

TRANSMISSION

Automatic Transmission - 6L80 (MYC) - Repair Instructions - On Vehicle - Corvette

REPAIR INSTRUCTIONS - ON VEHICLE

TRANSMISSION CONTROL LEVER KNOB REPLACEMENT

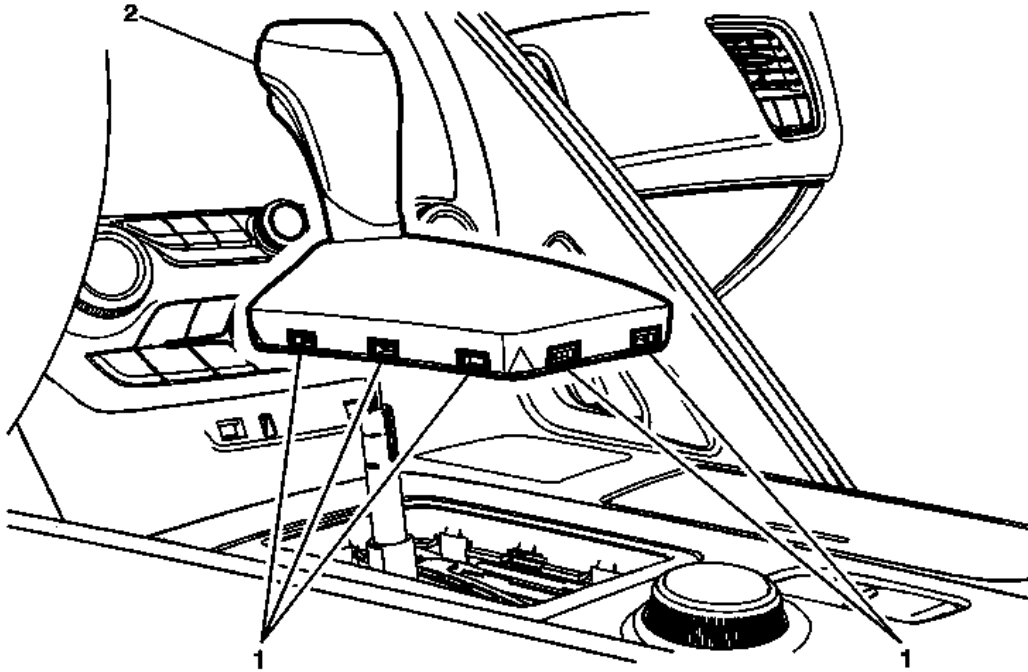


Fig. 1: Transmission Control Lever Knob
Courtesy of GENERAL MOTORS COMPANY

Transmission Control Lever Knob Replacement

Callout	Component Name
1	Transmission Control Lever Knob Retainer (Qty: 10) Procedure Use a flat-bladed plastic trim tool in order to release the retainer clips securing the control lever boot. NOTE: Place the transmission control in the Neutral position.
2	Transmission Control Lever Knob NOTE: • The control lever boot and knob are replaced as an assembly.

- To remove the knob, pull upward and twist.

FLOOR SHIFT CONTROL BOOT REPLACEMENT

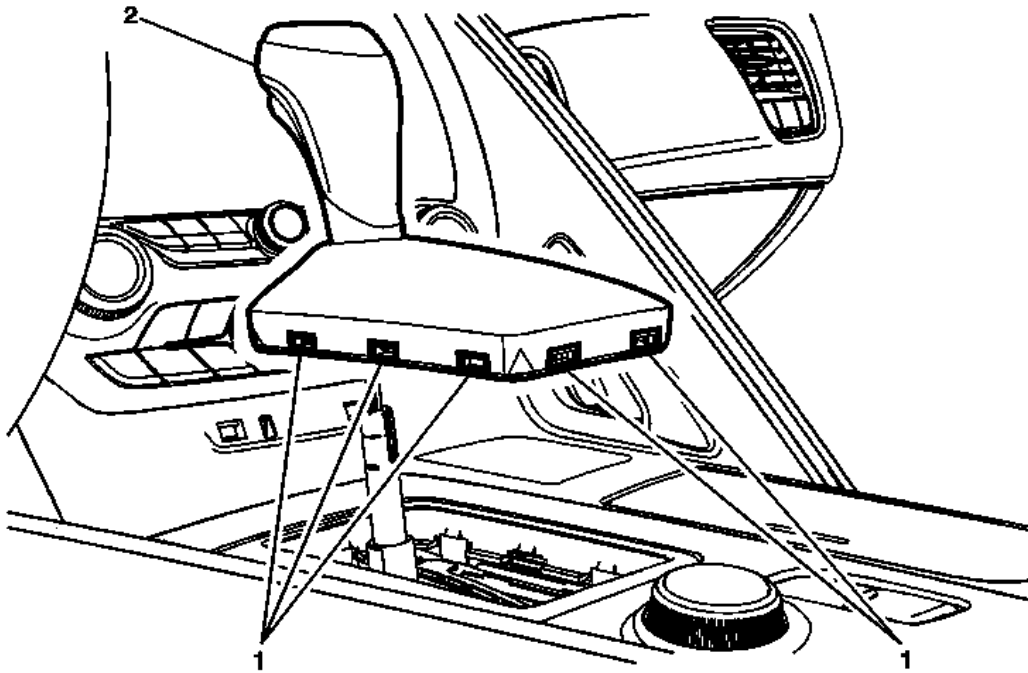


Fig. 2: Floor Shift Control Boot
Courtesy of GENERAL MOTORS COMPANY

Floor Shift Control Boot Replacement

Callout	Component Name
1	Transmission Control Lever Knob Retainer (Qty: 10) Procedure Use a flat-bladed plastic trim tool in order to release the retainer clips securing the control lever boot. NOTE: Place the transmission control in the Neutral position.
2	Transmission Control Lever Knob NOTE: • The control lever boot and knob are replaced as an assembly. • To remove the knob, pull upward and twist.

