

2010 TRANSMISSION

Automatic Transmission 6T70/6T75 SRX

REPAIR INSTRUCTIONS ON THIS

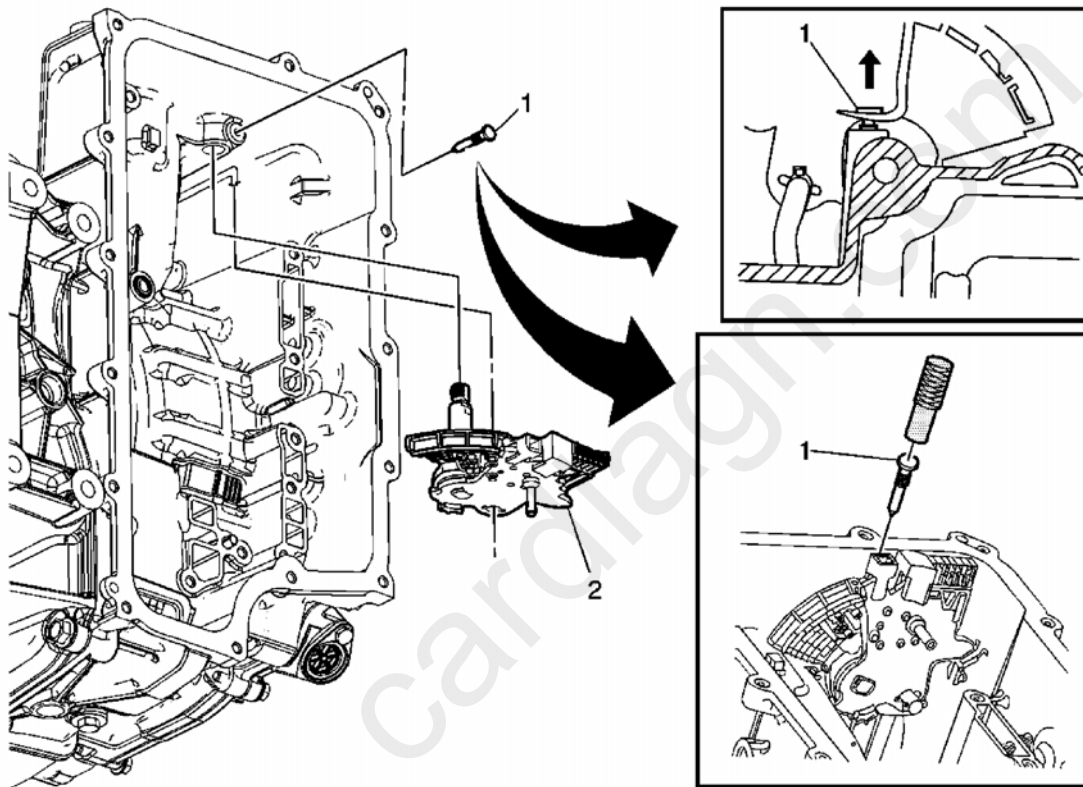
MANUAL SHIFT DETENT LEVER WITH SHIFT POSITION SWITCH ASSEMBLY
REPLACEMENT

Fig. 1: Identifying Manual Shift Detent Lever & Shaft Position Switch Assembly
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Remove the transmission range selector lever. Refer to <u>Automatic Transmission Range Selector Lever Replacement</u> .	
2. Remove the lower control valve body. Refer to <u>Control Valve Lower Body and Upper Body Replacement</u> .	
	1 Manual Shift Detent Lever Pin
CAUTION:	

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1

Use ☐ ☐122☐ to install the manual shaft pin at the correct height in order to properly secure the manual shaft. If you install the pin too deep the case bore may crack.

Tip:

- Use a small nail puller to remove the pin. Discard the pin it is not reusable.
- Use ☐T ☐ ☐ ☐ ☐ ☐9: Manual Shaft Pin Installer to install the pin.

Inspect that the pin installed height is within 6.5 mm 7.5 mm (☐25 in ☐3 in).

Special Tools:

☐T ☐ ☐ ☐ ☐9: Manual Shaft Pin Installer

2

Manual Shaft Detent Lever Assembly (with Shift Position Switch)

Procedure

- Removal: Partly lower the manual shaft detent lever assembly (with shift position switch) in order to rotate the detent lever and disconnect the park actuator rod. Then fully remove the manual shaft detent lever assembly from the transmission case.
- Installation: Partly install the manual shaft detent lever assembly (with shift position switch). Rotate the detent lever and connect the park actuator rod. Then fully install the manual shaft detent lever assembly in the transmission case.
- Lubricate the manual shaft with automatic transmission fluid (ATF) to prevent damage to the manual shift shaft seal.

Tip: Do not pull the park actuator rod end out beyond the machined oil passage surface in the case. No park condition will exist if the park pawl actuator assembly is pulled out of the transmission too far and the actuator rod disengages from the park pawl. The transmission assembly will require disassembly to re-install the actuator rod over the park pawl.

TRANSMISSION CONTROL LEVER NOB REPLACEMENT

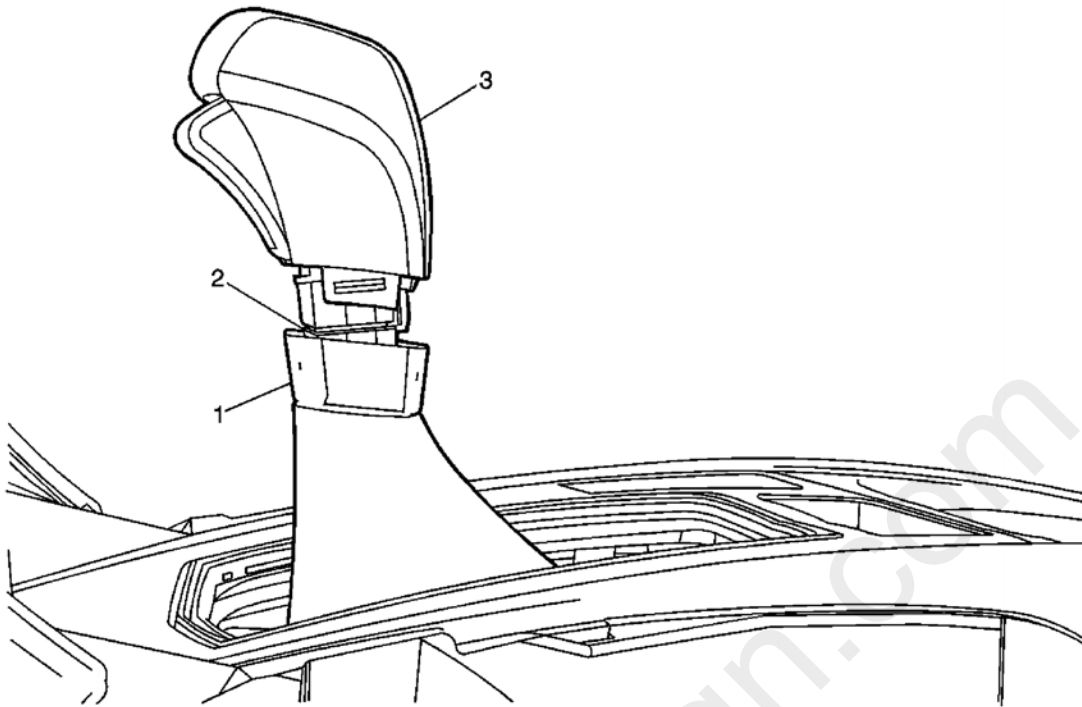


Fig. 1: Identifying Transmission Control Lever Knob
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Shift Control Knob Bezel Tip: - Removal: carefully insert a small flat-bladed tool between the bezel (1) and the shift knob (3). Apply careful downward pressure to the bezel to separate the bezel from the shift knob. The bezel will drop down approximately 13.0mm (0.5 in) exposing the spring clip (2). - Installation: Lift the bezel (1) up to the shift knob (3) until a click sound is heard indicating the bezel is secured to the shift knob.
2	Shift Control Knob Spring Clip Tip: Place the shift control in the Drive position then remove the spring clip from the front of the shift knob.
3	Shift Control Knob

AUTOMATIC TRANSMISSION CONTROL INDICATOR REPLACEMENT

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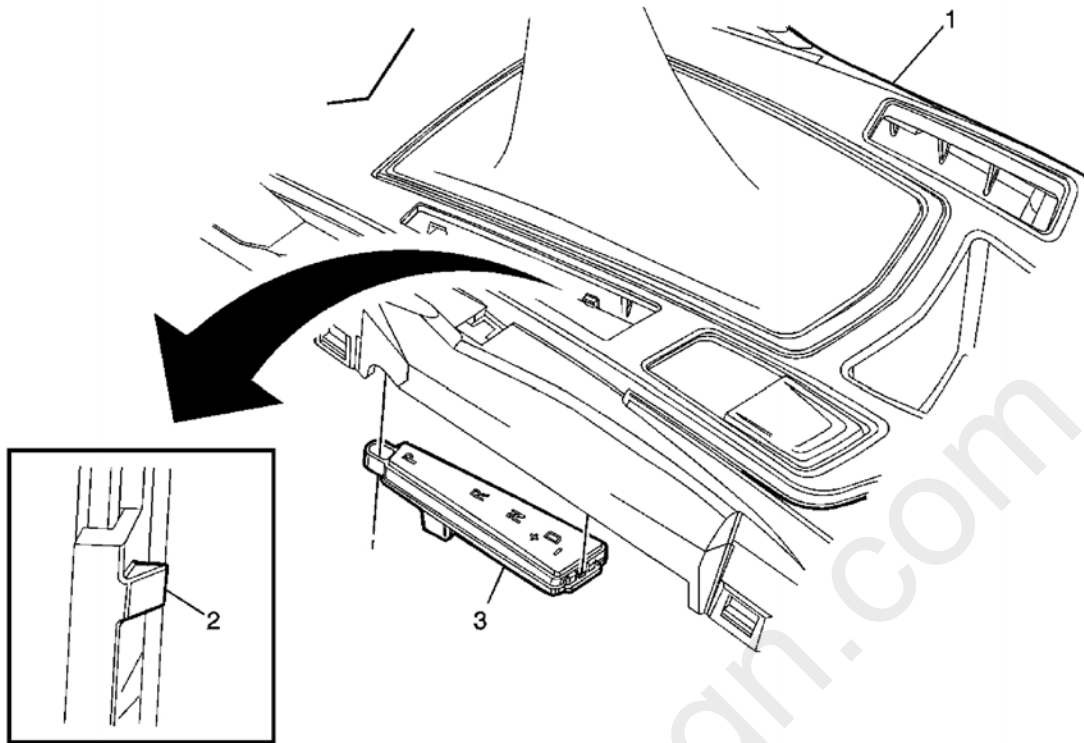


Fig. 1 Identifying Automatic Transmission Control Indicator
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Front Floor Console Trim Plate Refer to Front Floor Console Trim Plate Replacement .
2	Automatic Transmission Control Indicator Retainer Tab (Qty: 4) Tip: Use a flat-bladed tool to release the retaining tabs.
3	Automatic Transmission Control Indicator Assembly

TRANSMISSION CONTROL LEVER BOOT REPLACEMENT

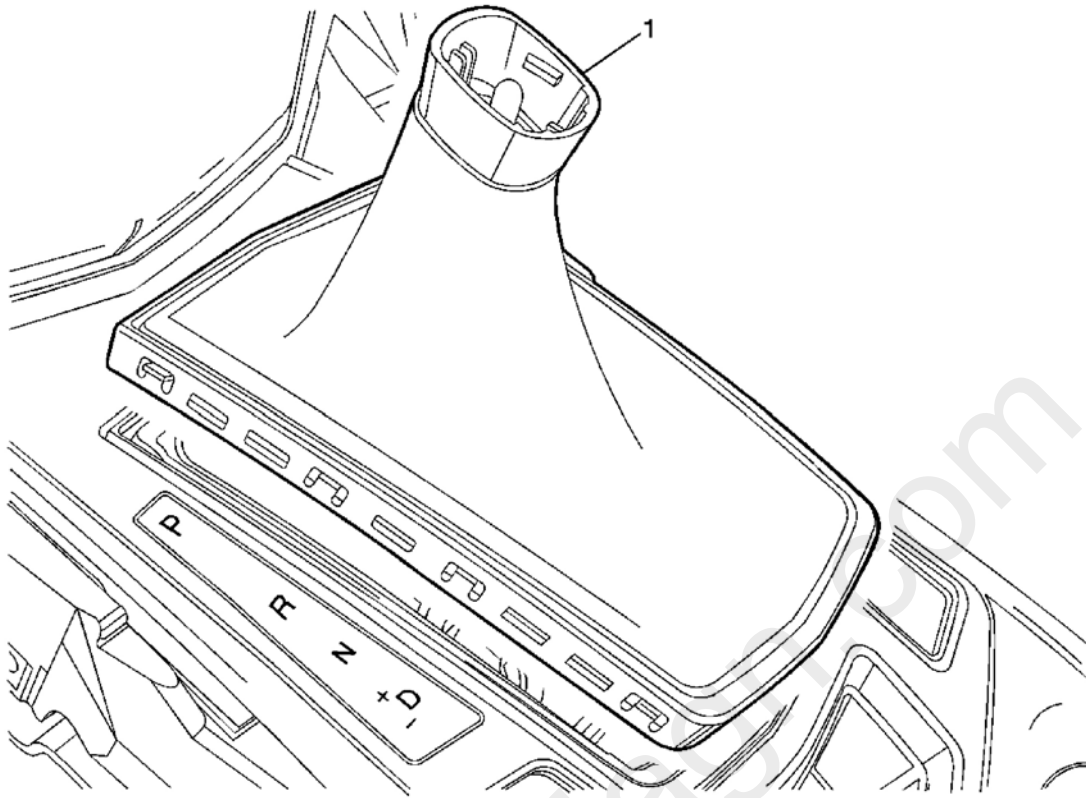


Fig. 1: Identifying Transmission Control Lever Boot
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Remove the automatic transmission control knob. Refer to Transmission Control Lever 1nob Replacement .	
1	Automatic Transmission Control 1boot 1ssembly Procedure: 1se a flat bladed plastic trim tool in order to release the retaining tabs securing the boot assembly to the front floor console transmission shift opening trim plate.

TRANSMISSION CONTROL REPLACEMENT

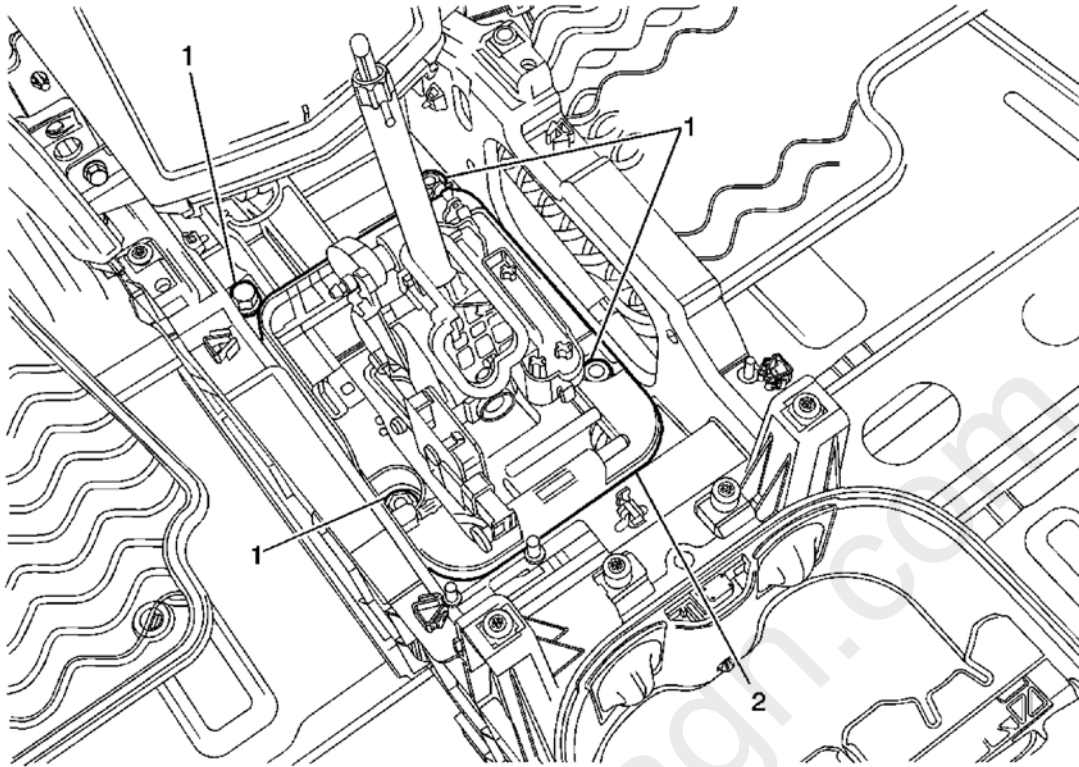


Fig. 5: View Of Transmission Control
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Remove the front floor console trim plate. Refer to <u>Front Floor Console Trim Plate Replacement</u> .	
2. Disconnect the range selector lever cable. Refer to <u>Range Selector Lever Cable Replacement</u> .	
3. Disconnect the transmission control electrical connectors.	
1	Transmission Control Fasteners (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 25 N.m (18 lb ft).
2	Transmission Control

AUTOMATIC TRANSMISSION RANGE SELECTOR LEVER REPLACEMENT

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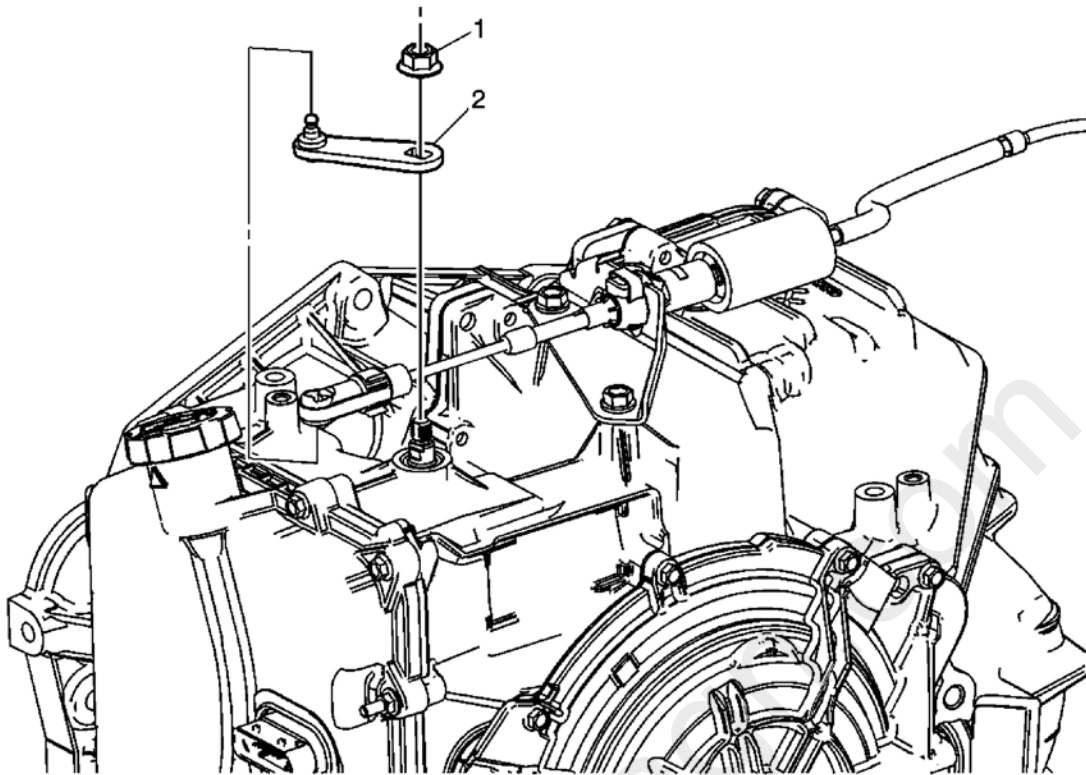


Fig. 6: Identifying A/T Range Selector Lever Components
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Set the park brake and chock the wheels. 2. Disconnect the range selector cable from the range selector lever.	
1	Transmission Range Selector Lever Nut WARNING: Hold the transmission range selector lever while removing or installing the lever retaining nut. Failure to hold the lever can cause damage to the transmission internal park system components which could allow the vehicle to roll when placed in the park position. CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 25 N.m (18 lb ft)
2	Transmission Range Selector Lever

RANGE SELECTOR LEVER CABLE REPLACEMENT

Removal Procedure

1. Set the park brake and chock the wheels.

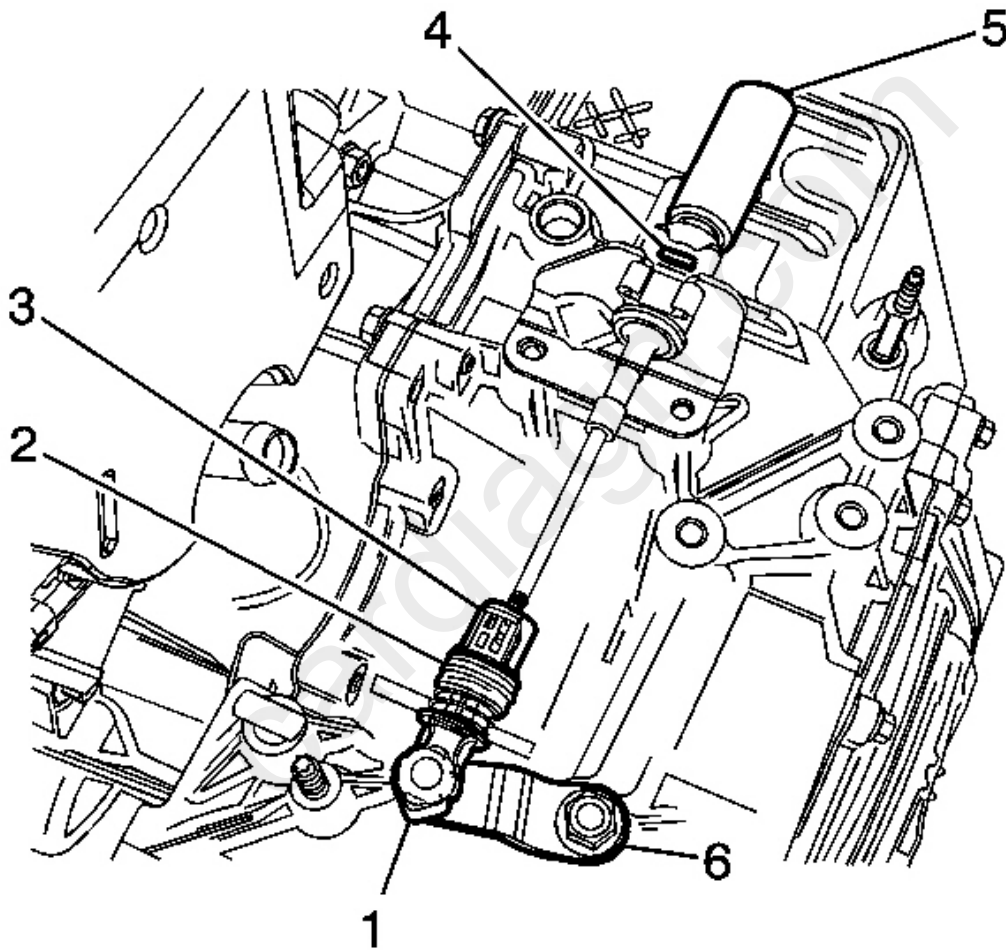


Fig. 7: Identifying Transmission Range Selector Lever Components
Courtesy of GENERAL MOTORS CORP.

2. Disconnect the transmission range selector lever cable terminal (1) from the transmission manual shift lever pin (6).
3. Slide the retainer (4) rearward to release the transmission range selector lever cable from the bracket.
4. Remove the front floor console extension. Refer to **Front Floor Console Extension Replacement**.

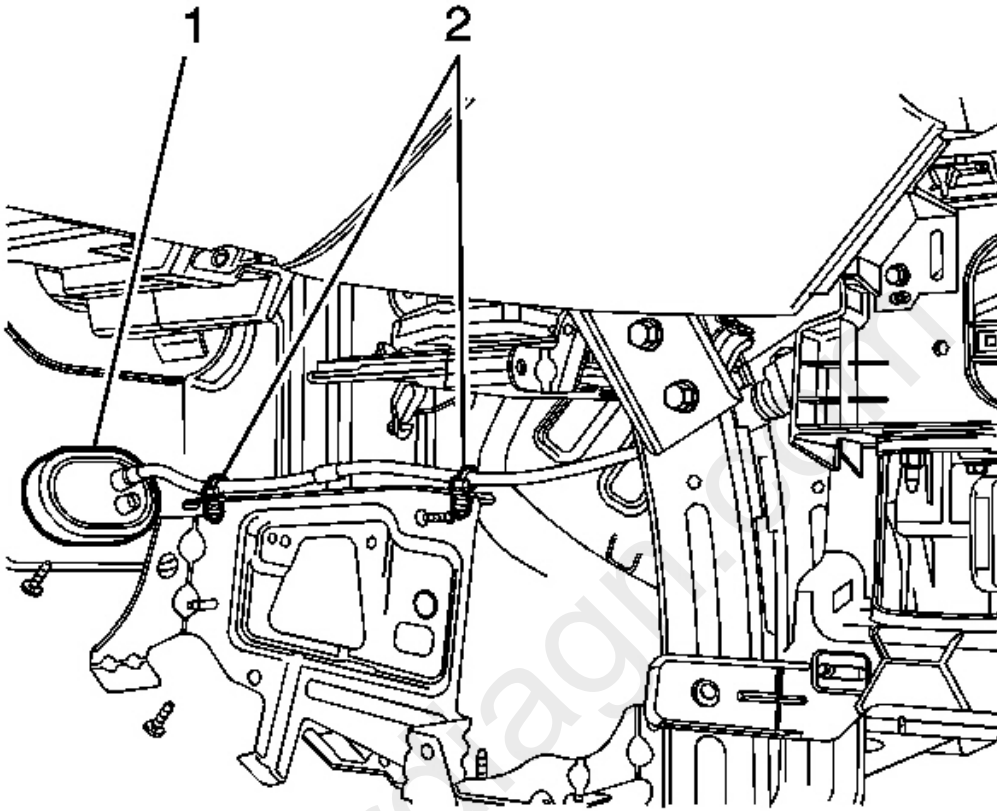


Fig. 8: Identifying Transmission Range Selector Lever Cable Retainers & Grommet
Courtesy of GENERAL MOTORS CORP.

5. Disconnect the transmission range selector lever cable retainers (2) from the support bracket.
6. Remove the grommet (1) and cable assembly from the floor panel.

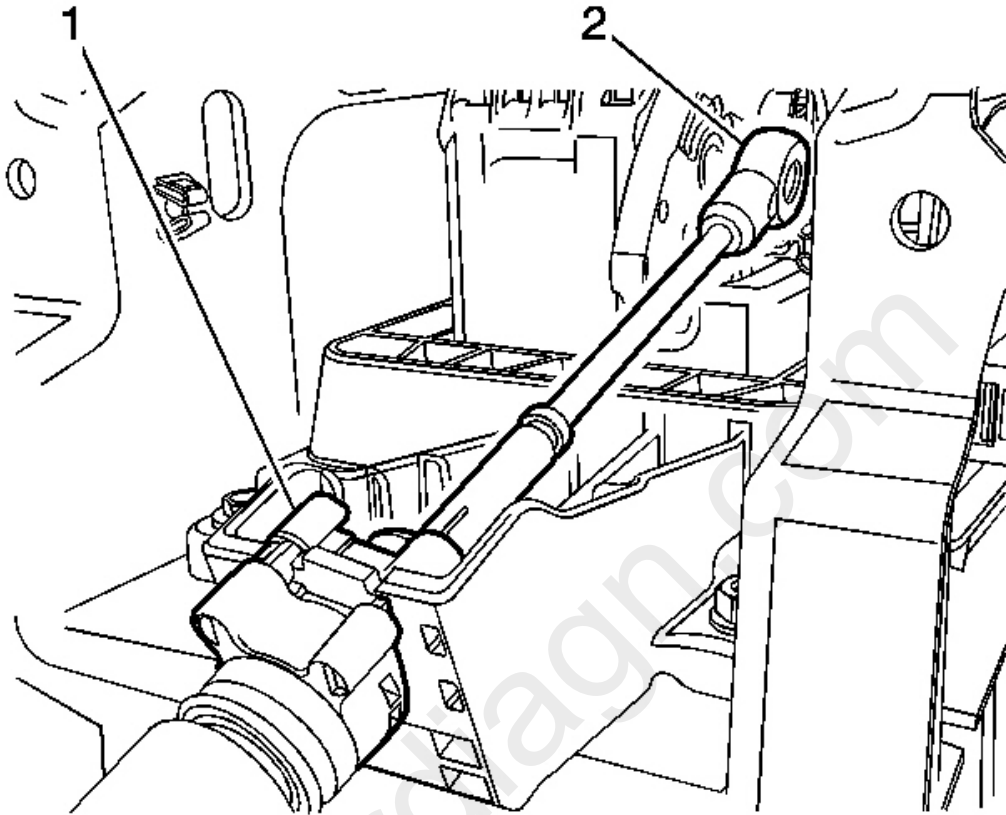


Fig. 9: View Of Transmission Range Selector Lever Cable Retainer & Terminal
Courtesy of GENERAL MOTORS CORP.

7. Slide the transmission range selector lever cable retainer forward (1) and remove the transmission range selector cable from the transmission control base.
8. Disconnect the transmission range selector lever cable terminal (2) from the shift lever pin.
9. Remove the transmission range selector lever cable from the vehicle.

Installation Procedure

1. Install the transmission range selector lever cable in the vehicle.

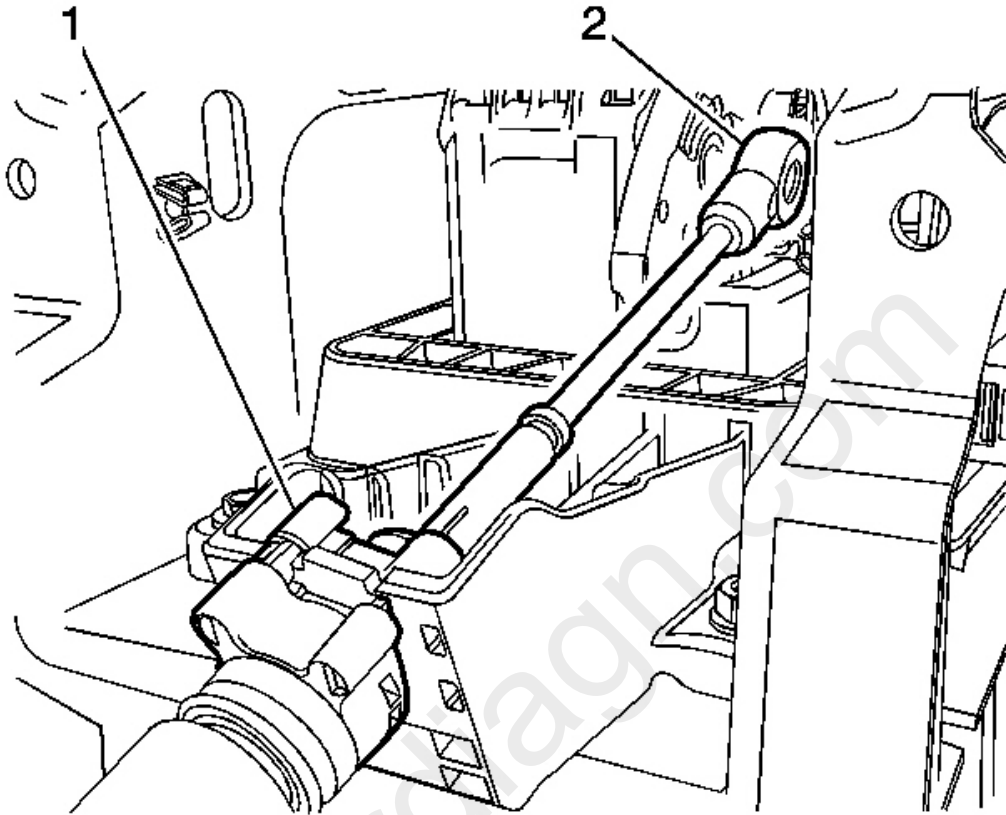


Fig. 1 View Of Transmission Range Selector Lever Cable Retainer & Terminal
Courtesy of GENERAL MOTORS CORP.

2. Connect the transmission range selector lever cable terminal (2) to the shift lever pin.

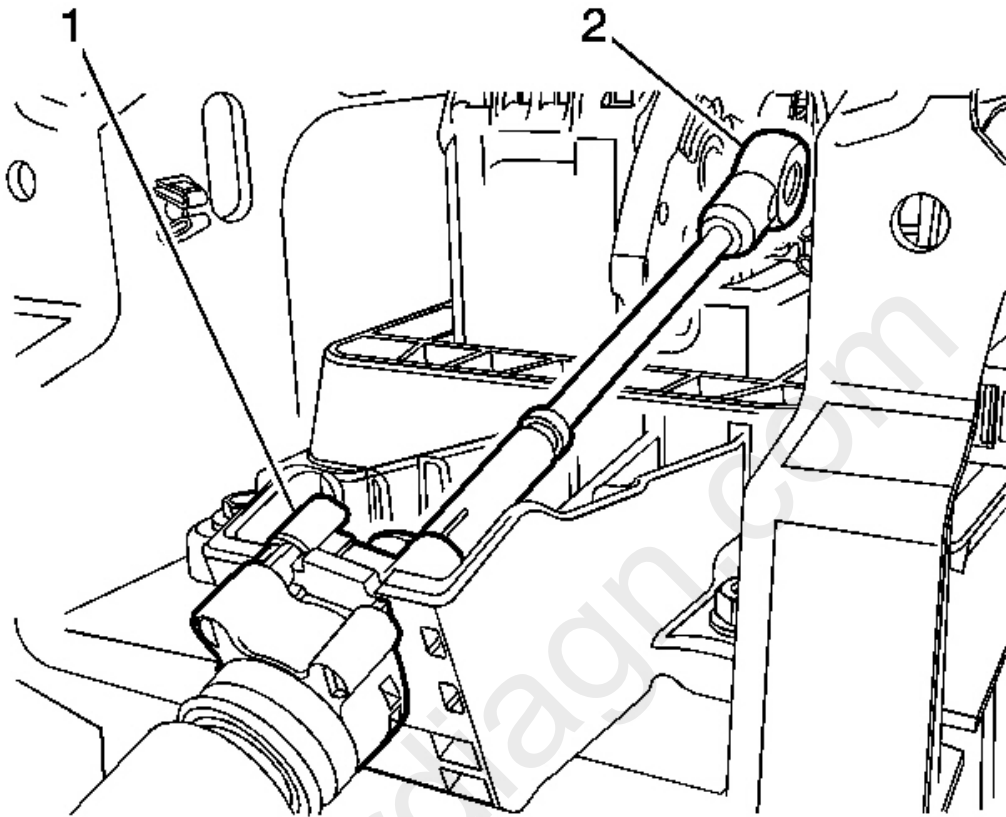


Fig. 11: View Of Transmission Range Selector Lever Cable Retainer & Terminal
Courtesy of GENERAL MOTORS CORP.

3. Install the transmission range selector cable to the transmission control base, then slide the transmission range selector lever cable retainer rearward (1) to lock the cable in place.

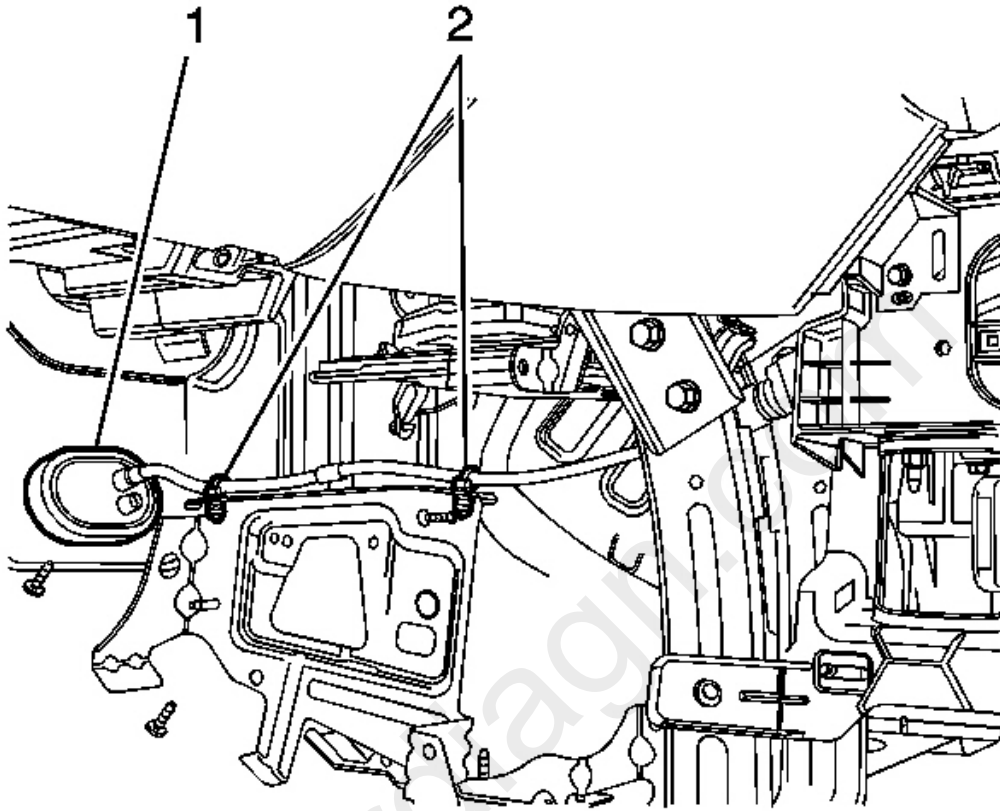


Fig. 12: Identifying Transmission Range Selector Lever Cable Retainers & Grommet
Courtesy of GENERAL MOTORS CORP.

NOTE: Ensure the grommet is properly oriented with paint dot facing top.

4. Install the grommet (1) and cable assembly into the floor panel.
5. Connect the transmission range selector lever cable retainers (2) to the support bracket.
6. Install the front floor console extension. Refer to **Front Floor Console Extension Replacement**.

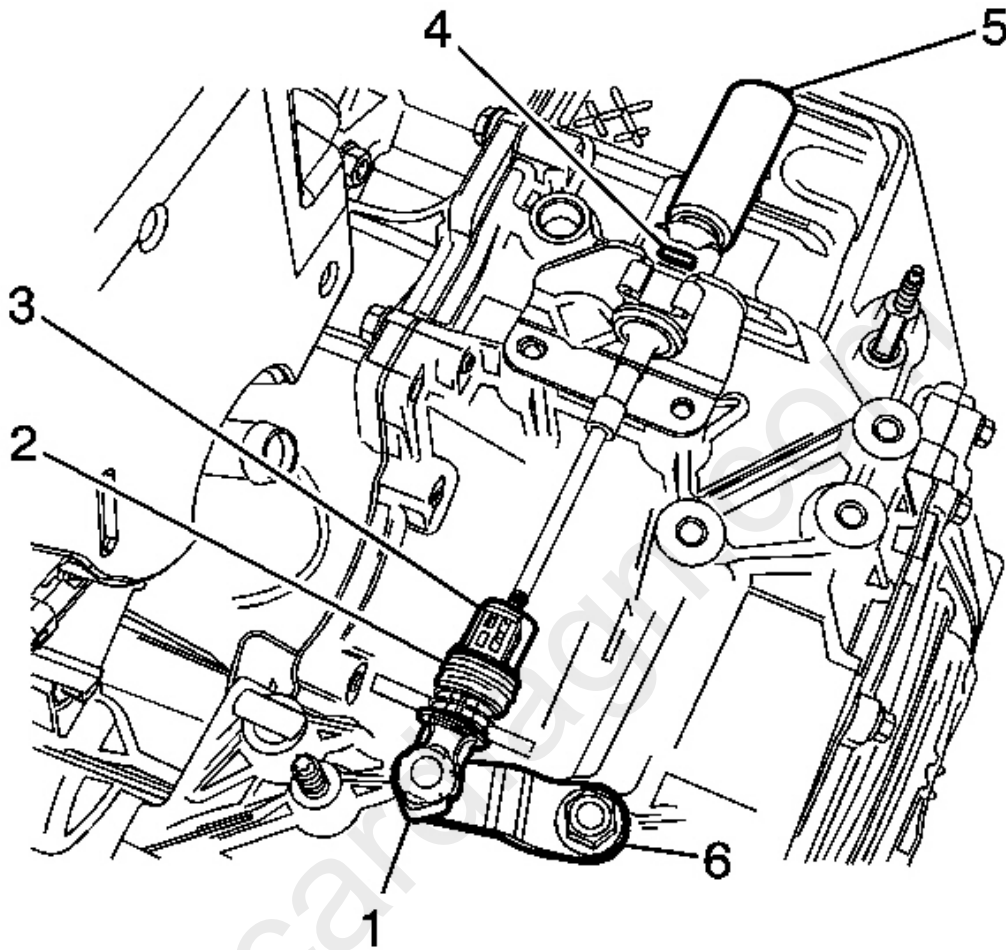


Fig. 13: Identifying Transmission Range Selector Lever Components
Courtesy of GENERAL MOTORS CORP.

- ☐ Connect the transmission range selector lever cable terminal (1) to the transmission manual shift lever pin (6).
- 8. Install the cable in the bracket, then slide the retainer (4) forward to lock the transmission range selector lever cable in the bracket.
- ☐ Adjust the cable. Refer to **Range Selector Lever Cable Adjustment**.

RANGE SELECTOR LEVER CABLE ADJUSTMENT

NOTE: Adjust the automatic transmission range selector cable while the transmission and the gear selector are in the Park position only. Failure to

do so may cause mis-adjustment.

1. Set the park brake and chock the wheels.
2. Verify the transmission range select lever is in the park position.
3. Verify the transmission manual shift lever is in the park position.

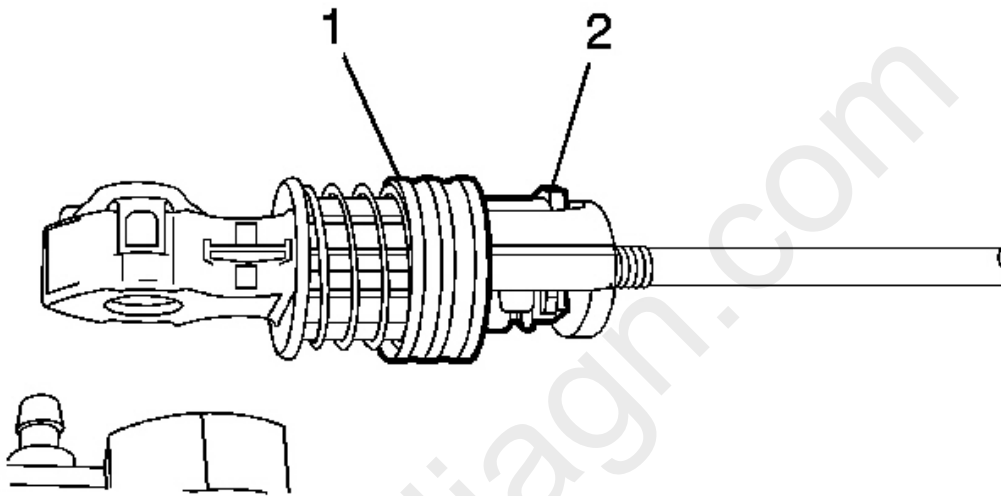


Fig. 14: Releasing Range Select Cable Adjuster Clip
Courtesy of GENERAL MOTORS CORP.

4. Pull the retaining collar (1) forward, then release the range select cable adjuster clip (2) by pushing up on the adjuster clip from the underside.
5. Depress the adjuster clip (2) locking the adjuster clip completely, then release the retaining collar.
6. Ensure that the cable adjuster is secured.
 - Check the transmission range select lever in all gear selections for proper operation.

