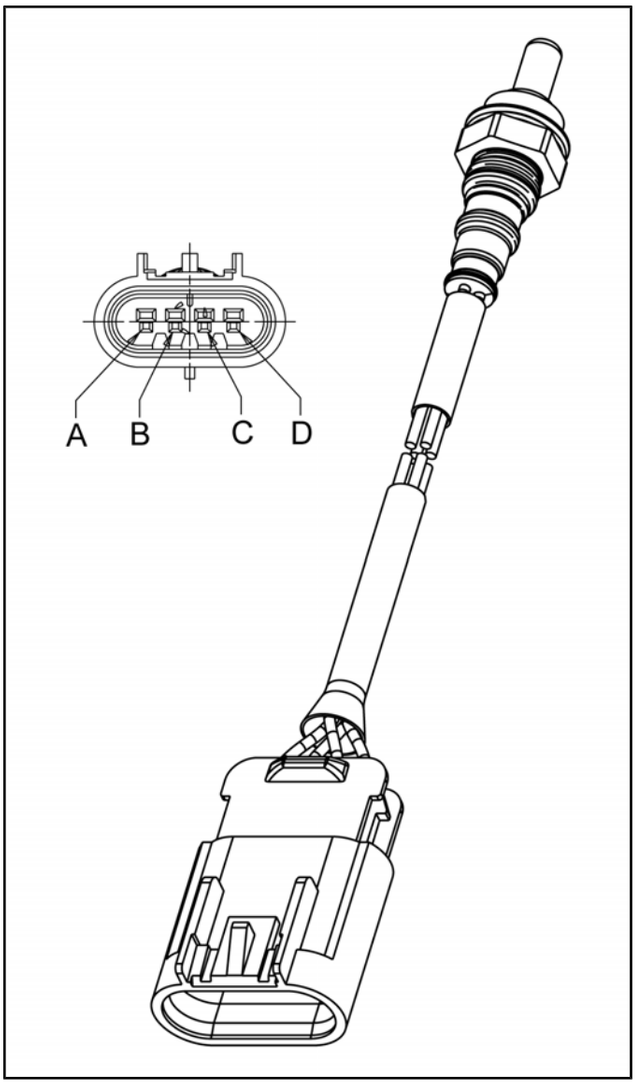
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OXYGEN SENSOR

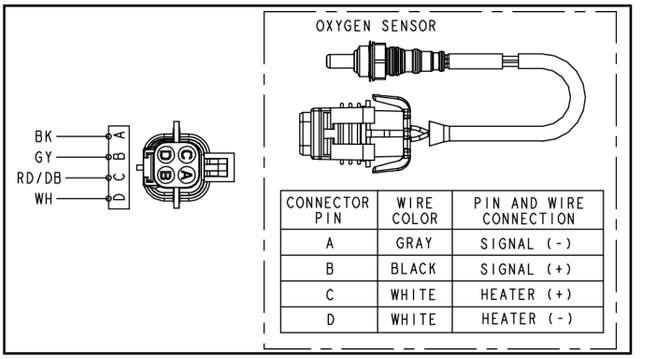
OXYGEN SENSOR INFORMATION

The oxygen sensor, located on the exhaust pipe before the muffler, uses a 4 wire heated element.

2015–2016		
CONNECTOR PIN	**WIRE COLOR**	**PIN AND WIRE CONNECTION**
A	Purple	Heater Power
B	White	Heater Ground
C	Gray	Sensor Output
D	Black	Sensor Ground



2017+		
CONNECTOR PIN	**WIRE COLOR**	**PIN AND WIRE CONNECTION**
A	Gray	Sensor Ground
B	Black	Sensor Output
C	White	Heater Power
D	White	Heater Ground



There are no valid static tests to perform on the oxygen sensor. The sensor should be diagnosed using Digital Wrench.

First, verify if there are any stored codes for the oxygen sensor.

NOTE

The ECU must first run though the O2 sensor time delay before a trouble code will be set. This may take several minutes at idle to occur.

Short drive cycles and cold temperatures will both affect the delay time of the O2 sensor (increases the delay). The delay time ensures the oxygen sensor heater has run long enough to provide accurate data.

OXYGEN SENSOR REPLACEMENT

1. Disconnect the harness going to the oxygen sensor.
2. Remove the oxygen sensor from the exhaust pipe.
3. Install new oxygen sensor. Torque sensor to specification.

TORQUE

Oxygen Sensor:
13 ft-lb (18 Nm)

4. Connect the harness going to the oxygen sensor.

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FUEL SYSTEM DIAGNOSIS

INSTRUMENT CLUSTER TROUBLE CODE DISPLAY

NOTE

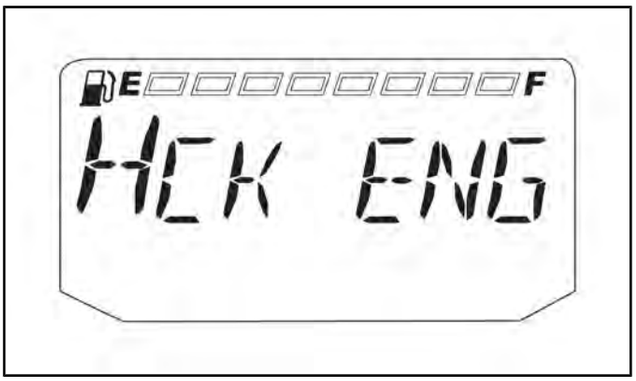
The diagnostic mode is accessible only when the check engine MIL has been activated.

Use the following procedure to display diagnostic trouble codes that were activated during current ignition cycle causing the MIL to illuminate. Diagnostic trouble codes will remain stored in the gauge (even if MIL turns off) until the key is turned off.

NOTE

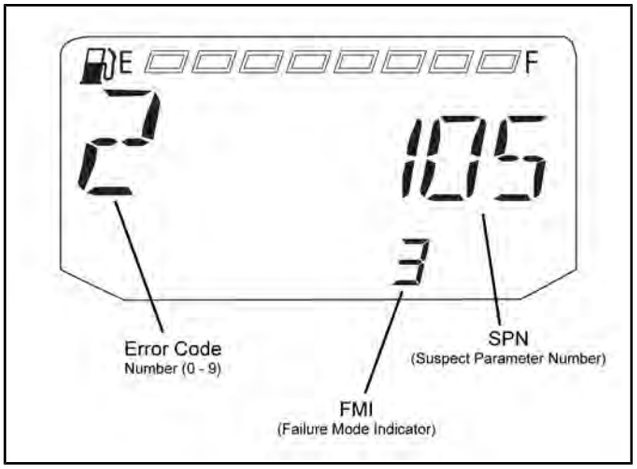
If there is a diagnostic problem with the power steering system, the power steering MIL will illuminate and blink in place of the check engine MIL.

1. If the trouble code (s) are not displayed, use the MODE button to toggle until “CK ENG” displays on the information display area.



2. Press and hold the MODE button to enter the diagnostics code menu.
3. A set of three numbers will appear in the information area.

- The first number (located far left) can range from 0 to 9. This number represents the total number of trouble code present (example: 2 means there are 3 codes present).
- The second number (located top right) can be 2 to 6 digits in length. This number equates to the suspected area of fault (SPN).
- The third number (located bottom right) can be 1 to 2 digits in length. This number equates to the fault mode (FMI).



4. If more than one code exists, press the MODE button to advance to the next trouble code.
5. To exit the diagnostic mode, press and hold the MODE button or turn the ignition key OFF once the codes are recorded.

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DIAGNOSTIC TROUBLE CODE TABLE

COMPONENT	CONDITION	SPN	FMI	P-CODE
Accelerator Position 2	Voltage Too High	29	3	P1228
	Voltage Too Low		4	P1227
	Not Plausible		2	P1225
Throttle Position Sensor 1	Voltage Too High	51	3	P0123
	Voltage Too Low		4	P0122
	Signal Out of Range		2	P0121
Vehicle Speed Signal	Data Erratic or Intermittent (or missing)	84	2	P0503
	Received Vehicle Speed Has Error		19	C1069
Accelerator Position 1	Voltage Too High	91	3	P0228
	Voltage Too Low		4	P0227
	Not Plausible		2	P0225
Manifold Absolute Pressure Sensor (T-MAP)	Voltage Too High	102	3	P0108
	Voltage Too Low		4	P0107
Intake Air Temperature (T-MAP)	Voltage Too High	105	3	P0113
	Voltage Too Low		4	P0112
Engine Temperature Sensor (ECT)	Voltage Too High	110	3	P0118
	Voltage Too Low		4	P0117
	Temperature Too High		16	P0217
	Engine Overheat Shutdown		0	P1217
System Power (Battery Potential / Power Input)	Voltage Too High	168	3	P0563
				C1063
	Voltage Too Low		4	P0562
				C1064
Engine Speed (This is applicable when the EPS module gets the engine speed from the ECM)	Error in Engine Speed Computation	190	31	P121C
	Received Engine Speed Has Error		19	C1066
Engine Speed	Error in Engine Speed Computation	400	31	P121D
Gear Sensor Signal	Voltage Too Low	523	4	P0916
ECU Memory	EEPROM: Read/Write Failure	628	12	C1073
Calibration	Checksum/CRC Error	630	13	C1074
Crankshaft Position Sensor (CPS)	Plausibility Fault	636	2	P0335
Injector 1 (MAG)	Driver Circuit Open / Grounded	651	5	P0261
	Driver Circuit Short to B+		3	P0262
	Driver Circuit Grounded		4	P1262
Injector 2 (PTO)	Driver Circuit Open / Grounded	652	5	P0264
	Driver Circuit Short to B+		3	P0265
	Driver Circuit Grounded		4	P1265
Rear Differential Output	Driver Circuit Open / Grounded	746	5	P1691
	Driver Circuit Short to B+		3	P1692
	Driver Circuit Grounded		4	P1693

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COMPONENT	CONDITION	SPN	FMI	P-CODE
Fan Relay Driver Circuit	Driver Circuit Open / Grounded	1071	5	P1481
	Driver Circuit Short to B+		3	P1482
	Driver Circuit Grounded		4	P1483
Ignition Coil Primary Driver 1 (MAG)	Driver Circuit Short to B+	1268	3	P1353
Ignition Coil Primary Driver 2 (PTO)	Driver Circuit Short to B+	1269	3	P1354
Fuel Pump Driver Circuit	Driver Circuit Open / Grounded	1347	5	P0230
	Driver Circuit Short to B+		3	P0232
	Driver Circuit Grounded		4	P0231
Oxygen Sensor	Data erratic, intermittent or incorrect	3056	2	P0130
	Voltage above normal		3	P0132
	Voltage below normal		4	P0131
ECU Output Supply Voltage 1	Voltage Too High	3597	3	P16A2
	Voltage Too Low		4	P16A1
ECU Output Supply Voltage 2	Voltage Too High	3598	3	P16A9
	Voltage Too Low		4	P16A8
ECU Output Supply Voltage 3	Voltage Too High	3599	3	P17AA
	Voltage Too Low		4	P17AB
Misfire Detected	Cylinder Not Identified	65590	7	P0314
	Cylinder 1	65591	7	P0301
	Cylinder 2	65592	7	P0302
ETC Accelerator Position Sensor Outputs 1 & 2 Correlation	Correlation Fault	65613	2	P1135
Throttle Position Sensor 2	Voltage Too High	520198	3	P0223
	Voltage Too Low		4	P0222
	Signal Out of Range		2	P0221
All Wheel Drive Control Circuit (AWD)	Driver Circuit Open / Grounded	520207	5	P1836
	Driver Circuit Short to B+		3	P1835
	Driver Circuit Grounded		4	P1834
Oxygen Sensor Heater	Voltage above normal	520209	3	P0032
	Voltage below normal		4	P0031
	Current below normal or open circuit		5	P0030
Steering Over Current Shut Down	Current Above Normal or Grounded	520221	6	C1050
Steering Excessive Current Error	Current Above Normal or Grounded	520222	6	C1051
Steering Torque Partial Failure	Condition Exists	520223	31	C1052
Steering Torque Full Failure	Condition Exists	520224	31	C1053
EPS Inverter Temperature	Greater than 110° C (230° F)	520225	16	C1054
	Greater than 120° C (248° F)		0	C1055
EPS CAN Communications Receive Error	No RX Message for 2 Seconds	520226	2	U0100

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COMPONENT	CONDITION	SPN	FMI	P-CODE
EPS CAN Communications Transmit Error	No TX Message for 2 Seconds	520227	2	U1100
Position Encoder Error	Position Encoder Error	520228	11	C1065
EPS Software Error	Software Error	520229	12	C1070
IC CAN Communication with EPS	EPS Off Line (EPS DM1 not seen)	520230	31	U0131
EPS Power Save Condition	EPS: Key On, Engine Off, 5 Minute Power Save/Timeout	520231	31	C1071
Accelerator Position / Brake Position Interaction	Condition Exists	520275	31	P150A
Throttle Position Sensor (1 or 2 Indeterminable)	Neither Position Sensor Passed Test	520276	12	P150B
	Position Sensor Correlation Fault		2	P150C
Throttle Body Control - Power Stage	Maximum	520277	3	P150D
	Minimum		4	P150E
	Not Plausible		2	P151A
	Signal Error		8	P151B
	Deactivated power stages due to 5V sensor supply error		31	P153F
Throttle Body Control - Return Spring Check Failed	Condition Exists	520278	31	P151C
Throttle Body Control - Adaptation Aborted	Condition Exists	520279	31	P151D
Throttle Body Control - Limp Home Position Check Failed	Condition Exists	520280	31	P151E
Throttle Body Control - Mechanical Stop Adaptation Failure	Condition Exists	520281	31	P152A
Throttle Body Control - Repeated Adaptation Failed	Condition Exists	520282	31	P152B
Throttle Body Control	Maximum	520283	3	P152C
	Minimum		4	P152D
	Outside of Pedal Range (Level 1)		2	P152F
Throttle Body Control - Position Deviation Fault	Condition Exists	520284	31	P152E
Brake Switch (1 or 2 Indeterminable)	Brake Switch Correlation Fault	520285	2	P153E
ECU Monitoring Error	Condition Exists	520286	31	P1540
ECU Monitoring Error (Level 3)	Condition Exists	520287	31	P1541
ECU Monitoring of Injection Cut Off (Level 1)	Condition Exists	520288	31	P1542
ECU Monitoring of Injection Cut Off (Level 2)	Condition Exists	520289	31	P1543
Controller Option Setting Not Programmed	Out of Calibration	520290	13	P1544
Throttle Body Control - Requested Throttle Angle Not Plausible	Condition Exists	520305	31	P1530

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COMPONENT	CONDITION	SPN	FMI	P-CODE
ECU Analog to Digital Converter Fault - No Load	Condition Exists	520306	31	P1531
ECU Analog to Digital Converter Fault - Voltage	Condition Exists	520307	31	P1532
Accelerator Sensor Synchronicity Fault Sensor Difference Exceeds Limit	Condition Exists	520308	31	P1533
ECU Fault - ICO	Condition Exists	520309	31	P1534
ECU Fault - Hardware Disruption	Condition Exists	520311	31	P1537
Drive Model Select Switch	Data Erratic, Intermittent or Incorrect	524067	2	P153C
	Voltage Above Normal, or Shorted to High Source		3	P153A
	Voltage Below Normal, or Shorted to Low Source		4	P153B
	Condition Exists		31	P1550

CYLINDER MISFIRE DETECTION

NOTE

This process only applies to some MY15 and later models.
Refer to this procedure only if one of the codes shown below is displayed in Digital Wrench.

The ECU monitors crankshaft speed via the crankshaft position sensor. A misfire will cause a fluctuation in crankshaft speed. A code will set and turn on the check engine light after an engine misfire threshold/rate is detected that is above a pre-determined limit. This threshold varies based on engine speed.

One or more of the following codes will be set if a misfire occurs:

- P0301 (SPN 65591/FMI 7) Misfire Detected, Cylinder 1 (MAG)
- P0302 (SPN 65592/FMI 7) Misfire Detected, Cylinder 2 (PTO)
- P0314 (SPN 65590/FMI 7) Misfire Detected, Cylinder Not Identified

Once a cylinder misfire code is set, the following events will occur:

- Check Engine Light illuminates
- If the cylinder can be detected by the ECU (code P0301 or P0302), the ECU will deactivate the fuel injector for that cylinder. This will remain in effect until the key is cycled off and back on.
- If the cylinder with the misfire cannot be detected (code P0314), the ECU will limit available power by limiting how far the throttle plate opens.

One the key is cycled, the trouble code (s) will show current but there will be no fuel injector deactivation or throttle limitation unless the misfiring continues to occur.

The check engine light will remain illuminated until there are 4000 engine revolutions (i. e. 4000 RPM for one minute) without a significant misfire being detected. Once this condition is met, the check engine light will turn off and the code(s) will show as historic.

If a misfire code has been set and there is no observed misfire, cycle the key and allow 4000 engine revolutions to see if the check engine light turns off. If it does not turn off, diagnose by verifying the following items:

- Ignition Coil and connections are good
- Spark plugs wires are secure
- The correct spark plugs are installed and the plugs are not fouled
- Crankshaft Position Sensor tests good
- Wiring to the Crankshaft Position Sensor, ECU and Ignition Coil are not damaged. Chassis ground is clean and tight
- Fuel pressure is within specification
- Fresh/good quality fuel is in the fuel tank
- Engine mechanical is good (leak down, timing)
- Confirm the belt is in good condition, specifically looking for signs of hour-glassing
- Confirm primary clutch operation (worn/incorrect weights, loose spider/jam nut)
- Confirm secondary clutch operation (sliders, rollers, helix)

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FUEL SYSTEM TROUBLESHOOTING

Fuel Starvation / Lean Mixture

Symptoms: Hard start or no start, bog, backfire, popping through intake / exhaust, hesitation, detonation, low power, spark plug erosion, engine runs hot, surging, high idle, idle speed erratic.

- No fuel in tank
- Restricted tank vent, or routed improperly
- Fuel line or fuel injectors restricted
- Fuel filter plugged
- Fuel pump inoperative
- Air leak in system
- Intake air leak (intake boots, intake adaptors, airbox cover)

Rich Mixture

Symptoms: Fouls spark plugs, black, sooty exhaust smoke, rough idle, poor fuel economy, engine runs rough/ misses, poor performance, bog, engine loads up, backfire.

- Air intake restricted (inspect intake boots)
- Air filter dirty/plugged
- Poor fuel quality (old fuel)
- Fouled spark plug
- Injector failure

Poor Idle

Symptom: Idle Too High (if > 1400 RPM when warm).

- Electronic Throttle Control (ETC) tampering or damage
- Pedal Position Sensor (PPS) tampering or damage
- Faulty electrical connection

Symptom: Idle Too Low (if < 1100 RPM when warm).

- Electronic Throttle Control (ETC) tampering or damage
- Pedal Position Sensor (PPS) tampering or damage
- Plugged air filter
- Leaking injector (rich condition)
- Belt dragging

Symptom: Erratic Idle.

- Air Leaks, dirty injector
- ETC damaged (check with Digital Wrench®)
- PPS damaged (check with Digital Wrench®)
- Tight valves (low compression or high leakdown)
- Belt dragging
- Dirty air filter
- High percentage of cylinder leakdown (worn engine)
- Low compression (worn engine)
- Spark plug(s) fouled
- Spark plug wires loose or worn
- Faulty electrical connection

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DIGITAL WRENCH OPERATION

DIGITAL WRENCH® DIAGNOSTIC SOFTWARE OVERVIEW

NOTE
Refer to Section 2, 3 and 4 in the Instruction Manual provided in the Digital Wrench® Diagnostic Kit to install the Polaris Digital Wrench® diagnostic software on your computer.

The Digital Wrench® diagnostic software allows the technician to perform the following tests and observations:

- View or clear trouble codes
- Analyze real-time engine data
- Reflash ECU calibration files
- Perform guided diagnostic procedures
- Create customer service account records
- Perform output state control tests (some models)

SPECIAL TOOLS

DIGITAL WRENCH® DIAGNOSTIC SOFTWARE	PART NUMBER
Digital Wrench® Diagnostic Kit	**PU-47063-B**
PU-47063-B (listed above) INCLUDES:	Digital Wrench® Software: **PU-48731**
	Standard Interface Cable: **PU-47151**
	SmartLink Module Kit: **PU-47471**
	USB-Serial Adapter Cable: **PU-50621**
Fluke 73 Digital Multi-Meter or Fluke 77 DMM	**PV-43546** (Fluke 77: **PV-43568**)
Wireless Vehicle Link (WVL)	**PU-51435**
Laptop or Desktop Computer	**Commercially Available** (refer to diagnostic software user manual or HELP section for minimum requirements)

DIAGNOSTIC SOFTWARE VERSION

Always use the most current version of the Digital Wrench® software to ensure you have the latest updates or enhancements. New reprogramming files and guided diagnostic procedures are added to these updates as they become available. For information on how to determine if you have the latest update available, refer to **“Digital Wrench® Version and Update ID”, page 4.43** procedure.

ECU REPLACEMENT

Although the need for ECU replacement is unlikely, a specific replacement procedure is required to ensure that all essential data contained within the original ECU is transferred to the replacement ECU.

Refer to procedure and carefully follow all instructions provided in Digital Wrench®.

GUIDED DIAGNOSTIC AVAILABLE

Guided diagnostics are available within Digital Wrench® for all supported Trouble Codes (that is, any fault that will turn on the ‘Check Engine’ indicator).

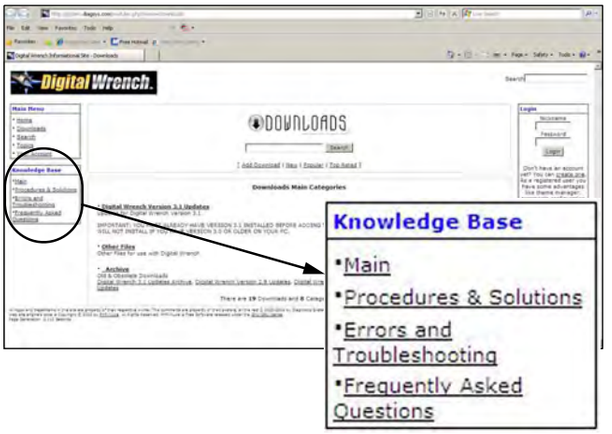
In addition, guided diagnostics are also available for many other electrical sub systems.

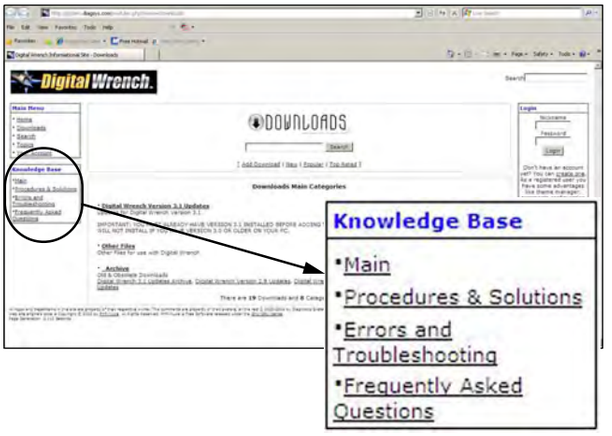
Diagnostic procedures are added to subsequent versions of Digital Wrench® as they become available. Check your release version often and upgrade when available to be sure you are using the most current software available.

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DIGITAL WRENCH® COMMUNICATION ERRORS

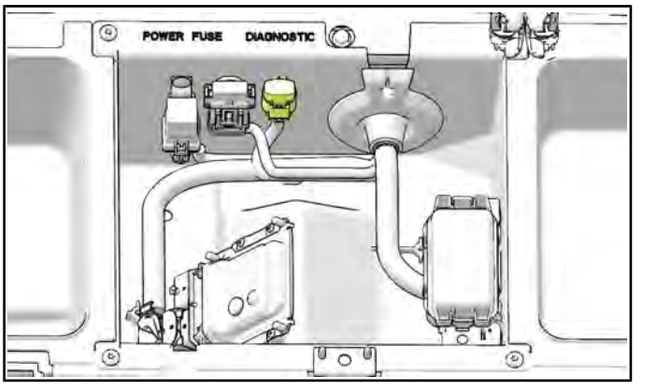
If you experience problems connecting to a vehicle or any Digital Wrench® related problem, visit the Digital Wrench® Knowledge Base for the most current troubleshooting information, FAQs, downloads and software updates at: *http://polaris.diagsys.com/.*





DIGITAL WRENCH® - DIAGNOSTIC CONNECTOR

The diagnostic connector is located under the passenger seat connected to a sealed plug. To access the diagnostic connector on 2 seat models with a center console the center console must be removed.



Follow these steps to connect the diagnostic interface cable to the vehicle to allow Digital Wrench® use:

1. Assemble the SmartLink Module and attach the PC Interface Cable to your laptop. Refer to **“Special Tools - Fuel System”, page 4.4**.
2. Remove the protective cap from the Digital Wrench® connector.
3. Connect the Vehicle Interface Cable to the Digital Wrench® diagnostic connector.
4. Turn the ignition key to the ‘ON’ position, select the appropriate vehicle and wait for the status to display ‘Connected’ in the lower left corner of the screen.
5. Once connected, proceed with using Digital Wrench®.

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DIGITAL WRENCH® SERIAL NUMBER LOCATION

Open the configuration screen by clicking on the wrench icon. The serial number is located on the right side of the screen.



DIGITAL WRENCH® VERSION AND UPDATE ID

Knowing what Digital Wrench® version and update is installed will help determine which updates are required.

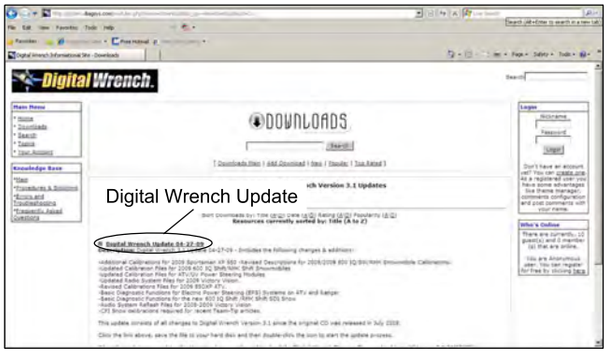
NOTE

Versions and updates are subject to change.

1. Open the Digital Wrench® software. Locate the version ID shown on the lower right side of the Digital Wrench® start-up screen.



2. Proceed to *http://polaris. diagsys. com* to see if a newer update is available.



3. If a newer update is available, it should be downloaded before using Digital Wrench®.

NOTE

Always operate with the latest update.

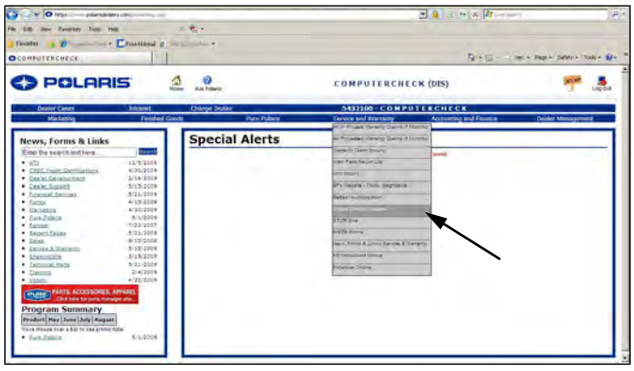
DIGITAL WRENCH® UPDATES

Updates are released for Digital Wrench® via the Internet at: *http://polaris. diagsys. com*. The Digital Wrench® website can also be accessed through the dealer website at: *www.polarisdealers.com*.

NOTE

Only authorized Polaris dealers and distributors can access the dealer website.

1. Log on to *www.polarisdealers.com*.
2. Locate the "**Service and Warranty**" drop-down menu.
3. Click on "**Digital Wrench Updates**".



4. The Digital Wrench® portal website should appear in a new web browser.

4

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5. Click on “**Digital Wrench Version Updates**”.



NOTE

You must already have the current version installed before adding an update. Updates will not install if you are using an older version loaded on your PC.

6. If the update file date listed is newer than your current version and update, download the file. Refer to **“Digital Wrench® Version and Update ID”, page 4.43** procedure.

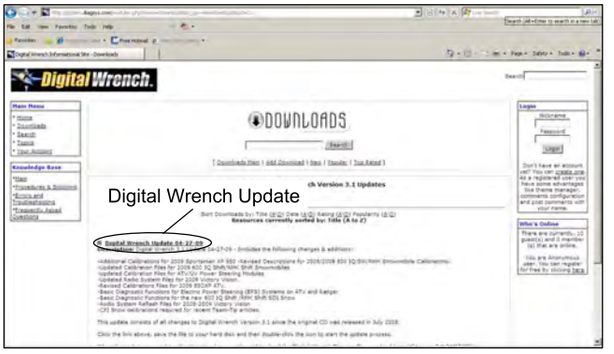


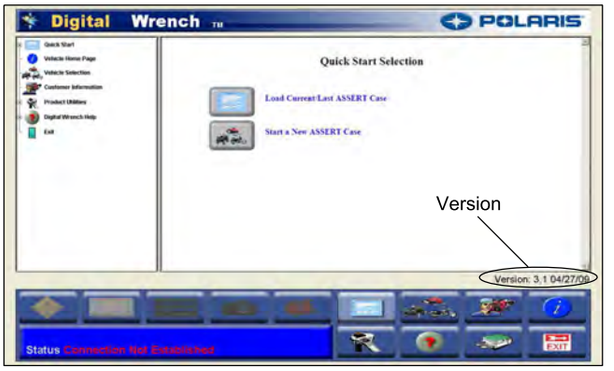
7. Click on the link shown above, save the file to your hard disk and then double-click the icon to start the update process.

NOTE

Do not "run" or "open" the file from where they are. Select "save" and download them to your PC before running the install.

8. When the update is complete, the version shown on the right side of the Digital Wrench® start-up screen should match the update you just downloaded.



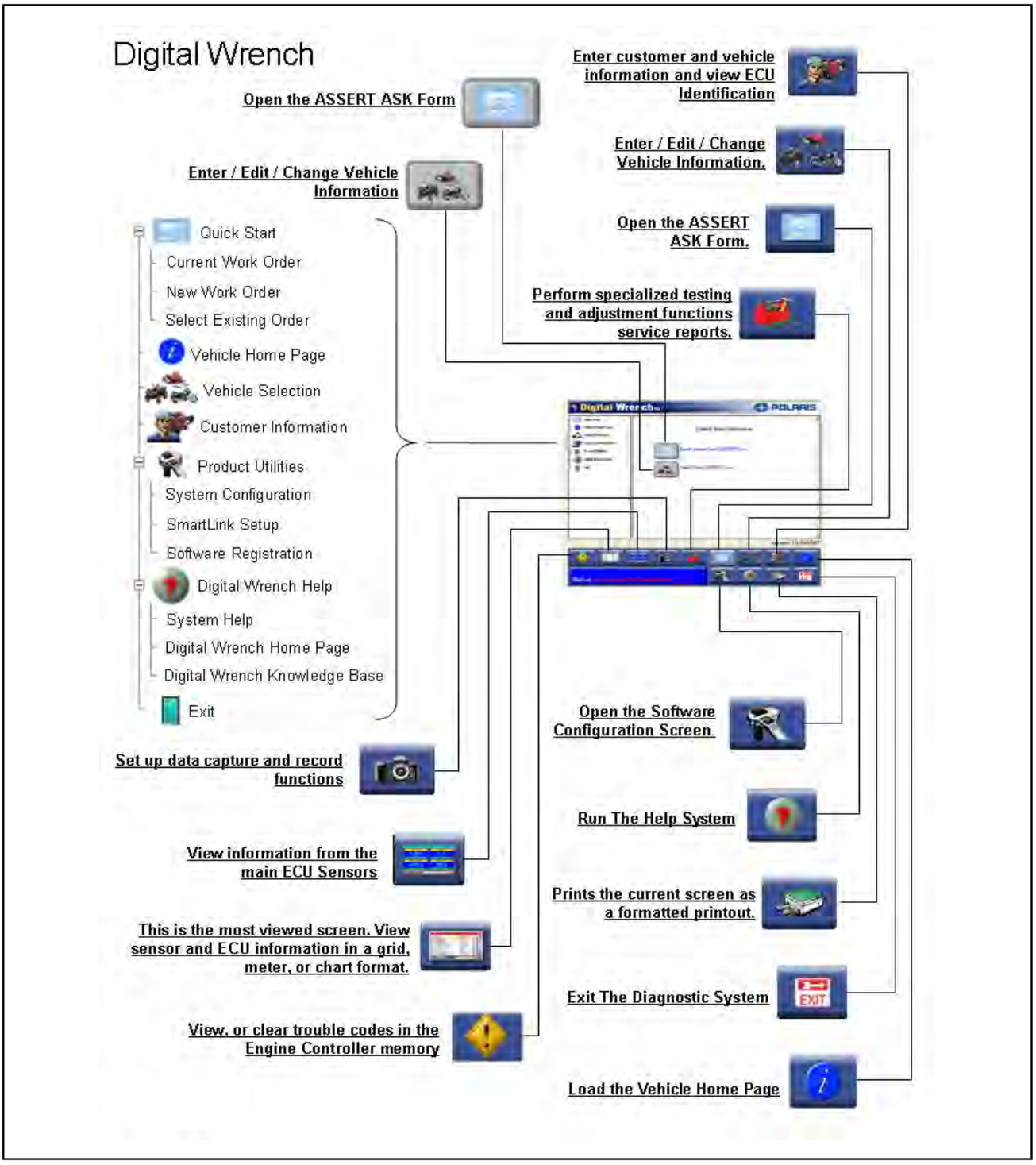


NOTE

Versions and updates are subject to change.

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DIGITAL WRENCH® FEATURE MAP



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ENGINE CONTROLLER REPROGRAMMING (REFLASH)

Process Overview

The reprogramming feature is in the Special Tests menu on the Digital Wrench® screen. Start Digital Wrench® and click on the Special Tests menu icon (red tool box). A technician should be familiar with the process and with computer operation in general before attempting to reprogram an ECU.

The Digital Wrench® Engine Controller Reprogramming (or “Reflash”) feature allows reprogramming of the ECU fuel and ignition map. To successfully reprogram the ECU, an Authorization Key must be obtained by entering a Request Code in the box provided on the Reflash Authorization site. The Request Code is automatically generated by Digital Wrench® during the reprogramming process. The Reflash Authorization site is located under the “**Service and Warranty**” drop down menu on the dealer website at: *www.polarisdealers.com*.

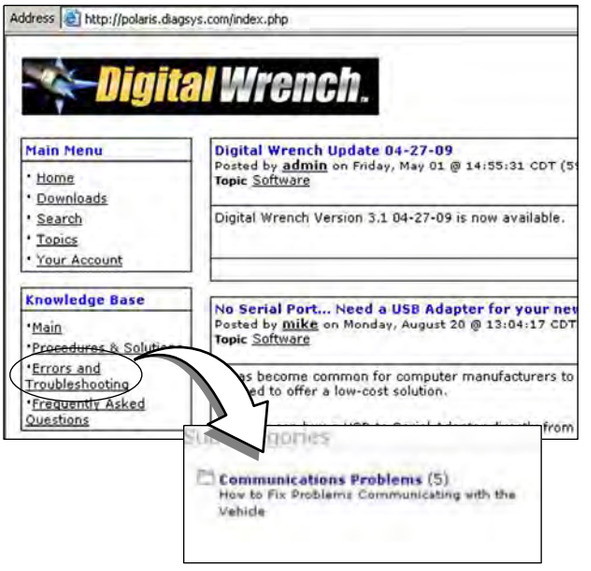
NOTE

Failure to follow the reprogramming instructions completely and correctly can result in an engine that does not run! Replacement ECUs are programmed as “no-start” and require a reflash for them to work.

Reprogramming (Reflash) Tips:

- BATTERY VOLTAGE: The majority of problems with reprogramming can be attributed to a low battery. Be sure the battery voltage (no load) is at least 12.8 volts and at least 12.5 volts with the key ‘ON’. Connect a battery charger if necessary to bring voltage level above minimum. Fully charge the battery before you attempt to reprogram.
- DEDICATED LAPTOP: Best results are obtained using a laptop computer that is “dedicated to Digital Wrench®. A laptop that is used by a variety of people and in several applications around the dealership is more likely to cause a reprogramming problem than one dedicated to Digital Wrench® diagnostics only.
- OBTAINING THE LATEST UPDATE: Reprogramming updates are provided periodically and contain the most recent calibrations. Refer to **“Digital Wrench® Updates”, page 4.43** procedure.
- CLOSE NON-ESSENTIAL PROGRAMS: Polaris recommends that you DO NOT install non-essential programs on a Service Department laptop. Camera detection software, Virus Scanners, Tool Bars, etc. may clog up memory if running in the background and make it harder for the diagnostic software to operate.
- KNOW THE PROCESS: If you are not familiar with the entire reprogramming process, review the HELP section of the diagnostic software before you attempt reprogramming. Click on the **?** on the tool bar or press F11. The information in the on-line help is the most current and complete information available. This should be your first step until you are familiar with the process.
- COMMUNICATION PROBLEMS: If you have had problems communicating with a vehicle while performing diagnostic functions, do not attempt reprogramming until the cause has been identified and fixed. Check all connections, and be sure battery voltage is as specified.

- Proceed to *http://polaris.diagsys.com* for specific information and FAQs on how to troubleshoot communication problems.



- DON’T DISTURB THE PC: While reprogramming is in progress, don’t move the mouse and don’t touch the keyboard. The process only takes a few minutes, and is best left alone until complete.

Reprogramming (Reflash) Procedure:

If you are not familiar with the reprogramming process, review the “Reprogramming (Reflash) Tips” before you begin. Follow the on-screen instructions as you progress through the steps. If you encounter a problem, always check the On-Line help for current tips and information.

1. Verify the most current update has been downloaded and loaded into Digital Wrench®. **See “Digital Wrench® Version and Update ID”, page 4.43**
2. Connect SmartLink Module cables to PC and vehicle. **See “Digital Wrench® - Diagnostic Connector”, page 4.42**

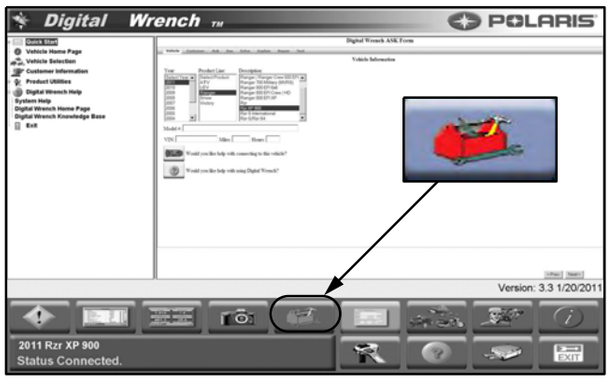
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3. Open the Digital Wrench® program.
4. Select the model year, product line and vehicle description by selecting the “Change Vehicle Type” icon.

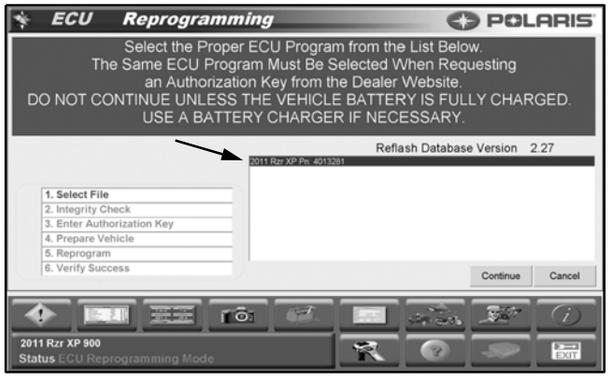




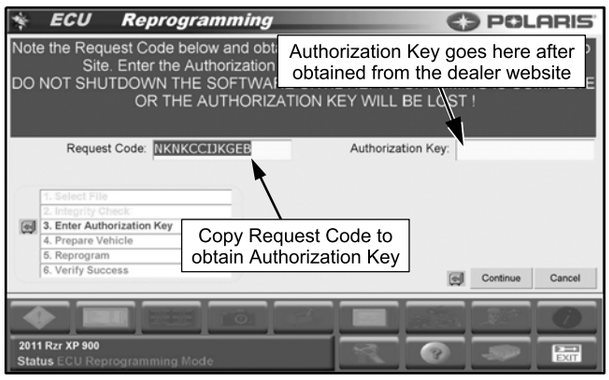
5. Select the “Special Tests” icon.



6. Select “Engine Controller Reprogramming”.
7. Select the file you want to load into the ECU then click the “Continue” icon to proceed to the Integrity Check and obtain a Request Code.



8. Copy (CTRL +C) the Request Code that will be required on the dealer website in the next step. DO NOT CLOSE Digital Wrench® or the Request Code will be invalid. **NOTE: All characters are letters; there are no numbers in a request code.**

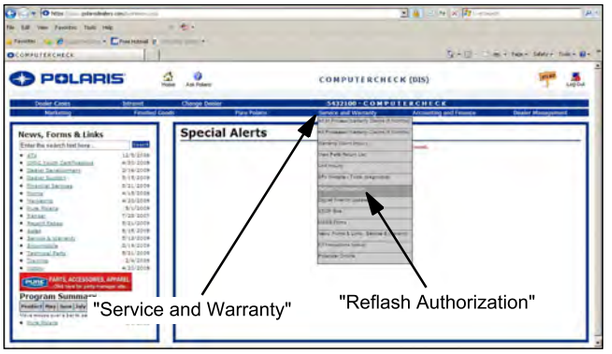


NOTE

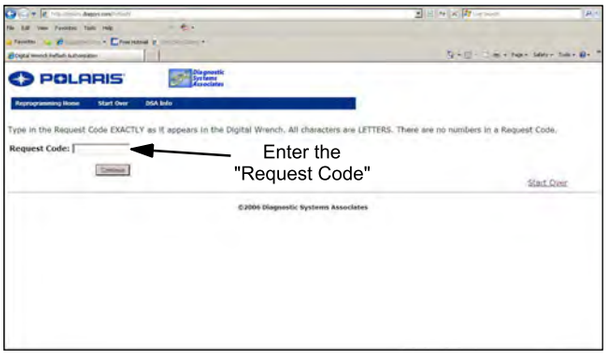
Request Codes and Authorization Keys must be entered EXACTLY as they appear on the screen.

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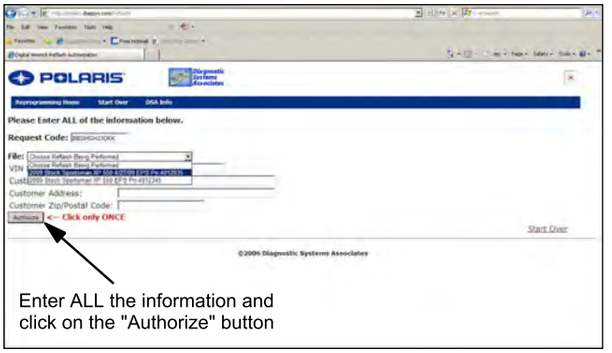
9. Go to *www.polarisdealers.com* and click on “ReFlash Authorization” from the “Service and Warranty” drop-down menu.



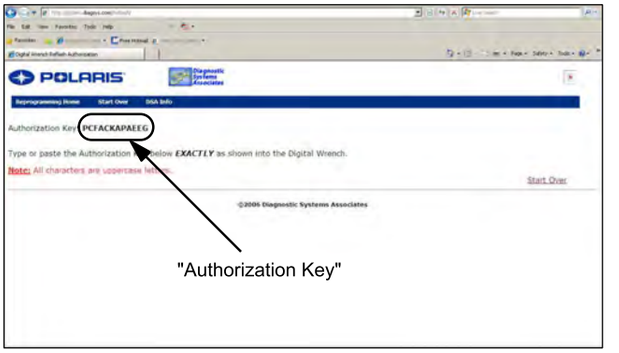
10. Enter or paste (CTRL+V) the Request Code into the box.



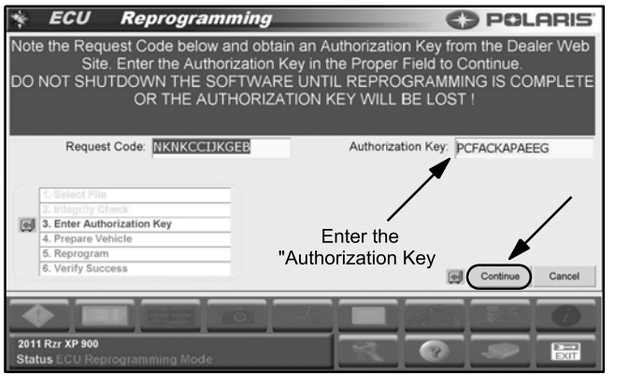
11. Select the same file type from the list that you selected previously while in Digital Wrench®. Enter the VIN along with the customer’s name and address. When completed, click the Authorize button *once* to proceed.



12. An “Authorization Key” will appear in the upper left corner of the screen. Copy (CTRL +C) this key exactly as it appears.



13. Enter or paste (CTRL +V) the Authorization Key in the box located on the Digital Wrench® screen. Click the ‘Continue’ button and follow instructions provided on the screen to complete reprogramming procedure.



14. At this point the reflash process will begin. Do not touch the vehicle or PC during the process.



15. Once the ECU reprogramming procedure is complete, click the ‘Finish’ button on the screen. Verify the reflash was a success by starting the vehicle.

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ETC LEARN PROCEDURE

IMPORTANT

This procedure MUST be performed on the vehicle whenever the ECU is replaced or reflashed or the throttle body is replaced.

1. After the reflash / ECU replacement / throttle body change, leave the key on (engine not running) for 60 seconds. Do NOT crank the engine during this time.
2. Turn the key off and wait 3 minutes. During this time, the ECU will write values into memory and then completely shut down.
3. Turn key back on and start the vehicle. The vehicle should operate normally.
4. If the procedure was interrupted at any time, start back at step 1.

POLARIS MOBILE DIGITAL WRENCH (PMDW)

Polaris Mobile Digital Wrench (PMDW) is a diagnostic software application (app) designed specifically for Android™ devices. When paired with the Wireless Vehicle Link (WVL), part number PU-51435, PMDW provides Polaris service technicians with many of the features and functions found in Digital Wrench.

PMDW Main Page:



Wireless Vehicle Link (WVL) – Part Number PU-51435:



To download the PMDW app, navigate your Android device to www. polarisdealers. com. Locate the Service and Warranty drop-down menu. Select: “Mobile Digital Wrench App Download”. Tap on the link to download the app.

Android Device Minimum Specifications:

- Minimum operating system: Android 3.1 “Honeycomb” or higher (Android 4.0 or higher preferred)
- Dual core processor / 2 GB internal memory / external microSD (32 or 64 GB) slot / 500 MB RAM
- Rear facing camera with minimum 3.0 mega pixel resolution with auto/continuous focus
- Video, Microphone and Voice-to-text capable
- Internet and Bluetooth wireless technology capable

PMDW App Notes:

- PMDW will not work on Microsoft Windows 8™ or Apple IOS™ products
- Device must be set to allow the installation of non-market applications
- An electronic user’s guide is provided within the app. To access the user’s guide, launch the app, and then click on the “Help” button in the Settings/Preferences menu.
- Only CAN-based vehicles are compatible with PMDW and the WVL. A complete list of compatible vehicles can be found in the user’s guide.

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NOTES

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CHAPTER 5
PVT SYSTEM

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GENERAL INFORMATION - PVT SYSTEM

SERVICE NOTES - PVT SYSTEM

⚠ WARNING

All PVT maintenance or repairs should be performed by a certified Polaris Master Service Dealer (MSD) technician who has received the proper training and understands the procedures outlined in this manual. **Because of the critical nature and precision balance incorporated into the PVT components, it is absolutely essential that no disassembly or repair be made without factory authorized special tools and service procedures.**

The Polaris Variable Transmission (PVT) consists of three major assemblies:

1) The Drive Clutch

2) The Driven Clutch

3) The Drive Belt

The internal components of the drive clutch and driven clutch control engagement (initial vehicle movement), clutch upshift and backshift. During the development of the Polaris vehicle, the PVT system is matched first to the engine power curve; then to average riding conditions and the vehicle's intended usage. Therefore, modifications or variations of components at random are never recommended. Proper clutch setup and careful inspection of existing components must be the primary objective when troubleshooting and tuning.

SPECIAL TOOLS - PVT SYSTEM

TOOL DESCRIPTION	PART NUMBER
Clutch Bushing Replacement Tool Kit	**2871226**
Clutch Holding Fixture	**2871358-A**
Clutch Spider Nut Socket	**PU-50578**
Drive Clutch Holding Tool	**9314177-A**
Drive Clutch Puller (570)	**PA-48595**
Drive Clutch Puller (900/1000)	**2872085**
Drive Clutch Spider Removal and Installation Tool	**2870341**
Piston Pin Puller	**2870386**
Bushing Replacement Tool	**PA-47336**
Roller Pin Tool	**2870910**
Universal Clutch Compressor	**PU-50518**

Bosch Automotive Service Solutions:
1-800-345-2233 or http://polaris.service-solutions.com

SPECIAL SUPPLIES	PART NUMBER
Loctite® 648 and 620	**Commercially Available**
RTV Silicone Sealer	**Commercially Available**

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TORQUE SPECIFICATIONS - PVT SYSTEM

PART DESCRIPTION	TORQUE SPECIFICATION
Inner Clutch Cover Bolts	**10 lb-ft (14 Nm)**
Drive Clutch Retaining Bolt (570)	**47 lb-ft (64 Nm)**
Drive Clutch Retaining Bolt (900/1000)	**96 lb-ft (130 Nm)**
Driven Clutch Retaining Bolt	**43 lb-ft (58 Nm)**
Outer Clutch Cover Retaining Screws	**4 lb-ft (6 Nm)**
PVT Duct Hose Clamps	**3 lb-ft (4 Nm)**

PART DESCRIPTION	TORQUE SPECIFICATION
Grease Zerk Fitting	**4 lb-ft (6 Nm)**
Airbox Mounting Screws	**8 lb-ft (11 Nm)**
Shift Weight Nuts	**20 lb-in (2.3 Nm)**
Drive Clutch Spider	**290 lb-ft (393 Nm)**
Drive Clutch Jam Nut	**250 lb-ft (339 Nm)**
Drive Clutch Cover Bolts	**9 lb-ft (12 Nm)**
Driven Clutch Retaining Ring Bolts	**9–12 lb-ft (12–16 Nm)**
Driven Clutch Torx Screws	**48 lb-in (5 Nm)**

SERVICE SPECIFICATIONS - PVT SYSTEM

PART DESCRIPTION	SERVICE SPECIFICATION	SERVICE LIMIT
Drive Clutch Spring Part Number (570)	**7043594**	-
Drive Clutch Spring Color (570)	**Black**	-
Drive Clutch Spring Free Length (570)	**2.800 in (7.11 cm)**	-
Drive Clutch Spring Part Number (2015 900)	**7043924**	-
Drive Clutch Spring Color (2015 900)	**White / Orange**	-
Drive Clutch Spring Free Length (2015 900)	**3.563 in (9.05 cm)**	-
Drive Clutch Spring Part Number (900 / CREW 900)	**7044111**	-
Drive Clutch Spring Color (900 / CREW 900)	**White / Blue**	-
Drive Clutch Spring Free Length (900 / CREW 900)	**3.905 in (9.92 cm)**	-
Drive Clutch Spring Part Number (1000)	**7044655**	-
Drive Clutch Spring Color (1000)	**Black**	-
Drive Clutch Spring Free Length (1000)	**4.870 in (12.37 cm)**	-
Drive Clutch Button to Tower Clearance	**000-.005”**	-
Drive Clutch Shaft Diameter	**1.374” (34.89 mm)**	**1.372” (34.86 mm)**
Vespel® Thrust Washer Thickness	**0.030” (0.76 mm)**	**0.025” (0.64 mm)**

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PVT SYSTEM OVERVIEW

DRIVE CLUTCH OPERATION

Drive clutches primarily sense engine RPM. The two major components which control its shifting function are the shift weights and the coil spring. Whenever engine RPM is increased, centrifugal force is created, causing the shift weights to push against rollers on the moveable sheave, which is held open by coil spring preload. When this force becomes higher than the preload in the spring, the outer sheave moves inward and contacts the drive belt. This motion pinches the drive belt between the spinning sheaves and causes it to rotate, which in turn rotates the driven clutch.

At lower RPM, the drive belt rotates low in the drive clutch sheaves. As engine RPM increases, centrifugal force causes the drive belt to be forced upward on drive clutch sheaves.

DRIVEN CLUTCH OPERATION

Driven clutches primarily sense torque, opening and closing according to the forces applied to it from the drive belt and the transmission input shaft. If the torque resistance at the transmission input shaft is greater than the load from the drive belt, the drive belt is kept at the outer diameter of the driven clutch sheaves.

As engine RPM and horsepower increase, the load from the drive belt increases, resulting in the belt rotating up toward the outer diameter of the drive clutch sheaves and downward into the sheaves of the driven clutch. This action, which increases the driven clutch speed, is called upshifting.

Should the throttle setting remain the same and the vehicle is subjected to a heavier load, the drive belt rotates back up toward the outer diameter of the driven clutch and downward into the sheaves of the drive clutch. This action, which decreases the driven clutch speed, is called backshifting.

In situations where loads vary (such as uphill and downhill) and throttle settings are constant, the drive and driven clutches are continually shifting to maintain optimum engine RPM. At full throttle a perfectly matched PVT system should hold engine RPM at the peak of the power curve. This RPM should be maintained during clutch upshift and backshift. In this respect, the PVT system is similar to a power governor. Rather than vary throttle position, as a conventional governor does, the PVT system changes engine load requirements by either upshifting or backshifting.

PVT BREAK-IN (DRIVE BELT / CLUTCHES)

A proper break-in of the clutches and drive belt will ensure a longer life and better performance. Break in the clutches and drive belt by operating at slower speeds during the 10 hour break-in period as recommended. Refer to **“Engine Break-In Period”, page 3.106** for break-in example). Pull only light loads. Avoid aggressive acceleration and high speed operation during the break-in period.

MAINTENANCE / INSPECTION

Under normal use the PVT system will provide years of trouble free operation. Periodic inspection and maintenance is required to keep the system operating at peak performance. The following list of items should be inspected and maintained to ensure maximum performance and service life of PVT components. Refer to **“PVT Troubleshooting”, page 5.35** checklist at the end of this chapter for more information.

1. **Belt Inspection.**
2. **Drive and Driven Clutch Buttons and Bushings, Drive Clutch Shift Weights and Pins, Drive Clutch Spider Rollers and Roller Pins, Drive and Driven Clutch Springs.**
3. **Sheave Faces.** Clean and inspect for wear.
4. **PVT System Sealing.** Refer to the appropriate illustration (s) on the following pages. The PVT system is air cooled by fins on the drive and driven clutch stationary sheaves. The fins create a low pressure area in the crankcase casting, drawing air into the system through an intake duct. The opening for this intake duct is located at a high point on the vehicle (location varies by model). The intake duct draws fresh air through a vented cover. All connecting air ducts (as well as the inner and outer covers) must be properly sealed to ensure clean air is being used for cooling the PVT system and also to prevent water and other contaminants from entering the PVT area. This is especially critical on units subjected to frequent water forging.

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OVERHEATING / DIAGNOSIS

During routine maintenance, or whenever PVT system overheating is evident, it's important to check the inlet *and* outlet ducting for obstructions. Obstructions to air flow through the ducts will significantly increase PVT system operating temperatures. The vehicle should be operated in Low when plowing or pulling heavy loads, or if extended low speed operation is anticipated.

CLUTCH DRIVE BELT & COVER RELATED ISSUES: DIAGNOSIS

POSSIBLE CAUSES	SOLUTIONS / WHAT TO DO
Loading the vehicle into a tall trailer when in high range.	Shift transmission to Low during loading of the vehicle to prevent belt burning.
Starting out going up a steep incline from a stopped position.	When starting out on an incline, use Low gear. Shift transmission to Low during loading of the vehicle to prevent belt burning.
Driving at low RPM or low ground speed (at approximately 3-7 MPH).	Drive at higher speed or use Low. The use of Low is highly recommended for cooler PVT operating temperatures and longer component life.
Insufficient engine warm-up when exposed to low ambient temperatures.	Warm engine at least 5 min., then with transmission in neutral, advance throttle to approx. 1/8 throttle in short bursts, 5 to 7 times. The belt will become more flexible and prevent belt burning.
Slow and easy clutch engagement.	Fast, effective use of the throttle for efficient engagement.
Stuck in mud or snow.	Shift the transmission to Low, carefully use quick, firm throttle application and avoid excessive slipping of the PVT system. **WARNING:** Excessive throttle may cause loss of control and vehicle overturn.
Climbing over large objects from a stopped position.	Shift the transmission to Low, carefully use quick, firm throttle application and avoid excessive slipping of the PVT system. **WARNING:** Excessive throttle may cause loss of control and vehicle overturn.
Belt slippage from water or snow ingestion into the PVT system.	Remove the PVT drain plug. Shift the transmission to neutral. Using the throttle, vary the engine rpm from idle to full throttle. Repeat several times as required. During this procedure, the throttle should not be held at the full position for more than 10 seconds. Clutch seals should be inspected for damage if repeated leaking occurs.
Clutch malfunction.	Clutch component inspection should be performed by a Polaris MSD certified technician.
Poor engine performance.	Fouled spark plugs, foreign material in fuel tank, restricted fuel lines, or faulty fuel pump may cause symptoms similar to clutching malfunction.
GENERAL RANGE OPERATION GUIDELINES:	**Low:** Heavy pulling, basic operational speeds less than 7 MPH, riding through rough terrain (swamps, mountains, ect.), low ground speeds.
	High: High ground speeds, or speeds above 7 MPH.

Operating in Low Gear

Low gear should be used when riding through rough terrain or when basic operational ground speeds are less than 7 MPH. Use High gear when basic operational ground speeds are more than 7 MPH.

NOTE
Using High gear for heavy loads, hilly terrain, or in wet, muddy conditions will increase the chance of drive belt burning.

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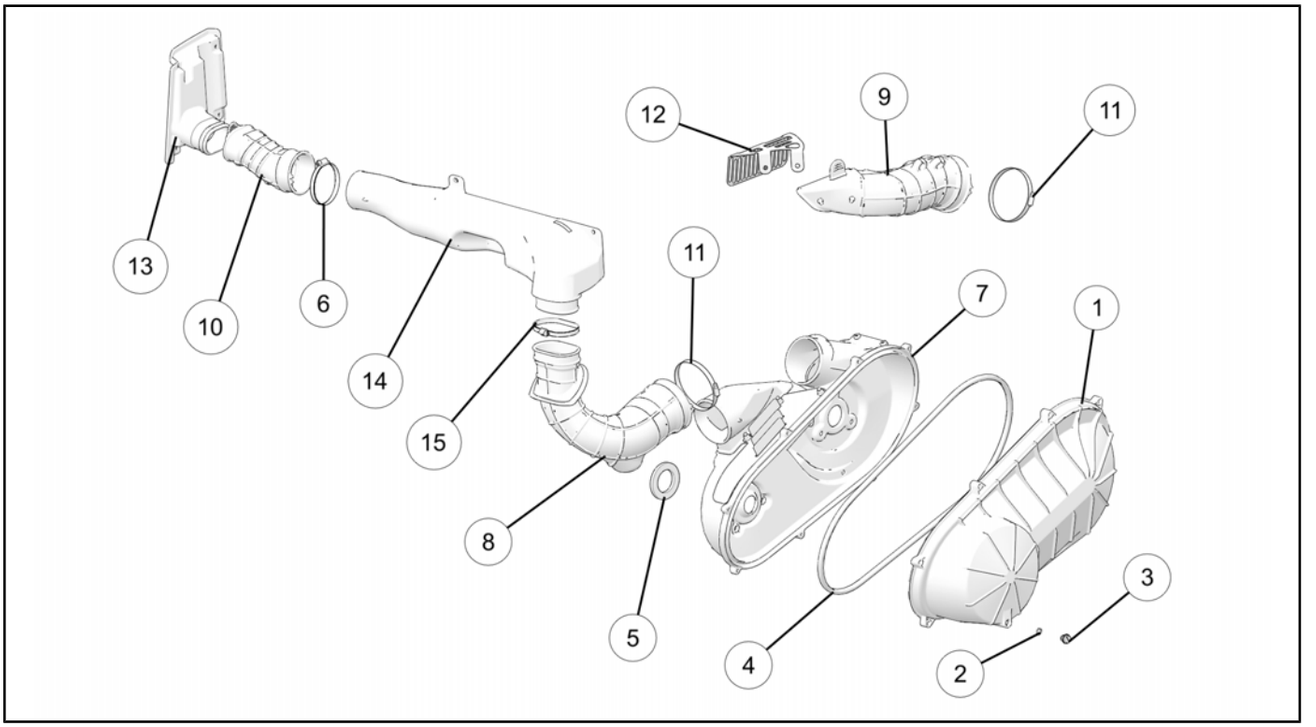
CLUTCH CHART

YEAR/MODEL	ALTITUDE	SHIFT WEIGHT	DRIVE SPRING	DRIVEN SPRING
All 570 Models	0-1800 Meters (0-6000 Feet)	25-52 (5632409)	Black (7043594)	7044015
	1800-3700 Meters (6000 - 12000 Feet)	25-48 (5633217)	Black (7043594)	7044015
2015 900 Models (Except EBS and CREW Models)	0-1800 Meters (0-6000 Feet)	30-75 (5139684)	Wht / Orange (7043924)	7044317
	1800-3700 Meters (6000 - 12000 Feet)	30-67 (5139467)	Wht / Orange (7043924)	7044317
2015 900 CREW Models	0-1800 Meters (0-6000 Feet)	27-89 (5138015)	Wht / Blu (7044111)	7044015
	1800-3700 Meters (6000 - 12000 Feet)	27-83 (5632754)	Wht / Blu (7044111)	7044015
2015 HUNTER PKG/ EDITION w/EBS	0-1800 Meters (0-6000 Feet)	30-75 (5139684)	Wht / Orange (7043924)	7044318
	1800-3700 Meters (6000 - 12000 Feet)	30-67 (5139467)	Wht / Orange (7043924)	7044318
2016-2017 900 Models (Except EBS Models)	0-1800 Meters (0-6000 Feet)	27-81 (5140011)	Wht / Blu (7044111)	7044021
	1800-3700 Meters (6000 - 12000 Feet)	30-75 (5139684)	Wht / Blu (7044111)	7044021
2016 HUNTER/TRAIL EDITION w/EBS	0-1800 Meters (0-6000 Feet)	27-81 (5140011)	Wht / Blu (7044111)	3234452
	1800-3700 Meters (6000 - 12000 Feet)	30-75 (5139684)	Wht / Blu (7044111)	3234452
2017 1000 Models	0-1800 Meters (0-6000 Feet)	27-98 (5140604)	Black (7044655)	3235964
	1800-3700 Meters (6000 - 12000 Feet)	27-89 (5138015)	Black (7044655)	3235964

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PVT SYSTEM SERVICE

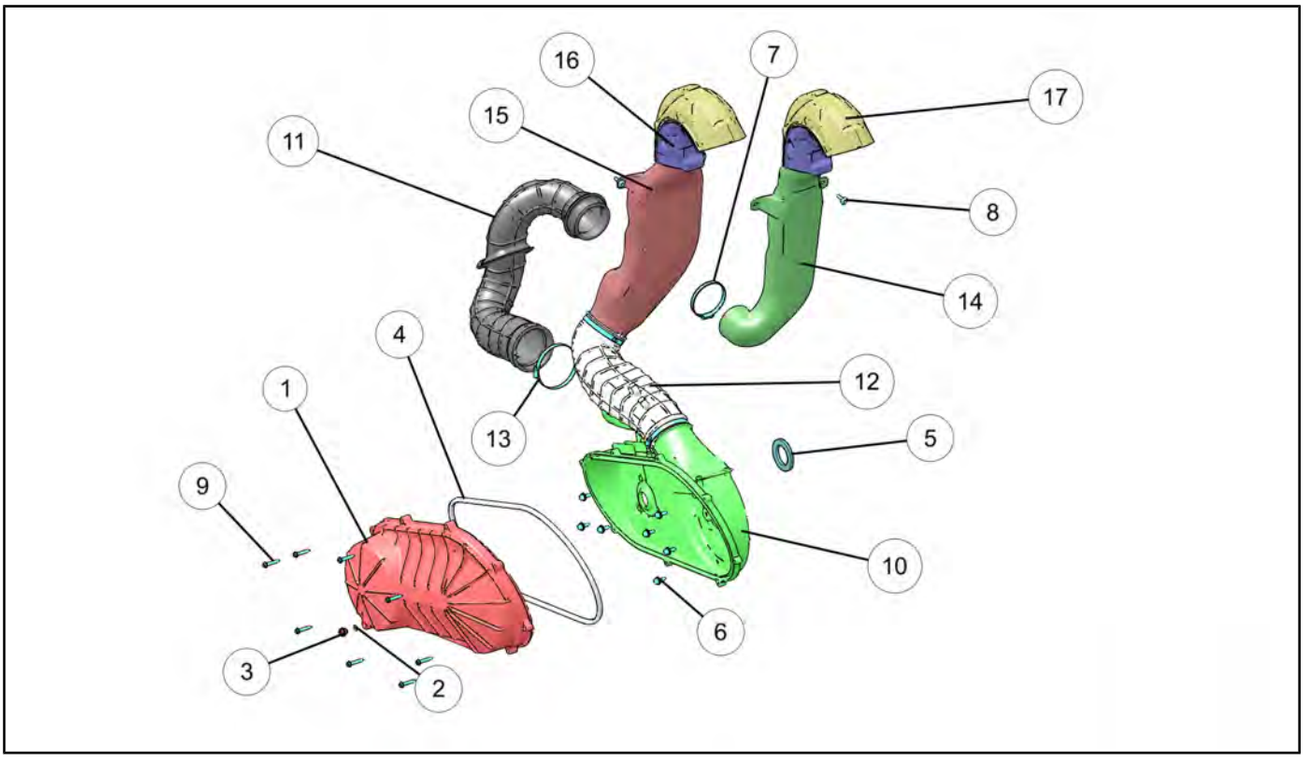
PVT COVERS AND DUCTING COMPONENTS



REF	DESCRIPTION	REF	DESCRIPTION
①	OUTER CLUTCH COVER	⑨	HOSE, CLUTCH AIR OUTLET
②	O-RING	⑩	HOSE, CLUTCH INTAKE
③	PLUG, DRAIN	⑪	CLAMP, WORM DRIVE
④	SEAL, OUTER	⑫	BRACKET, SCREEN BELT
⑤	SEAL, COVER	⑬	INTAKE, FENDER REAR
⑥	CLAMP, NARROW	⑭	DUCT, CLUTCH INTAKE
⑦	INNER CLUTCH COVER	⑮	CLAMP, BAND
⑧	HOSE, CLUTCH AIR INLET		

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PVT COVERS AND DUCTING COMPONENTS - HIGH LIFTER



PART #	DESCRIPTION	PART #	DESCRIPTION	PART #	DESCRIPTION
1	OUTER CLUTCH COVER	7	CLAMP, NARROW	13	CLAMP, WORM DRIVE
2	O-RING	8	SCREW	14	DUCT, CLUTCH INLET
3	PLUG, DRAIN	9	SCREW	15	DUCT, CLUTCH OUTLET
4	SEAL, OUTER	10	INNER CLUTCH COVER	16	COVER, INTAKE BOTTOM
5	SEAL, COVER	11	HOSE, CLUTCH AIR INLET	17	COVER, INTAKE TOP
6	ASM, BOLT / WASHER	12	HOSE, CLUTCH AIR OUTLET		

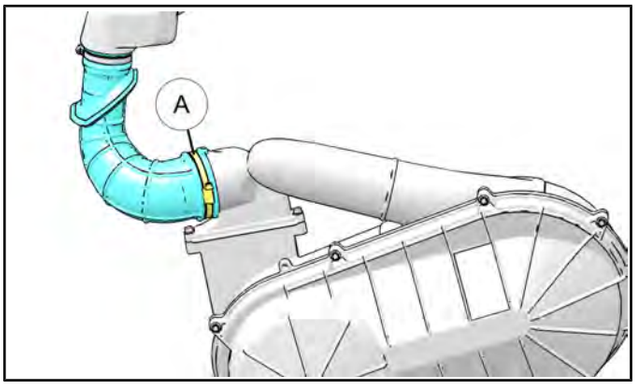
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PVT DISASSEMBLY

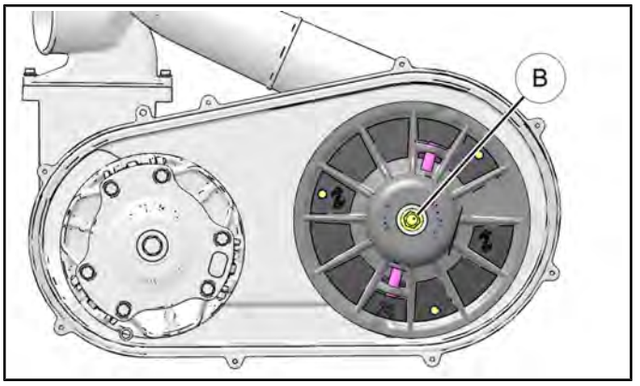
CAUTION

Correct Drive Clutch Puller P/N 570: PA-48595
Correct Drive Clutch Puller P/N 900: 2872085

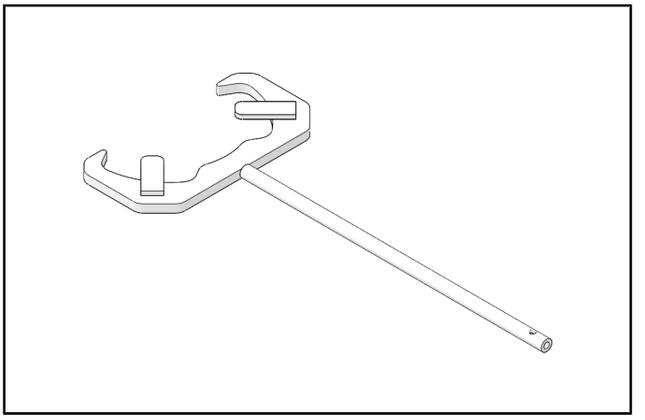
1. Remove the outer clutch cover and drive belt. Refer to **"Belt Removal", page 5.13** procedure.
2. Loosen the PVT inlet hose clamp (A) and remove the ducting hose from the vehicle.



3. Remove the driven clutch retaining bolt (B) and driven clutch.



4. Install the Drive Clutch Holding Tool on the drive clutch.



Drive Clutch Holding Tool **9314177-A**

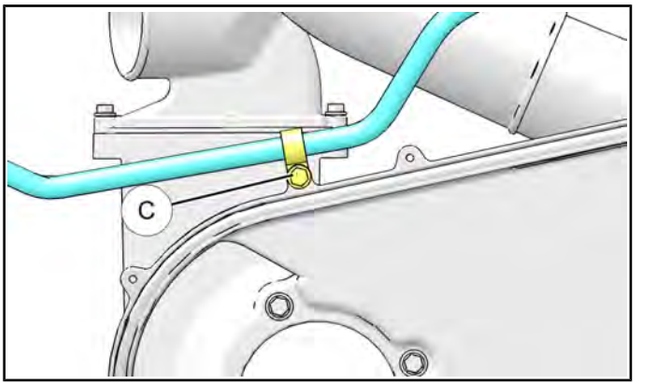
5. Remove the drive clutch retaining bolt and remove the drive clutch using Drive Clutch Puller (570: **PA-48595** / 900: **2872085**)

Correct Drive Clutch Puller P/N 570: **PA-48595**
Correct Drive Clutch Puller P/N 900: **2872085**

NOTE

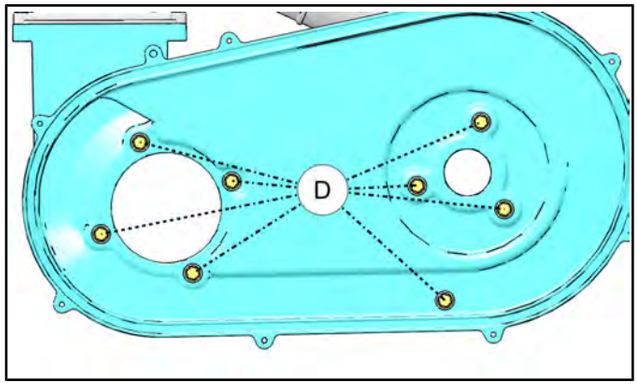
Be sure to use the correct Drive Clutch Puller (570:**PA-48595** / 900: **2872085**) to prevent damage to crankshaft.

6. Remove the fuel line (C) from the inner clutch cover restraint.



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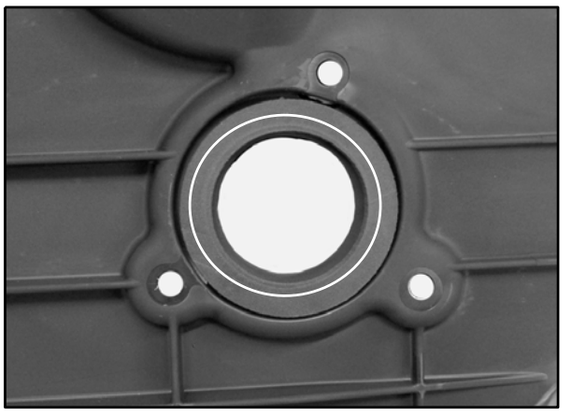
7. Remove the bolts that retain the inner clutch cover to the engine and transmission.



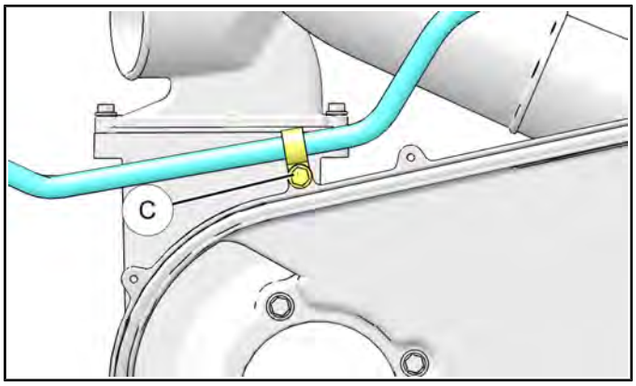
8. Remove the inner clutch cover from the vehicle.

PVT ASSEMBLY

1. Inspect the inner clutch cover. Replace if cracked or damaged.
2. Inspect the seal on the transmission input shaft. Replace if damaged.
3. Inspect inner clutch cover seal (engine side). Replace if cracked, torn or damaged.



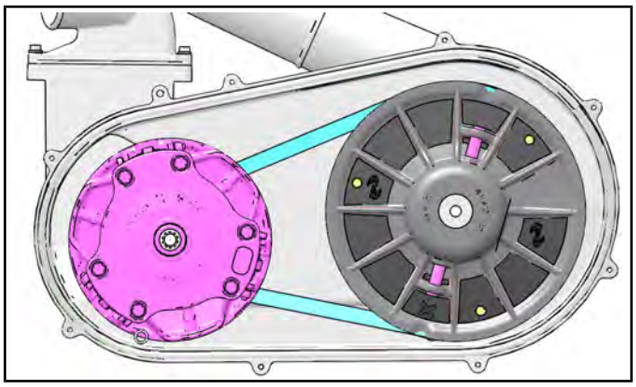
4. Install the inner clutch cover. Make sure the fuel line (C) is properly routed and retained on top of the inner clutch cover.



5. Install the bolts that retain the inner clutch cover to the engine and transmission. Torque fasteners to specification.

TORQUE
Inner Clutch Cover Bolts: **10 lb-ft (14 Nm)**

6. Clean the end of the taper on the crankshaft and the tapered bore inside the drive clutch.
7. Clean the splines inside the driven clutch and on the transmission input shaft. Apply a light film of grease to the splines on the shaft.
8. Install the drive clutch, driven clutch, and drive belt as an assembly.



9. Install the drive clutch insert, washer and bolt. Torque the drive clutch retaining bolt to specification.

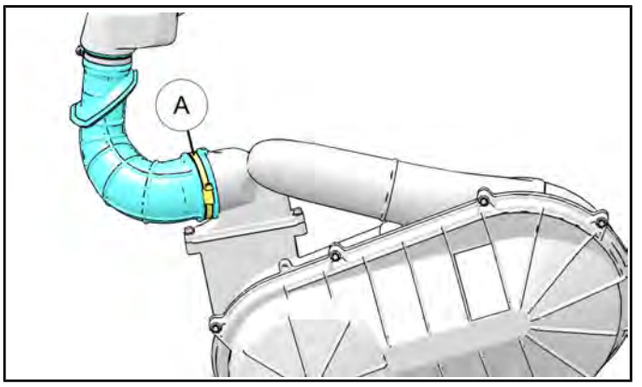
TORQUE
Drive Clutch Retaining Bolt: 570: **47 lb-ft (64 Nm)** 900: **96 lb-ft (130 Nm)**

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10. Install the driven clutch bolt and washer. Torque the driven clutch retaining bolt to specification.

TORQUE
Driven Clutch Retaining Bolt: **43 lb-ft (58 Nm)**

11. Install a new outer clutch cover seal with the colored stripe facing the inner clutch cover.
12. Install the outer clutch cover. Refer to steps 2-3 under **"Belt Installation", page 5.14** procedure.
13. Install the PVT inlet duct hose. Torque the hose clamp (A) to specification.



TORQUE
PVT Duct Hose Clamps: **3 lb-ft (4 Nm)**

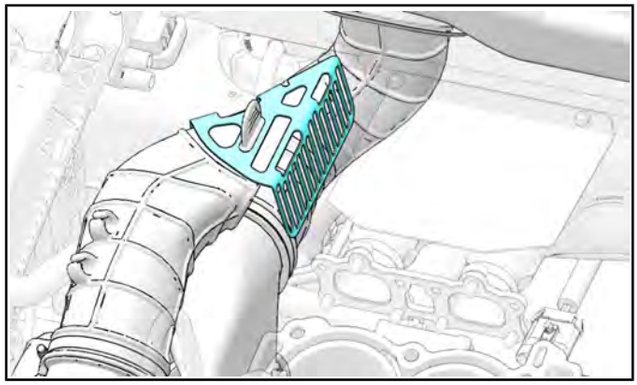
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DRIVE BELT SERVICE

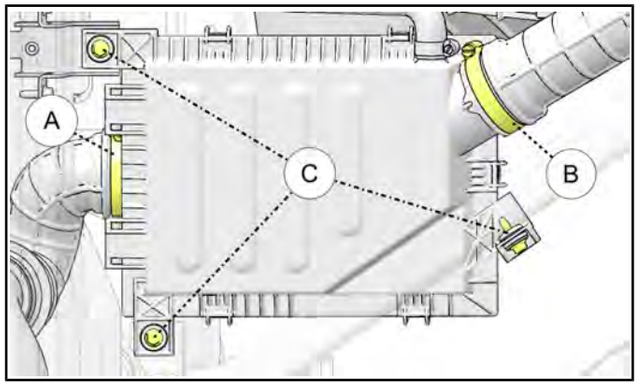
BELT REMOVAL

NOTE

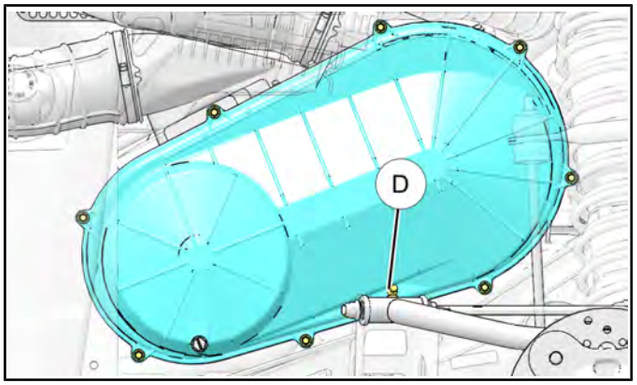
Inspect the entire clutch outlet duct (including the outlet duct screen) when replacing a drive belt. Remove any debris found in the outlet duct or outlet duct screen.



1. Tilt up the rear cargo box. Loosen the hose clamp securing the intake hose to the airbox (A) and the one securing the engine intake hose (B) to the airbox.



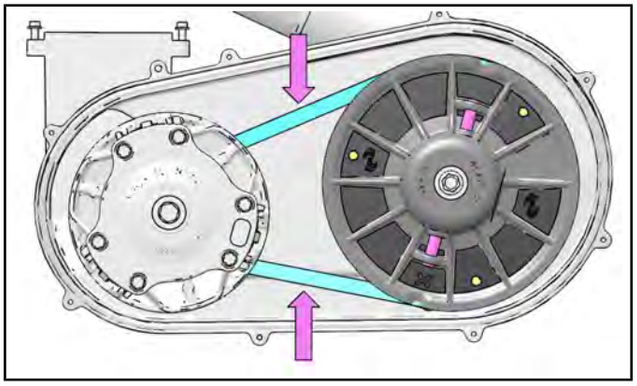
2. Remove the three screws (C) retaining the airbox to the frame. Lift the airbox assembly up so it sits slightly higher than the PVT cover to ease of clutch cover removal.
3. Remove the grease zerk fitting (D) on the upper rear control arm. Remove the eight screws retaining the outer clutch cover.



4. Remove the outer clutch cover from the vehicle.
5. Mark the drive belt direction of rotation so that it can be installed in the same direction.
6. Push down hard on the top of the belt and squeeze the belt together between the drive and driven clutch so the belt moves down into the driven clutch.

NOTE

On Non-EBS & EBS Models, loosen the driven clutch retaining bolt to help spread the clutch sheaves.



7. Remove belt off the bottom of the driven clutch and slowly turn the driven clutch counter-clockwise to aid in removal.

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BELT INSPECTION

1. Inspect belt for hour glassing (extreme circular wear in at least one spot and on both sides of the belt). Hour glassing occurs when the drive train does not move and the drive clutch engages the belt.
2. Inspect belt for loose cords, missing cogs, cracks, abrasions, thin spots, or excessive wear. Compare belt measurements with a new drive belt. Replace if necessary.
3. Belts with thin spots, burn marks, etc., should be replaced to eliminate noise, vibration, or erratic PVT operation. Refer to **"PVT Troubleshooting", page 5.35** chart at the end of this chapter for possible causes.

BELT INSTALLATION

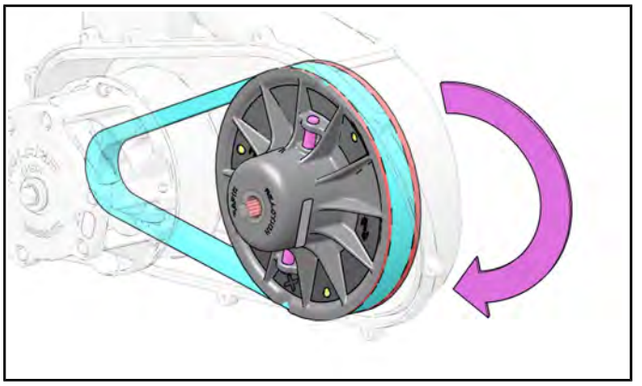
NOTE

Be sure to install belt in the same direction as it was removed.

1. Install belt over drive clutch and start to install belt over driven clutch. While pushing down on the belt, turn the driven clutch clockwise. Work the belt down in the clutch to give more slack. Torque driven clutch mounting bolt to specification.

NOTE

On Non-EBS & EBS Models, the driven clutch mounting bolt should be loose to allow the clutch sheaves to spread.



TORQUE

Driven Clutch Retaining Bolt:
43 lb-ft (58 Nm)

2. Install the outer clutch cover and eight screws. Torque screws to specification.

TORQUE

Outer Clutch Cover Retaining Screws:
4 lb-ft (6 Nm)

3. Install the grease zerk fitting on the upper rear control arm and torque to specification.

TORQUE

Grease Zerk Fitting:
4 lb-ft (6 Nm)

4. Install the airbox to the frame and torque the mounting bolts to specification.

TORQUE

Airbox Mounting Screws:
8 lb-ft (11 Nm)

5. Install both intake hoses to the airbox. Tighten the hose clamps to specification.

TORQUE

Intake Hose Clamps:
3 lb-ft (4 Nm)

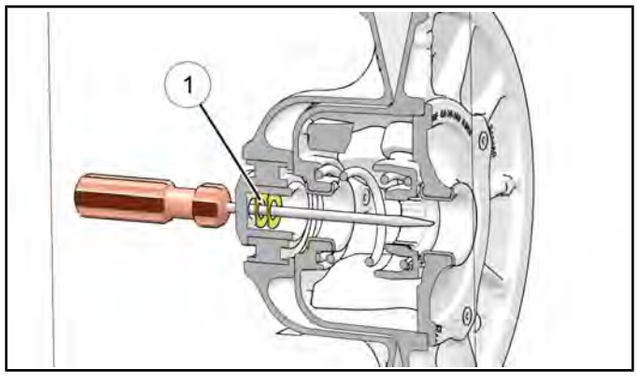
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DRIVEN CLUTCH ALIGNMENT

If the vehicle exhibits creeping at idle, drive clutch drag or hard shifting while at idle speed, a driven clutch alignment using offset washers may be required.

1. Remove the drive belt and driven clutch from the vehicle. Refer to **“Belt Removal”, page 5.13** and **“PVT Disassembly”, page 5.10** procedures.
2. Put a long-shafted screwdriver through the driven clutch retaining bolt hole in the snout.
3. Install the required amount of offset washers ① down the screwdriver shaft so the washers sit at the bottom of the snout to obtain the necessary offset.

(0.030 in) PN: 7556580 Maximum Offset: 0.060 in (2 washers)

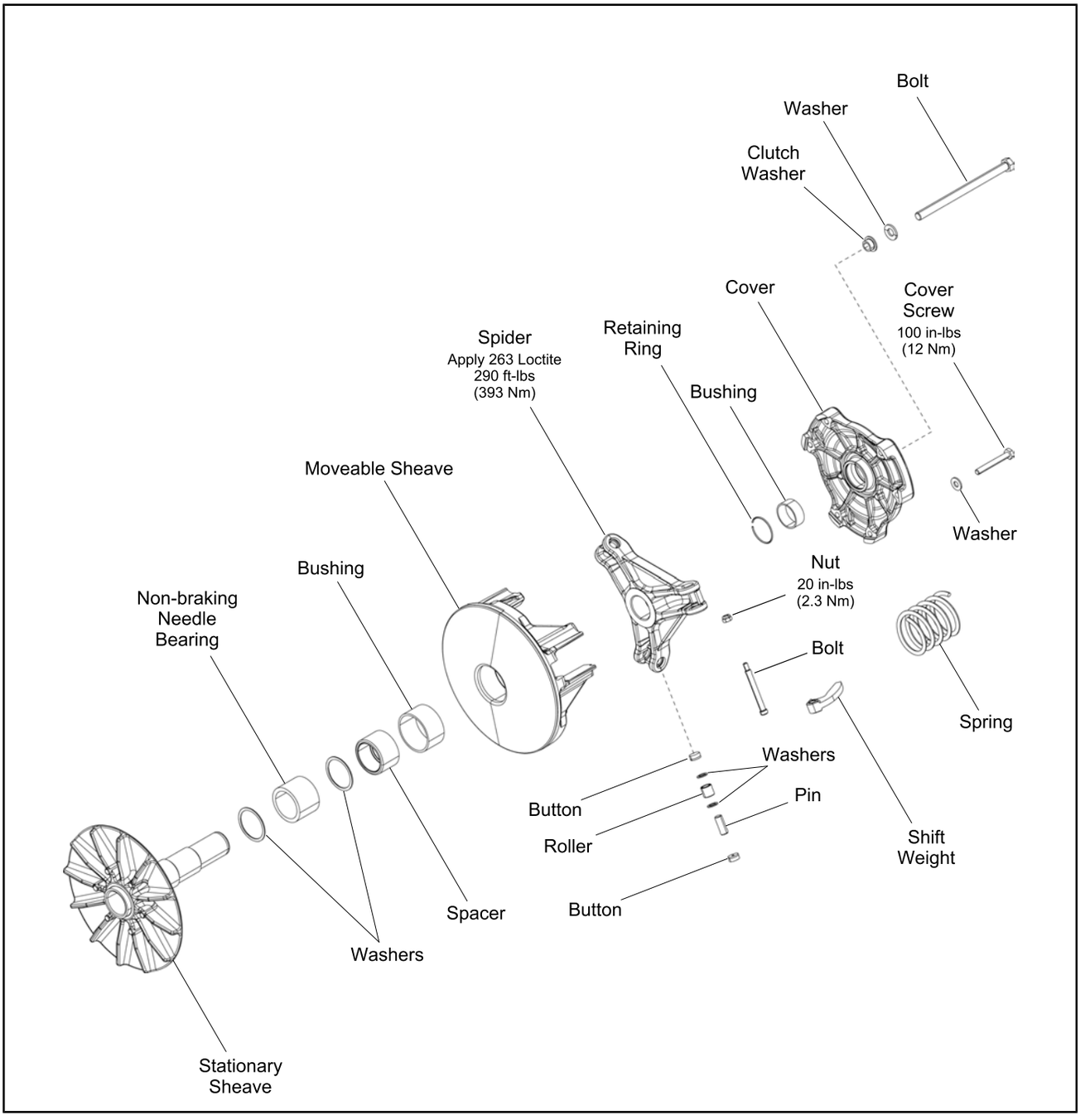


4. Remove the screwdriver from the driven clutch. Insert the driven clutch retaining bolt to keep the washers aligned during clutch installation.
5. Reinstall the driven clutch and drive belt. Refer to **“Belt Installation”, page 5.14** procedure.
6. Test vehicle to ensure proper vehicle performance.

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DRIVE CLUTCH SERVICE

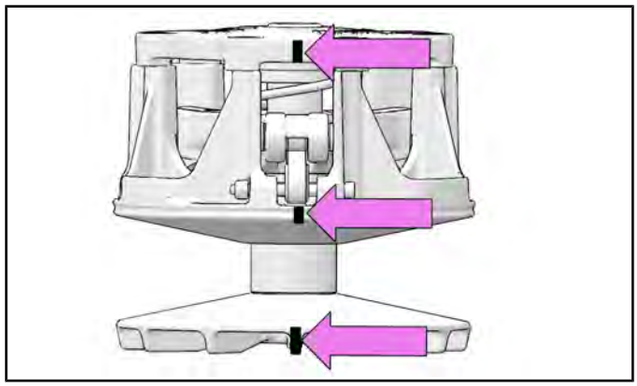
DRIVE CLUTCH EXPLODED VIEW



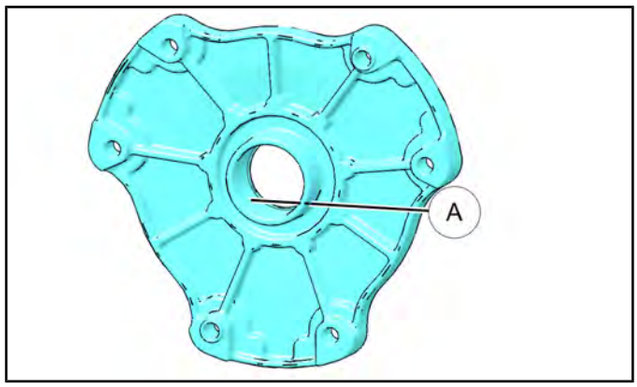
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CLUTCH DISASSEMBLY

1. Using a permanent marker, mark the cover, spider, and moveable and stationary sheaves for reference, as the cast in X's may not have been in alignment before disassembly.

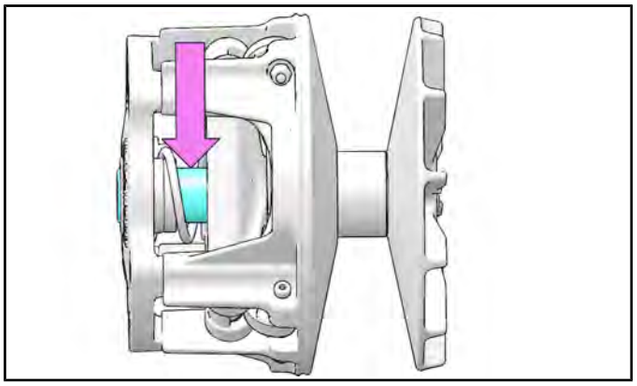


2. Mark the stationary sheave and clutch shaft to verify the shaft has not turned in the sheave after tightening the spider during clutch assembly.
3. Remove cover bolts evenly in a cross pattern and remove cover plate.
4. Inspect cover bushing (A). The outer cover bushing is manufactured with a Teflon® coating. Wear is determined by the amount of Teflon® remaining on the bushing.



Cover Bushing Inspection:
Replace the cover bushing if more brass than Teflon® is visible on the bushing. Refer to **"Bushing Service", page 5.22** procedure.

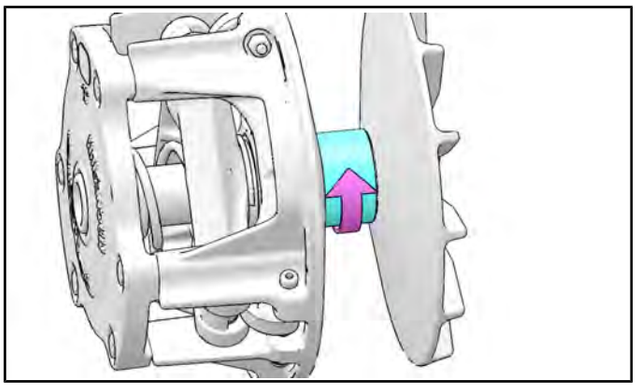
5. Inspect area on shaft where bushing rides for wear, galling, nicks, or scratches. Replace clutch assembly if worn or damaged.



6. Remove and inspect the clutch spring. Refer to **"Drive Clutch Spring Inspection", page 5.18** procedure.

BEARING INSPECTION

1. Rotate the clutch bearing in both clockwise and counter-clockwise directions. The non-braking bearing should rotate both directions on the shaft with only a slight amount of drag.
2. Verify there is no binding or rough spots. If problems are noted continue with disassembly.



5

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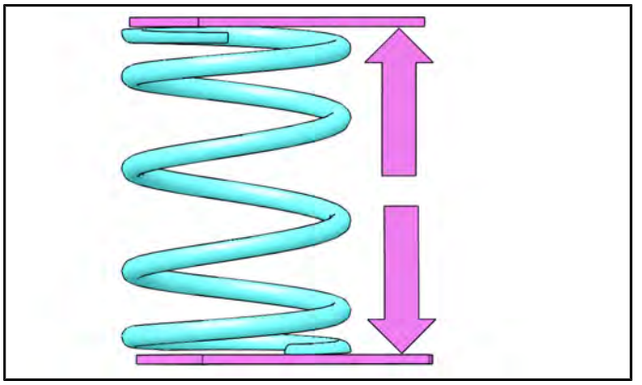
DRIVE CLUTCH SPRING INSPECTION

CAUTION

Never shim a drive clutch spring to increase its compression rate. This may result in complete stacking of the coils and subsequent clutch cover failure.

The drive clutch spring is one of the most critical components of the PVT system. It is also one of the easiest to service. Due to the severe relaxation the spring is subject to during operation, it should always be inspected for tolerance limits during any clutch operation diagnosis or repair.

Refer to **"Service Specifications - PVT System"** for drive spring specifications.

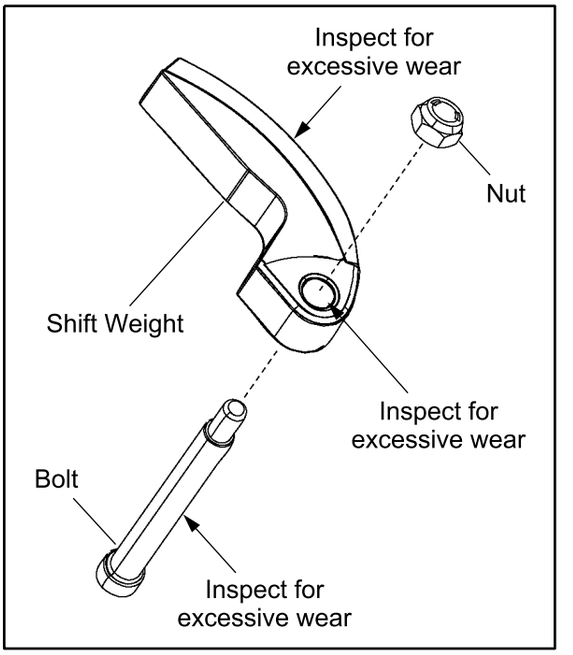


SHIFT WEIGHT INSPECTION

1. Remove shift weight fasteners and weights. Inspect the contact surface of the weight. The surface should be smooth and free of dents or gall marks. Inspect the weight pivot bore and bolts for wear or galling. If weights or bolts are worn or broken, replace in sets of three with new bolts and nuts.

⚠ WARNING

The clutch assembly is a precisely balanced unit. Never replace parts with used parts from another clutch assembly!



NOTE

A damaged shift weight is usually caused by a damaged or stuck roller in the spider assembly. Refer to **"Roller, Pin, and Thrust Washer Inspection", page 5.20** procedure.

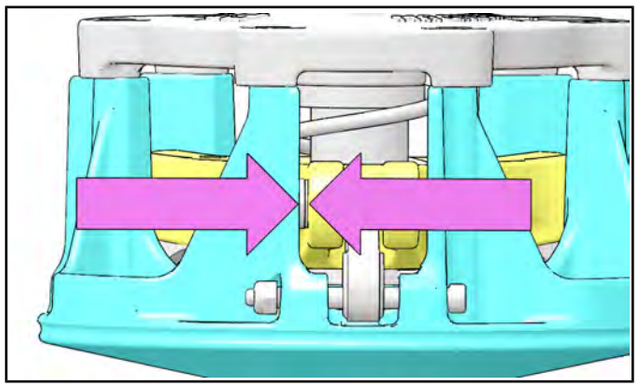
TORQUE

Shift Weight Fasteners (Nuts):
20 lb-in (2.3 Nm)

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BUTTON TO TOWER CLEARANCE INSPECTION

1. Inspect for any clearance between spider button to tower. If clearance exceeds specification, replace all buttons and inspect surface of towers. Refer to **“Spider Removal”, page 5.19** procedure.

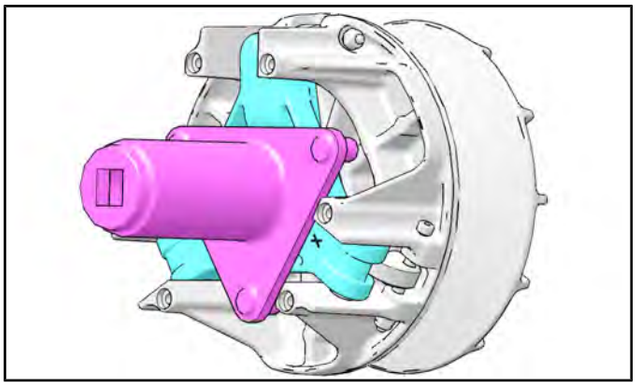


Button to Tower Clearance:**000-.005”**

2. Inspect sheave surfaces. Replace the entire clutch if worn, damaged or cracked.

SPIDER REMOVAL

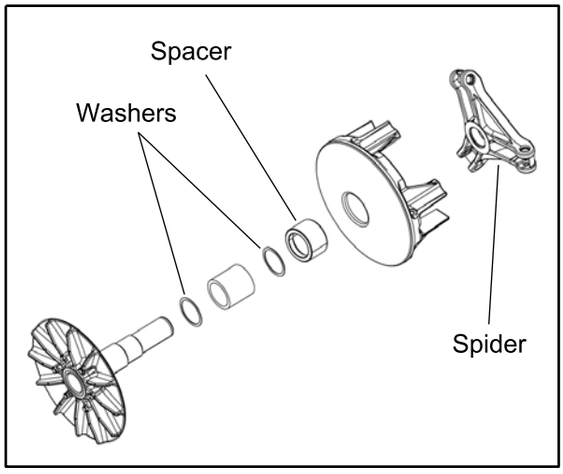
1. Install clutch in holding fixture (**2871358-A**) and loosen the spider (counterclockwise) using Clutch Spider Removal Tool (**2870341**).



Clutch Holding Fixture: (**2871358-A**)
Spider Removal Tool: (**2870341**)

NOTE

To maintain proper clutch balance and belt-to-sheave clearance, be sure to reinstall the original quantity and thickness of washers/spacers beneath the spider during assembly.

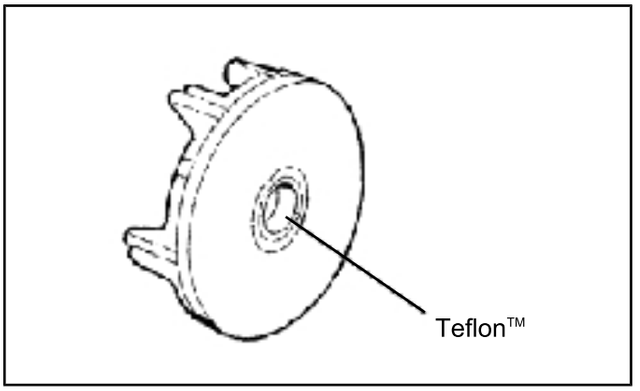


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Moveable Sheave Bushing Inspection

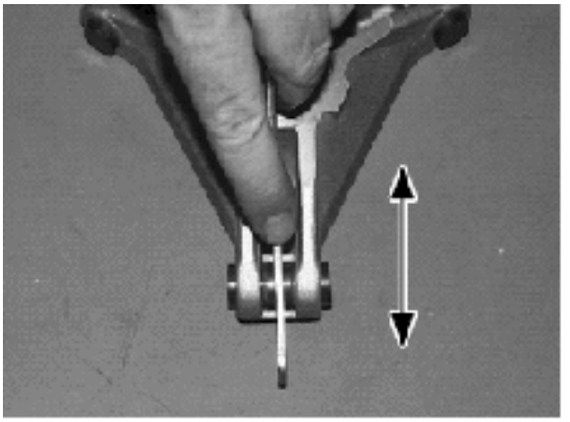
2. Inspect the Teflon® coating on the moveable sheave bushing.



Moveable Sheave Bushing Inspection:Replace the cover bushing if more brass than Teflon® is visible on the bushing.Refer to **"Bushing Service", page 5.22** procedure.

ROLLER, PIN, AND THRUST WASHER INSPECTION

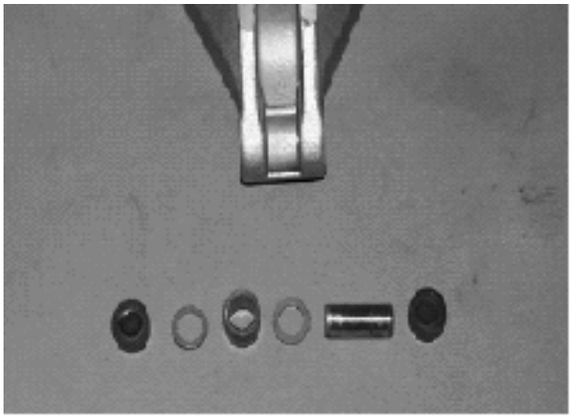
1. Inspect all rollers, bushings and roller pins by pulling a flat metal rod across the roller. Turn roller with your finger. If you notice resistance, galling, or flat spots, replace rollers, pins and thrust washers in sets of three. Also inspect to see if roller and bushing are separating. Bushing must fit tightly in roller. Use the Roller Pin Tool (**2870910**) to replace rollers and pins. Take care not to damage roller bushing or bearing surface of the new pin during installation.



2. Rubber backed buttons and solid roller pins are used in this *RANGER* clutch.

NOTE

The rubber side of the button is positioned toward the solid roller pin.

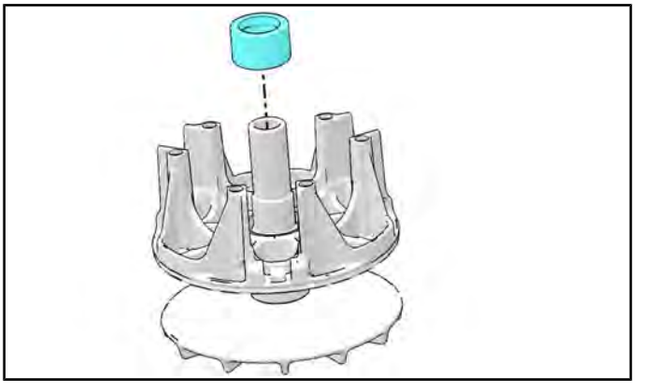


CLUTCH INSPECTION

NOTE

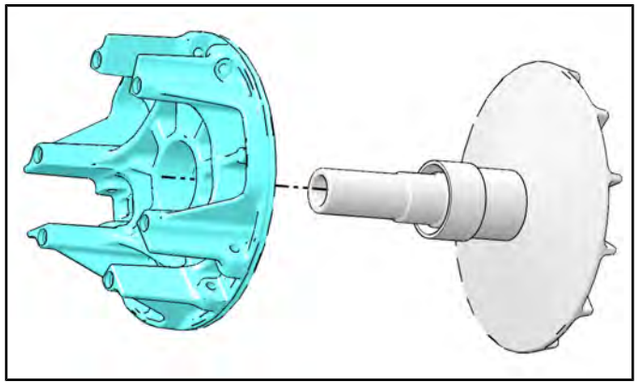
Remove cover, spring and spider following instructions for drive clutch disassembly, then proceed as follows:

1. Remove the moveable sheave spacer. Inspect for damage or wear.

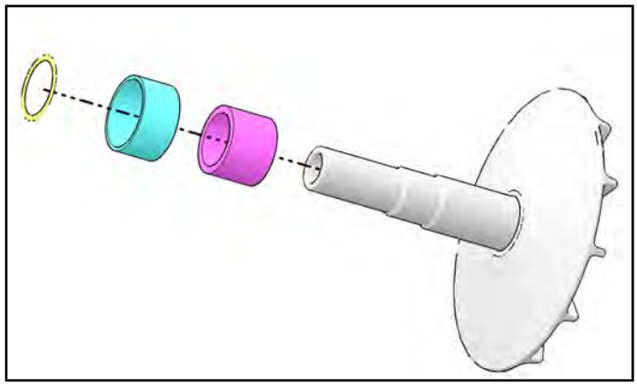


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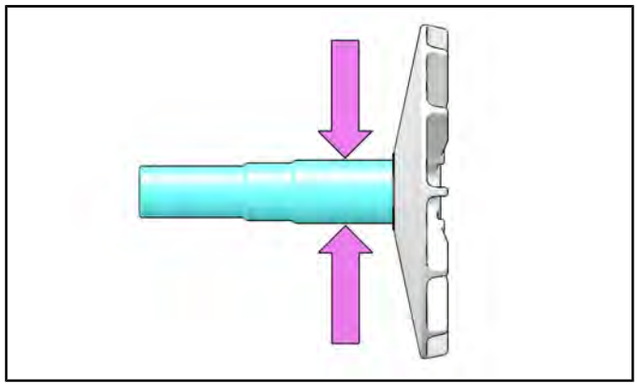
2. Remove the moveable clutch sheave. Inspect for damage or wear.



3. Lift bearing and DuPont™ Vespel® washers off the shaft. Replace as an assembly if worn, damaged, or if problems were noted.



4. Inspect surface of shaft for pitting, grooves, or damage. Measure the outside diameter and compare to specifications. Replace the drive clutch assembly if shaft is worn or damaged.



MEASUREMENT
Shaft Diameter: Standard: **1.374” (34.89 mm)** Service Limit: **1.372” (34.86 mm)**

5. Visually inspect Vespel® thrust washers for damage. Measure the thickness and compare to specification. Replace if worn or damaged.

MEASUREMENT
Vespel® Washer Thickness Standard: **0.030” (0.76 mm)** Service Limit: **0.025” (0.64 mm)**

MOVEABLE SHEAVE BUSHING INSPECTION

Inspect the Teflon® coating (arrow) on the moveable sheave bushing. Inspect both sheaves for signs of wear, grooving or cracking. De-glaze sheave surfaces with a 3M Scotch-Brite™ Pad if needed.

Moveable Sheave Bushing Inspection:Replace the cover bushing if more brass than Teflon® is visible on the bushing. Refer to **“Bushing Service”, page 5.22** procedure.



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BUSHING SERVICE

NOTE
Special Tools Required

Clutch Bushing Tool Kit - 2201379

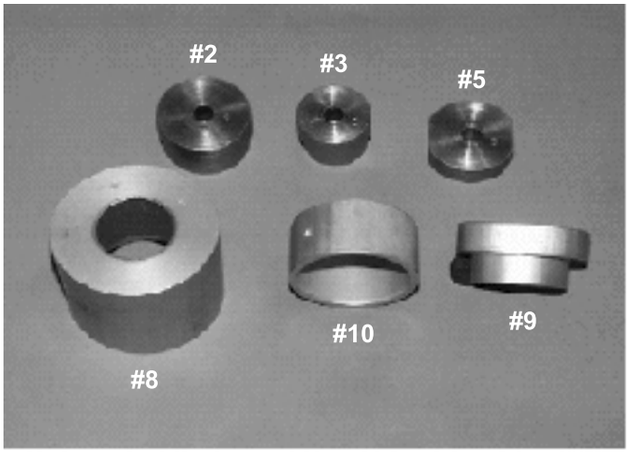
ITEM	QTY.	PART DESCRIPTION	PART #
A, B	1	EBS Puller Tool	**5132027**
C	1	EBS Puller Nut	**5132501**
D	1	EBS Main Adapter	**5132029**
E	1	EBS Bushing Removal Tool Instructions	**5132028**
–	1	Instructions	**9915111**

Additional Special Tools

QTY.	PART DESCRIPTION	PART #
1	Clutch Bushing Replacement Tool Kit	**2871226**
1	Piston Pin Puller	**2870386**

***Clutch Bushing Replacement Tool Kit (2871226)**

ITEM	QTY.	PART DESCRIPTION	PART #
#2	1	P-90 Drive/Driven Clutch Bushing Install Tool	**5020628**
#3	1	Drive Clutch Cover Bushing Removal /Installation Tool (all clutches)	**5020629**
#5	1	P-90 Driven Clutch Cover Bushing Removal Tool	**5020631**
#8	1	Main Puller Adapter	**5020632**
#9	1	Adapter Reducer	**5010279**
#10	1	Number Two Puller Adapter	**5020633**



NOTE
Bushings are installed at the factory using Loctite®. In order to remove bushings it will be necessary to apply heat evenly to the area around each bushing. Clean all residual Loctite® from bushing bore prior to installing new bushing.

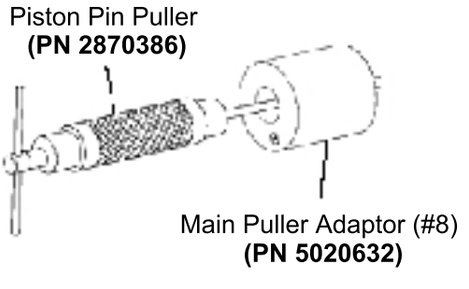
CAUTION
Clutch components will be hot! In order to avoid serious burns, wear insulated gloves during the removal process.

Moveable Sheave - Bushing Removal

1. Remove clutch as outlined previously in this chapter.
2. Install handle end of the Piston Pin Puller (**2870386**) securely into bench vise and lightly grease puller threads.

Piston Pin Puller (**2870386**)

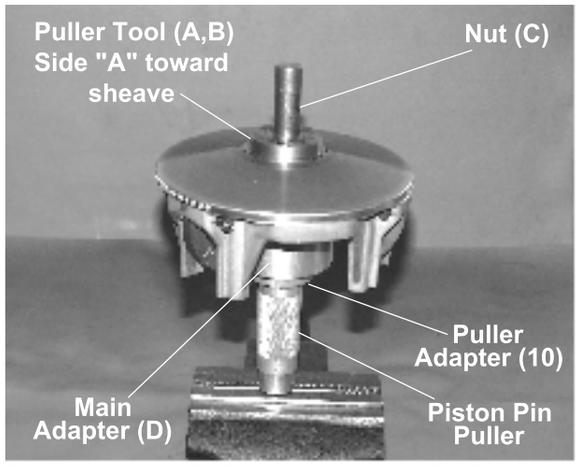
3. Remove nut from puller rod and set aside.



4. Install puller adapter (Item 10 from kit **2871226**).

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5. Install main adapter (Item D) onto puller.



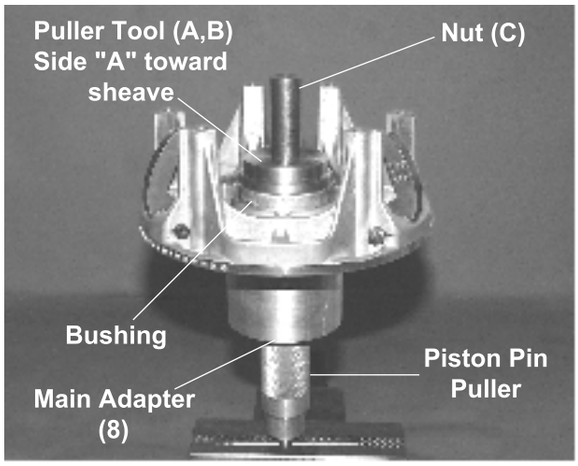
6. With towers pointing toward the vise, slide sheave onto puller rod.
7. Install removal tool (Item A, B) into center of sheave with “A side" toward sheave.

NOTE
Use Bushing Tool **PA-47336**.

8. Install nut (C) onto end of puller rod and hand tighten. Turn puller barrel to increase tension on sheave if needed. Using a hand held propane torch, apply heat around outside of bushing until tiny smoke tailings appear.
9. Turn sheave counterclockwise on puller rod until it comes free. Lift sheave off puller.
10. Remove nut from puller rod and set aside.
11. Pull bushing removal tool and adapter from puller rod. Remove bushing from tool and discard.

Drive Clutch Bushing Installation

12. Place main adapter (Item 8) on puller.

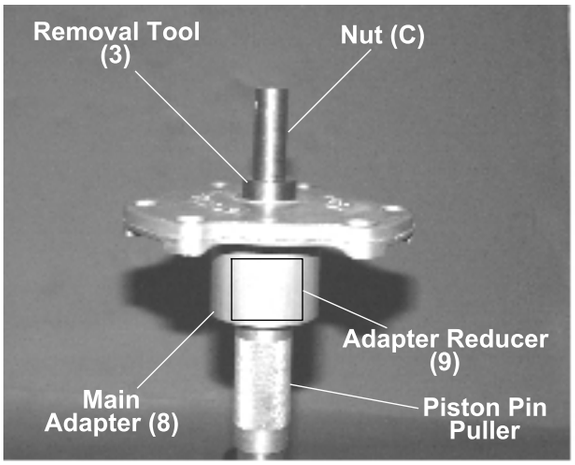


13. Apply Loctite® 648 evenly to bushing bore inside moveable sheave.
14. Set bushing in place on sheave.
15. Insert installation puller tool (Item A/B) with “A” side down, into center of bushing.
16. With towers pointing upward, slide sheave, bushing and tool onto puller rod.
17. Install nut on puller rod and hand tighten. Turn barrel to apply additional tension if needed.
18. Turn sheave counterclockwise, making sure bushing is drawn straight into bore. Continue until bushing is seated.
19. Remove nut from puller rod and set aside.
20. Remove sheave from puller.
21. Remove installation tool.

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Cover Bushing Removal

22. Install main adapter (Item 8) on puller.



23. Install adapter reducer (Item 9).
24. From outside of clutch cover, insert removal tool (Item 3) into cover bushing.
25. With inside of cover toward vise, slide cover onto puller.
26. Install nut onto puller rod and hand tighten. Turn puller barrel to increase tension as needed.
27. Turn clutch cover counterclockwise on puller rod until bushing is removed and cover comes free.
28. Remove nut from puller rod and set aside.
29. Remove bushing and bushing removal tool from puller. Discard bushing.

Cover Bushing Installation

30. Apply Loctite® 648 evenly to bushing bore in cover.
31. Working from inside of cover, insert new bushing and bushing installation tool into center of clutch cover.
32. With main adapter on puller, insert cover onto puller rod, placing outside of cover toward vise.
33. Install nut on rod and hand tighten. Turn puller barrel to apply more tension if needed.
34. Turn clutch cover counterclockwise on puller rod until bushing is seated.
35. Remove nut from puller rod. Take installation tool and clutch cover off rod.

CLUTCH ASSEMBLY

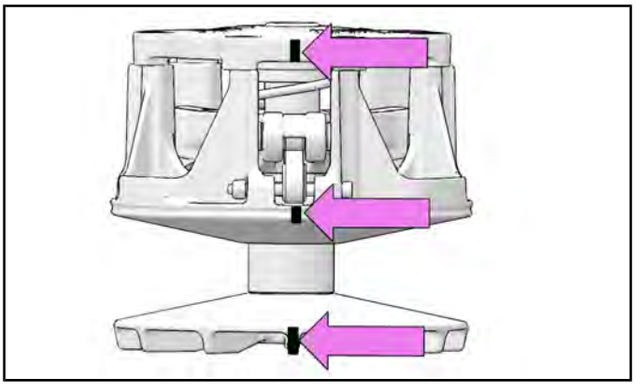
NOTE

The Teflon® bushings are self-lubricating.

CAUTION

Do not apply oil or grease to the bushings.

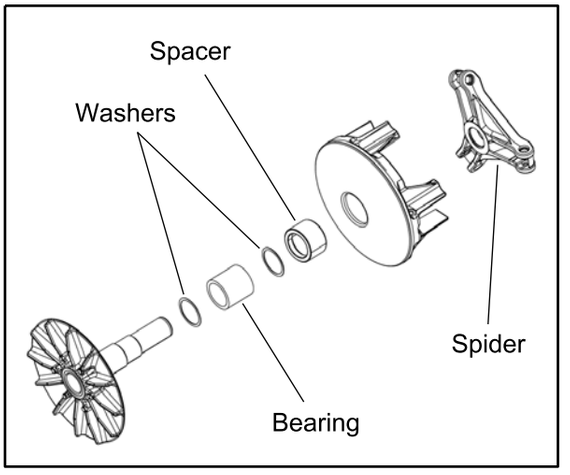
Reassemble the drive clutch in the following sequence. Be sure the “X”, or the marks that were made earlier are aligned during each phase of assembly.



1. Install the fiber washers and bearing over the clutch shaft. There should be one fiber washer on each side of the bearing.
2. Install the moveable sheave and spacer onto the clutch shaft.

NOTE

To maintain proper clutch balance and belt-to-sheave clearance, be sure to reinstall the original quantity and thickness of washers/spacers beneath the spider during assembly.



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3. Compress spider buttons for each tower and install spider, making sure that “X” or the marks that were made earlier on the spider, aligns with “X” or the marks that were made earlier on the moveable sheave.
4. Torque spider to specification using the holding fixture and spider tool. Torque with smooth motion to avoid damage to the stationary sheave.

TORQUE
Drive Clutch Spider: **290 lb-ft (393 Nm)** Apply 620 Loctite®

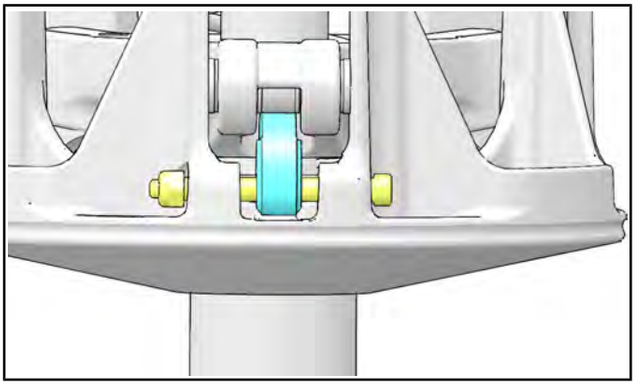
5. Install the drive clutch jam nut and torque to specification.

TORQUE
Drive Clutch Jam Nut: **250 lb-ft (339 Nm)**

6. After the spider has been torqued, remove the clutch assembly from the holding fixture and inspect the shaft and sheave alignment marks made during disassembly.

NOTE
If the marks are no longer in alignment, the clutch will not be in balance and the drive clutch assembly must be replaced.

7. Install shift weights using NEW lock nuts on the bolts.



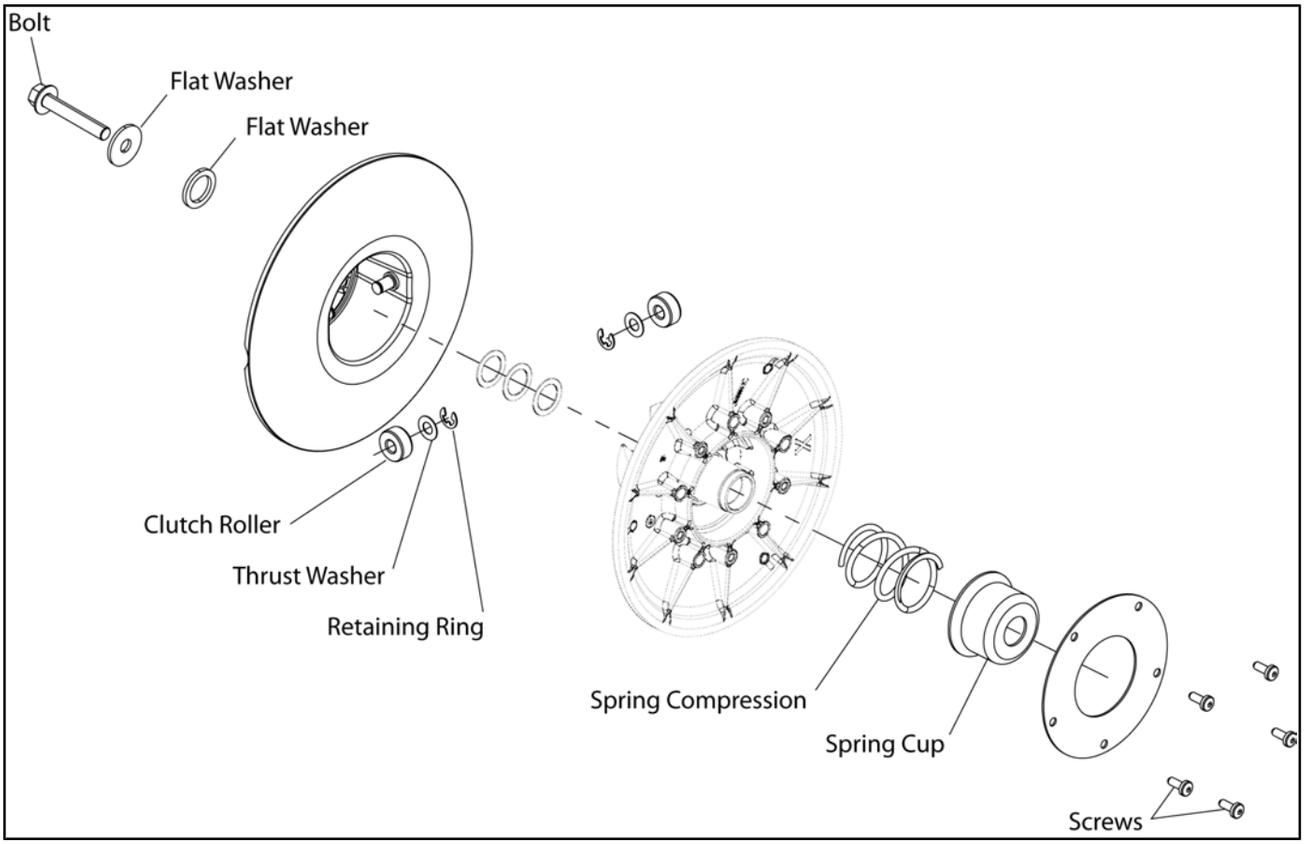
8. Reinstall clutch spring.
9. Reinstall cover, making sure that “X” or the marks that were made earlier the on spider, aligns with “X” or the marks that were made earlier on the cover.
10. Torque cover bolts evenly to specification.

TORQUE
Drive Clutch Cover Bolts: **9 lb-ft (12 Nm)**

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DRIVEN CLUTCH SERVICE (NON-EBS)

EXPLODED VIEW (NON-EBS)



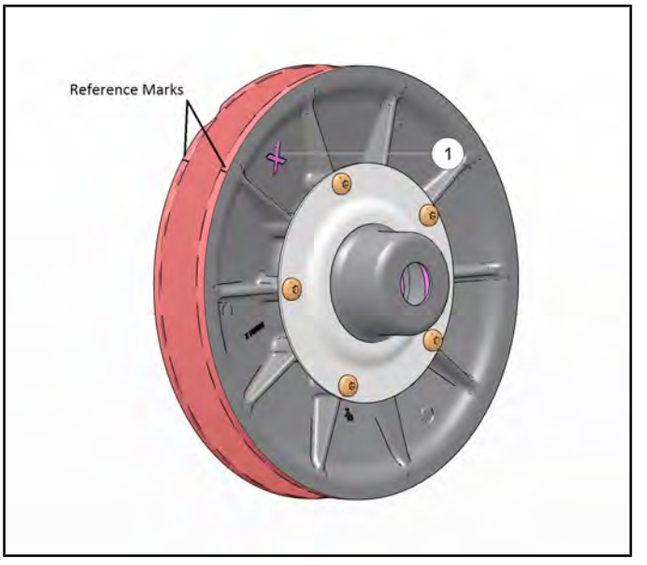
CLUTCH DISASSEMBLY / INSPECTION (NON-EBS)

CAUTION

CAUTION: Wear eye protection when removing compression spring to prevent serious personal injury.

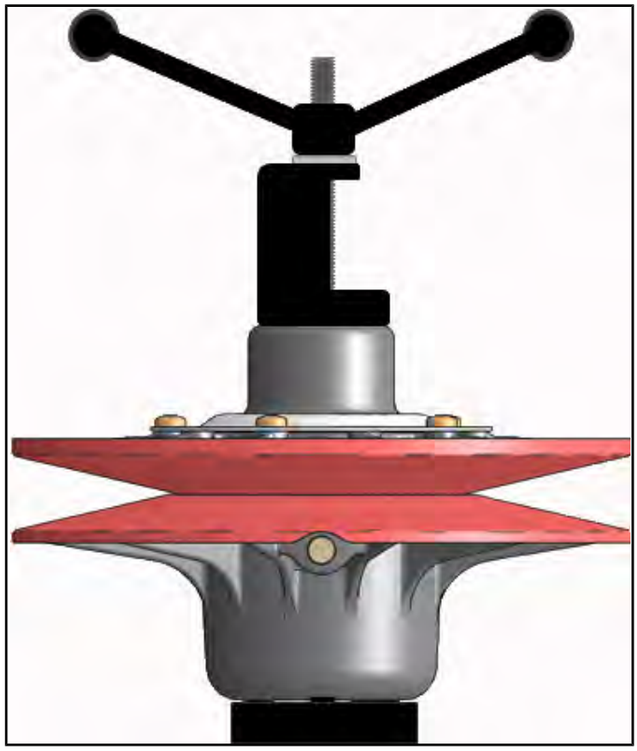
1. Remove driven clutch from transmission input shaft.

2. Mark the position of the clutch sheaves before disassembly or use the X's on the sheaves for reference. This aids in reassembly and maintains clutch balance after reassembly.



3. Place the driven clutch into the Universal Clutch Compressor **PU-50518**. Spin the compressor tool handle down to apply downward pressure on the spring cup (C).

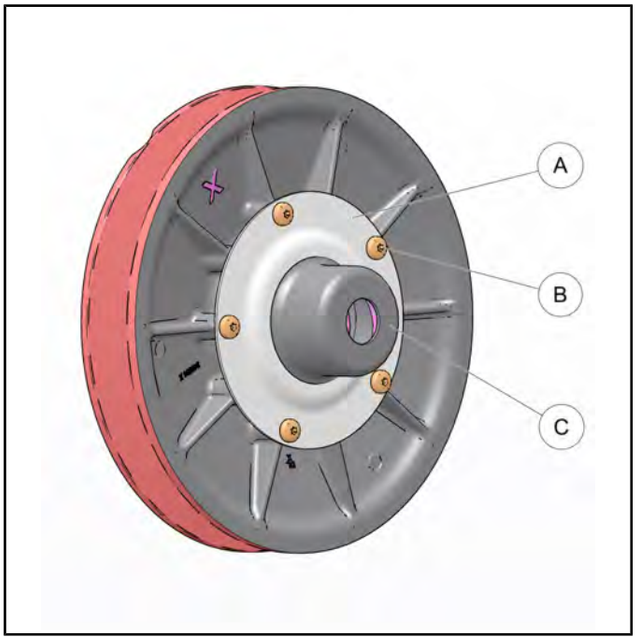
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4. Carefully remove the spring cup retainer plate fasteners (B) with a T30 Torx driver. Remove the compressor tool from the clutch assembly.

CAUTION

The spring cup (C) and spring retainer plate (A) are under spring pressure.



NOTE

Spring is compression only and has no torsional wind.

5. Turn the compressor tool handle counter-clockwise to relieve spring pressure from the spring retainer plate and spring cup.

6. Remove the compressor tool from the clutch.

7. Remove the cover plate (A), spring cup (C) and spring from the inner clutch sheave.

8. Check the rollers in the stationary sheave for wear. If rollers are worn, a new driven clutch assembly may be needed.

9. Inspect the bearings inside the moveable sheave.

10. Inspect driven clutch sheave faces for wear or damage.

11. Clean and inspect splines on helix and transmission input shaft.

12. Lube splines with a light film of grease. **Do not lubricate the bearings!**

CLUTCH ASSEMBLY (NON-EBS)

1. Align the reference or “X” marks on each of the sheaves during reassembly.

2. Assemble the clutch sheaves.

3. Position the spring, spring cup and retaining plate into moveable sheave. Do not apply oil or grease to the bearings.

4. Place the clutch into the universal clutch compressor. Apply and hold downward pressure on the spring cup. Torque the retaining ring bolts to specification

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Torque

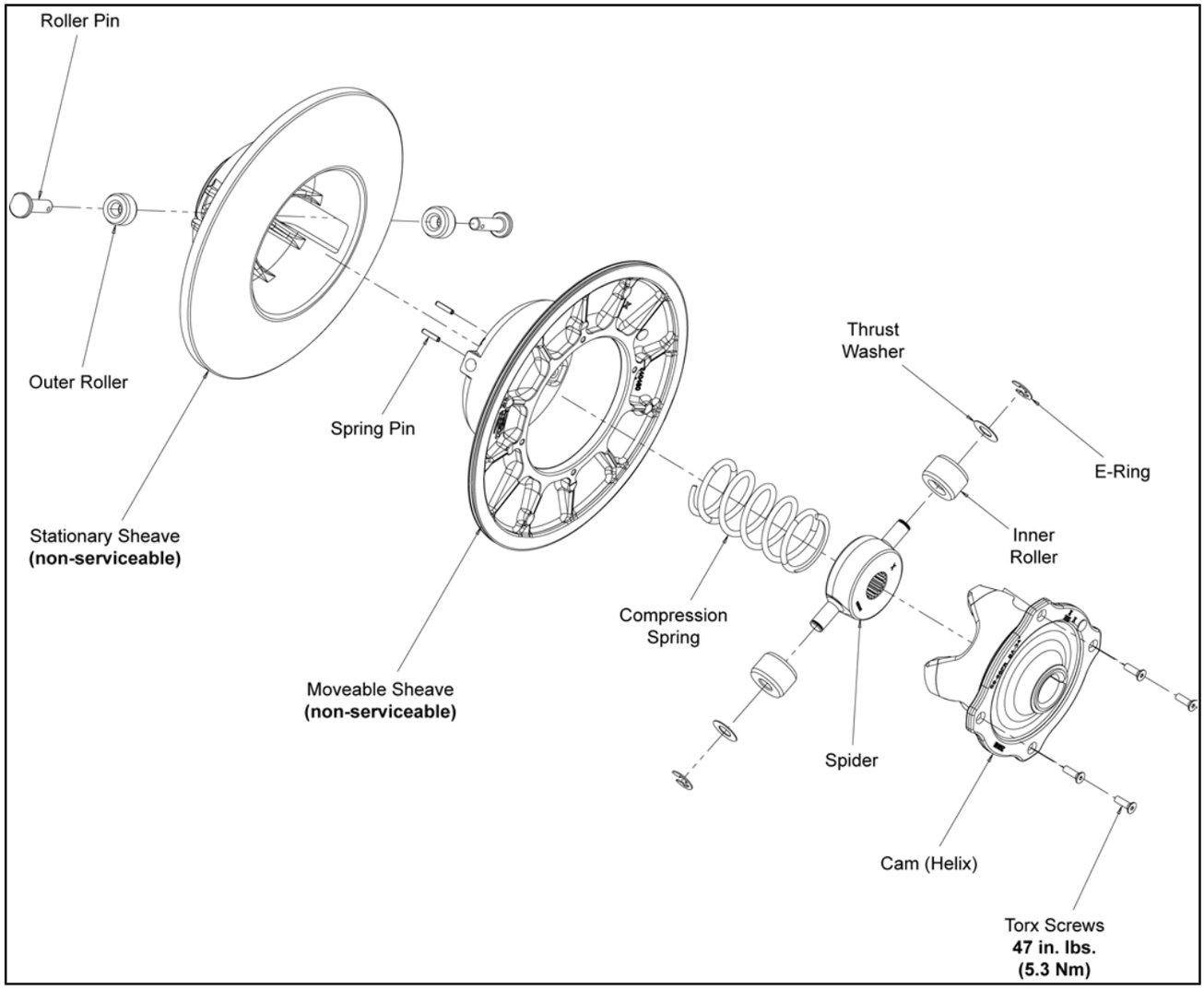
TORQUE
Driven Clutch Retaining Ring Bolts: **9–12 lb-ft (12–16 Nm)**

5. Install driven clutch assembly and drive belt.

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DRIVEN CLUTCH SERVICE (EBS)

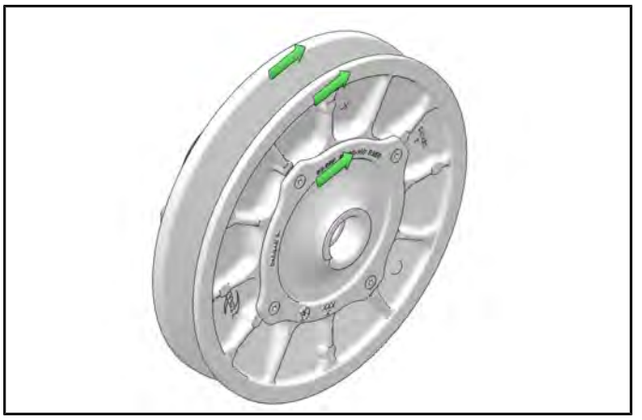
DRIVEN CLUTCH EXPLODED VIEW (EBS)



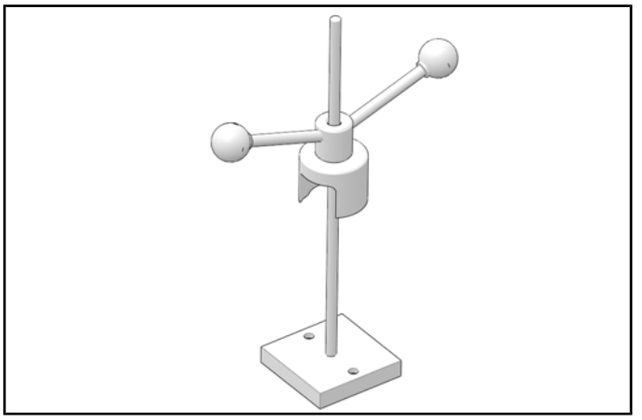
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DRIVEN CLUTCH DISASSEMBLY

1. Remove driven clutch from the transmission input shaft.
2. It is important to mark the position of the helix cover, sheaves and spider with a tape or grease marker (as shown) before disassembly. Some components will have X's on the components for alignment reference. This helps with clutch assembly and maintains clutch balance.

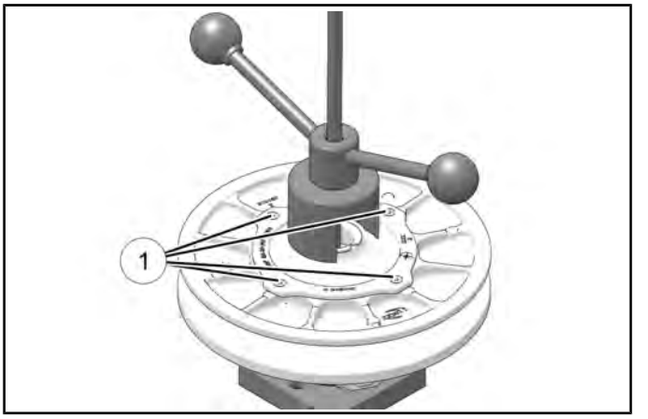


3. Place the driven clutch (helix side up) into the Universal Clutch Compressor.



Universal Clutch Compressor: **PU-50518-A**

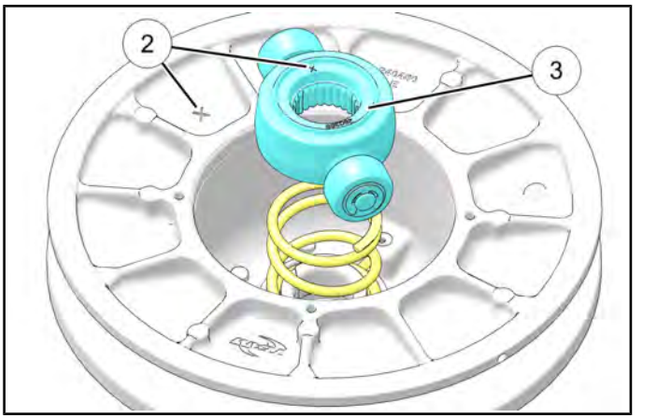
4. Spin the compressor down until it just starts to contact the helix cover. Remove the four screws ① that secure the cam (helix) assembly using a T25 Torx driver.



⚠ CAUTION

The helix cover is loaded by the spring. Not using a proper compressor may result in personal injury or damage to the clutch.

5. Remove the universal clutch compressor.
6. Note the alignment of the X's ② on the spider and moveable sheave. Remove the spider assembly ③ and spring.

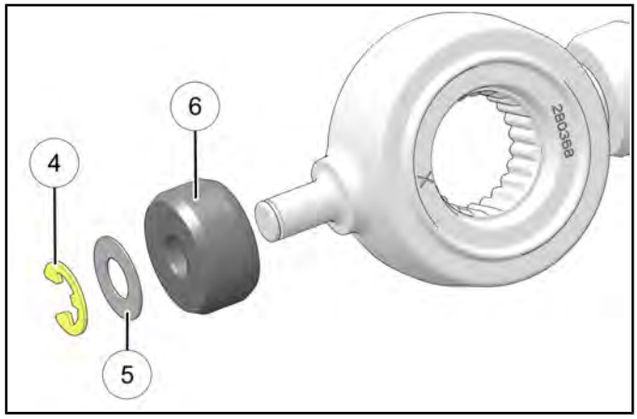


NOTE

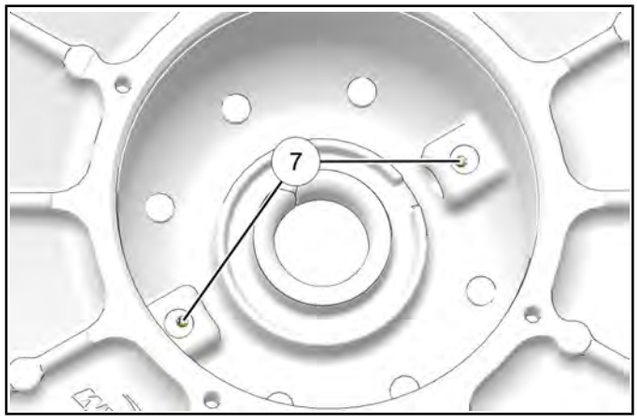
Spring is compression only and has no torsional wind.

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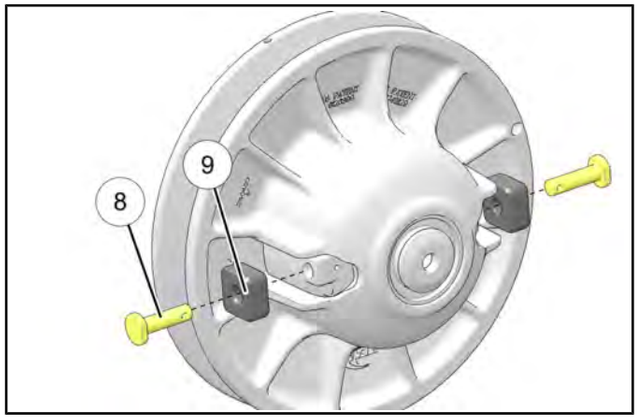
7. Remove the E-clips ④, washers ⑤, and the clutch rollers ⑥. Inspect the rollers for wear; replace if worn.



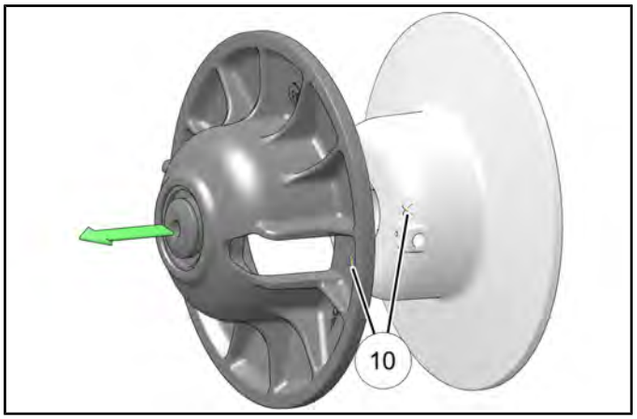
8. Press out the spring pins ⑦ in the inner sheave.



9. Pull out the clutch slider pins ⑧ and sliders ⑨.



10. Separate the stationary sheave from the moveable sheave. Note the X's ⑩ on the stationary and fixed sheaves for reassembly.



11. Inspect the clutch bushings for wear. If there is heavy wear on the bushings, replace the clutch assembly.
12. Inspect the sheaves for excessive wear or damage.

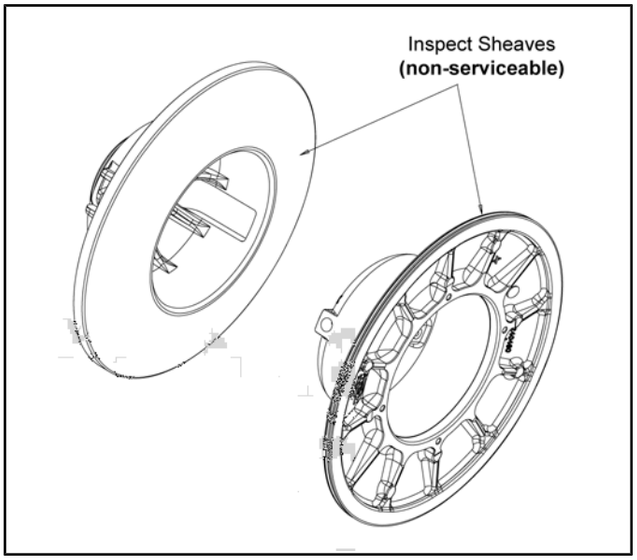
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CLUTCH INSPECTION

1. Clean the sheaves and inspect each of them for damage.

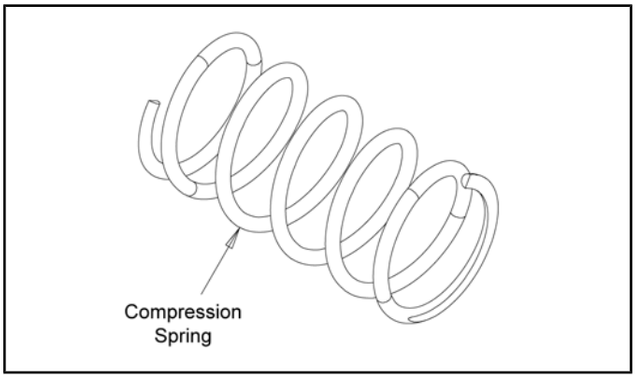
NOTE

If either clutch sheave is damaged, the entire driven clutch assembly must be replaced.

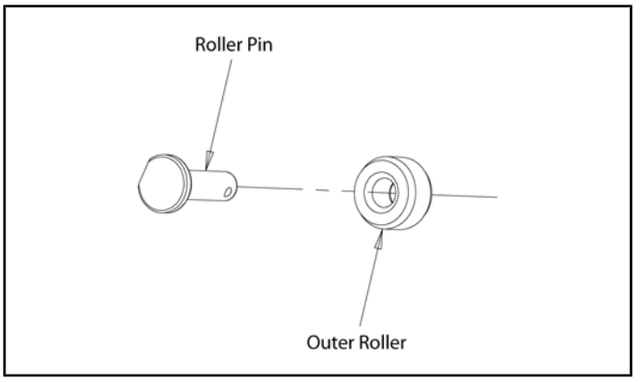


2. Inspect the compression spring for cracks or other damage.

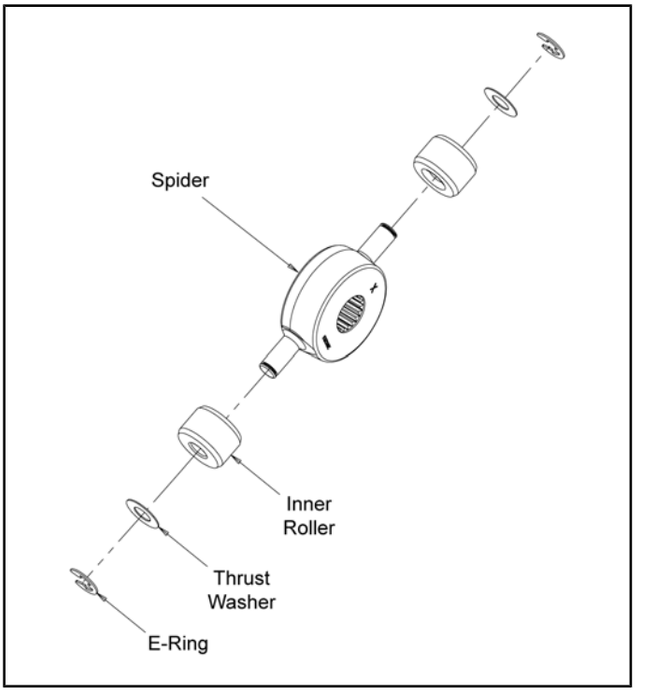
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3. If removed, inspect the outer clutch rollers and roller pins for excessive wear or damage. Replace as needed.



4. Remove the E-rings and thrust washers from each end of the spider assembly. Remove and inspect the inner clutch rollers for excessive wear or damage. Replace components as needed. Use new E-rings upon assembly.



5. Inspect the flanged bearings in the clutch sheaves and cam (helix). If bearings are damaged or have an excessive amount of wear, the entire component must be replaced.



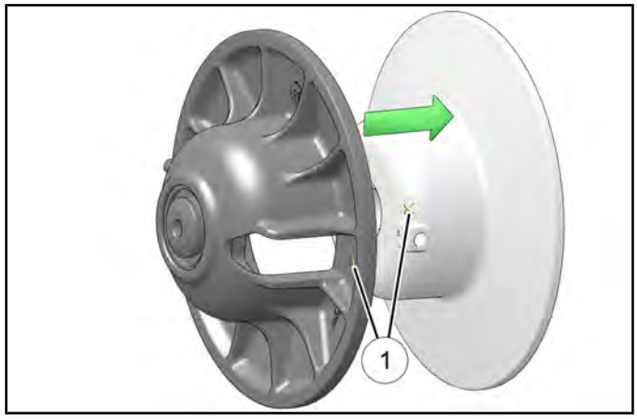
NOTE

The flanged bearings are not serviceable. If either clutch sheave bearing requires replacement, the entire driven clutch assembly must be replaced. Refer to the Polaris Electronic Parts catalog for specific parts availability.

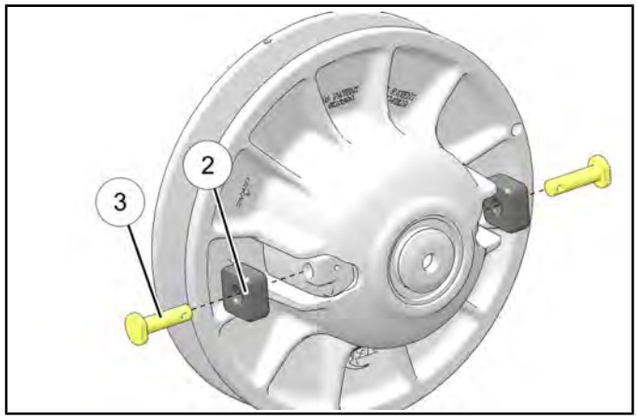
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DRIVEN CLUTCH ASSEMBLY

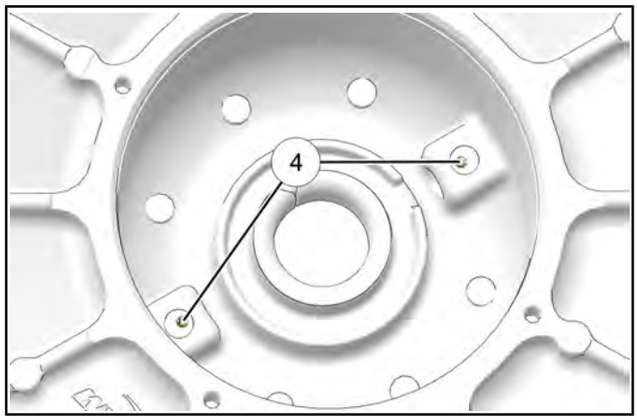
1. Align the X's ① on the moveable and stationary sheaves.



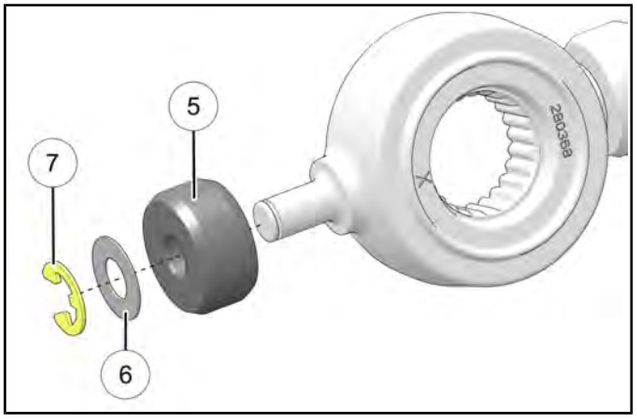
2. Install the square sliders ② and slider pins ③.



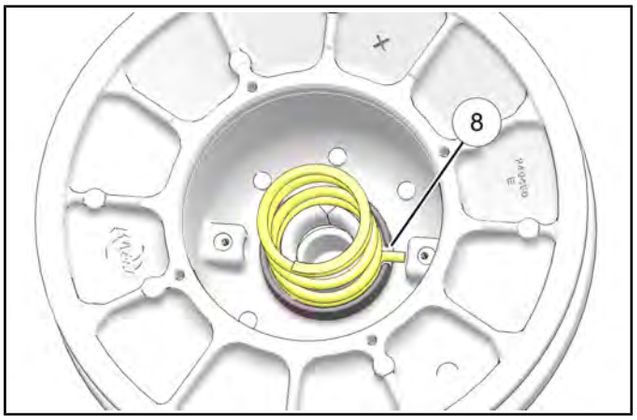
3. Install the spring pins ④ to retain the slider pins.



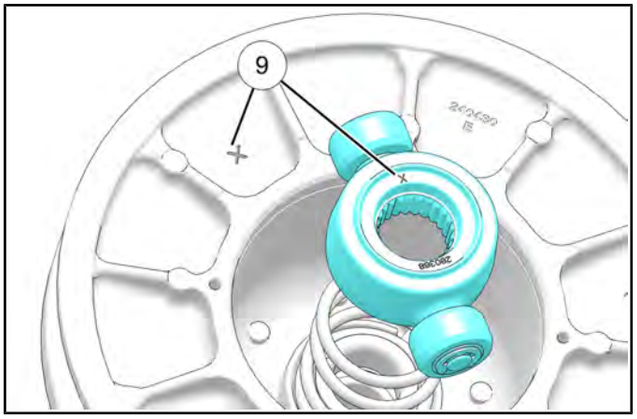
4. If removed, install the rollers ⑤, washers ⑥ and E-clips ⑦ onto the spider.



5. Install the spring so the arm ⑧ rests into the notch in the moveable sheave.



6. Align the X's ⑨ on the spider and moveable sheave.



7. Install the universal clutch compressor on the clutch and compress the helix cover.

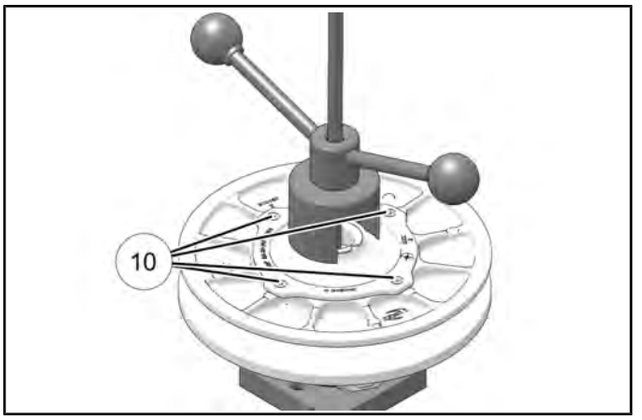
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⚠ CAUTION

The helix cover is loaded by the spring. Not using a proper compressor may result in personal injury or damage to the clutch.

8. Align the marks previously made on the helix cover and moveable sheave. Install the helix/cover and the four fasteners ⑩. Torque fasteners to specification.



TORQUE

Helix Retaining Screws:
48 in-lb (5 Nm)

9. Once back together, verify the grease / tape marks made during disassembly are properly aligned.
10. Install the drive clutch on the vehicle. See PVT Assembly, page

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TROUBLESHOOTING - PVT SYSTEM

TROUBLESHOOTING

SITUATION	PROBABLE CAUSE	REMEDY
Engine RPM below specified operating range, although engine is properly tuned.	-Wrong or broken drive clutch spring. -Drive clutch shift weight too heavy. -Driven clutch spring broken or installed in wrong helix location.	-Replace with recommended spring. -Install correct shift weight kit to match engine application. -Replace spring; refer to proper installation location.
Erratic engine operating RPM during acceleration or load variations.	-Drive clutch binding. -Belt worn unevenly - thin / burnt spots. -Driven clutch malfunction. -Sheave face grooved.	A. Disassemble drive clutch; inspect shift weights for wear and free operation. B. Clean and polish stationary shaft hub; reassemble clutch without spring to determine problem area. Replace belt. A. Replace ramp buttons. B. Inspect movable sheave for excessive bushing clearance. -Replace the clutch.
Engine RPM above specified operating range.	-Incorrect drive clutch spring (too high of rate). -Drive clutch shift weights incorrect for application (too light). -Drive clutch binding. -Driven clutch binding. -Converter sheaves greasy; belt slipage.	-Install correct recommended spring. -Install correct recommended shift weights. -Disassemble and clean clutch, inspecting shift weights and rollers. Reassemble without the spring and move sheaves through entire range to further determine probable cause. -Disassemble, clean, and inspect driven clutch, noting worn sheave bushing and ramp buttons and helix spring location. -Clean sheaves with denatured alcohol or brake cleaner, install new belt.
Harsh drive clutch engagement.	-Drive belt worn too narrow. -Excessive belt / sheave clearance with new belt.	-Replace belt. -Perform belt / sheave clearance adjustment with shim washers beneath spider.
Drive belt turns over	-Wrong belt for application.	-Replace with correct belt.
Belt burnt, thin spots	-Abuse (continued throttle application when vehicle is stationary, excess load) -Dragging brake -Slow, easy clutch engagement	-Caution operator to operate machine within guidelines. -Inspect brake system. -Fast, effective use of throttle for efficient engagement.

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SITUATION	PROBABLE CAUSE	REMEDY
PVT cover overheating (melting)	-Plugged air intake or outlet. -Belt slippage due to water, oil, grease, etc., rubbing on cover. -Clutches or weight being applied to cover while in operation. -High vs. low range.	-Clear obstruction -Inspect system. Clean , repair or replace as necessary. Seal PVT system ducts. -Remove weight. Inform operator. -Instruct operator on guidelines for operation in proper driving range for different terrain as outlined in Owner's Safety and Maintenance Manual.
Water ingestion	-Cover seals or ducts leaking -Operator error	-Find leak and repair as necessary. -Instruct operator on guidelines for operation in wet terrain as outlined in Owner's Safety and Maintenance Manual.
Belt slippage	-Belt worn out -Water ingestion -Belt contaminated with oil or grease	-Replace belt. -Inspect and seal PVT system. -Inspect and clean.
PVT noise	-Belt worn or separated, thin spots, loose belt -Broken or worn clutch components, cover hitting clutches	-Replace belt. -Inspect and repair as necessary.
Engagement erratic or stabby	-Thin spots on belt, worn belt -Drive clutch bushings stick	-Replace belt. Refer to belt burnt troubleshooting and instruct operator. -Inspect and repair clutches.