TRANSMISSION CONTROL REPLACEMENT

Removal Procedure

1. Block the wheels to keep the vehicle from moving.
2. Apply the parking brake.
3. Remove the floor console. Refer to **Front Floor Lower Console Replacement** .
4. Disconnect the transmission control electrical connector.

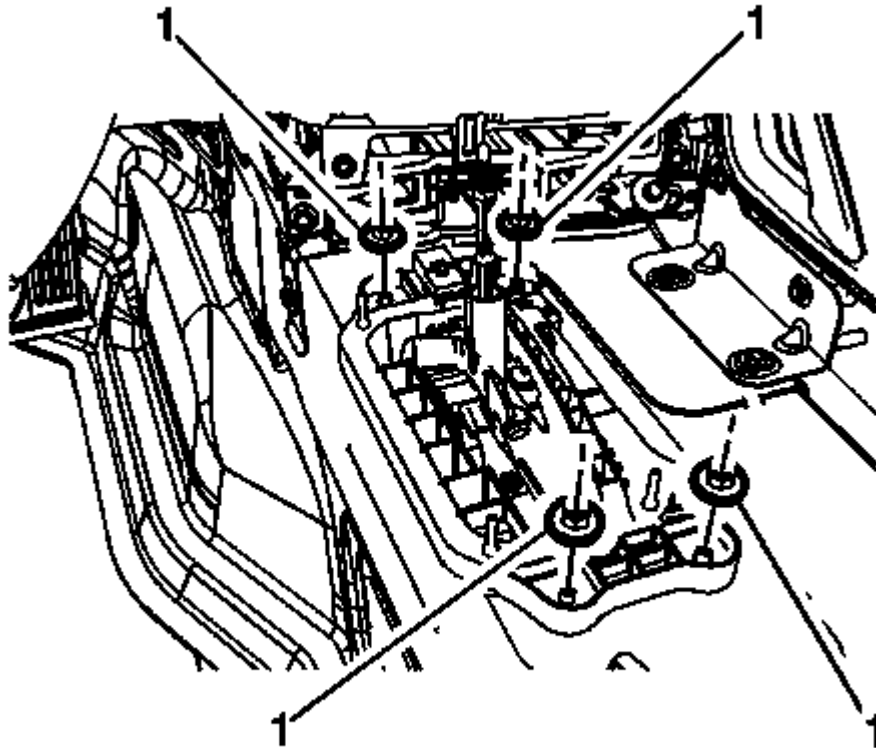


Fig. 3: Four Transmission Control Retaining Nuts
Courtesy of GENERAL MOTORS COMPANY

5. Remove the four transmission control retaining nuts (1).

NOTE: This will lengthen the shift control cable and provide slightly more movement.

6. Shift the transmission control into Manual Mode (M).

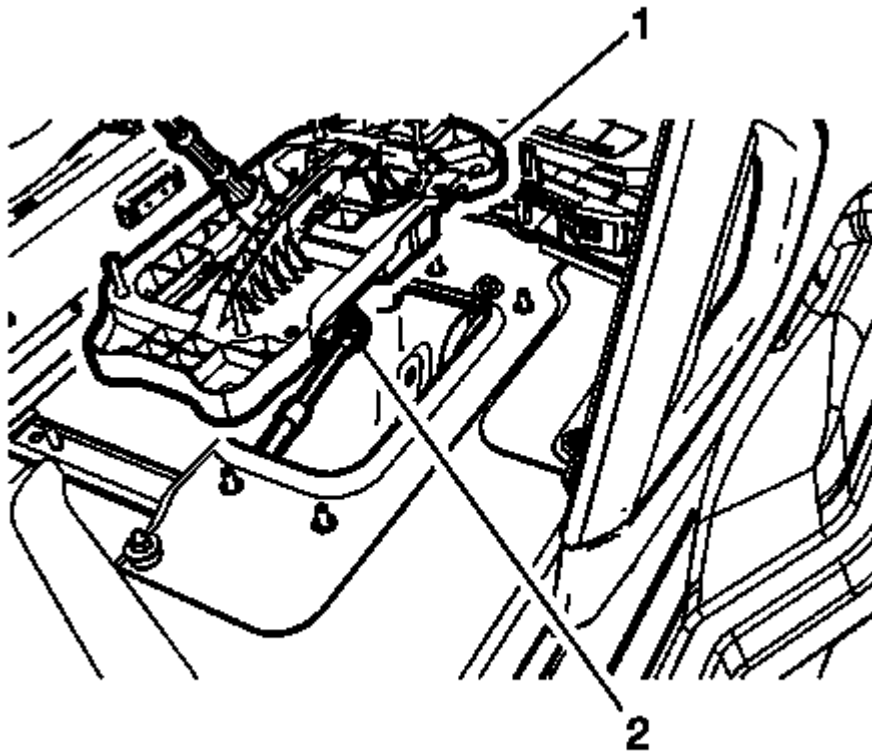


Fig. 4: Lifting Transmission Control
Courtesy of GENERAL MOTORS COMPANY

NOTE: DO NOT lift the transmission control any more than shown, the shift control cable rod end guide tubes are **EXTREMELY INFLEXIBLE** and capable of only a **SLIGHT** bend.

7. Slowly lift the transmission control (1) JUST ENOUGH to access the shift control cable end.

BE SURE the transmission control remains in Manual Mode (M).

NOTE: Use care to not suddenly jerk either the shift control cable or the transmission control during disassembly, the shift control cable rod end guide tubes are **EXTREMELY INFLEXIBLE** and capable of only a **SLIGHT** bend.

8. Using a large flat-bladed screwdriver, CAREFULLY release the shift control cable end (2) from the transmission control arm stud.
9. Ensure that the shift control cable is completely disconnected from the transmission control arm stud.