RANGE SELECTOR LEVER CABLE BRACKET REPLACEMENT

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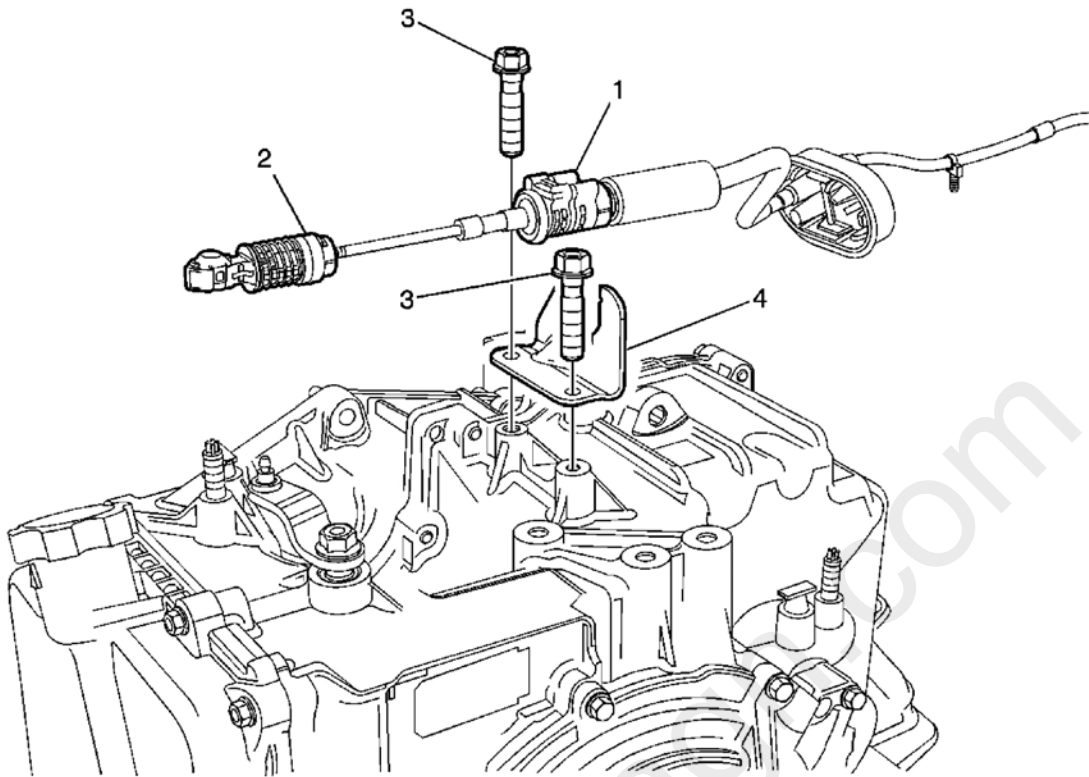


Fig. 15: Identifying Range Selector Lever Cable Bracket
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Set the park brake and chock the wheels.	
2. Remove the battery tray. Refer to Battery Tray Replacement .	
1	Transmission Range Selector Lever Cable Retaining lock
2	Transmission Range Selector Lever Cable
3	Transmission Range Selector Lever Cable Bracket Bolt CAUTION: Refer to <u>Fastener Caution</u>. Tighten: 25 N.m (18 lb ft)
4	Transmission Range Selector Lever Cable Bracket Procedure: Adjust the cable, if necessary. Refer to <u>Range Selector Lever Cable Adjustment</u> .

TRANSMISSION FLUID REPLACEMENT

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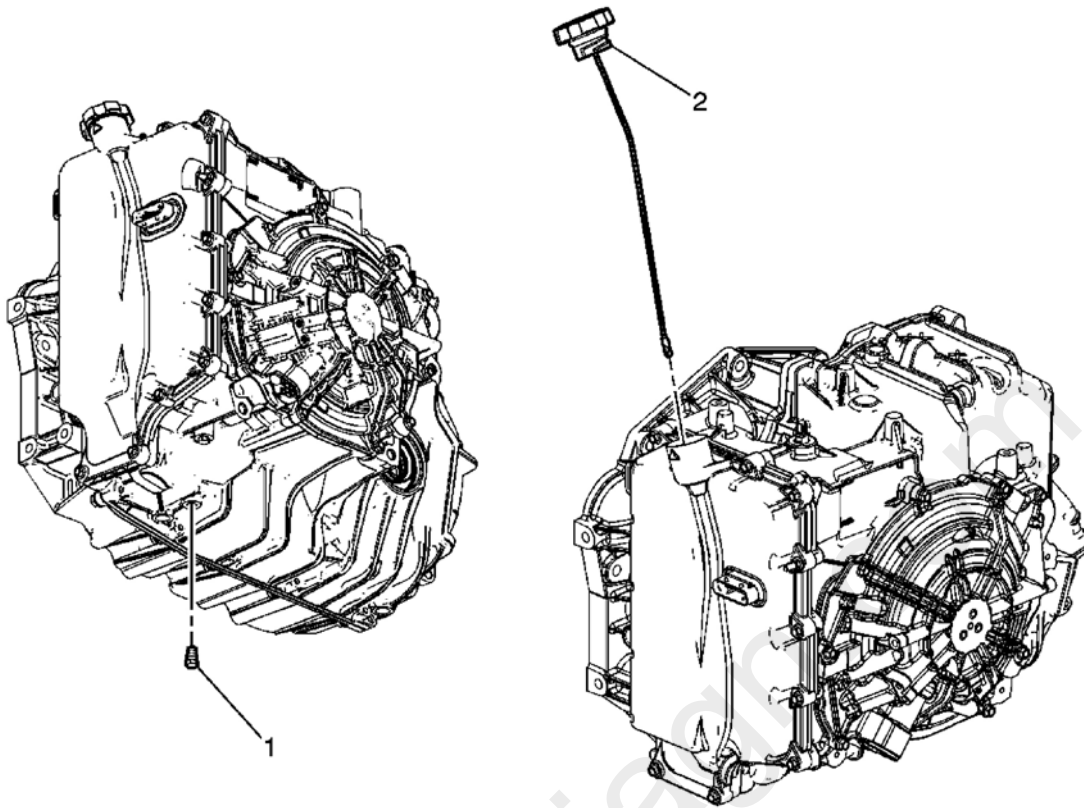


Fig. 16: Identifying Fluid Level Indicator & Drain Plug

Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Raise the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
1	Fluid Drain Plug CAUTION: Refer to <u>Fastener Caution</u> . Tip: Place a drain pan capable of containing more than 5 quarts of fluid under the transmission before removing the plug to drain the fluid. Tighten: 12 N.m (106 lb in)
2	Fluid Level Indicator Tip: • Transmission will require approximately 5 quarts of fluid. • Fill the transmission with fluid. Refer to <u>Transmission Fluid Level and Condition</u>

Check .

TRANSMISSION FLUID COOLER PIPE CONNECTOR REPLACEMENT - RADIATOR

Removal Procedure

1. Drain the cooling system. Refer to Cooling System Draining and Filling (Static Fill LF1) or Cooling System Draining and Filling - Vac-N-Fill (GE 47716) or Cooling System Draining and Filling (Static Fill LAU) .
2. Remove the transaxle oil cooler hoses from the oil cooler fittings on the radiator. Refer to Transmission Fluid Cooler Hose/Pipe Quick-Connect Fitting Disconnection and Connection.

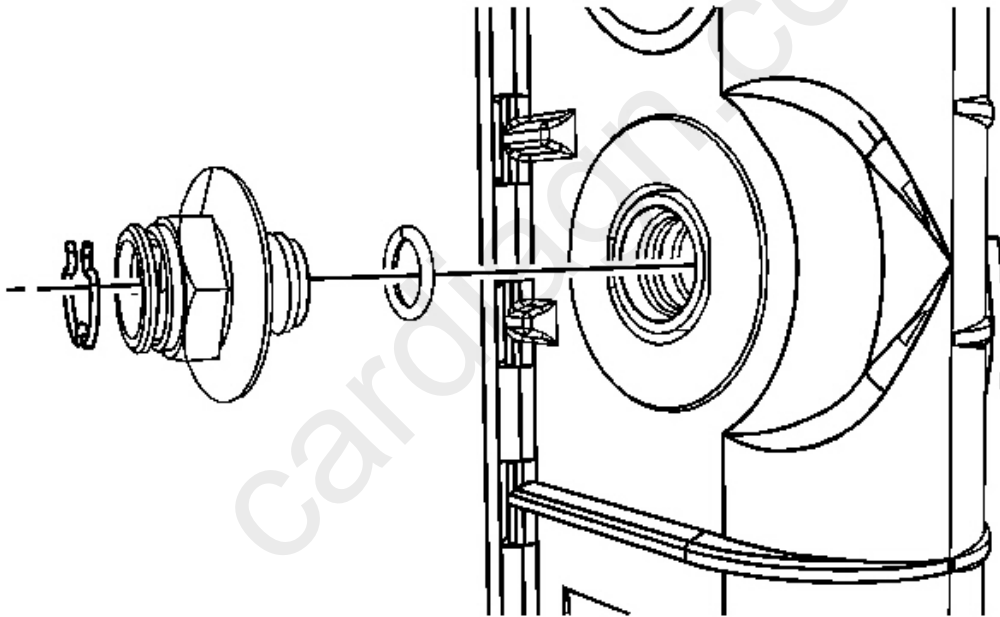


Fig. 17: View Of Oil Cooler Fitting At Radiator
Courtesy of GENERAL MOTORS CORP.

NOTE: Do not remove the upper and lower transaxle oil cooler fittings from the radiator at the same time other wise the transaxle oil cooler will fall inside the radiator end tank.

3. Remove the oil cooler fitting from the radiator.

Installation Procedure

1. Inspect the new O-ring seals for cracks, cuts or damage. Replace if necessary.

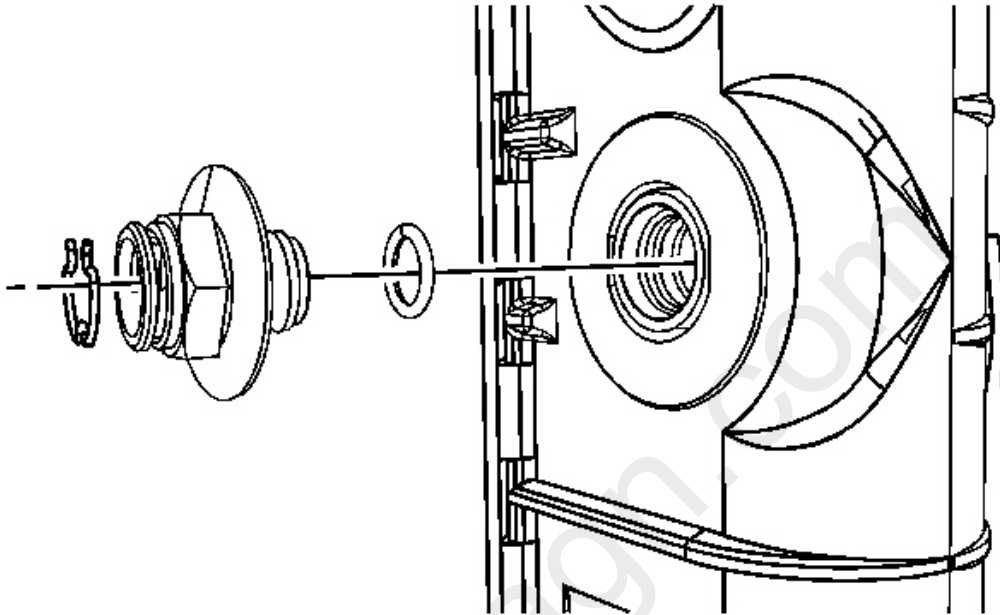


Fig. 18: View Of Oil Cooler Fitting At Radiator
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

NOTE: The correct thread engagement is critical. Cross-threaded fittings can achieve proper tightness and still leak.

2. Install the oil cooler fitting to the radiator and tighten to 38 N.m (28 lb ft).
3. Install the transaxle oil cooler hoses to the oil cooler fittings on the radiator. Refer to Transmission Fluid Cooler Hose/Pipe Quick-Connect Fitting Disconnection and Connection.
4. Fill the cooling system. Refer to Cooling System Draining and Filling (Static Fill LF1) or Cooling System Draining and Filling - Vac-N-Fill (GE 47716) or Cooling System Draining and Filling (Static Fill LAU) .
5. Adjust the transmission fluid level.
6. Inspect for fluid leaks.

AND CONNECTION**Special Tools****J 41623-B:** Cooler Quick Connect Tool**Removal Procedure**

NOTE: Perform the following procedure when removing the retaining rings and cooler lines from the quick connect fittings located on the radiator and/or the transmission.

1. Pull the plastic cap back from the quick connect fitting and down along the cooler line about 5 cm (2 in).
2. Using **J 41623-B:** Cooler Quick Connect Tool to remove the retaining ring.
3. Remove the retaining ring from the quick connect fitting.
4. Discard the retaining ring.

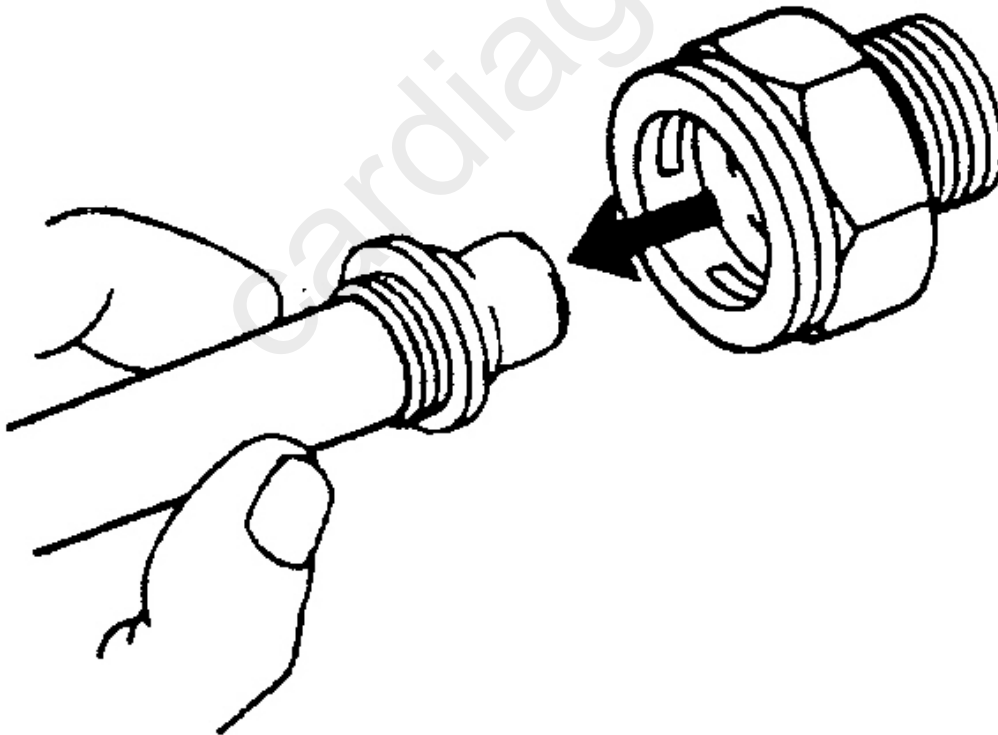


Fig. 19: Cooler Line & Quick Connect Fitting
Courtesy of GENERAL MOTORS CORP.

5. Pull the cooler line straight out from the quick connect fitting.

Installation Procedure**NOTE:**

- Do not reuse any of the existing oil lines or oil line fittings if there is excessive corrosion.
- Do not reuse any of the existing retaining rings that were removed from the existing quick connect fittings. Install new retaining rings.
- Ensure the following procedures are performed when installing the new retaining rings onto the fittings.

1. Install a new retaining ring into the quick connect fitting using the following procedure□

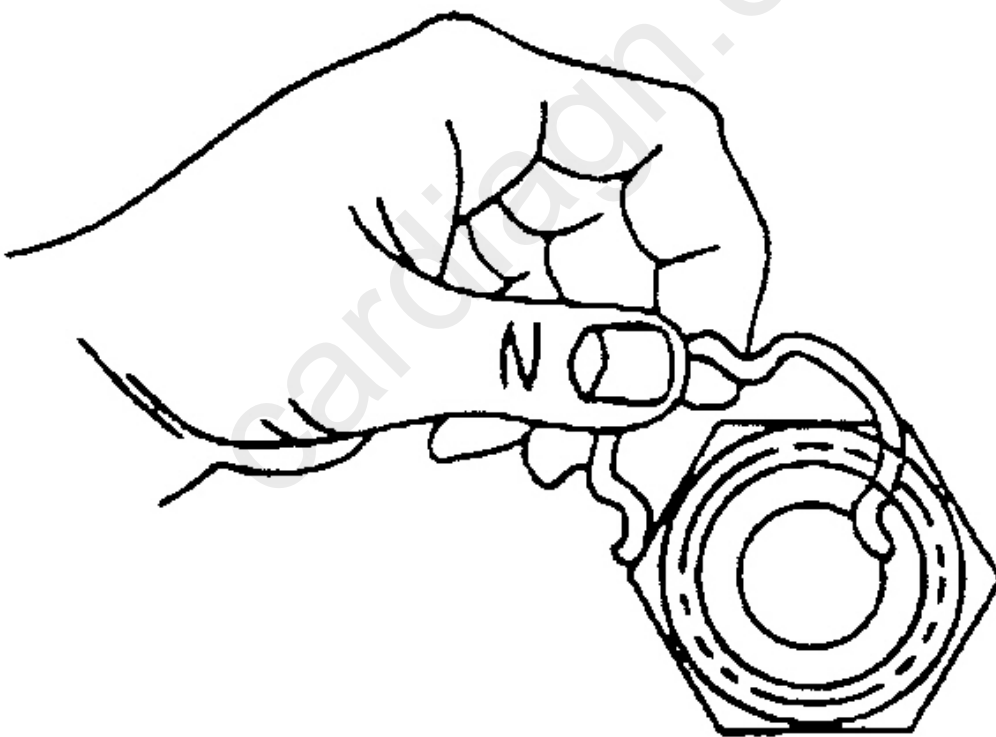


Fig. 20: Hooking Retaining Ring Into Quick Connect Fitting
Courtesy of GENERAL MOTORS CORP.

2. Look one of the open ends of the retaining ring in one of the slots in the quick connect fitting.

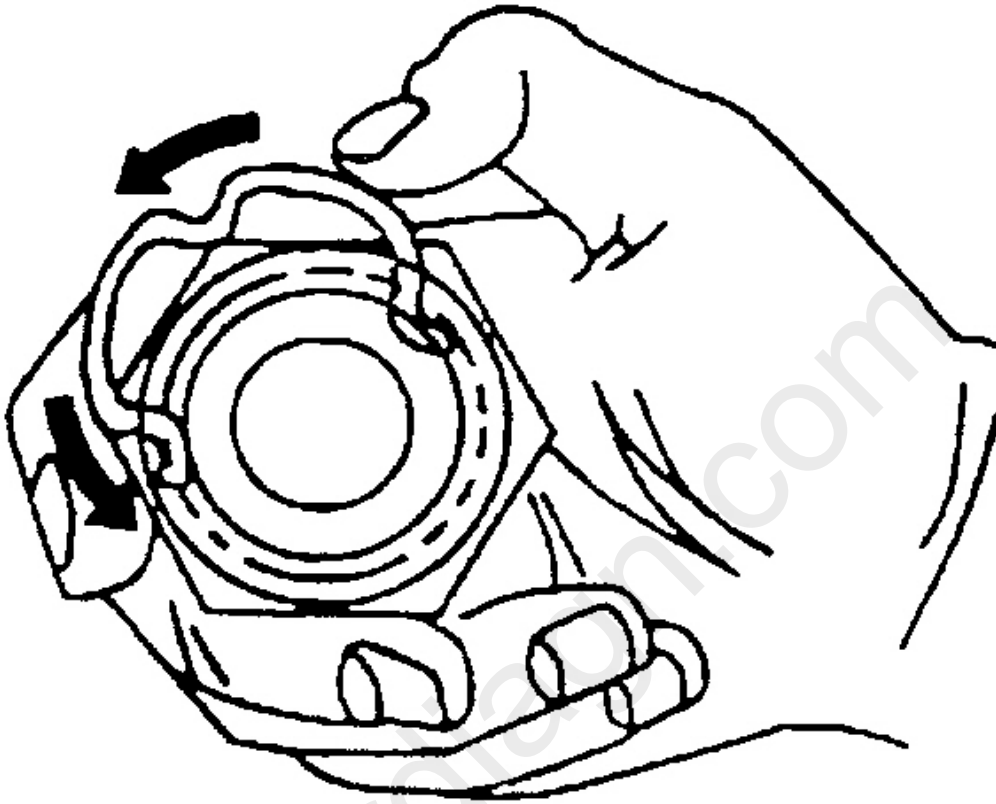


Fig. 21: Rotating Retaining Ring Around Fitting
Courtesy of GENERAL MOTORS CORP.

3. Rotate the retaining ring around the fitting until the retaining ring is positioned with all three ears through the three slots on the fitting.

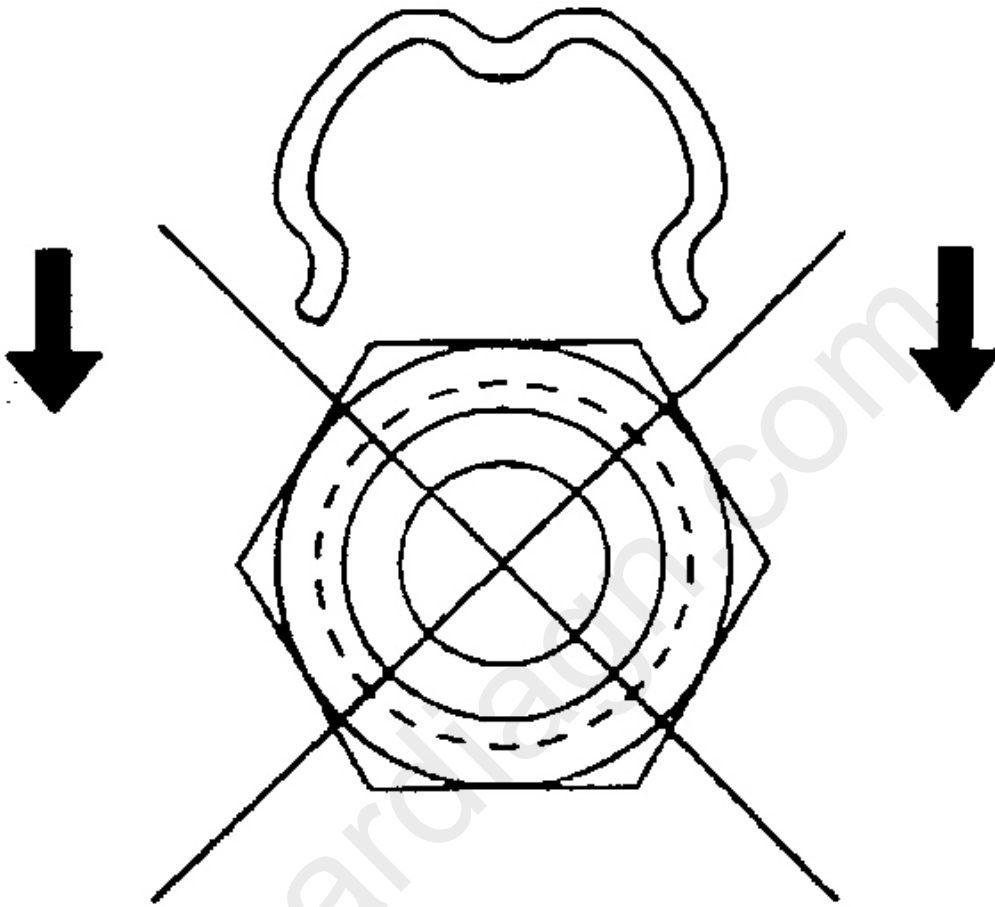


Fig. 22: Identifying Improper Engine Oil Cooler Hose Pipe Retaining Ring Installation
Courtesy of GENERAL MOTORS CORP.

4. Do not install the new retaining ring onto the fitting by pushing the retaining ring.

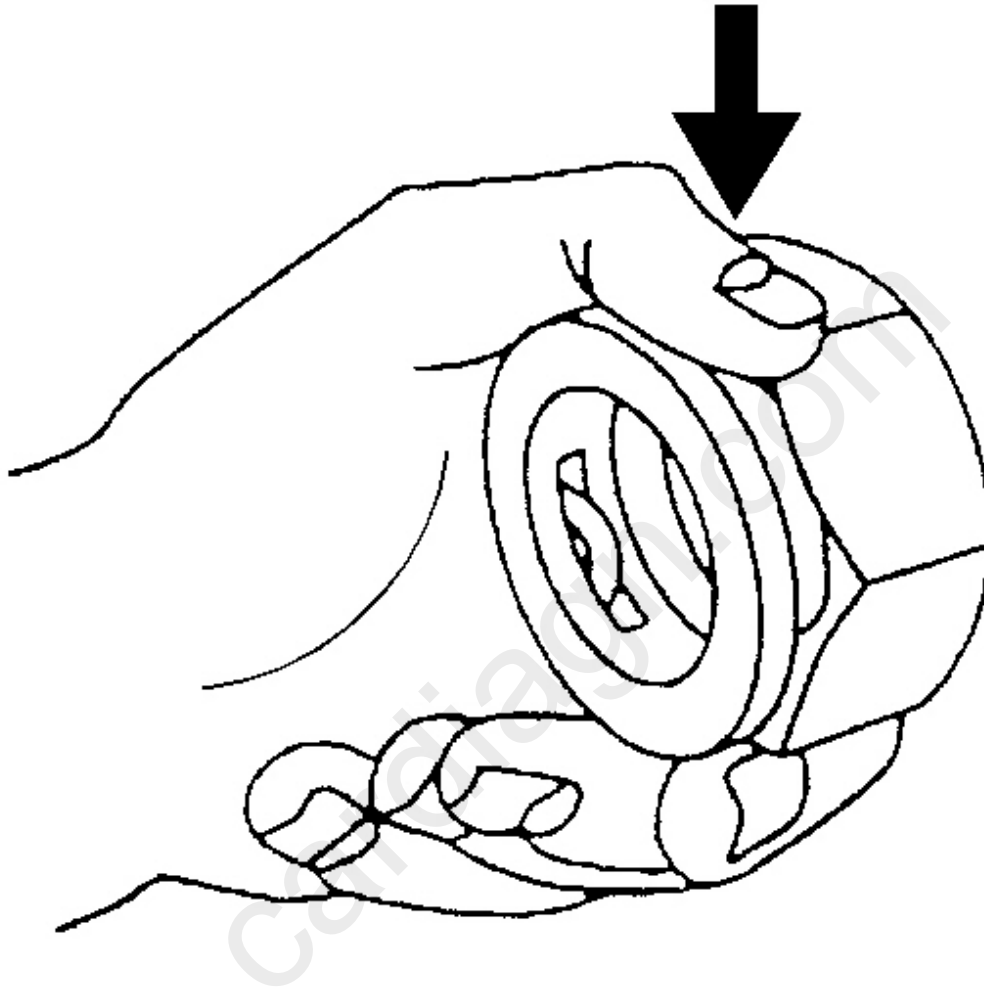


Fig. 23: Ensuring Retaining Ring Is Seated Correctly
Courtesy of GENERAL MOTORS CORP.

5. Ensure that the three retaining ring ears are seen from inside the fitting and that the retaining ring moves freely in the fitting slots.

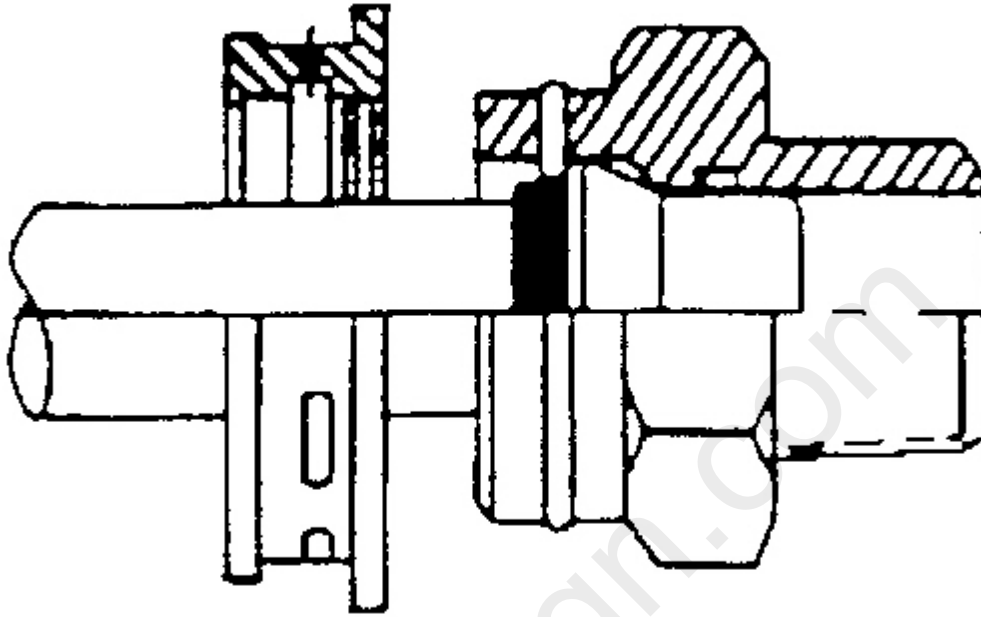


Fig. 24: View Of Cooler Line Quick Connect Fitting
Courtesy of GENERAL MOTORS CORP.

- ☐ Install the cooler line into the quick connect fitting.
- ☐ Insert the cooler line end into the quick connect fitting until a click is either heard or felt.

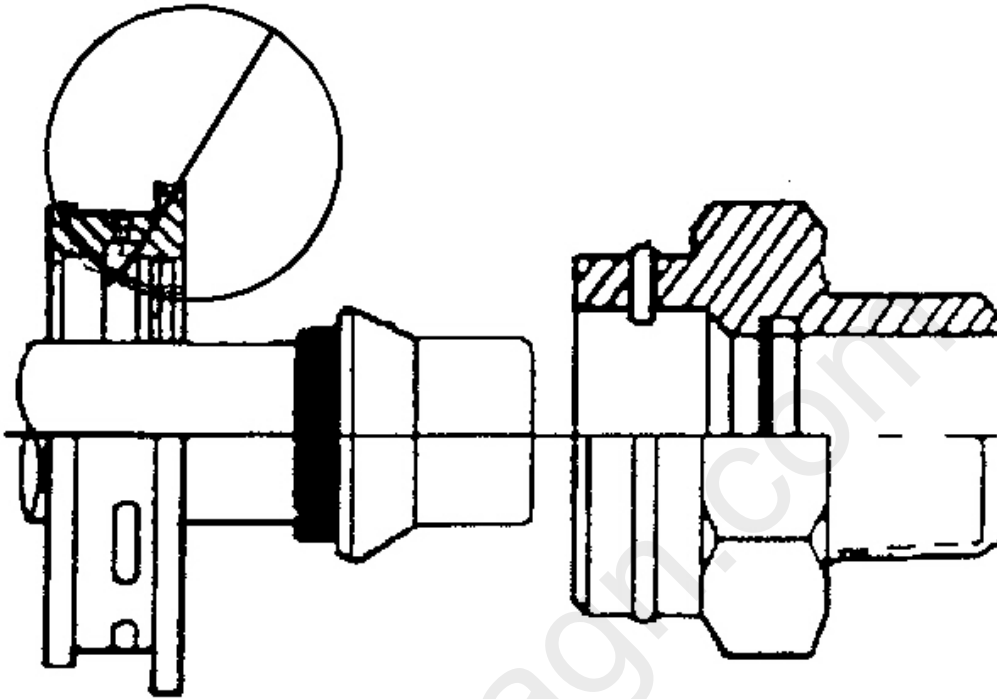


Fig. 25: Do Not Use Plastic Cap On Cooler Line In Order To Install Cooler Line Into The Fitting
Courtesy of GENERAL MOTORS CORP.

8. Do not use the plastic cap on the cooler line in order to install the cooler line into the fitting.
9. Pull back sharply on the cooler line in order to ensure that the cooler line is fastened into the quick connect fitting.

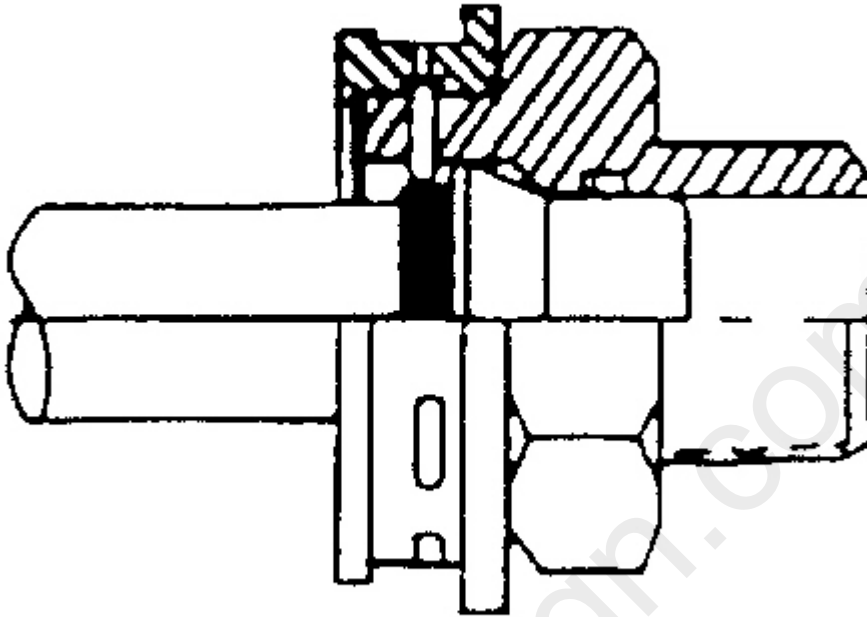


Fig. 26: View Of Cooler Line & Plastic Cap
Courtesy of GENERAL MOTORS CORP.

NOTE: ☐ **do not manually depress the retaining clip when installing the plastic cap.**

10. Position (snap) the plastic cap onto the fitting. Do not manually depress the retaining ring when installing the plastic cap onto the quick connect fitting.
11. Ensure that the plastic cap is fully seated against the fitting.

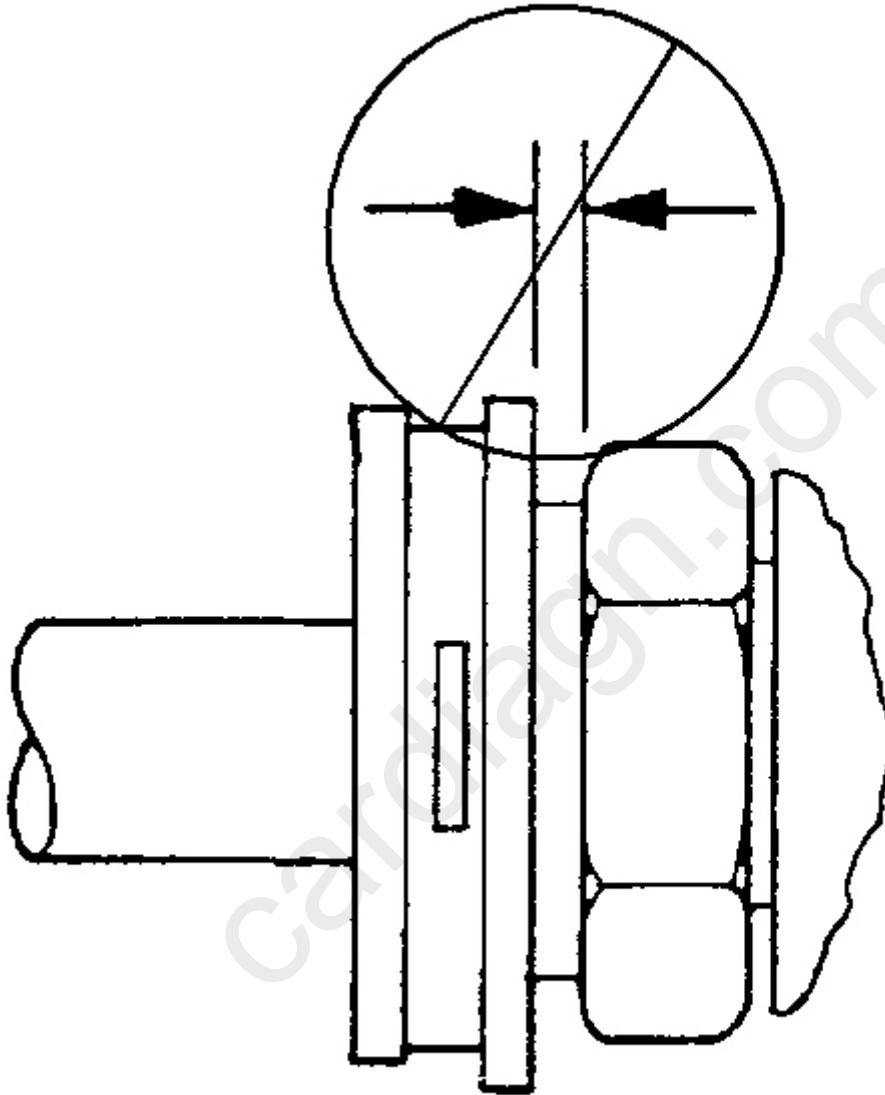


Fig. 27: Checking For Gap Between Cap & Fitting
Courtesy of GENERAL MOTORS CORP.

12. Ensure that no gap is present between the cap and the fitting.

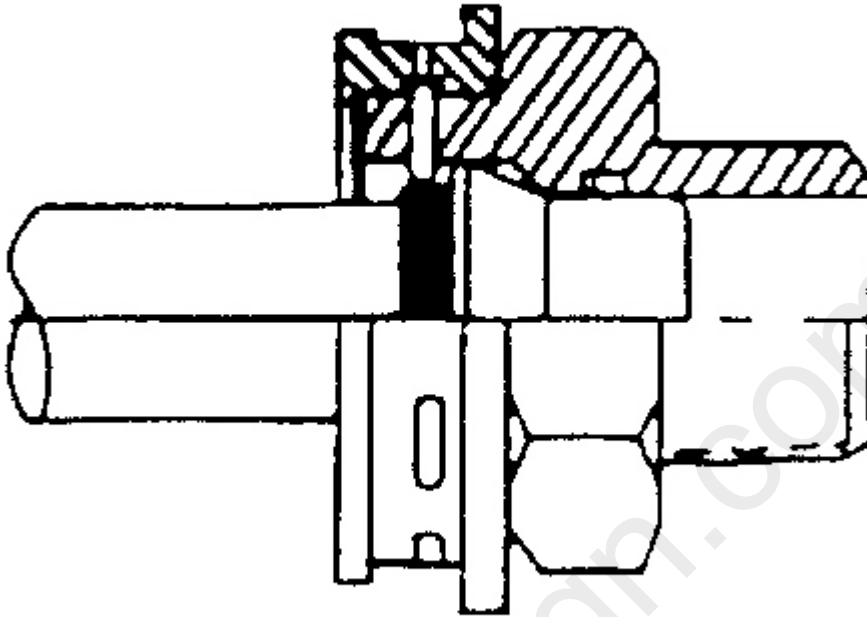


Fig. 28: View Of Cooler Line & Plastic Cap
Courtesy of GENERAL MOTORS CORP.

13. Ensure that the yellow identification band on the tube is hidden within the quick connect fitting.

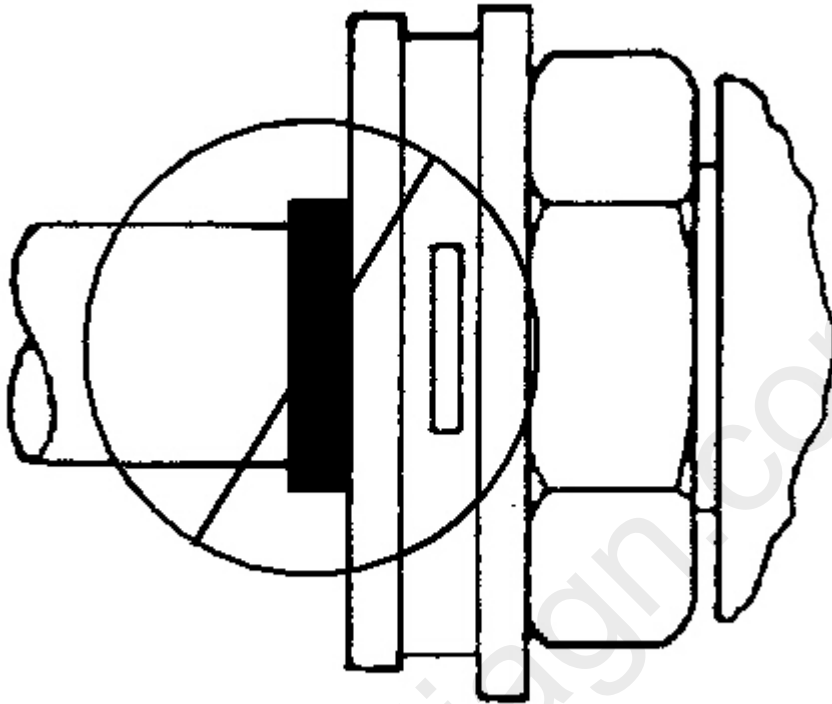


Fig. 29: Identifying Improper Joint Seating
Courtesy of GENERAL MOTORS CORP.

14. A hidden yellow identification band indicates proper joint seating.
15. Fill the transmission to the proper level with DEXRON® VI transmission fluid. Refer to **Transmission Fluid Level and Condition Check**.

TRANSMISSION FLUID COOLER INLET PIPE REPLACEMENT

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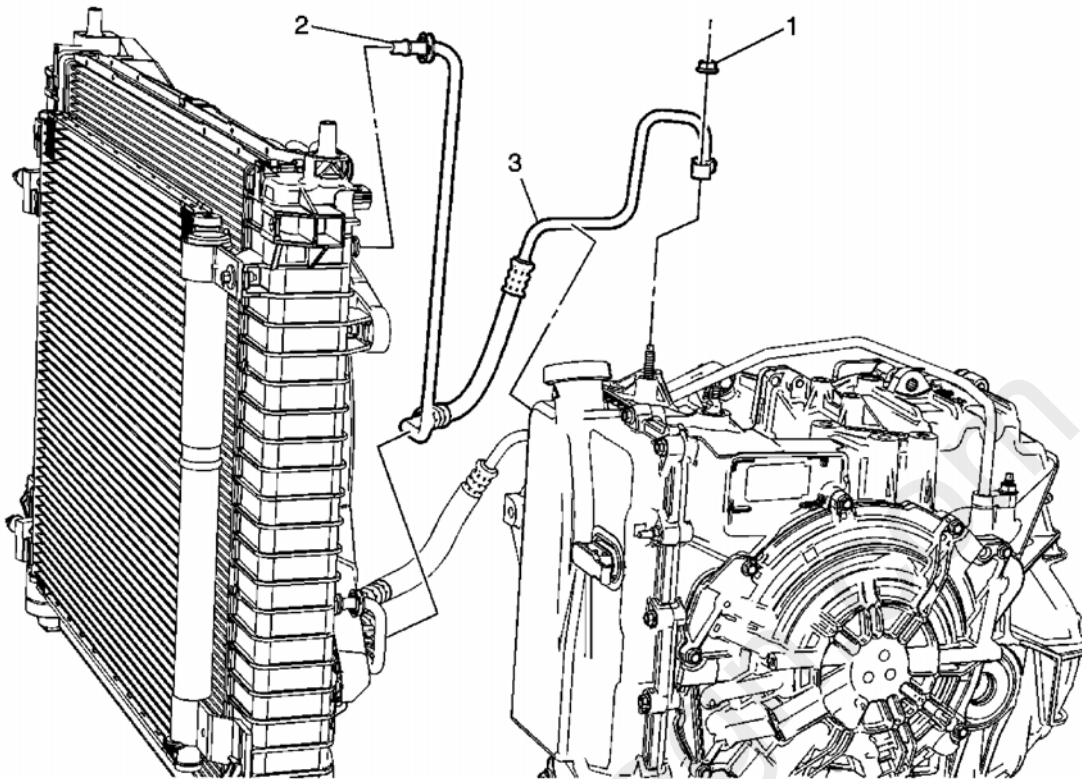


Fig. 30: Identifying Transmission Fluid Cooler Inlet Pipe
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Raise the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
1	Transmission Fluid Cooler Inlet Pipe Out CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 22 N.m (16 lb ft)
2	Front Transmission Fluid Cooler Inlet Pipe Quick Disconnect Preliminary Procedure: Disconnect the transmission line from the radiator. Refer to <u>Transmission Fluid Cooler Hose Pipe Quick-Connect Fitting Disconnection and Connection</u> .
3	Front Transmission Fluid Cooler Inlet Pipe Procedure 1. Install new sealing washers. 2. Note the routing of the transmission line to ensure proper installation.

3. Remove the transmission line from the clips securing the line to the transmission and fan shroud.
4. Inspect the transmission fluid level. Refer to **Transmission Fluid Level and Condition Check**.

TRANSMISSION FLUID COOLER OUTLET PIPE REPLACEMENT

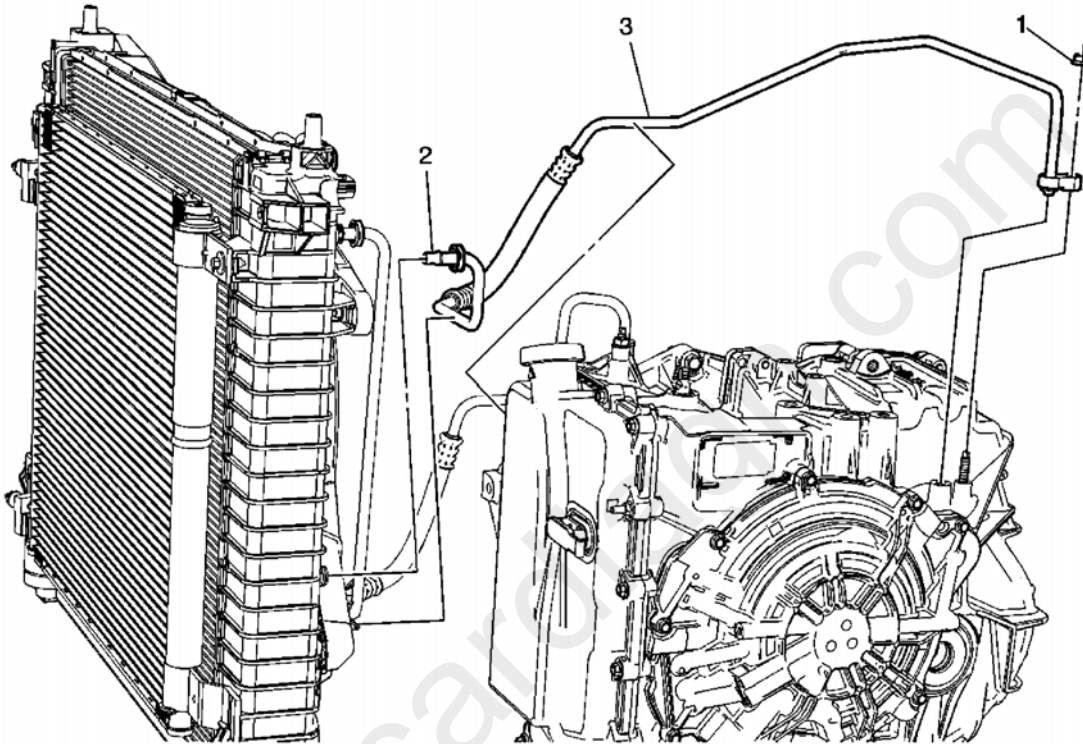


Fig. 31: Identifying Transmission Fluid Cooler Outlet Pipe
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure	
1. Raise the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u>. 2. Remove the range selector lever cable from transmission only. Refer to <u>Range Selector Lever Cable Replacement</u>	
1	Transmission Fluid Cooler Outlet Pipe Nut CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 22 N.m (16 lb ft)

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2	Front Transmission Fluid Cooler Outlet Pipe Quick Disconnect Preliminary Procedure: Disconnect the transmission line from the radiator. Refer to <u>Transmission Fluid Cooler Hose Pipe Quick-Connect Fitting Disconnection and Connection.</u>
3	Front Transmission Fluid Cooler Outlet Pipe Procedure 1. Install new sealing washers. 2. Note the routing of the transmission line to ensure proper installation. 3. Remove the transmission line from the clips securing the line to the transmission and fan shroud. 4. Inspect the transmission fluid level. Refer to <u>Transmission Fluid Level and Condition Check</u> .