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CHAPTER 6
TRANSMISSION

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SERVICE NOTES - TRANSMISSION 6.2
SPECIAL TOOLS - TRANSMISSION 6.2
TORQUE SPECIFICATIONS - TRANSMISSION 6.2
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TROUBLESHOOTING - TRANSMISSION 6.35
TROUBLESHOOTING CHECKLIST 6.35

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GENERAL INFORMATION - TRANSMISSION

SERVICE NOTES - TRANSMISSION

CAUTION
Serious injury may result if machine tips or falls. Be sure machine is secure before beginning any procedure that requires machine lifting. Always wear eye protection.

The transmission has two traction operational modes: Differential Lock and Differential Unlock. Locking the rear differential is beneficial in low traction and rough terrain conditions. Unlocking the rear differential makes maneuvering easier and minimizes damage to terrain.

SPECIAL TOOLS - TRANSMISSION

TOOL DESCRIPTION	PART NUMBER
Drive Clutch Puller (570)	**PA-48595**
Drive Clutch Puller (900)	**2872085**
Clutch Center Distance Tool	**PU-50658-A**
Snorkel Tool	**PA-50231**
Rear Output Seal Driver	**2871698** (Part of 2871702 Kit)
Rear Driveshaft Seal Guide	**2871699** (Part of 2871702 Kit)

Bosch Automotive Service Solutions:
1-800-345-2233 or http://polaris.service-solutions.com

TORQUE SPECIFICATIONS - TRANSMISSION

PART DESCRIPTION	TORQUE SPECIFICATION
Engine / Transmission Mounting Bolts Step 1–2	**64 lb-ft (87 Nm)**
Engine / Transmission Mounting Bolts Step 3	**5 lb-ft (7 Nm)**
Engine / Transmission Mounting Bolts Step 4–7	**44 lb-ft (60 Nm)**
Rear Transmission Mount Bolt	**40 lb-ft (54 Nm)**
Intake Plenum Hose Clamps	**17 lb-in (2 Nm)**
Lower Intake Plenum Fastener	**22 lb-ft (30 Nm)**
Differential Cover Screws	**18–22 lb-ft (24–30 Nm)**
Bearing Cover Retaining Screws	**8–10 lb-ft (11–14 Nm)**
Snorkel Locking Screw	**8–10 lb-ft (11–14 Nm)**
Shift Fork Screws	**17 lb-ft (23 Nm)**
Transmission Case Bolts	**15–20 lb-ft (20–27 Nm)**
Sector Cover Bolts	**9–12 lb-ft (12–16 Nm)**
Transmission Fill / Drain Plug	**10-14 lb-ft (14-19 Nm)**
Bellcrank Nut	**12–18 lb-ft (16–24 Nm)**

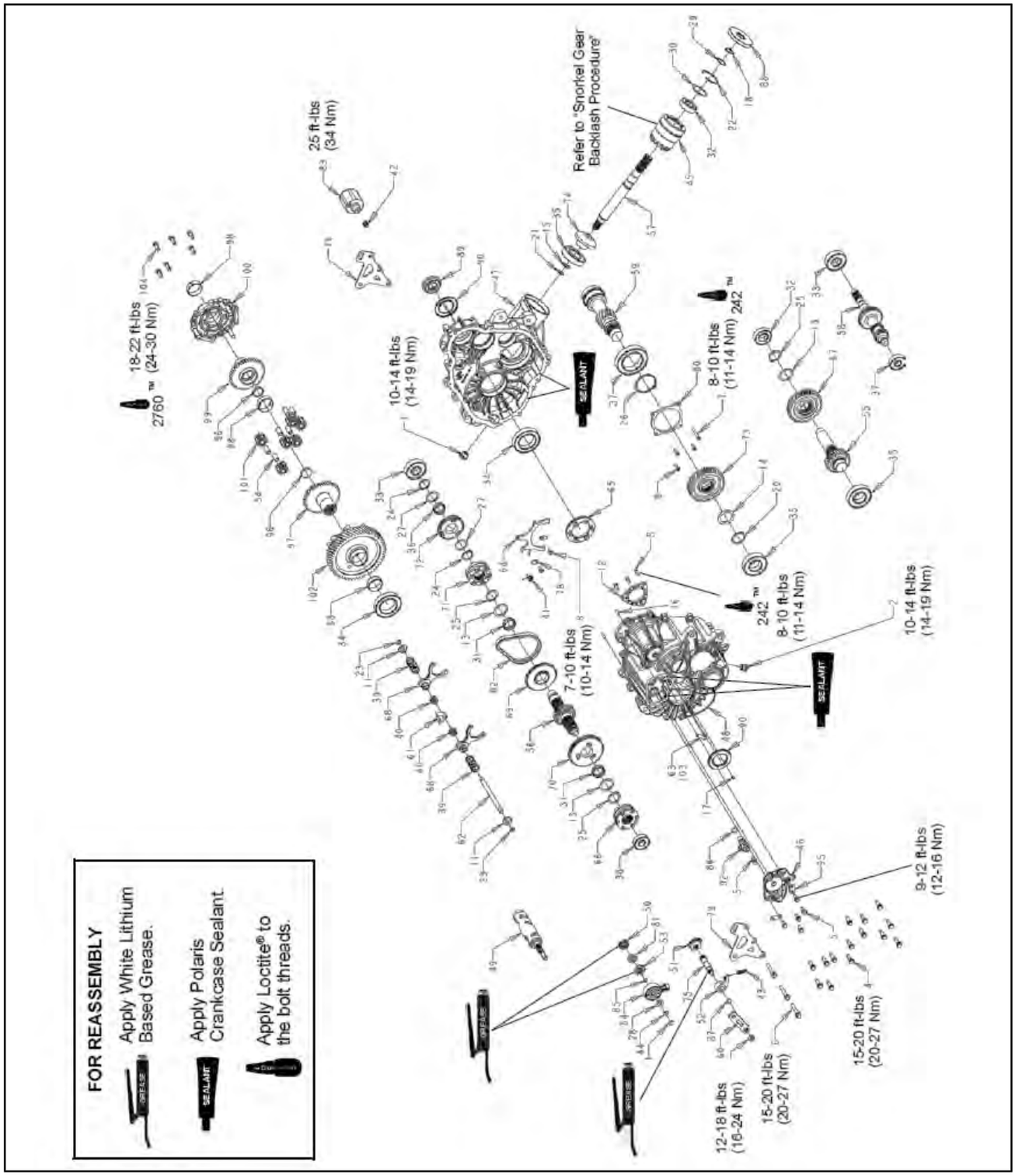
SERVICE SPECIFICATIONS - TRANSMISSION

FLUID CAPACITY
Recommended Transmission Lubricant: AGL (PN: 2878068) (Quart) **Capacity:** 41 oz. (1200 ml)

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ASSEMBLY VIEWS - TRANSMISSION

EXPLODED VIEW



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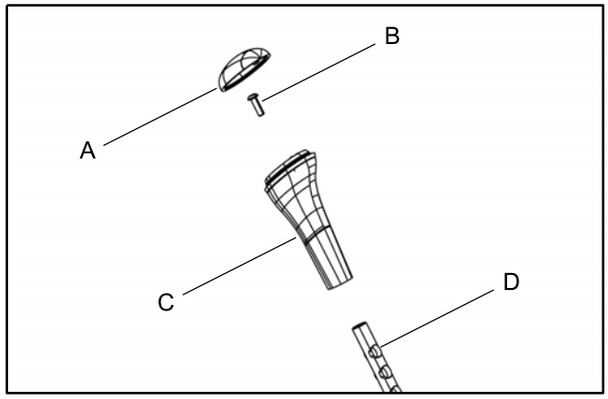
REF.	DESCRIPTION	REF.	DESCRIPTION	REF.	DESCRIPTION
1.	Fill Plug	35.	Bearing, Ball	68.	Fork, Shift
2.	Drain Plug, Magnetic	36.	Bearing, Needle Cage	69.	Sprocket, 48T, 6-Face
4.	Screw, M8 x 1.25 x 30	37.	Bearing, Ball	70.	Gear, Low 67T
5.	Screw, M6 x 1 x 20	38.	Bearing, Ball	71.	Engagement Dog, 6-Face
6.	Screw, M8 x 50	39.	Spring, Compression	72.	Gear, 49T
7.	Screw, M6 x 1 x 40	40.	Spring, Compression	73.	Gear, 46T
8.	Screw, M6 x 1 x 18	41.	Spring, Torsion	74.	Gear, Snorkel 13T
9.	Screw, M6 x 1 x 16	42.	Spring, Compression	75.	Shaft, Shift
10.	Nut, NyLoc, M8 x 1.25	43.	Spring, Compression, Detent	76.	Weldment, Rear Mount Bracket
11.	Washer, Cup	44.	Spring, Washer	78.	Retainer, Fork
12.	Plate, Park, 12-Face	45.	Tube, Snorkel	79.	Bracket, Rear Mount
13.	Washer	46.	Cover, Sector Gears	80.	Cover, Bearing, Center Drive
14.	Washer	47.	Case, LH	81.	Spacer
15.	Washer	48.	Case, RH	82.	Chain, Silent
16.	Pin, Dowel	49.	Drum, Shift	83.	Solenoid
17.	Pin, Spring	50.	Gear, Sector 16T	84.	Switch, Rotary, 2-Pin
18.	Retaining Ring, External	51.	Gear, Sector 31T	85.	O-Ring
19.	Snap Ring	52.	Pawl, Detent	86.	O-Ring
20.	Retaining Ring, External	53.	Star, Detent	87.	O-Ring
21.	Retaining Ring, External	54.	Bearing, Plain	88.	Seal, Triple Lip
22.	Retaining Ring, Internal	55.	Shaft, Idler 29T	89.	Seal, Dual Lip
23.	Retaining Ring, External	56.	Shaft, Reverse 27T	90.	Seal, Triple Lip
24.	Retaining Ring, External	57.	Shaft, Front Output	92.	Sensor, Speed
25.	Retaining Ring, External	58.	Shaft, Input Helical	95.	Bracket, Wire Harness
26.	Retaining Ring, External	59.	Shaft, Pinion, 11T	96.	Plug, Expansion
27.	Washer, Thrust	60.	Bellcrank	97.	Side Gear, Male, 39T
28.	Washer, Thrust	61.	Collar, Shift	98.	Bearing, Plain
29.	Shim	62.	Rail, Shift Shaft	99.	Side Gear, Female, 39T
30.	Shim	63.	Tube, Vent, 1/4 in.	100.	Diff Cover
31.	Bearing, Needle Cage	64.	Fork, Pivot Shaft	101.	Planet Gear
32.	Bearing, Ball	65.	Dog, Engagement	102.	Ring Gear, 53T
33.	Bearing, Ball	66.	Shift Dog, Park	104.	Screw, M8 x 1.25 x 25
34.	Bearing, Ball	67.	Gear, 46T		

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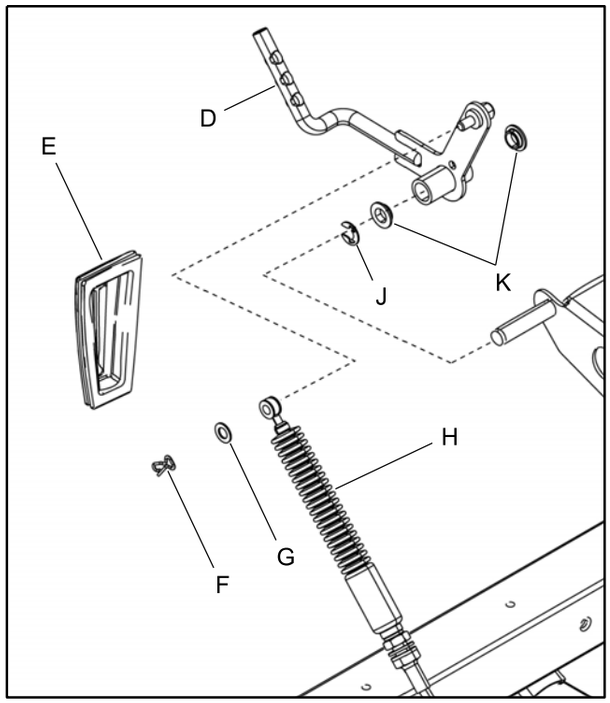
SHIFT CABLE SERVICE

SHIFT LEVER REMOVAL / INSTALLATION

1. Remove the shift knob cover (A), retaining screw (B) and shift knob (C) from the shift lever (D).



2. Remove the four push rivets retaining the upper dash panel and remove the panel to access the shift lever.
3. Remove the rubber grommet (E) from the dash and shift lever (D).



4. Remove clip (F) and washer (G) retaining the shift cable (H) to the shift lever (D). Disconnect cable end from the lever.
5. Remove the retaining ring (J) and slide the shift lever (D) off the mounting bracket and out from the frame.
6. Remove both bushings (K) from the shift lever and service as needed.
7. Perform the previous steps in reverse order to reinstall the shift lever (lever, cable, dash panel, shift knob).

SHIFT CABLE INSPECTION

Shift cable adjustment may be necessary if symptoms include:

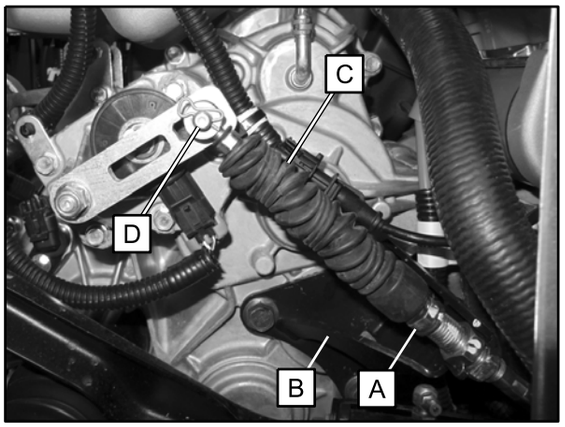
- No gear position or AWD display on instrument cluster
- Ratcheting noise on deceleration
- Inability to engage into a gear
- Excessive gear lash (noise)
- Gear selector moving out of desired range

Inspect shift cable, clevis pins, and pivot bushings and replace if worn or damaged.

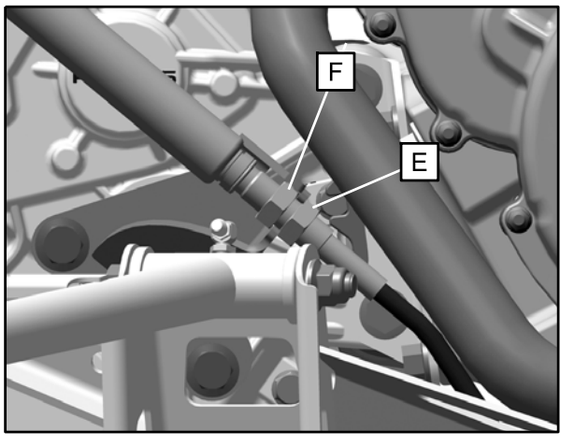
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SHIFT CABLE ADJUSTMENT

1. Locate the shift cable (A) attached to the mount bracket (B) and transmission in the right rear wheel well area.
2. Inspect shift cable (A), dust boot (C) and the clevis pin and pivot bushings (D). Replace if worn or damaged.



3. If adjustment is required, loosen the lower jam nut (E) and pull the cable out of the mount bracket to move the upper jam nut (F).



4. Adjust the shift cable so there is the same amount of cable travel when shifting slightly past HIGH gear and PARK.
5. Thread the upper or lower jam nut as required to obtain proper cable adjustment.

NOTE

This procedure may require a few attempts to obtain the proper adjustment.

6. Once the proper adjustment is obtained, place the shift cable and upper jam nut into the mount. Tighten the lower jam nut (E) against the mount.
7. Start engine and shift through all gears to ensure the shift cable is properly adjusted. If transmission still ratchets after cable adjustment, the transmission will require service.

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TRANSMISSION SERVICE

TRANSMISSION REMOVAL

CAUTION

Serious injury may result if machine tips or falls. Be sure machine is secure before beginning this procedure. Always wear eye protection.

1. Disconnect the (-) negative battery cable from the battery.
2. Remove the rear cargo box from the vehicle. Refer to **"Cargo Box Removal", page 10.33** procedure.
3. Raise and support the vehicle.
4. Remove the front propshaft. Refer to **"Front Propshaft Removal / Installation", page 7.8** procedure.
5. Remove both rear drive shafts from the transmission. Refer to **"Rear Drive Shaft Removal", page 7.36** procedure..
6. Remove the outer clutch cover, drive and driven clutch and inner clutch cover. Refer to **"PVT Disassembly", page 5.10** procedure.

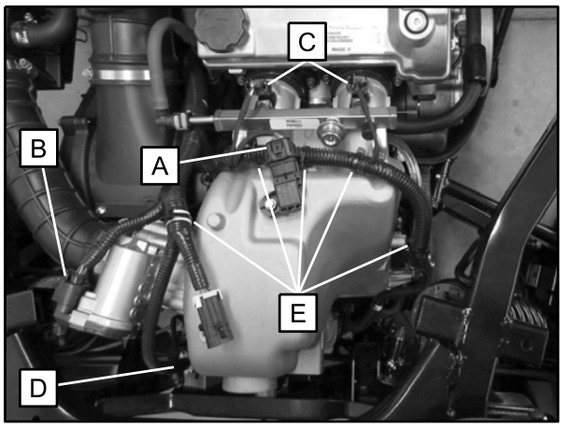
NOTE

Be sure to use the correct Drive Clutch Puller (570: **PA-48595**, 900/1000: **2872085**) to prevent damage to crankshaft.

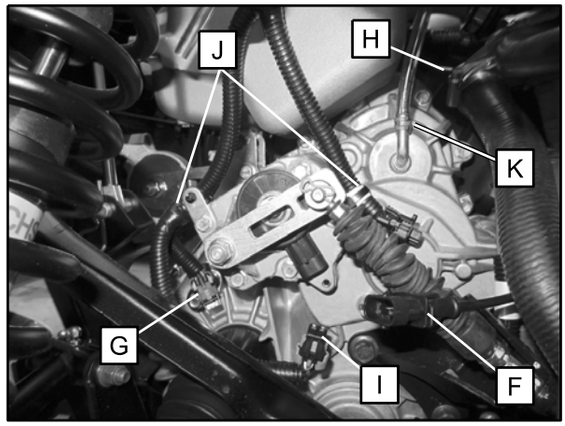
CAUTION

Correct Drive Clutch Puller P/N (570): PA-48595
Correct Drive Clutch Puller P/N (900/1000): 2872085

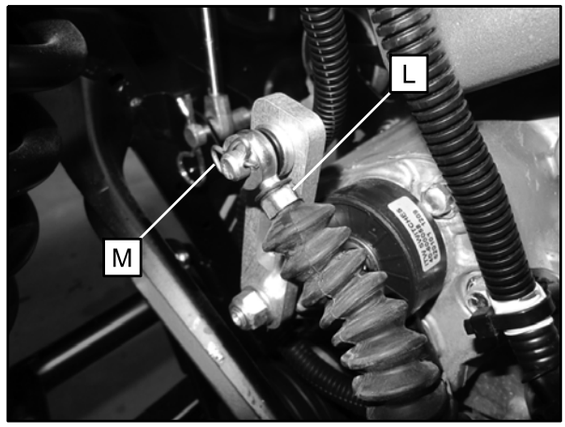
7. Disconnect the harness from the T-MAP sensor (A), ETC (B), fuel injectors (C), rear differential relay and solenoid (D). Remove the five plastic tie straps (E) retaining the harness to the intake plenum.



8. Disconnect CPS (F), vehicle speed sensor (G), ECT sensor (H) and transmission switch (I). Remove the tie straps (J) retaining the harness to the transmission.



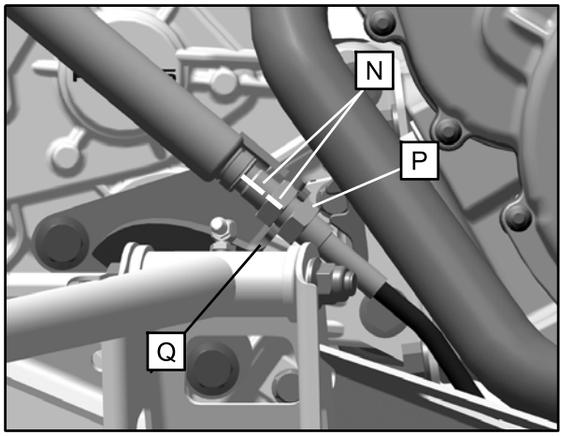
9. Remove the vent line (K) from the transmission fitting.
10. Disconnect the transmission shift cable (L) by removing the clip (M) and sliding the washer and shift cable off the bellcrank.



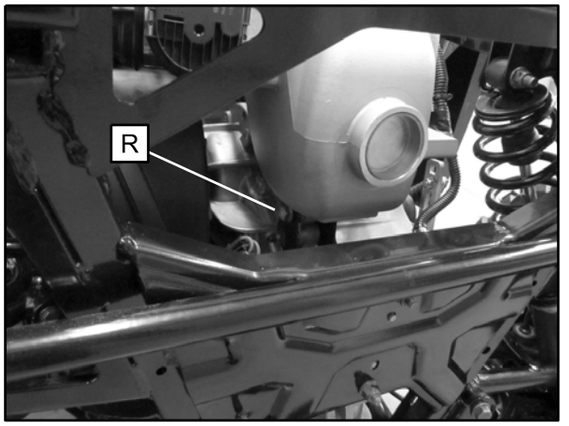
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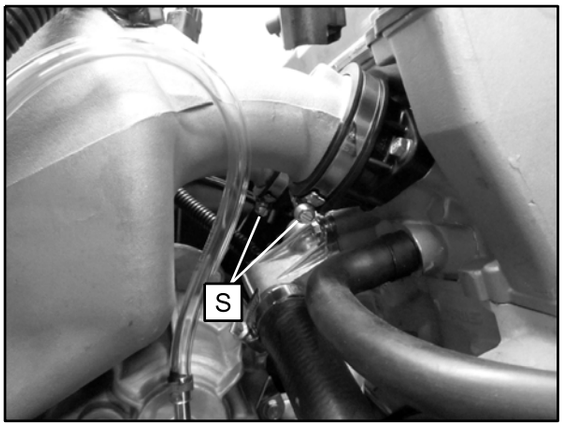
11. Mark the location of the upper shift cable jam nut (N). Loosen the lower jam nut (P) and remove the shift cable assembly from the bracket (Q).



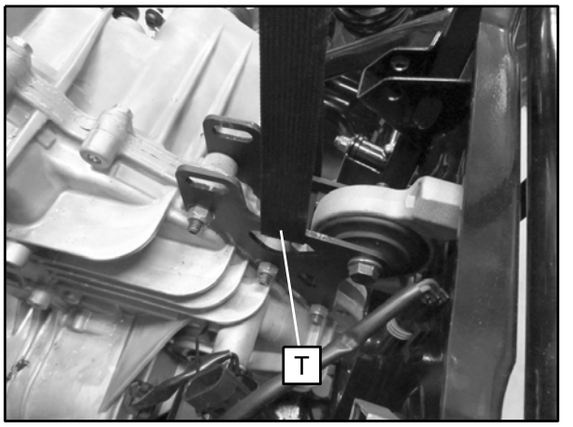
12. Relieve pressure from the fuel rail. Disconnect the fuel line at the fuel rail wrap the ends with a clean rag to assure no dirt gets in the fuel system.
13. Using a 13mm socket and wrench, remove the fastener (R) securing the bottom of the intake plenum to the rear transmission mount.



14. Using a long screwdriver, loosen both hose clamps (S) that retain the intake plenum runners to the cylinder head intake adapters. Remove the intake plenum and electronic throttle control as an assembly.



15. Use an overhead or portable hoist to support the transmission by securing a strap (T) through the rear mount.

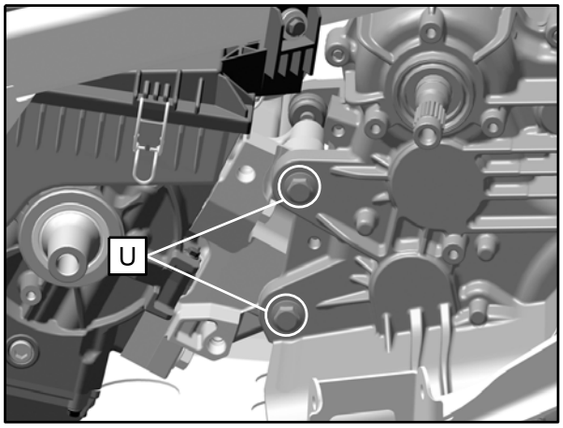


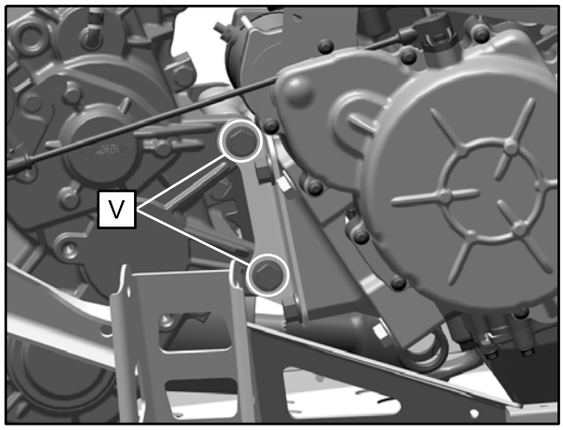
NOTE

Place a spacer or support between the vehicle frame and engine to hold the engine up in position while removing the transmission to engine mounting bolts.

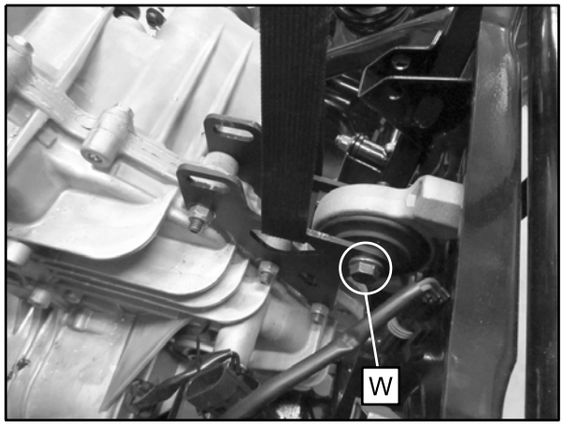
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16. Using a 15 mm socket, remove the four bolts from the left side (U) and right side (V), securing the transmission to the engine.





17. Remove the rear transmission mount bolt (W).



18. With the help of an assistant and a hoist, raise the transmission vertically out of the vehicle frame.

NOTE

Have an assistant help guide the transmission in and out of the vehicle while using a hoist to prevent personal injury or damage to vehicle components.

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TRANSMISSION INSTALLATION

CAUTION

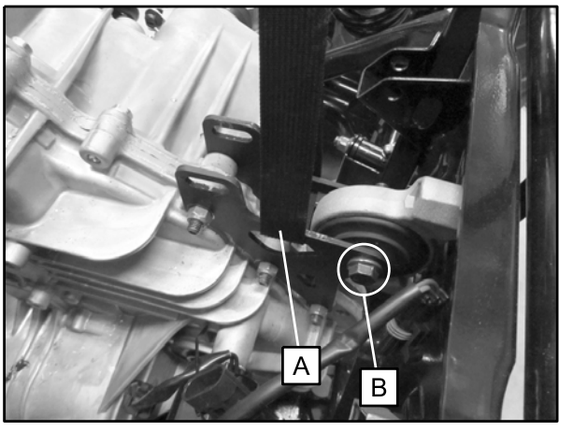
Serious injury may result if machine tips or falls. Be sure machine is secure before beginning this procedure. Always wear eye protection.

1. Use an overhead or portable hoist and suitable straps to lower the transmission into the vehicle frame.

NOTE

Have an assistant help guide the engine in and out of the vehicle while using an engine hoist to prevent personal injury or damage to vehicle components.

2. Use the overhead or portable hoist to support the transmission by securing a strap (A) through the rear mount.



NOTE

Place a spacer or support between the vehicle frame and engine to hold the engine up in position while installing the transmission to engine mounting bolts.

3. Align both the front and rear transmission mounting locations. Install the rear transmission mount bolt (B) and hand tighten.

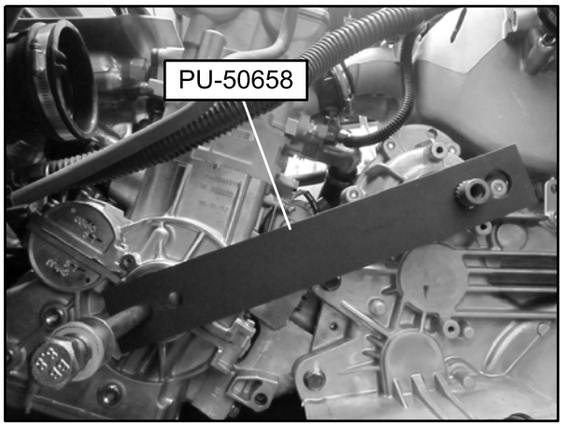
NOTE

DO NOT torque fastener at this time.

4. Align the front transmission mounting holes with the transmission joint bracket mounting holes.

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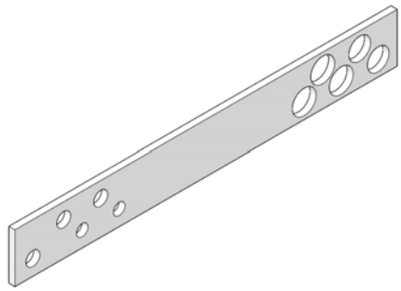
5. Install the Clutch Center Distance Tool (**PU-50658-A**) onto the crankshaft and transmission input shaft using hole pattern 3 (570) or hole pattern 4 (900/1000) to properly position the clutch center distance. (900 Shown)



PU-50658–A

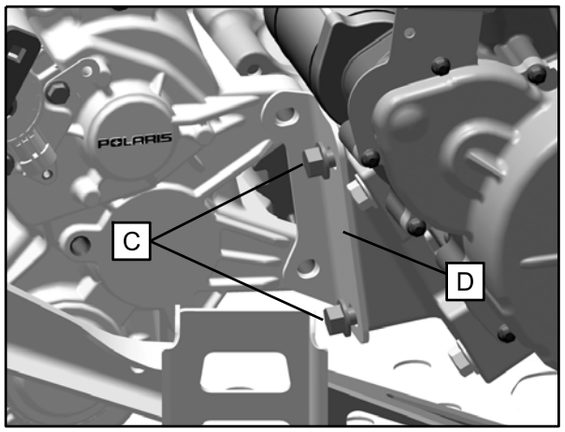
HOLE	YEAR	VEHICLE DESCRIPTION
1	2012	*RZR* 570
2	2011-14	*RZR* 900
	2014-15	*RZR* XP 1000
	2013	*RANGER* 900
3	2014-16	ACE
	2015-17	ACE 570
	2015-16	*RGR* ETX
	2013–17	*RZR* 570
	2014–17	*RANGER* 500/570
	2015-17	*RANGER* 570 Full-Size
4	2014-17	*RANGER* 900/1000
	2015-17	*RZR* 900
	2017	*RZR* 1000
	2017	ACE 900

HOLE	YEAR	VEHICLE DESCRIPTION
5	2015-17	*RANGER* Diesel



i.e. 2015 *RZR* 900 uses the holes marked with a 4

6. Install the two bolts (C) retaining the transmission coupler bracket (D) to the engine on the right side.

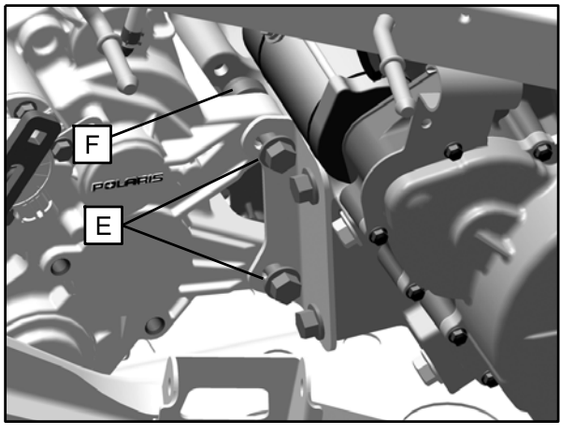


NOTE

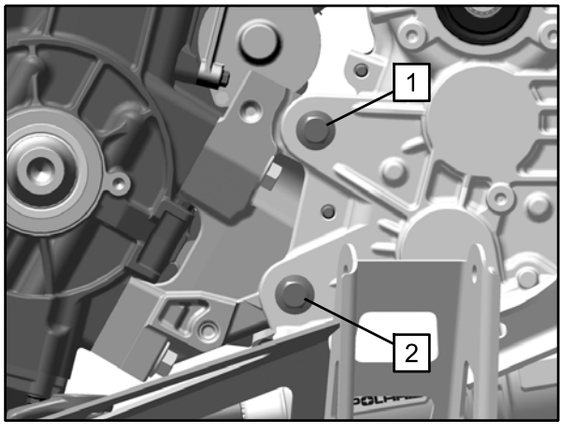
DO NOT torque fasteners at this time.

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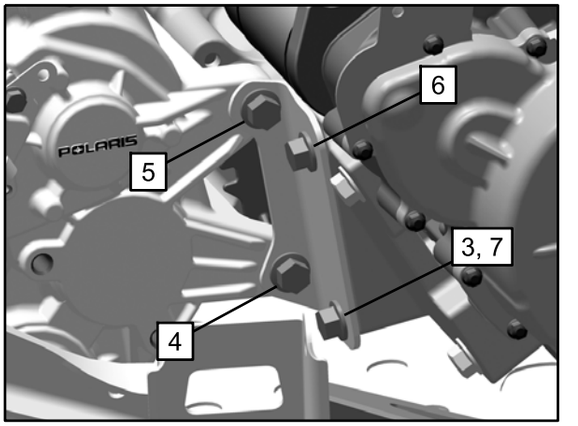
7. Install the two bolts (E) and transmission joint retainer plate (F) on the right side. Hand tighten the bolts so they remain loose at this time.



8. Install the two longer bolts into left side mounting holes. Torque left side mounting bolts to specification using the numbered sequence shown.



9. Torque right side mounting bolts to specification using the numbered sequence shown.



TORQUE
Engine / Transmission Mounting Bolts: Step 1-2: **64 lb-ft (87 Nm)** Step 3: **5 lb-ft (7 Nm)** Step 4-7: **44 lb-ft (60 Nm)**

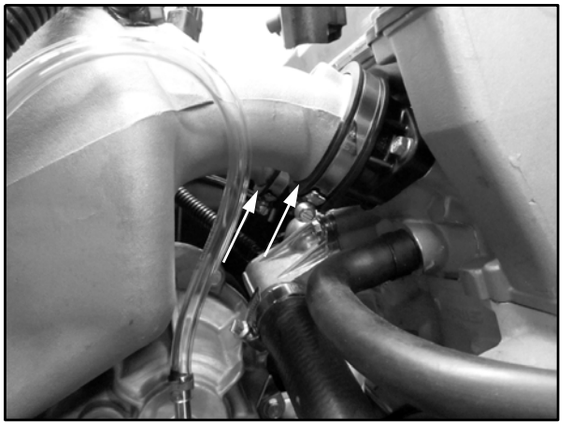
10. Remove the clutch center distance tool.
11. Remove the spacer or support between the vehicle frame and engine.
12. Torque the rear transmission mount bolt (B) to specification.

TORQUE
Rear Transmission Mount Bolt: **40 lb-ft (54 Nm)**

13. Remove the lifting straps and overhead or portable hoist.

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14. Install the intake plenum and throttle body assembly. Place the intake plenum runners into the cylinder head intake adapters.



NOTE

Be sure the intake plenum runners are fully seated in the intake adapters before tightening the hose clamps.

15. Tighten the hose clamps to specification.

TORQUE

Intake Plenum Hose Clamps:
17 lb-in (2 Nm)

16. Install the fastener securing the bottom of the intake plenum to the rear transmission mount. Torque fastener to specification.

TORQUE

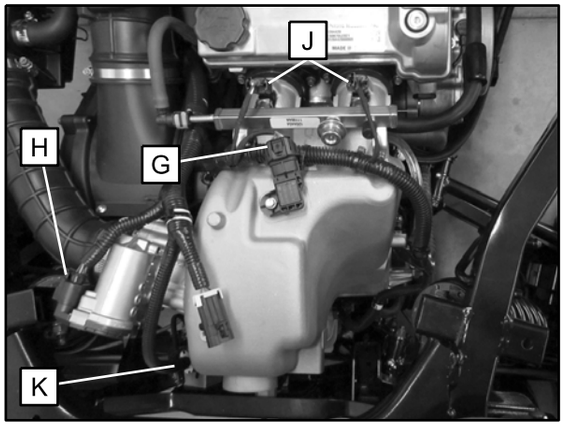
Lower Intake Plenum Fastener:
22 lb-ft (30 Nm)

17. Wipe any dirt off the fuel line connector and the fuel rail. Reconnect the fuel line to the fuel rail.

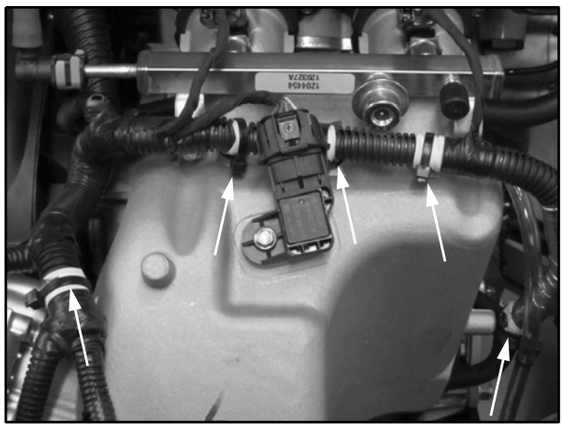
NOTE

Be sure to tug on the fuel line after installing it to make sure it is secured.

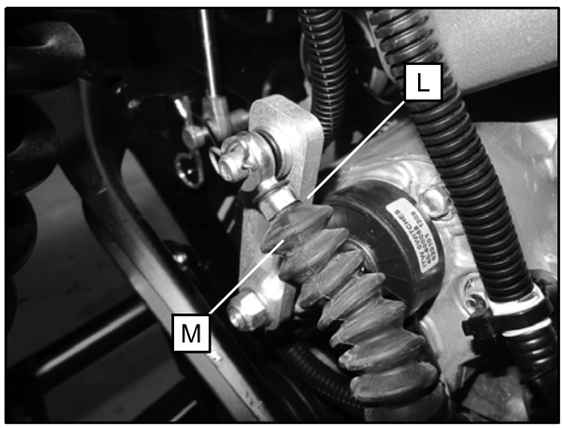
18. Connect the vehicle harness to the T-MAP sensor (G), ETC (H), fuel injectors (J), rear differential relay and rear differential solenoid (K).



19. Position the vehicle harness over the intake plenum and install five new plastic tie straps to retain the harness to the intake plenum.



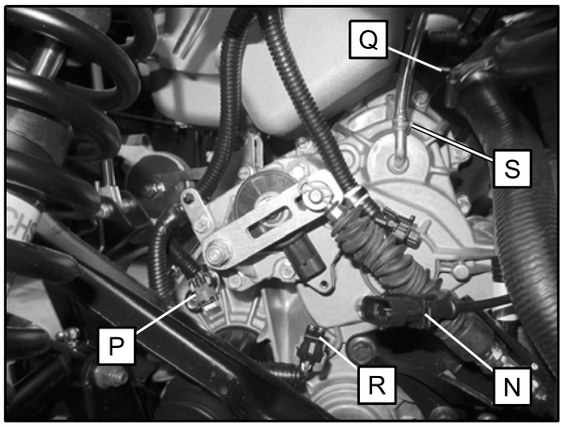
20. Install the transmission shift cable and washer (L) onto the bellcrank. Install the retaining clip (M).



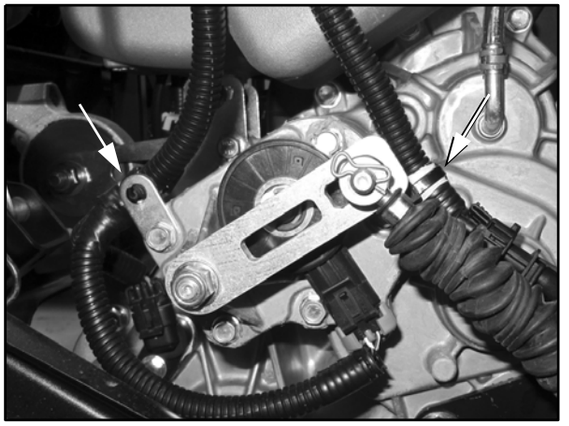
6

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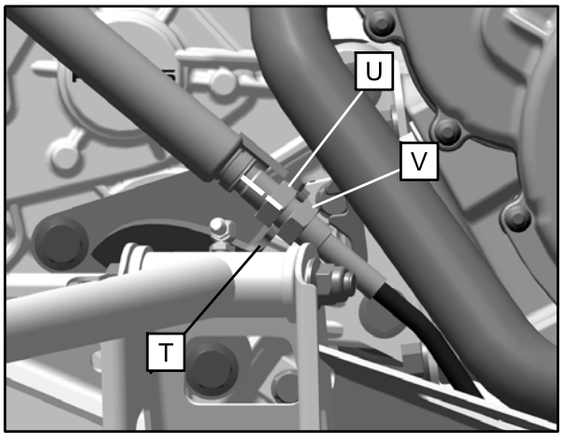
21. Connect the CPS (N), vehicle speed sensor (P), ECT sensor (Q) and transmission switch (R).



22. Install the vent line (S) to the transmission fitting.
23. Install two new plastic tie straps to retain the harness to the transmission.



24. Note the location marks on the shift cable made during transmission removal and install the shift cable on the bracket (T). While holding the upper shift cable jam nut (U), tighten the lower jam nut (V) to secure the shift cable in the bracket.



25. Install the PVT inner clutch cover, drive clutch, driven clutch, drive belt and outer clutch cover. Refer to **"PVT Assembly", page 5.11** procedure.
26. Install both rear drive shafts. Refer to **"Rear Drive Shaft Installation", page 7.36** procedure.
27. Install the front propshaft. Refer to **"Front Propshaft Removal / Installation", page 7.8** procedure.
28. Safely lower the vehicle.
29. Install the rear cargo box assembly. Refer to **"Cargo Box Installation", page 10.33** procedure.

NOTE

Be sure to connect the tail light harness upon installation.

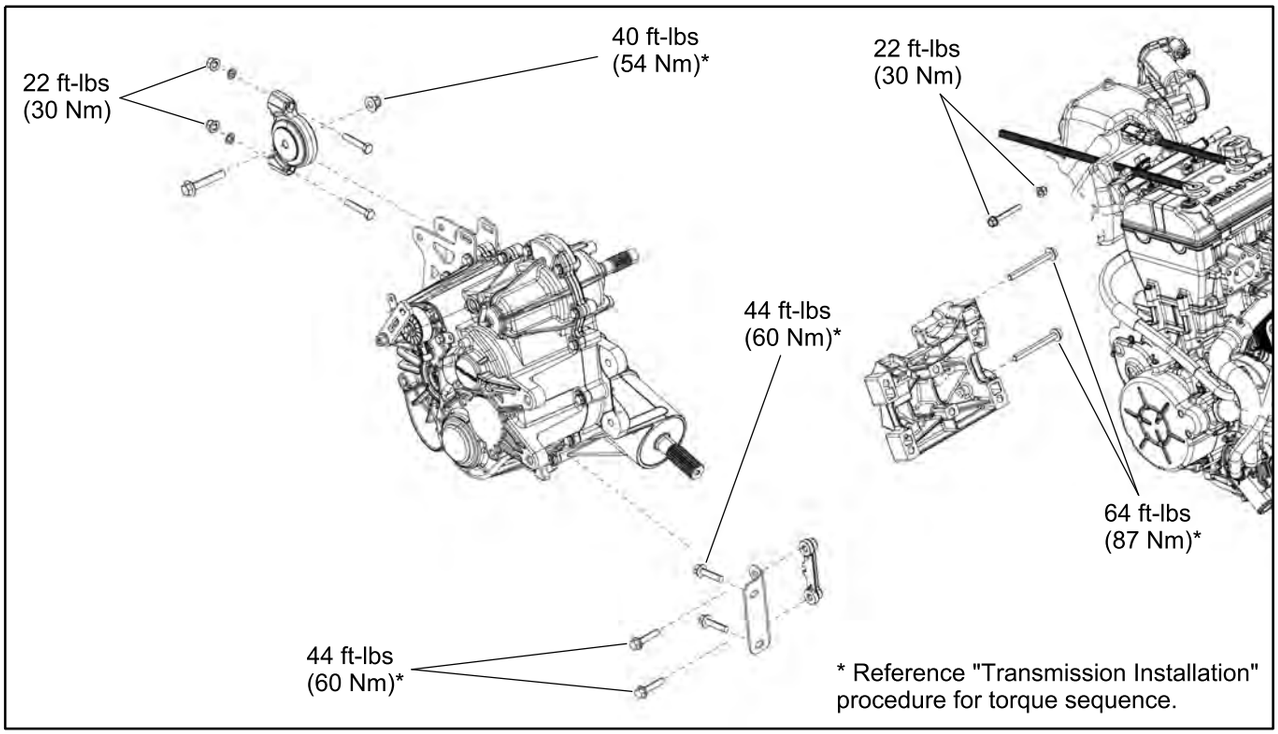
30. Connect the (-) negative battery cable.
31. If the transmission lubricant was drained for service, fill the transmission with the specified amount of **Polaris AGL**. Refer to **"Transmission Lubrication", page 2.31**.

FLUID CAPACITY

Recommended Transmission Lubricant: AGL (PN: 2878068) (Quart)
Capacity: 41 oz. (1200 ml)

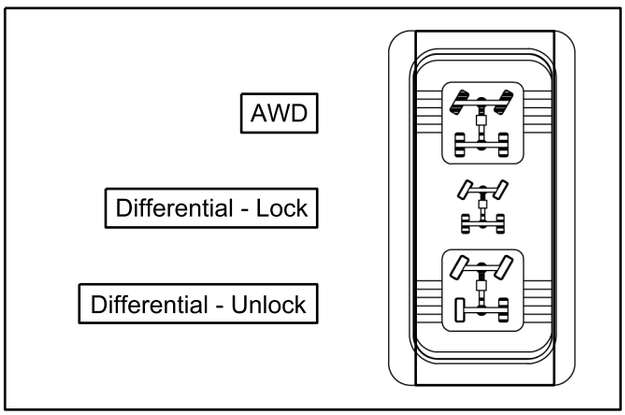
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TRANSMISSION MOUNTING TORQUE VALUES



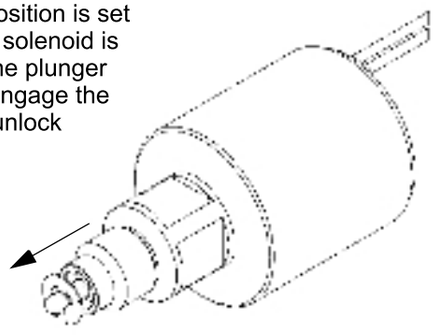
DIFFERENTIAL OPERATION

The transmission has two traction operational modes: Differential Lock and Differential Unlock. Locking the rear differential is beneficial in low traction and rough terrain conditions. Unlocking the rear differential makes maneuvering easier and minimizes damage to terrain.



When “Differential-Unlock” is selected, the rear differential becomes unlocked for tighter turns. An electrical solenoid mounted in the rear portion of the gearcase actuates the shift fork. The solenoid plunger extends out to move the fork and slides the engagement dog away from the side gear that is part of the planetary differential assembly. This unlocks the rear differential. The rear drive shafts are now dependent on the differential allowing for tighter turns.

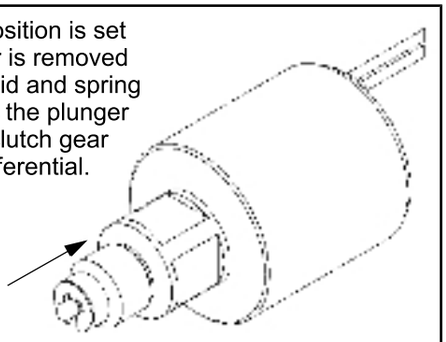
When switch position is set to "Unlock" the solenoid is powered and the plunger extends to disengage the side gear and unlock the differential.



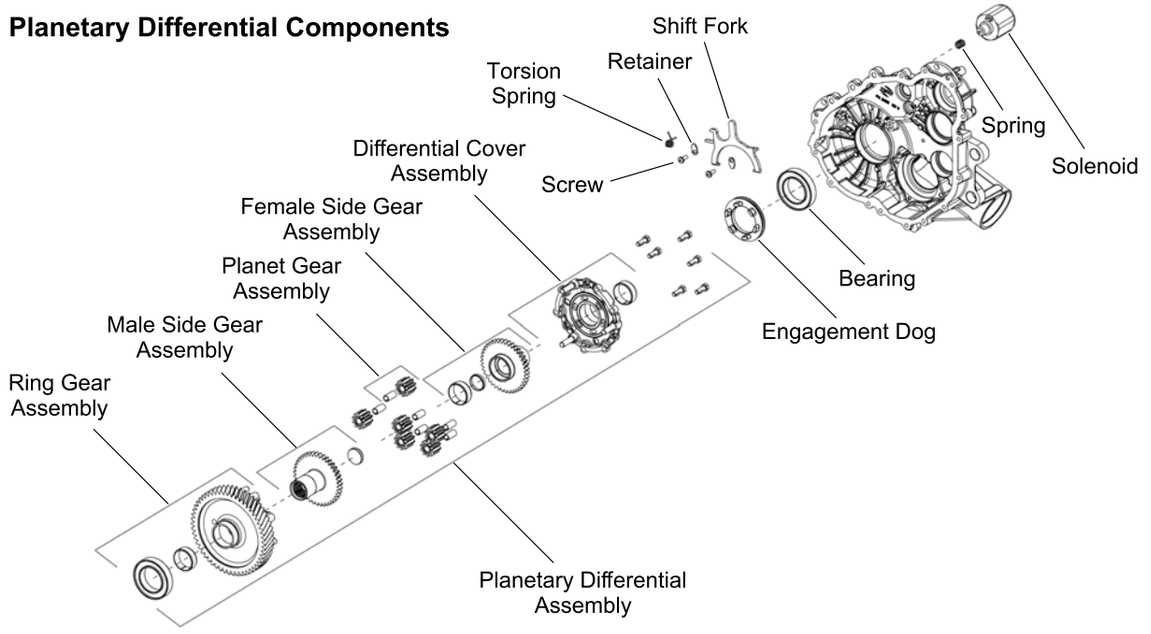
When “Differential-Lock” is selected, power is removed from the electrical solenoid allowing the solenoid plunger to retract. Spring tension moves the shift fork back into place and mates the engagement dog to the side gear that is part of the planetary differential assembly. This locks the rear differential as a solid rear axle, increasing traction.

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When switch position is set to "Lock" power is removed from the solenoid and spring tension retracts the plunger to engage the clutch gear and lock the differential.



Planetary Differential Components



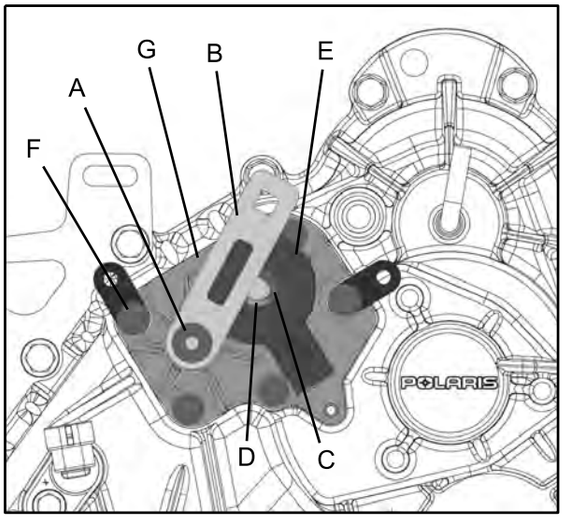
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TRANSMISSION DISASSEMBLY

NOTE

Refer to **"Transmission Exploded View", page 6.3** at the end of this chapter as a reference.

1. Place transmission in High gear before disassembly.
2. Drain and properly dispose of the transmission lubricant. Refer to **"Transmission Lubrication", page 2.31** procedure.
3. Remove the bellcrank nut (A) and bellcrank (B).

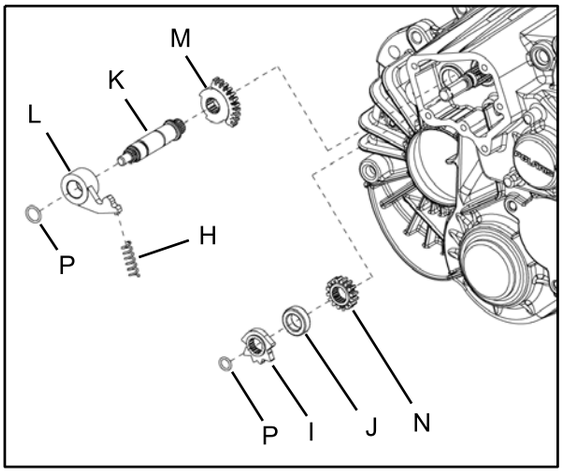


4. Remove E-clip (C) that retains spring washer (D), flat washer (D) and gear switch (E). Remove the switch.
5. Remove the sector cover bolts (F) and remove the sector cover (G).

NOTE

Removal can be aided by using your thumbs to press in on the shafts while pulling out the cover with your fingers.

6. Remove the compression spring (H).



7. Remove the detent star (I). Note how the detent star fits onto the splined shaft with the raised edge facing outward for reassembly.
8. Remove the spacer (J).
9. Remove the shift shaft (K), detent pawl (L) and the shift sector gears (M and N).

NOTE

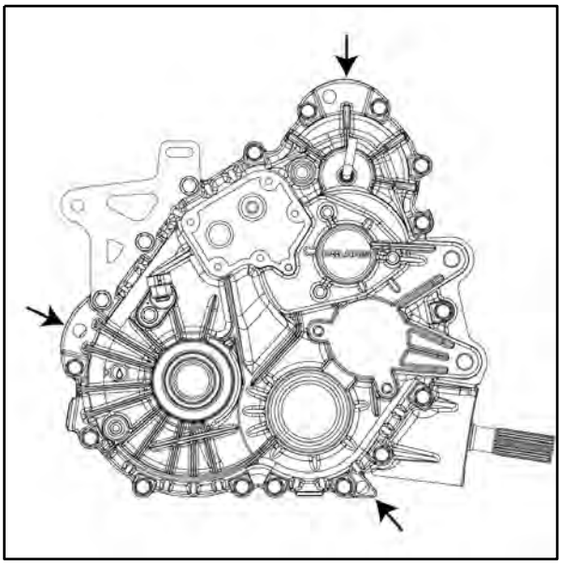
Note the timing marks on the shift gears (M and N) for reassembly purposes.

10. Remove the O-rings (P) from each shaft and discard. Use new O-rings upon assembly.

6

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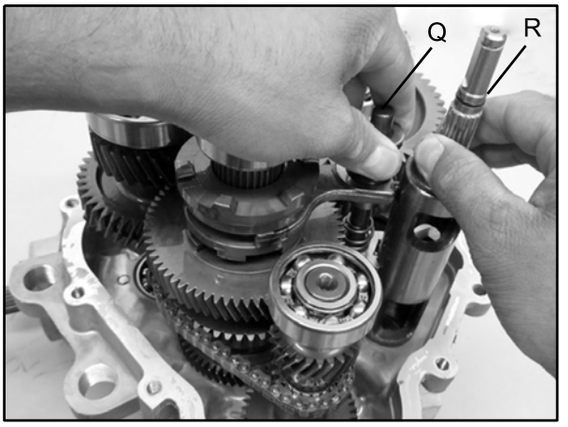
11. Remove all the transmission case bolts. Using suitable pry bars, remove the cover using the designated pry points (indicated by the black arrows in the illustration below).



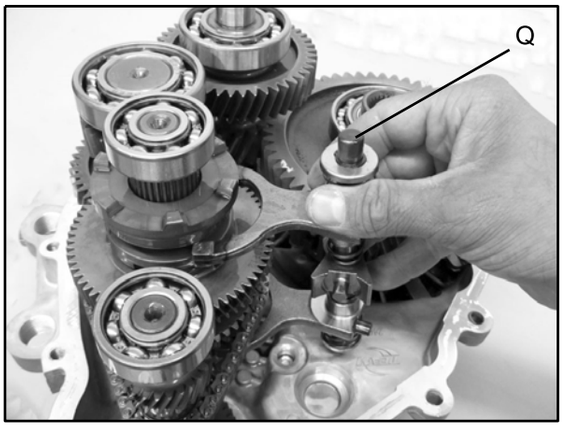
CAUTION

Do not pry on case sealing surfaces.Use only the designated pry points on the transmission.

12. Lift up on the shift shaft rail (Q) and move the rail assembly rearward to allow the shift fork pins to be removed from the shift drum (R). Remove the shift drum (R) from the transmission housing.



13. Remove the shift shaft rail (Q) and shift forks from the transmission housing as an assembly.

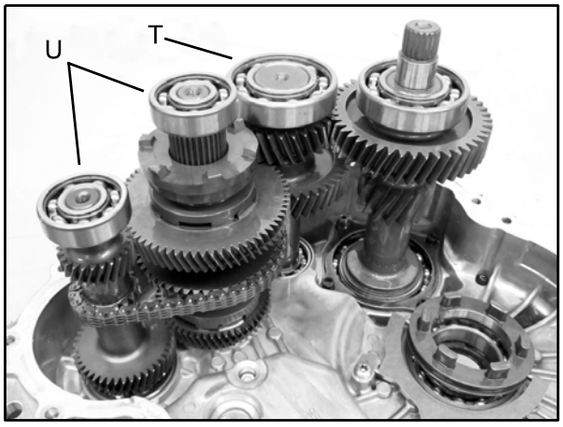


14. Remove the rear output shaft assembly (S) by lifting underneath the gear or by tapping the shaft from the opposite side. If use of a pry bar is necessary, take care not to pry on sealing surfaces of case.

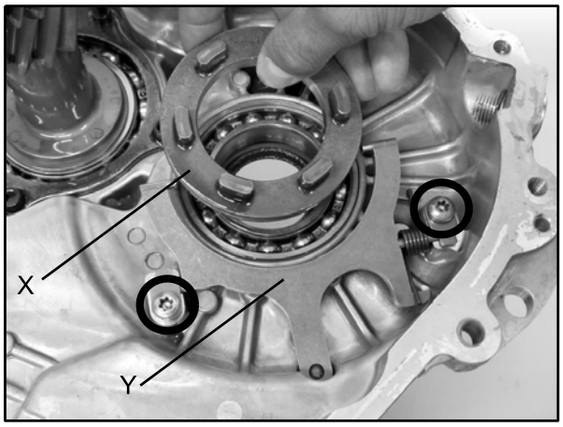


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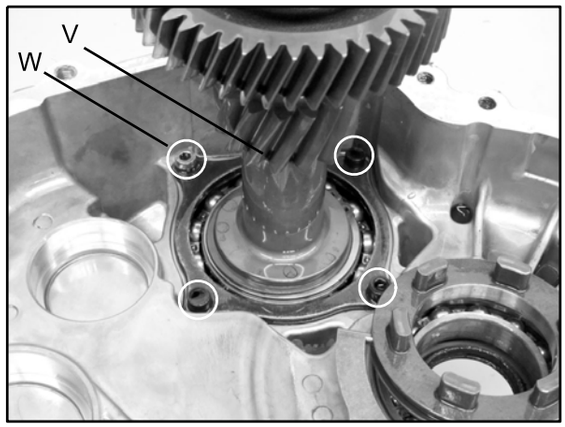
15. Remove the idler gear shaft assembly (T) and gear cluster assembly (U) from the transmission housing by pulling both assemblies straight up.



16. Place the idler gear shaft assembly (T) and gear cluster assembly (U) on a clean surface for inspection. If disassembly is required, refer to **"Gear Cluster Disassembly", page 6.20**.
17. Slide engagement dog (X) off of shift fork guides.
18. Remove two screws and retaining plates, then lift shift fork (Y) and torsion spring out of transmission housing.



19. Using a 5 mm Allen wrench, remove the screws that secure the pinion shaft assembly (V). Lift the pinion shaft assembly straight up to remove it from the housing. Note the longer screw (W) that locks the snorkel tube.



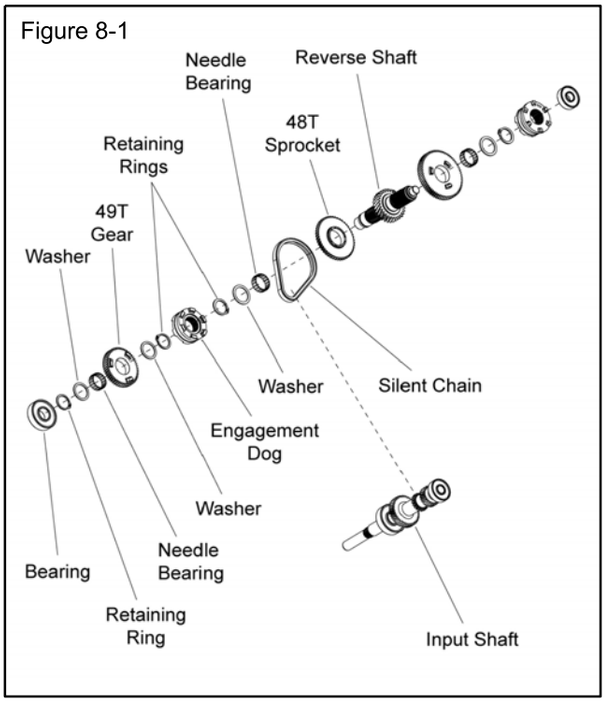
20. Remove all seals from the gearcase halves and clean the cases in preparation for assembly.

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GEAR CLUSTER DISASSEMBLY

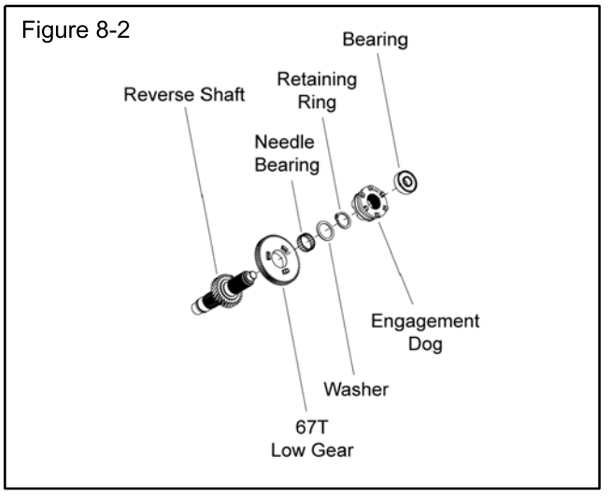
1. Remove the bearing from the reverse shaft using a bearing puller. Remove the retaining ring and slide the washers, 49T gear and needle bearing off the reverse shaft (see Figure 8-1).

Figure 8-1

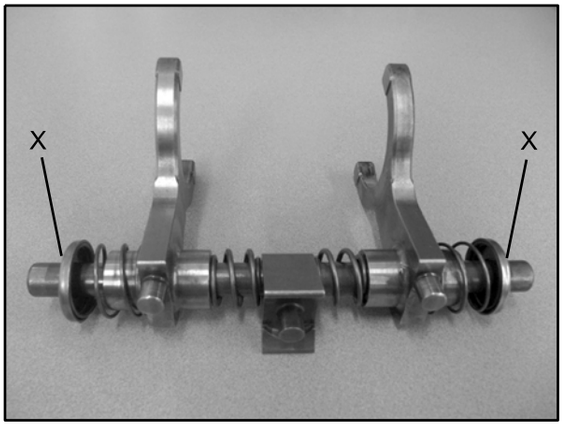


2. Remove the retaining ring and engagement dog from the reverse shaft (see Figure 8-1).
3. Remove the retaining ring, washer, needle bearing, and sprocket from the reverse shaft (see Figure 8-1).
4. Tilt the two shafts towards each other and remove the silent chain from the two shafts.
5. If necessary, disassemble the other end of the reverse shaft. Remove the bearing, engagement dog, retaining ring, washer, gear and needle bearing from the reverse shaft (see Figure 8-2).

Figure 8-2



6. To disassemble the shift shaft rail remove the snap ring (X) from the end of the shift rail on either side.



CAUTION

Use caution when disassembling the shift rail. The compressed springs on the shift rail may pop off causing eye or face injury.

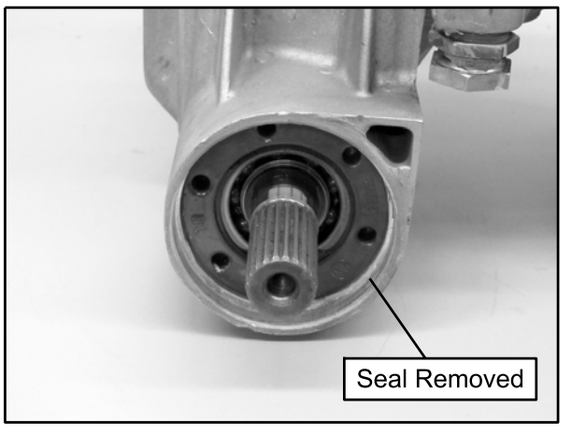
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SNORKEL SHAFT REMOVAL / DISASSEMBLY

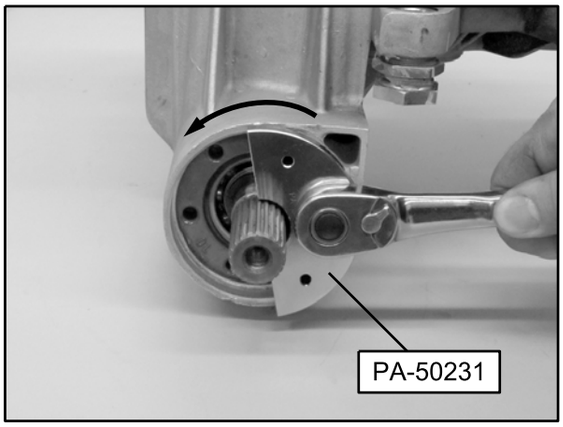
⚠ CAUTION

The pinion shaft must be removed prior to removing the snorkel shaft assembly. Failure to remove pinion shaft, will result in damage to the snorkel shaft.

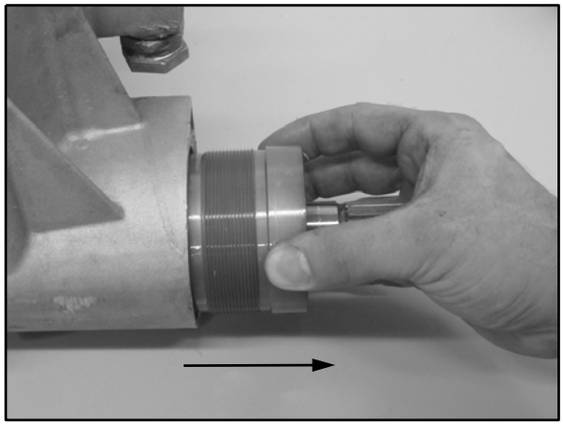
1. Extract the seal from the snorkel shaft to access the snorkel tube for removal.



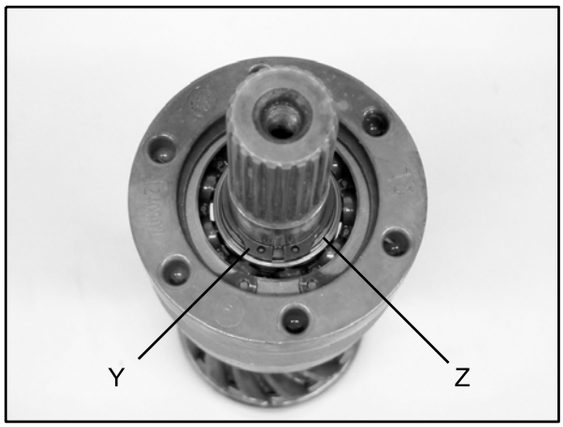
2. Using the Snorkel Tool (**PA-50231**), fully loosen the snorkel tube.



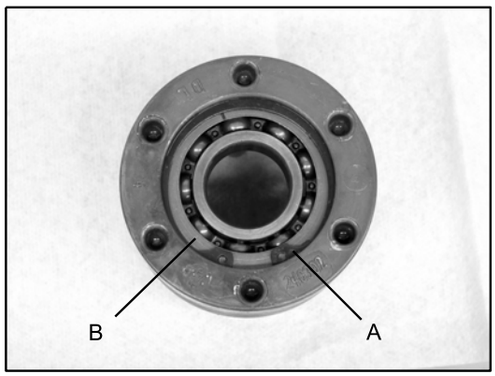
3. Remove the snorkel tube and shaft assembly from the transmission case.



4. Remove the snap ring (Y) and shim (Z) from the snorkel shaft.



5. Use an arbor press to remove the snorkel tube from the snorkel shaft.
6. Remove the snap ring (A) and shim (B) retaining the bearing in the snorkel tube.

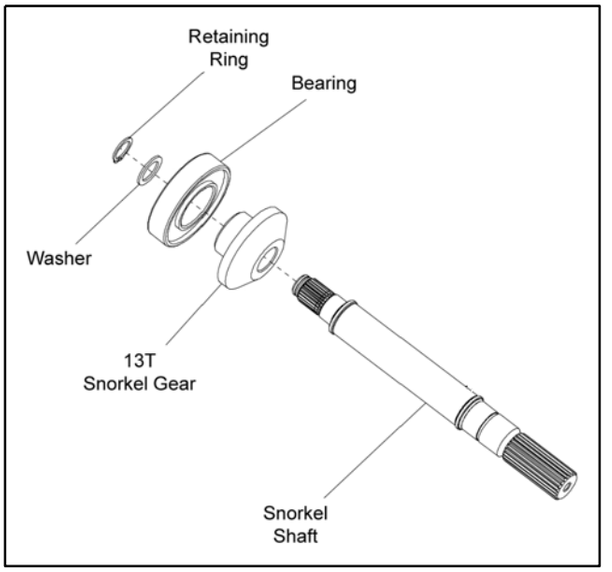


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7. Lightly tap on the bearing from the opposite side to remove it from the snorkel tube.



8. Remove the retaining ring to remove the remaining washer, bearing and gear from the snorkel shaft.

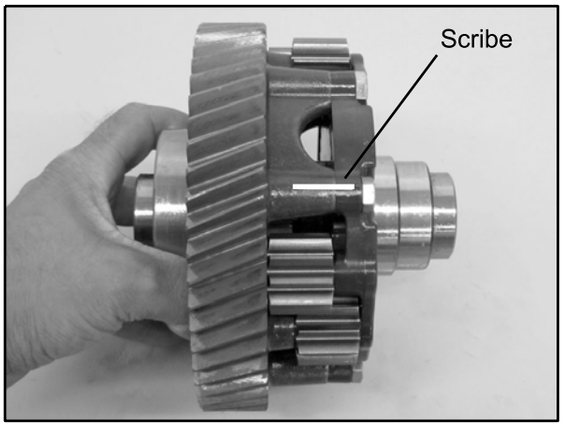


PLANETARY DIFFERENTIAL DISASSEMBLY

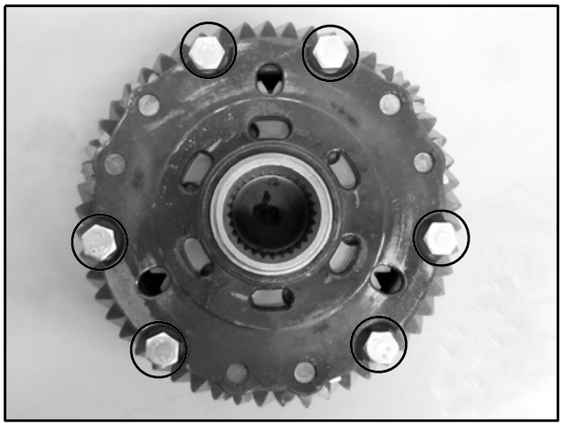
NOTE

If the gearcase is completely assembled, perform the "Gearcase Disassembly and Inspection" procedure.

1. Use a scribe to mark the differential cover and ring gear prior to disassembly.

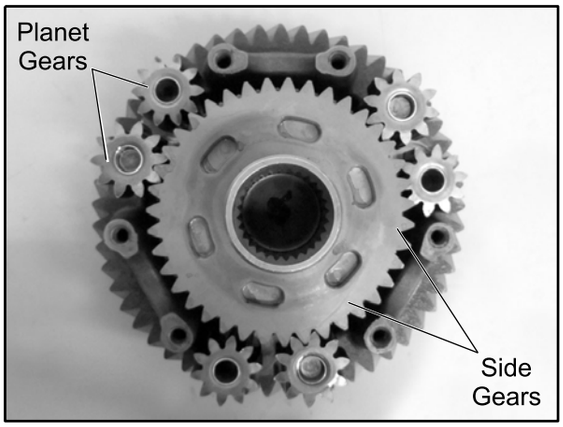


2. Remove the six screws retaining the differential cover and remove the cover.

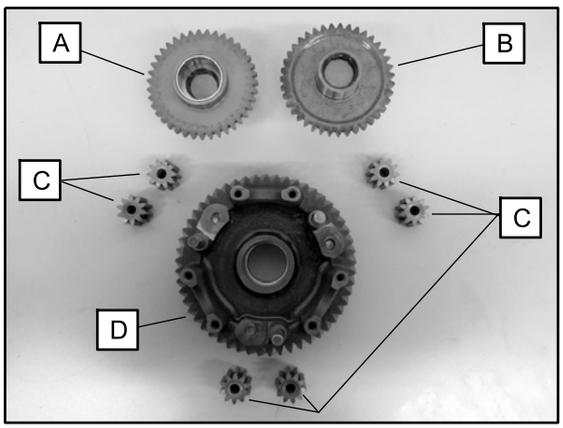


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3. Remove the six planet gears and each side gear assembly from the ring gear.



4. Inspect the female side gear (A), male side gear (B), planet gears (C) and ring gear (D). Replace components or bushings as needed. Bushing replacement can be performed on all necessary differential components. If bushing replacement is required, proceed to Planetary Differential Bushing Replacement".



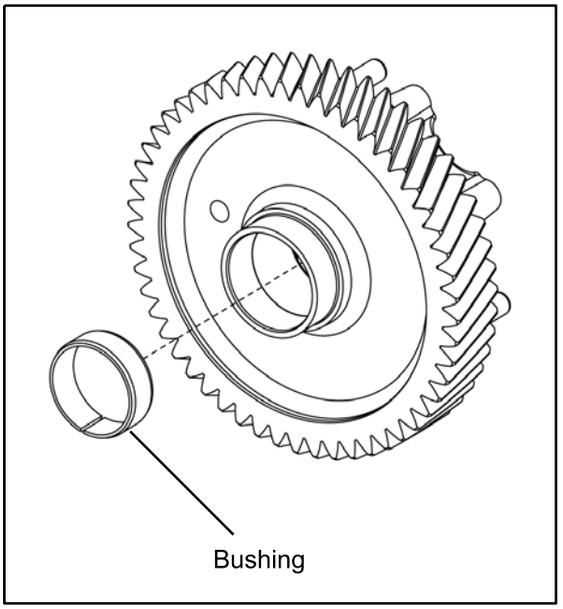
PLANETARY DIFFERENTIAL BUSHING REPLACEMENT

NOTE

If the differential is completely assembled, perform the "Planetary Differential Disassembly" procedure.

Ring Gear Bushing Replacement

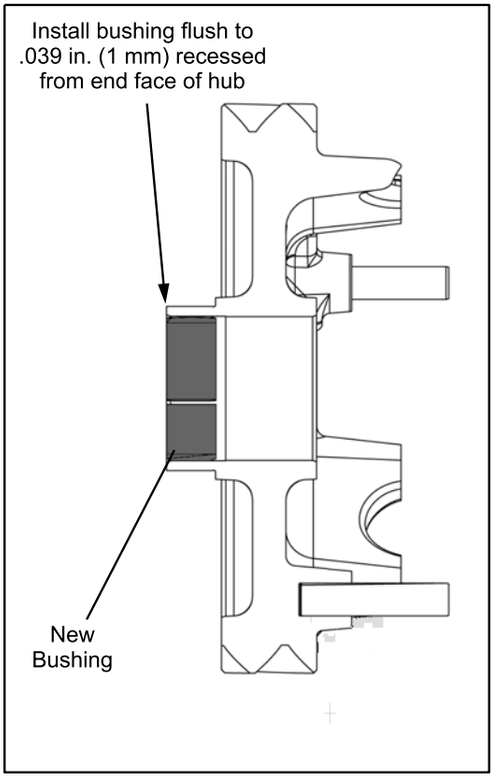
1. Press the old bushing out of the ring gear.
2. Thoroughly clean the bore of the ring gear and check for any unwanted burs.
3. Press the new bushing into the ring gear housing.



6

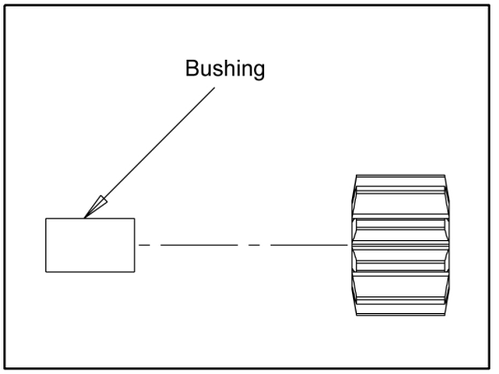
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4. Install the bushing to the specified depth as shown.



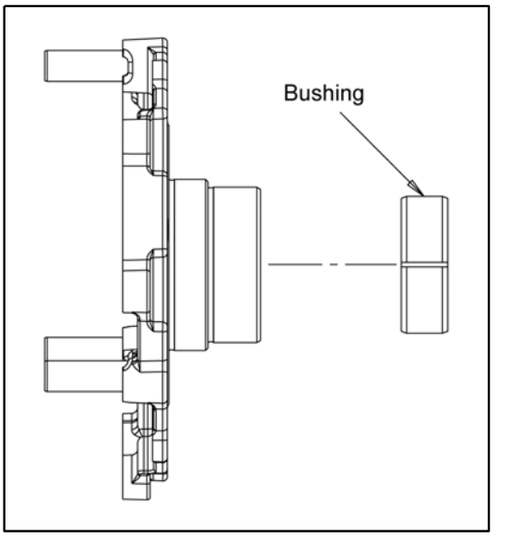
Planet Gear Bushing Replacement

5. Press the old bushing out of the planet gear.
6. Thoroughly clean the bore of the planet gear and check for any unwanted burs.
7. Press the new bushing into the planet gear until it is flush on each end. Repeat this procedure for the remaining planet gears.

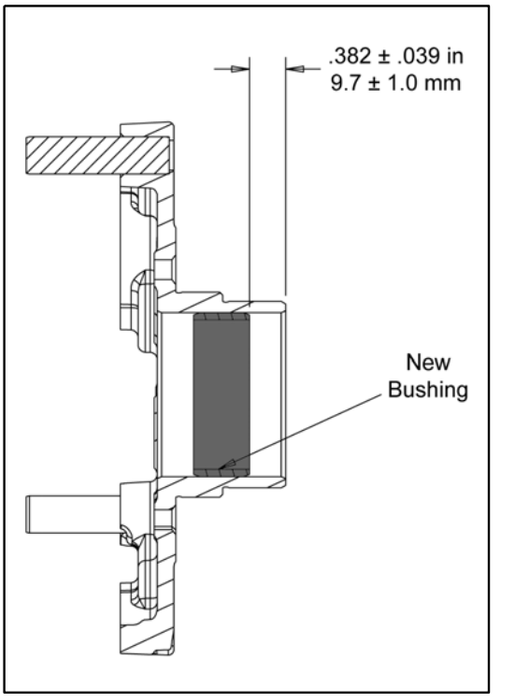


Differential Cover Bushing Replacement

8. Press the old bushing out of the differential cover.
9. Thoroughly clean the bore of the differential cover and check for any unwanted burs.
10. Press the new bushing into the differential cover.



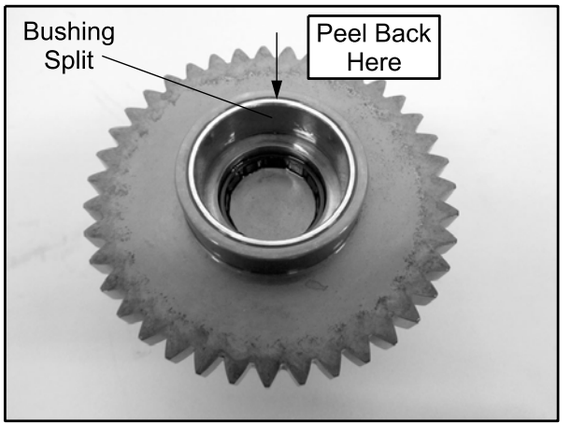
11. Install the bushing to the specified depth as shown.



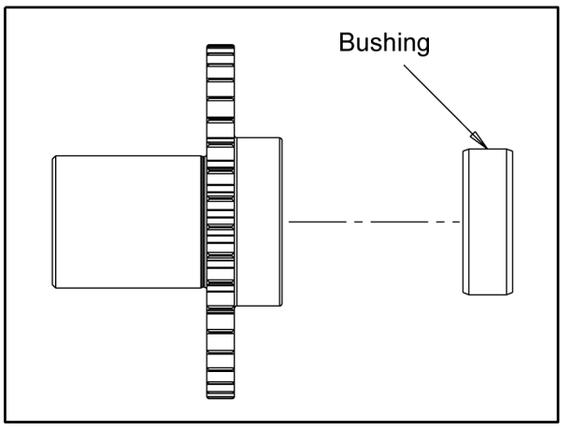
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Female Side Gear Bushing Replacement

12. Locate the bushing split. Using a small chisel or flat blade screwdriver, peel back and remove the old bushing from the side gear, being careful not to damage the side gear.

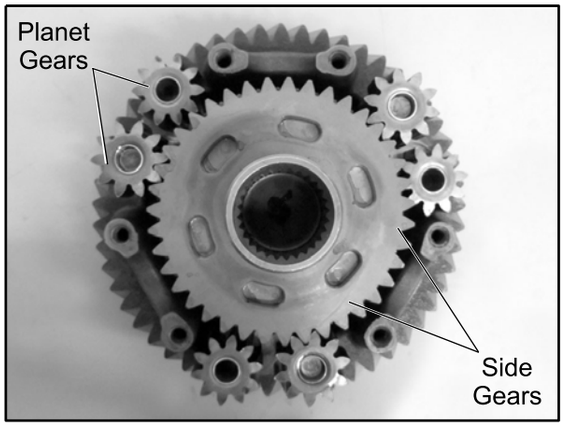


13. Thoroughly clean the bore of the side gear and check for any unwanted burs.
14. Press the new bushing into the side gear until it bottoms out.

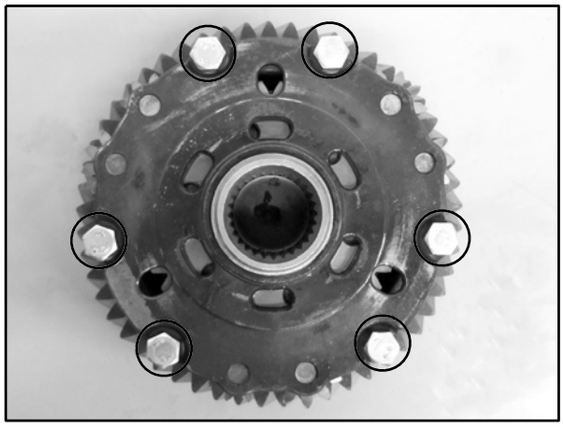


PLANETARY DIFFERENTIAL ASSEMBLY

1. Thoroughly clean the differential components.
2. Assemble the side gears and place them onto the ring gear along with the six planet gears.



3. Align and install the differential cover using the previously made scribe marks.
4. Apply Loctite® 2760 to cover screws.
5. Install screws hand tight. Place assembly in soft jaw vise and torque to specification.



TORQUE
Differential Cover Screws: **18–22 lb-ft (24–30 Nm)**

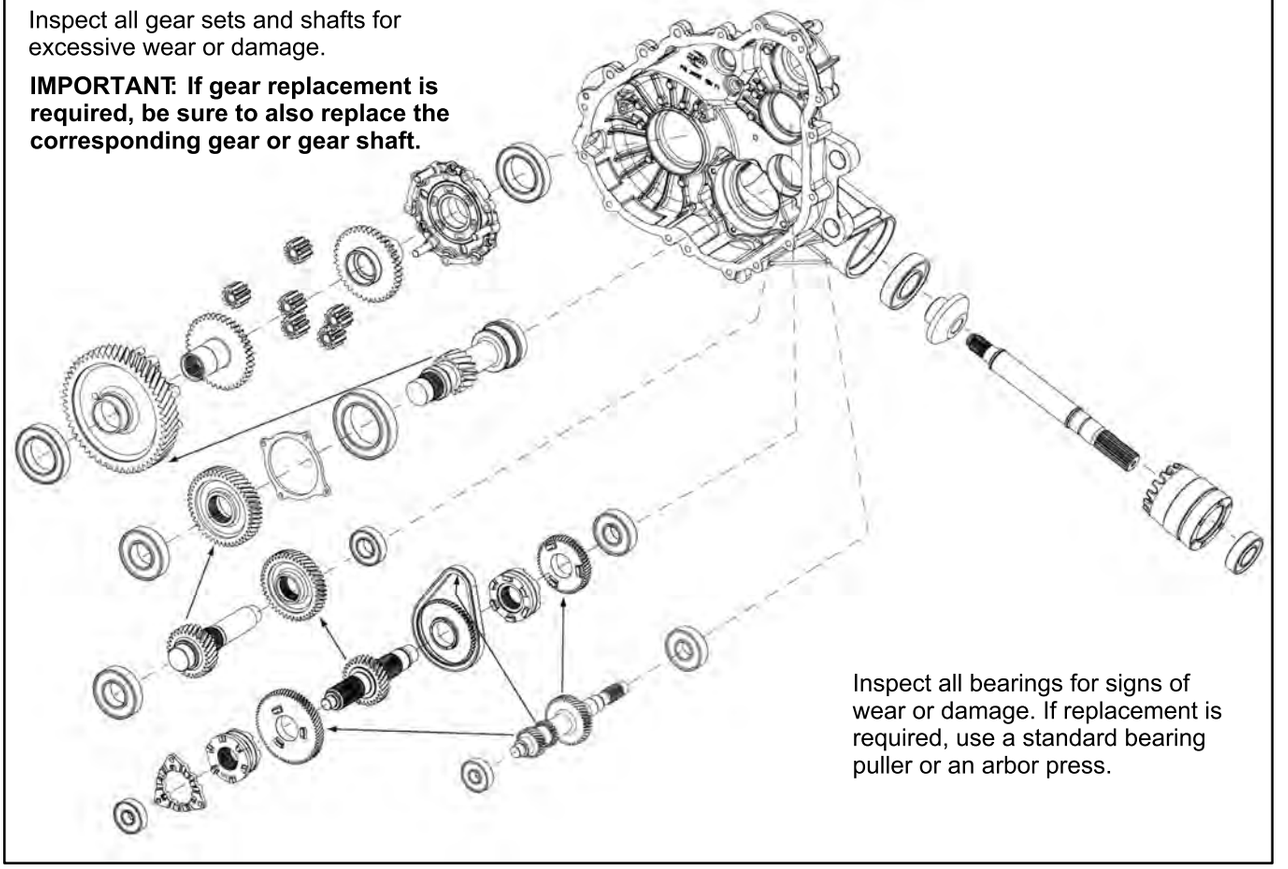
6

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GEAR / SHAFT / BEARING INSPECTION

Inspect all gear sets and shafts for excessive wear or damage.

IMPORTANT: If gear replacement is required, be sure to also replace the corresponding gear or gear shaft.

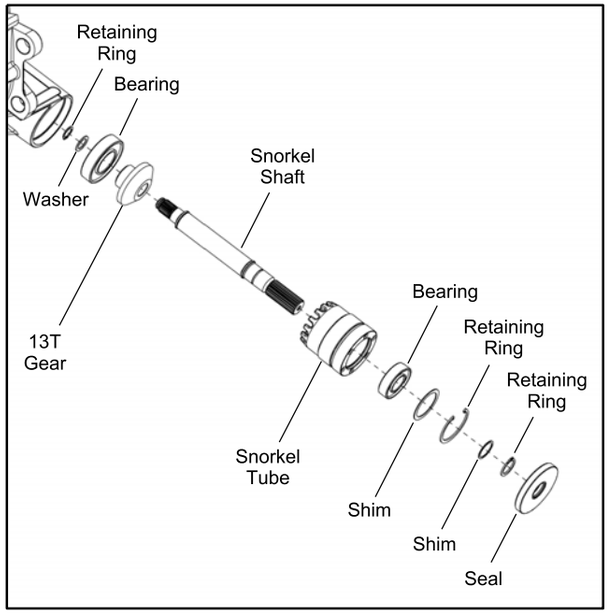


Inspect all bearings for signs of wear or damage. If replacement is required, use a standard bearing puller or an arbor press.

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SNORKEL GEAR BACKLASH PROCEDURE

1. Reassemble the snorkel tube and snorkel shaft assembly by reversing the disassembly procedure. Refer to **"Snorkel Shaft Removal / Disassembly", page 6.21** procedure.

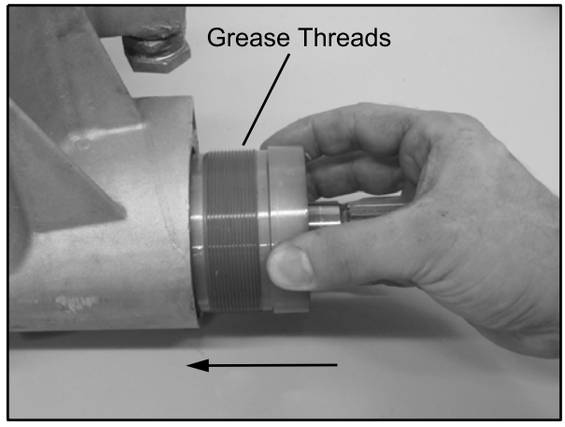


2. After the 13T gear and bearing are pressed onto the snorkel shaft (flush to the shoulder), install the washer and new retaining ring.
3. Press the gear back towards the retaining ring. Avoid excessive force so the retaining ring is not damaged or pre-stressed significantly.

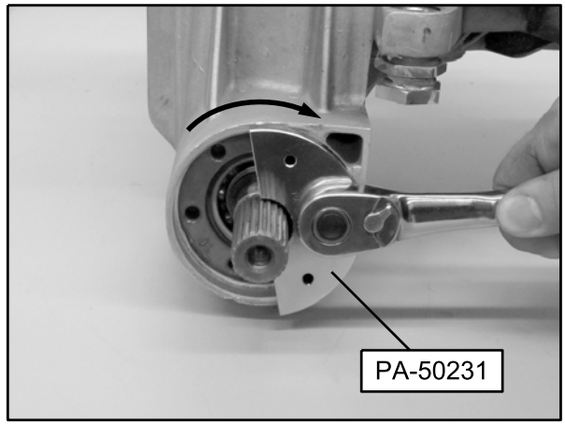
NOTE

Failure to press the gear back against the washer and retaining ring will lead to a gear backlash change after vehicle is placed into service.

4. Apply a small amount of white lithium grease or Anti-Seize on the threads of the snorkel tube.

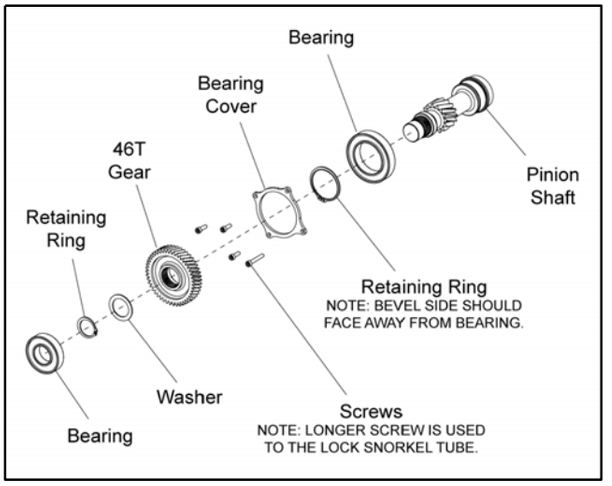


5. Install the snorkel shaft into the gearcase. Using the Snorkel Tool (**PA-50231**), tighten the snorkel tube until it is lightly seated in the transmission housing.



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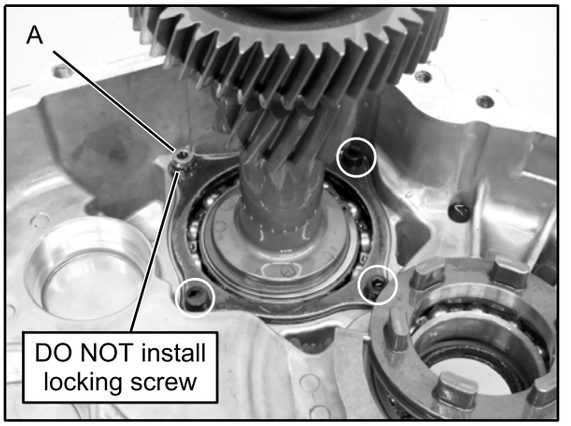
6. Inspect the pinion shaft assembly. Replace bearings if needed. Inspect each gear for damage, chips or abnormally worn teeth.



NOTE

If pinion shaft was disassembled, the bearing cover must be installed on the shaft before installing the 46T gear.

7. Install the pinion shaft assembly. Be sure to properly mesh the snorkel shaft bevel gear with the pinion shaft bevel gear.
8. Apply Loctite® 242 to the threads of the bearing cover retaining screws.
9. Using a 5 mm Allen wrench, install only the three screws that secure the pinion shaft assembly as shown below. Leave the longer locking screw (A) out at this point.



NOTE

DO NOT install the longer screw (A). Installing the longer screw will lock the snorkel tube and not allow for backlash setting adjustment.

10. Torque the bearing cover retaining screws to specification.

TORQUE

Bearing Cover Retaining Screws:
8–10 lb-ft (11–14 Nm)

11. Rotate the snorkel tube *counterclockwise* using the snorkel tool (**PA-50231**) until the snorkel gear and pinion gear have ‘zero’ backlash.

NOTE

DO NOT overtighten the snorkel tube when backing it out. At the 'zero' backlash position, you should still be able to turn the snorkel shaft using your fingers, but it will feel rough and may have some tight spots.

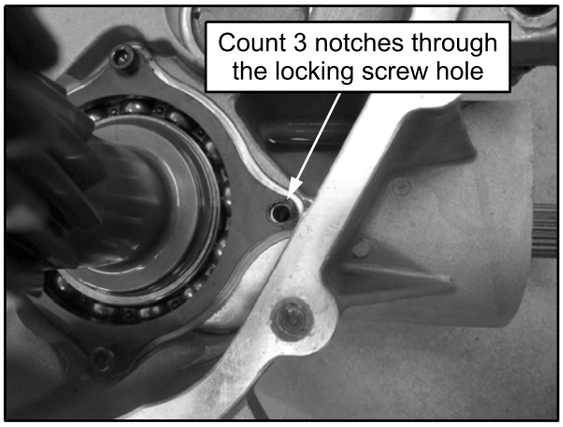
12. Look down into the transmission housing to see the snorkel locking screw hole opening to reference your starting point.

NOTE

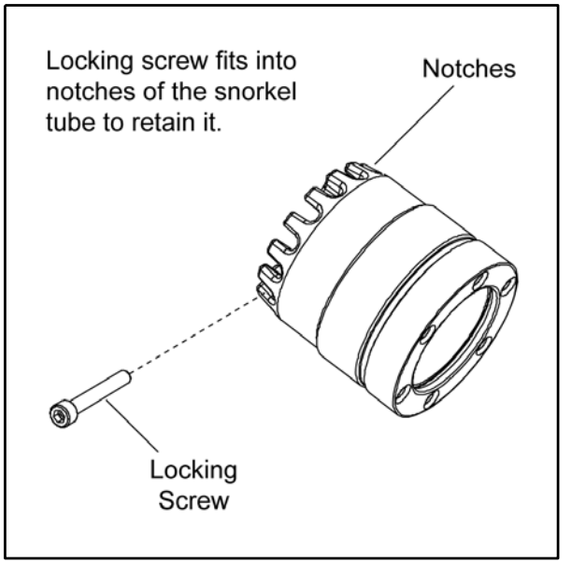
If you have a hard time seeing into the hole, insert a small Allen wrench, punch or screwdriver into the hole to feel when the notch is aligned with the hole.

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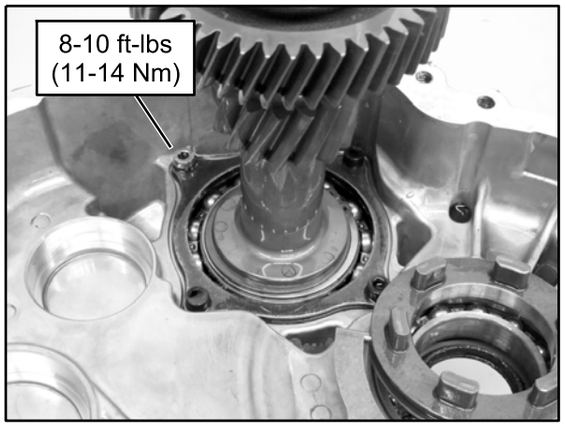
13. Slowly rotate the snorkel tube *clockwise* while counting the number of notches passing through the hole opening as you rotate the tube. Rotate the snorkel tube to the **3rd** notch from the 'zero' backlash position obtained in step 11.



14. Check the pinion shaft gear backlash again by feel. If the pinion shaft gear lash appears to be too tight, rotate the snorkel shaft *clockwise* to the next notch (4th notch).
15. Once the backlash is set, apply Loctite® 242 to the threads and install the locking screw to secure the snorkel tube.



16. Torque the locking screw to specification.



TORQUE
Snorkel Locking Screw: **8–10 lb-ft (11–14 Nm)**

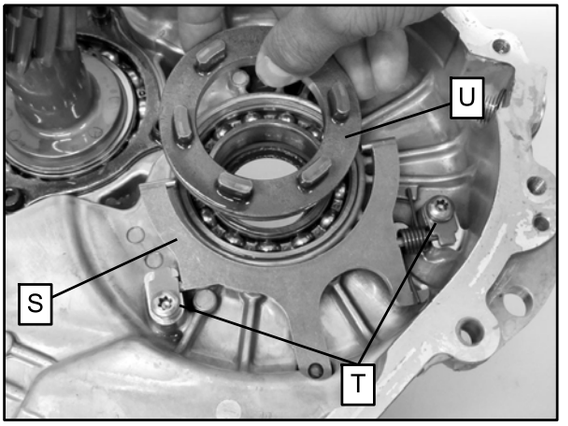
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TRANSMISSION ASSEMBLY

NOTE

The snorkel shaft and pinion shaft must be installed prior to transmission assembly. The snorkel shaft cannot be installed after assembling the transmission.

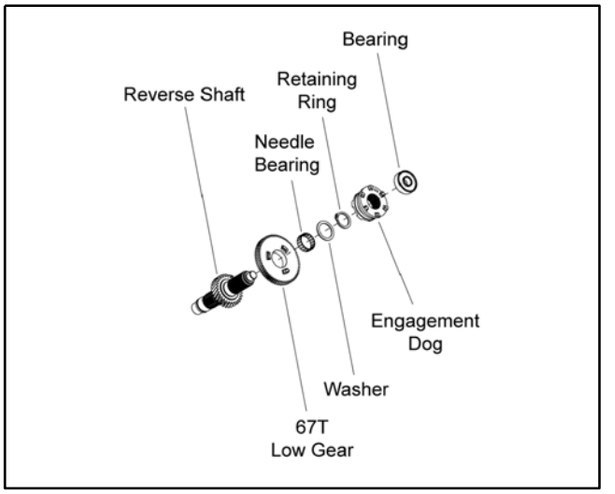
1. Clean both transmission case halves thoroughly. Inspect case half mating surfaces for damage.
2. Install shift fork (S) and torsion spring into transmission housing as an assembly. Load spring as shown in image below
3. Apply Loctite® 242 to two screws (T) and install with retaining plates over shift fork. Torque to specification.

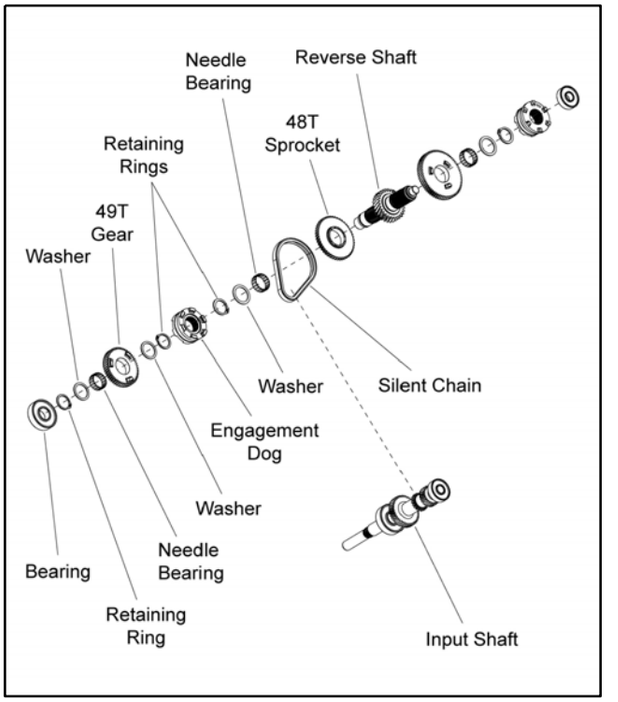


TORQUE

Shift Fork Screws:
17 lb-ft (23 Nm)

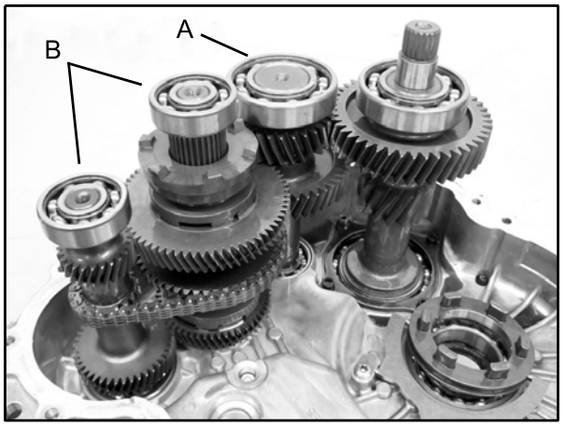
4. Slide engagement dog (U) onto retaining pins of shift fork.
5. Assemble the reverse shaft assembly and input shaft assembly if previously disassembled (see illustrations).



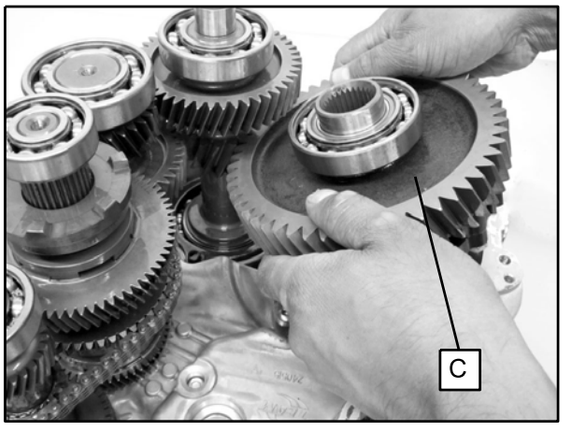


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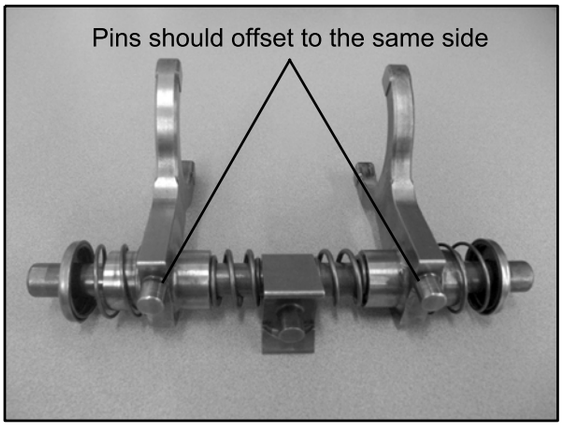
6. Install the idler gear shaft assembly (A) and gear cluster assembly (B) into the transmission housing, all at the same time.



7. Install the rear output shaft assembly (C). Rotate output shaft assembly to align slots with engagement dog. Ensure bearing is fully seated upon assembly.



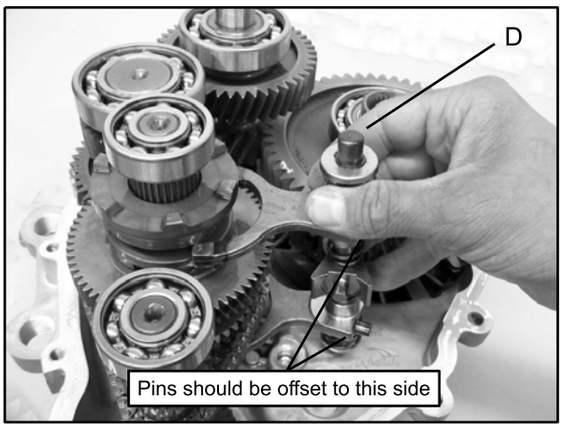
8. Assemble shift shaft rail if previously disassembled.



NOTE

Both shift forks need to be orientated the same way, so that the shift fork pins are both offset to the same side of the rail.

9. Install the shift shaft rail (D) and shift forks into the transmission housing as an assembly. Be sure the shift forks are engaged into the engagement dogs.

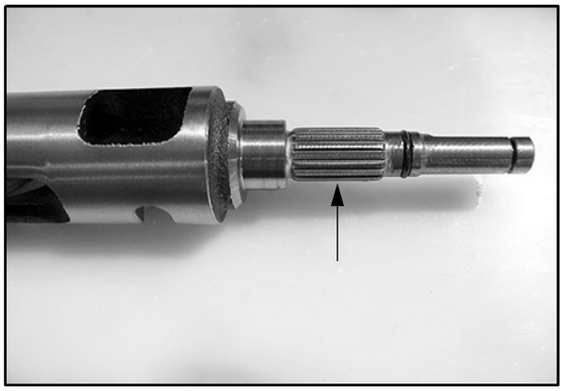


NOTE

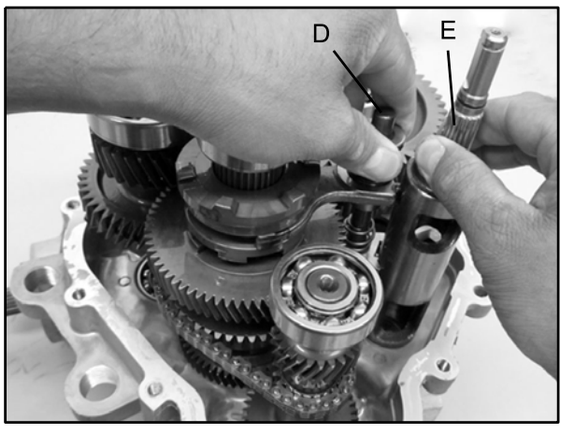
Shift fork pins should be offset towards the input shaft as shown above.

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10. Inspect the shift drum for any damage or wear. Inspect the splines of the shift drum.

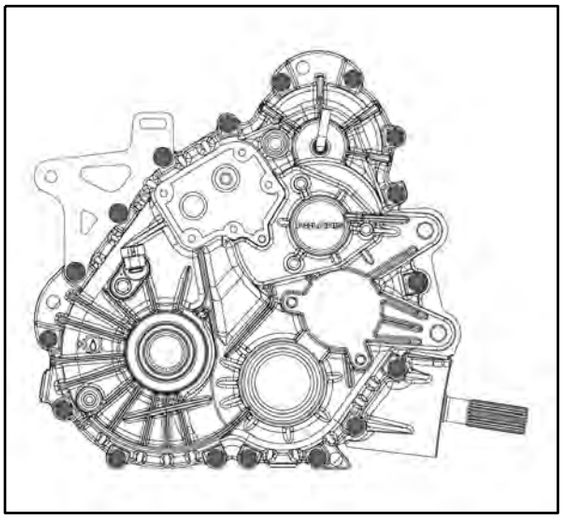


11. Install the shift drum (E) into the transmission housing. Lift up on the shift shaft rail (D) and move the rail assembly towards the shift drum to allow the shift fork ends to be installed into the shift drum (E).



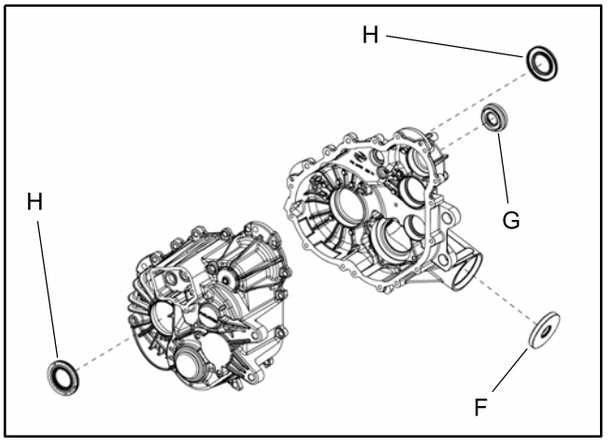
12. Apply a continuous bead of Crankcase 3-Bond Sealant (PN: **2871557**) to the left hand transmission mating surface.

13. Install the transmission case cover and retaining bolts. Torque bolts to specification.



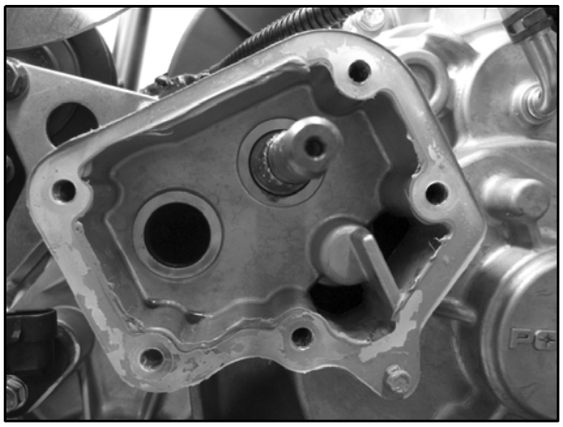
TORQUE
Transmission Case Bolts: **15–20 lb-ft (20–27 Nm)**

14. Install new seals into the transmission case halves.
    - The snorkel shaft seal (F), should be pressed in until it seats against the housing counter-bore.
    - The input shaft seal (G), should be pressed in until it seats flush with the housing.
    - The rear output shaft seals (H), can be installed using a standard bushing installation tool. Seals should be installed just past the case lead-in chamfer (.070" or 1.8 mm from outer face of bore).

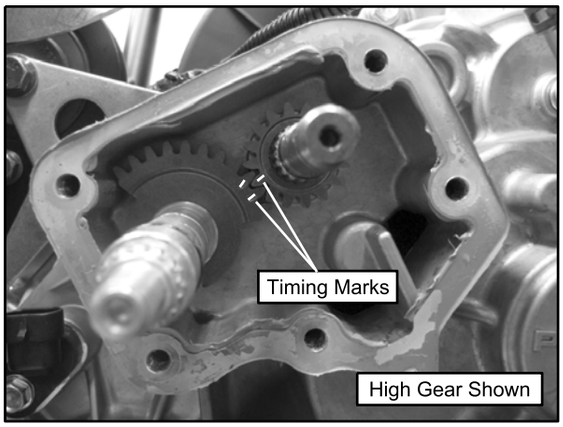


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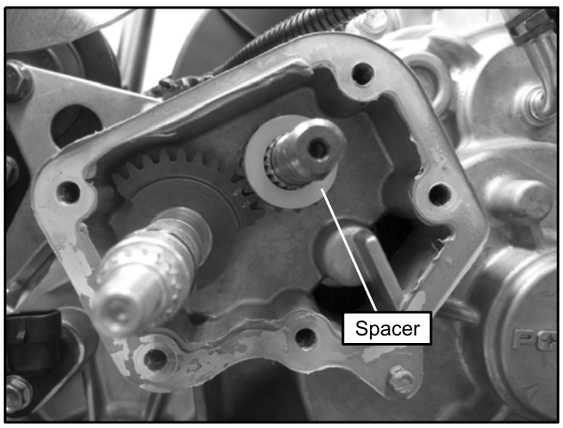
15. Thoroughly clean the shift shaft housing. **Be sure the transmission is in High gear prior to reassembly.**



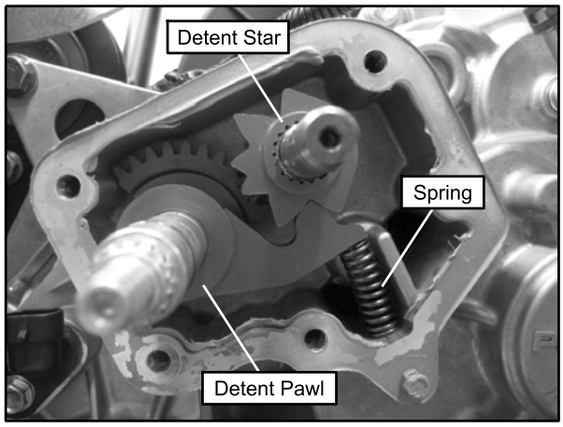
16. Install the sector gear (16T) onto the shift drum shaft. Install the shift shaft assembly and sector gear (11T) into the bushing pocket on the left side. Align the timing marks on the gears as shown.



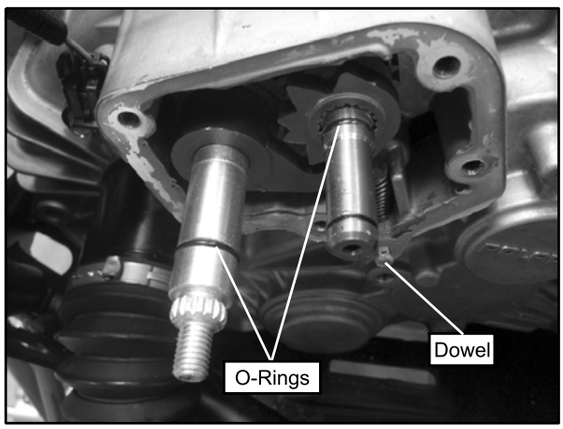
17. Install the spacer onto the shift drum shaft.



18. Install the detent star onto the shift drum shaft. Be sure to install the detent star with the raised edge facing outward and skip-tooth aligned.
19. Install the detent pawl onto the shift shaft and carefully install the compression spring.



20. Install a new O-ring on each shift shaft. Apply a small amount of white lithium grease on the O-rings, shift shafts and component contact surfaces prior to installing the sector cover.



21. Clean the transmission and gear sector cover mating surfaces thoroughly.
22. Apply Crankcase 3-Bond Sealant (PN: **2871557**) onto the cover and transmission case mating surface.
23. Install the sector cover and align the transmission case dowel with the alignment hole. Install and torque the bolts to specification.

TORQUE
Sector Cover Bolts: **9–12 lb-ft (12–16 Nm)**
Fill / Drain Plug: **10-14 lb-ft (14-19 Nm)**
Bellcrank Nut: **12–18 lb-ft (16–24 Nm)**

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24. Install the transmission drain plug and torque to specification.
25. Install the bellcrank onto the shift shaft. Note the key splined on the bellcrank and shift shaft. Install the nut and torque to specification.
26. Refer to **“Transmission Installation”, page 6.10** to complete the repair.

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TROUBLESHOOTING - TRANSMISSION

TROUBLESHOOTING CHECKLIST

Check the following items when shifting difficulty is encountered.

- Shift cable adjustment/condition
- PVT alignment (clutch center distance)
- Transmission lubricant type/quality
- Loose fasteners on sector gear cover
- Worn rod ends, clevis pins, or pivot arm bushings
- Shift selector rail travel
- Worn, broken or damaged internal transmission components

NOTE

To determine if shifting difficulty or problem is caused by an internal transmission problem, isolate the transmission by disconnecting the shift cable end from the transmission bellcrank. Manually select each gear range at the transmission bellcrank, and test ride vehicle. If it functions properly, the problem is outside the transmission.

If transmission problem remains, disassemble transmission and inspect all gear dogs for wear (rounding) or damage. Inspect all bearings, circlips, thrust washers and shafts for wear.

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NOTES

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CHAPTER 7
FINAL DRIVE

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GENERAL INFORMATION - FINAL DRIVE

SERVICE NOTES - FINAL DRIVE

CAUTION

Serious injury may result if machine tips or falls. Be sure machine is secure before beginning any service procedure that requires lifting the vehicle. Always wear eye protection.

CAUTION

Switching to AWD while the rear wheels are spinning may cause severe drive shaft and gearcase damage. Always switch to AWD while the rear wheels have traction or are at rest.

SPECIAL TOOLS - FINAL DRIVE

TOOL DESCRIPTION	PART NUMBER
Roll Pin Removal Tool	**2872608**
Axle Boot Clamp Tool	**PU-48951**
CV Boot Clamp Pliers	**8700226**

Bosch Automotive Service Solutions:
1-800-345-2233 or http://polaris.service-solutions.com

TORQUE SPECIFICATIONS - FINAL DRIVE

PART DESCRIPTION	TORQUE SPECIFICATION
Ball Joint Pinch Bolts	**42 lb-ft (57 Nm)**
Tie Rod End Fastener	**40 lb-ft (54 Nm)**
Front Caliper Mounting Bolts	**30 lb-ft (41 Nm)**
Front Wheel Hub Castle Nuts	**80 lb-ft (108 Nm)**
Wheel Nuts (Steel Wheels)	**60 lb-ft (81 Nm)**
Wheel Nuts (Cast Aluminum Wheels)	**120 lb-ft (163 Nm)**
Flex Bearing Mounting Fasteners	**40 lb-ft (54 Nm)**
Front Gearcase Cover Plate Screws	**7–11 lb-ft (10–15 Nm)**
Front Gearcase Mounting Bolts	**30 lb-ft (41 Nm)**
Bearing Carrier Fasteners	**40 lb-ft (54 Nm)**
Rear Wheel Hub Castle Nuts	**110 lb-ft (149 Nm)**
Rear Caliper Mounting Bolts	**46 lb-ft (62 Nm)**

SERVICE SPECIFICATIONS - FINAL DRIVE

PART DESCRIPTION	SERVICE SPECIFICATION
Front Gearcase Coil Resistance	**21.6 - 26.4 Ω**

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FRONT BEARING CARRIER SERVICE

BEARING CARRIER REMOVAL / INSPECTION

1. Elevate front of vehicle and safely support machine under the frame area.

CAUTION

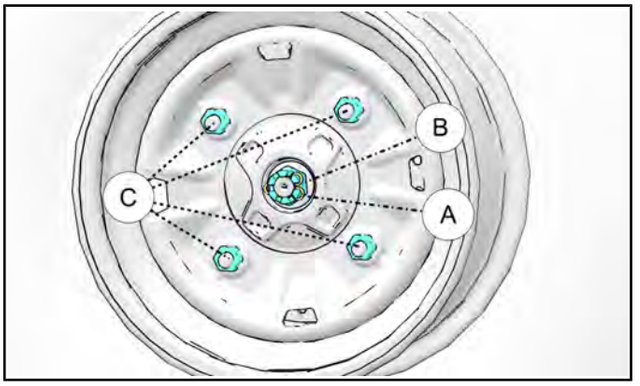
Serious injury may result if machine tips or falls. Be sure machine is secure before beginning this service procedure. Wear eye protection when removing bearings and seals.

2. Check bearings for side play by grasping the top and bottom of the tire firmly and checking for movement. The tire should rotate smoothly without binding or rough spots.

NOTE

Side to side play could also indicate tie rod end wear and top to bottom play could also indicate upper or lower ball joint wear. Be sure to closely inspect these components if play is found.

3. Remove the center cap and/or rubber dust cap. Remove the cotter pin (A) and loosen the front wheel hub castle nut (B).



NOTE

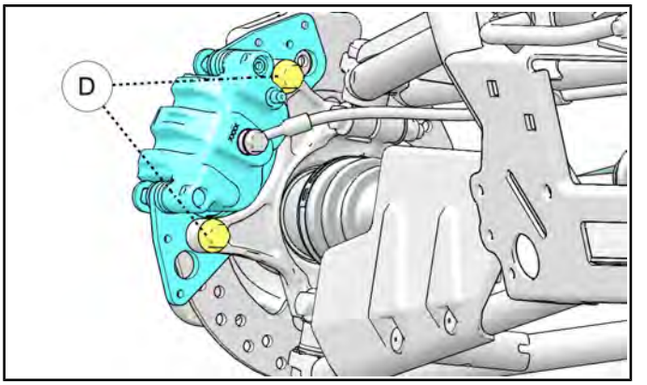
Lower the vehicle so the front wheels are on the ground to prevent the wheel from spinning while attempting to loosen the castle nut.

4. Lift the vehicle up again safely and remove the four wheel nuts (C). Remove the front wheel from the vehicle.

5. Remove the two brake caliper mounting bolts (D).

CAUTION

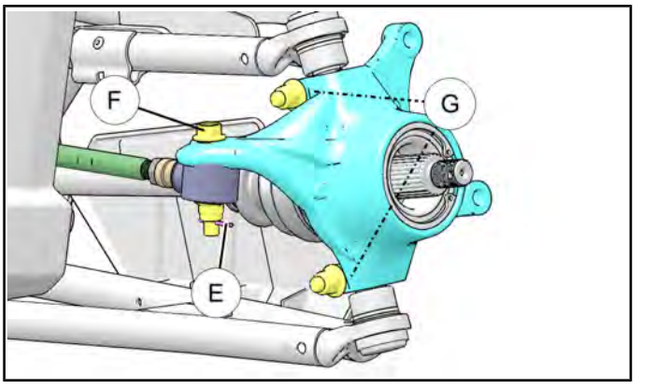
Do not hang caliper by the brake line. Use wire to hang caliper to prevent damage to brake line.



6. Remove the castle nut and two cone washers from the front wheel hub assembly.

7. Remove the wheel hub and brake disc assembly.

8. Remove cotter pin (E). Remove the fastener (F) retaining the tie rod end to the bearing carrier.



9. Remove the upper and lower ball joint pinch bolts (G).

10. Using a soft faced hammer, lightly tap the bearing carrier while removing the upper and lower ball joints ends from the bearing carrier.

11. Pull the bearing carrier out to remove it from the driveshaft.

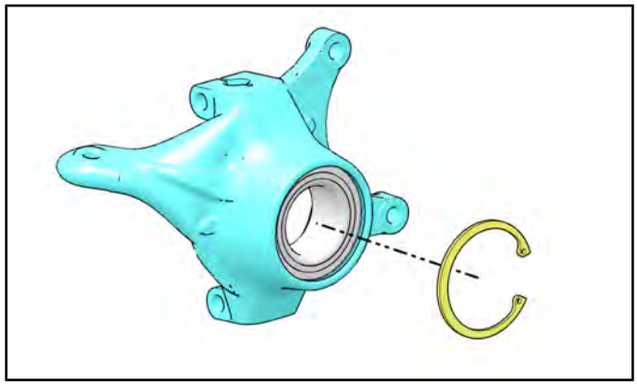
12. Rotate bearing by hand and check for rough spots. The bearing should rotate quietly and smoothly with no detectable up and down movement and minimal movement sideways between the inner and outer races. Visually inspect for moisture, dirt or corrosion.

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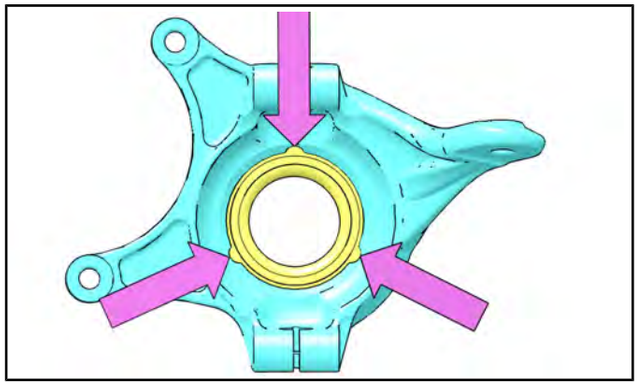
BEARING REPLACEMENT

Bearing Removal

1. Remove outer snap ring.



2. From back side of the bearing carrier, tap on the outer bearing race with a drift punch in the reliefs as shown.



3. Drive bearing out evenly by tapping on outer race only. Once bearing is at bottom of casting, support casting on outer edges so bearing can be removed.
4. Inspect bearing carrier housing for scratches, wear or damage. Replace front bearing carrier if damaged.

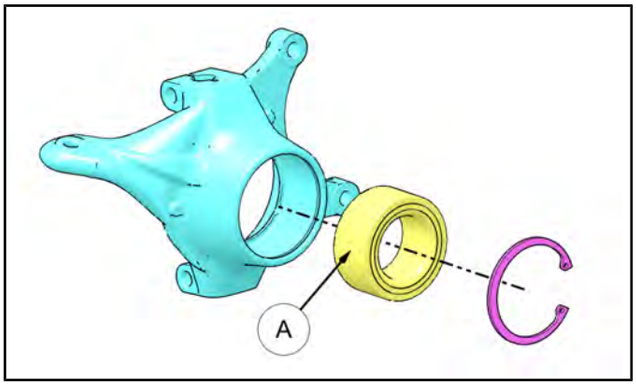
Bearing Installation

5. Thoroughly clean the front bearing carrier housing and the outer race on the new bearing. Be sure that all oil residue has been removed from each surface.
6. Support the bottom of the bearing carrier housing.

CAUTION

Use an arbor and press only on the outer race, otherwise bearing damage may occur.

7. Apply **Loctite® 603** retaining compound to the outer circumference of the new bearing race (A) and carefully press the new bearing into the bearing carrier housing.



NOTE

Use care to not allow any of the Loctite® compound to get in the bearing.

8. Wipe the housing clean of any excess compound and install the snap ring.

BEARING CARRIER INSTALLATION

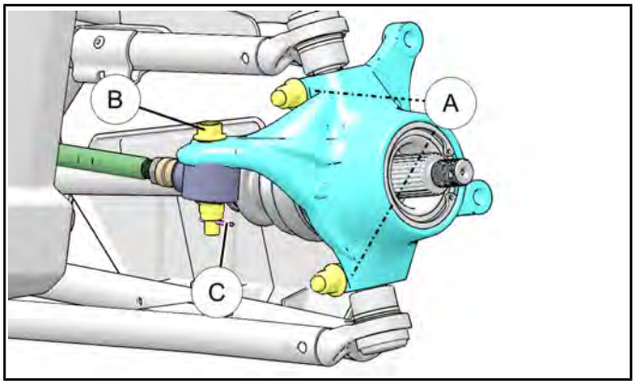
CAUTION

New bolts have a pre-applied locking agent which is destroyed upon removal. Always use new brake caliper mounting bolts upon assembly.

1. Install the end of the drive shaft through the backside of the bearing carrier.
2. Install the upper and lower ball joint ends into the front bearing carrier.

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3. Install pinch bolts (A) and torque to specification.

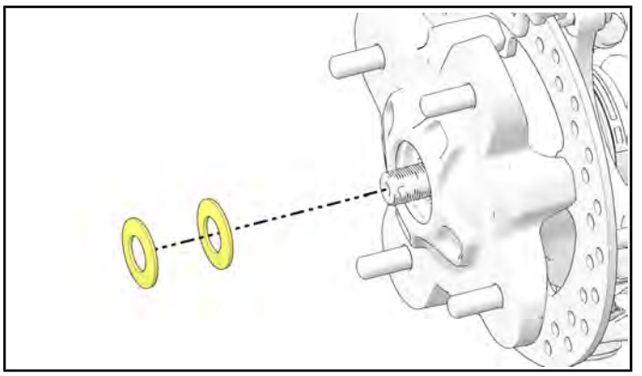


TORQUE
Ball Joint Pinch Bolts: **42 lb-ft (57 Nm)**

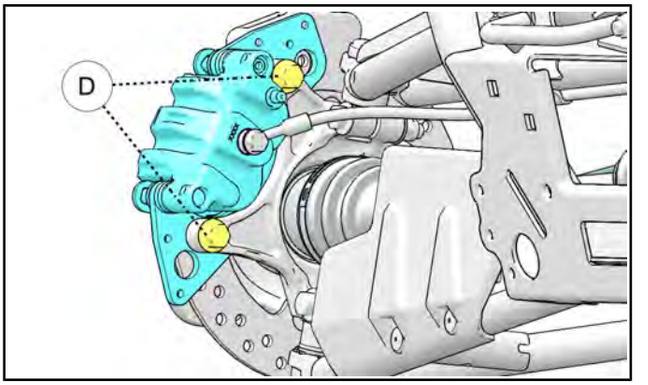
4. Install the steering tie rod end onto the front bearing carrier and torque the fastener (B) to specification. Install a NEW cotter pin (C)

TORQUE
Tie Rod End Fastener: **40 lb-ft (54 Nm)**

5. Apply grease to the drive shaft splines.
6. Install front wheel hub assembly, cone washers, and hand tighten the castle nut. Install washers with domed side out.

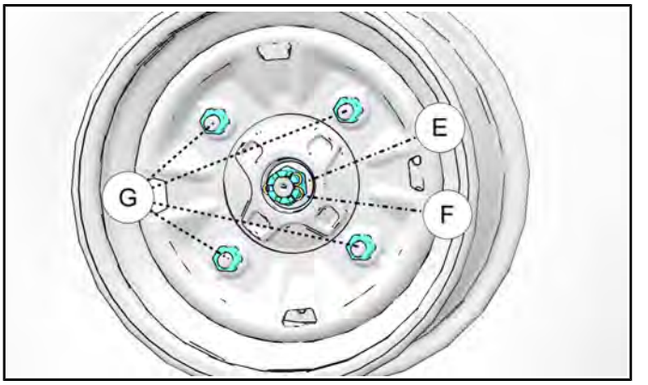


7. Install the front brake caliper. Install the mounting bolts (D) and torque to specification.



TORQUE
Front Caliper Mounting Bolts: **30 lb-ft (41 Nm)**

8. Torque wheel hub castle nut (E) to specification and install a NEW cotter pin (F). Tighten nut slightly if necessary to align holes for the cotter pin.



TORQUE
Front Hub Castle Nut: **80 lb-ft (108 Nm)**

9. Install wheel and four wheel nuts (G). Torque wheel nuts to specification.

TORQUE
Wheel Nuts (Steel): **60 lb-ft (81 Nm)** Wheel Nuts (Cast Alum): **120 lb-ft (163 Nm)**

10. Rotate wheel and check for smooth operation. Bend both ends of cotter pin around the end of the shaft. Install the center cap and/or rubber dust cap.

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FRONT DRIVE SHAFT SERVICE

FRONT DRIVE SHAFT REMOVAL

1. Remove the front bearing carrier. Refer to **"Bearing Carrier Removal / Inspection", page 7.4** procedure earlier in the chapter.

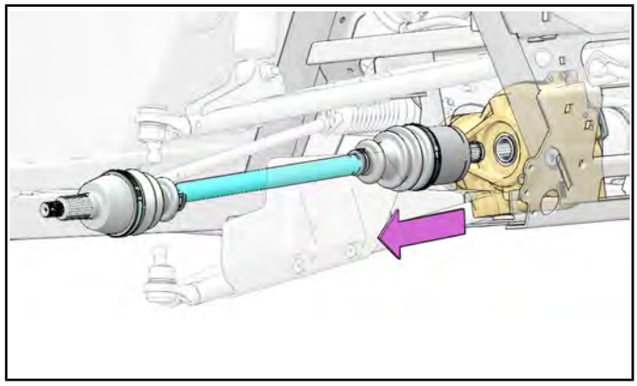
NOTE

Perform all removal steps with the exception of removing the steering tie rod end. It will not be necessary to remove the tie rod end from the front bearing carrier when removing the front drive shaft.

CAUTION

Serious injury may result if machine tips or falls. Be sure machine is secure before beginning this service procedure.

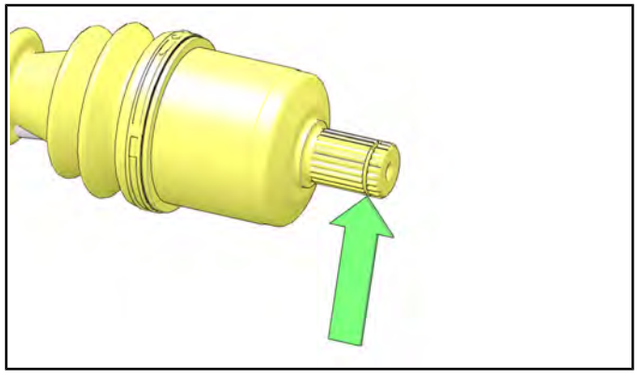
2. Remove the drive shaft from the front bearing carrier.
3. With a short, sharp jerk, remove drive shaft from the front gearcase.



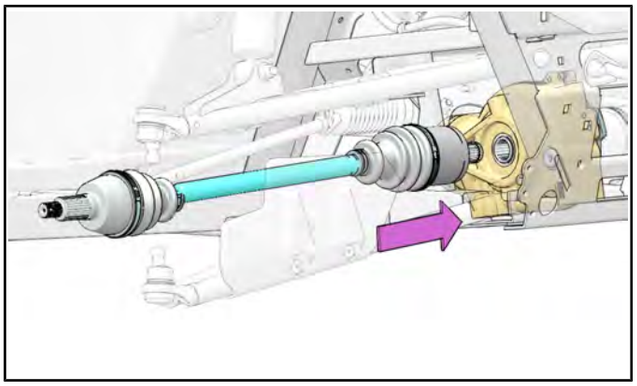
4. Refer to the **"DRIVE SHAFT SERVICE", page 7.37** procedure if repairing the drive shaft.

FRONT DRIVE SHAFT INSTALLATION

1. Install new spring ring on the end of the drive shaft. Apply an anti-seize compound to splines.



2. Align splines of drive shaft with front gearcase and reinstall the drive shaft. Use a rubber mallet to tap on the outboard end of the drive shaft if necessary. Lightly tug on the shaft to make sure the retaining ring is locked into the front gearcase.



3. Install drive shaft into the front bearing carrier.
4. Install the front bearing carrier. Refer to **"Bearing Carrier Installation"**, page 7.5 procedure earlier this chapter.

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FRONT PROPSHAFT SERVICE

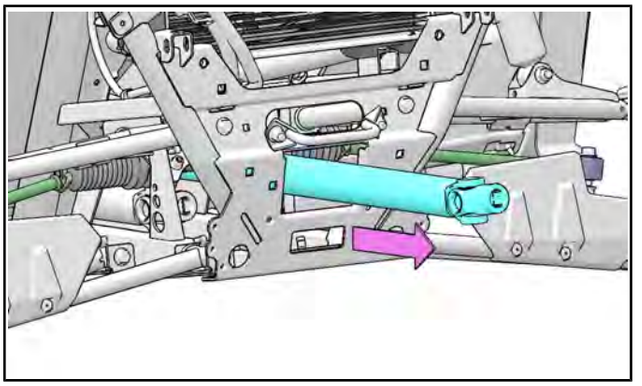
FRONT PROPSHAFT REMOVAL / INSTALLATION

1. Remove the front bumper (see Chapter 9).
2. Elevate and safely support vehicle under the frame. The use of a vehicle hoist is recommended for this procedure.

CAUTION

Serious injury may result if machine tips or falls. Be sure machine is secure before beginning this service procedure. Wear eye protection when removing bearings and seals.

3. Remove the front gearcase from the vehicle. Refer to **"Front Gearcase Removal", page 7.16** procedure.
4. Pull the front propshaft towards the front of the vehicle until the splines on the rear yoke disengage from the transmission snorkel shaft. Remove the propshaft out the front of the vehicle as shown.



NOTE

If the propshaft does not fully disengage from the transmission snorkel shaft, remove the skid plate to access the front engine mount support. Remove the two driver's side engine mount nuts. Doing so will allow you to lift up on the engine to get more clearance between the propshaft and the steel skid plate.

5. Reverse this procedure to reinstall the front propshaft. Use a NEW roll pin upon installation.

FRONT PROPSHAFT REMOVAL / INSTALLATION - CREW

Removal

1. Remove the front bumper (see Chapter 5).
2. Elevate and safely support vehicle under frame. The use of a vehicle lift is recommended for this procedure.
3. Remove the front gearcase (see “Front Gearcase Removal”).
4. Separate the front section of the propshaft assembly from the splines in front of the flex bearing A (Fig. 1).

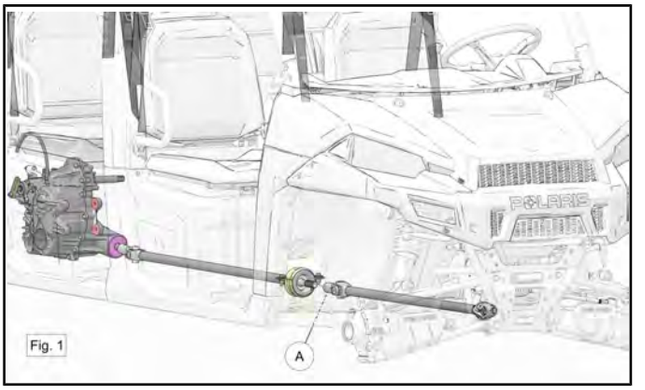


Fig. 1

5. Remove the front skid plate.
6. Remove the rear skid plate.
7. Remove rear floor (see Rear Floor - CREW in Chapter 5).
8. Remove the two fasteners (B) Fig. 2 securing the flex bearing to the frame.

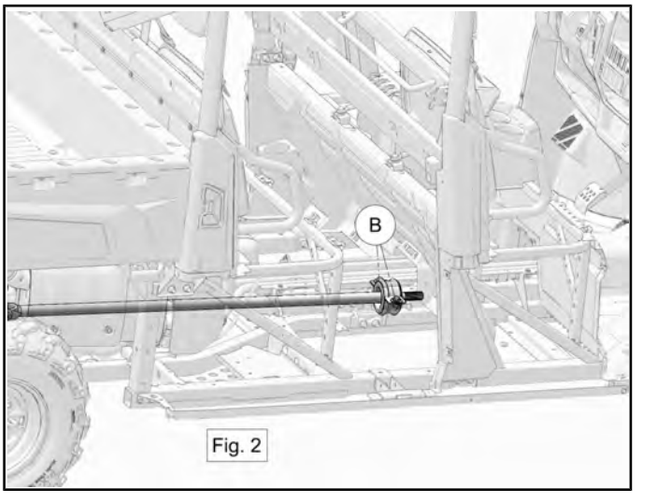


Fig. 2

9. Slide the rear section of the propshaft assembly from the transmission output shaft.

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10. Remove the propshaft assembly through the rear floor opening.

Installation

1. Install the rear section of the propshaft onto the transmission output shaft.
2. Install and torque the two flex bearing mounting fasteners to specification.

TORQUE
Flex Bearing Mounting Fasteners: **40 lb-ft (54 Nm)**

3. Install rear floor (see Rear Floor - CREW in Chapter 5).
4. Install rear skid plate.
5. Install front skid plate.
6. Install front section of the propshaft.
7. Install the front gearcase (see “Front Gearcase Removal”).

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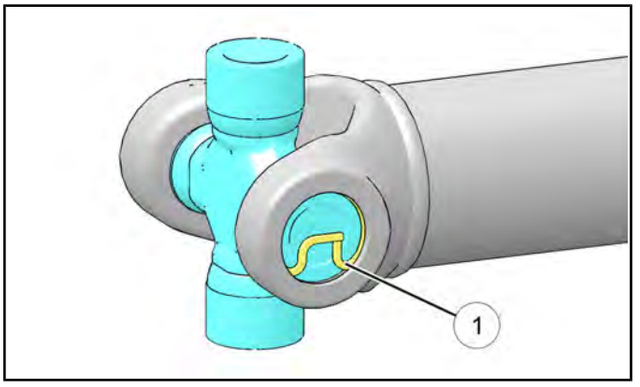
PROPSHAFT U-JOINT SERVICE

PROPSHAFT U-JOINT DISASSEMBLY

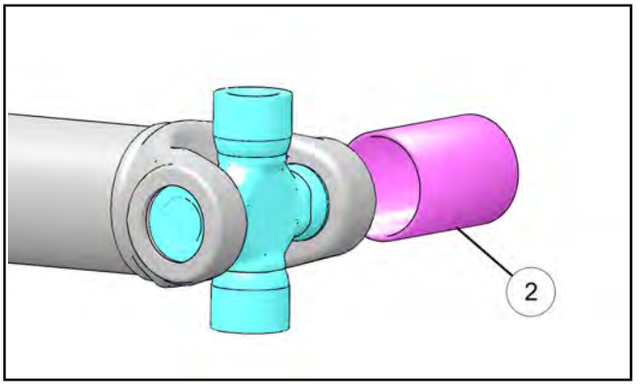
NOTE

Before servicing the prop shaft U-joint, be sure the joint is clean to ensure no debris damages the yoke.

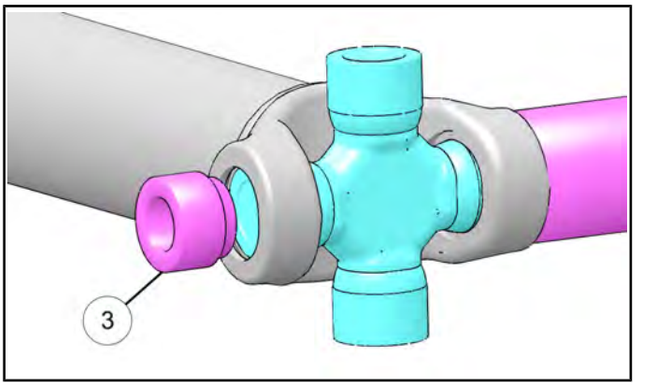
1. With the prop shaft removed and marked for alignment orientation, remove the retaining rings ① from both sides of the yoke.



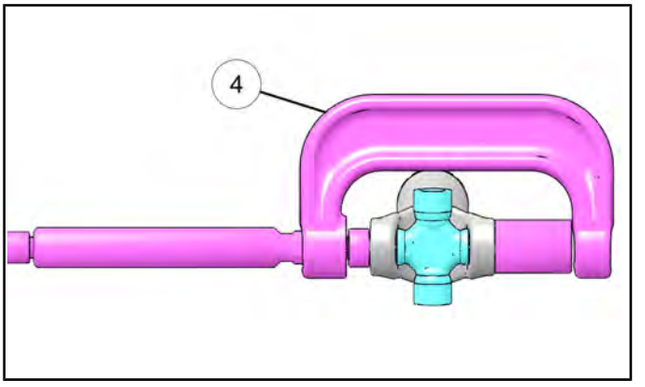
2. Using a commercially available **Ball Joint / U-Joint Press Set**, place a receiving cup adapter ② with a larger ID than the U-joint cap OD on one end.



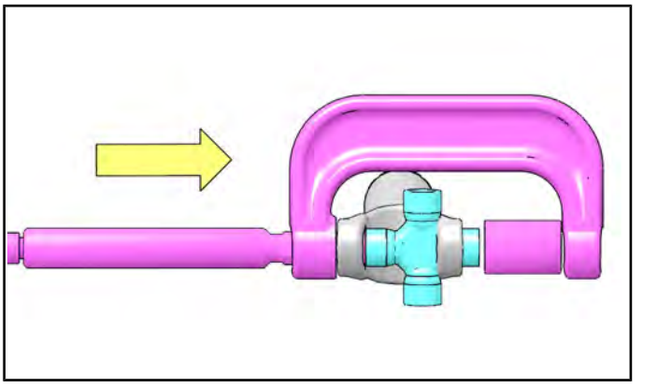
3. Place a remover adapter ③ on other end of U-joint with a smaller OD than the U-joint cap.



4. Position clamp ④ over receiving cup adapter and remover adapter.



5. Tighten clamp with hand tools to force U-joint cups out of yoke.

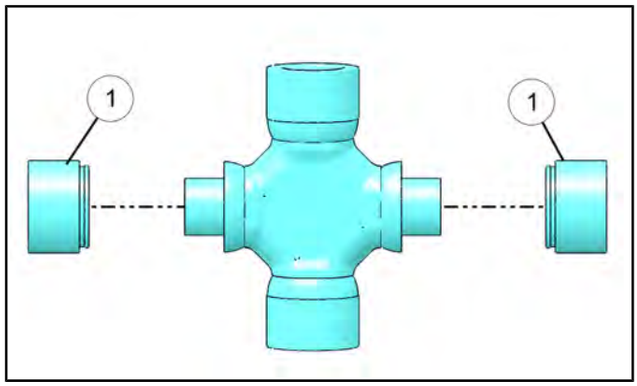


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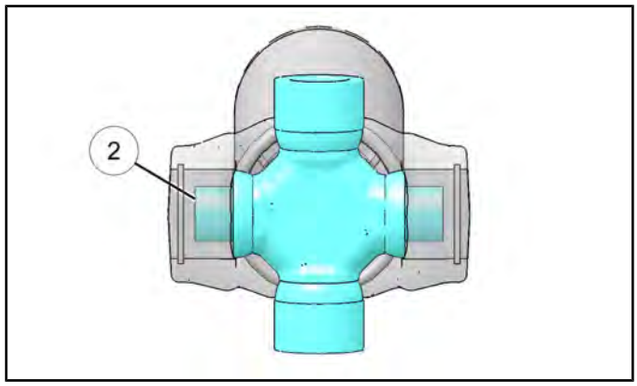
6. Discard and replace all U-joint parts that were removed from the yoke.

PROPSHAFT U-JOINT ASSEMBLY

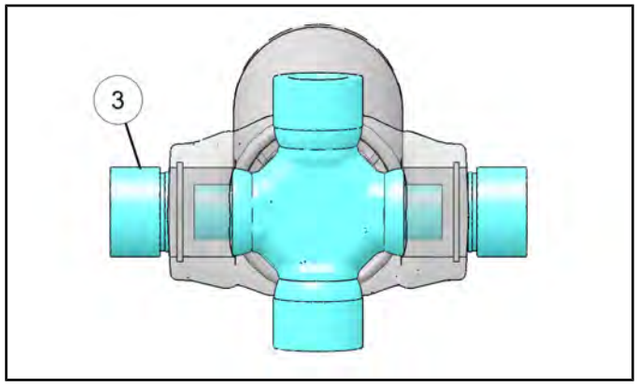
1. With NEW U-joint, remove two opposing caps ① from end of joint to go into yoke and secure other two so they do not fall off during installation.



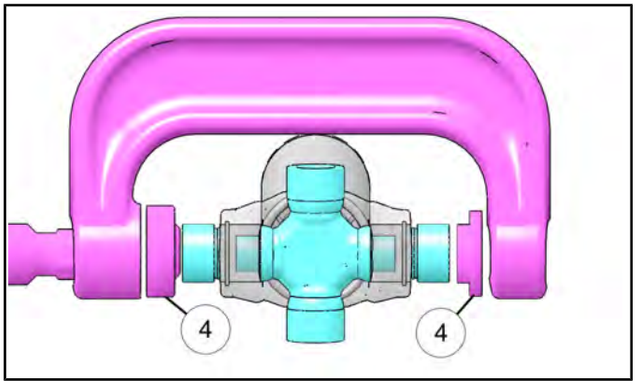
2. Ensure yoke bores and ring grooves are clean before installing new U-joint.
3. Place U-joint ends ② without caps into yoke bores.



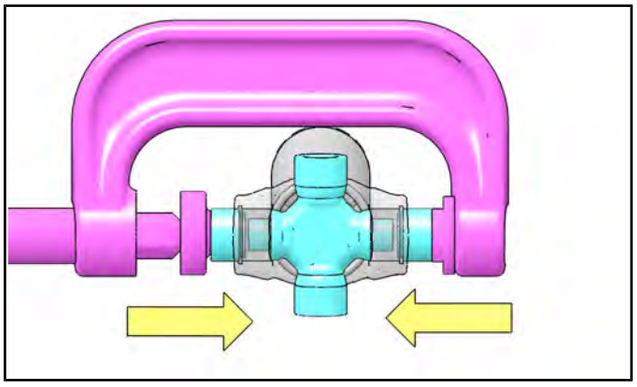
4. Place caps ③ into yoke bores and align with U-joint ends by hand.



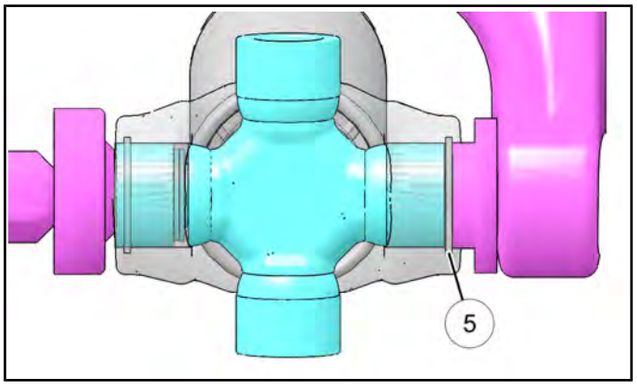
5. Place clamp and installer adapters ④ with smaller OD than caps over each cap.



6. Tighten clamp to install caps simultaneously into yoke bores.



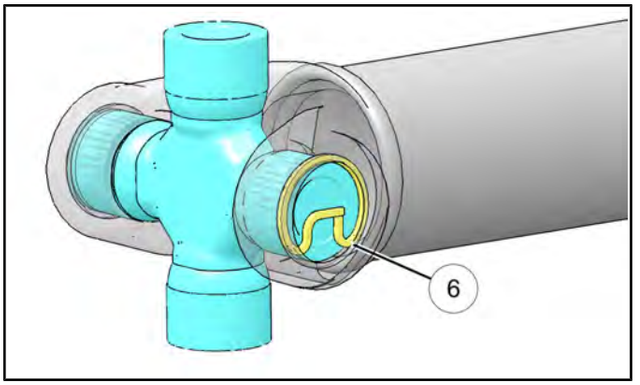
7. Push U-joint side to side during clamping to seat into caps properly.
8. Tighten clamp until both caps are flush with yoke and one cap is past retaining ring groove ⑤.



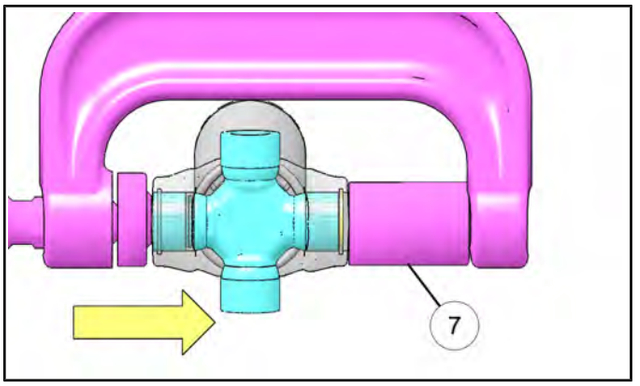
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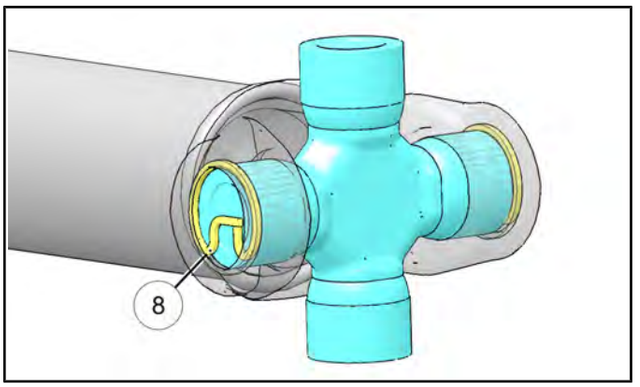
9. Install retaining ring ⑥ with sharp, square edge facing away from U-joint into exposed groove.



10. Place larger adapter ⑦ with ID larger than yoke bore on side with retaining ring.



11. Tighten clamp until other cap is below retaining ring groove.
12. Install second retaining ring ⑧ with sharp, square edge facing away from U-joint.

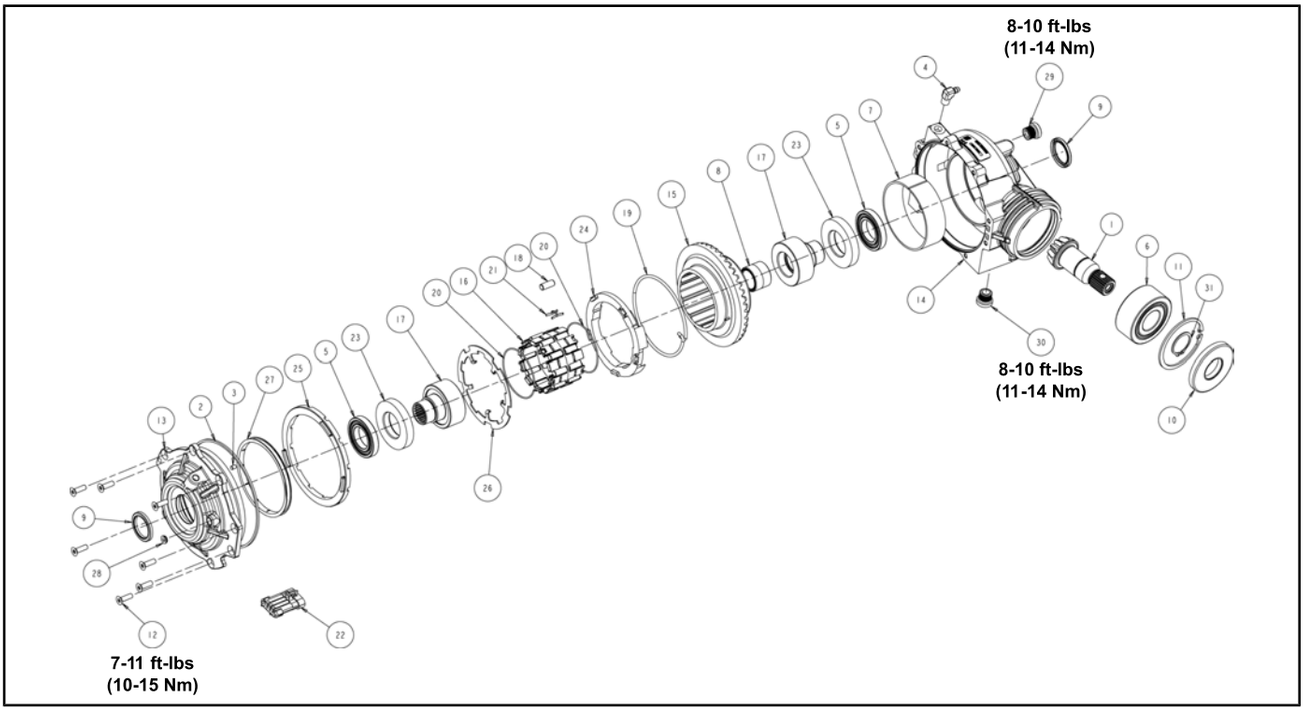


13. Verify the U-joint moves freely and does not bind.

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FRONT GEARCASE SERVICE

FRONT GEARCASE EXPLODED VIEW



REF	DESCRIPTION	REF	DESCRIPTION
①	Pinion Gear	⑰	Hub Assembly
②	O-Ring	⑱	Rollers
③	Dowel Pin	⑲	Torsion Spring
④	Vent Hose Fitting	⑳	Spring, Wireform
⑤	Ball Bearing	㉑	H-Clip Spring
⑥	Ball Bearing (Double Row)	㉒	Connector Assembly
⑦	Bushing	㉓	Nylon Spacer
⑧	Bushing	㉔	Torsion Spring Retainer
⑨	Oil Seal	㉕	Backlash Spacer
⑩	Oil Seal	㉖	Armature Plate
⑪	Retaining Ring, Internal	㉗	AWD Coil
⑫	Cover Screws, M6 (T30 Torx)	㉘	Grommet
⑬	Cover Plate Assembly	㉙	Fill Plug
⑭	Gearcase Housing	㉚	Drain Plug, Magnetic
⑮	Clutch Housing (Ring Gear)	㉛	Retaining Ring, External
⑯	Roll Cage		

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ALL WHEEL DRIVE OPERATION

The AWD switch may be turned on or off while the vehicle is moving, however, AWD will not enable until the engine RPM drops below 3100. Once the AWD is enabled, it remains enabled until the switch is turned off.

Engage the AWD switch before getting into conditions where the front wheel drive may be needed. If the rear wheels are spinning, release the throttle before switching to AWD.