Installation Procedure

1. Shift the transmission control into Manual Mode (M).

NOTE: Be sure to position the transmission control as **LOW** as possible, the shift control cable rod end guide tubes are **EXTREMELY INFLEXIBLE** and capable of only a **SLIGHT** bend.

2. Lower the transmission control into position.

BE SURE the transmission control remains in Manual Mode (M).

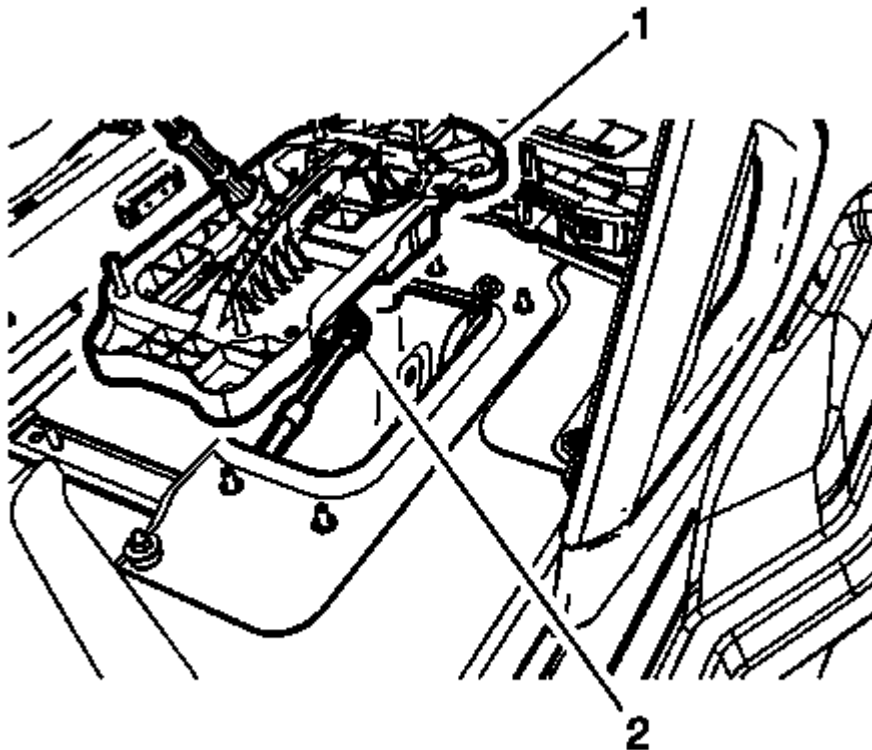


Fig. 5: Lifting Transmission Control

Courtesy of GENERAL MOTORS COMPANY

3. Align the transmission control cable end (2) to the transmission control arm stud.

NOTE: Use care to not suddenly jerk either the shift control cable or the transmission control during assembly, the shift control cable rod end guide tubes are **EXTREMELY INFLEXIBLE** and capable of only a **SLIGHT** bend.

4. Position a large pry bar along the side of the driveline support assembly and use as an aid to secure the shift control cable end to the transmission control arm stud.
5. Seat the transmission control to the driveline tunnel.

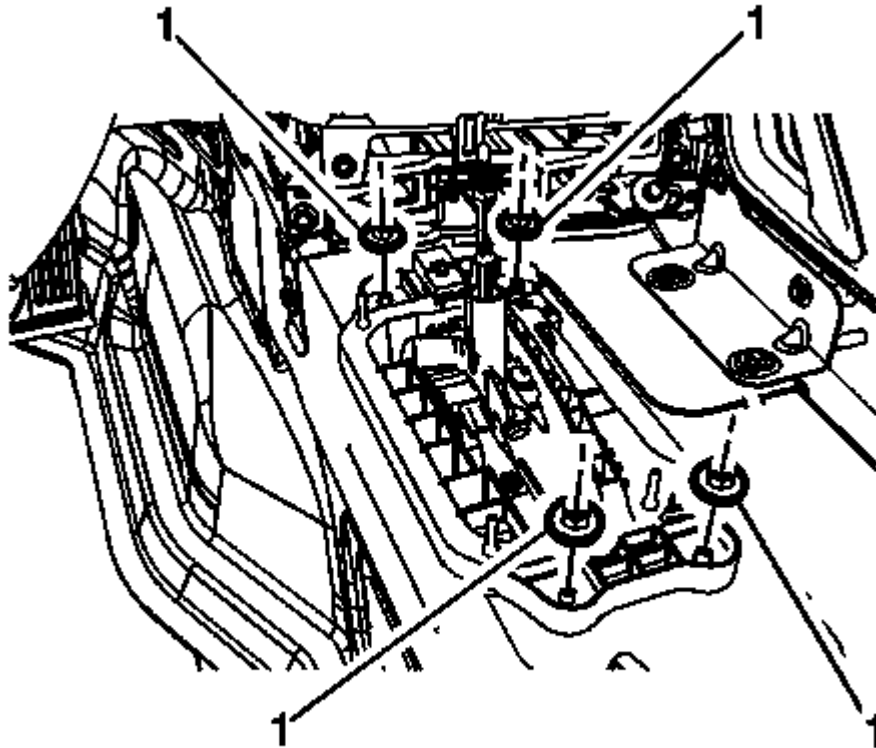


Fig. 6: Four Transmission Control Retaining Nuts
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution .

6. Install the transmission control retaining nuts and tighten to 10 (89 lb in).
7. Verify that the transmission control and the shift control cable are operating smoothly:
8. If any binding is felt during this check, remove the transmission control and inspect the transmission control and the shift control cable for damage (at either end of the cable).
9. Install the park/lock cable to the transmission control pivot arm stud.
10. Connect the transmission control electrical connector.
11. Install the console. Refer to **Front Floor Lower Console Replacement** .
12. Unblock the wheels.