AUTOMATIC TRANSMISSION FLUID PRESSURE TEST HOLE PLUG REPLACEMENT

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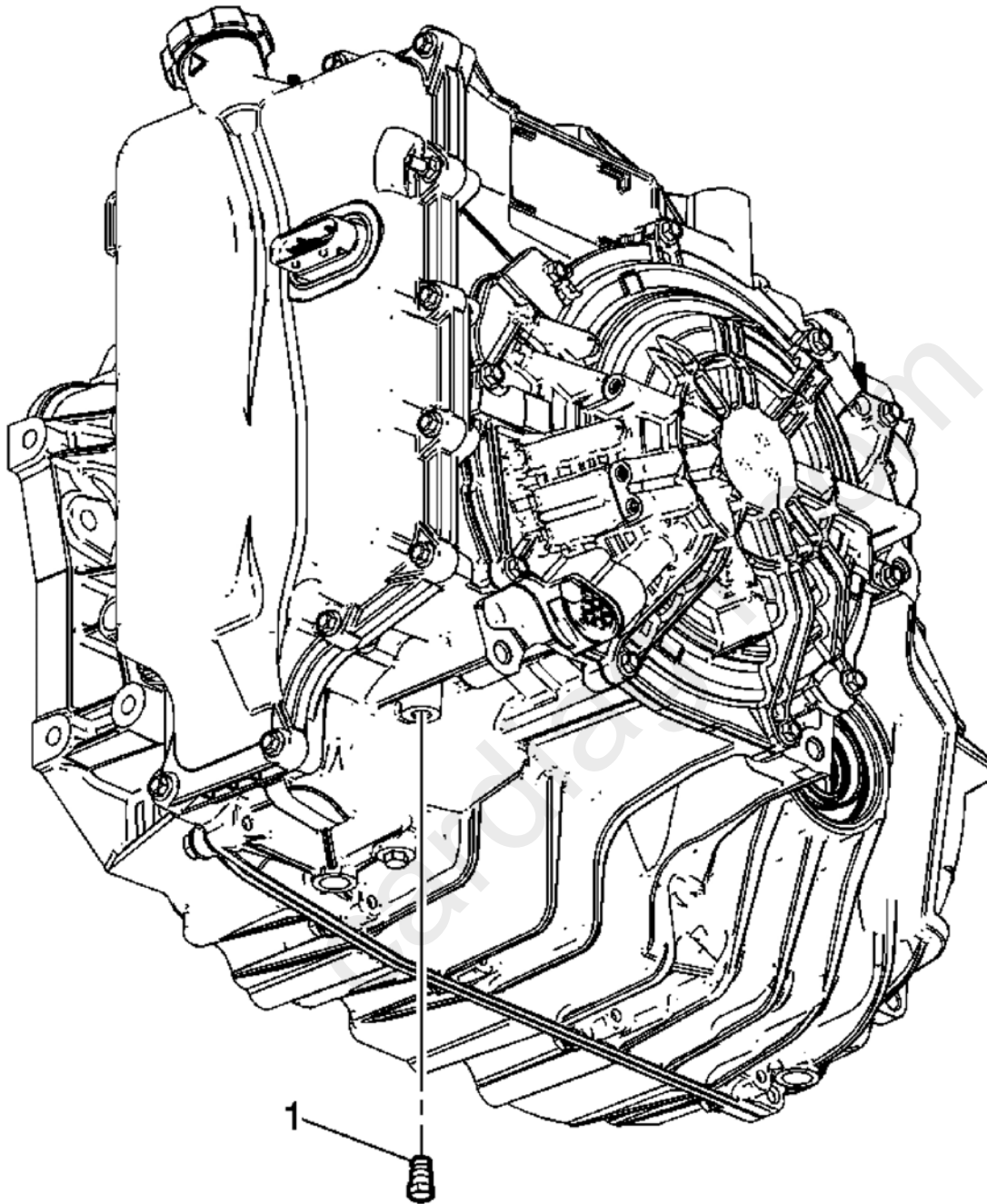


Fig. 32: Identifying Automatic Transmission Fluid Pressure Test Hole Plug
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Raise the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
	Fluid Pressure Test Plug

1

CAUTION:
Refer to **Fastener Caution** .

Tighten: 12 □.m (1□6 lb in)

FRONT WHEEL DRIVE SHAFT SEAL REPLACEMENT - LEFT SIDE

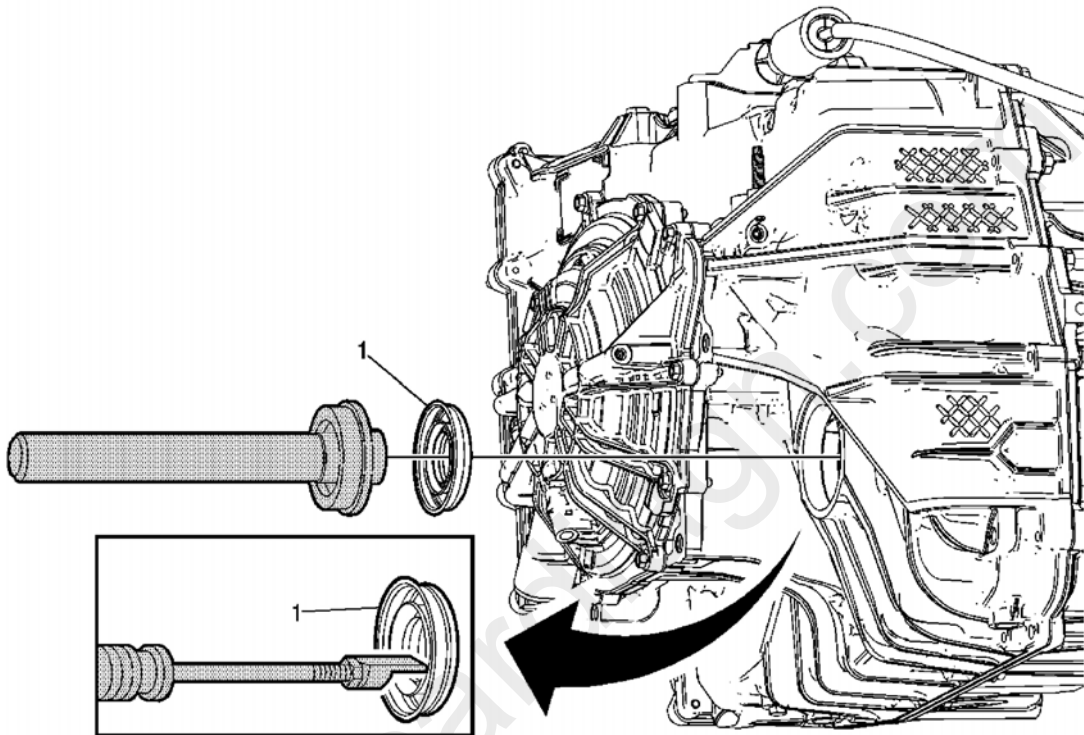


Fig. 33: View Of Front Wheel Drive Shaft Oil Seal - Left Side
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle . 2. Remove the left wheel drive shaft. Refer to Front Wheel Drive Shaft Replacement - Left Side .	
1	Left Front Wheel Drive Shaft Oil Seal Tip: • For seal removal use GE-6125-1B: Slide Hammer with DT-23129: Universal Seal Remover. • For seal installation use DT-8092: Driver Handle with J-46629-A: Axle Seal Installer.

Special Tools

- **GE-6125-1B:** Slide Hammer
- **DT-23129:** Universal Seal Remover
- **DT-8092:** Driver Handle
- **J-46629-A:** Axle Seal Installer

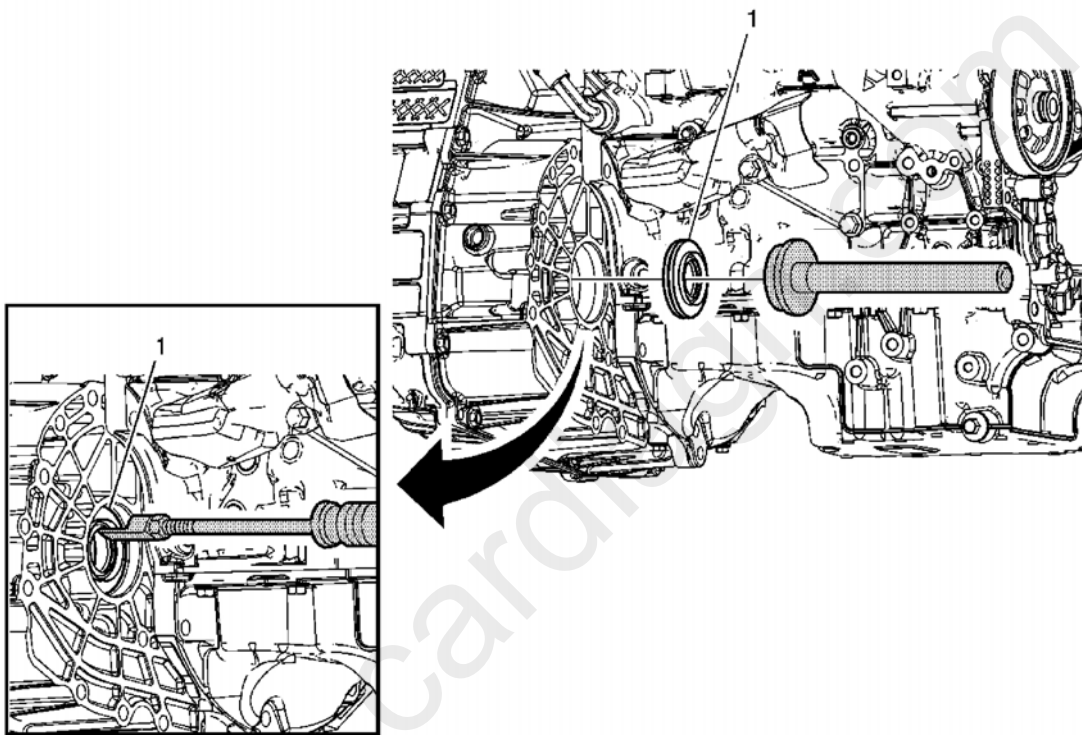
FRONT WHEEL DRIVE SHAFT SEAL REPLACEMENT - RIGHT SIDE

Fig. 34: Identifying Front Wheel Drive Shaft Oil Seal - Right Side
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Raise the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. All wheel drive (AWD) models, remove transfer case. Refer to <u>Transfer Case Replacement</u> . 3. Front wheel drive models, remove the intermediate drive shaft. Refer to <u>Intermediate Shaft Replacement</u> .	
	Right Front Wheel Drive Shaft Oil Seal Tip:

- For seal removal use **GE-6125-1B**: hammer with **DT-23129**: remover Universal Seal Remover.
- For seal installation use **DT-8092**: handle with **DT-46629-A**: installer.

Special Tools

1

- **GE-6125-1B**: Slide Hammer
- **DT-8092**: Driver Handle
- **DT-23129**: Universal Seal Remover
- **DT-46629-A**: Axle Seal Installer

For equivalent regional tools, refer to **Special Tools** .

MANUAL SHIFT SHAFT AND SEAL REPLACEMENT

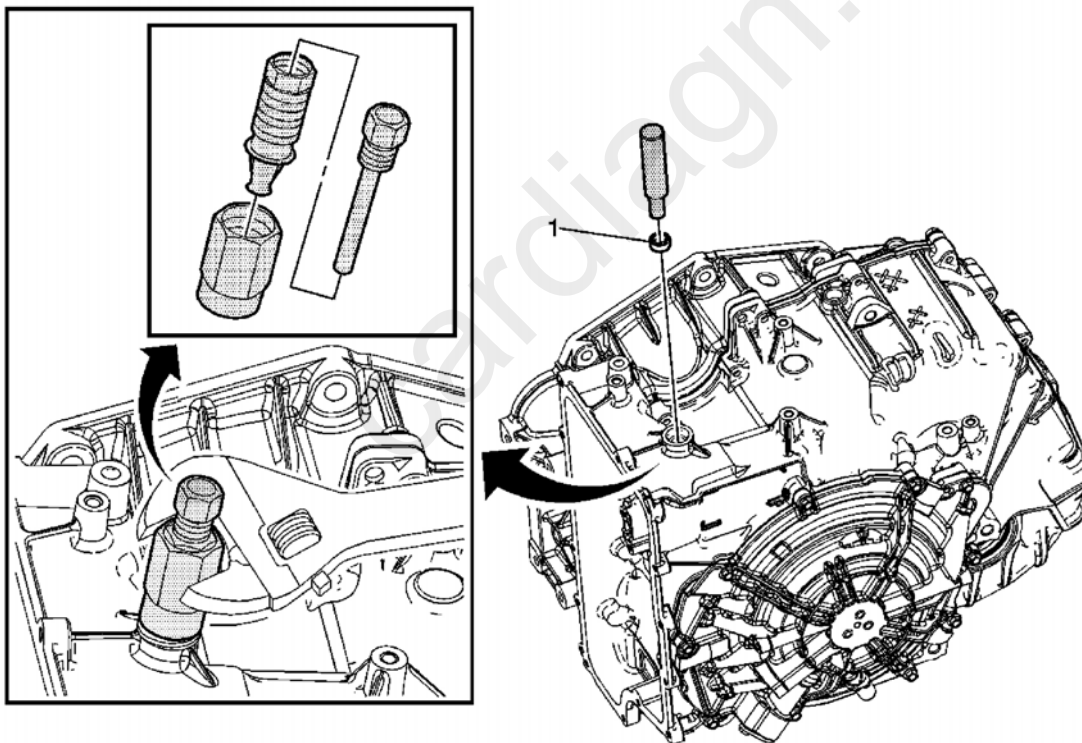


Fig. 35: Identifying Manual Shift Shaft & Seal
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	

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2010 TRANSMISSION Automatic Transmission - 6T70/6T75 - SRX

1. Remove the battery tray. Refer to **Battery Tray Replacement** .
2. Remove the manual shaft and position switch assembly. Refer to **Manual Shift Detent Lever with Shaft Position Switch Assembly Replacement**.

Manual Shift Shaft Seal

Tip:

- For seal removal use **DT-45201**: Manual Shaft Seal Remover.
- For seal installation use **DT-46626**: Manual Shift Shaft Seal Installer.
- Lubricate the manual shaft with automatic transmission fluid (ATF) to prevent damage to the manual shift shaft seal.

1

Special Tools

- **DT-45201**: Manual Shaft Seal Remover
- **DT-46626**: Manual Shift Shaft Seal Installer

CONTROL VALVE BODY COVER REPLACEMENT

Removal Procedure

1. Remove the battery tray. Refer to **Battery Tray Replacement** .
2. Remove the front compartment front sight shield. Refer to **Front Compartment Front Sight Shield Replacement** .
3. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
4. Remove the radiator lower baffle and deflector assembly. Refer to **Radiator Air Lower Deflector Replacement** .
5. Remove the front transmission mount. Refer to **Transmission Front Mount Replacement**.
6. Drain the transmission. Refer to **Transmission Fluid Replacement**.

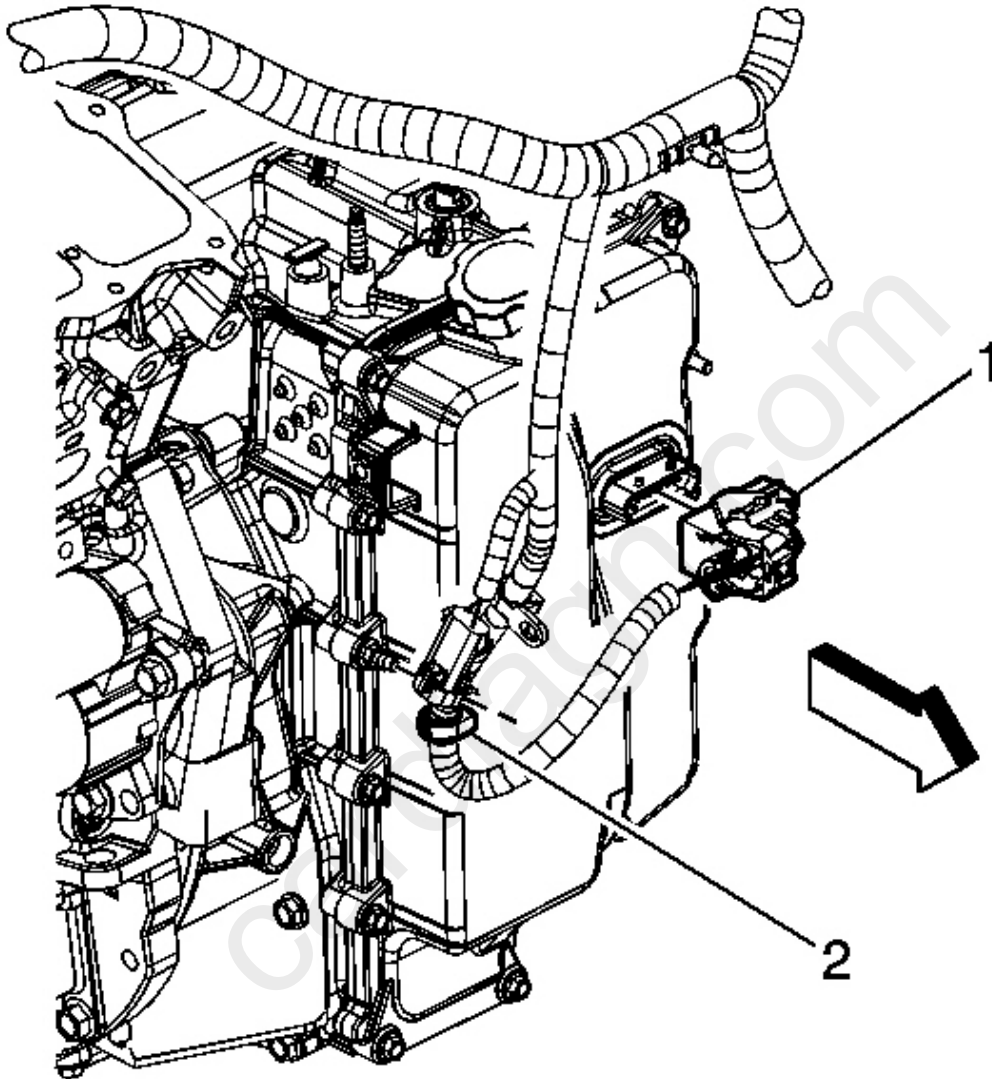


Fig. 36: Identifying Wire Harness Retainer & TCM Electrical Connector
Courtesy of GENERAL MOTORS CORP.

7. Remove the wire harness retainer (2) from the control valve body cover stud.
8. Disconnect the control valve body transmission control module (TCM) electrical connector (1).

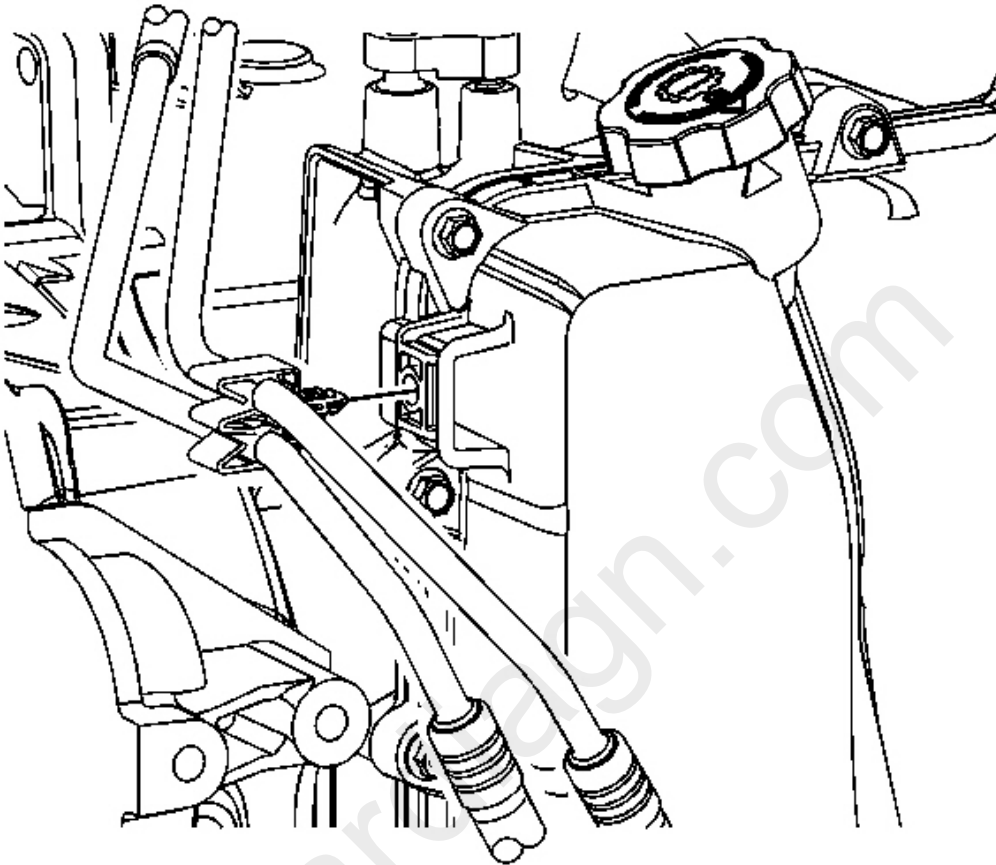


Fig. 37: Identifying Oil Cooler Inlet And Outlet Hoses
Courtesy of GENERAL MOTORS CORP.

9. Remove the oil cooler inlet and outlet hoses from the retainer on the control valve body cover.

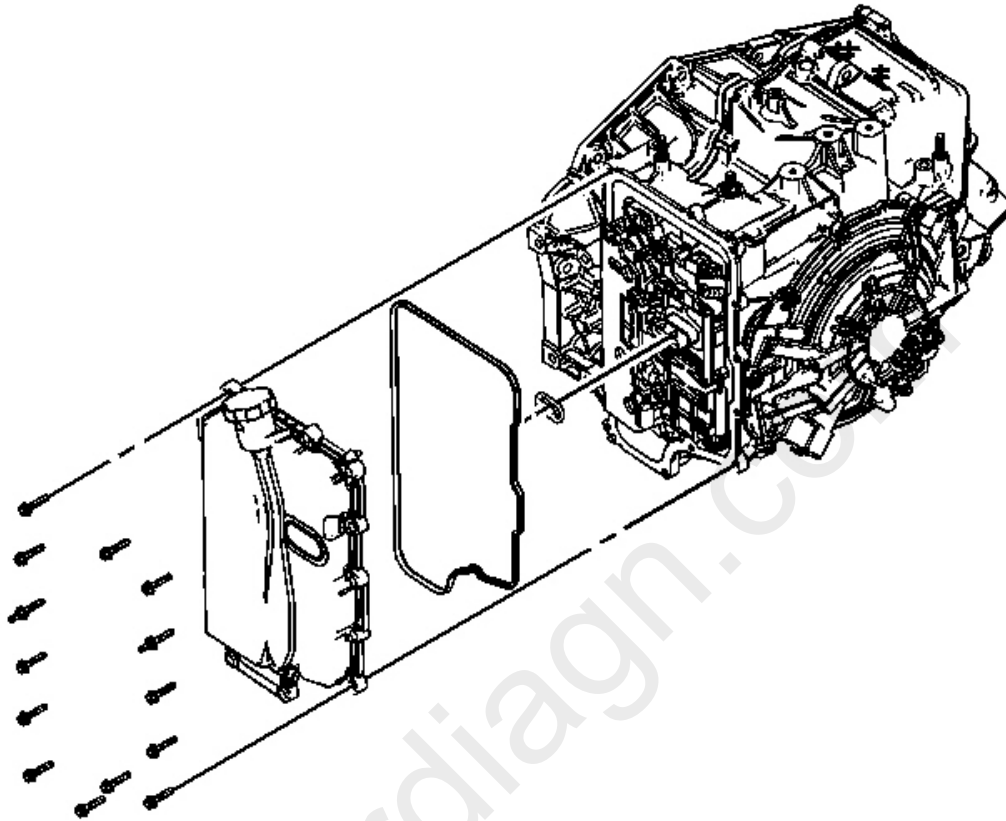


Fig. 3 □ Identifying Control Valve Body Cover Studs □ Bolts
Courtesy of GENERAL MOTORS CORP.

10. Remove the 2 control valve body cover studs M6 x 30.
11. Remove the 9 lower control valve body cover bolts M6 x 30.
12. □ower the vehicle.
13. Disconnect the transmission wire harness retainer from the bracket on top of the transmission.
14. Remove the top 3 control valve body cover bolts M6 x 30.
15. Remove the control valve body cover.
16. Remove the control valve body cover gasket.
17. Remove the control valve body cover wiring connector hole seal.
18. Remove all traces of the old gasket material. Clean the transmission case and control valve body cover gasket surfaces.

Installation Procedure

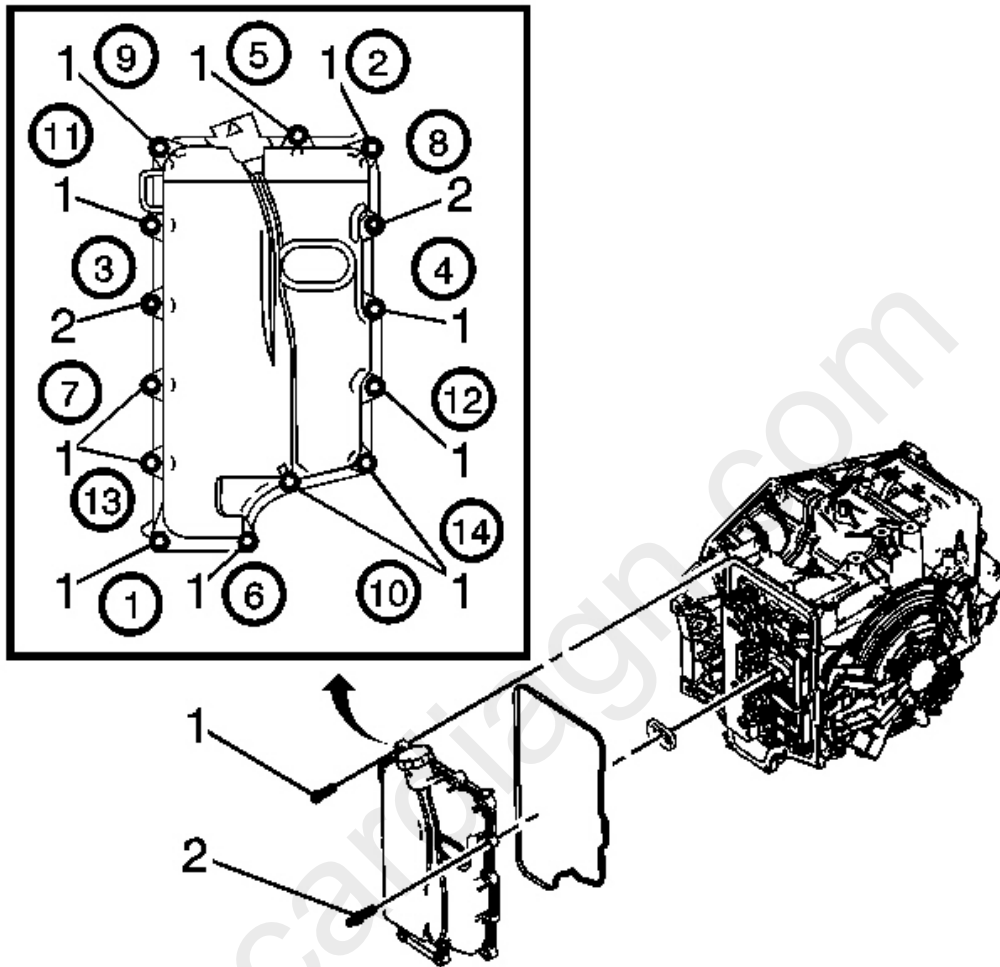


Fig. 3 □: Identifying Control Valve Body Cover Bolt Tightening Sequence
 Courtesy of GENERAL MOTORS CORP.

1. Install the control valve body cover wiring connector hole seal.
2. Install the control valve body cover gasket to the control valve body cover.
3. Install the control valve body cover.

CAUTION: Refer to Fastener Caution .

4. Install the top 3 control valve body cover bolts (1) M6 x 30.
5. Connect the transmission wire harness retainer to the bracket on top of the transmission.

6. Raise the vehicle.
7. Install the 9 lower control valve body cover bolts (1) M6 x 30.
8. Install the 2 control valve body cover studs (2) M6 x 30.
9. Tighten the 12 bolts and 2 studs in sequence to 12 N.m (106 lb in).

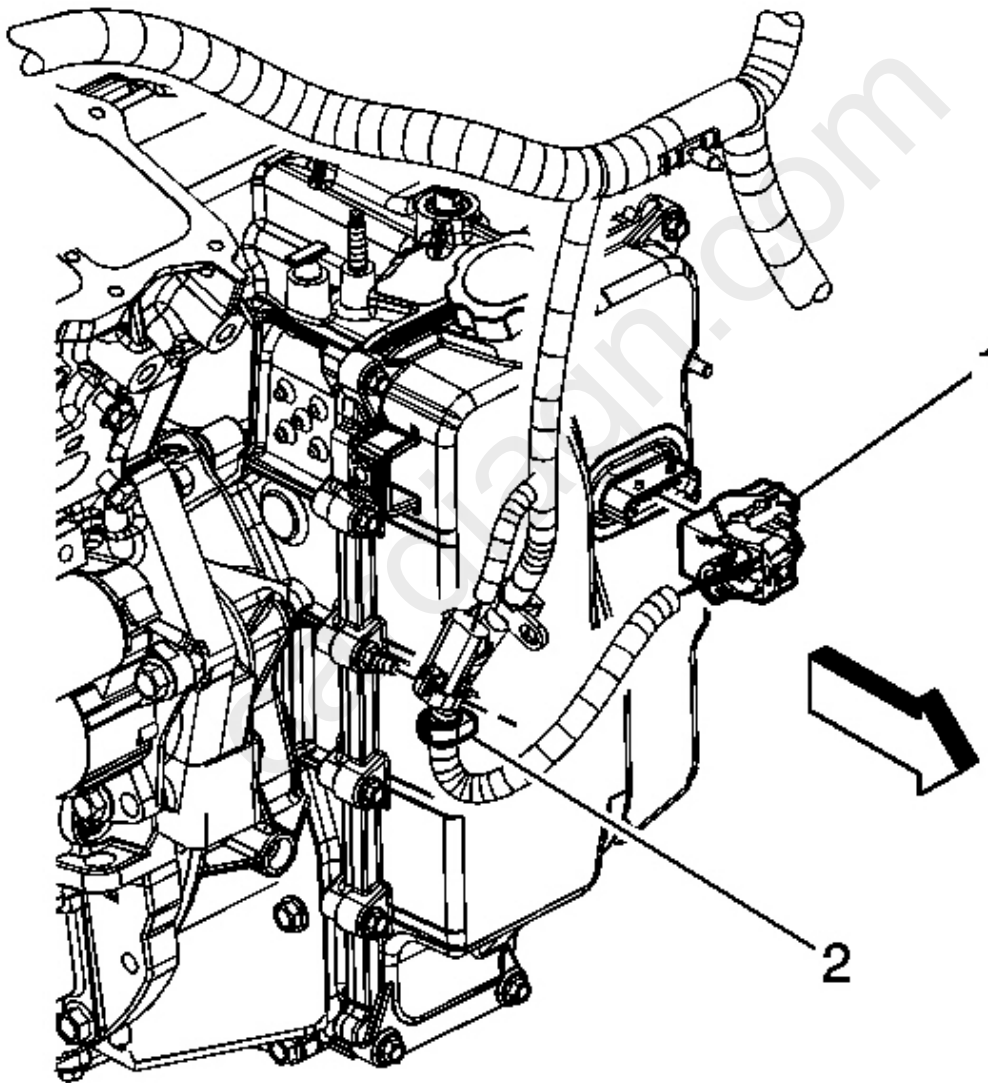


Fig. 4□: Identifying Wire Harness Retainer □ TCM Electrical Connector
Courtesy of GENERAL MOTORS CORP.

10. Connect the control valve body TCM electrical connector (1).

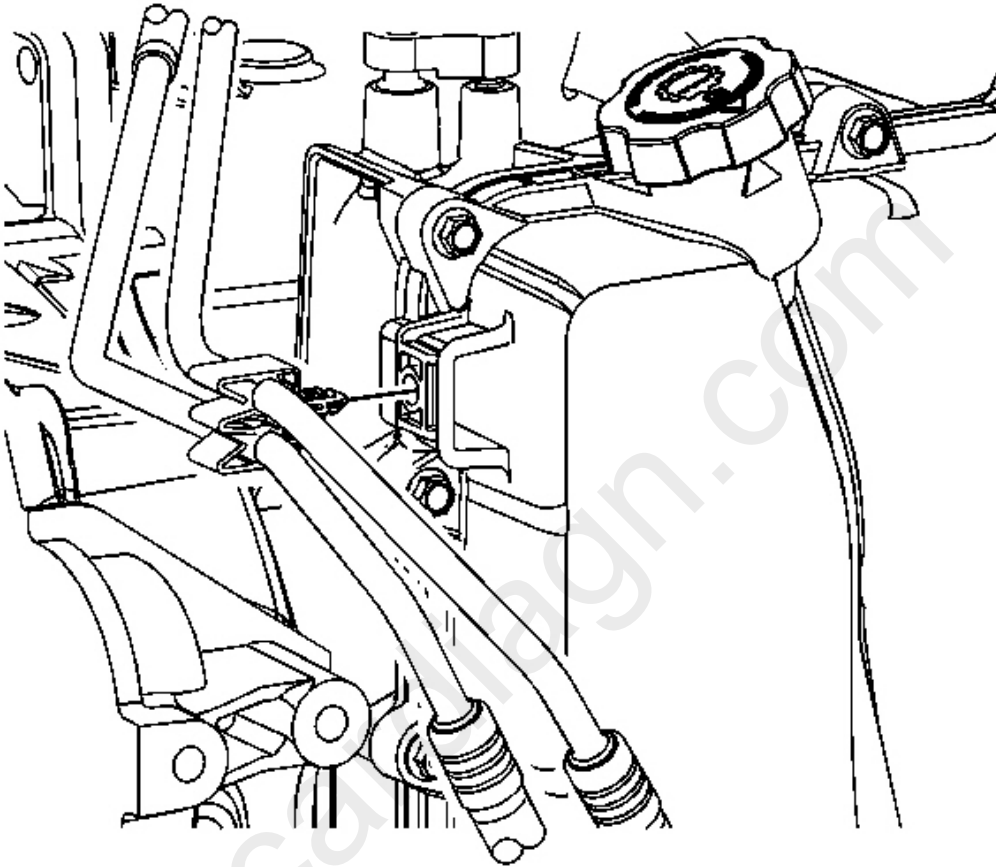


Fig. 4: Identifying Oil Cooler Inlet And Outlet Hoses
Courtesy of GENERAL MOTORS CORP.

11. Install the oil cooler inlet and outlet hoses to the retainer on the control valve body cover.
12. Install the wire harness retainer to the control valve body cover stud.
13. Tighten the nut to 12 N.m (106 lb in).
14. Install the front transmission mount. Refer to **Transmission Front Mount Replacement**.
15. Install the radiator lower baffle and deflector assembly. Refer to **Radiator Air Lower Deflector Replacement**.
16. Lower the vehicle.
17. Install the battery tray. Refer to **Battery Tray Replacement**.
18. Fill the transmission. Refer to **Transmission Fluid Replacement**.

19. Install the front compartment front sight shield. Refer to **Front Compartment Front Sight Shield Replacement**.
20. Check for leaks.

CONTROL SOLENOID VALVE AND TRANSMISSION CONTROL MODULE ASSEMBLY REPLACEMENT

Removal Procedure

1. Remove the control valve body cover. Refer to **Control Valve Body Cover Replacement**.

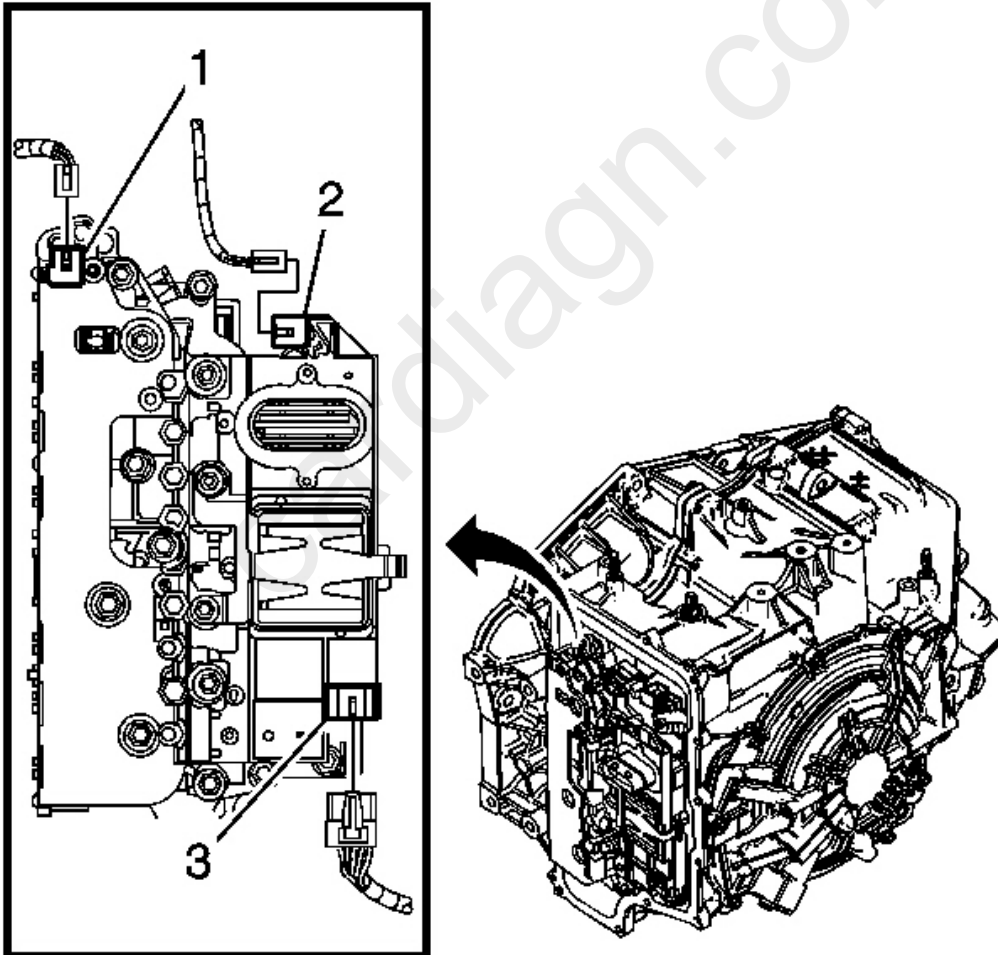


Fig. 4: Identifying Input Speed Sensor
Courtesy of GENERAL MOTORS CORP.

2. Disconnect the input speed sensor electrical connector (1).
3. Disconnect the output speed sensor electrical connector (2).
4. Disconnect the shift position switch electrical connector (3).

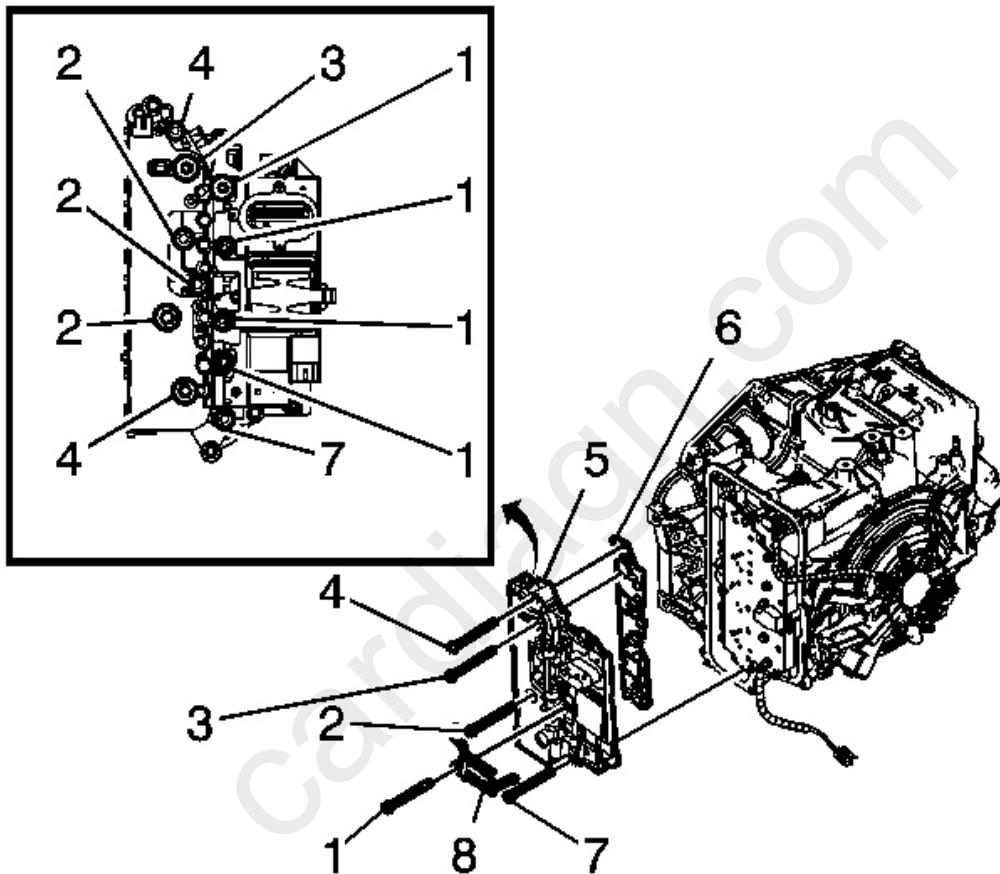


Fig. 43: Identifying Control Valve Body Bolts
 Courtesy of GENERAL MOTORS CORP.

5. Remove the 4 control valve body bolts (1) M6 x 80.
6. Position the control solenoid valve spring (8) to the side. Spring will be released with the removal of the control valve body assembly.
7. Remove the 2 control valve body bolts (4) M6 x 65.
8. Remove the control valve body bolt (3) M6 x 42.
9. Remove the 3 control valve body bolts (2) M6 x 95.
10. Remove the control valve body bolt (7) M6 x 55.

11. Remove the control solenoid valve body and transmission control module (TCM) assembly (5).

CAUTION: Use care when removing or installing the filter plate assembly. A broken or missing retaining tab may not adequately secure the filter plate to the control solenoid valve assembly, resulting in possible damage or contamination.

12. Remove the control solenoid valve assembly filter plate (6).

- Discard the filler plate. It is not reusable.
- Inspect the pressure switch manifold seals for damage or contamination. Replace the control solenoid valve assembly as necessary.
- Inspect the upper channel plate bolt holes for damage, peening or burnelling. Any damage around the bolt holes near the pressure control switch (PCS) feed holes could cause leakage around the PCS seals. Replace the upper channel plate as necessary.

Installation Procedure

CAUTION: Use care when removing or installing the filter plate assembly. A broken or missing retaining tab may not adequately secure the filter plate to the control solenoid valve assembly, resulting in possible damage or contamination.