CAUTION

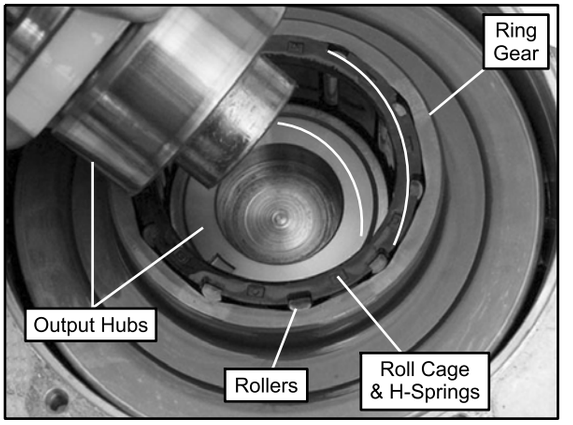
Switching to AWD while the rear wheels are spinning may cause severe drive shaft and gearcase damage. Always switch to AWD while the rear wheels have traction or are at rest.

With the AWD switch off, the vehicle drives through the rear wheels only (2 wheel drive). When the AWD is enabled, the front drive acts as an on-demand AWD system. This means, the front drive will engage once the rear wheels have lost traction, and will remain engaged until the torque requirement goes away (i.e. rear wheels regain traction).

CAUTION

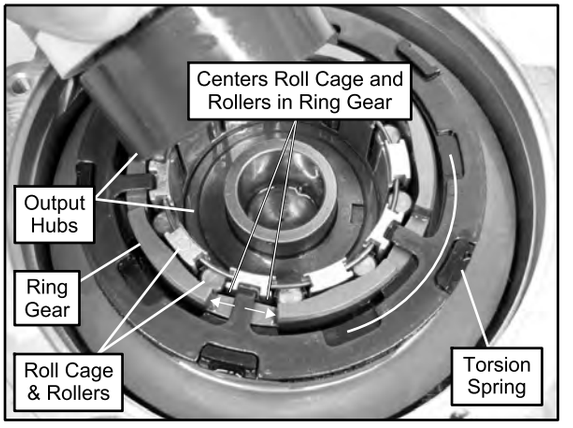
If the rear wheels are spinning, release the throttle before turning the AWD switch on.If AWD is engaged while the wheels are spinning, severe drive shaft and front gearcase damage could result.

AWD Engagement: When the AWD switch is activated, the AWD coil is powered by a 12 Vdc input which creates a magnetic field. This magnetic field attracts an armature plate that is keyed to the roll cage. When the ring gear and roll cage are spinning (vehicle is moving), the energized coil and armature plate will apply drag to the roll cage that indexes the rollers inside the ring gear to an engagement position. While in the engagement position, the front drive will be in an “over-running” condition (not engaged), until the rear wheels lose traction. Once the rear wheels begin to lose traction, the front drive will engage by coupling the output hubs to the ring gear via the rollers. The front drive will remain engaged until the torque requirement goes away (i.e. rear wheels regain traction).



AWD Disengagement: Once the rear wheels regain traction, the front wheels will return to the “over-running” condition. The vehicle is now back to rear wheel drive until the next loss of rear wheel traction occurs.

Torsion Spring Operation: The torsion spring acts as a return mechanism to help disengage the coupling of the output hubs and ring gear by creating an “over-running” condition for the rollers upon disengagement.

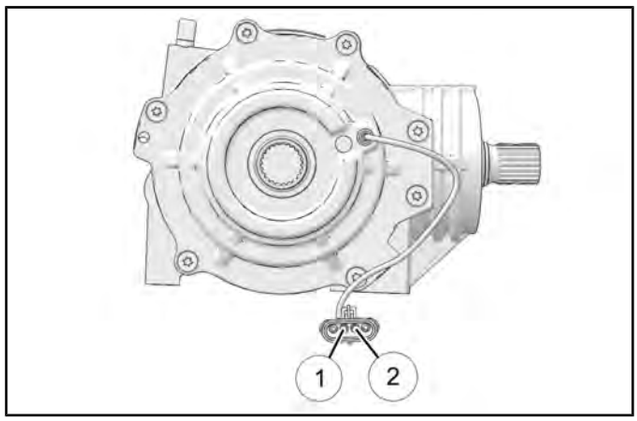


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AWD DIAGNOSIS

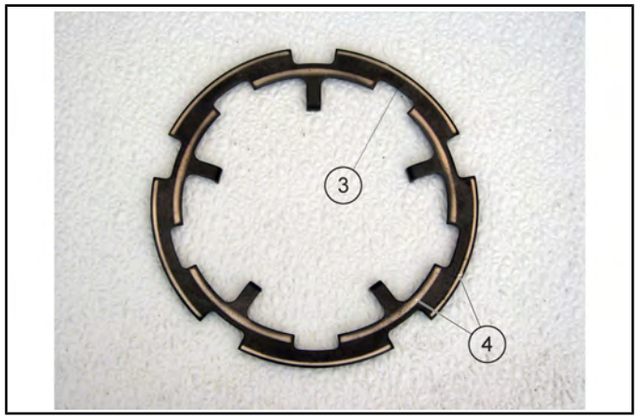
Symptom: AWD Will Not Engage

1. Check the gearcase coil resistance. To test the coil resistance, measure between the power wire ① (GY) and ground wire ② (BN/WH). Measurement should be within specification.

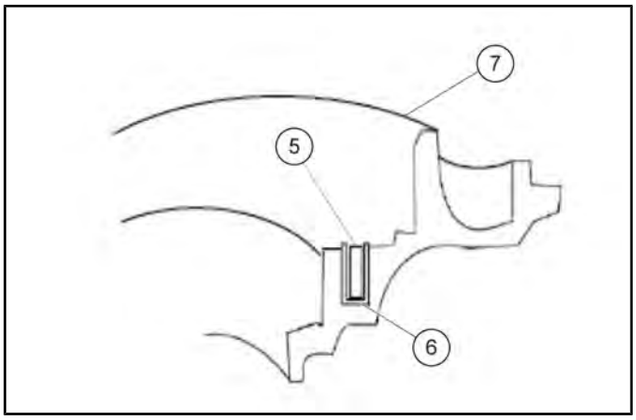


Front Gearcase Coil Resistance:
21.6 - 26.4 Ω

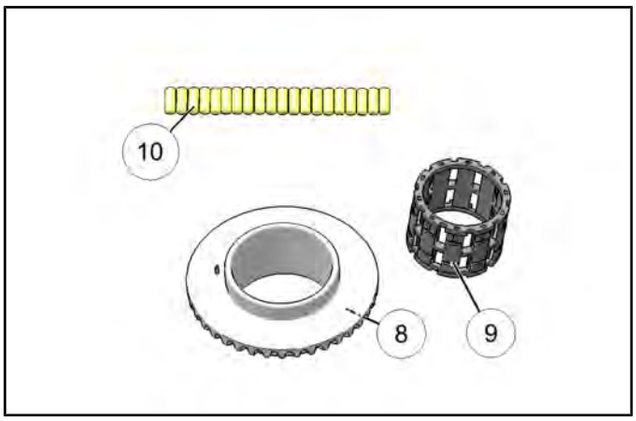
2. Turn the ignition and AWD switches on and place gear selector in High or Low gear. Check for minimum battery voltage at the Gray and Brown/White chassis wires that power the coil. A minimum of 11 Vdc should be present.
3. If electrical tests are within specification, remove gearcase (see **"Front Gearcase Removal", page 7.16**) and inspect components.
4. Inspect armature plate ③ for a consistent wear pattern. There should be two distinct wear bands ④. If only one band of wear is present (or if there is wear between the two bands), inspect the coil area as indicated in Step 5. A wear band with an interrupted wear mark may indicate a warped plate, which may cause intermittent operation.



5. Check to make sure the coil ⑤ is seated in the U-shaped ⑥ insert that is pressed into the gearcase cover ⑦. The top of the coil should be seated below the U-shaped insert. The U-shaped insert controls the pole gap. If the top of the coil is above the surface of the U-shaped insert it raises the armature plate, thereby increasing pole gap. If the pole gap increases the coil will not be strong enough to engage the AWD system. If this is found, replace the cover plate assembly.



6. Inspect the roller surface on the inside of the ring gear for gouging/rough spots.



7. Inspect the roll cage ⑨ assembly for cracks or excessive wear. If damaged, replace the roll cage assembly.
8. Inspect the rollers⑩ for nicks and scratches. The rollers must slide up, down, in and out freely within the roll cage sliding surfaces and H-springs.

7

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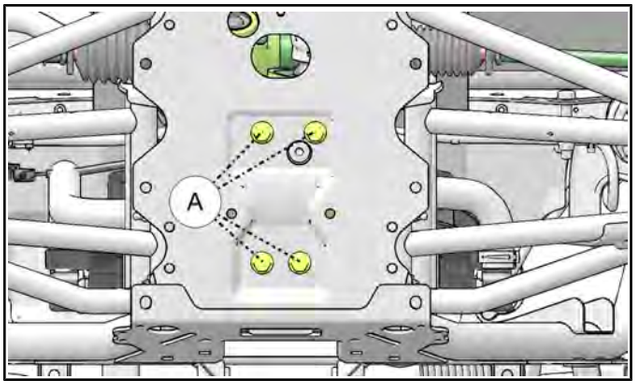
FRONT GEARCASE REMOVAL

1. Place the transmission in Park. Elevate front of vehicle and safely support machine under the frame.

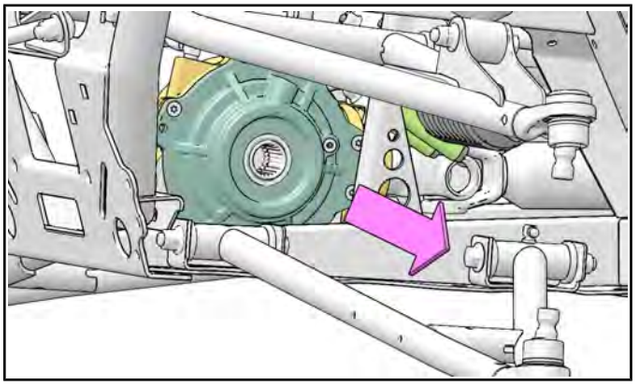
CAUTION

Serious injury may result if machine tips or falls.Be sure machine is secure before beginning this service procedure.

2. Remove both front drive shafts from the front gearcase. Refer to **"Front Drive Shaft Removal", page 7.7** procedure.
3. Use the Roll Pin Removal Tool **2872608** to drive the roll pin out of the front propshaft yoke at the front gearcase.
4. Slide the propshaft off the front gearcase input shaft splines.
5. Disconnect the AWD wire harness and remove the plastic zip tie holding the AWD coil pigtail.
6. Remove the bolts (A) retaining the front gearcase to the skid plate frame.

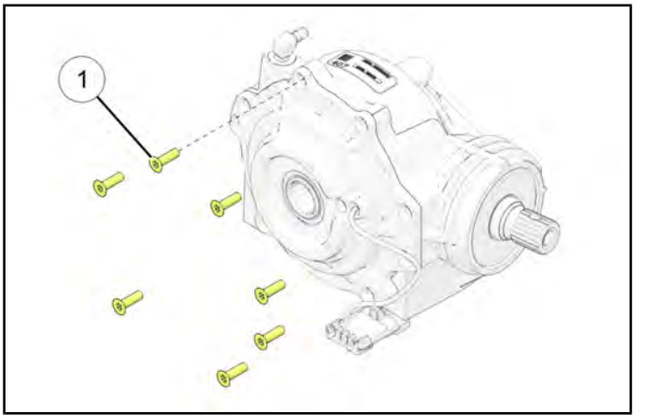


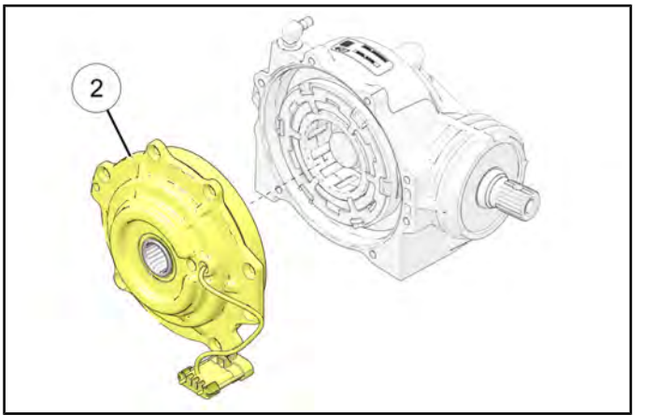
7. Remove the vent hose from the front gearcase.
8. Remove the grease zerk fitting from the left front lower control arm.
9. Remove the front gearcase from the left-hand side between the upper and lower control arms.



FRONT GEARCASE DISASSEMBLY / INSPECTION

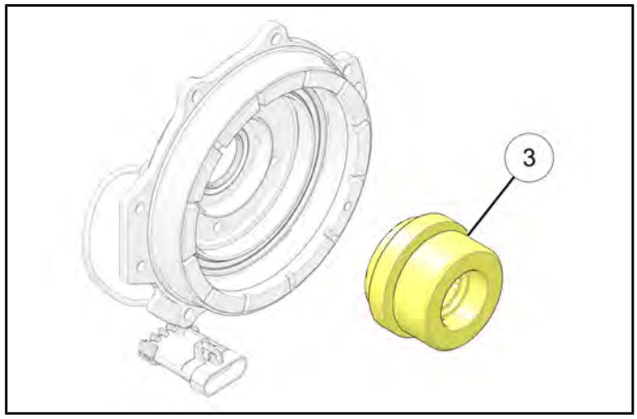
1. Drain and properly dispose of gearcase fluid. Remove any metal particles from the drain plug magnet.
2. Remove the seven cover screws ① and remove the cover plate ② assembly.





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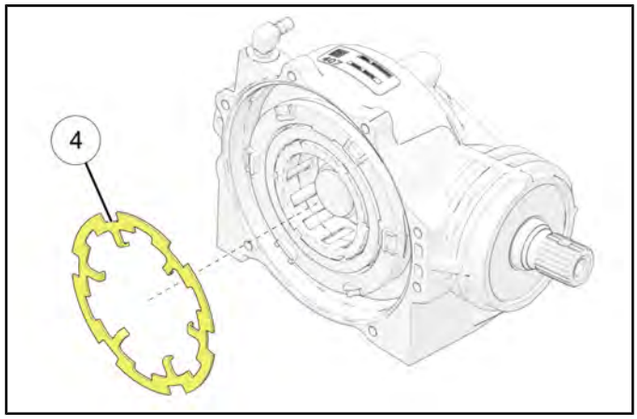
3. Remove the LH output hub assembly ③ from the clutch housing or outer cover plate assembly.



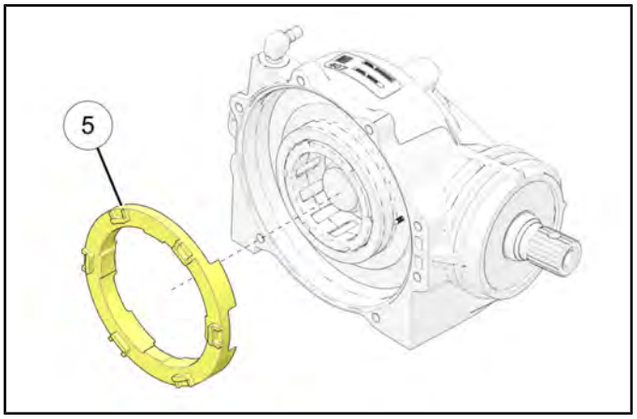
NOTE

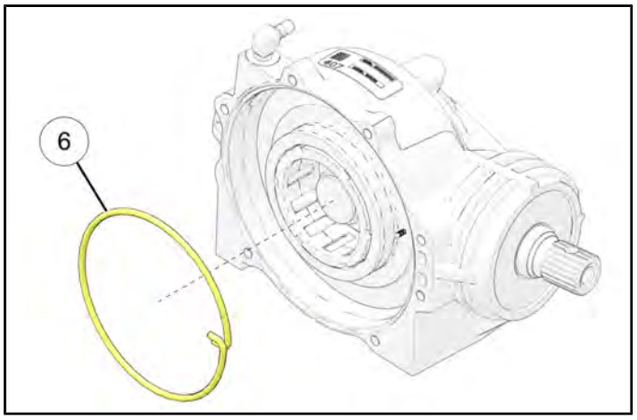
Nylon spacer is non-serviceable and should not be removed.

4. Remove and inspect the armature plate ④. Refer to **“AWD Diagnosis”, page 7.15** for detailed inspection process.

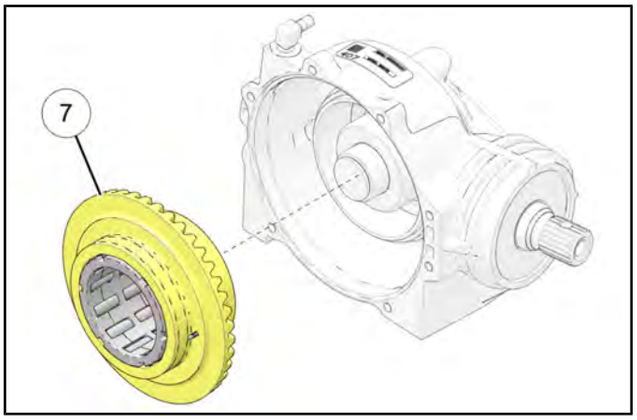


5. Remove the torsion spring retainer ⑤ and torsion spring ⑥ from the top of the ring gear.





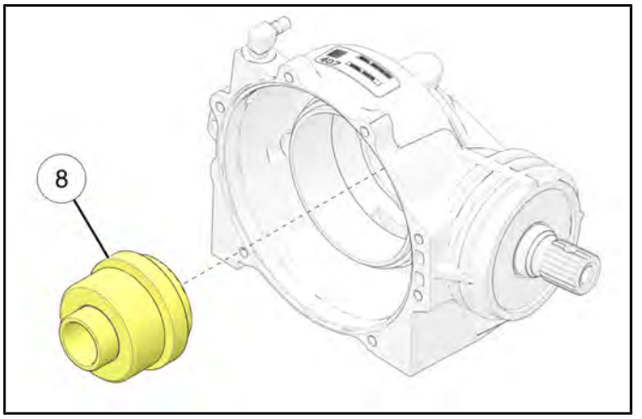
6. Remove the clutch housing / ring gear and roll cage assembly ⑦ from the gearcase housing.



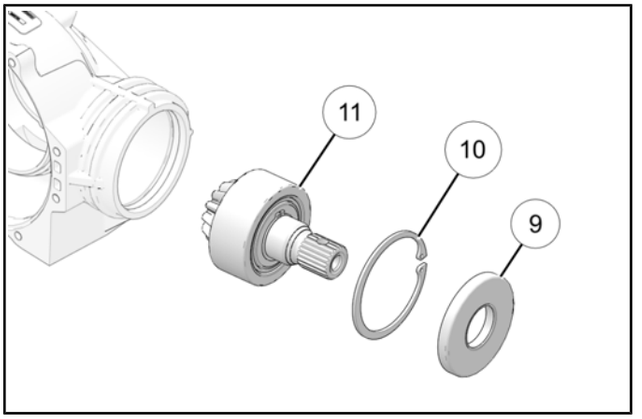
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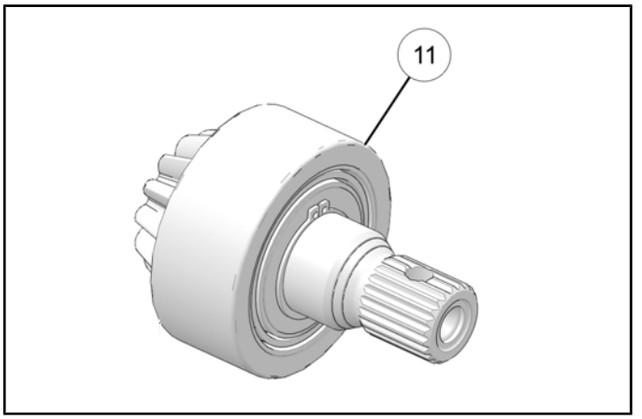
7. Remove the RH output hub assembly ⑧ from the gearcase housing.



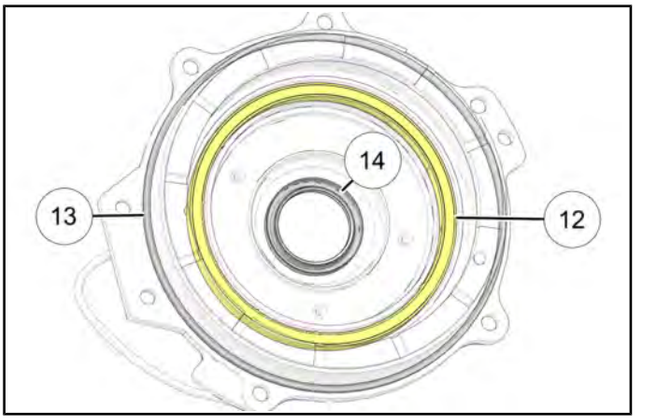
8. Remove pinion seal ⑨, internal retaining ring ⑩, and pinion gear assembly ⑪ from the gearcase housing. Inspect and clean the gearcase housing and replace all oil seals and O-rings.



9. Inspect the pinion gear ⑪ for chipped, broken or missing teeth. Inspect the pinion bearing for signs of wear and the pinion shaft seal surface for pitting.



10. Inspect the AWD coil ⑫ located in the outer cover plate assembly. Refer to **"AWD Diagnosis", page 7.15** for detailed inspection process. Replace the cover plate seal ⑬ and O-ring ⑭.

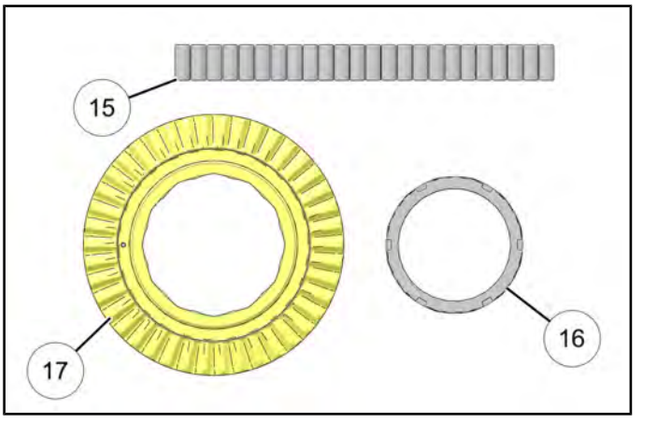


11. Remove the roll cage assembly and rollers from the clutch housing. Use a shop towel to cover the housing in order to retain all the rollers.

NOTE

Rollers are spring loaded. Take care not to allow them to fall out or lose them upon removal of the roll cage.

12. Thoroughly clean all parts and inspect the rollers ⑮ for nicks and scratches. The rollers must slide up and down and in and out freely within the roll cage ⑯ sliding surfaces and H-springs.



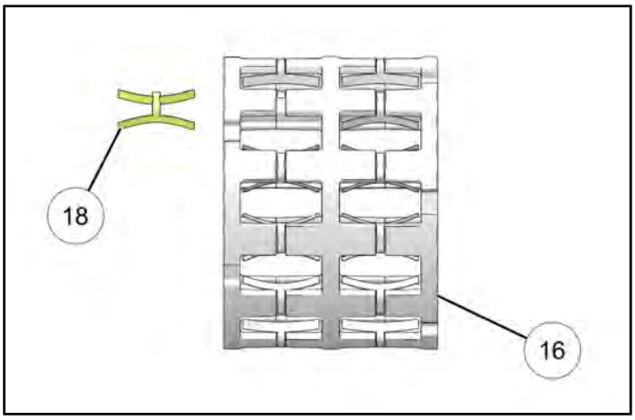
NOTE

Refer to the "Electronic Parts Catalog" for individual part availability. Most parts are to be replaced as an assembly or as a complete kit.

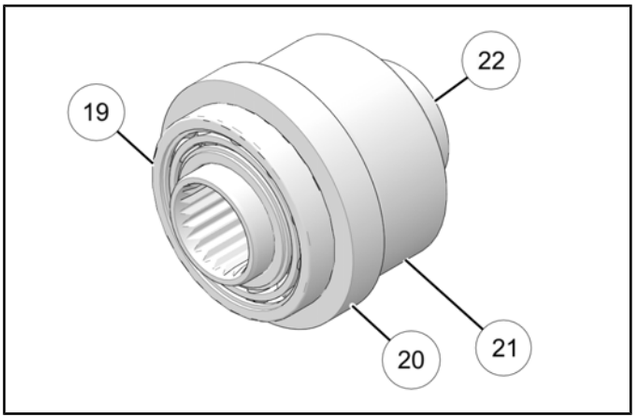
13. Inspect clutch housing / ring gear ⑰ for a consistent wear pattern. Inspect the ring gear for chipped, broken, or missing teeth.

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14. Inspect the roll cage assembly ⑯ sliding surfaces and H-springs ⑱. The sliding surfaces must be clean and free of nicks, burrs or scratches. If damaged, replace the roll cage assembly.



15. Inspect both output hub assemblies. Inspect the bearings and replace if needed.



⑲ Bearing	㉑ Roller Surface
⑳ Spacer	㉒ Thrust Bearing

16. Clean and inspect all remaining front gearcase components. Check each for excessive wear or damage.

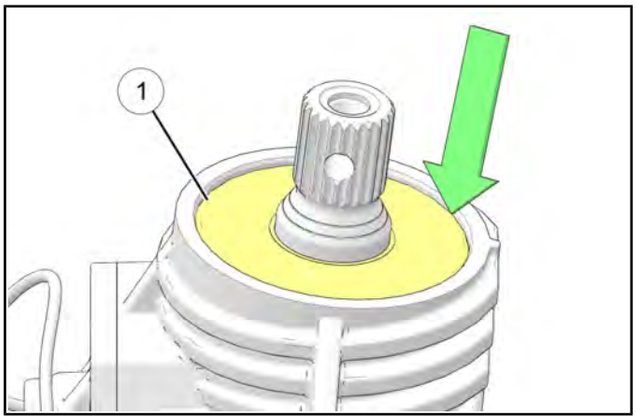
FRONT GEARCASE ASSEMBLY

1. As mentioned during gearcase disassembly section, replace all O-rings, seals and worn components.
2. Install pinion shaft assembly and install internal snap ring.

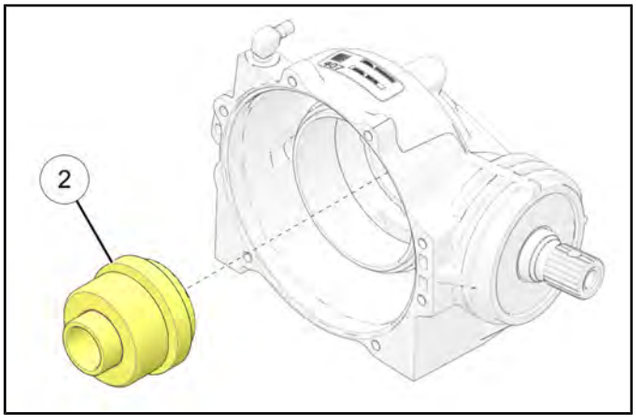
NOTE

If bearing replacement was required, press new bearing onto the pinion shaft and install a new external snap ring.

3. Install a new pinion shaft seal ① into the pinion gear housing. Using a universal seal installer, press the new seal into the housing until the seal is just below the housing chamfer.



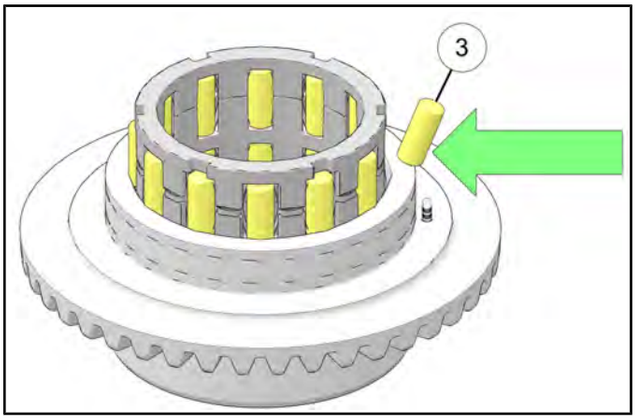
4. Install the RH output hub ② into the gearcase housing.



7

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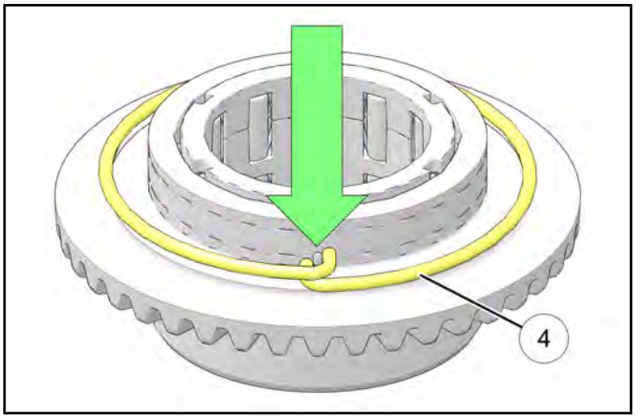
5. Carefully install the rollers ③ into the roll cage assembly while installing the assembly into the clutch housing.



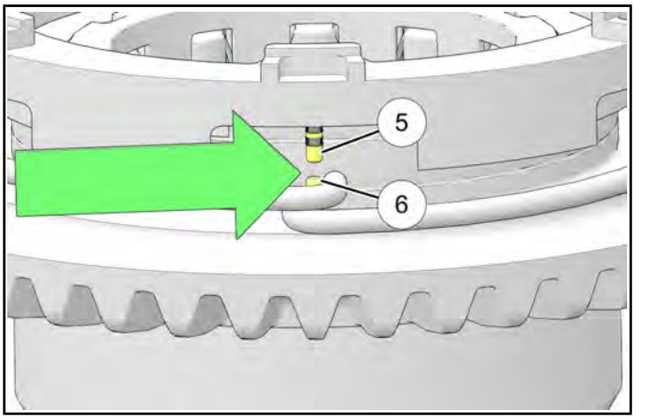
NOTE

Install roll cage so that the ring gear grooves line up with the roll cage windows (see below). Be sure role cage top groove is facing upward.

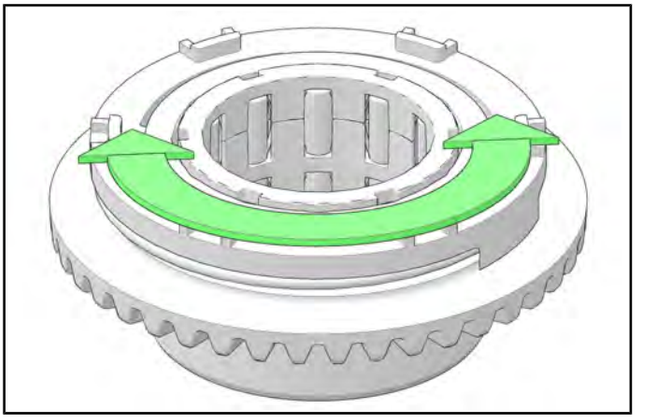
6. Install the torsion spring ④ by wrapping each leg of the spring around the dowel pin on the ring gear.



7. Align spring retainer dowel pin ⑤ with ring gear dowel pin ⑥ and install the retainer on top of the torsion spring.

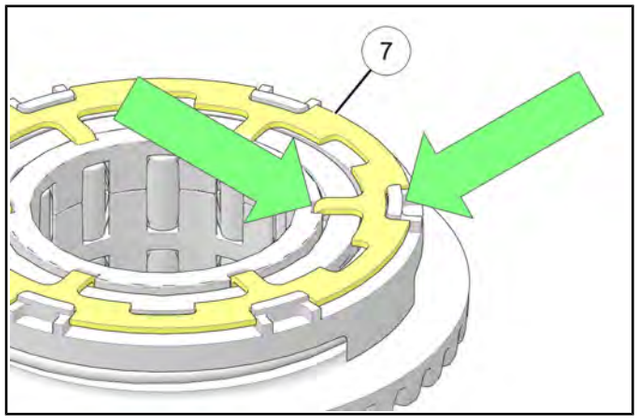


8. Check the action of the torsion spring by rotating in both directions to ensure the spring and retainer are installed properly.



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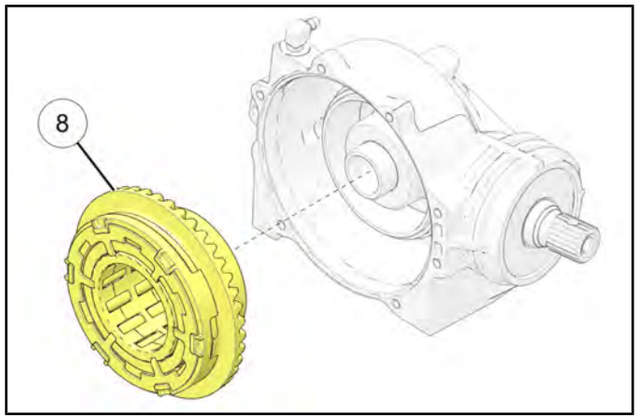
9. Install armature plate ⑦. Be sure all of the armature plate tabs are fully engaged into the roll cage assembly and that it is resting properly on the torsion spring retainer.



NOTE

Verify armature plate tabs are in the roll cage slots and that it rests properly on the spring retainer.

10. Carefully install the ring gear and roll cage assembly ⑧ into the gearcase housing.

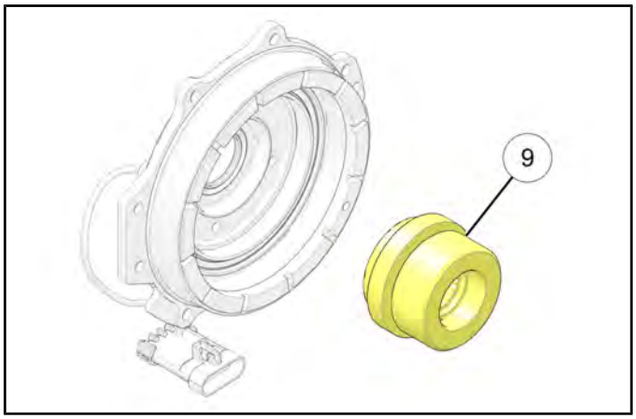


11. Install a new O-ring on the cover plate assembly.

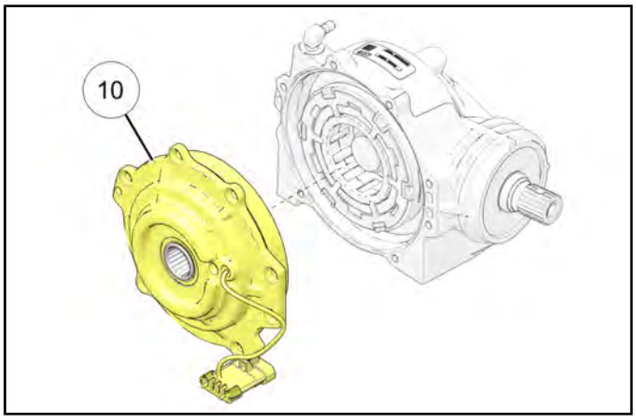
NOTE

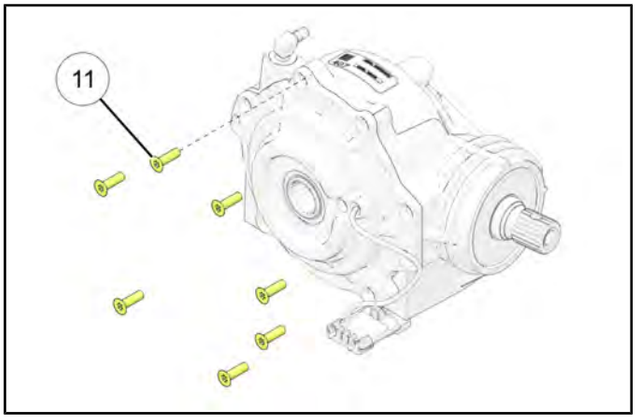
Be sure the square O-ring is placed flat on the cover surface. If the O-ring is twisted fluid leakage may occur.

12. Carefully install the LH output hub assembly ⑨ into the cover plate. Take care not to damage the new cover plate seal while installing the output hub.



13. Install the output cover assembly ⑩ onto the gearcase housing. Install the seven cover plate screws ⑪ and torque to specification.





TORQUE

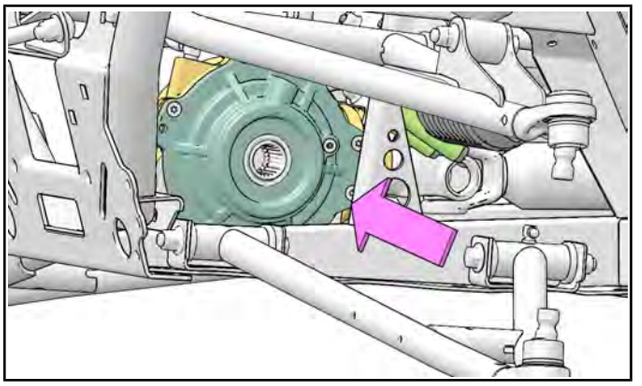
Front Gearcase Cover Plate Screws:
7–11 lb-ft (10–15 Nm)

7

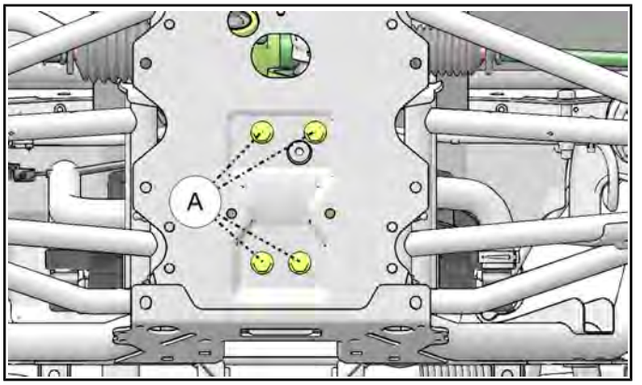
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FRONT GEARCASE INSTALLATION

1. Install the gearcase between the left-hand upper and lower control arms into the frame.

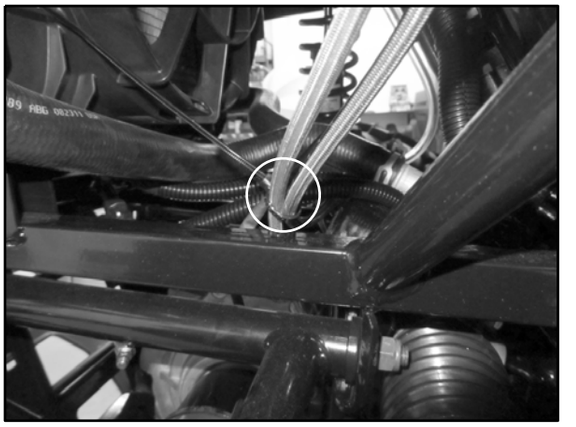


2. Install the vent line on the gearcase and ensure it's routed properly.
3. Install the left front lower control arm grease zerk fitting.
4. Install the propshaft onto the front gearcase.
5. Install new gearcase mounting bolts (A) and torque to specification.



TORQUE
Front Gearcase Mounting Bolts: **30 lb-ft (41 Nm)**

6. Drive a new roll pin into the front propshaft yoke.
7. Install the drive shafts into the front gearcase. Refer to **"Front Gearcase Installation", page 7.22** procedure.
8. Connect the AWD harness and tie the harness to the brake lines with a plastic tie strap.



9. Add the proper lubricant to the front gearcase. Check drain plug for proper torque. Refer to Chapter 2 for fluid fill and change information.

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FRONT GEARCASE (ADC)

OPERATION, FRONT GEARCASE (4WDC)

The active descent control front gearcase is designed to allow the vehicle to operate in 2x4, 4x4, or utilize the vehicles EBS to allow 4x4 ADC (active descent control) in the forward and reverse direction.

IMPORTANT
All-wheel drive ADC MUST be selected on the all-wheel drive / ADC switch to activate the ADC system.

When the vehicle is in 2x4, all coils within the gearcase are off. This allows the pinion and ring gear to spin without engaging the front gearcase output hubs.

When the vehicle is in 4x4, the 4 wheel drive coil is turned on but the ADC coil remains off. Turning on the 4 wheel drive coil applies drag to the outer armature plate. The outer armature plate is connected to the roller cage, which engages the rollers in the cage with the forward / reverse ramp in the bi-directional clutch. In the event that the vehicle wheels roll down a hill faster than it is being driven, ADC will not slow the vehicle.

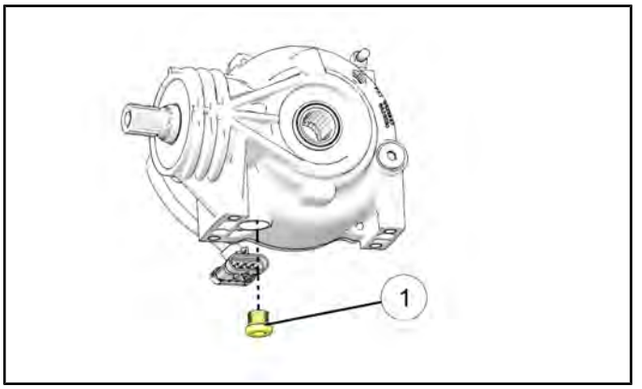
When the vehicle is in 4x4 ADC, the AWD coil is turned on and the ADC coil remains off until necessary. When descending a hill, the EBS slows the driveline and rear wheels. The ADC coil detects the speed difference and locks the front wheels to the driveline. The front wheels can now assist in controlling the descent. Turning on the ADC Coil applies drag to 2 inner armature plates. One armature plate is connected to an output hub and the other is connected to the roller cage. The frictional drag between the two armature plates causes the output hub to rotate the roller cage, which engages the rollers in the cage with the forward / reverse ramp in the bi-directional clutch. Because the hubs rotate faster than the driveline in an engine breaking situation this combination of events slows the vehicle when the clutch engine brake system is active allowing true four wheel engine braking in forward / reverse gears.

During engine braking the front drive can also speed differentiate across the axle when turning. Also, if the outer wheel slips or loses traction the inner wheel will then begin to slow the vehicle as well.

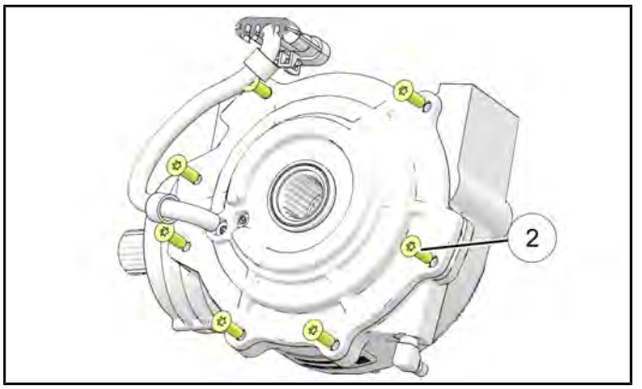
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DISASSEMBLY / INSPECTION, FRONT GEARCASE (ADC)

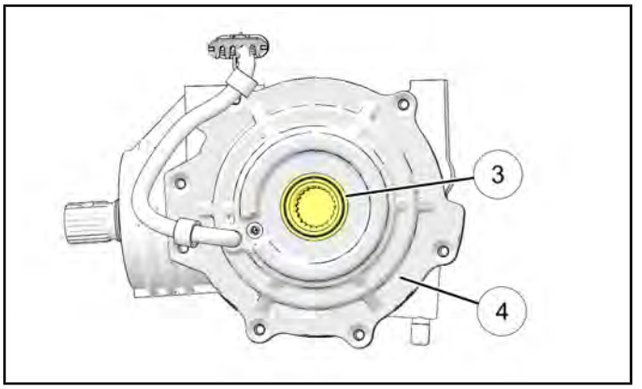
1. Drain and properly dispose of used oil. Remove any metal particles from the drain plug magnet ①.



2. Remove bolts ② retaining the outer cover plate assembly.



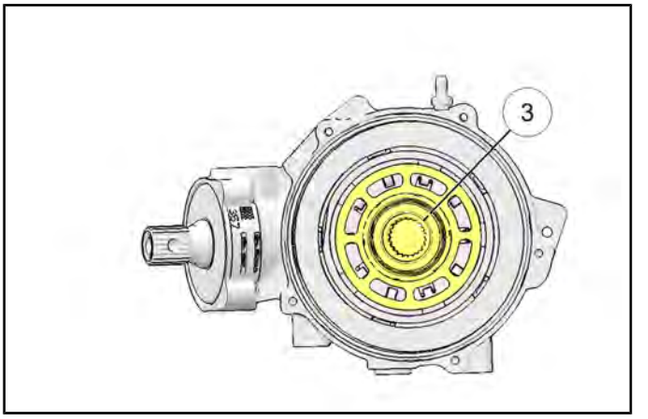
3. Remove the outer cover plate assembly.



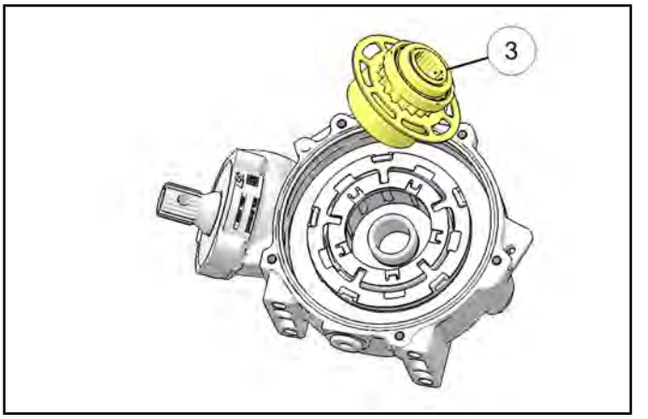
NOTE

Press on the output hub assembly ③ while lifting up on the outer cover plate ④ to prevent removing more than the cover plate.

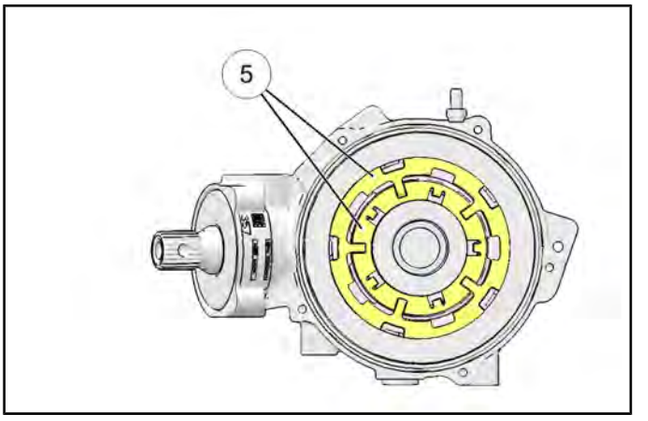
4. Remove the output hub assembly ③.



5. Inspect the bearing and contact surfaces of the output hub for signs of wear or damage. Replace component if found to be worn or damaged.

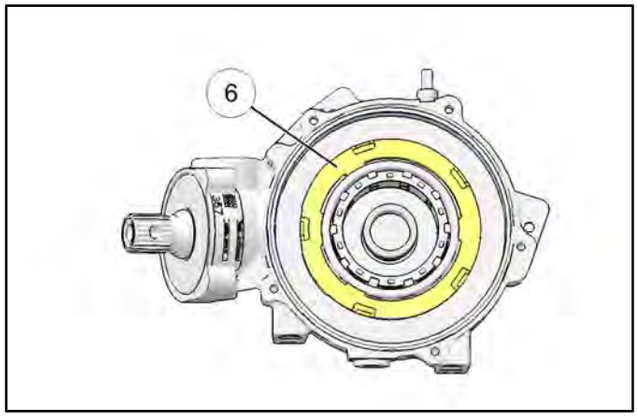


6. Remove and inspect the armature plates ⑤. Refer to “AWD Diagnosis” for detailed inspection process.

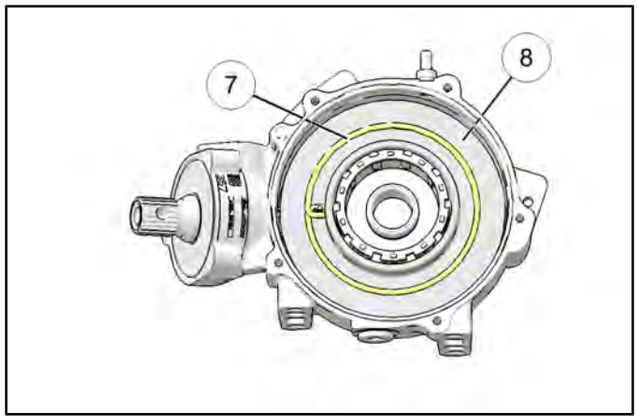


7. Remove the torsion spring retainer ⑥.

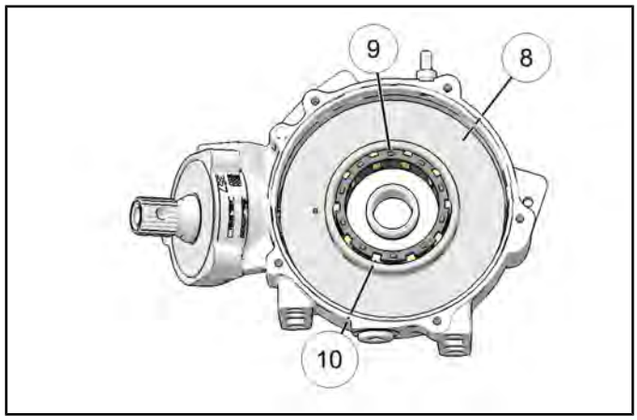
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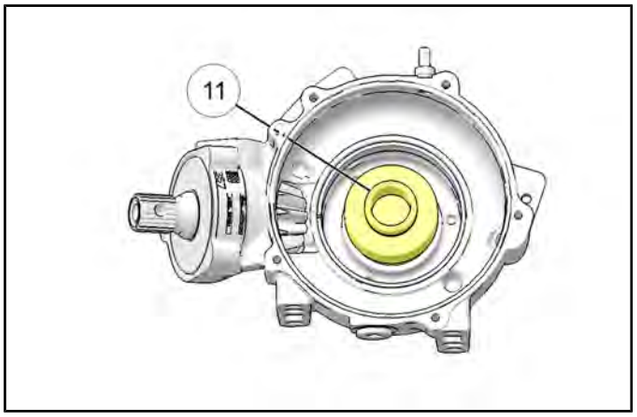
8. Remove the torsion spring ⑦ from the top of the ring gear ⑧.



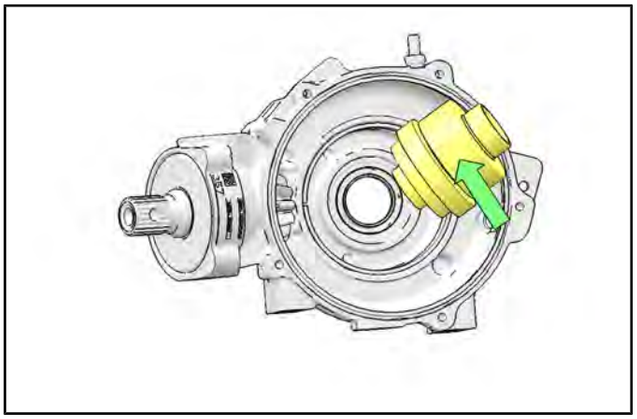
9. Remove the roll cage assembly ⑨, rollers ⑩, and ring gear ⑧. Inspect for wear.



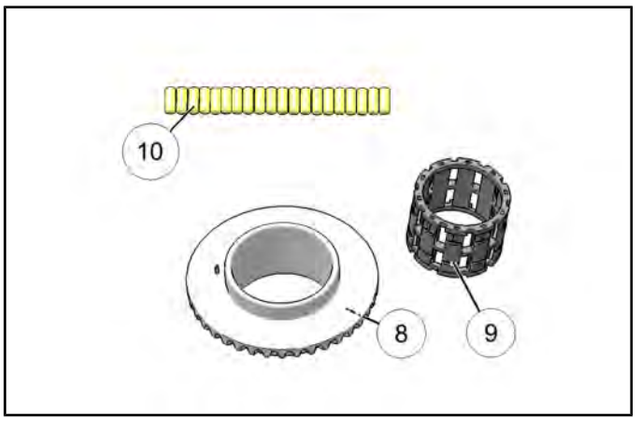
10. Remove the LH output hub ⑪.



11. Inspect the bearing and contact surfaces of the output hub for signs of wear or damage. Replace component if found to be worn or damaged.



12. Thoroughly clean all parts. Inspect the bearing surfaces of the output hub. Inspect the rollers ⑩ for nicks, scratches and flat spots. Inspect the roll cage ⑨ for damage or cracks. The rollers must slide up and down freely within the roller cage surfaces.

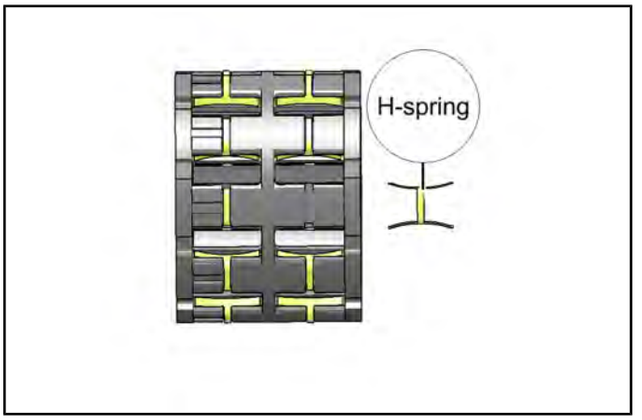


13. Inspect the ring gear ⑧ for inconsistent wear patterns or damage. The surfaces should be free of nicks or burrs.

7

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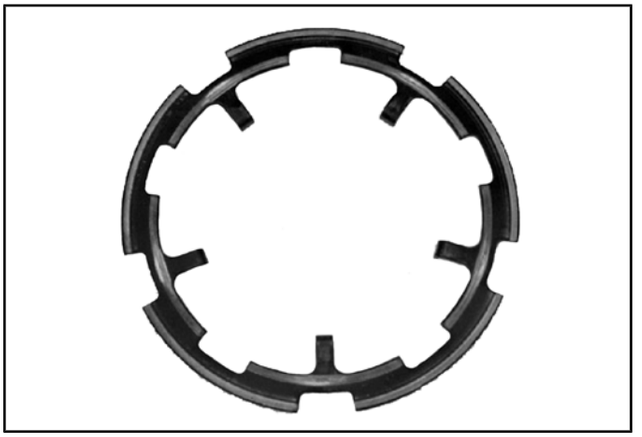
14. Inspect roll cage sliding surface. This surface must be clean and free of nicks, burrs or scratches. **Inspect the H-springs, but do not remove them from the roll cage.**



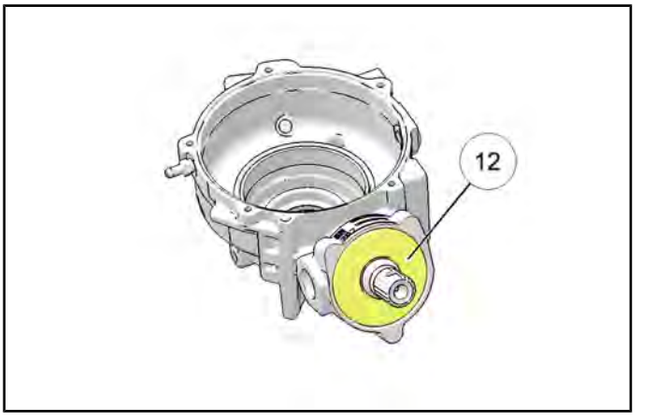
15. Inspect the armature plate for a consistent wear pattern. Uneven wear of the armature plate indicates a warped plate, which may cause intermittent operation.

NOTE

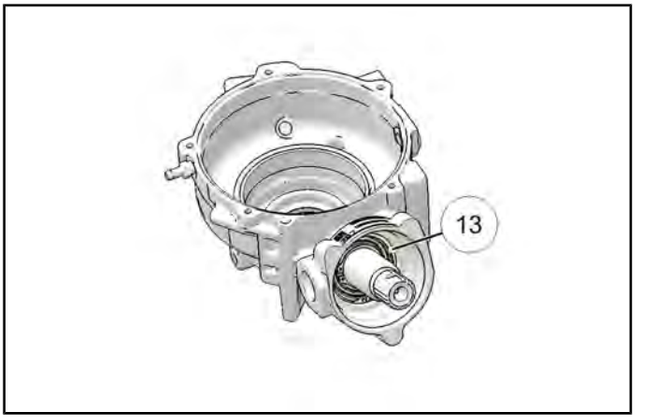
See “FRONT GEARCASE DIAGNOSIS” later in this chapter for more details.



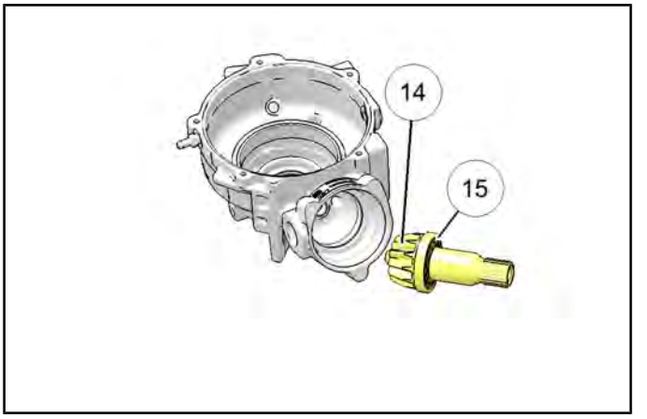
16. Drill a hole in the input shaft seal ⑫ and remove the seal using a pry bar or seal puller.



17. Remove the snap ring ⑬ retaining the input shaft assembly.

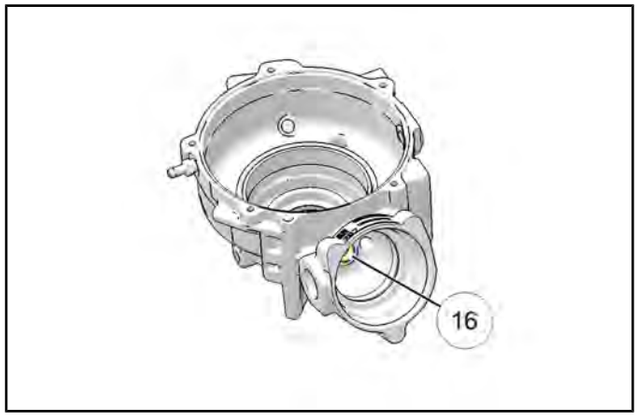


18. Remove the input shaft assembly. Inspect the pinion gear ⑭ for chipped, broken, or missing teeth. Inspect the input shaft bearing ⑮ for signs of wear. Replace the input shaft cover O-ring prior to reassembly.



19. Inspect the input shaft bushing ⑯ for wear.

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20. Thoroughly clean the gearcase components before beginning reassembly.

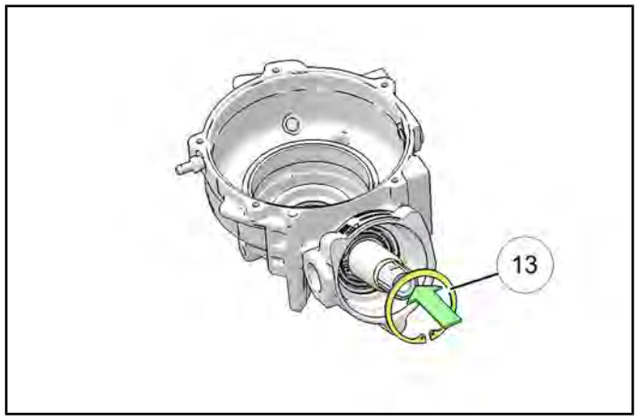
REASSEMBLY, FRONT GEARCASE (ADC)

1. Clean the gearcase housing of debris.
2. Replace all O-rings, seals, and worn components.
3. Inspect bearings on output and pinion shafts. To replace, press new bearing onto shaft.

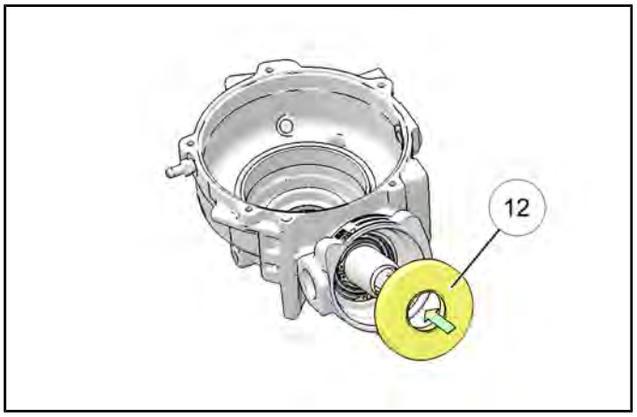
NOTE

Due to extremely close tolerances and minimal wear, the bearings must be inspected visually, and by feel. While rotating bearings by hand, inspect for rough spots, discoloration, or corrosion. The bearings should turn smoothly and quietly, with no detectable up and down movement and minimal movement side to side.

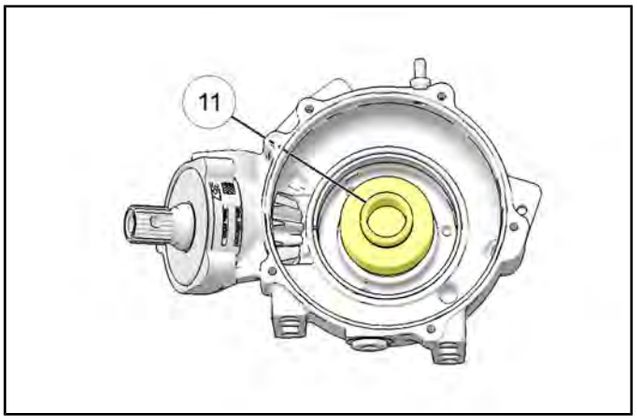
4. Install input shaft, bearing, and snap ring ⑬.



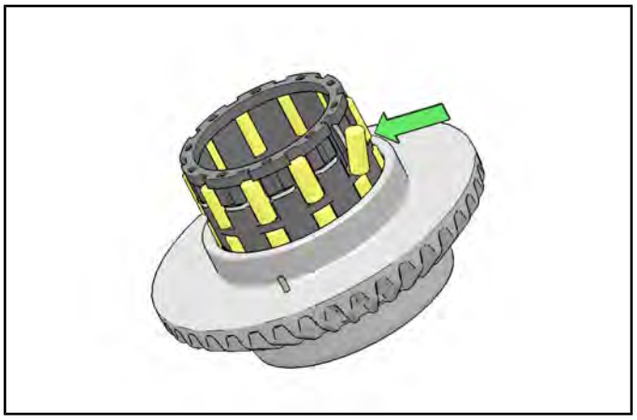
5. Press the pinion shaft seal ⑫ into the gearcase, until the seal is flush.



6. Install the LH output hub ⑪ into the gearcase housing. The output hub should spin freely.

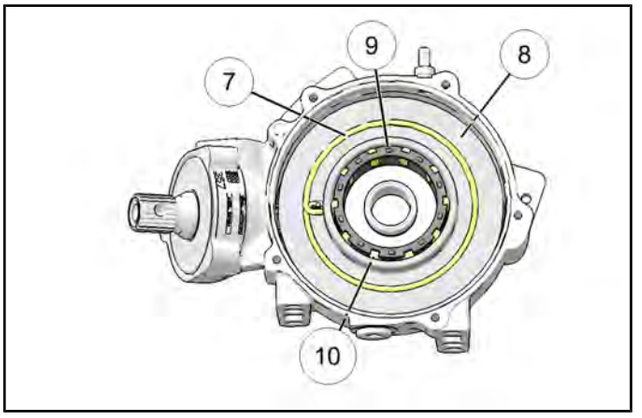


7. Install the torsion spring by wrapping each leg of the spring around the dowel pin on the ring gear.
8. Install the rollers and roll cage into the ring gear. Insert the rollers as the roll cage is installed.

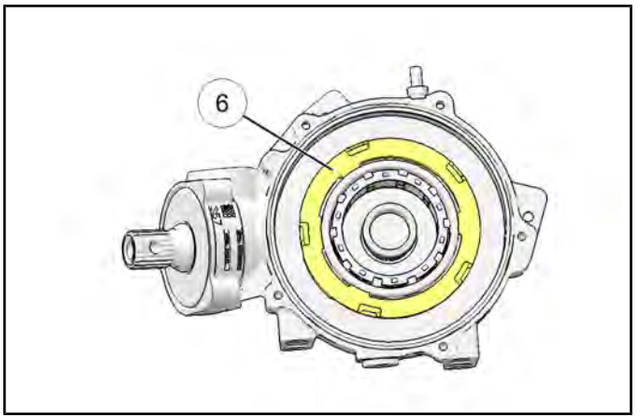


9. Install the pins ⑩, roll cage ⑨, and ring gear assembly ⑧ into the gearcase housing.

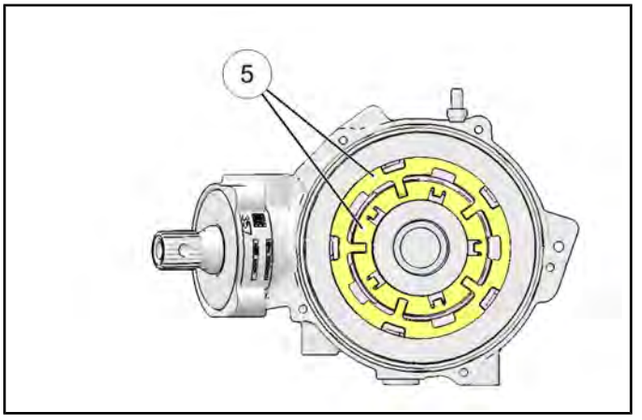
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10. Align the spring retainer dowel pin with the ring gear dowel pin and install the retainer ⑥ on top of the torsion spring.



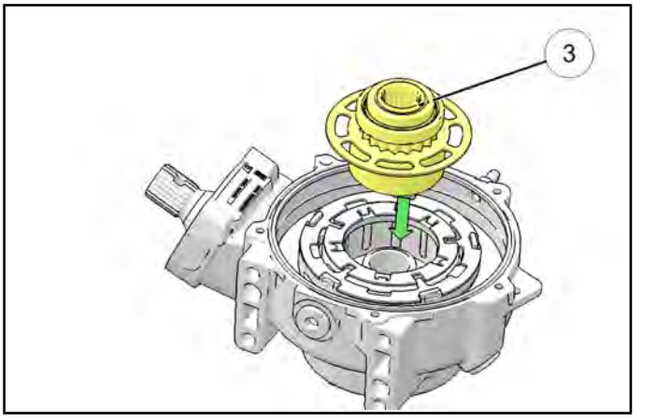
11. Check the action of the torsion spring by rotating in both directions to ensure the spring and retainer are installed properly.
12. Install the armature plates ⑤. Be sure the armature plate tabs are fully engaged into the roll cage assembly.



NOTE

Verify armature plate tabs are in the slots on the roll cage and are resting in the ring gear grooves.

13. Install the RH output hub ③ into the gearcase housing. The output hub should spin freely.

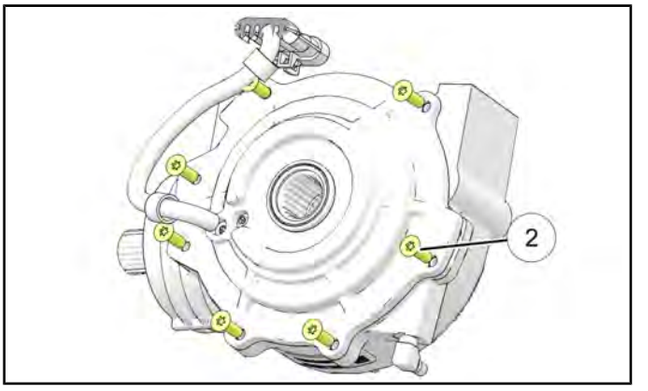


14. Install the cover plate assembly with a new o-ring onto the gearcase.

NOTE

Verify the square O-ring is placed flat on the cover surface. If the O-ring is twisted, fluid leaks may occur.

15. Torque the cover plate bolts ② to specification.



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TORQUE
AWD Cover Screws: **8 ft-lbs (11 Nm)**

16. Fill the gearcase with fluid.

FLUID CAPACITY
Demand Drive Hub Fluid **8.97 oz. (265 ml)**

17. Install the drain plug. Torque to specification.

TORQUE
Fill Plug: **8-10 ft-lbs (11-14 Nm)** Drain Plug: **11 ft-lbs (15 Nm)**

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TROUBLESHOOTING, FRONT GEARCASE (ADC)

Customer Complaint: ADC not functioning

Verification of complaint: Drive vehicle with ADC switched on and off down a grade if possible to determine if ADC (Auto-lock is working correctly). May need to be in low range to tell in high traction areas. Make sure switch on handle bar is on ADC mode. Make sure ADC light is lit on gage pod. Vehicle must be in hi, low, or reverse. Also, vehicle throttle lever must be off. If complaint is warranted, move onto component check list. If no, move onto other vehicle components (suspension, driveline, engine, etc.) Vehicle may also be tested in air. All 4 wheels need to be off ground, put into ADC mode and roll back wheels if possible. Rotate cover side front wheel forward and back, should feel roll cage in front drive index and lock the front wheel to the drive line. This can only be done on the cover side wheel. It is also best to make sure 4x4 is not engaged any more. This way is possible to test but best way is to ride vehicle down steep hill as stated above.

	POTENTIAL PROBLEM	DIAGNOSIS PROCEDURE	PROBLEM DIAGNOSIS	REPAIR PROCEDURE	REPAIR VERIFICATION
Differential installed in vehicle	Unplugged / damaged wire connector.	Check to see if ADC light is lit on gage pod.	No ADC light on gage pod.	Problem might not be front differential related. Check electrical system in vehicle.	N/A
		Check wires to see if there are any visible cuts or nicks.	Cut wire.	Replace output cover (Unit will need to be removed from vehicle to do repair.)	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.
		Check to see if front differential is plugged into wire harness.	Unplugged	Plug wire harness into front drive connector.	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.
	No power from vehicle to front differential (blown fuse)	Unhook wire connector to front differential. Using multimeter determine if vehicle wire connector is getting power to the front drive on two outer most pins.	No power to front differential wire harness.	Problem might not be front differential related. Check electrical system in vehicle.	N/A
	ADC Coil Short	Check resistance of coil	Coil to be +/- 4 ohms to nominal	Replace output cover (Unit will need to be removed from vehicle to do repair.)	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.
		Check continuity to both leads	Continuity should be present between leads.	Replace output cover (Unit will need to be removed from vehicle to do repair.)	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.
		Check continuity to case Check continuity to case	No continuity between either lead and the case.	Replace output cover (Unit will need to be removed from vehicle to do repair.)	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.
	4x4 Not turning off	Lift Vehicle off ground. Rotate cover side wheel in both the forward and reverse direction. If it locks to the drive train in only one direction, ADC is not indexing cage in both directions	Power to 4x4 is not turning off when ADC is turning on.	Problem might not be front differential related. Check electrical system in vehicle.	N/A

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	POTENTIAL PROBLEM	DIAGNOSIS PROCEDURE	PROBLEM DIAGNOSIS	REPAIR PROCEDURE	REPAIR VERIFICATION
Differential removed from vehicle	Hub Plate	Hub Plate will be attached to output hub. Initially look at plate and see if any excessive wear is present. Look and see if plate is bent or warped. Look to see if any debris is on plate or debris is causing uneven wear. To do further evaluation plate would need to be removed from hub, by removing bearing. Plate then can be placed on a flat surface to determine if plate is flat.	Plate should be flat. Plate should have even wear on both sides and no significant gauging should be present.	Replace hub plate or hub assembly with hub plate. May need to replace Hub plate and Armature plate at the same time.	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.
	ADC Armature Plate	Place Plate on flat surface with tangs up to check for flatness. Also look for even wear on surface towards Hub plate	Plate should not have significant rock when pushing on one side of the plate. Plate should also have even consistent wear on the surface.	Replace Armature plate. May need to replace both Armature plate and hub plate at the same time.	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.
	Roll Cage	Check to see if cage is broken or cracked. Look to see if any springs are broken or stuck in place. Look to see if cage can index properly in both directions	Roll cage should have no cracks or breaks. Springs should have no cracks and fully intact. Clutch should be able to advance down the engagement ramp smoothly.	Replace roll cage assembly (cage and spring). Always replace both. (do not take springs off old cage and put onto new cage).	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.
	Torsion Spring	Make sure Spring is installed properly. Make sure Spring is able to index properly in both directions	Plastic retainer should index with some force from spring. Retainer should also index far enough to allow clutch to engage.	If torsion spring is not installed correctly, install correctly and retest. If other issue with retainer or spring, replace one or both and retest.	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.
	Cover Side Hub	Check to see if Hub plate can slide on hub spline.	If Hub plate can not slide it may not engage coil correctly.	Replace with new hub assembly and Hub Plate.	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.
	ADC Coil/Coil Pocket (Output Cover)	Check Pole Faces for debris	Pole faces should be smooth and even wear should be present.	Clean off pole faces if no significant wear is noticed. If pole faces are severely worn and damaged, replace output cover.	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.
		Check for Coil raised above pole faces	Coil should be well below the pole faces. If coil is outside pole faces it would cause the plates not to touch the pole faces.	Replace output cover.	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.
		Check Wear on Pole faces	Pole faces should be smooth and even wear should be present.	Clean off pole faces if no significant wear is noticed. If pole faces are severely worn and damaged, replace output cover.	Drive vehicle with ADC mode on to determine if problem has been fixed. If not, continue onto additional problems listed.

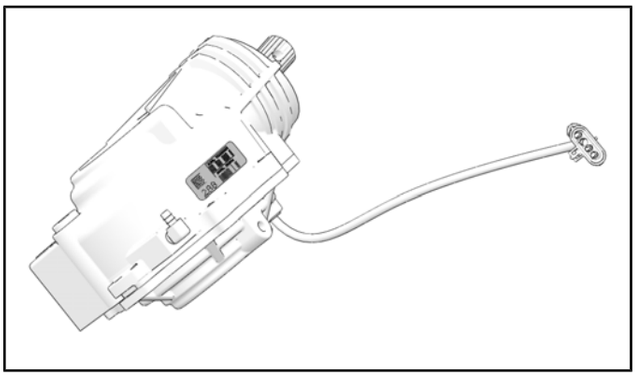
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Symptom: AWD Will Not Engage

1. Check the gearcase coil resistance. To test the gearcase coil resistance, use the coil harness (Grey & Brown/White).

NOTE

To test the gearcase coil resistance, use the coil harness. The gearcase coil should measure between 22.8 ohms and 25.2 ohms.

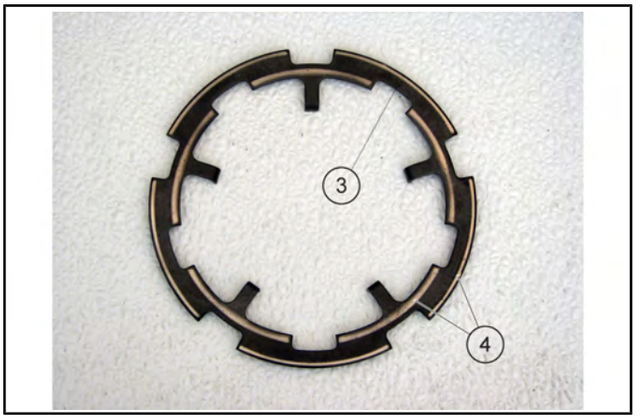


ADC Front Gearcase Coil Resistance
B-C (4X4): 23 Ω ±4Ω
A–D (4X4 ADC): 12.49 Ω ±4Ω

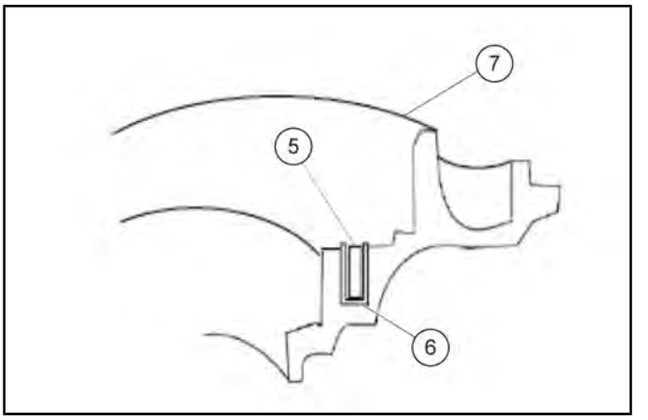
2. Check the minimum battery voltage at the Grey & Brown/White wires that feed the hub coil wires.

AWD Coil Applied Battery Voltage:
11.80-12.0 Vdc

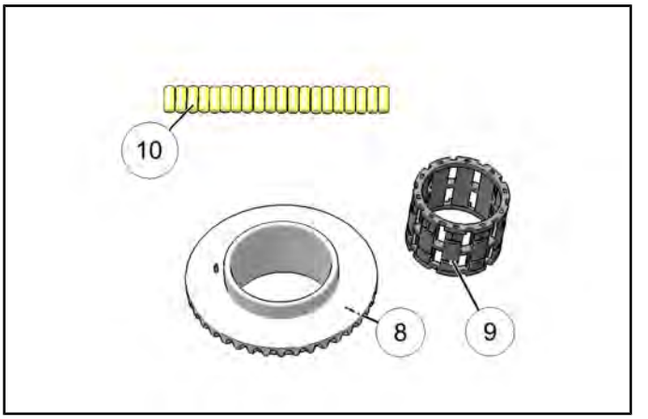
3. Inspect the armature plate ③ for a consistent wear pattern. There should be two distinct wear bands ④ (one band inside the other). If only one band of wear is present (or if there is wear between the two bands, inspect the coil area as indicated in Step 4. A band with an interrupted wear mark may indicate a warped plate, which may cause intermittent operation.



4. Check to make sure the coil ⑤ is seated in the U-shaped ⑥ insert that is pressed into the gearcase cover ⑦. The top of the coil should be seated below the U-shaped insert. The U-shaped insert controls the pole gap. If the top of the coil is above the surface of the U-shaped insert it raises the armature plate, thereby increasing pole gap. If the pole gap increases the coil will not be strong enough to engage the AWD system. If this is found, replace the cover plate assembly.



5. Inspect the rollers for nicks, scratches, and flat spots. Also inspect the roll cage ⑨ for cracks and ensure the rollers ⑩ are able to slide up and down and in and out freely within the roll cage sliding surfaces.



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REAR BEARING CARRIER SERVICE

REAR BEARING CARRIER INSPECTION

1. Elevate the rear of vehicle and safely support machine under the frame area.

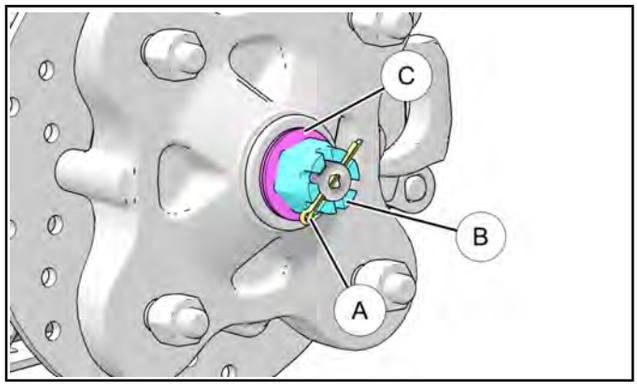
CAUTION

Serious injury may result if machine tips or falls. Be sure machine is secure before beginning this service procedure. Wear eye protection when removing bearings and seals.

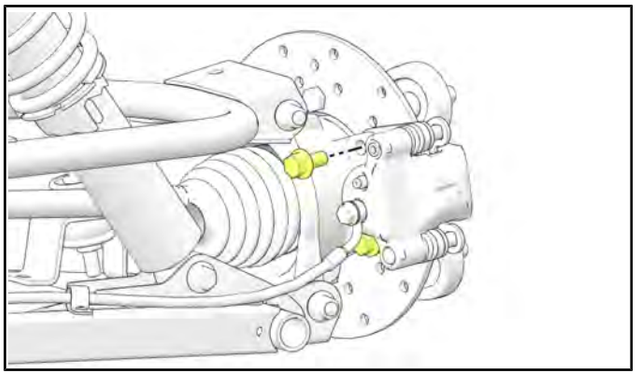
2. Check bearings for side play by grasping the top and bottom of the tire firmly and checking for movement.
3. If movement is detected, inspect wheel hub, castle nut torque, bearing condition and upper and lower ball joint wear.

REAR BEARING CARRIER REMOVAL

1. Place the transmission in Park.
2. Elevate the rear end of the vehicle and safely support the vehicle under the main frame area.
3. Remove wheel nuts, washers and wheel.
4. Remove the cotter pin (A), castle nut (B) and washers (C).



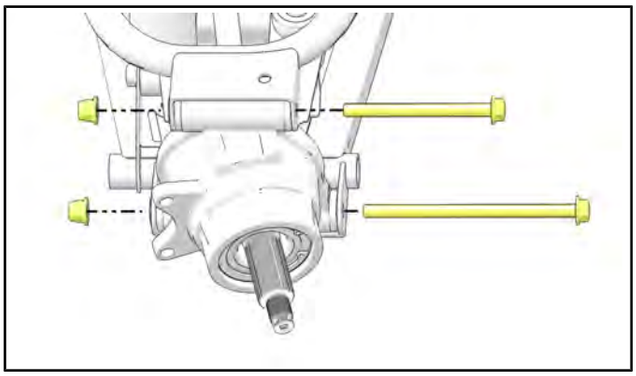
5. Remove the two rear brake caliper mounting bolts and remove the caliper from the bearing carrier.



⚠ CAUTION

Do not hang the caliper by the brake line. Use mechanics wire to hang the caliper to prevent possible damage to the brake line.

6. Slide the wheel hub out from the bearing carrier and drive shaft.
7. Remove the upper and lower A-arm fasteners from the bearing carrier.



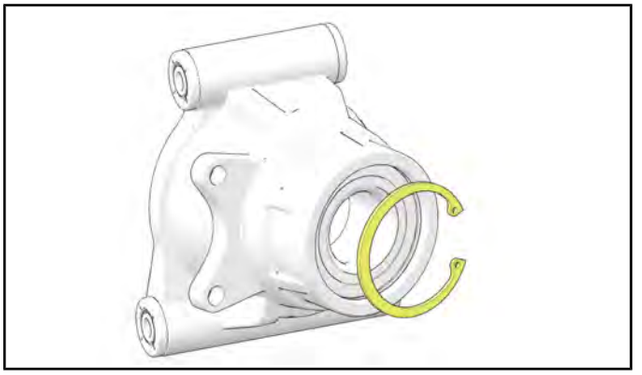
8. Remove the bearing carrier. Inspect the bearing again for smoothness and side to side movement, replace as needed.

7

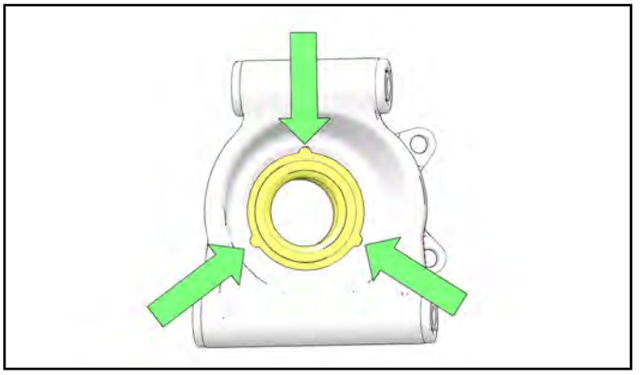
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REAR BEARING CARRIER BEARING REPLACEMENT

1. Remove the retaining ring from the bearing carrier.



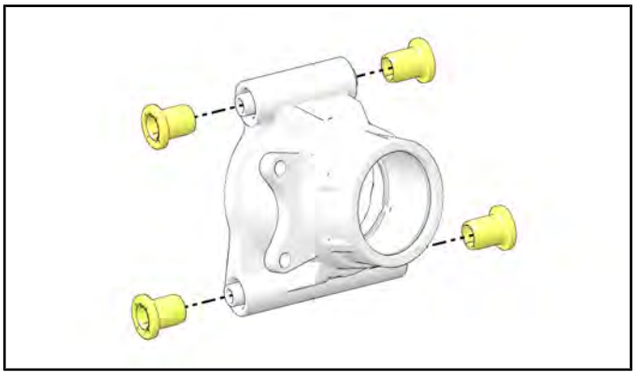
2. From the back side, tap on the outer bearing race with a drift punch in the casting reliefs.



NOTE

Drive bearing out evenly by tapping on outer race only. Once bearing is at bottom of casting, support casting on outer edges so bearing can be removed.

3. Inspect bearing carrier housing for scratches, wear or damage. Replace rear bearing carrier if damaged.
4. Replace the bearing carrier bushings if worn or damaged.

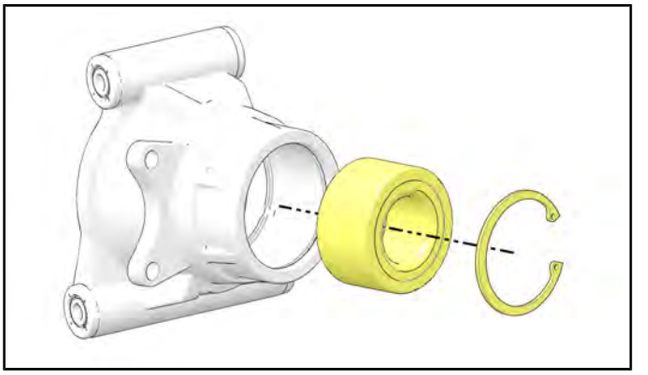


5. Thoroughly clean the rear bearing carrier housing and the outer race on the new bearing. Be sure that all oil residue has been removed from each surface.
6. Support the bottom of the bearing carrier housing.

CAUTION

Use an arbor and press only on the outer race, otherwise bearing damage may occur.

7. Apply **Loctite® 603** retaining compound to the outer circumference of the new bearing race and carefully press the new bearing into the bearing carrier housing.



NOTE

Use care to not allow any of the Loctite® compound to get in the bearing.

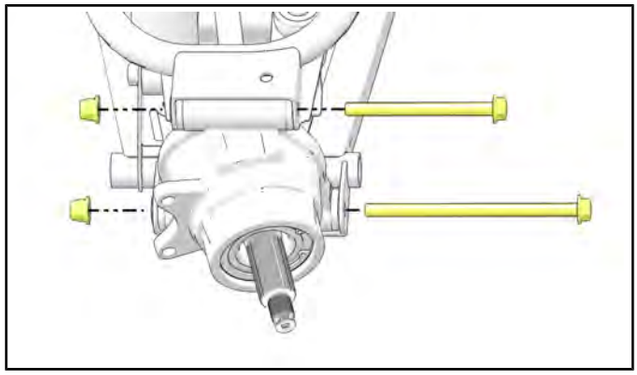
8. Wipe the housing clean of any excess compound and install the snap ring (L).

REAR BEARING CARRIER INSTALLATION

1. Place the bearing carrier over the drive shaft.
2. Align the bottom of the bearing carrier with the lower A-arm. Install the lower bearing carrier fastener.

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3. Align the top of the bearing carrier with the upper A-arm. Install the upper bearing carrier fastener.



NOTE

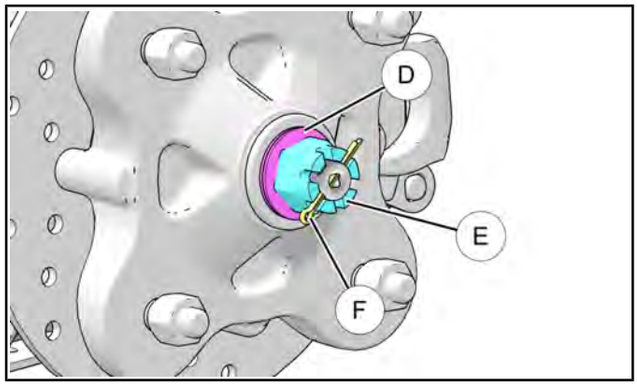
The lower shock bolt may need to be removed to allow the upper A-arm to move freely.

4. Torque the upper and lower bearing carrier fasteners to specification.

TORQUE

Bearing Carrier Fasteners:
40 lb-ft (54 Nm)

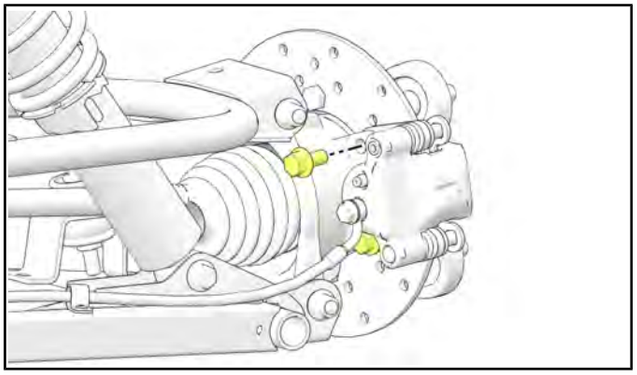
5. Install the wheel hub assembly onto the drive shaft.
6. Install the washers (D) with domed side out and the wheel hub castle nut (E). Torque the wheel hub castle nut to specification and install a NEW cotter pin (F).



TORQUE

Rear Wheel Hub Castle Nuts:
110 lb-ft (149 Nm)

7. Install the rear brake caliper and torque the mounting bolts to specification.



TORQUE

Rear Caliper Mounting Bolts:
46 lb-ft (62 Nm)

8. Install the wheel, washers and wheel nuts. Torque wheel nuts to specification.

TORQUE

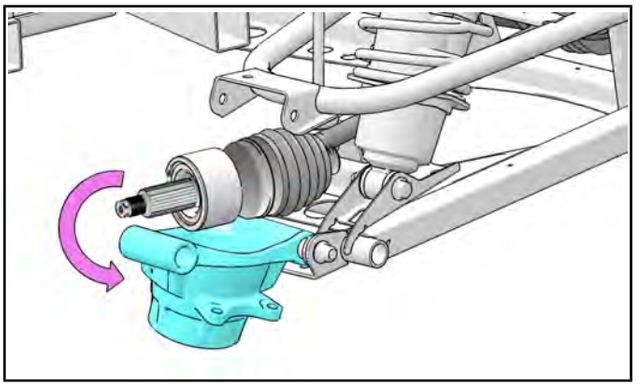
Wheel Nuts (Steel): **60 lb-ft (81 Nm)**
Wheel Nuts (Alum): **120 lb-ft (163 Nm)**

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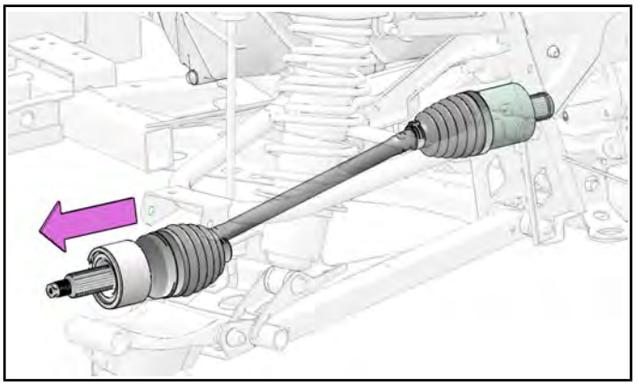
REAR DRIVE SHAFT SERVICE

REAR DRIVE SHAFT REMOVAL

1. Follow steps 1-6 of **“Rear Bearing Carrier Removal”, page 7.33** procedure.
2. Remove the upper bearing carrier fastener and tilt the carrier down while removing the end of the driveshaft.



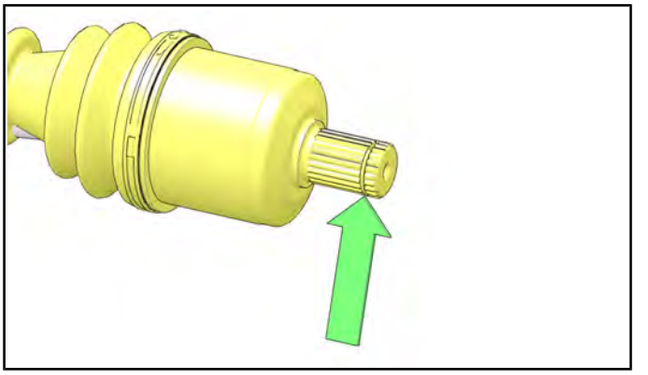
3. With a short, sharp jerk, remove drive shaft from the transmission.



4. Refer to the **“DRIVE SHAFT SERVICE”, page 7.37** section if repairing the drive shaft.

REAR DRIVE SHAFT INSTALLATION

1. Install a new spring ring on the end of the drive shaft if not replacing the drive shaft assembly. Apply an anti-seize compound to the splines.



2. Align splines of the drive shaft with the transmission and reinstall the drive shaft. Use a rubber mallet to tap on the outboard end of the drive shaft if necessary.
3. Insert the drive shaft into the bearing carrier and tilt the carrier up.
4. Install the upper bearing carrier fastener.
5. Refer to **“Rear Bearing Carrier Installation”** procedure to reassemble the vehicle.

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DRIVE SHAFT SERVICE

DRIVE SHAFT / CV JOINT HANDLING TIPS

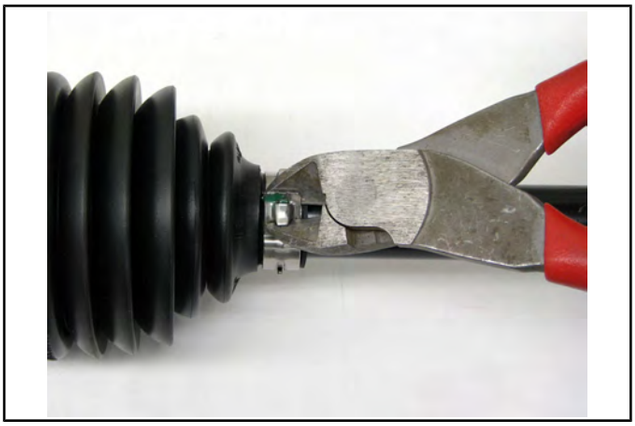
Care should be exercised during drive shaft removal or when servicing CV joints. Drive shaft components are precision parts.

Cleanliness and following these instructions is very important to ensure proper shaft function and a normal service life.

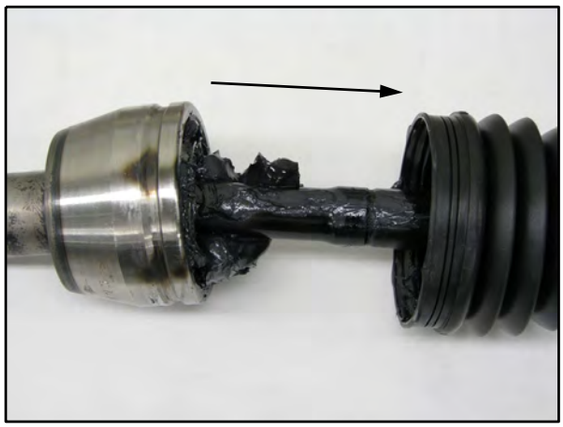
- The complete drive shaft and joint should be handled by getting hold of the interconnecting shaft to avoid disassembly or potential damage to the drive shaft joints.
- Over-angling of joints beyond their capacity could result in boot or joint damage.
- Make sure surface-ground areas and splines of shaft are protected during handling to avoid damage.
- Do not allow boots to come into contact with sharp edges or hot engine and exhaust components.
- The drive shaft is not to be used as a lever arm to position other suspension components.
- Never use a hammer or sharp tools to remove or to install boot clamps.
- Be sure joints are thoroughly clean and that the proper amount and type of grease is used to refill when joint boots are replaced and when joints are cleaned. Refer to text for grease capacity of CV joints and CV joint boots.

OUTER CV JOINT / BOOT REPLACEMENT

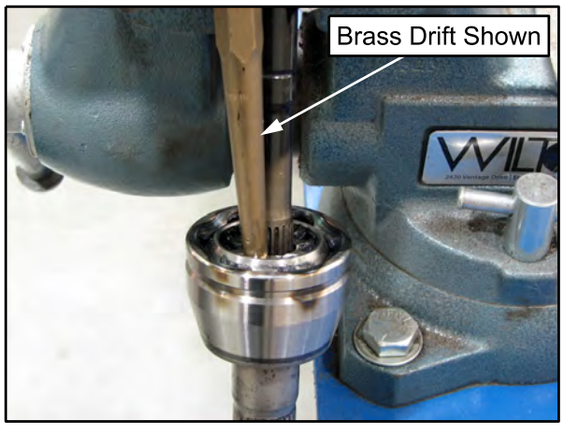
1. Use a side cutters to cut and discard the boot clamps.



2. Remove the large end of the boot from the CV joint and slide the boot down the shaft.



3. Clean the grease from the face of the joint.
4. Place the drive shaft in a soft-jawed vise.
5. Using a soft-faced hammer, or brass drift, strike inner race of the joint to drive the joint off the drive shaft. Be sure to tap evenly around the joint to avoid binding.



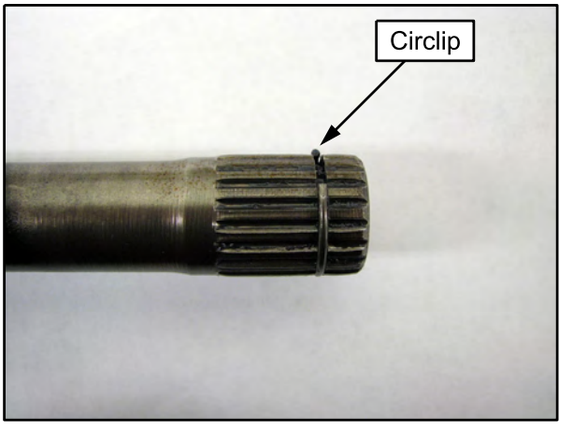
NOTE

Tap on inner race only!

7

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6. Make sure circlip is on the shaft and not left in the joint.



7. Remove the CV boot from the shaft.

CAUTION

Complete disassembly of the CV joint is NOT recommended. The internal components are precision fit and develop their own characteristic wear patterns. Intermixing the internal components could result in looseness, binding, and/or premature failure of the joint.

NOTE

If the grease in the joint is obviously contaminated with water and/or dirt, the joint should be replaced.



8. Thoroughly clean the joint with an appropriate solvent and dry the joint to prevent any residual solvent from being left in the joint upon reassembly.

9. Visually inspect the joint by tilting the inner race to one side to expose each ball. Severe pitting, galling, play between the ball and its cage window, any cracking or damage to the cage, pitting or galling or chips in raceways call for joint replacement.

NOTE

Shiny areas in ball tracks and on the cage spheres are normal. Do not replace CV joints because parts have polished surfaces. Replace CV joint only if components are cracked, broken, worn or otherwise unserviceable.

10. Clean the splines on the end of the shaft and apply a light coat of grease prior to reassembly.
11. Slide the small boot clamp and boot (small end first) onto the drive shaft and position the boot in it's groove machined in the shaft.
12. Install a NEW circlip on the end of the shaft.
13. Grease the joint with the special CV joint grease provided in the boot replacement kit. Fill the cavity behind the balls and the splined hole in the joint's inner race. Pack the ball tracks and outer face flush with grease. Place any remaining grease into the boot.

CAUTION

The grease provided in the replacement kit is specially formulated for wear resistance and durability. DO NOT use substitutes or mix with other lubricants.

NOTE

It is very important to use the correct type and quantity of grease by using all the grease included with the boot kit. DO NOT use a substitute grease and DO NOT overfill or under fill the CV joint.

14. Slide the joint onto the drive shaft splines and align the circlip with the lead-in chamfer on the inner race of the joint.



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15. Use a soft-faced hammer to tap the joint onto the drive shaft until it locks into place.
16. Pull on joint to make sure it is securely locked in place.
17. Remove excess grease from the CV joint's external surfaces and place the excess grease in the boot.
18. Pull the boot over the joint and position the boot lips into the grooves on the joint housing and shaft. Make sure the boot is not dimpled or collapsed.
19. Install and tighten the large clamp using the appropriate clamp tool.



Axle Boot Clamp Tool: **PU-48951**
or
CV Boot Clamp Pliers: **8700226**

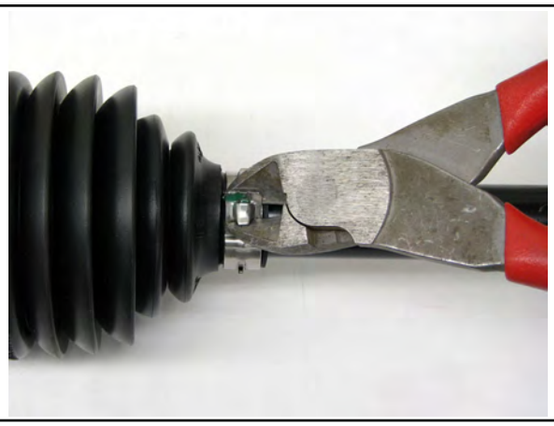
20. While pulling out on the CV shaft, fully extend the CV joint and slide a straight O-ring pick or a small slotted screw driver between the small end of the boot and the shaft. This will allow the air pressure to equalize in the CV boot in the position that the joint will spend most of its life. Before you remove your instrument, be sure the small end of the boot is in its correct location on the shaft.
21. Install and tighten the small clamp on the boot using the appropriate clamp tool.



Axle Boot Clamp Tool: **PU-48951**
or
CV Boot Clamp Pliers: **8700226**

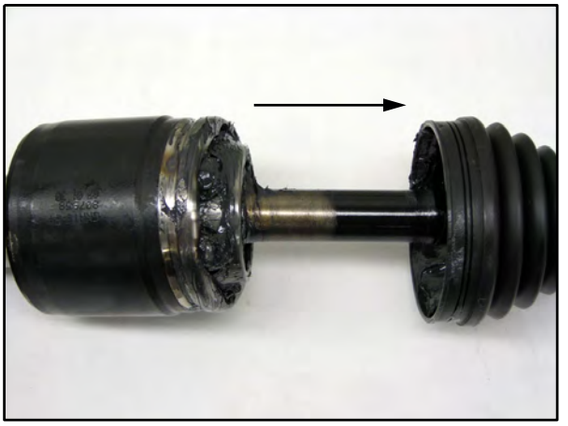
INNER PLUNGING JOINT / BOOT REPLACEMENT

1. Use a side cutters to cut and discard the boot clamps.

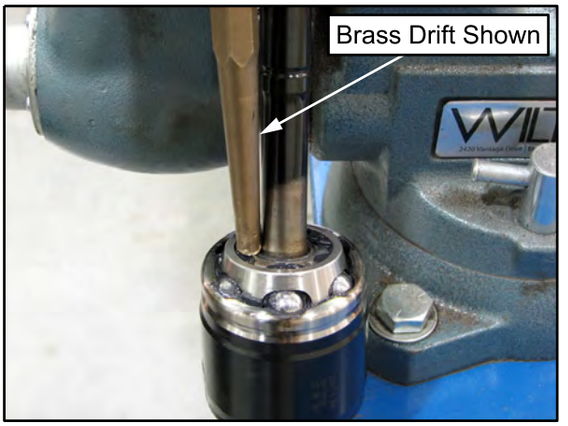


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2. Remove the large end of the boot from the plunging joint and slide the boot down the shaft.



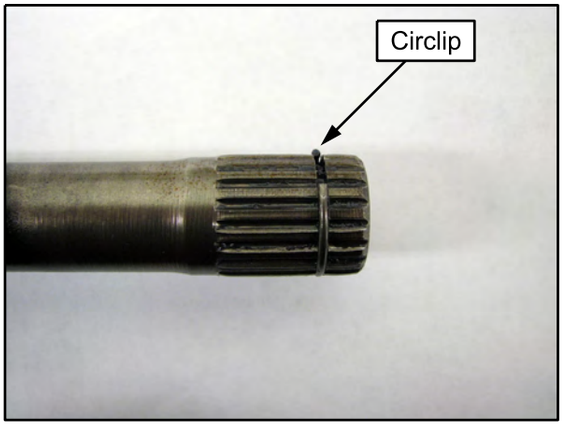
3. Clean the grease from the face of the joint.
4. Place the drive shaft in a soft-jawed vise.
5. Using a soft-faced hammer, or brass drift, strike inner race of the joint to drive the joint off the drive shaft. Be sure to tap evenly around the joint to avoid binding.



NOTE

Tap on inner race only!

6. Make sure circlip is on the shaft and not left in the joint.



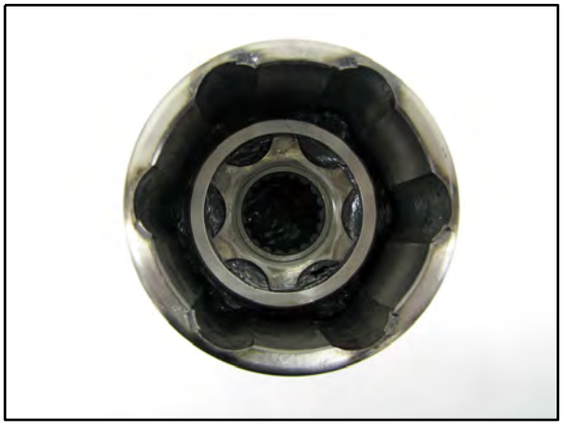
7. Remove the boot from the shaft.

CAUTION

Complete disassembly of the plunging joint is NOT recommended. The internal components are precision fit and develop their own characteristic wear patterns. Intermixing the internal components could result in looseness, binding, and/or premature failure of the joint.

NOTE

If the grease in the joint is obviously contaminated with water and/or dirt, the joint should be replaced.



8. Thoroughly clean the joint with an appropriate solvent and dry the joint to prevent any residual solvent from being left in the joint upon reassembly.
9. Visually inspect joint for damage. Replace if needed.
10. Clean the splines on the end of the shaft and apply a light coat of grease prior to reassembly.

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11. Slide the small boot clamp and boot (small end first) onto the drive shaft and position the boot in its groove machined in the shaft.
12. Install a NEW circlip on the end of the shaft.
13. Grease the joint with the special CV joint grease provided in the boot replacement kit. Fill the cavity behind the balls and the splined hole in the joint's inner race. Pack the ball tracks and outer face flush with grease. Place any remaining grease into the boot.

CAUTION

The grease provided in the replacement kit is specially formulated for wear resistance and durability. DO NOT use substitutes or mix with other lubricants.

NOTE

It is very important to use the correct type and quantity of grease by using all the grease included with the boot kit. DO NOT use a substitute grease and DO NOT overfill or under fill the CV joint.

14. Fully compress the joint and push the drive shaft firmly into the inner race.
15. Align the circlip with the lead-in chamfer.



16. Use a soft-faced hammer to tap the joint onto the drive shaft until you reach the end of the splines and the joint locks in place.
17. Pull on the joint to test that the circlip is seated and that the joint is securely fastened to the shaft.
18. Remove excess grease from plunging joint's external surfaces and place the excess grease in the boot.
19. Pull the boot over the joint and position the boot lips into the grooves on the joint housing and shaft. Make sure the boot is not dimpled or collapsed.
20. Install and tighten the small clamp using the appropriate clamp tool.



Axle Boot Clamp Tool: **PU-48951**
or
CV Boot Clamp Pliers: **8700226**

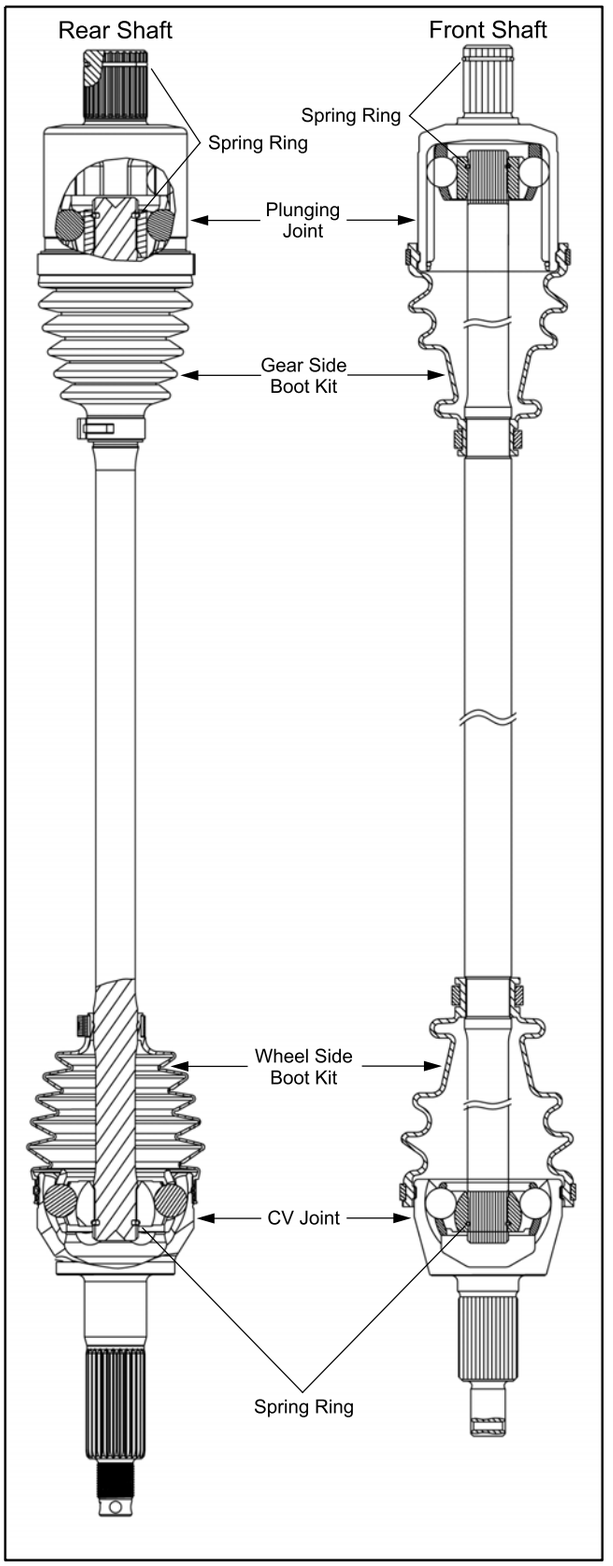
21. Pull out on drive shaft to center joint in the housing. Slide a straight O-ring pick or a small slotted screw driver between the large end of the boot and the joint housing and lift up to equalize air pressure in the boot.
22. Position the boot lip in its groove. Install and tighten the large clamp using the appropriate clamp tool.



Axle Boot Clamp Tool: **PU-48951**
or
CV Boot Clamp Pliers: **8700226**

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DRIVE SHAFT CUTAWAY VIEW



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CHAPTER 8
STEERING / SUSPENSION

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SERVICE NOTES - STEERING / SUSPENSION 8.3
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GENERAL INFORMATION - STEERING / SUSPENSION

SERVICE NOTES - STEERING / SUSPENSION

CAUTION

Serious injury may result if machine tips or falls. Be sure machine is secure before beginning any procedure that requires machine lifting. Always wear eye protection.

⚠ WARNING

The locking agent on the existing a-arm bolts was destroyed during removal. DO NOT reuse old hardware. Serious injury or death could result if fasteners come loose during operation.

CAUTION

New ball joint bolts have a pre-applied locking agent which is destroyed upon removal. Always use new brake caliper mounting bolts upon assembly.

SPECIAL TOOLS - STEERING / SUSPENSION

TOOL DESCRIPTION	PART NUMBER
Ball Joint Tool	**PU-50506**
Spring Compressor Tool	**2870623**
Shock Spanner Wrench	**2871095**

Bosch Automotive Service Solutions:
1-800-345-2233 or http://polaris.service-solutions.com

TORQUE SPECIFICATIONS - STEERING / SUSPENSION

PART DESCRIPTION	TORQUE SPECIFICATION
Steering Gear Box Pinch Bolt	**48 lb-ft (65 Nm)**
Steering Wheel Tilt Assembly Fasteners	**40 lb-ft (54 Nm)**
Steering Wheel Nut	**65 lb-ft (88 Nm)**
EPS Unit Mount Bolts	**30 lb-ft (41 Nm)**
EPS Unit Frame Bolts	**14 lb-ft (19 Nm)**
EPS Unit Pinch Bolts	**15 lb-ft (20 Nm)**
Tie Rod Jam Nut	**13 lb-ft (18 Nm)**
Shock Mounting Bolts	**40 lb-ft (54 Nm)**
Lower A-Arm Fasteners	**40 lb-ft (54 Nm)**
Ball Joint Pinch Bolts	**42 lb-ft (57 Nm)**
Wheel Nuts (Steel Wheels)	**60 lb-ft (81 Nm)**
Wheel Nuts (Cast Aluminum Wheels)	**120 lb-ft (163 Nm)**
Upper A-Arm Fasteners	**40 lb-ft (54 Nm)**
Front Caliper Mounting Bolts	**30 lb-ft (41 Nm)**
Stabilizer Bar Fasteners	**17 lb-ft (23 Nm)**

SERVICE SPECIFICATIONS - STEERING / SUSPENSION

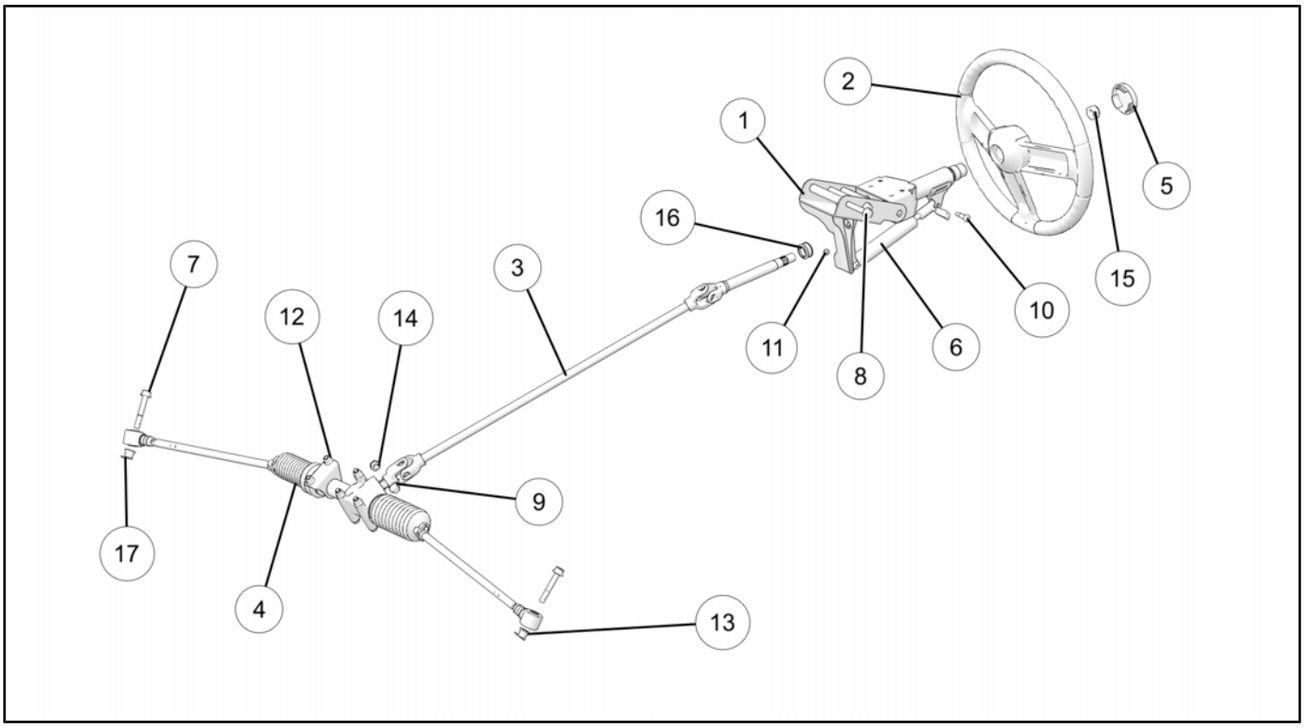
PART DESCRIPTION	SERVICE SPECIFICATION
Wheel Toe Out	**1/8-1/4 in (3.2-6.4 mm)**

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STEERING ASSEMBLY SERVICE

STEERING ASSEMBLY VIEW

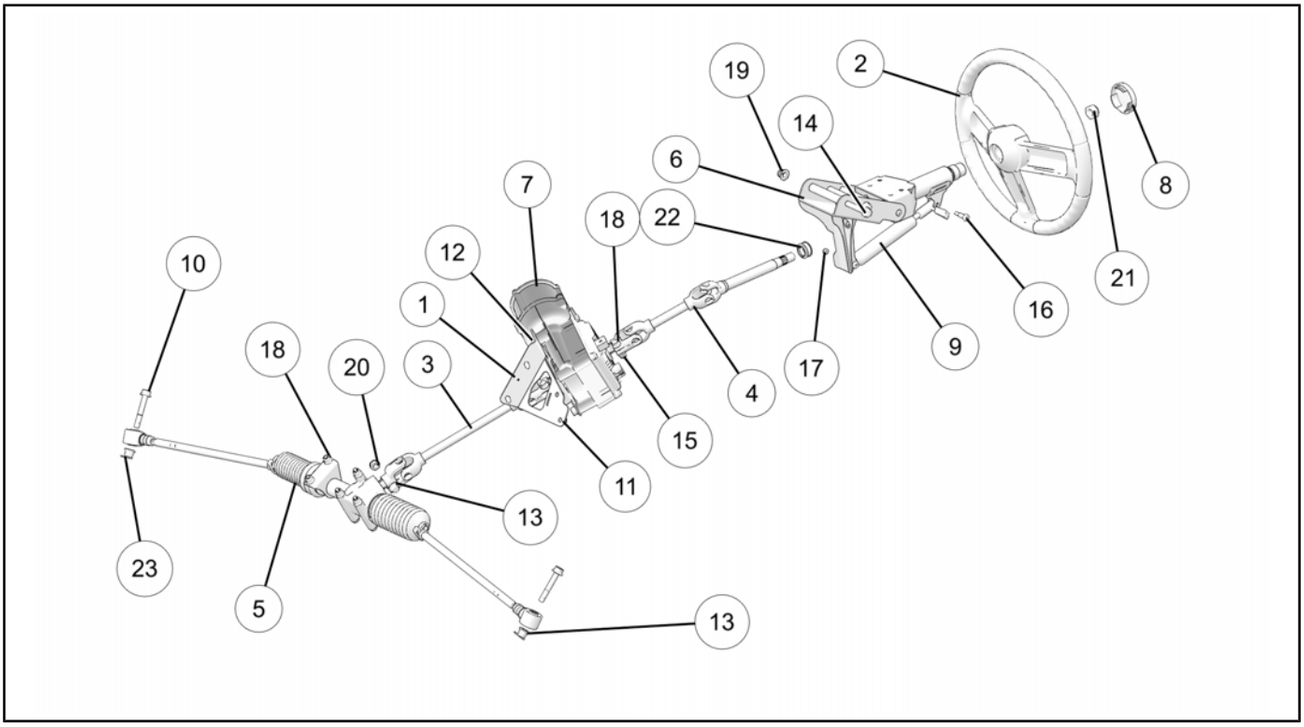
Non-EPS Models



REF	PART DESCRIPTION	REF	PART DESCRIPTION	REF	PART DESCRIPTION
①	ASM, TILT STEERING	⑦	BOLT	⑬	NUT
②	WHEEL, STEERING	⑧	BOLT	⑭	NUT
③	SHAFT, STEERING, UPPER / LOWER	⑨	SCREW	⑮	NUT
④	ASM, GEAR BOX, STEERING	⑩	BOLT	⑯	BUSHING, STEERING
⑤	CAP, STEERING WHEEL	⑪	NUT	⑰	PIN, COTTER
⑥	ASM, SHOCK, OIL LOCKING	⑫	NUT		

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EPAS Models



REF	PART DESCRIPTION	REF	PART DESCRIPTION	REF	PART DESCRIPTION
①	MOUNT, EPAS	⑨	ASM, SHOCK, OIL LOCKING	⑰	NUT
②	WHEEL, STEERING	⑩	BOLT	⑱	NUT
③	SHAFT, STEERING, LOWER	⑪	BOLT	⑲	NUT
④	SHAFT, STEERING, UPPER	⑫	BOLT	⑳	NUT
⑤	ASM, GEAR BOX, STEERING	⑬	SCREW	㉑	NUT
⑥	ASM, TILT STEERING	⑭	BOLT	㉒	BUSHING, STEERING
⑦	ASM, POWER STEERING	⑮	SCREW	㉓	PIN, COTTER
⑧	CAP, STEERING WHEEL	⑯	BOLT		

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STEERING WHEEL REMOVAL (NON-EPS)

⚠ CAUTION

This procedure should NOT be used on EPS models. Using this procedure on an EPS model can permanently damage the EPS unit and cause a Power Steering Fault.

1. Remove the steering wheel cap.
2. Loosen the nut and back it half way off the steering shaft.
3. With a glove on your hand, place it under the steering wheel. Lift upward on the inner portion of the steering wheel while using a hammer to strike the steering shaft nut.

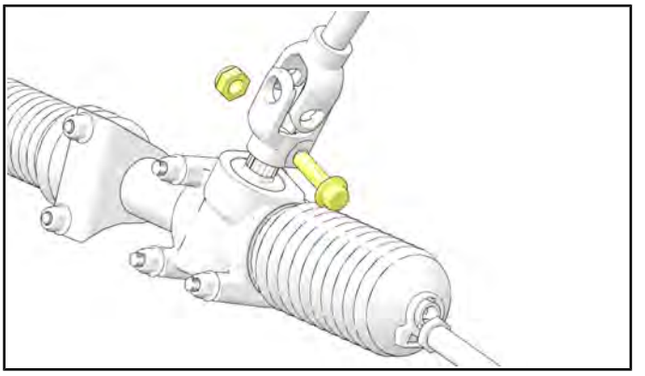
NOTE

If the steering wheel will not pop loose, proceed to "Steering Shaft Removal".

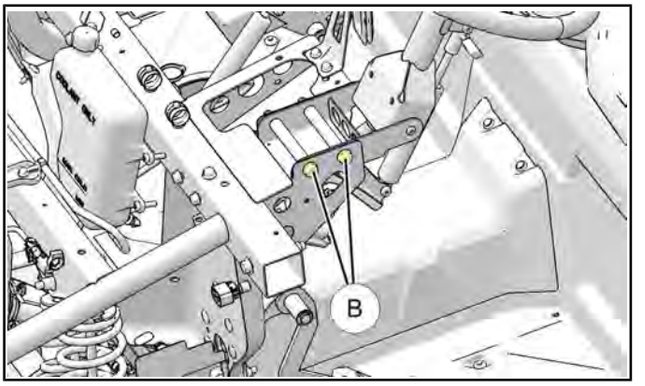
4. Once the steering wheel pops loose, completely remove the nut and lift the steering wheel off the shaft.

STEERING SHAFT REMOVAL (NON-EPS)

1. Remove the pinch bolt retaining the lower portion of the steering shaft to the steering gear box assembly.



2. Remove upper and lower dash panels. Refer to **"Dash Panel / Glove Box Removal", page 10.36** procedure.
3. Remove the steering wheel tilt assembly fasteners (B) and remove the tilt shock.



4. Remove the steering shaft, pivot tube and steering wheel from the vehicle as an assembly.
5. Refer to steps 11-13 of the **"Steering Shaft Bearing Replacement", page 8.8** procedure for installation.

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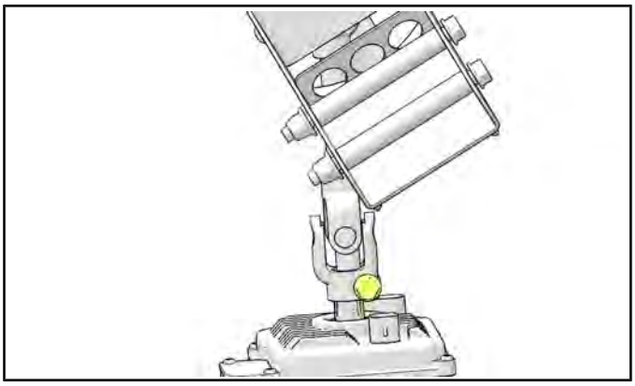
STEERING WHEEL / UPPER STEERING SHAFT REMOVAL (EPS)

1. Remove upper and lower dash panels. Refer to **"Dash Panel / Glove Box Removal", page 10.36** procedure.

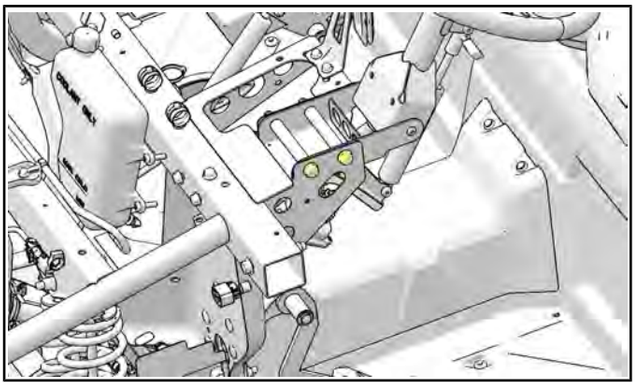
⚠ CAUTION

Striking the steering wheel or steering shaft while installed in the vehicle can permanently damage the EPS unit and cause a Power Steering Fault.

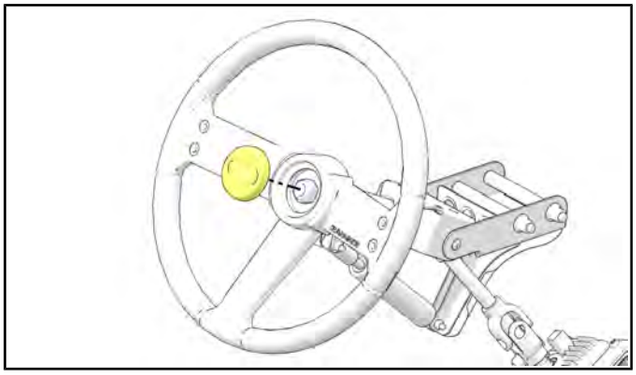
2. Remove the pinch bolt retaining the upper steering shaft to the power steering unit.



3. Remove the steering tilt assembly fasteners.



4. Remove the fastener retaining the upper steering shaft to the power steering unit.
5. Remove the steering wheel, upper steering shaft and pivot out as an assembly.
6. Remove the steering wheel cap.



7. Loosen the nut and back it half way off the steering shaft.
8. Place the assembly in a vise.
9. Using a large bronze drift and hammer, strike steering shaft nut to pop the steering wheel off the tapered shaft.
10. Once the steering wheel pops loose, completely remove the nut and lift the steering wheel off the shaft.

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STEERING SHAFT BEARING REPLACEMENT

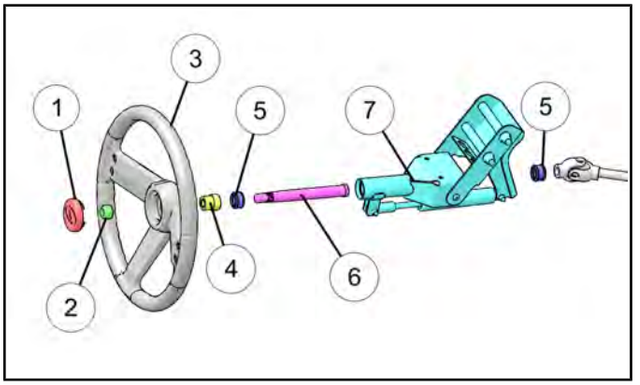
NOTE

Replacement pivot tube assembly comes with new upper and lower bearings installed. Use this procedure if replacing just the bearings only.

1. Perform the “Steering Shaft Removal” procedure.
2. Remove the steering wheel cap and retaining nut.
3. Press steering shaft out of the steering wheel and pivot tube.
4. Note the order and location of the spacers between the pivot tube and steering shaft.
5. Drive the bearings out of the pivot tube using a drift punch.
6. Inspect the pivot tube bearing surfaces for signs of excessive wear or damage.
7. Apply Loctite® 271 (Red) to the outer circumference of the new lower bearing race. Slide the new lower bearing onto the steering shaft and install the steering shaft through the pivot tube.

NOTE

Use care not to allow any of the Loctite® to get in the bearing.
Be sure the lower spacers are still on the steering shaft.



REF	PART DESCRIPTION
1	CAP
2	NUT
3	STEERING WHEEL
4	HUB INSERT
5	BUSHING
6	SHAFT, UPPER
7	TILT ASSEMBLY

8. Apply Loctite® 271 (Red) to the outer circumference of the new upper bearing race. Slide the new upper bearing onto the steering shaft and press it into the pivot tube by hand.

NOTE

Use care not to allow any of the Loctite® to get in the bearing.
Bearings will be seated in the pivot housing upon tightening the steering wheel nut in step 14.

9. Install the steering wheel and hand tighten the nut.
10. Reinstall the steering shaft assembly in the vehicle. Install the lower portion of the steering shaft onto the steering gear box assembly. Torque the lower pinch bolt to specification.

TORQUE

Steering Gear Box Pinch Bolt:
35 lb-ft (47 Nm)

11. Install the fastener retaining the steering wheel tilt assembly to the frame. Torque fastener to specification.

TORQUE

Steering Wheel Tilt Assembly Fasteners:
40 lb-ft (54 Nm)

12. Be sure the front wheels are facing straight forward. Remove the steering wheel and align as needed. Torque the steering wheel nut to specification.

TORQUE

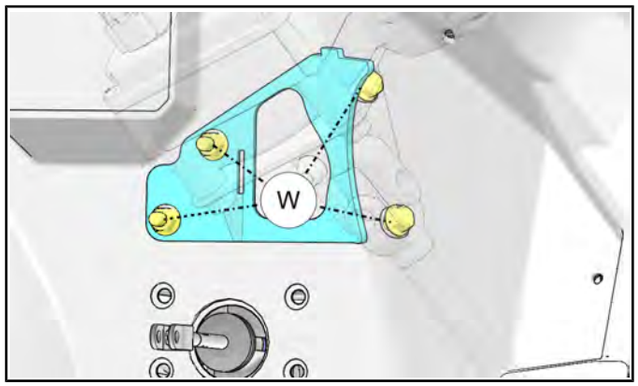
Steering Wheel Nut:
65 lb-ft (88 Nm)

13. Wipe the pivot tube clean of any excess Loctite®.
14. Install steering wheel cap and field test steering operation.

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POWER STEERING UNIT REMOVAL

1. Remove upper steering shaft and steering wheel. Refer to **"Steering Wheel / Upper Steering Shaft Removal (EPS)", page 8.7** procedure.
2. Using a 15 mm socket, remove the fastener retaining the lower steering shaft to the power steering unit.
3. Secure the power steering unit and remove the fasteners (W) retaining the power steering mount to the frame.



4. Remove the three fasteners retaining the power steering mount to the power steering unit.

⚠ WARNING

Electronic Power Steering (EPS) units are not interchangeable between ATV and *RANGER* product lines.

POWER STEERING UNIT INSTALLATION

1. Install the power steering unit onto the mount bracket and torque power steering mounting bolts to specification.

TORQUE
EPS Unit Mount Bolts: **30 lb-ft (41 Nm)**

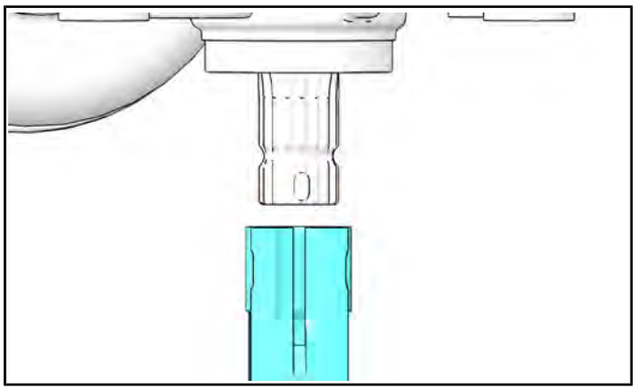
2. Align the skip-tooth spline on the power steering output shaft with the opening in the lower power steering shaft.
3. Install power steering and mount assembly to the frame and torque fasteners to specification.

TORQUE
EPS Unit Frame Bolts: **14 lb-ft (19 Nm)**

4. Install the pinch bolt retaining the lower power steering shaft to the power steering unit. Torque to specification.

TORQUE
EPS Unit Pinch Bolts: **15 lb-ft (20 Nm)**

5. Position the steering wheel, pivot tube and upper steering shaft assembly to the proper mounting location.
6. Be sure the front wheels are pointing straight ahead and that the steering wheel is straight. Align the skip-tooth spline on the power steering input shaft with the opening in the upper steering shaft and install the upper shaft onto the power steering input shaft.

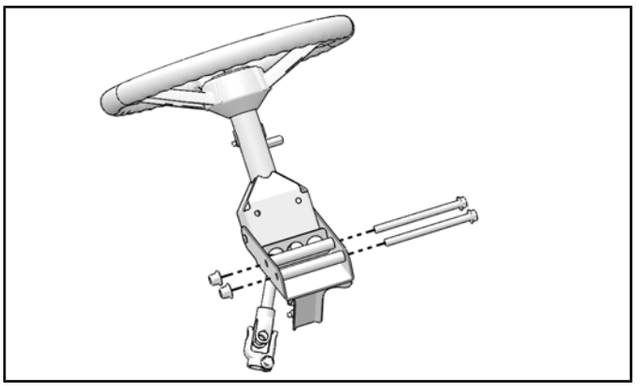


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7. Loosely install the steering tilt assembly bolts and nuts.

⚠ CAUTION

Striking the steering wheel or steering shaft can permanently damage the EPS unit and cause a Power Steering Fault.



8. Install the upper steering shaft pinch bolt and torque to specification.

TORQUE

EPS Unit Pinch Bolts:
15 lb-ft (20 Nm)

9. Install the fastener retaining the steering wheel tilt assembly to the frame. Torque fastener to specification.

TORQUE

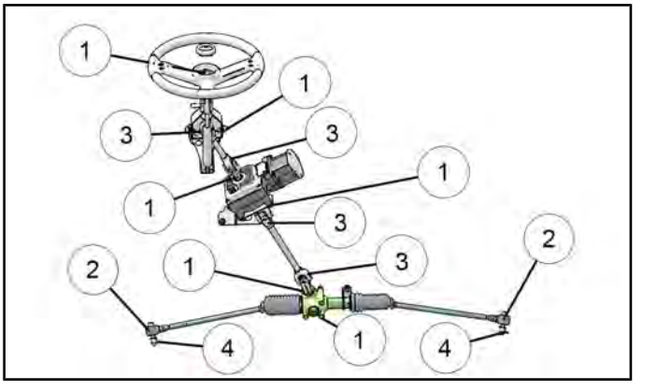
Steering Wheel Tilt Assembly Fasteners:
40 lb-ft (54 Nm)

10. Reconnect both electrical harnesses onto the power steering unit. Be sure the connectors snap into place and the wires are routed correctly.
11. Reinstall the upper and lower dash panels making sure to reconnect the instrument cluster, both 12V outlets and all the switches.
12. Turn the key switch on and test EPS operation.

STEERING INSPECTION

Steering system components should be checked periodically for loose fasteners ①, worn tie rod ends ②, loose steering shaft U-joints ③, worn A-arm ball joints and general damage. Also check to make sure all cotter pins ④ are in place. If cotter pins are removed, they must be replaced.

Replace any worn or damaged steering components. Steering should move freely through the entire range of travel without binding. Check routing of all cables, hoses, and wiring to be sure the steering mechanism is not restricted or limited.



NOTE

Check front end alignment whenever steering components are replaced.

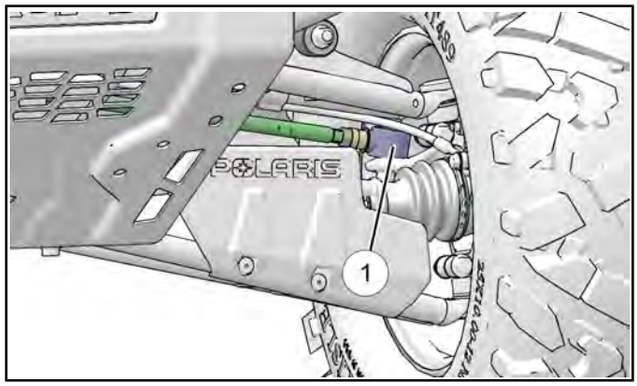
⚠ WARNING

Due to the critical nature of the procedures outlined in this chapter, Polaris recommends steering component repair and adjustment be performed by an authorized Polaris MSD certified technician.

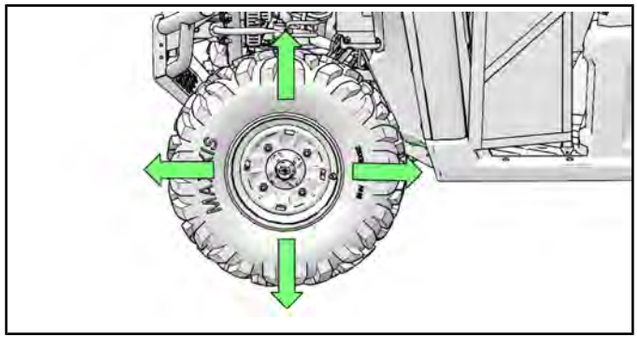
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TIE ROD END / WHEEL HUB INSPECTION

- To check for play in the tie rod end ①, grasp the steering tie rod, pull in all directions feeling for movement.



- Replace any worn steering components. Steering should move freely through entire range of travel without binding.
- Elevate front end of machine so front wheels are off the ground. Check for any looseness in front wheel/hub assembly by grasping the tire firmly at top and bottom first, and then at front and rear. Try to move the wheel and hub by pushing inward and pulling outward.



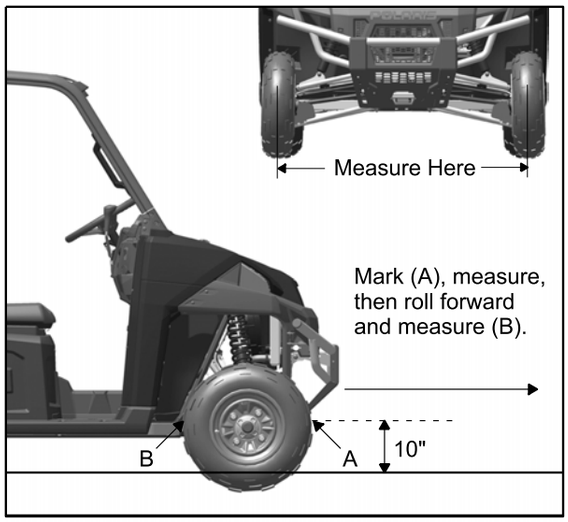
- If abnormal movement is detected, inspect the hub and wheel assembly to determine the cause (loose wheel nuts or loose front hub nut).

WHEEL TOE ALIGNMENT INSPECTION

NOTE

Make sure tire pressures are set the same on the right and left tires.

1. Place machine on a smooth level surface and set steering wheel in a straight ahead position. Secure the steering wheel in this position.
2. Place a chalk mark on the center line of the front tires approximately 10 in (25.4 cm) from the floor or as close to the hub/axle center line as possible.



NOTE

It is important the height of both marks be equally positioned to get an accurate measurement.

3. Measure the distance between the marks and record the measurement. Call this measurement “A”.
4. Rotate the tires 180° by moving the vehicle forward. Position chalk marks facing rearward, even with the hub/axle center line.
5. Again measure the distance between the marks and record. Call this measurement “B”. Subtract measurement “B” from measurement “A”. The difference between measurements “A” and “B” is the vehicle toe alignment. The recommended vehicle toe tolerance is **1/8-1/4 in (3.2-6.4 mm)** toe out. This means the front of the tire (A) is **1/8-1/4 in (3.2-6.4 mm)** wider than the measurement at the rear (B).

MEASUREMENT
Wheel Toe-Out (A) - (B): **1/8-1/4 in (3.2-6.4 mm)**

8

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WHEEL TOE ADJUSTMENT

If toe alignment is incorrect, repeat steps 3-5 of “Wheel Toe Alignment Inspection”, but instead measure the distance between vehicle center and each wheel. This will tell you which tie rod needs adjusting.



Measure Distances
(measurements should be equal)

NOTE

Be sure steering wheel is straight ahead before determining which tie rod needs adjustment.

CAUTION

During tie rod adjustment, it is very important that the following precautions be taken when tightening tie rod end jam nuts. If the rod end is positioned incorrectly it will not pivot, and may break.

To adjust toe alignment:

- Hold tie rod end to keep it from rotating.
- Loosen jam nuts at both end of the tie rod.
- Shorten or lengthen the tie rod until alignment is as required to achieve the proper toe setting as specified in **“Wheel Toe Alignment Inspection”**.

IMPORTANT

When tightening the tie rod end jam nuts, the rod ends must be held parallel to prevent rod end damage and premature wear. Damage may not be immediately apparent if done incorrectly.

- After alignment is complete, torque jam nuts to specification.

TORQUE

Tie Rod Jam Nut:
13 lb-ft (18 Nm)

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SUSPENSION SERVICE

SUSPENSION INSPECTION

Compress and release the suspension. Damping should be smooth throughout the range of travel.

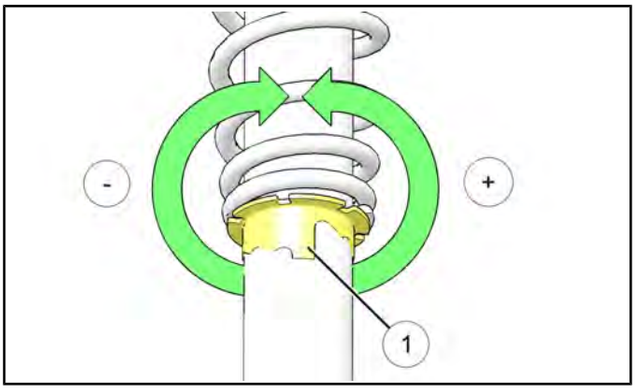
- Check all suspension components and mounting fasteners for wear or damage.
- Inspect each shock body for leakage.

SPRING PRE-LOAD ADJUSTMENT

The front and rear shock absorber springs are adjustable. Rotate the adjuster cam ① either direction to increase or decrease spring tension. Always adjust both left and right sides equally.

NOTE

Adjusting all shock cams equally will only affect ride height as the weight transfer will not be changed.



Vehicle loads effect suspension spring pre-load requirements. Use Spanner Wrench to adjust pre-load as necessary to avoid bottoming of the shocks.

Shock Spanner Wrench:
2871095

SHOCK POSITION ADJUSTMENT

The front and rear shock position may be adjusted to provide a stiffer suspension operation if necessary.

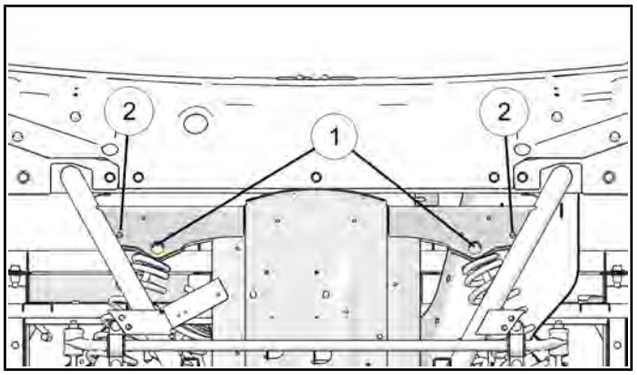
1. Elevate vehicle and safely support the main frame.

CAUTION

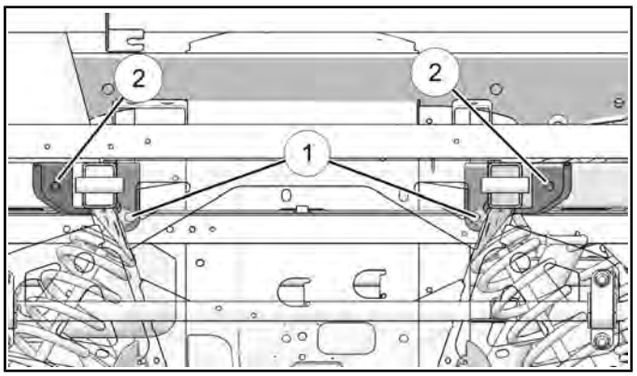
Serious injury may result if machine tips or falls. Be sure machine is secure before adjusting.

2. Remove the upper shock mounting bolts ① from each side of the vehicle.
3. Reposition the upper shock mounts to the outside mounting holes ②.

FRONT SHOCK



REAR SHOCK



4. Reinstall the upper shock mounting bolts and torque to specification.

TORQUE

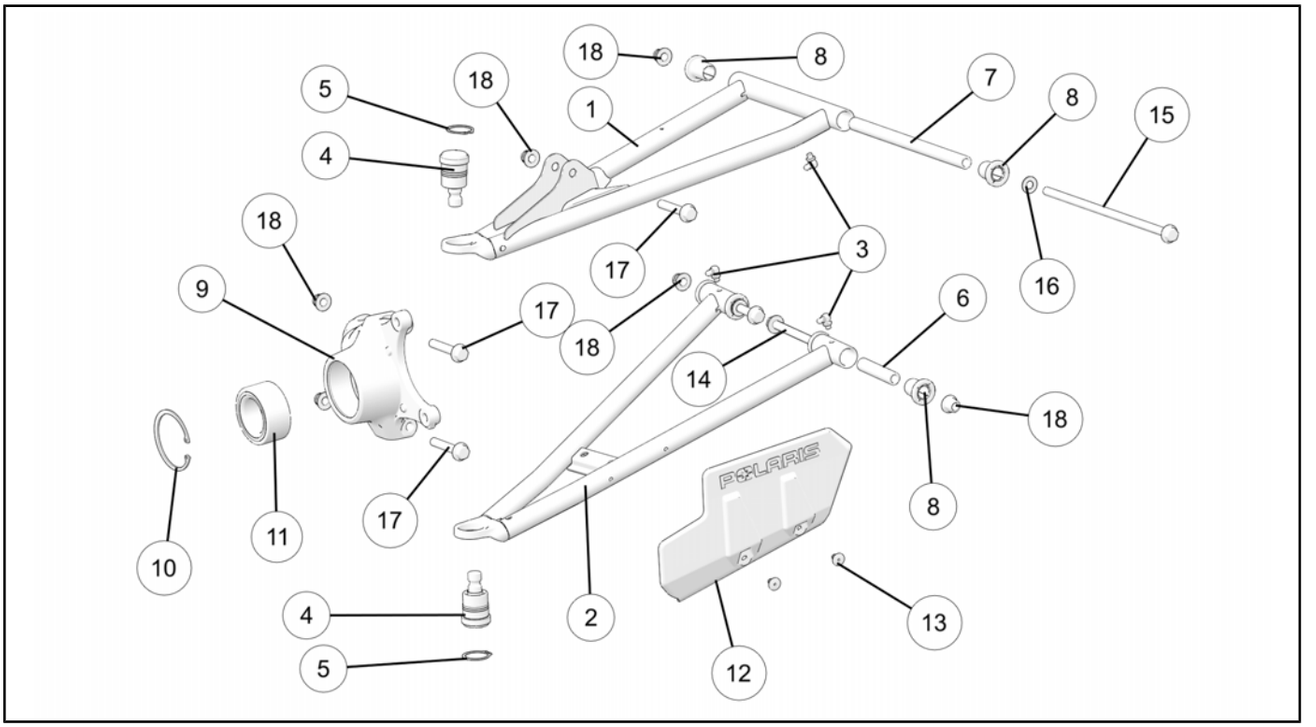
Shock Mounting Bolts:
40 lb-ft (54 Nm)

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FRONT A-ARM SERVICE

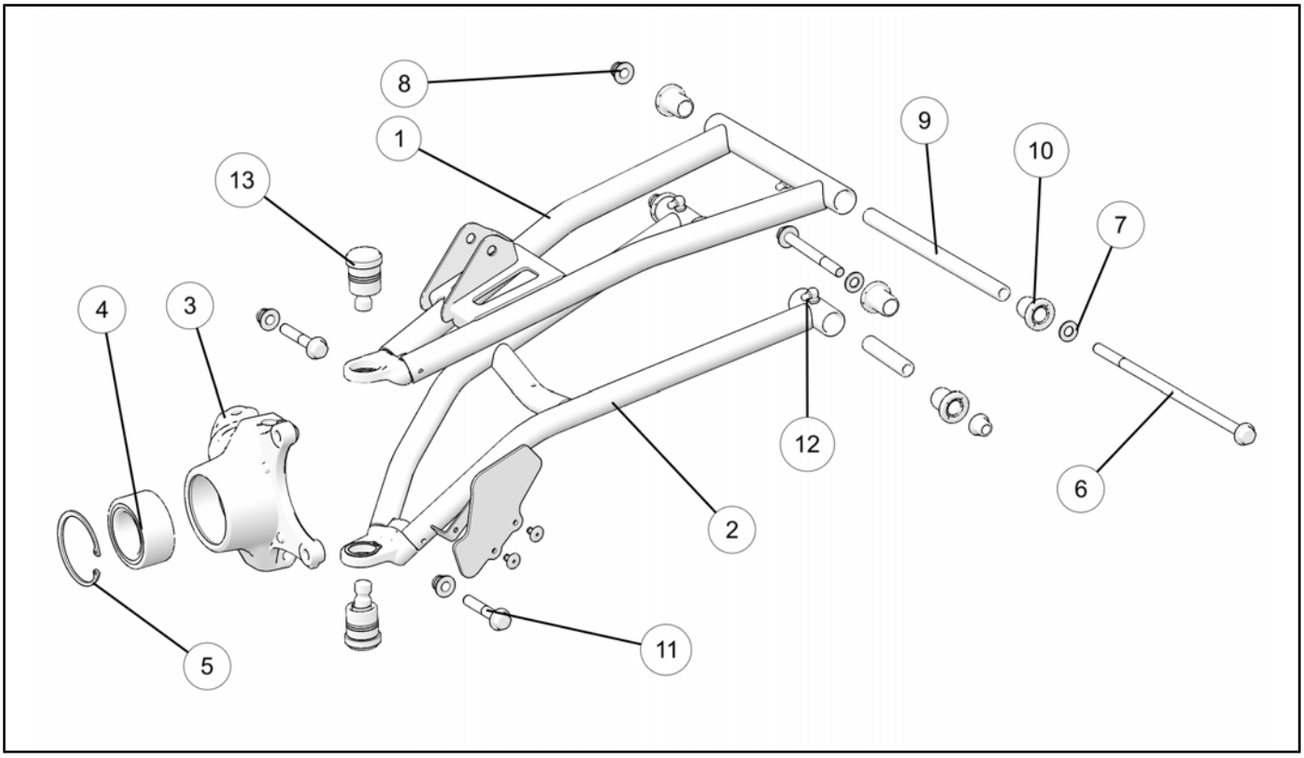
ASSEMBLY VIEW



REF	PART DESCRIPTION	REF	PART DESCRIPTION	REF	PART DESCRIPTION
1	A-ARM, FRONT UPPER	7	SHAFT, PIVOT	13	RIVET
2	A-ARM, FRONT LOWER	8	BUSHING	14	SCREW
3	FITTING, ZERK	9	CARRIER, BEARING	15	SCREW
4	JOINT, BALL	10	RING, RETAINING INT	16	WASHER
5	RING, RETAINER EXT	11	BEARING, BALL SEALED	17	SCREW
6	SHAFT, PIVOT	12	SHIELD, CV	18	NUT, FLANGE

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FRONT A-ARM ASSEMBLY VIEW - HIGH LIFTER

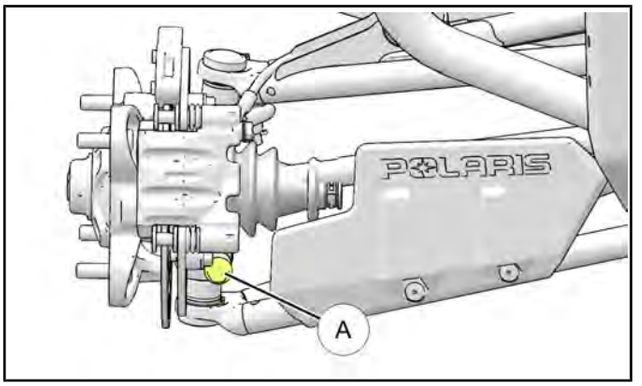


REF	DESCRIPTION	REF	DESCRIPTION	REF	DESCRIPTION
1	A-ARM, FRONT UPPER	6	BOLT	11	BOLT
2	A-ARM, FRONT LOWER	7	WASHER	12	ZERK FITTING
3	BEARING CARRIER	8	NUT	⑬	BALL JOINT
4	BEARING	9	PIVOT TUBE		
5	RETAINING RING	10	BUSHING		

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FRONT LOWER A-ARM REMOVAL

1. Properly lift and support the vehicle by the frame.
2. Remove the four wheel nuts and remove the wheel.
3. Using a socket and open-end wrench, remove the lower ball joint pinch bolt (A) at the bearing carrier.



4. Using a socket and open-end wrench, remove the two fasteners retaining the lower A-arm to the frame.
5. Remove the lower A-arm from the vehicle.

⚠ WARNING

Upon A-arm installation completion, test vehicle at low speeds before putting into service.

FRONT LOWER A-ARM INSTALLATION

⚠ WARNING

The locking agent on the existing bolts was destroyed during removal. DO NOT reuse old hardware. Serious injury or death could result if fasteners come loose during operation.

1. Install the lower A-arm onto the frame. Torque the new lower A-arm fasteners to specification.

TORQUE

Lower A-Arm Fasteners:
40 lb-ft (54 Nm)

2. Install the lower A-arm ball joint into the bearing carrier. Torque the new fastener to specification.

TORQUE

Ball Joint Pinch Bolts:
42 lb-ft (57 Nm)

3. Install wheel and torque wheel nuts to specification.

TORQUE

Wheel Nuts (Steel): **60 lb-ft (81 Nm)**
Wheel Nuts (Aluminum): **120 lb-ft (163 Nm)**

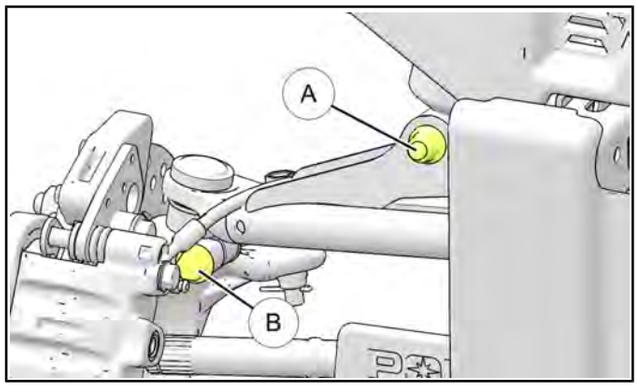
⚠ WARNING

Upon A-arm installation completion, test vehicle at low speeds before putting into service.

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FRONT UPPER A-ARM REMOVAL

1. Properly lift and support the vehicle by the frame.
2. Remove the four wheel nuts and remove the wheel.
3. Remove the fastener (A) retaining the lower portion of the shock to the upper A-arm.
4. Remove the upper ball joint pinch bolt (B) at the bearing carrier.



5. Remove the fastener retaining the upper A-arm to the frame.
6. Remove the upper A-arm from the vehicle.

FRONT UPPER A-ARM INSTALLATION

⚠ WARNING

The locking agent on the existing bolts was destroyed during removal. DO NOT reuse old hardware. Serious injury or death could result if fasteners come loose during operation.

1. Install the upper A-arm onto the frame. Torque the new upper A-arm fastener to specification.

TORQUE

Upper A-Arm Fasteners:
40 lb-ft (54 Nm)

2. Install the upper A-arm ball joint into the bearing carrier. Torque the new fastener to specification.

TORQUE

Ball Joint Pinch Bolts:
42 lb-ft (57 Nm)

3. Attach the lower portion of the shock to the upper A-arm. Torque the new fastener to specification.

TORQUE

Shock Mounting Bolts:
40 lb-ft (54 Nm)

4. Install wheel and torque wheel nuts to specification.

TORQUE

Wheel Nuts (Steel): **60 lb-ft (81 Nm)**
Wheel Nuts (Aluminum): **120 lb-ft (163 Nm)**

⚠ WARNING

Upon A-arm installation completion, test vehicle at low speeds before putting into service.

8

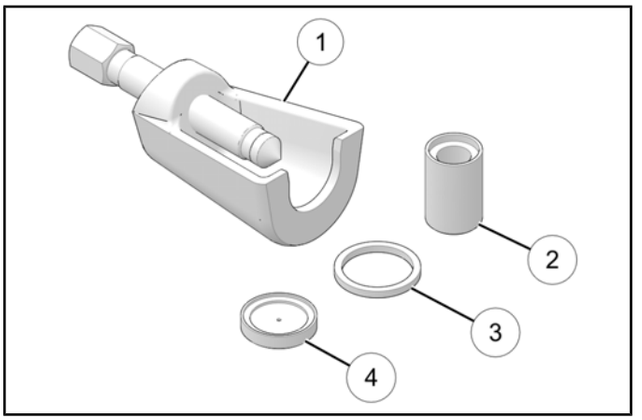
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BALL JOINT SERVICE

BALL JOINT SERVICE PREPARATION

NOTE

Do not reuse a ball joint if it has been removed. If removed, it must be replaced. Use this removal procedure only when replacing the ball joint.
If the ball joint is removed, the bearing carrier MUST be replaced. Refer to **"Front Bearing Carrier Removal / Installation", page 7.4** and **"Rear Bearing Carrier Removal", page 7.33** procedures.
Ball joint tool **PU-50506** will allow the upper and lower ball joints to be replaced with the A-arm installed on the vehicle.