14. Test drive the vehicle.

RANGE SELECTOR LEVER CABLE REPLACEMENT

Removal Procedure

1. Shift the transmission control to NEUTRAL.

If replacing a damaged cable, be sure that BOTH the floor shift control and the transmission are in NEUTRAL.

2. Raise and suitably support the vehicle. Refer to Lifting and Jacking the Vehicle .
3. Remove the rear body exhaust heat shield. Refer to Rear Body Exhaust Heat Shield Replacement .

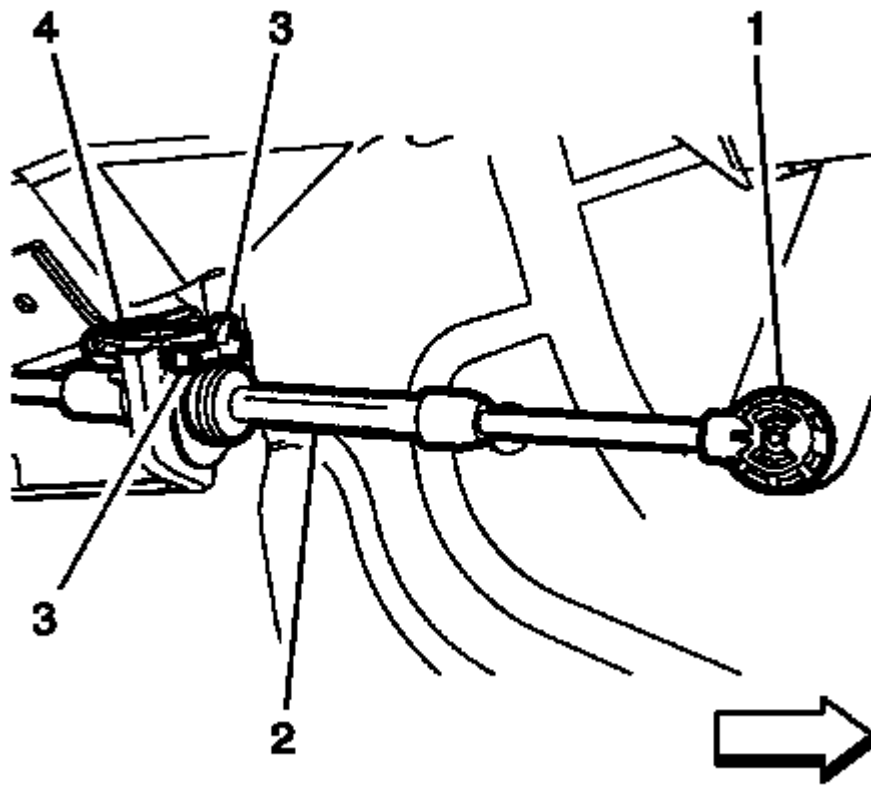


Fig. 7: Shift Control Cable End And Retainer Clip
Courtesy of GENERAL MOTORS COMPANY

NOTE: Use care to not suddenly jerk the shift control cable during disassembly, the shift control cable rod end guide tubes are **EXTREMELY INFLEXIBLE** and capable of only a **SLIGHT** bend.

4. Using a large flat-bladed screwdriver, CAREFULLY release the shift control cable end (1) from the floor shift control arm stud.
5. Slide the retainer clip (4) rearward to unlock the cable.
6. Depress the retainer tabs and slide the shift cable out of the bracket slot.
7. Remove the shift control cable (2) from the driveline tunnel bracket.

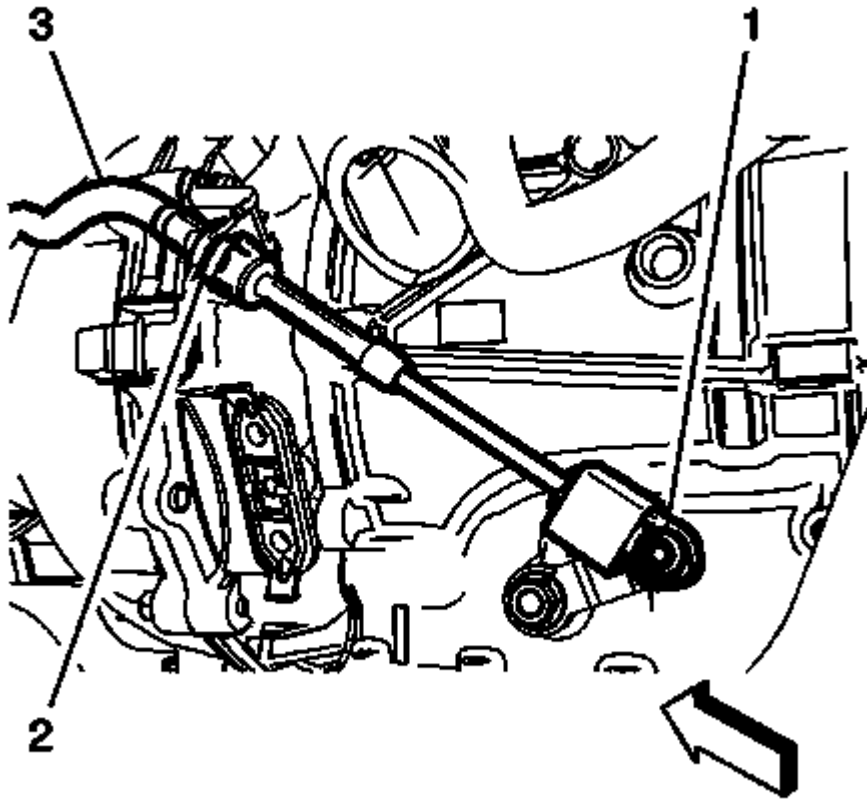


Fig. 8: Shift Control Cable And Transmission Shift Lever Stud
Courtesy of GENERAL MOTORS COMPANY

8. CAREFULLY release the shift control cable end (1) from the transmission shift lever stud.
9. Remove the shift control cable (3) from the shift control cable bracket.
 1. Using a flat-bladed screwdriver, pry the shift cable retaining staple clip (2) from the cable.
 2. Depress the shift cable retaining tabs.
 3. While depressing the tabs, push the tabs through the hole in the shift cable bracket.
 4. Slide the cable out of the bracket slot.