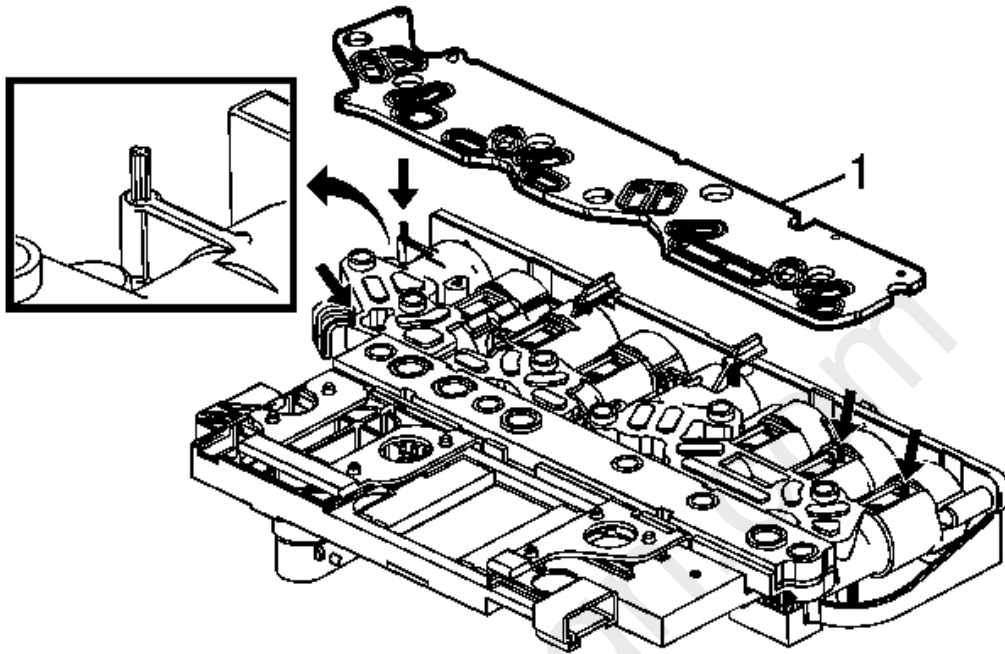


Fig. 44: Identifying Control Solenoid Valve Assembly Filter Plate
Courtesy of GENERAL MOTORS CORP.

1. Install a NEW control solenoid valve assembly filter plate (1).

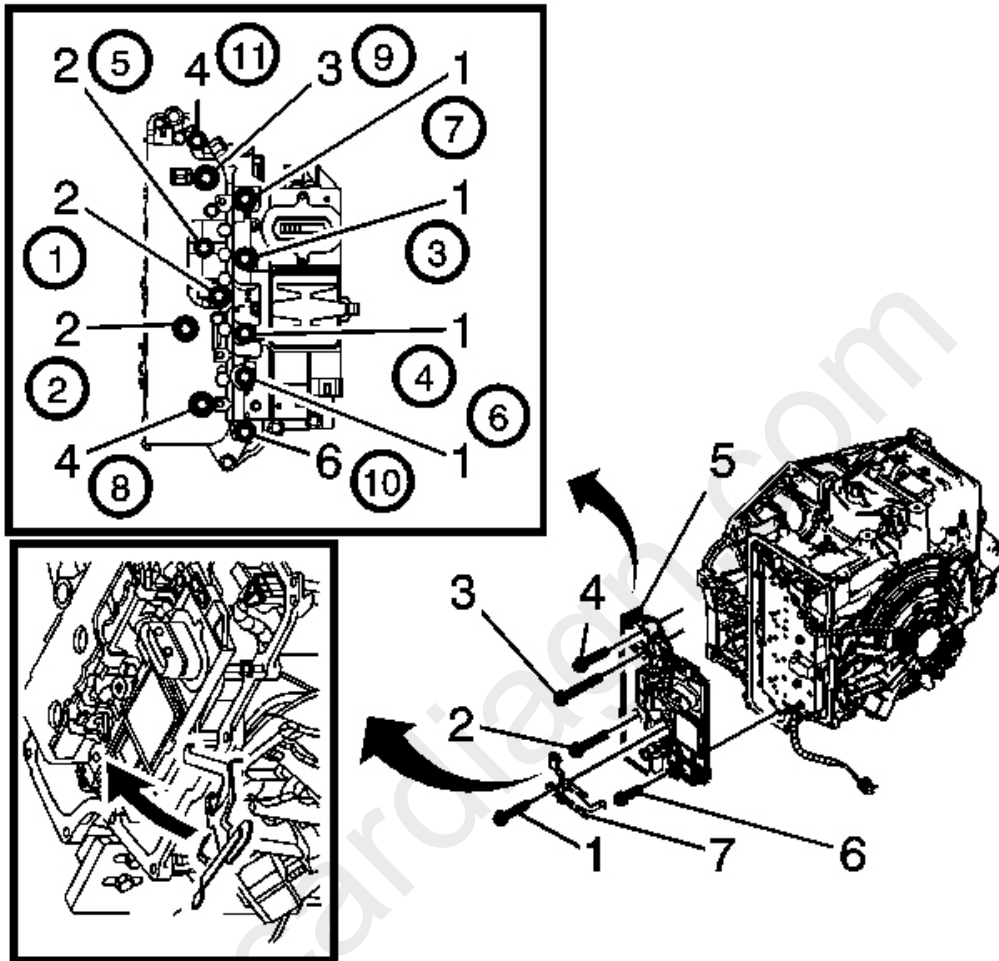


Fig. 45: Identifying Control Valve Body Bolts Torque Sequence
 Courtesy of GENERAL MOTORS CORP.

2. Install the control solenoid valve body and TCM assembly (5).
3. Rotate the control solenoid valve spring (7) into position.

CAUTION: Refer to Fastener Caution .

NOTE: Install all bolts before tightening, then tighten in specified sequence.

4. Install the 4 control valve body bolts (1) M6 x 80.

5. Install the control valve body bolt (6) M6 x 55.
6. Install the 3 control valve body bolts (2) M6 x 95.
7. Install the control valve body bolt (3) M6 x 42.
8. Install the 2 control valve body bolts (4) M6 x 65 and tighten to 12 N.m (106 lb in).

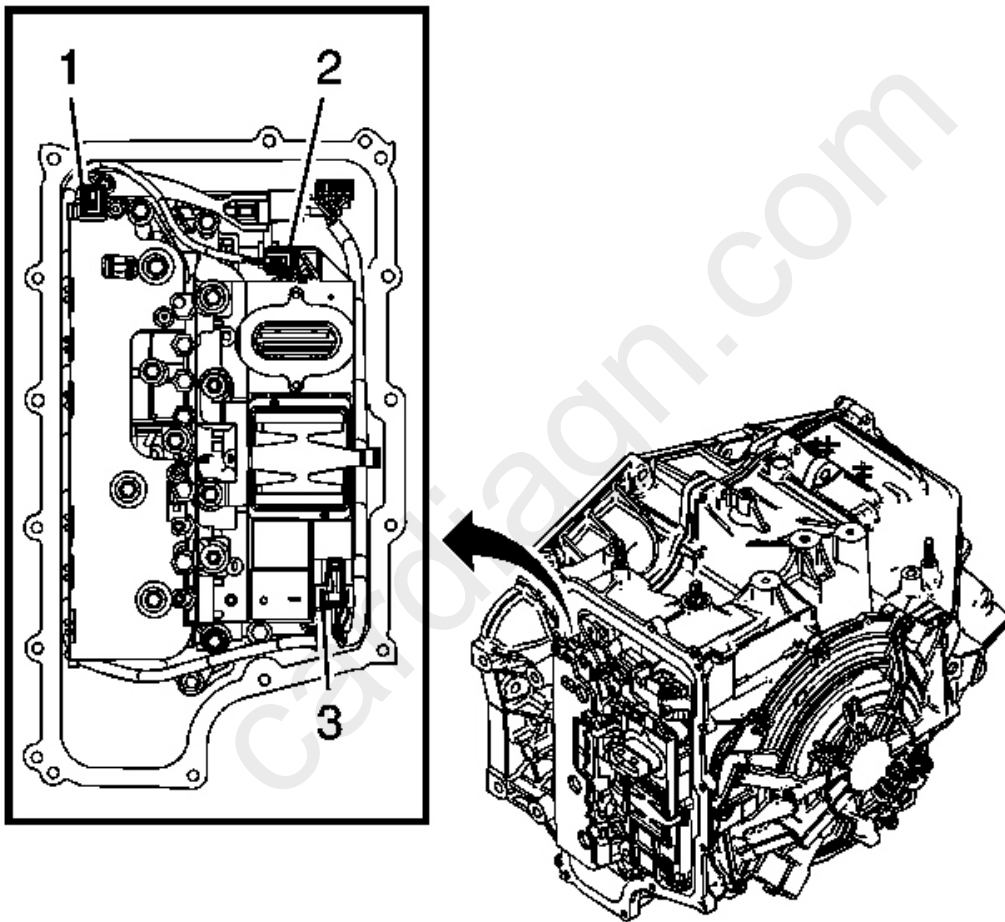


Fig. 46: Identifying Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

9. Connect the input speed sensor electrical connector (1).
10. Connect the output speed sensor electrical connector (2).
11. Connect the shift position switch electrical connector (3).
12. Install the control valve body cover. Refer to **Control Valve Body Cover Replacement**.
13. Program the module. Refer to **Control Module References**.

CONTROL VALVE LOWER BODY AND UPPER BODY REPLACEMENT

Removal Procedure

1. Remove the control valve body cover. Refer to Control Valve Body Cover Replacement.

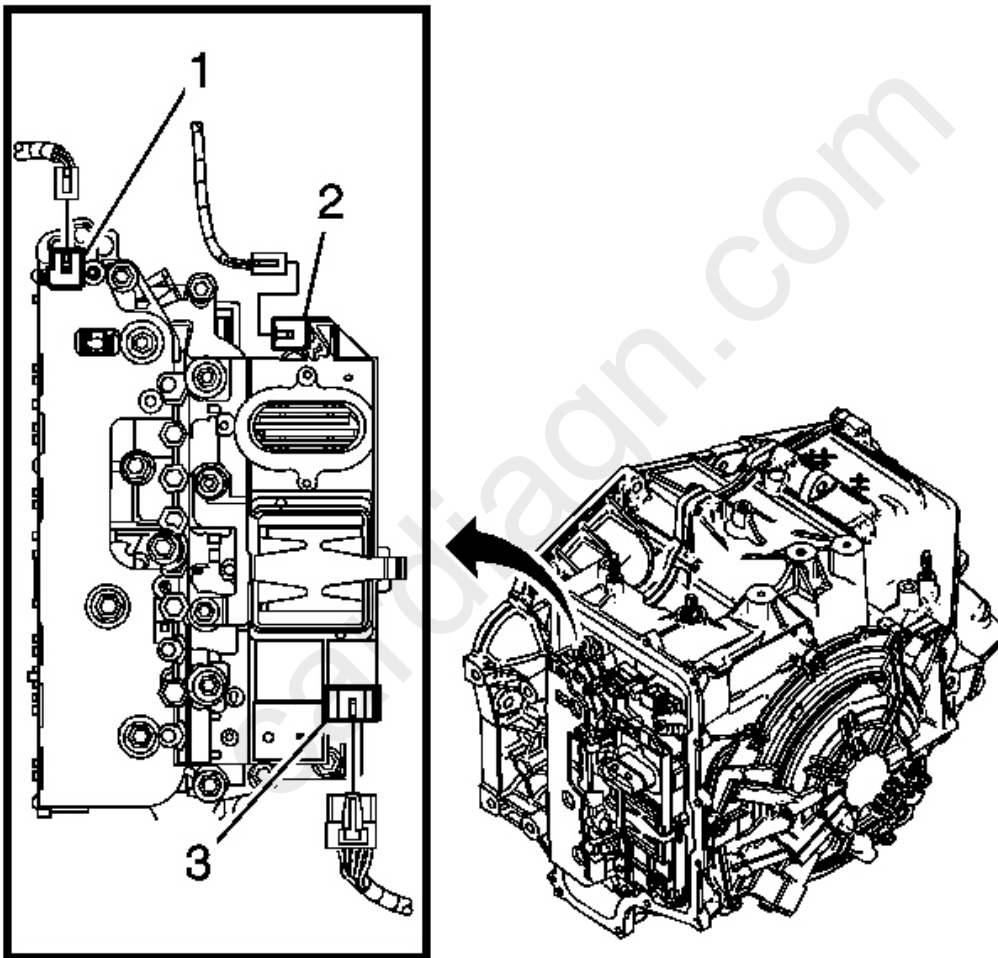


Fig. 47: Identifying Input Speed Sensor
Courtesy of GENERAL MOTORS CORP.

2. Disconnect the input speed sensor electrical connector (1).
3. Disconnect the output speed sensor electrical connector (2).
4. Disconnect the shift position switch electrical connector (3).

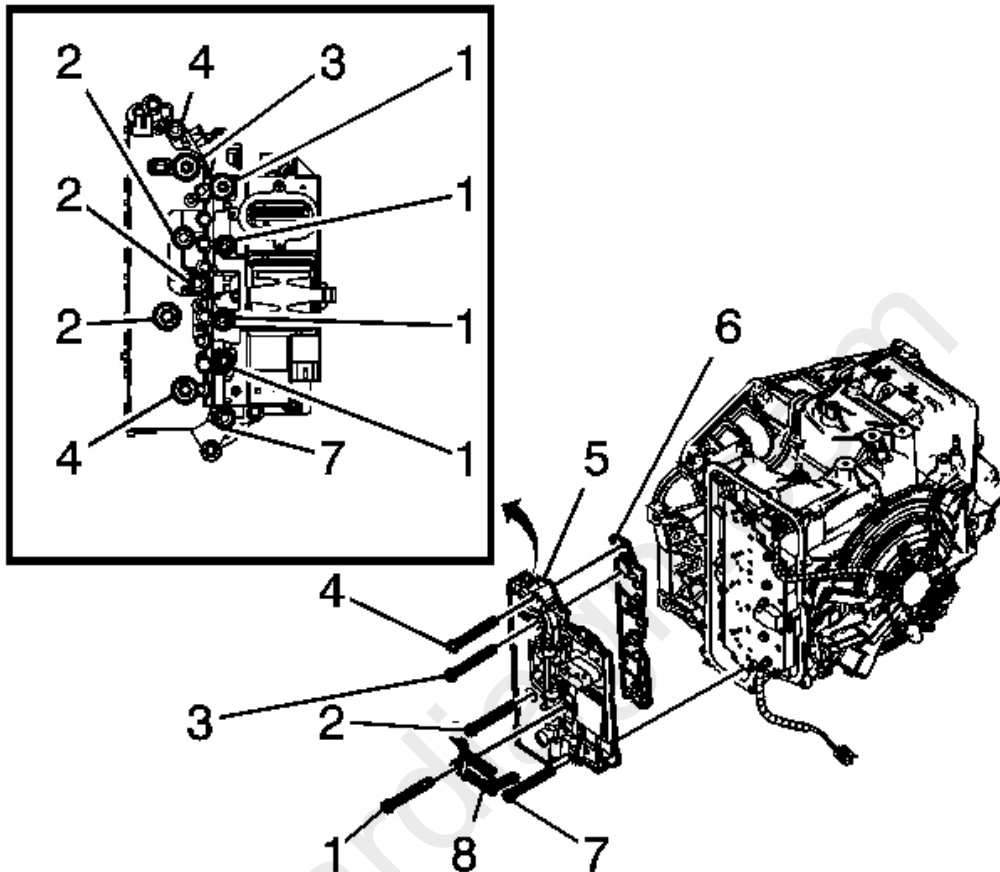


Fig. 48: Identifying Control Valve Body Bolts
 Courtesy of GENERAL MOTORS CORP.

5. Remove the 4 control valve body bolts (1) M6 x 80.
6. Position the control solenoid valve spring (8) to the side. Spring will be released with removal of lower control valve body.
7. Remove the 2 control valve body bolts (4) M6 x 65.
8. Remove the control valve body bolt (3) M6 x 42.
9. Remove the 3 control valve body bolts (2) M6 x 95.
10. Remove the control valve body bolt (7) M6 x 55.
11. Remove the control solenoid valve body and transmission control module (TCM) assembly (5).

CAUTION: Use care when removing or installing the filter plate assembly. A broken or missing retaining tab may not adequately secure the filter

plate to the control solenoid valve assembly, resulting in possible damage or contamination.

12. Remove the control solenoid valve body assembly filter plate (6).

- Discard the filler plate. It is not reusable.
- Inspect the pressure switch manifold seals for damage or contamination. Replace the control solenoid valve assembly as necessary.
- Inspect the upper channel plate bolt holes for damage, peening or burnelling. Any damage around the bolt holes near the PCS switch feed holes could cause leakage around the PCS switch seals. Replace the upper channel plate as necessary.

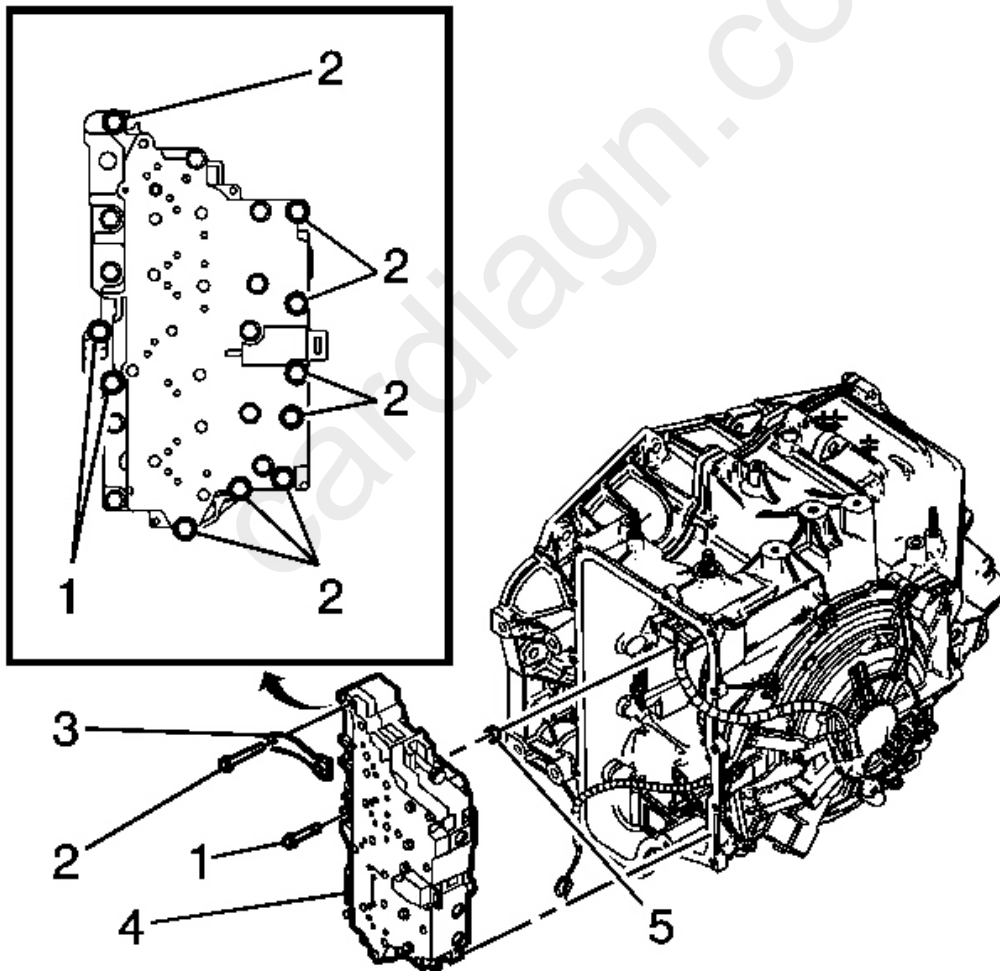


Fig. 49: Identifying Control Valve Body Bolts

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Courtesy of GENERAL MOTORS CORP.

13. Remove the 8 control valve body bolts (2) M6 x 65.
14. Remove the 2 control valve body bolts (1) M6 x 55.
15. Remove the manual shaft detent assembly (3).
16. Remove the control valve body assembly (4).
17. The control solenoid valve spring can now be fully removed from the lower control valve body assembly.

NOTE: **The clutch fluid passage seal is not reusable.**

18. Remove the 1-2-3-4 clutch fluid passage seal (5).

Installation Procedure

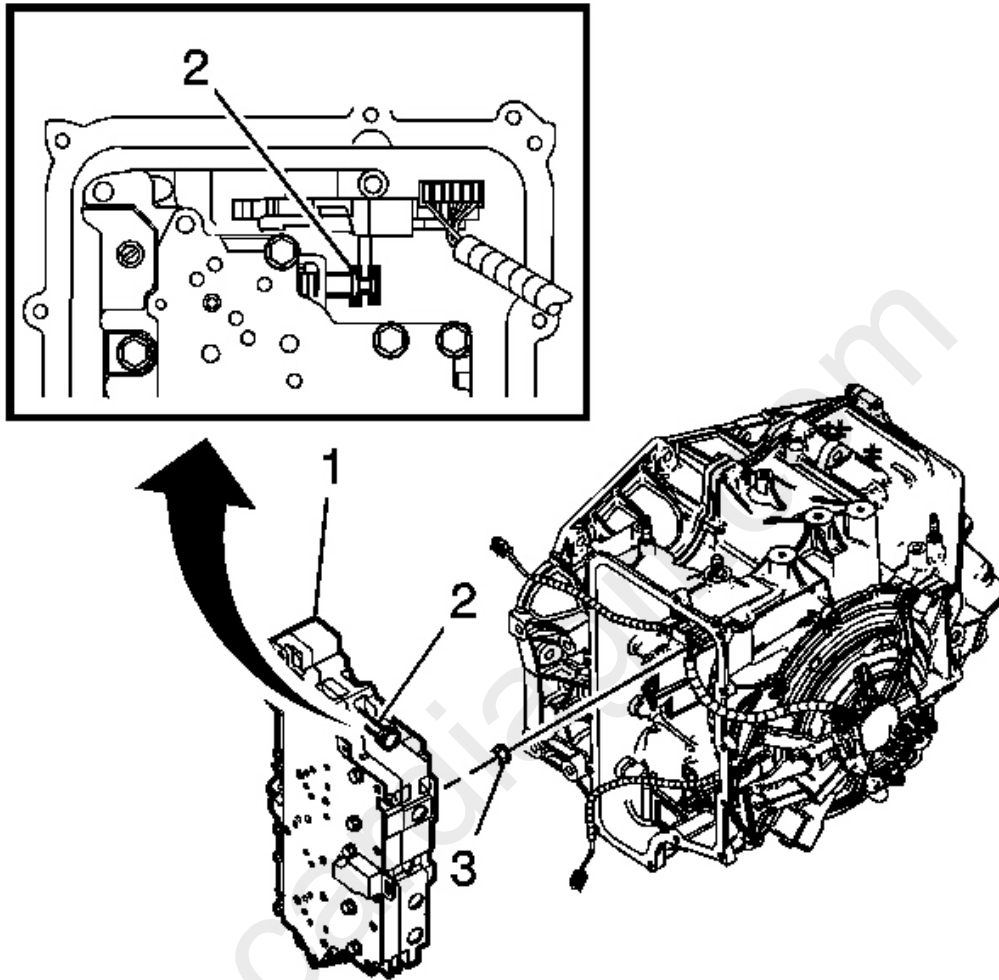


Fig. 50: Identifying Control Valve Body Components
Courtesy of GENERAL MOTORS CORP.

NOTE: The clutch fluid passage seal is not reusable.

1. Install a NEW 1-2-3-4 clutch fluid passage seal (3).

NOTE: Ensure the control solenoid valve spring is attached to the lower control valve body assembly.

NOTE: Align the manual valve (2) to the detent lever assembly while installing the lower control valve body assembly.

2. Install the control valve body assembly (1).

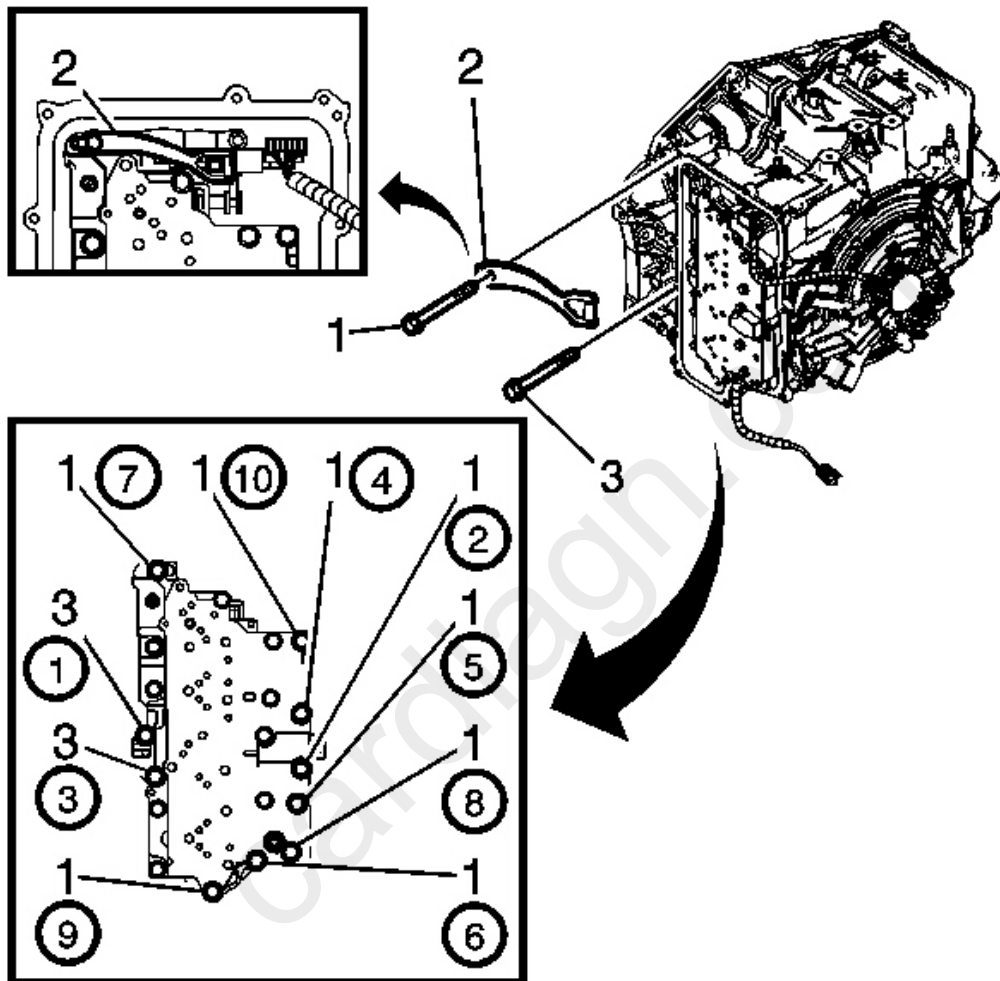


Fig. 5□: Identifying Control Valve Body Bolts Torque Sequence
 Courtesy of GENERAL MOTORS CORP.

NOTE: Ensure proper alignment of the detent assembly to the detent lever assembly with position switch while tightening the bolt. The detent assembly can move and hit the valve body assembly that could cause improper engagement with the detent lever assembly.

3. Install the manual shaft detent assembly (2).

CAUTION: Refer to Fastener Caution .

NOTE: Install all bolts before tightening, then tighten in specified sequence.

4. Install the 8 control valve body bolts (1) M6 x 65 and tighten to 12 N.m (106 lb in).
5. Install the 2 control valve body bolts (3) M6 x 55 and tighten to 12 N.m (106 lb in).

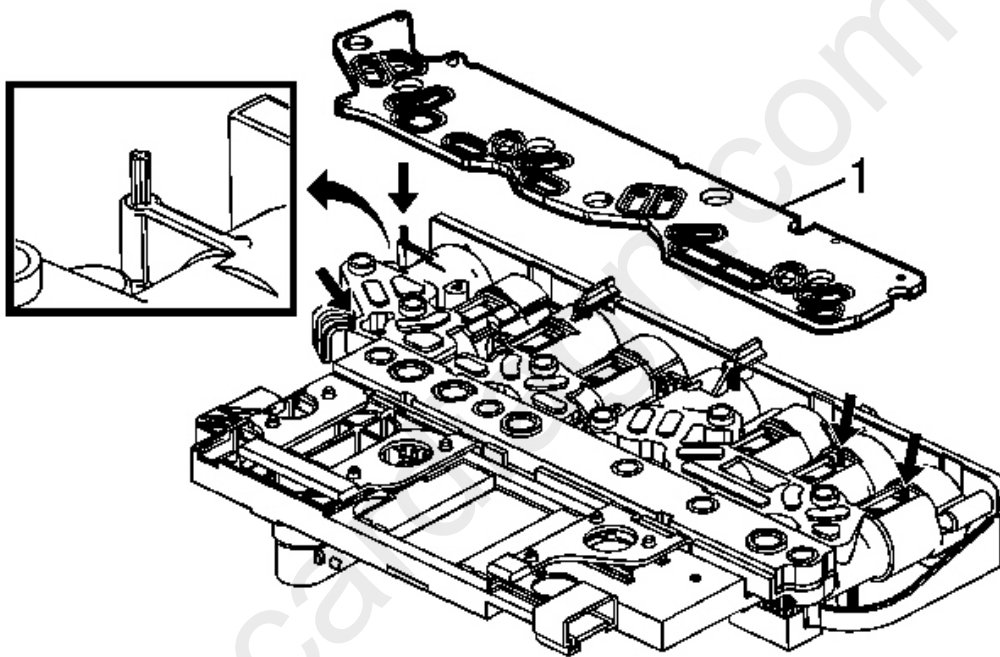


Fig. 5□: Identifying Control Solenoid Valve Assembly Filter Plate

Courtesy of GENERAL MOTORS CORP.

CAUTION: Use care when removing or installing the filter plate assembly. A broken or missing retaining tab may not adequately secure the filter plate to the control solenoid valve assembly, resulting in possible damage or contamination.

6. Install a N□W control solenoid valve assembly filter plate (1).

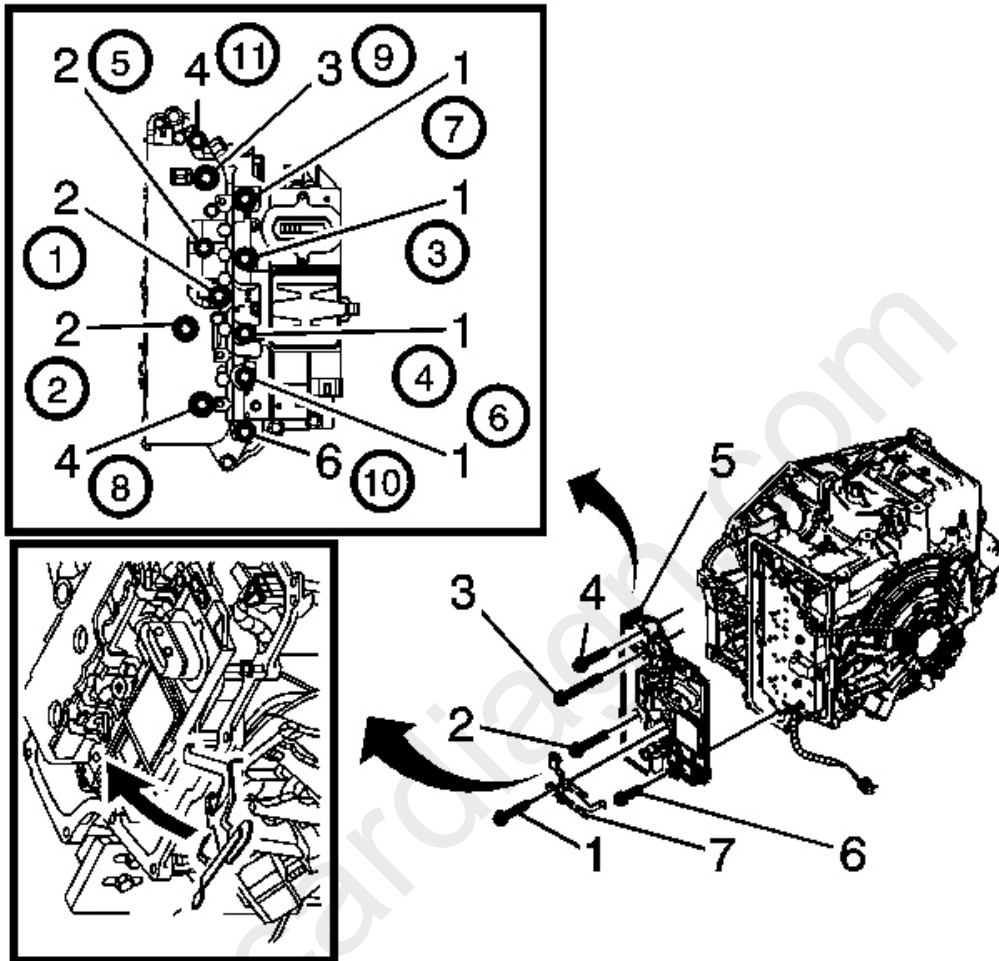


Fig. 53: Identifying Control Valve Body Bolts Torque Sequence
 Courtesy of GENERAL MOTORS CORP.

- Install the control solenoid valve body and T_{CM} assembly (5).
- 8. Rotate the control solenoid valve spring (□) into position.

NOTE: Install all bolts before tightening, then tighten in specified sequence.

- 9. Install the 4 control valve body bolts (1) M6 x 80.
- 10. Install the control valve body bolt (6) M6 x 55.
- 11. Install the 3 control valve body bolts (2) M6 x 95.
- 12. Install the control valve body bolt (3) M6 x 42.

13. Install the 2 control valve body bolts (4) M6 x 65.

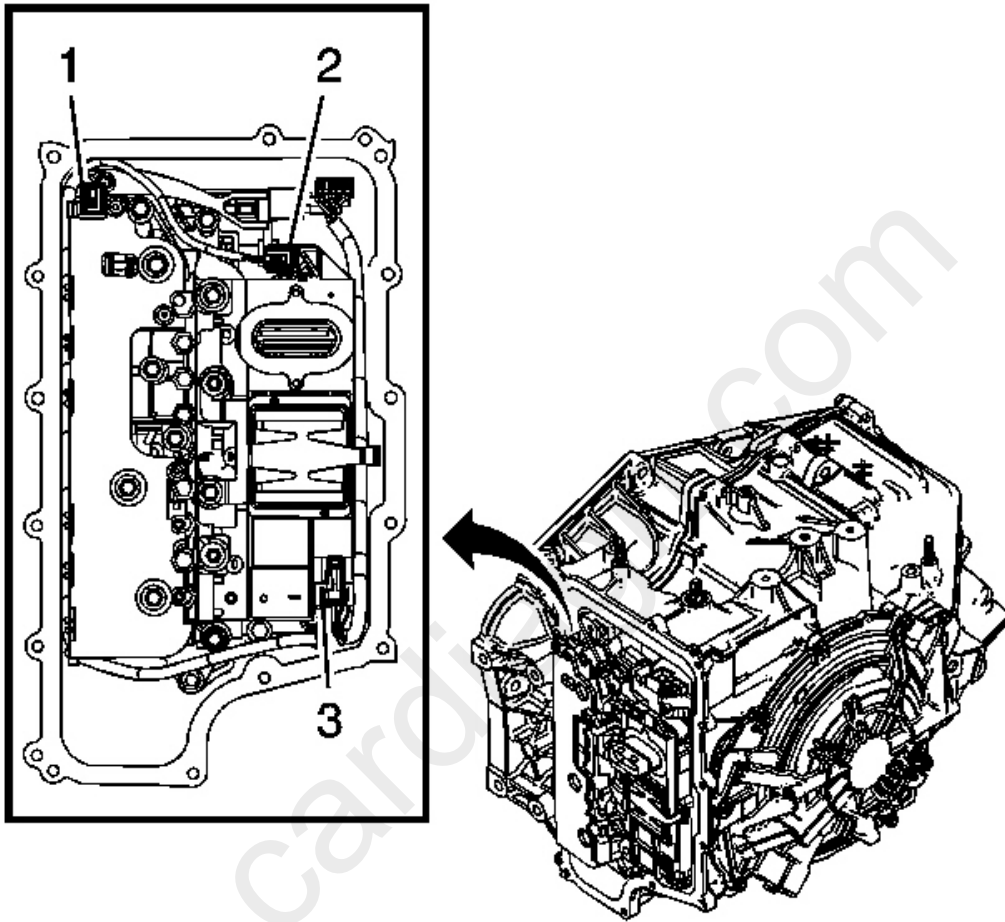


Fig. 54: Identifying Electrical Connectors
Courtesy of GENERAL MOTORS CORP.

14. ☐ Connect the input speed sensor electrical connector (1).
15. ☐ Connect the output speed sensor electrical connector (2).
16. ☐ Connect the shift position switch electrical connector (3).
17. ☐ Install the control valve body cover. Refer to **Control Valve Body Cover Replacement**.
18. ☐ For transmission control module programming and setup. Refer to **Control Module References**.

NOTE: After an internal transmission repair or internal part replacement the service fast learn adapt procedure should be performed.

19. Perform the service fast learn adapt procedure. Refer to Service Fast Learn Adapts .

OUTPUT SPEED SENSOR REPLACEMENT

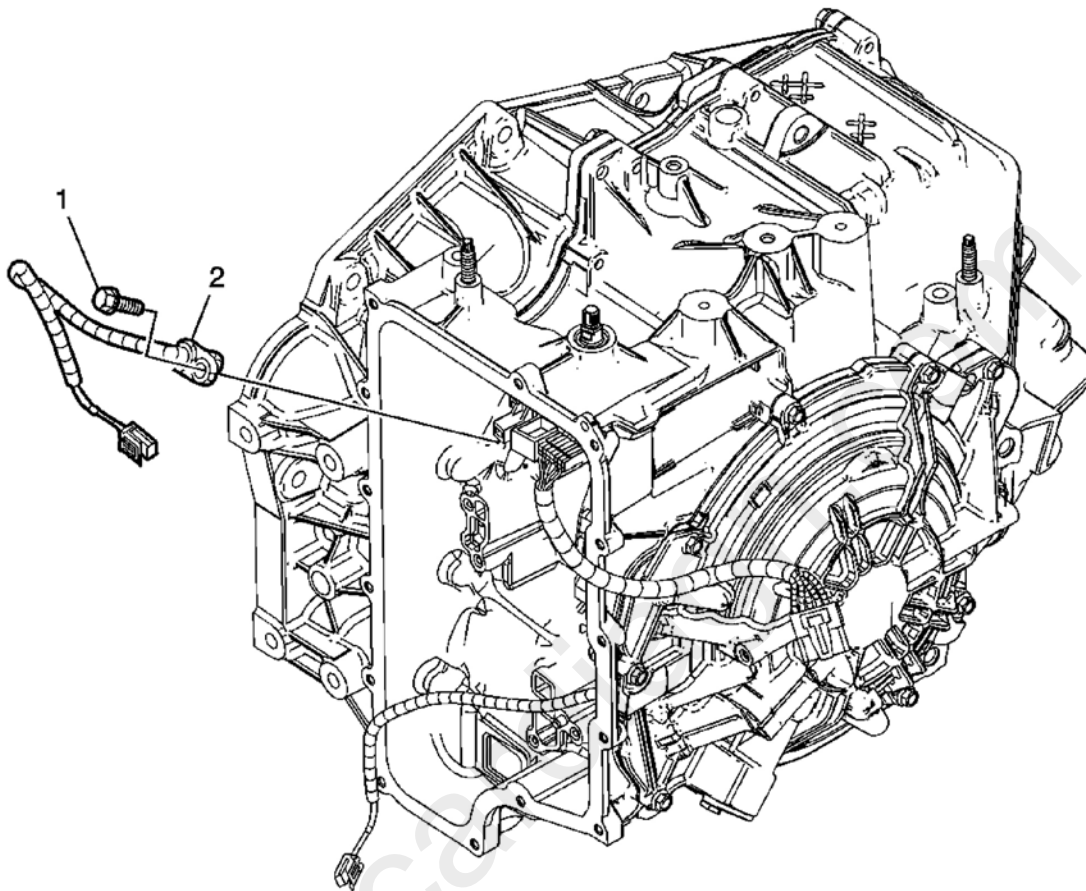


Fig. 55: View Of Output Speed Sensor
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the control valve lower body and upper body. Refer to <u>Control Valve Lower Body and Upper Body Replacement</u>.	
1	Output Speed Sensor Bolt M6 x 25 CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 12 N.m (106 lb in)

2

Output Speed Sensor

Procedure:

Perform the service programming system procedure. Refer to **Service Programming System (SPS)**.

Tip: After an internal transmission repair or internal part replacement the service programming system procedure should be performed.

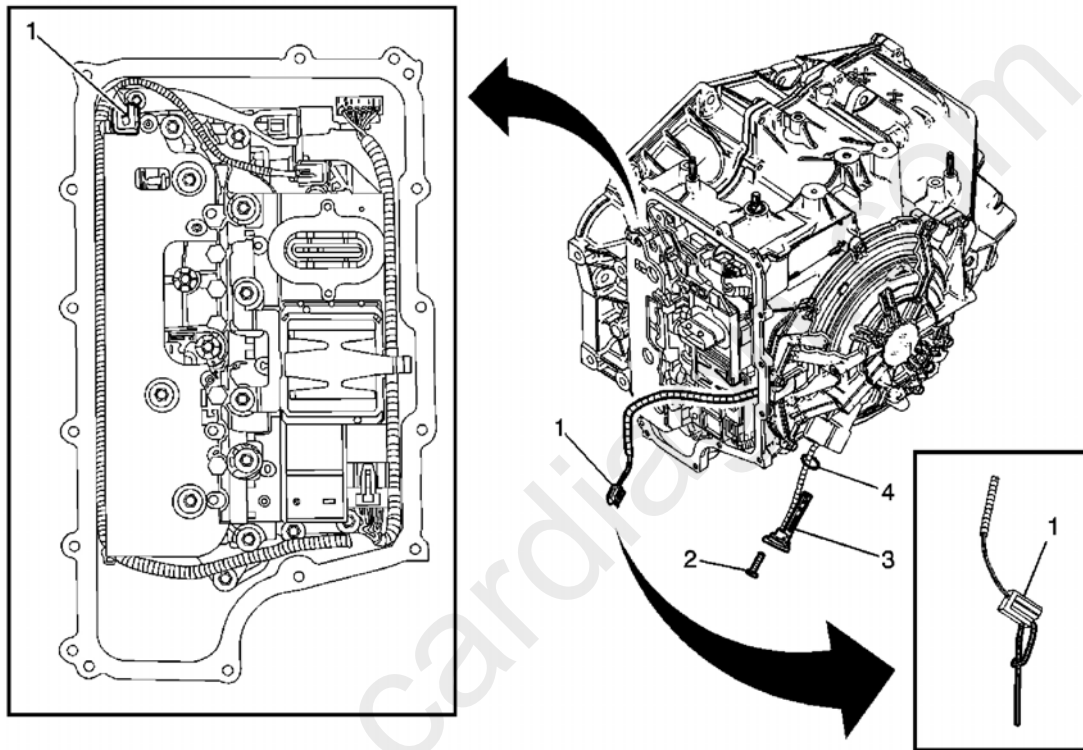
INPUT SPEED SENSOR REPLACEMENT

Fig. 56: View Of Input Speed Sensor
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1.	Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u>
2.	Drain the transmission, refill when repair is completed. Refer to <u>Transmission Fluid Replacement</u>
3.	Remove the radiator air lower baffle and deflector assembly. Refer to <u>Radiator Air Lower Deflector Replacement</u>
4.	Remove the left transmission mount and bracket. Refer to <u>Transmission Mount Replacement - Left Side</u> .
5.	Remove the control valve body cover. Refer to <u>Control Valve Body Cover Replacement</u> .

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6. Perform the service programming system procedure. Refer to **Service Programming System (SPS)** .