① Press Asm.	③ Spacer
② Removal Adapter	④ Installation Adapter

NOTE

The A-arm does not need to be removed to perform this procedure if ball joint tool **PU-50506** is used.

1. Properly lift and support the vehicle by the frame.
2. Remove the appropriate front wheel.

To service the upper ball joint:

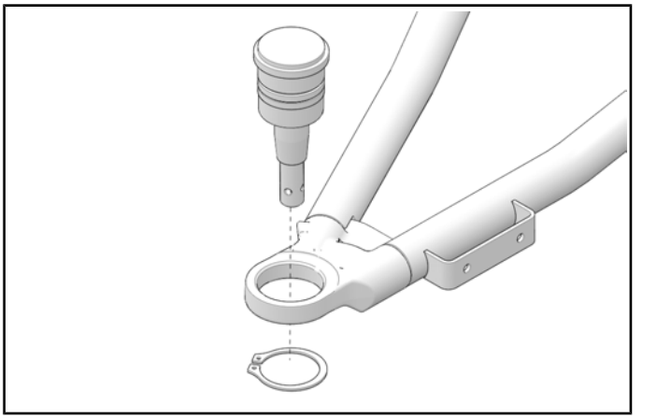
3. Remove and discard the two front brake caliper mounting bolts and remove the caliper from the brake disc. Refer to **"Front Brake Caliper Removal", page 9.14** procedure.
4. Remove and discard the upper ball joint pinch bolt.
5. If necessary, remove the lower front shock fastener from the A-arm to gain enough clearance to install ball joint tool (**PU-50506**) on the upper ball joint.

To service the lower ball joint:

6. Remove and discard the lower ball joint pinch bolt.
7. If necessary, remove the lower front shock fastener from the A-arm to gain enough clearance to install ball joint tool (**PU-50506**) on the lower ball joint.

BALL JOINT REMOVAL

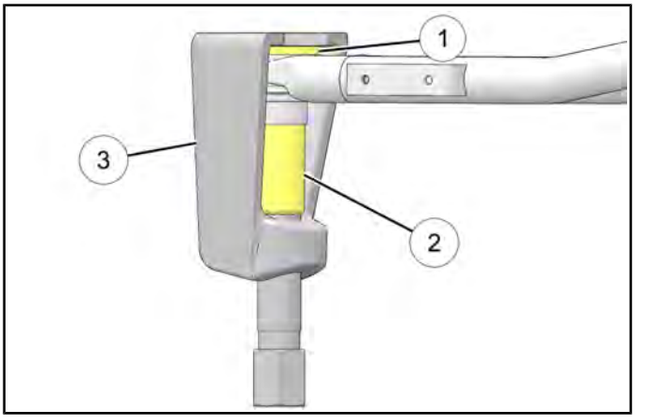
1. Remove the retaining ring from the ball joint.



NOTE

Image for reference only.

2. Install Spacer ① over the top of the ball joint face.



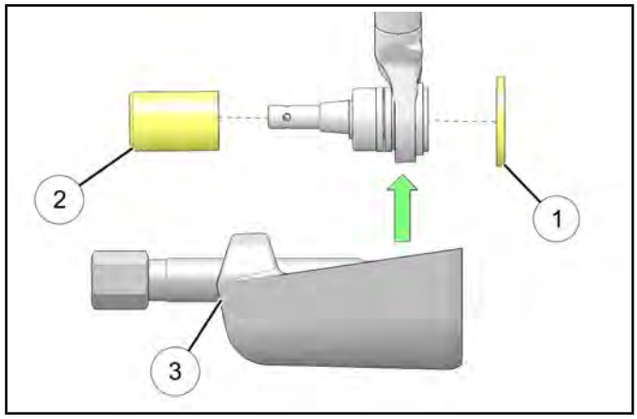
3. Place Removal Adaptor ② over the ball joint shaft.
4. Install the Press Asm. ③ onto the A-arm to engage the ball joint Removal Adapter.

NOTE

Be sure the Press Asm. opening is only contacting the Spacer ① and not the ball joint face.

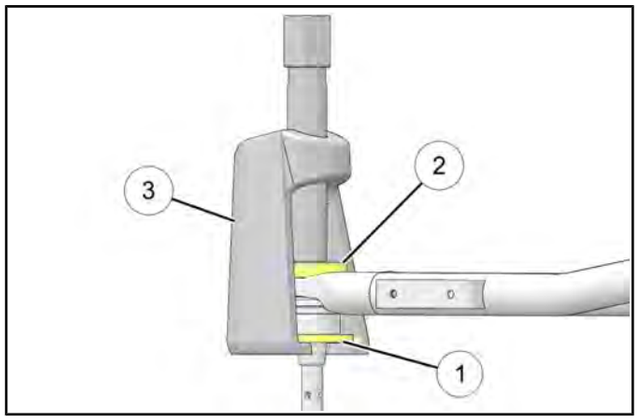
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5. Tighten the Press Asm. screw and fully remove the ball joint from the A-arm.



BALL JOINT INSTALLATION

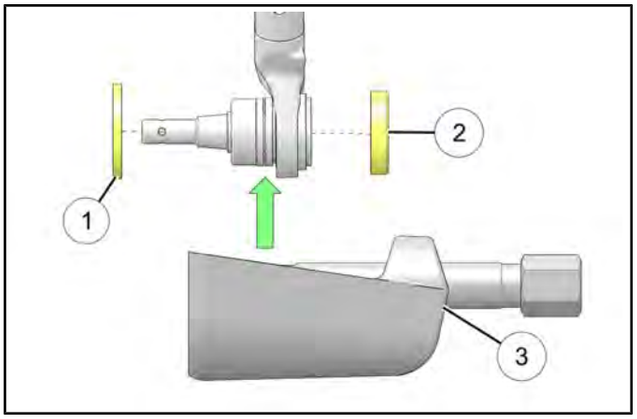
1. By hand, install the NEW ball joint into the A-arm.
2. Position the Installation Adapter ② over the face of the ball joint.



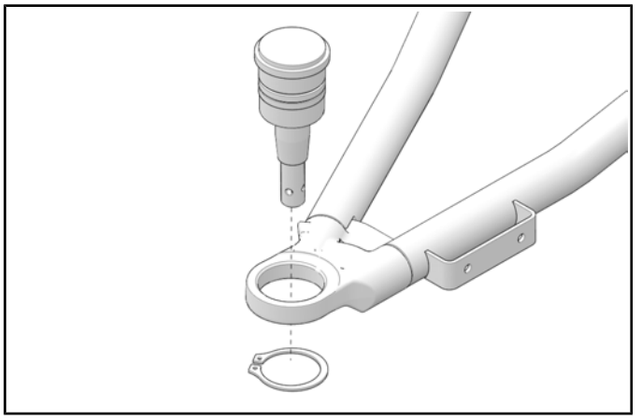
NOTE

Image for reference only.

3. Position the Spacer ① over the shaft of the ball joint so it is against the A-arm.
4. Install the Press Asm. ③ onto the A-arm to engage the Installation Adapter and Spacer.
5. Tighten the Press Asm. screw and fully install the ball joint into the arm.



6. After the new ball joint is fully installed into the A-arm, install a new retaining ring.



NOTE

Image for reference only.

7. Repeat the ball joint service procedure for any additional A-arm ball joint replacements.
8. Insert upper / lower A-arm ball joint end into the bearing carrier. Install new pinch bolts and nuts. Torque to specification.
9. If needed, install new brake caliper mounting bolts and torque to specification.

CAUTION

New bolts have a pre-applied locking agent which is destroyed upon removal. Always use new brake caliper mounting bolts upon assembly.

8

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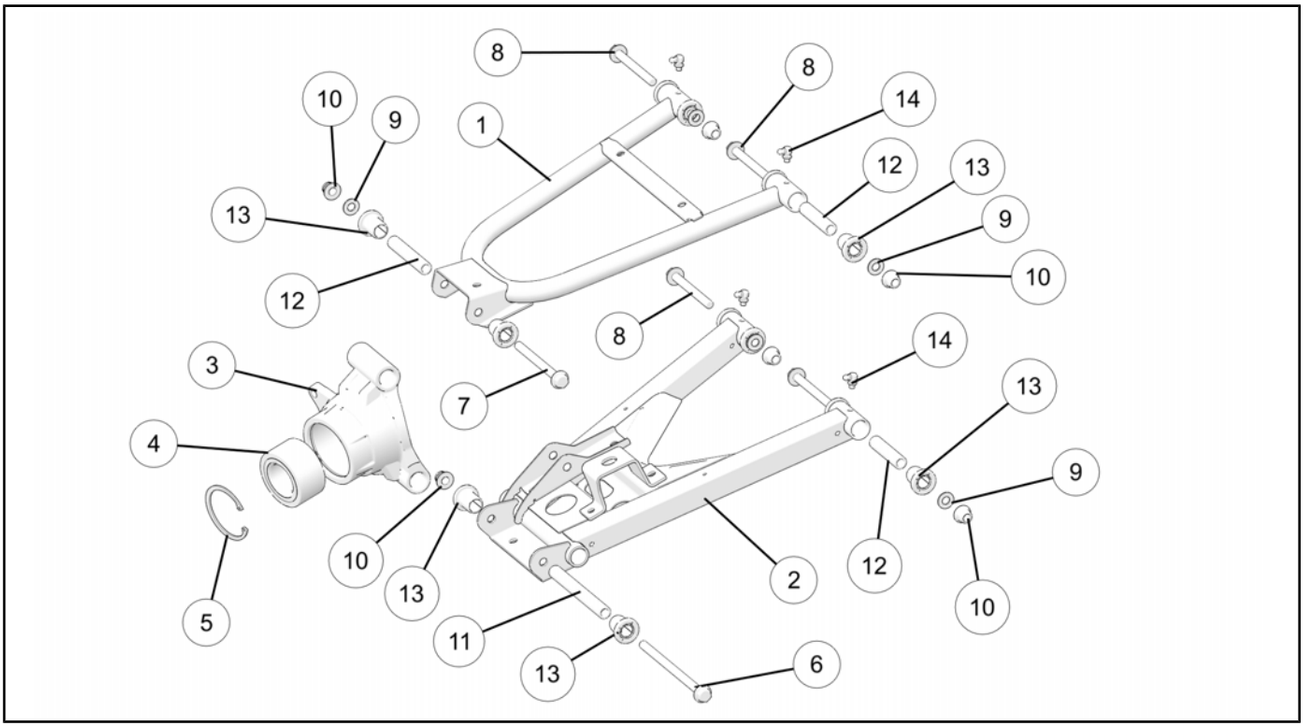
10. Install wheel and four wheel nuts. Torque wheel nuts to specification.

TORQUE
Ball Joint Pinch Bolts: **42 lb-ft (57 Nm)**
Front Shock Mounting Bolts: **40 lb-ft (54 Nm)**
Front Caliper Mounting Bolts: **30 lb-ft (41 Nm)**
Wheel Nuts (Steel): **60 lb-ft (81 Nm)**
Wheel Nuts (Aluminum): **120 lb-ft (163 Nm)**

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REAR A-ARM SERVICE

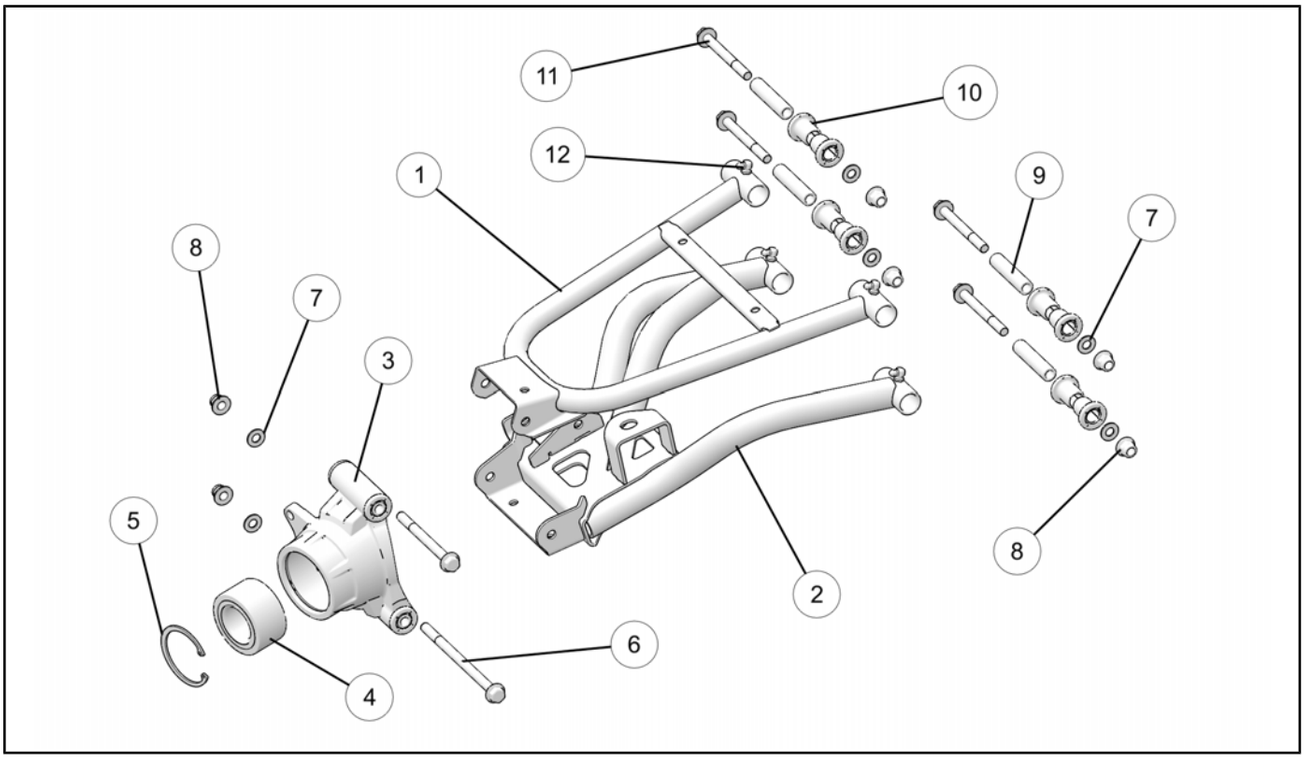
REAR A-ARM ASSEMBLY VIEW



REF	DESCRIPTION	REF	DESCRIPTION	REF	DESCRIPTION
1	A-ARM, REAR UPPER	6	BOLT	11	PIVOT TUBE
2	A-ARM, REAR LOWER	7	BOLT	12	PIVOT TUBE
3	BEARING CARRIER	8	BOLT	13	BUSHING
4	BEARING	9	WASHER	14	ZERK FITTING
5	RETAINING RING	10	NUT		

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REAR A-ARM ASSEMBLY VIEW - HIGH LIFTER

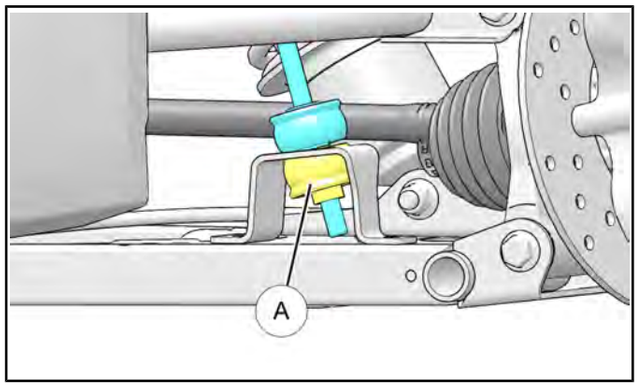


REF	DESCRIPTION	REF	DESCRIPTION	REF	DESCRIPTION
1	A-ARM, REAR UPPER	5	RETAINING RING	9	PIVOT TUBE
2	A-ARM, REAR LOWER	6	BOLT	10	BUSHING
3	BEARING CARRIER	7	WASHER	11	BOLT
4	BEARING	8	NUT	12	ZERK FITTING

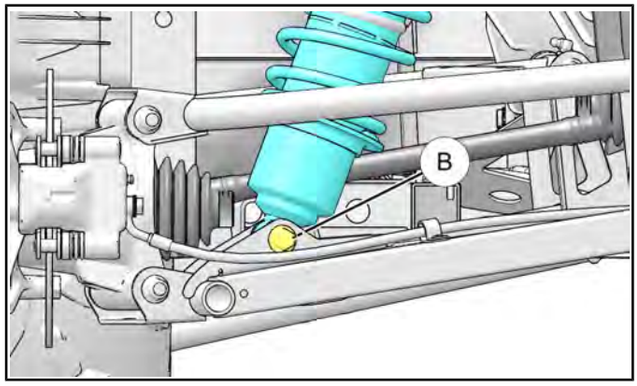
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REAR UPPER A-ARM REMOVAL

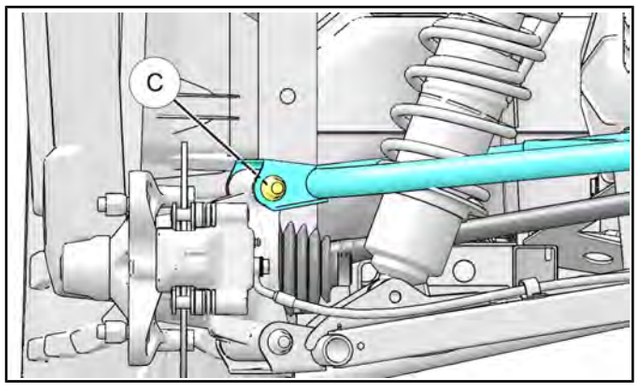
1. Properly lift and support the vehicle by the frame.
2. Using a 13 mm socket, remove the four nuts retaining the rear stabilizer bar to the frame.
3. Remove the nut (A) from the lower portion of the stabilizer bar link.



4. Remove the four wheel nuts and remove the wheel.
5. Remove the fastener (B) retaining the lower portion of the rear shock to the lower A-arm.



6. Remove the fastener (C) retaining the upper A-arm to the bearing carrier.



7. Using a 15 mm socket and open-end wrench, remove the two fasteners retaining the upper A-arm to the frame.
8. Allow the lower A-arm to drop and remove the upper A-arm by maneuvering the rear shock and stabilizer link out.

REAR UPPER A-ARM INSTALLATION

⚠ WARNING

The locking agent on the existing bolts was destroyed during removal. DO NOT reuse old hardware. Serious injury or death could result if fasteners come loose during operation.

1. Install the upper A-arm onto the frame by maneuvering the shock and stabilizer link into the A-arm. Torque new fasteners to specification.
2. Attach the upper A-arm to the bearing carrier. Torque new fastener to specification.

TORQUE

Upper A-Arm Fasteners:
40 lb-ft (54 Nm)

3. Attach the lower portion of the rear shock to the lower A-arm. Torque new fastener to specification.

TORQUE

Shock Mounting Bolts:
40 lb-ft (54 Nm)

4. Attach the lower stabilizer bar link to the lower A-arm. Torque new fastener to specification.
5. Attach the stabilizer bar to the frame. Torque fasteners to specification.

TORQUE

Stabilizer Bar Fasteners:
17 lb-ft (23 Nm)

6. Install wheel and torque wheel nuts to specification.

TORQUE

Wheel Nuts (Steel): **60 lb-ft (81 Nm)**
Wheel Nuts (Aluminum): **120 lb-ft (163 Nm)**

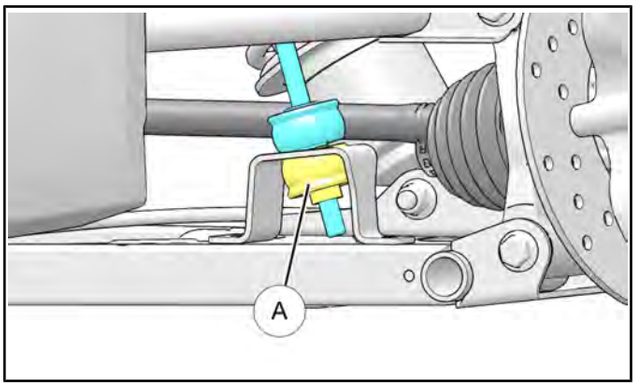
⚠ WARNING

Upon A-arm installation completion, test vehicle at low speeds before putting into service.

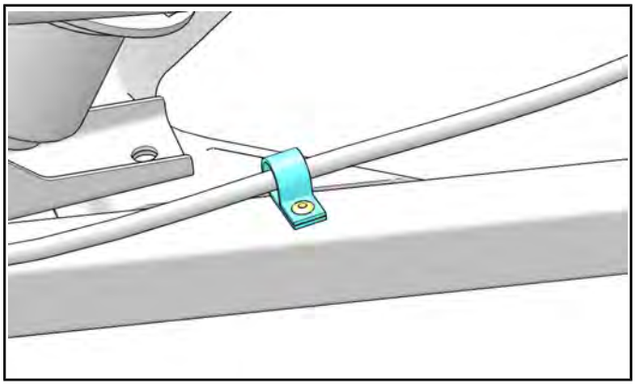
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REAR LOWER A-ARM REMOVAL

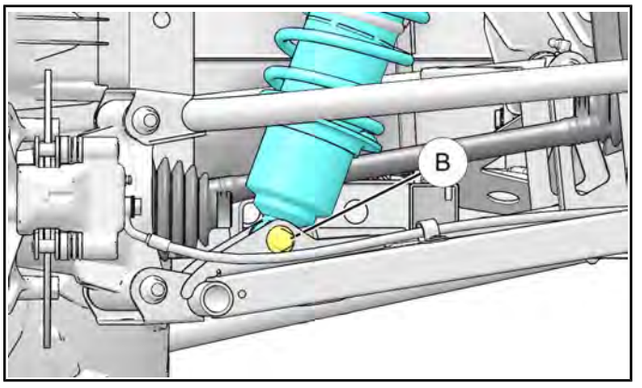
1. Properly lift and support the vehicle by the frame.
2. Using a 13 mm socket, remove the four nuts retaining the rear stabilizer bar to the frame.
3. Remove the nut (A) from the lower portion of the stabilizer bar link.



4. Remove the four wheel nuts and remove the wheel.
5. Drill out the rivet retaining the brake line clamp to the lower A-arm.



6. Remove the fastener (B) retaining the lower portion of the rear shock to the lower A-arm.



7. Remove the fastener retaining the lower A-arm to the bearing carrier.
8. Remove the lower A-arm from the vehicle.

REAR LOWER A-ARM INSTALLATION

⚠ WARNING

The locking agent on the existing bolts was destroyed during removal. DO NOT reuse old hardware. Serious injury or death could result if fasteners come loose during operation.

1. Install the lower A-arm on the frame. Torque new fasteners to specification.
2. Attach the lower A-arm to the bearing carrier. Torque new fastener to specification.

TORQUE

Lower A-Arm Fasteners:
40 lb-ft (54 Nm)

3. Attach the lower portion of the rear shock to the lower A-arm. Torque new fastener to specification.

TORQUE

Shock Mounting Bolts:
40 lb-ft (54 Nm)

4. Attach the lower stabilizer bar link to the lower A-arm. Torque new fastener to specification.
5. Attach the stabilizer bar to the frame. Torque fasteners to specification.

TORQUE

Stabilizer Bar Fasteners:
17 lb-ft (23 Nm)

6. Install wheel and torque wheel nuts to specification.

TORQUE

Wheel Nuts (Steel): **60 lb-ft (81 Nm)**
Wheel Nuts (Aluminum): **120 lb-ft (163 Nm)**

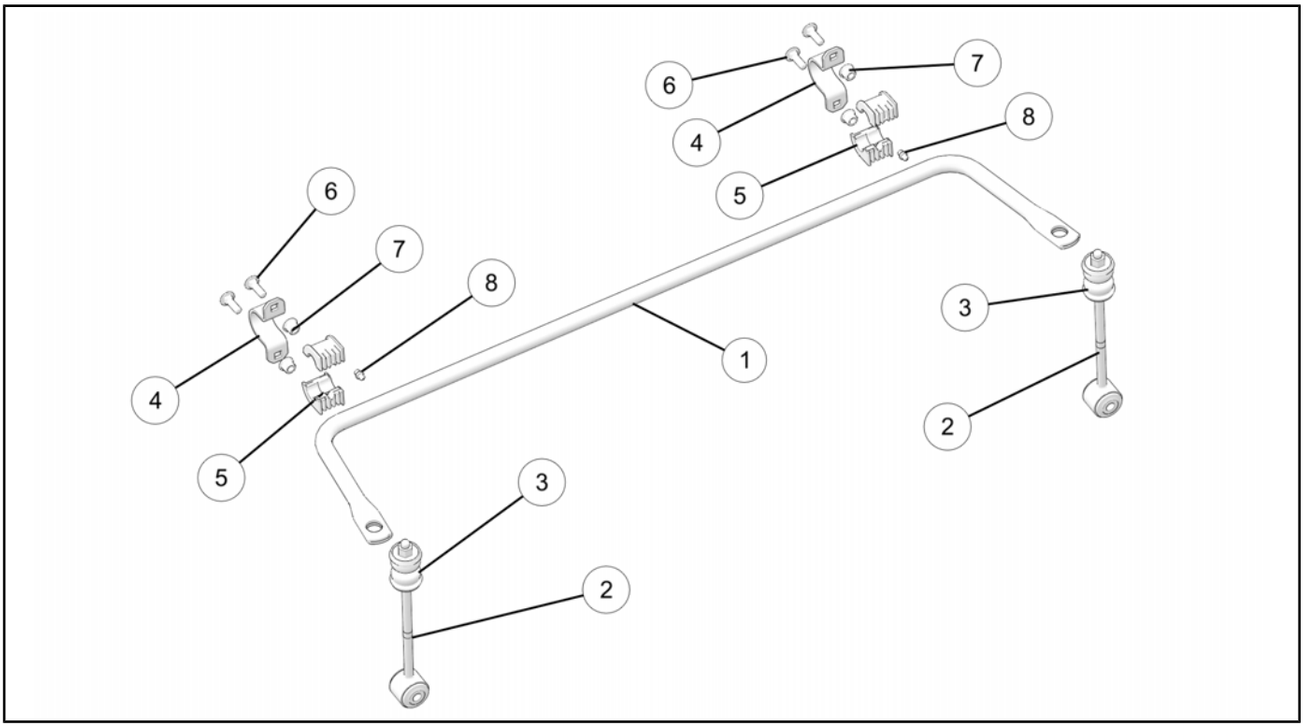
⚠ WARNING

Upon A-arm installation completion, test vehicle at low speeds before putting into service.

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REAR STABILIZER BAR / LINKAGE SERVICE

REAR STABILIZER BAR ASSEMBLY VIEW

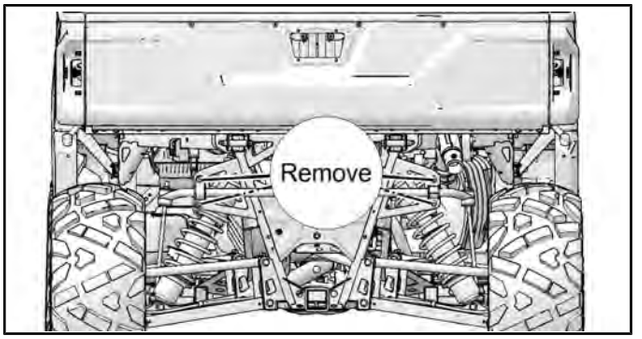


REF	PART DESCRIPTION	REF	PART DESCRIPTION
1	BAR, STABILIZER	5	BUSHING
2	LINKAGE	6	BOLT
3	BUSHING, RUBBER	7	NUT
4	BRACKET, BUSHING	8	FITTING, ZERK

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REMOVAL / INSTALLATION

1. Elevate and safely support the vehicle with weight removed from the rear wheel(s).
2. Using a 13mm socket, remove the four nuts retaining the stabilizer bar to the frame.



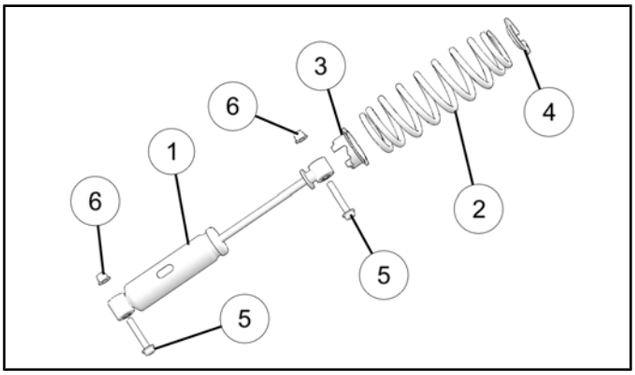
3. Using a 15mm socket, remove the upper stabilizer bar linkage nut on each side.
4. Remove the stabilizer bar from the frame and inspect the stabilizer bar for straightness.
5. Reverse this procedure for installation.
6. Torque the stabilizer bar mounting bolts and upper rubber linkage bushing nuts to specification.

TORQUE
Stabilizer Bar Fasteners: **17 lb-ft (23 Nm)**

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SHOCK / SPRING SERVICE

SHOCKS ASSEMBLY VIEW



REF	DESCRIPTION
1	SHOCK
2	SPRING
3	CAM, ADJUSTING
4	RETAINER, SPRING
5	BOLT
6	NUT

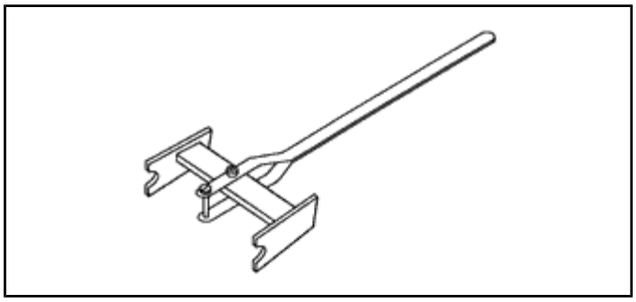
SHOCK REMOVAL / INSTALLATION

1. Elevate the vehicle far enough off the ground to relieve the suspension load and support the A-arm.
2. Remove the upper and lower fasteners retaining the shock and remove the shock from the vehicle. Discard nuts and replace with new upon installation.
3. Reverse the procedure to reinstall the shock. Torque new shock mounting fasteners to specification.

TORQUE
Shock Mounting Bolts: **40 lb-ft (54 Nm)**

SPRING REPLACEMENT

1. Remove the shock and note the spring preload cam setting.
2. Using spring compressor, compress the shock spring far enough to remove spring retainer.



Spring Compressor: **2870623**

3. Remove the spring and adjusting cam from the existing shock and install components onto the new shock.
4. Install the spring retainer. If needed, use the spring compressor to compress the spring far enough to install the retainer.

NOTE
The spring retainer gap should be 180° from the end of the spring upon installation.

5. Turn adjustment cam to set preload distance noted in Step 1.
6. Reinstall shock onto vehicle and torque new fasteners to specification.

8

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NOTES

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CHAPTER 9
BRAKE SYSTEM

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GENERAL INFORMATION - BRAKE SYSTEM

SERVICE NOTES - BRAKE SYSTEM

CAUTION

Always wear safety glasses.

CAUTION

Brake fluid will damage finished surfaces.Do not allow brake fluid to come in contact with finished surfaces.

Disc brake systems are light weight, low maintenance, and perform well in the conditions this vehicle will routinely encounter. There are a few things to remember when replacing disc brake pads or performing brake system service to ensure proper system function and maximum pad service life.

- DO NOT over-fill the master cylinder fluid reservoir.
- Make sure the brake pedal returns freely and completely.
- Adjust the caliper stop pin after pad service.
- Check and adjust master cylinder reservoir fluid level after pad service.
- Make sure atmospheric vent on reservoir is unobstructed.
- Test for brake drag after any brake system service and investigate cause if brake drag is evident.
- Make sure caliper moves freely on guide pins (where applicable).
- Inspect caliper piston seals for foreign material that could prevent caliper pistons from returning freely.
- Perform a brake burnishing procedure after installing new pads to maximize service life.
- DO NOT lubricate or clean the brake components with aerosol or petroleum products. Use only approved brake cleaning products.

The Polaris brake system consists of the following components or assemblies: brake pedal, master cylinder, hydraulic brake lines, brake calipers, brake pads, and brake discs, which are secured to the drive line.

When the foot activated brake lever is applied it applies pressure on the piston within the master cylinder. As the master cylinder piston moves inward it closes a small opening (compensating port) within the cylinder and starts to build pressure within the brake system. As the pressure within the system is increased, the pistons located in the brake calipers move outward and apply pressure to the moveable brake pads. These pads contact the brake discs and move the calipers in their floating bracket, pulling the stationary side pads into the brake discs. The resulting friction reduces brake disc and vehicle speed.

The friction applied to the brake pads will cause the pads to wear. As these pads wear, the piston within the caliper moves further outward and becomes self adjusting. Fluid from the reservoir fills the additional area created when the caliper piston moves outward.

Brake fluid level is critical to proper system operation. Too little fluid will allow air to enter the system and cause the brakes to feel spongy. Too much fluid could cause brakes to drag due to fluid expansion.

Located within the master cylinder is the compensating port which is opened and closed by the master cylinder piston assembly. As the temperature within the hydraulic system changes, this port compensates for fluid expansion or contraction. Due to the high temperatures created within the system during heavy braking, it is very important that the master cylinder reservoir have adequate space to allow for fluid expansion. **Never overfill the reservoir! Do not fill the reservoir beyond the MAX LEVEL line!**

When servicing Polaris brake systems use only **Polaris DOT 4 Brake Fluid (PN 2872189)**.

⚠ WARNING

WARNING: Once a bottle of brake fluid is opened, use what is necessary and discard the rest in accordance with local laws. Do not store or use a partial bottle of brake fluid. Brake fluid is hygroscopic, meaning it rapidly absorbs moisture. This causes the boiling temperature of the brake fluid to drop, which can lead to early brake fade and the possibility of serious injury.

SPECIAL TOOLS - BRAKE SYSTEM

TOOL DESCRIPTION	PART NUMBER
Mity Vac™ Pressure Test Tool	**2870975**

Bosch Automotive Service Solutions:
1-800-328-6657 or http://polaris.service-solutions.com/

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TORQUE SPECIFICATIONS - BRAKE SYSTEM

PART DESCRIPTION	TORQUE SPECIFICATION
Caliper Bleed Screws	**47 lb-in (5.3 Nm)**
Brake Line Banjo Bolts	**15 lb-ft (20 Nm)**
Master Cylinder Mounting Bolts	**23 lb-ft (31 Nm)**
Brake Pedal Mount Bracket Nuts	**18 lb-ft (24 Nm)**
Front Caliper Mounting Bolts	**30 lb-ft (41 Nm)**
Wheel Nuts (Steel Wheels)	**60 lb-ft (81 Nm)**
Wheel Nuts (Cast Aluminum Wheels)	**120 lb-ft (163 Nm)**
Front Brake Disc Mounting Bolts	**18 lb-ft (24 Nm)**
Front Wheel Hub Castle Nuts	**80 lb-ft (108 Nm)**
Rear Caliper Mounting Bolts	**46 lb-ft (62 Nm)**
Rear Brake Disc Mounting Bolts	**28 lb-ft (38 Nm)**
Rear Wheel Hub Castle Nuts	**110 lb-ft (149 Nm)**

SERVICE SPECIFICATIONS - BRAKE SYSTEM

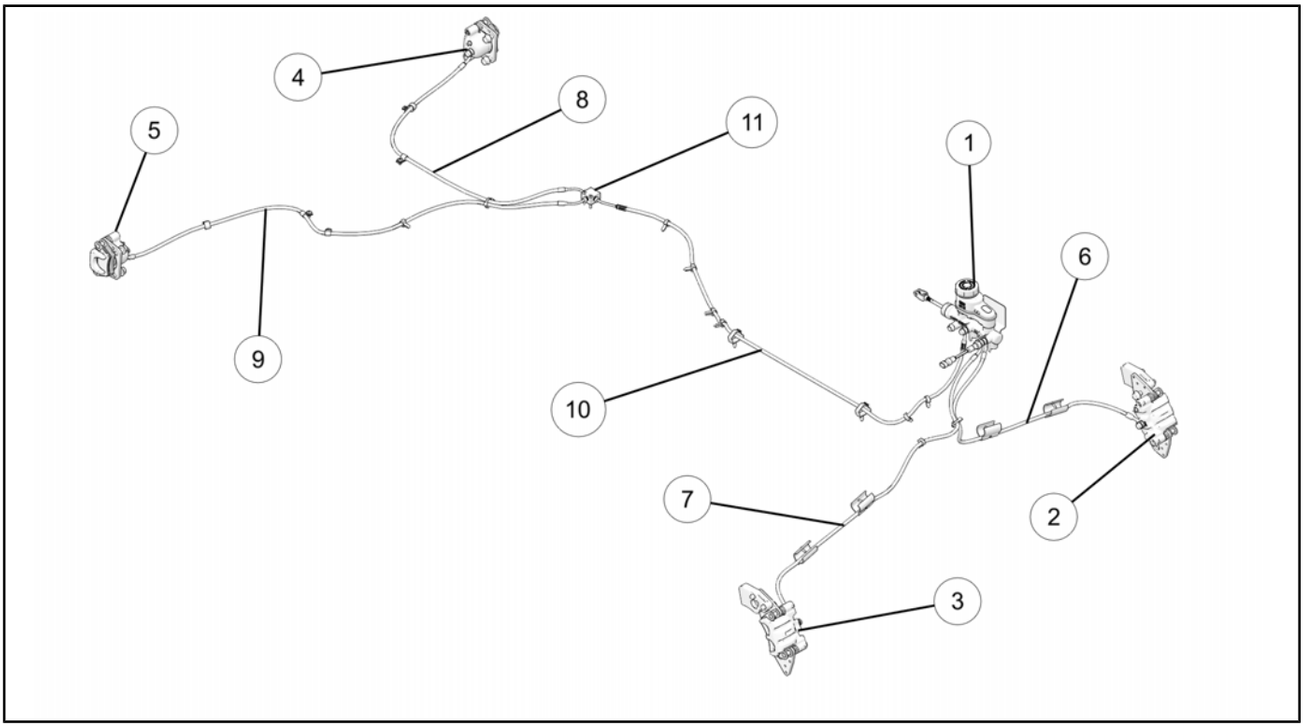
FRONT BRAKE SYSTEM		
ITEM	**STANDARD**	**SERVICE LIMIT**
Front Brake Pad Thickness	**0.297 ± .007" (7.54 ± .178 mm)**	**0.150" (3.8 mm)**
Front Brake Disc Thickness	**0.188" (4.78 mm)**	**0.170" (4.32 mm)**
Front Brake Disc Thickness Variance	**-**	**0.002” (0.051 mm)**
Front Brake Disc Runout	**-**	**0.010" (0.254 mm)**
Front Caliper Piston Bore I.D.	**1.373" (34.87 mm)**	**1.375" (34.93 mm)**
Front Caliper Piston O.D.	**1.370" (34.80 mm)**	**1.368" (34.75 mm)**

REAR BRAKE SYSTEM		
ITEM	**STANDARD**	**SERVICE LIMIT**
Rear Brake Pad Thickness	**0.298 ± .007" (7.56 ± .178 mm)**	**0.150" (3.8 mm)**
Rear Brake Disc Thickness	**0.188" (4.78 mm)**	**0.170" (4.32 mm)**
Rear Brake Disc Thickness Variance	**-**	**0.002” (0.051 mm)**
Rear Brake Disc Runout	**-**	**0.010" (0.254 mm)**
Rear Caliper Piston Bore I.D.	**1.505" (38.23 mm)**	**1.507" (38.28 mm)**
Rear Caliper Piston O.D.	**1.500" (38.10 mm)**	**1.498" (38.05 mm)**

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BRAKE SYSTEM SERVICE

BRAKE SYSTEM ASSEMBLY VIEW



REF	DESCRIPTION	REF	DESCRIPTION	REF	DESCRIPTION
1	CYLINDER, BRAKE MASTER	5	CALIPER, BRAKE - REAR RH	9	LINE, BRAKE - REAR RH
2	CALIPER, BRAKE - FRONT LH	6	LINE, BRAKE - FRONT LH	10	LINE, BRAKE - REAR MIDDLE
3	CALIPER, BRAKE - FRONT RH	7	LINE, BRAKE - FRONT RH	11	FITTING, CROSS
4	CALIPER, BRAKE - REAR LH	8	LINE, BRAKE - REAR LH		

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BRAKE BLEEDING / FLUID CHANGE

NOTE

When bleeding the brakes or replacing the fluid always start with the furthest caliper from the master cylinder. This procedure should be used to change fluid or bleed brakes during regular maintenance.

CAUTION

Always wear safety glasses.

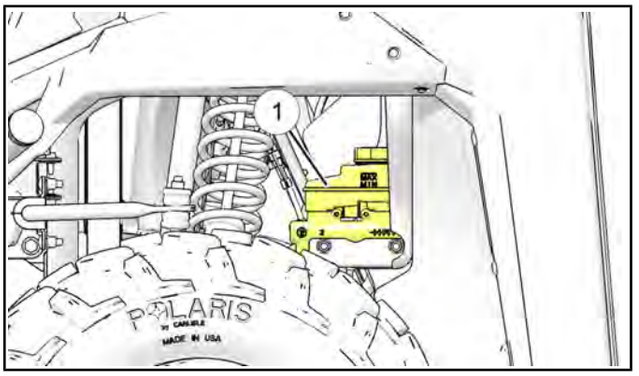
CAUTION

Brake fluid will damage finished surfaces.Do not allow brake fluid to come in contact with finished surfaces.

1. Locate master cylinder reservoir (A) in the front LH wheel well area (see Figure 1-7). Clean reservoir cover thoroughly.
2. Remove cover from reservoir.
3. If changing fluid, remove old fluid from reservoir with a Mity Vac™ pump or similar tool.

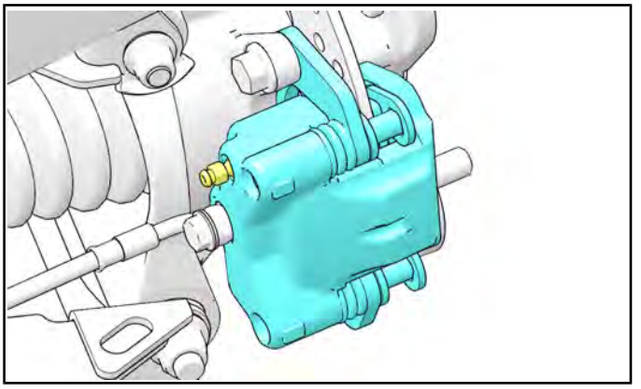
Mity Vac™ (**2870975**)

4. Add brake fluid to the indicated MAX level of reservoir ①.



Polaris DOT 4 Brake Fluid P/N:
2872189

5. Begin bleeding procedure with caliper furthest from master cylinder.
6. Install a box-end wrench on caliper bleeder screw.
7. Attach a tight-fitting, clear hose to the bleeder fitting.



8. Place a small amount of fresh brake fluid into a small, clear container and place the other end of bleeder hose into the container.
9. Have an assistant slowly pump the brake pedal until pressure builds and then hold.
10. Quickly open and close the bleed screw while holding pressure on the brake pedal.

NOTE

Do not release brake pedal before bleeder screw is tight or air may be drawn into master cylinder.

11. Release brake pedal pressure. Check level of fluid in reservoir and add if necessary (Figure 1-7).
12. Repeat Steps 9, 10, and 11 until brake pedal is firm and no air can be seen moving through the clear hose. Add fluid as necessary to maintain level in reservoir.

Master Cylinder Fluid Level:
Between the MIN and MAX line.

CAUTION

Maintain at least 1/2"(1.27 cm) of brake fluid in the reservoir to prevent air from entering the master cylinder.

13. Tighten bleeder screw and remove bleeder hose. Torque bleed screw to specification.

TORQUE

Caliper Bleed Screws:
47 lb-in (5.3 Nm)

14. Repeat Steps 9 - 13 for the remaining brake calipers.
15. Install master cylinder reservoir cover.

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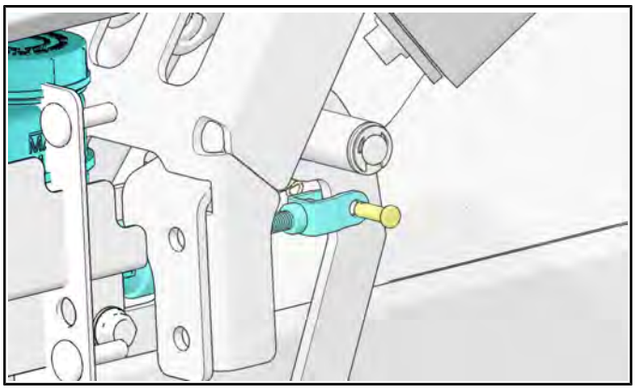
16. Field test machine at low speed before putting into service. Check for proper braking action and pedal reserve. With pedal firmly applied, pedal reserve should be no less than 1/2" (1.3 cm).
17. Check brake system for fluid leaks.

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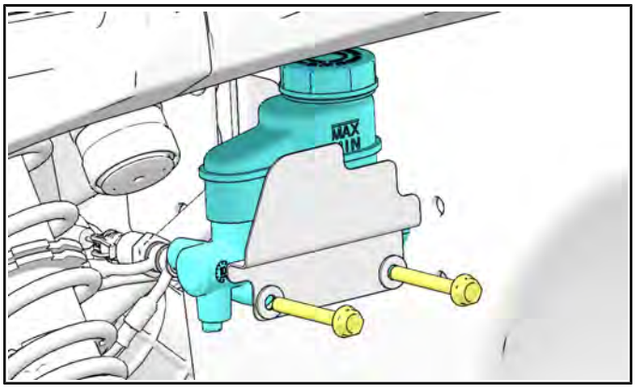
MASTER CYLINDER SERVICE

MASTER CYLINDER REMOVAL

1. Remove retaining clip from the clevis pin that attaches the master cylinder to the brake pedal lever.



2. Remove the two mounting bolts that secure the master cylinder to the frame.

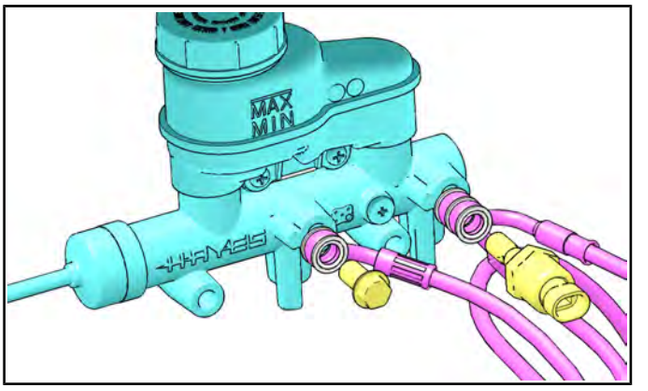


3. Remove master cylinder and place a fluid catch container under the master cylinder brake lines.

CAUTION

Brake fluid will damage finished surfaces.Do not allow brake fluid to come in contact with finished surfaces.

4. Loosen the brake line banjo bolt and brake switch (E) allowing the fluid to drain.



5. Discard seals and replace upon assembly.

NOTE

Make note of front and rear brake line orientation on the master cylinder.

6. Dispose of brake fluid properly and DO NOT re-use.

MASTER CYLINDER INSTALLATION

1. Install brake lines on master cylinder with new seals. Torque banjo bolts to specification.

TORQUE

Brake Line Banjo Bolts:
15 lb-ft (20 Nm)

2. Attach the master cylinder to the frame and torque mounting fasteners to specification.

TORQUE

Master Cylinder Mounting Bolts:
23 lb-ft (31 Nm)

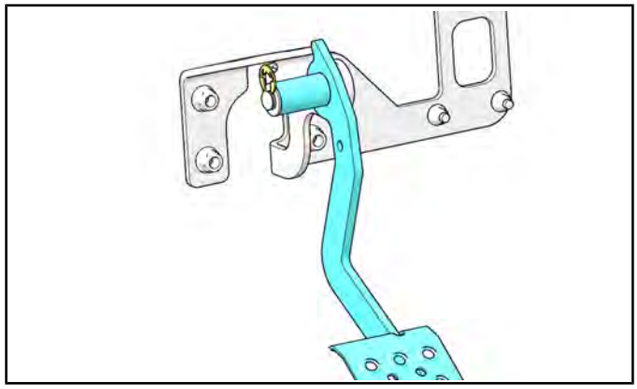
3. Attach the master cylinder to the brake pedal lever by installing the clevis pin and retaining clip.
4. Follow the “Brake Bleeding / Fluid Change” procedure.
5. Field test unit for proper braking action before putting into service. Inspect for fluid leaks and firm brakes.

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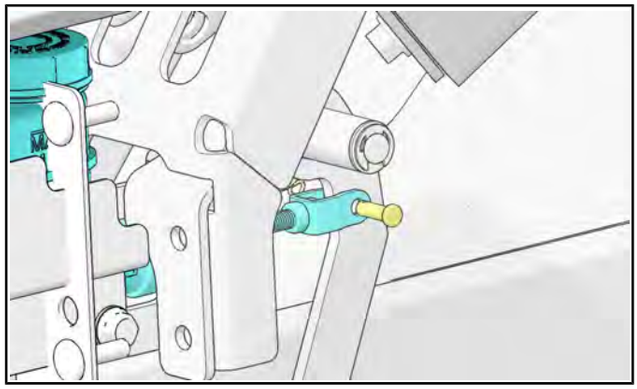
FOOT BRAKE PEDAL SERVICE

BRAKE PEDAL REMOVAL

1. Remove the clip from the end of the pedal mount bracket.



2. Remove the retaining clip and clevis pin from the master cylinder to free it from the brake pedal.



3. Slide the brake pedal and bushings off the pedal mount bracket.

INSTALLATION

1. If the pedal mount bracket (B) was removed, torque retaining nuts (H) to specification.

TORQUE
Brake Pedal Mount Bracket Nuts: **18 lb-ft (24 Nm)**

2. Reverse “Removal” steps 1-3 to complete foot brake installation.
3. Use new retaining clips upon installation.

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FRONT BRAKE PAD SERVICE

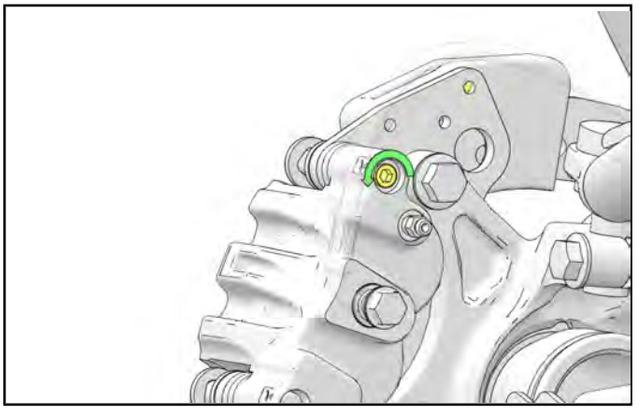
PAD REMOVAL

1. Elevate and support front of vehicle.

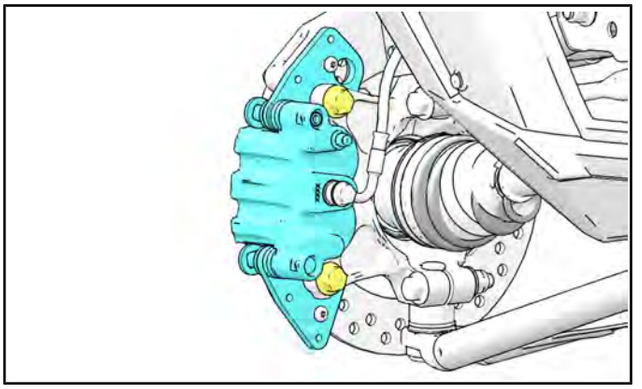
CAUTION

Use care when supporting vehicle so that it does not tip or fall. Severe injury may occur if machine tips or falls.

2. Remove the wheel nuts, washers and front wheel. Loosen pad adjuster screw.



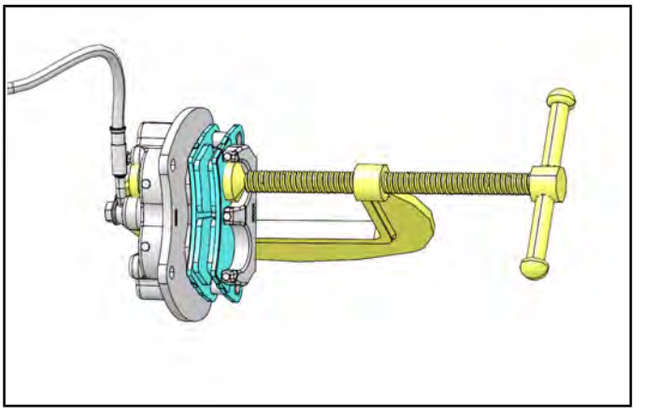
3. Remove the upper and lower caliper mounting bolts and remove the caliper from the front hub.



NOTE

When removing caliper, use care not to damage brake line. Support caliper to avoid kinking or bending brake line.

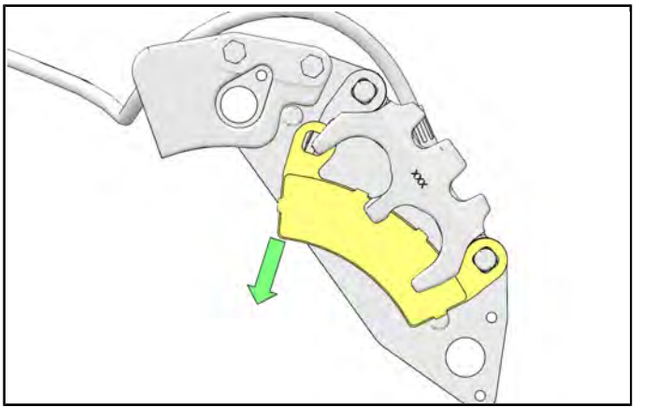
4. Push caliper piston into caliper bore slowly using a C-clamp or locking pliers with pads installed.



NOTE

Brake fluid will be forced through compensating port into master cylinder fluid reservoir when piston is pushed back into caliper. Remove excess fluid from reservoir as required.

5. Push the mounting bracket inward and slip outer brake pad out between the bracket and caliper body.

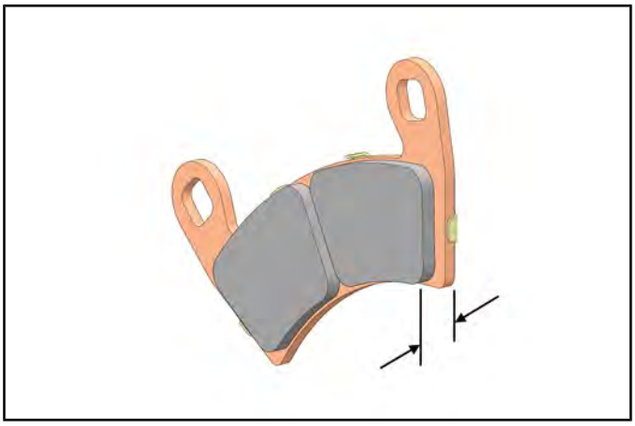


6. Remove the inner pad from the bracket and caliper.

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PAD INSPECTION

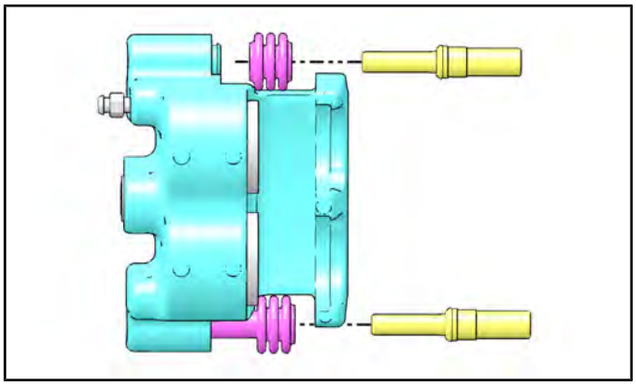
1. Measure the thickness of the pad material. Replace pads if worn beyond the service limit.



MEASUREMENT
Front Brake Pad Thickness Std: **0.297 ± .007" (7.54 ± .178 mm)** Service Limit: **0.150" (3.8 mm)**

PAD ASSEMBLY / INSTALLATION

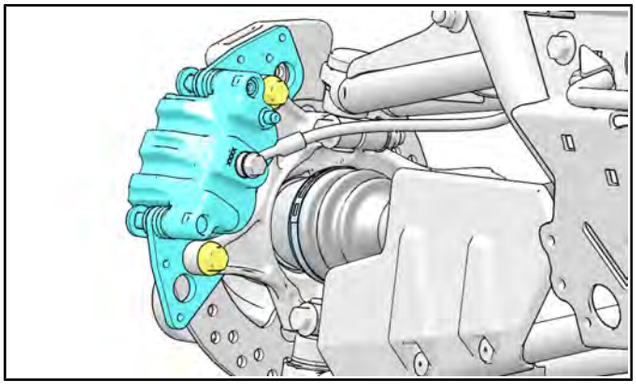
1. Lubricate mounting bracket pins with a light film of silicone grease and install rubber dust boots.



2. Compress mounting bracket and make sure dust boots are fully seated. Install pads with friction material facing each other.

⚠ WARNING
If brake pads are contaminated with grease, oil, or liquid soaked do not use the pads. Use only new, clean pads.

3. Install caliper onto front hub and torque mounting bolts to specification.

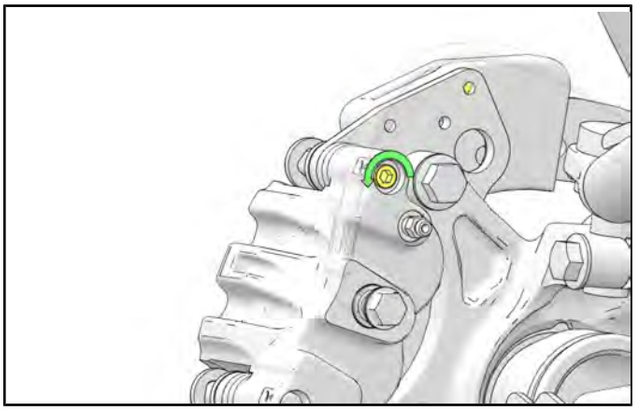


TORQUE
Front Caliper Mounting Bolts: **30 lb-ft (41 Nm)**

4. Slowly pump brake pedal until pressure has been built up. Maintain at least 1/2, (12.7 mm) of brake fluid in reservoir to prevent air from entering brake system.

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5. Install the pad adjuster set screw and turn clockwise until stationary pad contacts disc, then back off 1/2 turn (counterclockwise).



6. Verify fluid level in reservoir is up to MAX line inside reservoir and install reservoir cap.

Master Cylinder Fluid
Up to MAX line inside reservoir

7. Install wheel and torque wheel nuts to specification.

TORQUE
Wheel Lug Nuts (Steel Wheels) 36 ft-lbs (49 Nm) Wheel Lug Nuts (Aluminum Wheels) 30 ft-lbs + 90º (41 Nm + 90º)

BRAKE BURNISHING PROCEDURE

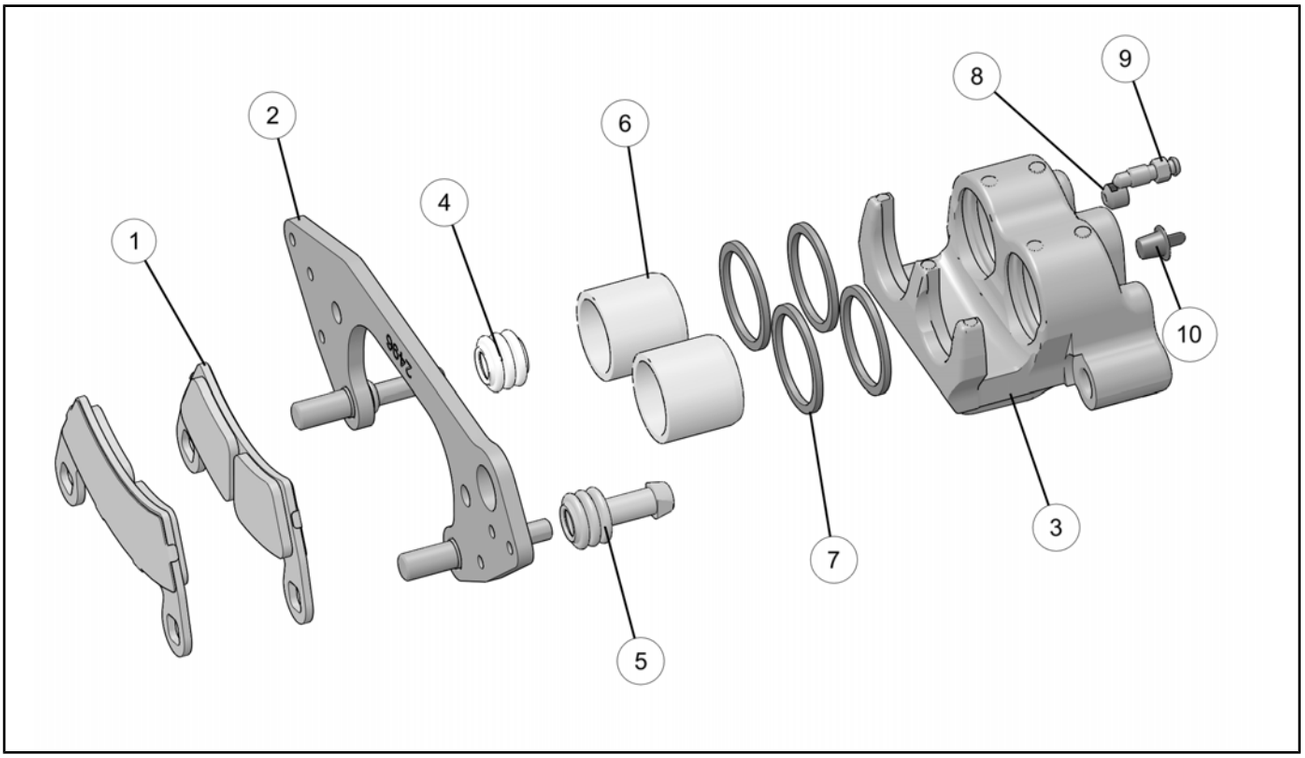
It is required that a burnishing procedure be performed after installation of new brake pads to extend service life and reduce noise.

Start machine and slowly increase speed to 30 mph. Gradually apply brakes to stop machine. Allow pads and disc to cool sufficiently during the procedure. Do not allow pads or disc to become hot or warping may result. Repeat this procedure 10 times. **Do not make more than 3 stops per 1 mile (1.6 km).**

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FRONT CALIPER SERVICE

CALIPER ASSEMBLY VIEW



REF	PART DESCRIPTION	REF	PART DESCRIPTION
①	Asm, Brake Pad	⑥	Piston, Brake
②	Asm, Caliper Mount	⑦	Ring
③	Caliper, Brake	⑧	Bolt
④	Boot, Pin Seal	⑨	Bleeder Screw
⑤	Boot, Pin Bushing	⑩	Cap, Plug

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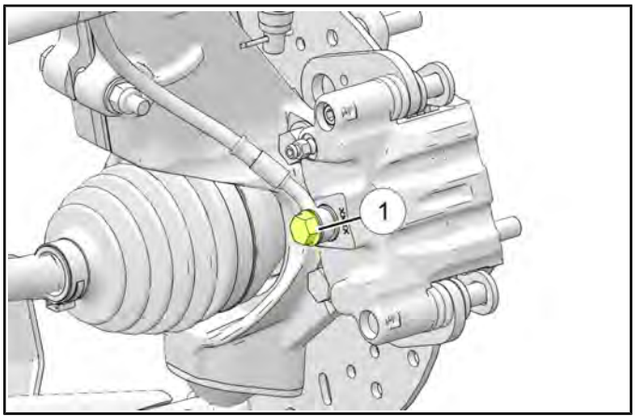
CALIPER REMOVAL

1. Elevate and safely support the front of the vehicle.
2. Remove the four wheel nuts and the front wheel.

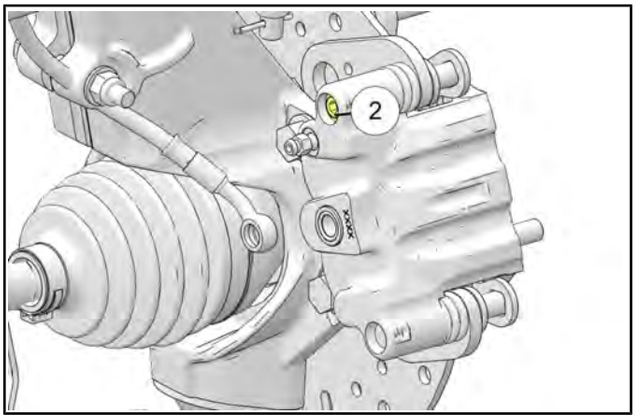
CAUTION

Use care when supporting vehicle so that it does not tip or fall. Severe injury may occur.

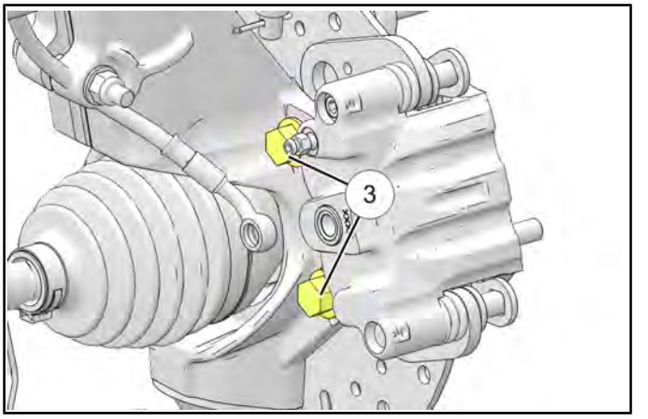
3. Clean caliper area before removal.
4. Place a container below the caliper to catch brake fluid when removing line. Remove brake line ① from caliper.



5. Loosen brake pad adjustment set screw ② to allow brake pad removal after the caliper is removed.

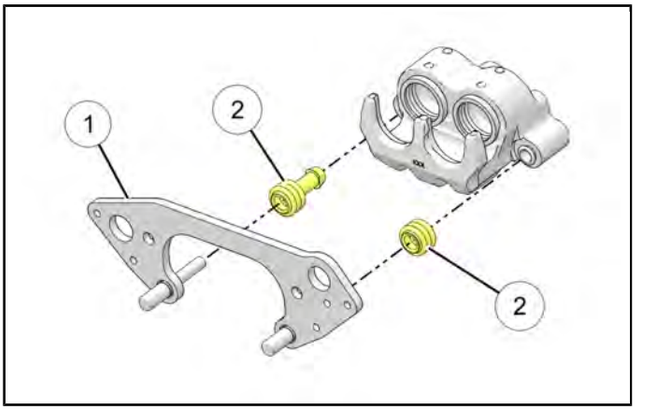


6. Remove the two caliper mounting bolts and caliper ③.



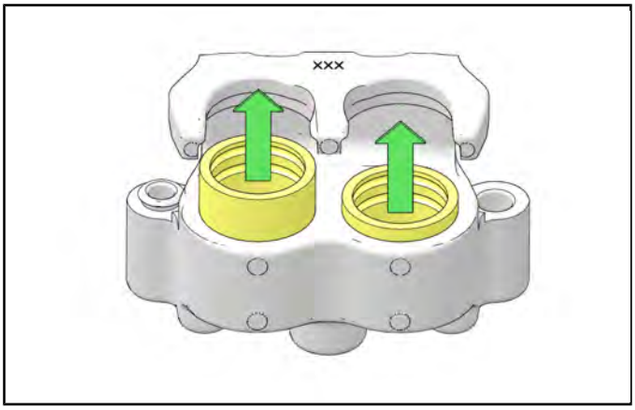
CALIPER DISASSEMBLY

1. Remove both brake pads from the caliper. Refer to **“Front Brake Pad Removal”, page 9.10** procedure.
2. Remove the mount bracket assembly ① and dust boots ② from caliper. Thoroughly clean caliper before disassembly and prepare a clean work area.



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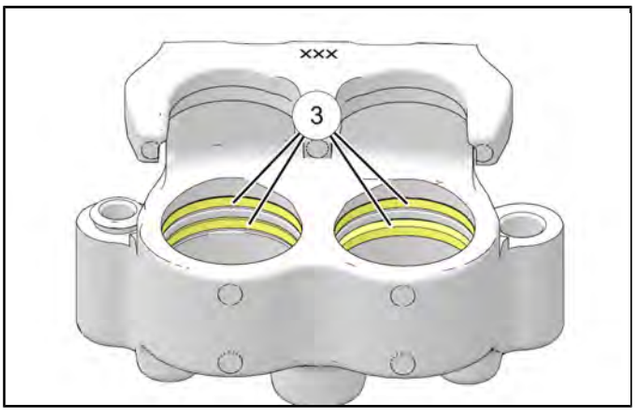
3. Use a commercially available caliper piston pliers to extract the pistons from the caliper.



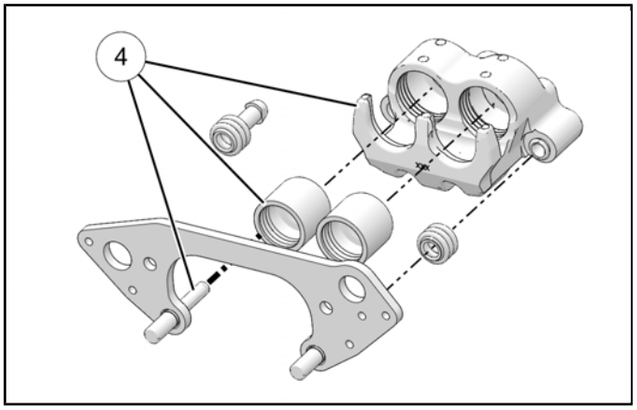
NOTE

Do not remove the caliper pistons with a standard pliers. The piston sealing surfaces will become damaged if a standard pliers is used.

4. Once the pistons are removed, use a pick to carefully remove the square O-rings ③ from the caliper. O-rings should be replaced during caliper service.



5. Clean the caliper body, piston, and retaining bracket ④ with brake cleaner or alcohol.

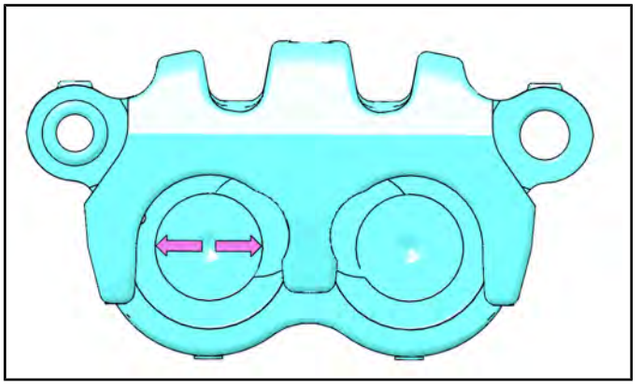


NOTE

Be sure to clean the seal grooves in caliper body.

CALIPER INSPECTION

1. Inspect caliper body for nicks, scratches, pitting or wear. Measure bore size and compare to specifications. Replace if damaged or worn beyond service limit.

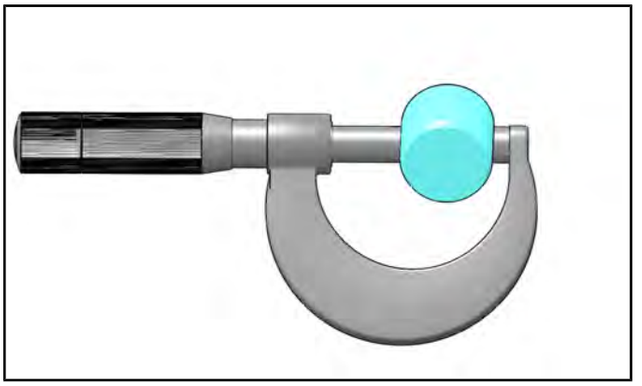


MEASUREMENT

Front Caliper Piston Bore I.D.:
Standard: **1.373" (34.87 mm)**
Service Limit: **1.375" (34.93 mm)**

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2. Inspect piston for nicks, scratches, pitting or wear. Measure piston diameter and replace if damaged or worn beyond service limit.

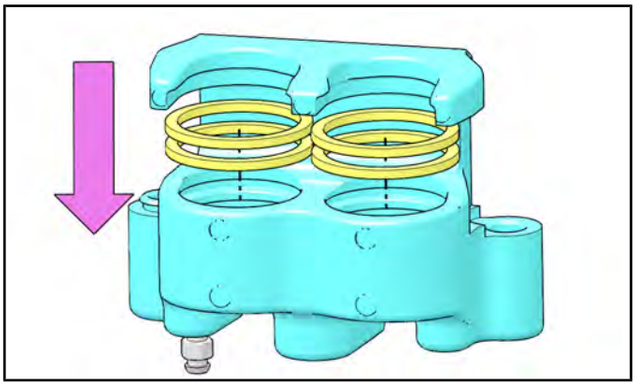


MEASUREMENT
Front Caliper Piston O.D.: Standard: **1.370" (34.80 mm)** Service Limit: **1.368" (34.75 mm)**

3. Inspect brake disc and pads as outlined in this chapter.

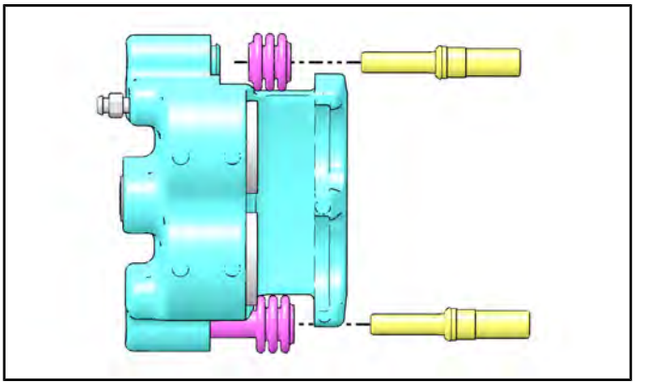
CALIPER ASSEMBLY

1. Install new O-rings in the caliper body. Be sure the grooves are clean and free of residue or brakes may drag upon assembly.



2. Coat pistons with clean Polaris DOT 4 Brake Fluid. Install pistons with a twisting motion while pushing inward. Piston should slide in and out of bore smoothly, with light resistance.

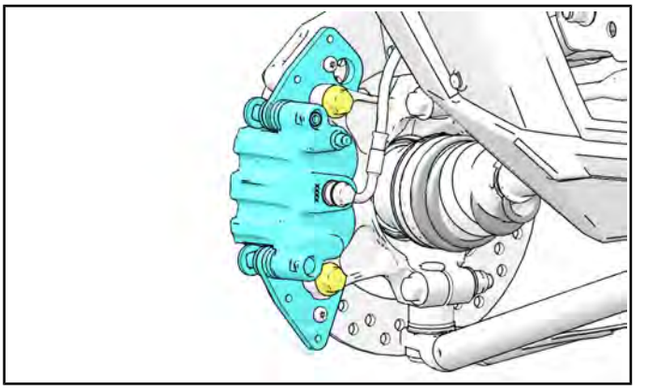
3. Lubricate the mounting bracket pins with silicone grease and install the rubber dust seal boots.



4. Compress the mounting bracket and make sure the dust seal boots are fully seated. Install the brake pads. Clean the disc and pads with brake parts cleaner or denatured alcohol to remove any dirt, oil or grease.

CALIPER INSTALLATION

1. Install caliper and torque mounting bolts to specification.

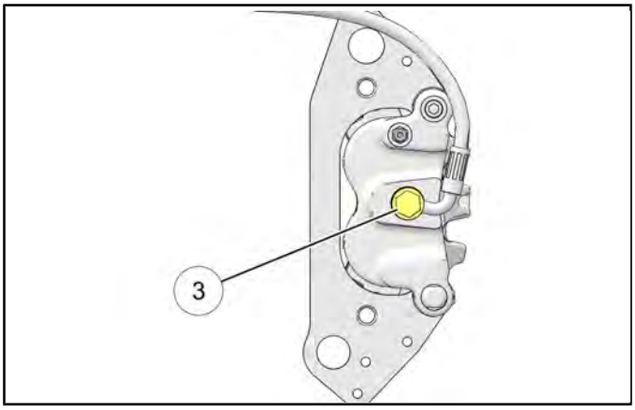


NOTE
If brake disc scraper was removed, be sure to reinstall it upon caliper installation.

TORQUE
Front Caliper Mounting Bolts: **30 lb-ft (41 Nm)**

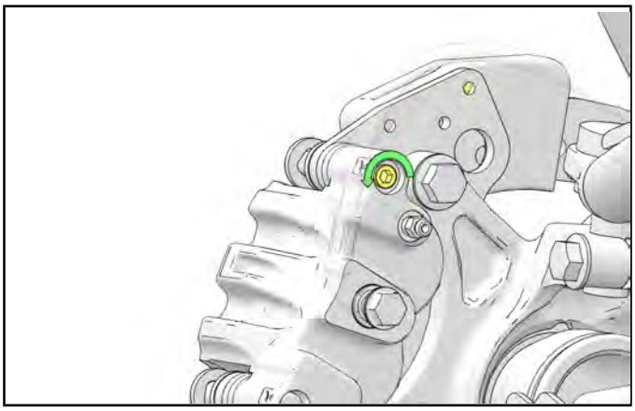
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2. Install brake line and torque the banjo bolt ③ to the proper torque specification.



TORQUE
Brake Line Banjo Bolts: **15 lb-ft (20 Nm)**

3. Install the pad adjustment screw and turn until stationary pad contacts disc, then back off 1/2 turn.



4. Follow the **"Brake Bleeding / Fluid Change"** procedure as outlined earlier in this chapter.
5. Install wheel and torque wheel nuts to specification.

TORQUE
Wheel Lug Nuts (Steel Wheels) 36 ft-lbs (49 Nm) Wheel Lug Nuts (Aluminum Wheels) 30 ft-lbs + 90º (41 Nm + 90º)

6. Field test unit for proper braking action before putting into service. Inspect for fluid leaks and firm brakes. Make sure the brake is not dragging when pedal is released. If the brake drags, re-check assembly and installation.

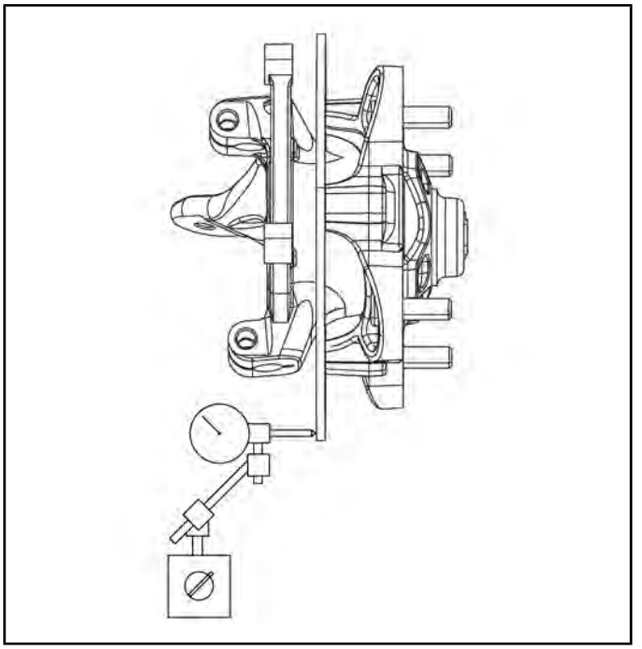
NOTE
If new brake pads are installed, brake burnishing is recommended.

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FRONT BRAKE DISC SERVICE

DISC RUNOUT

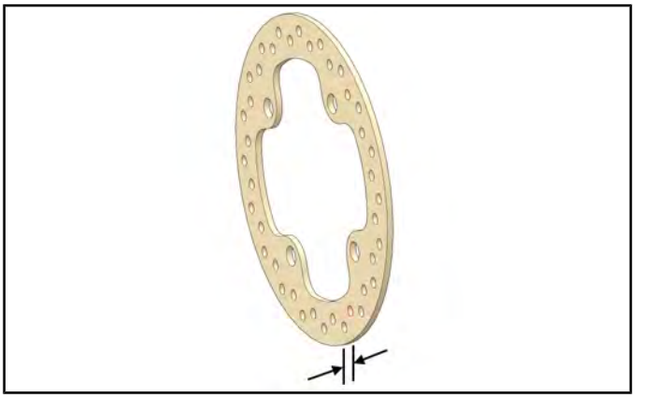
1. Mount dial indicator as shown. Slowly rotate the disc and read total runout on the dial indicator. Replace disc if runout exceeds specification.



MEASUREMENT
Brake Disc Runout:Service Limit: **0.010" (0.254 mm)**

DISC INSPECTION

1. Visually inspect disc for scoring, scratches or gouges. Replace the disc if any deep scratches are evident.
2. Use a 0-1” micrometer and measure disc thickness at eight different points around the pad contact surface. Replace disc if worn beyond service limit.



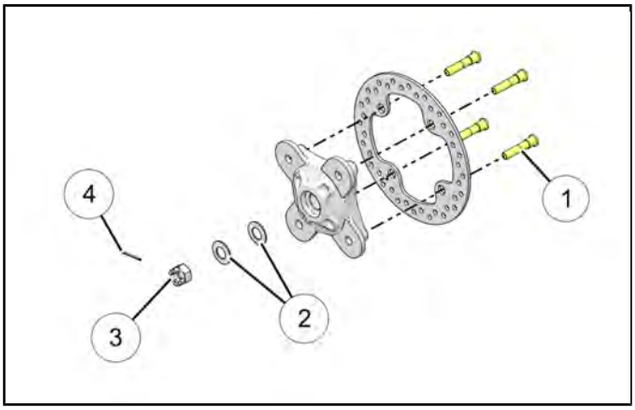
MEASUREMENT
Brake Disc Thickness Standard: **0.188" (4.78 mm)** Service Limit: **0.170" (4.32 mm)**

MEASUREMENT
Brake Disc Thickness Variance Service Limit: **0.002” (0.051 mm)** difference between measurements

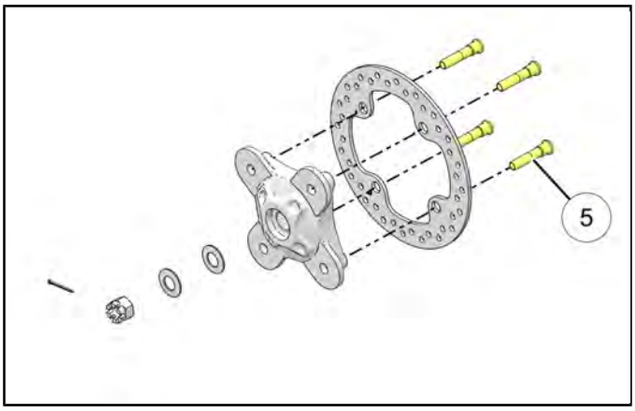
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DISC REPLACEMENT

1. Remove the front brake caliper. Refer to **"Front Caliper Removal", page 9.14** procedure.
2. Remove wheel hub cotter pin ④, castle nut ③ and washers ②.



3. Remove the wheel hub assembly from the vehicle and remove the four bolts ① retaining the disc to the hub.
4. Clean the wheel hub mating surface and install the new disc on the wheel hub. Torque new disc mounting bolts ⑤ to specification.



CAUTION

Always use new brake disc mounting bolts. The bolts have a pre-applied locking agent which is destroyed upon removal.

TORQUE

Front Brake Disc Mounting Bolts:
18 lb-ft (24 Nm)

5. Install wheel hub assembly, washers, and castle nut. Torque castle nut to specification and install a new cotter pin.

TORQUE

Front Wheel Hub Castle Nut:
80 lb-ft (108 Nm)

6. Install front brake caliper. Refer to **"Front Caliper Installation", page 9.16** procedure. Follow the bleeding procedure outlined earlier in this chapter.
7. Field test unit for proper braking action before putting into service. Inspect for fluid leaks and firm brakes. Make sure the brake is not dragging when pedal is released. If the brake drags, re-check assembly and installation.

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REAR BRAKE PAD SERVICE

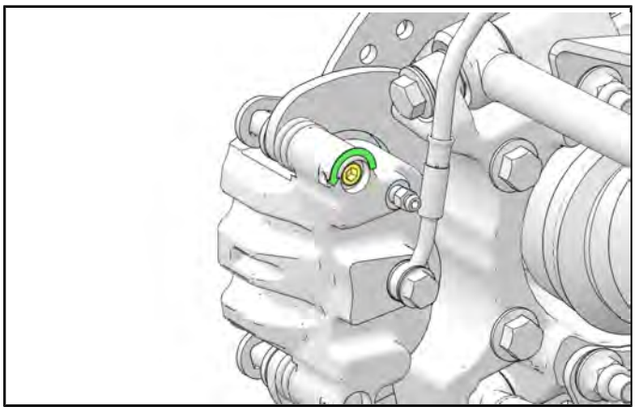
PAD REMOVAL

1. Elevate and support rear of machine.

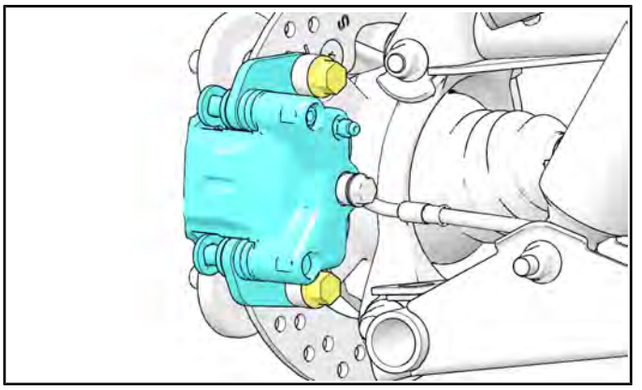
CAUTION

Use care when supporting vehicle so that it does not tip or fall. Severe injury may occur if machine tips or falls.

2. Remove the rear wheel. Loosen the pad adjuster screw 2-3 turns.



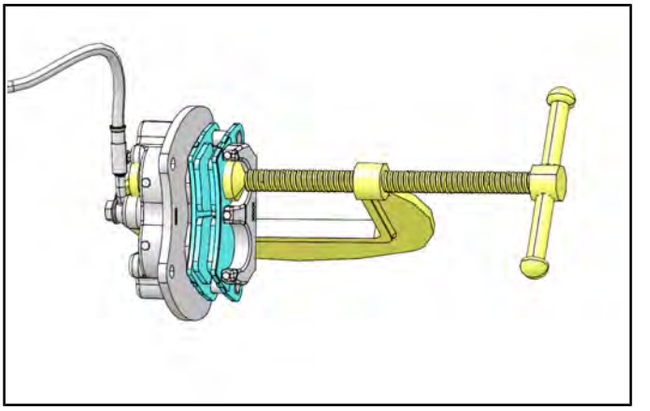
3. Clean caliper area before removal.
4. Remove caliper mounting bolts and lift caliper off of disc.



NOTE

When removing caliper, be careful not to damage brake line. Support caliper so as not to kink or bend brake line.

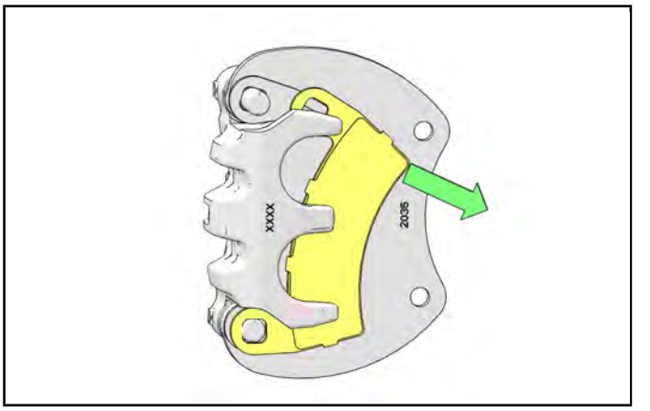
5. Push caliper piston into caliper bore slowly with pads installed.



NOTE

Brake fluid will be forced through compensating port into master cylinder fluid reservoir when piston is pushed back into caliper. Remove excess fluid from reservoir as required.

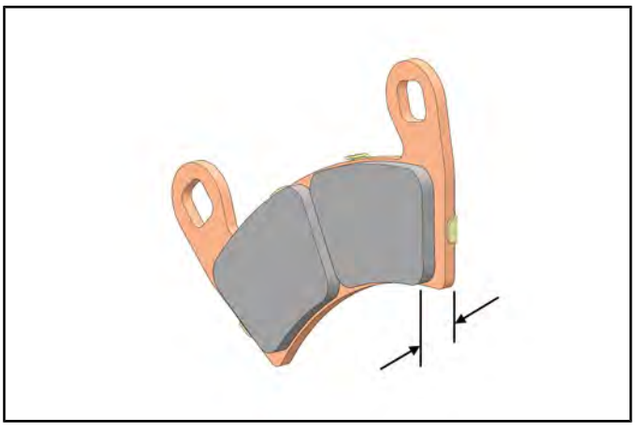
6. Remove the brake pads from the caliper.



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PAD INSPECTION

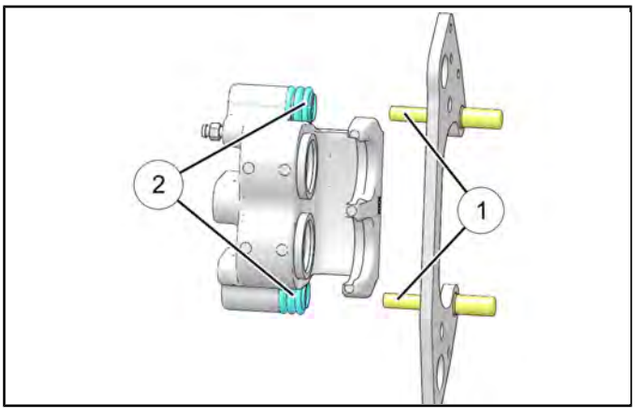
1. Clean the caliper with brake cleaner or alcohol.
2. Measure the thickness of the pad material. Replace pads if worn beyond the service limit.



MEASUREMENT
Rear Brake Pad Thickness Standard: **0.298 ± .007" (7.56 ± .178 mm)** Service Limit: **0.150" (3.8 mm)**

PAD INSTALLATION

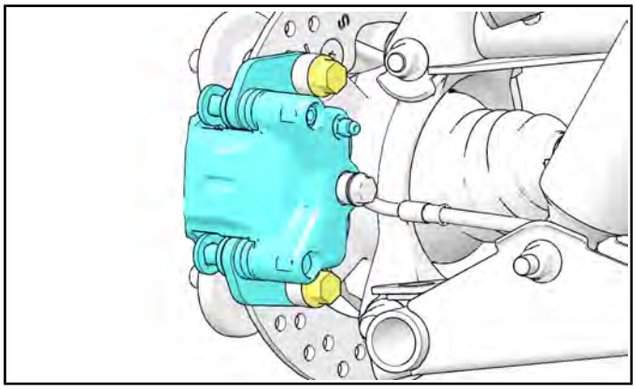
1. Lubricate mounting bracket pins ① with a light film of silicone grease and install rubber dust boots ②.



2. Compress mounting bracket and make sure dust boots are fully seated. Install pads with friction material facing each other.

⚠ WARNING
If brake pads are contaminated with grease, oil, or liquid soaked do not use the pads. Use only new clean pads.

3. Install caliper and torque bolts to specification.



TORQUE
Rear Caliper Mounting Bolts: **46 lb-ft (62 Nm)**

4. Install the pad adjustment screw and turn until stationary pad contacts disc, then back off 1/2 turn.
5. Slowly pump brake pedal until pressure has been built up. Maintain at least 1/2" (12.7 mm) of brake fluid in reservoir to prevent air from entering master cylinder.

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BRAKE BURNISHING PROCEDURE

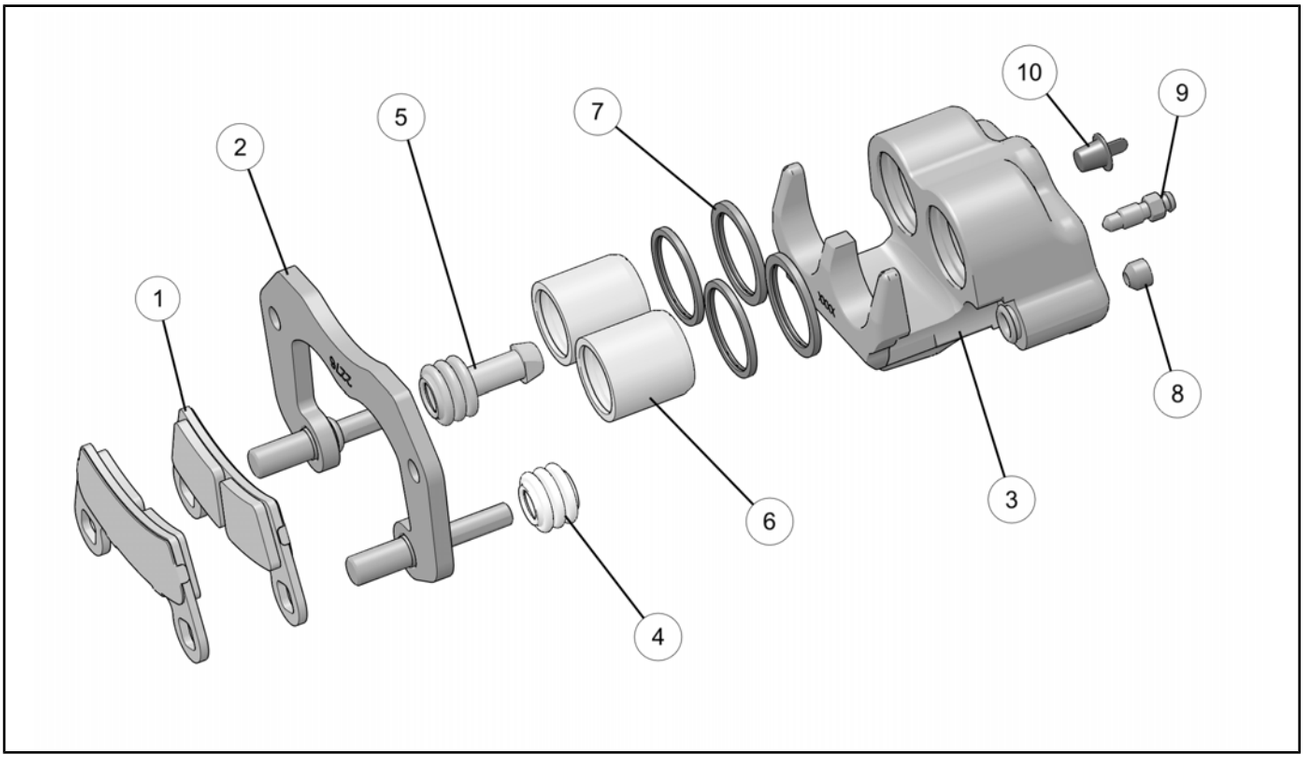
It is required that a burnishing procedure be performed after installation of new brake pads to extend service life and reduce noise.

Start machine and slowly increase speed to 30 mph. Gradually apply brakes to stop machine. Allow pads and disc to cool sufficiently during the procedure. Do not allow pads or disc to become hot or warping may result. Repeat this procedure 10 times. **Do not make more than 3 stops per 1 mile (1.6 km).**

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REAR CALIPER SERVICE

CALIPER ASSEMBLY VIEW



REF	PART DESCRIPTION	REF	PART DESCRIPTION
①	Asm, Brake Pad	⑥	Piston, Brake
②	Asm, Caliper Mount	⑦	Ring
③	Caliper, Brake	⑧	Bolt
④	Boot, Pin Seal	⑨	Bleeder Screw
⑤	Boot, Pin Bushing	⑩	Cap, Plug

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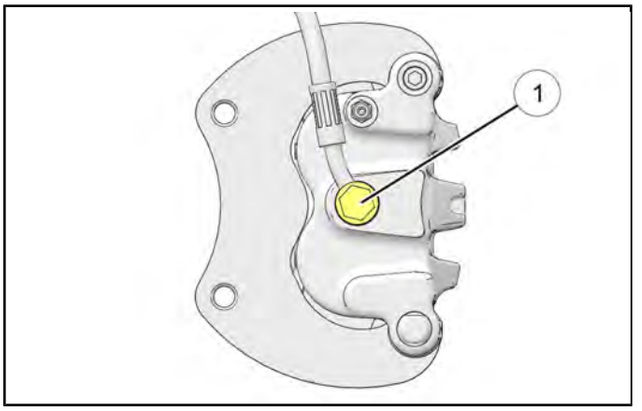
CALIPER REMOVAL

1. Elevate and safely support the rear of the vehicle.

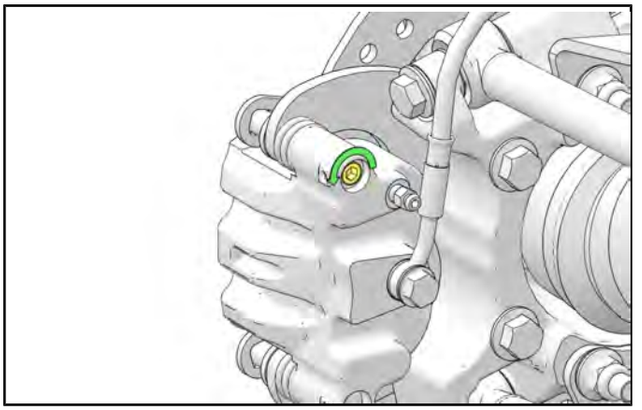
CAUTION

Use care when supporting vehicle so that it does not tip or fall. Severe injury may occur.

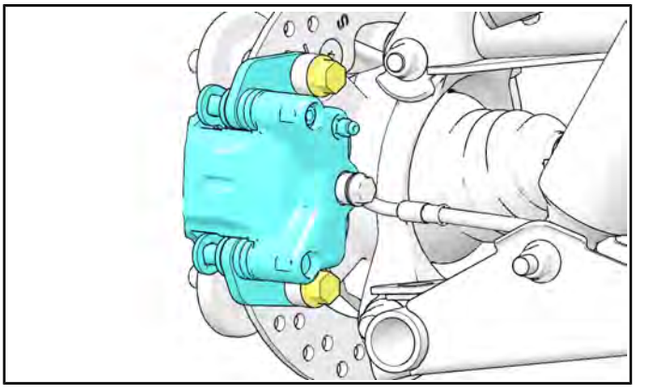
2. Remove the four wheel nuts and the rear wheel.
3. Clean caliper area before removal.
4. Place a container below the caliper to catch brake fluid when removing the brake line banjo bolt.



5. If necessary, loosen brake pad adjustment set screw 2-3 turns to allow brake pad removal after the caliper is removed.



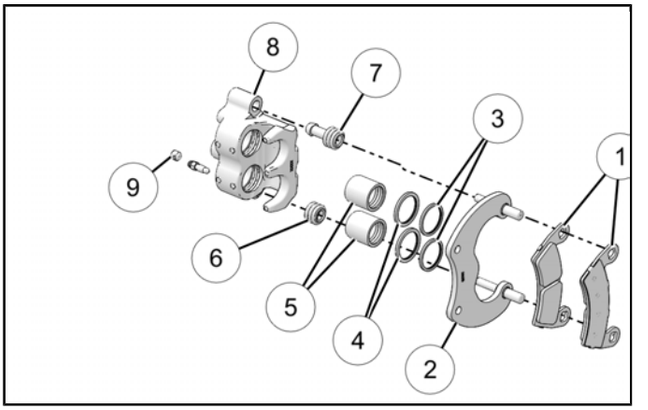
6. After the fluid has drained into the container, remove the two caliper mounting bolts and brake caliper.



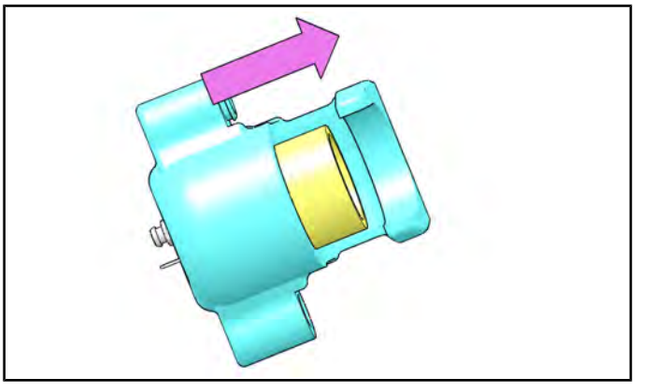
7. Clean the brake disc, caliper body and caliper pistons with brake cleaner or alcohol.

CALIPER DISASSEMBLY

1. Remove brake pad adjustment set screw ⑨.

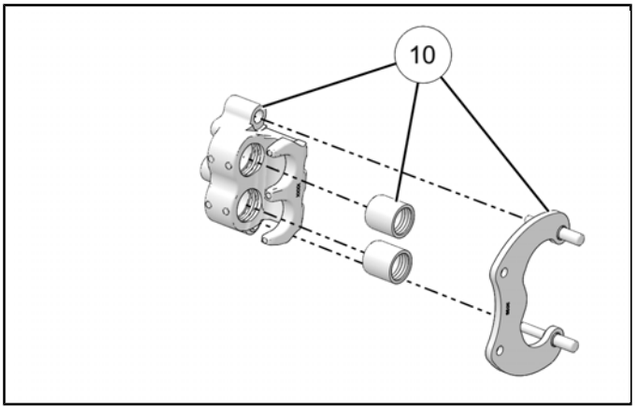


2. Push upper pad retainer pin inward and slip brake pads ① past the edge and remove from the caliper.
3. Remove mount bracket ② and dust boots ⑥ & ⑦
4. Using a hammer and a small punch, remove the piston ⑤ from the caliper body ⑧. Remove the square O-rings ④ and ③ from the caliper body ⑧.



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5. Clean the caliper body, piston, and retaining bracket ⑩ with brake cleaner or alcohol.

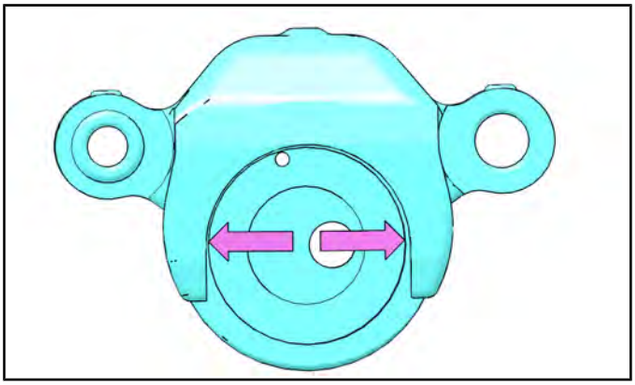


NOTE

Be sure to clean caliper body seal grooves.

CALIPER INSPECTION

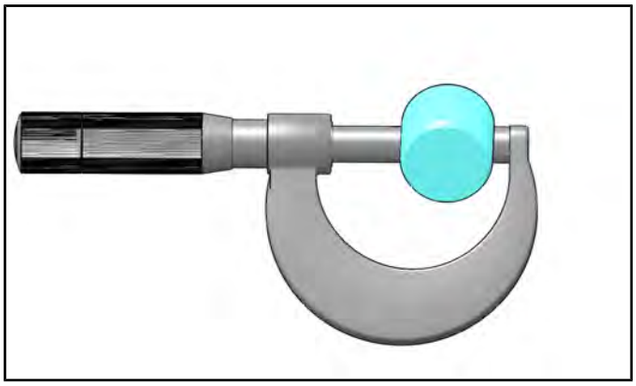
1. Inspect caliper body for nicks, scratches or wear. Measure bore size and compare to specifications. Replace if damage is evident or if worn beyond service limit.



MEASUREMENT

Rear Caliper Piston Bore I.D.:
Standard: **1.505" (38.23 mm)**
Service Limit: **1.507" (38.28 mm)**

2. Inspect piston for nicks, scratches, wear or damage. Measure diameter and replace if damaged or worn beyond service limit.



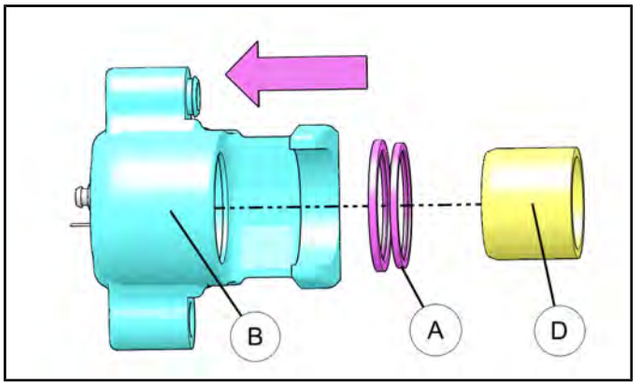
MEASUREMENT

Rear Caliper Piston O.D.:
Standard: **1.500" (38.10 mm)**
Service Limit: **1.498" (38.05 mm)**

3. Inspect the brake disc and pads as outlined in this chapter.

CALIPER ASSEMBLY

1. Install new caliper seals (A) in the caliper body (B). Be sure groove is clean and free of residue or brakes may drag upon assembly.

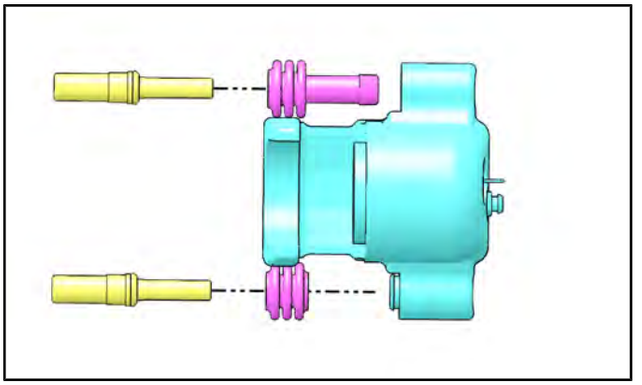


2. Coat piston with clean Polaris DOT 4 Brake Fluid **(PN 2872189)**. Install piston (D) with a twisting motion while pushing inward. Piston should slide in and out of bore smoothly with light resistance.

9

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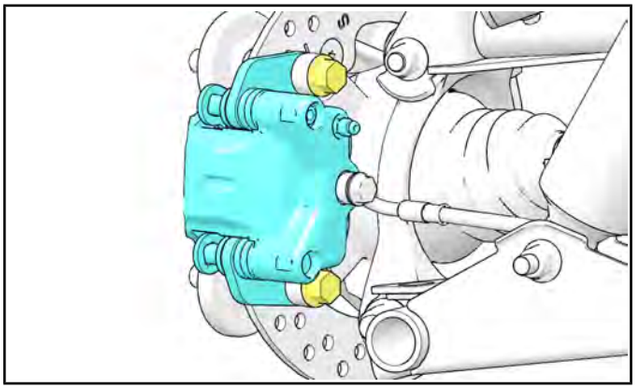
3. Lubricate the mounting bracket pins with silicone grease and install the rubber dust seal boots.



4. Compress the mounting bracket and make sure the dust seals are fully seated. Install the brake pads. Clean the disc and pads with brake parts cleaner or denatured alcohol to remove any dirt, oil or grease.

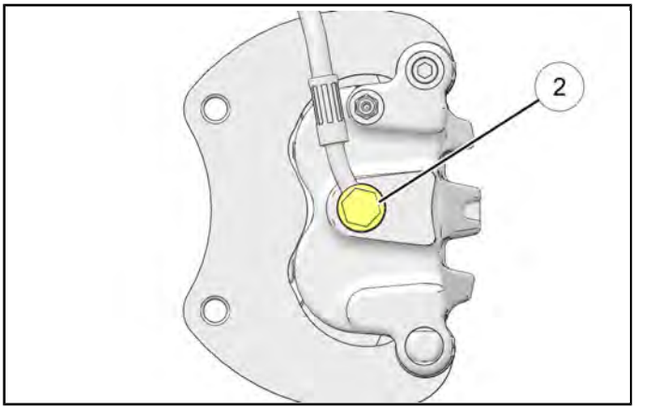
CALIPER INSTALLATION

1. Install the rear caliper and torque the mounting bolts to specification.



TORQUE
Rear Caliper Mounting Bolts: **46 lb-ft (62 Nm)**

2. Install the brake line and torque the banjo bolt ② to specification.



TORQUE
Brake Line Banjo Bolts: **15 lb-ft (20 Nm)**

3. Install the pad adjustment screw and turn until stationary pad contacts disc, then back off 1/2 turn.
4. Follow the **“Brake Bleeding / Fluid Change”, page 9.6** procedure as outlined earlier in this chapter.
5. Install wheel and torque wheel nuts to specification.

TORQUE
Wheel Nuts (Steel): **60 lb-ft (81 Nm)** Wheel Nuts (Aluminum): **120 lb-ft (163 Nm)**

6. Field test unit for proper braking action before putting into service. Inspect for fluid leaks and firm brakes. Make sure the brake is not dragging when pedal is released. If the brake drags, re-check assembly and installation.

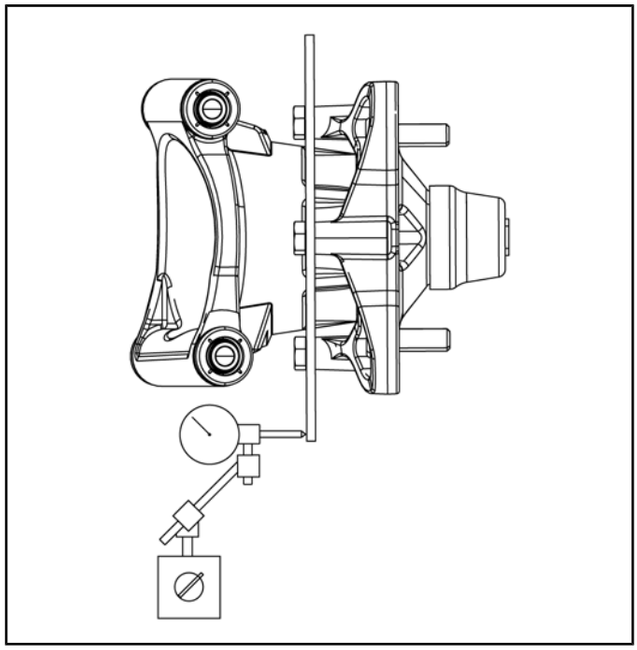
NOTE
If new brake pads are installed, brake burnishing is recommended. Refer to **“Brake Burnishing Procedure”, page 9.22**.

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REAR BRAKE DISC SERVICE

DISC RUNOUT

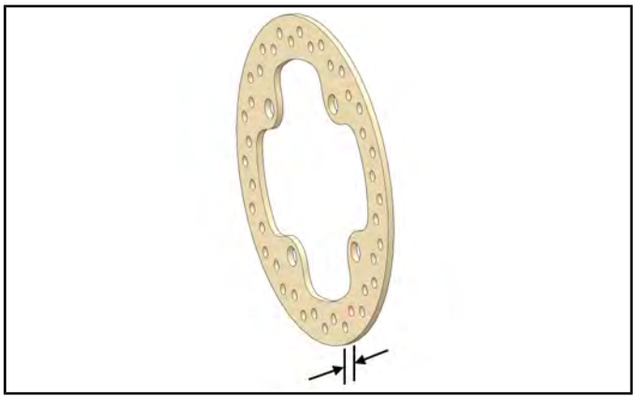
1. Mount a dial indicator and measure disc runout. Slowly rotate the disc and read total runout on the dial indicator. Replace the disc if runout exceeds specification.



MEASUREMENT
Brake Disc RunoutService Limit: **0.010" (0.254 mm)**

DISC INSPECTION

1. Visually inspect disc for scoring, scratches or gouges. Replace disc if any are evident.
2. Use a 0-1" micrometer and measure disc thickness at 8 different points around perimeter of disc. Replace disc if worn beyond service limit.



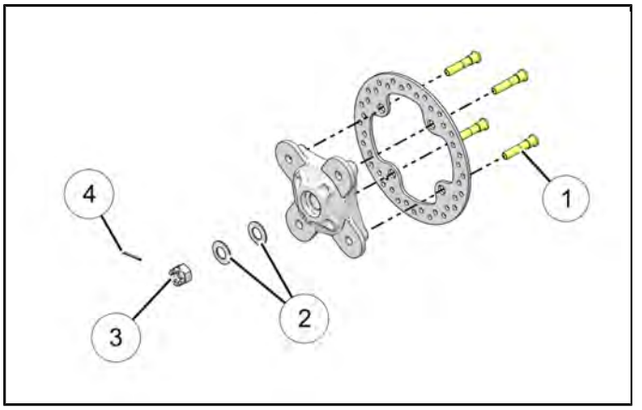
MEASUREMENT
Brake Disc Thickness: Standard: **0.188" (4.78 mm)** Service Limit **0.170" (4.32 mm)**

MEASUREMENT
Brake Disc Thickness Variance: Service Limit: **0.002” (0.051 mm)** difference between measurements

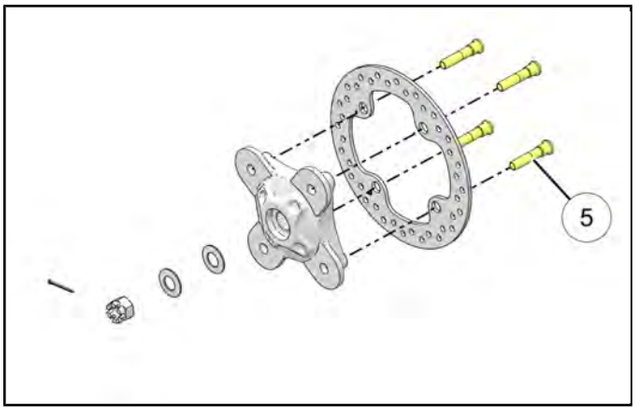
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DISC REPLACEMENT

1. Remove the rear brake caliper. Refer to **"Rear Caliper Removal", page 9.24** procedure.
2. Remove wheel hub cotter pin ④, castle nut ③ and washers ②.



3. Remove the wheel hub assembly from the vehicle and remove the four bolts ① retaining the disc to the hub.
4. Clean the wheel hub mating surface and install the new disc on the wheel hub. Torque new disc mounting bolts ⑤ to specification.



CAUTION

Always use new brake disc mounting bolts. The bolts have a pre-applied locking agent which is destroyed upon removal.

TORQUE

Rear Brake Disc Mounting Bolts:
28 lb-ft (38 Nm)

5. Install wheel hub assembly, washers, and castle nut. Torque castle nut to specification and install a new cotter pin.

TORQUE

Rear Wheel Hub Castle Nut:
110 lb-ft (149 Nm)

6. Install rear brake caliper. Refer to **"Rear Caliper Installation", page 9.26** procedure. Follow the bleeding procedure outlined earlier in this chapter.
7. Field test unit for proper braking action before putting into service. Inspect for fluid leaks and firm brakes. Make sure the brake is not dragging when pedal is released. If the brake drags, re-check assembly and installation.

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TROUBLESHOOTING - BRAKE SYSTEM

BRAKE NOISE TROUBLESHOOTING

Dirt or dust buildup on the brake pads and disc is the most common cause of brake noise (squeal caused by vibration). If cleaning does not reduce the occurrence of brake noise, Permatex™ *Disc Brake Quiet* can be applied to the back of the pads. Follow directions on the package. This will keep pads in contact with caliper piston(s) to reduce the chance of squeaks caused by dirt or dust.

Brake Noise Troubleshooting

POSSIBLE CAUSE	REMEDY
Dirt, dust, or imbedded material on pads or disc	Spray disc and pads with CRC Brakeleen™ or equivalent non-flammable aerosol brake cleaner. Remove pads and/or disc hub to clean imbedded material from disc or pads.
Pad(s) dragging on disc (noise or premature pad wear) because of improper adjustment Master cylinder reservoir overfilled Master cylinder compensating port restricted Master cylinder piston not returning completely Caliper piston(s) not returning Operator error (riding the brake)	Adjust pad stop Set to proper level Clean compensating port Inspect. Repair as necessary Clean piston(s) seal Educate operator
Loose wheel hub or bearings	Check wheel and hub for abnormal movement.
Brake disc warped or excessively worn	Replace disc
Brake disc misaligned or loose	Inspect and repair as necessary
Noise is from other source (axle, hub, disc or wheel)	If noise does not change when brake is applied check other sources. Inspect and repair as necessary

BRAKES SQUEAL / POOR BRAKE PERFORMANCE

- Air in system
- Water in system (brake fluid contaminated)
- Caliper/disc misaligned
- Caliper dirty or damaged
- Brake line damaged or lining ruptured
- Worn disc and/or friction pads
- Incorrectly adjusted stationary pad
- Worn or damaged master cylinder or components
- Damaged break pad noise insulator

PEDAL VIBRATION

- Disc damaged
- Disc worn (runout or thickness variance exceeds service limit)

CALIPER OVERHEATS (BRAKES DRAG)

- Compensating port plugged
- Pad clearance set incorrectly
- Brake pedal binding or unable to return fully
- Residue build up under caliper seals
- Operator riding brakes

BRAKES LOCK

- Alignment of caliper to disc
- Caliper pistons sticking
- Improper assembly of brake system components

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NOTES

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CHAPTER 10
BODY / FRAME

GENERAL INFORMATION - BODY / FRAME 10.3
SERVICE NOTES - BODY / FRAME 10.3
SPECIAL TOOLS - BODY / FRAME 10.3
TORQUE SPECIFICATIONS - BODY / FRAME 10.3
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GENERAL INFORMATION - BODY / FRAME

SERVICE NOTES - BODY / FRAME

CAUTION

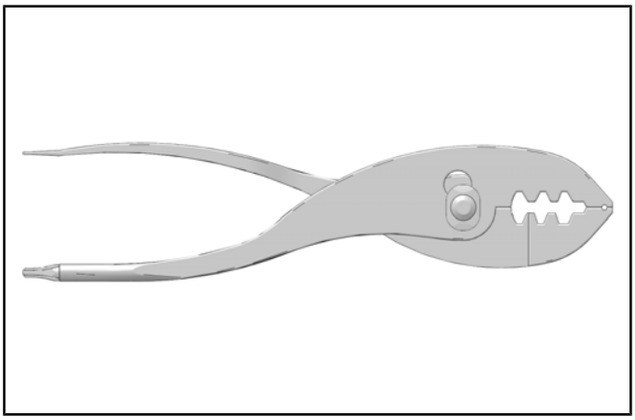
Serious injury may result if machine tips or falls. Be sure machine is secure before beginning any procedure that requires machine lifting. Always wear eye protection.

SPECIAL TOOLS - BODY / FRAME

TOOL DESCRIPTION	PART NUMBER
Multi-Function Pliers	**2876389**

Bosch Automotive Service Solutions:
1-800-345-2233 or http://polaris.service-solutions.com

Included in the tool kit, this multi-function pliers is designed to remove plastic push rivets and install body components.



TORQUE SPECIFICATIONS - BODY / FRAME

PART DESCRIPTION	TORQUE SPECIFICATION
Half Door Hinge to Frame Fasteners	**8 lb-ft (10 Nm)**
Half Door Hinge Fasteners	**14 lb-ft (19 Nm)**
Full Door Hinge Fasteners	**17 lb-ft (23 Nm)**
Heater Mounting Fasteners	**6–8 lb-ft (8–10 Nm)**
Roof Fasteners	**12–15 lb-in (1.35–1.7 Nm)**
Windshield Mount Fasteners	**15 lb-ft (20 Nm)**
Tip Out Windshield Mount Fasteners	**20 lb-ft (27 Nm)**
Wiper Motor Shaft Fastener	**15 lb-ft (20 Nm)**
Wiper Arm Fastener	**10 lb-ft (14 Nm)**
Cargo Box Hinge Fasteners	**14 lb-ft (19 Nm)**
Front Brushguard Fasteners	**30 lb-ft (41 Nm)**
Rear Brushguard Fasteners	**12 lb-ft (16 Nm)**
Nerf Bar Fasteners	**12–15 lb-ft (16–20 Nm)**
Winch Fasteners	**25 lb-ft (34 Nm)**

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DECAL REPLACEMENT

⚠ WARNING

The following procedure involves the use of an open flame. Perform this procedure in a well ventilated area, away from gasoline or other flammable materials. Be sure the area to be flame treated is clean and free of gasoline or flammable residue.

⚠ WARNING

Do not flame treat components that are installed on the vehicle. Remove the component from the vehicle before flame treating.

The vehicle body panels are plastic polyethylene material. Therefore, they must be “flame treated” prior to installing a decal to ensure good adhesion. A bonus of the flame treating procedure is it can be used to reduce or eliminate the whitish stress marks that are sometimes left after a fender or cab is bent, flexed, or damaged.

⚠ CAUTION

Do not flame treat painted plastic components. Painted plastic surfaces should only be wiped clean prior to decal adhesion.

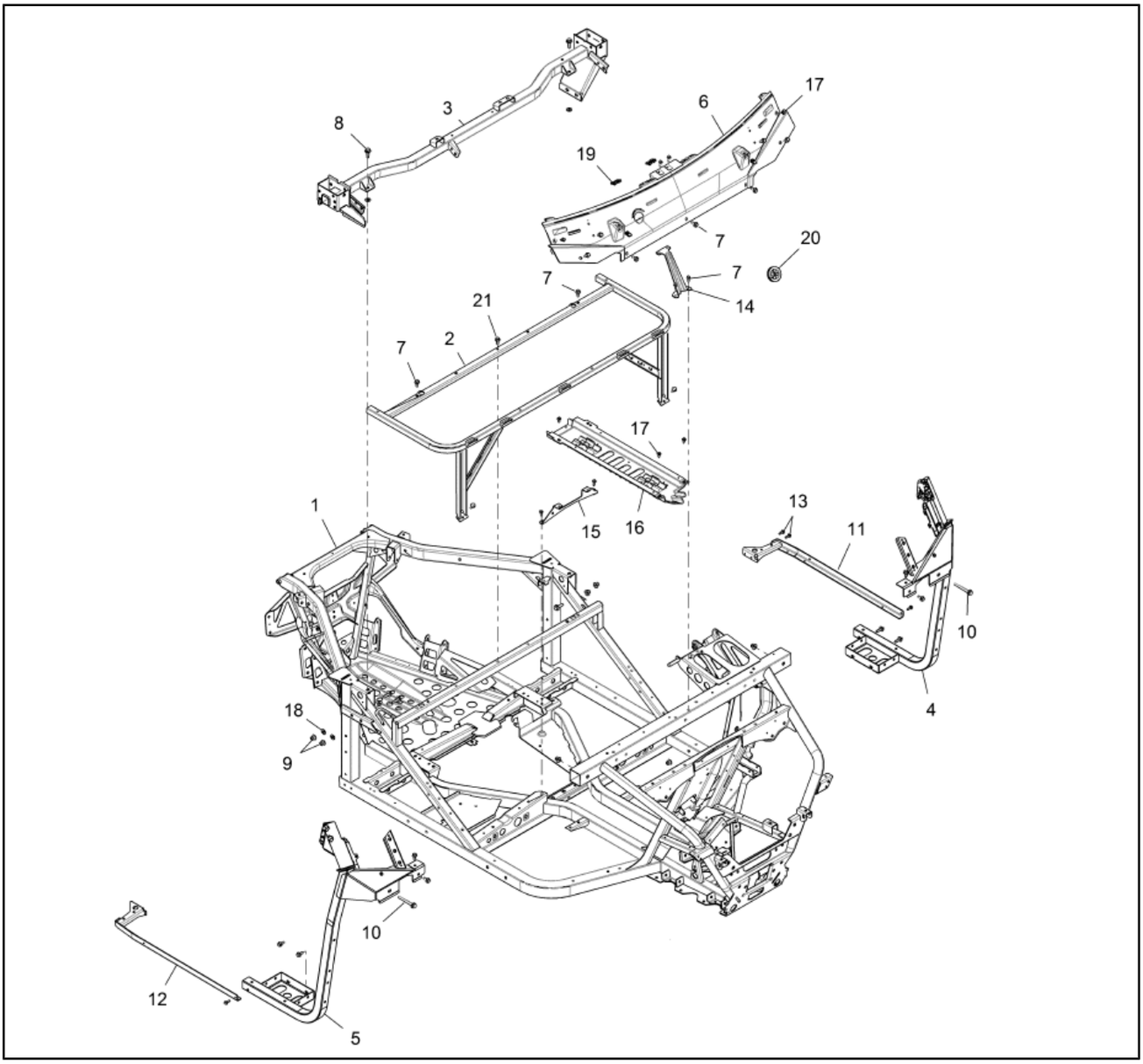
To flame treat the decal area:

1. Pass the flame of a propane torch back and forth quickly over the area where the decal is to be applied until the surface appears slightly glossy. This should occur after just a few seconds of flame treating. Do not hold the torch too close to the surface (2-3 inches from the flame tip is recommended). Keep the torch moving to prevent damage.
2. Apply the decal on one edge first. Slowly lay down remainder of the decal while rubbing lightly over the decal surface to eliminate any air bubbles during the application.

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CHASSIS ASSEMBLY VIEWS

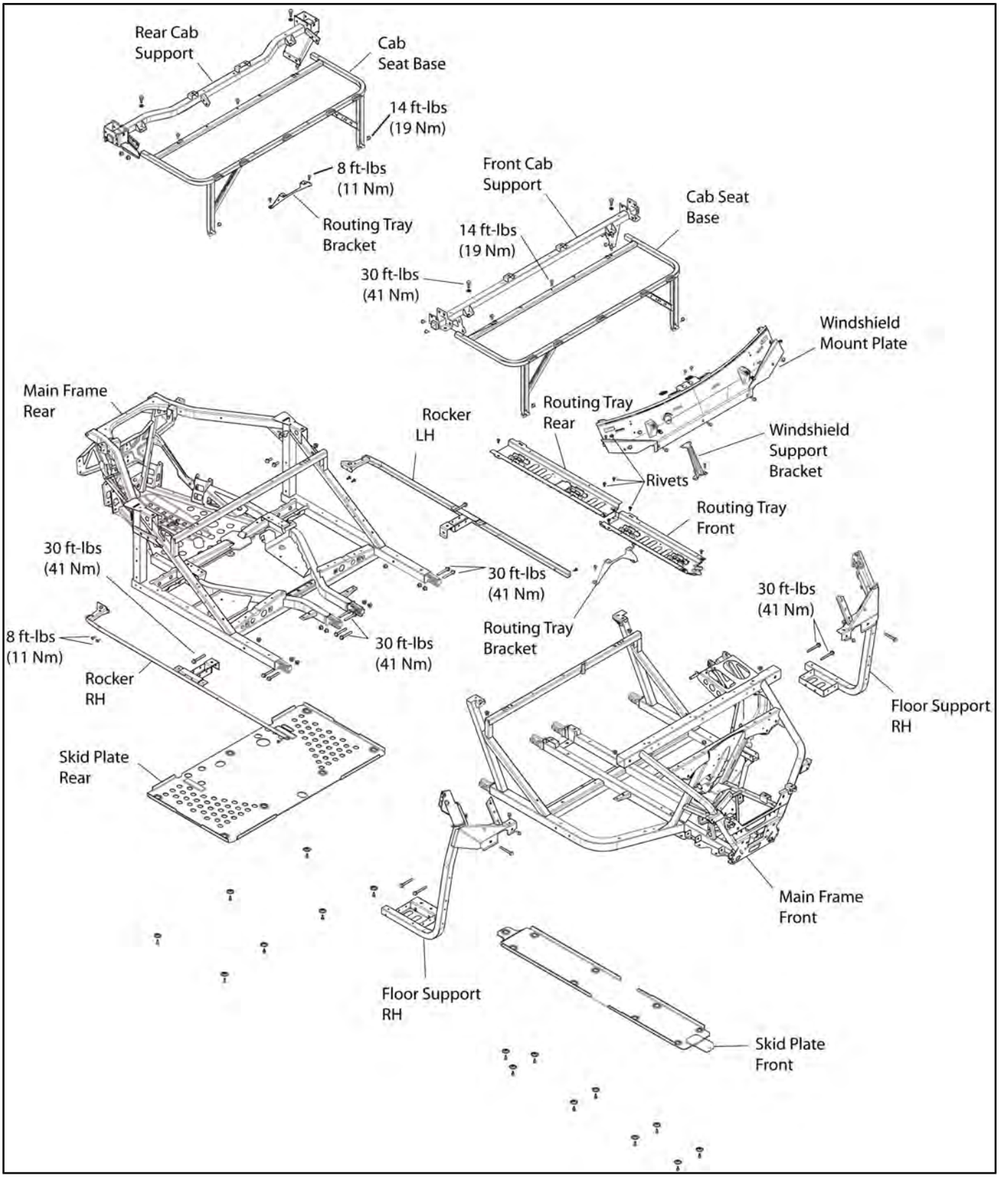
MAIN FRAME / FRAME SUPPORTS / FRONT BUMPER



PART #	DESCRIPTION	PART #	DESCRIPTION	PART #	DESCRIPTION
1	FRAME, MAIN	8	SCREW	15	BRACKET, ROUTING TRAY
2	BASE, CAB/SEAT	9	NUT, FLANGE	16	TRAY, ROUTING
3	SUPPORT, CAB REAR	10	SCREW	17	RIVET
4	SUPPORT, FLOOR LH	11	ROCKER, LH	18	WASHER
5	SUPPORT, FLOOR RH	12	ROCKER, RH	19	CLIP, U SPEED NUT
6	PLATE, WINDSHIELD MT	13	SCREW	20	GROMMET
7	BOLT	14	BRACKET, WINDSHIELD	21	SCREW

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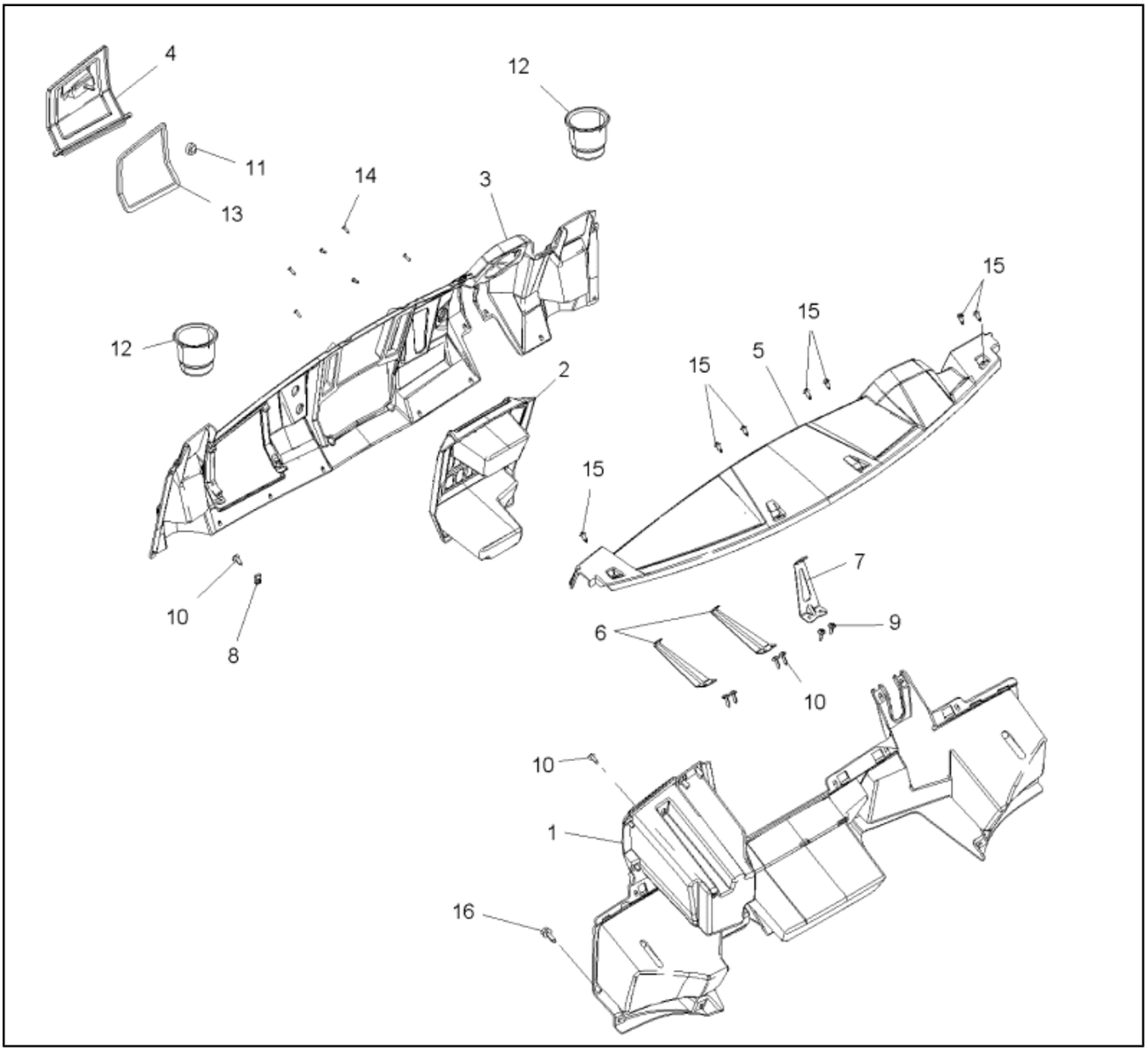
***RANGER* CREW**



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BODY COMPONENTS ASSEMBLY VIEWS

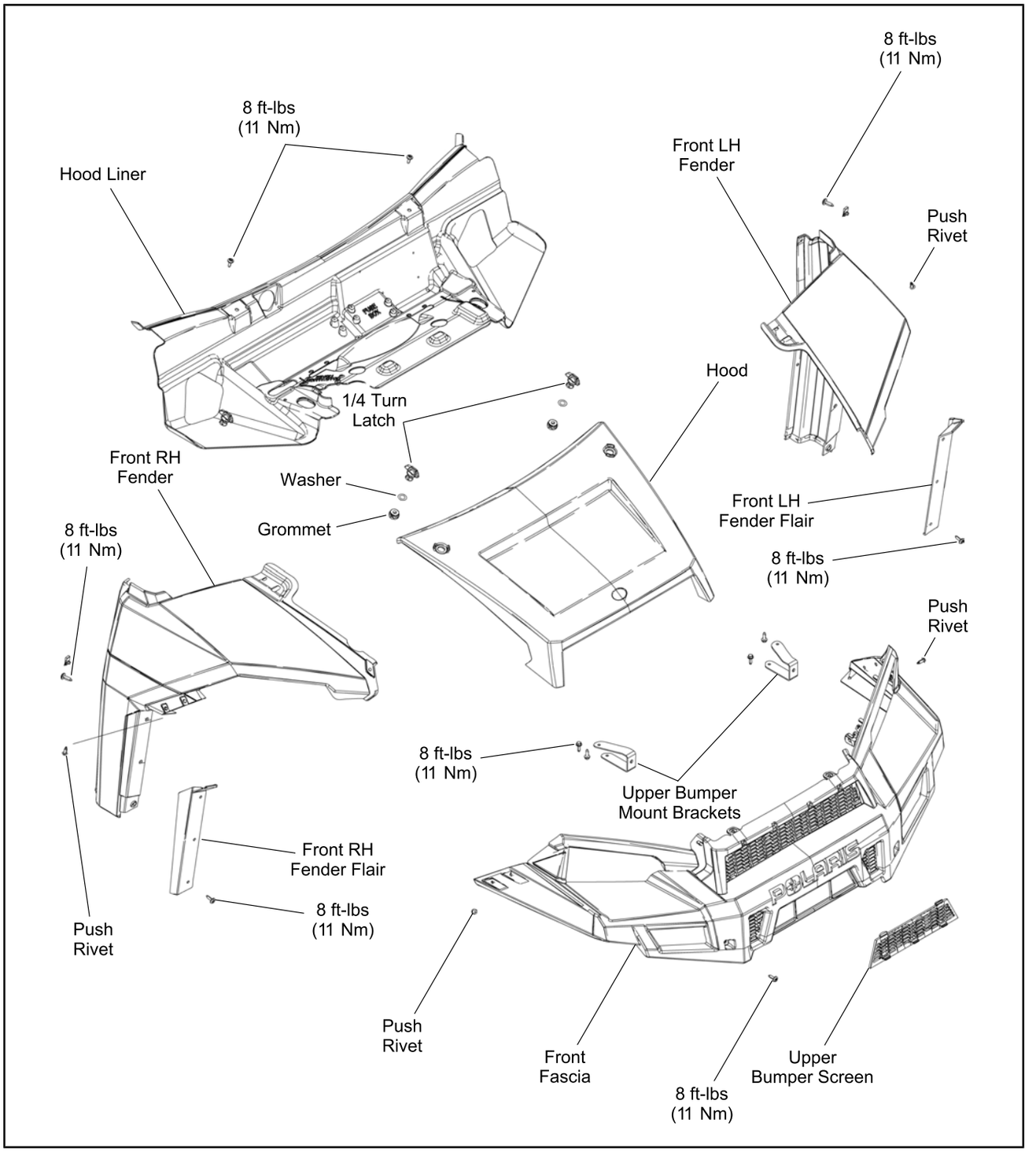
DASH PANELS / GLOVE BOX



PART #	DESCRIPTION	PART #	DESCRIPTION	PART #	DESCRIPTION
1	DASH, STORAGE	7	BRACKET, DASH MOUNT	13	SEAL, GLOVEBOX
2	PANEL, DASH CONTROLS	8	CLIP, U SPEED NUT	14	SCREW
3	DASH, PANEL LOWER	9	SCREW	15	RIVET
4	COVER, GLOVEBOX	10	SCREW	16	SCREW
5	DASH, PANEL UPPER	11	GROMMET, RUBBER MOUNT		
6	BRACKET, MOUNT	12	HOLDER, CUP		

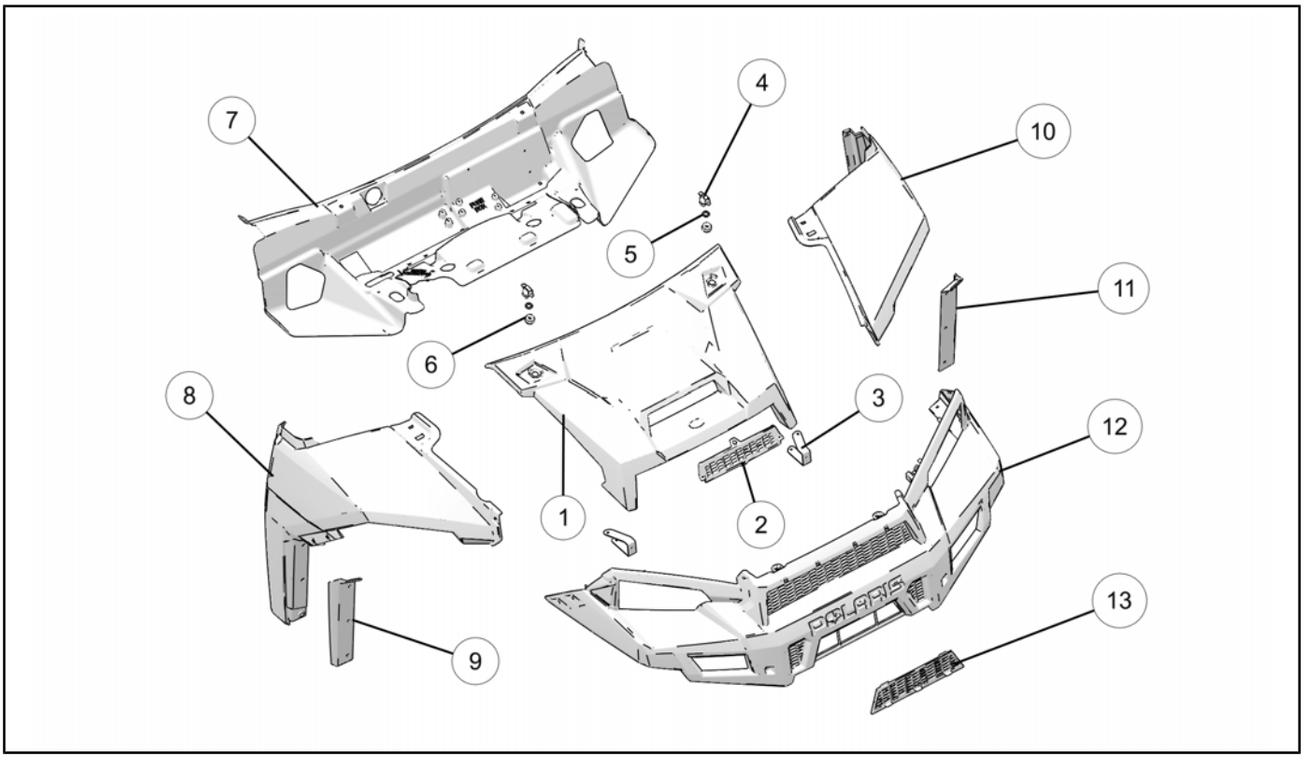
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HOOD / FRONT FENDERS / FRONT FASCIA



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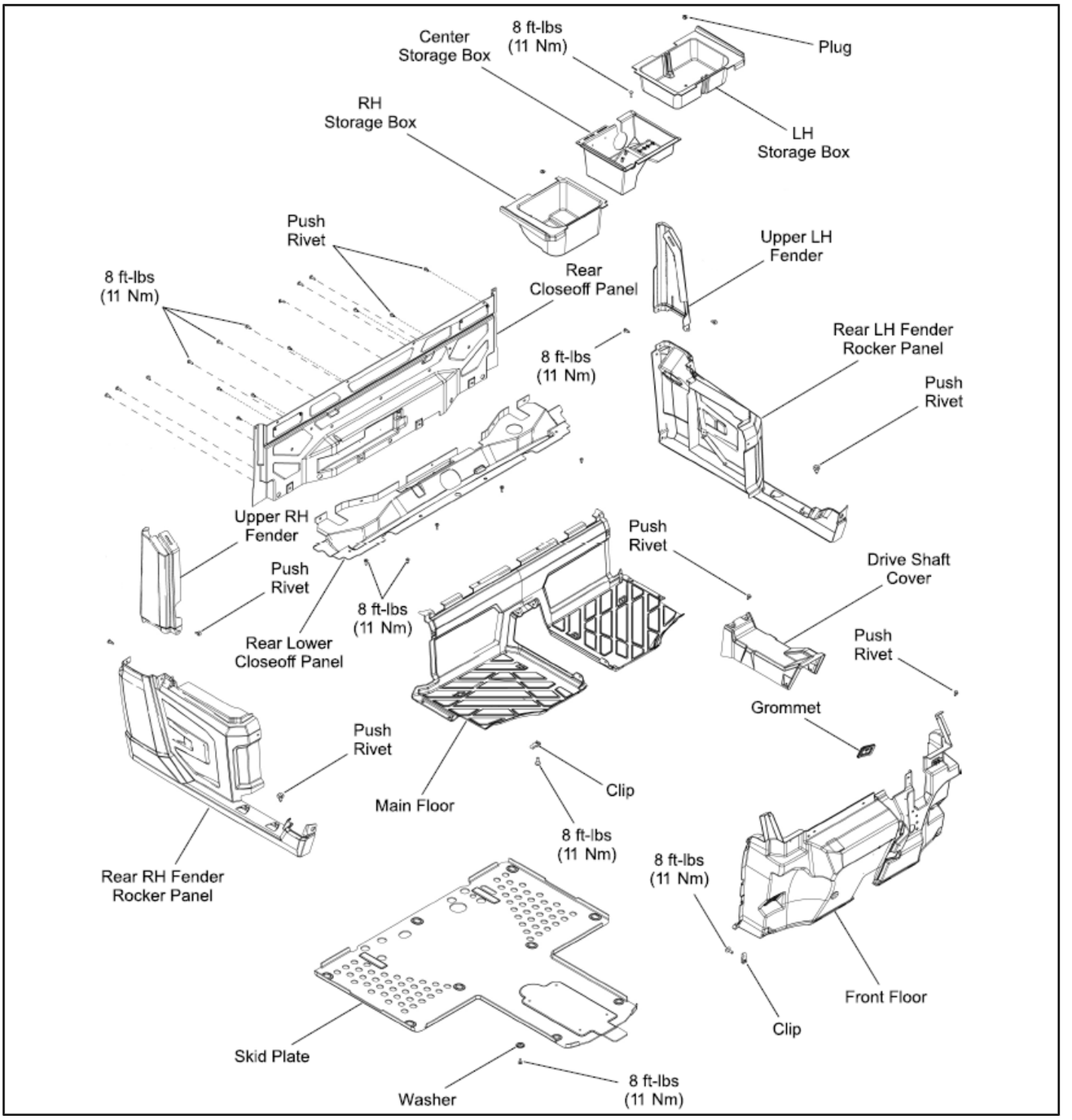
HOOD / FRONT BODY COMPONENTS (900)



PART #	DESCRIPTION	PART #	DESCRIPTION	PART #	DESCRIPTION
1	HOOD	6	GROMMET, LATCH	11	FENDER FLAIR, FRONT LH
2	COVER. HOOD GRILLE	7	LINER, HOOD	12	FASCIA, FRONT
3	BRACKET, FRONT BUMPER	8	FENDER, FRONT RH	13	SCREEN, BUMPER
4	LATCH, 1/4 TURN	9	FENDER FLAIR, FRONT RH		
5	WASHER	10	FENDER, FRONT LH		

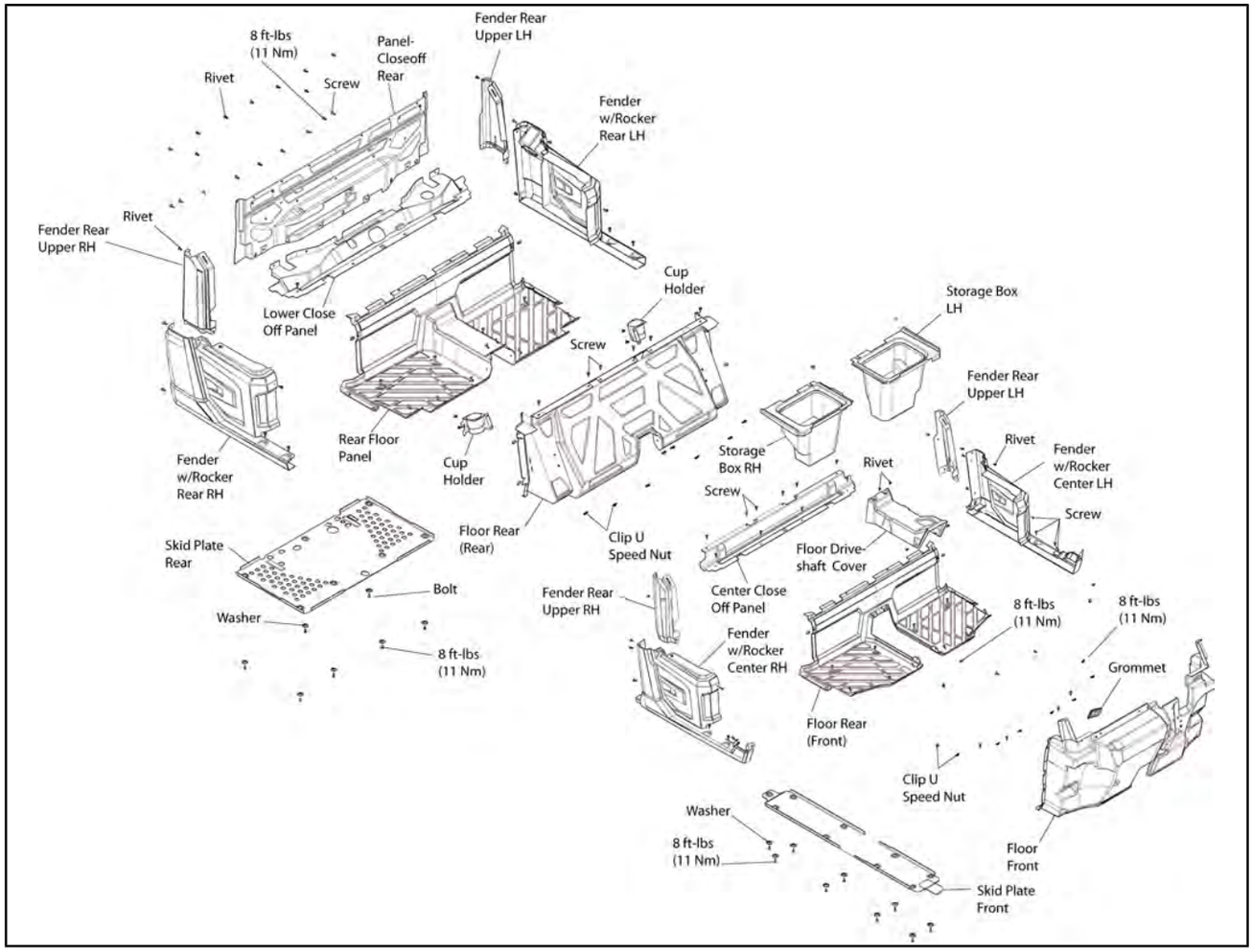
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FLOOR / REAR FENDERS / SKID PLATE / STORAGE



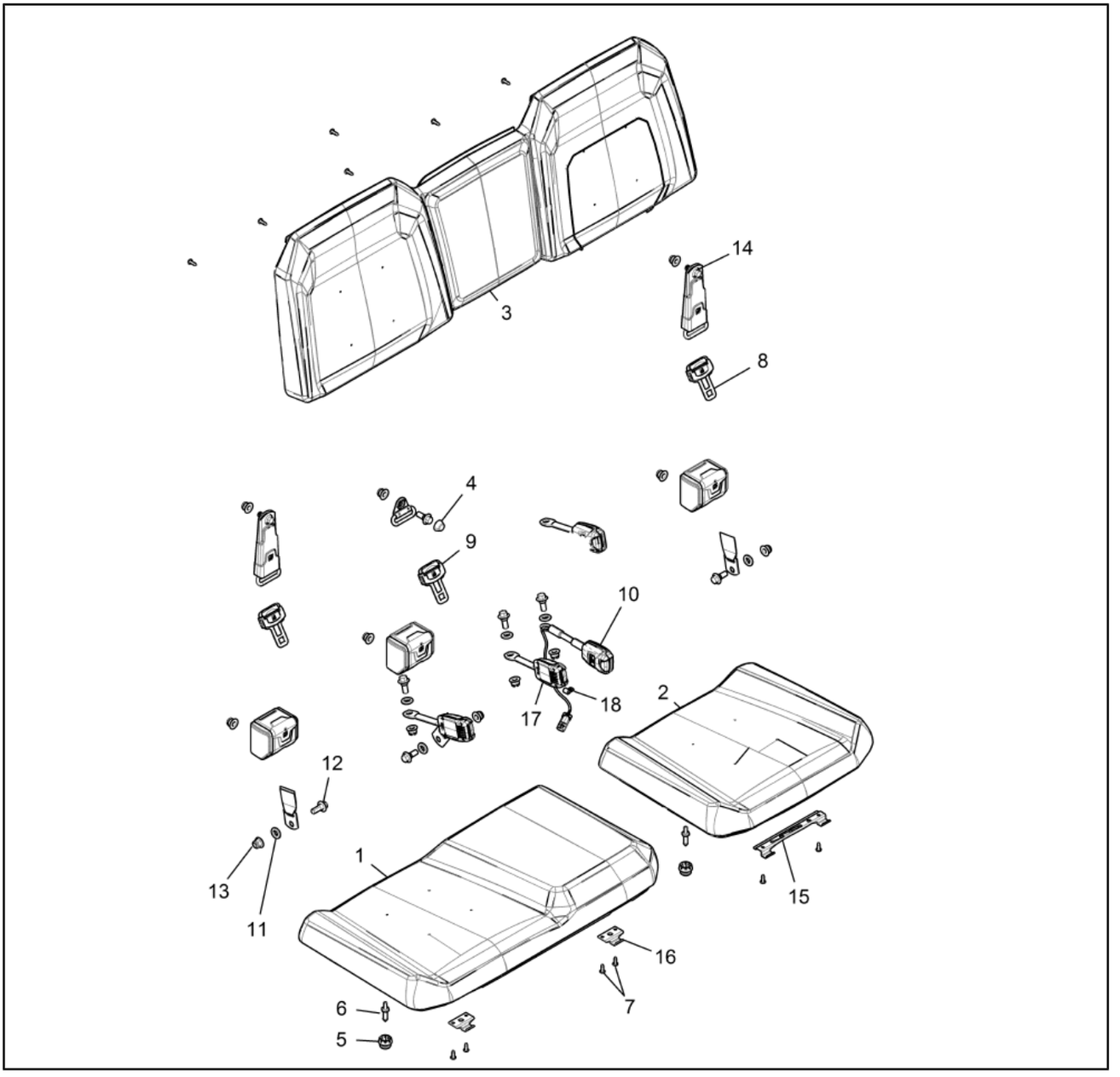
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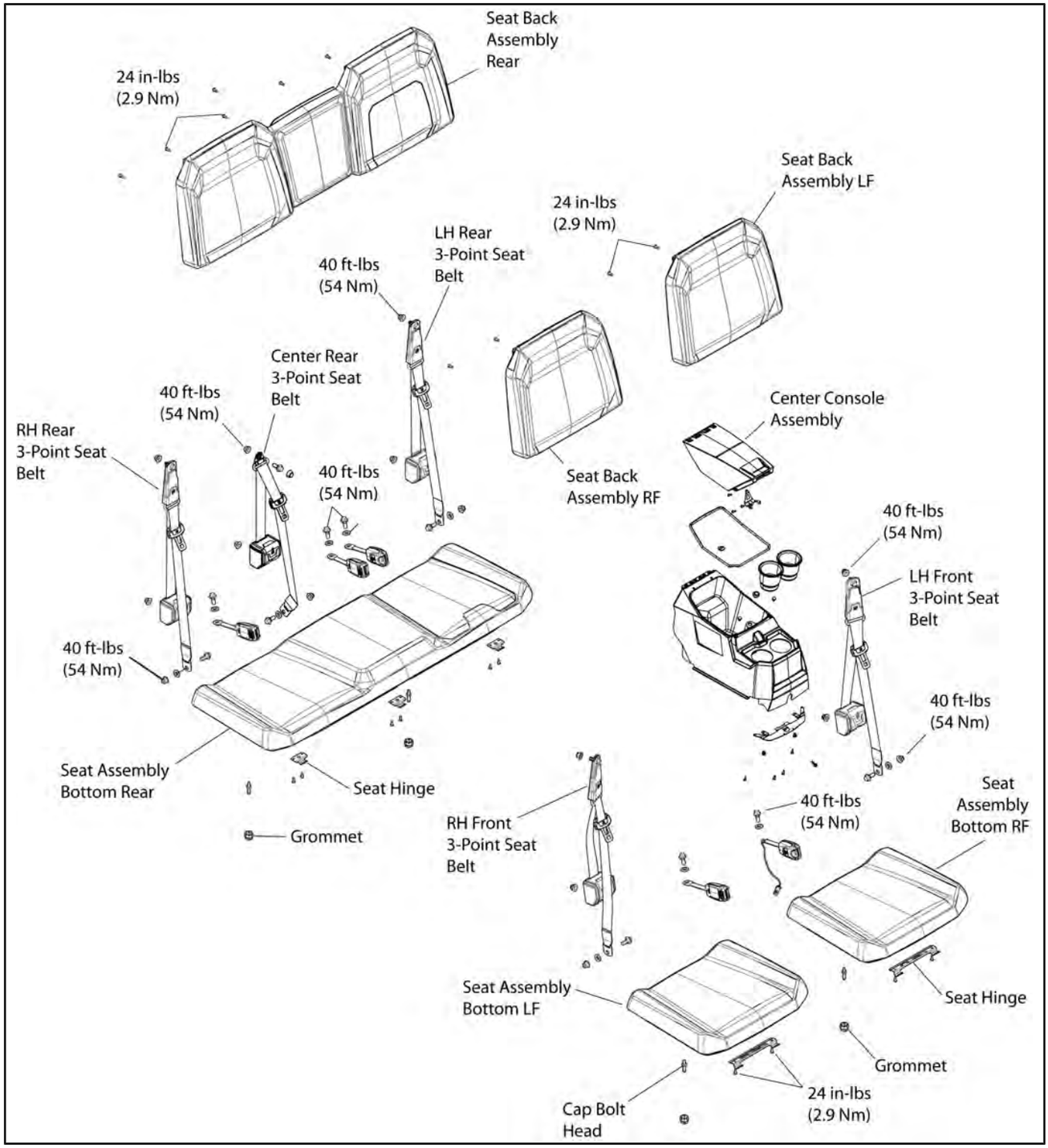
SEAT MOUNTING / SEAT BELTS



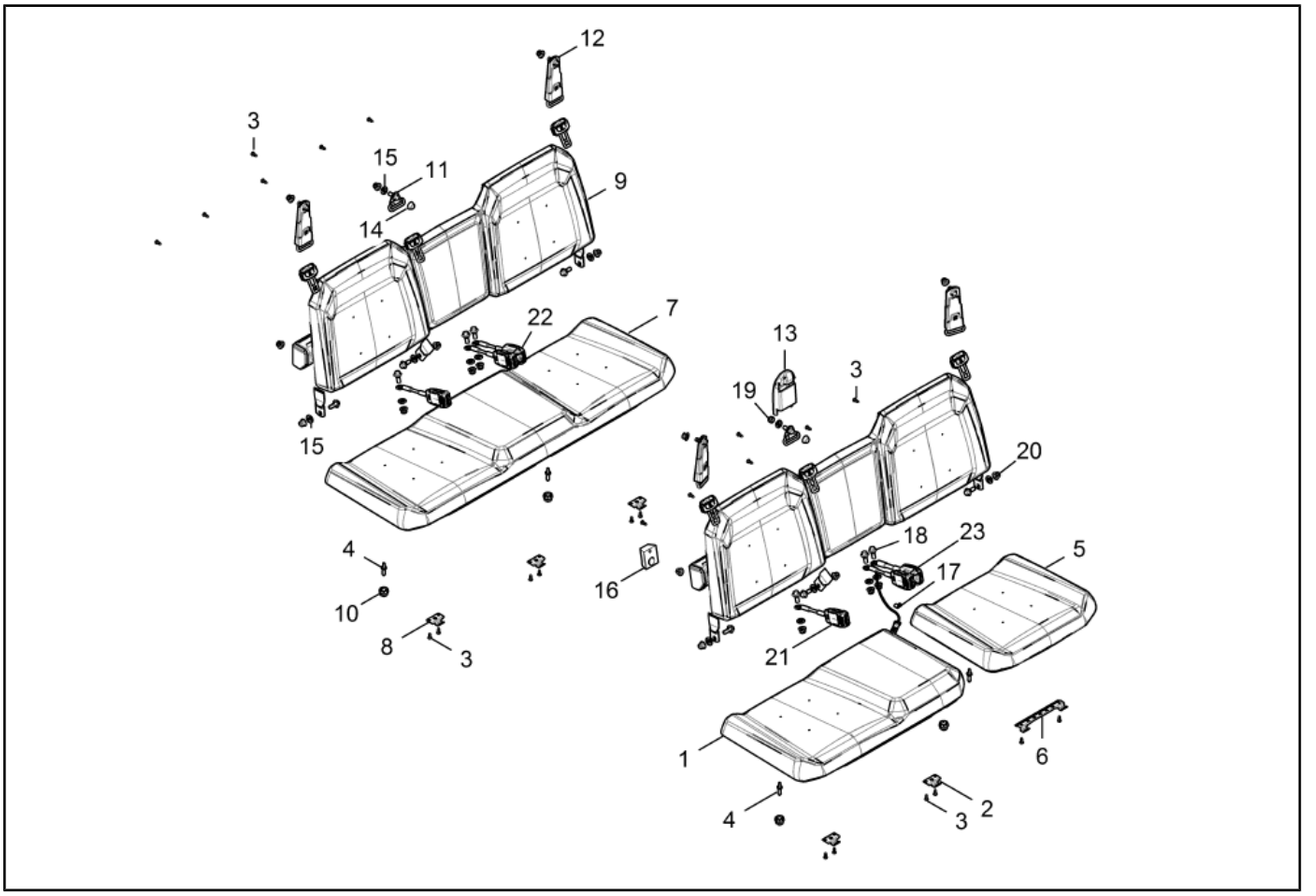
PART #	DESCRIPTION	PART #	DESCRIPTION	PART #	DESCRIPTION
1	ASM, SEAT BOTTOM	7	SCREW	13	NUT, FLANGE
2	ASM, SEAT BOTTOM	8	ASM, SEAT BELT	14	BUCKLE, SEAT BELT
3	ASM, SEAT BACK	9	ASM, SEAT BELT	15	CAP, BOLT HEAD
4	ASM, SEAT BACK	10	BUCKLE, SEAT BELT	16	BRACKET, SEAT HINGE
5	GROMMET	11	WASHER	17	CLAMP, WIRE/TUBE
6	PIN, SEAT LATCH	12	SCREW		

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***RANGER* CREW**



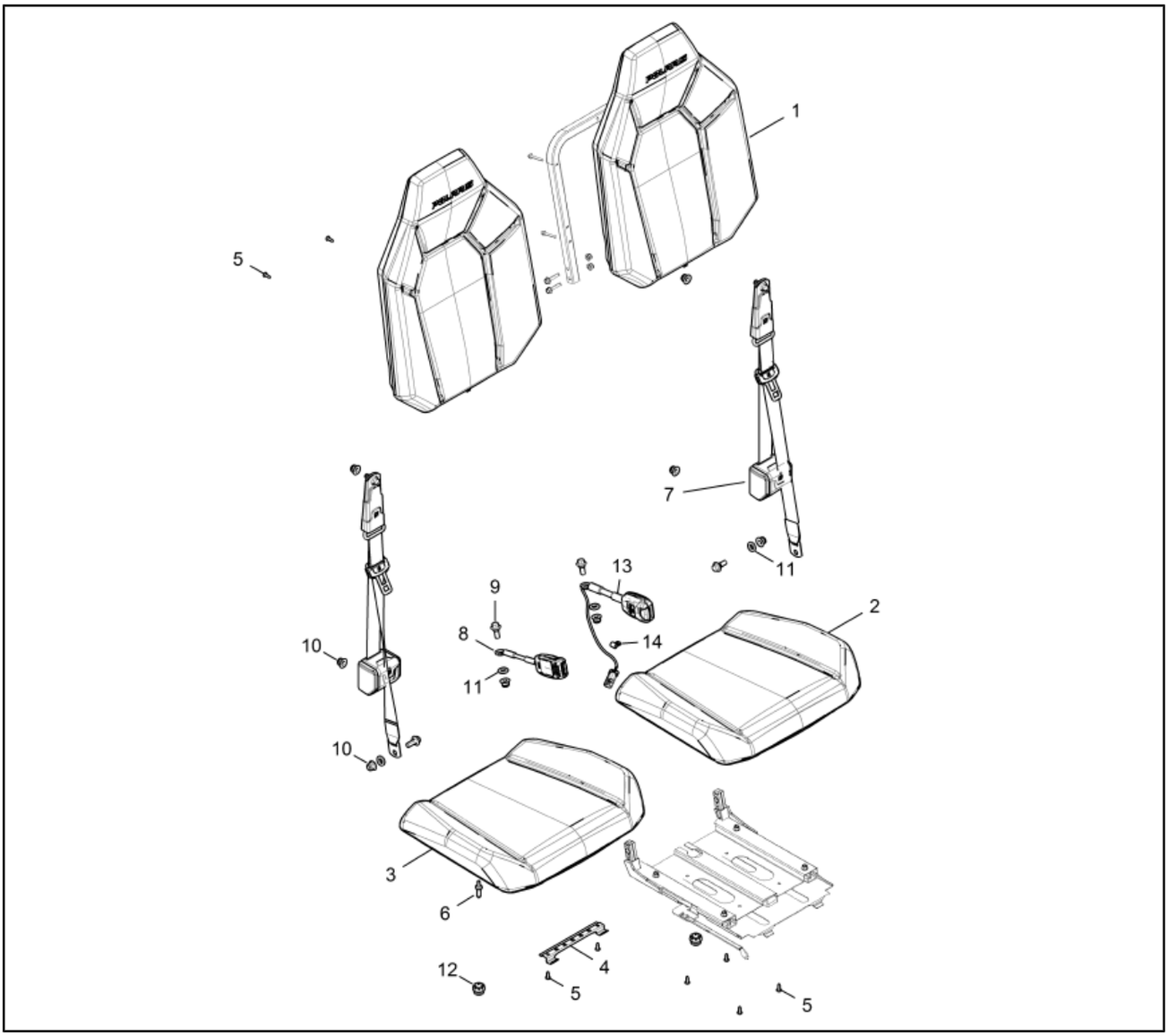
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PART #	DESCRIPTION	PART #	DESCRIPTION	PART #	DESCRIPTION
1	ASM, SEAT BOTTOM	9	ASM, SEAT CENTER	17	CLAMP
2	BRACKET, SEAT HINGE	10	GROMMET	18	SCREW
3	SCREW	11	ASM, SEAT BELT CENTER	19	NUT
4	PIN, SEAT LATCH	12	ASM, SEAT BELT	20	NUT
5	ASM, SEAT BOTTOM	13	COVER, SEAT BELT MNT	21	BUCKLE, SEAT BELT PSNGR
6	BRACKET, SEAT HINGE DBL	14	CAP, BOLT HEAD	22	BUCKLE, SEAT BELT DRIVER
7	ASM, SEAT BACK PSNGR	15	WASHER	23	BUCKLE, SEAT BELT SWITCH
8	BRACKET, SEAT HINGE	16	PAD		

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BUCKET SEATS



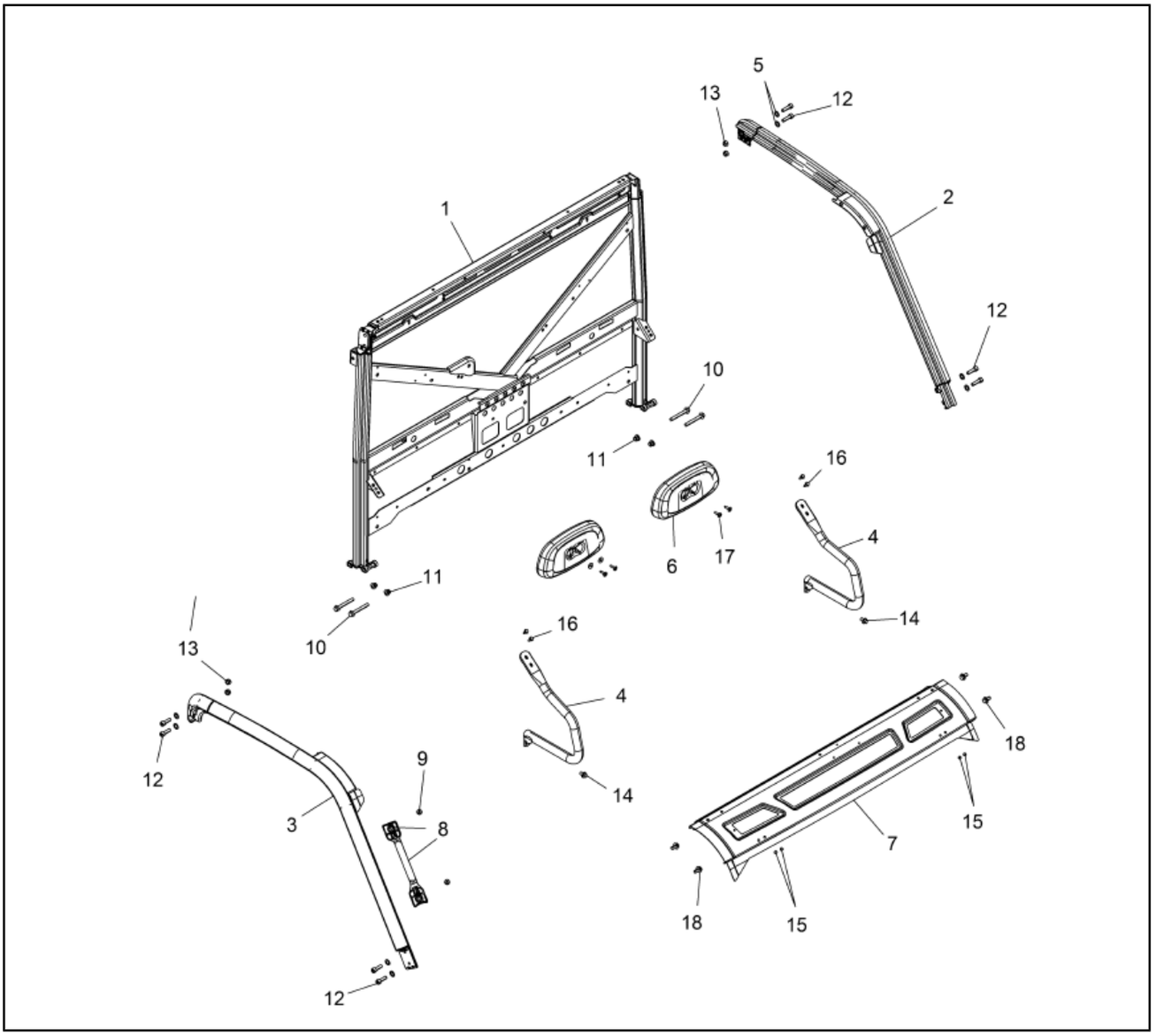
REF	PART DESCRIPTION	REF	PART DESCRIPTION
1	ASM., SEAT BACK	8	BUCKLE, SEATBELT
2	ASM., SEAT, BOTTOM	9	SCREW
3	ASM., SEAT, BOTTOM	10	NUT
4	BRACKET, SEAT HINGE, DOUBLE	11	WASHER, SEATBELT
5	SCREW	12	GROMMET
6	PIN, SEAT LATCH	13	BUCKLE, SEATBELT
7	ASM, SEATBELT	14	CLAMP

*Crew and Bucket seat models use the same center console.