Installation Procedure

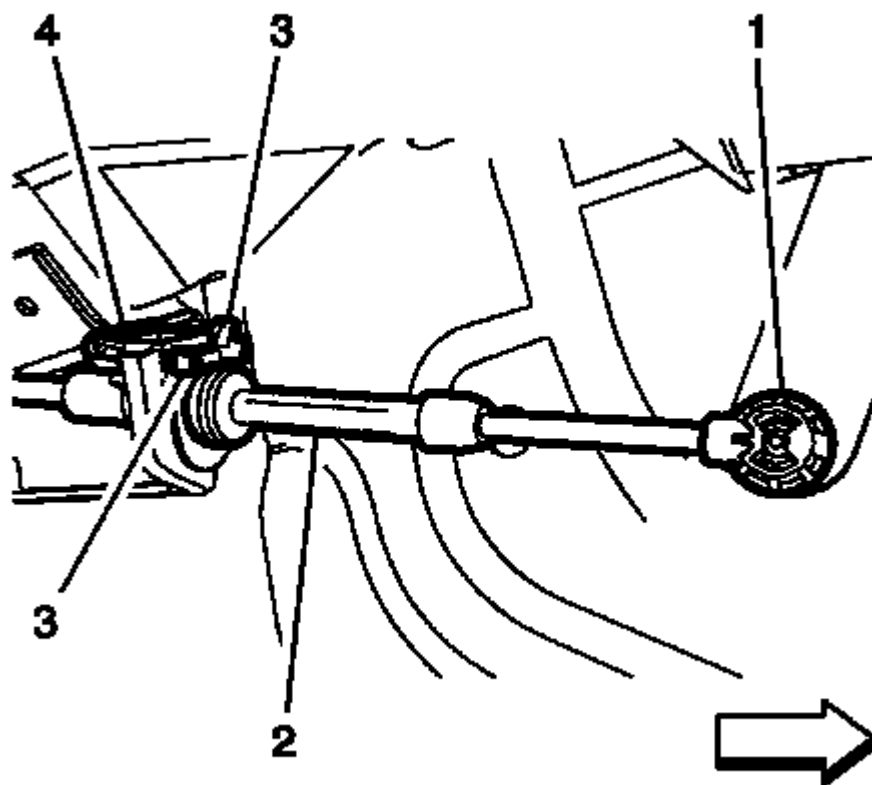


Fig. 9: Shift Control Cable End And Retainer Clip
Courtesy of GENERAL MOTORS COMPANY

1. Position and install the shift control cable (2) to the driveline tunnel bracket.
 1. Slide the smaller diameter portion of the shift cable into the slot in the driveline tunnel bracket.
 2. Push the shift cable retaining tabs (3) through the hole in the bracket to lock the cable in place.
 3. Insert the shift cable retainer (4) between the shift cable retaining tabs.
2. CAREFULLY secure the shift control cable end (1) to the transmission control arm stud.

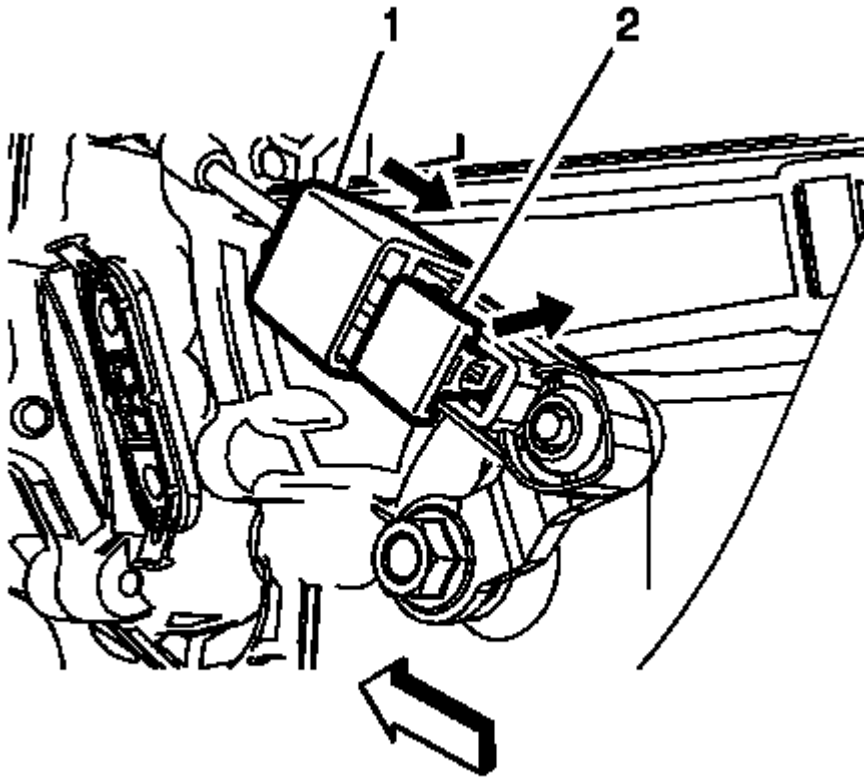


Fig. 10: Shift Control Cable Adjuster Lock
Courtesy of GENERAL MOTORS COMPANY

3. If installing a NEW transmission shift control cable, depress the shift control cable adjuster lock (2).
4. Slide the lock retainer (1) rearward over the adjuster lock (2).
5. Lower the vehicle. Leave the vehicle on the hoist.
6. Verify that the shift control cable is operating smoothly:
7. Install the rear body exhaust heat shield. Refer to **Rear Body Exhaust Heat Shield Replacement** .