1	Input Speed Sensor (ISS) Wire Harness Procedure: Attach the DT-47734: Speed Sensor Harness Tether to the ISS electrical connector locking tab before removal of old ISS to assist in installation of the new ISS. Special Tools: DT-47734: Speed Sensor Harness Tether.
2	Input Speed Sensor Bolt M6 x 25 CAUTION: Refer to <u>Fastener Caution</u> . Procedure: Apply threadlocker to the input speed sensor bolt. Refer to <u>Adhesives, Fluids, Lubricants, and Sealers</u> for the recommended threadlock material. Tighten: 9 N.m (80 lb in)
3	Input Speed Sensor Tip: After an internal transmission repair or internal part replacement the service programming system procedure should be performed.
4	Input Speed Sensor Seal

INPUT SPEED SENSOR SEAL REPLACEMENT

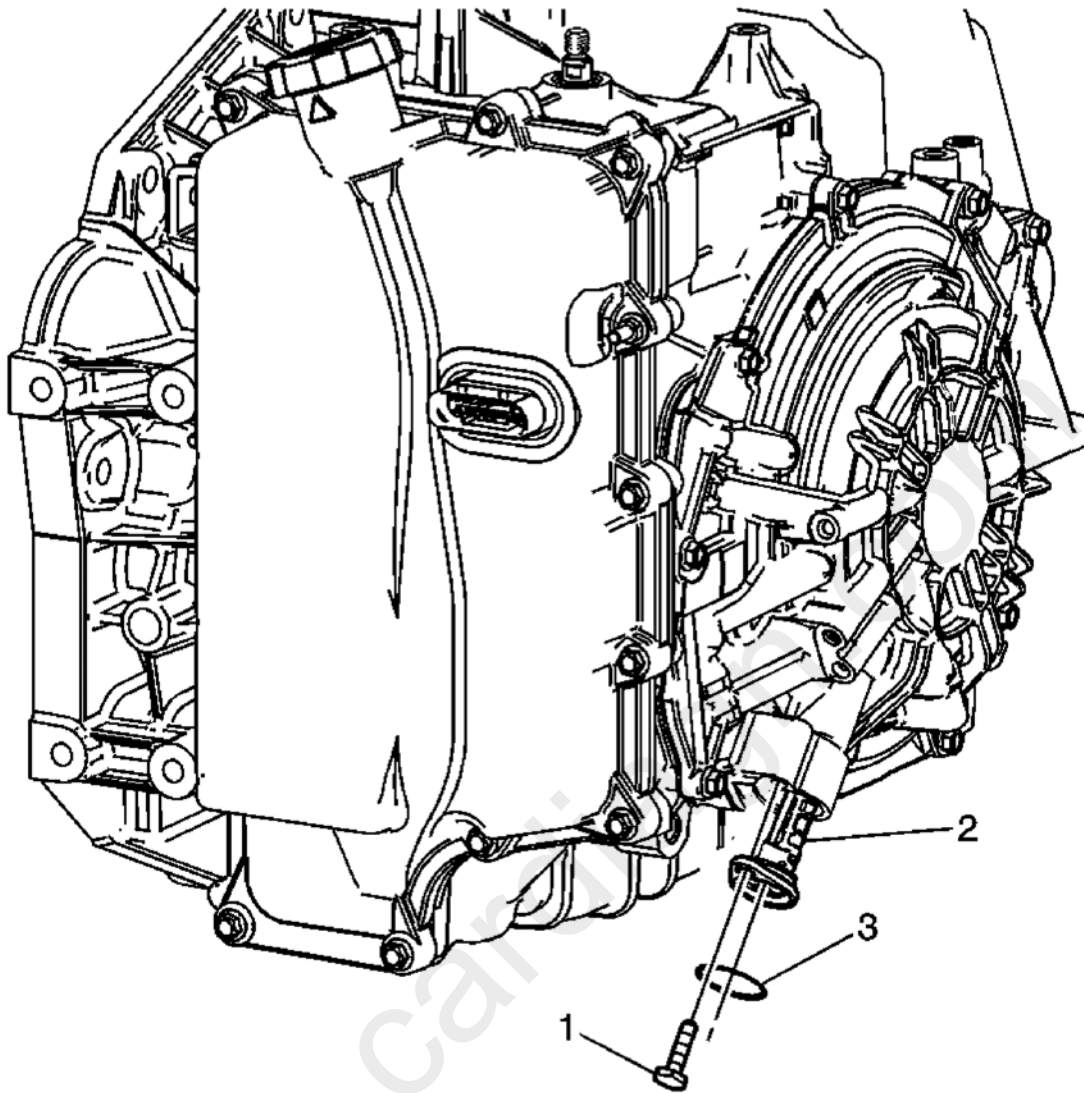


Fig. 57: Identifying Input Speed Sensor Components
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
2. Drain the transmission, refill when repair is completed. Refer to <u>Transmission Fluid Replacement</u> .	
3. Remove the left wheel house. Refer to <u>Front Wheelhouse Liner Replacement</u> .	
	Input Speed Sensor Bolt M6 x 25
	CAUTION:

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1	Refer to <u>Fastener Caution</u> . Tip: Apply threadlocker to the input speed sensor bolt. Refer to <u>Adhesives, Fluids, Lubricants, and Sealers</u> for the recommended threadlock material. Tighten: 9 N.m (80 lb in)
2	Input Speed Sensor (ISS) Tip: Pull the ISS out of the case cover just far enough to gain access to the ISS seal.
3	Input Speed Sensor Seal Tip: • Remove the ISS seal by pulling it over the end of the ISS base. • Install the new ISS seal by gently stretching it over the ISS base. Overstretching the seal will cause it to not seal properly. The seal is coated with a dry lubricant. If the coating is missing, lubricate the seal with automatic transmission fluid prior to installation.

TRANSMISSION MOUNT BRACKET REPLACEMENT - REAR

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the left tire and wheel. Refer to **Tire and Wheel Removal and Installation** .
3. Using a suitable jack stand, support the rear of the powertrain.

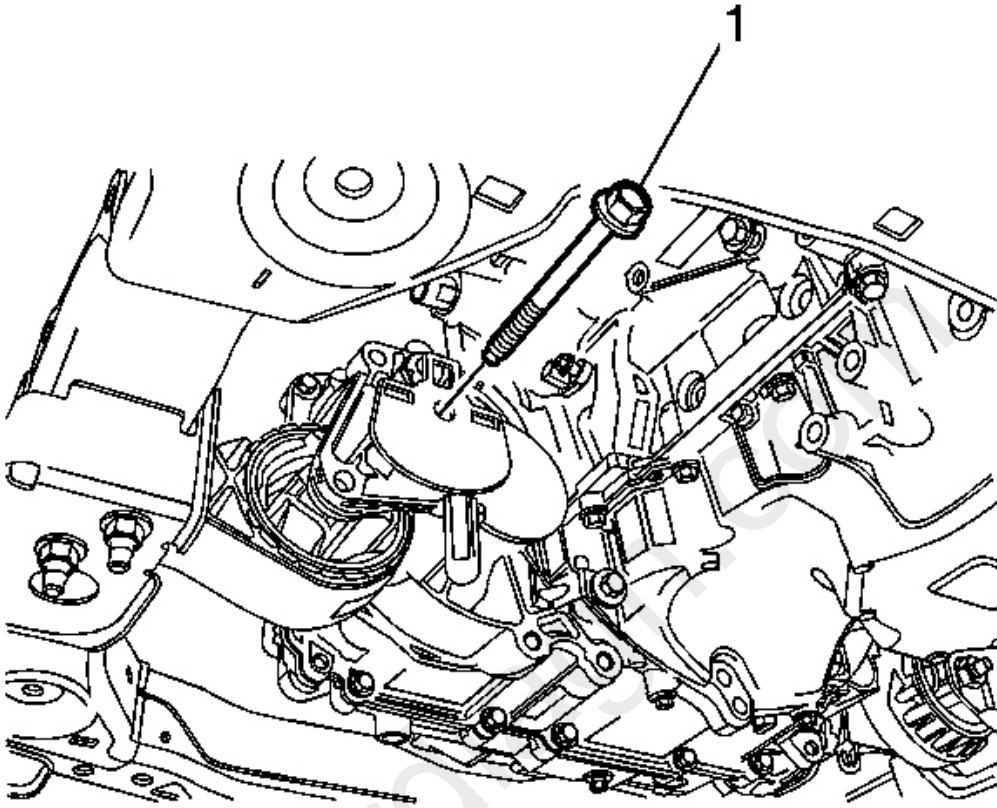


Fig. 58: Locating Rear Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS CORP.

4. Remove the transmission mount to bracket through bolt (1).

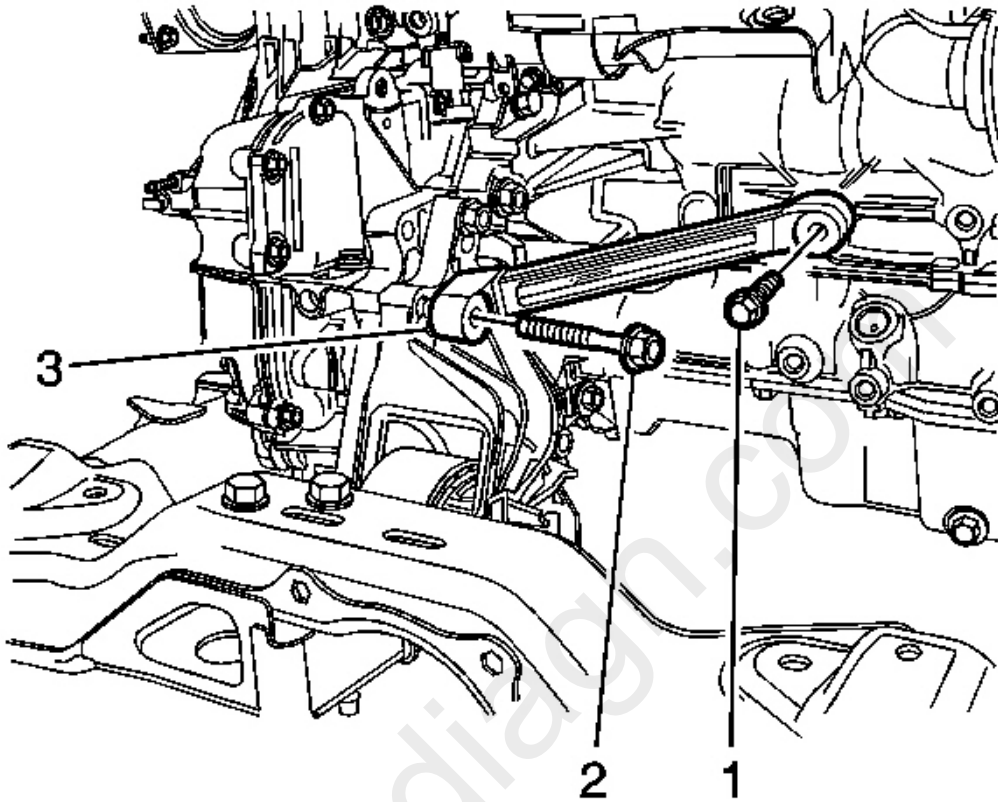


Fig. 9: Identifying Transaxle Brace & Bolt
Courtesy of GENERAL MOTORS CORP.

5. Remove the transaxle brace bolt (1), then loosen bolt (2) until it no longer engages the transaxle.
6. Remove the transaxle brace (3) with bolt (2) still retained in the brace.

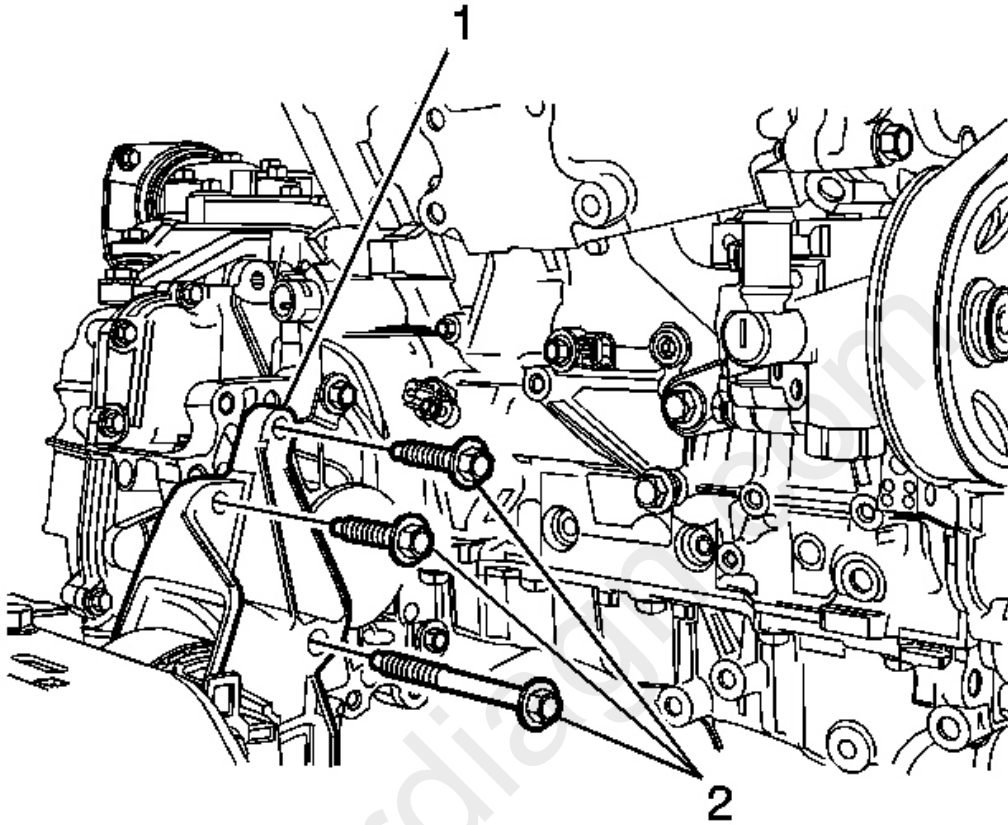


Fig. 00: Identifying Transmission Mount-To-Transmission Bolts
Courtesy of GENERAL MOTORS CORP.

7. Remove the transmission mount to transmission bolts (2).

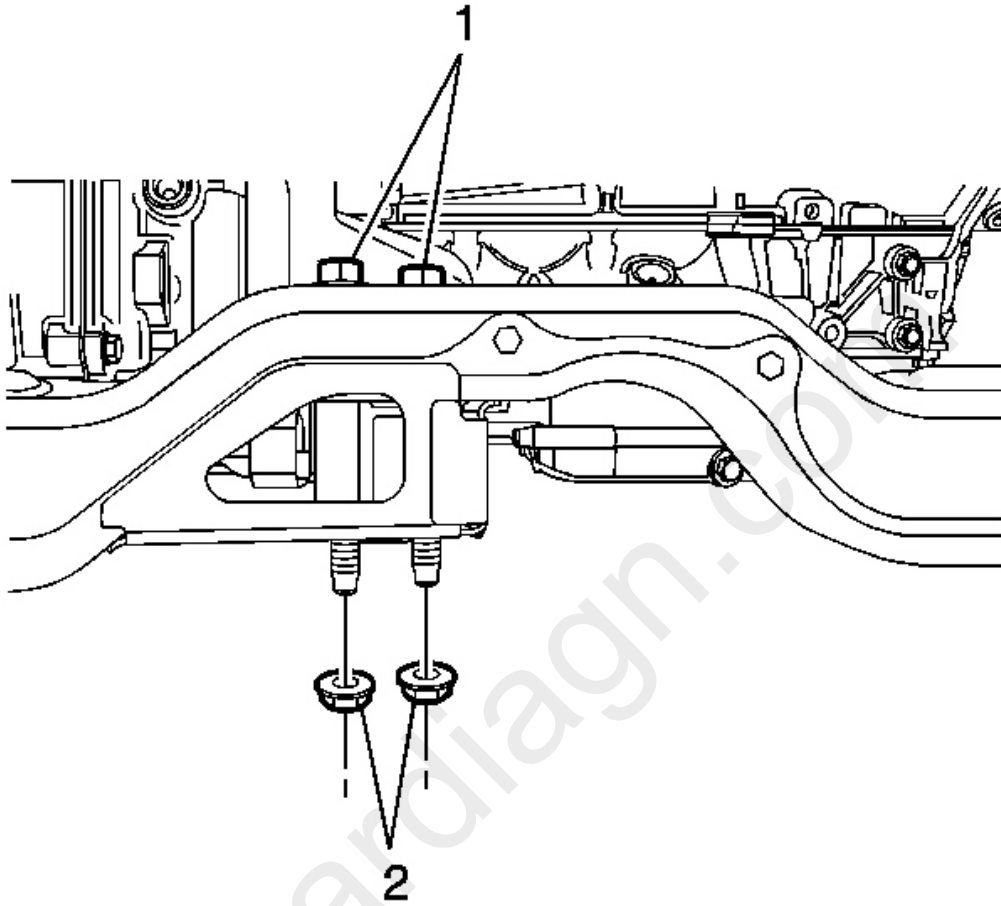


Fig. 1: Identifying Rear Mount-To-Frame Fasteners
Courtesy of GENERAL MOTORS CORP.

8. Remove the rear mount to frame fasteners (1, 2), then remove the mount and bracket from the vehicle.

Installation Procedure

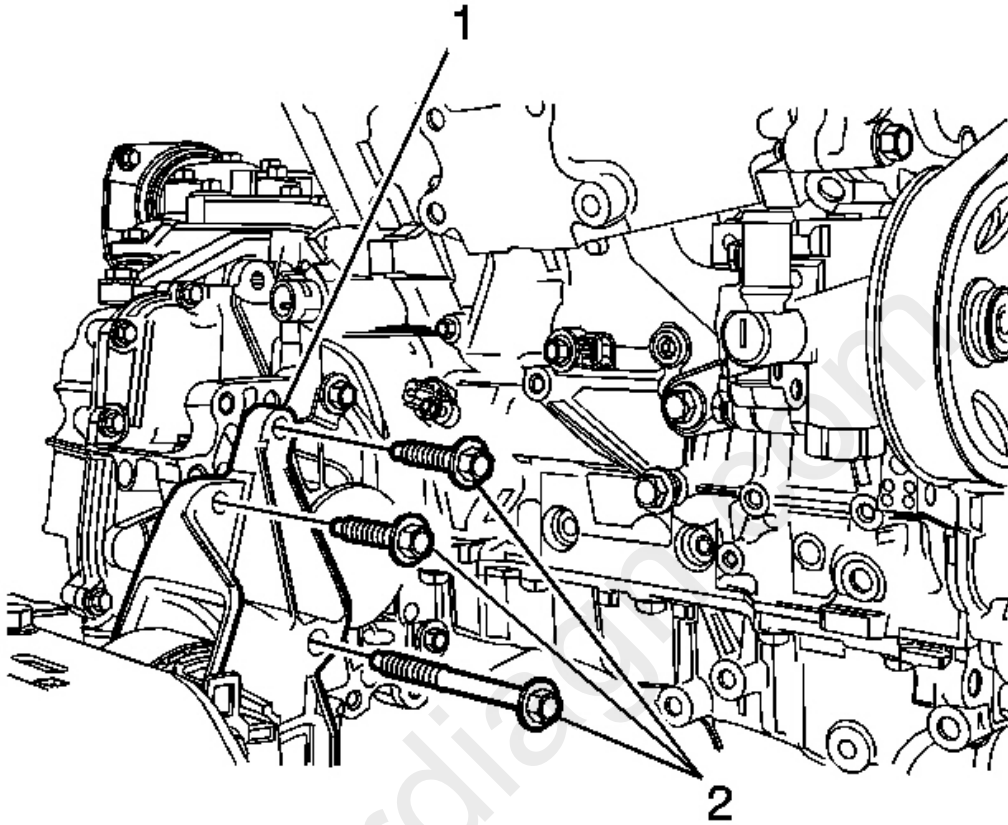


Fig. □2: Identifying Transmission Mount-To-Transmission Bolts
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

1. Install the transmission mount bracket to transmission bolts (2) and tighten to 100 N.m (74 lb ft).

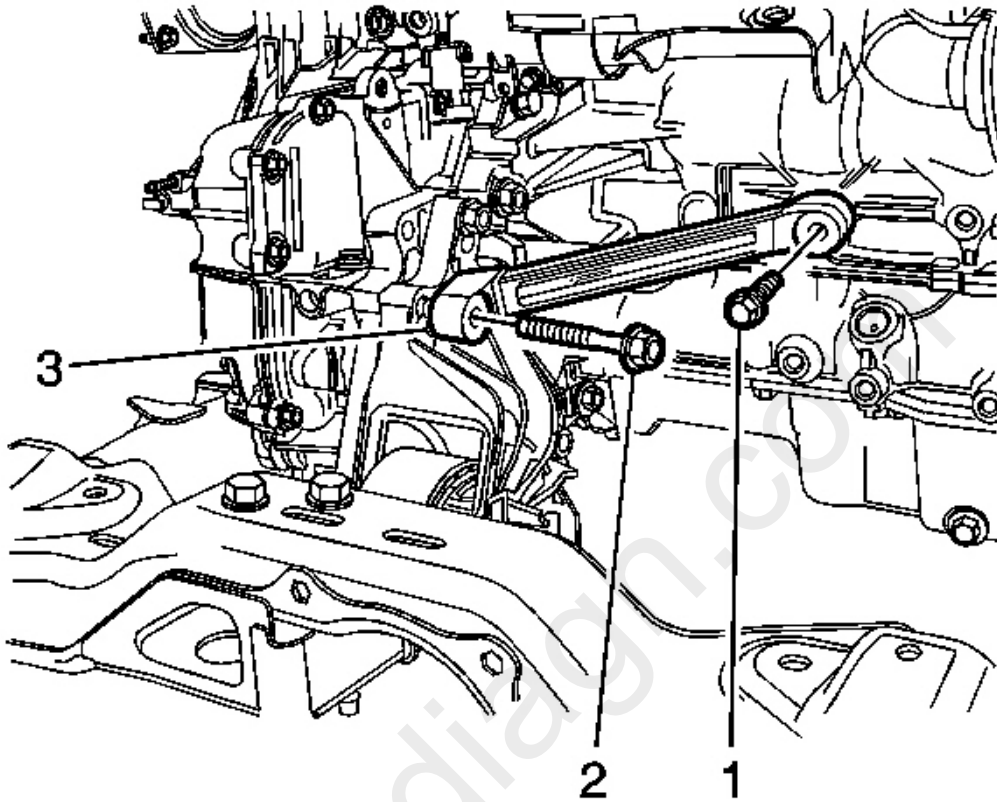


Fig. 3: Identifying Transaxle Brace & Bolt
Courtesy of GENERAL MOTORS CORP.

2. Install the transaxle brace (3) with bolt (2) seated in the brace.
3. Install the transaxle brace bolt (1) and tighten to 50 N.m (37 lb ft).
4. Tighten the brace bolt (2) to 100 N.m (74 lb ft).

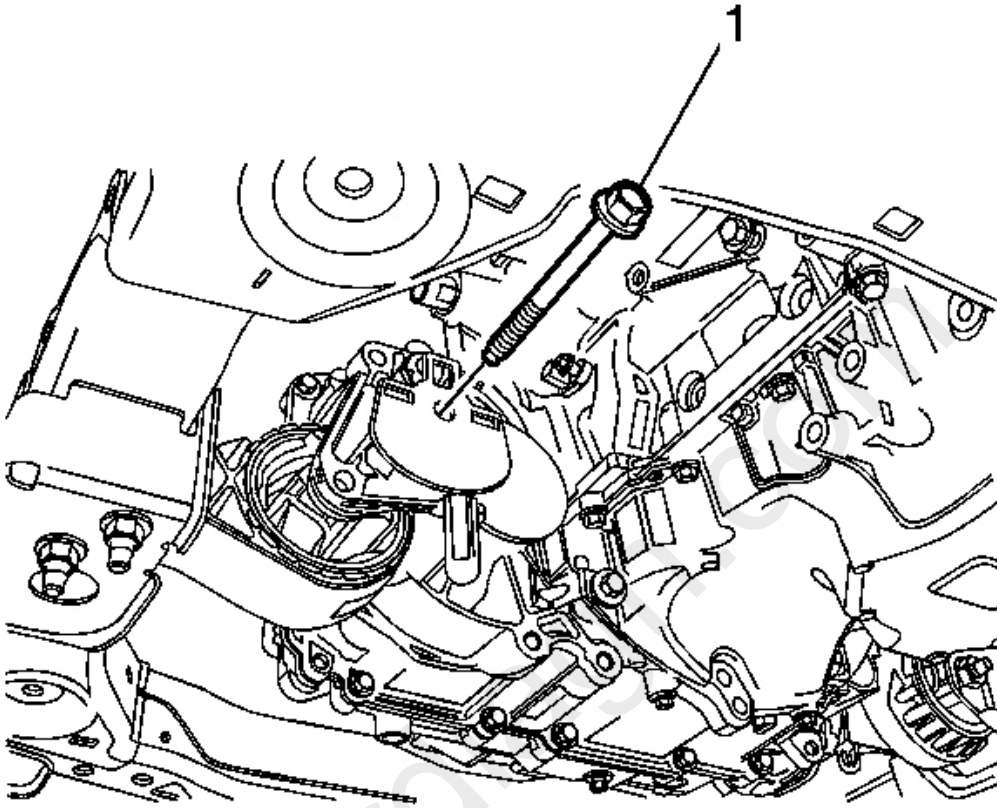


Fig. 1: Locating Rear Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS CORP.

5. Install the transmission mount to bracket through bolt (1) and tighten to 100 N.m (74 lb ft).

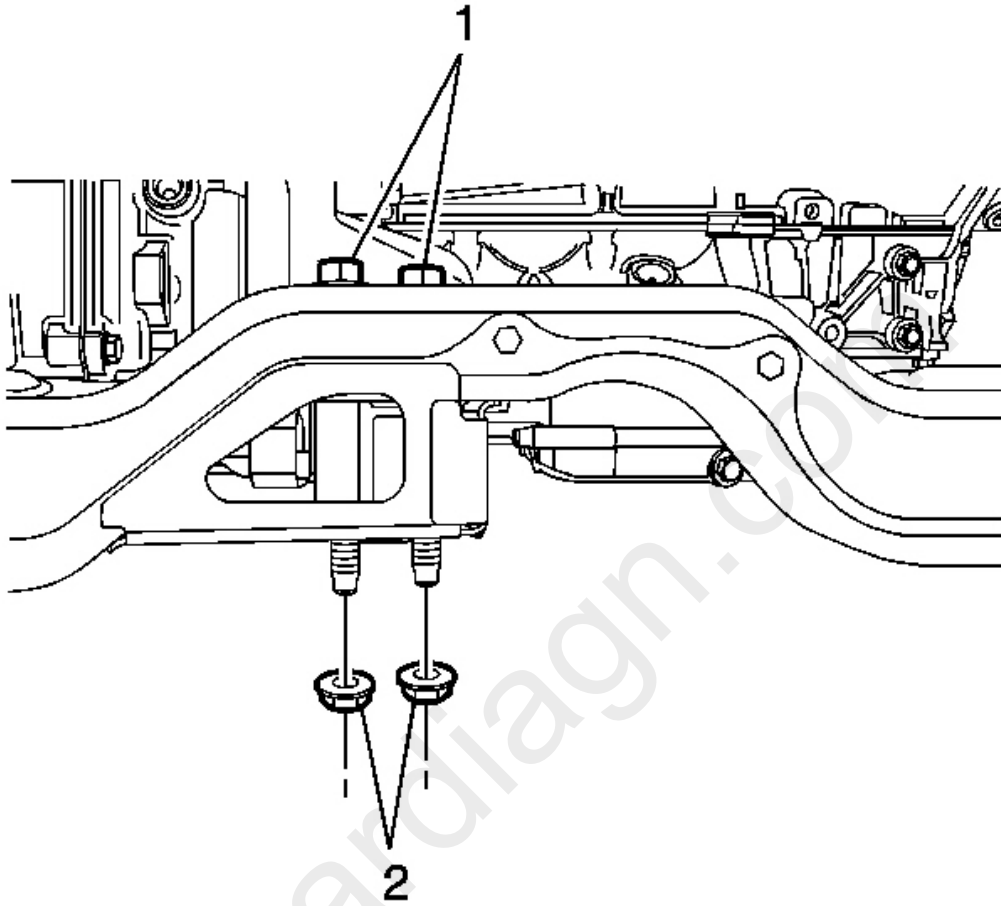


Fig. 1: Identifying Rear Mount-To-Frame Fasteners
Courtesy of GENERAL MOTORS CORP.

6. Install the rear mount to frame fasteners (1, 2) and tighten to 110 N.m (81 lb ft).
7. Remove the  stand.
8. Install the left tire and wheel. Refer to **Tire and Wheel Removal and Installation** .
9. wer the vehicle.

TRANSMISSION BRACE REPLACEMENT

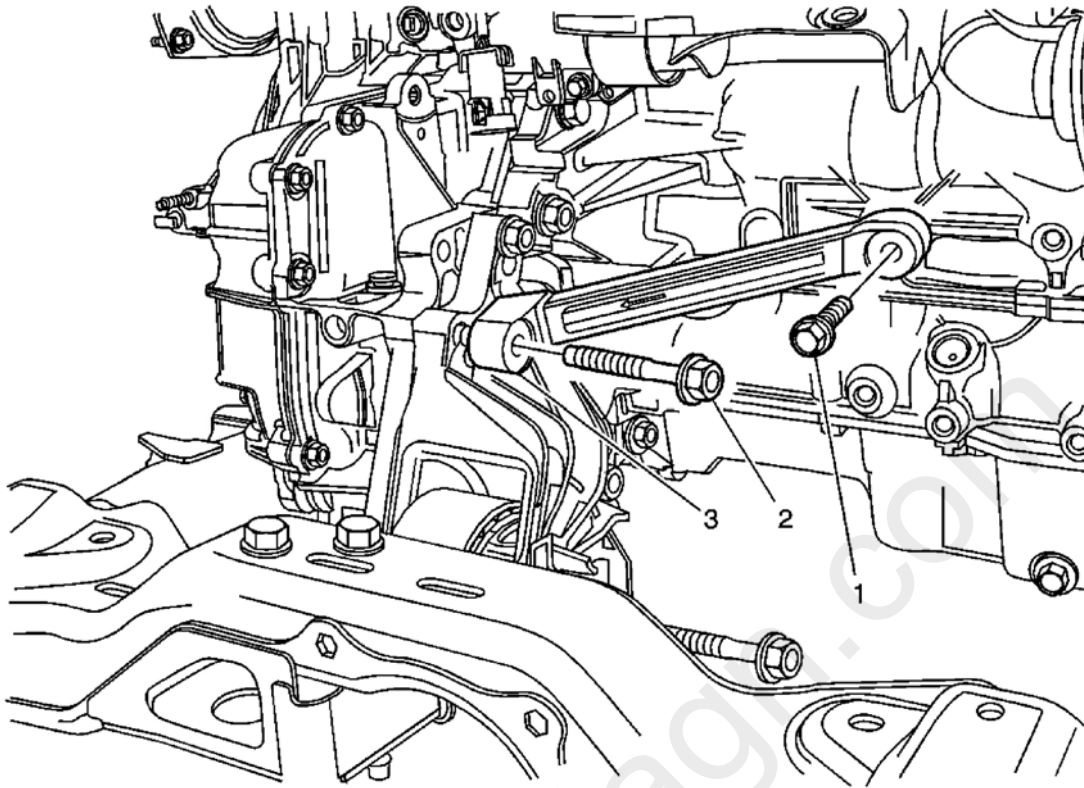


Fig. 1: Identifying Transmission Brace
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .	
2. Support the transaxle with a transaxle jack.	
1	Rear transaxle brace bolt CAUTION: Refer to <u>Fastener Caution</u>. Tighten: 58 N.m (43 lb ft)
2	Rear transaxle brace bolt Tighten: 100 N.m (74 lb ft)
3	Rear transaxle brace

TRANSMISSION MOUNT REPLACEMENT - LEFT SIDE

Removal Procedure

1. Remove the battery box. Refer to **Battery Tray Replacement**.
2. Install the engine support fixture. Refer to **Engine Support Fixture**.
3. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle**.

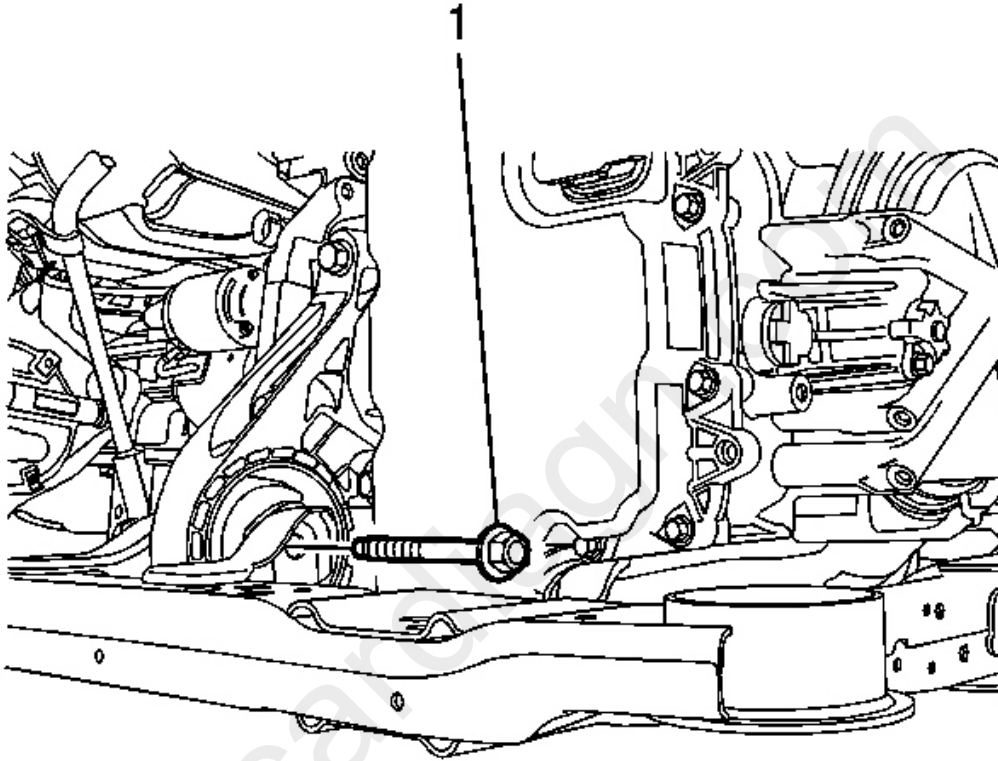


Fig. 1: Identifying Front Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS CORP.

4. Remove the front transmission mount through bolt (1).

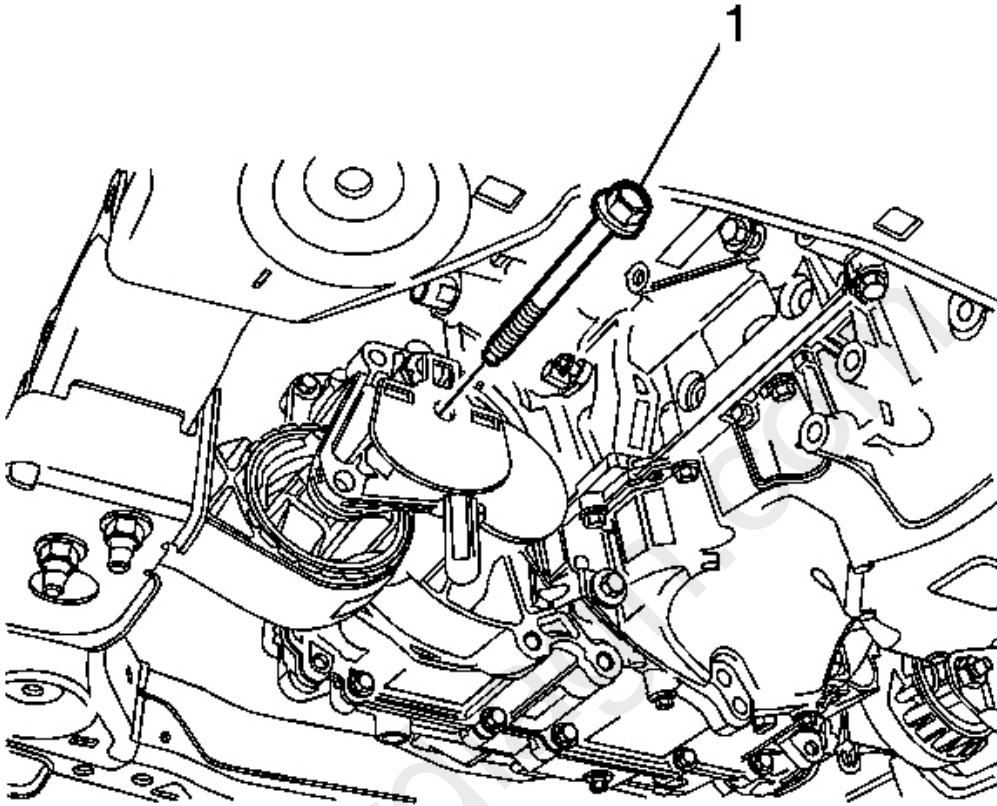


Fig. 8: Locating Rear Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS CORP.

5. Remove the rear transmission mount through bolt (1).
6. Lower the vehicle.

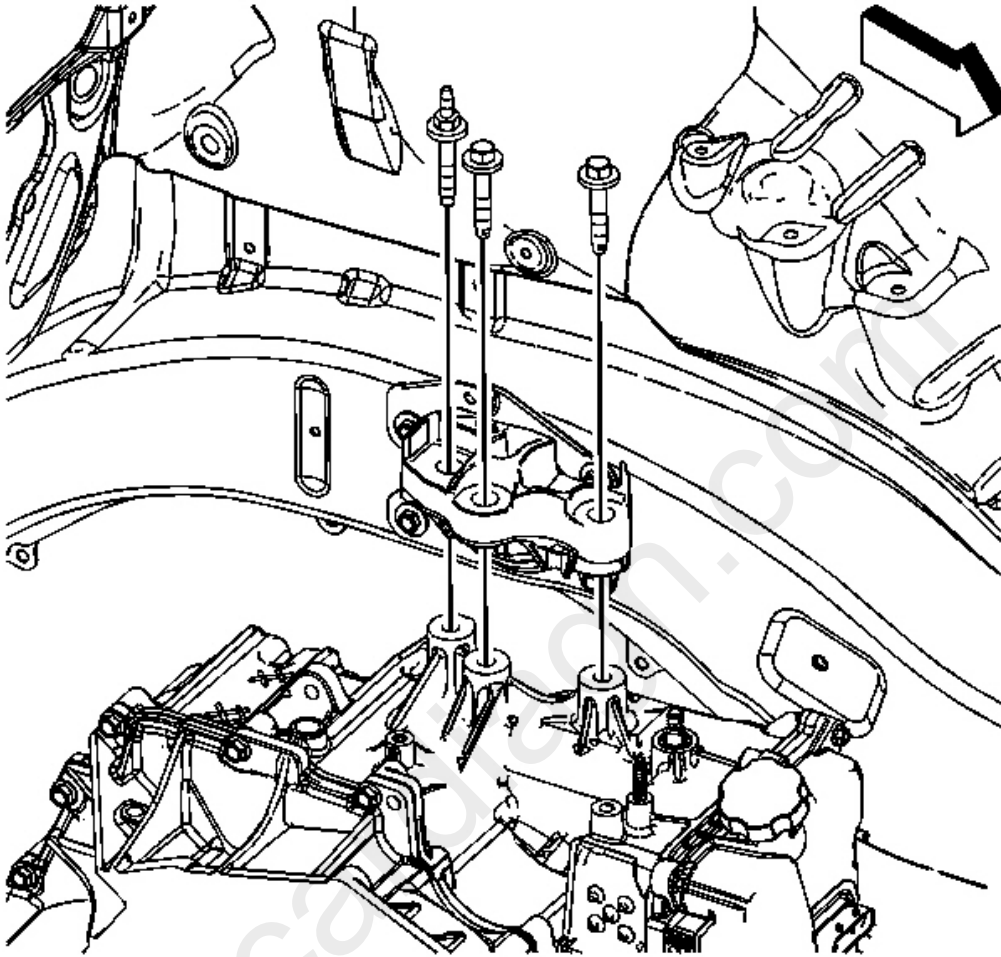


Fig. 69: Identifying Transmission Mount To Transmission Bolts
Courtesy of GENERAL MOTORS CORP.

7. Remove the transmission mount to transmission bolts.

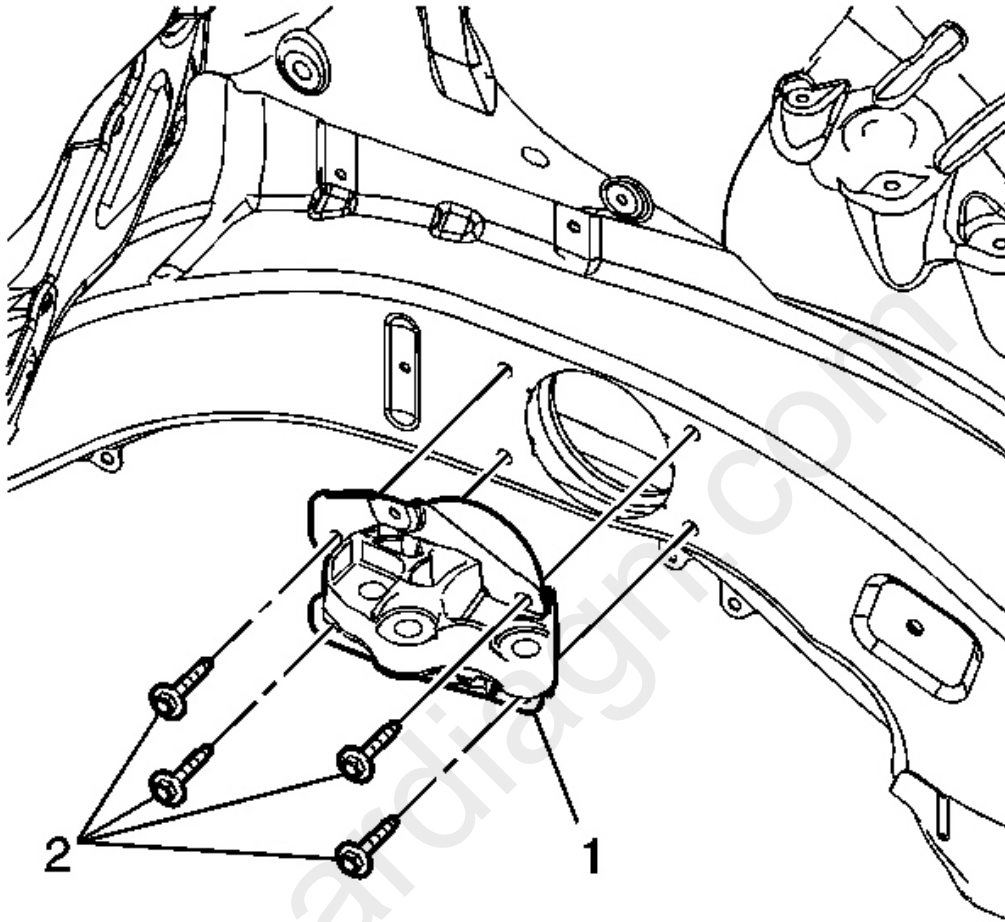


Fig. 70: View Of Transmission Mount To Frame Rail Bolts
Courtesy of GENERAL MOTORS CORP.

8. Using the engine support, lower the transmission enough to provide clearance for the left transmission mount.
9. Remove the transmission mount to frame rail bolts (2).
10. Remove the left transmission mount (1).

Installation Procedure

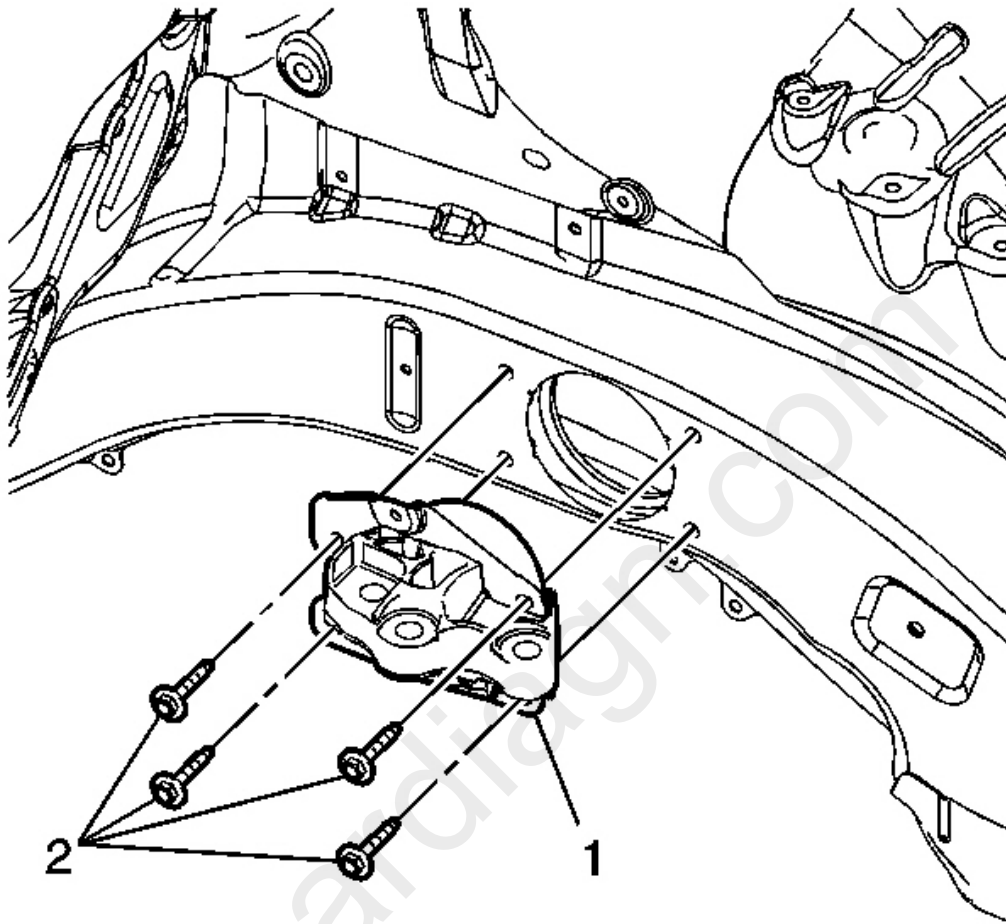


Fig. 71: View Of Transmission Mount To Frame Rail Bolts
Courtesy of GENERAL MOTORS CORP.

1. Install the left transmission mount (1).

CAUTION: Refer to Fastener Caution .

2. Install the transmission mount to frame rail bolts (2) and tighten to 22 N.m (16 lb ft).
3. Using the engine support, raise the transmission until the transmission contacts the left transmission mount.