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CAB FRAME SERVICE

CAB FRAME / HEADRESTS / SIDE NETS ASSEMBLY VIEW

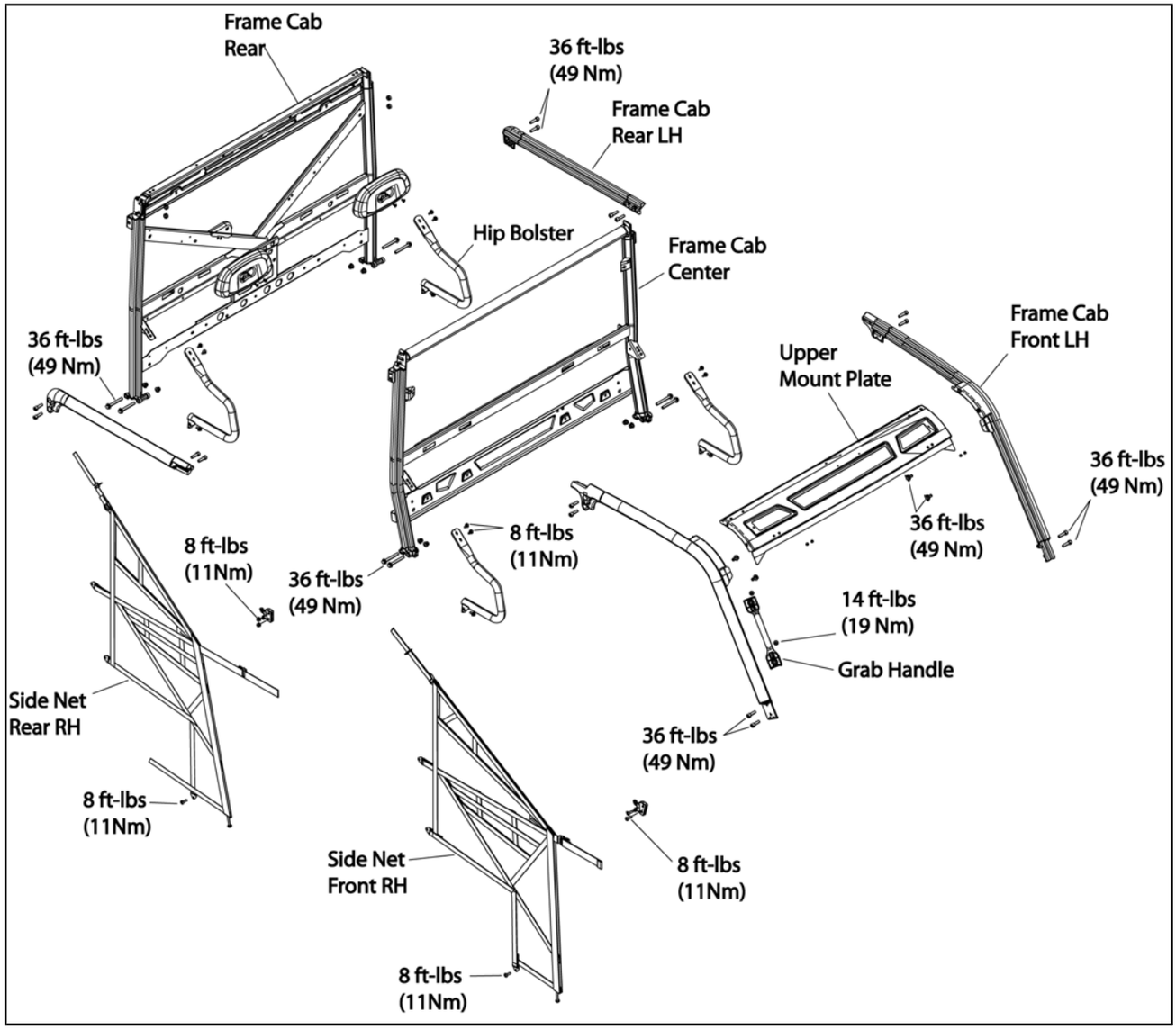


*Vehicles with bucket seats and doors do not include Side Nets, Hip Bolster, or Head Rests.

PART #	DESCRIPTION	PART #	DESCRIPTION	PART #	DESCRIPTION
1	FRAME, CAB REAR	7	PLATE, WINDSHIELD MOUNT	13	NUT, NYLOK
2	FRAME, CAB FRONT LH	8	HANDLE, GRAB	14	SCREW
3	FRAME, CAB FRONT RH	9	BOLT	15	PLUG, FENDER
4	HIP BOLSTER	10	SCREW	16	SCREW
5	WASHER	11	NUT, FLANGE	17	RIVET
6	HEADREST	12	SCREW	18	BOLT

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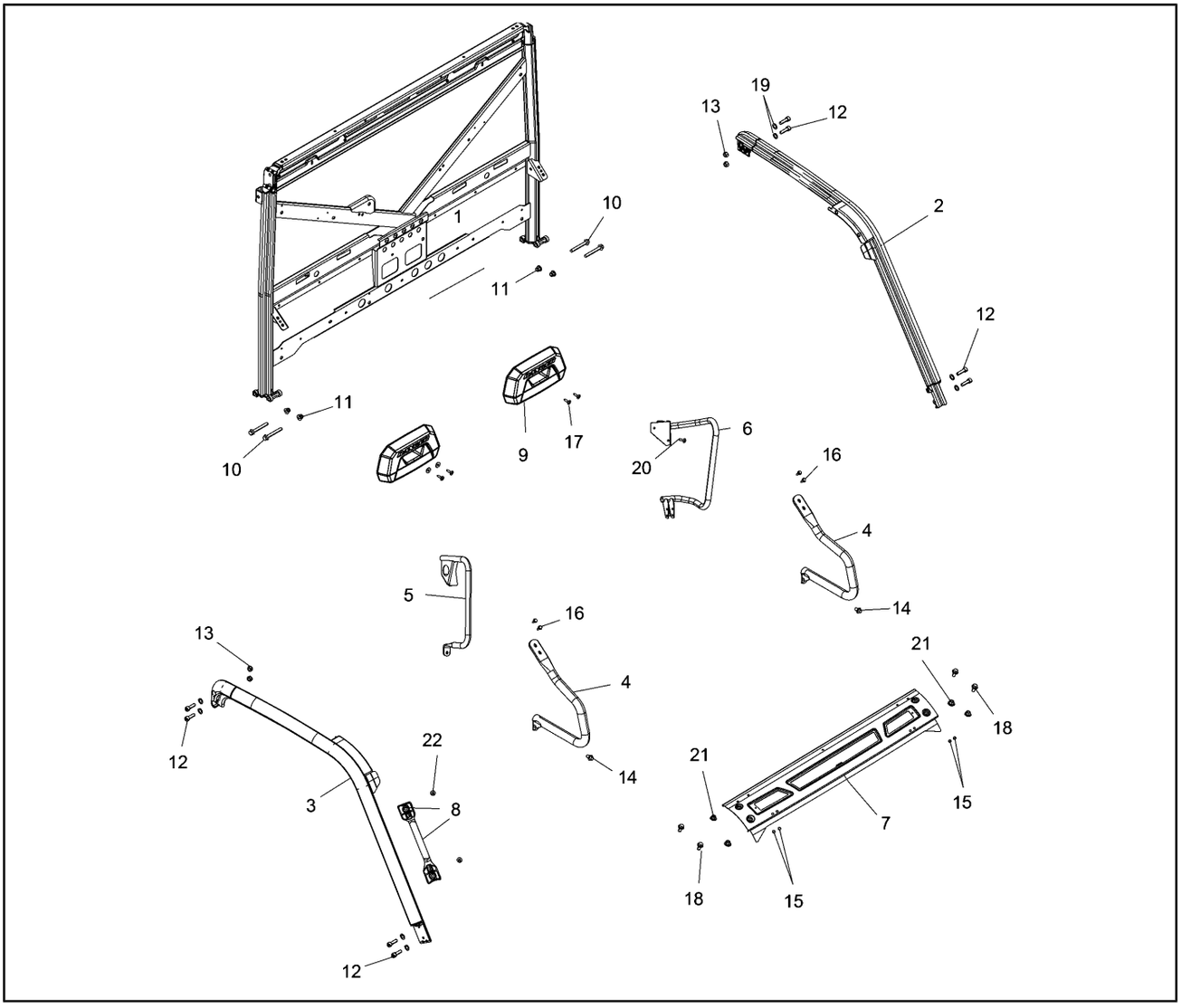
CAB FRAME / HEADRESTS / SIDE NETS ASSEMBLY VIEW - CREW



*Vehicles with bucket seats and doors do not include Side Nets, Hip Bolster, or Head Rests.

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CAB FRAME / HEADRESTS / SIDE NETS ASSEMBLY VIEW (2017)

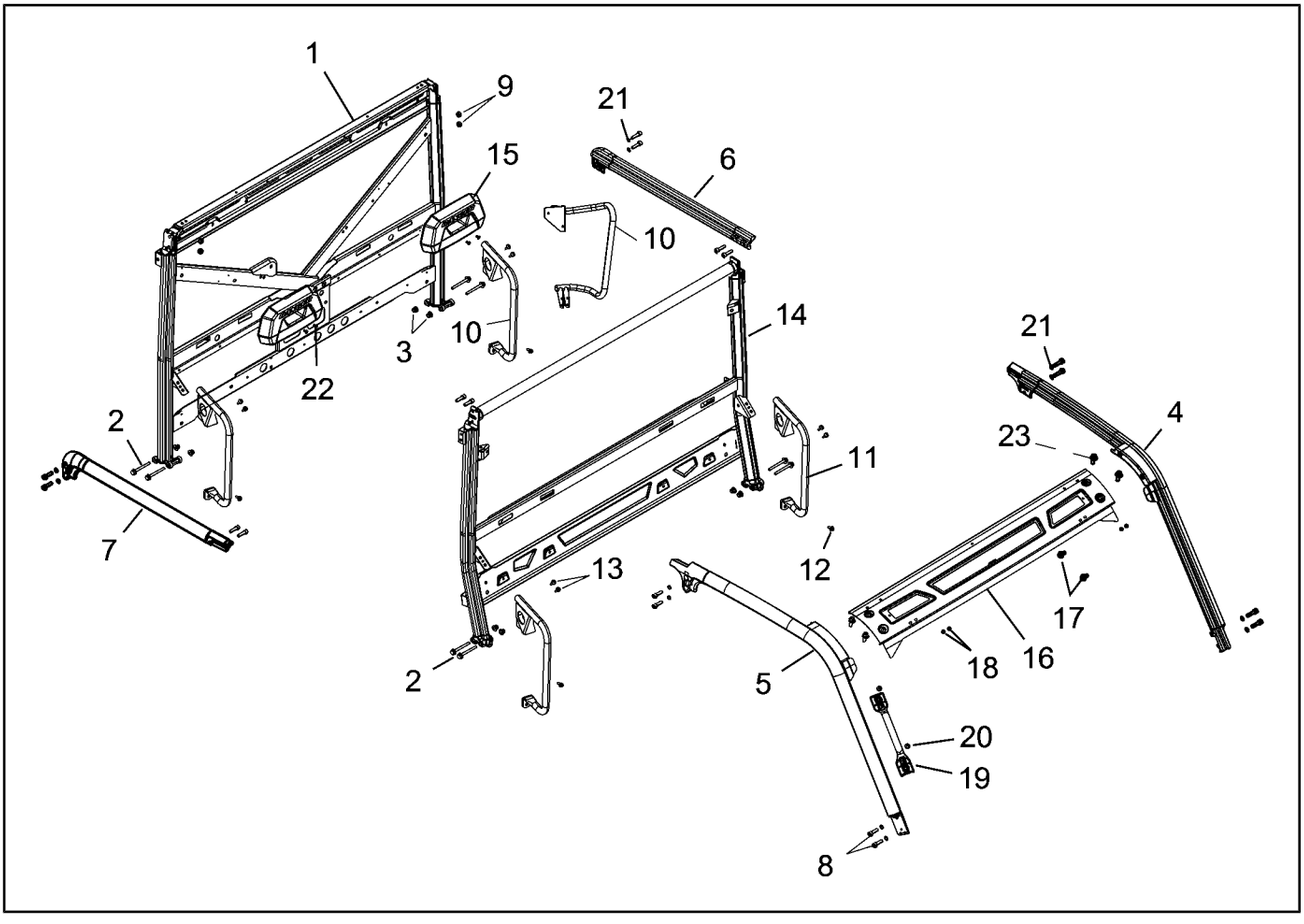


*Vehicles with bucket seats and doors do not include Side Nets, Hip Bolster, or Head Rests.

PART #	DESCRIPTION	PART #	DESCRIPTION	PART #	DESCRIPTION
1	FRAME, CAB REAR	8	HANDLE, GRAB	15	PLUG, FENDER
2	FRAME, CAB FRONT LH	9	HEADREST	16	SCREW
3	FRAME, CAB FRONT RH	10	SCREW	17	RIVET
4	HIP BOLSTER	11	NUT, FLANGE	18	BOLT
5	HIP BOLSTER, RH	12	SCREW	19	WASHER
6	HIP BOLSTER, LH	13	NUT, NYLOK	20	BOLT
7	PLATE, WINDSHIELD MOUNT	14	SCREW	21	NUT

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CAB FRAME / HEADRESTS / SIDE NETS ASSEMBLY VIEW - CREW (2017)



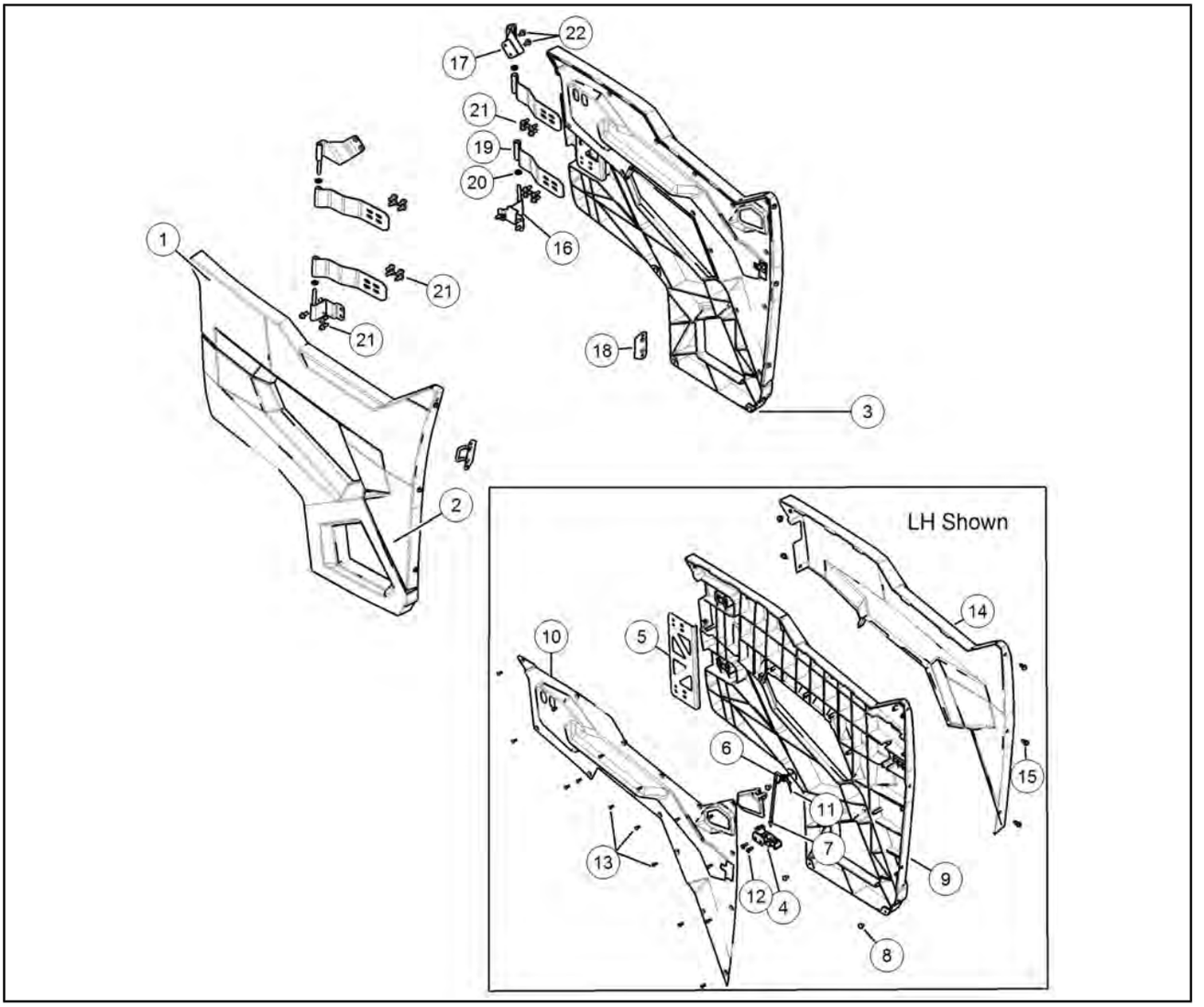
*Vehicles with bucket seats and doors do not include Side Nets, Hip Bolster, or Head Rests.

PART #	DESCRIPTION	PART #	DESCRIPTION	PART #	DESCRIPTION
1	FRAME, CAB REAR	9	NUT, NYLOK	17	NUT
2	SCREW	10	HIP BOLSTER, PSGR	18	PLUG, FENDER
3	NUT, FLANGE	11	HIP BOLSTER, DRVR	19	BOLT
4	FRAME, CAB FRONT LH	12	SCREW	20	HANDLE, GRAB
5	FRAME, CAB FRONT RH	13	NUT	21	BOLT
6	FRAME, CAB SIDE LH	14	FRAME, CAB MIDDLE	22	RIVET
7	FRAME, CAB SIDE RH	15	HEADREST	23	BOLT
8	SCREW	16	PLATE, WINDSHIELD MOUNT		

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DOORS ASSEMBLY VIEW (LE / PKG ONLY)

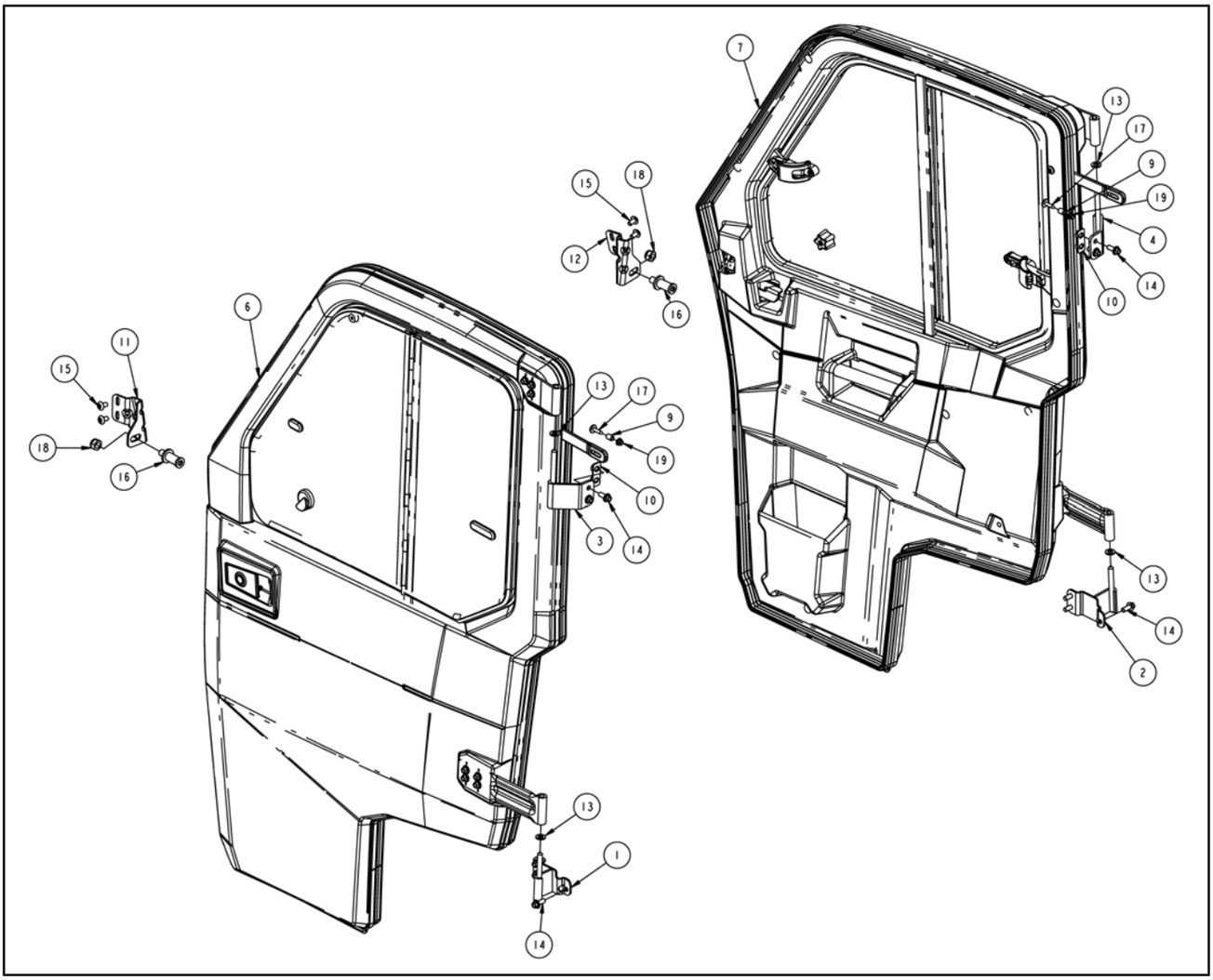
Half Doors



REF	PART DESCRIPTION	REF	PART DESCRIPTION	REF	PART DESCRIPTION
1	DECAL, DOOR, TOP	9	PANEL, DOOR	16	HINGE, LOWER
2	DECAL, DOOR, BOTTOM	10	COVER, LATCH, INNER	17	HINGE, UPPER
3	ASM., DOOR, BLACK	11	ACTUATOR, SPRING	18	ASM., STRIKER
4	ASM., LATCH DOOR	12	SCREW	19	BRACKET, HINGE
5	BRACKET, HINGE, SUPPORT	13	SCREW	20	WASHER, NYLON
6	ROD, DOOR, LATCH	14	PANEL, DOOR, OUTER	21	SCREW
7	GROMMET, SEAT FILLER	15	RIVET	22	SCREW
8	BUMPER, RUBBER				

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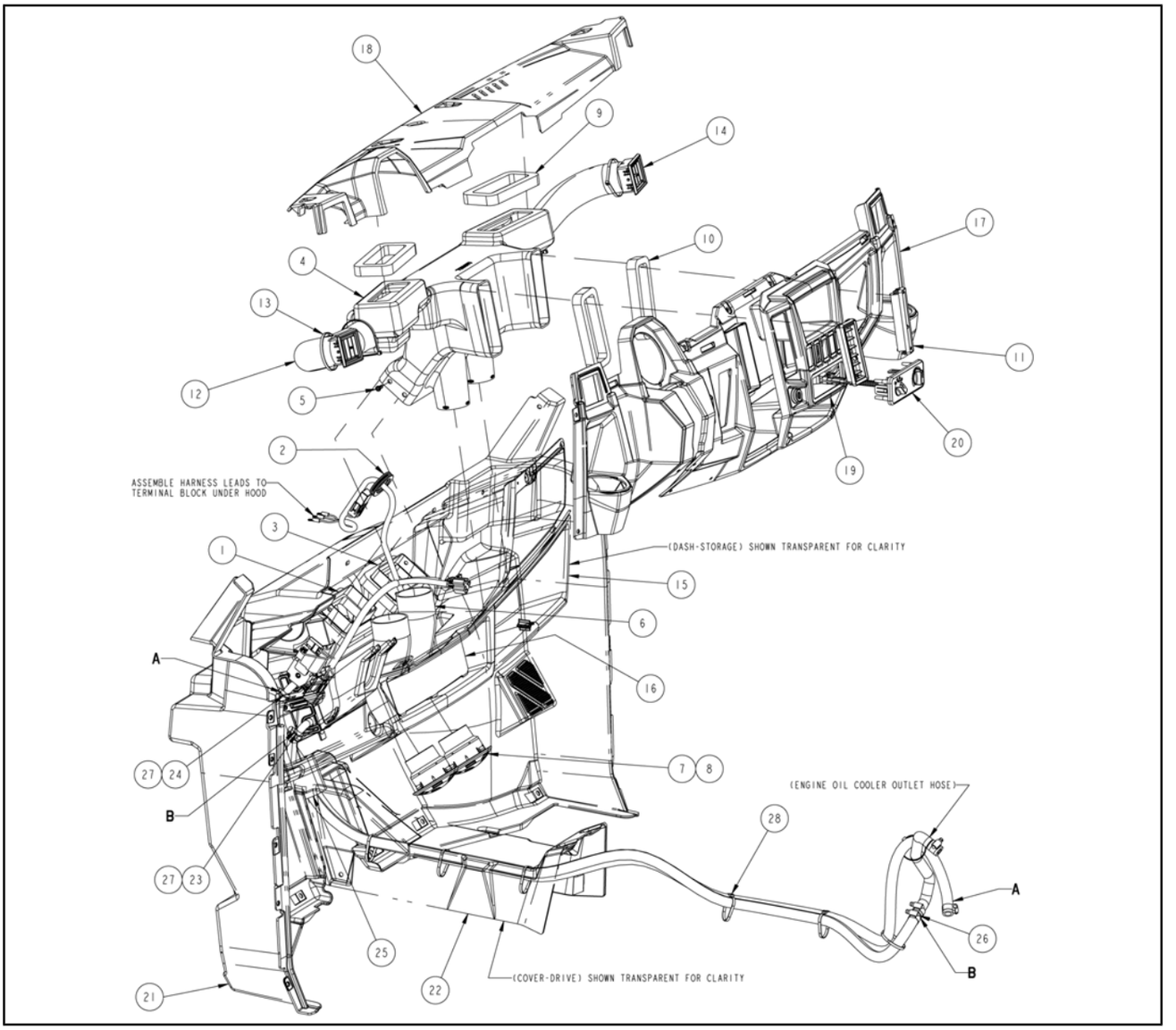
Full Doors



REF	PART DESCRIPTION	REF	PART DESCRIPTION	REF	PART DESCRIPTION
1	HINGE, LOWER LH	8	SEAL, CAB	15	SCREW
2	HINGE, LOWER RH	9	SPACER	16	PIN, STRIKER
3	HINGE, UPPER LH	10	PLATE, HINGE	17	SCREW
4	HINGE, UPPER RH	11	BRACKET, STRIKER LH	18	NUT
5	LIMIT STRAP	12	BRACKET, STRIKER RH	19	NUT
6	ASM, DOOR LH	13	WASHER		
7	ASM, DOOR RH	14	SCREW		

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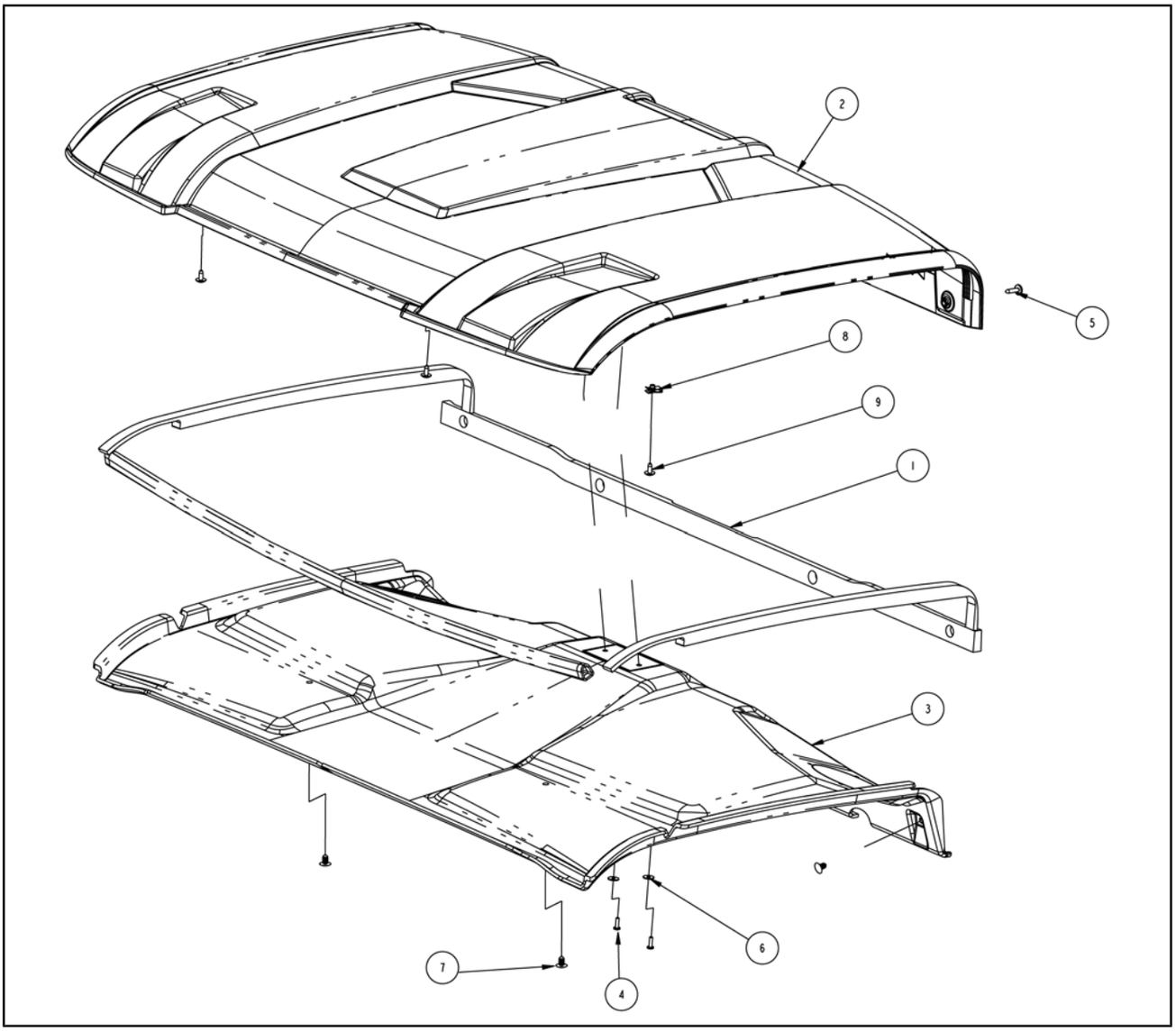
HEATER ASSEMBLY VIEW (PKG ONLY)



REF	PART DESCRIPTION	REF	PART DESCRIPTION	REF	PART DESCRIPTION
1	HEATER SYSTEM	11	VENT, RECTANGULAR	21	FLOOR, FRONT
2	GROMMET, ELECTRICAL	12	DUCT, UPPER	22	COVER, DRIVE SHAFT
3	SEAL, HVAC	13	STRAP, PANDUIT	23	HOSE, 1/2” HEATER
4	DISTRIBUTOR	14	VENT, SQUARE	24	HOSE, 1/2” HEATER
5	RIVET	15	DASH, STORAGE	25	FOAM, HOSE
6	DUCT, FOOT	16	COVER, HVAC	26	K-BUTT SPLICE
7	VENT, ROUND	17	DASH PANEL, LOWER	27	CLAMP, HOSE WORM GEAR
8	SCREW	18	DASH PANEL, UPPER	28	STRAP, PANDUIT
9	SEAL, DEFROST	19	DASH PANEL, CONTROLS		
10	SEAL, DASH, CENTER	20	CONTROL, HVAC		

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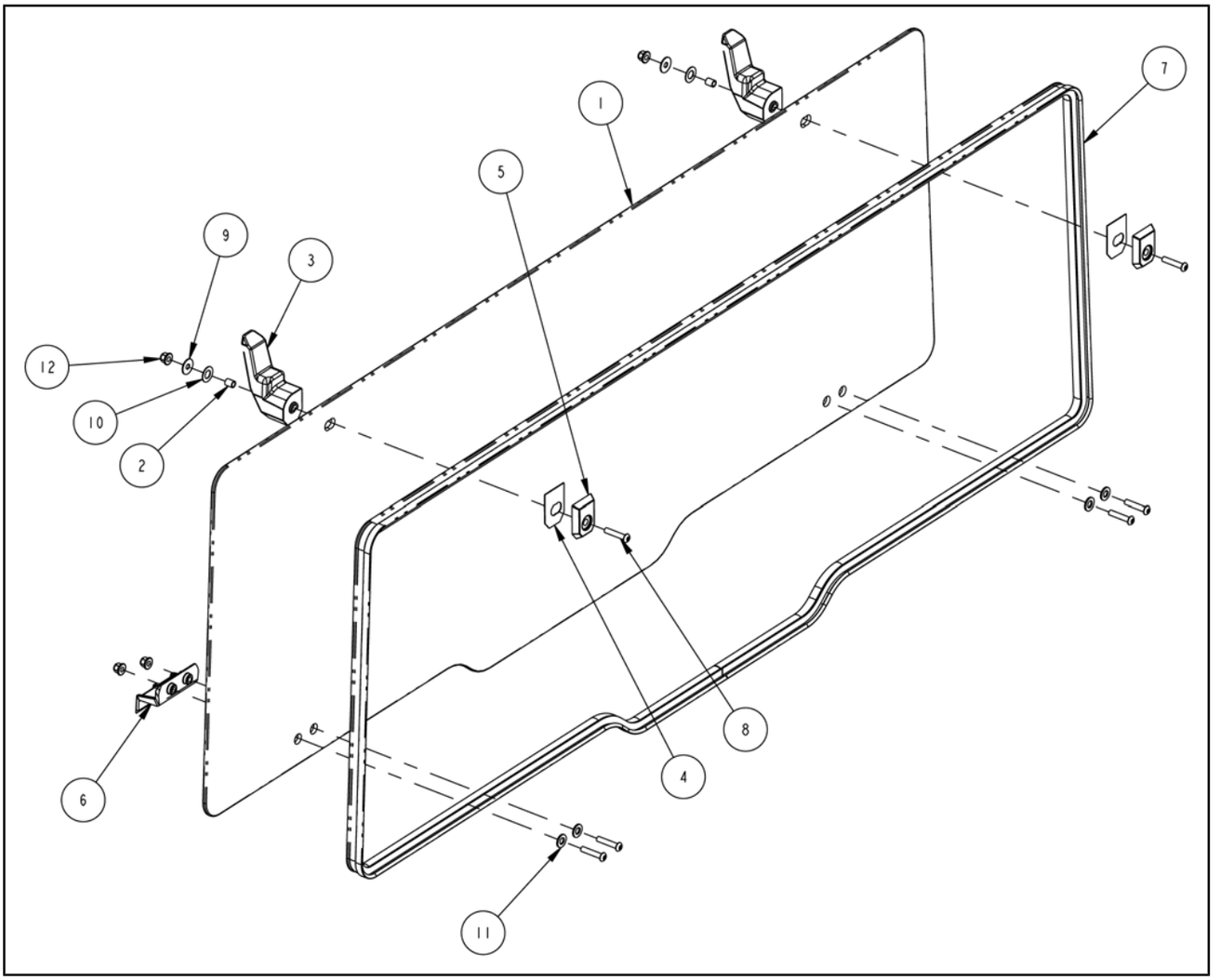
ROOF ASSEMBLY VIEW (PKG ONLY)



REF	PART DESCRIPTION	REF	PART DESCRIPTION	REF	PART DESCRIPTION
1	KIT, SEAL, ROOF	4	SCREW	7	CLIP, DART
2	ROOF	5	SCREW	8	CLIP, NUT
3	HEADLINER	6	WASHER	9	SCREW

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REAR PANEL ASSEMBLY VIEW (PKG ONLY)



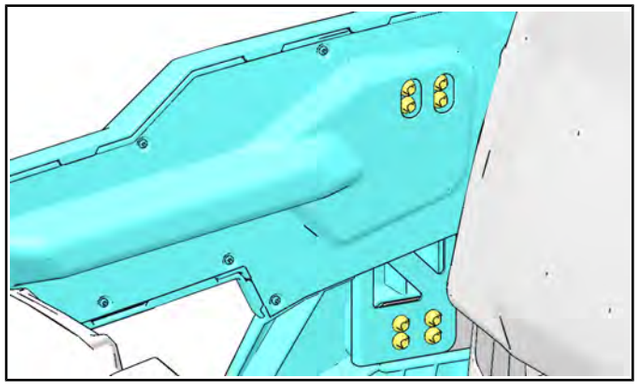
REF	PART DESCRIPTION	REF	PART DESCRIPTION	REF	PART DESCRIPTION
1	PANEL, GLASS	5	BASE	9	WASHER
2	SLEEVE	6	MOUNT	10	WASHER
3	HANDLE	7	SEAL, GLASS	11	WASHER
4	SHIM	8	SCREW	12	NUT

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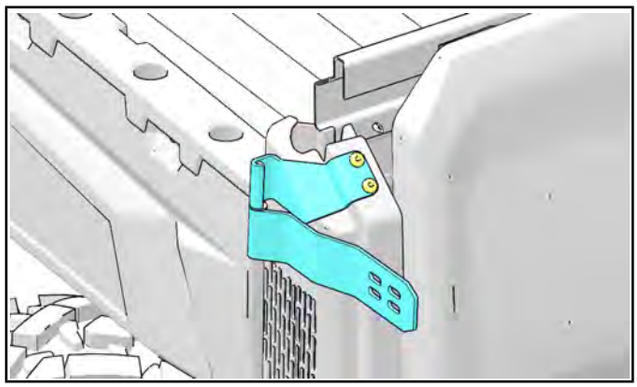
DOOR REMOVAL / INSTALLATION (LE / PKG ONLY)

Half Doors

1. Remove the fasteners that hold the door to the upper and lower hinge brackets.



2. Remove the fasteners that hold the upper and lower hinge brackets to the frame.

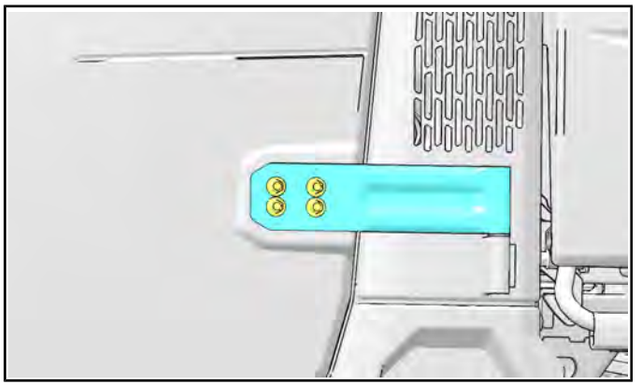


3. For installation, reverse removal. Install fasteners and torque to specification.

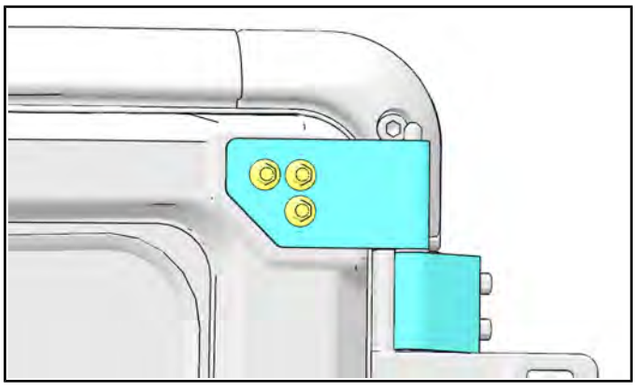
TORQUE
Half Door Hinge to Frame Fasteners: **8 lb-ft (10 Nm)** Half Door Hinge Fasteners: **14 lb-ft (19 Nm)**

Full Doors

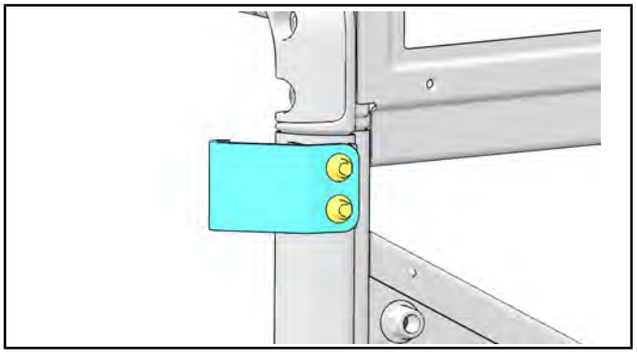
1. Remove the fasteners that hold the door to the lower hinge bracket.



2. Remove the fasteners that hold the door to the upper hinge bracket. Remove the door from the vehicle.



3. Remove the fasteners that hold the upper hinge bracket to the frame.



4. For installation, reverse removal procedure. Install fasteners and torque to specification.

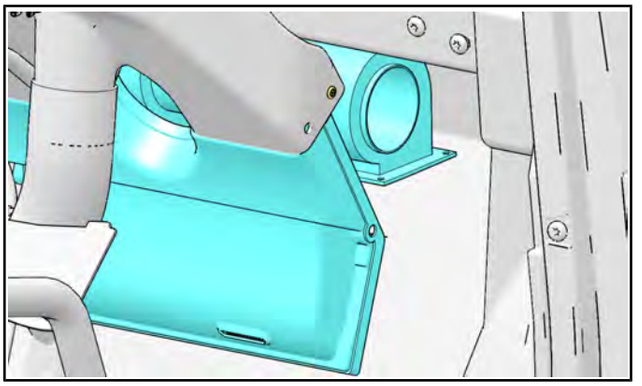
TORQUE
Full Door Hinge Fasteners: **17 lb-ft (23 Nm)**

10

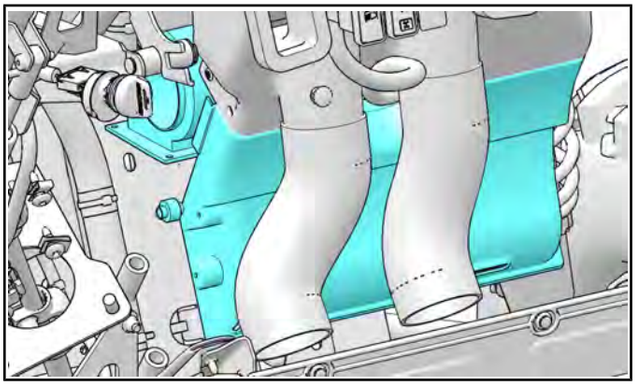
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HEATER REMOVAL / INSTALLATION (PKG ONLY)

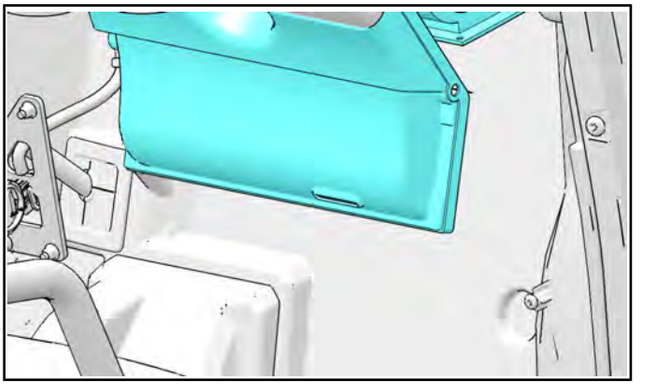
1. Drain the engine coolant from the radiator. Refer to **“Radiator Removal / Coolant Drain”, page 3.20** procedure.
2. Remove the dash panels and glove box. Refer to **“Dash Panels / Glove Box Removal”, page 10.36** procedure.
3. Disconnect the fan harness from the main harness.
4. Remove the fasteners holding the HVAC duct to the heater system.



5. Disconnect the coolant hoses from the heater system.



6. Remove the fasteners holding the heater system to the body panel.

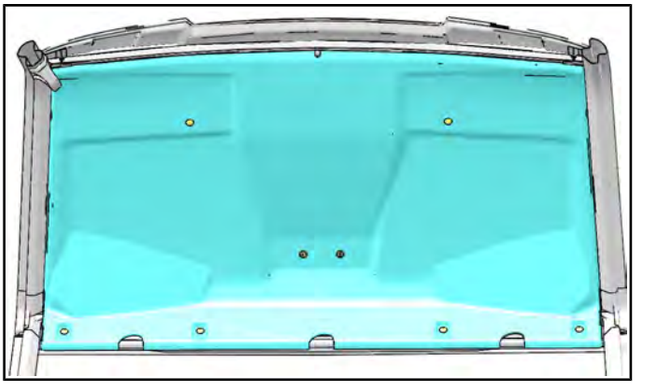


7. Reverse removal process for installation. Torque heater system mounting fasteners to specification.

TORQUE
Heater Mounting Fasteners: **6–8 lb-ft (8–10 Nm)**

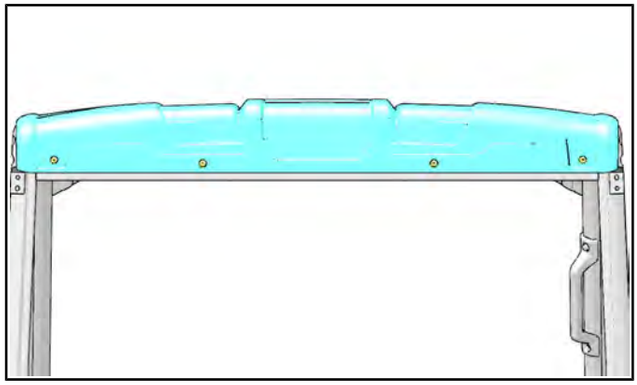
ROOF REMOVAL / INSTALLATION (PKG ONLY)

1. Remove the clips and fasteners holding the headliner to the roof. Remove the headliner.



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2. Remove the fasteners holding the roof to the frame.



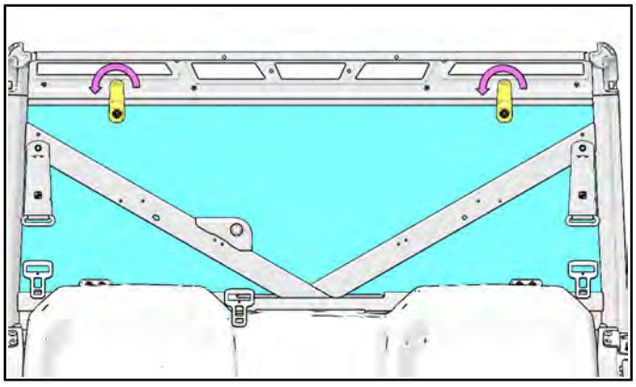
3. Pull the rear of the roof out firmly and lift it up. Slide the roof forward and off the vehicle.
4. For installation, reverse removal procedure. Torque the fasteners to specification.

TORQUE
Roof Fasteners: **12–15 lb-in (1.35–1.7 Nm)**

REAR PANEL REMOVAL / INSTALLATION (PKG ONLY)

NOTE
Two people should work together to remove and install the rear panel windshield.

1. Rotate the LOCK & RIDE handles counterclockwise into the unlocked position



2. Rotate the top of the rear window slightly away from the vehicle, then lift the windshield up and away from the vehicle.

NOTE
Store windshield in an upright position in a location where it will not be bumped into and where it will not be subject to things falling on it. Polaris recommends that the lower frame of the glass be set onto a wood or other semi-soft support structure to prevent unexpected movement and potential breakage of the window during storage.

3. Reverse the removal procedure for installation. Turn the LOCK & RIDE handles clockwise to the locked position to secure the windshield.

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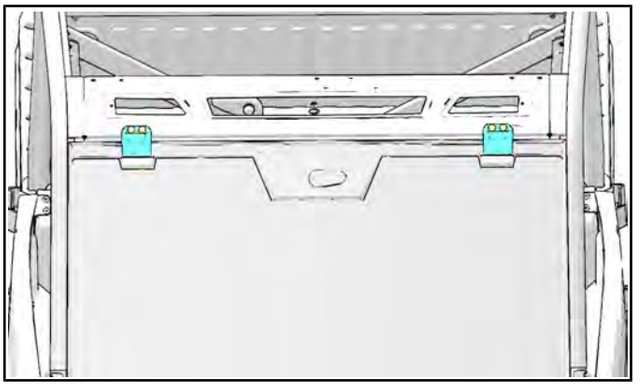
WINDSHIELD REMOVAL / INSTALLATION (PKG ONLY)

NOTE

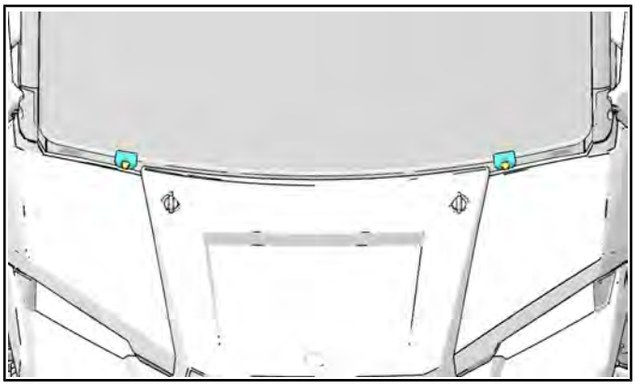
Two people should work together to remove and install the windshield.

Windshield Removal / Insallation

1. Remove the fasteners holding the top windshield mounts to the frame.



2. Carefully tilt the top of the windshield out and remove the fasteners holding the bottom windshield mounts to the frame.



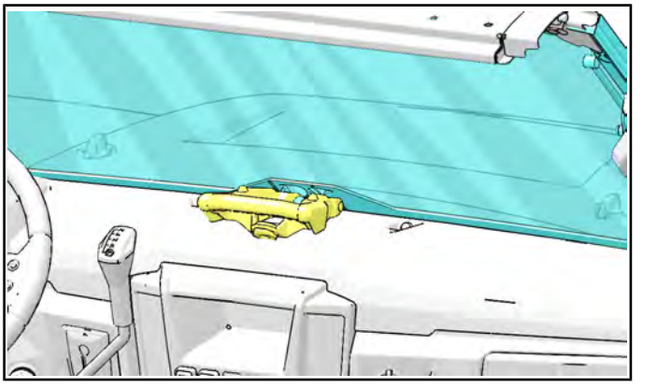
3. Lift the windshield off the vehicle and store in an upright position.
4. For installation, reverse removal procedure. Torque windshield mount fasteners to specification.

TORQUE

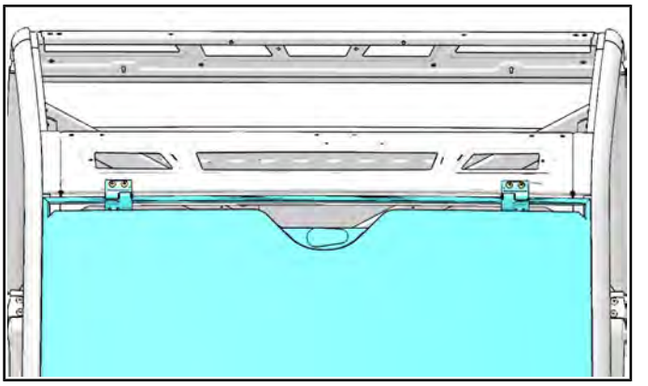
Windshield Mount Fasteners:
15 lb-ft (20 Nm)

Tip Out Windshield Removal / Insallation

1. Disconnect the tip out handle at the base of windshield.



2. Remove the fasteners that hold the top mounting brackets to the frame.



3. For installation, reverse removal procedure. Torque windshield mount fasteners to specification.

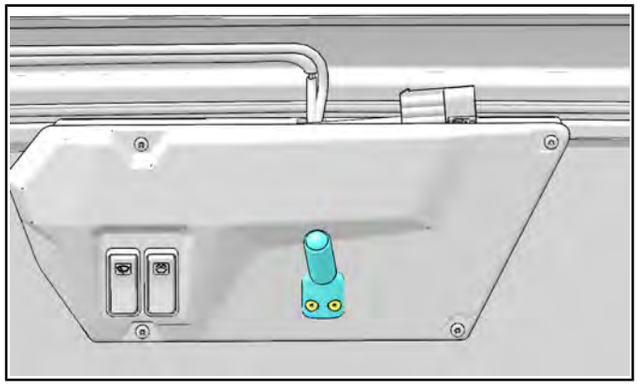
TORQUE

Tip Out Windshield Mount Fasteners:
20 lb-ft (27 Nm)

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Center Mirror Removal / Installation

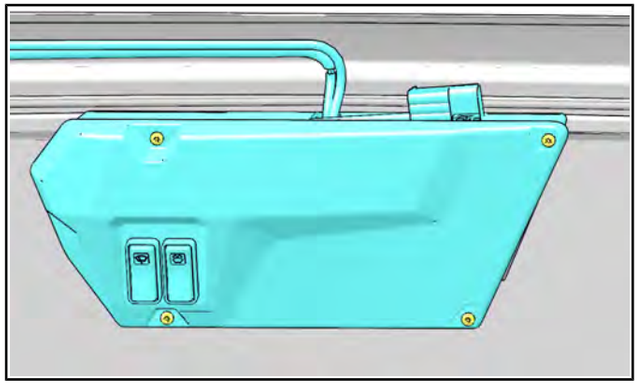
1. Remove the fasteners holding the mirror to the mount bracket.
2. Remove the fasteners holding the mount bracket to the wiper motor cover.



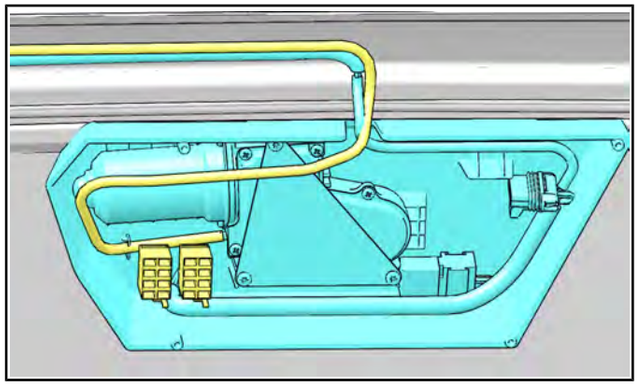
3. For installation, reverse removal procedure. Torque the fasteners until taught. Do NOT over torque the fasteners.

Windshield Wiper Removal / Installation

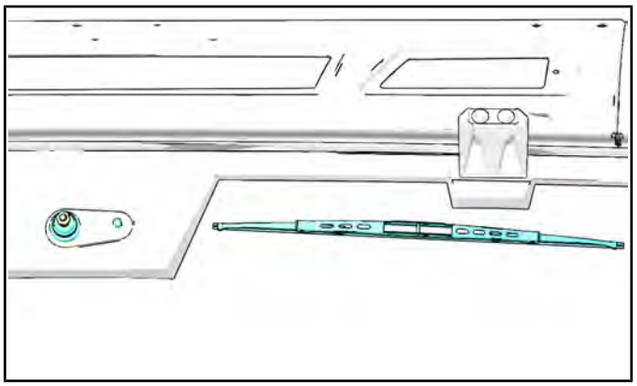
1. Remove the fasteners holding the wiper motor cover to the assembly.



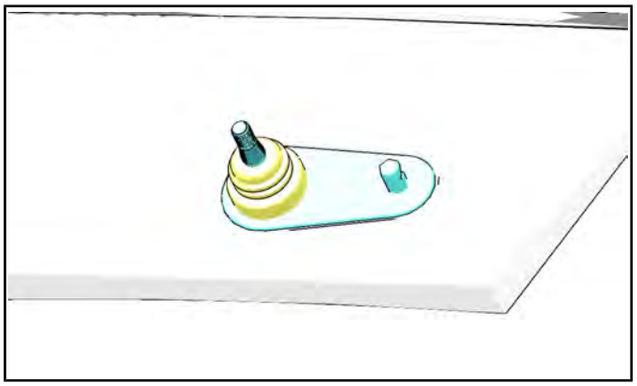
2. Disconnect the wiper fluid line and electrical switch connectors from the wiper motor assembly.



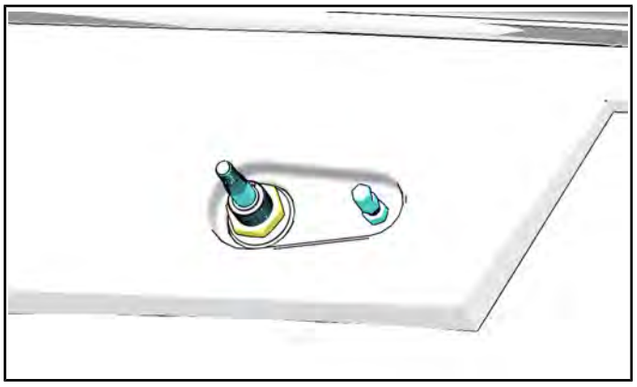
3. Remove the fastener holding the windshield wiper arm to the motor shaft.



4. Remove the seal and plug covering the wiper motor shaft.



5. Remove the fastener holding the wiper motor assembly to the windshield and remove the assembly..



6. For installation, reverse the removal procedure and torque the fasteners to specification.

TORQUE
Wiper Motor Shaft Fastener: **15 lb-ft (20 Nm)**
Wiper Arm Fastener: **10 lb-ft (14 Nm)**

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CAB ACCESSORIES REMOVAL / INSTALLATION (PKG ONLY)

Overhead Light

1. Remove the roof headliner. Refer to **"Roof Removal / Installation", page 10.26** procedure.
2. Disconnect the electrical harness connector to the light.
3. Remove the fasteners holding the light assembly to the roof.
4. For installation, reverse removal procedure.

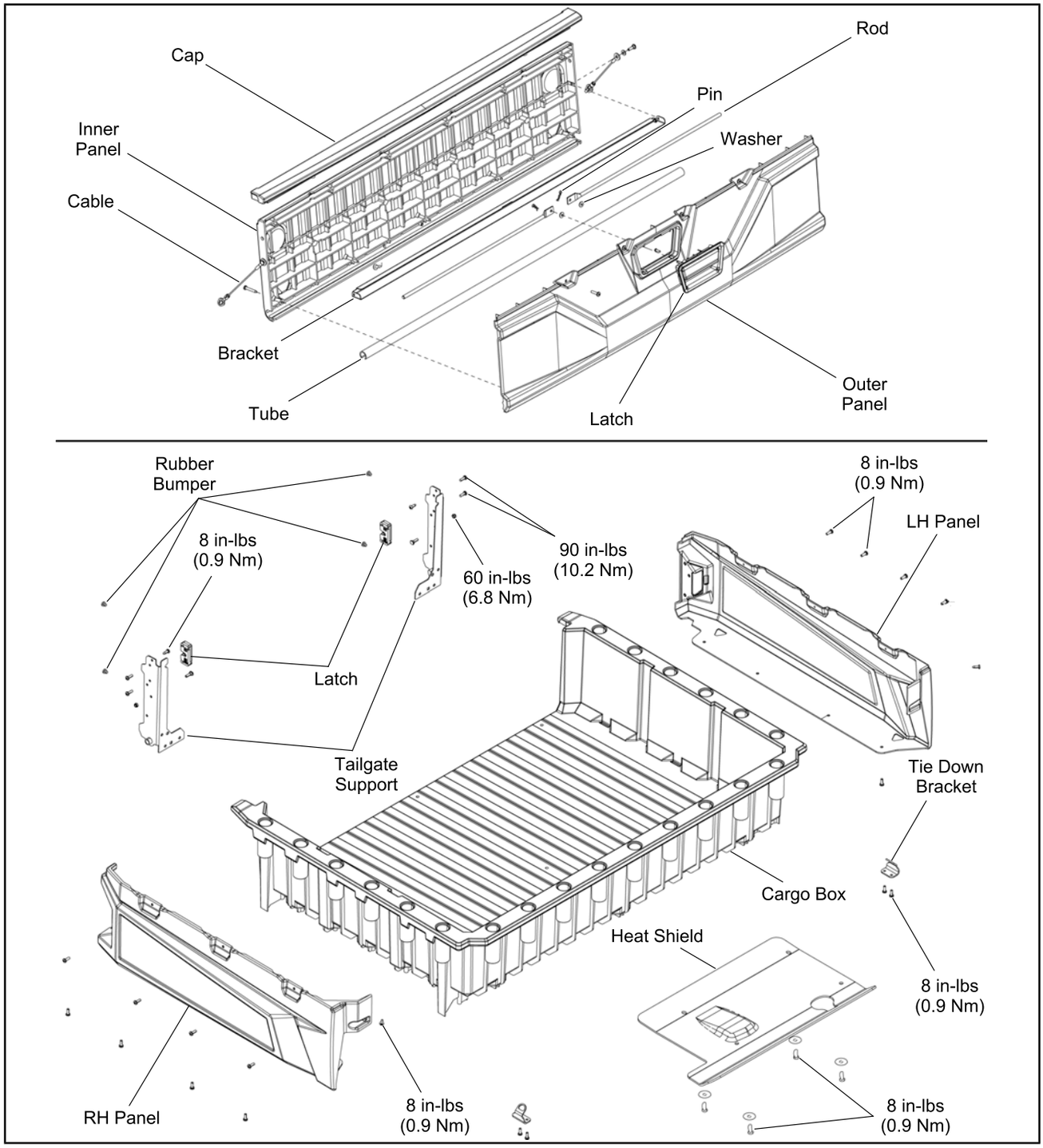
Seat Heater

1. Remove the applicable seat.
2. The seat heater element is attached to the top of the seat base. Remove the vinyl and foam on the seat base.
3. Disconnect the electrical harness connector from the heater element. Pull the adhesive backing off of the seat to remove the heater element.
4. For installation, reverse removal procedure.

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REAR CARGO BOX SERVICE

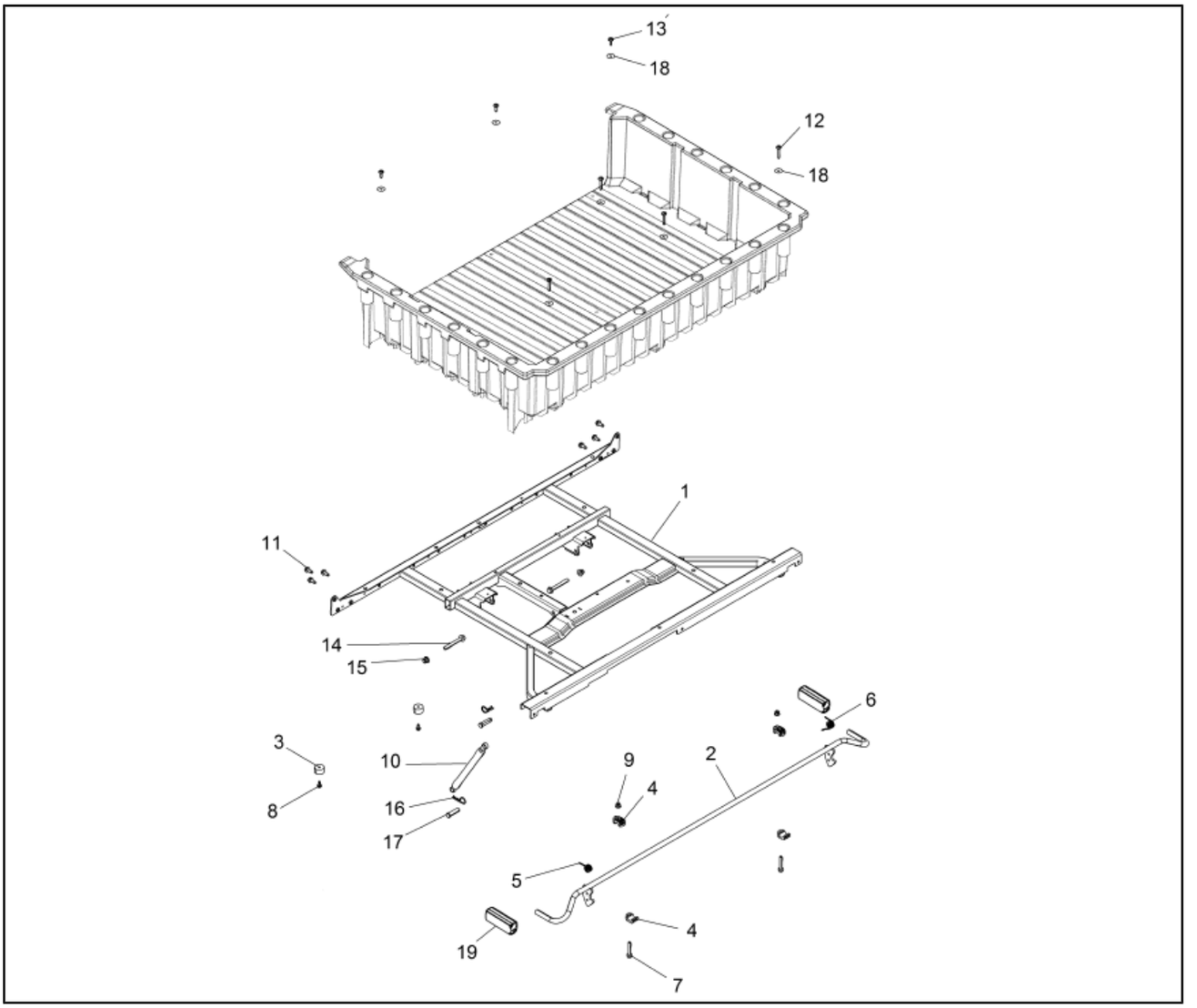
TAILGATE / CARGO BOX PANELS ASSEMBLY VIEW



10

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CARGO BOX SUPPORT ASSEMBLY VIEW

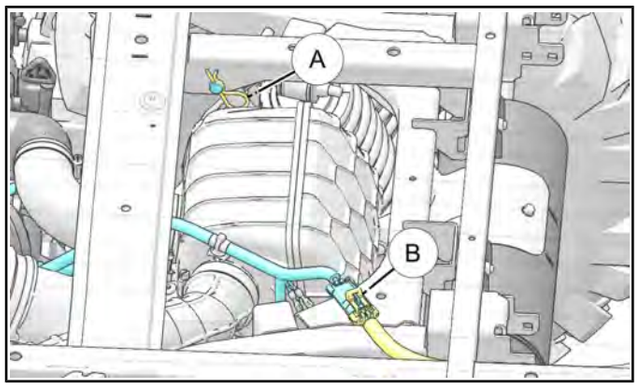


REF	PART DESCRIPTION	REF	PART DESCRIPTION
1	SUPPORT, BOX	11	BOLT
2	LATCH, BOX	12	SCREW
3	BUMPER, BOX	13	SCREW
4	BUSHING, BOX LATCH	14	SCREW
5	SPRING, LATCH	15	NUT, FLANGE
6	SPRING, LATCH	16	CLIP, HITCHPIN
7	SCREW	17	PIN, CLEVIS
8	RIVET	18	WASHER
9	NUT	19	HANDLE, BOX LATCH
10	SHOCK, BOX DUMP		

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CARGO BOX REMOVAL

1. Pull the lever and tilt the rear cargo box.
2. Pull the clip (A) and remove the pin at the upper cargo box shock mount.



3. Disconnect the tail light harness connector (B) from the main harness.
4. Remove the clip and pin at the bottom shock mount for replacement or removal of cargo box shock.

CAUTION

Safely support the box during the remainder of the removal process. The box is not as stable with the shock removed.

5. Remove the two hinge fasteners that retain the cargo box to the frame.

CAUTION

Use caution when removing the box. It is recommended to have two people carefully remove the box from the frame.

6. Lift the cargo box from the frame. Two people or an appropriate overhead hoist may be needed to remove the box from the frame.

CARGO BOX INSTALLATION

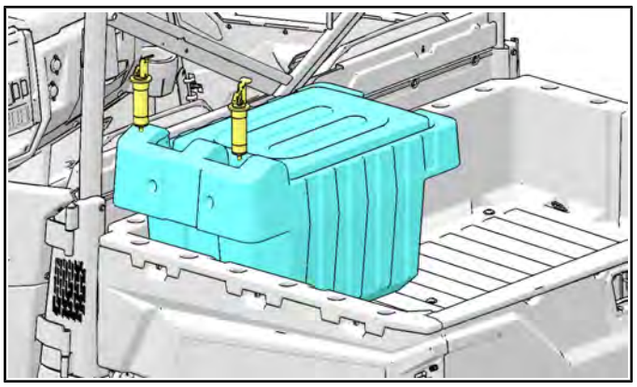
1. Place the cargo box onto the frame. Align the hinges of the box with the bracket on the frame.
2. Install the cargo box hinge fasteners on both sides and torque to specification.

TORQUE
Cargo Box Hinge Fasteners: **14 lb-ft (19 Nm)**

3. With the hinge bolts installed, attach the shock to the cargo box by inserting the pin and clip.
4. Connect the tail light harness connector to the main harness.
5. Lower the box and secure the latch.

CARGO BOX KIT REMOVAL / INSTALLATION (PKG ONLY)

Unhook the LOCK & RIDE anchors that hold the cargo box kit in the rear cargo box.

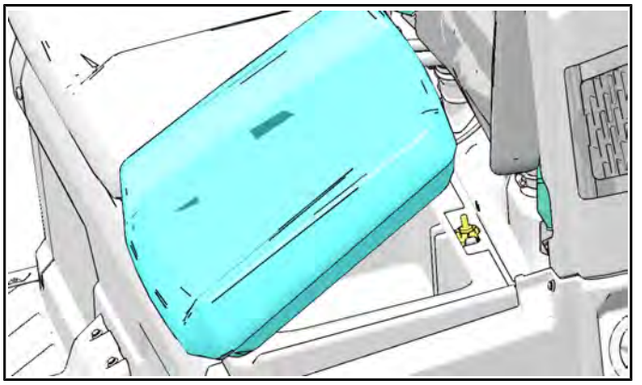


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BODY COMPONENT REMOVAL

LOWER SEAT BASE REMOVAL

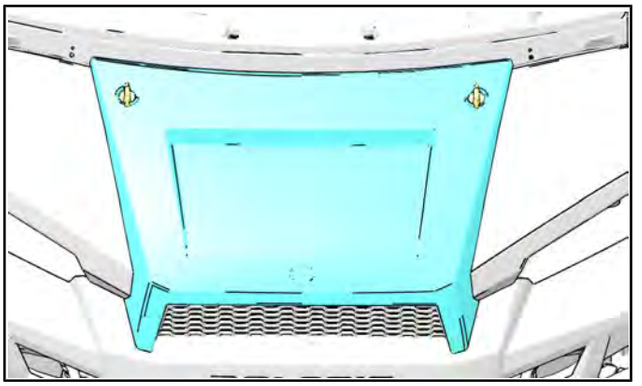
1. Lift up on the back of the seat to disengage the seat pin from the rubber grommet.



2. With the seat sitting vertically, lift the seat up to remove the seat tabs from the slots on the frame.

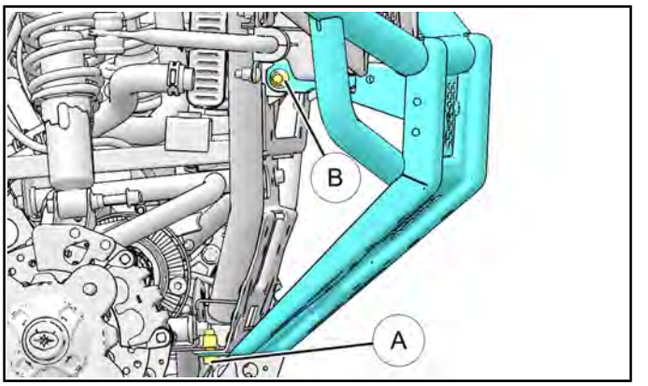
HOOD REMOVAL

1. Turn each 1/4 turn latch 90 degrees to unlock the hood.
2. Lift up the hood between the locks and slide hood forward to disengage the front of the hood from the front fascia.



FRONT BUMPER REMOVAL

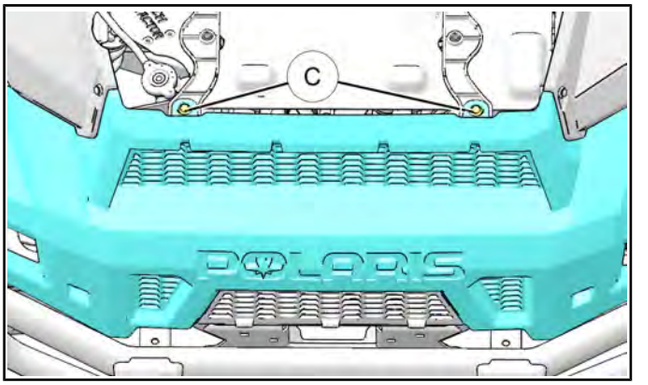
1. Remove the two fasteners (A) retaining the bottom of the bumper to the frame.
2. Remove the two fasteners (B) retaining the top of the bumper to the frame.



3. Carefully pull the bumper straight out to remove it from the vehicle.

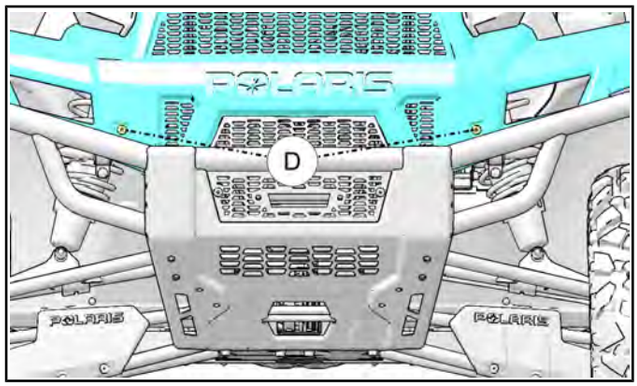
FRONT FASCIA REMOVAL

1. Remove the hood. Refer to **“Hood Removal”, page 10.34** procedure.
2. Disconnect both front headlights at the bulbs. Refer to **“Headlight Bulb Replacement”, page 11.20** procedure.
3. Remove the two fasteners (C) retaining the front fascia to the upper radiator brackets.

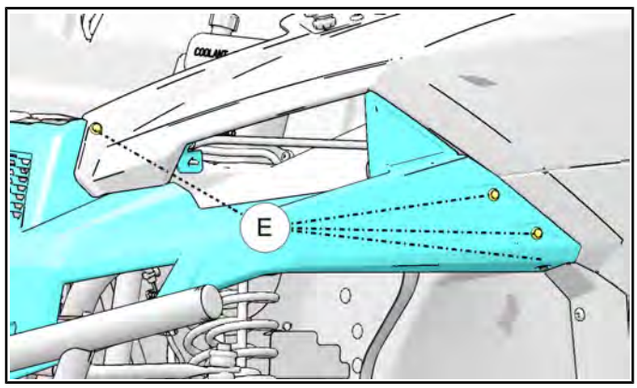


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4. Remove the two T-40 Torx-head screws (D) retaining the front fascia to the frame.



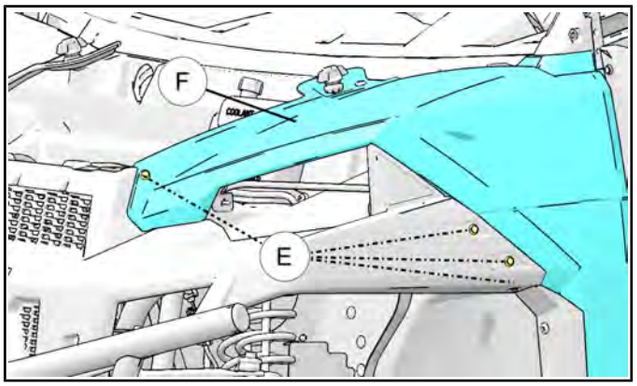
5. Remove the push rivets (E) retaining the front fascia to the front fenders on each side.



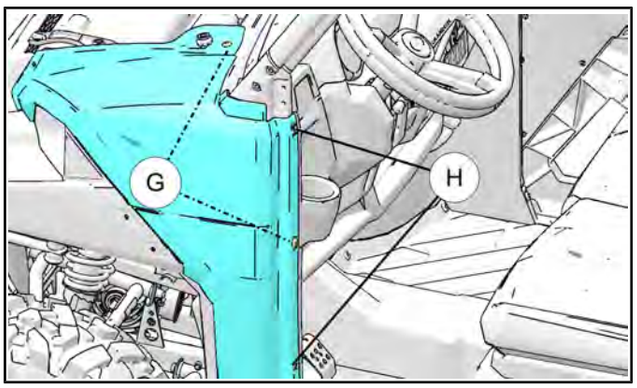
6. Carefully pull the front fascia straight out to remove it from the vehicle.

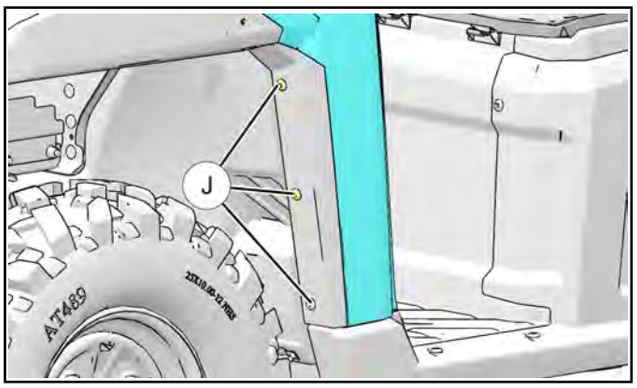
FRONT FENDERS REMOVAL

1. Remove the hood. Refer to **"Hood Removal", page 10.34** procedure.
2. Remove the push rivets (E) retaining the front fascia to the front fender (F).



3. Remove the two T-40 Torx-head screws (G) and two push rivets (H) retaining the top and rear portion of the fender. Remove the three T-40 Torx-head screws (J) retaining the front portion of the fender to the frame.



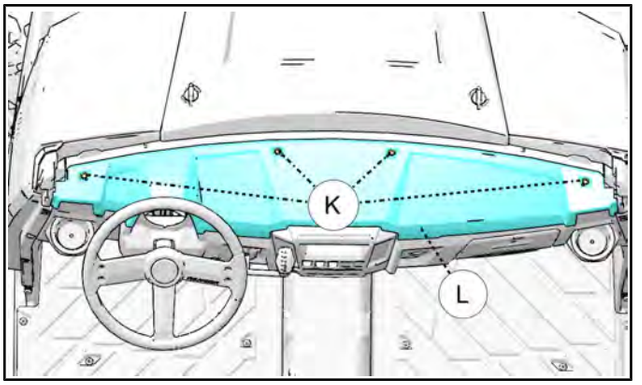


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DASH PANELS / GLOVE BOX REMOVAL

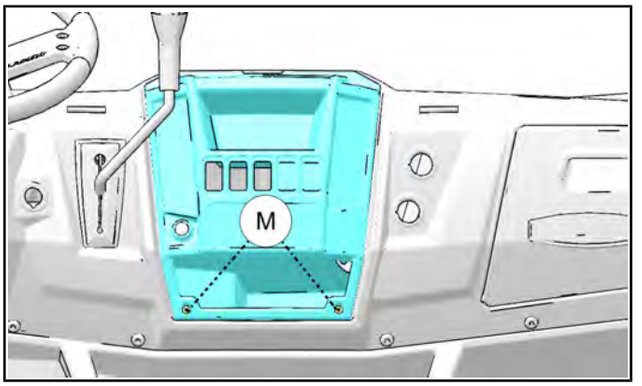
Upper Dash Panel

1. Remove the four push rivets (K) from the upper dash panel (L) and pull the panel towards the seats to release the front tabs.

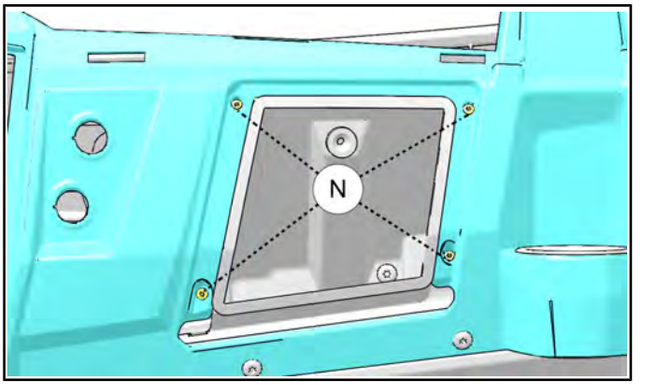


Lower Dash Panel

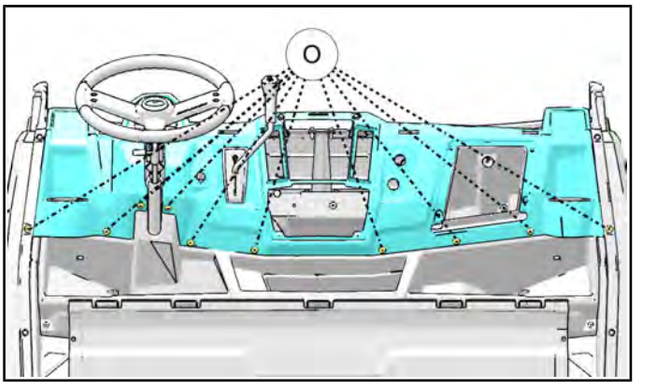
2. Disconnect the ignition, headlight and AWD switches, instrument cluster, and both 12V power points on the control dash panel.
3. Pop the shifter cap off and remove the T-25 Torx-head screw and pull up on the shifter grip to remove it.
4. Remove the two T-25 Torx-head screws (M) retaining the bottom of the control dash panel and remove the panel.



5. Open the glove box and remove the four T-25 Torx-head screws (N).



6. Remove the ten T-40 Torx-head screws (O) retaining the bottom of the lower dash.



7. Remove the five push rivets; one from each side of the lower dash, two that were hidden behind the control dash panel and one to the right of the instrument cluster.
8. Tilt the steering wheel to its lowest position and put the gear selector in Low or High gear to ease removal.
9. Carefully pull the lower dash panel towards the seat and up to remove it.

Dash Storage Panel

10. Remove the four T-25 Torx-head screws along the bottom of the dash storage panel and the one T-40 Torx-head screw inside the glove box in the back.
11. Carefully remove the dash storage panel.

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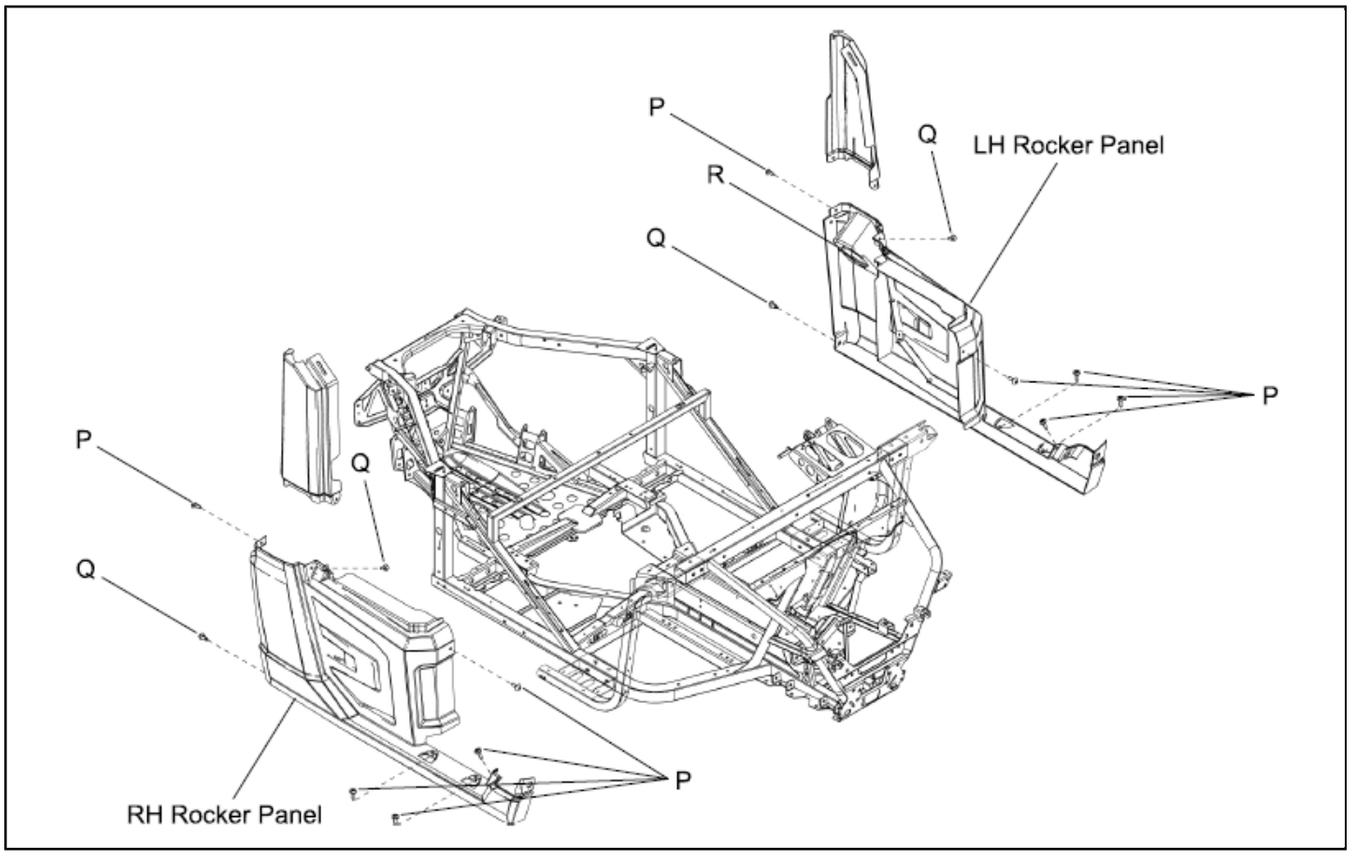
ROCKER PANEL REMOVAL

1. Remove the seat bottom and under seat storage box.
2. Remove the five T-40 Torx-head screws (P).
3. Remove the two push rivets (Q).

NOTE

If removing the LH panel, loosen the hose clamp (R) retaining the fuel fill hose to the LH panel.

4. Pull rocker panel out to remove it.

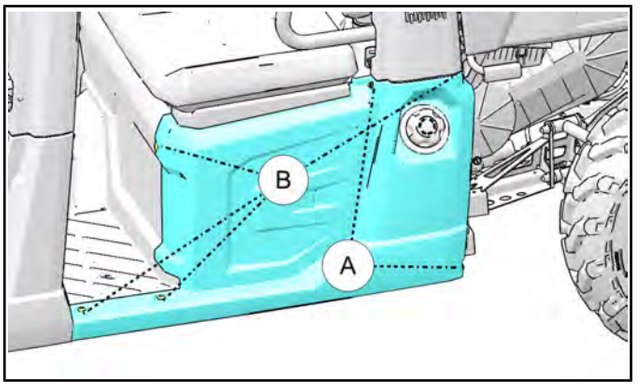


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ROCKER PANEL REMOVAL - CREW

Rear Rocker Panel Removal

1. Remove the rear seat base.
2. Remove the under seat storage boxes.
3. Remove the two push rivets (A) Fig. 1 from the rocker panel.



4. Remove four T-40 Torx-head screws (B) Fig. 1 from the rocker panel.
5. Remove the band clamp (C) Fig. 2 from the fuel fill hose.

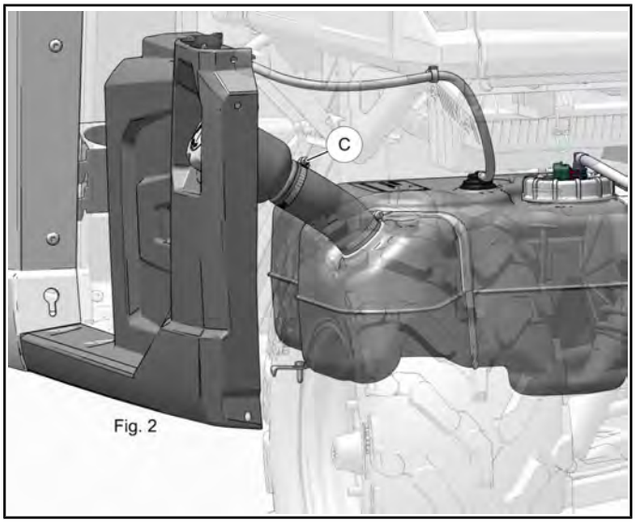


Fig. 2

6. Remove the rocker panel assembly from the vehicle.
7. Cover the fuel fill hose to prevent leakage and to prevent debris from entering the fuel tank.

⚠ WARNING

Gasoline is extremely flammable and explosive under certain conditions.

8. Installation is reverse of removal.

Front Rocker Panel Removal

1. Remove rear rocker panel. Refer to **"Rear Rocker Panel Removal"** procedure.
2. Remove front seat base.
3. Remove the under seat storage boxes.

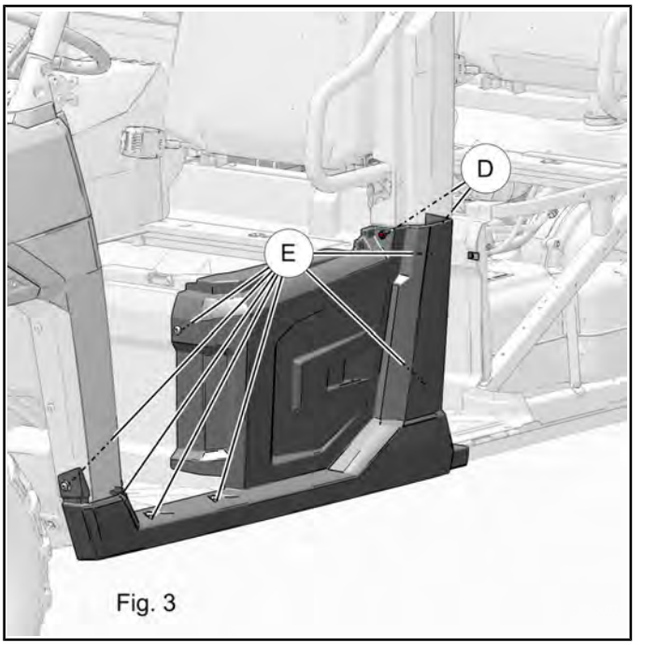


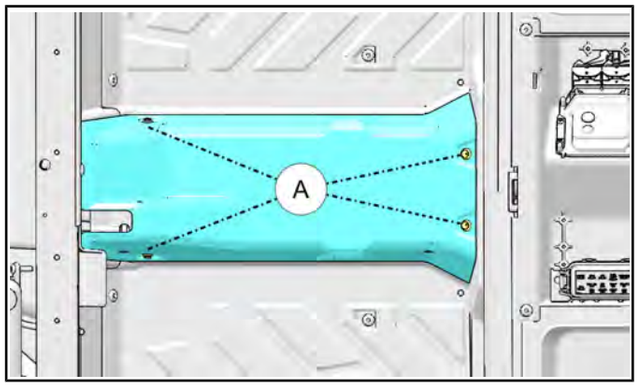
Fig. 3

4. Remove two push rivets (D) Fig. 3 from the rocker panel.
5. Remove the six T-40 Torx-head screws (E) retaining the rocker panel.
6. Remove the rocker panel/fender assembly.
7. Installation is reverse of removal.

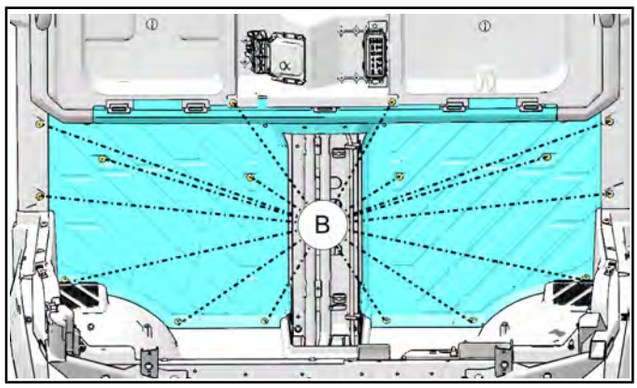
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MAIN FLOOR REMOVAL

1. Remove both rocker panels. Refer to **"Rocker Panel Removal", page 10.37** procedure.
2. Remove the four push rivets retaining the drive shaft cover (A) and remove the cover from the vehicle.



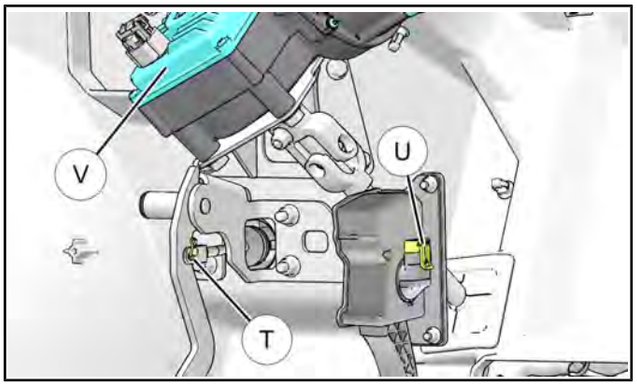
3. Remove the T-40 Torx-head screws retaining the main floor.



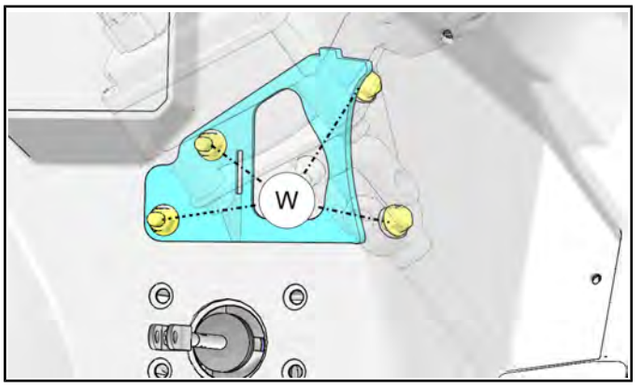
4. Lift and remove the main floor from the vehicle.

FRONT FLOOR REMOVAL

1. Remove the lower dash panel and dash storage panel. Refer to **“Dash Panels / Glove Box Removal", page 10.36** procedure.
2. Remove the main floor. Refer to **“Main Floor Removal”, page 10.39** procedure.
3. Remove the clip and pin (T) securing the brake pedal to the master cylinder push rod. Remove the fasteners retaining the throttle and brake pedal mount.



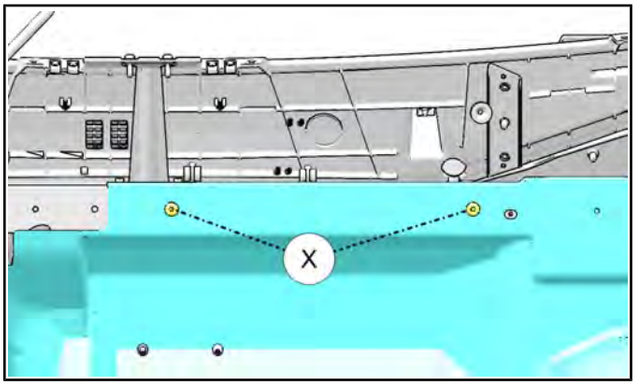
4. Disconnect the pedal position sensor (U) and the electrical connectors at the EPS unit (V), if equipped.
5. Remove the three plastic tie straps retaining the pedal position sensor harness to the front floor.
6. If equipped, remove the fasteners retaining the EPS unit to the lower steering shaft.
7. If equipped, remove the four fasteners (W) for the EPS mount and remove the EPS unit and mount as one.



8. Remove the lower steering shaft. Refer to **“Lower Steering Shaft Removal”, page 8.7** procedure.

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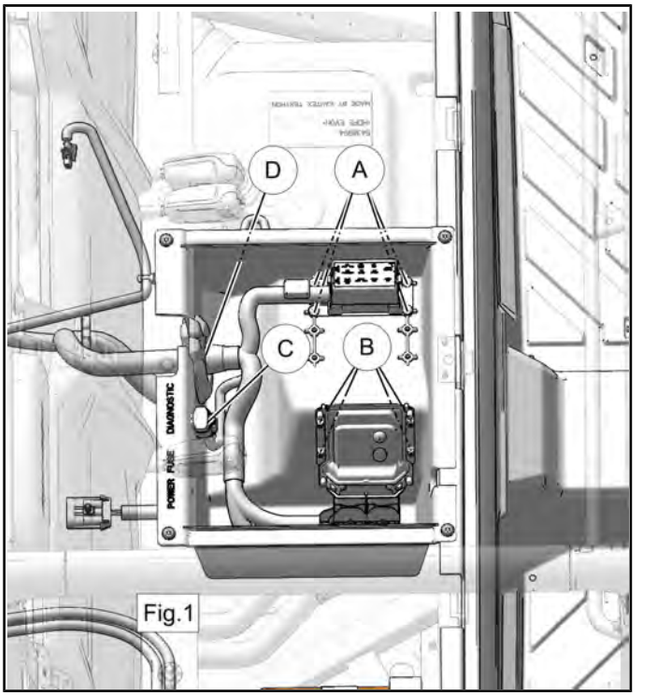
9. Remove two T-40 Torx-head screws (X) holding the front floor to the frame.



10. Remove fasteners retaining the front floor to the front fenders and cab frame mounts.
11. Remove the front floor from the vehicle.

REAR FLOOR - CREW

1. Remove both rear rocker panels. Refer to **"Rocker Panel Removal - CREW", page 10.38** procedure.
2. Remove both front rocker panels. Refer to **"Rocker Panel Removal", page 10.37** procedure.
3. Remove the battery.
4. Remove four T-25 Torx fasteners (A) Fig. 1 securing the fuse box to the center under seat storage box.



5. Remove four T-25 Torx fasteners (B) Fig. 1 securing the Electronic Control Unit (ECU) to the seat storage box.
6. Remove the diagnostic connector (C) Fig. 1 from the protective cover.
7. Remove the four T-40 Torx fasteners from the center under seat storage box.
8. Remove the wire harness grommet (D) Fig. 1 to separate the fuse box, ECU and diagnostic connector wire harness from the storage box.

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9. Remove the four T-25 Torx fasteners (E) Fig. 2 securing the storage box.

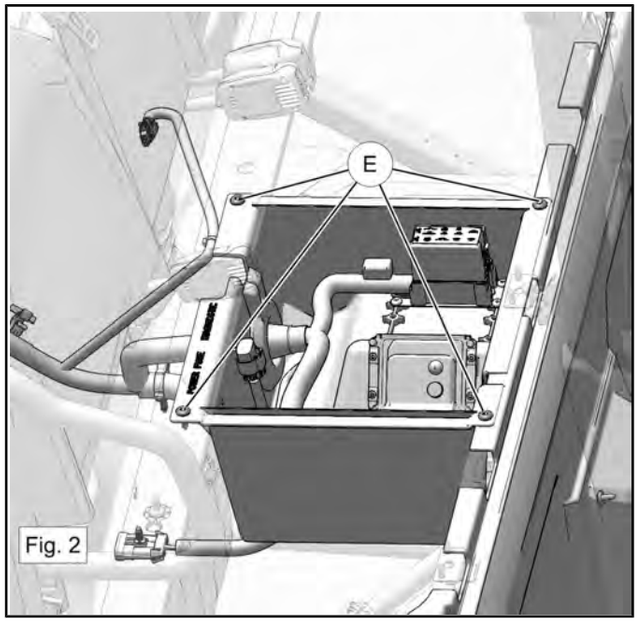


Fig. 2

10. Remove fourteen T-40 Torx fasteners (F) Fig. 3 from the main floor panel.

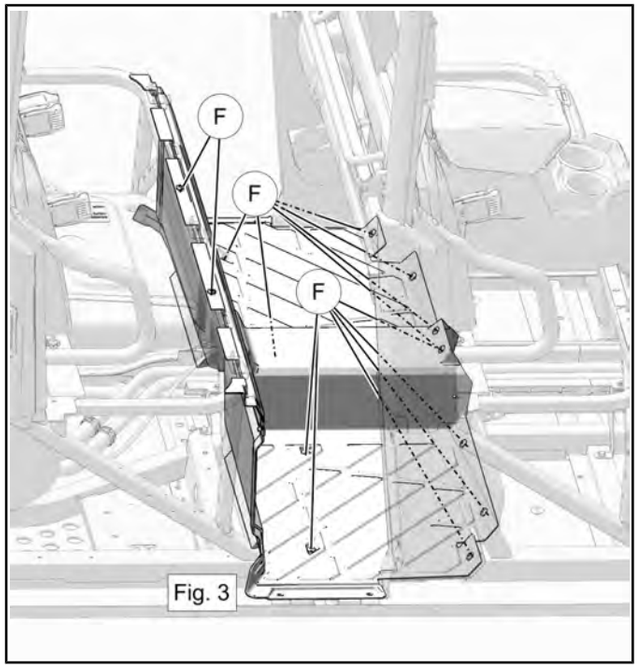


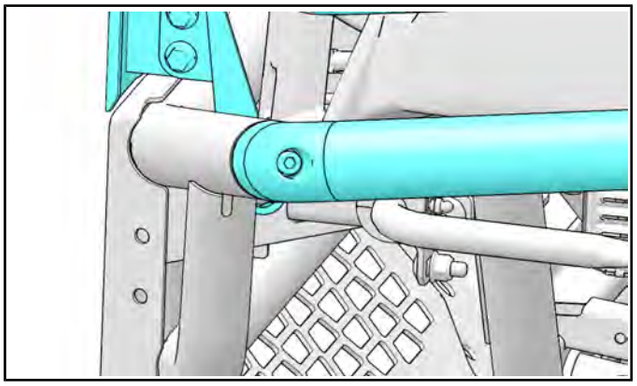
Fig. 3

11. Lift the floor panel out of the vehicle.
12. Installation is the reverse order of removal.

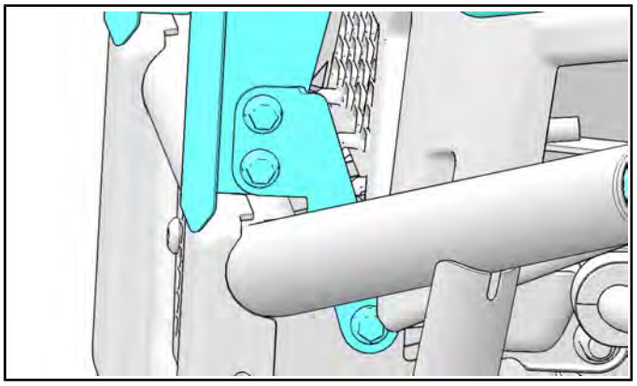
BRUSHGUARD REMOVAL / INSTALLATION (PKG ONLY)

Front Brushguard

1. Remove the fastener holding the LH and RH ends of the brushguard to the stock bumper.



2. Remove the fasteners holding the front brushguard to the frame. Remove the front brushguard from the vehicle.



3. For installation, reverse removal procedure. Torque fasteners to specification.

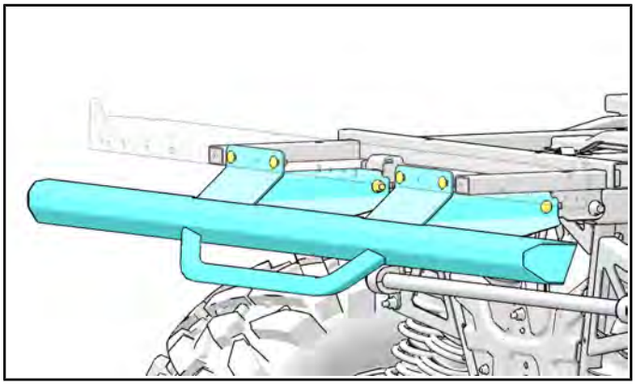
TORQUE
Front Brushguard Fasteners: **30 lb-ft (41 Nm)**

10

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Rear Brushguard

1. Remove the fastener holding the rear brushguard to the frame.

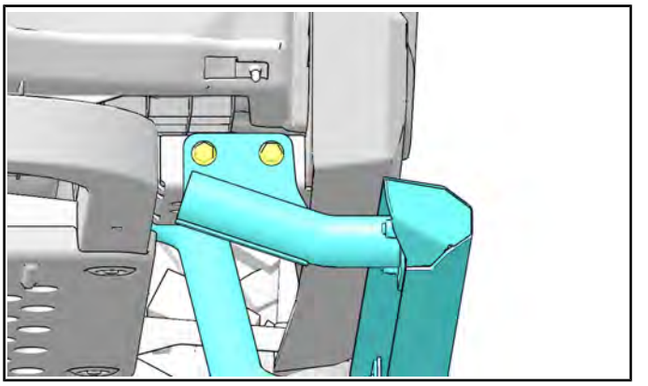


2. For installation, reverse removal procedure. Torque fasteners to specification.

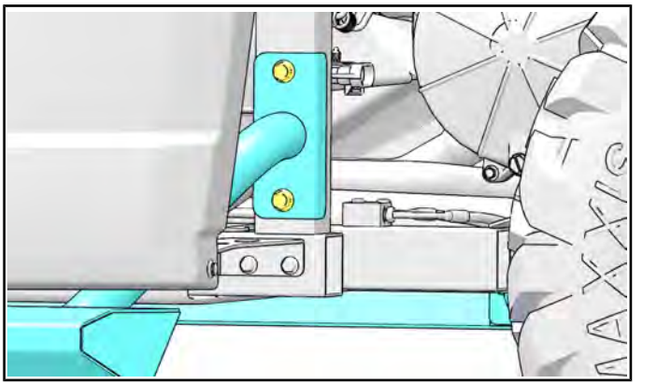
TORQUE
Rear Brushguard Fasteners: **12 lb-ft (16 Nm)**

NERF BAR REMOVAL / INSTALLATION (PKG ONLY)

1. Remove the fasteners holding the front nerf bar mounting bracket to the frame.



2. Remove the fasteners holding the rear nerf bar mounting bracket to the frame. Remove the nerf bar from the vehicle.



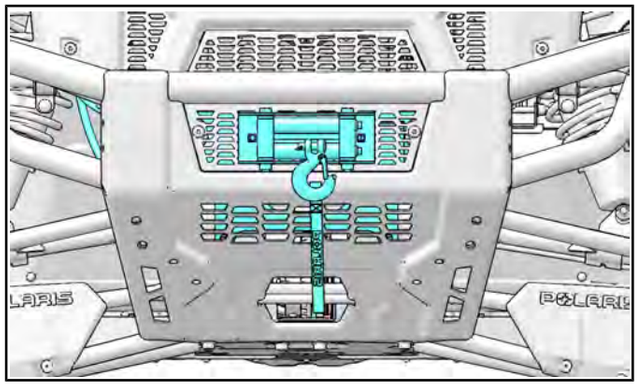
3. For installation, reverse removal procedure. Torque fasteners to specification.

TORQUE
Nerf Bar Fasteners:**12–15 lb-ft (16–20 Nm)**

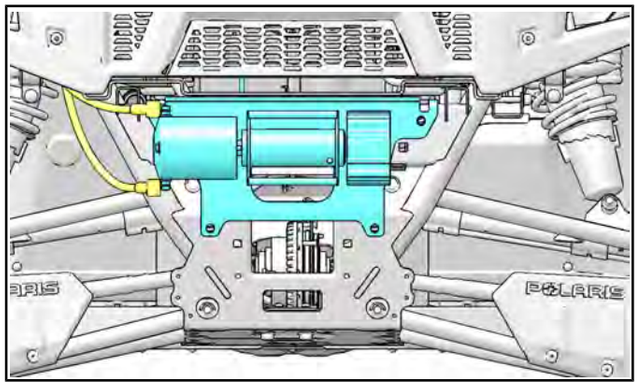
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WINCH REMOVAL / INSTALLATION (PKG ONLY)

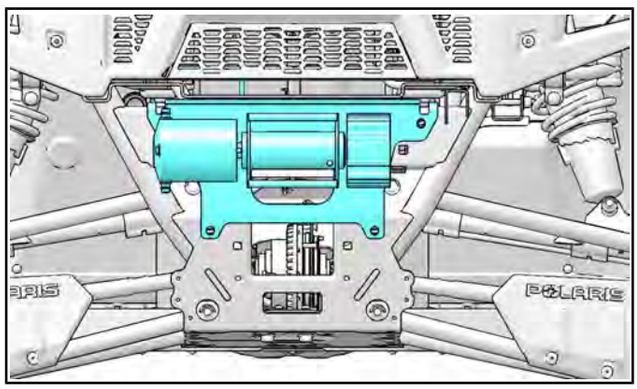
1. Disconnect the negative (-) cable from the battery.
2. Remove the fasteners that hold the fairlead to the front bumper.



3. Remove the front bumper. Refer to **"Front Bumper Removal", page 10.34** procedure.
4. Remove the blue and yellow cables to the winch motor.



5. Remove the fasteners holding the winch to the frame and remove the winch.



6. For installation, reverse removal procedure and torque fasteners to specification.

TORQUE
Winch Fasteners: **25 lb-ft (34 Nm)**

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NOTES

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CHAPTER 11
ELECTRICAL

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GENERAL INFORMATION - ELECTRICAL SYSTEM

SERVICE NOTES - ELECTRICAL

Keep the following notes in mind when diagnosing an electrical problem:

- Refer to wiring diagram for stator and electrical component resistance specifications.
- When measuring resistance of a component that has a resistance value under 10 Ohms, remember to subtract meter lead resistance from the reading. Connect the leads together and record the resistance. The resistance of the component is equal to tested value minus the lead resistance.
- Become familiar with the operation of your meter. Be sure leads are in the proper jack for the test being performed (i.e. 10A jack for current readings). Refer to the Owner's Manual included with your meter for more information.
- Voltage, amperage, and resistance values included in this manual are obtained with a Fluke™ 77 Digital Multimeter (**PV-43568**). This meter is used when diagnosing electrical problems. Readings obtained with other meters may differ.
- Pay attention to the prefix on the multimeter reading (K, M, etc.) and the position of the decimal point.
- For resistance readings, isolate the component to be tested. Disconnect it from the wiring harness or power supply.

The following components can be accessed under the hood.

- Voltage Regulator (in front of radiator)
- Terminal Block
- Headlight Connectors

The following components can be accessed with the upper dash panel removed.

- Instrument Cluster (Speedometer)
- AWD/2WD/TURF Switch
- Headlight Switch
- 12 VDC Accessory Power Points
- Ignition Key Switch

The following components can be accessed with the passenger seat base removed.

- Battery*
- Battery Cables*
- Starter Solenoid*
- Relays*
- Fuses*
- Digital Wrench ® Diagnostic Connector*
- ECU*
- Speed Key Accessory (if installed)

NOTE

*Components are located under rear passenger seat base on *RANGER* CREW models.

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SPECIAL TOOLS - ELECTRICAL

TOOL DESCRIPTION	PART NUMBER
Fluke™ 77 Digital Multimeter	**PV-43568**
Static Timing Light Harness	**2871745**
Hall Effect Sensor Probe Harness	**2460761**
Battery Conductance Analyzer (MDX-610P)	**PU-50296**
Connector Test Kit	**PV-43526**
Timing Light	**2870630**
Relay Bypass	**PU-49466**

Bosch Automotive Service Solutions:
1-800-345-2233 or http://polaris.service-solutions.com/

TORQUE SPECIFICATIONS - ELECTRICAL

PART DESCRIPTION	TORQUE SPECIFICATION
Differential Solenoid Nut	**25 lb-ft (34 Nm)**
Terminal Block Nuts	**20-25 lb-in (2.3-2.8 Nm)**
Starter Motor Fasteners	**7 lb-ft (10 Nm)**
Thermostat Cover Bolts	**7 ± 1 lb-ft (10 ± 1 Nm)**

SERVICE SPECIFICATIONS - ELECTRICAL

PART DESCRIPTION	SERVICE SPECIFICATION
Seat Belt Switch	**Normally Open**
Drive Mode Switch - Performance	**2300 Ω**
Drive Mode Switch - Standard	**3700 Ω**
Drive Mode Switch - Work	**5800 Ω**
AWD Hub Coil Resistance	**24 Ω ± 5%**
Fuel Sender Resistance - Empty	**90 ± 4.5 Ω**
Fuel Sender Resistance - Full	**6 ± 1 Ω**
CTS Resistance (77 °F)	**29.9 kΩ ± 6%**
CTS Resistance (248 °F)	**1.22 kΩ ± 2%**
Current Draw - Key Off (Max)	**.01 DCA (10 mA)**
Stator Leg to Leg Resistance	**Less than 1 Ω**
Stator Leg to Ground Resistance	**Open Line (OL / ∞)**
Stator Leg Voltage (1300 RPM)	**21 VAC ± 25%**
Stator Leg Voltage (3000 RPM)	**47 VAC ± 25%**
Stator Leg Voltage (5000 RPM)	**79 VAC ± 25%**
Starter Solenoid Terminal Resistance (77 °F)	**2.5 Ω ± 20%**

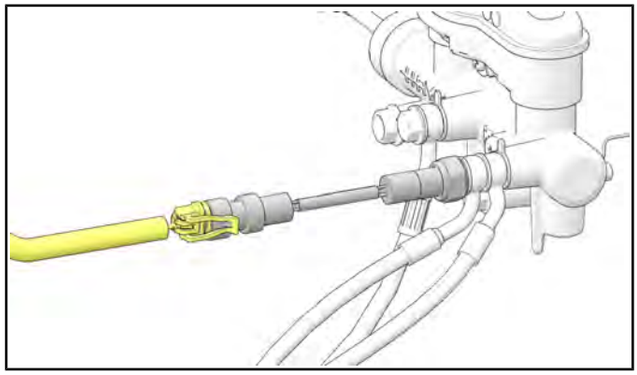
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SWITCHES / CONTROLS SERVICE

BRAKE LIGHT SWITCH

The brake light switch (A) is located on the front brake line banjo bolt of the master cylinder. The brake switch can be accessed through the front left wheel well opening.

1. Disconnect the vehicle harness from the brake switch.

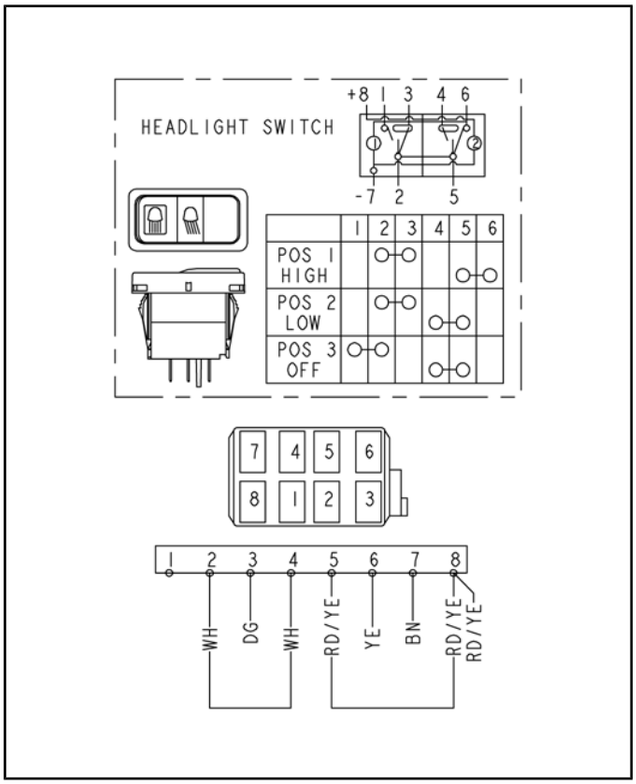


2. Connect an ohmmeter across switch contacts. Reading should be infinite (OL).
3. Apply foot brake and check for continuity between switch contacts. If there is no continuity or if resistance is greater than 0.5 ohms, clean the switch contacts and re-test. Replace switch if necessary.
4. Refer to **"Brake Bleeding / Fluid Change", page 9.6** if replacing the brake switch, as the brake bleeding procedure will need to be performed.

HEADLAMP SWITCH

1. Disconnect the headlamp switch harness by depressing the connector locks and pulling on the connector. Do not pull on the wiring.
2. Test between the 3 sets of outputs (HIGH / LOW / OFF). If any of the tests fail, replace headlamp switch assembly.

- Move the switch to HIGH. There should be continuity between switch pins 2 and 3; 5 and 6.
- Move the switch to LOW. There should be continuity between switch pins 2 and 3; 4 and 5.
- Move the switch to OFF. There should be continuity between switch pins 1 and 2; 4 and 5.



NOTE

Pins 7 and 8 provide power and ground to light the switch lamp.

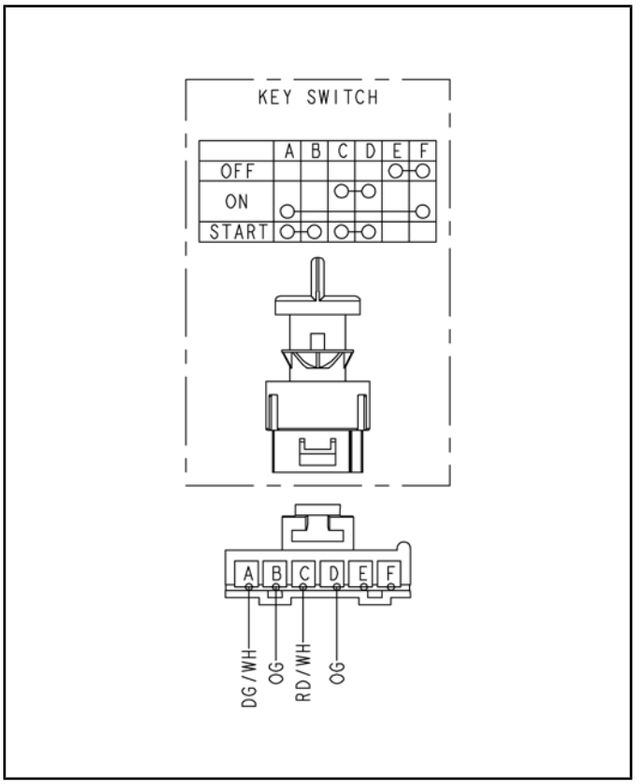
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IGNITION KEY SWITCH

1. Disconnect the key switch harness by lifting the connector lock and pulling on the connector. Do not pull on the wiring.
2. Test between the 3 sets of outputs (OFF / ON / START). If any of the tests fail, replace ignition switch assembly.

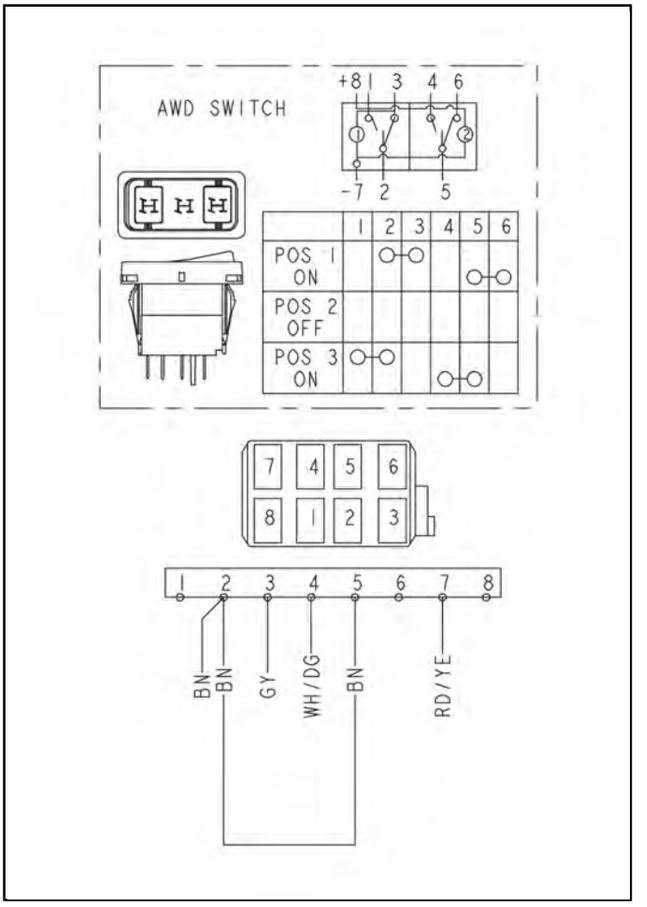
- Turn the ignition key to ON. There should be continuity between switch pins C and D.
- Turn the ignition key to START. There should be continuity between switch pins A and B; C and D.



AWD / 2WD / TURF SWITCH

1. Disconnect the AWD / 2WD / TURF switch harness by depressing the connector locks and pulling on the connector. Do not pull on the wiring.
2. Test between the 3 sets of outputs (AWD / 2WD / TURF). If any of the tests fail, replace the switch assembly.

- Move the switch to AWD. There should be continuity between switch pins 2 and 3; 5 and 6.
- Move the switch to 2WD. There should be no continuity between any pins.
- Move the switch to TURF. There should be continuity between switch pins 1 and 2; 4 and 5.



NOTE

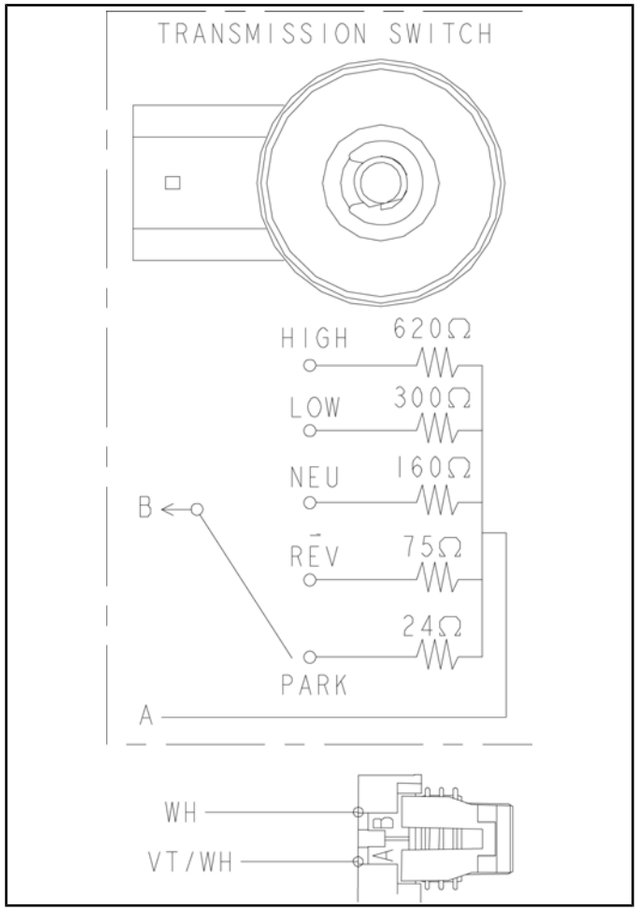
Pins 7 and 8 provide power and ground to light the switch lamp.

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TRANSMISSION (GEAR POSITION) SWITCH

The transmission switch is located on the right side of the transmission. The switch can be accessed through the right rear wheel well opening.

1. Disconnect the transmission switch harness by lifting the connector lock and pulling on the 2-pin connector. Do not pull on the wiring.
2. Test transmission switch for continuity in each gear position and compare to the specifications below.

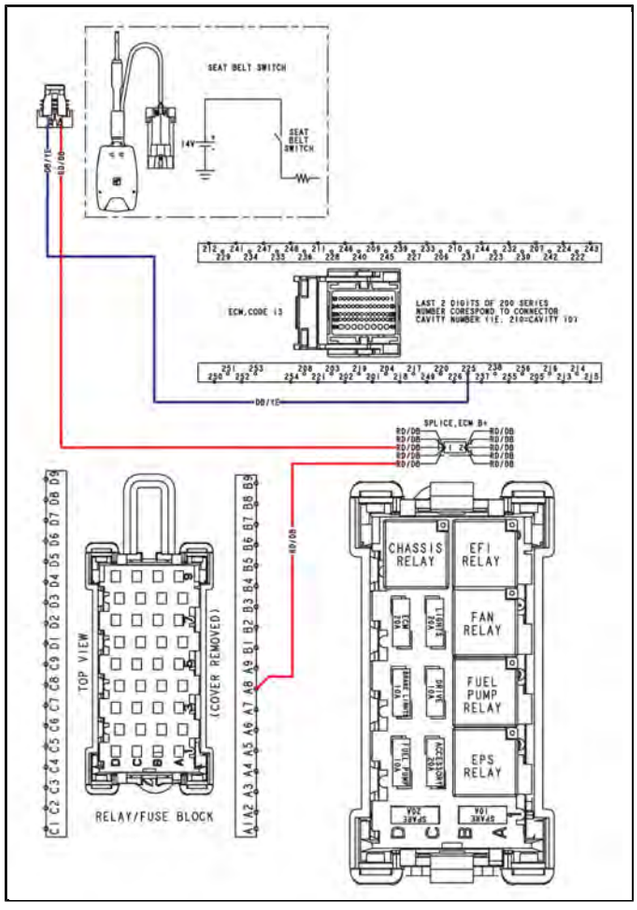


SEAT BELT SWITCH

The vehicle is equipped with a seat belt interlock switch to prevent the vehicle from exceeding 15 MPH (24 KPH) unless the driver seat belt is secured in the seat belt lock. The switch is powered by the EFI Relay, sending a signal to the ECU.

1. Disconnect the seat belt switch harness by depressing the connector locks and pulling on the connector. Do not pull on the wiring.
2. Test for continuity between the EFI Relay and the switch.
3. Test for continuity between the switch and the ECU pin.
4. Test for continuity across the switch.

Seat Belt Switch: **Normally Open**



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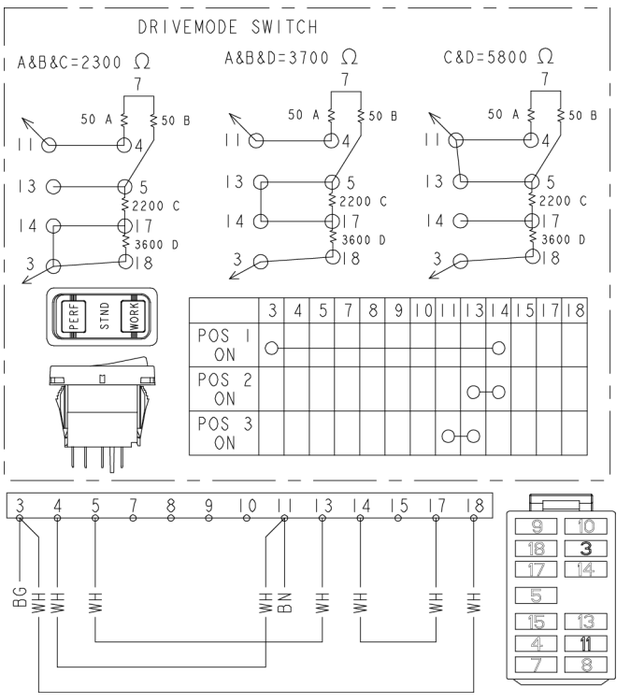
DRIVE MODE SWITCH

Some vehicle models are equipped with a drive mode selection switch that alters throttle response and engine power. The switch is located on the center dash.

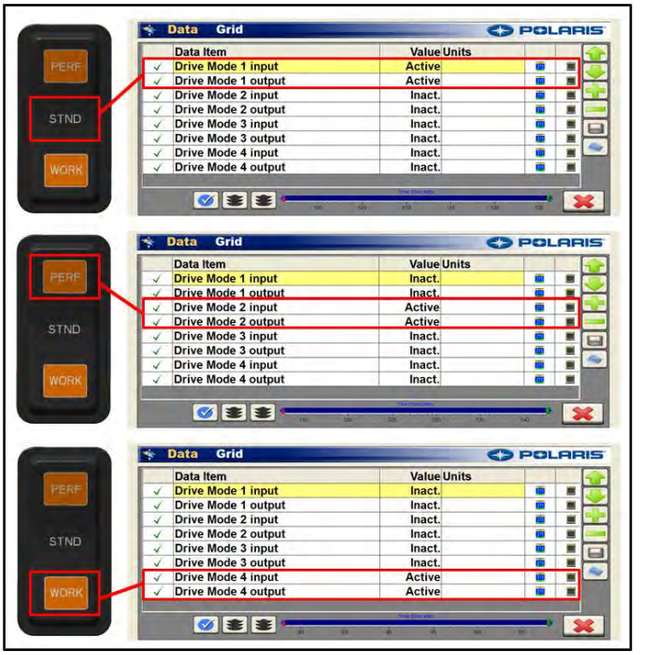
If the drive mode switch is improperly functioning, the switch will default to Standard mode.

1. Disconnect the drive mode switch harness by depressing the connector locks and pulling on the connector. Do not pull on the wiring.
2. Test the resistance between pins 3 and 11.
3. If the resistance is out of specification for any mode, replace the switch.

Drive Mode Switch
Performance: **2300 Ω**
Standard: **3700 Ω**
Work: **5800 Ω**



Digital Wrench Values

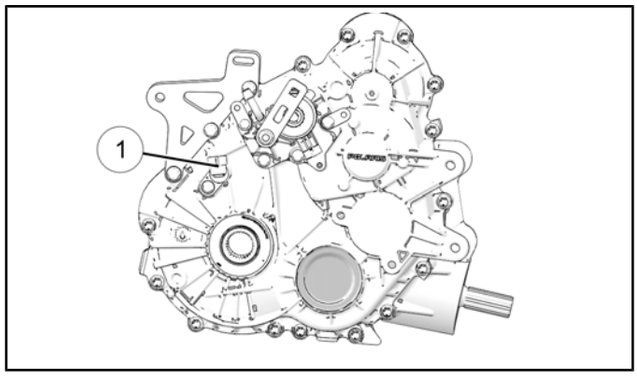


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VEHICLE SPEED SENSOR SERVICE

SPEED SENSOR LOCATION

The speed sensor ① is located on the ride side of the transmission, accessed through the right rear wheel well.



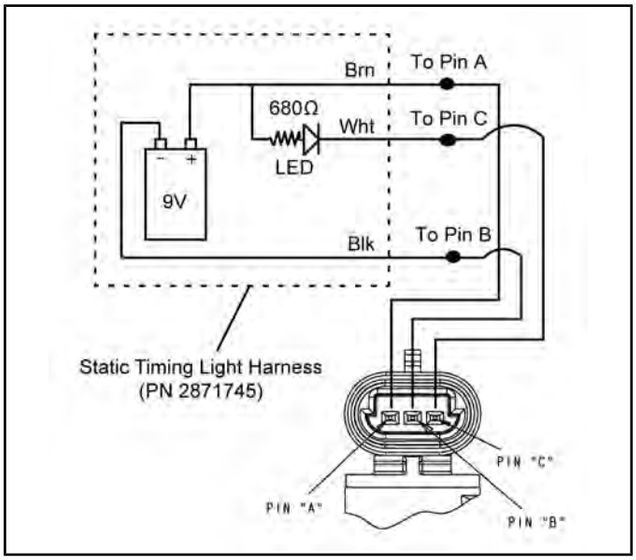
SPEED SENSOR TESTING

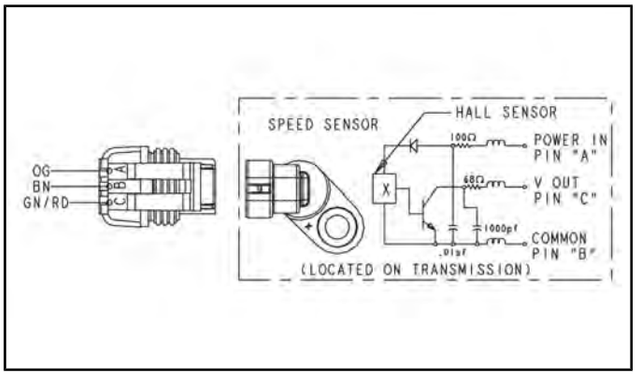
Special Tools Required:

Static Timing Light Harness (**2871745**)

Hall Sensor Probe Harness (**2460761**)

1. Disconnect the 3 wire harness from the speed sensor and remove the sensor from the transmission.
2. Connect the wires from the Static Timing Light Harness to the sensor 3 pin connector using the Hall Sensor Probe Harness (**2460761**).
3. Pass a screwdriver back and forth in front of the sensor tip.
4. Be sure connections are good and 9V battery is in good condition. If the light flashes, the sensor is good.





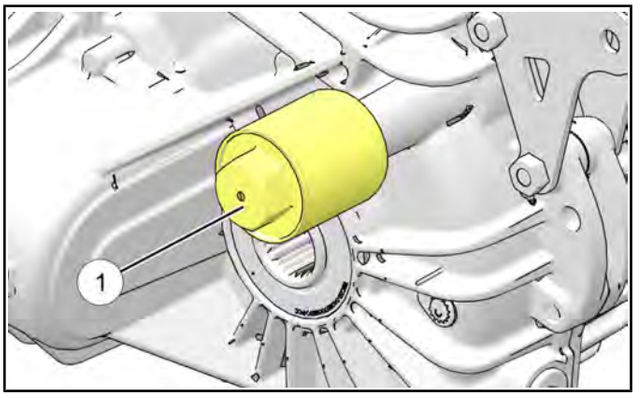
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REAR DIFF SOLENOID SERVICE

DIFFERENTIAL SOLENOID OVERVIEW

The differential solenoid ① is located on the rear portion of the transmission case. The solenoid actuates a shift fork with an engagement dog, which locks and unlocks the rear differential.



DIFFERENTIAL SOLENOID CIRCUIT OPERATION

The Rear Diff Solenoid Relay is attached to the rear portion of the main frame and can be accessed by tilting the rear cargo box.

When the switch is pushed to activate “TURF”, a ground signal is provided to the ECU from the AWD switch.

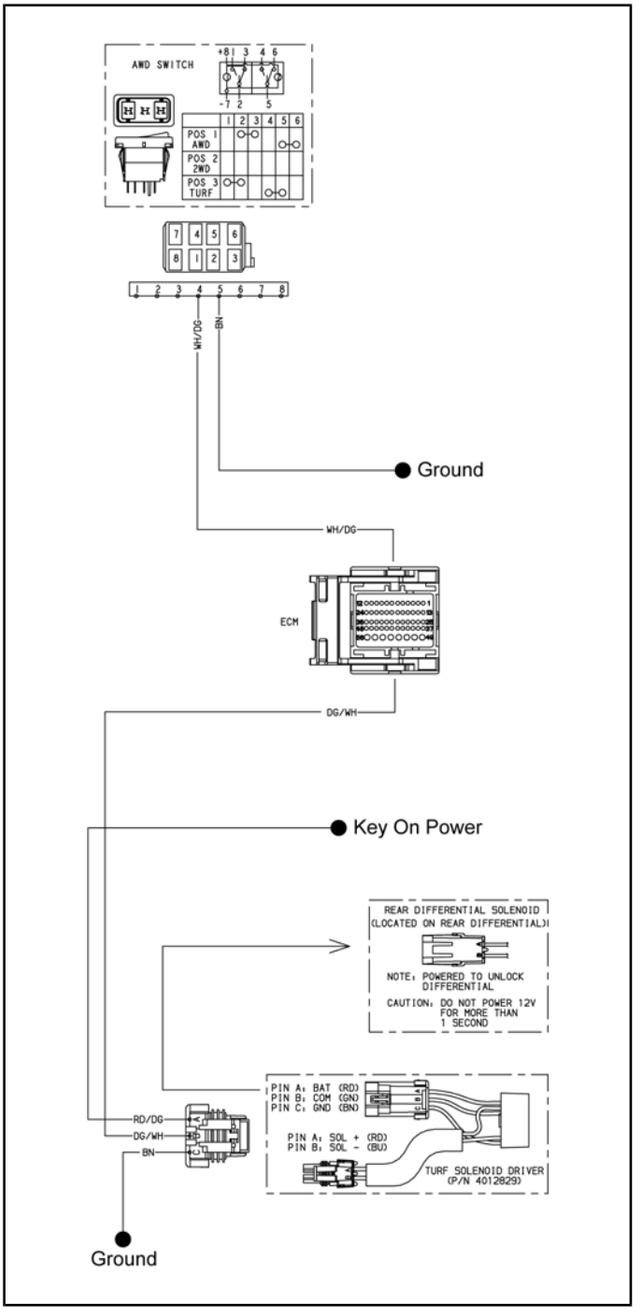
Depending on engine speed and gear position criteria, the ECU energizes the Rear Diff Solenoid Relay allowing it to enable the differential solenoid.

If the rear diff fails to switch from operational modes:

- Check the solenoid and relay connectors. Look for loose wires or bad connections.
- Check for power from the relay connector, to ensure the solenoid has power to be activated.
- Check the AWD switch wires for loose connections.
- Remove solenoid from rear differential and ensure the solenoid plunger is actuating.

CAUTION

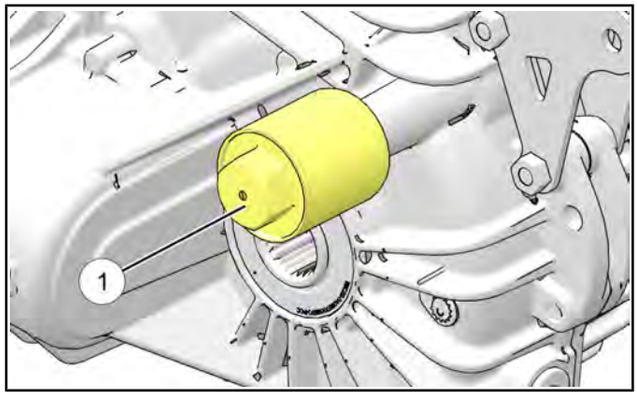
Do not power the solenoid with 12 Volts for more than 1 second, or damage may occur to solenoid.



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DIFFERENTIAL SOLENOID REPLACEMENT

1. Disconnect the wire harness from the solenoid.
2. Remove the nut ① holding the solenoid to the transmission.



3. To install, reverse the removal procedure. Torque the solenoid fastener to specification.

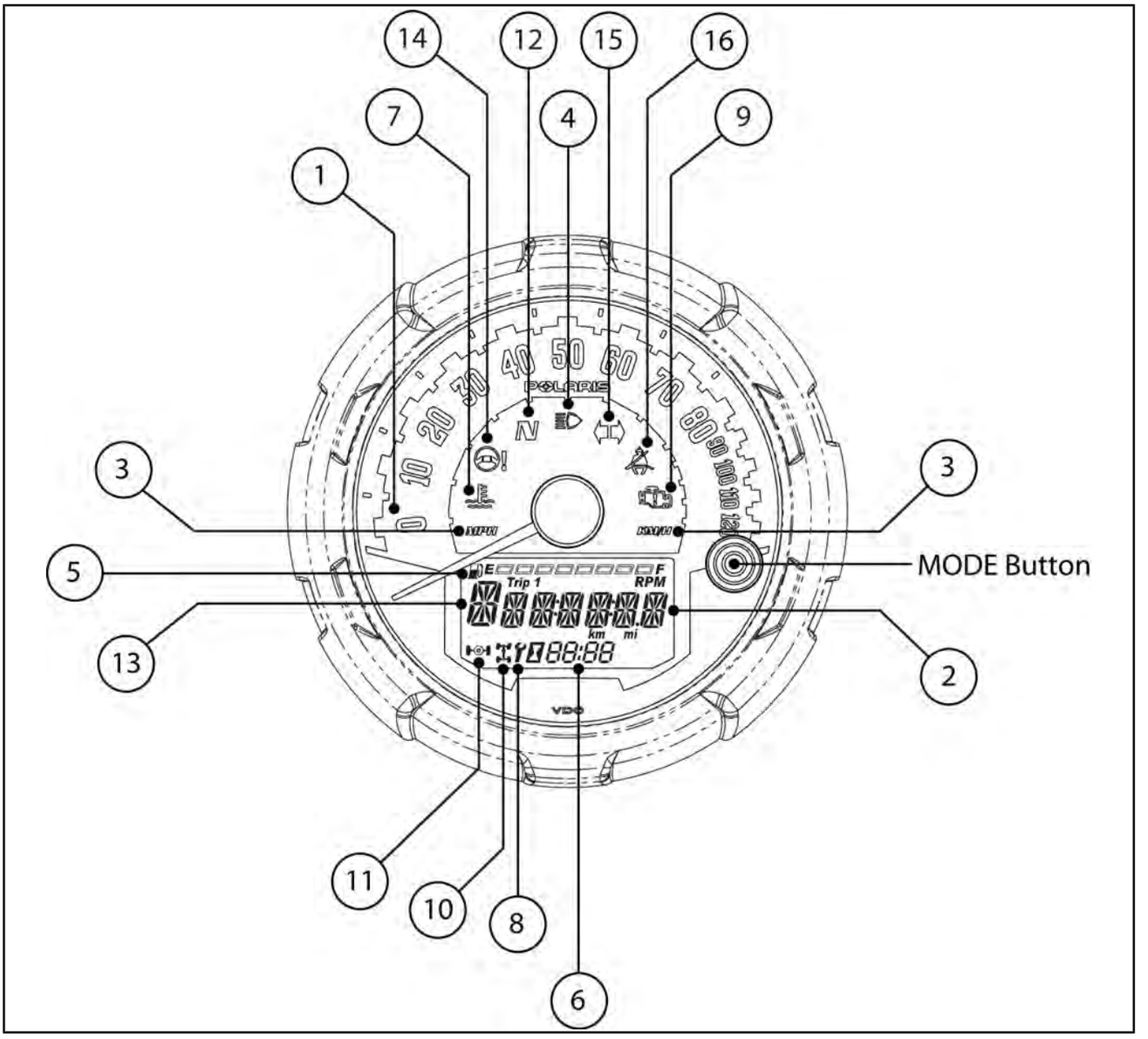
TORQUE
Differential Solenoid Nut: **25 lb-ft (34 Nm)**

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INSTRUMENT CLUSTER SERVICE

OVERVIEW

The instrument cluster displays critical vehicle information to the user. Reference the following page for display functions and descriptions.



NOTE

Some features are not applicable to all models.

The use of a high pressure washer may damage the instrument cluster. Wash the vehicle by hand or with a garden hose using mild soap. Certain products, including insect repellents and chemicals, will damage the instrument cluster lens. Do not use alcohol to clean the instrument cluster. Do not allow insect sprays to contact the lens. Immediately clean off any gasoline that splashes on the instrument cluster.

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RIDER INFORMATION DISPLAY

The rider information display is located in the instrument cluster. All segments will light up for 1 second at start-up.

NOTE

If the instrument cluster fails to illuminate, a battery over-voltage may have occurred and the instrument cluster may have shut off to protect the electronic speedometer.

1. **Vehicle Speed Display** - Analog display of vehicle speed in MPH or km/h.
2. **Information Display Area - Odometer / Trip Meter / Tachometer / Engine Temperature / Engine Hours / Service Info / Clock** - LCD display of the service hour interval, total vehicle miles or km., total engine hours, a trip meter, engine RPM and engine temperature.
3. **MPH / KM/H Display** - MPH is displayed when the instrument cluster is in the *Standard* mode. KM/H is displayed when the instrument cluster is in the *Metric* mode.
4. **High Beam Indicator** LED icon illuminates whenever the Headlamp switch is in the high beam position.
5. **Fuel Level Indicator** - LCD bar graph indicating current fuel level. All segments will flash when the last segment is cleared indicating a low fuel warning.
6. **Clock** - Displays current time in either 12-hour or 24-hour formats.
7. **Engine Temperature Indicator** - LED icon illuminates when the ECM determines the engine is overheating. The indicators will initially flash to indicate the engine is overheating. The indicators will stay lit and not flash if a severe overheating condition exists.
8. **Service Interval Indicator** - Preset at the factory and adjustable by the user, a flashing wrench symbol alerts the operator that the preset service interval has been reached and maintenance should be performed. The wrench icon will flash for 10 seconds upon start-up once it reaches 0.
9. **Check Engine MIL** - Illuminated when the ECM has detected a Diagnostic Trouble Code in the engine management system.
10. **AWD Indicator** - Illuminated when the AWD / TURF switch is in the *AWD* position.
11. **TURF Indicator** - Illuminated when the AWD / TURF switch is in the *TURF* position.
12. **Neutral Gear Indicator** - LED icon illuminates when gear selector is in the neutral (N) position.
13. **Gear Position Indicator -** Displays gear selector position.
    H = High
    L = Low
    N = Neutral
    R = Reverse
    P = Park
    – = Gear Signal Error (shifter stuck between gears)
14. **Power Steering System MIL -** LED icon illuminates when a fault has occurred with the power steering system. This indicator illuminates when the key is turned to the ON position and goes off when the engine is started (EPS Option Only).
15. **Turn Signal / Hazard Lamp Indicator** - LED icon illuminates whenever the LH, RH or hazard lamps are activated (INT'L Models Only).
16. **Helmet / Seat Belt Indicator** - LED icon illuminates for several seconds when the key is turned to the ON position. The lamp is a reminder to the operator to ensure all riders are wearing helmets and seat belts before operating the vehicle.