RANGE SELECTOR LEVER CABLE ADJUSTMENT

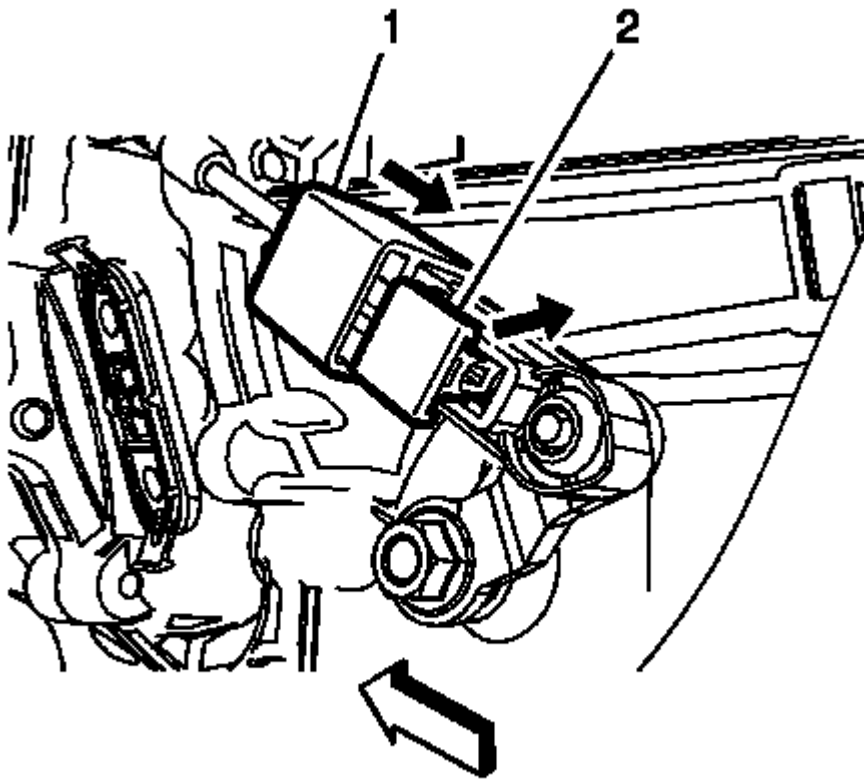


Fig. 11: Shift Control Cable Adjuster Lock
Courtesy of GENERAL MOTORS COMPANY

1. Shift the transmission into NEUTRAL.
2. Raise and suitably support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
3. Slide the lock retainer (1) forward to release the adjuster lock (2).
4. Check to be sure that the transmission floor shift control is in the NEUTRAL detent position.
5. Check to be sure that the transmission is in the NEUTRAL detent position.

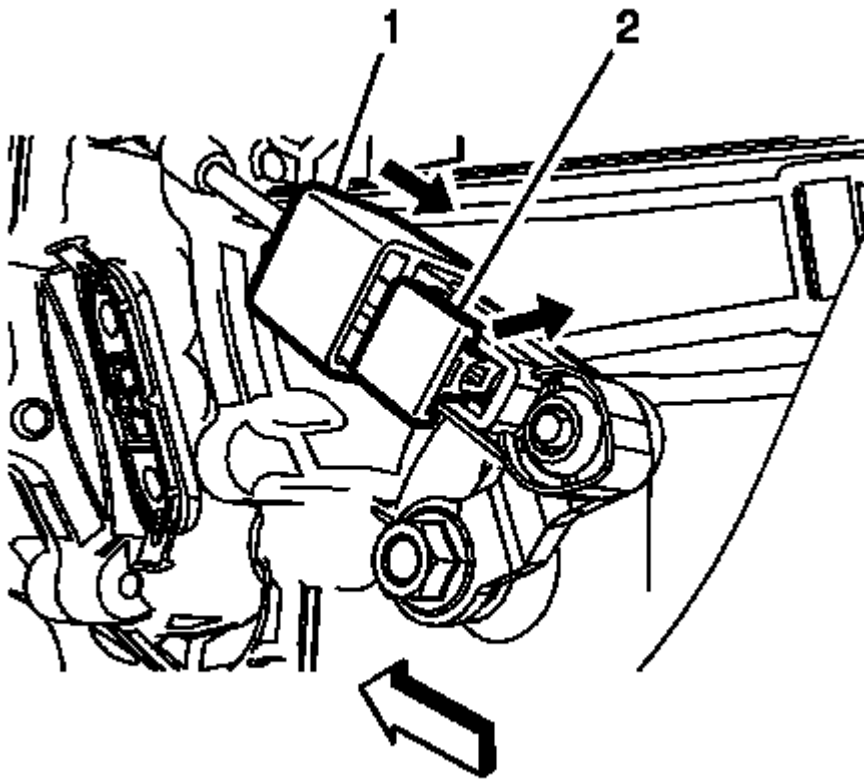


Fig. 12: Shift Control Cable Adjuster Lock
Courtesy of GENERAL MOTORS COMPANY

6. Depress the shift control cable adjuster lock (2).
7. Slide the lock retainer (1) rearward over the adjuster lock (2).
8. Lower the vehicle.