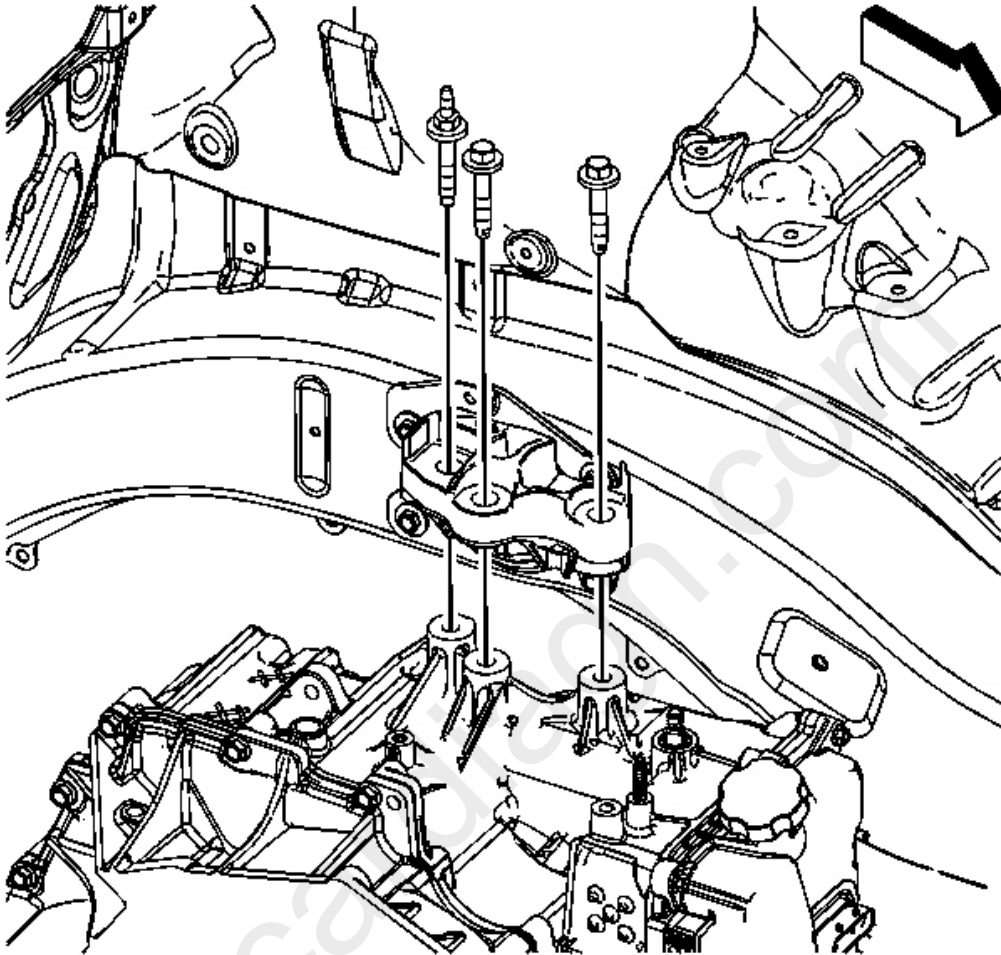


Fig. 72: Identifying Transmission Mount To Transmission Bolts
Courtesy of GENERAL MOTORS CORP.

NOTE: ☐ **DO NOT** reuse the old bolts. Always use **NE** ☐ bolts when reinstalling the mount.

4. Install the transmission mount to transmission bolts and tighten to 50 N.m (37 lb ft) plus 60-75 degrees.
5. Install the wheel and tire assembly. Refer to **Tire and Wheel Removal and Installation** .
6. Raise the vehicle.

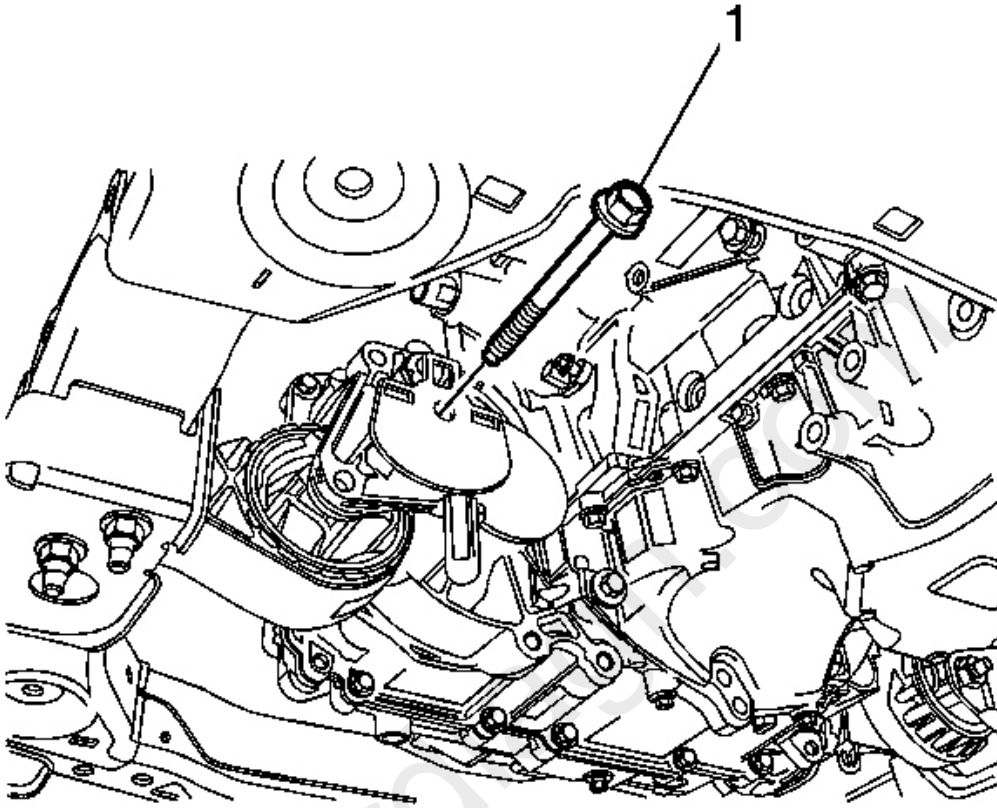


Fig. 73: Locating Rear Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS CORP.

7. Install the rear transmission mount through bolt (1) and tighten to 105 N.m (77 lb ft).

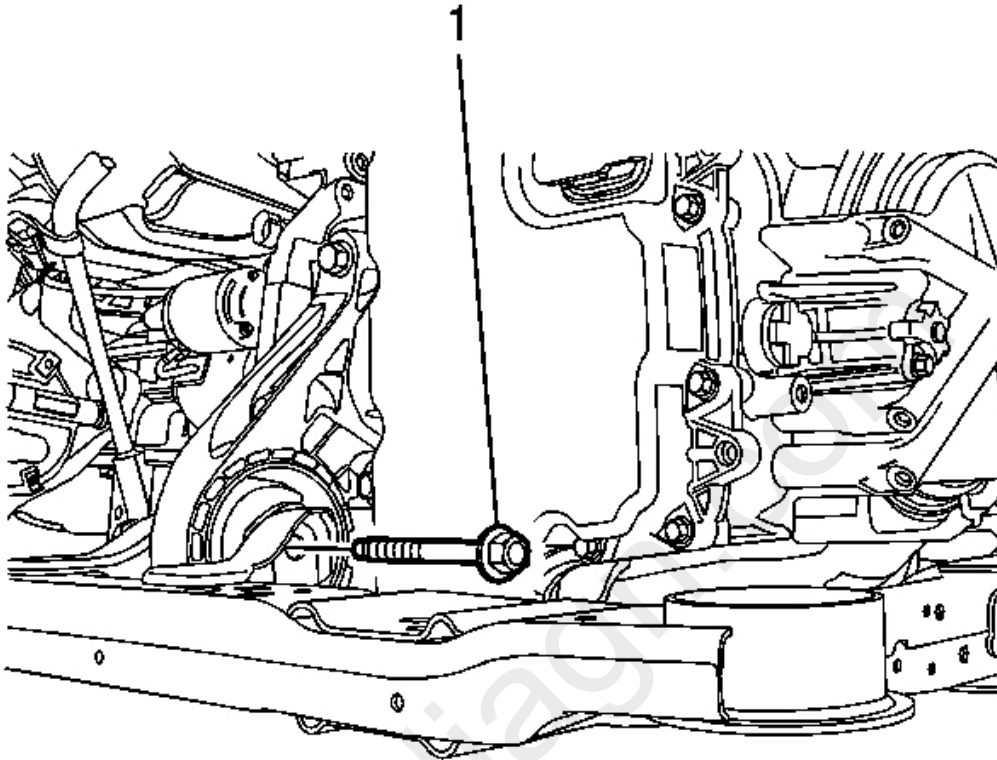


Fig. 1: Identifying Front Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS CORP.

8. Install the front transmission mount through bolt (1) and tighten to 100 N.m (74 lb ft).
9. Lower the vehicle.
10. Remove the engine support fixture.
11. Install the battery box. Refer to **Battery Tray Replacement** .

TRANSMISSION FRONT MOUNT REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .

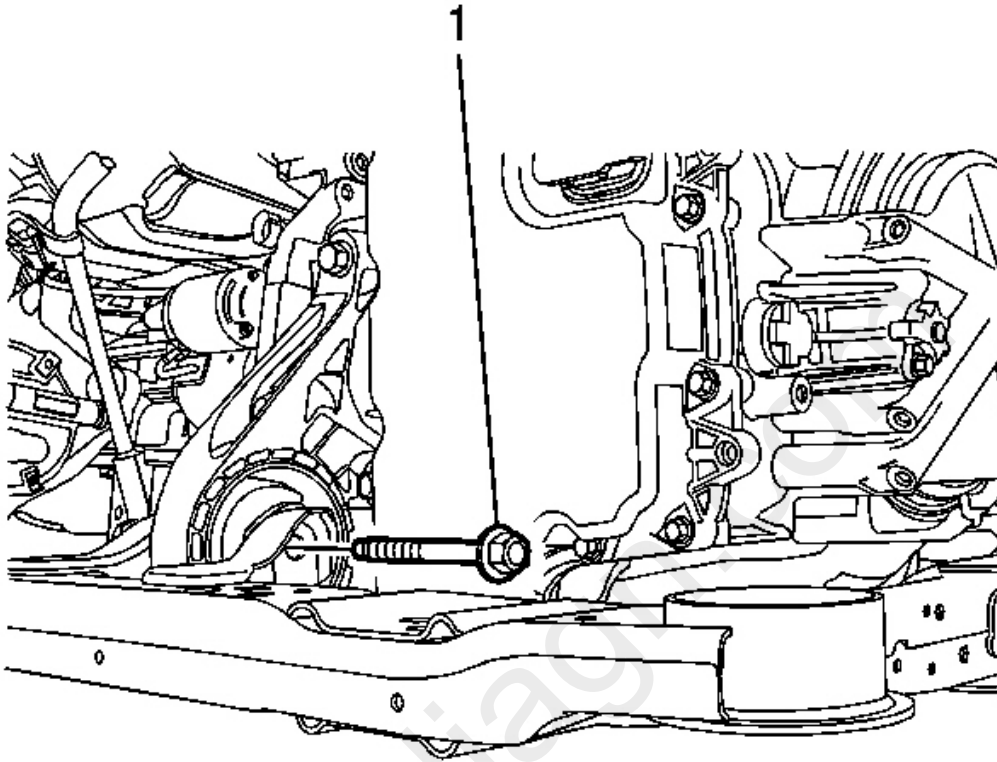


Fig. 1: Identifying Front Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS CORP.

2. Remove the front transaxle mount through bolt (1).

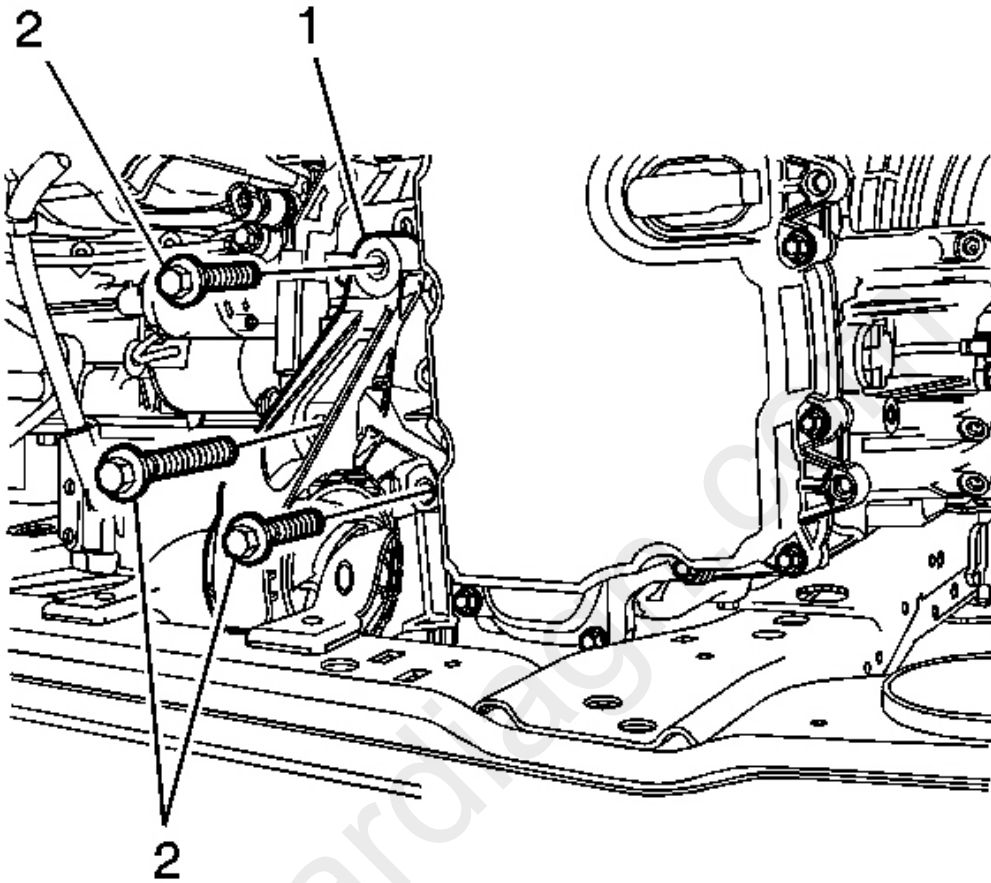


Fig. 1: Locating Transaxle Mount & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

3. Remove and discard the three transaxle mount to transaxle attachment bolts (2).
4. Remove the transaxle mount (1) from the vehicle.

Installation Procedure

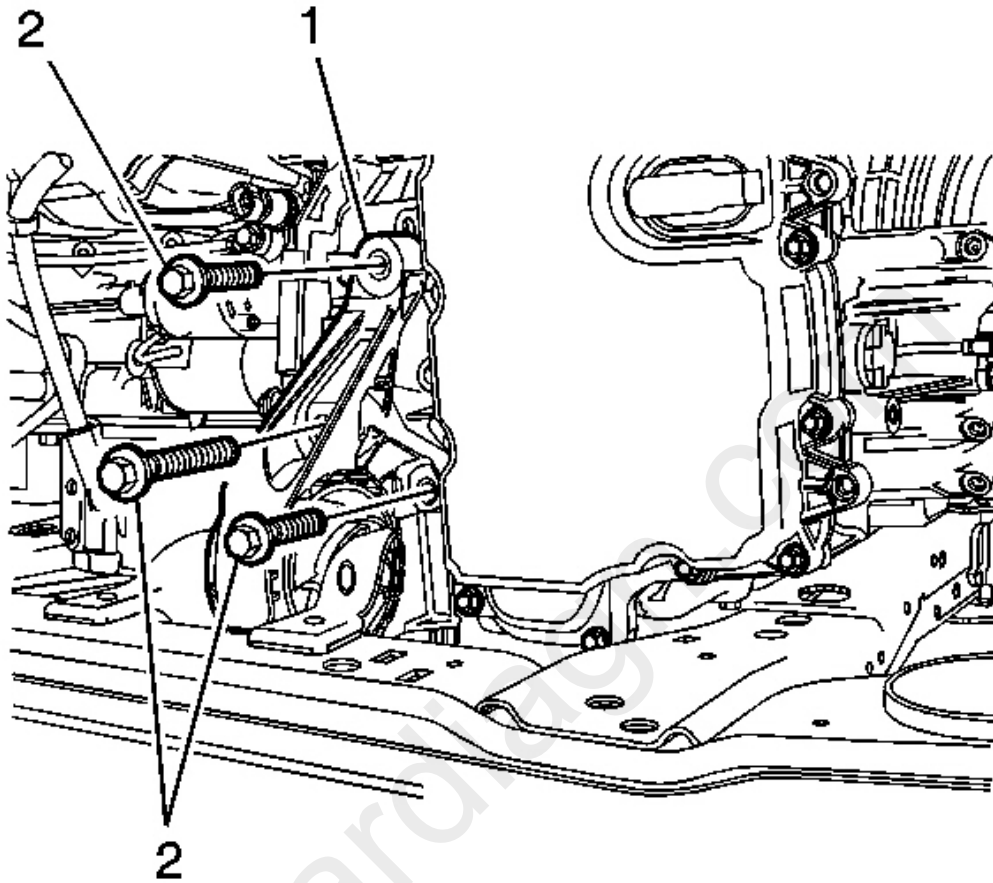


Fig. 1: Locating Transaxle Mount & Attachment Bolts
Courtesy of GENERAL MOTORS CORP.

1. Install the transaxle mount (1).

CAUTION: Refer to Fastener Caution .

2. Install the N $\square$ W transaxle mount bolts (2) and tighten to 62 N.m (46 lb ft).

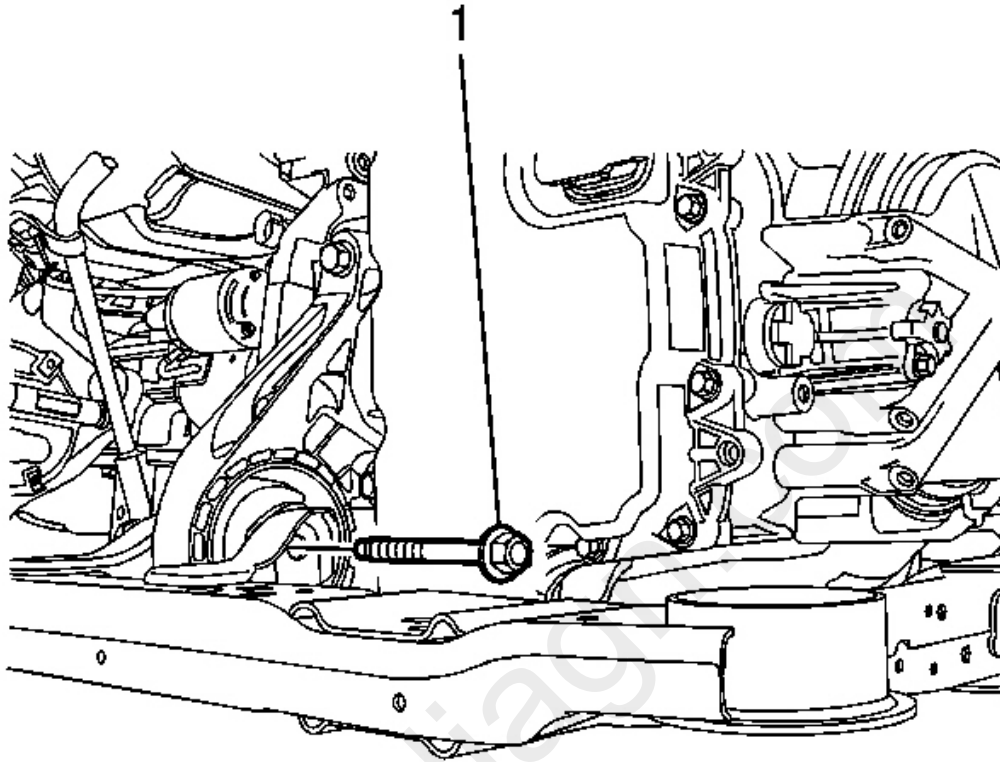


Fig. 8: Identifying Front Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS CORP.

3. Install the transaxle mount through bolt (1) and tighten to 100 N.m (74 lb ft).
4. Lower the vehicle.

TRANSMISSION REAR MOUNT REPLACEMENT (FWD)

Removal Procedure

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the left tire and wheel. Refer to Tire and Wheel Removal and Installation.
3. Using a suitable jack stand, support the rear of the powertrain.

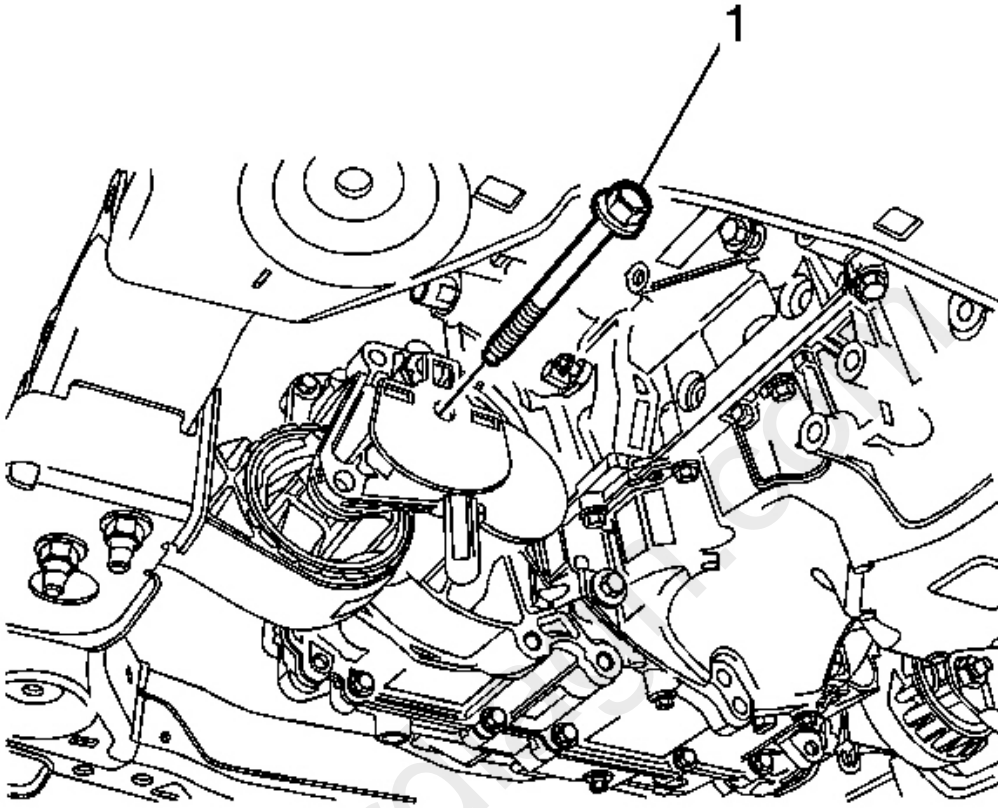


Fig. 79: Locating Rear Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS CORP.

4. Remove the transmission mount to bracket through bolt (1).

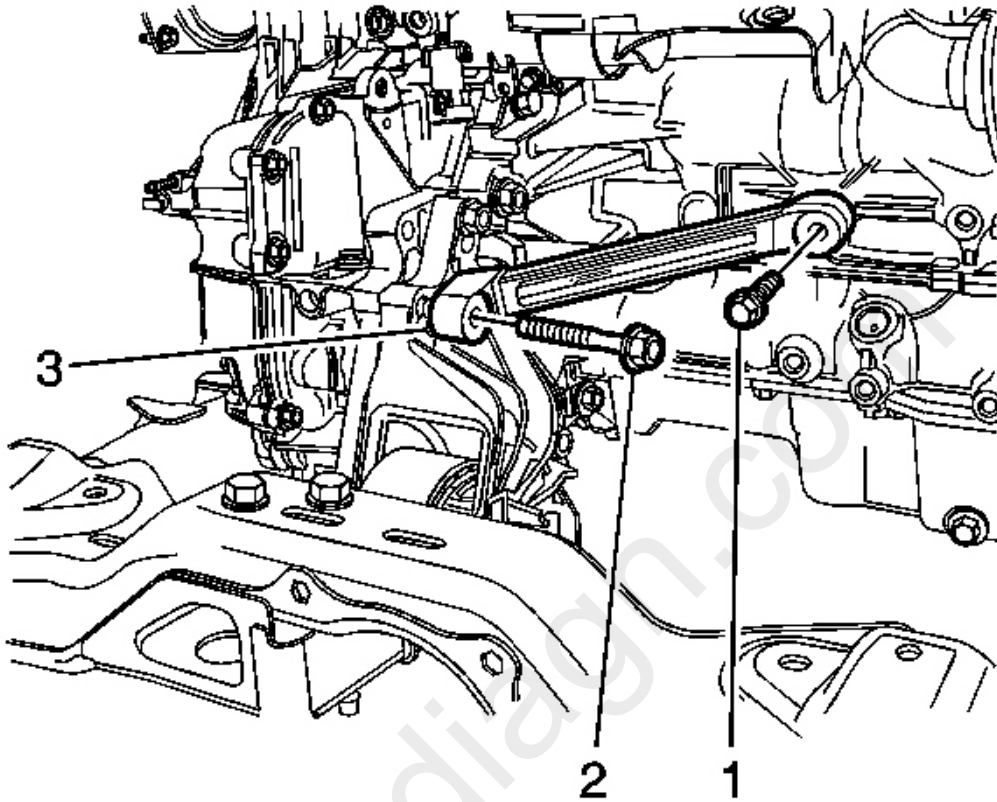


Fig. 80: Identifying Transaxle Brace & Bolt
Courtesy of GENERAL MOTORS CORP.

5. Remove the transaxle brace bolt (1), then loosen bolt (2) until it no longer engages the transaxle.
6. Remove the transaxle brace (3) with bolt (2) still retained in the brace.

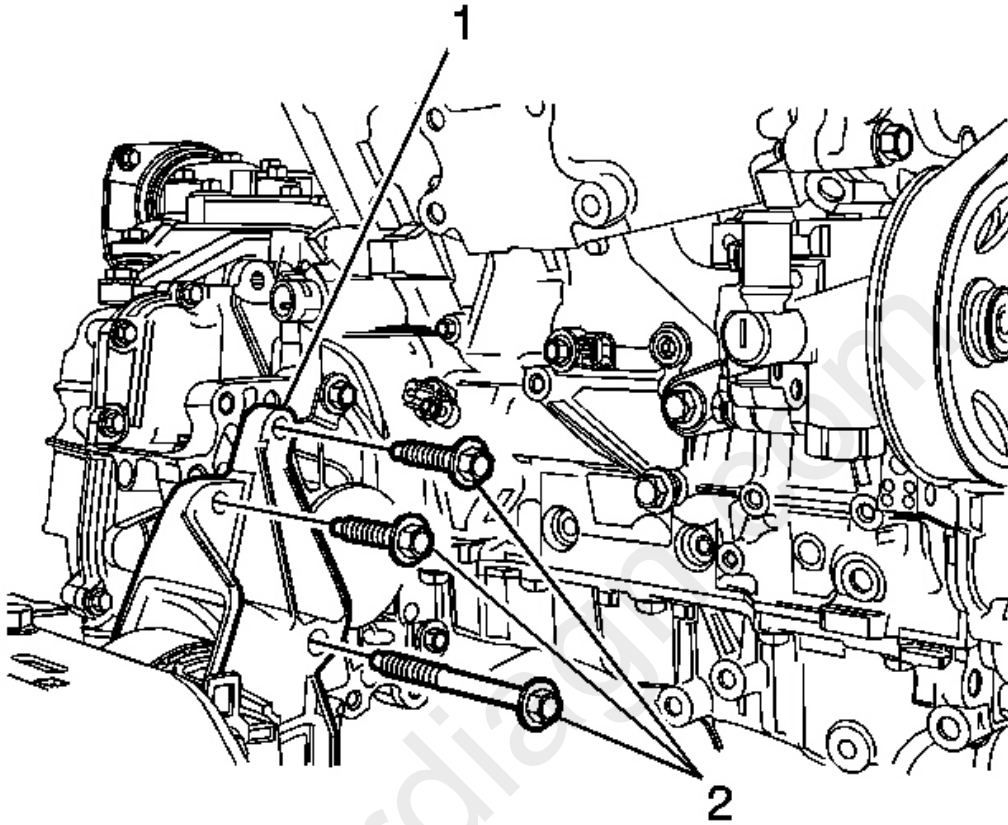


Fig. 81: Identifying Transmission Mount-To-Transmission Bolts
Courtesy of GENERAL MOTORS CORP.

7. Remove the transmission mount to transmission bolts (2).

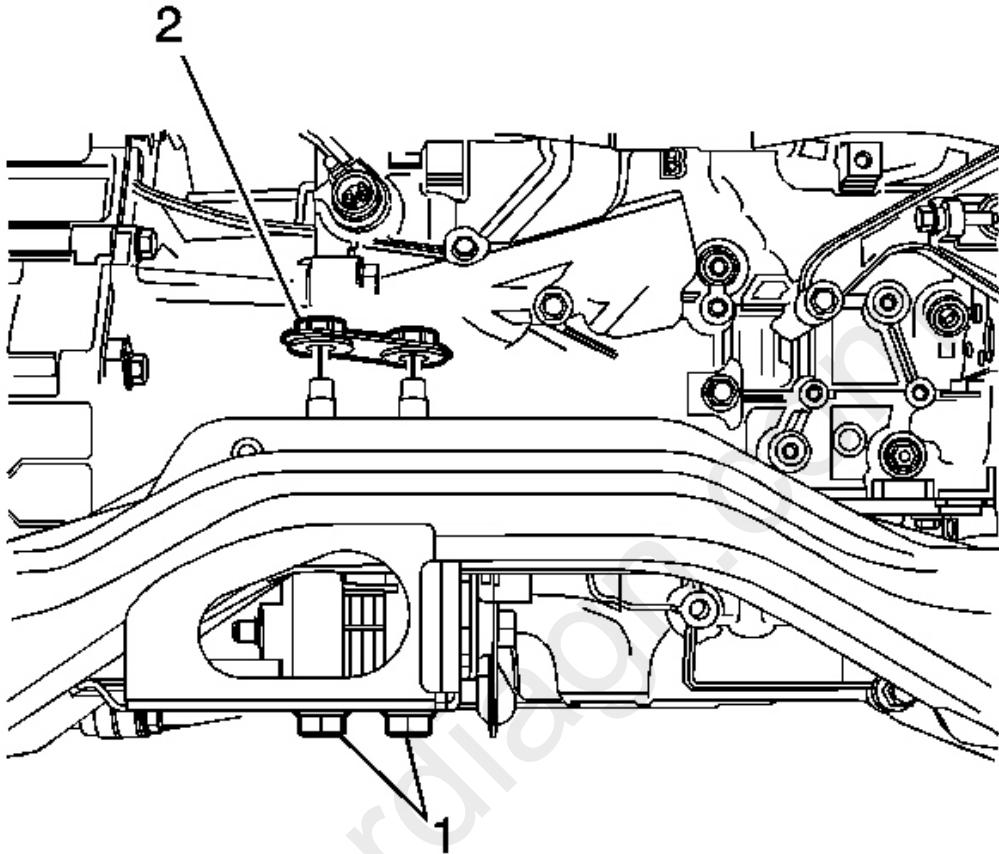


Fig. 82: Identifying Rear Mount-To-Frame Fasteners
Courtesy of GENERAL MOTORS CORP.

8. Remove the rear mount to frame fasteners (1) and (2), then remove the mount from the vehicle.

Installation Procedure

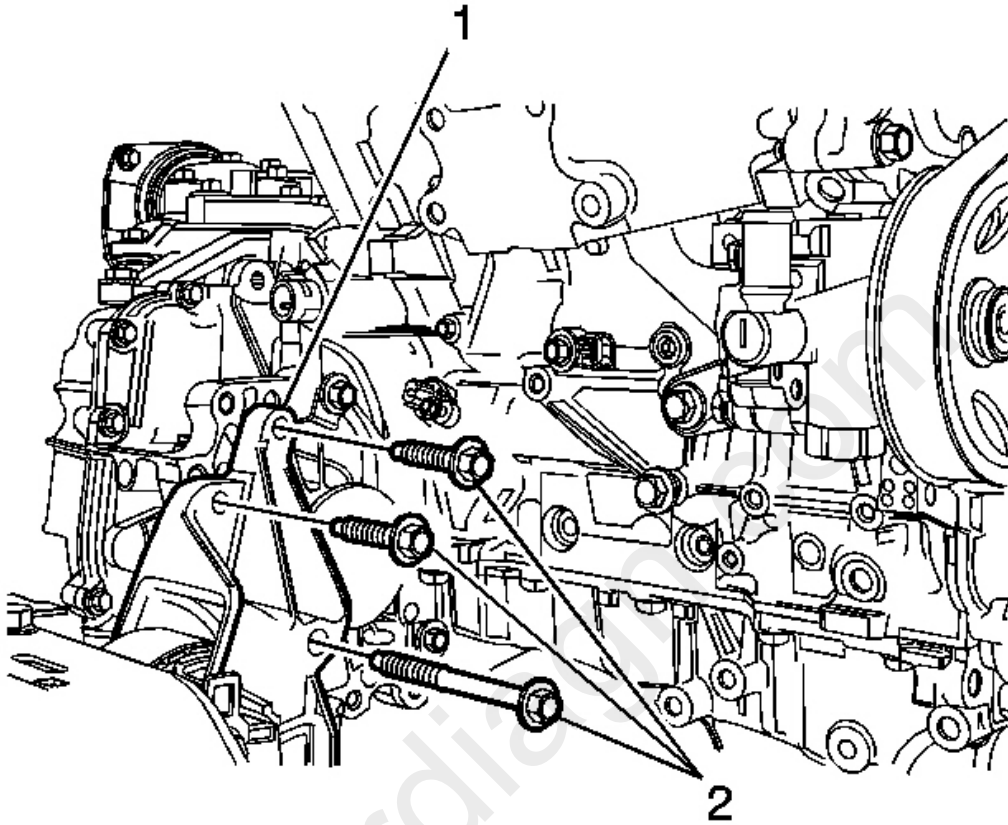


Fig. 83: Identifying Transmission Mount-To-Transmission Bolts
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

1. Install the transmission mount to transmission bolts (2) and tighten to 100 N.m (74 lb ft).

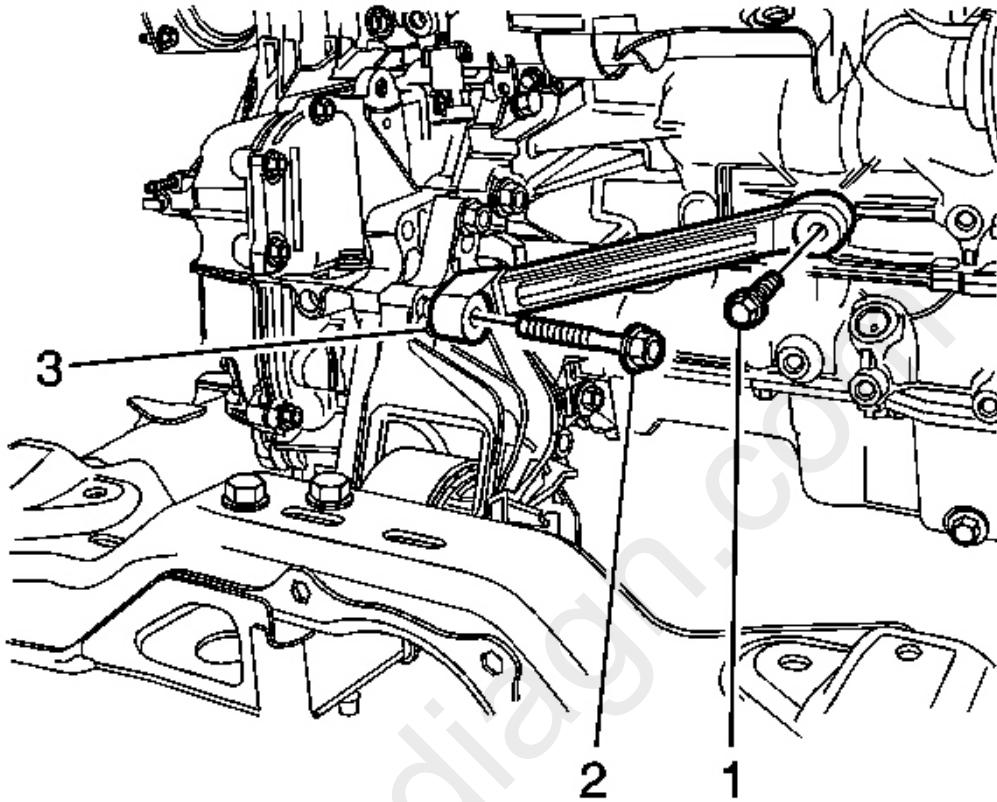


Fig. 8□ Identifying Transaxle Brace & Bolt
Courtesy of GENERAL MOTORS CORP.

2. Install the transaxle brace (3) with bolt (2) seated in the brace.
3. Install the transaxle brace bolt (1) and tighten to 58 N.m (42 lb ft).
4. Tighten brace bolt (2) to 100 N.m (74 lb ft).

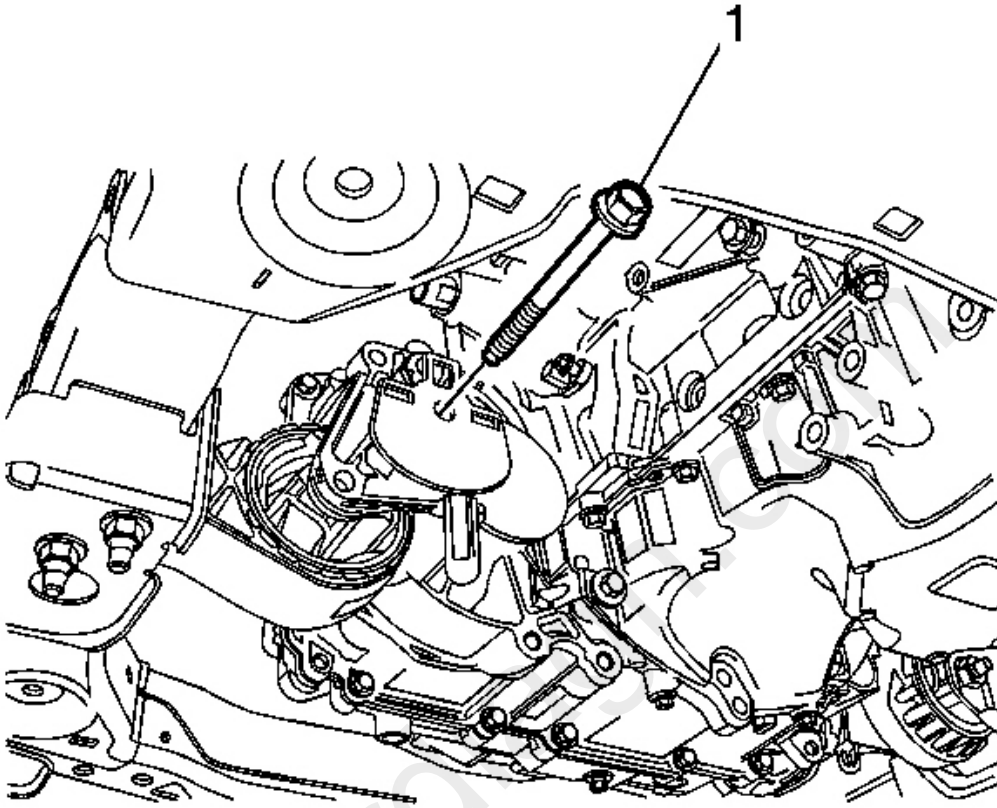


Fig. 8□ Locating Rear Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS CORP.

5. Install the transmission mount to bracket through bolt (1) and tighten to 100 N.m (74 lb ft).

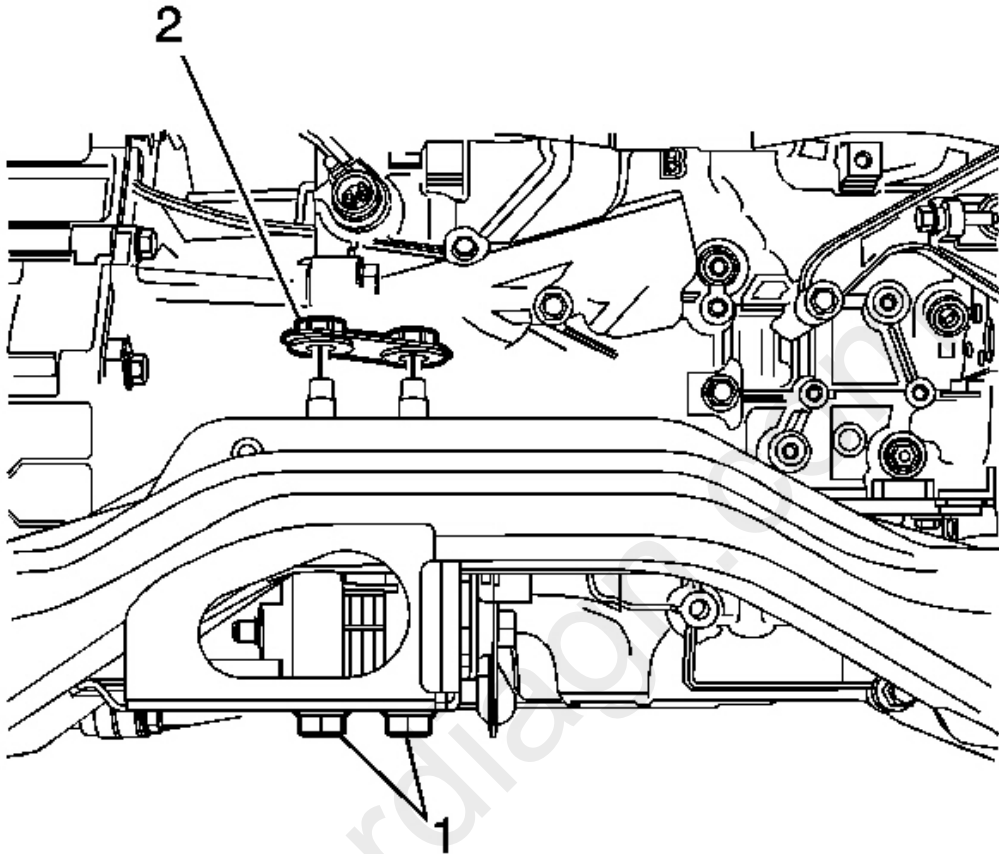


Fig. 8□ Identifying Rear Mount-To-Frame Fasteners
Courtesy of GENERAL MOTORS CORP.

6. Replace the bolts with a New bolts and tighten to 70 N.m (51 lb ft) plus 50 degrees.
7. Remove the jack stand.
8. Install the left tire and wheel. Refer to **Tire and Wheel Removal and Installation** .
9. Lower the vehicle.

TRANSMISSION REAR MOUNT REPLACEMENT (AWD)

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the propeller shaft from the vehicle. Refer to **Propeller Shaft Replacement** .
3. If equipped with LF1, remove the right catalytic converter. Refer to **Catalytic Converter Replacement -**

Right Side (LF1) .

4. Use a suitable jack to support the transaxle.

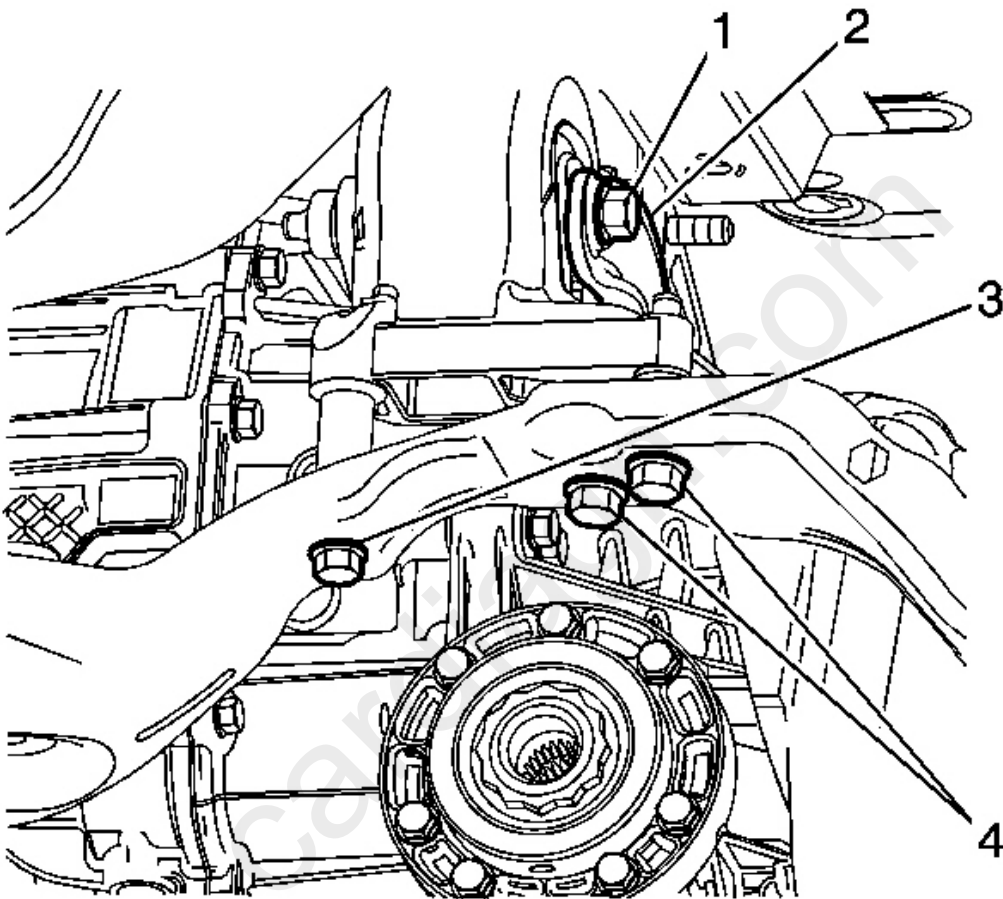


Fig. 8□: Identifying Rear Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS CORP.

5. With a jack, slightly take the weight off mount, and remove the transaxle mount to frame fasteners (3, 4).
6. Remove the transaxle mount thought bolt (1).
7. Remove the transaxle mount from the vehicle (2).