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INFORMATION DISPLAY AREA

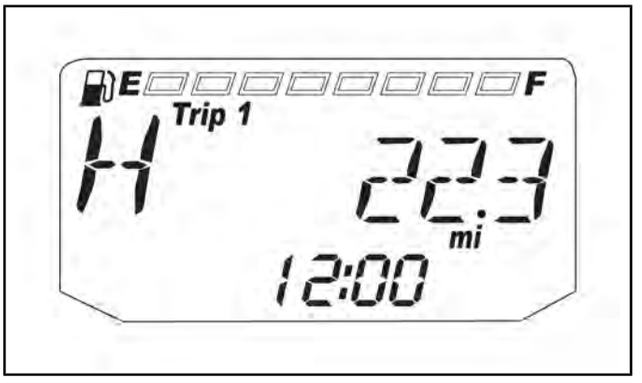
The LCD portion of the instrument cluster is the information display area. Information displayed in this area includes: odometer, trip meter, engine RPM, engine hours, service interval, clock, engine Diagnostic Trouble Codes (DTCs) and power steering DTCs.

Odometer



The odometer records and displays the total distance traveled by the vehicle. The odometer can not be reset.

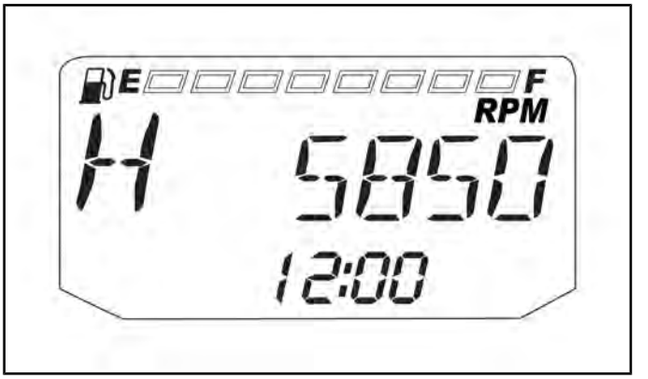
Trip Meter



The trip meter records the miles traveled by the vehicle on each trip. To reset the trip meter:

1. Toggle the MODE button to TRIP 1.
2. To reset to 0, push and hold the MODE button until the distance display changes to 0.

Tachometer (RPM)



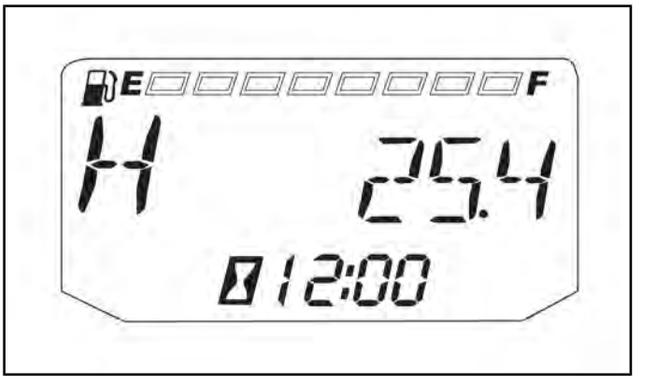
Engine RPM can be displayed digitally.

Engine Temperature



Engine temperature can be displayed in ° F or ° C. Refer to **"Units of Measurement"** to change the format.

Engine Hours



Engine hours are logged anytime the engine is running. Total hours can not be reset.

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Programmed Service Interval

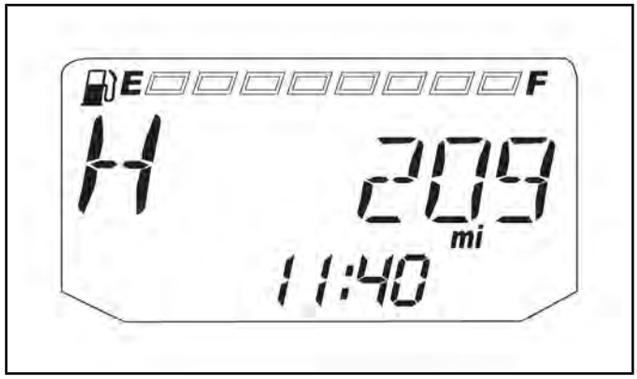


The initial factory service interval setting is 50 hours. Each time the engine is started, the engine hours are subtracted from the service interval hours. When the service interval reaches 0, the LCD wrench icon will flash for approximately 10 seconds each time the engine is started.

To change the hour setting or reset the function, follow these steps:

3. Toggle the MODE button until the wrench icon is displayed in the information area.
4. Press and hold the MODE button until the information display area begins to flash.
5. Toggle the MODE button to increase the service interval hours in 5 hour increments to a maximum of 100 hours.
6. To turn off the service interval function, toggle the MODE button until “OFF” is displayed.

Clock



The clock displays the time in a 12-hour or 24-hour format. Refer to **“Units of Measurement”** to change the format (Standard 12-hour / Metric-24 hour). To set the clock, follow these steps:

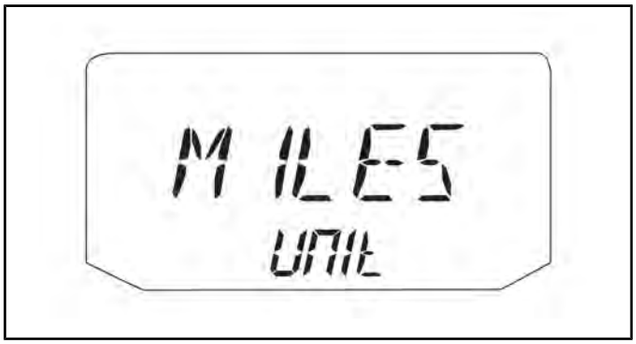
7. Toggle the MODE button until the odometer is displayed.
8. Press and hold the MODE button until the hour segment flashes. Release the button.
9. With the segment flashing, tap the MODE button to advance to the desired setting.
10. Press and hold the MODE button until the next segment flashes. Release the button.
11. Repeat steps 3-4 twice to set the 10 minute and 1 minute segments. After completing the 1-minute segment, step 4 will save the new settings and exit the clock mode.

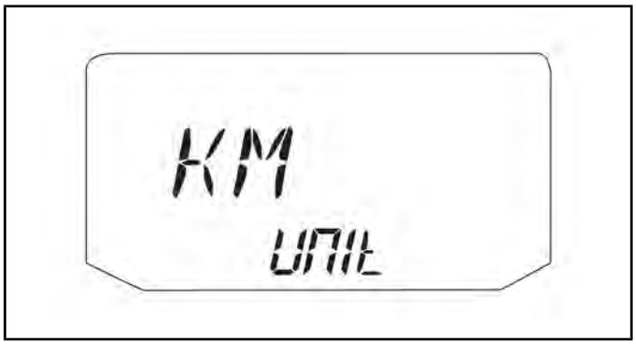
Units of Measurement

	STANDARD DISPLAY	METRIC DISPLAY
Distance	Miles (MPH)	Kilometers (KM/H)
Time	12-Hour Clock	24-Hour Clock
Temp	Fahrenheit	Celsius

To change between Standard and Metric units of measurement, follow these steps:

12. Turn the key to the OFF position.
13. Press and hold the MODE button while turning the key to the ON position.
14. When the display flashes the distance setting, tap the MODE button to advance to the desired setting.





15. Press and hold the MODE button to save the setting and advance to the next display option.

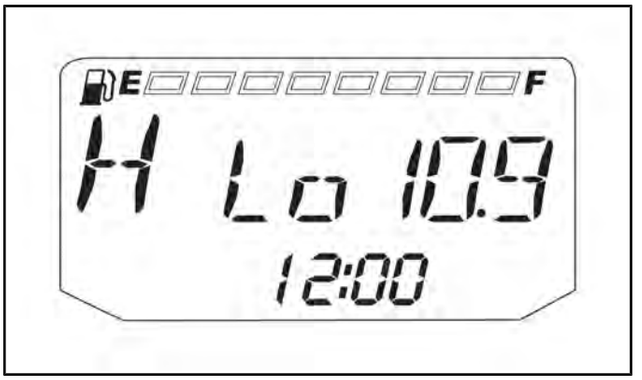
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16. Repeat the procedure to change remaining display settings.

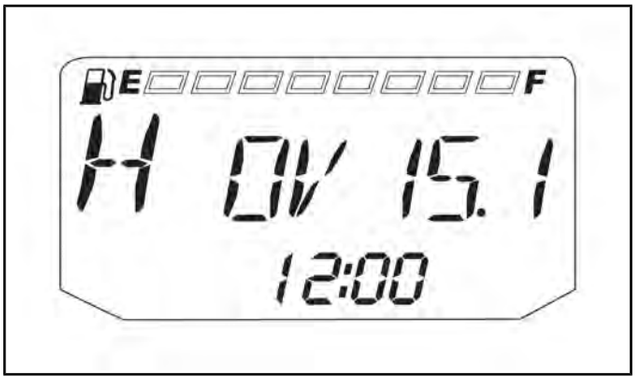
Under / Over Voltage

This warning usually indicates that the vehicle is operating at an RPM too low to keep the battery charged. It may also occur when the engine is at idle and a high electrical load is applied (lights, cooling fan or other accessories).

If battery voltage drops below 11 volts, a warning screen will display “Lo” and provide the present battery voltage. If voltage drops below 8.5 volts, LCD backlighting and icons will turn off.



If battery voltage rises above 15 volts, a warning screen will display “OV” and provide the present battery voltage. If voltage rises above 16.5 volts, LCD backlighting and icons will turn off.

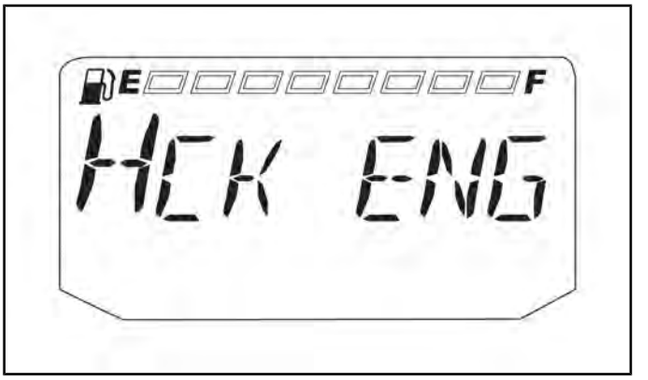


DIAGNOSTIC MODE

The diagnostic mode is accessible only when the check engine MIL has been activated.

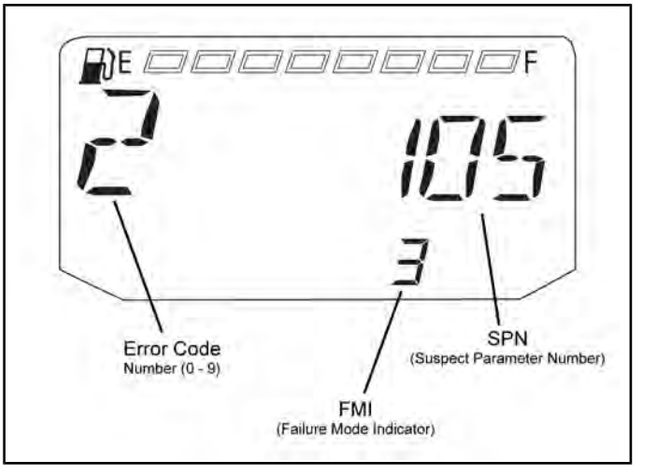
Use the following procedure to display diagnostic trouble codes that were activated during current ignition cycle causing the MIL to illuminate. Diagnostic trouble codes will remain stored in the gauge (even if MIL turns off) until the key is turned off.

1. If the trouble code (s) are not displayed, use the MODE button to toggle until “CK ENG” displays on the information display area.



2. Press and hold the MODE button to enter the diagnostics code menu.
3. A set of three numbers will appear in the information area.

- The first number (located far left) can range from 0 to 9. This number represents the total number of trouble codes present (example: 2 means there are 3 codes present).
- The second number (located top right) can be 2 to 6 digits in length. This number equates to the suspected area of fault (SPN).
- The third number (located bottom right) can be 1 to 2 digits in length. This number equates to the fault mode (FMI).



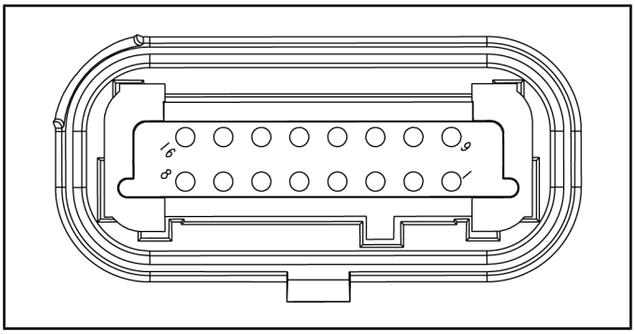
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4. Refer to **“Instrument Cluster Trouble Code Display”, page 4.35** trouble code reference table for a description of each code.
5. If more than one code exists, press the MODE button to advance to the next trouble code.
6. To exit the diagnostic mode, press and hold the MODE button or turn the ignition key OFF once the codes are recorded.

NOTE

If there is a diagnostic problem with the power steering system, the power steering MIL will illuminate and blink in place of the check engine MIL.

INSTRUMENT CLUSTER PINOUTS



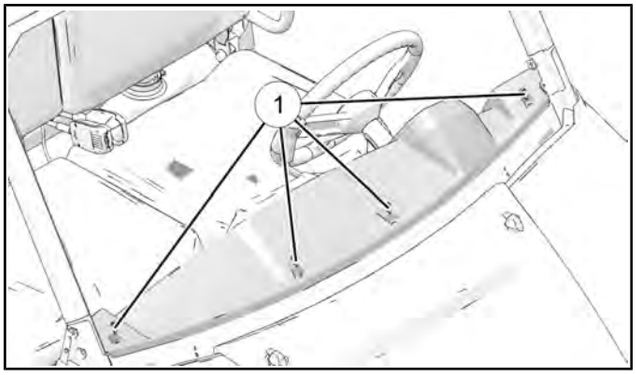
FUNCTION	PIN
CAN High	1
CAN Low	2
Switched Power (Vdc)	3
Constant Power (Vdc)	4
Ground	5
High Beam Input	8
Fuel Level Sensor	11

INSTRUMENT CLUSTER REMOVAL

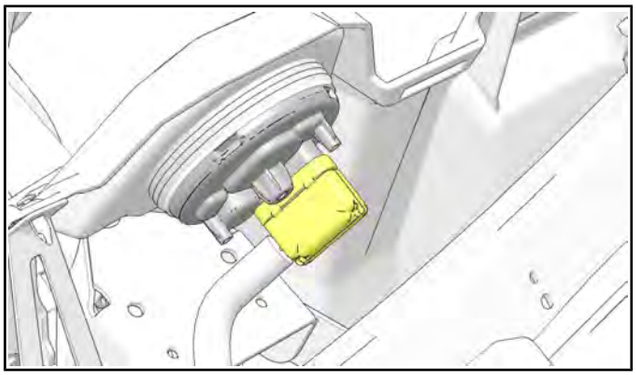
NOTE

Do not allow alcohol or petroleum products to come in contact with the instrument cluster lens.

1. Remove the push rivets ① and upper dash panel from the vehicle.



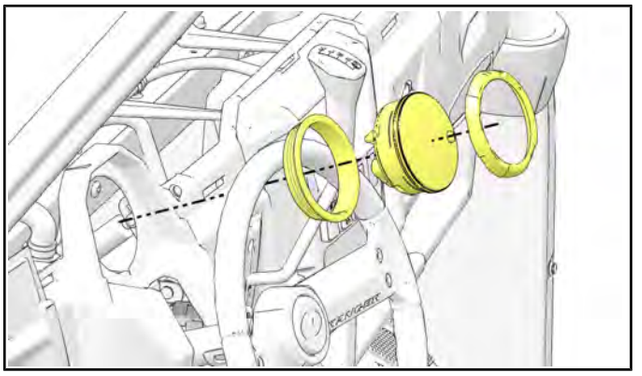
2. Disconnect the wire harness connector from the back side of the instrument cluster.



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3. Push the instrument cluster out of the lower dash panel, while securely holding the panel and rubber mount.

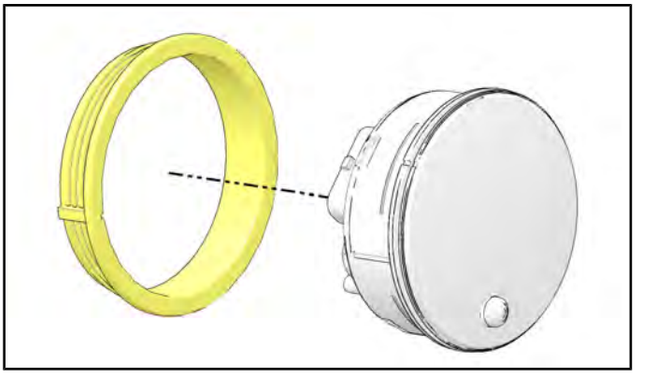


NOTE

The instrument cluster bezel is a snap-on assembly and is a serviceable part.

INSTRUMENT CLUSTER INSTALLATION

1. Spray a soap and water mixture onto the outer surface area of the instrument cluster. This will help the instrument cluster slide into the rubber mount more easily.
2. Be sure the rubber mount is fully installed and that the indexing key on the rubber mount is lined up with the keyway in the dash panel.



3. Hold the dash panel securely and insert the instrument cluster into the dash panel. Twist the instrument cluster gently in a clockwise motion to properly seat the instrument cluster. Apply pressure on the bezel while pressing on the instrument cluster.
4. Connect the wire harness to the instrument cluster.
5. Install the upper dash panel and push rivets.

AUDIO SYSTEM (LE ONLY)

For Instructions on how to use the audio system on this vehicle, consult the booklet included with the vehicle.

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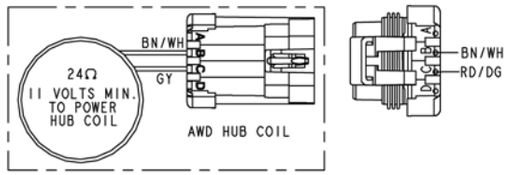
ALL WHEEL DRIVE COIL SERVICE

OPERATION OVERVIEW

- When the AWD switch is “ON”, 12 VDC power is present at the hub coil.
- When the AWD switch is “ON”, and if the criteria is met, the Engine Controller provides a ground path (brown/white wire). When this occurs the AWD icon should display in the instrument cluster.
- The AWD system must be grounded to operate.

DIAGNOSING SYSTEM FAILURES

1. Verify AWD switch is functional and that a minimum of 11 volts is present at the hub coil.
2. Verify AWD hub coil is functional. Test the AWD hub coil using an ohm meter. See specifications below:



TEST	CONNECT METER LEADS TO:	OHMS READING
AWD Coil	GY to BN/WH	~ 24 Ω
AWD Coil	GY to Ground	Open Line (OL)

AWD Hub Coil Resistance:**24 Ω ± 5%**

3. Verify the wiring harness, wiring, connectors, connector pins and grounds are undamaged, clean and connected properly.
4. Verify continuity of wire connections with a volt/ohm meter.

NOTE

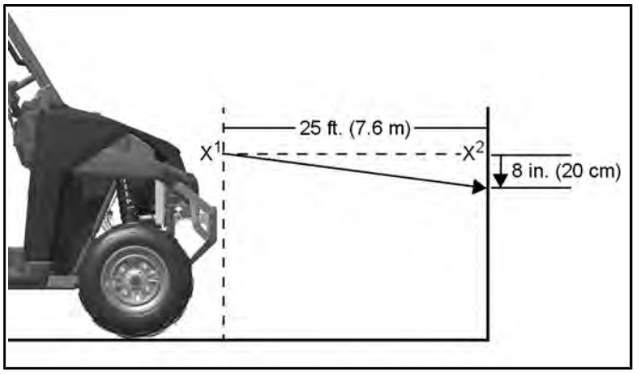
Verify all wires and wiring connections have been tested properly with a known good volt/ohm meter before suspecting a component failure. 80% of all electrical issues are caused by bad/failed connections and grounds.

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HEADLIGHT SERVICE

HEADLIGHT ADJUSTMENT

1. Place the vehicle on a level surface with the headlight approximately 25 ft. (7.6 m) from a wall.

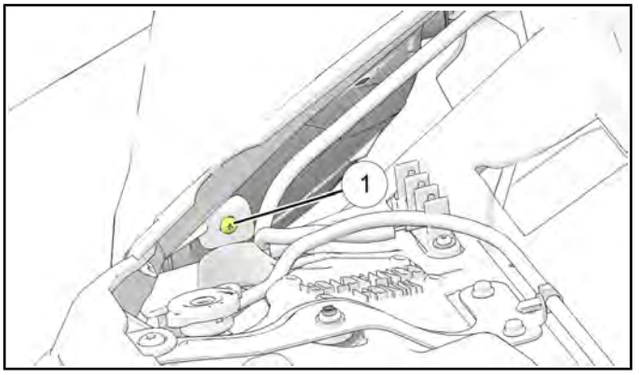


2. Measure the distance from the floor to the center of the headlight (X^1) and make a mark on the wall at the same height (X^2).
3. With the vehicle in Park, start the engine and turn the headlight switch to the LOW position.
4. The most intense part of the LOW headlight beam should be aimed 8 in. (20 cm) below the mark placed on the wall in Step 2.

NOTE

Rider weight must be included in the seat while performing this procedure.

5. Remove the hood and locate the adjustment screw ① on the side of the headlight housing. Adjust the beam to the desired position by loosening the adjustment screw and moving the lamp to the appropriate height.



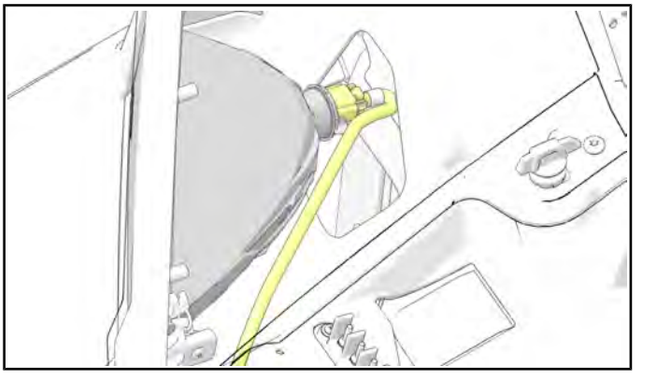
6. Once the beam is set to the position, tighten the adjustment screw. Repeat the procedure to adjust the other headlight.

⚠ WARNING

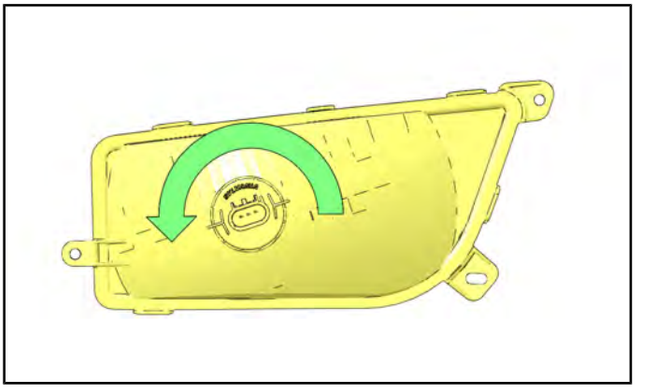
Due to the nature of light utility vehicles and where they are operated, headlight lenses become dirty. Frequent washing is necessary to maintain lighting quality. Riding with poor lighting can result in severe injury or death.

HEADLIGHT BULB REPLACEMENT

1. Remove the hood from the front cab.
2. Locate the bulb on the back side of the headlight housing.
3. Disconnect the harness from the bulb. Be sure to pull on the connector, not on the wiring.



4. Turn the bulb counterclockwise and remove it from the headlight housing.



5. Install the new bulb into the housing and rotate it clockwise 90° to lock it in place.

NOTE

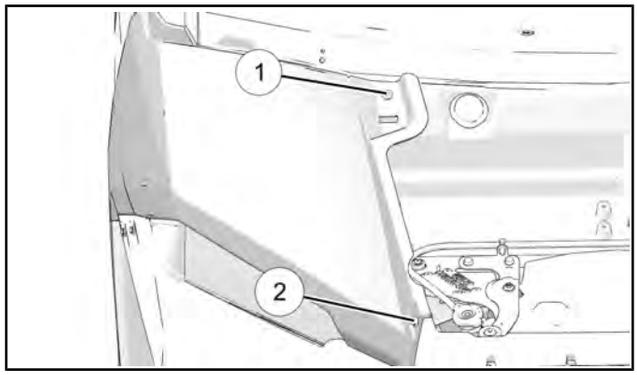
Make sure the tab on the bulb locates properly in the housing.

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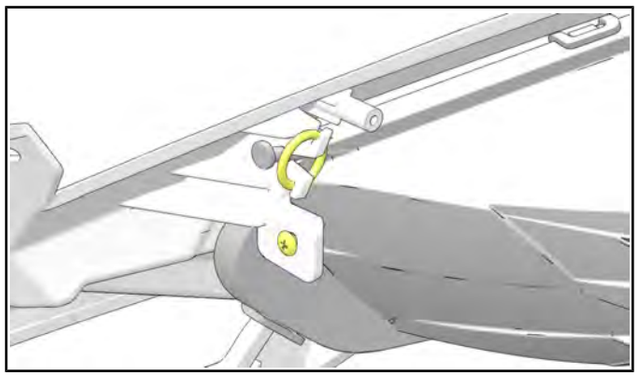
6. Install the harness onto the new headlight bulb and install the hood.

HEADLIGHT HOUSING REMOVAL

1. Remove the hood from the front cab.
2. Remove the Torx-head screw ① and push rivet ② retaining the upper right portion of the front fender.



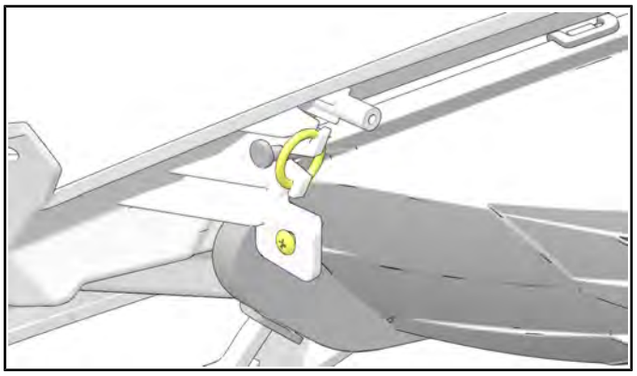
3. Carefully lift up the front fender far enough to access the entire headlight housing.
4. Disconnect the harness from the bulb. Refer to **"Headlight Bulb Replacement", page 11.20** procedure.
5. Remove the O-rings from each side of the headlight housing.



6. Remove the adjustment screw.
7. Carefully push on the face of the headlight housing to disengage the housing tabs from the front fascia brackets.
8. Remove the headlight housing from the vehicle.

HEADLIGHT HOUSING INSTALLATION

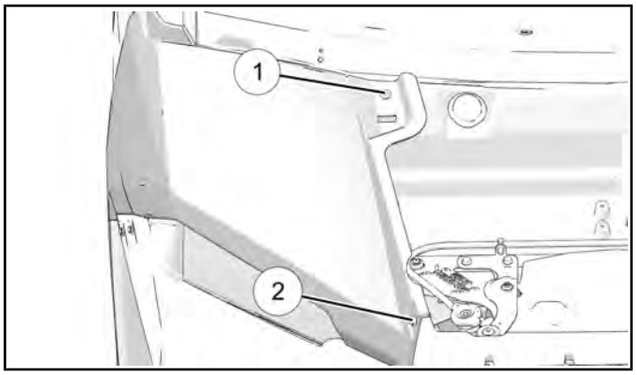
1. Install the headlight housing by pressing the housing tabs back into the front fascia brackets.
2. Secure the headlight housing with the rubber O-rings on each side. Install the adjustment screw.



NOTE

Be sure to twist the O-rings upon installation as shown below.

3. Connect the harness to the bulb.
4. Install the Torx-head screw ① and push rivet ② retaining the upper right portion of the front fender.



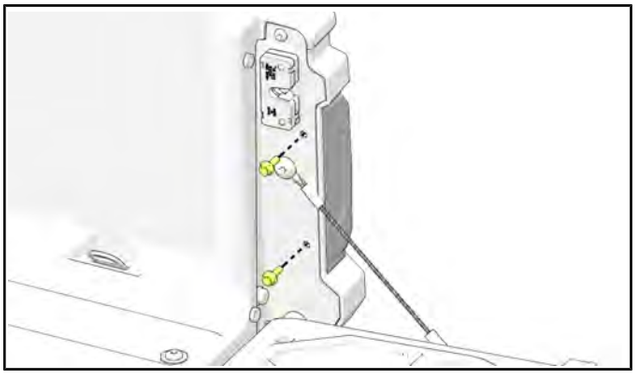
5. Install the hood.
6. Adjust headlights using the **"Headlight Adjustment"** procedure.

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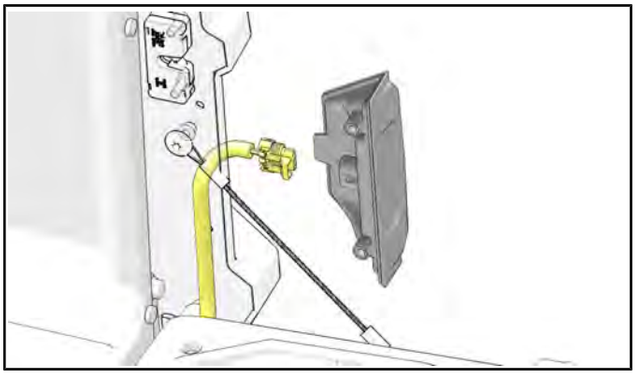
TAIL LIGHT / BRAKE LIGHT SERVICE

LED LAMP REPLACEMENT

1. Open the rear tailgate.
2. Remove the two screws retaining the LED lamp assembly.



3. Remove the LED lamp from the rear cargo box and disconnect the tail light / brake light wire harness.



NOTE

Before replacing the LED lamp assembly, use a digital multi-meter to test the harness to ensure the lamp is receiving 12 volts and that a ground path is present.

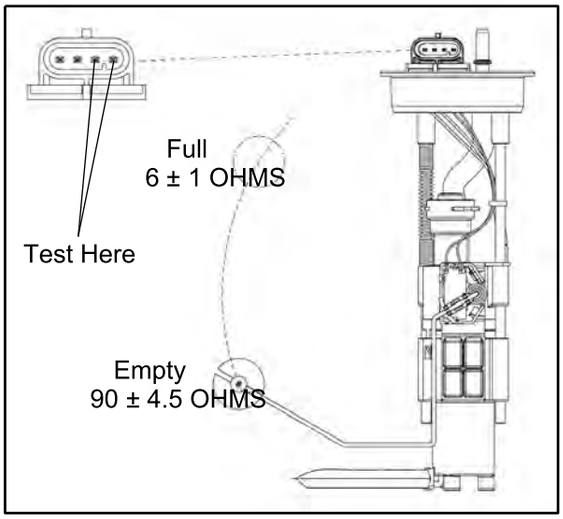
4. Install the new LED lamp assembly by reversing this procedure.
5. Test the tail light / brake light after installation to verify proper function.

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FUEL SENDER SERVICE

TESTING

1. Remove the fuel pump assembly from the fuel tank. Refer to **"Fuel Pump Replacement", page 4.17** procedure.
2. Using an Ohm meter, measure the resistance of the fuel sender as shown below.



3. Allow the sender float to sit in the **empty position** and compare to specification.

Fuel Sender - Empty: **90 ± 4.5 Ω**

4. Slowly move the sender float to the **full position** and compare to specification.

Fuel Sender - Full: **6 ± 1 Ω**

5. If the readings are out of specification, or if the reading is erratic or LCD display "sticks", check the following before replacing the fuel pump assembly:

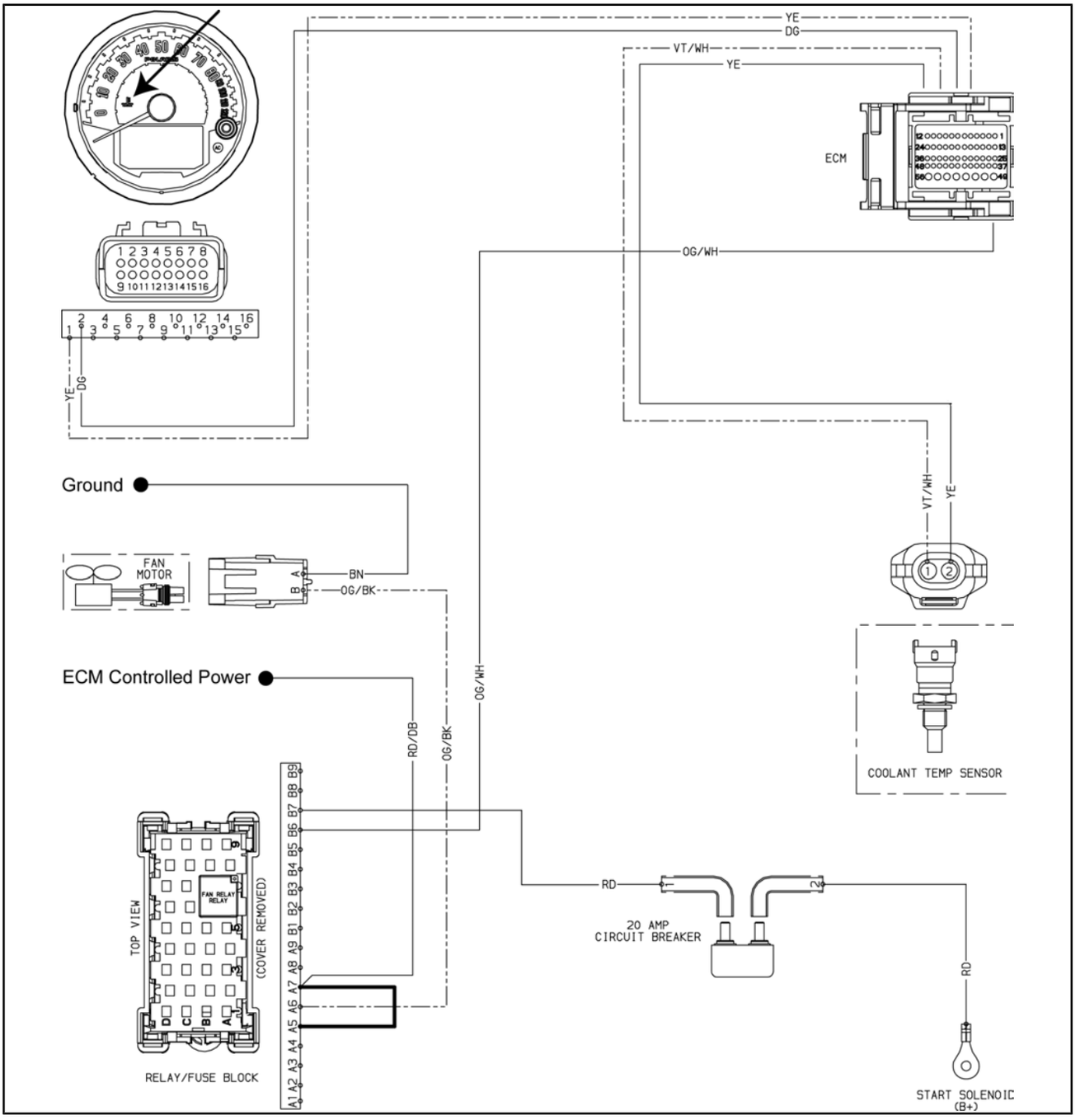
- Loose float
- Float contact with tank
- Bent float rod

6. If none of the conditions exist, the fuel sender assembly is faulty. Replace the fuel pump assembly. Refer to **"Fuel Pump Replacement", page 4.17** procedure.

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COOLING SYSTEM SERVICE

COOLING SYSTEM BREAK-OUT DIAGRAM



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FAN CONTROL CIRCUIT OPERATION / TESTING

Power is supplied to the fan via the Orange/Black wire when the relay is ON. The ground path for the fan motor is through the Brown harness wire. Refer to **"Relay Operation", page 11.30** later in this chapter for more information on fan functions.

CAUTION

Keep hands away from fan blades during operation. Serious personal injury could result.

NOTE

The fan may not function or operation may be delayed if coolant level is low or if air is trapped in the cooling system. Be sure cooling system is full and purged of air.

FAN CONTROL CIRCUIT BYPASS TEST

1. Disconnect harness from coolant temperature sensor on the engine cylinder head. Refer to **"ECT Sensor Replacement", page 4.28** procedure.
2. With the transmission in Park, start the engine. After a few seconds, the fan should start running and the "Check Engine" indicator should display on the instrument cluster. This indicates all other components are working properly.
3. If the fan does not run or runs slowly, check the fan motor wiring, ground, motor condition, circuit breaker and mechanical relay for proper operation. Repair or replace as necessary.
4. If the fan runs with the sensor harness disconnected, but will not turn on when the engine is hot, check the coolant temperature sensor and connector terminals.

COOLANT TEMPERATURE SENSOR

The coolant temperature sensor can be tested using an ohmmeter or voltmeter.

1. With the engine and temperature sensor at room temperature (77 °F = 25 °C), disconnect the harness.
2. With the meter in the ohms mode, place the meter leads onto the sensor contacts.
3. Use the Temperature / Resistance table to determine if the sensor needs to be replaced.

TEMPERATURE °F (°C)	RESISTANCE
77 °F (25 °C)	**29.9 kΩ ± 6%**
248 °F (120 °C)	**1.22 kΩ ± 2%**

NOTE

If the coolant temperature sensor or circuit malfunctions the radiator fan will default to 'ON' while the engine is running.

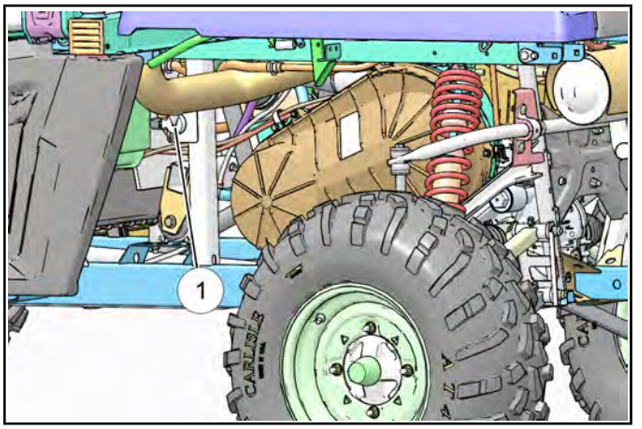
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IGNITION COIL SERVICE

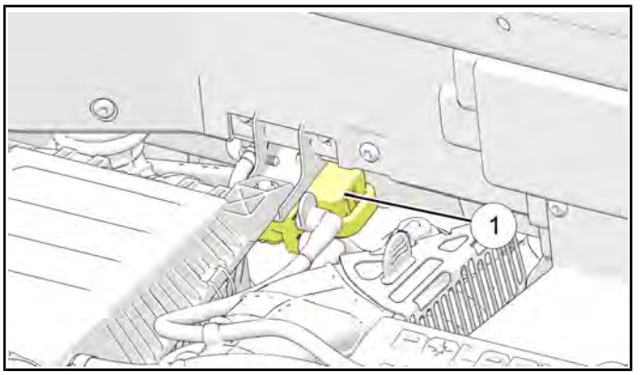
OPERATION OVERVIEW

The ignition coil ① is used to provide high voltage to fire the spark plug (s). When the ignition key is on, DC voltage is present in the primary side of the ignition coil windings. During engine rotation, an AC pulse is created within the crankshaft position sensor for each passing tooth on the flywheel's encoder ring. The encoder ring missing tooth creates an "interrupt" input signal, corresponding to specific crankshaft position. This signal serves as a reference for the control of ignition timing. The ECU then calculates the time interval between the consecutive pulses, and determines when to trigger the voltage spike that induces the voltage from the primary to the secondary coil windings to fire the spark plug(s).

570



900



IGNITION COIL / HT LEAD REPLACEMENT

NOTE

The engine will misfire if the spark plug wires are installed incorrectly. The spark plug wires are marked with PTO and MAG from the factory and should be installed to the corresponding cylinder and ignition coil post.

1. Disconnect the (-) negative battery cable.
2. Lift the rear cargo box to the raised position.
3. Disconnect the ignition coil harness and carefully remove the high tension leads from the coil.
4. Remove the fastener retaining the ignition coil and remove it from the vehicle. If replacing the high tension lead(s), remove the other end of the lead(s) from the spark plug.
5. Install the new ignition coil and/or high tension lead (s).

TORQUE

Ignition Coil Retaining Bolt:
8 lb-ft (11 Nm)

6. Connect the harness connection to the ignition coil and then connect the (-) negative battery cable.

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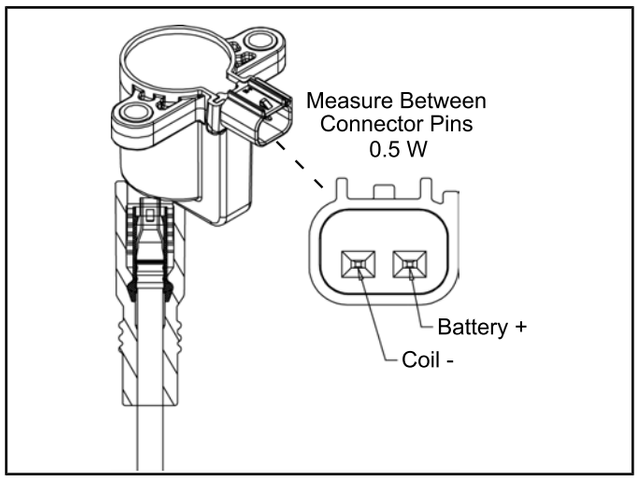
IGNITION COIL TESTS (570)

The ignition coil can be tested by using an ohm meter. Use the following illustration and specification table to test the ignition coil resistance.

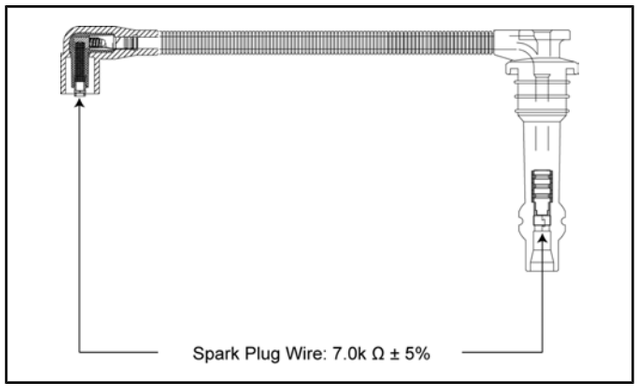
Ignition Coil Resistance Readings

TEST	PIN CONNECTION	RESISTANCE
Primary	Between Battery (+) & Coil (-)	0.5 Ω ± 10%
Secondary (PTO)	Between Coil (-) and (+) at the Coil Connection	0.5 Ω
Secondary (MAG)	Between High Tension Lead Caps	7.0 k Ω ± 5%

Primary Test



Secondary Tests



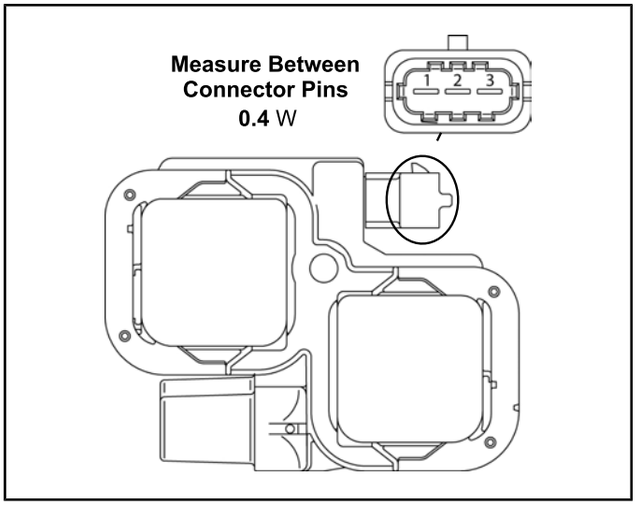
IGNITION COIL TESTS (900)

The ignition coil can be tested by using an ohm meter. Use the following illustration and specification table to test the ignition coil resistance.

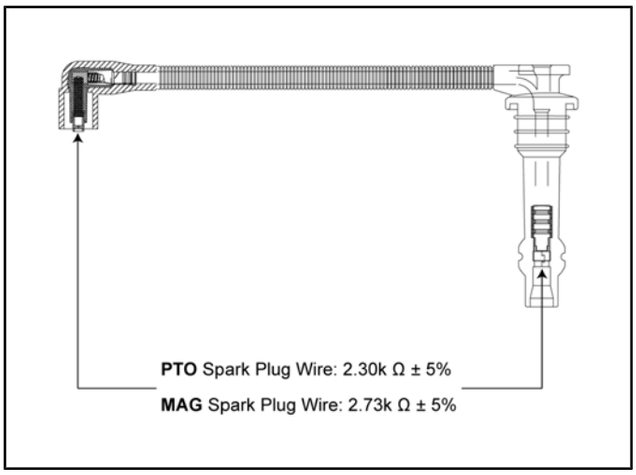
Ignition Coil Resistance Readings

TEST	PIN CONNECTION	RESISTANCE
Primary	Between 1 & 2 Between 2 & 3	0.4 Ω
Secondary (PTO)	Between High Tension Lead Caps	2.30k Ω ± 5%
Secondary (MAG)	Between High Tension Lead Caps	2.73k Ω ± 5%

Primary Test



Secondary Test



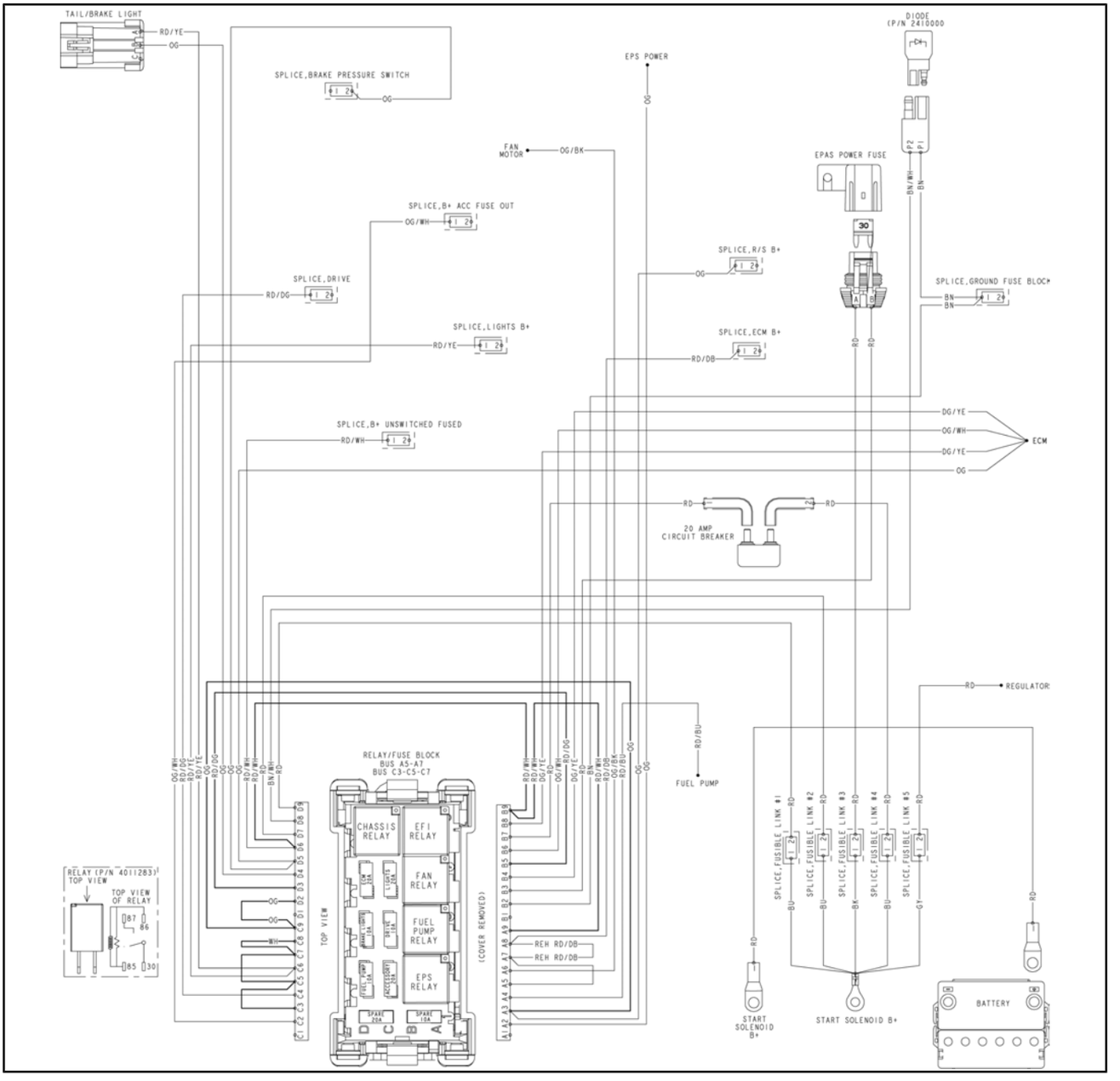
11

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FUSE BOX: FUSES / RELAYS / CIRCUIT BREAK SERVICE

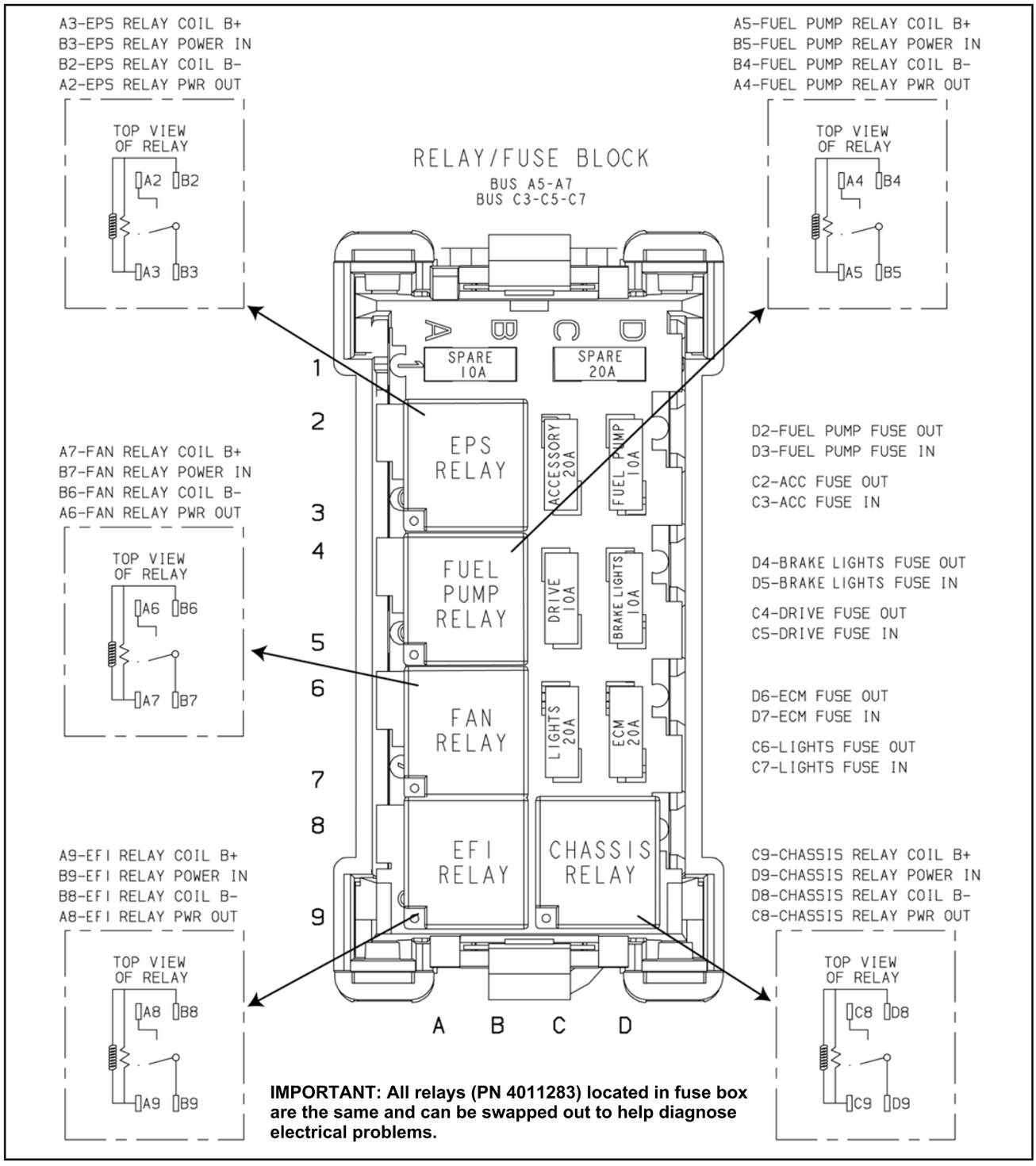
OVERVIEW / OPERATION

Located in the fuse box under the passenger seat, the fuses provide overload protection for wiring and components such as the instrument cluster, ECU, EFI system, main harness, lights and accessories. The relays assist with component operation like the cooling fan, fuel pump, EFI system, and drive system. A separate 20-amp circuit breaker, located near the fuse/relay box, protects the fan motor circuit. **NOTE: EPS models have a separate electrical system which includes a 30-amp fuse and relay. Refer to "EPS System Breakout", page 11.44 for EPS electrical component details.**



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FUSE BOX DETAIL VIEW



11

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RELAY OPERATION

Located in the fuse box under the passenger seat, the relays assist with component operation like the cooling fan, fuel pump, EFI system, drive system and EPS.

NOTE
The Rear Diff Solenoid Relay is mounted separately, attached to the rear portion of the main frame and can be accessed by tilting the rear cargo box.

CHASSIS RELAY provides power to the following systems:

- Lights (Headlights / Taillights)
- Drive (AWD / TURF)
- Accessory (12V Receptacles / Accessory Options)

CHASSIS RELAY

COLOR	FUNCTION
Red	BUSS Bar - 12 Vdc constant battery voltage (fusible link protected).
Brown / White	Relay coil ground.
Orange	12 Vdc power input from key switch to enable relay.
White	Provides 12 Vdc power for lights, drive and accessory circuits.

EFI RELAY provides power to the following systems:

- Fuel Injectors
- Ignition Coil
- Fan Relay
- Fuel Pump Relay

EFI RELAY

COLOR	FUNCTION
Red / White	20-Amp fuse protected 12 Vdc constant battery voltage.
Dark Green / Yellow	ECU ground input to enable relay.
Red / White	20-Amp fuse protected 12 Vdc constant battery voltage.
Red / Dark Blue	Provides 12 Vdc power for EFI system circuits.

FAN RELAY provides power to the following system:

- Fan Motor

FAN RELAY

COLOR	FUNCTION
Red	20-Amp circuit breaker protected 12 Vdc constant battery power.
Orange / White	ECU ground input to enable relay.
Red / Dark Blue	BUSS Bar - 12 Vdc switched power from EFI relay.
Orange / Black	Provides 12 Vdc power for fan operation.

FUEL PUMP RELAY provides power to the following system:

- Fuel Pump

FUEL PUMP RELAY

COLOR	FUNCTION
Red / Dark Green	10-Amp fuse protected 12 Vdc battery voltage.
Dark Green / Yellow	ECU ground input to enable relay.
Red / Dark Blue	BUSS Bar - 12 Vdc switched power from ECF relay.
Red / Light Blue	Provides 12 Vdc power for fuel pump operation.

EPS RELAY (OPT) provides power to the following system:

- Electronic Power Steering Unit

EPS RELAY (OPT)

COLOR	FUNCTION
Red	30-Amp fuse protected 12 Vdc constant battery voltage.
Brown	Relay coil ground.
Orange	12 Vdc power input from key switch to enable relay.
Orange	Provides 12 Vdc power for EPS operation.

REAR DIFF SOLENOID RELAY provides power to the following system:

- Rear Differential Solenoid

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REAR DIFF SOLENOID RELAY

COLOR	FUNCTION
Red / Dark Green	10-Amp fuse protected 12 Vdc battery voltage.
Dark Green / White	ECU input to enable relay.
Brown	Relay coil ground.
Red	Relay switched power to operate the Rear Diff Solenoid.
Blue	Ground to energize the Rear Diff Solenoid.

NOTE

The Rear Diff Solenoid Relay is mounted separately, attached to the rear portion of the main frame under the rear cargo box.

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CHARGING SYSTEM SERVICE

CURRENT DRAW - KEY OFF

CAUTION

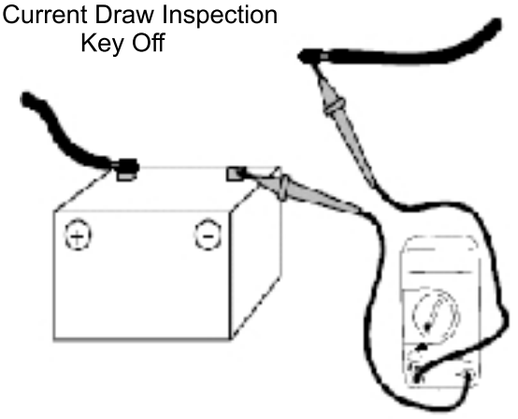
Do not connect or disconnect the battery cable or ammeter with the engine running. Damage will occur to electrical components.

NOTE

Charging system damage will occur if incompatible components are installed. Always reference Polaris Electric Parts Catalog for proper part numbers.

Connect an ammeter in series with the negative battery cable. Check for current draw with the key off. If the draw is excessive, loads should be disconnected from the system one by one until the draw is eliminated. Check component wiring as well as the component for partial shorts to ground to eliminate the draw.

Current Draw Inspection
Key Off



Current Draw - Key Off (Max):**.01 DCA (10 mA)**

CHARGING SYSTEM “BREAK EVEN” TEST

CAUTION

Do not allow the battery cables to become disconnected with the engine running. Follow the steps below as outlined to reduce the chance of damage to electrical components.

The “break even” point of the charging system is the point at which the alternator overcomes all system loads (lights, etc.) and begins to charge the battery. Depending on battery condition and system load, the break even point may vary slightly. The battery should be fully charged before performing this test.

⚠ WARNING

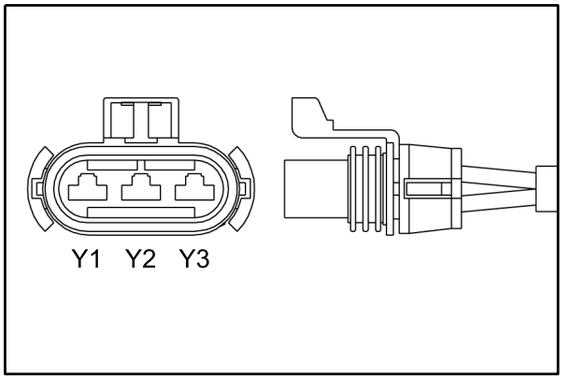
Never start the engine with an ammeter connected in series. Damage to the meter or meter fuse will result. Do not run test for extended period of time. Do not run test with high amperage accessories.

1. Using an inductive amperage metering device, (set to DC amps) connect to the negative battery cable.
2. With engine off, and the key switch and lights in the ON position, the ammeter should read negative amps (battery discharge). Reverse meter lead if a positive reading is indicated.
3. Shift transmission into Park and start the engine. With the engine running at idle, observe meter readings.
4. Increase engine RPM while observing ammeter and tachometer.
5. Note RPM at which the battery starts to charge (ammeter indication is positive).
6. With lights and other electrical loads off, the “break even” point should occur at approximately 1500 RPM or lower.
7. With the engine running, turn the lights on and press the brake pedal to turn the brake lights on.
8. Repeat test, observing ammeter and tachometer. With lights on, charging should occur at or below 2000 RPM.

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CHARGING SYSTEM STATOR (ALTERNATOR) TESTS

Three tests can be performed using a multi-meter to determine the condition of the stator (alternator).



TEST 1: Resistance Value of Each Stator Leg

1. Measure the resistance value of each of the three stator legs: Y1 to Y2, Y1 to Y3, and Y2 to Y3. Each test should measure: **Less than 1 Ω**

TEST	CONNECT METER LEADS TO:	OHMS READING
Battery Charge Coil	Y1 to Y2	**Less than 1 Ω**
Battery Charge Coil	Y1 to Y3	**Less than 1 Ω**
Battery Charge Coil	Y2 to Y3	**Less than 1 Ω**

NOTE

If there are any significant variations in ohm readings between the three legs it is an indication that one of the stator legs may be weak or failed.

TEST 2: Resistance Value of Each Stator Leg to Ground

2. Measure the resistance value of each of the stator legs to ground: Y1 to Ground, Y2 to Ground, Y3 to Ground.
3. Each test should measure: **Open Line (OL / ∞)**

TEST	CONNECT METER LEADS TO:	OHMS READING
Battery Charge Coil	Y1, Y2, or Y3 to Ground	**Open Line (OL / ∞)**

NOTE

Any measurement other than Infinity (open) will indicate a failed or shorted stator leg.

TEST 3: Measure AC Voltage Output of Each Stator Leg at Charging RPM

4. Set the selector dial to measure AC Voltage.
5. Start the engine and let it idle.
6. While holding the engine at a specified RPM, separately measure the voltage across each 'leg' of the stator by connecting the meter leads to the wires leading from the alternator (Y1 to Y2, Y1 to Y3, Y2 to Y3).
7. Refer to the following table for approximate AC Voltage readings according to RPM. Test each leg at the specified RPM in the table.
8. Example: The alternator current output reading should be approximately **21 VAC ± 25%** at 1300 RPM between each 'leg'.

NOTE

If one or more of the stator leg output AC voltage varies significantly from the specified value, the stator may need to be replaced.

RPM READING	AC VOLTAGE (VAC) READING
1300	**21 VAC ± 25%**
3000	**47 VAC ± 25%**
5000	**79 VAC ± 25%**

STATOR REPLACEMENT

Refer to **"Stator Cover Removal / Inspection", page 3.123** procedure to service the stator.

NOTE

The stator cover can be removed with the engine installed in the chassis.
Be sure to thoroughly clean the area around the stator cover prior to removal.

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ALTERNATOR REPLACEMENT (HVAC)

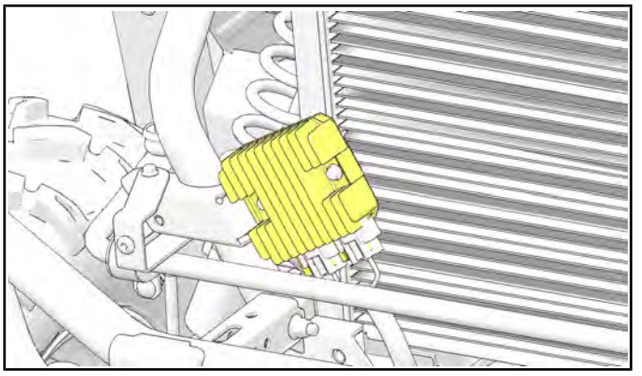
For HVAC Models with an alternator, refer to **“Compressor Drive Belt Replacement”, page 3.199** procedure to service the alternator.

REGULATOR / RECTIFIER OPERATION

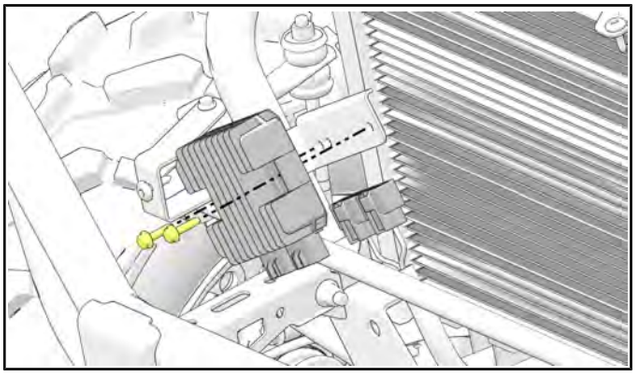
NOTE

The regulator / rectifier is located in front of the radiator.

1. Remove the hood.
2. Disconnect the wire harness from both headlights.
3. Remove the four T40 Torx screws and eight push rivets retaining the front fascia. Refer to **“Front Fascia Removal”, page 10.34** procedure.
4. Carefully remove the front fascia assembly from the vehicle to access the regulator / rectifier.



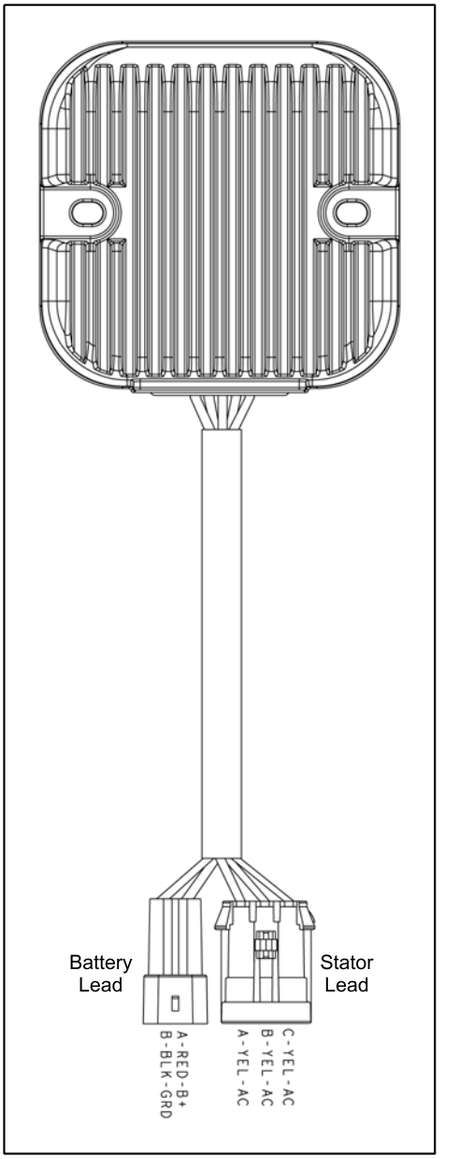
5. If replacing the regulator / rectifier, remove the two retaining screws and disconnect the wire harness. Remove the regulator and heat sink plate from the vehicle.



6. Reverse this procedure to install the new regulator / rectifier and heat sink plate.

NOTE

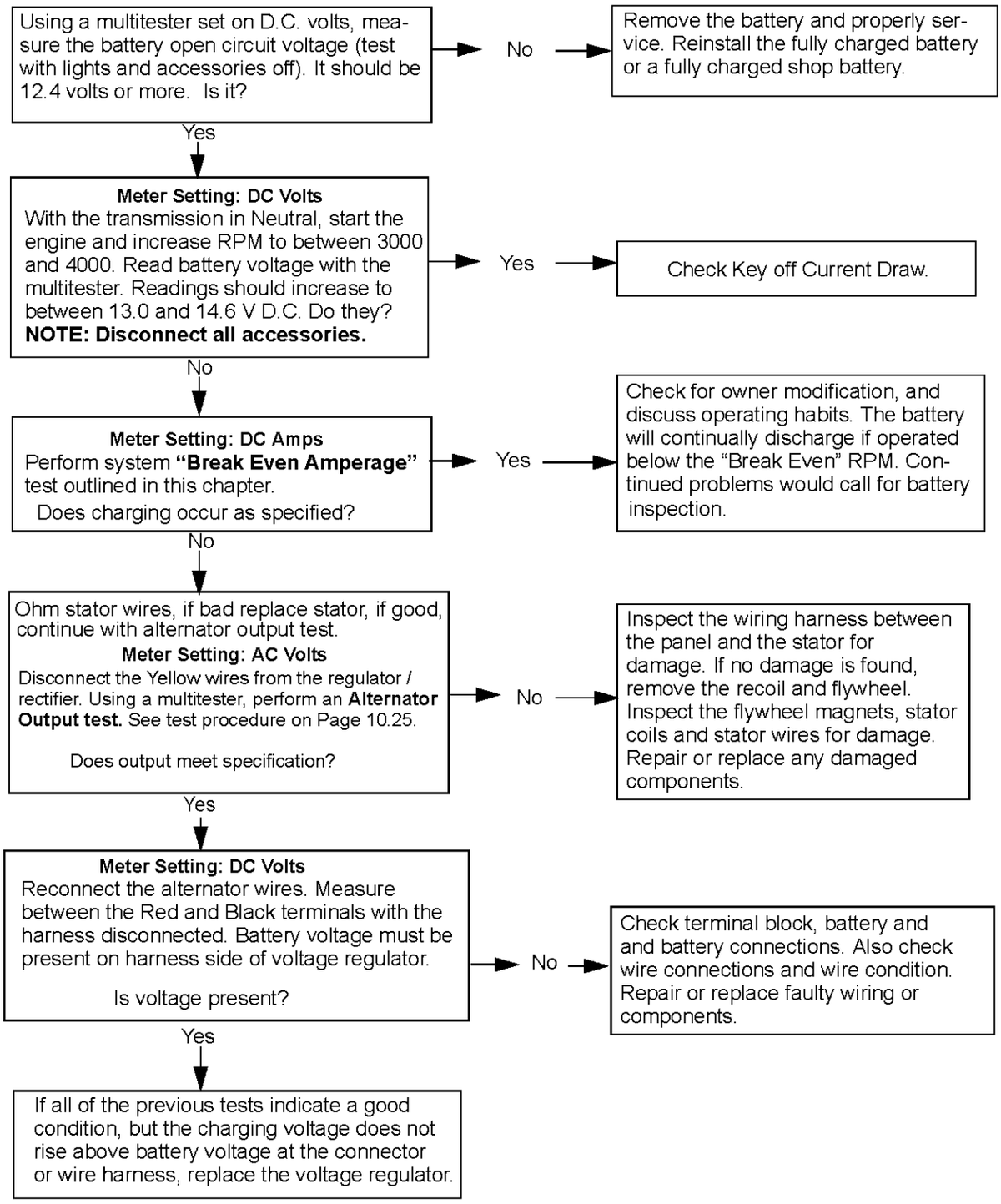
If the regulator / rectifier case temperature exceeds 230° F or 110° C, the unit will turn itself off to cool down. The unit will turn on again after it has cooled down to at least 212° F or 100° C. If it turns off, verify the cooling fins are clean, free from debris and that adequate airflow is present.



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CHARGING SYSTEM TESTING FLOW CHART

Whenever charging system problems are suspected, proceed with the following system check after verifying that all wires are in good condition, connected and not exposed or pinched:



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BATTERY SERVICE

BATTERY SPECIFICATIONS

Battery PN 4014043 / 4014132-P

Type	Polaris Maintenance Free
Voltage	12 Vdc
Nominal Capacity @ 20 HR Rate	32 AH
CCA	Johnson Controls - 575
Nominal Open Circuit Voltage	12.8 Vdc or more.
Recommended Charging Rate	1.8A @ 5-10 HR or 6.0A @ 1 HR

NOTE

Never attempt to open the battery.

GENERAL BATTERY INFORMATION

⚠ WARNING

CALIFORNIA PROPOSITION 65 WARNING:Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. WASH HANDS AFTER HANDLING.

⚠ WARNING

Battery electrolyte is poisonous. It contains acid! Serious burns can result from contact with the skin, eyes, or clothing.ANTIDOTE:External: Flush with water. Internal: Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately.Eyes: Flush with water for 15 minutes and get prompt medical attention.Batteries produce explosive gases. Keep sparks, flame, cigarettes, etc. away. Ventilate when charging or using in closed space. Always shield eyes when working near batteries.Keep out of reach of children.

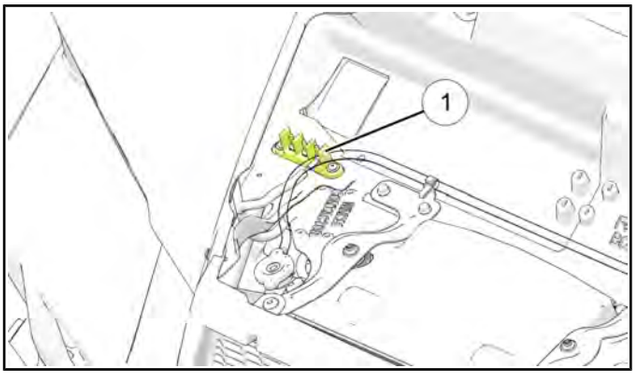
1. Check battery voltage with a volt/ohm meter. A fully charged battery should be 12.8 V or higher.
2. If the voltage is below 12.6 V, the battery will need to be recharged. Refer to **“Battery Charging Procedure”, page 11.38**.

   To service a Maintenance Free battery:
3. Remove battery from the vehicle. Refer to **“Battery Removal”, page 2.41** procedure.
4. Test battery with a voltage meter or load tester to determine battery condition. This will determine the length of time required to charge the battery to full capacity. Refer to **“OCV - Open Circuit Voltage Test”, page 11.37** procedure.
5. Charge the battery as recommended. Refer to **“Battery Charging Procedure”, page 11.38**.

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BATTERY TERMINAL BLOCK

The terminal block ① is located under the hood near the radiator pressure cap. The terminal block provides easy hookup for accessories.



TORQUE
Terminal Block Nuts: **20-25 lb-in (2.3-2.8 Nm)**

BATTERY OFF SEASON STORAGE

Whenever vehicle is not used for a period of three months or more, remove the battery from the vehicle, ensure that it's fully charged, and store it out of the sun in a cool, dry place. Check battery voltage each month during storage and recharge as needed to maintain a full charge.

NOTE
Battery charge can be maintained by using a Polaris battery tender charger or by charging once a month to make up for normal self-discharge. Battery tenders can be left connected during the storage period, and will automatically charge the battery if the voltage drops below a pre-determined point.

BATTERY TESTING

Whenever a service complaint is related to either the starting or charging systems, the battery should be checked first.

The following are two tests which can easily be made on a sealed Maintenance Free battery to determine its condition: OCV Test and a Load Test.

OCV - OPEN CIRCUIT VOLTAGE TEST

Battery voltage should be checked with a digital multitester. Readings of 12.6 volts or less require further battery testing and charging. Refer to the following chart and **“Load Test”, page 11.37**.

NOTE
Maintenance Free batteries should be kept at a high state of charge during storage. If the battery is stored or used at a low state of charge, hard crystal sulfation will form on the plates, reducing the efficiency and service life of the battery. Use a volt/ohm meter to test battery voltage.

Open Circuit Voltage

STATE OF CHARGE	VOLTAGE
100%	12.8 V and up
75% Charged	12.6 V
50% Charged	12.3 V
25% Charged	12.0 V
0% Charged	11.8 V or less

LOAD TEST

CAUTION
To prevent shock or component damage, remove spark plug high tension leads and connect securely to engine ground before proceeding.

A battery may indicate a full charge condition in the OCV test, but still may not have the storage capacity necessary to properly function in the electrical system. For this reason, a battery capacity or load test should be conducted whenever poor battery performance is encountered.

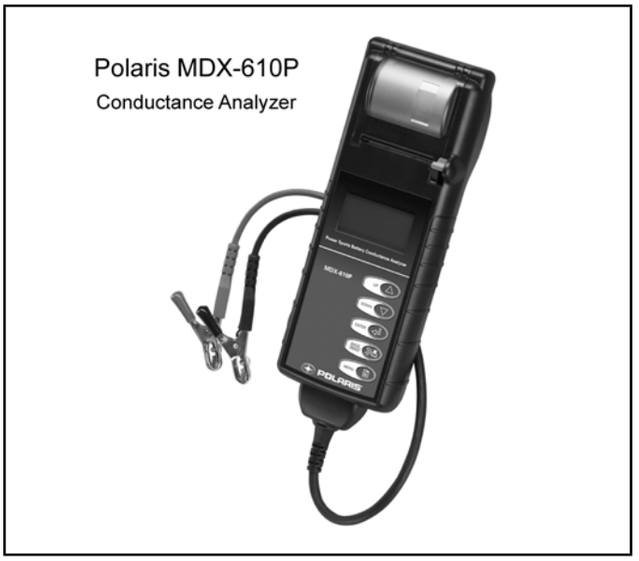
To perform this test, use a load testing device that has an adjustable load. Apply a load of three times the ampere-hour rating. At 14 seconds into the test, check battery voltage. A good 12V battery will have at least 10.5 volts. If the reading is low, charge the battery and retest.

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BATTERY CONDUCTANCE ANALYZER

Conductance describes the ability of a battery to conduct current. A conductance tester functions by sending a low frequency AC signal through the battery and a portion of the current response is captured, from this output a conductance measurement is calculated. Conductance testing is more accurate than voltage, specific gravity, or load testing.

Authorized Polaris dealers/distributors are required to use the conductance analyzer when testing 12V Polaris batteries.



Polaris MDX-610P
Battery Conductance Analyzer
PU-50296

BATTERY CHARGING PROCEDURE

If battery voltage is 12.6 Vdc or less, the battery may need recharging. When using an automatic charger, refer to the charger manufacturer's instructions for recharging.

Recommended Charging Rate: 1 hour @ 6-10 Amps.

Do not exceed 10 amps when charging the battery.

NOTE

Charge the battery using an automatic charger that will not exceed 14.6 Vdc. An automatic charger will signal when charging is complete.

Allow the battery to stand disconnected for at least 1-2 hours after being properly charged. If the voltage drops below 12.6 volts, charging was ineffective or the battery needs to be replaced.

⚠ WARNING

An overheated battery could explode, causing severe injury or death. Always watch charging times carefully. Stop charging if the battery becomes very warm to the touch. Allow it to cool before resuming charging.

Battery PN 4014043 / 4014132-P

STATE OF CHARGE	VOLTAGE (DC)	ACTION	CHARG-E TIME
100%	12.8 or more	None, check again in 3 months	None Required
75% - 100%	12.6 - 12.8	May need slight charge	3 - 6 hrs
50% - 75%	12.3 - 12.6	Needs Charge	5 - 11 hrs
25% - 50%	12.0 - 12.3	Needs Charge	At least 13 hrs
0% - 25%	12.0 or less	Needs Charge	At least 20 hrs

NOTE

Follow the charger instructions supplied by the manufacture regarding the order or connections, switch positions and when to connect the charger to an outlet.

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STARTER SYSTEM SERVICE

TROUBLESHOOTING

Starter Motor Does Not Run

- Battery discharged
- Loose or faulty battery cables or corroded connections. Refer to **"Voltage Drop Test", page 11.39**.
- Related wiring loose, disconnected, or corroded
- Poor ground connections at battery cable, starter motor or starter solenoid. Refer to **"Voltage Drop Test", page 11.39**.
- Faulty key switch
- Faulty starter solenoid or starter motor
- Engine problem - seized or binding (can engine be rotated easily)

Starter Motor Turns Over Slowly

- Battery discharged
- Excessive circuit resistance - poor connections. Refer to **"Voltage Drop Test", page 11.39**.
- Engine problem - seized or binding (can engine be rotated easily)
- Faulty or worn brushes in starter motor

Starter Motor Turns - Engine Does Not Rotate

- Faulty starter drive
- Faulty starter drive gears or starter motor gear
- Faulty flywheel gear or loose flywheel

VOLTAGE DROP TEST

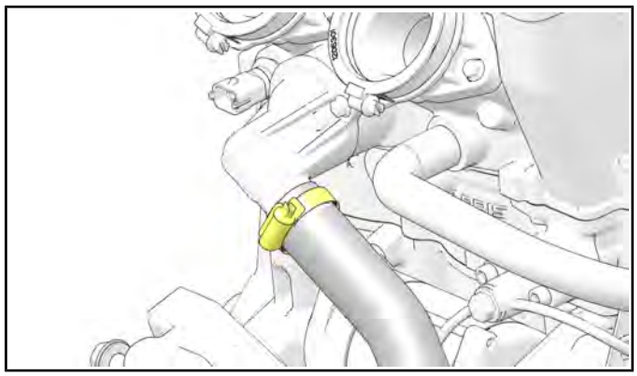
The Voltage Drop Test is used to test for bad connections. When performing the test, you are testing the amount of voltage drop through the connection. A poor or corroded connection will appear as a high voltage reading. Voltage shown on the meter when testing connections should not exceed .1 VDC per connection or component.

To perform the test, place the meter on DC volts and place the meter leads across the connection to be tested. Refer to the voltage drop tests in the **"Starting System Testing Flow Chart", page 11.42**.

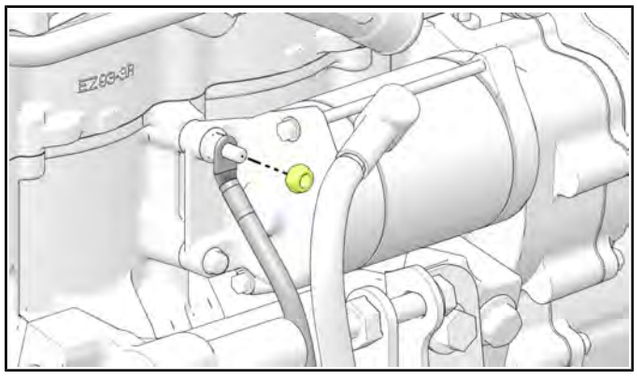
Voltage should not exceed .1 DC volts per connection

STARTER MOTOR REMOVAL

1. Lift up the passenger seat base and disconnect the battery.
2. Drain the coolant low enough so the coolant level is lower than the thermostat housing. Refer to **"Coolant Drain / Fill", page 2.26** procedure.
3. Loosen the hose clamp and remove the coolant hose from the thermostat cover.



4. Using an 8 mm socket, remove the two bolts that retain the thermostat cover to the engine.
5. Using a 10 mm wrench, remove the two nuts retaining the starter motor battery cable and the engine to chassis ground cable.

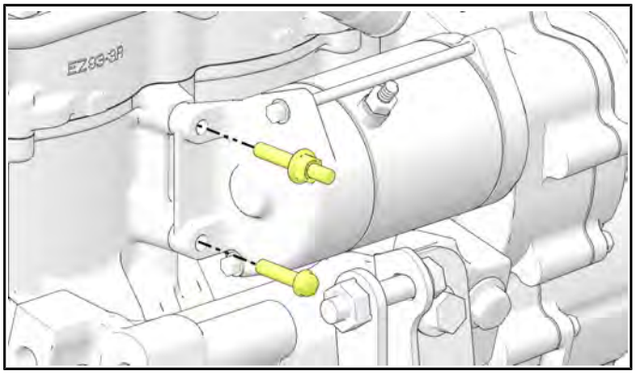


NOTE

The negative (-) battery cable is mounted to the engine using the upper starter mounting bolt / stud.

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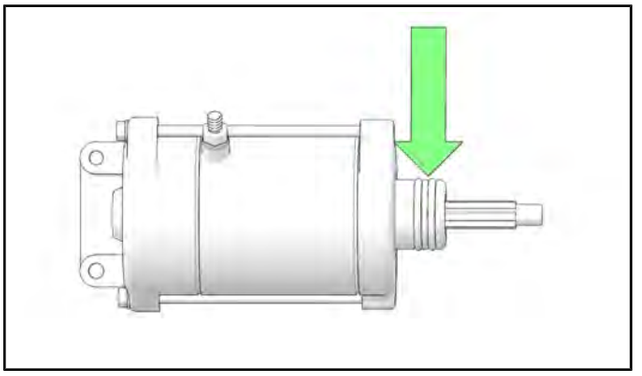
6. Using a ¼" ratchet and 10 mm deep well socket, remove the upper starter mount bolt. Use an 8 mm deep well socket to remove the lower starter mount bolt.



7. Pull starter motor towards the driver's side to disengage it from the engine and remove the starter motor out the passenger side of the vehicle.

STARTER MOTOR INSTALLATION

1. Inspect and replace starter motor O-rings if needed.
2. Lubricate the starter motor O-rings with clean engine oil.



3. Install the starter motor onto the engine case.
4. Hand tighten the upper starter motor bolt / stud.
5. Install the lower mounting bolt and torque to specification.

NOTE

Tighten the lower starter bolt first, as the bottom hole acts as a pilot hole to properly align the starter drive (bendix) with the flywheel. This helps prevent binding and starter damage.

TORQUE

Starter Motor Fasteners:
7 lb-ft (10 Nm)

6. Torque upper starter mounting bolt to specification.
7. Install the negative (-) battery cable to the upper starter mounting bolt / stud. Torque nut to specification.
8. Install the thermostat cover and mounting bolts. Torque the bolts to specification.

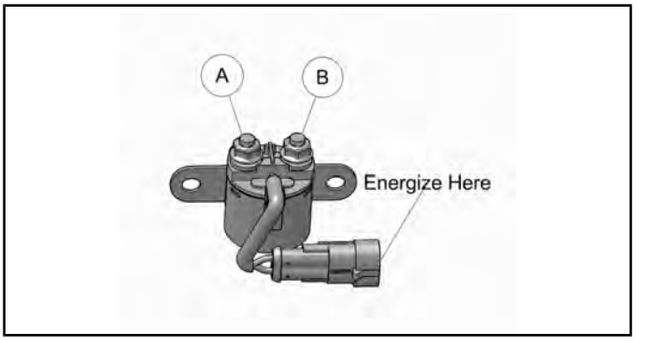
TORQUE

Thermostat Cover Bolts:
7 ± 1 lb-ft (10 ± 1 Nm)

9. Install coolant hose back on the thermostat cover and securely tighten the hose clamp.
10. Reconnect the battery.
11. Fill cooling system and proceed to Chapter 3 “Cooling System Bleeding Procedure”.

STARTER SOLENOID BENCH TEST

Test the start solenoid by powering the solenoid using battery voltage for a *maximum of 5 seconds*. With the solenoid energized at room temperature 77 °F (25 °C), resistance should be **2.5 Ω ± 20%** between terminals (A) and (B). If resistance measurement is out of specification, replace the starter solenoid.

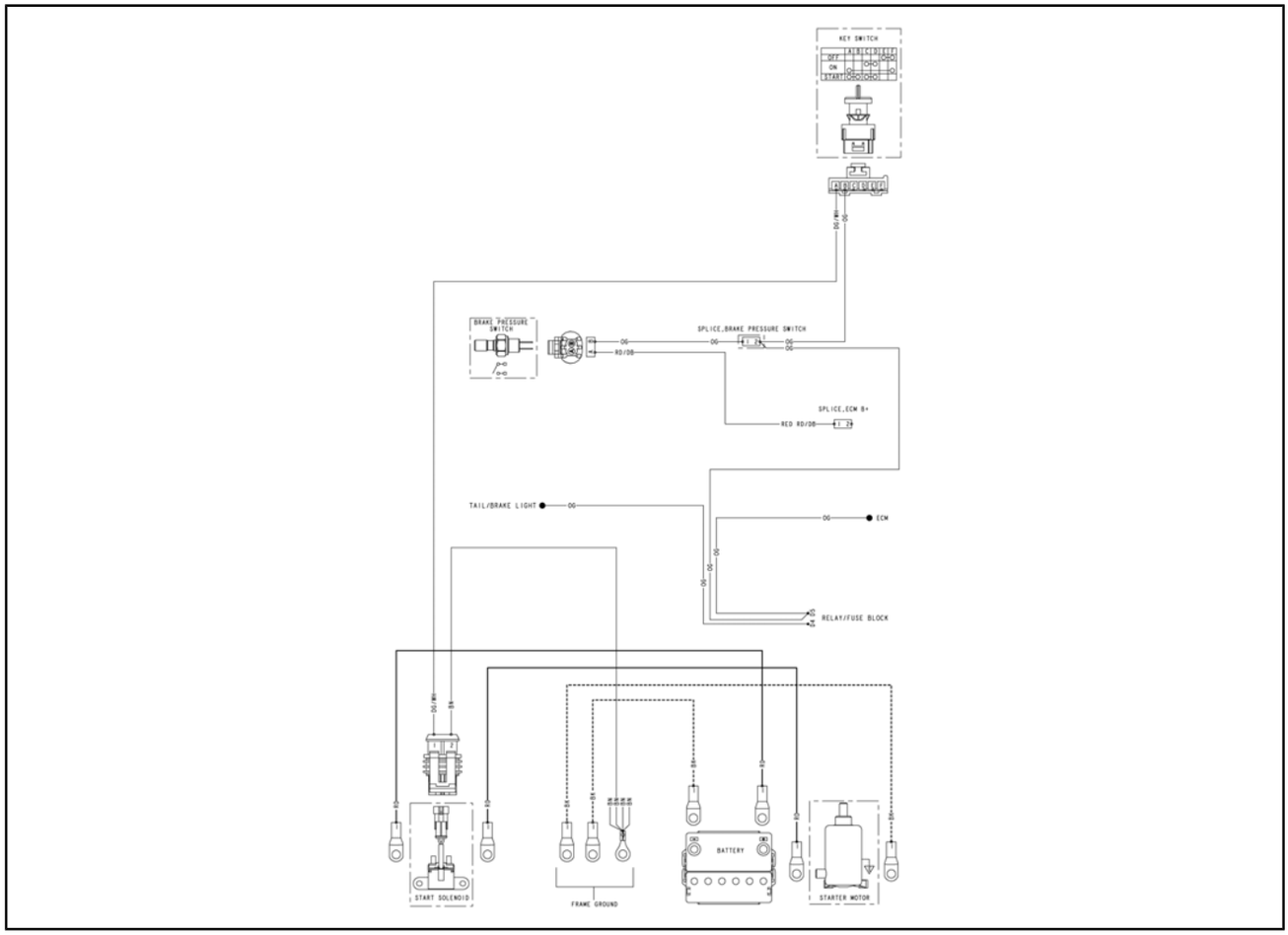


STARTER SOLENOID OPERATION

To energize the Starter Solenoid the following must occur:

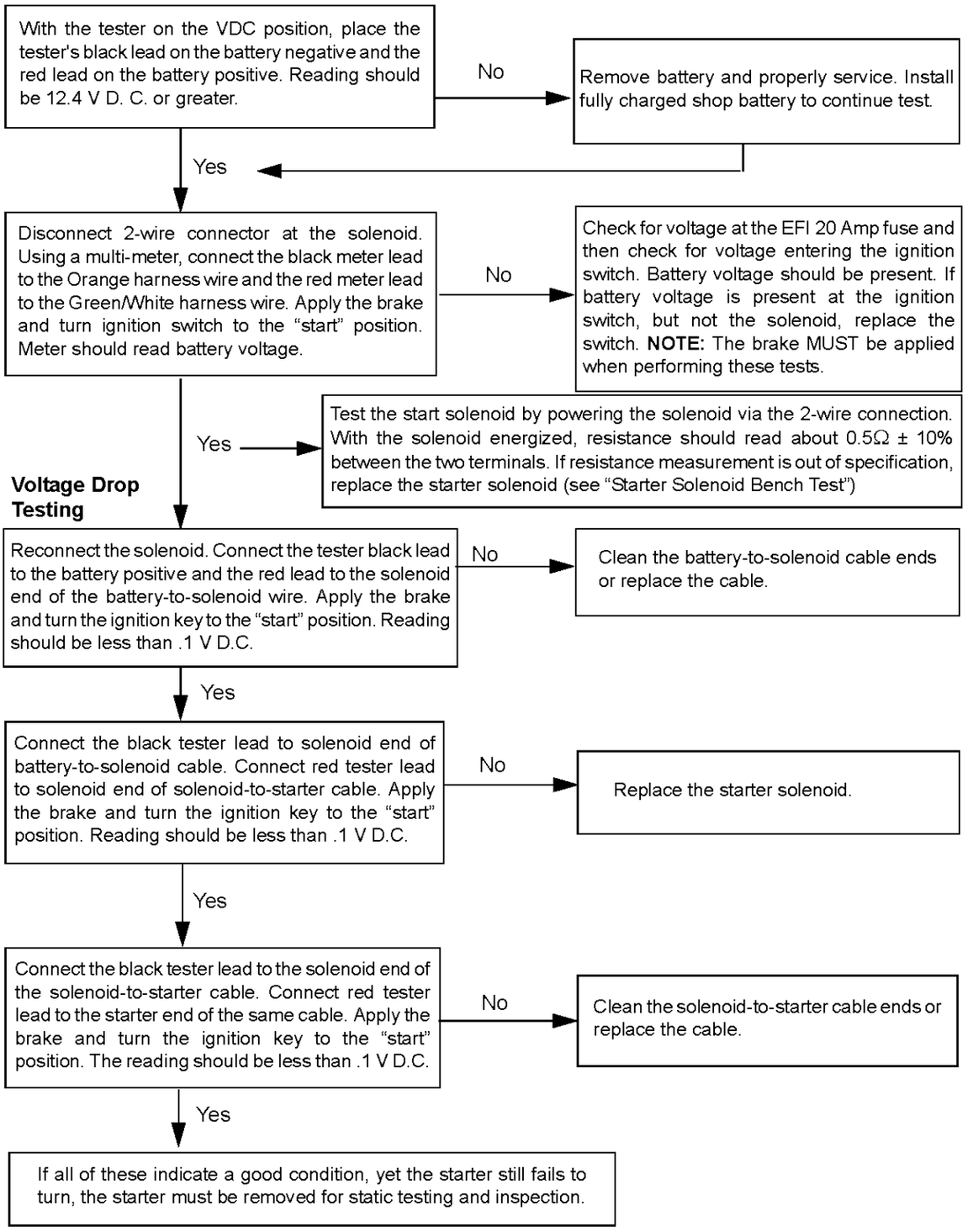
- The brake must be applied to close the brake pressure switch and provide 12V power to the key switch and ECU.
- The key switch must be turned to the “start” position to provide 12V power to the starter solenoid via the Green / White wire.
- Once the pull-in coil is energized, the solenoid provides a current path for 12V power to reach the starter motor.

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STARTING SYSTEM TESTING FLOW CHART



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ELECTRONIC POWER STEERING (EPS)

EPS OPERATION

The EPS module is an intelligent electronic power steering system that operates off of the vehicle's 12V electrical system. It calculates steering assist by sensing the difference between the input torque of the steering post and the output torque required to turn the wheels, and then provides assist by energizing an electric motor. The process provides a smooth, seamless assist.

The system is continuously running diagnostic checks and monitoring factors such as battery voltage, ground speed and engine speed. In the event an internal or external issue that affects the EPS system is detected, the system will illuminate a fault indicator and transition to a normal mechanically coupled steering system. The system is Polaris Digital Wrench® compatible for simplified diagnostics and system troubleshooting through the vehicle's diagnostic port.

With the engine off and the key on, the power steering unit will operate for up to five minutes. After the five minutes, you will need to cycle the key switch and restart the engine to regain power steering operation.

NOTE

To conserve battery power, the EPS unit will shut down 5 minutes after the engine has stopped if the key remains in the ON position. At this point, the EPS Malfunction Indicator Light will illuminate to indicate the EPS has shut down and will set a fault code in Digital Wrench®.

The Power Steering 30A Fuse.

- If the fuse fails, the Power Steering Malfunction Indicator Light (MIL) on the instrument cluster will illuminate. During this time, the vehicle will have no power steering operation. You will be able to connect and communicate with the vehicle's Engine Controller, but not the Power Steering Controller, while using Digital Wrench®.

NOTE

DO NOT SPLICE OR CUT INTO THE CAN CIRCUITS.

⚠ WARNING

Electronic Power Steering (EPS) units are not interchangeable between ATV and *RANGER* product lines.

NOTE

Refer to **"Steering Assembly Service", page 8.4** section for power steering unit removal and installation procedures.

WIRE COLOR	FUNCTION
ORANGE (2-Pin)	Main Power (30A Protected)
BROWN (2-Pin)	Ground
ORANGE (8-Pin)	Key-On Battery Voltage
YELLOW (8-Pin)	CAN High Signal
GREEN (8-Pin)	CAN Low Signal

PROPER EPS SYSTEM DIAGNOSING

READ BEFORE YOU REPLACE THE EPS UNIT!

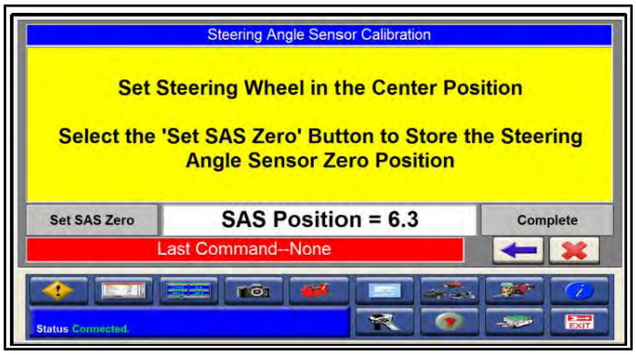
NOTE

Verify the EPS unit has the latest software version and calibration loaded before replacing the EPS unit. If not, update to the latest version for each and follow the guided diagnostic procedure(s) available in Digital Wrench®.

EPS TORQUE OFFSET PROCEDURE

If the steering wheel pulls to one side when the vehicle is driven in a straight line and there is no damage to the steering or suspension components, perform the procedure below to center the EPS steering angle sensor (SAS) electronically.

1. On a flat surface, drive a short distance in a straight line and stop the vehicle without touching the steering wheel. Put the vehicle in park/lock the parking brake.
2. Connect the vehicle to Digital Wrench.
3. Click on the Special Tests menu (Red Toolbox) and select Steering Angle Sensor Calibration.
4. Click on Set SAS Zero.



NOTE

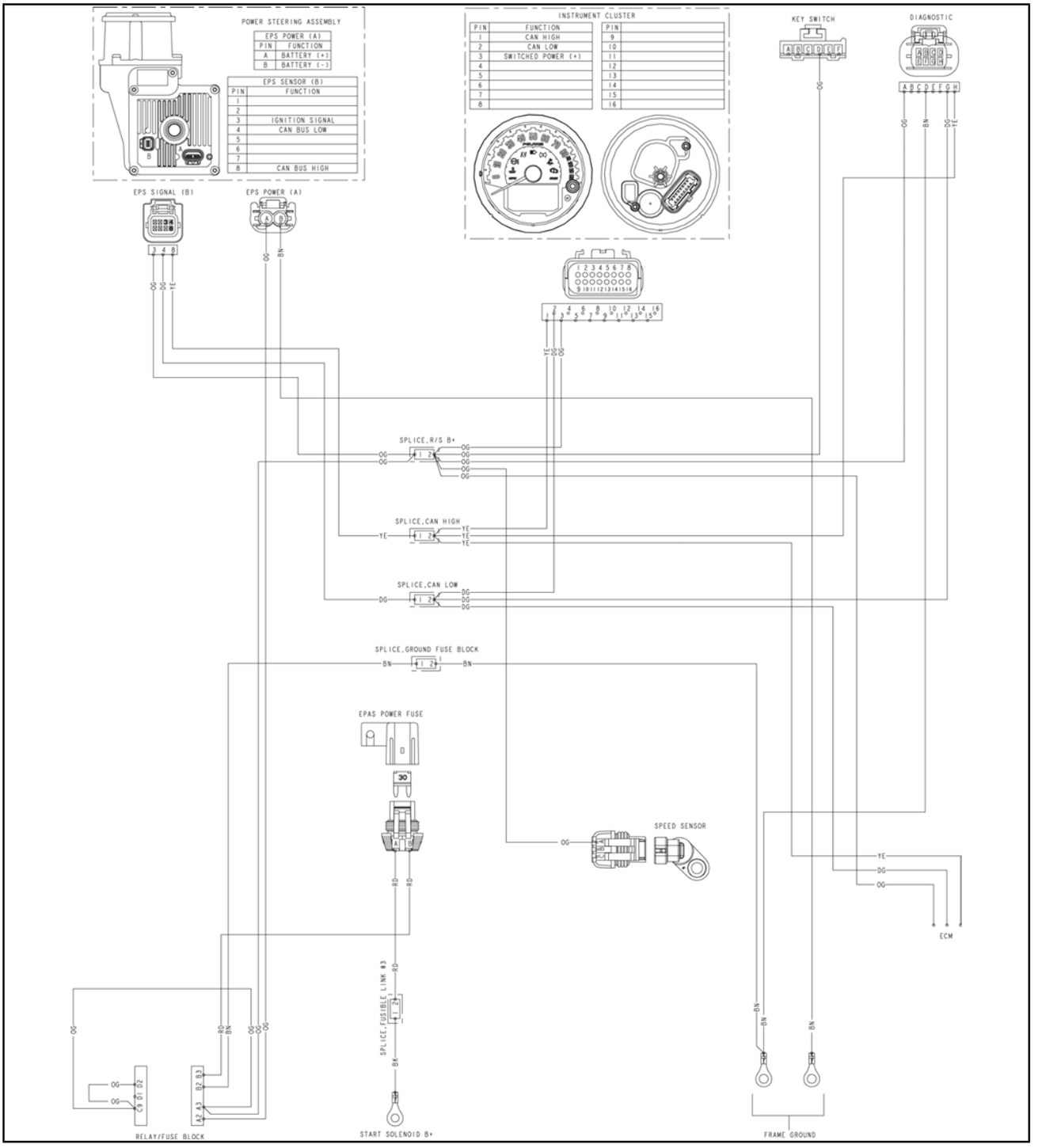
The SAS Position should = 0.0 after clicking Set SAS Zero.

11

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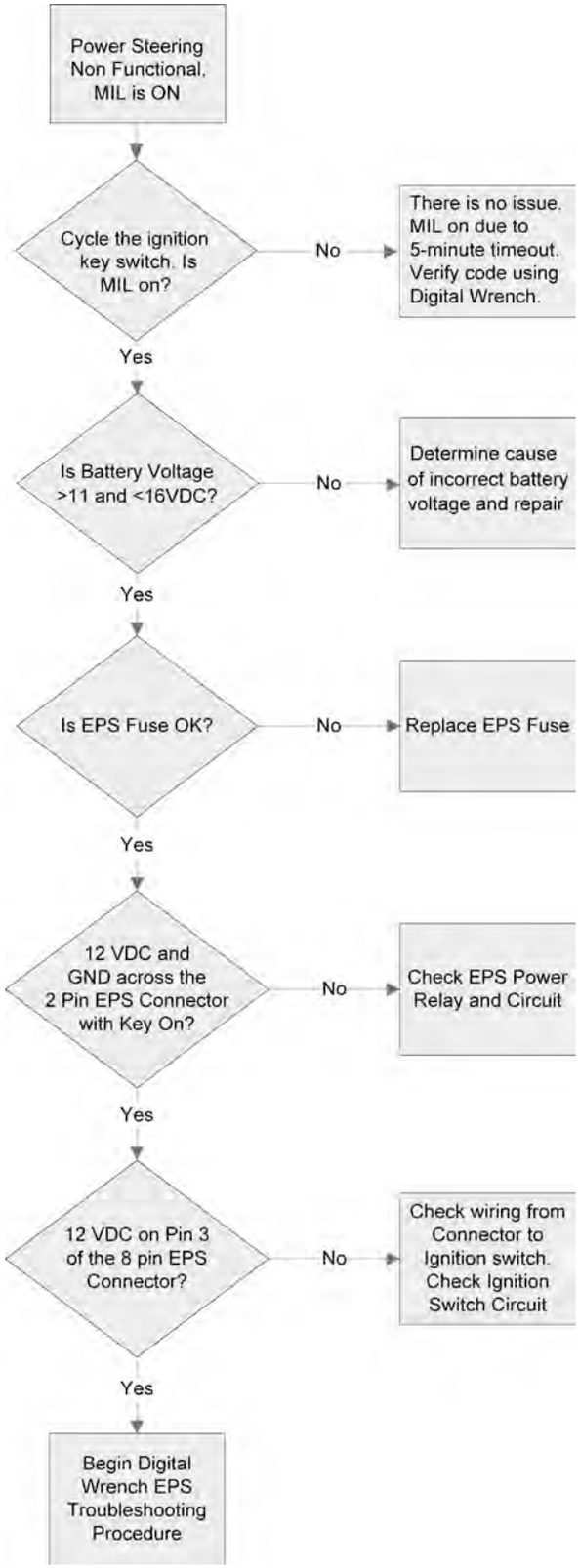
5. Click the Complete button to program this setting into the ECU.

EPS SYSTEM BREAKOUT



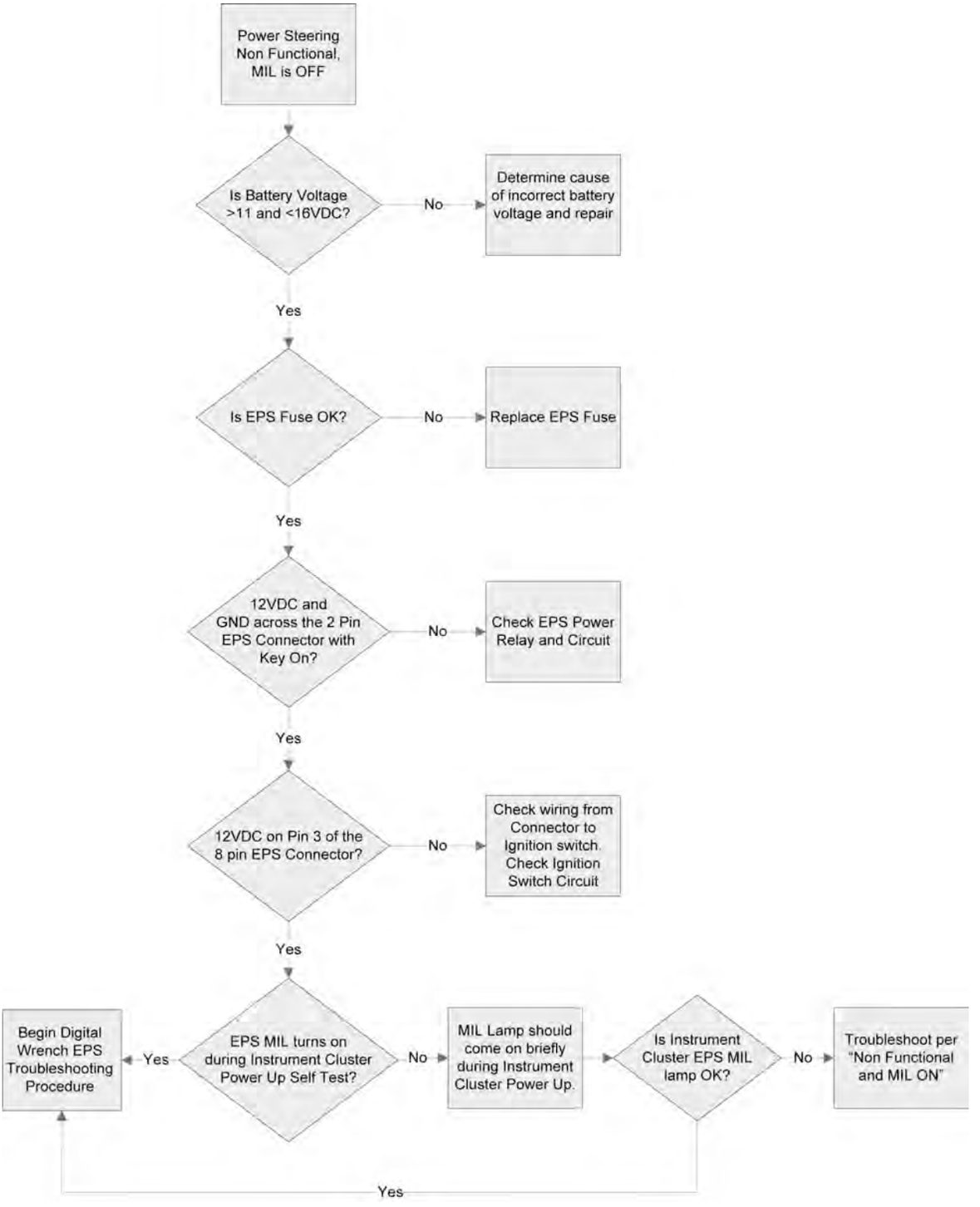
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EPS TROUBLESHOOTING (POWER STEERING NON-FUNCTIONAL WITH MIL ON)



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EPS TROUBLESHOOTING (POWER STEERING NON-FUNCTIONAL WITH MIL OFF)



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EPS TROUBLESHOOTING (USING DIGITAL WRENCH®)

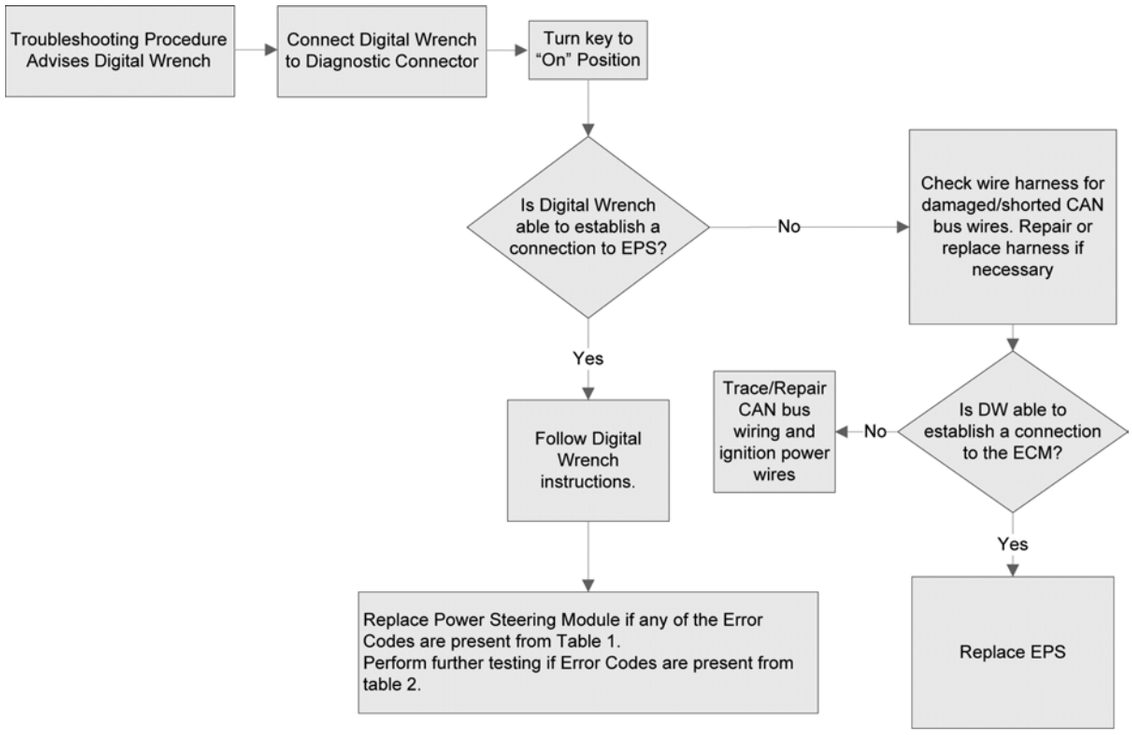


Table 1: Error Codes requiring Power Steering Replacement

1. Position Encoder Error
2. EPS Software Error
3. Steering Torque Sensor Full Failure
4. Steering Excessive Current Error*
5. Steering Over Current Shutdown*
6. Phase Sensing Over Current
7. Phase Sensing Excessive Current
8. Torque Sensor Range
9. Rotor Encoder Communication
10. Rotor Encoder Variance
11. SEPIC Voltage Low/High
12. EEPROM Failure

Table 2: Error Codes Requiring Additional Troubleshooting

1. EPS Inverter Temperature- check for mud/debris on EPS
2. Battery Voltage Over / Under- check bike's charging system and battery.
3. Calibration Error – Relfash EPS Unit

EPS Inverter Temperature Test:

1. Verify that Power Steering module heat sink surface (top surface) is clean and free of mud and dirt. Make a note of how much debris was on heat sink before cleaning. Record all power steering error codes and then clear all error codes. EPS inverter temperature can be monitored through Digital Wrench.
2. Allow vehicle to set and cool for at least 2 hours.
3. Drive vehicle for 30 minutes of left and right turning and then Connect Digital wrench and read Power Steering Error Codes. If Inverter Temperature Error Code is present, replace Power Steering Module. If error is not present, Module is OK. EPS inverter temperature can be checked using Digital wrench

Battery Voltage Over / Under Test:

1. Disconnect 2 pin Power Connector to EPS and verify battery voltage (12-14 VDC) is present on pins with key on. If voltage is low, investigate and correct cause. If voltage at pins is correct, check all connections for corrosion, damage, and tightness. Check pin 3 on 8 pin connector for 12V signal with key on.

*** These Error Codes must have multiple occurrences or you must be able to duplicate the condition before replacing the EPS unit.**

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NOTES

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2015 RANGER 570 NON-EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
GN	GREEN
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH NO-NC/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V

SEAT BELT SWITCH

12V RECEPTACLE (P/N 4012393)

12V RECEPTACLE (P/N 4012393)

HEADLIGHT SWITCH (P/N 4011155)

AWD SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)

PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012765)

OFF / ON / START

DIAGNOSTIC

REVERSE BEEPER

REAR DIFFERENTIAL SOLENOID (LOCATED ON REAR DIFFERENTIAL)

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

TURF SOLENOID DRIVER (P/N 4012829)

TRANSMISSION SWITCH

HIGH 24Ω

LOW 72Ω

NEU 140Ω

REV 92Ω

PARK

SPEED SENSOR

HALL SENSOR

POWER IN PIN "A"

V OUT PIN "C"

COMMON PIN "B"

(LOCATED ON TRANSMISSION)

ELECTRONIC THROTTLE CONTROL

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH ⊕ SVES

SPLICE,SVES

BRAKE PRESSURE SWITCH

FAN MOTOR

SPLICE,BRAKE PRESSURE SWITCH

SPLICE,GROUND RECEPTACLE

SPLICE,B+ UNSWITCHED FUSED

SPLICE,R/S B+

24Ω 11 VOLTS MIN. @ 20°C (68°F) AWD COIL

AWD HUB COIL

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411784)

SPLICE,HIGH BEAM

SPLICE,LOW BEAM

SPLICE,GROUND

SPLICE,ECM B+

SPLICE,B+ ACC FUSE OUT

SPLICE,IGNITION POWER

SPLICE,DRIVE

SPLICE,LIGHTS B+

SPLICE,CAN HIGH

SPLICE,CAN LOW

SPLICE,SENSOR GROUND

SPLICE,GROUND DASH

TAIL/BRAKE LIGHT (HARNESS P/N 2411801)

RELAY (P/N 4011283)

TOP VIEW OF RELAY

15 AMP CIRCUIT BREAKER (P/N 2411066)

RELAY/FUSE BLOCK

BUS A5-A7
BUS C3-C5-C7

(COVER REMOVED)

FUEL PUMP RELAY

FAN RELAY

EFI RELAY

CHASSIS RELAY

SPLICE,CPS SHIELD #1

SPLICE,CPS SHIELD #2

CRANK POSITION SENSOR (P/N 2411719)

THROTTLE SENSOR

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1.0Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

NOMINAL RESISTANCE:
AT 25°C/77°F: 2.5 KΩ
AT 120°C/248°F: 220 Ω

COOLANT TEMP SENSOR

MAG FUEL INJECTOR

RESISTANCE: (22±5)Ω

FUEL INJECTOR

T-MAP (P/N 2411528)

PIN	FUNCTION
1	GROUND
2	+5 VDC
3	SIGNAL

PRIMARY: 0.42±0.15Ω
SECONDARY: 1.45±0.15Ω
IGNITION COIL (P/N 4013341)

SPLICE,IGNITION COIL SHIELD

TRIM FLUSH ⊕ IGNITION COIL

START SOLENOID B+

SPLICE,FUSIBLE LINK #1

SPLICE,FUSIBLE LINK #2

SPLICE,FUSIBLE LINK #4

SPLICE,FUSIBLE LINK #5

START SOLENOID B+

START SOLENOID

FRAME GROUND

BATTERY CABLE (P/N 4014947)

BATTERY CABLE (P/N 4014948)

BATTERY

STARTER MOTOR

(LOCATED UNDER RECOIL)

RESISTANCES (±20% @ 68°F/20°C)		
STATOR	CHARGE COIL	YE1 TO YE2 (0.1 Ω±20%)
		YE2 TO YE3 (0.1 Ω±20%)
		YE1 TO YE3 (0.1 Ω±20%)

TERMINAL BLOCK

GND

ACC

B+

(P/N 4011892)

REGULATOR (P/N 4012941)

ECM,CODE 4

ECM,CODE 13

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (1C, 210/CAVITY 10)

2015 RANGER 570 NON-EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 2 OF 2

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	.4014947	SGT	13.0	BK	BATTERY (-)	1	FRAME GROUND	1	BATTERY (-) TO FRAME (GROUND)
2	.4014948-001	SGT	13.0	RD	STARTER (B+)	1	START SOLENOID	1	STARTER TO START SOLENOID
3	.4014948-002	SGT	13.0	BK	STARTER (GROUND)	1	FRAME GROUND	1	STARTER (GROUND) TO FRAME (GROUND)
4	.4014949	SGT	13.0	RD	BATTERY (+)	1	START SOLENOID (B+)	1	BATTERY (+) TO START SOLENOID (B+)
5	001	TXL	3.0	YE	STATOR	A	VREG AC INPUT	P1	STATOR AC
6	002	TXL	3.0	YE	STATOR	B	VREG AC INPUT	P2	STATOR AC
7	003	TXL	3.0	YE	STATOR	C	VREG AC INPUT	P3	STATOR AC
8	004	TXL	5.0	BK	VREG DC OUTPUT	P1	GROUND,6mm RING #4	1	REGULATOR GND
9	005	TXL	5.0	RD	SPLICE,FUSIBLE LINK #5	2	VREG DC OUTPUT	P3	REGULATOR B+
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	K/S SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
20	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
21	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
22	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
23	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED LINK
24	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
25	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
26	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	RELAY/FUSE BLOCK	D6	UNSWITCHED FUSED B+
27	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
28	B5B	TXL	0.8	RD/WH	SPLICE,B+ UNSWITCHED FUSED	1	DIAGNOSTIC	A	B+ UNSWITCHED FUSED
29	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
30	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
31	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
32	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
33	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
34	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
35	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
36	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
37	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
38	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
39	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
40	C02_1	TXL	0.5	WH	IGNITION COIL	P2	SPLICE,IGNITION POWER	1	ECM B+
41	C02_2	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	P1	IGNITION DRIVER 1
42	C02_3	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
43	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
44	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
45	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
46	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
47	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
48	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
49	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
50	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	1	CAN HIGH
51	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	1	CAN LOW
52	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
53	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
54	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
55	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
56	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
57	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
58	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
59	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
60	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
61	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
62	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
63	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
64	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY_TPS
65	E140	TXL	0.5	BN/WH	RELAY/FUSE BLOCK	D8	ECM,CODE 4	140	CHASSIS RELAY ENABLE, SW. LOW
66	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
67	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
68	E155	TXL	0.8	RD/DB	SPLICE,ECM B+	2	ECM,CODE 4	155	ECM B+
69	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
70	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
71	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
72	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
73	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
74	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
75	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
76	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
77	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
78	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2_MAP
79	E225	TXL	0.8	DB/YE	SEAT BELT SWITCH	B	ECM,CODE 13	225	SEAT BELT SWITCH
80	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
81	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
82	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
83	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
84	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
85	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
86	GF1	TXL	0.8	BN	GROUND,6mm RING #3	1	SPLICE,GROUND DASH	2	GROUND
87	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
88	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
89	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
90	GF3	TXL	2.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
91	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
92	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
93	GF4	TXL	1.0	BN	FAN	A	GROUND,6mm RING #3	1	GROUND
94	GF5	TXL	1.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND	2	GROUND
95	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
96	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
97	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND,6mm RING #3	1	GROUND
98	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND,6mm RING #3	1	GROUND
99	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,6mm RING #3	1	GROUND
100	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND,6mm RING #3	1	GROUND
101	GM4	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
102	GM5	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,CPS SHIELD #2	2	GROUND
103	GM6	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,DVE5	2	GROUND
104	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND,6mm RING #4	1	GROUND
105	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND,6mm RING #4	1	GROUND
106	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,6mm RING #4	1	GROUND
107	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,6mm RING #4	1	GROUND
108	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND,6mm RING #1	1	GROUND
109	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,6mm RING #1	1	GROUND
110	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND,6mm RING #1	1	GROUND
111	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND,6mm RING #1	1	GROUND
112	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
113	K02	TXL	0.5	OG	SPLICE,R/S B+	1	RELAY/FUSE BLOCK	D2	KEY SWITCH,B+ CHASSIS RELAY COIL POWER
114	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
115	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
116	K116	TXL	0.5	OG	SPLICE,R/S B+	2	ECM,CODE 4	116	KEY SWITCH B+
117	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT

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SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
119	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
120	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
121	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
122	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
123	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
124	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
125	RC6A	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	1	TAIL/BRAKE LIGHT	A	LIGHTS,B+ LIGHTS FUSE OUT
126	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
127	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
128	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
129	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
130	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
131	RE1A	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
132	RE1C	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
133	RE1D	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
134	RE1E	TXL	0.8	RD/DB	SPLICE,ECM B+	1	REVERSE BEEPER #2	1	ECM B+
135	RE1F	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
136	RE1G	TXL	0.8	RD/DB	SPLICE,ECM B+	1	DIAGNOSTIC	B	ECM B+
137	RE1H	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
138	RE1I	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
139	RE1J	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
140	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
141	RF	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
142	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
143	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
144	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
145	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
146	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

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2015 RANGER 570 EPS (CHASSIS)

WIRE COLOR LEGEND	
BK	BLACK
BE	BEIGE (TAN)
BU	BLUE
LB	LIGHT BLUE
DB	DARK BLUE
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN COLOR/S TRACE COLOR/S EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V

SEAT BELT SWITCH

POWER STEERING ASSEMBLY (P/N 2411224)

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (NEG. REF)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (NEG. REF)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

12V RECEPTACLE (P/N 4012393)

12V RECEPTACLE (P/N 4012393)

HEADLIGHT SWITCH (P/N 4011155)

AWD SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)			
PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012165)

DIAGNOSTIC

EPAS POWER FUSE

REVERSE BEEPER

REAR DIFFERENTIAL SOLENOID (LOCATED ON REAR DIFFERENTIAL)

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

PIN A: BAT (RD)
PIN B: COM (GN)
PIN C: GND (BN)

PIN A: SOL + (RD)
PIN B: SOL - (BU)

TURF SOLENOID DRIVER (P/N 4012029)

TRANSMISSION SWITCH

HIGH 24Ω
LOW 12Ω
NEU 140Ω
REV 280Ω
PARK 420Ω

SPEED SENSOR

HALL SENSOR

POWER IN PIN "A"

V OUT PIN "C"

COMMON PIN "B"

(LOCATED ON TRANSMISSION)

ELECTRONIC THROTTLE CONTROL

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH ⊕ SVES

SPLICE,SVES

BRAKE PRESSURE SWITCH

FAN MOTOR

SPLICE,BRAKE PRESSURE SWITCH

SPLICE,GROUND RECEPTACLE

SPLICE,B+ UNSWITCHED FUSED

SPLICE,R/S B+

24Ω 11 VOLTS MIN. @ 20°C RGB COIL

AWD HUB COIL

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411784)

SPLICE,HIGH BEAM

SPLICE,LOW BEAM

SPLICE,GROUND

SPLICE,ECM B+

SPLICE,CAN HIGH

SPLICE,CAN LOW

SPLICE,B+ ACC FUSE OUT

SPLICE,IGNITION POWER

SPLICE,DRIVE

SPLICE,LIGHTS B+

SPLICE,SENSOR GROUND

SPLICE,GROUND DASH

TAIL/BRAKE LIGHT (HARNESS P/N 2411801)

RELAY (P/N 4011283) TOP VIEW

TOP VIEW OF RELAY

RELAY
EPS RELAY
FUEL PUMP RELAY
FAN RELAY
EFI RELAY
CHASSIS RELAY

BUS A5-A7 BUS C3-C5-C7

(COVER REMOVED)

RELAY/FUSE BLOCK

15 AMP CIRCUIT BREAKER (P/N 2411086)

SPLICE,CPS SHIELD #1

SPLICE,CPS SHIELD #2

CRANKSHAFT SENSOR (P/N 2411719)

THROTTLE SENSOR	
PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

FUEL PUMP	
TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1 (0°)
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

COOLANT TEMP SENSOR

NOMINAL RESISTANCE:
AT 25°C±0.2°C 2.5KΩ
AT 120°C±1.2°C 0.1KΩ

MAG FUEL INJECTOR

RESISTANCE: 12Ω±0.5Ω
FUEL INJECTOR

T-MAP (P/N 2411528)

PRIMARY 0.4Ω±0.15Ω
SECONDARY 1.4KΩ±0.15Ω
IGNITION COIL (P/N 4011834)

SPLICE,IGNITION COIL SHIELD

THIN FLUSH ⊕ IGNITION COIL

START SOLENOID B+

START SOLENOID B+

START SOLENOID

BATTERY CABLE (P/N 4014947)

BATTERY CABLE (P/N 4014948)

BATTERY

STARTER MOTOR

FRAME GROUND

TERMINAL BLOCK

GND
ACC
B+

(P/N 4011892)

REGULATOR (P/N 4012941)

STATOR

(LOCATED UNDER RECOIL)

RESISTANCE (±20% @ 68°F/20°C)	
STATOR	CHARGE COIL	YE1 TO YE2	0.1Ω±0.02Ω
		YE2 TO YE3	0.1Ω±0.02Ω
		YE1 TO YE3	0.1Ω±0.02Ω

ECM,CODE 4

LAST 2 DIGITS OF (D0) SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (IE. 11=CAVITY 11)

ECM,CODE 13

LAST 2 DIGITS OF (D0) SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (IE. 21=CAVITY 21)

2015 RANGER 570 EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	.4014947	SGT	13.0	BK	BATTERY (-)	I	FRAME GROUND	I	BATTERY (-) TO FRAME (GROUND)
2	.4014948-001	SGT	13.0	RD	STARTER (B+)	I	START SOLENOID	I	STARTER TO START SOLENOID
3	.4014948-002	SGT	13.0	BK	STARTER (GROUND)	I	FRAME GROUND	I	STARTER (GROUND) TO FRAME (GROUND)
4	.4014949	SGT	13.0	RD	BATTERY (+)	I	START SOLENOID (B+)	I	BATTERY (+) TO START SOLENOID (B+)
5	001	TXL	3.0	YE	STATOR	A	VREG AC INPUT	P1	STATOR AC
6	002	TXL	3.0	YE	STATOR	B	VREG AC INPUT	P2	STATOR AC
7	003	TXL	3.0	YE	STATOR	C	VREG AC INPUT	P3	STATOR AC
8	004	TXL	5.0	BK	VREG DC OUTPUT	P1	GROUND,6mm RING #4	I	REGULATOR GND
9	005	TXL	5.0	RD	SPLICE,FUSIBLE LINK #5	2	VREG DC OUTPUT	P3	REGULATOR B+
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	OG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	OK SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B1A	TXL	3.0	RD	EPAS POWER FUSE	A	SPLICE,FUSIBLE LINK #3	2	EPAS FUSED B+
20	B1B	TXL	3.0	RD	RELAY/FUSE BLOCK	B3	EPAS POWER FUSE	B	EPAS FUSED B+
21	B1C	FUSIBLE LINK	1.0	BK	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #3	1	CHASSIS FUSED B+
22	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
23	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
24	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
25	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
26	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED B+
27	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
28	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
29	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+	D6	UNSWITCHED FUSED B+
30	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
31	B5B	TXL	0.8	RD/WH	SPLICE,B+ UNSWITCHED FUSED	1	DIAGNOSTIC	A	B+ UNSWITCHED FUSED
32	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
33	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
34	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
35	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
36	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
37	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
38	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
39	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
40	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
41	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
42	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
43	C02_1	TXL	0.5	WH	IGNITION COIL	P2	SPLICE,IGNITION POWER	1	ECM B+
44	C02_2	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	P1	IGNITION DRIVER 1
45	C02_3	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
46	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
47	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
48	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
49	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
50	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
51	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
52	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
53	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	2	CAN HIGH
54	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW
55	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH
56	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW
57	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
58	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
59	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
60	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
61	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
62	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
63	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
64	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
65	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
66	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
67	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
68	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
69	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
70	E140	TXL	0.5	BN/WH	RELAY/FUSE BLOCK	D8	ECM,CODE 4	140	CHASSIS RELAY ENABLE, SW. LOW
71	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
72	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
73	E155	TXL	0.8	RD/DB	SPLICE,ECM B+	2	ECM,CODE 4	155	ECM B+
74	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
75	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
76	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
77	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
78	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
79	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
80	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
81	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
82	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
83	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
84	E225	TXL	0.8	DB/YE	SEAT BELT SWITCH	B	ECM,CODE 13	225	SEAT BELT SWITCH
85	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
86	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
87	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
88	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
89	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
90	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
91	GF1	TXL	0.8	BN	GROUND,6mm RING #3	1	SPLICE,GROUND DASH	2	GROUND
92	GF12	TXL	3.0	BN	EPS POWER (A)	B	GROUND,6mm RING #4	1	GROUND,EPS POWER
93	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
94	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
95	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
96	GF2	TXL	0.5	BN	RELAY/FUSE BLOCK	B2	GROUND,6mm RING #3	1	GROUND
97	GF3	TXL	2.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
98	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
99	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
100	GF4	TXL	1.0	BN	FAN	A	GROUND,6mm RING #3	1	GROUND
101	GF5	TXL	1.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND	2	GROUND
102	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
103	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
104	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND,6mm RING #3	1	GROUND
105	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND,6mm RING #3	1	GROUND
106	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,6mm RING #3	1	GROUND
107	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND,6mm RING #3	1	GROUND
108	GM4	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
109	GM5	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,CPS SHIELD #2	2	GROUND
110	GM6	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,DVE5	2	GROUND
111	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND,6mm RING #4	1	GROUND
112	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND,6mm RING #4	1	GROUND
113	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,6mm RING #4	1	GROUND
114	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,6mm RING #4	1	GROUND
115	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND,6mm RING #1	1	GROUND
116	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,6mm RING #1	1	GROUND
117	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND,6mm RING #1	1	GROUND

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SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND,6mm RING #1	1	GROUND
119	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,B/S B+	2	KEY SWITCH B+
120	K02	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	SPLICE,B/S B+	1	KEY SWITCH B+
121	K02A	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	RELAY/FUSE BLOCK	D2	KEY SWITCH,B+ CHASSIS RELAY COIL POWER
122	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,B/S B+	2	KEY SWITCH B+
123	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,B/S B+	2	KEY SWITCH B+
124	K06	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,B/S B+	1	KEY SWITCH B+
125	K116	TXL	0.5	OG	SPLICE,B/S B+	2	ECM,CODE 4	116	KEY SWITCH B+
126	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
127	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
128	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
129	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
130	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
131	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
132	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
133	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
134	RC6A	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	1	TAIL/BRAKE LIGHT	A	LIGHTS,B+ LIGHTS FUSE OUT
135	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
136	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
137	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
138	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
139	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
140	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
141	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
142	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
143	REE	TXL	0.8	RD/DB	SPLICE,ECM B+	1	REVERSE BEEPER #2	1	ECM B+
144	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
145	REG	TXL	0.8	RD/DB	SPLICE,ECM B+	1	DIAGNOSTIC	B	ECM B+
146	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
147	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
148	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
149	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
150	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
151	RS	TXL	3.0	OG	RELAY/FUSE BLOCK	A2	EPS POWER (A)	A	EPS RELAY POWER OUT
152	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
153	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
154	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
155	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
156	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

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2015 RANGER 570 CREW NON-EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH NO-TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

= ENGINE GROUND

= CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

SEAT BELT SWITCH

12V RECEPTACLE (P/N 4012393)

12V RECEPTACLE (P/N 4012393)

HEADLIGHT SWITCH (P/N 4011155)

AWD SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)

PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012765)

OFF, ON, START

DIAGNOSTIC

REVERSE BEEPER

REAR DIFFERENTIAL SOLENOID (LOCATED ON REAR DIFFERENTIAL)

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

TURF SOLENOID DRIVER (P/N 4012829)

PIN A: BAT (RD)
PIN B: COM (GN)
PIN C: GND (BN)

PIN A: SOL + (RD)
PIN B: SOL - (BU)

TRANSMISSION SWITCH

HIGH
LOW
NEU
REV
PARK

SPEED SENSOR

HALL SENSOR
POWER IN PIN "A"
V OUT PIN "C"
COMMON PIN "B"
(LOCATED ON TRANSMISSION)

ELECTRONIC THROTTLE CONTROL

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH @ SPLICE,DVES

SPLICE,DVES

BRAKE PRESSURE SWITCH

SPLICE,BRAKE PRESSURE SWITCH

FAN MOTOR

SPLICE,GROUND RECEPTACLE

SPLICE,B+ UNSWITCHED FUSED

SPLICE,R/S B+

24Ω 11 VOLTS MIN. @ 20°C RGB COIL

AWD HUB COIL

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411788)

SPLICE,HIGH BEAM

SPLICE,LOW BEAM

SPLICE,GROUND

SPLICE,ECM B+

SPLICE,CAN HIGH

SPLICE,CAN LOW

SPLICE,B+ ACC FUSE OUT

SPLICE,IGNITION POWER

SPLICE,DRIVE

SPLICE,LIGHTS B+

SPLICE,SENSOR GROUND

SPLICE,GROUND DASH

TAIL/BRAKE LIGHT (HARNESS P/N 2411801)

RELAY (P/N 4011283)

TOP VIEW OF RELAY

15 AMP CIRCUIT BREAKER (P/N 2411066)

SPLICE,CPS SHIELD #1

SPLICE,CPS SHIELD #2

SPLICE,IGNITION COIL SHIELD

TERMINAL BLOCK (P/N 4011892)

REGULATOR (P/N 4012941)

BATTERY CABLE (P/N 4014947)

BATTERY CABLE (P/N 4014948)

BATTERY

STARTER MOTOR

STATOR

RESISTANCES (@25°C/77°F)		
STATOR	CHARGE COIL	YE1 TO YE2 (0.1 Ω ±20%)
		YE2 TO YE3 (0.1 Ω ±20%)
		YE1 TO YE3 (0.1 Ω ±20%)

(LOCATED UNDER RECOIL)

RELAY/FUSE BLOCK

FUEL PUMP RELAY
FAN RELAY
EFI RELAY
CHASSIS RELAY

CRANK POSITION SENSOR (P/N 2411719)

THROTTLE SENSOR

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

FUEL PUMP	
TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1.0Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

NOMINAL RESISTANCE:
AT 25°C/77°F 2.9 Ω ±3%
AT 120°C/248°F 22 Ω ±3%
COOLANT TEMP SENSOR

MAG FUEL INJECTOR

RESISTANCE: (12±0.5Ω FUEL INJECTOR

T-MAP (P/N 2411528)

PRIMARY: 0.42±0.15Ω
SECONDARY: 0.45±0.15Ω
IGNITION COIL (P/N 4013341)

START SOLENOID B+

START SOLENOID B+

START SOLENOID

FRAME GROUND

ECM,CODE 4

ECM,CODE 13

LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (1C, 11C=CAVITY 10)

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (1C, 21C=CAVITY 10)

2015 RANGER 570 CREW NON-EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 2 OF 2

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	.4014947	SGT	13.0	BK	BATTERY (-)	1	FRAME GROUND	1	BATTERY (-) TO FRAME (GROUND)
2	.4014948-001	SGT	13.0	RD	STARTER (B+)	1	START SOLENOID	1	STARTER TO START SOLENOID
3	.4014948-002	SGT	13.0	BK	STARTER (GROUND)	1	FRAME GROUND	1	STARTER (GROUND) TO FRAME (GROUND)
4	.4014949	SGT	13.0	RD	BATTERY (+)	1	START SOLENOID (B+)	1	BATTERY (+) TO START SOLENOID (B+)
5	001	TXL	3.0	YE	STATOR	A	VREG AC INPUT	P1	STATOR AC
6	002	TXL	3.0	YE	STATOR	B	VREG AC INPUT	P2	STATOR AC
7	003	TXL	3.0	YE	STATOR	C	VREG AC INPUT	P3	STATOR AC
8	004	TXL	5.0	BK	VREG DC OUTPUT	P1	GROUND,6mm RING #4	1	REGULATOR GND
9	005	TXL	5.0	RD	SPLICE,FUSIBLE LINK #5	2	VREG DC OUTPUT	P3	REGULATOR B+
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	K/F SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
20	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
21	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
22	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
23	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED LINK
24	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
25	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
26	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	RELAY/FUSE BLOCK	D6	UNSWITCHED FUSED B+
27	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
28	B5B	TXL	0.8	RD/WH	SPLICE,B+ UNSWITCHED FUSED	1	DIAGNOSTIC	A	B+ UNSWITCHED FUSED
29	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
30	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
31	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
32	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
33	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
34	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
35	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
36	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
37	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
38	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
39	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
40	C02_1	TXL	0.5	WH	IGNITION COIL	P2	SPLICE,IGNITION POWER	1	ECM B+
41	C02_2	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	P1	IGNITION DRIVER 1
42	C02_3	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
43	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
44	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
45	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
46	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
47	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
48	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
49	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
50	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	1	CAN HIGH
51	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	1	CAN LOW
52	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
53	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
54	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
55	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
56	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
57	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
58	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
59	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
60	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
61	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
62	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
63	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
64	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
65	E140	TXL	0.5	BN/WH	RELAY/FUSE BLOCK	D8	ECM,CODE 4	140	CHASSIS RELAY ENABLE, SW. LOW
66	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
67	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
68	E155	TXL	0.8	RD/DB	SPLICE,ECM B+	2	ECM,CODE 4	155	ECM B+
69	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
70	E203	TXL	0.5	OG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
71	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
72	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
73	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
74	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
75	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
76	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
77	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
78	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
79	E225	TXL	0.8	DB/YE	SEAT BELT SWITCH	B	ECM,CODE 13	225	SEAT BELT SWITCH
80	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
81	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
82	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
83	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
84	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
85	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
86	GF1	TXL	0.8	BN	GROUND,6mm RING #3	1	SPLICE,GROUND DASH	2	GROUND
87	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
88	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
89	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
90	GF3	TXL	2.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
91	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
92	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
93	GF4	TXL	1.0	BN	FAN	A	GROUND,6mm RING #3	1	GROUND
94	GF5	TXL	1.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND	2	GROUND
95	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
96	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
97	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND,6mm RING #3	1	GROUND
98	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND,6mm RING #3	1	GROUND
99	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,6mm RING #3	1	GROUND
100	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND,6mm RING #3	1	GROUND
101	GM4	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
102	GM5	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,CPS SHIELD #2	2	GROUND
103	GM6	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,DVE5	2	GROUND
104	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND,6mm RING #4	1	GROUND
105	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND,6mm RING #4	1	GROUND
106	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,6mm RING #4	1	GROUND
107	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,6mm RING #4	1	GROUND
108	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND,6mm RING #1	1	GROUND
109	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,6mm RING #1	1	GROUND
110	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND,6mm RING #1	1	GROUND
111	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND,6mm RING #1	1	GROUND
112	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
113	K02	TXL	0.5	OG	SPLICE,R/S B+	1	RELAY/FUSE BLOCK	D2	KEY SWITCH,B+ CHASSIS RELAY COIL POWER
114	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
115	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
116	K116	TXL	0.5	OG	SPLICE,R/S B+	2	ECM,CODE 4	116	KEY SWITCH B+
117	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT

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SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
119	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
120	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
121	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
122	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
123	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
124	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
125	RC6A	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	1	TAIL/BRAKE LIGHT	A	LIGHTS,B+ LIGHTS FUSE OUT
126	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
127	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
128	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
129	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
130	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
131	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
132	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
133	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
134	REE	TXL	0.8	RD/DB	SPLICE,ECM B+	1	REVERSE BEEPER #2	1	ECM B+
135	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
136	REG	TXL	0.8	RD/DB	SPLICE,ECM B+	1	DIAGNOSTIC	B	ECM B+
137	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
138	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
139	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
140	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
141	RF	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
142	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
143	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
144	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
145	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
146	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

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2015 RANGER 570 CREW EPS (CHASSIS)

WIRE COLOR LEGEND	
BK	BLACK
BL	BLUE
BR	LIGHT BLUE
BN	BROWN
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
TN	TAN

TWO WIRE COLORS ARE SHOWN WITH MAIN COLOR/TRACE COLOR. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V

SEAT BELT SWITCH

POWER STEERING ASSEMBLY (P/N 2411224)

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (NEG. REF)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (NEG. REF)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

12V RECEPTACLE (P/N 4012393)

12V RECEPTACLE (P/N 4012393)

HEADLIGHT SWITCH (P/N 4011151)

AWD SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)			
PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012165)

OFF
ON
START

DIAGNOSTIC

EPAS POWER FUSE

REVERSE BEEPER

REAR DIFFERENTIAL SOLENOID (LOCATED ON REAR DIFFERENTIAL)

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

PIN A: BAT (RD)
PIN B: COM (GN)
PIN C: GND (BN)

PIN A: SOL + (RD)
PIN B: SOL - (BU)

TURF SOLENOID DRIVER (P/N 4012029)

TRANSMISSION SWITCH

HIGH
LOW
NEU
REV
PARK

SPEED SENSOR

HALL SENSOR

POWER IN PIN "A"

V OUT PIN "C"

COMMON PIN "B"

(LOCATED ON TRANSMISSION)

ELECTRONIC THROTTLE CONTROL

PIN	FUNCTION
1	TPS 1
2	TPS RETURN
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH ⊕ SVES

SPLICE,SVES

BRAKE PRESSURE SWITCH

FAN MOTOR

SPLICE,BRAKE PRESSURE SWITCH

SPLICE,GROUND RECEPTACLE

SPLICE,B+ UNSWITCHED FUSED

SPLICE,R/S B+

24Ω 11 VOLT MIN. 13 VOLT MAX. RGB COIL

AWD HUB COIL

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411784)

SPLICE,HIGH BEAM

SPLICE,LOW BEAM

SPLICE,GROUND

SPLICE,ECM B+

SPLICE,B+ ACC FUSE OUT

SPLICE,IGNITION POWER

SPLICE,DRIVE

SPLICE,LIGHTS B+

SPLICE,CAN HIGH

SPLICE,CAN LOW

TAIL/BRAKE LIGHT (HARNESS P/N 2411801)

SPLICE,SENSOR GROUND

SPLICE,GROUND DASH

RELAY (P/N 4011283) TOP VIEW

TOP VIEW OF RELAY

(5X)

FUSE BLOCK	
EPS RELAY	
FUEL PUMP RELAY	
FAN RELAY	
EFI RELAY	
CHASSIS RELAY	

BUS A5-A7 BUS C3-C5-C7

(COVER REMOVED)

RELAY/FUSE BLOCK

15 AMP CIRCUIT BREAKER (P/N 2411086)

SPLICE,CPS SHIELD #1

SPLICE,CPS SHIELD #2

CRANKSHAFT SENSOR (P/N 2411719)

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

THROTTLE SENSOR

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1.0Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

NOMINAL RESISTANCE:
AT 25°C±0.8 Ω 2.3KΩ
AT 120°C±1.2Ω 0.2KΩ

COOLANT TEMP SENSOR

RESISTANCE: 12Ω±0.5Ω

MAG FUEL INJECTOR

T-MAP (P/N 2411528)

PRIMARY 0.4Ω±0.15Ω
SECONDARY 1.4KΩ±15Ω

IGNITION COIL (P/N 4011834)

SPLICE,IGNITION COIL SHIELD

TRIM FLUSH ⊕ IGNITION COIL

START SOLENOID B+

START SOLENOID B+

START SOLENOID

BATTERY CABLE (P/N 4014947)

BATTERY CABLE (P/N 4014948)

BATTERY

STARTER MOTOR

FRAME GROUND

TERMINAL BLOCK

GND
ACC
B+

(P/N 4011892)

REGULATOR (P/N 4012941)

(LOCATED UNDER RECOIL)

STATOR RESISTANCES (±20%@ 68°F/20°C)	
CHARGE COIL	YE1 TO YE2 (0.1Ω±20%)
	YE2 TO YE3 (0.1Ω±20%)
	YE1 TO YE3 (0.1Ω±20%)

ECM,CODE 4

LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E. 112=CAVITY 12)

ECM,CODE 13

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E. 210=CAVITY 10)

2015 RANGER 570 CREW EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	.4014947	SGT	13.0	BK	BATTERY (-)	I	FRAME GROUND	I	BATTERY (-) TO FRAME (GROUND)
2	.4014948-001	SGT	13.0	RD	STARTER (B+)	I	START SOLENOID	I	STARTER TO START SOLENOID
3	.4014948-002	SGT	13.0	BK	STARTER (GROUND)	I	FRAME GROUND	I	STARTER (GROUND) TO FRAME (GROUND)
4	.4014949	SGT	13.0	RD	BATTERY (+)	I	START SOLENOID (B+)	I	BATTERY (+) TO START SOLENOID (B+)
5	001	TXL	3.0	YE	STATOR	A	VREG AC INPUT	P1	STATOR AC
6	002	TXL	3.0	YE	STATOR	B	VREG AC INPUT	P2	STATOR AC
7	003	TXL	3.0	YE	STATOR	C	VREG AC INPUT	P3	STATOR AC
8	004	TXL	5.0	BK	VREG DC OUTPUT	P1	GROUND,6mm RING #4	I	REGULATOR GND
9	005	TXL	5.0	RD	SPLICE,FUSIBLE LINK #5	2	VREG DC OUTPUT	P3	REGULATOR B+
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	OG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	OIL SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B1A	TXL	3.0	RD	EPAS POWER FUSE	A	SPLICE,FUSIBLE LINK #3	2	EPAS FUSED B+
20	B1B	TXL	3.0	RD	RELAY/FUSE BLOCK	B3	EPAS POWER FUSE	B	EPAS FUSED B+
21	B1C	FUSIBLE LINK	1.0	BK	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #3	1	CHASSIS FUSED B+
22	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
23	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
24	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
25	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
26	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED LINK
27	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
28	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
29	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+	D6	UNSWITCHED FUSED B+
30	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
31	B5B	TXL	0.8	RD/WH	SPLICE,B+ UNSWITCHED FUSED	1	DIAGNOSTIC	A	B+ UNSWITCHED FUSED
32	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
33	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
34	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
35	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
36	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
37	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
38	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
39	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
40	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
41	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
42	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
43	C02_1	TXL	0.5	WH	IGNITION COIL	P2	SPLICE,IGNITION POWER	1	ECM B+
44	C02_2	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	P1	IGNITION DRIVER 1
45	C02_3	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
46	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
47	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
48	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
49	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
50	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
51	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
52	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
53	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	2	CAN HIGH
54	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW
55	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH
56	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW
57	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
58	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
59	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
60	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
61	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
62	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
63	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
64	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
65	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
66	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
67	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
68	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
69	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
70	E140	TXL	0.5	BN/WH	RELAY/FUSE BLOCK	D8	ECM,CODE 4	140	CHASSIS RELAY ENABLE, SW. LOW
71	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
72	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
73	E155	TXL	0.8	RD/DB	SPLICE,ECM B+	2	ECM,CODE 4	155	ECM B+
74	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
75	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
76	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
77	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
78	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
79	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
80	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
81	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
82	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
83	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
84	E225	TXL	0.8	DB/YE	SEAT BELT SWITCH	B	ECM,CODE 13	225	SEAT BELT SWITCH
85	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
86	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
87	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
88	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
89	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
90	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
91	GF1	TXL	0.8	BN	GROUND,6mm RING #3	1	SPLICE,GROUND DASH	2	GROUND
92	GF12	TXL	3.0	BN	EPS POWER (A)	B	GROUND,6mm RING #4	1	GROUND,EPS POWER
93	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
94	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
95	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
96	GF2	TXL	0.5	BN	RELAY/FUSE BLOCK	B2	GROUND,6mm RING #3	1	GROUND
97	GF3	TXL	2.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
98	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
99	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
100	GF4	TXL	1.0	BN	FAN	A	GROUND,6mm RING #3	1	GROUND
101	GF5	TXL	1.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND	2	GROUND
102	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
103	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
104	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND,6mm RING #3	1	GROUND
105	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND,6mm RING #3	1	GROUND
106	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,6mm RING #3	1	GROUND
107	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND,6mm RING #3	1	GROUND
108	GM4	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
109	GM5	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,CPS SHIELD #2	2	GROUND
110	GM6	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,DVE5	2	GROUND
111	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND,6mm RING #4	1	GROUND
112	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND,6mm RING #4	1	GROUND
113	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,6mm RING #4	1	GROUND
114	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,6mm RING #4	1	GROUND
115	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND,6mm RING #1	1	GROUND
116	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,6mm RING #1	1	GROUND
117	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND,6mm RING #1	1	GROUND

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SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND,6mm RING #1	1	GROUND
119	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
120	K02	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	SPLICE,R/S B+	1	KEY SWITCH B+
121	K02A	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	RELAY/FUSE BLOCK	D2	KEY SWITCH,B+ CHASSIS RELAY COIL POWER
122	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
123	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
124	K06	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+	1	KEY SWITCH B+
125	K116	TXL	0.5	OG	SPLICE,R/S B+	2	ECM,CODE 4	116	KEY SWITCH B+
126	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
127	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
128	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
129	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
130	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
131	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
132	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
133	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
134	RC6A	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	1	TAIL/BRAKE LIGHT	A	LIGHTS,B+ LIGHTS FUSE OUT
135	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
136	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
137	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
138	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
139	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
140	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
141	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
142	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
143	REE	TXL	0.8	RD/DB	SPLICE,ECM B+	1	REVERSE BEEPER #2	1	ECM B+
144	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
145	REG	TXL	0.8	RD/DB	SPLICE,ECM B+	1	DIAGNOSTIC	B	ECM B+
146	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
147	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
148	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
149	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
150	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
151	RS	TXL	3.0	OG	RELAY/FUSE BLOCK	A2	EPS POWER (A)	A	EPS RELAY POWER OUT
152	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
153	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
154	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
155	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
156	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

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2015 RANGER 900 XP NON-EPS (CHASSIS)

WIRE COLOR CODES	
BK	BLACK
BL	BLUE
BR	LIGHT BLUE
BN	BROWN
GY	GRAY
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

12V RECEPTACLE (P/N 4012393)

12V RECEPTACLE (P/N 4012393)

HEADLIGHT SWITCH (P/N 4011151)

AWD SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)

PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	
2	CAN LOW	10	
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	
6	RIGHT TURN SIGNAL INPUT	14	
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012765)

DIAGNOSTIC

REVERSE BEEPER

REAR DIFFERENTIAL SOLENOID (LOCATED ON REAR DIFFERENTIAL)

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

TURF SOLENOID DRIVER (P/N 4012829)

TRANSMISSION SWITCH

SPEED SENSOR

(LOCATED ON TRANSMISSION)

ELECTRONIC THROTTLE CONTROL (P/N 1204455)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

BRAKE PRESSURE SWITCH

FAN MOTOR

24Ω 11 VOLTS MIN. 13 VOLTS MAX. HUB COIL

AWD HUB COIL

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411788)

TAIL/BRAKE LIGHT (HARNESS P/N 2411801)

RELAY (P/N 4011283)

TOP VIEW OF RELAY

20 AMP CIRCUIT BREAKER (P/N 2410881)

FUEL PUMP RELAY

FAN RELAY

EFI RELAY

CHASSIS RELAY

RELAY/FUSE BLOCK

TOP VIEW

(COVER REMOVED)

BUS A5-A7
BUS C3-C5-C7

CRANK POSITION SENSOR (P/N 2411119)

THROTTLE SENSOR

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1.0Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

NOMINAL RESISTANCE:
AT 25°C±2.8°C: 29.8 KΩ
AT 120°C±1.22°C: 1.22 KΩ
COOLANT TEMP SENSOR

PTO FUEL INJECTOR

WAG FUEL INJECTOR

RESISTANCE: 12Ω±0.5Ω
FUEL INJECTOR

T-MAP (P/N 2411528)

PIN	FUNCTION
1	GROUND
2	5 VDC
3	MAP SIGNAL
4	INTAKE AIR TEMP SENSOR

IGNITION COIL (P/N 4014625)

TRIM FLUSH ⊕ SPLICE,DVES

SPLICE,BRAKE PRESSURE SWITCH

SPLICE,GROUND RECEPTACLE

SPLICE,B+ UNSWITCHED FUSED

SPLICE,R/S B+

SPLICE,HIGH BEAM

SPLICE,LOW BEAM

SPLICE,GROUND

SPLICE,ECM B+

SPLICE,B+ ACC FUSE OUT

SPLICE,IGNITION POWER

SPLICE,DRIVE

SPLICE,LIGHTS B+

SPLICE,CPS SHIELD #1

SPLICE,CPS SHIELD #2

SPLICE,CAN HIGH

SPLICE,CAN LOW

SPLICE,IGNITION COIL SHIELD

SPLICE,FUSIBLE LINK #1

SPLICE,FUSIBLE LINK #2

SPLICE,FUSIBLE LINK #4

SPLICE,FUSIBLE LINK #5

SPLICE,SENSOR GROUND

SPLICE,GROUND DASH

ECM,CODE 4

ECM,CODE 13

LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (1C, 11C=CAVITY 10)

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (1C, 21C=CAVITY 10)

START SOLENOID B+

START SOLENOID B+

START SOLENOID

BATTERY

BATTERY CABLE (P/N 4014947)

BATTERY CABLE (P/N 4014948)

STARTER MOTOR

FRAME GROUND

STATOR

(LOCATED UNDER RECOIL)

RESISTANCES (±20% @ 68 °F/20 °C)	
STATOR CHARGE COIL	YE1 TO YE2 (1-2): 0.1 Ω±20%
	YE2 TO YE3 (2-3): 0.1 Ω±20%
	YE1 TO YE3 (1-3): 0.1 Ω±20%

TERMINAL BLOCK (P/N 4011892)

REGULATOR (4013978)

2015 RANGER 900 XP NON-EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 2 OF 2

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	.4014947	SGT	13.0	BK	BATTERY (-)	1	FRAME GROUND	1	BATTERY (-) TO FRAME (GROUND)
2	.4014948-001	SGT	13.0	RD	STARTER (B+)	1	START SOLENOID	1	STARTER TO START SOLENOID
3	.4014948-002	SGT	13.0	BK	STARTER (GROUND)	1	FRAME GROUND	1	STARTER (GROUND) TO FRAME (GROUND)
4	.4014949	SGT	13.0	RD	BATTERY (+)	1	START SOLENOID (B+)	1	BATTERY (+) TO START SOLENOID (B+)
5	001	TXL	3.0	YE	STATOR	A	REGULATOR AC	A	STATOR AC
6	002	TXL	3.0	YE	STATOR	B	REGULATOR AC	B	STATOR AC
7	003	TXL	3.0	YE	STATOR	C	REGULATOR AC	C	STATOR AC
8	004	TXL	5.0	BK	REGULATOR DC	B	GROUND,6mm RING #4	1	REGULATOR GND
9	005	TXL	5.0	RD	SPLICE,FUSIBLE LINK #5	2	REGULATOR DC	A	REGULATOR B+
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	KEY SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
20	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
21	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
22	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
23	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED LINK
24	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
25	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
26	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	RELAY/FUSE BLOCK	D6	UNSWITCHED FUSED B+
27	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
28	B5B	TXL	0.8	RD/WH	SPLICE,B+ UNSWITCHED FUSED	1	DIAGNOSTIC	A	B+ UNSWITCHED FUSED
29	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
30	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
31	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
32	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
33	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
34	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
35	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
36	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
37	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
38	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
39	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
40	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 (PTO)
41	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE,IGNITION POWER	1	ECM B+
42	C02_3	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 (MAG)
43	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
44	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
45	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
46	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
47	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
48	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
49	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
50	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
51	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	1	CAN HIGH
52	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	1	CAN LOW
53	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
54	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
55	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
56	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
57	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
58	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
59	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
60	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
61	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
62	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
63	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
64	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
65	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
66	E140	TXL	0.5	BN/WH	RELAY/FUSE BLOCK	D8	ECM,CODE 4	140	CHASSIS RELAY ENABLE, SW. LOW
67	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
68	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
69	E155	TXL	0.8	RD/DB	SPLICE,ECM B+	2	ECM,CODE 4	155	ECM B+
70	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
71	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
72	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
73	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
74	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
75	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
76	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
77	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
78	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
79	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
80	E225	TXL	0.8	DB/YE	SEAT BELT SWITCH	B	ECM,CODE 13	225	SEAT BELT SWITCH
81	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
82	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
83	E243	TXL	0.5	WH	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
84	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
85	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
86	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
87	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
88	GF1	TXL	0.8	BN	GROUND,6mm RING #3	1	SPLICE,GROUND DASH	2	GROUND
89	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
90	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
91	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
92	GF3	TXL	2.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
93	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
94	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
95	GF4	TXL	1.0	BN	FAN	A	GROUND,6mm RING #3	1	GROUND
96	GF5	TXL	1.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND	2	GROUND
97	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
98	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
99	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND,6mm RING #3	1	GROUND
100	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND,6mm RING #3	1	GROUND
101	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,6mm RING #3	1	GROUND
102	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND,6mm RING #3	1	GROUND
103	GM4	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
104	GM5	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,CPS SHIELD #2	2	GROUND
105	GM6	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,DVE5	2	GROUND
106	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND,6mm RING #4	1	GROUND
107	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND,6mm RING #4	1	GROUND
108	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,6mm RING #4	1	GROUND
109	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,6mm RING #4	1	GROUND
110	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND,6mm RING #1	1	GROUND
111	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,6mm RING #1	1	GROUND
112	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND,6mm RING #1	1	GROUND
113	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND,6mm RING #1	1	GROUND
114	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
115	K02	TXL	0.8	OG	SPLICE,R/S B+	1	RELAY/FUSE BLOCK	D2	KEY SWITCH B+
116	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
117	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+