RANGE SELECTOR LEVER CABLE BRACKET REPLACEMENT

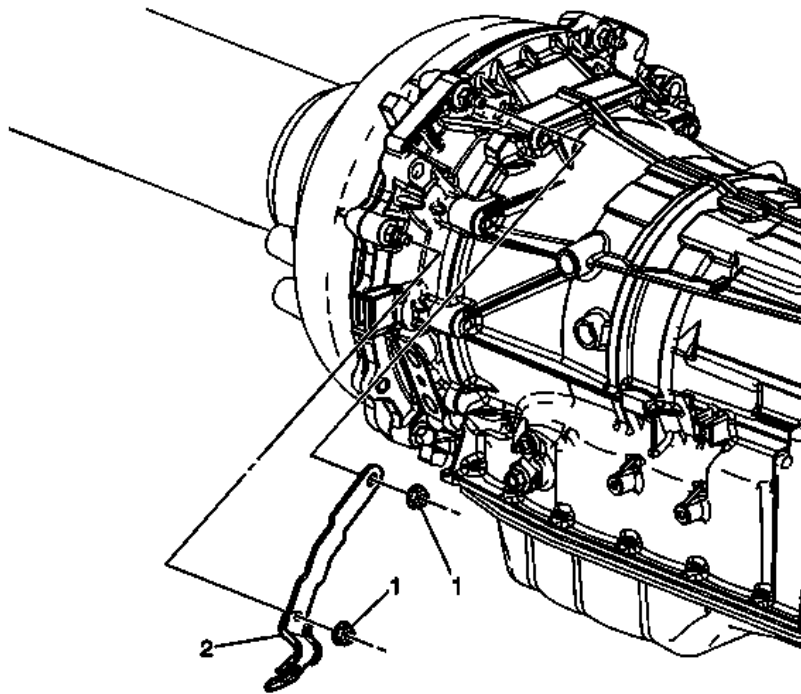


Fig. 13: View Of Automatic Transmission Range Selector Cable Bracket
 Courtesy of GENERAL MOTORS COMPANY

Range Selector Lever Cable Bracket Replacement

Callout	Component Name
Preliminary Procedures 1. Raise the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the range select cable from the range selector cable bracket. Refer to <u>Range Selector Lever Cable Replacement</u>.	
1	Range Selector Cable Bracket Nut (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 20 (15 lb ft)
2	Range Selector Cable Bracket

AUTOMATIC TRANSMISSION RANGE SELECTOR LEVER REPLACEMENT

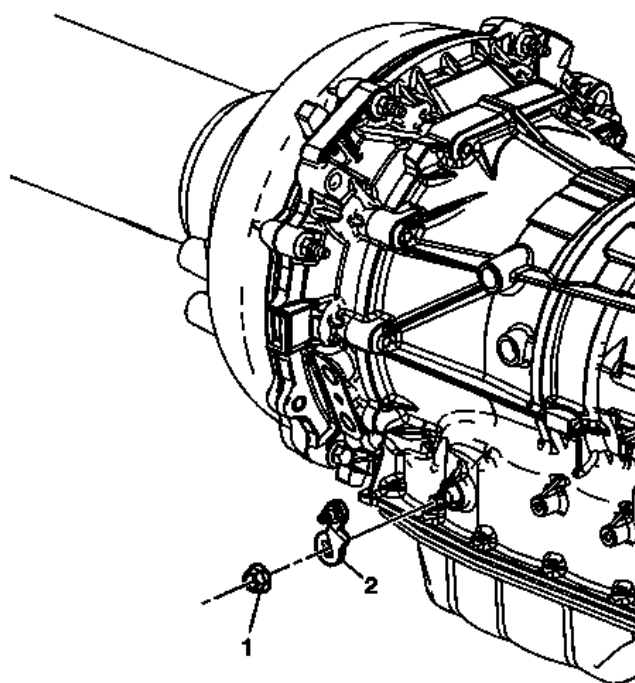


Fig. 14: View Of Automatic Transmission Range Selector Cable Lever
 Courtesy of GENERAL MOTORS COMPANY

Automatic Transmission Range Selector Lever Replacement

Callout	Component Name
Preliminary Procedures 1. Raise the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the range select cable from the range selector lever. Refer to <u>Range Selector Lever Cable Replacement</u>.	
1	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 20 (15 lb ft)
2	Range Selector Lever

MANUAL SHIFT AUXILIARY POSITION SWITCH REPLACEMENT - STEERING WHEEL

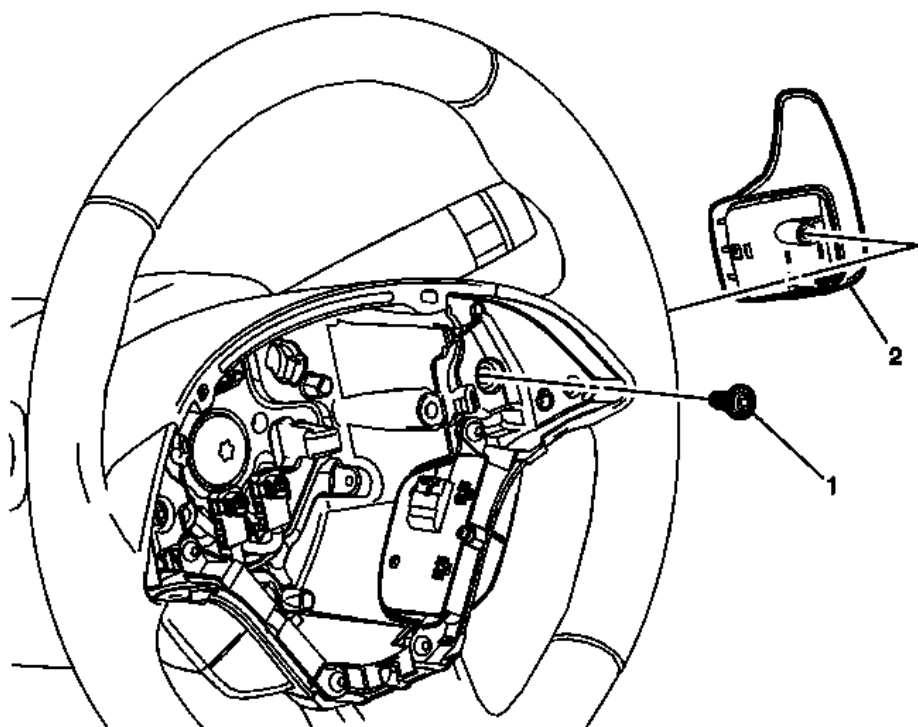


Fig. 15: Manual Shift Auxiliary Position Switch - Steering Wheel
Courtesy of GENERAL MOTORS COMPANY