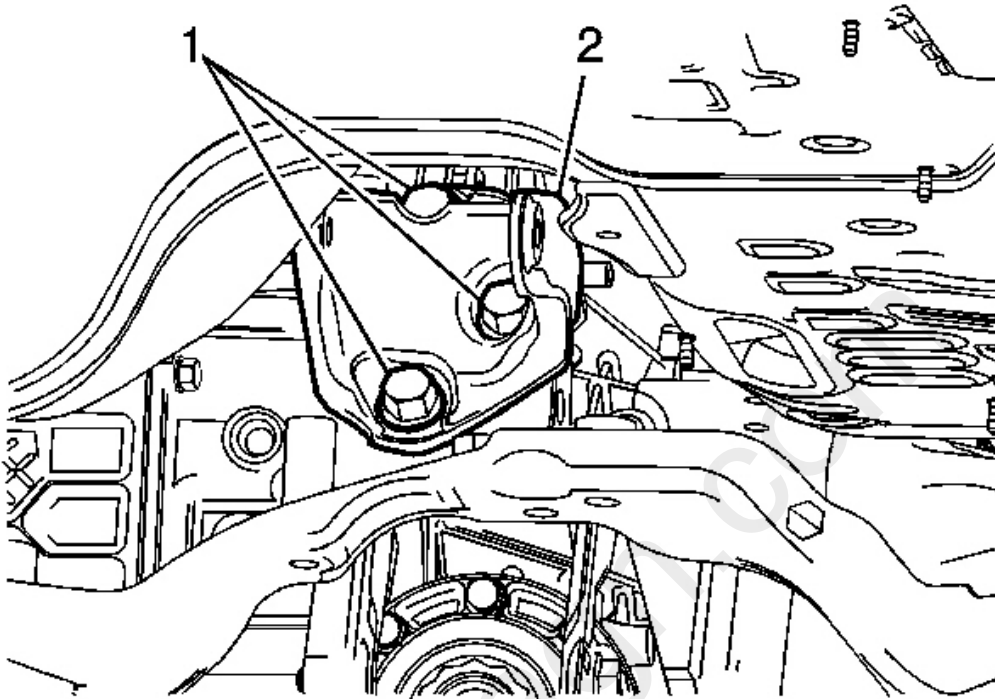


Fig. 88: Identifying Transaxle Bracket-To-Transfer Case Fasteners
Courtesy of GENERAL MOTORS CORP.

8. Remove the transaxle bracket to transfer case fasteners (1).
9. Remove the bracket from the vehicle.

Installation Procedure

1. Position the transaxle bracket to the transaxle.

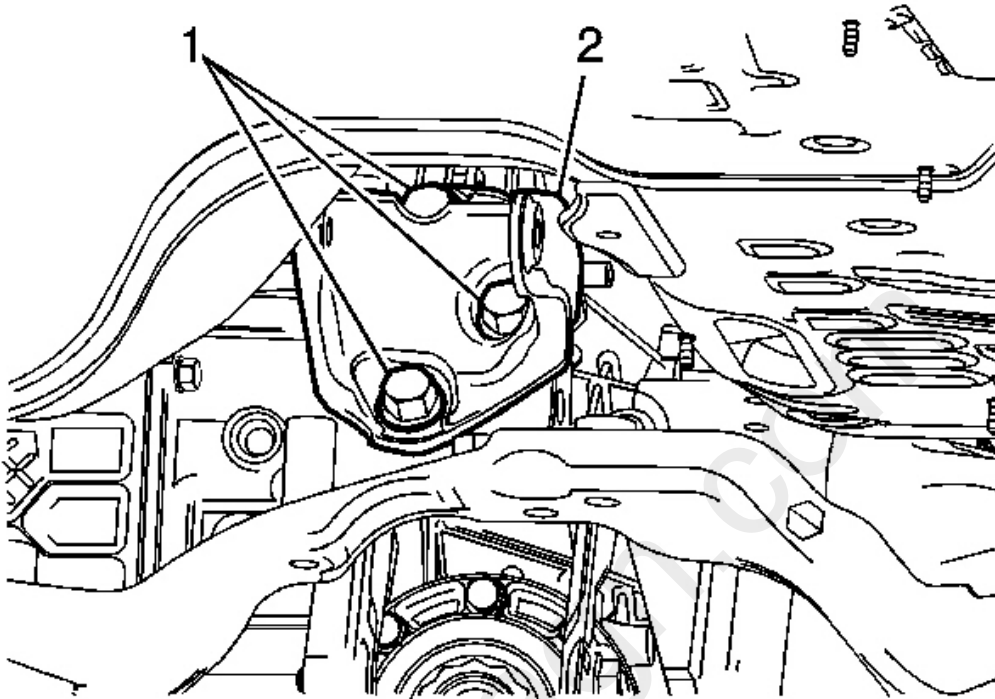


Fig. 89: Identifying Transaxle Bracket-To-Transfer Case Fasteners
Courtesy of GENERAL MOTORS CORP.

2. □and start the transa□le mount bracket (2) to transfer case bolts.

CAUTION: Refer to Fastener Caution .

3. Install the transfer case bracket bolts and tighten to 100 N.m (74 lb ft)

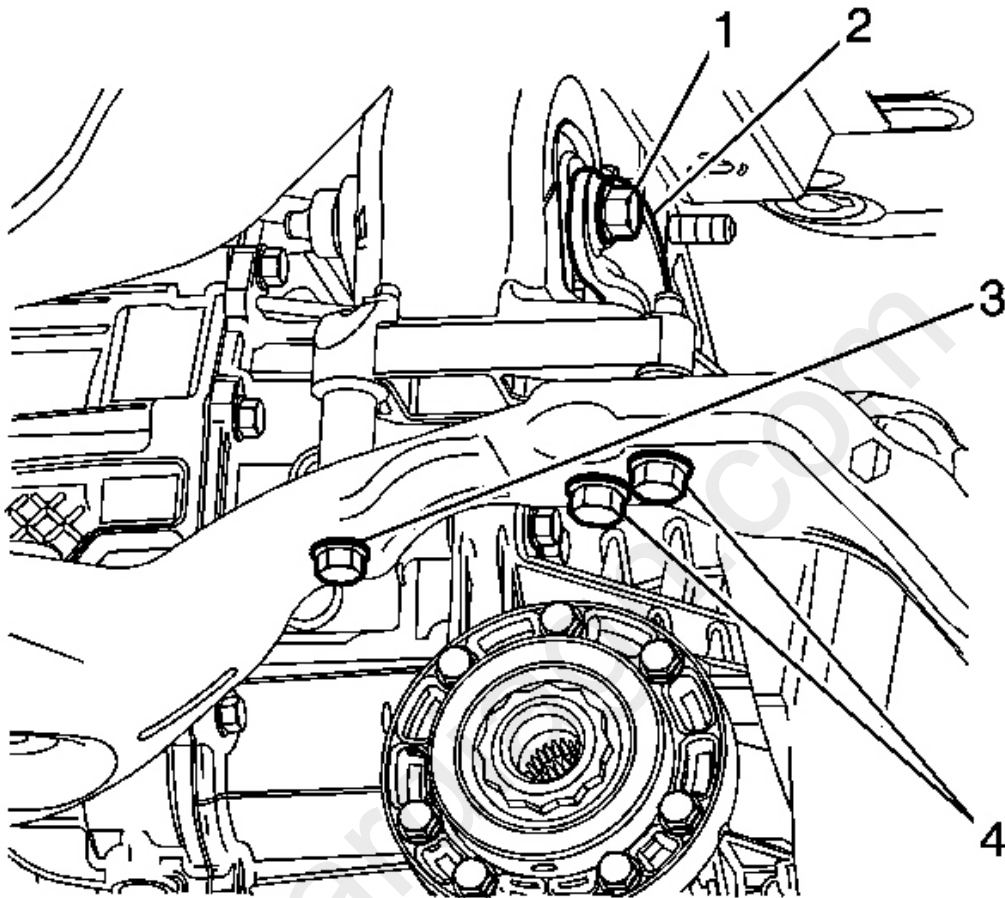


Fig. 90: Identifying Rear Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS CORP.

4. Install the transaxle mount the frame.
5. Install the longer transaxle mount to frame bolt (3) and tighten to 62 N.m (46 lb ft)
6. Install the shorter transaxle mount to frame bolts (4) and tighten to 100 N.m (74 lb ft)
7. Install the through bolt and tighten to 100 N.m (74 lb ft)
8. Remove the support from the transaxle.
9. Install the propeller shaft. Refer to **Propeller Shaft Replacement**
10. If removed, install the right catalytic converter. Refer to **Catalytic Converter Replacement - Right Side (LF1)**.
11. Lower the vehicle.

Removal Procedure

1. Remove the battery tray. Refer to **Battery Tray Replacement** .
2. Remove the transmission range select lever cable and bracket.
3. Drain the transmission fluid. Refer to **Transmission Fluid Replacement**.

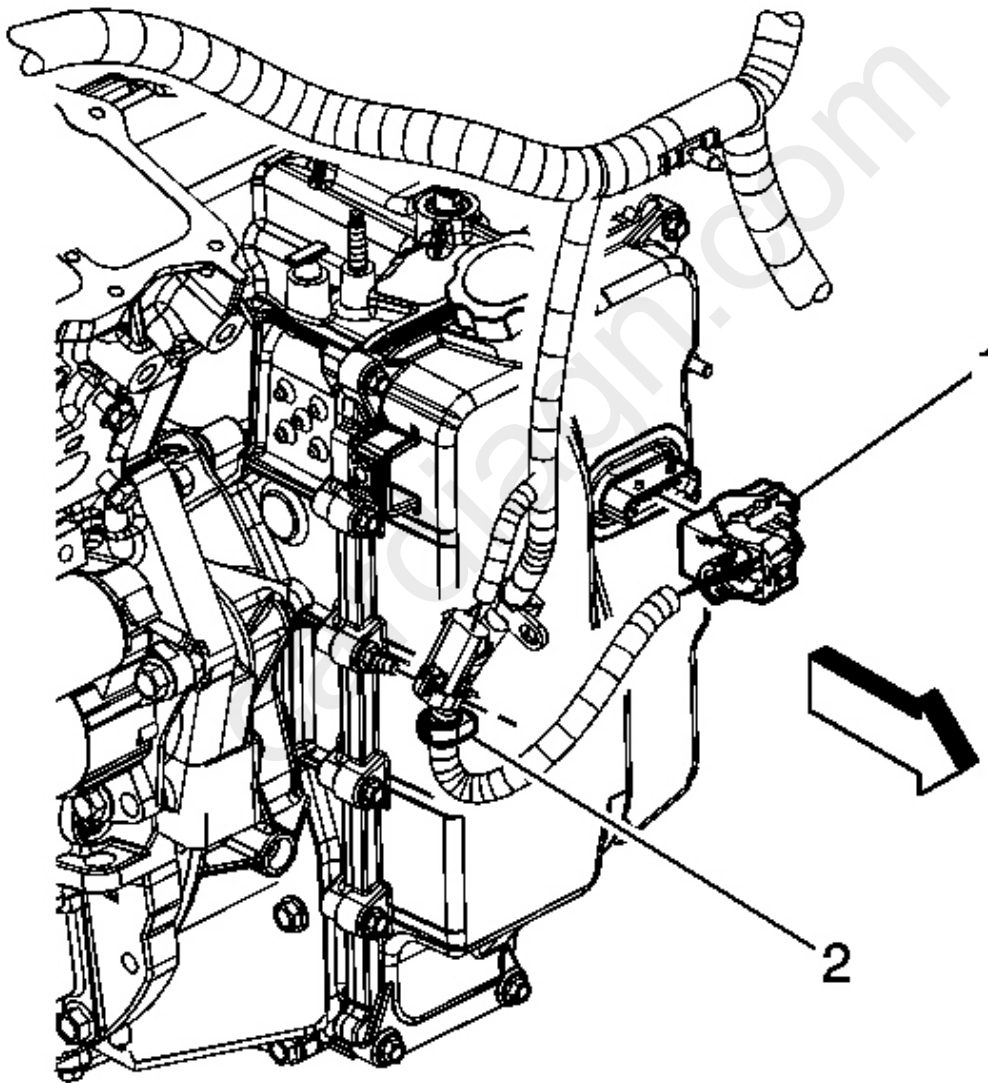


Fig. 91: Identifying Wire Harness Retainer & TCM Electrical Connector
Courtesy of GENERAL MOTORS CORP.

4. Remove the wire harness retainer (2) from the control valve body cover stud.
5. Disconnect the control valve body transmission control module (□□□) electrical connector (1).

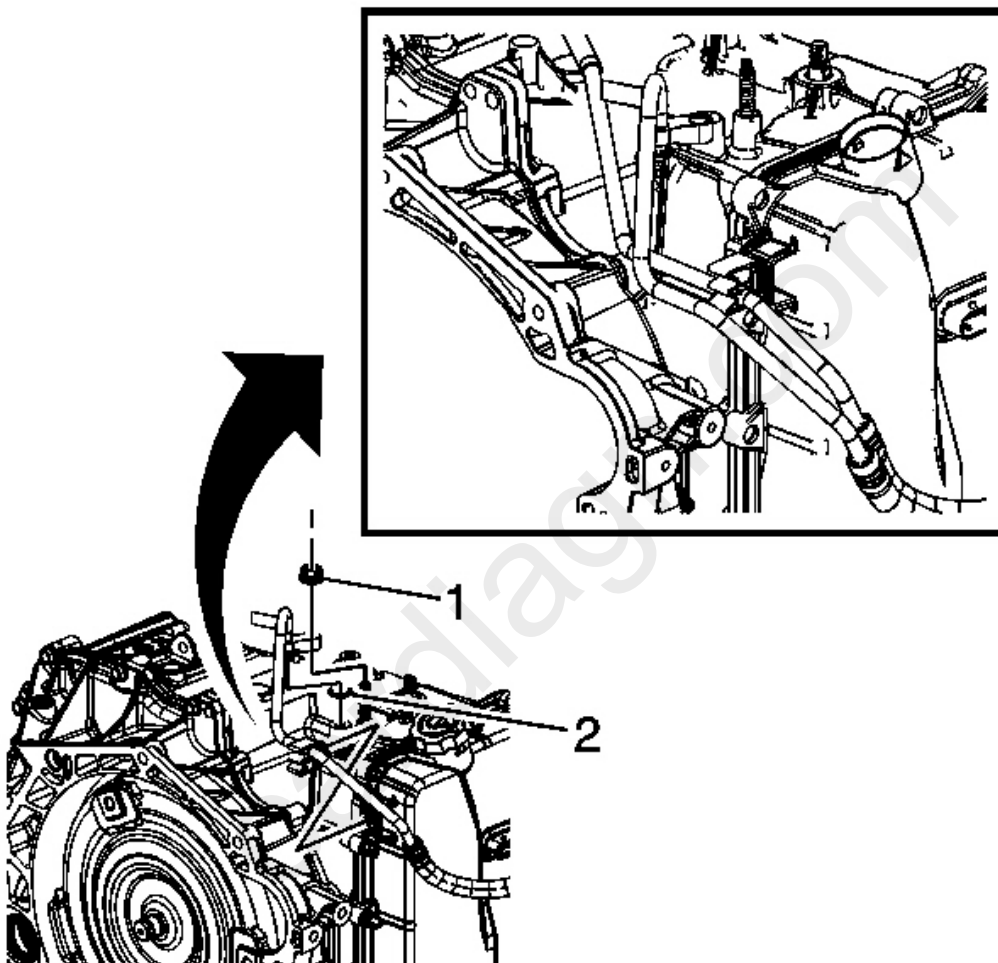


Fig. 92: Identifying Transmission Fluid Cooler Inlet Hose Components
Courtesy of GENERAL MOTORS CORP.

6. Remove the transmission fluid cooler pipe retainer nut (1).
7. Remove the transmission fluid cooler inlet hose and seal (2) from the transmission.
8. Plug and/or cap the hose and transmission to prevent contamination.

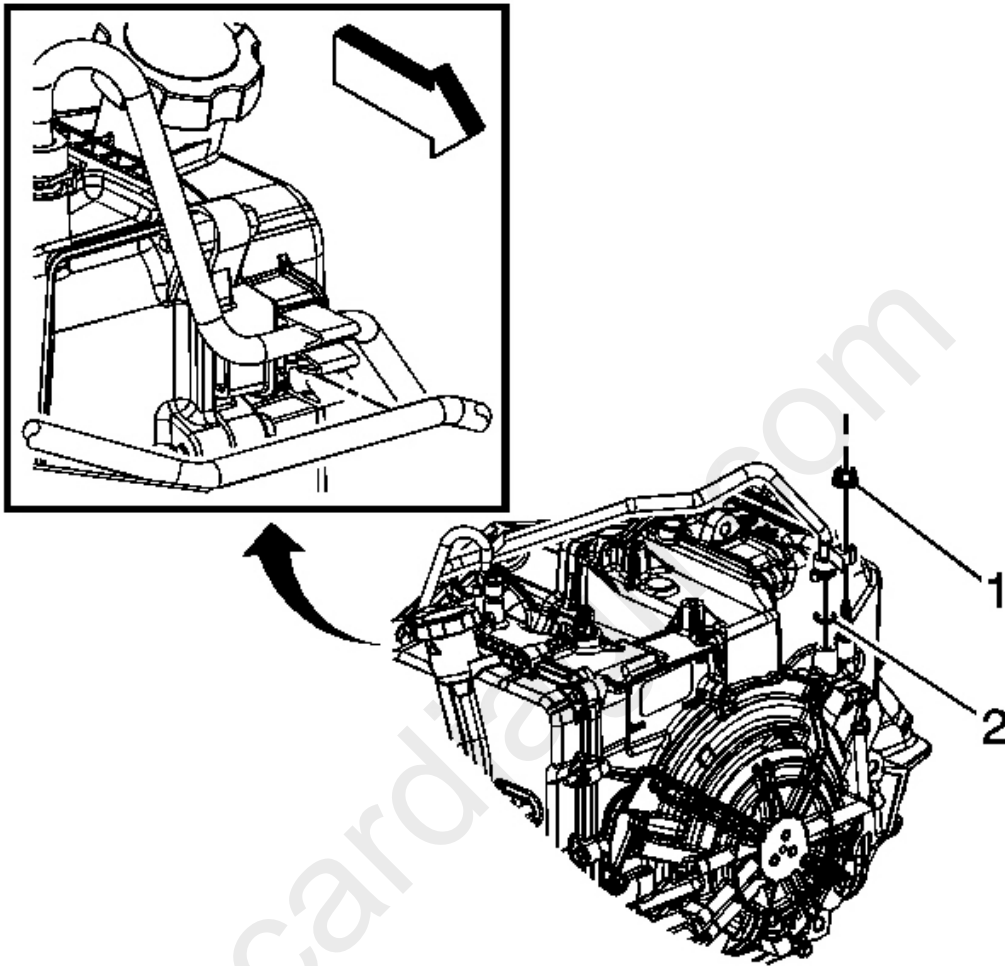


Fig. 93: Identifying Transmission Fluid Cooler Pipe Components

Courtesy of GENERAL MOTORS CORP.

9. Remove the transmission fluid cooler pipe retainer nut (1).
10. Remove the transmission fluid cooler outlet hose and seal (2) from the transmission.
11. Plug and/or cap the hose and transmission to prevent contamination.
12. Disconnect both pipes from the retainer.
13. Install the engine support fixture. Refer to **Engine Support Fixture**
14. Remove the left catalytic converter and pipe assembly. Refer to **Catalytic Converter Replacement - Left Side (LF1)**
15. Remove the starter. Refer to **Starter Replacement (LF1)** or **Starter Replacement (LAU)**.
16. Mark the relationship of the flywheel to the torque converter for reassembly.

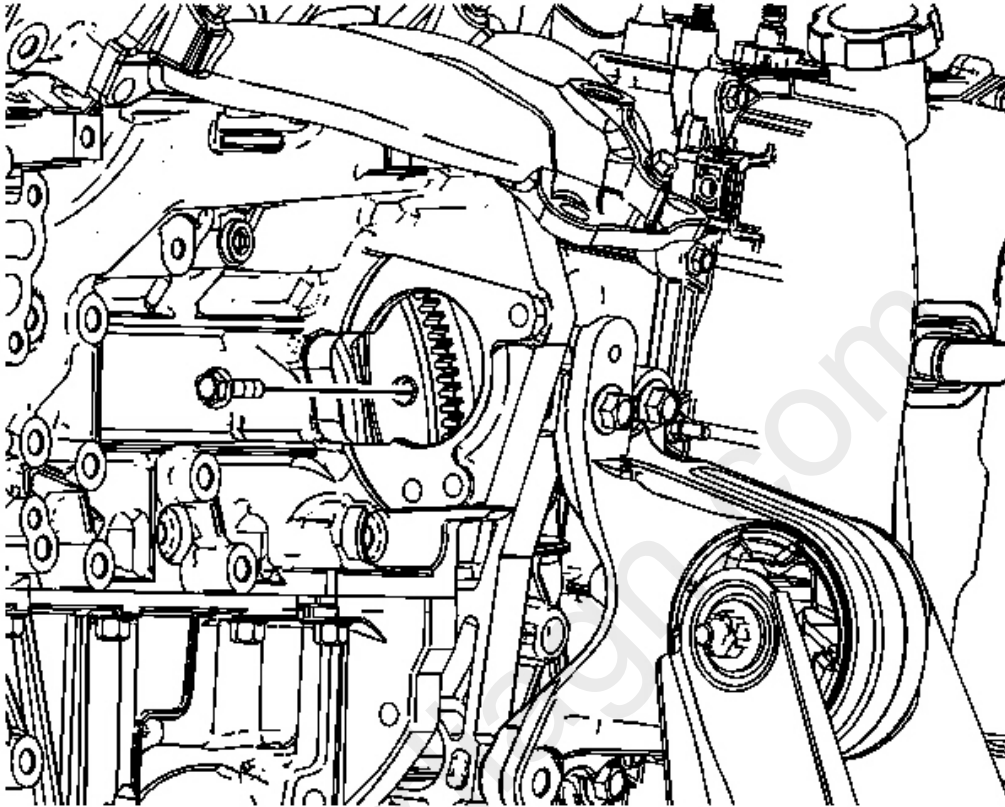


Fig. 9 □ Identifying Starter

Courtesy of GENERAL MOTORS CORP.

NOTE: Rotate the engine clockwise only by the balancer bolt.

17. Remove the torque converter to flywheel bolts.
18. Remove the rear transmission mount from the transmission. Refer to **Transmission Rear Mount Replacement (FWD)** or **Transmission Rear Mount Replacement (AWD)**.
19. Remove the front transmission mount from the transmission. Refer to **Transmission Front Mount Replacement**
20. Remove the left transmission mount from the transmission. Refer to **Transmission Mount Replacement - Left Side**

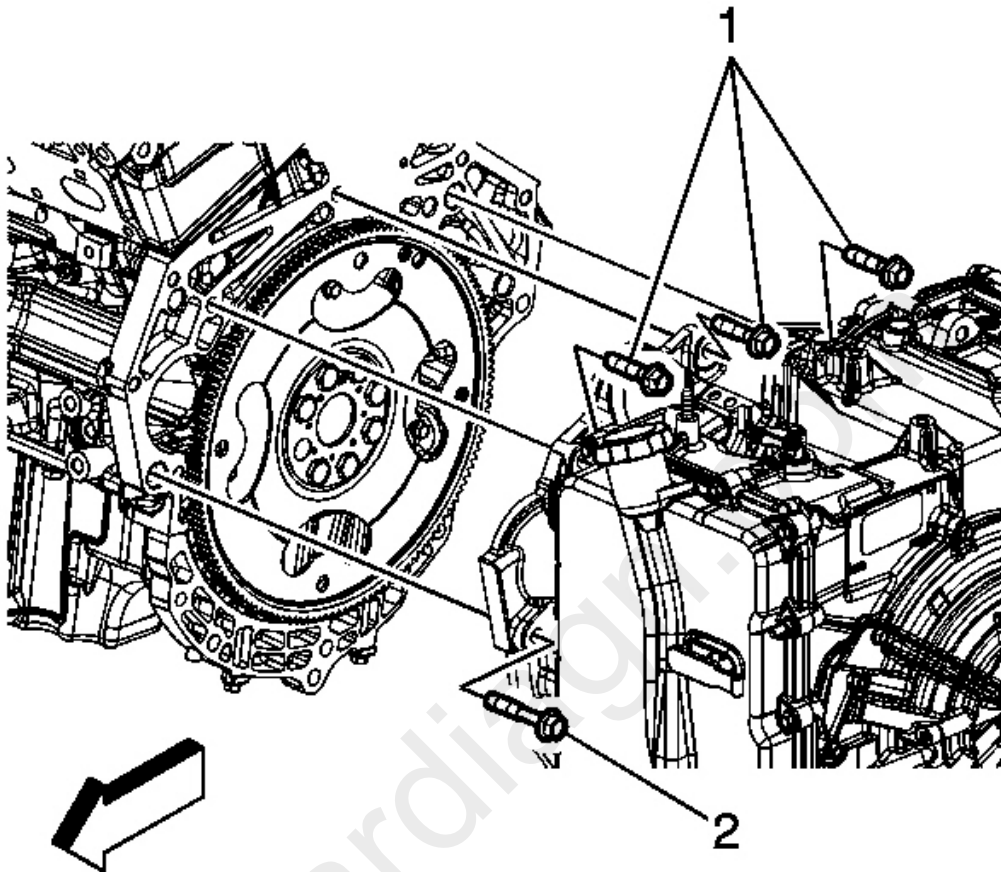


Fig. 9: Identifying Upper Transmission To Engine Bolts
Courtesy of GENERAL MOTORS CORP.

21. Remove the upper transmission to engine bolts (1, 2).
22. Remove the frame. Refer to **Drivetrain and Front Suspension Frame Replacement**.
23. Disconnect the wheel drive shafts from the transmission and transfer case. Refer to **Front Wheel Drive Shaft Replacement - Left Side** and **Front Wheel Drive Shaft Replacement - Right Side**
24. Remove the transfer case from the transmission. Refer to **Transfer Case Replacement**

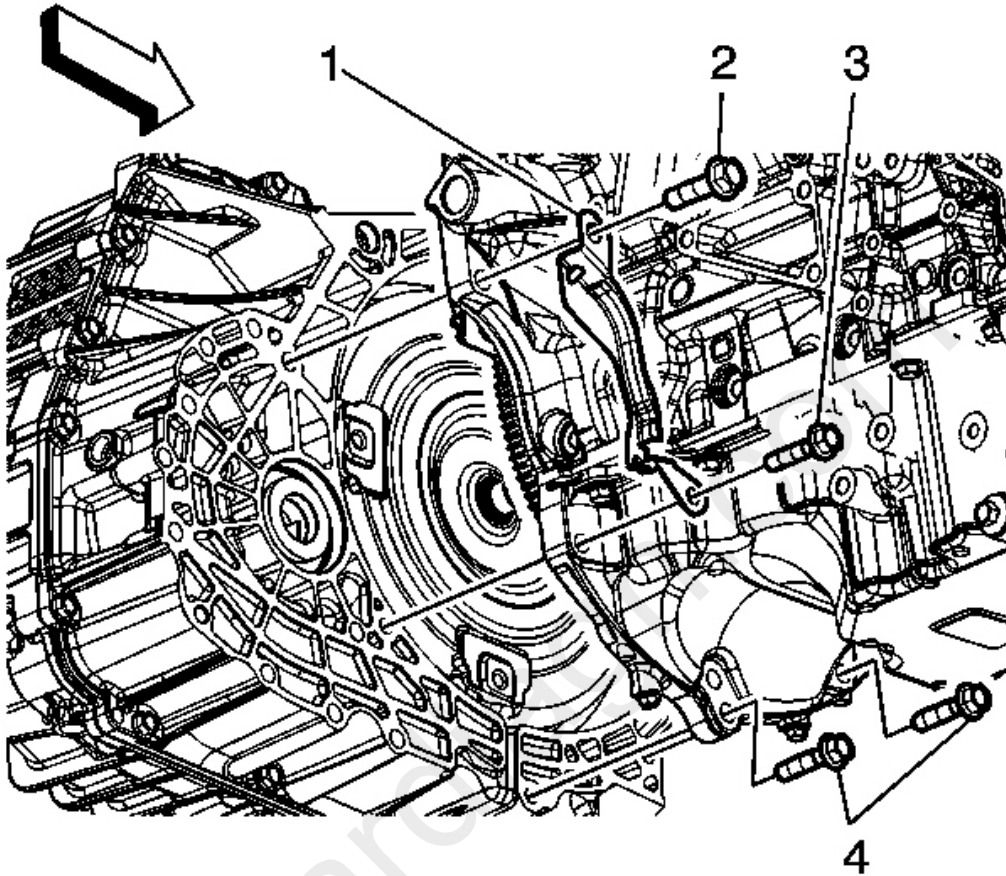


Fig. 9□ Identifying Transmission Bolts
Courtesy of GENERAL MOTORS CORP.

25. Support the transmission with a transmission jack.
26. Remove the transmission to engine bolts (2, 3).
27. Remove the remaining transmission bolts (4).

NOTE: Insure the torque converter remains securely in place on the transmission input shaft while separating and removing the transmission.

28. Separate the transmission from the engine.
29. Lower the transmission with the transmission jack far enough to remove the transmission.
30. Flush the transmission cooler lines. Refer to Transmission Fluid Cooler Flushing and Flooding Test.

1. Raise the transmission with the transmission jack and position the transmission to the engine.

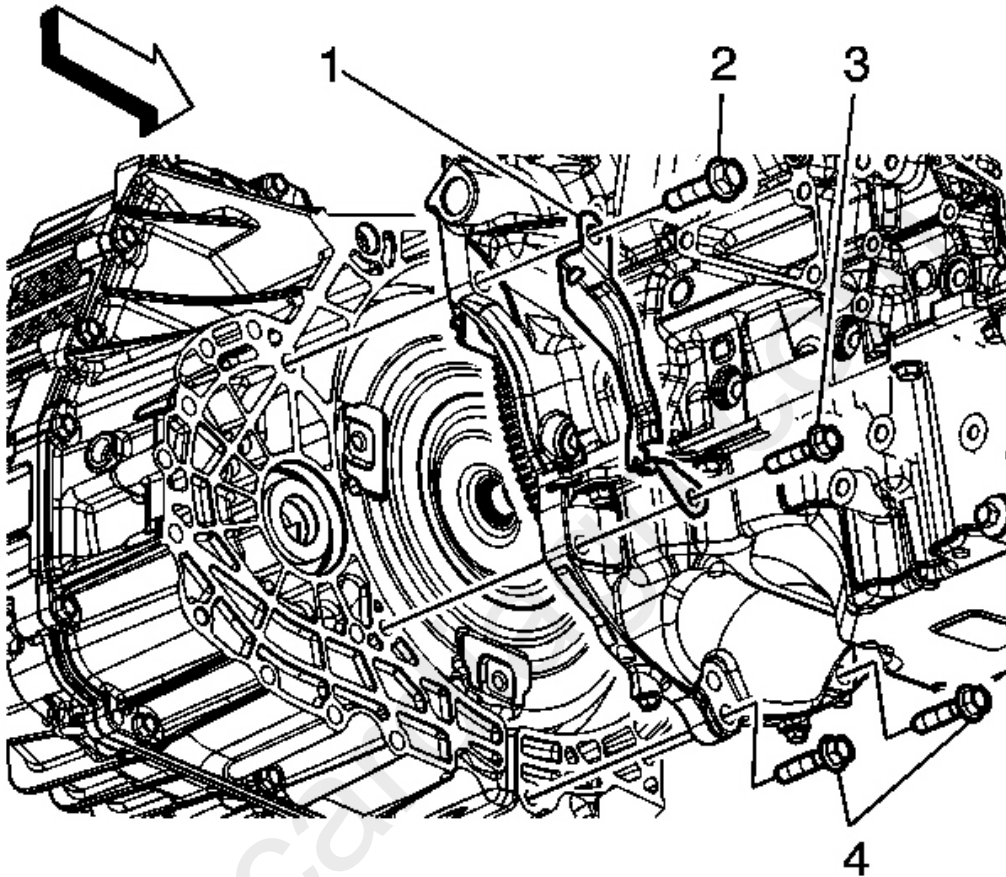


Fig. 9 □ Identifying Transmission Bolts
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

2. Install the transmission bolts (4) and tighten to 75 N.m (55 lb ft).
3. Install the flywheel inspection cover (1).
4. Install the flywheel inspection cover bolts (2, 3) and tighten to 75 N.m (55 lb ft).
5. Install the transfer case to the transmission. Refer to Transfer Case Replacement
6. Remove the transmission jack.

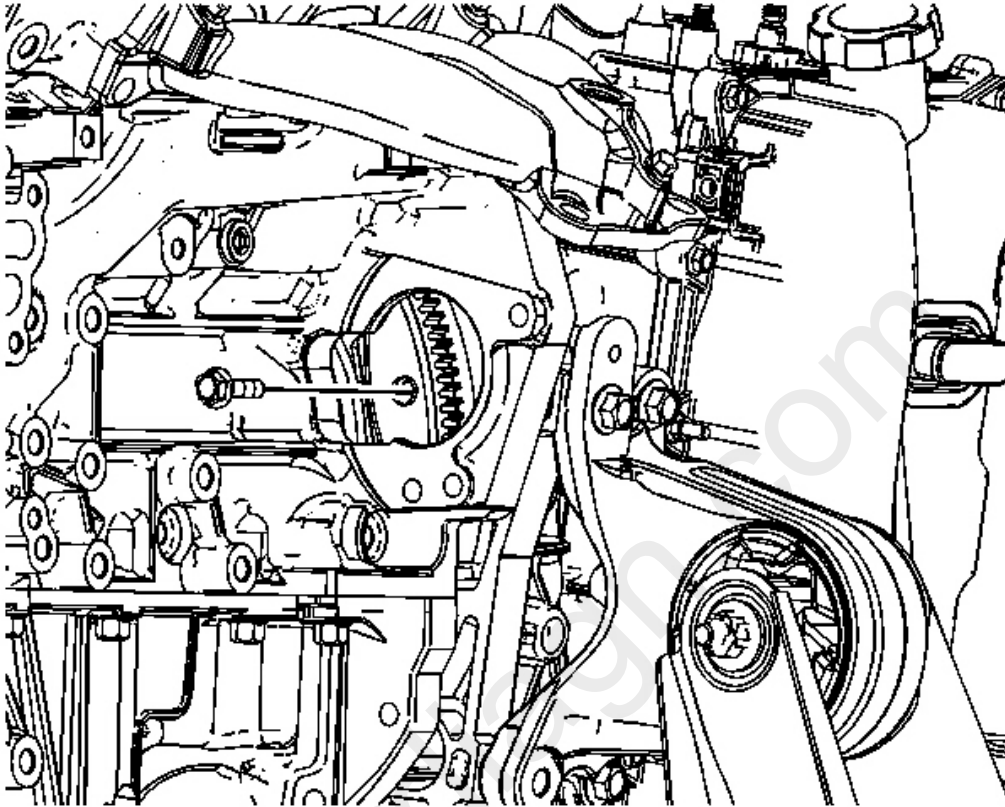


Fig. 9 □ Identifying Starter

Courtesy of GENERAL MOTORS CORP.

NOTE: If reusing the torque converter bolts, clean the threads and apply **LOCTITE™ 242** or equivalent to the threads prior to installation.

7. Install the torque converter to flywheel bolts and tighten to 62 N.m (46 lb ft).
8. Install the starter. Refer to **Starter Replacement (LF1)** or **Starter Replacement (LAU)**.
9. Install the front transmission mount to the transmission. Refer to **Transmission Front Mount Replacement**.
10. Install the rear transmission mount to the transmission. Refer to **Transmission Rear Mount Replacement (FWD)** or **Transmission Rear Mount Replacement (AWD)**.
11. Install the left transmission mount to the transmission. Refer to **Transmission Mount Replacement - Left Side**.
12. Install the wheel drive shafts to the transmission. Refer to **Front Wheel Drive Shaft Replacement - Left Side** and **Front Wheel Drive Shaft Replacement - Right Side**.

13. Install the frame. Refer to **Drivetrain and Front Suspension Frame Replacement** .

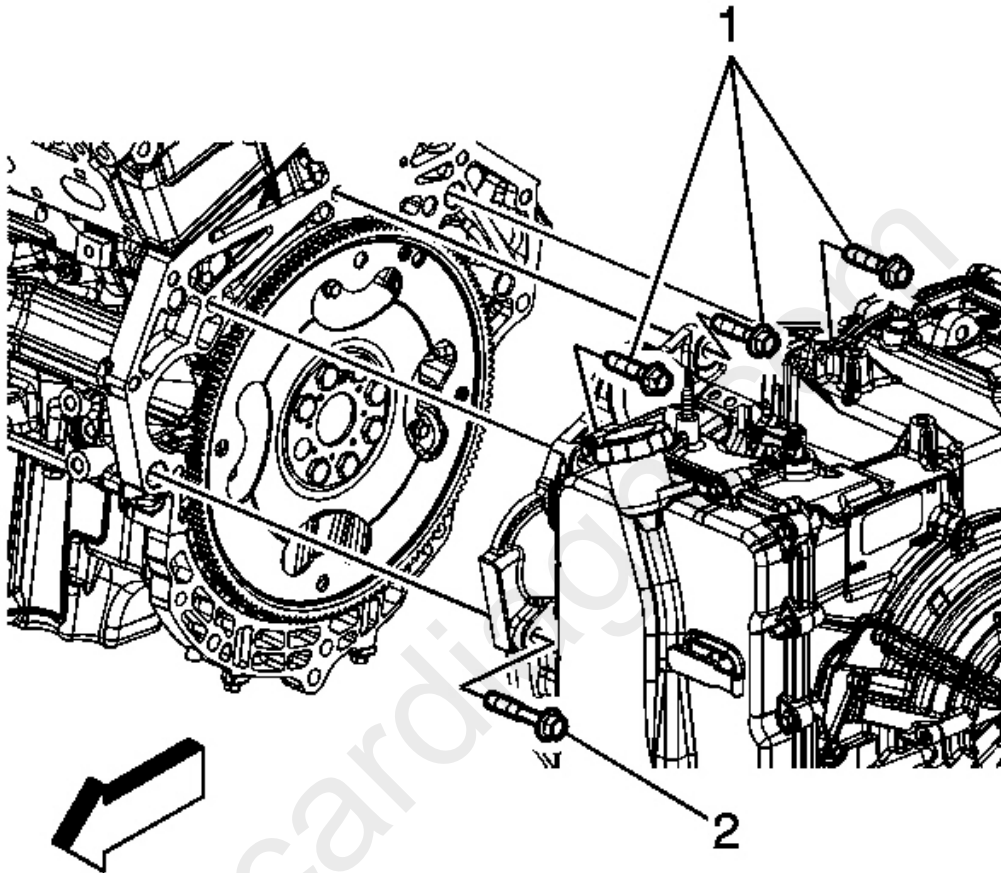


Fig. 99: Identifying Upper Transmission To Engine Bolts
Courtesy of GENERAL MOTORS CORP.

14. Install the upper transmission to engine bolt (1, 2) and tighten to 75 $\square$.m (55 lb ft).
15. Install the left catalytic converter and pipe assembly. Refer to **Catalytic Converter Replacement - Left Side (LF1)**
16. Remove the engine support fixture.
17. $\square$ ower the vehicle.

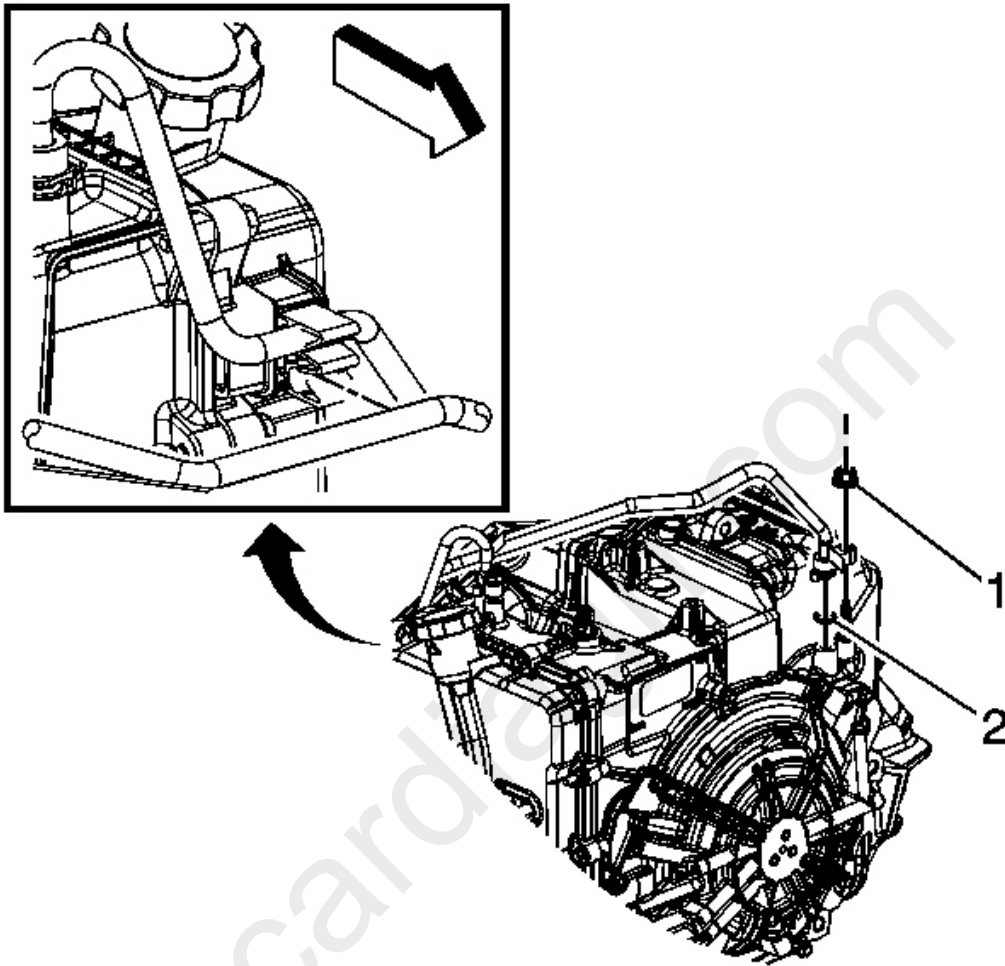


Fig. 100: Identifying Transmission Fluid Cooler Pipe Components
Courtesy of GENERAL MOTORS CORP.

18. Install the transmission fluid cooler outlet hose and seal (2) to the transmission.
19. Install the transmission fluid cooler pipe retainer nut (1) and tighten to 22 $\square$.m (16 lb ft).

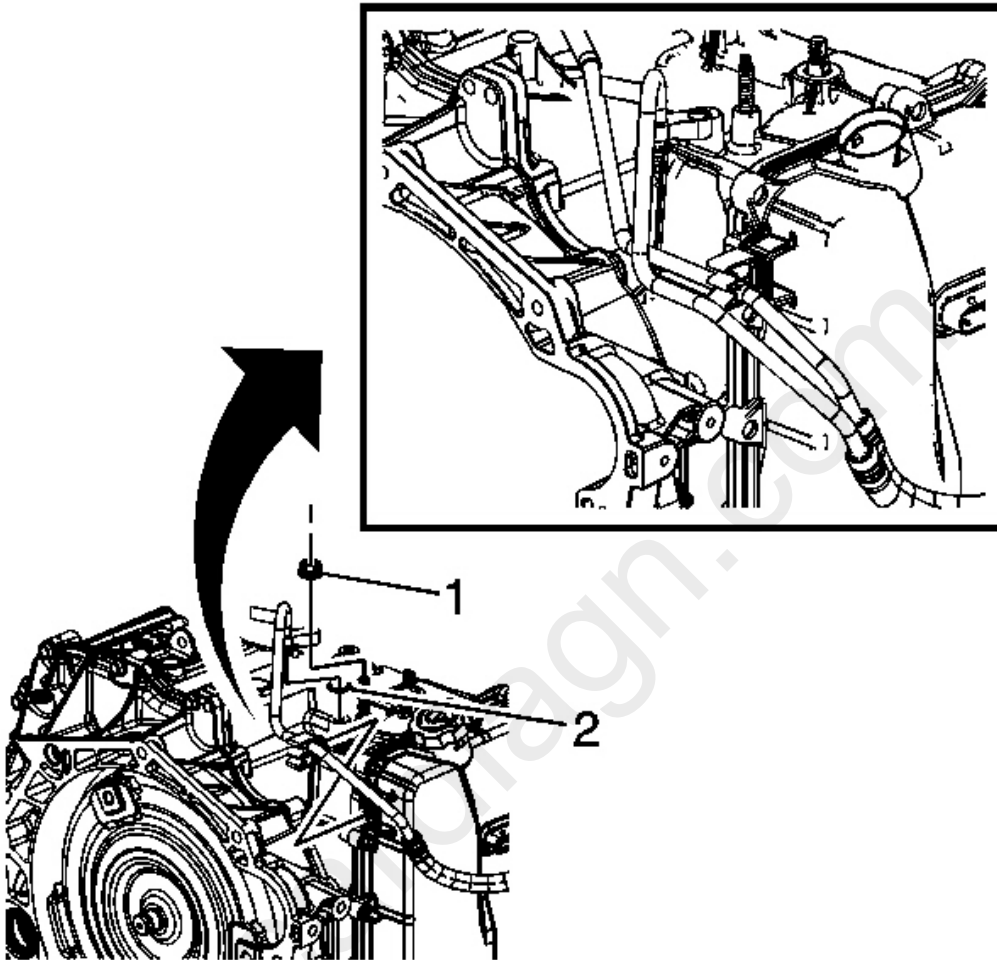


Fig. 101: Identifying Transmission Fluid Cooler Inlet Hose Components
Courtesy of GENERAL MOTORS CORP.

20. Install the transmission fluid cooler inlet hose and seal (2) to the transmission.
21. Install the transmission fluid cooler pipe retainer nut (1) and tighten to 22 $\square$.m (16 lb ft).