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SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	K116	TXL	0.5	OG	SPLICE,R/S B+	2	ECM,CODE 4	116	KEY SWITCH B+
119	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
120	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
121	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
122	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
123	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
124	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
125	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
126	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
127	RC6A	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	1	TAIL/BRAKE LIGHT	A	LIGHTS,B+ LIGHTS FUSE OUT
128	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
129	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
130	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
131	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
132	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
133	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
134	REB	TXL	0.8	RD/DB	PTO FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
135	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
136	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
137	REE	TXL	0.8	RD/DB	SPLICE,ECM B+	1	REVERSE BEEPER #2	1	ECM B+
138	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
139	REG	TXL	0.8	RD/DB	SPLICE,ECM B+	1	DIAGNOSTIC	B	ECM B+
140	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
141	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
142	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	1	SPLICE,ECM B+	1	EFI B+
143	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
144	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
145	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
146	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
147	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
148	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
149	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

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2015 RANGER 900 XP EPS (CHASSIS)

WIRE COLOR CODES	
BK	BLACK
BU	BLUE
LB	LIGHT BLUE
DB	DARK BLUE
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OR	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
TN	TAN

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE: RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V

SEAT BELT SWITCH

POWER STEERING ASSEMBLY (P/N 2411224)

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (NEG. REF)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (NEG. REF)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

12V RECEPTACLE (P/N 4012393)

12V RECEPTACLE (P/N 4012393)

HEADLIGHT SWITCH (P/N 4011155)

AWD SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)			
PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012165)

DIAGNOSTIC

EPAS POWER FUSE

REVERSE BEEPER

REAR DIFFERENTIAL SOLENOID (LOCATED ON REAR DIFFERENTIAL)

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

PIN A: BAT (RD)
PIN B: COM (GY)
PIN C: GND (BK)

PIN A: SOL + (RD)
PIN B: SOL - (BU)

TURF SOLENOID DRIVER (P/N 4012029)

TRANSMISSION SWITCH

HIGH 24Ω
LOW 12Ω
NEU 140Ω
REV 280Ω
R2Ω
PARK

SPEED SENSOR

HALL SENSOR

POWER IN PIN "A"
V OUT PIN "C"
COMMON PIN "B"

(LOCATED ON TRANSMISSION)

ELECTRONIC THROTTLE CONTROL (P/N 1204455)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH ⊕ DVES

SPLICE,DVES

BRAKE PRESSURE SWITCH

FAN MOTOR

24Ω 11 VOLTS MIN. @ 70°F RGB COIL

AWD HUB COIL

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411784)

TAIL/BRAKE LIGHT (HARNESS P/N 2411801)

SPLICE,BRAKE PRESSURE SWITCH

SPLICE,GROUND RECEPTACLE

SPLICE,B+ UNSWITCHED FUSED

SPLICE,R/S B+

SPLICE,HIGH BEAM

SPLICE,LOW BEAM

SPLICE,GROUND

SPLICE,ECM B+

SPLICE,CAN HIGH

SPLICE,CAN LOW

SPLICE,B+ ACC FUSE OUT

SPLICE,IGNITION POWER

SPLICE,DRIVE

SPLICE,LIGHTS B+

SPLICE,SENSOR GROUND

SPLICE,GROUND DASH

20 AMP CIRCUIT BREAKER (P/N 2410851)

RELAY (P/N 4011283) TOP VIEW

TOP VIEW OF RELAY

(SX)

EPS RELAY
FUEL PUMP RELAY
FAN RELAY
EFI RELAY
CHASSIS RELAY

BUS A5-A7 BUS C5-C5-C7

RELAY/FUSE BLOCK

SPLICE,CPS SHIELD #1

SPLICE,CPS SHIELD #2

CRANKSHAFT SENSOR (P/N 2411719)

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

THROTTLE SENSOR

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1 (0")
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

NOMINAL RESISTANCE:
AT 25°C±1°C=2,9 Ω
AT 120°C±1°C=7,22 Ω

COOLANT TEMP SENSOR

RESISTANCE: 12Ω±0.5Ω

PTO FUEL INJECTOR

RESISTANCE: 12Ω±0.5Ω

MAG FUEL INJECTOR

T-MAP (P/N 2411528)

IGNITION COIL (P/N 4014625)

START SOLENOID B+

START SOLENOID B+

START SOLENOID

FRAME GROUND

BATTERY CABLE (P/N 4014947)

BATTERY CABLE (P/N 4014948)

BATTERY

STARTER MOTOR

(LOCATED UNDER RECOIL)

RESISTANCES (±20% @ 68°F/20°C)		
STATOR	CHARGE COIL	YE1 TO YE2 (0.1Ω±20%)
		YE2 TO YE3 (0.1Ω±20%)
		YE1 TO YE3 (0.1Ω±20%)

TERMINAL BLOCK

GND
ACC
B+

(P/N 4011892)

REGULATOR (4013978)

ECM,CODE 4

LAST 2 DIGITS OF (00 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (IE. 112=CAVITY 10)

ECM,CODE 13

LAST 2 DIGITS OF (00 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (IE. 210=CAVITY 10)

2015 RANGER 900 XP EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	.4014947	SGT	13.0	BK	BATTERY (-)	I	FRAME GROUND	I	BATTERY (-) TO FRAME (GROUND)
2	.4014948-001	SGT	13.0	RD	STARTER (B+)	I	START SOLENOID	I	STARTER TO START SOLENOID
3	.4014948-002	SGT	13.0	BK	STARTER (GROUND)	I	FRAME GROUND	I	STARTER (GROUND) TO FRAME (GROUND)
4	.4014949	SGT	13.0	RD	BATTERY (+)	I	START SOLENOID (B+)	I	BATTERY (+) TO START SOLENOID (B+)
5	001	TXL	3.0	YE	STATOR	A	REGULATOR AC	A	STATOR AC
6	002	TXL	3.0	YE	STATOR	B	REGULATOR AC	B	STATOR AC
7	003	TXL	3.0	YE	STATOR	C	REGULATOR AC	C	STATOR AC
8	004	TXL	5.0	BK	REGULATOR DC	B	GROUND,6mm RING #4	I	REGULATOR GND
9	005	TXL	5.0	RD	SPLICE,FUSIBLE LINK #5	2	REGULATOR DC	A	REGULATOR B+
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	OG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	NC SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B1A	TXL	3.0	RD	EPAS POWER FUSE	A	SPLICE,FUSIBLE LINK #3	2	EPAS FUSED B+
20	B1B	TXL	3.0	RD	RELAY/FUSE BLOCK	B3	EPAS POWER FUSE	B	EPAS FUSED B+
21	B1C	FUSIBLE LINK	1.0	BK	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #3	1	CHASSIS FUSED B+
22	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
23	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
24	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
25	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
26	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED B+ LINK
27	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
28	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
29	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	SPLICE,FUSE BLOCK	D6	UNSWITCHED FUSED B+
30	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
31	B5B	TXL	0.8	RD/WH	SPLICE,B+ UNSWITCHED FUSED	1	DIAGNOSTIC	A	B+ UNSWITCHED FUSED
32	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
33	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
34	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
35	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
36	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
37	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
38	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
39	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
40	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
41	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
42	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
43	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 (PTO)
44	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE,IGNITION POWER	1	ECM B+
45	C02_3	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 (MAG)
46	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
47	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
48	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
49	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
50	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
51	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
52	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
53	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
54	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	2	CAN HIGH
55	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW
56	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH
57	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW
58	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
59	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
60	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
61	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
62	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
63	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
64	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
65	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
66	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
67	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
68	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
69	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
70	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
71	E140	TXL	0.5	BN/WH	RELAY/FUSE BLOCK	D8	ECM,CODE 4	140	CHASSIS RELAY ENABLE, SW. LOW
72	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
73	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
74	E155	TXL	0.8	RD/DB	SPLICE,ECM B+	2	ECM,CODE 4	155	ECM B+
75	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
76	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
77	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
78	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
79	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
80	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
81	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
82	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
83	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
84	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
85	E225	TXL	0.8	DB/YE	SEAT BELT SWITCH	B	ECM,CODE 13	225	SEAT BELT SWITCH
86	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
87	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
88	E243	TXL	0.5	WH	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
89	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
90	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
91	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
92	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
93	GF1	TXL	0.8	BN	GROUND,6mm RING #3	1	SPLICE,GROUND DASH	2	GROUND
94	GF12	TXL	3.0	BN	EPS POWER (A)	B	GROUND,6mm RING #4	1	GROUND,EPS POWER
95	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
96	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
97	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
98	GF2	TXL	0.5	BN	RELAY/FUSE BLOCK	B2	GROUND,6mm RING #3	1	GROUND
99	GF3	TXL	2.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
100	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
101	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
102	GF4	TXL	1.0	BN	FAN	A	GROUND,6mm RING #3	1	GROUND
103	GF5	TXL	1.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND	2	GROUND
104	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
105	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
106	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND,6mm RING #3	1	GROUND
107	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND,6mm RING #3	1	GROUND
108	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,6mm RING #3	1	GROUND
109	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND,6mm RING #3	1	GROUND
110	GM4	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
111	GM5	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,CPS SHIELD #2	2	GROUND
112	GM6	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,DVE5	2	GROUND
113	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND,6mm RING #4	1	GROUND
114	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND,6mm RING #4	1	GROUND
115	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,6mm RING #4	1	GROUND
116	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,6mm RING #4	1	GROUND
117	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND,6mm RING #1	1	GROUND

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SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,6mm RING #1	1	GROUND
119	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND,6mm RING #1	1	GROUND
120	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND,6mm RING #1	1	GROUND
121	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
122	K02	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	SPLICE,R/S B+	1	KEY SWITCH B+
123	K02A	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	RELAY/FUSE BLOCK	D2	KEY SWITCH,B+ CHASSIS RELAY COIL POWER
124	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
125	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
126	K06	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+	1	KEY SWITCH B+
127	K116	TXL	0.5	OG	SPLICE,R/S B+	2	ECM,CODE 4	116	KEY SWITCH B+
128	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
129	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
130	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
131	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
132	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
133	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
134	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
135	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
136	RC6A	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	1	TAIL/BRAKE LIGHT	A	LIGHTS,B+ LIGHTS FUSE OUT
137	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
138	RC6CI	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
139	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
140	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
141	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
142	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
143	REB	TXL	0.8	RD/DB	PTO FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
144	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
145	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
146	REE	TXL	0.8	RD/DB	SPLICE,ECM B+	1	REVERSE BEEPER #2	1	ECM B+
147	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
148	REG	TXL	0.8	RD/DB	SPLICE,ECM B+	1	DIAGNOSTIC	B	ECM B+
149	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
150	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
151	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
152	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
153	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
154	RS	TXL	3.0	OG	RELAY/FUSE BLOCK	A2	EPS POWER (A)	A	EPS RELAY POWER OUT
155	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
156	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
157	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
158	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
159	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

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2015 RANGER 900 XP CREW NON-EPS (CHASSIS)

WIRE COLOR CODES	
BK	BLACK
BL	LIGHT BLUE
DB	DARK BLUE
GN	GREEN
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

SEAT BELT SWITCH

14V

12V RECEPTACLE (P/N 4012393)

12V RECEPTACLE (P/N 4012393)

HEADLIGHT SWITCH (P/N 4011151)

AWD SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)

PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	
2	CAN LOW	10	
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	
6	RIGHT TURN SIGNAL INPUT	14	
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012765)

OFF / ON / START

DIAGNOSTIC

REVERSE BEEPER

ELECTRONIC THROTTLE CONTROL (P/N 1204455)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH ⊕ DVES

SPLICE,DVES

BRAKE PRESSURE SWITCH

FAN MOTOR

24Ω 11 VOLTS MIN. RHD COIL

AWD HUB COIL

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411788)

TAIL/BRAKE LIGHT (HARNESS P/N 2411801)

RELAY (P/N 4011283)

TOP VIEW OF RELAY

20 AMP CIRCUIT BREAKER (P/N 2410881)

FUEL PUMP RELAY

FAN RELAY

EFI RELAY

CHASSIS RELAY

BUS A5-A7 BUS C3-C5-C7

(COVER REMOVED)

RELAY/FUSE BLOCK

SPLICE,BRAKE PRESSURE SWITCH

SPLICE,GROUND RECEPTACLE

SPLICE,B+ UNSWITCHED FUSED

SPLICE,R/S B+

SPLICE,HIGH BEAM

SPLICE,LOW BEAM

SPLICE,GROUND

SPLICE,ECM B+

SPLICE,B+ ACC FUSE OUT

SPLICE,IGNITION POWER

SPLICE,DRIVE

SPLICE,LIGHTS B+

SPLICE,CPS SHIELD #1

SPLICE,CPS SHIELD #2

SPLICE,CAN HIGH

SPLICE,CAN LOW

SPLICE,IGNITION COIL SHIELD

CRANK POSITION SENSOR (P/N 2411719)

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

THROTTLE SENSOR

FUEL PUMP	
TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1.0Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

NOMINAL RESISTANCE: AT 25°C±2.8°C 2.2Ω AT 120°C±2.8°C 0.3Ω

COOLANT TEMP SENSOR

PTO FUEL INJECTOR

RESISTANCE: 12Ω±0.5Ω

FUEL INJECTOR

WAG FUEL INJECTOR

RESISTANCE: 12Ω±0.5Ω

FUEL INJECTOR

1 GROUND, 2 NTC, 3 OUTPUT, 4 +5 VOLTS

INTAKE AIR TEMPERATURE SENSOR

T-MAP (P/N 2411528)

IGNITION COIL (P/N 4014625)

TRIM FLUSH ⊕ IGNITION COIL

START SOLENOID B+

START SOLENOID B+

START SOLENOID

FRAME GROUND

REAR DIFFERENTIAL SOLENOID (LOCATED ON REAR DIFFERENTIAL)

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

TURF SOLENOID DRIVER (P/N 4012029)

TRANSMISSION SWITCH

HIGH 24Ω

LOW 75Ω

NEU 140Ω

REV 290Ω

PARK 430Ω

SPEED SENSOR

HALL SENSOR

POWER IN PIN "A"

V OUT PIN "C"

COMMON PIN "B"

(LOCATED ON TRANSMISSION)

ECM,CODE 4

ECM,CODE 13

LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (1C, 11C=CAVITY 10)

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (1C, 21C=CAVITY 10)

TERMINAL BLOCK (P/N 4011892)

REGULATOR (4013978)

BATTERY CABLE (P/N 4014947)

BATTERY CABLE (P/N 4014948)

BATTERY

STARTER MOTOR

(LOCATED UNDER RECOIL)

RESISTANCES (±20% @ 68°F/20°C)		
STATOR	CHARGE COIL	YE1 TO YE2 TO: 0.1Ω±20%
		YE2 TO YE3 TO: 0.1Ω±20%
		YE1 TO YE3 TO: 0.2Ω±20%

2015 RANGER 900 XP CREW NON-EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 2 OF 2

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	.4014947	SGT	13.0	BK	BATTERY (-)	1	FRAME GROUND	1	BATTERY (-) TO FRAME (GROUND)
2	.4014948-001	SGT	13.0	RD	STARTER (B+)	1	START SOLENOID	1	STARTER TO START SOLENOID
3	.4014948-002	SGT	13.0	BK	STARTER (GROUND)	1	FRAME GROUND	1	STARTER (GROUND) TO FRAME (GROUND)
4	.4014949	SGT	13.0	RD	BATTERY (+)	1	START SOLENOID (B+)	1	BATTERY (+) TO START SOLENOID (B+)
5	001	TXL	3.0	YE	STATOR	A	REGULATOR AC	A	STATOR AC
6	002	TXL	3.0	YE	STATOR	B	REGULATOR AC	B	STATOR AC
7	003	TXL	3.0	YE	STATOR	C	REGULATOR AC	C	STATOR AC
8	004	TXL	5.0	BK	REGULATOR DC	B	GROUND,6mm RING #4	1	REGULATOR GND
9	005	TXL	5.0	RD	SPLICE,FUSIBLE LINK #5	2	REGULATOR DC	A	REGULATOR B+
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	KEY SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
20	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
21	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
22	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
23	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED LINK
24	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
25	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
26	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	RELAY/FUSE BLOCK	D6	UNSWITCHED FUSED B+
27	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
28	B5B	TXL	0.8	RD/WH	SPLICE,B+ UNSWITCHED FUSED	1	DIAGNOSTIC	A	B+ UNSWITCHED FUSED
29	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
30	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
31	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
32	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
33	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
34	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
35	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
36	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
37	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
38	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
39	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
40	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 (PTO)
41	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE,IGNITION POWER	1	ECM B+
42	C02_3	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 (MAG)
43	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
44	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
45	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
46	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
47	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
48	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
49	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
50	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
51	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	1	CAN HIGH
52	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	1	CAN LOW
53	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
54	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
55	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
56	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
57	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
58	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
59	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
60	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
61	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
62	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
63	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
64	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
65	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
66	E140	TXL	0.5	BN/WH	RELAY/FUSE BLOCK	D8	ECM,CODE 4	140	CHASSIS RELAY ENABLE, SW. LOW
67	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
68	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
69	E155	TXL	0.8	RD/DB	SPLICE,ECM B+	2	ECM,CODE 4	155	ECM B+
70	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
71	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
72	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
73	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
74	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
75	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
76	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
77	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
78	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
79	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
80	E225	TXL	0.8	DB/YE	SEAT BELT SWITCH	B	ECM,CODE 13	225	SEAT BELT SWITCH
81	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
82	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
83	E243	TXL	0.5	WH	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
84	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
85	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
86	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
87	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
88	GF1	TXL	0.8	BN	GROUND,6mm RING #3	1	SPLICE,GROUND DASH	2	GROUND
89	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
90	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
91	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
92	GF3	TXL	2.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
93	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
94	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
95	GF4	TXL	1.0	BN	FAN	A	GROUND,6mm RING #3	1	GROUND
96	GF5	TXL	1.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND	2	GROUND
97	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
98	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
99	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND,6mm RING #3	1	GROUND
100	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND,6mm RING #3	1	GROUND
101	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,6mm RING #3	1	GROUND
102	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND,6mm RING #3	1	GROUND
103	GM4	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
104	GM5	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,CPS SHIELD #2	2	GROUND
105	GM6	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,DVE5	2	GROUND
106	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND,6mm RING #4	1	GROUND
107	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND,6mm RING #4	1	GROUND
108	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,6mm RING #4	1	GROUND
109	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,6mm RING #4	1	GROUND
110	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND,6mm RING #1	1	GROUND
111	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,6mm RING #1	1	GROUND
112	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND,6mm RING #1	1	GROUND
113	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND,6mm RING #1	1	GROUND
114	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
115	K02	TXL	0.8	OG	SPLICE,R/S B+	1	RELAY/FUSE BLOCK	D2	KEY SWITCH B+
116	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
117	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+

01/20/14

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	K116	TXL	0.5	OG	SPLICE,R/S B+	2	ECM,CODE 4	116	KEY SWITCH B+
119	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
120	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
121	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
122	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
123	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
124	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
125	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
126	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
127	RC6A	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	1	TAIL/BRAKE LIGHT	A	LIGHTS,B+ LIGHTS FUSE OUT
128	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
129	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
130	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
131	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
132	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
133	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
134	REB	TXL	0.8	RD/DB	PTO FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
135	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
136	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
137	REE	TXL	0.8	RD/DB	SPLICE,ECM B+	1	REVERSE BEEPER #2	1	ECM B+
138	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
139	REG	TXL	0.8	RD/DB	SPLICE,ECM B+	1	DIAGNOSTIC	B	ECM B+
140	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
141	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
142	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
143	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
144	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
145	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
146	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
147	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
148	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
149	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

01/20/14

2015 RANGER 900 XP CREW EPS (CHASSIS)

WIRE COLOR CODES	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
GN	GREEN
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH HA-RATING COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V

SEAT BELT SWITCH

POWER STEERING ASSEMBLY (P/N 2411224)

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (NEG. REF)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (NEG. REF)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

12V RECEPTACLE (P/N 4012393)

12V RECEPTACLE (P/N 4012393)

HEADLIGHT SWITCH (P/N 4011115)

AWD SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 2280566)			
PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012165)

OFF
ON
START

DIAGNOSTIC

EPAS POWER FUSE

30

REVERSE BEEPER

EPS SIGNAL (B)

EPS POWER (A)

ELECTRONIC THROTTLE CONTROL (P/N 1204455)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH ⊕ DVES

SPLICE,DVES

BRAKE PRESSURE SWITCH

FAN MOTOR

24Ω 11 VOLTS MIN. @ 23°C (73°F) RHB COIL

AWD HUB COIL

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411784)

TAIL/BRAKE LIGHT (HARNESS P/N 2411801)

SPLICE,BRAKE PRESSURE SWITCH

SPLICE,GROUND RECEPTACLE

SPLICE,B+ UNSWITCHED FUSED

SPLICE,R/S B+

SPLICE,HIGH BEAM

SPLICE,LOW BEAM

SPLICE,GROUND

SPLICE,ECM B+

SPLICE,B+ ACC FUSE OUT

SPLICE,IGNITION POWER

SPLICE,DRIVE

SPLICE,LIGHTS B+

SPLICE,CAN HIGH

SPLICE,CAN LOW

SPLICE,SENSOR GROUND

SPLICE,GROUND DASH

REAR DIFFERENTIAL SOLENOID (LOCATED ON REAR DIFFERENTIAL)

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

PIN A: BAT (RD)
PIN B: COM (GN)
PIN C: GND (BN)

PIN A: SOL (RD)
PIN B: SOL (BU)

TURF SOLENOID DRIVER (P/N 4012029)

TRANSMISSION SWITCH

HIGH 24Ω
LOW 12Ω
NEU 140Ω
REV 280Ω
R2Ω
PARK

SPEED SENSOR

HALL SENSOR

POWER IN PIN "A"

V OUT PIN "C"

COMMON PIN "B"

(LOCATED ON TRANSMISSION)

ECM,CODE 4

LAST 2 DIGITS OF 120 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (IE. 112=CAVITY 10)

ECM,CODE 13

LAST 2 DIGITS OF 280 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (IE. 210=CAVITY 10)

TERMINAL BLOCK

GND
ACC
B+

(P/N 4011092)

REGULATOR (4013978)

BATTERY CABLE (P/N 4014947)

BATTERY CABLE (P/N 4014948)

BATTERY

STARTER MOTOR

START SOLENOID

START SOLENOID B+

FRAME GROUND

RELAY (P/N 4011283) TOP VIEW

TOP VIEW OF RELAY

(SX)

EPS RELAY
FUEL PUMP RELAY
FAN RELAY
EFI RELAY
CHASSIS RELAY

BUS A5-A7 BUS C3-C5-C7

RELAY/FUSE BLOCK

20 AMP CIRCUIT BREAKER (P/N 2410851)

SPLICE,CPS SHIELD #1

SPLICE,CPS SHIELD #2

CRANKSHAFT POSITION SENSOR (P/N 2411719)

FUEL PUMP	
TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1 (0°)
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

THROTTLE SENSOR

NOMINAL RESISTANCE: AT 25°C±2.8 Ω 2.3KΩ
AT 120°C±1.22 Ω 200Ω

COOLANT TEMP SENSOR

RESISTANCE: 12Ω±0.5Ω

PTO FUEL INJECTOR

RESISTANCE: 12Ω±0.5Ω

MAG FUEL INJECTOR

T-MAP (P/N 2411528)

IGNITION COIL (P/N 4014625)

TRIM FLUSH ⊕ IGNITION COIL

RESISTANCES (±20% @ 68°F/20°C)		
STATOR	CHARGE COIL	YE1 TO YE2 | 0.1 Ω ±20%
		YE2 TO YE3 | 0.1 Ω ±20%
		YE1 TO YE3 | 0.3 Ω ±20%

(LOCATED UNDER RECOIL)

2015 RANGER 900 XP CREW EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	.4014947	SGT	13.0	BK	BATTERY (-)	1	FRAME GROUND	1	BATTERY (-) TO FRAME (GROUND)
2	.4014948-001	SGT	13.0	RD	STARTER (B+)	1	START SOLENOID	1	STARTER TO START SOLENOID
3	.4014948-002	SGT	13.0	BK	STARTER (GROUND)	1	FRAME GROUND	1	STARTER (GROUND) TO FRAME (GROUND)
4	.4014949	SGT	13.0	RD	BATTERY (+)	1	START SOLENOID (B+)	1	BATTERY (+) TO START SOLENOID (B+)
5	001	TXL	3.0	YE	STATOR	A	REGULATOR AC	A	STATOR AC
6	002	TXL	3.0	YE	STATOR	B	REGULATOR AC	B	STATOR AC
7	003	TXL	3.0	YE	STATOR	C	REGULATOR AC	C	STATOR AC
8	004	TXL	5.0	BK	REGULATOR DC	B	GROUND,6mm RING #4	1	REGULATOR GND
9	005	TXL	5.0	RD	SPLICE,FUSIBLE LINK #5	2	REGULATOR DC	A	REGULATOR B+
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	OG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	N/O SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B1A	TXL	3.0	RD	EPAS POWER FUSE	A	SPLICE,FUSIBLE LINK #3	2	EPAS FUSED B+
20	B1B	TXL	3.0	RD	RELAY/FUSE BLOCK	B3	EPAS POWER FUSE	B	EPAS FUSED B+
21	B1C	FUSIBLE LINK	1.0	BK	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #3	1	CHASSIS FUSED B+
22	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
23	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
24	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
25	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
26	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED B+ LINK
27	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
28	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
29	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	SPLICE,FUSE BLOCK	D6	UNSWITCHED FUSED B+
30	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
31	B5B	TXL	0.8	RD/WH	SPLICE,B+ UNSWITCHED FUSED	1	DIAGNOSTIC	A	B+ UNSWITCHED FUSED
32	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
33	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
34	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
35	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
36	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
37	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
38	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
39	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
40	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
41	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
42	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
43	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 (PTO)
44	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE,IGNITION POWER	1	ECM B+
45	C02_3	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 (MAG)
46	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
47	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
48	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
49	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
50	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
51	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
52	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
53	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
54	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	2	CAN HIGH
55	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW
56	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH
57	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW
58	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
59	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
60	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
61	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
62	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
63	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
64	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
65	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
66	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
67	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
68	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
69	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
70	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
71	E140	TXL	0.5	BN/WH	RELAY/FUSE BLOCK	D8	ECM,CODE 4	140	CHASSIS RELAY ENABLE, SW. LOW
72	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
73	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
74	E155	TXL	0.8	RD/DB	SPLICE,ECM B+	2	ECM,CODE 4	155	ECM B+
75	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
76	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
77	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
78	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
79	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
80	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
81	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
82	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
83	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
84	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
85	E225	TXL	0.8	DB/YE	SEAT BELT SWITCH	B	ECM,CODE 13	225	SEAT BELT SWITCH
86	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
87	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
88	E243	TXL	0.5	WH	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
89	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
90	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
91	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
92	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
93	GF1	TXL	0.8	BN	GROUND,6mm RING #3	1	SPLICE,GROUND DASH	2	GROUND
94	GF12	TXL	3.0	BN	EPS POWER (A)	B	GROUND,6mm RING #4	1	GROUND,EPS POWER
95	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
96	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
97	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
98	GF2	TXL	0.5	BN	RELAY/FUSE BLOCK	B2	GROUND,6mm RING #3	1	GROUND
99	GF3	TXL	2.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
100	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
101	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
102	GF4	TXL	1.0	BN	FAN	A	GROUND,6mm RING #3	1	GROUND
103	GF5	TXL	1.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND	2	GROUND
104	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
105	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
106	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND,6mm RING #3	1	GROUND
107	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND,6mm RING #3	1	GROUND
108	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,6mm RING #3	1	GROUND
109	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND,6mm RING #3	1	GROUND
110	GM4	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
111	GM5	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,CPS SHIELD #2	2	GROUND
112	GM6	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,DVE5	2	GROUND
113	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND,6mm RING #4	1	GROUND
114	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND,6mm RING #4	1	GROUND
115	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,6mm RING #4	1	GROUND
116	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,6mm RING #4	1	GROUND
117	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND,6mm RING #1	1	GROUND

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SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,6mm RING #1	1	GROUND
119	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND,6mm RING #1	1	GROUND
120	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND,6mm RING #1	1	GROUND
121	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
122	K02	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	SPLICE,R/S B+	1	KEY SWITCH B+
123	K02A	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	RELAY/FUSE BLOCK	D2	KEY SWITCH,B+ CHASSIS RELAY COIL POWER
124	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
125	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
126	K06	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+	1	KEY SWITCH B+
127	K116	TXL	0.5	OG	SPLICE,R/S B+	2	ECM,CODE 4	116	KEY SWITCH B+
128	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
129	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
130	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
131	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
132	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
133	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
134	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
135	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,L.LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
136	RC6A	TXL	0.8	RD/YE	SPLICE,L.LIGHTS B+	1	TAIL/BRAKE LIGHT	A	LIGHTS,B+ LIGHTS FUSE OUT
137	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,L.LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
138	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
139	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
140	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
141	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
142	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
143	REB	TXL	0.8	RD/DB	PTO FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
144	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
145	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
146	REE	TXL	0.8	RD/DB	SPLICE,ECM B+	1	REVERSE BEEPER #2	1	ECM B+
147	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
148	REG	TXL	0.8	RD/DB	SPLICE,ECM B+	1	DIAGNOSTIC	B	ECM B+
149	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
150	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
151	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
152	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
153	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
154	RS	TXL	3.0	OG	RELAY/FUSE BLOCK	A2	EPS POWER (A)	A	EPS RELAY POWER OUT
155	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
156	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
157	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
158	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
159	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

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2016 RANGER 570

WIRE COLOR LEGEND	
BK	BLACK
BL	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CR	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE 18GY/R = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

ELECTRONIC THROTTLE CONTROL (P/N 7204455)

P/N	FUNCTION
1	TPS 1
2	TPS RETURN
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5V TPS SUPPLY

SPEEDOMETER (P/N 3280592)

KEY SWITCH (P/N 4012166)

	B	S	I	E	E1	E2
OFF						
ON LIGHTS	○		○		○	
START	○	○	○	○		

AWD SWITCH (P/N 4010601)

12V RECEPTACLE (P/N 4012393)

THROTTLE SENSOR (P/N 4012457)

P/N	FUNCTION
A	APS SIGNAL 1
B	GND
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	APS SIGNAL 2
F	GND 2

SEAT BELT SWITCH

TRANSMISSION SWITCH

HIGH 24Ω
LOW 70Ω
NEU 140Ω
REV 390Ω
PARK 620Ω

SPEED SENSOR (LOCATED ON TRANSMISSION)

HALL SENSOR
POWER IN PIN "A"
V OUT PIN "C"
COMMON PIN "B"

TAILLIGHT HARNESS

RH HEADLIGHT (P/N 2410616)

LH HEADLIGHT (P/N 2410615)

(HEADLIGHT BULB SERVICE P/N 4010253)

AWD/ADC HUB COIL

ADC COIL 12Ω

AWD COIL 24Ω

FAN MOTOR

BRAKE PRESSURE SWITCH

RELAY/FUSEBLOCK

ECM,CODE 4

ECM,CODE 13

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER I.E. 2(DIGICAVITY 10) (MODULE A/RIGHT EXIT ON ECM)

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER I.E. 2(DIGICAVITY 10) (MODULE B/RIGHT EXIT ON ECM)

SPLICE,B+ UNSWITCHED FUSED #2
B4B3 RD/WH → B4B31 RD, B4B32 RD/WH, B4B33 RD

SPLICE,R/S B+ #1
K02 OG → K03 OG, K01 OG, K24 OG

SPLICE,R/S B+ #2
K02 OG, K02C OG → K02A OG, K11A OG

SPLICE,CAN LOW
C3L DG → C2L DG, C1L DG

SPLICE,CAN HIGH
C3H YE → C2H YE, C1H YE

SPLICE,LOW BEAM
20LB DG, 20LC DG → 20LA DG

SPLICE,EFI B+
RE140 RD/DB → RE2 RD/DB, RE155 RD/DB, RE156 RD/DB, REC RD/DB

SPLICE,LIGHTS B+
RC6A RD/YE, RC6B RD/YE, RC6C RD/YE, RCK RD/YE → RC40 RD/YE

SPLICE,B+ UNSWITCHED FUSED #1
B4B2 RD, B4B1 RD, B4B RD → B4B3 RD/WH

SPLICE,B+ ACC FUSE OUT
RC2B OG/WH → RC2D OG/WH

SPLICE,CHASSIS
RC1 RD, RC2 OG/WH, RC4 RD/DG → RC3 OG/WH

SPLICE,BRAKE
30A OG, 30C OG → E135 OG, 30B OG

SPLICE,IGNITION POWER
REF RD/DB → C02.1 WH

SPLICE,CPS SHIELD
GCPS BK → C01.3 SHLD

SPLICE,SHIELD
→ GR21 BN
C02.4 SHLD

SPLICE,SENSOR GROUND
E204A VT/WH → E204 VT/WH

SPLICE,DASH GROUND
GF1D BN, GF1B BN, GF1A BN → GF1 BN

SPLICE,FRONT GROUND
GF5B BN, GF5A BN → GF1 BN, GR31 BN

.4014470-001 BK

STARTER MOTOR

.4014305-001 RD

B1A RD

GR26 BN

REGULATOR (P/N 4014856)

7D YE

7I YE

7J YE

(LOCATED UNDER RECOIL)

RESISTANCES (±20% @ 68 °F/20 °C)		
STATOR	CHARGE COIL	YE1 TO YE2 0.1Ω±20%
		YE2 TO YE3 0.1Ω±20%
		YE1 TO YE3 0.1Ω±20%

BATTERY (P/N 4012622) VOLTAGE: 12V

4014497-002 BK

4014497-001 RD

CRANK POSITION SENSOR (P/N 2411719)

THERMISTOR (P/N 4010644) NOMINAL RESISTANCE: AT 20 °C±2.5 kΩ±8% AT 100 °C±0.184 kΩ±3%

RESISTANCE: 12Ω±5% FUEL INJECTOR

T-MAP (P/N 2411528)

PRIMARY 0.6Ω±8% SECONDARY 7.8kΩ±15% IGNITION COIL (P/N 4013534)

(TRIM FLUSH AT IGNITION COIL)

BROADBAND FERRITE

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1.0Ω
EMPTY	90.0±4.5Ω

P/N	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

START SOLENOID

GROUND,CHASSIS REAR

R1

R3

2016 RANGER 570

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION	INDEX
_4011497-001	SGT	13.0	RD	START SOLENOID (B+)	1	BATTERY (+)	1	START SOLENOID (B+) TO BATTERY (+)	1
_4014305-001	SGT	13.0	RD	START SOLENOID	1	STARTER (B+)	1	START SOLENOID TO STARTER (B+)	2
_4014470-001	SGT	13.0	BK	FRAME GROUND	1	STARTER GROUND	1	CHASSIS GROUND TO STARTER GROUND	3
_4014470-002	SGT	13.0	BK	FRAME GROUND	1	BATTERY (-)	1	FRAME GROUND TO BATTERY (-)	4
20LA	TXL	1.0	DG	RELAY/FUSEBLOCK	5	SPLICE,LOW BEAM	2	LOW BEAM,HEADLIGHT	5
20LB	TXL	0.8	DG	RH HEADLIGHT	B	SPLICE,LOW BEAM	1	LOW BEAM,RH HEADLIGHT	6
20LC	TXL	0.8	DG	LH HEADLIGHT	B	SPLICE,LOW BEAM	1	LOW BEAM,LH HEADLIGHT	7
30A	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE	1	BRAKE SWITCH,OUT	8
30B	TXL	0.8	OG	START SOLENOID	2	SPLICE,BRAKE	2	BRAKE SWITCH,STARTER SOLENOID	9
30C	TXL	0.8	OG	RELAY/FUSEBLOCK	35	SPLICE,BRAKE	1	BRAKE SWITCH,LIGHT FUSE	10
40	TXL	0.8	DG/WH	KEY SWITCH	B	START SOLENOID	1	START SOLENOID CONTROL GROUND	11
50	TXL	0.5	WH/RD	RELAY/FUSEBLOCK	6	KEY SWITCH	E	HEADLIGHT RELAY COIL GROUND	12
70	TXL	2.0	YE	VREG AC INPUT	P3	STATOR	A	STATOR AC	13
71	TXL	2.0	YE	VREG AC INPUT	P2	STATOR	B	STATOR AC	14
73	TXL	2.0	YE	VREG AC INPUT	P1	STATOR	C	STATOR AC	15
B1A	TXL	3.0	RD	VREG DC OUTPUT	P3	SPLICE,FUSIBLE LINK	2	FUSED B+ VOLTAGE REGULATOR	16
B1C	FUSIBLE LINK	1.0	BK	START SOLENOID B+	1	SPLICE,FUSIBLE LINK	1	FUSIBLE LINK,REGULATOR	17
B2A	TXL	2.0	RD	RELAY/FUSEBLOCK	34	START SOLENOID B+	1	CHASSIS RELAY POWER IN	18
B3A	TXL	1.0	RD	RELAY/FUSEBLOCK	11	START SOLENOID B+	1	FAN B+,FUSE IN	19
B3B	TXL	1.0	OG/BK	RELAY/FUSEBLOCK	10	RELAY/FUSEBLOCK	15	FAN B+,FUSED RELAY IN	20
B4A	TXL	2.0	RD	RELAY/FUSEBLOCK	19	START SOLENOID B+	1	EFI POWER UNFUSED	21
B4B	TXL	2.0	RD	RELAY/FUSEBLOCK	23	SPLICE,B+ UNSWITCHED FUSED #1	1	UNSWITCHED FUSED B+,EFI FUSE OUT	22
B4B1	TXL	1.0	RD	RELAY/FUSEBLOCK	18	SPLICE,B+ UNSWITCHED FUSED #1	1	UNSWITCHED FUSED B+,EFI RELAY IN	23
B4B2	TXL	0.5	RD	RELAY/FUSEBLOCK	17	SPLICE,B+ UNSWITCHED FUSED #1	1	UNSWITCHED FUSED B+,EFI RELAY COIL HI	24
B4B3	TXL	1.0	RD/WH	SPLICE,B+ UNSWITCHED FUSED #1	2	SPLICE,B+ UNSWITCHED FUSED #2	1	UNSWITCHED FUSED B+	25
B4B31	TXL	0.8	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,SPEEDOMETER	26
B4B32	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,KEY	27
B4B33	TXL	0.5	RD	DIAGNOSTIC	A	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,DIAGNOSTIC	28
C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)	29
C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)	30
C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD	2	SPLICE,SHIELD	1	GROUND,CRANK POSITION SENSOR	31
C02_1	TXL	0.5	WH	IGNITION COIL	P2	SPLICE,IGNITION POWER	2	EFI B+,COIL	32
C02_2	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	P1	IGNITION DRIVER 1	33
C02_4	SHLD	0.35	SHLD	(TRIM FLUSH AT IGNITION COIL)	-	SPLICE,SHIELD	2	GROUND, IGNITION COIL	34
C03_1	TXL	0.5	DB/BK	ECM,CODE 4	211	PEDAL POSITION SENSOR	F	PEDAL POSITION 2	35
C03_2	TXL	0.5	VT/BK	ECM,CODE 4	203	PEDAL POSITION SENSOR	E	PPS2_SENSOR RETURN 3	36
C03_3	TXL	0.5	OG/RD	ECM,CODE 4	225	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2	37
C04_1	TXL	0.5	DB/WH	ECM,CODE 4	221	PEDAL POSITION SENSOR	A	PEDAL POSITION 1	38
C04_2	TXL	0.5	VT	ECM,CODE 4	206	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2	39
C04_3	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1	40
C1H	TXL	0.5TP	YE	ECM,CODE 4	232	SPLICE,CAN HIGH	2	CAN HIGH,ECM	41
C1L	TXL	0.5TP	DG	ECM,CODE 4	244	SPLICE,CAN LOW	2	CAN LOW,ECM	42
C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH,DIAGNOSTIC	43
C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW,DIAGNOSTIC	44
C3H	TXL	0.5TP	YE	SPEEDOMETER	I	SPLICE,CAN HIGH	1	CAN HIGH,SPEEDOMETER	45
C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	1	CAN LOW,SPEEDOMETER	46
E104	TXL	0.5	VT	ECM,CODE 4	204	T-MAP	1	TBD	47
E105	TXL	0.5	VT/PK	ECM,CODE 4	205	DVE5	2	TPS SENSOR RETURN 1	48
E115	TXL	0.5	DG/YE	ECM,CODE 4	215	RELAY/FUSEBLOCK	22	EFI RELAY COIL LO	49
E120	TXL	0.5	GY	ECM,CODE 4	220	AWD SWITCH	3	AWD REQUEST INPUT	50
E123	TXL	0.5	WH	ECM,CODE 4	223	TRANSMISSION SWITCH	B	TRANSMISSION GEAR	51
E135	TXL	0.5	OG	ECM,CODE 4	235	SPLICE,BRAKE	2	BRAKE SWITCH,ECM IN	52
E138	TXL	0.5	OG/BK	ECM,CODE 4	238	DVE5	6	3.3V SUPPLY,TPS	53
E140	TXL	0.5	GY	ECM,CODE 4	240	RELAY/FUSEBLOCK	38	CHASSIS RELAY COIL LO	54
E141	TXL	0.5	OG/BK	ECM,CODE 4	241	RELAY/FUSEBLOCK	14	COOLING FAN RELAY	55
E142	TXL	0.5	DG/YE	ECM,CODE 4	242	RELAY/FUSEBLOCK	30	FUEL PUMP COIL LO	56
E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1	57
E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND,EMC	58
E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND,COOLANT TEMP SENSOR	59
E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND,TRANSMISSION SWITCH	60
E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMP SENSOR	61
E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL	62
E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2	63
E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,TMAP	64
E225	TXL	0.8	DB/YE	ECM,CODE 13	225	SEAT BELT SWITCH	B	SEAT BELT SWITCH	65
E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR	66
E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR	67
E244	TXL	0.5	BK	ECM,CODE 13	244	FUEL INJECTOR	1	INJECTOR DRIVER 1	68
E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD HUB COIL	B	AWD CONTROL	69
GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD	1	GROUND,CRANK POSITION SENSOR	70
GF1	TXL	0.8	BN	SPLICE,FRONT GROUND	2	SPLICE,DASH GROUND	2	GROUND,DASH	71
GF1A	TXL	0.5	BN	AWD SWITCH	2	SPLICE,DASH GROUND	1	GROUND,AWD SWITCH	72
GF1B	TXL	0.8	BN	KEY SWITCH	A	SPLICE,DASH GROUND	1	GROUND,KEY SWITCH	73
GF1D	TXL	0.5	BN	DIAGNOSTIC	D	SPLICE,DASH GROUND	1	GROUND,DIAGNSOTIC	74
GF3	TXL	1.0	BN	12V RECEPTACLE LO	1	GROUND,CHASSIS REAR #3	1	GROUND,ACCESSORY	75
GF5A	TXL	0.8	BN	LH HEADLIGHT	A	SPLICE,FRONT GROUND	1	GROUND,LH HEADLIGHT	76
GF5B	TXL	0.8	BN	RH HEADLIGHT	A	SPLICE,FRONT GROUND	1	GROUND,RH HEADLIGHT	77
GR10	TXL	0.8	BN	FUEL PUMP & SENDER	4	GROUND,CHASSIS REAR #1	1	GROUND,FUEL PUMP	78
GR11	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,CHASSIS REAR #1	1	GROUND,FUEL LEVEL	79
GR21	TXL	0.5	BN	GROUND,CHASSIS REAR #2	1	SPLICE,SHIELD	2	GROUND,SHIELD	80
GR22	TXL	0.8	BN	TAILLIGHT HARNESS	C	GROUND,CHASSIS REAR #2	1	GROUND,TAILLIGHT	81
GR23	TXL	0.5	BN	RELAY/FUSEBLOCK	8	GROUND,CHASSIS REAR #2	1	GROUND,EPS RELAY COIL	82
GR24	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,CHASSIS REAR #2	1	GROUND,SPEED SENSOR	83
GR25	TXL	0.8	BN	SPEEDOMETER	5	GROUND,CHASSIS REAR #2	1	GROUND,SPEEDOMETER	84
GR250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,CHASSIS REAR #1	1	GROUND,ECM	85
GR26	TXL	3.0	BN	VREG DC OUTPUT	P1	GROUND,CHASSIS REAR #3	1	GROUND,REGULATOR	86
GR31	TXL	1.0	BN	GROUND,CHASSIS REAR #3	1	SPLICE,FRONT GROUND	2	GROUND,FRONT	87
GR32	TXL	1.0	BN	FAN	A	GROUND,CHASSIS REAR #3	1	GROUND,FRONT FAN	88
GRE153	TXL	0.8	BN	ECM,CODE 4	253	GROUND,CHASSIS REAR #1	1	GROUND,ECM	89
GRE154	TXL	0.8	BN	ECM,CODE 4	254	GROUND,CHASSIS REAR #1	1	GROUND,ECM	90
GRE247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,CHASSIS REAR #1	1	GROUND,ECM	91
K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+ #1	2	KEY SWITCH B+,KEY OUT	92
K02	TXL	0.5	OG	SPLICE,R/S B+ #1	1	SPLICE,R/S B+ #2	1	KEY SWITCH B+	93
K02A	TXL	0.5	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+ #2	2	KEY SWITCH B+,VSS	94
K02C	TXL	0.8	OG	RELAY/FUSEBLOCK	27	SPLICE,R/S B+ #2	1	FUEL PUMP UNFUSED	95
K02C2	TXL	0.8	RD/BU	RELAY/FUSEBLOCK	29	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT	96
K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+ #1	2	KEY SWITCH B+,SPEEDOMETER	97
K04	TXL	0.5	OG	DIAGNOSTIC	B	SPLICE,R/S B+ #1	2	KEY SWITCH B+,DIAGNOSTIC	98
K116	TXL	0.5	OG	ECM,CODE 4	216	SPLICE,R/S B+ #2	2	KEY SWITCH B+,ECM	99
K02C1	TXL	0.8	OG	RELAY/FUSEBLOCK	26	RELAY/FUSEBLOCK	31	FUEL PUMP POWER FUSED	100
M1_251	TXL	0.8	GN/BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)	101
M2_252	TXL	0.8	BK/GN	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)	102
RC1	TXL	2.0	RD	RELAY/FUSEBLOCK	37	SPLICE,CHASSIS	1	CHASSIS RELAY OUT	103
RC2	TXL	1.0	OG/WH	RELAY/FUSEBLOCK	36	SPLICE,CHASSIS	1	CHASSIS RELAY,ACC INPUT	104
RC2A	TXL	1.0	OG/WH	RELAY/FUSEBLOCK	40	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT	105
RC2B	TXL	1.0	OG/WH	12V RECEPTACLE HI	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT	106
RC2D	TXL	1.0	OG/WH	TERMINAL BLOCK ACCESSORY	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT	107
RC3	TXL	1.0	OG/WH	RELAY/FUSEBLOCK	20	SPLICE,CHASSIS	2	CHASSIS RELAY OUT,LIGHT INPUT	108
RC4	TXL	0.8	RD/DG	RELAY/FUSEBLOCK	28	SPLICE,CHASSIS	1	CHASSIS RELAY,DRIVE INPUT	109
RC4F	TXL	0.8	RD/DG	RELAY/FUSEBLOCK	32	AWD HUB COIL	C	SWITCHED B+, DRIVE FUSE OUT	110
RC6	TXL	1.0	RD/YE	RELAY/FUSEBLOCK	24	SPLICE,LIGHTS B+	1	LIGHTS B+,LIGHTS FUSE OUT	111
RC6A	TXL	0.8	RD/YE	TAILLIGHT HARNESS	A	SPLICE,LIGHTS B+	1	LIGHTS,TAILLIGHTS	112
RC6B	TXL	0.8	RD/YE	RELAY/FUSEBLOCK	1	SPLICE,LIGHTS B+	1	HEADLIGHT RELAY COIL	113
RC6C	TXL	0.8	RD/YE	RELAY/FUSEBLOCK	2	SPLICE,LIGHTS B+	1	HEADLIGHT RELAY IN	114
RC6D	TXL	0.8	RD/YE	AWD SWITCH	7	SPLICE,LIGHTS B+	2	AWD & TURF SWITCH	115
RD4	TXL	0.8	OG	RELAY/FUSEBLOCK	39	TAILLIGHT HARNESS	B	BRAKE B+ FUSED	116
RE140	TXL	0.5	RD/DB	RELAY/FUSEBLOCK	33	SPLICE,EFI B+	1	EFI B+,CHASSIS RELAY COIL	117
RE155	TXL	0.8	RD/DB	ECM,CODE 4	255	SPLICE,EFI B+	2	EFI B+,ECM1	118
RE156	TXL	0.8	RD/DB	ECM,CODE 4	256	SPLICE,EFI B+	2	EFI B+,ECM2	119
REA	TXL	1.0	RD/DB	RELAY/FUSEBLOCK	21	SPLICE,EFI B+	1	EFI B+,EFI RELAY OUT	120
REC	TXL	0.5	RD/DB	FUEL INJECTOR	2	SPLICE,EFI B+	2	EFI B+,INJECTOR	121
RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,EFI B+	1	EFI B+,BRAKE SWITCH	122
REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	1	SPLICE,EFI B+	1	EFI B+,IGNITION COIL	123
REH	TXL	0.5	RD/DB	RELAY/FUSEBLOCK	9	SPLICE,EFI B+	1	EFI B+,FAN COIL HI	124
REI	TXL	0.5	RD/DB	RELAY/FUSEBLOCK	25	SPLICE,EFI B+	1	EFI B+,FUEL PUMP COIL HI	125
REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,EFI B+	2	EFI B+	126
RF1	TXL	1.0	OG/BK	RELAY/FUSEBLOCK	13	FAN	B	FAN B+,RELAY OUT	127
S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR	128
TEMP_H	TXL	0.5TP	YE	ECM,CODE 4	233	DIAGNOSTIC	E	TEMP CAN HIGH	129
TEMP_L	TXL	0.5TP	DG	ECM,CODE 4	245	DIAGNOSTIC	F	TEMP CAN LOW	130

2016 RANGER 570 EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
GN	GREEN
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN STRIPE COLOR LISTED FIRST. EXAMPLE GR/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V — 270Ω — SEAT BELT SWITCH — 187Ω

POWER STEERING ASSEMBLY (P/N 2411224)

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (NEG. REF.)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (NEG. REF.)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

12V RECEPTACLE (P/N 4012393) — RC2B OG/WH

12V RECEPTACLE (P/N 4012393) — RC2C OG/WH — GF3A BN

HEADLIGHT SWITCH (P/N 4011153)

AWD SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)			
PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012165)

DIAGNOSTIC

EPAS POWER FUSE

REVERSE BEEPER

IN-LINE LED HARNESS

REAR DIFFERENTIAL SOLENOID (LOCATED ON REAR DIFFERENTIAL)

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

PIN A: BAT (RD)
PIN B: CON (OR)
PIN C: GND (BN)

PIN A: SOL + (RD)
PIN B: SOL - (BU)

TURF SOLENOID DRIVER (P/N 4012829)

TRANSMISSION SWITCH

HIGH 24Ω
LOW 150Ω
NEU 160Ω
REV 350Ω
420Ω
PARK

SPEED SENSOR

HALL SENSOR
POWER IN PIN "A"
V OUT PIN "C"
COMMON PIN "B"
(LOCATED ON TRANSMISSION)

ELECTRONIC THROTTLE CONTROL

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH @ SVES — C03.3 SHLD — SPLICE,SVES — GN6 BN

E138 OG/BK
C03.1 BK
E220 DG/BN
C03.2 WH
E185 VT/PK
E203 DG

BRAKE PRESSURE SWITCH — 30D OG — RED RD/DB

SPLICE,BRAKE PRESSURE SWITCH — 30D OG — 30B OG, 30A OG

FAN MOTOR — GF4 BN — 8F OG/BK

SPLICE,GROUND RECEPTACLE — GF3A BN, GF3B BN — GF3 BN

SPLICE,B+ UNSWITCHED FUSED — B5B RD/WH, B5A RD/WH — B5D RD, B5E RD/WH

SPLICE,R/S B+ — K06 OG, K02 OG — K03 OG, K01 OG, K04 OG, K116 OG

24Ω 11 VOLTS MIN. TO POWER HUB COIL — DB/WH, BU, GY — AWD HUB COIL — E246 BK/WH, RC4F3 RD/DG

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411786)

SPLICE,HIGH BEAM — 58B YE, 58C YE — 58A YE, 58D YE

SPLICE,LOW BEAM — 26LB DG, 26LC DG — 26LA DG

SPLICE,GROUND — GF5B BN, GF5A BN — GF5 BN

SPLICE,ECM B+ — REG RD/DB, REJ RD/DB, REF RD/DB, REA RD/DB — E155 RD/DB, E156 RD/DB, REC RD/DB, REI RD/DB

SPLICE,CAN HIGH — C4H YE — C3H YE, C1H YE

SPLICE,CAN LOW — C4L DG — C2L DG, C3L DG, C1L DG

58B YE
58C YE
58A YE
58D YE
GF5B BN
GF5A BN
GF5 BN
26LB DG
26LC DG
26LA DG

SPLICE,B+ ACC FUSE OUT — RC2A OG/WH — RC2B OG/WH, RC2C OG/WH, RC2E OG/WH

SPLICE,IGNITION POWER — REF RD/DB — C02.1 WH

SPLICE,DRIVE — RC4F3 RD/DG, RC4F RD/DG — RC4F2 RD/DG

SPLICE,LIGHTS B+ — RC4A RD/YE, RC4 RD/YE — RC4B RD/YE, RC4C RD/YE, RC4D RD/YE

TAIL/BRAKE LIGHT (HARNESS P/N 2411801)

RC4A RD/YE
RD4 OG
GR4 BN

RELAY (P/N 4011283) TOP VIEW — TOP VIEW OF RELAY — 87 87A 86 30

(SX1)

EPS RELAY — FUEL PUMP RELAY — FAN RELAY — EFI RELAY — CHASSIS RELAY

BUS A5-A7
BUS C5-C5-C7

TOP VIEW (COVER REMOVED)

RELAY/FUSE BLOCK

RC8 WH — REH RD/DB — REH RD/DB

B3B RD — 15 AMP CIRCUIT BREAKER (P/N 2411808) — B3A RD

SPLICE,CPS SHIELD #1 — C01.2 BK, C01.1 BK — GCP5 BN

SPLICE,CPS SHIELD #2 — C01.3 SHLD — GN5 BN

CRANK POSITION SENSOR (P/N 2411719)

THROTTLE SENSOR

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	4.0±1.5Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "-"
2	FUEL LEVEL SENSOR "+"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

NOMINAL RESISTANCE: AT 25°C (77°F) 2.5 kΩ; AT 120°C (248°F) 186 Ω

COOLANT TEMP SENSOR

RESISTANCE: 12Ω±0.5Ω

FUEL INJECTOR

MAG FUEL INJECTOR

T-MAP (P/N 2411528)

PRIMARY 0.4Ω±15% SECONDARY 1.44Ω±15%

IGNITION COIL (P/N 4011834)

SPLICE,IGNITION COIL SHIELD — C02.1 WH, C02.2 BK — GN4 BN

TRIM FLUSH @ IGNITION COIL

START SOLENOID B+

SPLICE,FUSEBLK LINK #1 — B2D RD
SPLICE,FUSEBLK LINK #2 — B2A RD
SPLICE,FUSEBLK LINK #3 — B1C RD
SPLICE,FUSEBLK LINK #4 — B3A RD
SPLICE,FUSEBLK LINK #5 — B3C RD
SPLICE,FUSEBLK LINK #6 — B4A RD

START SOLENOID B+

40 OG/WH — 03 BN

START SOLENOID

BATTERY CABLE (P/N 4014947)

BATTERY CABLE (P/N 4014949)

BATTERY CABLE (P/N 4014948)

4014947 BK — 4014948-001 RD — 4014948-002 BK

BATTERY

STARTER MOTOR

FRAME GROUND

E142 DG/YE
C1N YE
E123 BN
E131 DG/WH
E139 VT/DG
E106 VT
E140 BN/WH
E111 DB/BK
30C OG
E141 OG/WH

ECM,CODE 4

LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E., 101=CAVITY 1)

GN6153 BN
GN6154 BN
E121 DB/WH
E103 VT/DG
E119 WH/DG
E154 ET
E157 GY
E173 OG/RD
E138 OG/BK
E155 RD/DB
E156 RD/DB
E185 VT/PK
K116 OG
E115 DG/YE

E232 GN/RD
E233 OG
E220 DG/BN
E221 DB
E245 BK/WH
E244 BN/WH
GN6247 BN

ECM,CODE 13

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E., 210=CAVITY 10)

GN6250 BN
C03.1 BK
C03.2 WH
E203 DG
E219 YE
C01.1 BK
E204 VT/WH
E220 DG/BN
E205 OR/YE
C01.2 WH
E215 YE

SPLICE,SENSOR GROUND — E204A VT/WH — E204B VT/WH, E204 VT/WH

SPLICE,GROUND DASH — GF1B BN, GF1A BN — GF1C BN, GF1 BN

RC4F2 RD/DG
E131 DG/WH
GR1 BN

PIN A: BAT (RD)
PIN B: CON (OR)
PIN C: GND (BN)

PIN A: SOL + (RD)
PIN B: SOL - (BU)

E123 WH — E204B VT/WH

K64 OG — C03.3 SHLD — E232 GN/RD

TERMINAL BLOCK

RC2E OG/WH — GND, ACC, B+ (P/N 4011892)

005 RD
004 BK
003 YE
002 YE
001 YE

REGULATOR (P/N 4014856)

E01.1 YE
E01.2 YE
E01.3 YE

STATOR (LOCATED UNDER RECOIL)

RESISTANCE (@20±5 & 68.9°F/20.5°C)		
STATOR	CHARGE COIL	YE1 TO YE2 [1.0 Ω ±20%]
		YE2 TO YE3 [1.0 Ω ±20%]
		YE1 TO YE3 [1.0 Ω ±20%]

2016 RANGER 570 EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	.4014947	SGT	13.0	BK	BATTERY (-)	1	FRAME GROUND	1	BATTERY (-) TO FRAME (GROUND)
2	.4014948-001	SGT	13.0	RD	STARTER (B+)	1	START SOLENOID	1	STARTER TO START SOLENOID
3	.4014948-002	SGT	13.0	BK	STARTER (GROUND)	1	FRAME GROUND	1	STARTER (GROUND) TO FRAME (GROUND)
4	.4014949	SGT	13.0	RD	BATTERY (+)	1	START SOLENOID (B+)	1	BATTERY (+) TO START SOLENOID (B+)
5	001	TXL	3.0	YE	STATOR	A	VREG AC INPUT	P1	STATOR AC
6	002	TXL	3.0	YE	STATOR	B	VREG AC INPUT	P2	STATOR AC
7	003	TXL	3.0	YE	STATOR	C	VREG AC INPUT	P3	STATOR AC
8	004	TXL	5.0	BK	VREG DC OUTPUT	P1	GROUND,6mm RING #4	1	REGULATOR GND
9	005	TXL	5.0	RD	SPLICE,FUSIBLE LINK #5	2	VREG DC OUTPUT	P3	REGULATOR B+
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	KEY SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B1A	TXL	3.0	RD	EPAS POWER FUSE	A	SPLICE,FUSIBLE LINK #3	2	EPAS FUSED B+
20	B1B	TXL	3.0	RD	RELAY/FUSE BLOCK	B3	EPAS POWER FUSE	B	EPAS FUSED B+
21	B1C	FUSIBLE LINK	1.0	BK	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #3	1	CHASSIS FUSED B+
22	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
23	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
24	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
25	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
26	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED B+ LINK
27	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
28	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
29	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	RELAY/FUSE BLOCK	D6	UNSWITCHED FUSED B+
30	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
31	B5B	TXL	0.8	RD/WH	SPLICE,B+ UNSWITCHED FUSED	1	DIAGNOSTIC	A	B+ UNSWITCHED FUSED
32	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
33	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
34	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
35	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
36	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
37	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
38	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
39	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
40	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
41	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
42	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
43	C02_1	TXL	0.5	WH	IGNITION COIL	P2	SPLICE,IGNITION POWER	1	ECM B+
44	C02_2	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	P1	IGNITION DRIVER 1
45	C02_3	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
46	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
47	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
48	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
49	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
50	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
51	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
52	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
53	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	2	CAN HIGH
54	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW
55	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH
56	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW
57	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
58	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
59	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
60	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
61	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
62	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
63	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
64	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
65	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
66	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
67	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
68	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
69	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
70	E140	TXL	0.5	BN/WH	RELAY/FUSE BLOCK	D8	ECM,CODE 4	140	CHASSIS RELAY ENABLE, SW. LOW
71	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
72	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
73	E155	TXL	0.8	RD/DB	SPLICE,ECM B+	2	ECM,CODE 4	155	ECM B+
74	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
75	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
76	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
77	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
78	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
79	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
80	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
81	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
82	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
83	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
84	E225	TXL	0.8	DB/YE	SEAT BELT SWITCH	B	ECM,CODE 13	225	SEAT BELT SWITCH
85	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
86	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
87	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
88	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
89	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
90	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
91	GF1	TXL	0.8	BN	GROUND,6mm RING #3	1	SPLICE,GROUND DASH	2	GROUND
92	GF12	TXL	3.0	BN	EPS POWER (A)	B	GROUND,6mm RING #4	1	GROUND,EPS POWER
93	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
94	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
95	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
96	GF1C	TXL	0.8	BN	IN-LINE LED HARNESS	B	SPLICE,GROUND DASH	2	GROUND,LED HARNESS
97	GF2	TXL	0.5	BN	RELAY/FUSE BLOCK	B2	GROUND,6mm RING #3	1	GROUND
98	GF3	TXL	2.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
99	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
100	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
101	GF4	TXL	1.0	BN	FAN	A	GROUND,6mm RING #3	1	GROUND
102	GF5	TXL	1.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND	2	GROUND
103	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
104	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
105	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND,6mm RING #3	1	GROUND
106	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND,6mm RING #3	1	GROUND
107	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,6mm RING #3	1	GROUND
108	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND,6mm RING #3	1	GROUND
109	GM4	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
110	GM5	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,CPS SHIELD #2	2	GROUND
111	GM6	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,DVE5	2	GROUND
112	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND,6mm RING #4	1	GROUND
113	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND,6mm RING #4	1	GROUND
114	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,6mm RING #4	1	GROUND
115	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,6mm RING #4	1	GROUND
116	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND,6mm RING #1	1	GROUND
117	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,6mm RING #1	1	GROUND

01/05/15

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND,6mm RING #1	1	GROUND
119	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND,6mm RING #1	1	GROUND
120	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
121	K02	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	SPLICE,R/S B+	1	KEY SWITCH,B+
122	K02A	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	RELAY/FUSE BLOCK	D2	KEY SWITCH,B+ CHASSIS RELAY COIL POWER
123	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
124	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
125	K06	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+	1	KEY SWITCH B+
126	K116	TXL	0.5	OG	SPLICE,R/S B+	2	ECM,CODE 4	116	KEY SWITCH B+
127	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
128	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
129	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
130	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
131	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
132	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
133	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
134	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
135	RC6A	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	1	TAIL/BRAKE LIGHT	A	LIGHTS,B+ LIGHTS FUSE OUT
136	RC6B	TXL	0.8	RD/YE	IN-LINE LED HARNESS	A	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
137	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
138	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
139	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
140	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
141	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
142	RE4	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
143	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
144	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
145	REE	TXL	0.8	RD/DB	SPLICE,ECM B+	1	REVERSE BEEPER #2	1	ECM B+
146	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
147	REG	TXL	0.8	RD/DB	SPLICE,ECM B+	1	DIAGNOSTIC	B	ECM B+
148	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
149	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
150	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
151	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
152	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
153	RS	TXL	3.0	OG	RELAY/FUSE BLOCK	A2	EPS POWER (A)	A	EPS RELAY POWER OUT
154	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
155	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
156	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
157	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
158	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

01/05/15

2016 RANGER 570 CREW

WIRE COLOR LEGEND	
BK	BLACK
BL	BLUE
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OR	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE (RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

ELECTRONIC THROTTLE CONTROL (P/N 1204455)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.0V TPS SUPPLY

SPEEDOMETER (P/N 3280592)

KEY SWITCH (P/N 4012164)

	A	B	C	D	E	F
OFF						
ON LIGHTS						
ON						
START						

AWD SWITCH (P/N 4010401)

12V RECEPTACLE (P/N 4012393)

THROTTLE SENSOR (P/N 4012657)

PIN	FUNCTION
A	APS SIGNAL 1
B	GND
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	APS SIGNAL 2
F	GND 2

SEAT BELT SWITCH

12V RECEPTACLE (P/N 4012393)

TRANSMISSION SWITCH

HIGH 24Ω
LOW 70Ω
NEU 180Ω
REV 300Ω
PARK 420Ω

SPEED SENSOR

HALL SENSOR
POWER IN PIN "A"
V OUT PIN "C"
COMMON PIN "B"
(LOCATED ON TRANSMISSION)

TAILLIGHT HARNESS

RH HEADLIGHT (P/N 2410616)

LH HEADLIGHT (P/N 2410615)

(HEADLIGHT BULB SERVICE P/N 4010253)

SPLICE,LOW BEAM

AWD/ADC HUB COIL

ADC COIL 12Ω
AWD COIL 24Ω

FAN MOTOR

BRAKE PRESSURE SWITCH

SPLICE,B+ UNSWITCHED FUSED #2

SPLICE,R/S B+ #1

SPLICE,R/S B+ #2

SPLICE,CAN LOW

SPLICE,CAN HIGH

SPLICE,EFI B+

SPLICE,LIGHTS B+

SPLICE,B+ UNSWITCHED FUSED #1

SPLICE,B+ ACC FUSE OUT

SPLICE,CHASSIS

SPLICE,BRAKE

SPLICE,IGNITION POWER

SPLICE,CPS SHIELD

SPLICE,SHIELD

SPLICE,SENSOR GROUND

SPLICE,DASH GROUND

SPLICE,FRONT GROUND

ECM,CODE 4

ECM,CODE 13

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E. 213=CAVITY 13) (MODULE A/RIGHT EXIT ON ECM)

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E. 213=CAVITY 13) (MODULE B/RIGHT EXIT ON ECM)

RELAY/FUSEBLOCK

CRANK POSITION SENSOR (P/N 2411719)

THERMISTOR (P/N 4010644) NOMINAL RESISTANCE: AT 20 °C±2.5 kΩ±8% (AT 100 °C±10, 186 kΩ±2%)

RESISTANCE: 12Ω±0.5Ω FUEL INJECTOR

T-MAP (P/N 2411528)

PRIMARY 0.6Ω±0.15Ω SECONDARY 1.4kΩ±0.15Ω IGNITION COIL (P/N 4011834)

(TRIM FLUSH AT IGNITION COIL)

BROADBAND FERRITE

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1.0Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

START SOLENOID

GROUND,CHASSIS REAR

(LOCATED UNDER RECOIL)

RESISTANCES (±20% @ 68 °F/20 °C)		
STATOR	CHARGE COIL	YE1 TO YE2 0.1Ω±20%
		YE2 TO YE3 0.1Ω±20%
		YE1 TO YE3 0.1Ω±20%

REGULATOR (P/N 4014856)

STARTER MOTOR

BATTERY (P/N 4537422) VOLTAGE: 12V

2016 RANGER 570 CREW

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION	INDEX
_4011497-001	SGT	13.0	RD	START SOLENOID (B+)	I	BATTERY (+)	I	START SOLENOID (B+) TO BATTERY (+)	I
_4014305-001	SGT	13.0	RD	START SOLENOID	I	STARTER (B+)	I	START SOLENOID TO STARTER (B+)	2
_4014470-001	SGT	13.0	BK	FRAME GROUND	I	STARTER GROUND	I	CHASSIS GROUND TO STARTER GROUND	3
_4014470-002	SGT	13.0	BK	FRAME GROUND	I	BATTERY (-)	I	FRAME GROUND TO BATTERY (-)	4
20LA	TXL	1.0	DG	RELAY/FUSEBLOCK	5	SPLICE,LOW BEAM	2	LOW BEAM,HEADLIGHT	5
20LB	TXL	0.8	DG	RH HEADLIGHT	B	SPLICE,LOW BEAM	I	LOW BEAM,RH HEADLIGHT	6
20LC	TXL	0.8	DG	LH HEADLIGHT	B	SPLICE,LOW BEAM	I	LOW BEAM,LH HEADLIGHT	7
30A	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE	I	BRAKE SWITCH,OUT	8
30B	TXL	0.8	OG	START SOLENOID	2	SPLICE,BRAKE	2	BRAKE SWITCH,STARTER SOLENOID	9
30C	TXL	0.8	OG	RELAY/FUSEBLOCK	35	SPLICE,BRAKE	I	BRAKE SWITCH,LIGHT FUSE	10
40	TXL	0.8	DG/WH	KEY SWITCH	B	START SOLENOID	I	START SOLENOID CONTROL GROUND	11
50	TXL	0.5	WH/RD	RELAY/FUSEBLOCK	6	KEY SWITCH	E	HEADLIGHT RELAY COIL GROUND	12
70	TXL	2.0	YE	VREG AC INPUT	P3	STATOR	A	STATOR AC	13
71	TXL	2.0	YE	VREG AC INPUT	P2	STATOR	B	STATOR AC	14
73	TXL	2.0	YE	VREG AC INPUT	P1	STATOR	C	STATOR AC	15
B1A	TXL	3.0	RD	VREG DC OUTPUT	P3	SPLICE,FUSIBLE LINK	2	FUSED B+,VOLTAGE REGULATOR	16
B1C	FUSIBLE LINK	1.0	BK	START SOLENOID B+	I	SPLICE,FUSIBLE LINK	I	FUSIBLE LINK,REGULATOR	17
B2A	TXL	2.0	RD	RELAY/FUSEBLOCK	34	START SOLENOID B+	I	CHASSIS RELAY POWER IN	18
B3A	TXL	1.0	RD	RELAY/FUSEBLOCK	11	START SOLENOID B+	I	FAN B+,FUSE IN	19
B3B	TXL	1.0	OG/BK	RELAY/FUSEBLOCK	10	RELAY/FUSEBLOCK	15	FAN B+,FUSED RELAY IN	20
B4A	TXL	2.0	RD	RELAY/FUSEBLOCK	19	START SOLENOID B+	I	EFI POWER UNFUSED	21
B4B	TXL	2.0	RD	RELAY/FUSEBLOCK	23	SPLICE,B+ UNSWITCHED FUSED #1	I	UNSWITCHED FUSED B+,EFI FUSE OUT	22
B4B1	TXL	1.0	RD	RELAY/FUSEBLOCK	18	SPLICE,B+ UNSWITCHED FUSED #1	I	UNSWITCHED FUSED B+,EFI RELAY IN	23
B4B2	TXL	0.5	RD	RELAY/FUSEBLOCK	17	SPLICE,B+ UNSWITCHED FUSED #1	I	UNSWITCHED FUSED B+,EFI RELAY COIL HI	24
B4B3	TXL	1.0	RD/WH	SPLICE,B+ UNSWITCHED FUSED #1	2	SPLICE,B+ UNSWITCHED FUSED #2	I	UNSWITCHED FUSED B+	25
B4B31	TXL	0.8	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,SPEEDOMETER	26
B4B32	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,KEY	27
B4B33	TXL	0.5	RD	DIAGNOSTIC	A	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,DIAGNOSTIC	28
C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)	29
C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	I	CRANKSHAFT SENSOR (+)	30
C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD	2	SPLICE,SHIELD	I	GROUND,CRANK POSITION SENSOR	31
C02_1	TXL	0.5	WH	IGNITION COIL	P2	SPLICE,IGNITION POWER	2	EFI B+,COIL	32
C02_2	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	P1	IGNITION DRIVER 1	33
C02_4	SHLD	0.35	SHLD	(TRIM FLUSH AT IGNITION COIL)	-	SPLICE,SHIELD	2	GROUND,IGNITION COIL	34
C03_1	TXL	0.5	DB/BK	ECM,CODE 4	211	PEDAL POSITION SENSOR	F	PEDAL POSITION 2	35
C03_2	TXL	0.5	VT/BK	ECM,CODE 4	203	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3	36
C03_3	TXL	0.5	OG/RD	ECM,CODE 4	225	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2	37
C04_1	TXL	0.5	DB/WH	ECM,CODE 4	221	PEDAL POSITION SENSOR	A	PEDAL POSITION 1	38
C04_2	TXL	0.5	VT	ECM,CODE 4	206	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2	39
C04_3	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1	40
C1H	TXL	0.5TP	YE	ECM,CODE 4	232	SPLICE,CAN HIGH	2	CAN HIGH,ECM	41
C1L	TXL	0.5TP	DG	ECM,CODE 4	244	SPLICE,CAN LOW	2	CAN LOW,ECM	42
C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH,DIAGNOSTIC	43
C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW,DIAGNOSTIC	44
C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	I	CAN HIGH,SPEEDOMETER	45
C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	I	CAN LOW,SPEEDOMETER	46
E104	TXL	0.5	VT	ECM,CODE 4	204	T-MAP	I	TBD	47
E105	TXL	0.5	VT/PK	ECM,CODE 4	205	DVE5	2	TPS SENSOR RETURN 1	48
E115	TXL	0.5	DG/YE	ECM,CODE 4	215	RELAY/FUSEBLOCK	22	EFI RELAY COIL LO	49
E120	TXL	0.5	GY	ECM,CODE 4	220	AWD SWITCH	3	AWD REQUEST INPUT	50
E123	TXL	0.5	WH	ECM,CODE 4	223	TRANSMISSION SWITCH	B	TRANSMISSION GEAR	51
E135	TXL	0.5	OG	ECM,CODE 4	235	SPLICE,BRAKE	2	BRAKE SWITCH,ECM IN	52
E138	TXL	0.5	OG/BK	ECM,CODE 4	238	DVE5	6	3.3V SUPPLY,TPS	53
E140	TXL	0.5	GY	ECM,CODE 4	240	RELAY/FUSEBLOCK	38	CHASSIS RELAY COIL LO	54
E141	TXL	0.5	OG/BK	ECM,CODE 4	241	RELAY/FUSEBLOCK	14	COOLING FAN RELAY	55
E142	TXL	0.5	DG/YE	ECM,CODE 4	242	RELAY/FUSEBLOCK	30	FUEL PUMP COIL LO	56
E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1	57
E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND,EMC	58
E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND,COOLANT TEMP SENSOR	59
E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND,TRANSMISSION SWITCH	60
E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMP SENSOR	61
E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL	62
E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2	63
E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,TMAP	64
E225	TXL	0.8	DB/YE	ECM,CODE 13	225	SEAT BELT SWITCH	B	SEAT BELT SWITCH	65
E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR	66
E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR	67
E244	TXL	0.5	BK	ECM,CODE 13	244	FUEL INJECTOR	1	INJECTOR DRIVER 1	68
E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD HUB COIL	B	AWD CONTROL	69
GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD	1	GROUND,CRANK POSITION SENSOR	70
GF1	TXL	0.8	BN	SPLICE,FRONT GROUND	2	SPLICE,DASH GROUND	2	GROUND,DASH	71
GF1A	TXL	0.5	BN	AWD SWITCH	2	SPLICE,DASH GROUND	1	GROUND,AWD SWITCH	72
GF1B	TXL	0.8	BN	KEY SWITCH	A	SPLICE,DASH GROUND	1	GROUND,KEY SWITCH	73
GF1D	TXL	0.5	BN	DIAGNOSTIC	D	SPLICE,DASH GROUND	1	GROUND,DIAGNSOTIC	74
GF3	TXL	1.0	BN	12V RECEPTACLE LO #1	1	GROUND,CHASSIS REAR #3	1	GROUND,ACCESSORY	75
GF5A	TXL	0.8	BN	LH HEADLIGHT	A	SPLICE,FRONT GROUND	1	GROUND,LH HEADLIGHT	76
GF5B	TXL	0.8	BN	RH HEADLIGHT	A	SPLICE,FRONT GROUND	1	GROUND,RH HEADLIGHT	77
GR10	TXL	0.8	BN	FUEL PUMP & SENDER	4	GROUND,CHASSIS REAR #1	1	GROUND,FUEL PUMP	78
GR11	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,CHASSIS REAR #1	1	GROUND,FUEL LEVEL	79
GR21	TXL	0.5	BN	GROUND,CHASSIS REAR #2	1	SPLICE,SHIELD	2	GROUND,SHIELD	80
GR22	TXL	0.8	BN	TAILLIGHT HARNESS	C	GROUND,CHASSIS REAR #2	1	GROUND,TAILLIGHT	81
GR23	TXL	0.5	BN	RELAY/FUSEBLOCK	8	GROUND,CHASSIS REAR #2	1	GROUND,EPS RELAY COIL	82
GR24	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,CHASSIS REAR #2	1	GROUND,SPEED SENSOR	83
GR25	TXL	0.8	BN	SPEEDOMETER	5	GROUND,CHASSIS REAR #2	1	GROUND,SPEEDOMETER	84
GR250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,CHASSIS REAR #1	1	GROUND,ECM	85
GR26	TXL	3.0	BN	VREG DC OUTPUT	P1	GROUND,CHASSIS REAR #3	1	GROUND,REGULATOR	86
GR31	TXL	1.0	BN	GROUND,CHASSIS REAR #3	1	SPLICE,FRONT GROUND	2	GROUND,FRONT	87
GR32	TXL	1.0	BN	FAN	A	GROUND,CHASSIS REAR #3	1	GROUND,FRONT FAN	88
GR33	TXL	1.0	BN	12V RECEPTACLE LO #2	1	GROUND,CHASSIS REAR #3	1	GROUND,ACCESSORY	89
GRE153	TXL	0.8	BN	ECM,CODE 4	253	GROUND,CHASSIS REAR #1	1	GROUND,ECM	90
GRE154	TXL	0.8	BN	ECM,CODE 4	254	GROUND,CHASSIS REAR #1	1	GROUND,ECM	91
GRE247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,CHASSIS REAR #1	1	GROUND,ECM	92
K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+ #1	2	KEY SWITCH B+,KEY OUT	93
K02	TXL	0.5	OG	SPLICE,R/S B+ #1	1	SPLICE,R/S B+ #2	1	KEY SWITCH B+	94
K02A	TXL	0.5	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+ #2	2	KEY SWITCH B+,VSS	95
K02C	TXL	0.8	OG	RELAY/FUSEBLOCK	27	SPLICE,R/S B+ #2	1	FUEL PUMP UNFUSED	96
K02C2	TXL	0.8	RD/BU	RELAY/FUSEBLOCK	29	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT	97
K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+ #1	2	KEY SWITCH B+,SPEEDOMETER	98
K04	TXL	0.5	OG	DIAGNOSTIC	B	SPLICE,R/S B+ #1	2	KEY SWITCH B+,DIAGNOSTIC	99
K116	TXL	0.5	OG	ECM,CODE 4	216	SPLICE,R/S B+ #2	2	KEY SWITCH B+,ECM	100
K02C1	TXL	0.8	OG	RELAY/FUSEBLOCK	26	RELAY/FUSEBLOCK	31	FUEL PUMP POWER FUSED	101
M1_251	TXL	0.8	GN/BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)	102
M2_252	TXL	0.8	BK/GN	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)	103
RC1	TXL	2.0	RD	RELAY/FUSEBLOCK	37	SPLICE,CHASSIS	1	CHASSIS RELAY OUT	104
RC2	TXL	1.0	OG/WH	RELAY/FUSEBLOCK	36	SPLICE,CHASSIS	1	CHASSIS RELAY,ACC INPUT	105
RC2A	TXL	1.0	OG/WH	RELAY/FUSEBLOCK	40	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT	106
RC2B	TXL	1.0	OG/WH	12V RECEPTACLE HI #1	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT	107
RC2C	TXL	1.0	OG/WH	12V RECEPTACLE HI #2	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT	108
RC2D	TXL	1.0	OG/WH	TERMINAL BLOCK ACCESSORY	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT	109
RC3	TXL	1.0	OG/WH	RELAY/FUSEBLOCK	20	SPLICE,CHASSIS	2	CHASSIS RELAY OUT,LIGHT INPUT	110
RC4	TXL	0.8	RD/DG	RELAY/FUSEBLOCK	28	SPLICE,CHASSIS	1	CHASSIS RELAY,DRIVE INPUT	111
RC4F	TXL	0.8	RD/DG	RELAY/FUSEBLOCK	32	AWD HUB COIL	C	SWITCHED B+, DRIVE FUSE OUT	112
RC6	TXL	1.0	RD/YE	RELAY/FUSEBLOCK	24	SPLICE,LIGHTS B+	1	LIGHTS B+,LIGHTS FUSE OUT	113
RC6A	TXL	0.8	RD/YE	TAILLIGHT HARNESS	A	SPLICE,LIGHTS B+	1	LIGHTS,TAILLIGHTS	114
RC6B	TXL	0.8	RD/YE	RELAY/FUSEBLOCK	1	SPLICE,LIGHTS B+	1	HEADLIGHT RELAY COIL	115
RC6C	TXL	0.8	RD/YE	RELAY/FUSEBLOCK	2	SPLICE,LIGHTS B+	1	HEADLIGHT RELAY IN	116
RC6D	TXL	0.8	RD/YE	AWD SWITCH	7	SPLICE,LIGHTS B+	2	AWD & TURF SWITCH	117
RD4	TXL	0.8	OG	RELAY/FUSEBLOCK	39	TAILLIGHT HARNESS	B	BRAKE B+ FUSED	118
RE140	TXL	0.5	RD/DB	RELAY/FUSEBLOCK	33	SPLICE,EFI B+	1	EFI B+,CHASSIS RELAY COIL	119
RE155	TXL	0.8	RD/DB	ECM,CODE 4	255	SPLICE,EFI B+	2	EFI B+,ECM1	120
RE156	TXL	0.8	RD/DB	ECM,CODE 4	256	SPLICE,EFI B+	2	EFI B+,ECM2	121
REA	TXL	1.0	RD/DB	RELAY/FUSEBLOCK	21	SPLICE,EFI B+	1	EFI B+,EFI RELAY OUT	122
REC	TXL	0.5	RD/DB	FUEL INJECTOR	2	SPLICE,EFI B+	2	EFI B+,INJECTOR	123
RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,EFI B+	1	EFI B+,BRAKE SWITCH	124
REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	1	SPLICE,EFI B+	1	EFI B+,IGNITION COIL	125
REH	TXL	0.5	RD/DB	RELAY/FUSEBLOCK	9	SPLICE,EFI B+	1	EFI B+,FAN COIL HI	126
REI	TXL	0.5	RD/DB	RELAY/FUSEBLOCK	25	SPLICE,EFI B+	1	EFI B+,FUEL PUMP COIL HI	127
REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,EFI B+	2	EFI B+	128
RF1	TXL	1.0	OG/BK	RELAY/FUSEBLOCK	13	FAN	B	FAN B+,RELAY OUT	129
S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR	130
TEMP_H	TXL	0.5TP	YE	ECM,CODE 4	233	DIAGNOSTIC	E	TEMP CAN HIGH	131
TEMP_L	TXL	0.5TP	DG	ECM,CODE 4	245	DIAGNOSTIC	F	TEMP CAN LOW	132

2016 RANGER 570 CREW EPS (CHASSIS)

WIRE COLOR LEGEND	
BE	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
GN	GREEN
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE (BE/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V — 270Ω — SEAT BELT SWITCH — 187Ω

POWER STEERING ASSEMBLY (P/N 2411224)

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (NEG. REF.)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (NEG. REF.)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

12V RECEPTACLE (P/N 4012393) — RC2B OG/WH — GF3B BN

12V RECEPTACLE (P/N 4012393) — RC2C OG/WH — GF3A BN

HEADLIGHT SWITCH (P/N 4011153)

AND SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)

P/N	FUNCTION	P/N	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012185)

DIAGNOSTIC

EPAS POWER FUSE

REVERSE BEEPER

IN-LINE LED HARNESS

REAR DIFFERENTIAL SOLENOID (LOCATED ON REAR DIFFERENTIAL)

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

PIN A: BAT (RD)
PIN B: CON (OR)
PIN C: GND (BN)

PIN A: SOL + (RD)
PIN B: SOL - (BU)

TURF SOLENOID DRIVER (P/N 4012829)

TRANSMISSION SWITCH

HIGH 24Ω
LOW 15Ω
NEU 160Ω
REV 350Ω
PARK 42Ω

SPEED SENSOR

HALL SENSOR
POWER IN PIN "A"
V OUT PIN "C"
COMMON PIN "B"
(LOCATED ON TRANSMISSION)

OXYGEN SENSOR (P/N 4013979)

CONNECTOR PIN	WIRE COLOR	PIN AND WIRE CONNECTION
A	PURPLE	HEATER (+)
B	WHITE	HEATER (-)
C	GRAY	SENSOR (OUTPUT)
D	BLACK	SENSOR (GROUND)

ELECTRONIC THROTTLE CONTROL

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH @ SVES — C03.3 SHLD — SPLICE,SVES — GN6 BN

E138 OG/BK
C03.1 BK
E220 DG/BN
C03.2 WH
E185 VT/PK
E203 DG

BRAKE PRESSURE SWITCH — 30D OG — RED RD/DB

SPLICE,BRAKE PRESSURE SWITCH — 30D OG — 30B OG / 30A OG

FAN MOTOR — GF4 BN — 8F OG/BK

SPLICE,GROUND RECEPTACLE — GF3A BN / GF3B BN — GF3 BN

SPLICE,B+ UNSWITCHED FUSED — B5B RD/WH / B5A RD/WH — B5D RD / B5E RD/WH

SPLICE,R/S B+ — K03 OG / K01 OG / K04 OG / K116 OG — K06 OG / K02 OG

24Ω 11 VOLTS MIN TO POWER HUB COIL — DB/WH — GY — AMD HUB COIL — E246 BK/WH — RC4F3 RD/DG

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411786)

SPLICE,HIGH BEAM — 58B YE / 58C YE — 58A YE / 58D YE

SPLICE,LOW BEAM — 26LB DG / 26LC DG — 26LA DG

SPLICE,GROUND — GF5B BN / GF5A BN — GF5 BN

SPLICE,ECM B+ — RE6 RD/DB / RE7 RD/DB / RE5 RD/DB / RE8 RD/DB / RE4 RD/DB — E155 RD/DB / E156 RD/DB / RE3 RD/DB / RE2 RD/DB

SPLICE,B+ ACC FUSE OUT — RC2A OG/WH — RC2B OG/WH / RC2C OG/WH / RC2E OG/WH

SPLICE,IGNITION POWER — REF RD/DB — C02.1 WH / RE4 RD/DB

SPLICE,DRIVE — RC4F3 RD/DG / RC4F RD/DG — RC4F2 RD/DG

SPLICE,LIGHTS B+ — RC4A RD/YE / RC4 RD/YE — RC4B RD/YE / RC4C RD/YE / RC4D RD/YE

SPLICE,CAN HIGH — C4H YE — C3H YE / C1H YE

SPLICE,CAN LOW — C4L DG — C2L DG / C1L DG

SPLICE,SENSOR GROUND — E204A VT/WH — E204B VT/WH / E204 VT/WH

SPLICE,GROUND DASH — GF1B BN / GF1A BN — GF1C BN / GF1 BN

TAIL/BRAKE LIGHT (HARNESS P/N 2411801) — RC4A RD/YE / RD4 OG / GR4 BN

RELAY (P/N 4011283) — TOP VIEW / TOP VIEW OF RELAY — 87 / 87A / 85 / 30

(SX1)

EPS RELAY — FUEL PUMP RELAY — FAN RELAY — EFI RELAY — CHASSIS RELAY

BUS A5-A7 BUS C5-C5-C7 — TOP VIEW — (COVER REMOVED) — RELAY/FUSE BLOCK

RC6B WH — REH RD/DB — REH RD/DB

15 AMP CIRCUIT BREAKER (P/N 2411888) — B3B RD — B3A RD

SPLICE,CPS SHIELD #1 — C01.2 BK / C01.1 BK / GCP5 BN

SPLICE,CPS SHIELD #2 — C01.3 SHLD — GN5 BN

E111 OR/BK
E112 OR/DB
E135 OR/DB
E136 OR/BK
E134 VT/WH

E133A

CRANK POSITION SENSOR (P/N 2411719)

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

THROTTLE SENSOR

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	4.0±1.5Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "-"
2	FUEL LEVEL SENSOR "+"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

NOMINAL RESISTANCE: AT 25°C=2.29 Ω ± 5% AT 100°C=3.22 Ω ± 5%
COOLANT TEMP SENSOR

E244 BK — RECC RD/DB
MAG FUEL INJECTOR

RESISTANCE: 12Ω±5%
FUEL INJECTOR

E104 VT
E223 DG
E227 DG
E219 YE

T-MAP (P/N 2411528)

C02.1 WH
C02.2 BK

PRIMARY 0.4Ω±15% SECONDARY 1.44Ω±15%
IGNITION COIL (P/N 4011834)

SPLICE,IGNITION COIL SHIELD — C04 BK

TRIM FLUSH @ IGNITION SHIELD — C02.2 SHLD

START SOLENOID B+

SPLICE,FUSIBLE LINK #1 — B2B RD
SPLICE,FUSIBLE LINK #2 — B1B RD
SPLICE,FUSIBLE LINK #3 — B1C RD
SPLICE,FUSIBLE LINK #4 — B3A RD
SPLICE,FUSIBLE LINK #5 — B3C RD
SPLICE,FUSIBLE LINK #6 — B4A RD

START SOLENOID B+

40 OG/WH — G03 BN

START SOLENOID

BATTERY CABLE (P/N 4014947)

BATTERY CABLE (P/N 4014949)

BATTERY CABLE (P/N 4014948)

4014947 BK
4014947 RD
4014948-001 RD
4014948-002 BK
4014948-001 BK
4014948-002 BK

BATTERY

STARTER MOTOR

FRAME GROUND

E207 BK
E230 GY
E232 GN/RD
E233 OG
E244 BN
E245 GN/DB
E246 BK/WH
E235 WH
E245 BK/WH
E244 BN/WH
GME247 BN

ECM,CODE 4

LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E., 101=CAVITY 1)

GME253 BN
GME154 BN
E121 DB/WH
E103 VT/DK
E119 WH/DG
E104 VT
E134 VT
E173 OG
E138 OG/BK
E155 RD/DB
E156 RD/DB
E185 VT/PK
E114 WH/DB
E115 DG/YE

ECM,CODE 13

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E., 210=CAVITY 10)

GME250 BN
C03.1 BK
C03.2 WH
E203 DG
E219 YE
C01.1 BK
E204 VT/WH
E220 DG/BN
E225 DB/YE
C01.2 WH
E210 YE

TERMINAL BLOCK — GND / ACC / B+ — (P/N 4011892)

RC2E OG/WH

005 RD
004 BK
003 YE
002 YE
001 YE

REGULATOR (P/N 4012941)

E201 YE
E202 YE
E203 YE

STATOR (LOCATED UNDER RECOIL)

STATOR	CHARGE COIL	RESISTANCE (@20.8 & 68.9°F/20.9°C)
		YE1 TO YE2 (1.0 Ω ±20%)
		YE2 TO YE3 (1.0 Ω ±20%)
		YE1 TO YE3 (1.0 Ω ±20%)

2016 RANGER 570 CREW EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	.4014947	SGT	13.0	BK	BATTERY (-)	1	FRAME GROUND	1	BATTERY (-) TO FRAME (GROUND)
2	.4014948-001	SGT	13.0	RD	STARTER (B+)	1	START SOLENOID	1	STARTER TO START SOLENOID
3	.4014948-002	SGT	13.0	BK	STARTER (GROUND)	1	FRAME GROUND	1	STARTER (GROUND) TO FRAME (GROUND)
4	.4014949	SGT	13.0	RD	BATTERY (+)	1	START SOLENOID (B+)	1	BATTERY (+) TO START SOLENOID (B+)
5	001	TXL	3.0	YE	STATOR	A	VREG AC INPUT	P1	STATOR AC
6	002	TXL	3.0	YE	STATOR	B	VREG AC INPUT	P2	STATOR AC
7	003	TXL	3.0	YE	STATOR	C	VREG AC INPUT	P3	STATOR AC
8	004	TXL	5.0	BK	VREG DC OUTPUT	P1	GROUND,6mm RING #4	1	REGULATOR GND
9	005	TXL	5.0	RD	SPLICE,FUSIBLE LINK #5	2	VREG DC OUTPUT	P3	REGULATOR B+
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	KEY SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B1A	TXL	3.0	RD	EPAS POWER FUSE	A	SPLICE,FUSIBLE LINK #3	2	EPAS FUSED B+
20	B1B	TXL	3.0	RD	RELAY/FUSE BLOCK	B3	EPAS POWER FUSE	B	EPAS FUSED B+
21	B1C	FUSIBLE LINK	1.0	BK	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #3	1	CHASSIS FUSED B+
22	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
23	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
24	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
25	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
26	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED B+ LINK
27	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
28	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
29	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	RELAY/FUSE BLOCK	D6	UNSWITCHED FUSED B+
30	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
31	B5B	TXL	0.8	RD/WH	SPLICE,B+ UNSWITCHED FUSED	1	DIAGNOSTIC	A	B+ UNSWITCHED FUSED
32	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
33	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
34	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
35	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
36	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
37	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
38	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
39	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
40	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANKSHAFT SENSOR	2	CRANKSHAFT SENSOR (-)
41	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
42	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
43	C02_1	TXL	0.5	WH	IGNITION COIL	P2	SPLICE,IGNITION POWER	1	ECM B+
44	C02_2	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	P1	IGNITION DRIVER 1
45	C02_3	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
46	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
47	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
48	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
49	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
50	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
51	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
52	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
53	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	2	CAN HIGH
54	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW
55	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH
56	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW
57	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
58	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
59	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
60	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
61	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
62	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
63	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
64	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
65	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
66	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
67	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
68	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
69	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
70	E140	TXL	0.5	BN/WH	RELAY/FUSE BLOCK	D8	ECM,CODE 4	140	CHASSIS RELAY ENABLE, SW. LOW
71	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
72	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
73	E155	TXL	0.8	RD/DB	SPLICE,ECM B+	2	ECM,CODE 4	155	ECM B+
74	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
75	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
76	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
77	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
78	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
79	E207	TXL	0.5	BK	ECM,CODE 13	207	O2 SENSOR	D	O2 SENSOR RETURN
80	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
81	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
82	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
83	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
84	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
85	E225	TXL	0.8	DB/YE	SEAT BELT SWITCH	B	ECM,CODE 13	225	SEAT BELT SWITCH
86	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
87	E230	TXL	0.5	GY	ECM,CODE 13	230	O2 SENSOR	C	O2 SENSOR IN
88	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
89	E239	TXL	0.5	WH	ECM,CODE 13	239	O2 SENSOR	B	O2 SENSOR,HEATER LOW
90	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
91	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
92	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
93	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
94	GF1	TXL	0.8	BN	GROUND,6mm RING #3	1	SPLICE,GROUND DASH	2	GROUND
95	GF12	TXL	3.0	BN	EPS POWER (A)	B	GROUND,6mm RING #4	1	GROUND,EPS POWER
96	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
97	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
98	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
99	GF1C	TXL	0.8	BN	IN-LINE LED HARNESS	B	SPLICE,GROUND DASH	2	GROUND
100	GF2	TXL	0.5	BN	RELAY/FUSE BLOCK	B2	GROUND,6mm RING #3	1	GROUND
101	GF3	TXL	2.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
102	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
103	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
104	GF4	TXL	1.0	BN	FAN	A	GROUND,6mm RING #3	1	GROUND
105	GF5	TXL	1.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND	2	GROUND
106	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
107	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
108	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND,6mm RING #3	1	GROUND
109	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND,6mm RING #3	1	GROUND
110	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,6mm RING #3	1	GROUND
111	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND,6mm RING #3	1	GROUND
112	GM4	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
113	GM5	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,CPS SHIELD #2	2	GROUND
114	GM6	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,DVE5	2	GROUND
115	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND,6mm RING #4	1	GROUND
116	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND,6mm RING #4	1	GROUND
117	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,6mm RING #4	1	GROUND

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SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,6mm RING #4	1	GROUND
119	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND,6mm RING #1	1	GROUND
120	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,6mm RING #1	1	GROUND
121	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND,6mm RING #1	1	GROUND
122	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND,6mm RING #1	1	GROUND
123	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
124	K02	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	SPLICE,R/S B+	1	KEY SWITCH B+
125	K02A	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	RELAY/FUSE BLOCK	D2	KEY SWITCH,B+ CHASSIS RELAY COIL POWER
126	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
127	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
128	K06	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+	1	KEY SWITCH B+
129	K116	TXL	0.5	OG	SPLICE,R/S B+	2	ECM,CODE 4	116	KEY SWITCH B+
130	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
131	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
132	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
133	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
134	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
135	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
136	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
137	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
138	RC6A	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	1	TAIL/BRAKE LIGHT	A	LIGHTS,B+ LIGHTS FUSE OUT
139	RC6B	TXL	0.8	RD/YE	IN-LINE LED HARNESS	A	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
140	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
141	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
142	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
143	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
144	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
145	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
146	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
147	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
148	REE	TXL	0.8	RD/DB	SPLICE,ECM B+	1	REVERSE BEEPER #2	1	ECM B+
149	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
150	REG	TXL	0.8	RD/DB	SPLICE,ECM B+	1	DIAGNOSTIC	B	ECM B+
151	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
152	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
153	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
154	REK	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	1	O2 SENSOR	A	ECM B+,O2 SENSOR
155	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
156	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
157	RS	TXL	3.0	OG	RELAY/FUSE BLOCK	A2	EPS POWER (A)	A	EPS RELAY POWER OUT
158	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
159	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
160	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
161	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
162	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

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2016-2017 RANGER 900 XP EPS (CHASSIS)

WIRE COLOR LEGEND	
BE	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH WH/BK TRACE COLORS. EXAMPLE 282YE - RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V — 270Ω — SEAT BELT SWITCH — 187Ω

POWER STEERING ASSEMBLY (P/N 2411224)

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (NEG. REF.)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (NEG. REF.)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

12V RECEPTACLE (P/N 4012393) — RC2B OG/WH — GF3B BN

12V RECEPTACLE (P/N 4012393) — RC2C OG/WH — GF3A BN

HEADLIGHT SWITCH (P/N 4011153)

AND SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)

PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012185) — OFF / ON / START

DIAGNOSTIC

EPAS POWER FUSE

REVERSE BEEPER — B1 — B2 — E243 BK/WH — REC RD/OG

IN-LINE LED HARNESS — GF1C BN — RC6B RD/YE

REAR DIFFERENTIAL SOLENOID (LOCATED ON REAR DIFFERENTIAL)

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

PIN A: BAT (RD)
PIN B: CON (OR)
PIN C: GND (BN)

PIN A: SOL + (RD)
PIN B: SOL - (BU)

TURF SOLENOID DRIVER (P/N 4012829)

RC4F2 RD/OG — E131 DG/WH — GR1 BN

TRANSMISSION SWITCH

HIGH 24Ω
LOW 150Ω
NEU 160Ω
REV 350Ω
PARK 420Ω

E123 WH — E204B VT/WH

SPEED SENSOR — HALL SENSOR — POWER IN PIN "A" — V OUT PIN "C" — COMMON PIN "B" — (LOCATED ON TRANSMISSION)

K22 OG — E232 GR/RD

ELECTRONIC THROTTLE CONTROL (P/N 1204455)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH @ SVES — SPLICE,SVES — C03.3 SHLD — GN6 BN

C138 OG/BK
C03.1 BK
E220 DG/BK
C03.2 WH
E105 VT/PK
E203 DG

BRAKE PRESSURE SWITCH — 30D OG — RED RD/DB

SPLICE,BRAKE PRESSURE SWITCH — 30D OG — 30B OG / 30A OG

FAN MOTOR — GF4 BN — RF OG/BK

SPLICE,GROUND RECEPTACLE — GF3A BN / GF3B BN — GF3 BN

SPLICE,B+ UNSWITCHED FUSED — B5B RD/WH / B5A RD/WH — B5D RD / B5E RD/WH

SPLICE,R/S B+ — K06 OG / K02 OG — K03 OG / K01 OG / K04 OG / K116 OG

24Ω 11 VOLTS MIN TO POWER HUB COIL — DB/WH — GY — AND HUB COIL — E246 BK/WH — RC4F3 RD/DG

RH HEADLIGHT (P/N 2411787) — LH HEADLIGHT (P/N 2411786) — 2HLB

SPLICE,HIGH BEAM — 5BB YE / 5BC YE — 5BA YE / 5BD YE

SPLICE,LOW BEAM — 2DLB DG / 2DLC DG — 2DLA DG

SPLICE,GROUND — GF5B BN / GF5A BN — GF5 BN

SPLICE,ECM B+ — REG RD/DB / REC RD/DB / REE RD/DB / REA RD/DB — E155 RD/DB / E156 RD/DB / REB RD/DB / REF RD/DB

SPLICE,B+ ACC FUSE OUT — RC2A OG/WH — RC2B OG/WH / RC2C OG/WH / RC2E OG/WH

SPLICE,IGNITION POWER — REF RD/DB — C02.2 RD

SPLICE,DRIVE — RC4F3 RD/DG — RC4F2 RD/DG

SPLICE,LIGHTS B+ — RC4A RD/YE — RC6B RD/YE / RC6C RD/YE / RC6D RD/YE

SPLICE,CAN HIGH — C4H YE — C2H YE / C1H YE

SPLICE,CAN LOW — C4L DG — C2L DG / C1L DG

TAIL/BRAKE LIGHT (HARNESS P/N 2411801) — RC4A RD/YE / RD4 OG / GR4 BN

2G AMP CIRCUIT BREAKER (P/N 2410801) — B3B RD — B3A RD

RELAY (P/N 4011283) TOP VIEW / TOP VIEW OF RELAY — 87 / 87A / 85 / 30

(SX1)

EPS RELAY — FUEL PUMP RELAY — FAN RELAY — EFI RELAY — CHASSIS RELAY — MAIN RELAY

BUS A5-A7 BUS C5-C5-C7 — TOP VIEW — (COVER REMOVED) — RELAY/FUSE BLOCK

RCB WH — REH RD/DB — REH RD/DB

SPLICE,CPS SHIELD #1 — C01.2 BK — C01.1 BK — GCP5 BN

SPLICE,CPS SHIELD #2 — C01.3 SHLD — GN5 BN

CRANKSHAFT POSITION SENSOR (P/N 2411719)

THROTTLE SENSOR

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	4.0 ± (-5Ω)
EMPTY	90.0 ± 4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "-"
2	FUEL LEVEL SENSOR "+"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

NOMINAL RESISTANCE: AT 25°C (77°F) = 2.09Ω; AT 120°C (248°F) = 3.80Ω — COOLANT TEMP SENSOR

RESISTANCE: 12±0.5Ω — FUEL INJECTOR — PTO FUEL INJECTOR

RESISTANCE: 12±0.5Ω — FUEL INJECTOR — MAG FUEL INJECTOR

T-MAP (P/N 2411528) — 5 VDC — GROUND — OUTPUT SIGNAL — PRESSURE SENSOR — TEMPERATURE SENSOR

IGNITION COIL (P/N 4014625) — SPLICE,IGNITION COIL SHIELD — C03.2 BK / C02.1 BK — C04 BK — TRIM FLUSH @ IGNITION COIL

START SOLENOID B+ — 4014949 RD

SPLICE,FUSIBLE LINK #1 — B2A BK
SPLICE,FUSIBLE LINK #2 — B1A BK
SPLICE,FUSIBLE LINK #3 — B1C BK
SPLICE,FUSIBLE LINK #4 — B3A BK
SPLICE,FUSIBLE LINK #5 — B4A BK

START SOLENOID B+

40 OG/WH — G03 BN — START SOLENOID

BATTERY CABLE (P/N 4014947) — BATTERY CABLE (P/N 4014949) — BATTERY CABLE (P/N 4014948)

4014947 BK — 4014949 RD — 4014948-001 RD — 4014948-002 BK

BATTERY — STARTER MOTOR — FRAME GROUND

TERMINAL BLOCK — GND / ACC / B+ — (P/N 4011892)

RC2E OG/WH

VREG DC for_sirius-b3f-b.eps — 005 RD / 004 BK / 003 YE / 002 YE / 001 YE

REGULATOR (P/N 4014856)

VREG AC for_qlw-a-3f-gr.eps

E01 YE — E02 YE — E03 YE

STATOR — (LOCATED UNDER RECOIL)

RESISTANCE (@ 25°C (68°F)/20°C)		
STATOR	CHARGE COIL	YE1 TO YE2 (0.1Ω ± 20%)
		YE2 TO YE3 (0.1Ω ± 20%)
		YE1 TO YE3 (0.1Ω ± 20%)

ECM,CODE 4

LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E., 101=CAVITY 1D)

E142 DG/YE
C136 YE
E123 WH
E204 VT/WH
E231 DG/WH
E106 VT
E140 BK/WH
E111 DB/BK
30C OG
E141 OG/WH

GND153 BN
GND154 BN
E121 DB/WH
E103 VT/BK
E118 WH/DG
E104 VT
E154 BK
E213 OG/BK
E227 DG
E155 RD/DB
E156 RD/DB
E105 VT/PK
E114 RD/OG
E115 DG/YE

ECM,CODE 13

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E. 210=CAVITY 10)

E243 WH
E232 GR/RD
E233 OG
E223 DG
E229 DG/BK
E207 DG
E242 BK/WH
E244 BN/WH
GND247 BN

GND250 BN
C03.1 BK
C03.2 WH
C02.1 BK
C02.2 RD
E218 YE
C01.1 BK
E204 VT/WH
E220 DG/BK
E205 DB/YE
C01.2 WH
E215 YE

SPLICE,SENSOR GROUND — E204A VT/WH — E204B VT/WH / E204 VT/WH

SPLICE,GROUND DASH — GF1B BN / GF1A BN — GF1C BN / GF1 BN

2016-2017 RANGER 900 XP EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	.4014947	SGT	13.0	BK	BATTERY (-)	1	FRAME GROUND	1	BATTERY (-) TO FRAME (GROUND)
2	.4014948-001	SGT	13.0	RD	STARTER (B+)	1	START SOLENOID	1	STARTER TO START SOLENOID
3	.4014948-002	SGT	13.0	BK	STARTER (GROUND)	1	FRAME GROUND	1	STARTER (GROUND) TO FRAME (GROUND)
4	.4014949	SGT	13.0	RD	BATTERY (+)	1	START SOLENOID (B+)	1	BATTERY (+) TO START SOLENOID (B+)
5	001	TXL	3.0	YE	STATOR	A	REGULATOR AC	P1	STATOR AC
6	002	TXL	3.0	YE	STATOR	B	REGULATOR AC	P2	STATOR AC
7	003	TXL	3.0	YE	STATOR	C	REGULATOR AC	P3	STATOR AC
8	004	TXL	5.0	BK	GROUND,6mm RING #4	1	REGULATOR DC	P1	VOLTAGE REGULATOR GROUND
9	005	TXL	5.0	RD	SPLICE,FUSIBLE LINK #5	2	REGULATOR DC	P3	REGULATOR B+
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	KEY SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B1A	TXL	3.0	RD	EPAS POWER FUSE	A	SPLICE,FUSIBLE LINK #3	2	EPAS FUSED B+
20	B1B	TXL	3.0	RD	RELAY/FUSE BLOCK	B3	EPAS POWER FUSE	B	EPAS FUSED B+
21	B1C	FUSIBLE LINK	1.0	BK	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #3	1	CHASSIS FUSED B+
22	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
23	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
24	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
25	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
26	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	FAN FUSED LINK	1	FAN FUSED B+
27	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
28	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
29	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	RELAY/FUSE BLOCK	D6	UNSWITCHED FUSED B+
30	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
31	B5B	TXL	0.8	RD/WH	SPLICE,B+ UNSWITCHED FUSED	1	DIAGNOSTIC	A	B+ UNSWITCHED FUSED
32	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
33	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
34	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
35	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
36	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
37	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
38	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
39	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
40	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
41	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
42	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
43	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 (PTO)
44	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE,IGNITION POWER	1	ECM B+
45	C02_3	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 (MAG)
46	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
47	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
48	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
49	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
50	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
51	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
52	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
53	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
54	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	2	CAN HIGH
55	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW
56	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH
57	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW
58	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
59	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
60	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
61	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
62	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
63	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
64	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
65	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
66	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
67	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
68	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
69	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
70	E138	TXL	0.5	DG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
71	E140	TXL	0.5	BN/WH	RELAY/FUSE BLOCK	D8	ECM,CODE 4	140	CHASSIS RELAY ENABLE, SW. LOW
72	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
73	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
74	E155	TXL	0.8	RD/DB	SPLICE,ECM B+	2	ECM,CODE 4	155	ECM B+
75	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
76	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
77	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
78	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
79	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
80	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
81	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
82	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
83	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
84	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
85	E225	TXL	0.8	DB/YE	SEAT BELT SWITCH	B	ECM,CODE 13	225	SEAT BELT SWITCH
86	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
87	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
88	E243	TXL	0.5	WH	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
89	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
90	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
91	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
92	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
93	GF1	TXL	0.8	BN	GROUND,6mm RING #3	1	SPLICE,GROUND DASH	2	GROUND
94	GF12	TXL	3.0	BN	EPS POWER (A)	B	GROUND,6mm RING #4	1	GROUND,EPS POWER
95	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
96	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
97	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
98	GF1C	TXL	0.8	BN	SPLICE,GROUND DASH	2	IN-LINE LED HARNESS	B	GROUND,LED HARNESS
99	GF2	TXL	0.5	BN	RELAY/FUSE BLOCK	B2	GROUND,6mm RING #3	1	GROUND
100	GF3	TXL	2.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
101	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
102	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
103	GF4	TXL	1.0	BN	FAN	A	GROUND,6mm RING #3	1	GROUND
104	GF5	TXL	1.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND	2	GROUND
105	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
106	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
107	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND,6mm RING #3	1	GROUND
108	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND,6mm RING #3	1	GROUND
109	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,6mm RING #3	1	GROUND
110	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND,6mm RING #3	1	GROUND
111	GM4	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
112	GM5	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,CPS SHIELD #2	2	GROUND
113	GM6	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,DVE5	2	GROUND
114	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND,6mm RING #4	1	GROUND
115	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND,6mm RING #4	1	GROUND
116	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,6mm RING #4	1	GROUND
117	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,6mm RING #4	1	GROUND

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SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND,6mm RING #1	1	GROUND
119	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,6mm RING #1	1	GROUND
120	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND,6mm RING #1	1	GROUND
121	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND,6mm RING #1	1	GROUND
122	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
123	K02	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	SPLICE,R/S B+	1	KEY SWITCH B+
124	K02A	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	RELAY/FUSE BLOCK	D2	KEY SWITCH,B+ CHASSIS RELAY COIL POWER
125	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
126	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
127	K06	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+	1	KEY SWITCH B+
128	K116	TXL	0.5	OG	SPLICE,R/S B+	2	ECM,CODE 4	116	KEY SWITCH B+
129	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
130	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
131	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
132	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
133	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
134	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
135	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
136	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
137	RC6A	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	1	TAIL/BRAKE LIGHT	A	LIGHTS,B+ LIGHTS FUSE OUT
138	RC6B	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	2	IN-LINE LED HARNESS	A	LIGHTS,B+ LIGHTS FUSE OUT
139	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
140	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
141	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
142	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
143	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
144	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
145	REB	TXL	0.8	RD/DB	PTO FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
146	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
147	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
148	REE	TXL	0.8	RD/DB	SPLICE,ECM B+	1	REVERSE BEEPER #2	1	ECM B+
149	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
150	REG	TXL	0.8	RD/DB	SPLICE,ECM B+	1	DIAGNOSTIC	B	ECM B+
151	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
152	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
153	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
154	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
155	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
156	RS	TXL	3.0	OG	RELAY/FUSE BLOCK	A2	EPS POWER (A)	A	EPS RELAY POWER OUT
157	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
158	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
159	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
160	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
161	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

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2016 RANGER 900 XP CREW EPS (CHASSIS)

WIRE COLOR LEGEND	
BE	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH WH/BK(TRACE COLOR). EXAMPLE (RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V — 270Ω — SEAT BELT SWITCH — 187Ω

POWER STEERING ASSEMBLY (P/N 2411224)

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (NEG. REF)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (NEG. REF)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

12V RECEPTACLE (P/N 4012393)

12V RECEPTACLE (P/N 4012393)

HEADLIGHT SWITCH (P/N 4011153)

AWD SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)

PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012165)

DIAGNOSTIC

EPAS POWER FUSE

REVERSE BEEPER

IN-LINE LED HARNESS

REAR DIFFERENTIAL SOLENOID (LOCATED ON REAR DIFFERENTIAL)

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER I2V FOR MORE THAN 1 SECOND

PIN A: BAT (RD)
PIN B: CON (OR)
PIN C: GND (BN)

TURF SOLENOID DRIVER (P/N 4012829)

TRANSMISSION SWITCH

HIGH 24Ω
LOW 150Ω
NEU 160Ω
REV 350Ω
4WD 40Ω
PARK

SPEED SENSOR — HALL SENSOR — POWER IN PIN "A" — V OUT PIN "C" — COMMON PIN "B" — (LOCATED ON TRANSMISSION)

OXYGEN SENSOR (P/N 4013979)

CONNECTOR PIN	WIRE COLOR	PIN AND WIRE CONNECTION
A	PURPLE	HEATER (+)
B	WHITE	HEATER (-)
C	GRAY	SENSOR (OUTPUT)
D	BLACK	SENSOR (GROUND)

ELECTRONIC THROTTLE CONTROL (P/N 1204455)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH @ SPLICE,DVES

BRAKE PRESSURE SWITCH

FAN MOTOR

24Ω 11 VOLTS MIN TO POWER HUB COIL

AWD HUB COIL

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411786)

TAIL/BRAKE LIGHT (HARNESS P/N 2411801)

SPLICE,HIGH BEAM

SPLICE,LOW BEAM

SPLICE,GROUND

SPLICE,ECM B+

SPLICE,B+ ACC FUSE OUT

SPLICE,IGNITION POWER

SPLICE,DRIVE

SPLICE,LIGHTS B+

SPLICE,BRAKE PRESSURE SWITCH

SPLICE,GROUND RECEPTACLE

SPLICE,B+ UNSWITCHED FUSED

SPLICE,R/S B+

SPLICE,CAN HIGH

SPLICE,CAN LOW

SPLICE,SENSOR GROUND

SPLICE,GROUND DASH

RELAY (P/N 4011283) TOP VIEW — TOP VIEW OF RELAY — 87 — 86 — 85 — 30

(SX1)

EPS RELAY — FUEL PUMP RELAY — FAN RELAY — EFI RELAY — CHASSIS RELAY

RELAY/FUSE BLOCK — TOP VIEW — (COVER REMOVED)

BUS A5-A7 BUS C1-C5-C7

RCB

2Ω AMP CIRCUIT BREAKER (P/N 2410801)

SPLICE,CPS SHIELD #1

SPLICE,CPS SHIELD #2

CRANKSHAFT POSITION SENSOR (P/N 2411719)

FUEL PUMP	
TANK LEVEL	RESISTANCE (Ω)
FULL	4.0 @ (-6Ω)
EMPTY	90.0 @ 4.6Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "-"
2	FUEL LEVEL SENSOR "+"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

THROTTLE SENSOR

NOMINAL RESISTANCE: AT 20 °C (68 °F) = 2.5 kΩ; AT 120 °C (248 °F) = 300 Ω

COOLANT TEMP SENSOR

PTO FUEL INJECTOR

RESISTANCE: 12Ω @ 5V

FUEL INJECTOR

MAG FUEL INJECTOR

RESISTANCE: 12Ω @ 5V

FUEL INJECTOR

T-MAP (P/N 2411528)

IGNITION COIL (P/N 4014625)

TRIM FLUSH @ IGNITION COIL

START SOLENOID B+

START SOLENOID B+

START SOLENOID

BATTERY CABLE (P/N 4014947)

BATTERY CABLE (P/N 4014949)

BATTERY CABLE (P/N 4014948)

BATTERY

STARTER MOTOR

FRAME GROUND

ECM,CODE 4 — LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E., 110=CAVITY 10)

ECM,CODE 13 — LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E., 210=CAVITY 10)

TERMINAL BLOCK — GND — ACC — B+ — (P/N 4011892)

REGULATOR (P/N 4014856)

(LOCATED UNDER RECOIL)

RESISTANCES (@ 25 °C (68 °F/20 °C))		
STATOR	CHARGE COIL	YE1 TO YE2 (Ω ± 20%) = 0.2
		YE2 TO YE3 (Ω ± 20%) = 0.2
		YE1 TO YE3 (Ω ± 20%) = 0.4

2016 RANGER 900 XP CREW EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	.4014947	SGT	13.0	BK	BATTERY (-)	1	FRAME GROUND	1	BATTERY (-) TO FRAME (GROUND)
2	.4014948-001	SGT	13.0	RD	STARTER (B+)	1	START SOLENOID	1	STARTER TO START SOLENOID
3	.4014948-002	SGT	13.0	BK	STARTER (GROUND)	1	FRAME GROUND	1	STARTER (GROUND) TO FRAME (GROUND)
4	.4014949	SGT	13.0	RD	BATTERY (+)	1	START SOLENOID (B+)	1	BATTERY (+) TO START SOLENOID (B+)
5	001	TXL	3.0	YE	STATOR	A	REGULATOR AC	P1	STATOR AC
6	002	TXL	3.0	YE	STATOR	B	REGULATOR AC	P2	STATOR AC
7	003	TXL	3.0	YE	STATOR	C	REGULATOR AC	P3	STATOR AC
8	004	TXL	5.0	BK	GROUND,6mm RING #4	1	REGULATOR DC	P1	VOLTAGE REGULATOR GROUND
9	005	TXL	5.0	RD	SPLICE,FUSIBLE LINK #5	2	REGULATOR DC	P3	REGULATOR B+
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	DG	HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	KEY SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B1A	TXL	3.0	RD	EPAS POWER FUSE	A	SPLICE,FUSIBLE LINK #3	2	EPAS FUSED B+
20	B1B	TXL	3.0	RD	RELAY/FUSE BLOCK	B3	EPAS POWER FUSE	B	EPAS FUSED B+
21	B1C	FUSIBLE LINK	1.0	BK	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #3	1	CHASSIS FUSED B+
22	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
23	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
24	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
25	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
26	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	FAN FUSED LINK	1	FAN FUSED B+
27	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
28	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
29	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	RELAY/FUSE BLOCK	D6	UNSWITCHED FUSED B+
30	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
31	B5B	TXL	0.8	RD/WH	SPLICE,B+ UNSWITCHED FUSED	1	DIAGNOSTIC	A	B+ UNSWITCHED FUSED
32	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
33	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
34	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
35	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
36	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
37	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
38	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
39	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
40	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
41	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
42	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
43	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 (PTO)
44	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE,IGNITION POWER	1	ECM B+
45	C02_3	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 (MAG)
46	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	--	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
47	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
48	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
49	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	--	SPLICE,DVE5	1	GROUND,DVE5
50	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
51	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
52	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
53	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
54	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	2	CAN HIGH
55	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW
56	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH
57	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW
58	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
59	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
60	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
61	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
62	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
63	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
64	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
65	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
66	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
67	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
68	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
69	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
70	E138	TXL	0.5	DG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
71	E140	TXL	0.5	BN/WH	RELAY/FUSE BLOCK	D8	ECM,CODE 4	140	CHASSIS RELAY ENABLE, SW. LOW
72	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
73	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
74	E155	TXL	0.8	RD/DB	SPLICE,ECM B+	2	ECM,CODE 4	155	ECM B+
75	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
76	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
77	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
78	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
79	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
80	E207	TXL	0.5	BK	ECM,CODE 13	207	O2 SENSOR	D	O2 SENSOR RETURN
81	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
82	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
83	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
84	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
85	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
86	E225	TXL	0.8	DB/YE	SEAT BELT SWITCH	B	ECM,CODE 13	225	SEAT BELT SWITCH
87	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
88	E230	TXL	0.5	GY	ECM,CODE 13	230	O2 SENSOR	C	O2 SENSOR IN
89	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
90	E239	TXL	0.5	WH	ECM,CODE 13	239	O2 SENSOR	B	O2 SENSOR,HEATER LOW
91	E243	TXL	0.5	WH	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
92	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
93	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
94	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
95	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
96	GF1	TXL	0.8	BN	GROUND,6mm RING #3	1	SPLICE,GROUND DASH	2	GROUND
97	GF12	TXL	3.0	BN	EPS POWER (A)	B	GROUND,6mm RING #4	1	GROUND,EPS POWER
98	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
99	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
100	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
101	GF1C	TXL	0.8	BN	IN-LINE LED HARNESS	B	SPLICE,GROUND DASH	2	GROUND
102	GF2	TXL	0.5	BN	RELAY/FUSE BLOCK	B2	GROUND,6mm RING #3	1	GROUND
103	GF3	TXL	2.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
104	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
105	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
106	GF4	TXL	1.0	BN	FAN	A	GROUND,6mm RING #3	1	GROUND
107	GF5	TXL	1.0	BN	GROUND,6mm RING #3	1	SPLICE,GROUND	2	GROUND
108	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
109	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
110	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND,6mm RING #3	1	GROUND
111	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND,6mm RING #3	1	GROUND
112	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND,6mm RING #3	1	GROUND
113	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND,6mm RING #3	1	GROUND
114	GM4	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
115	GM5	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,CPS SHIELD #2	2	GROUND
116	GM6	TXL	0.5	BN	GROUND,6mm RING #4	1	SPLICE,DVE5	2	GROUND
117	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND,6mm RING #4	1	GROUND

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND,6mm RING #4	1	GROUND
119	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND,6mm RING #4	1	GROUND
120	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND,6mm RING #4	1	GROUND
121	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND,6mm RING #1	1	GROUND
122	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND,6mm RING #1	1	GROUND
123	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND,6mm RING #1	1	GROUND
124	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND,6mm RING #1	1	GROUND
125	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
126	K02	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	SPLICE,R/S B+	1	KEY SWITCH B+
127	K02A	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	RELAY/FUSE BLOCK	D2	KEY SWITCH,B+ CHASSIS RELAY COIL POWER
128	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
129	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
130	K06	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+	1	KEY SWITCH B+
131	K116	TXL	0.5	OG	SPLICE,R/S B+	2	ECM,CODE 4	116	KEY SWITCH B+
132	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
133	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
134	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
135	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
136	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
137	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
138	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
139	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
140	RC6A	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	1	TAIL/BRAKE LIGHT	A	LIGHTS,B+ LIGHTS FUSE OUT
141	RC6B	TXL	0.8	RD/YE	IN-LINE LED HARNESS	A	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
142	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
143	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
144	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
145	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
146	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
147	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
148	REB	TXL	0.8	RD/DB	PTO FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
149	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
150	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
151	REE	TXL	0.8	RD/DB	SPLICE,ECM B+	1	REVERSE BEEPER #2	1	ECM B+
152	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
153	REG	TXL	0.8	RD/DB	SPLICE,ECM B+	1	DIAGNOSTIC	B	ECM B+
154	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
155	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
156	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
157	REK	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	1	O2 SENSOR	A	ECM B+,O2 SENSOR
158	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
159	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
160	RS	TXL	3.0	OG	RELAY/FUSE BLOCK	A2	EPS POWER (A)	A	EPS RELAY POWER OUT
161	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
162	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
163	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
164	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
165	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

2016-2017 RANGER 900 XP EU

WIRE COLOR LEGEND	
BK	BLACK
BL	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GREY
LG	LIGHT GREEN
DG	DARK GREEN
OR	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEATBELT SWITCH

E225 OG/BK
E264 RD/DG

TURN/LIGHTS/HORN SWITCH (P/N 4015149)

1: TURN SIGNAL B+
2: HEADLAMP B+
3: HORN B+
4: HORN
5: HIGH BEAM
6: LOW BEAM
7: RIGHT TURN SIGNAL
8: LEFT TURN SIGNAL

HAZARD SWITCH (P/N 4015820)

DRIVEMODE SWITCH (P/N 4015553)

POWER STEERING ASSEMBLY (P/N 2411224)

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (REQ. REF)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (REQ. REF)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

DIAGNOSTIC

A B C D E F G

KEY SWITCH (P/N 4012684)

	A	B	R	I
OFF				
ON LIGHTS	○	○		
ON	○	○	○	○
START	○		○	○

12V RECEPTACLE (P/N 4012393)

12V RECEPTACLE (P/N 4012393)

HORN (GROUND) (ENABLE)

REVERSE BEEPER (B+) (ENABLE)

REAR DIFFERENTIAL SOLENOID LOCATED ON REAR DIFFERENTIAL

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

RC4C RD/OG
E131 DG/WH
GR25 BN

PIN A: BAT (RD)
PIN B: CON (GN)
PIN C: GND (BN)

PIN A: SOL + (RD)
PIN B: SOL - (BU)

TURF SOLENOID DRIVER (P/N 4012829)

BOX HARNESS

RC4A RD/YE
30C1 OG
GR23 BN
HO7 DB/YE
HI2 BU/DG

1: HAZARD
2: IGNITION SWITCH
3: DIL-RIGHT
4: DIL-LEFT
5: GROUND
6: LOAD TYPE
7: REAR RIGHT
8: FRONT RIGHT
9: RIGHT TURN
10: LEFT TURN
11: FRONT LEFT
12: REAR LEFT

LED FLASHER MODULE (P/N 4013043)

HI2 BU/DG
HI1 BU/OG
HI0 OB/RD
HO9 DG/RD
HO8 DB/OG
HO7 DB/YE
GL1B BN
HO4 BU/BN
HO3 OB/BN
HO2 OG
HO1 RD

RH TURN SIGNAL (P/N 2411113)

H08A DB/OG
GHR3 BN

RH HEADLIGHT

(P/N 2412833)

20LB DG
GHR4 BN
SB0 YE

GHR2 BN
RC6D RD/YE

LH HEADLIGHT

(P/N 2412830)

GHL2 BN
RC4E RD/YE

20LC DG
GHL4 BN
SBC YE

LH TURN SIGNAL (P/N 2411114)

H11 BU/OG
GHL3 BN

24Ω (11 VOLTS MIN. TO POWER HUB COIL)

AMD HUB COIL

E246 BN/WH
RC4B RD/DG

BRAKE PRESSURE SWITCH

10A OG
RE0 RD/DB

FAN MOTOR

GR32 BN
RF1 OG/BK

SPLICE,HAZARD SWITCH LIGHT
H08 DB/OG
H08A DB/OG
H08B DB/OG

SPLICE,BRAKE
30C OG
30B OG
30A OG
EI35 OG

SPLICE,DRIVE
RC4A RD/YE
RC4C RD/DG
RC4B RD/DG

SPLICE,GROUND LIGHT
GHR3 BN
GL1B BN
GL1 BN
GHR1 BN

SPLICE,LIGHTS B+
RC5A RD/YE
RC6D RD/YE
RC4E RD/YE
RC6 RD/YE
RC6F RD/YE
RC6C RD/YE

SPLICE,HIGH BEAM
SB0 YE
SBC YE
SB0 YE
SBA YE

SPLICE,LOW BEAM
20LB DG
20LC DG
20LA DG

SPLICE,EFI B+
RE0 RD/DB
RE4A RD/DB
RE0 RD/DB
RE7 RD/DB
RE155 RD/DG
RE156 RD/DG
RE0 RD/DB
RE8 RD/DB
RE9 RD/DB

SPLICE,GROUND RH LIGHT
GHR3 BN
GHR2 BN
GHR1 BN
GHR4 BN

SPLICE,GROUND LH LIGHT
GHL2 BN
GHL3 BN
GHL4 BN
GHL1 BN

SPLICE,IGNITION POWER
REF RD/DB
CO2.2 RD

SPLICE,EFI B+ 2
RE03 RD/DB
RE01 RD/DB
RE02 RD/DB
RE0 RD/DB
RE04 RD/DB

SPLICE,CHASSIS
RC1 RD/DG
RC2 RD/DG
RC3 RD/DG
RC4 RD/DG

SPLICE,B+ UNSWITCHED FUSED #1
B4C1 RD
B4C2 RD
B4C3 RD/WH

SPLICE,GROUND FUSE CENTER
GR23C BN
GR23B BN
GR23A BN
GR23 BN

SPLICE,EFI
B4C RD
B4B RD
B4A RD

SPLICE,KEY ACCESSORY
RC3D OG/WH
RC3A OG/WH
RC3C OG/WH
RC3B OG/WH

SPLICE,B+ UNSWITCHED FUSED #2
B4C3A RD/WH
B4C3 RD/WH
B4C3C RD/WH
B4C3B RD/WH

SPLICE,R/S B+1
H08 OG
H03 OG
H04 OG
H05 OG
K01 OG
K02 OG

SPLICE,R/S B+2
K02E OG
K02C OG
K02 OG
K02A OG

SPLICE,CAN HIGH
C3N YE
C2N YE
C4N YE
C1N YE

SPLICE,CAN LOW
C3L DG
C2L DG
C4L DG
C1L DG

SPLICE,SENSOR GROUND
E204A VT/WH
E204B VT/WH
E204 VT/WH

SPLICE,FRONT GROUND
GF1D BN
GL1 BN
GF1A BN
GR31 BN

SPLICE,CPS SHIELD
CO1.3 SHLD
CO2.4 SHLD
CPS SHIELD
GR21 BN

TRIM FLUSH & IGNITION COIL

SPLICE,CPS B+ FUSIBLE LINK
SPLICE,FAN B+ FUSIBLE LINK
SPLICE,INJ B+ FUSIBLE LINK
SPLICE,ACT B+ FUSIBLE LINK
SPLICE,CHASSIS RELAY FUSIBLE LINK
SPLICE,INJ RELAY FUSIBLE LINK
SPLICE,VMOL FUSIBLE LINK
B5A RD
B3A RD
B4 RD
B6 GY
B2 BU
B1 GY
B7B RD
B7A RD

SPLICE,ACT RELAY FUSIBLE LINK
B3B RD

SPLICE,START SOLENOID
J001 OG/WH
GR29 BN

SPLICE,REAR CHASSIS GROUND
GR10 BN
GR11 BN
GR12 BN
GR13 BN
GR14 BN
GR15 BN
GR16 BN
GR17 BN
GR18 BN
GR19 BN
GR20 BN
GR21 BN
GR22 BN
GR23 BN
GR24 BN
GR25 BN
GR26 BN
GR27 BN
GR28 BN
GR29 BN
GR30 BN
GR31 BN
GR32 BN

TRANSMISSION SWITCH

C123 WH
C204B VT/WH

HIGH R2(C)
LOW 35(C)
NEU 16(C)
REV 75(C)
PARK 24(C)

SPEED SENSOR

HALL SENSOR
POWER IN PIN "A"
V OUT PIN "C"
COMMON PIN "B"

(LOCATED ON TRANSMISSION)

H02A OG
H02A BN
C232 GN/RD

THROTTLE SENSOR

C64.1 DB/WH
C64.2 VT
C64.3 OG/BN
C63.1 OG/RD
C63.2 OG/BK
C63.1 DB/BK

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	APS SIGNAL 2
F	GND 2

E142 DG/YE
C1N YE
C123 WH
C1L DG
E131 DG/WH
C1N YE
E140 GY
C63.1 DB/BK
E136 OG/RD
E135 OG
E141 OG/BK

172 141 147 146 111 180 109 153 178 144 152 107 124 183
129 134 135 128 140 145 127 106 131 123 130 142 122

ECM,CODE 4

LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (1E, 11DICAVITY 10)

151 153 108 123 119 104 117 120 125 138 154 116 114
150 152 154 121 102 101 118 149 126 137 155 105 113 115

GRE153 BN
GRE154 BN
C64.1 DB/WH
C63.2 VT/BK
C106 WH/OG
C109 GY
C63.3 OG/RD
C138 OG/BK
RE155 RD/DB
RE156 RD/DB
E114 OG
E115 DG/YE

E243 WH
E230 GN/RD
E223 OG
E244 BK
C64.3 OG/BN
C64.2 VT/BK
E242 BN/WH
E246 BN/WH
GRE247 BN

252 241 247 240 211 244 209 239 233 210 234 232 207 224 243
250 254 255 256 220 245 221 206 251 203 235 202 222

ECM,CODE 13

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (1E, 21DICAVITY 10)

251 253 208 223 219 204 217 220 225 238 226 216 214 215
250 252 254 221 222 201 218 248 228 237 227 205 213 215

GRE250 BN
W1.251 GN/BK
W2.252 BK/GN
C202.1 BK
E205 OG
E205 OG
C201.1 BK
E204 VT/WH
E220 OG/BK
E225 OG/BK
C202.2 BN
E214 RD
E215 YE

E134 OG/RD
RE4 RD/DG

PARK BRAKE SWITCH

SWITCH CONNECTS WHEN BRAKE LEVER PULLED

NO
NC

TERMINAL BLOCK

RC3B OG/WH

GND
ACC
B+

(P/N 4011892)

B7B RD
GR12 BN

REGULATOR (P/N 4012941)

72 YE
71 YE
70 YE

E139 OG/BK
E137 OG/WH
E220 DG/BK
E221 DG/WH
E233 DG

RELAY/FUSE BLOCK

B5B RD/WH
B3A RD
B3B RD
B4 RD
B6 GY
B2 BU
B1 GY
B7B RD
B7A RD
B5A RD
B4A RD
B4C RD/WH
B4B RD
B4C1 RD
B4C2 RD
B4C3 RD/WH
B4C3A RD/WH
B4C3C RD/WH
B4C3B RD/WH
B4C3D RD/WH
B5B RD
B3B OG/BK
B3B OG/BK
B5B RD
B4B1 OG/WH
B4B1 OG/WH

LAIRD FERRITE 28A0434-0A2

E11 VT/WH
C02C RD/DB
GR10 BN

E204A VT/WH
E215 YE

E230 WH
RE0 RD/DB

E244 BK
RE4C RD/DB

C02.2 WH
C02.1 RD
C02.4 BK

C01.3 WH
C01.1 BK
GP5 BN

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	4.0±1.5Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

NOMINAL RESISTANCE:
AT 25°C±1.2°C: 29.9 kΩ±0.2%
AT 120°C±1.2°C: 1.22 kΩ±0.2%
COOLANT TEMP SENSOR

RESISTANCE: 12Ω±0.5Ω
FUEL INJECTOR

RESISTANCE: 12Ω±0.5Ω
FUEL INJECTOR

T-MAP (P/N 2411528)

1: GROUND
2: +5V
3: PRESSURE SENSOR
4: SIGNAL

IGNITION COIL (P/N 4014425)

CRANK POSITION SENSOR (P/N 2411719)

START SOLENOID B+

START SOLENOID

REAR CHASSIS GROUND

B1
B2
B3

PIN	FUNCTION
1	TPS 1
2	TPS RETURN
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

ELECTRONIC THROTTLE CONTROL (P/N 1204553)

YE1
YE2
YE3
STATOR

(LOCATED UNDER RECOIL)

RESISTANCES (±20% @ 68 °F/20 °C)		
STATOR	CHARGE COIL	YE1 TO YE2: 0.1 Ω±0.2Ω
		YE2 TO YE3: 0.1 Ω±0.2Ω
		YE1 TO YE3: 0.1 Ω±0.2Ω

2016-2017 RANGER 900 XP EU

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

⏚ = ENGINE GROUND

⏚ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 2 OF 2

SCHEMATIC CABLE/WIRE TERMINATION TABLE

CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION	INDEX
001	TXL	1.0	YE/DG	RELAY/FUSE BLOCK	41	KEY SWITCH	E	KEY OUT,HEADLIGHT RELAY ENABLE	1
20LA	TXL	0.8	DG	TURN/LIGHT/HORN SWITCH	6	SPLICE,LOW BEAM	2	LOW BEAM	2
20LB	TXL	0.8	DG	RH HEADLIGHT	P3	SPLICE,LOW BEAM	1	LOW BEAM	3
20LC	TXL	0.8	DG	LH HEADLIGHT	P3	SPLICE,LOW BEAM	1	LOW BEAM	4
30A	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE	1	BRAKE SWITCH OUT	5
30B	TXL	0.8	OG	RELAY/FUSE BLOCK	2	SPLICE,BRAKE	1	BRAKE SWITCH KEY START	6
30BI	TXL	0.8	OG/WH	RELAY/FUSE BLOCK	5	START SOLENOID	1	START RELAY OUT	7
30C	TXL	0.8	OG	RELAY/FUSE BLOCK	43	SPLICE,BRAKE	1	BRAKE SIGNAL	8
30CI	TXL	0.8	OG	RELAY/FUSE BLOCK	47	BOX HARNESS	D	BARKE SIGNAL	9
70	TXL	3.0	YE	STATOR AC	A	VOLTAGE REGULATOR AC	P1	STATOR AC1	10
71	TXL	3.0	YE	STATOR AC	B	VOLTAGE REGULATOR AC	P2	STATOR AC2	11
72	TXL	3.0	YE	STATOR AC	C	VOLTAGE REGULATOR AC	P3	STATOR AC3	12
B1	FUSIBLE LINK	0.5	GY	START SOLENOID B+	1	SPLICE,12V ACC FUSIBLE LINK	1	12V ACCESSORY FUSIBLE LINK	13
B1A	TXL	1.0	RD	RELAY/FUSE BLOCK	36	SPLICE,12V ACC FUSIBLE LINK	2	12V ACCESSORY FUSE IN	14
B1B	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	40	12V RECEPTACLE #1 (HI) 3/16"	1	12V ACCESSORY FUSE OUT	15
B1BA	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	12V RECEPTACLE #2 (HI) 3/16"	1	12V ACCESSORY FUSE OUT	16
B2	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,CHASSIS RELAY FUSIBLE LINK	1	CHASSIS RELAY FUSIBLE LINK	17
B2A	TXL	2.0	RD	RELAY/FUSE BLOCK	34	SPLICE,CHASSIS RELAY FUSIBLE LINK	2	CHASSIS RELAY POWER IN	18
B3	FUSIBLE LINK	0.5	BU	START SOLENOID B+	1	SPLICE,FAN B+ FUSIBLE LINK	1	FAN B+ FUSIBLE LINK	19
B3A	TXL	1.0	RD	RELAY/FUSE BLOCK	11	SPLICE,FAN B+ FUSIBLE LINK	2	FAN B+ FUSE IN	20
B3B	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	10	RELAY/FUSE BLOCK	15	FAN B+ FUSED RELAY IN	21
B4	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,EFI FUSIBLE LINK	1	EFI FUSIBLE LINK	22
B4A	TXL	2.0	RD	SPLICE,EFI	2	SPLICE,EFI FUSIBLE LINK	2	EFI B+ UNFUSED	23
B4B	TXL	1.0	RD	RELAY/FUSE BLOCK	19	SPLICE,EFI	1	EFI B+ FUSE IN	24
B4BI	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	18	RELAY/FUSE BLOCK	23	UNSWITCHED FUSED B+ EFI FUSE OUT	25
B4C	TXL	1.0	RD	RELAY/FUSE BLOCK	27	SPLICE,EFI	1	SYSTEM B+	26
B4CI	TXL	1.0	RD	RELAY/FUSE BLOCK	31	SPLICE,B+ UNSWITCHED FUSED #1	1	SYSTEM B+	27
B4C2	TXL	0.5	RD	RELAY/FUSE BLOCK	17	SPLICE,B+ UNSWITCHED FUSED #1	1	SYSTEM B+	28
B4C3	TXL	1.0	RD/WH	SPLICE,B+ UNSWITCHED FUSED #2	2	SPLICE,B+ UNSWITCHED FUSED #2	1	SYSTEM B+	29
B4C3A	TXL	1.0	RD/WH	HAZARD SWITCH	4	SPLICE,B+ UNSWITCHED FUSED #2	1	SYSTEM B+	30
B4C3B	TXL	1.0	RD/WH	DIAGNOSTIC	A	SPLICE,B+ UNSWITCHED FUSED #2	2	SYSTEM B+	31
B4C3C	TXL	1.0	RD/WH	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED #2	2	SYSTEM B+	32
B4C3D	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED #2	2	SYSTEM B+	33
B5	FUSIBLE LINK	0.8	BU	START SOLENOID B+	1	SPLICE,EPS B+ FUSIBLE LINK	1	EPS FUSIBLE LINK	34
B5A	TXL	2.0	RD	RELAY/FUSE BLOCK	12	SPLICE,EPS B+ FUSIBLE LINK	2	EPS B+ FUSE IN	35
B5B	TXL	2.0	RD	RELAY/FUSE BLOCK	4	RELAY/FUSE BLOCK	16	EPS B+ FUSED RELAY IN	36
B6	FUSIBLE LINK	0.5	GY	START SOLENOID B+	1	SPLICE,KEY B+ FUSIBLE LINK	1	KEY B+ FUSIBLE LINK	37
B6A	TXL	1.0	RD	RELAY/FUSE BLOCK	44	SPLICE,KEY B+ FUSIBLE LINK	2	KEY B+ UNFUSED	38
B6B	TXL	1.0	GN/WH	RELAY/FUSE BLOCK	48	KEY SWITCH	A	KEY B+ FUSED	39
B7	FUSIBLE LINK	2.0	GY	START SOLENOID B+	1	SPLICE,VREG FUSIBLE LINK	1	VOLTAGE REGULATOR B+ FUSIBLE LINK	40
B7B	TXL	5.0	RD	VOLTAGE REGULATOR DC	P3	SPLICE,VREG FUSIBLE LINK	2	VOLTAGE REGULATOR DC OUT	41
C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)	42
C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)	43
C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD	2	SPLICE,SHIELD	1	GROUND,CRANK POSITION SENSOR	44
C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 (PTO)	45
C02_2	TXL	0.5	RD	SBC	2	EFI B+ IGNITION COIL	2	EFI B+ IGNITION COIL	46
C02_3	TXL	0.5	WH	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 (MAG)	47
C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,SHIELD	2	GROUND,IGNITION COIL	48
C03_1	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2 (E111)	49
C03_2	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3 (E103)	50
C03_3	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2 (E125)	51
C04_1	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1 (E121)	52
C04_2	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2 (E106)	53
C04_3	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1 (E210)	54
C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH,ECM	55
C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW,ECM	56
C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	1	CAN HIGH,DIAGNSOTIC	57
C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	1	CAN LOW,DIAGNOSTIC	58
C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	1	CAN HIGH,SPEEDOMETER	59
C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	1	CAN LOW,SPEEDOMETER	60
C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH,EPS	61
C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW,EPS	62
E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4	63
E105	TXL	0.5	VT/PK	ECM,CODE 4	105	ETC THROTTLE BODY	2	TPS SENSOR RETURN 1	64
E108	TXL	0.5	WH/DG	ECM,CODE 4	108	DRIVEMODE SWITCH	4	DRIVE MODE INPUT	65
E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	22	EFI RELAY COIL LOW	66
E120	TXL	0.5	GY	ECM,CODE 4	120	DRIVEMODE SWITCH	7	AWD REQUEST INPUT	67
E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR	68
E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF RELAY	B	TURF RELAY CONTROL	69
E135	TXL	0.5	OG	ECM,CODE 4	135	SPLICE,BRAKE	2	BRAKE SWITCH,ECM IN	70
E136	TXL	0.5	OG/RD	ECM,CODE 4	136	PARK BRAKE	B	PARK BRAKE LSD	71
E138	TXL	0.5	OG/BK	ECM,CODE 4	138	ETC THROTTLE BODY	6	3.3V SUPPLY,TPS	72
E140	TXL	0.5	GY	ECM,CODE 4	140	RELAY/FUSE BLOCK	38	CHASSIS RELAY COIL LOW	73
E141	TXL	0.5	OG/BK	ECM,CODE 4	141	RELAY/FUSE BLOCK	14	COOLING FAN RELAY	74
E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	30	FUEL PUMP COIL LOW	75
E203	TXL	0.5	DG	ECM,CODE 13	203	ETC THROTTLE BODY	1	THROTTLE POSITION SENSOR 1	76
E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND	77
E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND	78
E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND	79
E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR	80
E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL	81
E220	TXL	0.5	DG/BN	ECM,CODE 13	220	ETC THROTTLE BODY	4	THROTTLE POSITION SENSOR 2	82
E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2	83
E225	TXL	0.5	OG/BK	ECM,CODE 13	225	SEATBELT SWITCH	B	SEATBELT SWITCH	84
E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR	85
E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR	86
E243	TXL	0.5	WH	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER (PTO)	87
E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER (MAG)	88
E245	TXL	0.8	BK/WH	ECM,CODE 13	245	REVERSE BEEPER (ENABLE)	1	REVERSE BEEPER ENABLE	89
E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD HUB COIL	B	AWD CONTROL	90
G002	TXL	0.5	BN	HAZARD SWITCH	3	HAZARD SWITCH	10	GROUND, HAZARD SW JUMPER	91
GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD	1	GROUND	92
GF1A	TXL	0.5	BN	DRIVEMODE SWITCH	3	SPLICE,FRONT GROUND	1	GROUND	93
GF1A1	TXL	0.5	BN	DRIVEMODE SWITCH	3	DRIVEMODE SWITCH	8	GROUND, JUMPER DRIVE MODE SW.	94
GF1A2	TXL	0.5	BN	DRIVEMODE SWITCH	8	NC		GROUND, JUMPER DRIVE MODE SW.	95
GF1D	TXL	0.5	BN	DIAGNOSTIC	D	SPLICE,FRONT GROUND	1	GROUND	96
GHL1	TXL	0.8	BN	SPLICE,GROUND LIGHT	2	SPLICE,GROUND LH LIGHT	2	GROUND	97
GHL2	TXL	0.8	BN	LH RUNNING LIGHT	2	SPLICE,GROUND LH LIGHT	1	GROUND	98
GHL3	TXL	0.35	BN	LH FRONT TURN SIGNAL	2	SPLICE,GROUND LH LIGHT	1	GROUND	99
GHL4	TXL	1.0	BN	LH HEADLIGHT	P2	SPLICE,GROUND LH LIGHT	2	GROUND, HEADLIGHT	100
GHR1	TXL	0.8	BN	SPLICE,GROUND LIGHT	2	SPLICE,GROUND RH LIGHT	2	GROUND	101
GHR2	TXL	0.8	BN	RH RUNNING LIGHT	2	SPLICE,GROUND RH LIGHT	1	GROUND	102
GHR3	TXL	0.35	BN	RH FRONT TURN SIGNAL	2	SPLICE,GROUND RH LIGHT	1	GROUND	103
GHR4	TXL	1.0	BN	RH HEADLIGHT	P2	SPLICE,GROUND RH LIGHT	2	GROUND, HEADLIGHT	104
GHR5	TXL	0.8	BN	SPLICE,GROUND LIGHT	1	HAZARD SWITCH	7	GROUND, HAZARD SW.	105
GL1	TXL	1.0	BN	SPLICE,GROUND LIGHT	2	SPLICE,FRONT GROUND	1	GROUND	106
GL1B	TXL	0.5	BN	FLASHER MODULE	5	SPLICE,GROUND LIGHT	1	GROUND	107
GR10	TXL	0.8	BN	FUEL PUMP & SENDER	4	REAR CHASSIS GROUND #1	1	GROUND	108
GR11	TXL	0.8	BN	FUEL PUMP & SENDER	2	REAR CHASSIS GROUND #1	1	GROUND	109
GR12	TXL	5.0	BN	VOLTAGE REGULATOR DC	P1	REAR CHASSIS GROUND #1	1	GROUND	110
GR20	TXL	0.8	BN	START SOLENOID	2	REAR CHASSIS GROUND #2	1	GROUND	111
GR21	TXL	0.5	BN	REAR CHASSIS GROUND #2	1	SPLICE,SHIELD	1	GROUND	112
GR22	TXL	0.8	BN	BOX HARNESS	C	REAR CHASSIS GROUND #2	1	GROUND	113
GR23	TXL	0.5	BN	REAR CHASSIS GROUND #2	1	SPLICE,GROUND FUSE CENTER	2	GROUND	114
GR23A	TXL	0.5	BN	RELAY/FUSE BLOCK	8	SPLICE,GROUND FUSE CENTER	1	GROUND	115
GR23B	TXL	0.5	BN	RELAY/FUSE BLOCK	6	SPLICE,GROUND FUSE CENTER	1	GROUND	116
GR23C	TXL	0.5	BN	RELAY/FUSE BLOCK	46	SPLICE,GROUND FUSE CENTER	1	GROUND	117
GR24	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	REAR CHASSIS GROUND #2	1	GROUND	118
GR25	TXL	1.0	BN	TURF RELAY	C	REAR CHASSIS GROUND #2	1	GROUND	119
GR26	TXL	0.8	BN	TURN/LIGHT/HORN SWITCH	1	REAR CHASSIS GROUND #2	1	GROUND	120
GR31	TXL	0.8	BN	REAR CHASSIS GROUND #3	1	SPLICE,FRONT GROUND	2	GROUND	121
GR32	TXL	1.0	BN	FAN	A	REAR CHASSIS GROUND #3	1	GROUND	122
GR33	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	REAR CHASSIS GROUND #3	1	GROUND	123
GR33A	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	12V RECEPTACLE #2 (LO) 1/4"	1	GROUND	124
GR34	TXL	2.0	BN	EPS POWER (A)	B	REAR CHASSIS GROUND #3	1	GROUND	125
GR35	TXL	0.8	BN	SPEEDOMETER	5	REAR CHASSIS GROUND #3	1	GROUND	126
GR36	TXL	0.8	BN	HORN (GROUND)	1	REAR CHASSIS GROUND #3	1	GROUND	127
GRE153	TXL	0.8	BN	ECM,CODE 4	153	REAR CHASSIS GROUND #1	1	GROUND	128
GRE154	TXL	0.8	BN	ECM,CODE 4	154	REAR CHASSIS GROUND #1	1	GROUND	129
GRE247	TXL	0.5	BN	ECM,CODE 13	247	REAR CHASSIS GROUND #1	1	GROUND	130
GRE250	TXL	0.8	BN	ECM,CODE 13	250	REAR CHASSIS GROUND #1	1	GROUND	131
H01	TXL	0.5	RD	FLASHER MODULE	1	HAZARD SWITCH	6	HAZARD SWITCH OUT	132
H03	TXL	0.5	DB/WH	FLASHER MODULE	3	SPEEDOMETER	6	RIGHT TURN INDICATOR	133
H04	TXL	0.5	BU/WH	FLASHER MODULE	4	SPEEDOMETER	7	LEFT TURN INDICATOR	134
H07	TXL	0.5	DB/YE	FLASHER MODULE	7	BOX HARNESS	B	RIGHT REAR TURN SIGNAL	135
H08	TXL	0.8	DB/OG	FLASHER MODULE	8	SPLICE,HAZARD SWITCH LIGHT	1	RIGHT FRONT TURN SIGNAL	136
H08A	TXL	0.8	DB/OG	SPLICE,HAZARD SWITCH LIGHT	1	RH FRONT TURN SIGNAL	1	RIGHT FRONT TURN SIGNAL	137
H08B	TXL	0.8	DB/OG	SPLICE,HAZARD SWITCH LIGHT	2	HAZARD SWITCH	1	HAZAR SWITCH LIGHT	138
H09	TXL	0.5	BU/RD	FLASHER MODULE	9	TURN/LIGHT/HORN SWITCH	7	RIGHT TURN SIGNAL COMMAND	139
H10	TXL	0.5	DB/RD	FLASHER MODULE	10	TURN/LIGHT/HORN SWITCH	8	LEFT TURN SIGNAL COMMAND	140
H11	TXL	0.35	BU/OG	FLASHER MODULE	11	LH FRONT TURN SIGNAL	1	LEFT FRONT TURN SIGNAL	141
H12	TXL	0.35	BU/OG	FLASHER MODULE	12	BOX HARNESS	A	LEFT REAR TURN SIGNAL	142
K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+1	2	KEY SWITCH B+ KEY OUT	143
K02	TXL	0.5	OG	SPLICE,R/S B+1	2	SPLICE,R/S B+2	2	KEY SWITCH B+	144
K02A	TXL	0.5	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+2	2	KEY SWITCH B+	145
K02B	TXL	0.5	OG	RELAY/FUSE BLOCK	3	SPLICE,R/S B+2	1	KEY SWITCH B+ EPS RELAY COIL POWER	146
K02C	TXL	0.8	OG	RELAY/FUSE BLOCK	26	SPLICE,R/S B+2	1	KEY SWITCH B+ FUEL PUMP RELAY IN	147

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SCHEMATIC CABLE/WIRE TERMINATION TABLE

CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION	INDEX
K02C1	TXL	0.8	RD/BU	RELAY/FUSE BLOCK	29	FUEL PUMP & SENDER	3	KEY SWITCH B+	148
K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+1	1	KEY SWITCH B+	149
K04	TXL	0.5	OG	DIAGNOSTIC	B	SPLICE,R/S B+1	1	KEY SWITCH B+	150
K05	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+1	1	KEY SWITCH B+	151
K08	TXL	0.8	OG	FLASHER MODULE	2	SPLICE,R/S B+1	1	KEY SWITCH B+	152
K11 6	TXL	0.5	OG	ECM,CODE 4	116	SPLICE,R/S B+2	2	KEY SWITCH B+	153
KL1A	TXL	1.0	YE/DG	RELAY/FUSE BLOCK	45	TURN/LIGHT/HORN SWITCH	2	HEADLIGHT RELAY OUT	154
KS1	TXL	0.5	OG/WH	RELAY/FUSE BLOCK	1	KEY SWITCH	B	START RELAY COIL HI	155
M1_251	TXL	0.8	GN/BK	ECM,CODE 13	251	ETC THROTTLE BODY	5	ETC MOTOR (+)	156
M2_252	TXL	0.8	BK/GN	ECM,CODE 13	252	ETC THROTTLE BODY	3	ETC MOTOR (-)	157
RC1	TXL	2.0	RD/DG	RELAY/FUSE BLOCK	37	SPLICE,CHASSIS	1	CHASSIS RELAY OUT	158
RC2	TXL	2.0	RD/DG	RELAY/FUSE BLOCK	20	SPLICE,CHASSIS	1	LIGHTS FUSE IN	159
RC3	TXL	2.0	RD/DG	RELAY/FUSE BLOCK	35	SPLICE,CHASSIS		ACCESSORY FUSE IN	160
RC3A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	39	SPLICE,KEY ACCESSORY	1	ACCESSORY FUSE OUT	161
RC3B	TXL	1.0	OG/WH	TERMINAL BLOCK (ACCESSORY)	1	SPLICE,KEY ACCESSORY	2	B+ ACCESSORY FUSE OUT	162
RC3C	TXL	0.8	OG/WH	REVERSE BEEPER (B+)	1	SPLICE,KEY ACCESSORY	2	KEY ACCESSORY REVERSE BEEPER	163
RC3D	TXL	0.8	OG/WH	TURN/LIGHT/HORN SWITCH	3	SPLICE,KEY ACCESSORY	1	ACCESSORY HORN	164
RC4	TXL	2.0	RD/DG	RELAY/FUSE BLOCK	28	SPLICE,CHASSIS	2	DRIVE INPUT FUSE IN	165
RC4A	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	32	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT	166
RC4B	TXL	0.5	RD/DG	AWD HUB COIL	C	SPLICE,DRIVE	2	SWITCHED B+ AWD COIL	167
RC4C	TXL	1.0	RD/DG	TURF RELAY	A	SPLICE,DRIVE	2	TURF CONTROL SWITCH	168
RC6	TXL	1.0	RD/YE	RELAY/FUSE BLOCK	24	SPLICE,LIGHTS B+	1	LIGHTS B+ FUSE OUT	169
RC6A	TXL	0.8	RD/YE	BOX HARNESS	E	SPLICE,LIGHTS B+		TAILLIGHTS	170
RC6C	TXL	1.0	RD/YE	RELAY/FUSE BLOCK	42	SPLICE,LIGHTS B+	2	HEADLIGHT RELAY IN	171
RC6D	TXL	0.8	RD/YE	RH RUNNING LIGHT	1	SPLICE,LIGHTS B+	1	LIGHTS B+ FUSE OUT	172
RC6E	TXL	0.8	RD/YE	LH RUNNING LIGHT	1	SPLICE,LIGHTS B+	1	LIGHTS B+ FUSE OUT	173
RC6F	TXL	0.8	RD/YE	SPLICE,LIGHTS B+	2	DRIVEMODE SWITCH	1	LIGHTS B+ FUSE OUT	174
RE155	TXL	0.8	RD/DB	ECM,CODE 4	155	SPLICE,EFI B+	2	EFI B+	175
RE156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,EFI B+	2	EFI B+	176
REA	TXL	1.0	RD/DB	RELAY/FUSE BLOCK	21	SPLICE,EFI B+	1	EFI B+ RELAY OUT	177
REB	TXL	0.5	RD/DB	PTO FUEL INJECTOR	2	SPLICE,EFI B+	2	PTO FUEL INJECTOR	178
REC	TXL	0.5	RD/DB	MAG FUEL INJECTOR	2	SPLICE,EFI B+	2	MAG FUEL INJECTOR	179
RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,EFI B+	1	EFI B+	180
REF	TXL	0.8	RD/DB	SPLICE,EFI B+	1	SPLICE,IGNITION POWER	1	EFI B+	181
REG	TXL	0.5	RD/DB	SPLICE,EFI B+	1	SPLICE,EFI B+ 2	2	EFI B+	182
REG1	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	25	SPLICE,EFI B+ 2	1	EFI B+ FUEL PUMP COIL HI	183
REG2	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	9	SPLICE,EFI B+ 2	1	EFI B+ FAN COIL HI	184
REG3	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	33	SPLICE,EFI B+ 2	1	EFI B+ CHASSIS RELAY COIL	185
REG4	TXL	0.5	RD/DB	SEATBELT SWITCH	A	SPLICE,EFI B+ 2	2	EFI B+	186
REH	TXL	0.5	RD/DB	PARK BRAKE	A	SPLICE,EFI B+	2	EFI B+	187
RF1	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	13	FAN	B	FAN B+ RELAY OUT	188
RS	TXL	2.0	OG	RELAY/FUSE BLOCK	7	EPS POWER (A)	A	EPS RELAY POWER OUT	189
S11	TXL	0.8	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR	190
S8A	TXL	0.8	YE	TURN/LIGHT/HORN SWITCH	5	SPLICE,HIGH BEAM	2	HIGH BEAM	191
S8B	TXL	0.8	YE	RH HEADLIGHT	P1	SPLICE,HIGH BEAM	1	HIGH BEAM	192
S8C	TXL	0.8	YE	LH HEADLIGHT	P1	SPLICE,HIGH BEAM	1	HIGH BEAM	193
S8D	TXL	0.5	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM	194
SH1	TXL	0.8	GY/RD	HORN (ENABLE)	1	TURN/LIGHT/HORN SWITCH	4	HORN SWITCH OUT	195

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2016 RANGER 570 EU ZUG (CARGO BOX)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET 1 OF 1

LH STOP/TAIL/TURN LIGHT (P/N 2412695)

PIN	FUNCTION
A	TAIL
B	STOP
C	GROUND
D	TURN

PIN A

FOG LIGHT

LICENSE PLATE LAMP (P/N 2411278)

RH STOP/TAIL/TURN LIGHT (P/N 2412696)

PIN A

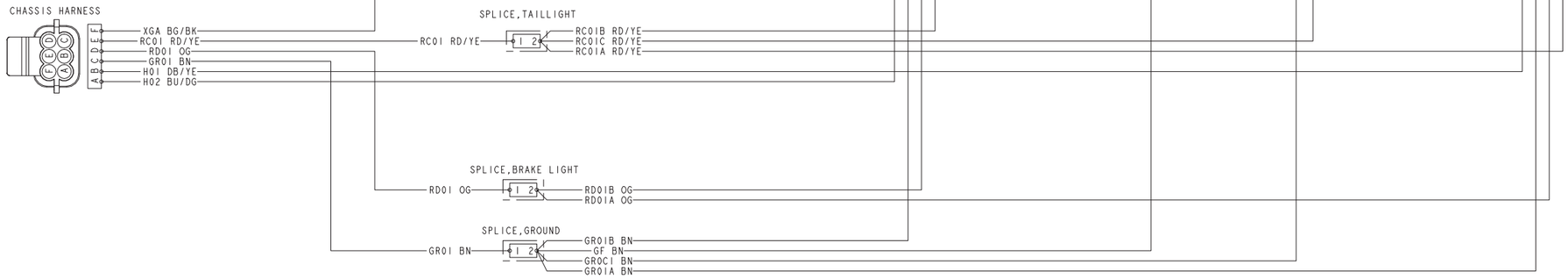
PIN	FUNCTION
A	TAIL
B	STOP
C	GROUND
D	TURN

CHASSIS HARNESS

SPLICE,TAILLIGHT

SPLICE,BRAKE LIGHT

SPLICE,GROUND



SCHEMATIC CABLE/WIRE TERMINATION TABLE									
INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	GF	TXL	0.8	BN	FOG LIGHT	2	SPLICE,GROUND	2	GROUND,FOG LIGHT
2	GR01	TXL	0.8	BN	CHASSIS HARNESS	C	SPLICE,GROUND	1	GROUND,CHASSIS
3	GR01A	TXL	0.8	BN	RH TAILLIGHT	C	SPLICE,GROUND	2	GROUND,RH
4	GR01B	TXL	0.8	BN	LH TAILLIGHT	C	SPLICE,GROUND	2	GROUND,LH
5	GR0C1	TXL	0.8	BN	LICENSE PLATE LAMP	B	SPLICE,GROUND	2	GROUND,LICENSE PLATE LAMP
6	H01	TXL	0.8	DB/YE	CHASSIS HARNESS	B	RH TAILLIGHT	D	RIGHT TURN SIGNAL
7	H02	TXL	0.8	BU/DG	CHASSIS HARNESS	A	LH TAILLIGHT	D	LEFT TURN SIGNAL
8	RC01	TXL	0.8	RD/YE	CHASSIS HARNESS	E	SPLICE,TAILLIGHT	1	TAILLIGHT B+
9	RC01A	TXL	0.8	RD/YE	RH TAILLIGHT	A	SPLICE,TAILLIGHT	2	TAILLIGHT B+,RH
10	RC01B	TXL	0.8	RD/YE	LH TAILLIGHT	A	SPLICE,TAILLIGHT	2	TAILLIGHT B+,LH
11	RC01C	TXL	0.8	RD/YE	LICENSE PLATE LAMP	A	SPLICE,TAILLIGHT	2	LICENSE PLATE LAMP,B+
12	RD01	TXL	0.8	OG	CHASSIS HARNESS	D	SPLICE,BRAKE LIGHT	1	BRAKE LIGHT
13	RD01A	TXL	0.8	OG	RH TAILLIGHT	B	SPLICE,BRAKE LIGHT	2	BRAKE LIGHT,RH
14	RD01B	TXL	0.8	OG	LH TAILLIGHT	B	SPLICE,BRAKE LIGHT	2	BRAKE LIGHT,LH
15	XGA	TXL	0.8	BG/BK	CHASSIS HARNESS	F	FOG LIGHT	1	FOG LIGHT

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2016 RANGER 900 XP MUDDER

WIRE COLOR LEGEND	
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BR	BROWN
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OR	ORANGE
PK	PINK
RD	RED
RW	VISIBLE RAINBOW
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN STRIPE COLOR; EXAMPLE GR/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V ± 270KΩ SEAT BELT SWITCH 180KΩ

POWER STEERING ASSEMBLY

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (REQ. REF)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (REQ. REF)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

HEADLIGHT SWITCH (P/N 4011115)

AND SWITCH (P/N 4015071)

INSTRUMENT CLUSTER (P/N 3280632)

PIN	FUNCTION
1	CAN HIGH
2	CAN LOW
3	SWITCHED POWER (+)
4	CONSTANT POWER (+)
5	POWER GROUND
6	RIGHT TURN SIGNAL INPUT
7	LEFT TURN SIGNAL INPUT
8	HIGH BEAM SWITCH INPUT

PIN	FUNCTION
9	-
10	-
11	FUEL LEVEL INPUT
12	BLACKOUT MODE
13	-
14	-
15	AMBIENT AIR TEMP
16	-

KEY SWITCH (P/N 4015033)

DIAGNOSTIC

12V RECEPTACLE (P/N 4014439)

12V RECEPTACLE (P/N 4014439)

WINCH SWITCH (P/N 4015072)

WINCH REMOTE (P/N 4015090)

OXYGEN SENSOR (P/N 4013979)

CONNECTOR PIN	WIRE COLOR	PIN AND WIRE CONNECTION
A	PURPLE	HEATER (+)
B	WHITE	HEATER (-)
C	GRAY	SENSOR (OUTPUT)
D	BLACK	SENSOR (GROUND)

WINCH CONTACTOR (P/N 4013465)

ELECTRONIC THROTTLE CONTROL (P/N 1204455)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH ⊕ DVES — C05.3 SHLD — SPLICE,DVES — GR09 BK

E138 OG/BK
C05.1 BK
E220 OG/BK
C05.2 BK
E105 VT/PK
E203 DG

SPLICE,WINCH IN: W102 DG, W101 DG — W103 DG

SPLICE,WINCH OUT: W002 BK, W001 BK — W003 BK

TRANSMISSION SWITCH

HIGH	420Ω
LOW	1050Ω
NEU	1680Ω
REV	2310Ω
PARK	2940Ω

E123 WH
E204B VT/WH

SPEED SENSOR — HALL SENSOR — POWER IN PIN "A" — V OUT PIN "C" — COMMON PIN "B" — (LOCATED ON TRANSMISSION)

E224 OG
E224 DG
E232 GY/RD

TAIL/BRAKE LIGHT — RC6A RD/YE — 30C! OG — GR22 BK

SPLICE,LIGHTS B+: RC6A RD/YE — RC6B RD/YE, RC6 RD/YE

BRAKE PRESSURE SWITCH — 30A OG — RED RD/DB

SPLICE,BRAKE: 30C OG, 30A OG — 30B OG, E135 OG

24Ω (11 VOLTS MIN. TO POWER HUB COIL) — BN/WH, GY — E24A BN/WH, RC4A RD/DG — AWD HUB COIL

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411788)

SPLICE,HIGH BEAM: 58B YE, 58C YE — 58D YE, 58A YE

SPLICE,LOW BEAM: 20LB DG, 20LC DG — 20LA DG

SPLICE,EFI B+ #1: REJ RD/DB, RED RD/DB, REA RD/DB, REF RD/DB, REG RD/DB — RE155 RD/DB, RE156 RD/DB, REC DB, RED DB

SPLICE,EFI B+ #2: REG1 RD/DB, REG2 RD/DB, REG3 RD/DB — REG RD/DB, REH RD/DB

SPLICE,IGNITION POWER: REF RD/DB — C02.2 RD

SPLICE,B+ ACC FUSE OUT: RC3A OG/WH — RC3E OG/WH, RC3D OG/WH, RC3B OG/WH

SPLICE,B+ UNSWITCHED FUSED #2: B4C3 RD/WH — B4C31 RD/WH, B4C32 RD/WH, B4C33 RD/WH

SPLICE,R/S B+ #1: K04 OG, K05 OG, K02 OG — K03 OG, K01 OG, K04 OG

SPLICE,R/S B+ #2: K02 OG, K02C OG, K02B OG — K03A OG, K11B OG

SPLICE,CAN HIGH: C4H YE — C3H YE, C2H YE, C1H YE

SPLICE,CAN LOW: C4L DG — C3L DG, C2L DG, C1L DG

E142 DG/YE
C1H YE
E123 WH
C1L DG
C44.2 VT
E105 VT/PK
C03.1 OR/BK
E135 OG
E141 OG/BK

ECM,CODE 4 — LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E. 110=CAVITY 10)

GRE153 BK
C04.1 BR
C04.1 BR/BK
C03.2 VT/BK
E104 VT
E139 GY
C03.3 OR/RD
E135 OG/BK
RE155 RD/DB
RE156 RD/DB
E105 VT/PK
K11K OG
E115 DG/YE

E243 DG
E207 BK
E230 GY
E232 GN/YE
E223 OG
C44.3 VT
C44.3 VT/BN
E234 WH
E248 BN/WH
GRE247 BK

ECM,CODE 13 — LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E. 210=CAVITY 10)

GRE250 BK
C05.1 BK
C05.1 BK
C02.1 BK
E203 DG
C01.1 BK
C01.1 BK
E204 VT/BK
E220 OG/BK
E220 OG/BK
C02.2 BK
C01.2 BK
E213 YE

SPLICE,SENSOR GROUND: E204A VT/WH — E204B VT/WH, E204 VT/WH

SPLICE,GROUND DASH: GF1G BK, GF1B BK, GF1E BK, GF1F BK — GF1A BK, GR31 BK

SPLICE,CHASSIS: RC1 RD/DG, RC3 RD/DG, RC4 RD/DG — RC2 RD/DG

SPLICE,B+ UNSWITCHED FUSED #1: B4C1 RD/WH, B4C2 RD/WH — B4C3 RD/WH

SPLICE,CPS SHIELD: GCPS BK — C01.3 SHLD

SPLICE,SHIELD: C01.3 SHLD — GR21 BK, C02.4 SHLD

SPLICE,EFI: B4C RD, B4B RD — B4A RD

TERMINAL BLOCK (P/N 4014564) — RC3B OG/WH — GND, ACC, B+

REGULATOR (P/N 4014564) — 6 RD, 4 BK — 003 YE, 002 YE, 001 YE

B50 RD
B3B OG/BK
B3B OG/BK
B50 RD
B4B1 RD
B4B1 RD

CRANK POSITION SENSOR (P/N 2411119)

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1.0Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

NOMINAL RESISTANCE: AT 25 °C=29.8 Ω±0.2Ω; AT 125 °C=11.22 Ω±0.2Ω — COOLANT TEMP SENSOR

PTO FUEL INJECTOR — RESISTANCE: 12Ω±0.5Ω — FUEL INJECTOR

MAG FUEL INJECTOR — RESISTANCE: 12Ω±0.5Ω — FUEL INJECTOR

T-MAP (P/N 2411528) — 5V REFERENCE, GROUND, +5V PRESSURE SIGNAL, NTC SIGNAL, INTAKE AIR TEMP SIGNAL

IGNITION COIL (P/N 4010425)

TRIM FLUSH ⊕ IGNITION COIL

ELECTRONIC THROTTLE PEDAL (P/N 4014642)

START SOLENOID (B+) #1

START SOLENOID (B+) #2

START SOLENOID

CHASSIS REAR GROUND — #2, #1, #3

(IGNITION COIL (P/N 4010425)) — YE1, YE2, YE3, STATOR — (LOCATED UNDER RECOIL)

		RESISTANCES (±20% @ 68 °F/20 °C)
STATOR	CHARGE COIL	YE1 TO YE2 [0.1 Ω±20%]
		YE2 TO YE3 [0.1 Ω±20%]
		YE1 TO YE3 [0.1 Ω±20%]

2016 RANGER 900 XP MUDDER

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

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C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 2 OF 2

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	001	TXL	3.0	YE	STATOR	A	REGULATOR AC	P1	STATOR AC
2	002	TXL	3.0	YE	STATOR	B	REGULATOR AC	P2	STATOR AC
3	003	TXL	3.0	YE	STATOR	C	REGULATOR AC	P3	STATOR AC
4	20LA	TXL	0.8	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM,SWITCH OUT
5	20LB	TXL	0.8	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM,RH
6	20LC	TXL	0.8	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM,LH
7	30A	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE	1	BRAKE SWITCH,OUT
8	30B	TXL	0.8	OG	KEY SWITCH	P4	SPLICE,BRAKE	2	BRAKE SWITCH,START RELAY
9	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	44	SPLICE,BRAKE	1	BRAKE SWITCH,OUT
10	30C1	TXL	0.8	OG	RELAY/FUSE BLOCK	48	TAIL/BRAKE LIGHT	B	FUSED BRAKE SWITCH OUT
11	4	TXL	5.0	BK	REGULATOR DC	P1	CHASSIS REAR GROUND #3	1	REGULATOR GROUND
12	40	TXL	0.8	DG/WH	KEY SWITCH	P3	START SOLENOID	1	START SOLENOID,START RELAY OUT
13	5	FUSIBLE LINK	2.0	GY	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #6	1	FUSIBLE LINK,VOLTAGE REGULATOR
14	50	TXL	0.8	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER,HEADLIGHT SWITCH
15	6	TXL	5.0	RD	REGULATOR DC	P3	SPLICE,FUSIBLE LINK #6	2	REGULATOR B+ OUTPUT
16	B1A	TXL	1.0	RD	RELAY/FUSE BLOCK	36	SPLICE,FUSIBLE LINK #4	2	ACC B+,SPLICE IN
17	B1A1	FUSIBLE LINK	0.5	GY	START SOLENOID (B+) #1	1	SPLICE,FUSIBLE LINK #4	1	FUSIBLE LINK,ACC (B+)
18	B1B	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	40	12V RECEPTACLE #1 (HI) 3/16"	1	12V ACCESSORY,FUSE OUT
19	B1BA	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	12V RECEPTACLE #2 (HI) 3/16"	1	12V ACCESSORY,FUSE OUT
20	B2A	TXL	2.0	RD	RELAY/FUSE BLOCK	34	SPLICE,FUSIBLE LINK #5	2	CHASSIS RELAY POWER IN
21	B2A1	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #5	1	FUSIBLE LINK,CHASSIS POWER
22	B3A	TXL	1.0	RD	RELAY/FUSE BLOCK	11	SPLICE,FUSIBLE LINK #2	2	FAN B+,FUSE IN
23	B3A1	FUSIBLE LINK	0.5	GY	START SOLENOID (B+) #1	1	SPLICE,FUSIBLE LINK #2	1	FUSIBLE LINK,FAN
24	B3B	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	10	RELAY/FUSE BLOCK	15	FAN B+,FUSED RELAY IN
25	B4A	TXL	2.0	RD	SPLICE,FUSIBLE LINK #3	2	SPLICE,EFI	2	EFI,SPLICE IN
26	B4A1	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #3	1	FUSIBLE LINK,EFI
27	B4B	TXL	1.0	RD	RELAY/FUSE BLOCK	19	SPLICE,EFI	1	EFI B+,FUSE IN
28	B4B1	TXL	1.0	RD	RELAY/FUSE BLOCK	18	RELAY/FUSE BLOCK	23	UNSWITCHED FUSED B+,EFI RELAY IN
29	B4C	TXL	1.0	RD	RELAY/FUSE BLOCK	27	SPLICE,EFI	1	KEY B+,FUSE IN
30	B4C1	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	31	SPLICE,B+ UNSWITCHED FUSED #1	1	UNSWITCHED FUSED B+,KEY FUSE OUT
31	B4C2	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	17	SPLICE,B+ UNSWITCHED FUSED #1	1	UNSWITCHED FUSED B+,EFI RELAY COIL HIGH
32	B4C3	TXL	1.0	RD/WH	SPLICE,B+ UNSWITCHED FUSED #1	2	SPLICE,B+ UNSWITCHED FUSED #2	1	UNSWITCHED FUSED B+,SPLICE
33	B4C31	TXL	0.8	RD/WH	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,SPEEDOMETER
34	B4C32	TXL	1.0	RD/WH	KEY SWITCH	P2	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,KEY
35	B4C33	TXL	0.5	RD/WH	DIAGNOSTIC	A	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,DIAGNOSTIC
36	B5A	TXL	2.0	RD	RELAY/FUSE BLOCK	12	SPLICE,FUSIBLE LINK #1	2	EPS B+,FUSE IN
37	B5A1	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #1	1	FUSIBLE LINK,EPS
38	B5B	TXL	2.0	RD	RELAY/FUSE BLOCK	4	RELAY/FUSE BLOCK	16	UNSWITCHED FUSED B+,EPS FUSE OUT
39	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRAKSHAFT SENSOR (-)
40	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
41	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD	2	SPLICE,SHIELD	1	GROUND,CRANK POSITION SENSOR
42	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 PTO
43	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE,IGNITION POWER	1	EFI B+,COIL
44	C02_3	TXL	0.5	WH	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 MAG
45	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,SHIELD	2	GROUND,IGNITION COIL
46	C03_1	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
47	C03_2	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
48	C03_3	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
49	C04_1	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
50	C04_2	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
51	C04_3	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
52	C05_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
53	C05_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
54	C05_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,SHIELD DVE5
55	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH,ECM
56	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW,ECM
57	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH,DIAGNOSTIC
58	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW,DIAGNOSTIC
59	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	2	CAN HIGH,SPEEDOMETER
60	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW,SPEEDOMETER
61	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH,EPS
62	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW,EPS
63	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
64	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
65	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	22	EFI RELAY COIL LOW
66	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD SWITCH	A	AWD REQUEST INPUT
67	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
68	E135	TXL	0.5	OG	ECM,CODE 4	135	SPLICE,BRAKE	2	BRAKE SWITCH,ECM IN
69	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	5V SUPPLY,TPS
70	E140	TXL	0.5	OG/BK	ECM,CODE 4	140	RELAY/FUSE BLOCK	38	CHASSIS RELAY COIL LOW
71	E141	TXL	0.5	OG/BK	ECM,CODE 4	141	RELAY/FUSE BLOCK	14	COOLING FAN RELAY
72	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	30	FUEL PUMP COIL LOW
73	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
74	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND,EMC
75	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	GROUND,TEMP SENSOR
76	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	GROUND,TRANSMISSION SWITCH
77	E207	TXL	0.5	BK	ECM,CODE 13	207	OXYGEN SENSOR	D	O2 SENSOR RETURN
78	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
79	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
80	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
81	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
82	E225	TXL	0.5	OG/BK	ECM,CODE 13	225	SEATBELT SWITCH	B	SEATBELT SWITCH
83	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
84	E230	TXL	0.5	GY	ECM,CODE 13	230	OXYGEN SENSOR	C	O2 SENSOR IN
85	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
86	E239	TXL	0.5	WH	ECM,CODE 13	239	OXYGEN SENSOR	B	O2 SENSOR,HEATER LOW
87	E243	TFE	0.5	OG	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
88	E244	TFE	0.5	VT	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
89	E246	TXL	0.8	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
90	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD	1	GROUND,CRANK POSITION SENSOR
91	GF1A	TXL	0.5	BN	AWD SWITCH	B	SPLICE,GROUND DASH	2	GROUND,AWD SWITCH
92	GF1B	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND,HEADLIGHT SWITCH
93	GF1D	TXL	0.5	BN	DIAGNOSTIC	D	SPLICE,GROUND DASH	1	GROUND,DIAGNOSTIC
94	GF1E	TXL	0.8	BN	RH HEADLIGHT	B	SPLICE,GROUND DASH	1	GROUND,RH HEADLIGHT
95	GF1F	TXL	0.8	BN	LH HEADLIGHT	B	SPLICE,GROUND DASH	1	GROUND,LH HEADLIGHT
96	GR09	TXL	0.5	BN	CHASSIS REAR GROUND #1	1	SPLICE,DVE5	2	GROUND,DVE5 SHIELD
97	GR10	TXL	0.8	BN	FUEL PUMP & SENDER	4	CHASSIS REAR GROUND #1	1	GROUND,FUEL PUMP
98	GR11	TXL	0.5	BN	FUEL PUMP & SENDER	2	CHASSIS REAR GROUND #1	1	GROUND,FUEL LEVEL
99	GR20	TXL	0.8	BN	START SOLENOID	2	CHASSIS REAR GROUND #2	1	GROUND,START SOLENOID
100	GR21	TXL	0.5	BN	CHASSIS REAR GROUND #2	1	SPLICE,SHIELD	2	GROUND,SHIELD SPLICE
101	GR22	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	CHASSIS REAR GROUND #2	1	GROUND,TAILLIGHT
102	GR23	TXL	0.5	BN	RELAY/FUSE BLOCK	8	CHASSIS REAR GROUND #2	1	GROUND,EPS RELAY COIL
103	GR24	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	CHASSIS REAR GROUND #2	1	GROUND,SPEED SENSOR
104	GR31	TXL	0.8	BN	CHASSIS REAR GROUND #3	1	SPLICE,GROUND DASH	2	GROUND,FRONT
105	GR32	TXL	1.0	BN	FAN	A	CHASSIS REAR GROUND #3	1	GROUND,FAN
106	GR33	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	CHASSIS REAR GROUND #3	1	GROUND,FRONT 12V RECEPTACLE
107	GR33A	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	12V RECEPTACLE #2 (LO) 1/4"	1	GROUND,FRONT 12V RECEPTACLE
108	GR34	TXL	2.0	BN	EPS POWER (A)	B	CHASSIS REAR GROUND #2	1	GROUND,EPS POWER
109	GR35	TXL	0.8	BN	SPEEDOMETER	5	CHASSIS REAR GROUND #3	1	GROUND,SPEEDOMETER
110	GRE153	TXL	0.8	BN	ECM,CODE 4	153	CHASSIS REAR GROUND #1	1	GROUND,ECM
111	GRE154	TXL	0.8	BN	ECM,CODE 4	154	CHASSIS REAR GROUND #1	1	GROUND,ECM
112	GRE247	TXL	0.5	BN	ECM,CODE 13	247	CHASSIS REAR GROUND #1	1	GROUND,ECM
113	GRE250	TXL	0.8	BN	ECM,CODE 13	250	CHASSIS REAR GROUND #1	1	GROUND,ECM
114	K01	TXL	1.0	OG	KEY SWITCH	P1	SPLICE,R/S B+ #1	2	KEY SWITCH B+,KEY OUT
115	K02	TXL	0.5	OG	SPLICE,R/S B+ #1	1	SPLICE,R/S B+ #2	1	KEY SWITCH B+
116	K02A	TXL	0.5	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+ #2	2	KEY SWITCH B+,VEHICLE SPEED SENSOR
117	K02B	TXL	0.5	OG	RELAY/FUSE BLOCK	3	SPLICE,R/S B+ #2	1	KEY SWITCH B+,EPS RELAY COIL POWER
118	K02C	TXL	0.8	OG	RELAY/FUSE BLOCK	26	SPLICE,R/S B+ #2	1	KEY SWITCH B+,FUEL PUMP
119	K02C1	TXL	0.8	RD/BU	RELAY/FUSE BLOCK	29	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
120	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+ #1	2	KEY SWITCH B+,SPEEDOMETER
121	K04	TXL	0.5	OG	DIAGNOSTIC	B	SPLICE,R/S B+ #1	2	KEY SWITCH B+,DIAGNOSTIC
122	K05	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+ #1	1	KEY SWITCH B+,EPS
123	K06	TXL	0.5	OG	AWD SWITCH	C	SPLICE,R/S B+ #1	1	AWD SWITCH LIGHT
124	K116	TXL	0.5	OG	ECM,CODE 4	116	SPLICE,R/S B+ #2	2	KEY SWITCH B+,ECM
125	RC1	TXL	2.0	RD/DG	RELAY/FUSE BLOCK	37	SPLICE,CHASSIS	1	CHASSIS RELAY OUT
126	RC2	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	20	SPLICE,CHASSIS	2	CHASSIS RELAY OUT,LIGHTS INPUT
127	RC3	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	35	SPLICE,CHASSIS	1	ACC TERM,FUSE IN
128	RC3A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	39	SPLICE,B+ ACC FUSE OUT	1	ACC TERM,FUSE OUT
129	RC3B	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
130	RC3D	TXL	0.8	OG/WH	WINCH REMOTE	B	SPLICE,B+ ACC FUSE OUT	2	WINCH REMOTE B+
131	RC3E	TXL	0.8	OG/WH	WINCH SWITCH	B	SPLICE,B+ ACC FUSE OUT	2	WINCH SWITCH B+
132	RC4	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	28	SPLICE,CHASSIS	1	CHASSIS RELAY,DRIVE INPUT
133	RC4A	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	32	AWD/ADC COIL	C	SWITCHED B+ DRIVE FUSE OUT
134	RC6	TXL	1.0	RD/YE	RELAY/FUSE BLOCK	24	SPLICE,LIGHTS B+	2	LIGHTS B+,LIGHTS FUSE OUT
135	RC6A	TXL	0.8	RD/YE	TAIL/BRAKE LIGHT	A	SPLICE,LIGHTS B+	1	LIGHTS,TAILLIGHTS
136	RC6B	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	SPLICE,LIGHTS B+	2	LIGHTS,HEADLIGHT SWITCH IN
137	RC6B1	TXL	0.5	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
138	RE155	TXL	0.5	RD/DB	ECM,CODE 4	155	SPLICE,EFI B+ #1	2	EFI B+,ECM1
139	RE156	TXL	0.5	RD/DB	ECM,CODE 4	156	SPLICE,EFI B+ #1	2	EFI B+,ECM2
140	REA	TXL	1.0	RD/DB	RELAY/FUSE BLOCK	21	SPLICE,EFI B+ #1	1	EFI B+,EFI RELAY OUT
141	REB	TFE	0.5	DB	PTO FUEL INJECTOR	2	SPLICE,EFI B+ #1	2	EFI B+,PTO INJECTOR
142	REC	TFE	0.5	DB	MAG FUEL INJECTOR	2	SPLICE,EFI B+ #1	2	EFI B+,MAG INJECTOR
143	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,EFI B+ #1	1	EFI B+,BRAKE SWITCH
144	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,EFI B+ #1	1	EFI B+,IGNITION COIL
145	REG	TXL	0.5	RD/DB	SPLICE,EFI B+ #1	1	SPLICE,EFI B+ #2	2	EFI B+
146	REG1	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	25	SPLICE,EFI B+ #2	1	EFI B+,FUEL PUMP COIL HIGH
147	REG2	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	9	SPLICE,EFI B+ #2	1	EFI,FAN COIL HIGH

11/10/15

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
148	REG3	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	33	SPLICE,EFI B+ #2	1	EFI B+,CHASSIS RELAY COIL
149	REH	TXL	0.5	RD/DB	OXYGEN SENSOR	A	SPLICE,EFI B+ #2	2	EFI B+,O2 SENSOR
150	REJ	TXL	0.5	RD/DB	SEATBELT SWITCH	A	SPLICE,EFI B+ #1	1	EFI B+,SEATBELT SWITCH
151	RF1	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	13	FAN	B	FAN B+,RELAY OUT
152	RS	TXL	2.0	OG	RELAY/FUSE BLOCK	7	EPS POWER (A)	A	EPS RELAY POWER OUT
153	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL LEVEL SENSOR
154	S8A	TXL	0.8	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM,SWITCH OUT
155	S8B	TXL	0.8	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM,RH
156	S8C	TXL	0.8	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM,LH
157	S8D	TXL	0.5	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM,SPEEDOMETER
158	W001	TXL	0.8	BK	WINCH SWITCH	A	SPLICE,WINCH OUT	1	WINCH SWITCH OUT
159	W002	TXL	0.8	BK	WINCH REMOTE	C	SPLICE,WINCH OUT	1	WINCH REMOTE OUT
160	W003	TXL	0.8	BK	WINCH CONTACTOR	P1	SPLICE,WINCH OUT	2	WINCH CONTACTOR OUT
161	W101	TXL	0.8	DG	WINCH SWITCH	C	SPLICE,WINCH IN	1	WINCH SWITCH IN
162	W102	TXL	0.8	DG	WINCH REMOTE	A	SPLICE,WINCH IN	1	WINCH REMOTE IN
163	W103	TXL	0.8	DG	WINCH CONTACTOR	P2	SPLICE,WINCH IN	2	WINCH CONTACTOR IN

11/10/15

2017 RANGER 900 XP CREW EPS (CHASSIS)

WIRE COLOR LEGEND	
BE	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BR	BROWN
GY	GRAY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH WA/BTRACE COLORS. EXAMPLE GR/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V

270Ω

SEAT BELT SWITCH

187Ω

POWER STEERING ASSEMBLY (P/N 2411224)

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (NEG. REF)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (NEG. REF)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

12V RECEPTACLE (P/N 4012393)

12V RECEPTACLE (P/N 4012393)

HEADLIGHT SWITCH (P/N 4011153)

AWD SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)			
PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012745)

DIAGNOSTIC (P/N 4012607)

EPAS POWER FUSE

REVERSE BEEPER

IN-LINE LED HARNESS

REAR DIFFERENTIAL SOLENOID LOCATED ON REAR DIFFERENTIAL

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

TURF SOLENOID DRIVER (P/N 4012829)

PIN A: BAT (RD)
PIN B: CON (OR)
PIN C: GND (BN)

PIN A: SOL + (RD)
PIN B: SOL - (BU)

TRANSMISSION SWITCH

HIGH 24Ω
LOW 75Ω
NEU 150Ω
REV 350Ω
62Ω
PARK

SPEED SENSOR

HALL SENSOR
POWER IN PIN "A"
V OUT PIN "C"
COMMON PIN "B"

(LOCATED ON TRANSMISSION)

OXYGEN SENSOR (P/N 4011853)

CONNECTOR PIN	WIRE COLOR	PIN AND WIRE CONNECTION
A	GRAY	SIGNAL (-)
B	BLACK	SIGNAL (+)
C	WHITE	HEATER (+)
D	WHITE	HEATER (-)

ELECTRONIC THROTTLE CONTROL (P/N 1204455)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH ⊕ DVES

SPLICE,DVES

BRAKE PRESSURE SWITCH

SPLICE,BRAKE PRESSURE SWITCH

FAN MOTOR

24Ω 11 VOLTS MIN. TO POWER HUB COIL

AND HUB COIL

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411786)

TAIL/BRAKE LIGHT (HARNESS P/N 2411801)

SPLICE,HIGH BEAM

SPLICE,LOW BEAM

SPLICE,GROUND

SPLICE,ECM B+

SPLICE,B+ ACC FUSE OUT

SPLICE,IGNITION POWER

SPLICE,DRIVE

SPLICE,LIGHTS B+

SPLICE,GROUND RECEPTACLE

SPLICE,B+ UNSWITCHED FUSED

SPLICE,R/S B+

SPLICE,CAN HIGH

SPLICE,CAN LOW

SPLICE,SENSOR GROUND

SPLICE,GROUND DASH

ECM,CODE 4

LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (IE. 1(0)CAVITY 10)

ECM,CODE 13

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (IE. 2(0)CAVITY 10)

TERMINAL BLOCK

GND
ACC
B+

(P/N 4011892)

REGULATOR (P/N 4014656)

RELAY (P/N 4011283) TOP VIEW

TOP VIEW OF RELAY

EPS RELAY
FUEL PUMP RELAY
FAN RELAY
EFI RELAY
CHASSIS RELAY

RELAY/FUSE BLOCK

BUS A5-A7
BUS C5-C5-C7

(COVER REMOVED)

20 AMP CIRCUIT BREAKER (P/N 2410801)

CRANK POSITION SENSOR (P/N 2411719)

THROTTLE SENSOR

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	4.0±1.0Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "-"
2	FUEL LEVEL SENSOR "+"
3	FUEL PUMP "-"
4	FUEL PUMP "+"

NOMINAL RESISTANCE: AT 25°C/77°F = 2.5Ω AT 120°C/248°F = 0.8Ω

COOLANT TEMP SENSOR

PTO FUEL INJECTOR

MAG FUEL INJECTOR

RESISTANCE: 12Ω±0.5Ω FUEL INJECTOR

T-MAP (P/N 2411528)

IGNITION COIL (P/N 4014425)

TRIM FLUSH ⊕ IGNITION COIL SHIELD

START SOLENOID (B+)

START SOLENOID

FRAME GROUND

(LOCATED UNDER RECOIL)

RESISTANCES (±20% @ 68°F/20°C)

STATOR	CHARGE COIL	YE1 TO YE2 = 0.1Ω±20%
		YE2 TO YE3 = 0.1Ω±20%
		YE1 TO YE3 = 0.1Ω±20%

2017 RANGER 900 XP CREW EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 2 OF 2

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	001	TXL	3.0	YE	REGULATOR AC	P1	STATOR	A	STATOR AC
2	002	TXL	3.0	YE	REGULATOR AC	P2	STATOR	B	STATOR AC
3	003	TXL	3.0	YE	REGULATOR AC	P3	STATOR	C	STATOR AC
4	004	TXL	5.0	BK	REGULATOR DC	P1	GROUND #3	1	VOLTAGE REGULATOR GROUND
5	005	TXL	5.0	RD	REGULATOR DC	P3	SPLICE,FUSIBLE LINK #5	2	REGULATOR B+
6	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
7	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
8	20LB	TXL	1.0	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
9	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
10	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
11	30B	TXL	0.8	OG	KEY SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
12	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	135	BRAKE SWITCH OUT
13	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
14	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
15	B1A	TXL	3.0	RD	EPAS POWER FUSE	A	SPLICE,FUSIBLE LINK #3	2	EPAS FUSED B+
16	B1B	TXL	3.0	RD	RELAY/FUSE BLOCK	B3	EPAS POWER FUSE	B	EPAS FUSED B+
17	B1C	FUSIBLE LINK	1.0	BK	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #3	1	CHASSIS FUSED B+
18	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
19	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
20	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
21	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
22	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED LINK
23	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
24	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
25	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	RELAY/FUSE BLOCK	D6	UNSWITCHED FUSED B+
26	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
27	B5B	TXL	0.8	RD/WH	DIAGNOSTIC	A	SPLICE,B+ UNSWITCHED FUSED	1	B+ UNSWITCHED FUSED
28	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
29	B5E	TXL	1.0	RD/WH	RED SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
30	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
31	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
32	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
33	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
34	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
35	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
36	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANKSHAFT SENSOR	2	CRANKSHAFT SENSOR (-)
37	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
38	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
39	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 (PTO)
40	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE,IGNITION POWER	1	ECM B+
41	C02_3	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 (MAG)
42	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL		SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
43	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
44	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
45	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
46	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
47	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
48	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
49	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
50	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	2	CAN HIGH
51	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW
52	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH
53	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW
54	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
55	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
56	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
57	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
58	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
59	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
60	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
61	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
62	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
63	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
64	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
65	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
66	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
67	E140	TXL	0.5	BN/WH	ECM,CODE 4	140	RELAY/FUSE BLOCK	D8	CHASSIS RELAY ENABLE, SW. LOW
68	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
69	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
70	E155	TXL	0.8	RD/DB	ECM,CODE 4	155	SPLICE,ECM B+	2	ECM B+
71	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
72	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
73	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
74	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
75	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
76	E207	TXL	0.5	BK	ECM,CODE 13	207	O2 SENSOR	A	O2 SENSOR RETURN
77	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
78	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
79	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
80	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
81	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
82	E225	TXL	0.8	DB/YE	ECM,CODE 13	225	SEAT BELT SWITCH	B	SEAT BELT SWITCH
83	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
84	E230	TXL	0.5	GY	ECM,CODE 13	230	O2 SENSOR	B	O2 SENSOR IN
85	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
86	E239	TXL	0.5	WH	ECM,CODE 13	239	O2 SENSOR	D	O2 SENSOR,HEATER LOW
87	E243	TXL	0.5	WH	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
88	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
89	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
90	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
91	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
92	GF1	TXL	0.8	BN	GROUND #2	1	SPLICE,GROUND DASH	2	GROUND
93	GF12	TXL	3.0	BN	EPS POWER (A)	B	GROUND #3	1	GROUND,EPS POWER
94	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
95	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
96	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
97	GF1C	TXL	0.8	BN	IN-LINE LED HARNESS	B	SPLICE,GROUND DASH	2	GROUND
98	GF2	TXL	0.5	BN	RELAY/FUSE BLOCK	B2	GROUND #2	1	GROUND
99	GF3	TXL	2.0	BN	GROUND #2	1	SPLICE,GROUND RECEPTACLE	2	GROUND
100	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
101	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
102	GF4	TXL	1.0	BN	FAN	A	GROUND #2	1	GROUND
103	GF5	TXL	1.0	BN	GROUND #2	1	SPLICE,GROUND	2	GROUND
104	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
105	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
106	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND #2	1	GROUND
107	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND #2	1	GROUND
108	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND #2	1	GROUND
109	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND #2	1	GROUND
110	GM4	TXL	0.5	BN	GROUND #3	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
111	GM5	TXL	0.5	BN	GROUND #3	1	SPLICE,CPS SHIELD #2	2	GROUND
112	GM6	TXL	0.5	BN	GROUND #3	1	SPLICE,DVE5	2	GROUND
113	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND #3	1	GROUND
114	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND #3	1	GROUND
115	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND #3	1	GROUND
116	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND #3	1	GROUND
117	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND #1	1	GROUND

04/27/16

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND #1	1	GROUND
119	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND #1	1	GROUND
120	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND #1	1	GROUND
121	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
122	K02	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	SPLICE,R/S B+	1	KEY SWITCH B+
123	K02A	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	RELAY/FUSE BLOCK	D2	KEY SWITCH,B+ CHASSIS RELAY COIL POWER
124	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
125	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
126	K06	TXL	0.5	OG	EPS SIGNAL (D)	3	SPLICE,R/S B+	1	KEY SWITCH B+
127	K116	TXL	0.5	OG	ECM,CODE 4	116	SPLICE,R/S B+	2	KEY SWITCH B+
128	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
129	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
130	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
131	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
132	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
133	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
134	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
135	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
136	RC6A	TXL	0.8	RD/YE	TAIL/BRAKE LIGHT	A	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
137	RC6B	TXL	0.8	RD/YE	IN-LINE LED HARNESS	A	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
138	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
139	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
140	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
141	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
142	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
143	RE1	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
144	REB	TXL	0.8	RD/DB	PTO FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
145	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
146	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
147	REE	TXL	0.8	RD/DB	REVERSE BEEPER #2	1	SPLICE,ECM B+	1	ECM B+
148	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
149	REG	TXL	0.8	RD/DB	DIAGNOSTIC	B	SPLICE,ECM B+	1	ECM B+
150	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
151	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+, CHASSIS RELAY COIL POWER
152	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
153	REK	TXL	0.8	RD/DB	O2 SENSOR	C	SPLICE,IGNITION POWER	1	ECM B+,O2 SENSOR
154	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
155	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
156	RS	TXL	3.0	OG	RELAY/FUSE BLOCK	A2	EPS POWER (A)	A	EPS RELAY POWER OUT
157	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
158	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
159	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
160	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
161	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

04/27/16

2017 RANGER 1000 XP EPS (CHASSIS)

WIRE COLOR LEGEND	
BK	BLACK
BL	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GREY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH WH/BK(TRACE COLOR), EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V — 270Ω — SEAT BELT SWITCH — 187Ω

POWER STEERING ASSEMBLY (P/N 2411224)

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (NEG. REF)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (NEG. REF)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

12V RECEPTACLE (P/N 4012393) — RC2B OG/WH

12V RECEPTACLE (P/N 4012393) — RC2C OG/WH — D13A BN

HEADLIGHT SWITCH (P/N 4011153) — +B 1 3 4 6 — -I 2 5 — POS 1 ON / POS 2 OFF / POS 3 ON

AWD SWITCH (P/N 4012747) — +B 1 3 4 6 — -I 2 5 — POS 1 ON / POS 2 OFF / POS 3 ON

INSTRUMENT CLUSTER (P/N 3280566)			
PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012745) — OFF / ON / START

DIAGNOSTIC CONNECTOR (P/N 4012582) — A B C D E F G

EPAS POWER FUSE — B1A RD — B1B RD

DRIVEMODE SWITCH (P/N 4016214) — AABAC12300 Ω — AABAD13700 Ω — CADI15800 Ω

REVERSE BEEPER B1 B2 — E245 BK/WH — REE RD/OR

REAR DIFFERENTIAL SOLENOID LOCATED ON REAR DIFFERENTIAL

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

RC4F2 RD/DG — E131 DG/WH — G81 BN

PIN A: BAT (RD)
PIN B: CON (OR)
PIN C: GND (BN)

TURF SOLENOID DRIVER (P/N 4012829)

TRANSMISSION SWITCH

E123 WH — E204B VT/WH

HIGH 24Ω
LOW 15Ω
NEU 150Ω
REV 350Ω
PARK 620Ω

SPEED SENSOR — HALL SENSOR — GND — POWER IN PIN "A" — V OUT PIN "C" — 12MHz — COMMON PIN "B"

(LOCATED ON TRANSMISSION)

E24 OG — E82 BN — E232 GN/RD

OXYGEN SENSOR (P/N 4011853)

E207 BK — E230 GY — REK RD/DB — E239 WH

CONNECTOR PIN	WIRE COLOR	PIN AND WIRE CONNECTION
A	GRAY	SIGNAL (-)
B	BLACK	SIGNAL (+)
C	WHITE	HEATER (+)
D	WHITE	HEATER (-)

ELECTRONIC THROTTLE CONTROL (P/N 1204455)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH ⊕ DVES — C03.3 SHLD — SPLICE,DVES — SM6 BK

C136 OG/BK — C03.1 BK — E220 OG/BN — C03.2 WH — E105 VT/PK — E203 DG

BRAKE PRESSURE SWITCH — 30D OG — RED RD/DB

SPLICE,BRAKE PRESSURE SWITCH — 30D OG — 30B OG / 30A OG

FAN MOTOR — GF4 BK — RF OG/BK

IN-LINE LCD HARNESS — RC4D RD/YE — GF1C BK

24Ω 11 VOLTS MIN. TO POWER HUB COIL — BN/WH — GY — AMD HUB COIL — E246 BN/WH — RC4F3 RD/DG

RH HEADLIGHT (P/N 2411787) — LH HEADLIGHT (P/N 2411786) — SBB YE — GF5B BN — 20LB DG — SBC YE — GF5A BN — 20LC DG

TAIL/BRAKE LIGHT (HARNESS P/N 2411801) — RC4A RD/YE — RD4 OG — GR4 BN

SPLICE,HIGH BEAM — SBB YE / SBC YE — SBA YE / SBD YE

SPLICE,LOW BEAM — 20LB DG / 20LC DG — 20LA DG

SPLICE,GROUND — GF5B BN / GF5A BN — GF5 BK

SPLICE,ECM B+ — RC9 RD/DB / RC7 RD/DB / RC5 RD/DB / RC3 RD/DB / RC1 RD/DB — E155 RD/DB / RC8 RD/DB / RC6 RD/DB / RC4 RD/DB / RC2 RD/DB

SPLICE,B+ ACC FUSE OUT — RC2A OG/WH — RC2B OG/WH / RC2C OG/WH / RC2E OG/WH

SPLICE,IGNITION POWER — REF RD/DB — REK RD/DB / C01.2 RD

SPLICE,DRIVE — RC4F3 RD/DG — RC4F2 RD/DG

SPLICE,LIGHTS B+ — RC6A RD/YE / RC6 RD/YE — RC6B RD/YE / RC6C RD/YE / RC6D RD/YE

SPLICE,CAN HIGH — C4K YE — C3H YE / C2H YE / C1H YE

SPLICE,CAN LOW — C4L DG — C3L DG / C2L DG / C1L DG

SPLICE,GROUND RECEPTACLE — GF3A BN / GF3B BN — GF3 BN

SPLICE,B+ UNSWITCHED FUSED — B5B RD/WH / B5A RD/WH — B5D RD / B5E RD/WH

SPLICE,R/S B+ — R06 OG / R02 OG — R03 OG / R01 OG / R04 OG / R11A OG

SPLICE,SENSOR GROUND — E204A VT/WH — E204B VT/WH / E224 VT/WH

SPLICE,GROUND DASH — GF1B BN / GF1A BN — GF1C BN / GF1 BN

ECM,CODE 4 — LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E., 103=CAVITY 03)

ECM,CODE 13 — LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E., 218=CAVITY 18)

TERMINAL BLOCK — GND / ACC / B+ — (P/N 4011892)

RC2E OG/WH

D05 RD — D04 BK — D03 YE — D02 YE — D01 YE — REGULATOR (P/N 4014856)

RELAY (P/N 4011283) TOP VIEW — TOP VIEW OF RELAY — 30 / 87 / 85 / 86

(5X)

EPS RELAY — FUEL PUMP RELAY — FAN RELAY — EFI RELAY — CHASSIS RELAY

RELAY/FUSE BLOCK — TOP VIEW — (COVER REMOVED)

BUS A5-A7 — BUS C5-C6-C7

RCB WH — RCH RD/DB — RCH RD/DB

20 AMP CIRCUIT BREAKER (P/N 2410803) — B3B RD — B3A RD

SPLICE,CPS SHIELD #1 — C01.2 WH / C01.1 BK — GP5 BK

SPLICE,CPS SHIELD #2 — C01.3 SHLD — GW5 BN

CRANK POSITION SENSOR (P/N 2411719)

THROTTLE SENSOR — PIN | FUNCTION — A APS SIGNAL 1 — B GND 1 — C APS SUPPLY 5V — D APS SUPPLY 5V — E GND 2 — F APS SIGNAL 2

FUEL PUMP — TANK LEVEL | RESISTANCE (Ω) — FULL 4.0±1.0Ω — EMPTY 90.0±4.5Ω — 1 FUEL LEVEL SENSOR "-" — 2 FUEL LEVEL SENSOR "+" — 3 FUEL PUMP "-" — 4 FUEL PUMP "+"

COOLANT TEMP SENSOR — NOMINAL RESISTANCE: AT 25°C/77°F 2.5 kΩ; AT 120°C/248°F 80Ω

PTO FUEL INJECTOR — MAG FUEL INJECTOR — RESISTANCE: 12Ω±0.5Ω — FUEL INJECTOR

T-MAP (P/N 2411528) — GROUND / 5VDC / SIGNAL / OUTPUT PRESSURE SENSOR

IGNITION COIL (P/N 4014425) — TRIM FLUSH ⊕ IGNITION COIL

START SOLENOID (B+) — START SOLENOID

FRAME GROUND

STATOR (LOCATED UNDER RECOIL)

RESISTANCES (±20% @ 68°F/20°C)		
STATOR COIL	CHARGE COIL	YE1 TO YE2 0.1 Ω±20%
		YE2 TO YE3 0.1 Ω±20%
		YE1 TO YE3 0.1 Ω±20%

2017 RANGER 1000 XP EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	001	TXL	3.0	YE	REGULATOR AC	P1	STATOR	A	STATOR AC
2	002	TXL	3.0	YE	REGULATOR AC	P2	STATOR	B	STATOR AC
3	003	TXL	3.0	YE	REGULATOR AC	P3	STATOR	C	STATOR AC
4	004	TXL	5.0	BK	REGULATOR DC	P1	GROUND #3	1	VOLTAGE REGULATOR GROUND
5	005	TXL	5.0	RD	REGULATOR DC	P3	SPLICE,FUSIBLE LINK #5	2	REGULATOR B+
6	007	TXL	0.5	WH	DRIVE MODE SWITCH	3	DRIVE MODE SWITCH	I8	JUMPER
7	008	TXL	0.5	WH	DRIVE MODE SWITCH	4	DRIVE MODE SWITCH	I1	JUMPER
8	009	TXL	0.5	WH	DRIVE MODE SWITCH	5	DRIVE MODE SWITCH	I3	JUMPER
9	010	TXL	0.5	WH	DRIVE MODE SWITCH	I4	DRIVE MODE SWITCH	I7	JUMPER
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	KEY SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	I35	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B1A	TXL	3.0	RD	EPAS POWER FUSE	A	SPLICE,FUSIBLE LINK #3	2	EPAS FUSED B+
20	B1B	TXL	3.0	RD	RELAY/FUSE BLOCK	B3	EPAS POWER FUSE	B	EPAS FUSED B+
21	B1C	FUSIBLE LINK	1.0	BK	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #3	1	CHASSIS FUSED B+
22	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
23	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
24	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
25	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
26	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED LINK
27	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
28	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
29	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	RELAY/FUSE BLOCK	D6	UNSWITCHED FUSED B+
30	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
31	B5B	TXL	0.8	RD/WH	DIAGNOSTIC	A	SPLICE,B+ UNSWITCHED FUSED	1	B+ UNSWITCHED FUSED
32	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
33	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
34	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
35	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
36	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
37	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
38	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
39	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
40	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
41	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
42	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
43	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 (PTO)
44	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE, IGNITION POWER	1	ECM B+
45	C02_3	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 (MAG)
46	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	--	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
47	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
48	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
49	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	--	SPLICE,DVE5	1	GROUND,DVE5
50	C1H	TXL	0.5TP	YE	ECM,CODE 4	I32	SPLICE,CAN HIGH	2	CAN HIGH
51	C1L	TXL	0.5TP	DG	ECM,CODE 4	I44	SPLICE,CAN LOW	2	CAN LOW
52	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
53	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
54	C3H	TXL	0.5TP	YE	SPEEDOMETER	I	SPLICE,CAN HIGH	2	CAN HIGH
55	C3L	TXL	0.5TP	DG	SPEEDOMETER	J	SPLICE,CAN LOW	2	CAN LOW
56	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH
57	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW
58	E103	TXL	0.5	VT/BK	ECM,CODE 4	I03	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
59	E104	TXL	0.5	VT	ECM,CODE 4	I04	T-MAP	1	MAP SENSOR RETURN 4
60	E105	TXL	0.5	VT/PK	ECM,CODE 4	I05	DVE5	2	TPS SENSOR RETURN 1
61	E106	TXL	0.5	VT	ECM,CODE 4	I06	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
62	E111	TXL	0.5	DB/BK	ECM,CODE 4	I11	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
63	E115	TXL	0.5	DG/YE	ECM,CODE 4	I15	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
64	E119	TXL	0.5	WH/DG	ECM,CODE 4	I19	AWD & TURF SWITCH	4	TURF REQUEST INPUT
65	E120	TXL	0.5	GY	ECM,CODE 4	I20	AWD & TURF SWITCH	3	AWD REQUEST INPUT
66	E121	TXL	0.5	DB/WH	ECM,CODE 4	I21	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
67	E123	TXL	0.5	WH	ECM,CODE 4	I23	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
68	E125	TXL	0.5	OG/RD	ECM,CODE 4	I25	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
69	E131	TXL	0.5	DG/WH	ECM,CODE 4	I31	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
70	E138	TXL	0.5	OG/BK	ECM,CODE 4	I38	DVE5	6	3.3V SUPPLY,TPS
71	E140	TXL	0.5	BN/WH	ECM,CODE 4	I40	RELAY/FUSE BLOCK	D8	CHASSIS RELAY ENABLE, SW. LOW
72	E141	TXL	0.5	OG/WH	ECM,CODE 4	I41	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
73	E142	TXL	0.5	DG/YE	ECM,CODE 4	I42	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
74	E155	TXL	0.8	RD/DB	ECM,CODE 4	I55	SPLICE,ECM B+	2	ECM B+
75	E156	TXL	0.8	RD/DB	ECM,CODE 4	I56	SPLICE,ECM B+	2	ECM B+
76	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
77	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
78	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
79	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
80	E207	TXL	0.5	BK	ECM,CODE 13	207	O2 SENSOR	A	O2 SENSOR RETURN
81	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
82	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
83	E218	TXL	0.5	BG	ECM,CODE 13	218	DRIVE MODE SWITCH	3	DRIVE MODE INDICATOR
84	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
85	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
86	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
87	E225	TXL	0.8	DB/YE	ECM,CODE 13	225	SEAT BELT SWITCH	B	SEAT BELT SWITCH
88	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
89	E230	TXL	0.5	GY	ECM,CODE 13	230	O2 SENSOR	B	O2 SENSOR IN
90	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
91	E239	TXL	0.5	WH	ECM,CODE 13	239	O2 SENSOR	D	O2 SENSOR,HEATER LOW
92	E243	TXL	0.5	WH	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
93	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
94	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
95	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
96	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
97	GF1	TXL	0.8	BN	GROUND #2	1	SPLICE,GROUND DASH	2	GROUND
98	GF12	TXL	3.0	BN	EPS POWER (A)	B	GROUND #3	1	GROUND,EPS POWER
99	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
100	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
101	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
102	GF1C	TXL	0.8	BN	IN-LINE LED HARNESS	B	SPLICE,GROUND DASH	2	GROUND
103	GF2	TXL	0.5	BN	RELAY/FUSE BLOCK	B2	GROUND #2	1	GROUND
104	GF3	TXL	2.0	BN	GROUND #2	1	SPLICE,GROUND RECEPTACLE	2	GROUND
105	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
106	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
107	GF4	TXL	1.0	BN	FAN	A	GROUND #2	1	GROUND
108	GF5	TXL	1.0	BN	GROUND #2	1	SPLICE,GROUND	2	GROUND
109	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
110	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
111	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND #2	1	GROUND
112	GF7	TXL	0.5	BN	DRIVE MODE SWITCH	11	GROUND #3	1	GROUND
113	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND #2	1	GROUND
114	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND #2	1	GROUND
115	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND #2	1	GROUND
116	GM4	TXL	0.5	BN	GROUND #3	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
117	GM5	TXL	0.5	BN	GROUND #3	1	SPLICE,CPS SHIELD #2	2	GROUND

05/02/16

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	GM6	TXL	0.5	BN	GROUND #3	1	SPLICE,DVE5	2	GROUND
119	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND #3	1	GROUND
120	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND #3	1	GROUND
121	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND #3	1	GROUND
122	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND #3	1	GROUND
123	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND #1	1	GROUND
124	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND #1	1	GROUND
125	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND #1	1	GROUND
126	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND #1	1	GROUND
127	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
128	K02	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	SPLICE,R/S B+	1	KEY SWITCH B+
129	K02A	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	RELAY/FUSE BLOCK	D2	KEY SWITCH B+
130	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
131	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
132	K06	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+	1	KEY SWITCH B+
133	K116	TXL	0.5	OG	ECM,CODE 4	I16	SPLICE,R/S B+	2	KEY SWITCH B+
134	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
135	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
136	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
137	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
138	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
139	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
140	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
141	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
142	RC6A	TXL	0.8	RD/YE	TAIL/BRAKE LIGHT	A	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
143	RC6B	TXL	0.8	RD/YE	IN-LINE LED HARNESS	A	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
144	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
145	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
146	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
147	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
148	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
149	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
150	REB	TXL	0.8	RD/DB	PTO FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
151	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
152	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
153	REE	TXL	0.8	RD/DB	REVERSE BEEPER #2	1	SPLICE,ECM B+	1	ECM B+
154	REF	TXL	0.8	RD/DB	SPLICE, IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
155	REG	TXL	0.8	RD/DB	DIAGNOSTIC	B	SPLICE,ECM B+	1	ECM B+
156	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
157	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+,CHASSIS RELAY COIL POWER
158	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
159	REK	TXL	0.8	RD/DB	O2 SENSOR	C	SPLICE, IGNITION POWER	1	ECM B+,O2 SENSOR
160	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
161	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
162	RS	TXL	3.0	OG	RELAY/FUSE BLOCK	A2	EPS POWER (A)	A	EPS RELAY POWER OUT
163	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
164	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
165	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
166	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
167	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

05/02/16

2017 RANGER 1000 XP CREW EPS (CHASSIS)

WIRE COLOR LEGEND	
BK	BLACK
BL	LIGHT BLUE
DB	DARK BLUE
BR	BROWN
GY	GREY
LG	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH WH/BK(TRACE COLOR). EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V — 270Ω — SEAT BELT SWITCH — 187Ω

POWER STEERING ASSEMBLY (P/N 2411224)

EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (NEG. REF)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (NEG. REF)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

12V RECEPTACLE (P/N 4012393) — RC2B OG/WH

12V RECEPTACLE (P/N 4012393) — RC2C OG/WH

HEADLIGHT SWITCH (P/N 4011153)

AWD SWITCH (P/N 4012747)

INSTRUMENT CLUSTER (P/N 3280566)			
PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMPERATURE
8	HIGH BEAM SWITCH INPUT	16	SPARE

KEY SWITCH (P/N 4012745)

DIAGNOSTIC

EPAS POWER FUSE

DRIVEMODE SWITCH (P/N 4016214)

IN-LINE LED HARNESS

REAR DIFFERENTIAL SOLENOID LOCATED ON REAR DIFFERENTIAL

NOTE: POWERED TO UNLOCK DIFFERENTIAL

CAUTION: DO NOT POWER 12V FOR MORE THAN 1 SECOND

TURF SOLENOID DRIVER (P/N 4012829)

TRANSMISSION SWITCH

SPEED SENSOR (LOCATED ON TRANSMISSION)

OXYGEN SENSOR (P/N 4011853)

CONNECTOR PIN	WIRE COLOR	PIN AND WIRE CONNECTION
A	GRAY	SIGNAL (-)
B	BLACK	SIGNAL (+)
C	WHITE	HEATER (+)
D	WHITE	HEATER (-)

ELECTRONIC THROTTLE CONTROL (P/N 1204455)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH ⊕ DVES — SPLICE,DVES — C03.3 SHLD — SM6 BK

E138 OG/BK
C03.1 BK
E220 OG/BK
C03.2 WH
E105 VT/PK
E203 DG

BRAKE PRESSURE SWITCH — 30D OG — RED RD/DB

SPLICE,BRAKE PRESSURE SWITCH — 30D OG — 30B OG, 30A OG

FAN MOTOR — GF4 BK — RF OG/BK

REVERSE BEEPER — RED RD/DB — E245 BK/WH

24Ω 11 VOLTS MIN. TO POWER HUB COIL — BN/WH, GY — AWD HUB COIL — E246 BN/WH, RC4F3 RD/DG

RH HEADLIGHT (P/N 2411787) — LH HEADLIGHT (P/N 2411786) — SBB YE, GF5B BK, 20LB DG — SBC YE, GF5A BK, 20LC DG

TAIL/BRAKE LIGHT (HARNESS P/N 2411801) — RC4A RD/YE, RD4 OG, GR4 BK

SPLICE,HIGH BEAM — SBB YE, SBC YE — SBA YE, SBD YE

SPLICE,LOW BEAM — 20LB DG, 20LC DG — 20LA DG

SPLICE,GROUND — GF5B BK, GF5A BK — GF5 BK

SPLICE,ECM B+ — RED RD/DB, RED RD/DB, RED RD/DB, RED RD/DB, RED RD/DB — E155 RD/DB, RED RD/DB, RED RD/DB, RED RD/DB, REF RD/DB

SPLICE,B+ ACC FUSE OUT — RC2A OG/WH — RC2B OG/WH, RC2C OG/WH, RC2E OG/WH

SPLICE,IGNITION POWER — REF RD/DB — C02.2 RD, RED RD/DG

SPLICE,DRIVE — RC4F3 RD/DG — RC4F RD/DG — RC4F2 RD/DG

SPLICE,LIGHTS B+ — RC6A RD/YE, RC6 RD/YE — RC6B RD/YE, RC6C RD/YE, RC6D RD/YE

SPLICE,CAN HIGH — C4H YE — C2H YE, C1H YE

SPLICE,CAN LOW — C4L DG — C2L DG, C1L DG

SPLICE,GROUND RECEPTACLE — GF3A BK, 3B BK — GF3 BK

SPLICE,B+ UNSWITCHED FUSED — B5B RD/WH, B5A RD/WH — B5D RD, B5E RD/WH

SPLICE,R/S B+ — K06 OG, K02 OG — K03 OG, K01 OG, K04 OG, K11A OG

SPLICE,SENSOR GROUND — E204A VT/WH — E204B VT/WH, E224 VT/WH

SPLICE,GROUND DASH — GF1B BK, GF1A BK — GF1C BK, GF1 BK

SPLICE,CPS SHIELD #1 — C01.2 WH, C01.1 BK — GP5 BK

SPLICE,CPS SHIELD #2 — C01.3 SHLD — GW5 BK

20 AMP CIRCUIT BREAKER (P/N 2410803) — B3B RD — B3A RD

RELAY (P/N 4011283) TOP VIEW — TOP VIEW OF RELAY — 85, 86, 30, 87

EPS RELAY, FUEL PUMP RELAY, FAN RELAY, EFI RELAY, CHASSIS RELAY

RELAY/FUSE BLOCK — BUS A5-A7, BUS C5-C6-C7 — (COVER REMOVED) — RCB WH — RCH RD/DB, RCH RD/DB

CRANK POSITION SENSOR (P/N 2411719)

THROTTLE SENSOR

PIN	FUNCTION
A	APS SIGNAL 1
B	GND 1
C	APS SUPPLY 5V
D	APS SUPPLY 5V
E	GND 2
F	APS SIGNAL 2

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	4.0±1.0Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

NOMINAL RESISTANCE: AT 25°C(77°F) = 2.5 Ω, AT 120°C(248°F) = 0.3 Ω — COOLANT TEMP SENSOR

PTO FUEL INJECTOR — RESISTANCE: 12Ω±0.5Ω — FUEL INJECTOR

MAG FUEL INJECTOR — RESISTANCE: 12Ω±0.5Ω — FUEL INJECTOR

T-MAP (P/N 2411528) — GROUND, 5VDC, SIGNAL, PRESSURE SENSOR, OUTPUT SIGNAL, TEMPERATURE SENSOR

IGNITION COIL (P/N 4014425) — SPLICE,IGNITION COIL SHIELD — C02.3 BR, C02.2 RD, C02.1 BK — C04 BK — TRIM FLUSH ⊕ IGNITION COIL

SPLICE,FUSIBLE LINK #1 — B2A BK — B2B RD
SPLICE,FUSIBLE LINK #2 — B1A BK — B1B RD
SPLICE,FUSIBLE LINK #3 — B1C BK — B1A RD
SPLICE,FUSIBLE LINK #4 — B3C BK — B3A RD
SPLICE,FUSIBLE LINK #5 — B6C BK — B6B RD
SPLICE,FUSIBLE LINK #6 — B4A GY — B4B RD

START SOLENOID (B+) — A5 OG/WH — G03 BN — START SOLENOID

FRAME GROUND

ECM,CODE 4 — LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E., 101=CAVITY 1)

ECM,CODE 13 — LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (I.E., 210=CAVITY 10)

TERMINAL BLOCK — GND, ACC, B+ — (P/N 4014892)

REGULATOR (P/N 4014856) — 005 RD, 004 BK, 003 YE, 002 YE, 001 YE

(LOCATED UNDER RECOIL)

RESISTANCES (in 25± 8 °C/77± °C)		
STATOR	CHARGE COIL	YE1 TO YE2
		YE2 TO YE3
		YE1 TO YE3

0.1 Ω±20%
0.1 Ω±20%
0.1 Ω±20%

2017 RANGER 1000 XP CREW EPS (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	001	TXL	3.0	YE	REGULATOR AC	P1	STATOR	A	STATOR AC
2	002	TXL	3.0	YE	REGULATOR AC	P2	STATOR	B	STATOR AC
3	003	TXL	3.0	YE	REGULATOR AC	P3	STATOR	C	STATOR AC
4	004	TXL	5.0	BK	REGULATOR DC	P1	GROUND #3	1	VOLTAGE REGULATOR GROUND
5	005	TXL	5.0	RD	REGULATOR DC	P3	SPLICE,FUSIBLE LINK #5	2	REGULATOR B+
6	007	TXL	0.5	WH	DRIVE MODE SWITCH	3	DRIVE MODE SWITCH	I8	JUMPER
7	008	TXL	0.5	WH	DRIVE MODE SWITCH	4	DRIVE MODE SWITCH	I1	JUMPER
8	009	TXL	0.5	WH	DRIVE MODE SWITCH	5	DRIVE MODE SWITCH	I3	JUMPER
9	010	TXL	0.5	WH	DRIVE MODE SWITCH	I4	DRIVE MODE SWITCH	I7	JUMPER
10	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
11	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
12	20LB	TXL	1.0	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
13	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
14	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
15	30B	TXL	0.8	OG	KEY SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
16	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	D5	ECM,CODE 4	I35	BRAKE SWITCH OUT
17	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
18	40	TXL	3.0	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
19	B1A	TXL	3.0	RD	EPAS POWER FUSE	A	SPLICE,FUSIBLE LINK #3	2	EPAS FUSED B+
20	B1B	TXL	3.0	RD	RELAY/FUSE BLOCK	B3	EPAS POWER FUSE	B	EPAS FUSED B+
21	B1C	FUSIBLE LINK	1.0	BK	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #3	1	CHASSIS FUSED B+
22	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
23	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	D9	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
24	B3A	TXL	2.0	RD	FAN CIRCUIT BREAKER (20A)	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
25	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	B7	FAN CIRCUIT BREAKER (20A)	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
26	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED LINK
27	B4A	FUSIBLE LINK	2.0	GY	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #5	1	REGULATOR B+
28	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	D6	SPLICE,B+ UNSWITCHED FUSED	1	UNSWITCHED FUSED B+
29	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	B9	RELAY/FUSE BLOCK	D6	UNSWITCHED FUSED B+
30	B5AB	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	A9	RELAY/FUSE BLOCK	B9	UNSWITCHED FUSED B+ ECM RELAY COIL POWER
31	B5B	TXL	0.8	RD/WH	DIAGNOSTIC	A	SPLICE,B+ UNSWITCHED FUSED	1	B+ UNSWITCHED FUSED
32	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
33	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,B+ UNSWITCHED FUSED	2	UNSWITCHED FUSED B+
34	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	B5	RELAY/FUSE BLOCK	D3	KEY SWITCH,FUEL PUMP FUSE OUT
35	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID (B+)	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
36	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	D7	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
37	BUSA57	BUS	BUS	BUS	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	A7	ECM B+,FUEL PUMP RELAY COIL
38	BUSC35	BUS	BUS	BUS	RELAY/FUSE BLOCK	C3	RELAY/FUSE BLOCK	C5	SWITCHED B+
39	BUSC57	BUS	BUS	BUS	RELAY/FUSE BLOCK	C5	RELAY/FUSE BLOCK	C7	SWITCHED B+
40	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
41	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
42	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
43	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 (PTO)
44	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE, IGNITION POWER	1	ECM B+
45	C02_3	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 (MAG)
46	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	--	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
47	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
48	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
49	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	--	SPLICE,DVE5	1	GROUND,DVE5
50	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
51	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
52	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
53	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
54	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	2	CAN HIGH
55	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW
56	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH
57	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW
58	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
59	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
60	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
61	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
62	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
63	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	B8	MAIN ECU RELAY
64	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
65	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
66	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
67	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
68	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
69	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
70	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
71	E140	TXL	0.5	BN/WH	ECM,CODE 4	140	RELAY/FUSE BLOCK	D8	CHASSIS RELAY ENABLE, SW. LOW
72	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	B6	COOLING FAN RELAY
73	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	B4	FUEL PUMP RELAY
74	E155	TXL	0.8	RD/DB	ECM,CODE 4	155	SPLICE,ECM B+	2	ECM B+
75	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+	2	ECM B+
76	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
77	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND
78	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	SENSOR GROUND
79	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	SENSOR GROUND
80	E207	TXL	0.5	BK	ECM,CODE 13	207	O2 SENSOR	A	O2 SENSOR RETURN
81	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
82	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
83	E218	TXL	0.5	BG	ECM,CODE 13	218	DRIVE MODE SWITCH	3	TBD
84	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
85	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
86	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
87	E225	TXL	0.8	DB/YE	ECM,CODE 13	225	SEAT BELT SWITCH	B	SEAT BELT SWITCH
88	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
89	E230	TXL	0.5	GY	ECM,CODE 13	230	O2 SENSOR	B	O2 SENSOR IN
90	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
91	E239	TXL	0.5	WH	ECM,CODE 13	239	O2 SENSOR	D	O2 SENSOR,HEATER LOW
92	E243	TXL	0.5	WH	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
93	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
94	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
95	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
96	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
97	GF1	TXL	0.8	BN	GROUND #2	1	SPLICE,GROUND DASH	2	GROUND
98	GF12	TXL	3.0	BN	EPS POWER (A)	B	GROUND #3	1	GROUND,EPS POWER
99	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
100	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
101	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
102	GF1C	TXL	0.8	BN	IN-LINE LED HARNESS	B	SPLICE,GROUND DASH	2	GROUND
103	GF2	TXL	0.5	BN	RELAY/FUSE BLOCK	B2	GROUND #2	1	GROUND
104	GF3	TXL	2.0	BN	GROUND #2	1	SPLICE,GROUND RECEPTACLE	2	GROUND
105	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
106	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
107	GF4	TXL	1.0	BN	FAN	A	GROUND #2	1	GROUND
108	GF5	TXL	1.0	BN	GROUND #2	1	SPLICE,GROUND	2	GROUND
109	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
110	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
111	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND #2	1	GROUND
112	GF7	TXL	0.5	BN	DRIVE MODE SWITCH	11	GROUND #3	1	GROUND
113	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND #2	1	GROUND
114	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND #2	1	GROUND
115	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND #2	1	GROUND
116	GM4	TXL	0.5	BN	GROUND #3	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
117	GM5	TXL	0.5	BN	GROUND #3	1	SPLICE,CPS SHIELD #2	2	GROUND

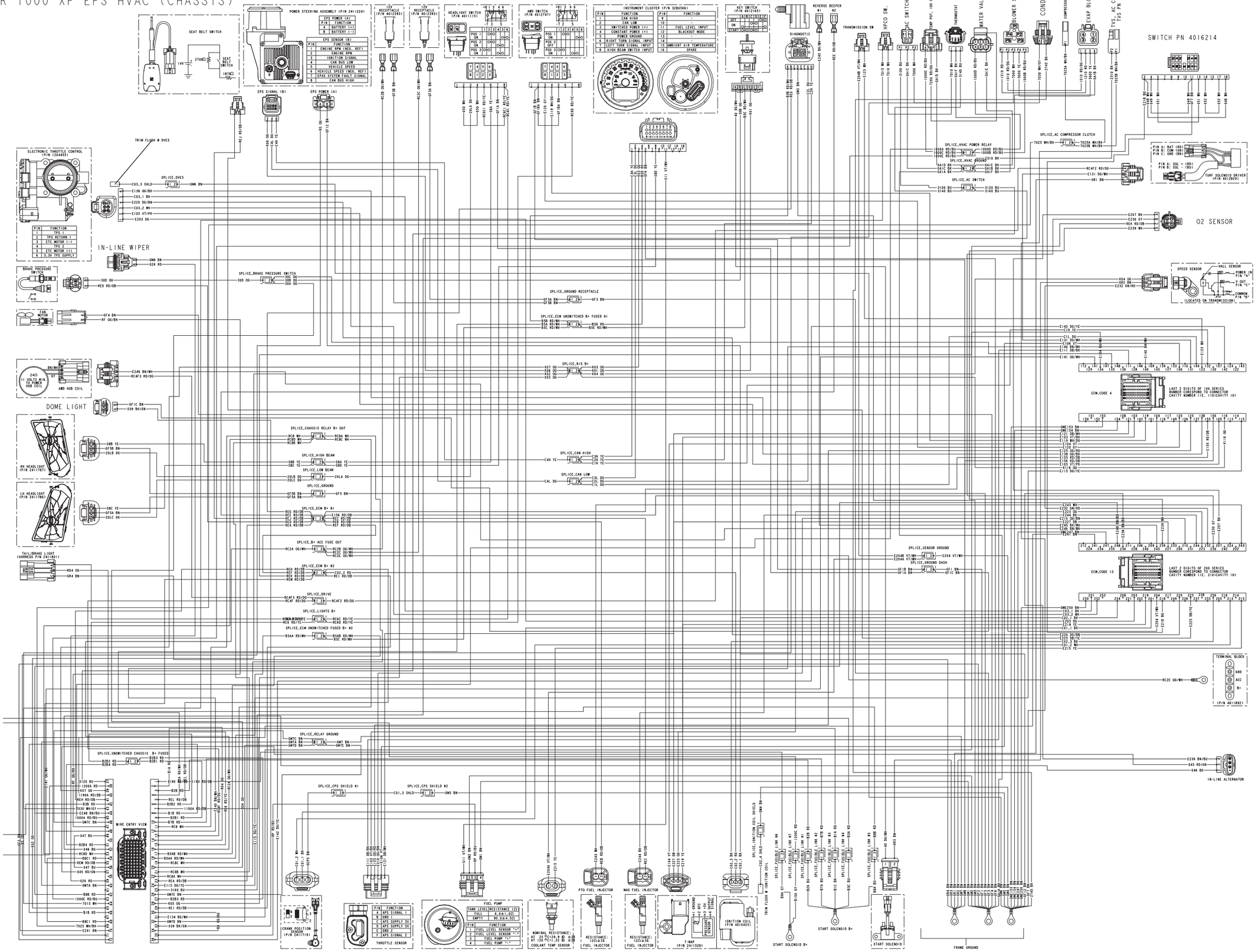
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SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	GM6	TXL	0.5	BN	GROUND #3	1	SPLICE,DVE5	2	GROUND
119	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND #3	1	GROUND
120	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND #3	1	GROUND
121	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND #3	1	GROUND
122	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND #3	1	GROUND
123	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND #1	1	GROUND
124	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND #1	1	GROUND
125	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND #1	1	GROUND
126	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND #1	1	GROUND
127	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
128	K02	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	SPLICE,R/S B+	1	KEY SWITCH B+
129	K02A	TXL	0.5	OG	RELAY/FUSE BLOCK	A3	RELAY/FUSE BLOCK	D2	KEY SWITCH,B+ CHASSIS RELAY COIL POWER
130	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
131	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
132	K06	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+	1	KEY SWITCH B+
133	K116	TXL	0.5	OG	ECM,CODE 4	I16	SPLICE,R/S B+	2	KEY SWITCH B+
134	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	C2	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
135	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
136	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
137	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
138	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	C4	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
139	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
140	RC4F3	TXL	0.8	RD/DG	AWD/ADC COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
141	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	C6	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
142	RC6A	TXL	0.8	RD/YE	TAIL/BRAKE LIGHT	A	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
143	RC6B	TXL	0.8	RD/YE	IN-LINE LED HARNESS	A	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
144	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
145	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
146	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
147	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	C7	RELAY/FUSE BLOCK	C8	SWITCHED,B+ CHASSIS RELAY POWER OUT
148	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	D4	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
149	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	A8	SPLICE,ECM B+	1	ECM B+
150	REB	TXL	0.8	RD/DB	PTO FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
151	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+	2	ECM B+
152	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+	1	ECM B+
153	REE	TXL	0.8	RD/DB	REVERSE BEEPER #2	1	SPLICE,ECM B+	1	ECM B+
154	REF	TXL	0.8	RD/DB	SPLICE, IGNITION POWER	2	SPLICE,ECM B+	2	ECM B+
155	REG	TXL	0.8	RD/DB	DIAGNOSTIC	B	SPLICE,ECM B+	1	ECM B+
156	REH	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A7	RELAY/FUSE BLOCK	A8	ECM B+ FAN RELAY COIL POWER
157	REI	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	A5	RELAY/FUSE BLOCK	C9	ECM B+,CHASSIS RELAY COIL POWER
158	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+	1	EFI B+
159	REK	TXL	0.8	RD/DB	O2 SENSOR	C	SPLICE, IGNITION POWER	1	ECM B+,O2 SENSOR
160	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	A6	FAN	B	B+ FAN RELAY OUT
161	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	A4	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
162	RS	TXL	3.0	OG	RELAY/FUSE BLOCK	A2	EPS POWER (A)	A	EPS RELAY POWER OUT
163	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
164	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
165	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
166	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
167	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

05/03/16

2017 RANGER 1000 XP EPS HVAC (CHASSIS)



2017 RANGER 1000 XP EPS HVAC (CHASSIS)

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR
TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.	

▽E = ENGINE GROUND

▽C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 2 OF 2

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	026	TXL	1.0	RD	RELAY/FUSE BLOCK	59	IN-LINE WIPER	A	FUSED, SWITCHED WIPER B+
2	039	TXL	0.8	BK/GN	RELAY/FUSE BLOCK	33	IN-LINE DOME LIGHT	A	FUSED DOME LIGHT UNSWITCHED B+
3	045	TXL	0.8	RD/GN	RELAY/FUSE BLOCK	57	IN-LINE ALTERNATOR	3	UNSWITCHED CHASSIS B+
4	046	TXL	0.8	BG	RELAY/FUSE BLOCK	52	IN-LINE ALTERNATOR	2	ALTERNATOR L TERMINAL LOAD
5	047	TXL	0.8	BU	RELAY/FUSE BLOCK	49	RELAY/FUSE BLOCK	56	FUSED B+ ALTERNATOR (L)
6	048	TXL	0.5	WH	DRIVE MODE SWITCH	3	DRIVE MODE SWITCH	18	JUMPER
7	049	TXL	0.5	WH	DRIVE MODE SWITCH	4	DRIVE MODE SWITCH	11	JUMPER
8	050	TXL	1.0	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER
9	051	TXL	0.5	WH	DRIVE MODE SWITCH	5	DRIVE MODE SWITCH	13	JUMPER
10	052	TXL	0.5	WH	DRIVE MODE SWITCH	14	DRIVE MODE SWITCH	17	JUMPER
11	1000A	TXL	5.0	RD/BU	RELAY/FUSE BLOCK	45	SPLICE,HVAC POWER RELAY	1	HVAC POWER RELAY
12	1000B	TXL	3.0	RD/BU	BLOWER SWITCH	P5	SPLICE,HVAC POWER RELAY	2	HVAC POWER RELAY
13	1000C	TXL	1.0	RD/BU	TEMPERATURE POTENTIOMETER	A	SPLICE,HVAC POWER RELAY	1	HVAC POWER RELAY
14	1000D	TXL	1.0	RD/BU	WATER VALVE	A	SPLICE,HVAC POWER RELAY	2	HVAC POWER RELAY
15	1000E	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	63	SPLICE,HVAC POWER RELAY	1	HVAC SWITCHED B+
16	1010	TXL	3.0	RD/DG	EVAP BLOWER	1	BLOWER SWITCH	P2	EVAP BLOWER HIGH
17	1190	TXL	5.0	RD/DB	RELAY/FUSE BLOCK	1	SPLICE,FUSIBLE LINK #6	2	HVAC POWER RELAY B+
18	1190A	TXL	3.0	RD/DB	RELAY/FUSE BLOCK	7	RELAY/FUSE BLOCK	40	FUSED HVAC POWER RELAY B+
19	1200A	TXL	3.0	RD	CONDENSER FAN 20A CIRCUIT BREAKER	1	RELAY/FUSE BLOCK	38	FUSED UNSWITHED B+, CONDENSER FAN
20	1200B	TXL	3.0	RD	CONDENSER FAN 20A CIRCUIT BREAKER	2	SPLICE,CONDENSER FAN CIRCUIT BREAKER	1	UNSWITCHED B+, CONDENSER FAN
21	1200C	TXL	5.0	RD	SPLICE,FUSIBLE LINK #7	2	SPLICE,CONDENSER FAN CIRCUIT BREAKER	2	UNSWITCHED B+, CONDENSER FAN
22	1210	TXL	3.0	RD	BLOWER SWITCH	P1	EVAP BLOWER	2	EVAP BLOWER MEDIUM
23	20LA	TXL	1.0	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM
24	20LB	TXL	1.0	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
25	20LC	TXL	1.0	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM
26	2310	TXL	1.0	BK	TVS AC COMPESSOR CLUTCH	P2	SPLICE,HVAC GROUND	2	GROUND, AC COMP CLUTCH TVS
27	2745	TXL	5.0	BK	CONDENSER FAN	B	GROUND #2	1	GROUND, CONDENSER FAN
28	30A	TXL	0.8	OG	RELAY/FUSE BLOCK	20	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
29	30B	TXL	0.8	OG	KEY SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
30	30C	TXL	0.8	OG	ECM,CODE 4	135	SPLICE,BRAKE PRESSURE SWITCH	2	BRAKE SWITCH OUT
31	30D	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE PRESSURE SWITCH	1	BRAKE SWITCH OUT
32	3100	TXL	1.0	BU	AC SWITCH	P1	SPLICE,AC SWITCH	1	AC SWITCH
33	3120	TXL	1.0	BU	RELAY/FUSE BLOCK	37	SPLICE,AC SWITCH	2	CONDENSER FAN RELAY (85)
34	3140	TXL	1.0	BU	THERMOSTAT	3	SPLICE,AC SWITCH	1	POWER RELAY
35	3160	TXL	1.0	BU	RELAY/FUSE BLOCK	25	SPLICE,AC SWITCH	2	AC SWITCH RELAY COIL
36	40	TXL	0.8	DG/WH	KEY SWITCH	A	START SOLENOID	1	START SOLENOID CONTROL GROUND
37	5000	TXL	3.0	YE	EVAP BLOWER	3	BLOWER SWITCH	P4	EVAP BLOWER LOW
38	7000	TXL	1.0	WH	BLOWER SWITCH	P3	AC SWITCH	P3	AC SWITCH POWER
39	7010	TXL	1.0	WH	THERMOSTAT	1	HPCO SWITCH	A	THERMOSTAT SWITCHED OUTPUT
40	7015	TXL	1.0	WH	HPCO SWITCH	B	RELAY/FUSE BLOCK	64	HPCO SWITCH OUTPUT
41	7025	TXL	1.0	WH/BK	RELAY/FUSE BLOCK	69	SPLICE,AC COMPRESSOR CLUTCH	1	AC COMP CLUTCH
42	7025A	TXL	1.0	WH/BK	COMPRESSOR CLUTCH	P1	SPLICE,AC COMPRESSOR CLUTCH	2	AC COMP CLUTCH
43	7025B	TXL	1.0	WH/BK	TVS AC COMPESSOR CLUTCH	P1	SPLICE,AC COMPRESSOR CLUTCH	2	AC COMP CLUTCH
44	7030	TXL	5.0	WH/GY	RELAY/FUSE BLOCK	43	CONDENSER FAN	A	CONDENSOR FAN
45	7200	TXL	1.0	RD/DG	WATER VALVE	D	TEMPERATURE POTENTIOMETER	B	TEMPERATURE POTIOMETER OUTPUT
46	B10A	FUSIBLE LINK	2.0	GY	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #7	1	FUSIBLE LINK, CONDENSOR FAN
47	B1A	TXL	3.0	RD	RELAY/FUSE BLOCK	2	SPLICE,FUSIBLE LINK #3	2	EPAS FUSED B+
48	B1B	TXL	3.0	RD	RELAY/FUSE BLOCK	8	RELAY/FUSE BLOCK	66	EPAS FUSED B+
49	B1C	FUSIBLE LINK	1.0	BK	START SOLENOID (B+) #1	1	SPLICE,FUSIBLE LINK #3	1	CHASSIS FUSED B+
50	B2A	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #1	1	SPLICE,FUSIBLE LINK #1	1	CHASSIS FUSED B+
51	B2B	TXL	2.0	RD	RELAY/FUSE BLOCK	3	SPLICE,FUSIBLE LINK #1	2	CHASSIS FUSED B+
52	B2B1	TXL	2.0	RD	RELAY/FUSE BLOCK	9	SPLICE,UNSWITCHED CHASSIS B+ FUSED	2	FUSED B+
53	B2B2	TXL	2.0	RD	RELAY/FUSE BLOCK	6	SPLICE,UNSWITCHED CHASSIS B+ FUSED	1	FUSED B+
54	B2B3	TXL	2.0	RD	RELAY/FUSE BLOCK	27	SPLICE,UNSWITCHED CHASSIS B+ FUSED	2	UNSWITCHED CHASSIS B+FUSED
55	B2B4	TXL	2.0	RD	RELAY/FUSE BLOCK	51	SPLICE,UNSWITCHED CHASSIS B+ FUSED	1	UNSWITCHED CHASSIS B+ FUSED
56	B3A	TXL	2.0	RD	ENGINE COOLANT FAN 20A CIRCUIT BREAKER	2	SPLICE,FUSIBLE LINK #4	2	FAN FUSED B+
57	B3B	TXL	1.0	RD	RELAY/FUSE BLOCK	42	ENGINE COOLANT FAN 20A CIRCUIT BREAKER	1	UNSWITCHED FUSED,B+ FAN RELAY POWER IN
58	B3C	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #1	1	SPLICE,FUSIBLE LINK #4	1	FAN FUSED LINK
59	B5A	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	4	SPLICE,ECM UNSWITCHED B+ FUSED #1	1	UNSWITCHED FUSED B+
60	B5AA	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	18	SPLICE,ECM UNSWITCHED FUSED B+ #2	1	ECM FUSED B+
61	B5AB	TXL	0.8	RD/WH	RELAY/FUSE BLOCK	17	SPLICE,ECM UNSWITCHED FUSED B+ #2	2	ECM FUSED B+
62	B5B	TXL	0.8	RD/WH	DIAGNOSTIC	A	SPLICE,ECM UNSWITCHED B+ FUSED #1	1	B+ UNSWITCHED FUSED
63	B5C	TXL	1.0	RD/WH	SPLICE,ECM UNSWITCHED B+ FUSED #1	1	SPLICE,ECM UNSWITCHED FUSED B+ #2	2	UNSWITCHED FUSED B+
64	B5D	TXL	0.5	RD	SPEEDOMETER	4	SPLICE,ECM UNSWITCHED B+ FUSED #1	2	UNSWITCHED FUSED B+
65	B5E	TXL	1.0	RD/WH	KEY SWITCH	C	SPLICE,ECM UNSWITCHED B+ FUSED #1	2	UNSWITCHED FUSED B+
66	B6	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	30	RELAY/FUSE BLOCK	34	KEY SWITCH,FUEL PUMP FUSE OUT
67	B7A	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #1	1	SPLICE,FUSIBLE LINK #2	1	EFI FUSED B+
68	B7B	TXL	2.0	RD	RELAY/FUSE BLOCK	10	SPLICE,FUSIBLE LINK #2	2	EFI FUSED B+
69	B8A	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #1	1	SPLICE,FUSIBLE LINK #5	1	FUSIBLE LINK, WIPER
70	B8B	TXL	2.0	RD	RELAY/FUSE BLOCK	62	SPLICE,FUSIBLE LINK #5	2	WIPER B+
71	B8C1	TXL	1.0	RD	RELAY/FUSE BLOCK	68	RELAY/FUSE BLOCK	54	FUSED WIPER B+
72	B9A	FUSIBLE LINK	2.0	GY	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #6	1	FUSIBLE LINK, HVAC POWER RELAY
73	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRANKSHAFT SENSOR (-)
74	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
75	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD #1	2	SPLICE,CPS SHIELD #2	1	GROUND,CRANK POSITION SENSOR
76	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 (PTO)
77	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE,ECM B+ #2	1	ECM B+
78	C02_3	TXL	0.5	BK	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 (MAG)
79	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,IGNITION COIL SHIELD	1	GROUND,IGNITION COIL
80	C03_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
81	C03_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
82	C03_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,DVE5
83	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH
84	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW
85	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH
86	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW
87	C3H	TXL	0.5TP	YE	SPEEDOMETER	1	SPLICE,CAN HIGH	2	CAN HIGH
88	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW
89	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH
90	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW
91	E103	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
92	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
93	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
94	E106	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
95	E111	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
96	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	24	MAIN ECU RELAY
97	E119	TXL	0.5	WH/DG	ECM,CODE 4	119	AWD & TURF SWITCH	4	TURF REQUEST INPUT
98	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD & TURF SWITCH	3	AWD REQUEST INPUT
99	E121	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
100	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	A	TRANSMISSION SWITCH SIGNAL
101	E125	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
102	E131	TXL	0.5	DG/WH	ECM,CODE 4	131	TURF SOLENOID DRIVER	B	REAR DIFFERENTIAL RELAY (PWM)
103	E134	TXL	0.8	BG/WH	ECM,CODE 4	134	RELAY/FUSE BLOCK	31	AC COMMAND SIGNAL
104	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	3.3V SUPPLY,TPS
105	E140	TXL	0.5	BN/WH	ECM,CODE 4	140	RELAY/FUSE BLOCK	12	CHASSIS RELAY ENABLE, SW. LOW
106	E141	TXL	0.5	OG/WH	ECM,CODE 4	141	RELAY/FUSE BLOCK	48	COOLING FAN RELAY
107	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	36	FUEL PUMP RELAY
108	E155	TXL	0.8	RD/DB	ECM,CODE 4	155	SPLICE,ECM B+ #1	2	ECM B+
109	E156	TXL	0.8	RD/DB	ECM,CODE 4	156	SPLICE,ECM B+ #1	2	ECM B+
110	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
111	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SPLICE, SENSOR GROUND
112	E204A	TXL	0.5	VT/WH	COOLANT TEMPERATURE SENSOR	1	SPLICE,SENSOR GROUND	1	SPLICE, SENSOR GROUND
113	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	B	SPLICE,SENSOR GROUND	1	SPLICE, SENSOR GROUND
114	E207	TXL	0.5	BK	ECM,CODE 13	207	O2 SENSOR	A	O2 SENSOR RTN
115	E210	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
116	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMPERATURE SENSOR	2	COOLANT TEMPERATURE SENSOR
117	E218	TXL	0.5	BG	ECM,CODE 13	218	DRIVE MODE SWITCH	3	DRIVE MODE SWITCH SIGNAL

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SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
118	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
119	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
120	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
121	E225	TXL	0.8	DB/YE	ECM,CODE 13	225	SEAT BELT SWITCH	B	SEAT BELT SWITCH
122	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
123	E230	TXL	0.5	GY	ECM,CODE 13	230	O2 SENSOR	B	O2 SENSOR IN
124	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
125	E236	TXL	0.5	BN/BU	ECM,CODE 13	236	IN-LINE ALTERNATOR	4	ALTERNATOR ECU CONTROL
126	E239	TXL	0.5	WH	ECM,CODE 13	239	O2 SENSOR	D	O2 SENSOR, HEATER LOW
127	E241	TXL	0.5	BN	ECM,CODE 13	241	RELAY/FUSE BLOCK	70	AC COMPRESSOR CLUTCH RELAY ENABLE
128	E243	TXL	0.5	WH	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
129	E244	TXL	0.5	BK	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
130	E245	TXL	0.5	BK/WH	ECM,CODE 13	245	REVERSE BEEPER #1	1	REVERSE BEEPER ENABLE
131	E246	TXL	0.5	BN/WH	ECM,CODE 13	246	AWD HUB COIL	B	AWD CONTROL
132	E248	TXL	0.5	BN/BU	ECM,CODE 13	248	RELAY/FUSE BLOCK	44	AC CONDENER FAN RELAY ENABLE
133	GA1A	TXL	2.0	BK	GROUND #3	1	SPLICE,HVAC GROUND	1	GROUND, MAIN HVAC
134	GA1B	TXL	2.0	BK	EVAP BLOWER	4	SPLICE,HVAC GROUND	2	GROUND, EVAP BLOWER
135	GA1C	TXL	1.0	BK	AC SWITCH	P2	SPLICE,HVAC GROUND	1	GROUND, AC SWITCH
136	GA1D	TXL	0.8	BK	TEMPERATURE POTENTIOMETER	C	SPLICE,HVAC GROUND	1	GROUND, TEMP POT 10 K OHM
137	GA1E	TXL	1.0	BK	WATER VALVE	C	SPLICE,HVAC GROUND	2	GROUND, WATER VALVE
138	GA1F	TXL	0.8	BK	THERMOSTAT	2	SPLICE,HVAC GROUND	2	GROUND, THERMOSTAT
139	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD #1	1	GROUND,CRANK POSITION SENSOR
140	GF1	TXL	0.8	BN	GROUND #3	1	SPLICE,GROUND DASH	2	GROUND
141	GF12	TXL	3.0	BN	EPS POWER (A)	B	GROUND #2	1	GROUND,EPS POWER
142	GF1A	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND
143	GF1B	TXL	0.5	BN	AWD & TURF SWITCH	2	SPLICE,GROUND DASH	1	GROUND
144	GF1BA	TXL	0.5	BN	AWD & TURF SWITCH	2	AWD & TURF SWITCH	5	JUMPER
145	GF1C	TXL	0.8	BN	IN-LINE DOME LIGHT	B	SPLICE,GROUND DASH	2	GROUND, DOME LIGHT
146	GF2	TXL	0.5	BN	RELAY/FUSE BLOCK	72	GROUND #3	1	GROUND
147	GF3	TXL	2.0	BN	GROUND #3	1	SPLICE,GROUND RECEPTACLE	2	GROUND
148	GF3A	TXL	1.0	BN	12V RECEPTACLE #2 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
149	GF3B	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	SPLICE,GROUND RECEPTACLE	1	GROUND
150	GF4	TXL	1.0	BN	FAN	A	GROUND #3	1	GROUND
151	GF5	TXL	1.0	BN	GROUND #3	1	SPLICE,GROUND	2	GROUND
152	GF5A	TXL	1.0	BN	LH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
153	GF5B	TXL	1.0	BN	RH HEADLIGHT	B	SPLICE,GROUND	1	GROUND
154	GF6	TXL	0.5	BN	SPEEDOMETER	5	GROUND #3	1	GROUND
155	GF7	TXL	0.5	BN	GROUND #2	1	DRIVE MODE SWITCH	11	GROUND, DRIVE MODE SWITCH
156	GM1	TXL	1.0	BN	FUEL PUMP & SENDER	4	GROUND #3	1	GROUND
157	GM2	TXL	0.5	BN	FUEL PUMP & SENDER	2	GROUND #3	1	GROUND
158	GM3	TXL	0.5	BN	DIAGNOSTIC	D	GROUND #3	1	GROUND
159	GM4	TXL	0.5	BN	GROUND #2	1	SPLICE,IGNITION COIL SHIELD	2	GROUND
160	GM5	TXL	0.5	BN	GROUND #2	1	SPLICE,CPS SHIELD #2	2	GROUND
161	GM6	TXL	0.5	BN	GROUND #2	1	SPLICE,DVE5	2	GROUND
162	GM7	TXL	1.0	BN	GROUND #1	1	SPLICE,RELAY GROUND	2	GROUND, RELAYS
163	GM7A	TXL	0.5	BN	RELAY/FUSE BLOCK	60	SPLICE,RELAY GROUND	1	GROUND, WIPER RELAY
164	GM7C	TXL	0.5	BN	RELAY/FUSE BLOCK	46	SPLICE,RELAY GROUND	1	GROUND, HVAC RELAY GROUND
165	GM7D	TXL	0.5	BN	RELAY/FUSE BLOCK	32	SPLICE,RELAY GROUND	1	GROUND, AC SWITCH RELAY
166	GM7E	TXL	0.5	BN	RELAY/FUSE BLOCK	26	SPLICE,RELAY GROUND	2	GROUND, AC SWITCH RELAY
167	GM8	TXL	2.0	BN	IN-LINE WIPER	B	GROUND #1	1	GROUND, WIPER & CAB HEATER
168	GME153	TXL	0.5	BN	ECM,CODE 4	153	GROUND #2	1	GROUND
169	GME154	TXL	0.8	BN	ECM,CODE 4	154	GROUND #2	1	GROUND
170	GME247	TXL	0.5	BN	ECM,CODE 13	247	GROUND #2	1	GROUND
171	GME250	TXL	0.8	BN	ECM,CODE 13	250	GROUND #2	1	GROUND
172	GR1	TXL	0.8	BN	TURF SOLENOID DRIVER	C	GROUND #1	1	GROUND
173	GR2	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	GROUND #1	1	GROUND
174	GR3	TXL	0.8	BN	START SOLENOID	2	GROUND #1	1	GROUND
175	GR4	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	GROUND #1	1	GROUND
176	K01	TXL	1.0	OG	KEY SWITCH	D	SPLICE,R/S B+	2	KEY SWITCH B+
177	K02	TXL	0.5	OG	RELAY/FUSE BLOCK	65	SPLICE,R/S B+	1	KEY SWITCH B+
178	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+	2	KEY SWITCH B+
179	K04	TXL	0.8	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+	2	KEY SWITCH B+
180	K05	TXL	0.8	OG	RELAY/FUSE BLOCK	28	SPLICE,R/S B+	1	KEY SWITCH B+
181	K06	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+	1	KEY SWITCH B+
182	K07	TXL	0.8	OG	RELAY/FUSE BLOCK	39	SPLICE,R/S B+	1	R/S B+
183	K116	TXL	0.5	OG	ECM,CODE 4	116	SPLICE,R/S B+	2	KEY SWITCH B+
184	RC2A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	16	SPLICE,B+ ACC FUSE OUT	1	B+ ACCESSORY FUSE OUT
185	RC2B	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
186	RC2C	TXL	1.0	OG/WH	12V RECEPTACLE #2 (HI) 3/16"	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
187	RC2E	TXL	1.0	OG/WH	TERMINAL BLOCK (ACCESSORY)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
188	RC4F	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	13	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
189	RC4F2	TXL	0.8	RD/DG	TURF SOLENOID DRIVER	A	SPLICE,DRIVE	2	SWITCHED B+ DRIVE FUSE OUT
190	RC4F3	TXL	0.8	RD/DG	AWD HUB COIL	C	SPLICE,DRIVE	1	SWITCHED B+ DRIVE FUSE OUT
191	RC6	TXL	2.0	RD/YE	RELAY/FUSE BLOCK	15	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
192	RC6A	TXL	0.8	RD/YE	TAIL/BRAKE LIGHT	A	SPLICE,LIGHTS B+	1	LIGHTS,B+ LIGHTS FUSE OUT
193	RC6C	TXL	0.8	RD/YE	HEADLIGHT SWITCH	8	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
194	RC6C1	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
195	RC6D	TXL	0.8	RD/YE	AWD & TURF SWITCH	7	SPLICE,LIGHTS B+	2	LIGHTS,B+ LIGHTS FUSE OUT
196	RC8	TXL	1.0	WH	RELAY/FUSE BLOCK	11	SPLICE,CHASSIS RELAY B+ OUT	1	SWITCHED, B+ CHASSIS RELAY B+ OUT
197	RC8A	TXL	1.0	WH	RELAY/FUSE BLOCK	22	SPLICE,CHASSIS RELAY B+ OUT	2	CHASSIS RELAY B+ OUT, ACCESSORY FUSE
198	RC8B	TXL	1.0	WH	RELAY/FUSE BLOCK	21	SPLICE,CHASSIS RELAY B+ OUT	1	CHASSIS RELAY B+ OUT, LIGHT FUSE
199	RC8C	TXL	1.0	WH	RELAY/FUSE BLOCK	19	SPLICE,CHASSIS RELAY B+ OUT	2	CHASSIS RELAY B+ OUT, DRIVE FUSE
200	RC8D	TXL	1.0	WH	RELAY/FUSE BLOCK	53	SPLICE,CHASSIS RELAY B+ OUT	1	CHASSIS RELAY B+ OUT
201	RD4	TXL	0.8	OG	RELAY/FUSE BLOCK	14	TAIL/BRAKE LIGHT	B	FUSED BRAKE B+
202	REA	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	23	SPLICE,ECM B+ #1	1	ECM B+
203	REB	TXL	0.8	RD/DB	PTO FUEL INJECTOR	2	SPLICE,ECM B+ #1	2	ECM B+
204	REC	TXL	0.8	RD/DB	MAG FUEL INJECTOR	2	SPLICE,ECM B+ #1	2	ECM B+
205	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,ECM B+ #1	1	ECM B+
206	REE	TXL	0.8	RD/DB	REVERSE BEEPER #2	1	SPLICE,ECM B+ #1	1	ECM B+
207	REF	TXL	0.8	RD/DB	SPLICE,ECM B+ #1	2	SPLICE,ECM B+ #2	2	ECM B+
208	REG	TXL	0.8	RD/DB	DIAGNOSTIC	B	SPLICE,ECM B+ #1	1	ECM B+
209	REH	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	41	SPLICE,ECM B+ #2	2	ECM B+, FAN RELAY COIL
210	REI	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	29	SPLICE,ECM B+ #2	1	ECM B+, FUEL PUMP RELAY
211	REJ	TXL	0.8	RD/DB	SEAT BELT SWITCH	A	SPLICE,ECM B+ #1	1	EFI B+
212	REK	TXL	0.8	RD/DB	O2 SENSOR	C	SPLICE,ECM B+ #2	2	ECM B+, O2 SENSOR
213	REL	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	5	SPLICE,ECM B+ #2	1	ECM B+
214	REM	TXL	0.8	RD/DB	RELAY/FUSE BLOCK	55	SPLICE,ECM B+ #2	2	ECM B+
215	RF	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	47	FAN	B	B+ FAN RELAY OUT
216	RP	TXL	1.0	RD/BU	RELAY/FUSE BLOCK	35	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
217	RS	TXL	3.0	OG	RELAY/FUSE BLOCK	71	EPS POWER (A)	A	EPS RELAY POWER OUT
218	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL SENSOR
219	S8A	TXL	1.0	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM
220	S8B	TXL	1.0	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
221	S8C	TXL	1.0	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM
222	S8D	TXL	0.8	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM

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2017 RANGER 1000 XP MUDDER

WIRE COLOR LEGEND	
BK	BLACK
BN	BROWN
BU	LIGHT BLUE
DB	DARK BLUE
GN	GREEN
GY	GRAY
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

▽ = ENGINE GROUND

▽ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED
NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2

SEAT BELT SWITCH

14V ~ 270Ω SEAT BELT SWITCH ~ 180Ω

POWER STEERING ASSEMBLY

EPS POWER (A)
PIN FUNCTION
A BATTERY (+)
B BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (REQ. REF)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (REQ. REF)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

HEADLIGHT SWITCH (P/N 4011113)

AND SWITCH (P/N 4015871)

INSTRUMENT CLUSTER (P/N 3280632)

PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMP
8	HIGH BEAM SWITCH INPUT	16	-

KEY SWITCH (P/N 4015631)

DIAGNOSTIC

12V RECEPTACLE (P/N 4015439)

12V RECEPTACLE (P/N 4015439)

WINCH SWITCH (P/N 4015872)

WINCH REMOTE (P/N 4015090)

OXYGEN SENSOR (P/N 4011853)

CONNECTOR PIN	WIRE COLOR	PIN AND WIRE CONNECTION
A	GRAY	GROUND (-)
B	BLACK	SIGNAL (+)
C	WHITE	HEATER (+)
D	WHITE	HEATER (-)

WINCH CONTACTOR (P/N 4013465)

ELECTRONIC THROTTLE CONTROL (P/N 1204455)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	5.3V TPS SUPPLY

TRIM FLUSH ⊕ DVE5

SPLICE,DVE5

TRANSMISSION SWITCH

SPEED SENSOR

HALL SENSOR

(LOCATED ON TRANSMISSION)

TAIL/BRAKE LIGHT

BRAKE PRESSURE SWITCH

24Ω (1 VOLTS MIN. TO POWER HUB COIL)

AWD HUB COIL

RH HEADLIGHT (P/N 2411787)

LH HEADLIGHT (P/N 2411784)

FAN MOTOR

SPLICE,WINCH IN

SPLICE,WINCH OUT

SPLICE,LIGHTS B+

SPLICE,BRAKE

SPLICE,B+ ACC FUSE OUT

SPLICE,B+ UNSWITCHED FUSED #2

SPLICE,R/S B+ #1

SPLICE,R/S B+ #2

SPLICE,CAN HIGH

SPLICE,CAN LOW

SPLICE,HIGH BEAM

SPLICE,LOW BEAM

SPLICE,EFI B+ #1

SPLICE,EFI B+ #2

SPLICE,IGNITION POWER

SPLICE,CHASSIS

SPLICE,B+ UNSWITCHED FUSED #1

SPLICE,CPS SHIELD

SPLICE,SHIELD

SPLICE,EFI

SPLICE,SENSOR GROUND

SPLICE,GROUND DASH

ECM,CODE 4

LAST 2 DIGITS OF 100 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (1E, 1101CAVITY 10)

ECM,CODE 13

LAST 2 DIGITS OF 200 SERIES NUMBER CORESPOND TO CONNECTOR CAVITY NUMBER (1E, 2101CAVITY 10)

TERMINAL BLOCK (P/N 4015778)

REGULATOR (P/N 4014856)

RUNNING RELAY	STARTER RELAY	ACCESSORY RELAY
CHASSIS RELAY	TRIM RELAY	ACCESSORY 10A
FUEL PUMP RELAY	ECU RELAY	ECU 10A
EFI RELAY	ECU 15A	LIGHTS 10A
FAN RELAY	EFI 15A	EFI 10A
	EFI RELAY	

FUEL PUMP

TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1.5Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

CRANK POSITION SENSOR (P/N 2411718)

NOMINAL RESISTANCE: AT 25°C±15 & 1.0±0.2kΩ AT 120°C±7.5 & 1.6±0.2kΩ
COOLANT TEMP SENSOR

PTO FUEL INJECTOR

WAG FUEL INJECTOR

RESISTANCE: 12Ω±0.5Ω
FUEL INJECTOR

T-MAP (P/N 2411528)

IGNITION COIL (P/N 4014423)

TRW I-COIL ⊕ IGNITION COIL

ELECTRONIC THROTTLE PEDAL (P/N 4014642)

START SOLENOID (B+ #1)

START SOLENOID (B+ #2)

START SOLENOID

CHASSIS REAR GROUND

STATOR (LOCATED UNDER RECOIL)

RESISTANCES (±20% @ 68°F/20°C)	
STATOR	CHARGE COIL: YE2 TO YE2 (0.1 Ohms) YE2 TO YE3 (0.1 Ohms) YE1 TO YE3 (0.1 Ohms)

2017 RANGER 1000 XP MUDDER

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

⏚ = ENGINE GROUND

⏚ = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 2 OF 2

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	001	TXL	3.0	YE	STATOR	A	REGULATOR AC	P1	STATOR AC
2	002	TXL	3.0	YE	STATOR	B	REGULATOR AC	P2	STATOR AC
3	003	TXL	3.0	YE	STATOR	C	REGULATOR AC	P3	STATOR AC
4	20LA	TXL	0.8	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM,SWITCH OUT
5	20LB	TXL	0.8	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM,RH
6	20LC	TXL	0.8	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM,LH
7	30A	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE	1	BRAKE SWITCH,OUT
8	30B	TXL	0.8	OG	KEY SWITCH	P4	SPLICE,BRAKE	2	BRAKE SWITCH,START RELAY
9	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	44	SPLICE,BRAKE	1	BRAKE SWITCH,OUT
10	30C1	TXL	0.8	OG	RELAY/FUSE BLOCK	48	TAIL/BRAKE LIGHT	B	FUSED BRAKE SWITCH OUT
11	4	TXL	5.0	BK	REGULATOR DC	P1	CHASSIS REAR GROUND #3	1	REGULATOR GROUND
12	40	TXL	0.8	DG/WH	KEY SWITCH	P3	START SOLENOID	1	START SOLENOID,START RELAY OUT
13	5	FUSIBLE LINK	2.0	GY	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #6	1	FUSIBLE LINK,VOLTAGE REGULATOR
14	50	TXL	0.8	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER,HEADLIGHT SWITCH
15	6	TXL	5.0	RD	REGULATOR DC	P3	SPLICE,FUSIBLE LINK #6	2	REGULATOR B+ OUTPUT
16	B1A	TXL	1.0	RD	RELAY/FUSE BLOCK	36	SPLICE,FUSIBLE LINK #4	2	ACC B+,SPLICE IN
17	B1A1	FUSIBLE LINK	0.5	GY	START SOLENOID (B+) #1	1	SPLICE,FUSIBLE LINK #4	1	FUSIBLE LINK,ACC (B+)
18	B1B	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	40	12V RECEPTACLE #1 (HI) 3/16"	1	12V ACCESSORY,FUSE OUT
19	B1BA	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	12V RECEPTACLE #2 (HI) 3/16"	1	12V ACCESSORY,FUSE OUT
20	B2A	TXL	2.0	RD	RELAY/FUSE BLOCK	34	SPLICE,FUSIBLE LINK #5	2	CHASSIS RELAY POWER IN
21	B2A1	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #5	1	FUSIBLE LINK,CHASSIS POWER
22	B3A	TXL	1.0	RD	RELAY/FUSE BLOCK	11	SPLICE,FUSIBLE LINK #2	2	FAN B+,FUSE IN
23	B3A1	FUSIBLE LINK	0.5	GY	START SOLENOID (B+) #1	1	SPLICE,FUSIBLE LINK #2	1	FUSIBLE LINK,FAN
24	B3B	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	10	RELAY/FUSE BLOCK	15	FAN B+,FUSED RELAY IN
25	B4A	TXL	2.0	RD	SPLICE,FUSIBLE LINK #3	2	SPLICE,EFI	2	EFI,SPLICE IN
26	B4A1	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #3	1	FUSIBLE LINK,EFI
27	B4B	TXL	1.0	RD	RELAY/FUSE BLOCK	19	SPLICE,EFI	1	EFI B+,FUSE IN
28	B4B1	TXL	1.0	RD	RELAY/FUSE BLOCK	18	RELAY/FUSE BLOCK	23	UNSWITCHED FUSED B+,EFI RELAY IN
29	B4C	TXL	1.0	RD	RELAY/FUSE BLOCK	27	SPLICE,EFI	1	KEY B+,FUSE IN
30	B4C1	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	31	SPLICE,B+ UNSWITCHED FUSED #1	1	UNSWITCHED FUSED B+,KEY FUSE OUT
31	B4C2	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	17	SPLICE,B+ UNSWITCHED FUSED #1	1	UNSWITCHED FUSED B+,EFI RELAY COIL HIGH
32	B4C3	TXL	1.0	RD/WH	SPLICE,B+ UNSWITCHED FUSED #1	2	SPLICE,B+ UNSWITCHED FUSED #2	1	UNSWITCHED FUSED B+,SPLICE
33	B4C31	TXL	0.8	RD/WH	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,SPEEDOMETER
34	B4C32	TXL	1.0	RD/WH	KEY SWITCH	P2	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,KEY
35	B4C33	TXL	0.5	RD/WH	DIAGNOSTIC	A	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,DIAGNOSTIC
36	B5A	TXL	2.0	RD	RELAY/FUSE BLOCK	12	SPLICE,FUSIBLE LINK #1	2	EPS B+,FUSE IN
37	B5A1	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #1	1	FUSIBLE LINK,EPS
38	B5B	TXL	2.0	RD	RELAY/FUSE BLOCK	4	RELAY/FUSE BLOCK	16	UNSWITCHED FUSED B+,EPS FUSE OUT
39	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRAKSHAFT SENSOR (-)
40	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
41	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD	2	SPLICE,SHIELD	1	GROUND,CRANK POSITION SENSOR
42	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 PTO
43	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE,IGNITION POWER	1	EFI B+,COIL
44	C02_3	TXL	0.5	WH	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 MAG
45	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,SHIELD	2	GROUND,IGNITION COIL
46	C03_1	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
47	C03_2	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
48	C03_3	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
49	C04_1	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
50	C04_2	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
51	C04_3	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
52	C05_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
53	C05_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
54	C05_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,SHIELD DVE5
55	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH,ECM
56	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW,ECM
57	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH,DIAGNOSTIC
58	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW,DIAGNOSTIC
59	C3H	TXL	0.5TP	YE	SPEEDOMETER	I	SPLICE,CAN HIGH	2	CAN HIGH,SPEEDOMETER
60	C3L	TXL	0.5TP	DG	SPEEDOMETER	2	SPLICE,CAN LOW	2	CAN LOW,SPEEDOMETER
61	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH,EPS
62	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW,EPS
63	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
64	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
65	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	22	EFI RELAY COIL LOW
66	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD SWITCH	A	AWD REQUEST INPUT
67	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
68	E135	TXL	0.5	OG	ECM,CODE 4	135	SPLICE,BRAKE	2	BRAKE SWITCH,ECM IN
69	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	5V SUPPLY,TPS
70	E140	TXL	0.5	OG/BK	ECM,CODE 4	140	RELAY/FUSE BLOCK	38	CHASSIS RELAY COIL LOW
71	E141	TXL	0.5	OG/BK	ECM,CODE 4	141	RELAY/FUSE BLOCK	14	COOLING FAN RELAY
72	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	30	FUEL PUMP COIL LOW
73	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
74	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND,EMC
75	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	GROUND,TEMP SENSOR
76	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	GROUND,TRANSMISSION SWITCH
77	E207	TXL	0.5	BK	ECM,CODE 13	207	OXYGEN SENSOR	A	O2 SENSOR RETURN
78	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
79	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
80	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
81	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
82	E225	TXL	0.5	OG/BK	ECM,CODE 13	225	SEATBELT SWITCH	B	SEATBELT SWITCH
83	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
84	E230	TXL	0.5	GY	ECM,CODE 13	230	OXYGEN SENSOR	B	O2 SENSOR IN
85	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
86	E239	TXL	0.5	WH	ECM,CODE 13	239	OXYGEN SENSOR	D	O2 SENSOR,HEATER LOW
87	E243	TFE	0.5	DG	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
88	E244	TFE	0.5	VT	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
89	E246	TXL	0.8	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
90	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD	1	GROUND,CRANK POSITION SENSOR
91	GF1A	TXL	0.5	BN	AWD SWITCH	B	SPLICE,GROUND DASH	2	GROUND,AWD SWITCH
92	GF1B	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND,HEADLIGHT SWITCH
93	GF1D	TXL	0.5	BN	DIAGNOSTIC	D	SPLICE,GROUND DASH	1	GROUND,DIAGNOSTIC
94	GF1E	TXL	0.8	BN	RH HEADLIGHT	B	SPLICE,GROUND DASH	1	GROUND,RH HEADLIGHT
95	GF1F	TXL	0.8	BN	LH HEADLIGHT	B	SPLICE,GROUND DASH	1	GROUND,LH HEADLIGHT
96	GR09	TXL	0.5	BN	CHASSIS REAR GROUND #1	1	SPLICE,DVE5	2	GROUND,DVE5 SHIELD
97	GR10	TXL	0.8	BN	FUEL PUMP & SENDER	4	CHASSIS REAR GROUND #1	1	GROUND,FUEL PUMP
98	GR11	TXL	0.5	BN	FUEL PUMP & SENDER	2	CHASSIS REAR GROUND #1	1	GROUND,FUEL LEVEL
99	GR20	TXL	0.8	BN	START SOLENOID	2	CHASSIS REAR GROUND #2	1	GROUND,START SOLENOID
100	GR21	TXL	0.5	BN	CHASSIS REAR GROUND #2	1	SPLICE,SHIELD	2	GROUND,SHIELD SPLICE
101	GR22	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	CHASSIS REAR GROUND #2	1	GROUND,TAILLIGHT
102	GR23	TXL	0.5	BN	RELAY/FUSE BLOCK	8	CHASSIS REAR GROUND #2	1	GROUND,EPS RELAY COIL
103	GR24	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	CHASSIS REAR GROUND #2	1	GROUND,SPEED SENSOR
104	GR31	TXL	0.8	BN	CHASSIS REAR GROUND #3	1	SPLICE,GROUND DASH	2	GROUND,FRONT
105	GR32	TXL	1.0	BN	FAN	A	CHASSIS REAR GROUND #3	1	GROUND,FAN
106	GR33	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	CHASSIS REAR GROUND #3	1	GROUND,FRONT 12V RECEPTACLE
107	GR33A	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	12V RECEPTACLE #2 (LO) 1/4"	1	GROUND,FRONT 12V RECEPTACLE
108	GR34	TXL	2.0	BN	EPS POWER (A)	B	CHASSIS REAR GROUND #2	1	GROUND,EPS POWER
109	GR35	TXL	0.8	BN	SPEEDOMETER	5	CHASSIS REAR GROUND #3	1	GROUND,SPEEDOMETER
110	GRE153	TXL	0.8	BN	ECM,CODE 4	153	CHASSIS REAR GROUND #1	1	GROUND,ECM
111	GRE154	TXL	0.8	BN	ECM,CODE 4	154	CHASSIS REAR GROUND #1	1	GROUND,ECM
112	GRE247	TXL	0.5	BN	ECM,CODE 13	247	CHASSIS REAR GROUND #1	1	GROUND,ECM
113	GRE250	TXL	0.8	BN	ECM,CODE 13	250	CHASSIS REAR GROUND #1	1	GROUND,ECM
114	K01	TXL	1.0	OG	KEY SWITCH	P1	SPLICE,R/S B+ #1	2	KEY SWITCH B+,KEY OUT
115	K02	TXL	0.5	OG	SPLICE,R/S B+ #1	1	SPLICE,R/S B+ #2	1	KEY SWITCH B+
116	K02A	TXL	0.5	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+ #2	2	KEY SWITCH B+,VEHICLE SPEED SENSOR
117	K02B	TXL	0.5	OG	RELAY/FUSE BLOCK	3	SPLICE,R/S B+ #2	1	KEY SWITCH B+,EPS RELAY COIL POWER
118	K02C	TXL	0.8	OG	RELAY/FUSE BLOCK	26	SPLICE,R/S B+ #2	1	KEY SWITCH B+,FUEL PUMP
119	K02C1	TXL	0.8	RD/BU	RELAY/FUSE BLOCK	29	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
120	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+ #1	2	KEY SWITCH B+,SPEEDOMETER
121	K04	TXL	0.5	OG	DIAGNOSTIC	B	SPLICE,R/S B+ #1	2	KEY SWITCH B+,DIAGNOSTIC
122	K05	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+ #1	1	KEY SWITCH B+,EPS
123	K06	TXL	0.5	OG	AWD SWITCH	C	SPLICE,R/S B+ #1	1	AWD SWITCH LIGHT
124	K116	TXL	0.5	OG	ECM,CODE 4	116	SPLICE,R/S B+ #2	2	KEY SWITCH B+,ECM
125	RC1	TXL	2.0	RD/DG	RELAY/FUSE BLOCK	37	SPLICE,CHASSIS	1	CHASSIS RELAY OUT
126	RC2	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	20	SPLICE,CHASSIS	2	CHASSIS RELAY OUT,LIGHTS INPUT
127	RC3	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	35	SPLICE,CHASSIS	1	ACC TERM,FUSE IN
128	RC3A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	39	SPLICE,B+ ACC FUSE OUT	1	ACC TERM,FUSE OUT
129	RC3B	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
130	RC3D	TXL	0.8	OG/WH	WINCH REMOTE	B	SPLICE,B+ ACC FUSE OUT	2	WINCH REMOTE B+
131	RC3E	TXL	0.8	OG/WH	WINCH SWITCH	B	SPLICE,B+ ACC FUSE OUT	2	WINCH SWITCH B+
132	RC4	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	28	SPLICE,CHASSIS	1	CHASSIS RELAY,DRIVE INPUT
133	RC4A	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	32	AWD/ADC COIL	C	SWITCHED B+ DRIVE FUSE OUT
134	RC6	TXL	1.0	RD/YE	RELAY/FUSE BLOCK	24	SPLICE,LIGHTS B+	2	LIGHTS B+,LIGHTS FUSE OUT
135	RC6A	TXL	0.8	RD/YE	TAIL/BRAKE LIGHT	A	SPLICE,LIGHTS B+	1	LIGHTS,TAILLIGHTS
136	RC6B	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	SPLICE,LIGHTS B+	2	LIGHTS,HEADLIGHT SWITCH IN
137	RC6B1	TXL	0.5	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
138	RE155	TXL	0.5	RD/DB	ECM,CODE 4	155	SPLICE,EFI B+ #1	2	EFI B+,ECM1
139	RE156	TXL	0.5	RD/DB	ECM,CODE 4	156	SPLICE,EFI B+ #1	2	EFI B+,ECM2
140	REA	TXL	1.0	RD/DB	RELAY/FUSE BLOCK	21	SPLICE,EFI B+ #1	1	EFI B+,EFI RELAY OUT
141	REB	TFE	0.5	DB	PTO FUEL INJECTOR	2	SPLICE,EFI B+ #1	2	EFI B+,PTO INJECTOR
142	REC	TFE	0.5	DB	MAG FUEL INJECTOR	2	SPLICE,EFI B+ #1	2	EFI B+,MAG INJECTOR
143	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,EFI B+ #1	1	EFI B+,BRAKE SWITCH
144	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,EFI B+ #1	1	EFI B+,IGNITION COIL
145	REG	TXL	0.5	RD/DB	SPLICE,EFI B+ #1	1	SPLICE,EFI B+ #2	2	EFI B+
146	REG1	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	25	SPLICE,EFI B+ #2	1	EFI B+,FUEL PUMP COIL HIGH
147	REG2	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	9	SPLICE,EFI B+ #2	1	EFI,FAN COIL HIGH

05/02/16

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
148	REG3	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	33	SPLICE,EFI B+ #2	1	EFI B+,CHASSIS RELAY COIL
149	REH	TXL	0.5	RD/DB	OXYGEN SENSOR	C	SPLICE,EFI B+ #2	2	EFI B+,O2 SENSOR
150	REJ	TXL	0.5	RD/DB	SEATBELT SWITCH	A	SPLICE,EFI B+ #1	1	EFI B+,SEATBELT SWITCH
151	RF1	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	13	FAN	B	FAN B+,RELAY OUT
152	RS	TXL	2.0	OG	RELAY/FUSE BLOCK	7	EPS POWER (A)	A	EPS RELAY POWER OUT
153	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL LEVEL SENSOR
154	S8A	TXL	0.8	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM,SWITCH OUT
155	S8B	TXL	0.8	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM,RH
156	S8C	TXL	0.8	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM,LH
157	S8D	TXL	0.5	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM,SPEEDOMETER
158	W001	TXL	0.8	BK	WINCH SWITCH	A	SPLICE,WINCH OUT	1	WINCH SWITCH OUT
159	W002	TXL	0.8	BK	WINCH REMOTE	C	SPLICE,WINCH OUT	1	WINCH REMOTE OUT
160	W003	TXL	0.8	BK	WINCH CONTACTOR	P1	SPLICE,WINCH OUT	2	WINCH CONTACTOR OUT
161	W101	TXL	0.8	DG	WINCH SWITCH	C	SPLICE,WINCH IN	1	WINCH SWITCH IN
162	W102	TXL	0.8	DG	WINCH REMOTE	A	SPLICE,WINCH IN	1	WINCH REMOTE IN
163	W103	TXL	0.8	DG	WINCH CONTACTOR	P2	SPLICE,WINCH IN	2	WINCH CONTACTOR IN

05/02/16

2017 RANGER 1000 XP CREW MUDDER

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

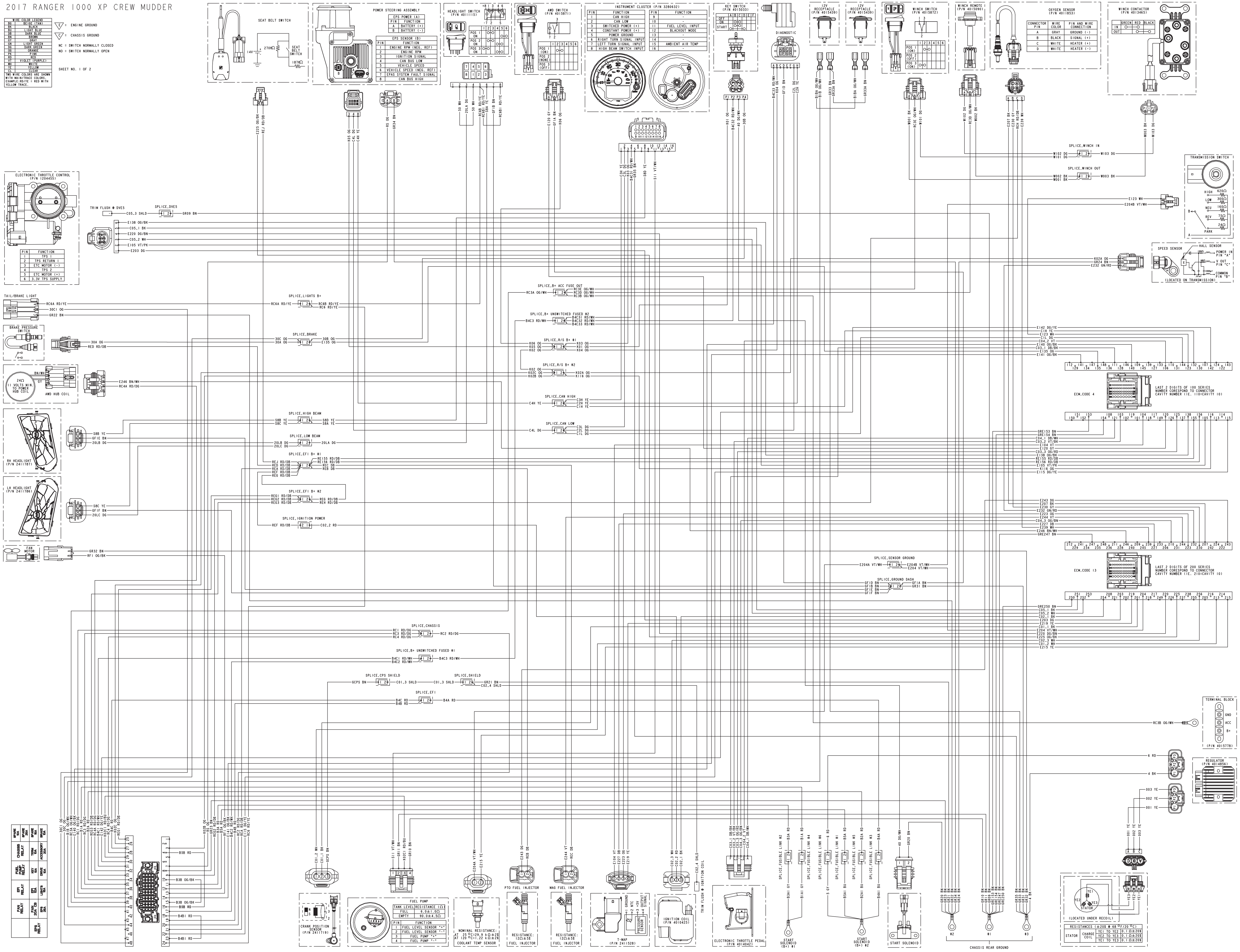
E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SHEET NO. 1 OF 2



EPS POWER (A)	
PIN	FUNCTION
A	BATTERY (+)
B	BATTERY (-)

EPS SENSOR (B)	
PIN	FUNCTION
1	ENGINE RPM (NEG. REF)
2	ENGINE RPM
3	IGNITION SIGNAL
4	CAN BUS LOW
5	VEHICLE SPEED
6	VEHICLE SPEED (NEG. REF)
7	EPAS SYSTEM FAULT SIGNAL
8	CAN BUS HIGH

PIN	FUNCTION	PIN	FUNCTION
1	CAN HIGH	9	-
2	CAN LOW	10	-
3	SWITCHED POWER (+)	11	FUEL LEVEL INPUT
4	CONSTANT POWER (+)	12	BLACKOUT MODE
5	POWER GROUND	13	-
6	RIGHT TURN SIGNAL INPUT	14	-
7	LEFT TURN SIGNAL INPUT	15	AMBIENT AIR TEMP
8	HIGH BEAM SWITCH INPUT	16	-

CONNECTOR PIN	WIRE COLOR	PIN AND WIRE CONNECTION
A	GRAY	GROUND (-)
B	BLACK	SIGNAL (+)
C	WHITE	HEATER (+)
D	WHITE	HEATER (-)

PIN	FUNCTION
1	TPS 1
2	TPS RETURN 1
3	ETC MOTOR (-)
4	TPS 2
5	ETC MOTOR (+)
6	3.3V TPS SUPPLY

TANK LEVEL	RESISTANCE (Ω)
FULL	6.0±1.0Ω
EMPTY	90.0±4.5Ω

PIN	FUNCTION
1	FUEL LEVEL SENSOR "+"
2	FUEL LEVEL SENSOR "-"
3	FUEL PUMP "+"
4	FUEL PUMP "-"

RESISTANCES (±20% @ 68 °F/20 °C)			
STATOR	CHARGE COIL	YE1 TO YE2	0.1Ω±20%
		YE2 TO YE3	0.1Ω±20%
		YE1 TO YE3	0.1Ω±20%

2017 RANGER 1000 XP CREW MUDDER

WIRE COLOR LEGEND	
BG	BEIGE (TAN)
BK	BLACK
BU	LIGHT BLUE
DB	DARK BLUE
BN	BROWN
GY	GRAY
GN	LIGHT GREEN
DG	DARK GREEN
OG	ORANGE
PK	PINK
RD	RED
VT	VIOLET (PURPLE)
WH	WHITE
YE	YELLOW
CL	CLEAR

TWO WIRE COLORS ARE SHOWN WITH MAIN/TRACE COLORS. EXAMPLE:RD/YE = RED WITH YELLOW TRACE.

E = ENGINE GROUND

C = CHASSIS GROUND

NC = SWITCH NORMALLY CLOSED

NO = SWITCH NORMALLY OPEN

SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
1	001	TXL	3.0	YE	STATOR	A	REGULATOR AC	P1	STATOR AC
2	002	TXL	3.0	YE	STATOR	B	REGULATOR AC	P2	STATOR AC
3	003	TXL	3.0	YE	STATOR	C	REGULATOR AC	P3	STATOR AC
4	20LA	TXL	0.8	DG	HEADLIGHT SWITCH	3	SPLICE,LOW BEAM	2	LOW BEAM,SWITCH OUT
5	20LB	TXL	0.8	DG	RH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM,RH
6	20LC	TXL	0.8	DG	LH HEADLIGHT	A	SPLICE,LOW BEAM	1	LOW BEAM,LH
7	30A	TXL	0.8	OG	BRAKE PRESSURE SWITCH	B	SPLICE,BRAKE	1	BRAKE SWITCH,OUT
8	30B	TXL	0.8	OG	KEY SWITCH	P4	SPLICE,BRAKE	2	BRAKE SWITCH,START RELAY
9	30C	TXL	0.8	OG	RELAY/FUSE BLOCK	44	SPLICE,BRAKE	1	BRAKE SWITCH,OUT
10	30C1	TXL	0.8	OG	RELAY/FUSE BLOCK	48	TAIL/BRAKE LIGHT	B	FUSED BRAKE SWITCH OUT
11	4	TXL	5.0	BK	REGULATOR DC	P1	CHASSIS REAR GROUND #3	1	REGULATOR GROUND
12	40	TXL	0.8	DG/WH	KEY SWITCH	P3	START SOLENOID	1	START SOLENOID,START RELAY OUT
13	5	FUSIBLE LINK	2.0	GY	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #6	1	FUSIBLE LINK,VOLTAGE REGULATOR
14	50	TXL	0.8	WH	HEADLIGHT SWITCH	2	HEADLIGHT SWITCH	4	JUMPER,HEADLIGHT SWITCH
15	6	TXL	5.0	RD	REGULATOR DC	P3	SPLICE,FUSIBLE LINK #6	2	REGULATOR B+ OUTPUT
16	B1A	TXL	1.0	RD	RELAY/FUSE BLOCK	36	SPLICE,FUSIBLE LINK #4	2	ACC B+,SPLICE IN
17	B1A1	FUSIBLE LINK	0.5	GY	START SOLENOID (B+) #1	1	SPLICE,FUSIBLE LINK #4	1	FUSIBLE LINK,ACC (B+)
18	B1B	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	40	12V RECEPTACLE #1 (HI) 3/16"	1	12V ACCESSORY,FUSE OUT
19	B1BA	TXL	1.0	OG/WH	12V RECEPTACLE #1 (HI) 3/16"	1	12V RECEPTACLE #2 (HI) 3/16"	1	12V ACCESSORY,FUSE OUT
20	B2A	TXL	2.0	RD	RELAY/FUSE BLOCK	34	SPLICE,FUSIBLE LINK #5	2	CHASSIS RELAY POWER IN
21	B2A1	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #5	1	FUSIBLE LINK,CHASSIS POWER
22	B3A	TXL	1.0	RD	RELAY/FUSE BLOCK	11	SPLICE,FUSIBLE LINK #2	2	FAN B+,FUSE IN
23	B3A1	FUSIBLE LINK	0.5	GY	START SOLENOID (B+) #1	1	SPLICE,FUSIBLE LINK #2	1	FUSIBLE LINK,FAN
24	B3B	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	10	RELAY/FUSE BLOCK	15	FAN B+,FUSED RELAY IN
25	B4A	TXL	2.0	RD	SPLICE,FUSIBLE LINK #3	2	SPLICE,EFI	2	EFI,SPLICE IN
26	B4A1	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #3	1	FUSIBLE LINK,EFI
27	B4B	TXL	1.0	RD	RELAY/FUSE BLOCK	19	SPLICE,EFI	1	EFI B+,FUSE IN
28	B4B1	TXL	1.0	RD	RELAY/FUSE BLOCK	18	RELAY/FUSE BLOCK	23	UNSWITCHED FUSED B+,EFI RELAY IN
29	B4C	TXL	1.0	RD	RELAY/FUSE BLOCK	27	SPLICE,EFI	1	KEY B+,FUSE IN
30	B4C1	TXL	1.0	RD/WH	RELAY/FUSE BLOCK	31	SPLICE,B+ UNSWITCHED FUSED #1	1	UNSWITCHED FUSED B+,KEY FUSE OUT
31	B4C2	TXL	0.5	RD/WH	RELAY/FUSE BLOCK	17	SPLICE,B+ UNSWITCHED FUSED #1	1	UNSWITCHED FUSED B+,EFI RELAY COIL HIGH
32	B4C3	TXL	1.0	RD/WH	SPLICE,B+ UNSWITCHED FUSED #1	2	SPLICE,B+ UNSWITCHED FUSED #2	1	UNSWITCHED FUSED B+,SPLICE
33	B4C31	TXL	0.8	RD/WH	SPEEDOMETER	4	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,SPEEDOMETER
34	B4C32	TXL	1.0	RD/WH	KEY SWITCH	P2	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,KEY
35	B4C33	TXL	0.5	RD/WH	DIAGNOSTIC	A	SPLICE,B+ UNSWITCHED FUSED #2	2	UNSWITCHED FUSED B+,DIAGNOSTIC
36	B5A	TXL	2.0	RD	RELAY/FUSE BLOCK	12	SPLICE,FUSIBLE LINK #1	2	EPS B+,FUSE IN
37	B5A1	FUSIBLE LINK	0.8	BU	START SOLENOID (B+) #2	1	SPLICE,FUSIBLE LINK #1	1	FUSIBLE LINK,EPS
38	B5B	TXL	2.0	RD	RELAY/FUSE BLOCK	4	RELAY/FUSE BLOCK	16	UNSWITCHED FUSED B+,EPS FUSE OUT
39	C01_1	TXL	0.5	BK	ECM,CODE 13	201	CRANK POSITION SENSOR	2	CRAKSHAFT SENSOR (-)
40	C01_2	TXL	0.5	WH	ECM,CODE 13	213	CRANK POSITION SENSOR	1	CRANKSHAFT SENSOR (+)
41	C01_3	SHLD	0.35	SHLD	SPLICE,CPS SHIELD	2	SPLICE,SHIELD	1	GROUND,CRANK POSITION SENSOR
42	C02_1	TXL	0.5	BK	ECM,CODE 13	254	IGNITION COIL	3	IGNITION DRIVER 2 PTO
43	C02_2	TXL	0.5	RD	IGNITION COIL	2	SPLICE,IGNITION POWER	1	EFI B+,COIL
44	C02_3	TXL	0.5	WH	ECM,CODE 13	256	IGNITION COIL	1	IGNITION DRIVER 1 MAG
45	C02_4	SHLD	0.35	SHLD	TRIM FLUSH @ IGNITION COIL	-	SPLICE,SHIELD	2	GROUND,IGNITION COIL
46	C03_1	TXL	0.5	DB/BK	ECM,CODE 4	111	PEDAL POSITION SENSOR	F	PEDAL POSITION 2
47	C03_2	TXL	0.5	VT/BK	ECM,CODE 4	103	PEDAL POSITION SENSOR	E	PPS2 SENSOR RETURN 3
48	C03_3	TXL	0.5	OG/RD	ECM,CODE 4	125	PEDAL POSITION SENSOR	D	5V PEDAL SUPPLY 2
49	C04_1	TXL	0.5	DB/WH	ECM,CODE 4	121	PEDAL POSITION SENSOR	A	PEDAL POSITION 1
50	C04_2	TXL	0.5	VT	ECM,CODE 4	106	PEDAL POSITION SENSOR	B	PPS1 SENSOR RETURN 2
51	C04_3	TXL	0.5	OG/BN	ECM,CODE 13	210	PEDAL POSITION SENSOR	C	5V PEDAL SUPPLY 1
52	C05_1	TXL	0.5	BK	ECM,CODE 13	251	DVE5	5	ETC MOTOR (+)
53	C05_2	TXL	0.5	WH	ECM,CODE 13	252	DVE5	3	ETC MOTOR (-)
54	C05_3	SHLD	0.35	SHLD	TRIM FLUSH @ DVE5	-	SPLICE,DVE5	1	GROUND,SHIELD DVE5
55	C1H	TXL	0.5TP	YE	ECM,CODE 4	132	SPLICE,CAN HIGH	2	CAN HIGH,ECM
56	C1L	TXL	0.5TP	DG	ECM,CODE 4	144	SPLICE,CAN LOW	2	CAN LOW,ECM
57	C2H	TXL	0.5TP	YE	DIAGNOSTIC	H	SPLICE,CAN HIGH	2	CAN HIGH,DIAGNOSTIC
58	C2L	TXL	0.5TP	DG	DIAGNOSTIC	G	SPLICE,CAN LOW	2	CAN LOW,DIAGNOSTIC
59	C3H	TXL	0.5TP	YE	SPEEDOMETER	I	SPLICE,CAN HIGH	2	CAN HIGH,SPEEDOMETER
60	C3L	TXL	0.5TP	DG	SPEEDOMETER	J	SPLICE,CAN LOW	2	CAN LOW,SPEEDOMETER
61	C4H	TXL	0.5TP	YE	EPS SIGNAL (B)	8	SPLICE,CAN HIGH	1	CAN HIGH,EPS
62	C4L	TXL	0.5TP	DG	EPS SIGNAL (B)	4	SPLICE,CAN LOW	1	CAN LOW,EPS
63	E104	TXL	0.5	VT	ECM,CODE 4	104	T-MAP	1	MAP SENSOR RETURN 4
64	E105	TXL	0.5	VT/PK	ECM,CODE 4	105	DVE5	2	TPS SENSOR RETURN 1
65	E115	TXL	0.5	DG/YE	ECM,CODE 4	115	RELAY/FUSE BLOCK	22	EFI RELAY COIL LOW
66	E120	TXL	0.5	GY	ECM,CODE 4	120	AWD SWITCH	A	AWD REQUEST INPUT
67	E123	TXL	0.5	WH	ECM,CODE 4	123	TRANSMISSION SWITCH	B	TRANSMISSION GEAR
68	E135	TXL	0.5	OG	ECM,CODE 4	135	SPLICE,BRAKE	2	BRAKE SWITCH,ECM IN
69	E138	TXL	0.5	OG/BK	ECM,CODE 4	138	DVE5	6	5V SUPPLY,TPS
70	E140	TXL	0.5	OG/BK	ECM,CODE 4	140	RELAY/FUSE BLOCK	38	CHASSIS RELAY COIL LOW
71	E141	TXL	0.5	OG/BK	ECM,CODE 4	141	RELAY/FUSE BLOCK	14	COOLING FAN RELAY
72	E142	TXL	0.5	DG/YE	ECM,CODE 4	142	RELAY/FUSE BLOCK	30	FUEL PUMP COIL LOW
73	E203	TXL	0.5	DG	ECM,CODE 13	203	DVE5	1	THROTTLE POSITION SENSOR 1
74	E204	TXL	0.5	VT/WH	ECM,CODE 13	204	SPLICE,SENSOR GROUND	2	SENSOR GROUND,EMC
75	E204A	TXL	0.5	VT/WH	COOLANT TEMP SENSOR	1	SPLICE,SENSOR GROUND	1	GROUND,TEMP SENSOR
76	E204B	TXL	0.5	VT/WH	TRANSMISSION SWITCH	A	SPLICE,SENSOR GROUND	2	GROUND,TRANSMISSION SWITCH
77	E207	TXL	0.5	BK	ECM,CODE 13	207	OXYGEN SENSOR	A	O2 SENSOR RETURN
78	E215	TXL	0.5	YE	ECM,CODE 13	215	COOLANT TEMP SENSOR	2	COOLANT TEMPERATURE SENSOR
79	E219	TXL	0.5	YE	ECM,CODE 13	219	T-MAP	4	MANIFOLD PRESSURE SENSOR SIGNAL
80	E220	TXL	0.5	DG/BN	ECM,CODE 13	220	DVE5	4	THROTTLE POSITION SENSOR 2
81	E223	TXL	0.5	OG	ECM,CODE 13	223	T-MAP	3	5V SENSOR SUPPLY 2,MAP
82	E225	TXL	0.5	OG/BK	ECM,CODE 13	225	SEATBELT SWITCH	B	SEATBELT SWITCH
83	E227	TXL	0.5	DB	ECM,CODE 13	227	T-MAP	2	MANIFOLD AIR TEMPERATURE SENSOR
84	E230	TXL	0.5	GY	ECM,CODE 13	230	OXYGEN SENSOR	B	O2 SENSOR IN
85	E232	TXL	0.5	GN/RD	ECM,CODE 13	232	VEHICLE SPEED SENSOR	C	VEHICLE SPEED SENSOR
86	E239	TXL	0.5	WH	ECM,CODE 13	239	OXYGEN SENSOR	D	O2 SENSOR,HEATER LOW
87	E243	TFE	0.5	DG	ECM,CODE 13	243	PTO FUEL INJECTOR	1	INJECTOR DRIVER 2 (PTO)
88	E244	TFE	0.5	VT	ECM,CODE 13	244	MAG FUEL INJECTOR	1	INJECTOR DRIVER 1 (MAG)
89	E246	TXL	0.8	BN/WH	ECM,CODE 13	246	AWD/ADC COIL	B	AWD CONTROL
90	GCPS	TXL	0.5	BN	CRANK POSITION SENSOR	3	SPLICE,CPS SHIELD	1	GROUND,CRANK POSITION SENSOR
91	GF1A	TXL	0.5	BN	AWD SWITCH	B	SPLICE,GROUND DASH	2	GROUND,AWD SWITCH
92	GF1B	TXL	0.5	BN	HEADLIGHT SWITCH	7	SPLICE,GROUND DASH	1	GROUND,HEADLIGHT SWITCH
93	GF1D	TXL	0.5	BN	DIAGNOSTIC	D	SPLICE,GROUND DASH	1	GROUND,DIAGNOSTIC
94	GF1E	TXL	0.8	BN	RH HEADLIGHT	B	SPLICE,GROUND DASH	1	GROUND,RH HEADLIGHT
95	GF1F	TXL	0.8	BN	LH HEADLIGHT	B	SPLICE,GROUND DASH	1	GROUND,LH HEADLIGHT
96	GR09	TXL	0.5	BN	CHASSIS REAR GROUND #1	1	SPLICE,DVE5	2	GROUND,DVE5 SHIELD
97	GR10	TXL	0.8	BN	FUEL PUMP & SENDER	4	CHASSIS REAR GROUND #1	1	GROUND,FUEL PUMP
98	GR11	TXL	0.5	BN	FUEL PUMP & SENDER	2	CHASSIS REAR GROUND #1	1	GROUND,FUEL LEVEL
99	GR20	TXL	0.8	BN	START SOLENOID	2	CHASSIS REAR GROUND #2	1	GROUND,START SOLENOID
100	GR21	TXL	0.5	BN	CHASSIS REAR GROUND #2	1	SPLICE,SHIELD	2	GROUND,SHIELD SPLICE
101	GR22	TXL	0.8	BN	TAIL/BRAKE LIGHT	C	CHASSIS REAR GROUND #2	1	GROUND,TAILLIGHT
102	GR23	TXL	0.5	BN	RELAY/FUSE BLOCK	8	CHASSIS REAR GROUND #2	1	GROUND,EPS RELAY COIL
103	GR24	TXL	0.5	BN	VEHICLE SPEED SENSOR	B	CHASSIS REAR GROUND #2	1	GROUND,SPEED SENSOR
104	GR31	TXL	0.8	BN	CHASSIS REAR GROUND #3	1	SPLICE,GROUND DASH	2	GROUND,FRONT
105	GR32	TXL	1.0	BN	FAN	A	CHASSIS REAR GROUND #3	1	GROUND,FAN
106	GR33	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	CHASSIS REAR GROUND #3	1	GROUND,FRONT 12V RECEPTACLE
107	GR33A	TXL	1.0	BN	12V RECEPTACLE #1 (LO) 1/4"	1	12V RECEPTACLE #2 (LO) 1/4"	1	GROUND,FRONT 12V RECEPTACLE
108	GR34	TXL	2.0	BN	EPS POWER (A)	B	CHASSIS REAR GROUND #2	1	GROUND,EPS POWER
109	GR35	TXL	0.8	BN	SPEEDOMETER	5	CHASSIS REAR GROUND #3	1	GROUND,SPEEDOMETER
110	GRE153	TXL	0.8	BN	ECM,CODE 4	153	CHASSIS REAR GROUND #1	1	GROUND,ECM
111	GRE154	TXL	0.8	BN	ECM,CODE 4	154	CHASSIS REAR GROUND #1	1	GROUND,ECM
112	GRE247	TXL	0.5	BN	ECM,CODE 13	247	CHASSIS REAR GROUND #1	1	GROUND,ECM
113	GRE250	TXL	0.8	BN	ECM,CODE 13	250	CHASSIS REAR GROUND #1	1	GROUND,ECM
114	K01	TXL	1.0	OG	KEY SWITCH	P1	SPLICE,R/S B+ #1	2	KEY SWITCH B+,KEY OUT
115	K02	TXL	0.5	OG	SPLICE,R/S B+ #1	1	SPLICE,R/S B+ #2	1	KEY SWITCH B+
116	K02A	TXL	0.5	OG	VEHICLE SPEED SENSOR	A	SPLICE,R/S B+ #2	2	KEY SWITCH B+,VEHICLE SPEED SENSOR
117	K02B	TXL	0.5	OG	RELAY/FUSE BLOCK	3	SPLICE,R/S B+ #2	1	KEY SWITCH B+,EPS RELAY COIL POWER
118	K02C	TXL	0.8	OG	RELAY/FUSE BLOCK	26	SPLICE,R/S B+ #2	1	KEY SWITCH B+,FUEL PUMP
119	K02C1	TXL	0.8	RD/BU	RELAY/FUSE BLOCK	29	FUEL PUMP & SENDER	3	FUEL PUMP RELAY OUT
120	K03	TXL	0.5	OG	SPEEDOMETER	3	SPLICE,R/S B+ #1	2	KEY SWITCH B+,SPEEDOMETER
121	K04	TXL	0.5	OG	DIAGNOSTIC	B	SPLICE,R/S B+ #1	2	KEY SWITCH B+,DIAGNOSTIC
122	K05	TXL	0.5	OG	EPS SIGNAL (B)	3	SPLICE,R/S B+ #1	1	KEY SWITCH B+,EPS
123	K06	TXL	0.5	OG	AWD SWITCH	C	SPLICE,R/S B+ #1	1	AWD SWITCH LIGHT
124	K116	TXL	0.5	OG	ECM,CODE 4	116	SPLICE,R/S B+ #2	2	KEY SWITCH B+,ECM
125	RC1	TXL	2.0	RD/DG	RELAY/FUSE BLOCK	37	SPLICE,CHASSIS	1	CHASSIS RELAY OUT
126	RC2	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	20	SPLICE,CHASSIS	2	CHASSIS RELAY OUT,LIGHTS INPUT
127	RC3	TXL	1.0	RD/DG	RELAY/FUSE BLOCK	35	SPLICE,CHASSIS	1	ACC TERM,FUSE IN
128	RC3A	TXL	1.0	OG/WH	RELAY/FUSE BLOCK	39	SPLICE,B+ ACC FUSE OUT	1	ACC TERM,FUSE OUT
129	RC3B	TXL	1.0	OG/WH	TERMINAL BLOCK (ACC)	1	SPLICE,B+ ACC FUSE OUT	2	B+ ACCESSORY FUSE OUT
130	RC3D	TXL	0.8	OG/WH	WINCH REMOTE	B	SPLICE,B+ ACC FUSE OUT	2	WINCH REMOTE B+
131	RC3E	TXL	0.8	OG/WH	WINCH SWITCH	B	SPLICE,B+ ACC FUSE OUT	2	WINCH SWITCH B+
132	RC4	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	28	SPLICE,CHASSIS	1	CHASSIS RELAY,DRIVE INPUT
133	RC4A	TXL	0.8	RD/DG	RELAY/FUSE BLOCK	32	AWD/ADC COIL	C	SWITCHED B+ DRIVE FUSE OUT
134	RC6	TXL	1.0	RD/YE	RELAY/FUSE BLOCK	24	SPLICE,LIGHTS B+	2	LIGHTS B+,LIGHTS FUSE OUT
135	RC6A	TXL	0.8	RD/YE	TAIL/BRAKE LIGHT	A	SPLICE,LIGHTS B+	1	LIGHTS,TAILLIGHTS
136	RC6B	TXL	0.8	RD/YE	HEADLIGHT SWITCH	5	SPLICE,LIGHTS B+	2	LIGHTS,HEADLIGHT SWITCH IN
137	RC6B1	TXL	0.5	RD/YE	HEADLIGHT SWITCH	5	HEADLIGHT SWITCH	8	JUMPER
138	RE155	TXL	0.5	RD/DB	ECM,CODE 4	155	SPLICE,EFI B+ #1	2	EFI B+,ECM1
139	RE156	TXL	0.5	RD/DB	ECM,CODE 4	156	SPLICE,EFI B+ #1	2	EFI B+,ECM2
140	REA	TXL	1.0	RD/DB	RELAY/FUSE BLOCK	21	SPLICE,EFI B+ #1	1	EFI B+,EFI RELAY OUT
141	REB	TFE	0.5	DB	PTO FUEL INJECTOR	2	SPLICE,EFI B+ #1	2	EFI B+,PTO INJECTOR
142	REC	TFE	0.5	DB	MAG FUEL INJECTOR	2	SPLICE,EFI B+ #1	2	EFI B+,MAG INJECTOR
143	RED	TXL	0.8	RD/DB	BRAKE PRESSURE SWITCH	A	SPLICE,EFI B+ #1	1	EFI B+,BRAKE SWITCH
144	REF	TXL	0.8	RD/DB	SPLICE,IGNITION POWER	2	SPLICE,EFI B+ #1	1	EFI B+,IGNITION COIL
145	REG	TXL	0.5	RD/DB	SPLICE,EFI B+ #1	1	SPLICE,EFI B+ #2	2	EFI B+
146	REG1	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	25	SPLICE,EFI B+ #2	1	EFI B+,FUEL PUMP COIL HIGH
147	REG2	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	9	SPLICE,EFI B+ #2	1	EFI,FAN COIL HIGH

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SCHEMATIC CABLE/WIRE TERMINATION TABLE

INDEX	CCT #	TYPE	GAUGE	COLOR	FROM COMPONENT	FROM PORT	TO COMPONENT	TO PORT	FUNCTION
148	REG3	TXL	0.5	RD/DB	RELAY/FUSE BLOCK	33	SPLICE,EFI B+ #2	1	EFI B+,CHASSIS RELAY COIL
149	REH	TXL	0.5	RD/DB	OXYGEN SENSOR	C	SPLICE,EFI B+ #2	2	EFI B+,O2 SENSOR
150	REJ	TXL	0.5	RD/DB	SEATBELT SWITCH	A	SPLICE,EFI B+ #1	1	EFI B+,SEATBELT SWITCH
151	RF1	TXL	1.0	OG/BK	RELAY/FUSE BLOCK	13	FAN	B	FAN B+,RELAY OUT
152	RS	TXL	2.0	OG	RELAY/FUSE BLOCK	7	EPS POWER (A)	A	EPS RELAY POWER OUT
153	S11	TXL	0.5	VT/WH	SPEEDOMETER	11	FUEL PUMP & SENDER	1	FUEL LEVEL SENSOR
154	S8A	TXL	0.8	YE	HEADLIGHT SWITCH	6	SPLICE,HIGH BEAM	2	HIGH BEAM,SWITCH OUT
155	S8B	TXL	0.8	YE	RH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM,RH
156	S8C	TXL	0.8	YE	LH HEADLIGHT	C	SPLICE,HIGH BEAM	1	HIGH BEAM,LH
157	S8D	TXL	0.5	YE	SPEEDOMETER	8	SPLICE,HIGH BEAM	2	HIGH BEAM,SPEEDOMETER
158	W001	TXL	0.8	BK	WINCH SWITCH	A	SPLICE,WINCH OUT	1	WINCH SWITCH OUT
159	W002	TXL	0.8	BK	WINCH REMOTE	C	SPLICE,WINCH OUT	1	WINCH REMOTE OUT
160	W003	TXL	0.8	BK	WINCH CONTACTOR	P1	SPLICE,WINCH OUT	2	WINCH CONTACTOR OUT
161	W101	TXL	0.8	DG	WINCH SWITCH	C	SPLICE,WINCH IN	1	WINCH SWITCH IN
162	W102	TXL	0.8	DG	WINCH REMOTE	A	SPLICE,WINCH IN	1	WINCH REMOTE IN
163	W103	TXL	0.8	DG	WINCH CONTACTOR	P2	SPLICE,WINCH IN	2	WINCH CONTACTOR IN

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