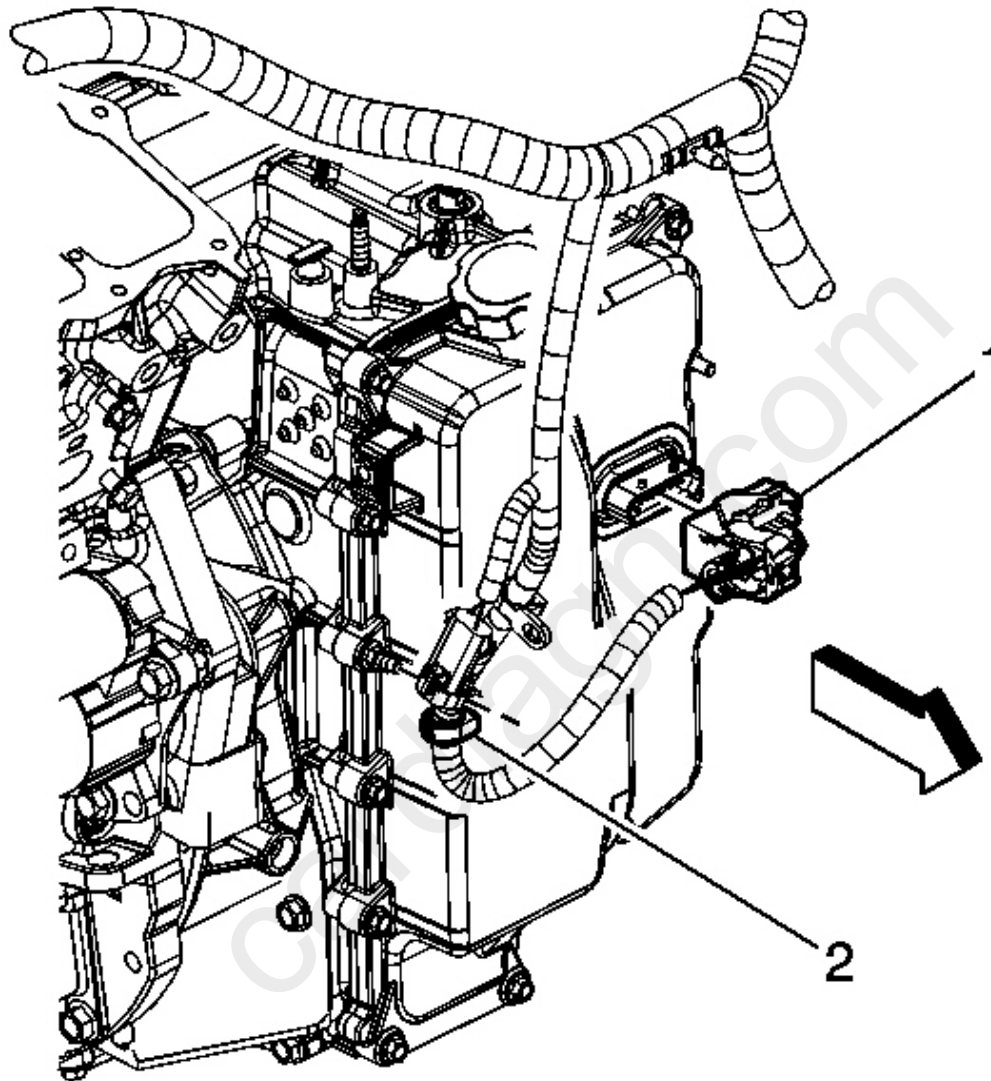


Fig. 102: Identifying Wire Harness Retainer & TCM Electrical Connector
Courtesy of GENERAL MOTORS CORP.

22. Connect the control valve body TCM electrical connector (1).
23. Install the wire harness retainer (2) to the control valve body cover stud and tighten the nut to 12 $\square$.m (106 lb in).
24. Install the transmission range select lever cable and bracket.
25. Install the battery tray. Refer to **Battery Tray Replacement** .

2010 Cadillac SRX

2010 TRANSMISSION Automatic Transmission - 6T70/6T75 - SRX

26. □djust the automatic transmission range selector lever cable. Refer to **Range Selector Lever Cable Adjustment**.
27. □ill the transmission with fluid. Refer to **Transmission Fluid Replacement**.

NOTE: **After an internal transmission repair or internal part replacement the service fast learn adapt procedure should be performed.**

28. If the transmission or TCM has been replaced, refer to **Control Module References** .
29. Perform the service fast learn adapt procedure. Refer to **Service Fast Learn Adapts** .
30. Road test the vehicle.

TRANSMISSION REPLACEMENT (FWD)

Removal Procedure

1. Remove the battery tray. Refer to **Battery Tray Replacement** .
2. Remove the transmission range select lever cable and bracket.
3. Drain the transmission fluid. Refer to **Transmission Fluid Replacement**.

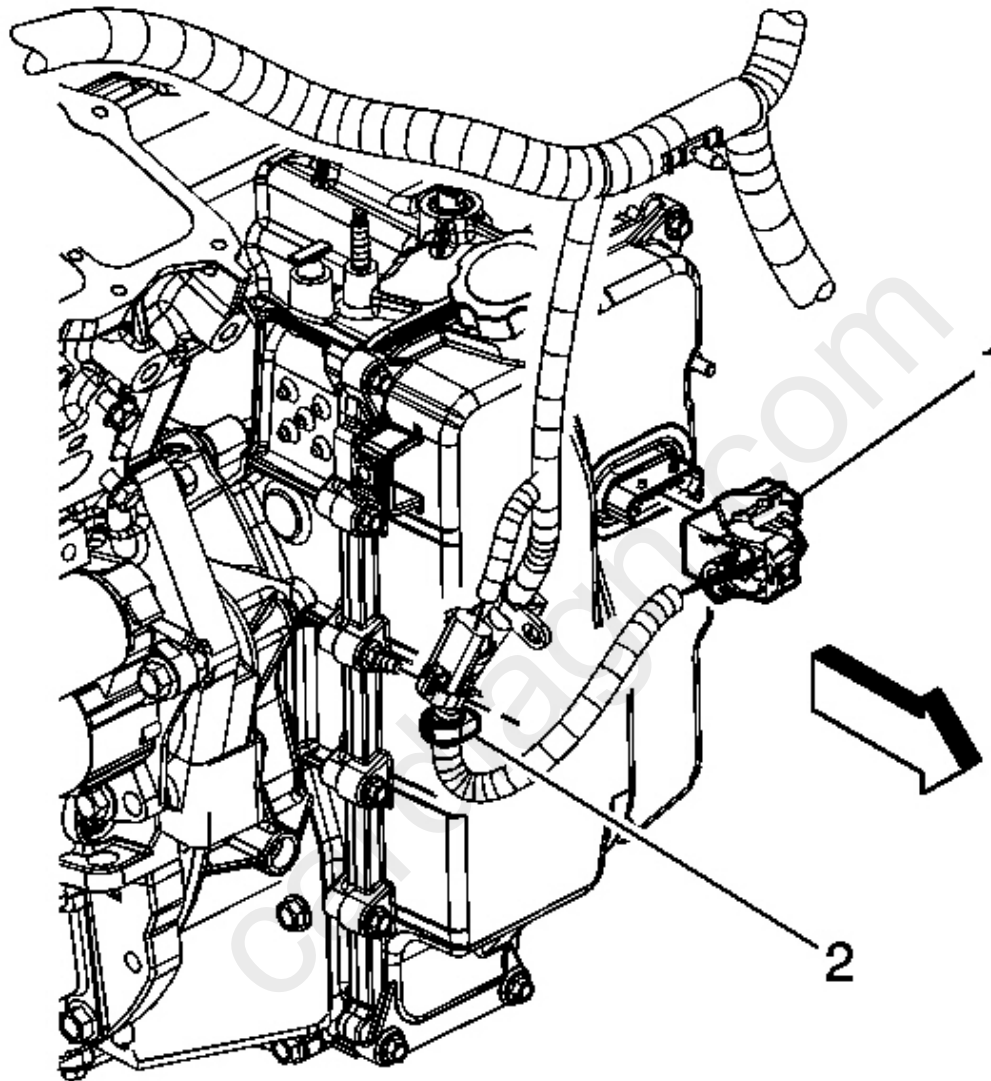


Fig. 10 □ Identifying Wire □ arness Retainer □ TCM Electrical Connector
Courtesy of GENERAL MOTORS CORP.

4. Remove the wire harness retainer (2) from the control valve body cover stud.
5. Disconnect the control valve body transmission control module (TCM) electrical connector (1).

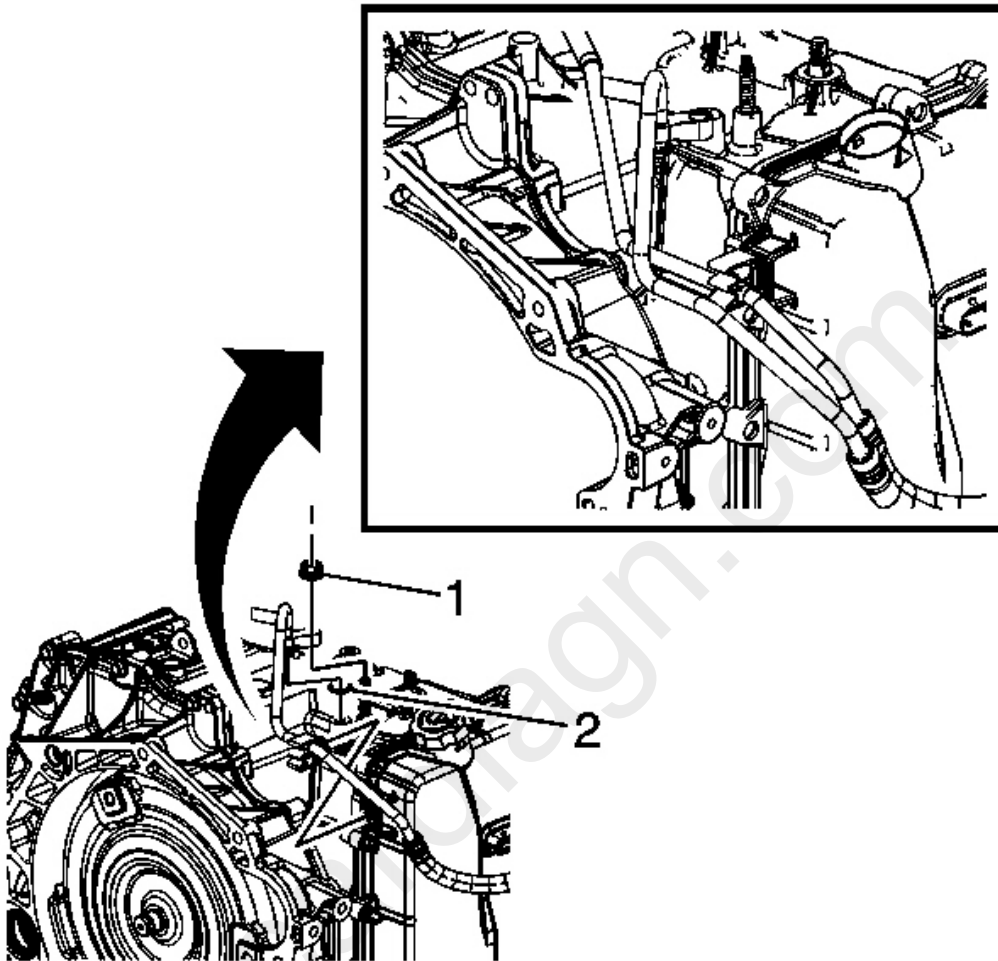


Fig. 10□: Identifying Transmission Fluid Cooler Inlet □ose Components
Courtesy of GENERAL MOTORS CORP.

6. Remove the transmission fluid cooler pipe retainer nut (1).
7. Remove the transmission fluid cooler inlet hose and seal (2) from the transmission.
8. Plug and/or cap the hose and transmission to prevent contamination.

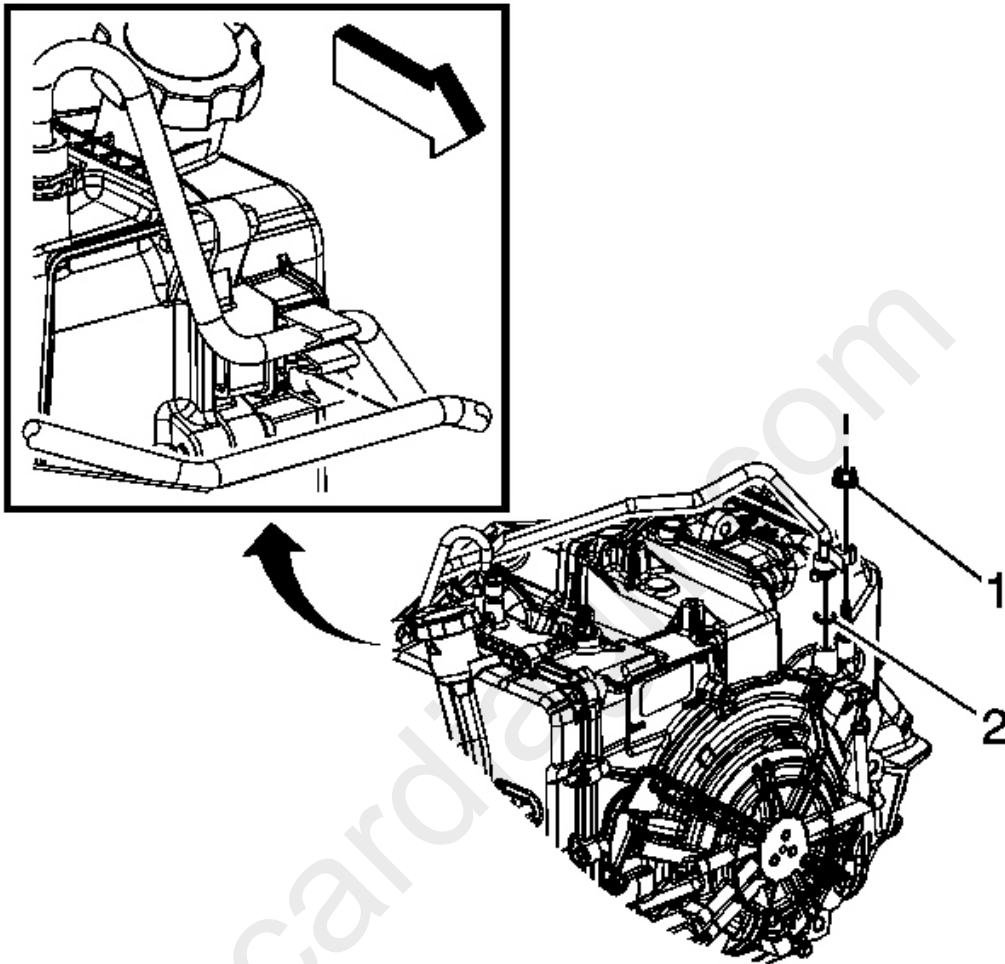


Fig. 10□: Identifying Transmission Fluid Cooler Pipe Components
Courtesy of GENERAL MOTORS CORP.

9. Remove the transmission fluid cooler pipe retainer nut (1).
10. Remove the transmission fluid cooler outlet hose and seal (2) from the transmission.
11. Plug and/or cap the hose and transmission to prevent contamination.
12. Disconnect both pipes from the retainer.
13. Install the engine support fixture. Refer to **Engine Support Fixture**
14. Remove the starter. Refer to **Starter Replacement (LF1)** or **Starter Replacement (LAU)**.
15. Mark the relationship of the flywheel to the torque converter for reassembly.

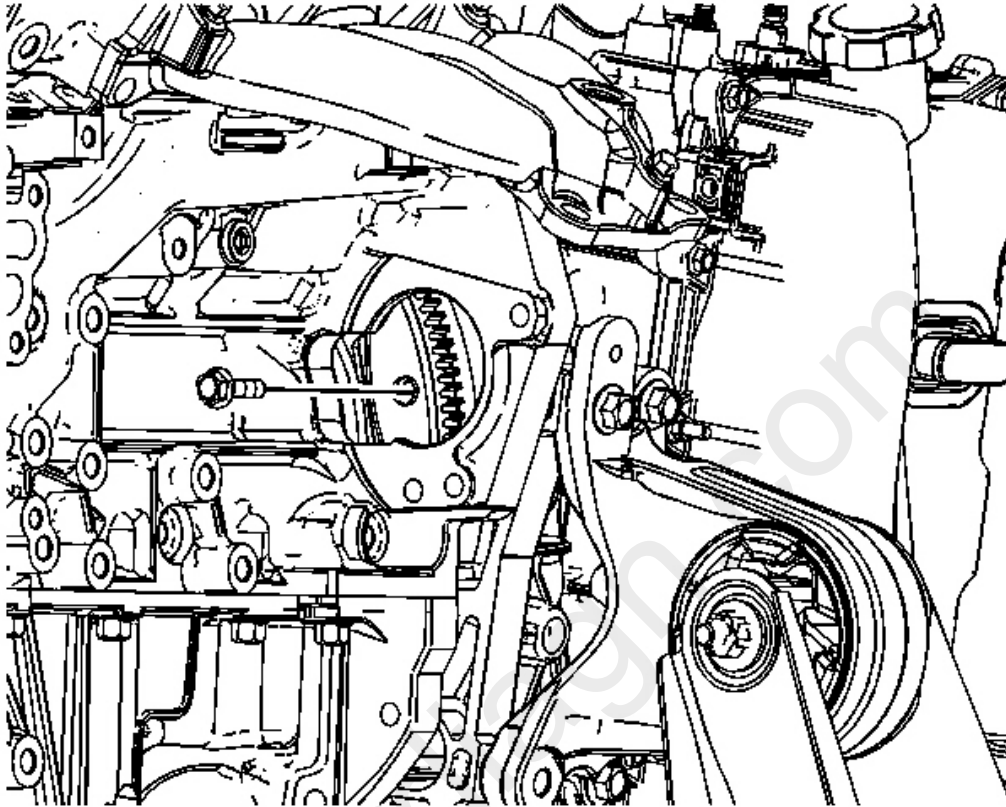


Fig. 10□: Identifying Starter

Courtesy of GENERAL MOTORS CORP.

16. Remove the torque converter to flywheel bolts.
17. Remove the rear transmission mount from the transmission. Refer to **Transmission Rear Mount Replacement (FWD)** or **Transmission Rear Mount Replacement (AWD)**.
18. Remove the front transmission mount from the transmission. Refer to **Transmission Front Mount Replacement**
19. Remove the left transmission mount from the transmission. Refer to **Transmission Mount Replacement - Left Side**

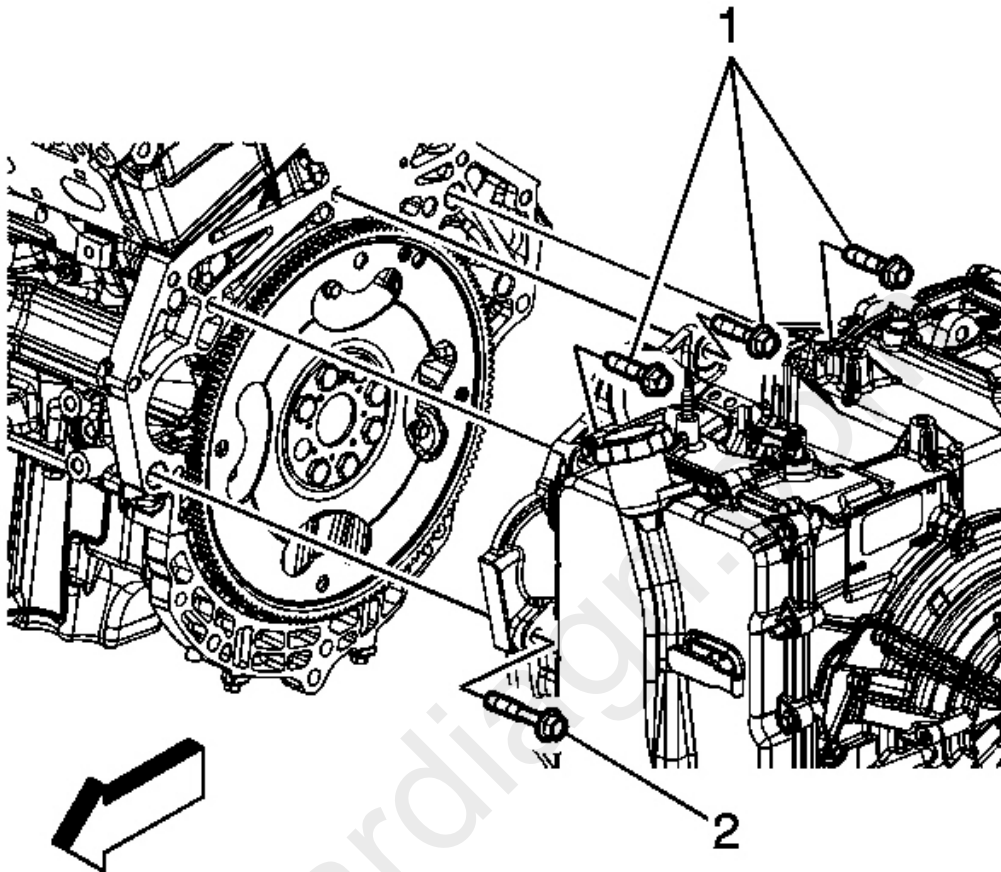


Fig. 10□: Identifying Upper Transmission To Engine Bolts
Courtesy of GENERAL MOTORS CORP.

20. Remove the upper transmission to engine bolts (1, 2).
21. Remove the frame. Refer to **Drivetrain and Front Suspension Frame Replacement** .
22. Disconnect the wheel drive shafts from the transmission. Refer to **Front Wheel Drive Shaft Replacement - Left Side** and **Front Wheel Drive Shaft Replacement - Right Side**
23. Remove the intermediate drive shaft. Refer to **Intermediate Shaft Replacement**
24. Use a transmission jack in order to support the transmission.

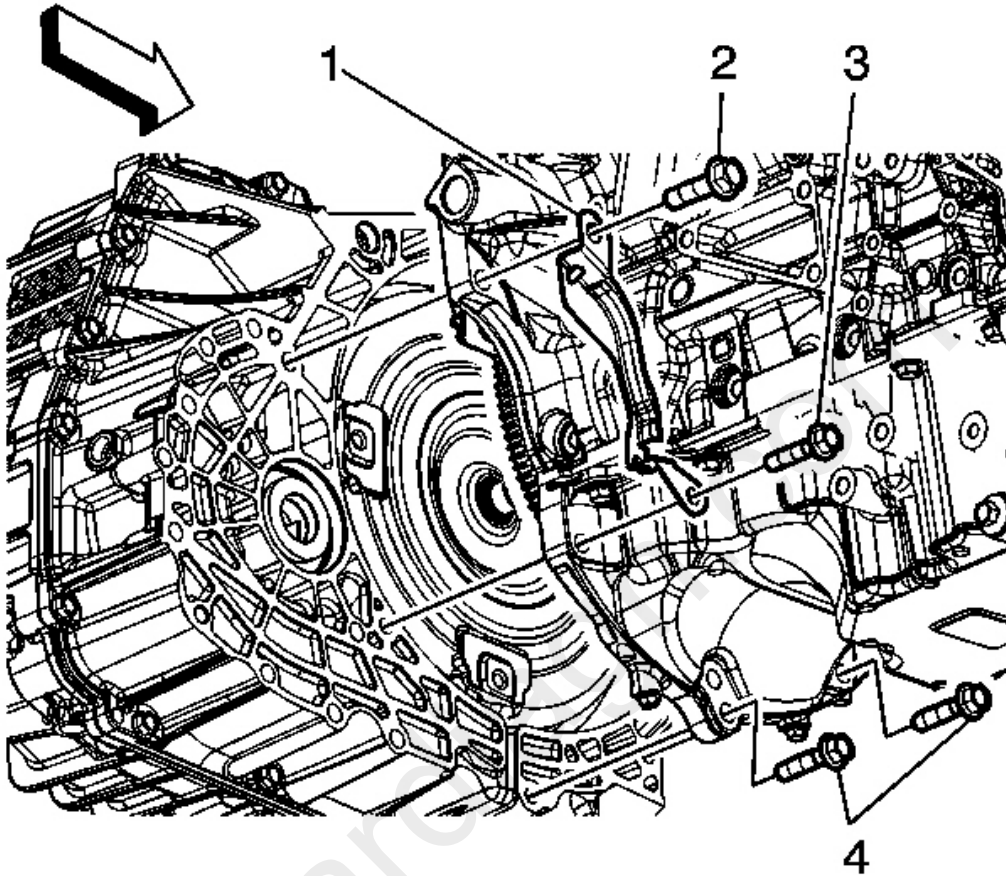


Fig. 108: Identifying Transmission Bolts
Courtesy of GENERAL MOTORS CORP.

25. Remove the flywheel inspection cover bolts (2, 3).
26. Remove the flywheel inspection cover (1).
27. Remove the remaining transmission bolts (4).

NOTE: Insure the torque converter remains securely in place on the transmission input shaft while separating and removing the transmission.

28. Separate the transmission from the engine.
29. Lower the transmission with the transmission jack far enough to remove the transmission.
30. Flush the transmission cooler lines. Refer to Transmission Fluid Cooler Flushing and Flow Test.

1. Raise the transmission with the transmission jack and position the transmission to the engine.

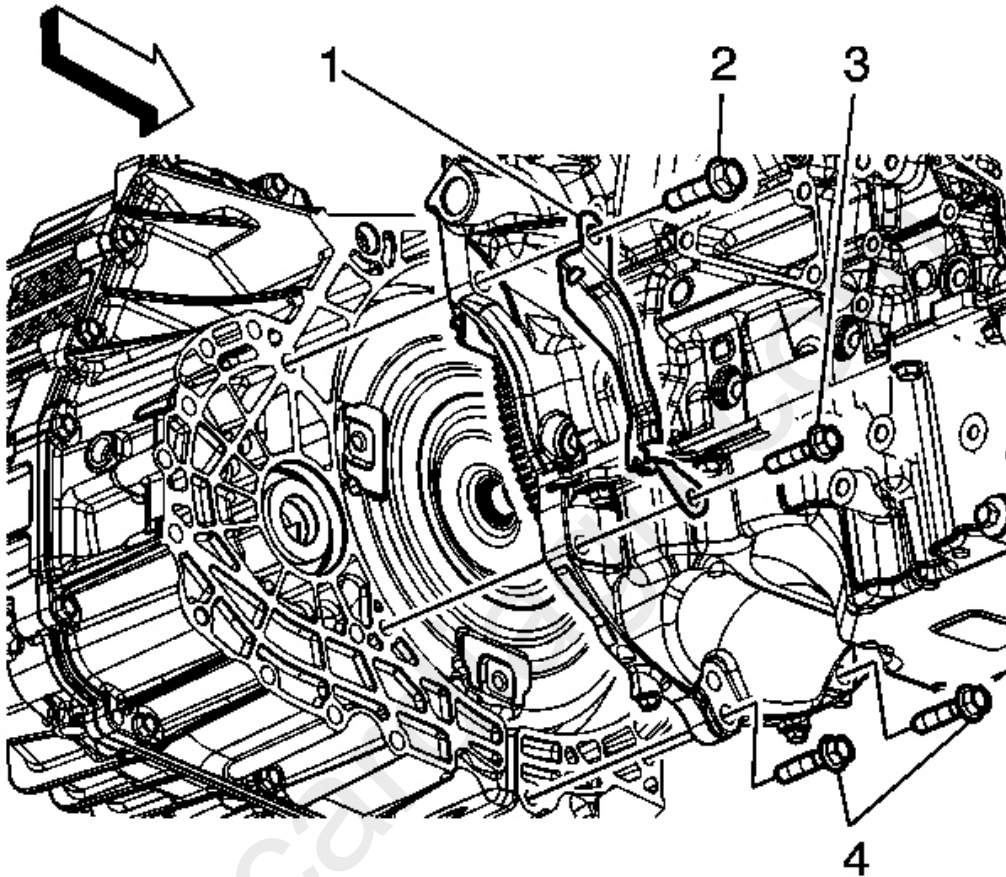


Fig. 109: Identifying Transmission Bolts
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

2. Install the transmission bolts (4) and tighten to 75 N.m (55 lb ft).
3. Install the flywheel inspection cover (1).
4. Install the flywheel inspection cover bolts (2, 3) and tighten to 75 N.m (55 lb ft).
5. Remove the transmission jack.

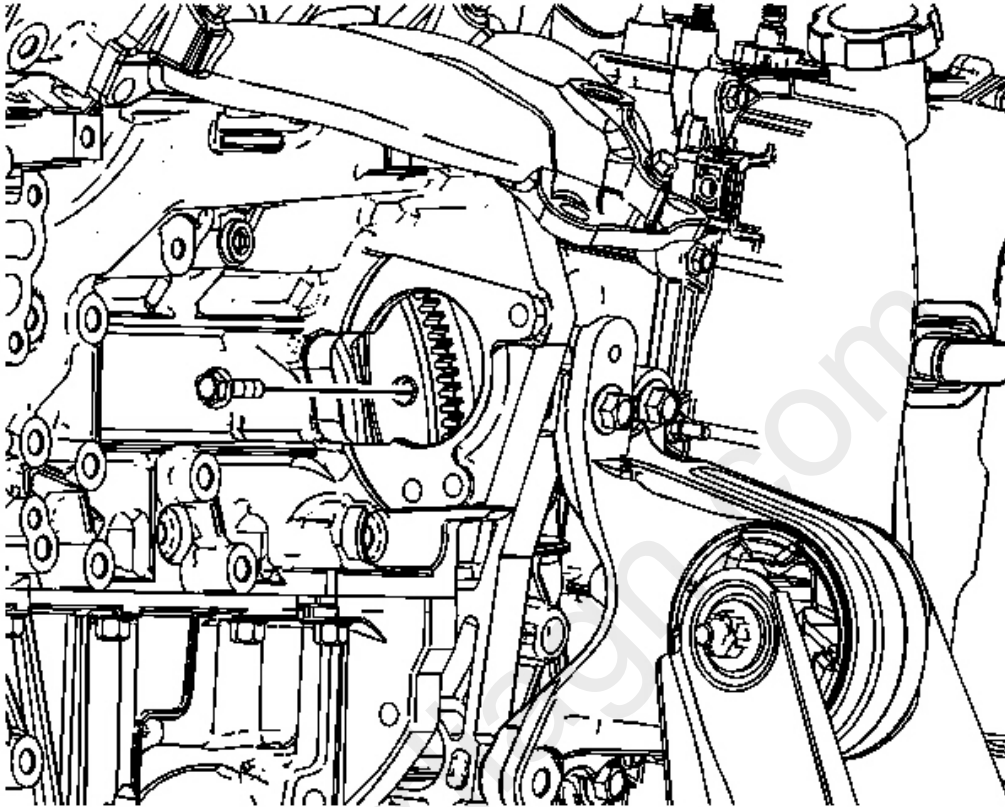


Fig. 110: Identifying Starter

Courtesy of GENERAL MOTORS CORP.

NOTE: If reusing the torque converter bolts, clean the threads and apply **LOCTITE™242** or equivalent to the threads prior to installation.

6. Install the torque converter to flywheel bolts and tighten to 62 N.m (46 lb ft).
7. Install the starter. Refer to **Starter Replacement (LF1)** or **Starter Replacement (LAU)**.
8. Install the front transmission mount to the transmission. Refer to **Transmission Front Mount Replacement**.
9. Install the rear transmission mount to the transmission. Refer to **Transmission Rear Mount Replacement (FWD)** or **Transmission Rear Mount Replacement (AWD)**.
10. Install the left transmission mount to the transmission. Refer to **Transmission Mount Replacement - Left Side**.
11. Install the transmission brace. Refer to **Transmission Brace Replacement**.
12. Install the intermediate drive shaft. Refer to **Intermediate Shaft Replacement**.

13. Install the wheel drive shafts to the transmission. Refer to **Front Wheel Drive Shaft Replacement - Left Side** and **Front Wheel Drive Shaft Replacement - Right Side**
14. Install the frame. Refer to **Drivetrain and Front Suspension Frame Replacement** .

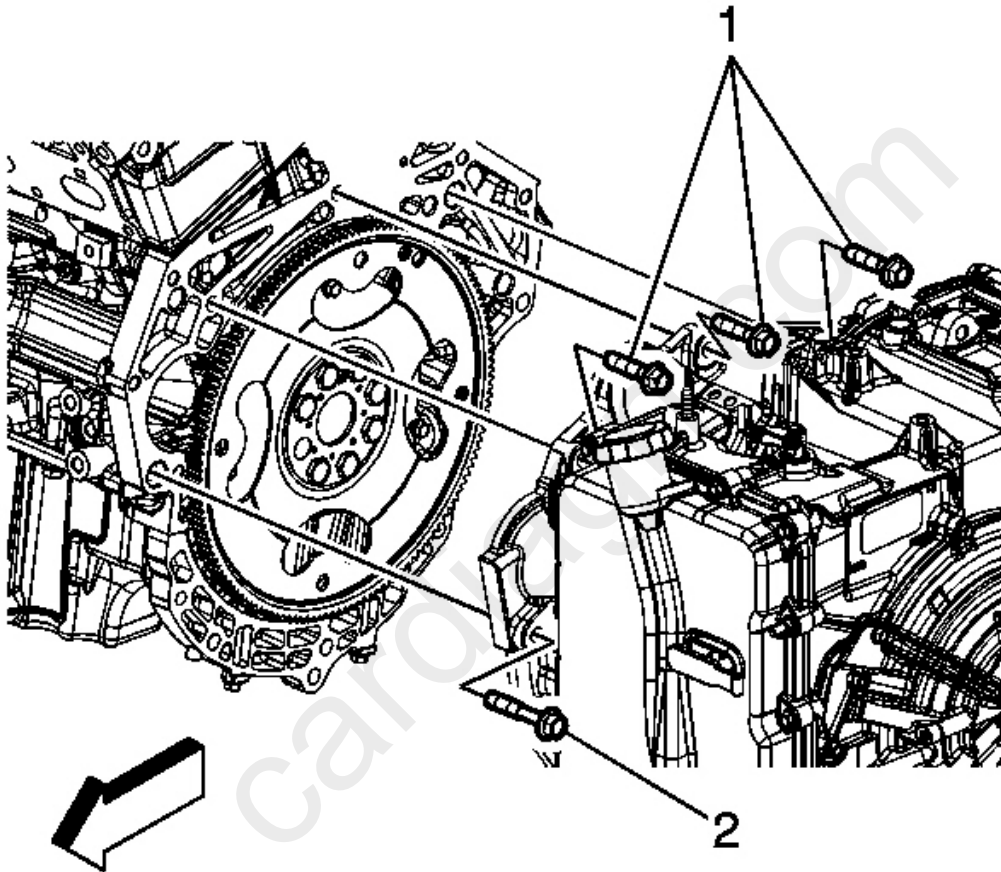


Fig. 111: Identifying Upper Transmission To Engine Bolts
Courtesy of GENERAL MOTORS CORP.

15. Install the upper transmission to engine bolt (1, 2) and tighten to 75 N.m (55 lb ft).
16. Remove the engine support fixture.

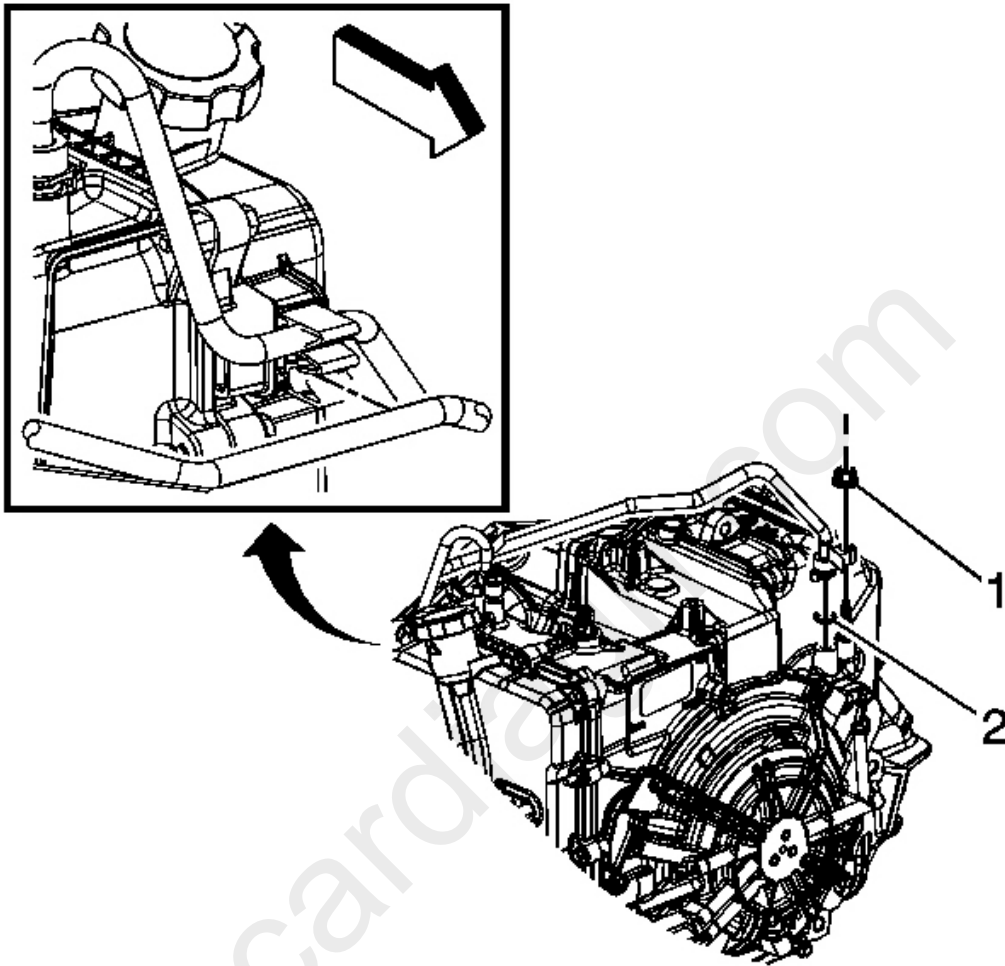


Fig. 112: Identifying Transmission Fluid Cooler Pipe Components
Courtesy of GENERAL MOTORS CORP.

17. Install the transmission fluid cooler outlet hose and seal (2) to the transmission.
18. Install the transmission fluid cooler pipe retainer nut (1) and tighten to 22 N.m (16 lb ft).

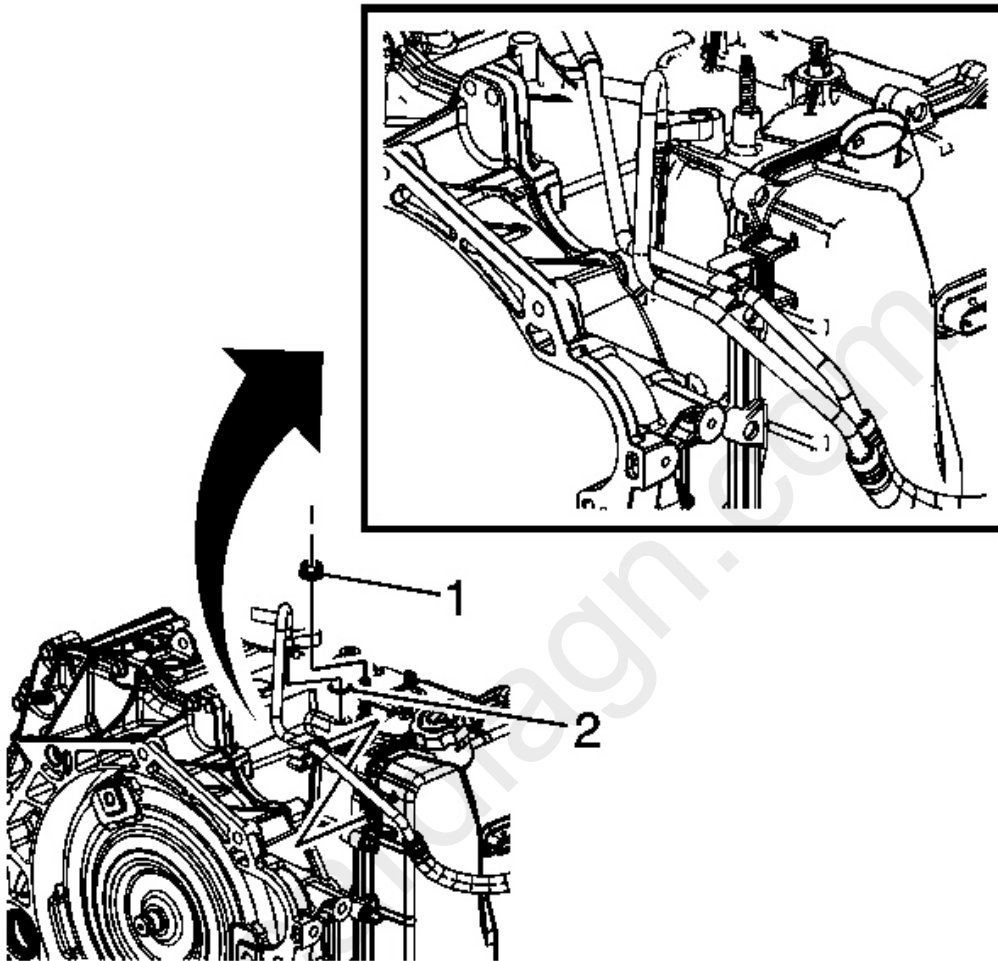


Fig. 113: Identifying Transmission Fluid Cooler Inlet Hose Components
Courtesy of GENERAL MOTORS CORP.

19. Install the transmission fluid cooler inlet hose and seal (2) to the transmission.
20. Install the transmission fluid cooler pipe retainer nut (1) and tighten to 22 $\square$.m (16 lb ft).

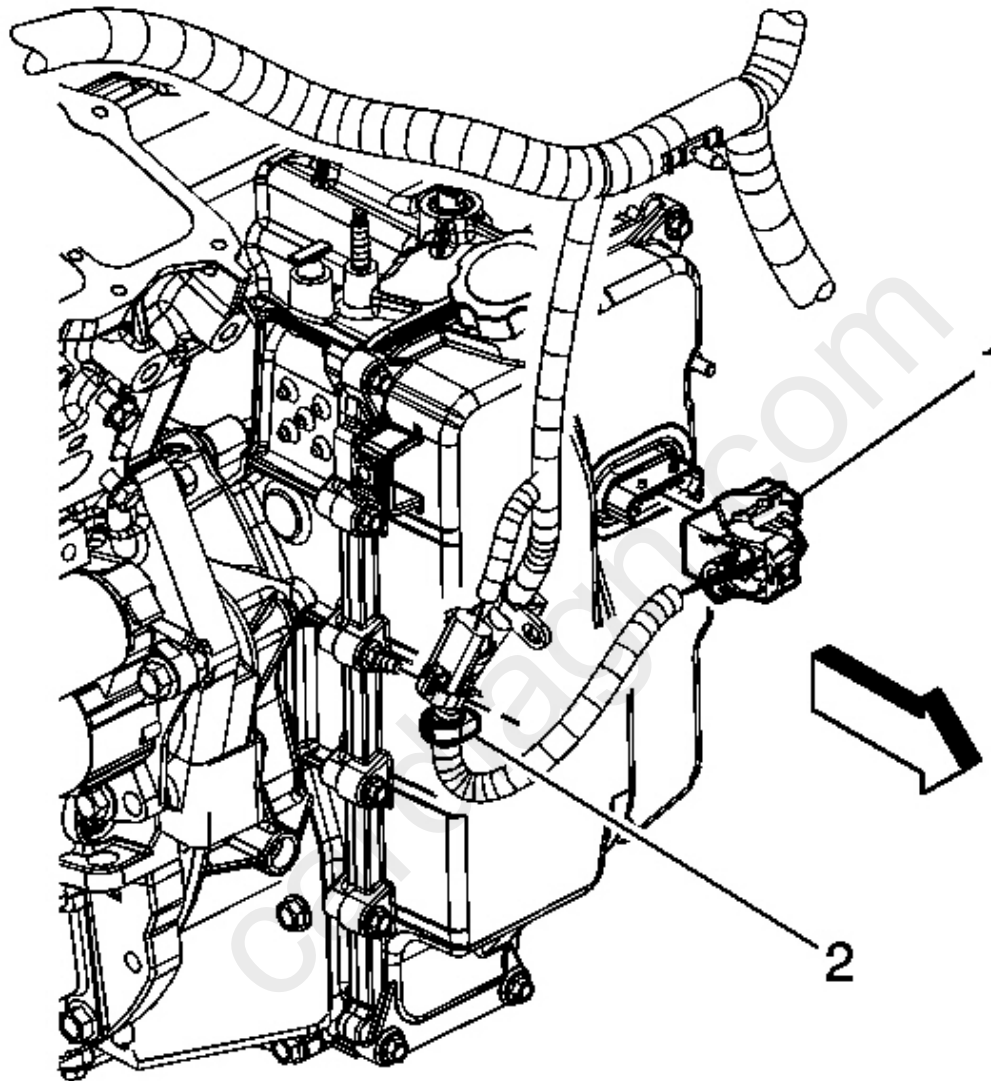


Fig. 114: Identifying Wire Harness Retainer & TCM Electrical Connector
Courtesy of GENERAL MOTORS CORP.

21. Connect the control valve body TCM electrical connector (1).
22. Install the wire harness retainer (2) to the control valve body cover stud and tighten the nut to 12 $\square$.m (106 lb in).
23. Install the transmission range select lever cable and bracket.
24. Install the battery tray. Refer to **Battery Tray Replacement**.

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25. ☐ Adjust the automatic transmission range selector lever cable. Refer to **Range Selector Lever Cable Adjustment**.
26. ☐ Fill the transmission with fluid. Refer to **Transmission Fluid Replacement**.

NOTE: **After an internal transmission repair or internal part replacement the service fast learn adapt procedure should be performed.**

27. Perform the service fast learn adapt procedure. Refer to **Service Fast Learn Adapts** .
28. Road test the vehicle.

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