Manual Shift Auxiliary Position Switch Replacement - Steering Wheel

Callout	Component Name
Preliminary Procedures Remove the steering wheel spoke cover. Refer to <u>Steering Wheel Spoke Cover Replacement</u> .	
1	Steering Wheel Manual Shift Auxiliary Position Switch Fastener CAUTION: Refer to <u>Fastener Caution</u> .
2	Steering Wheel Manual Shift Auxiliary Position Switch Procedure 1. Disconnect the electrical connector. 2. Ensure the position switch is properly seated on the steering wheel during installation.

VENT HOSE REPLACEMENT

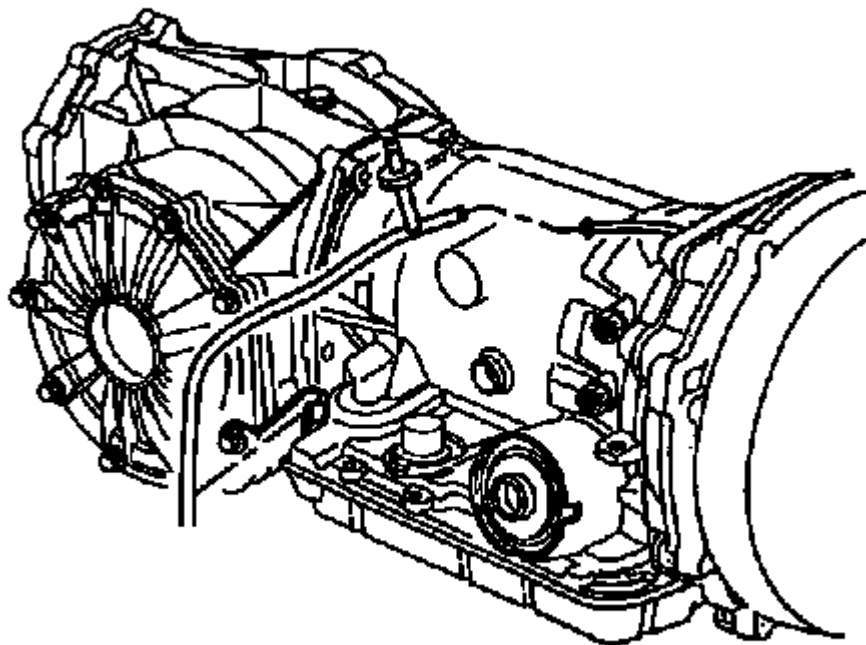


Fig. 16: Transmission Vent Hose & Lower Retaining Clip
Courtesy of GENERAL MOTORS COMPANY

1. Raise and suitably support the vehicle. Refer to Lifting and Jacking the Vehicle .
2. Release the transmission vent hose from the lower retaining clip.

NOTE: **Observe the orientation of the transmission vent hose check valve prior to removal of the hose.**

3. Remove the transmission vent hose from the transmission vent tube.

Installation Procedure

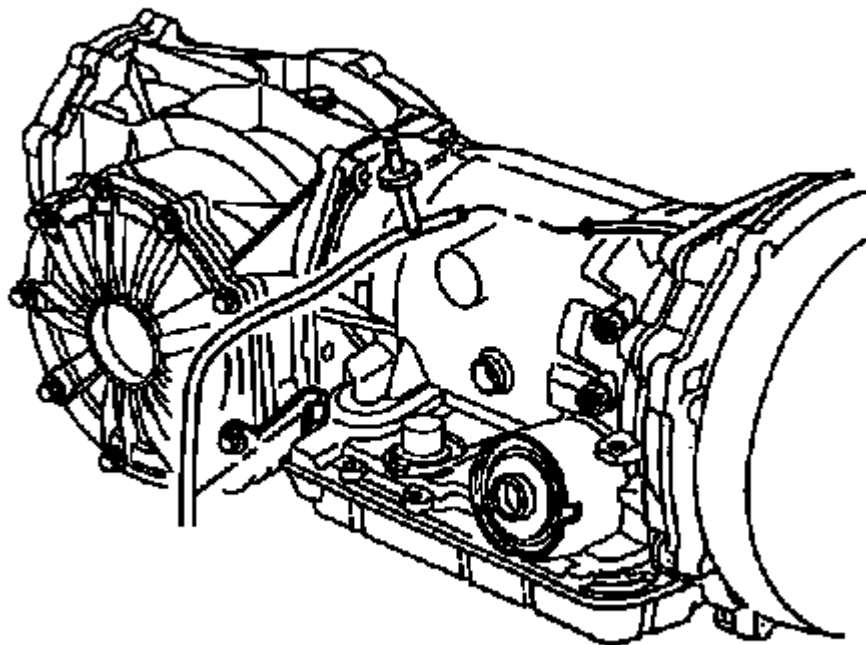


Fig. 17: Transmission Vent Hose & Lower Retaining Clip
Courtesy of GENERAL MOTORS COMPANY

1. Install the transmission vent hose to the transmission vent tube.

Orient the transmission vent hose check valve as noted during prior to removal.

2. Secure the transmission vent hose to the lower retaining clip.
3. Lower the vehicle.

AUTOMATIC TRANSMISSION FLUID PRESSURE TEST HOLE PLUG REPLACEMENT

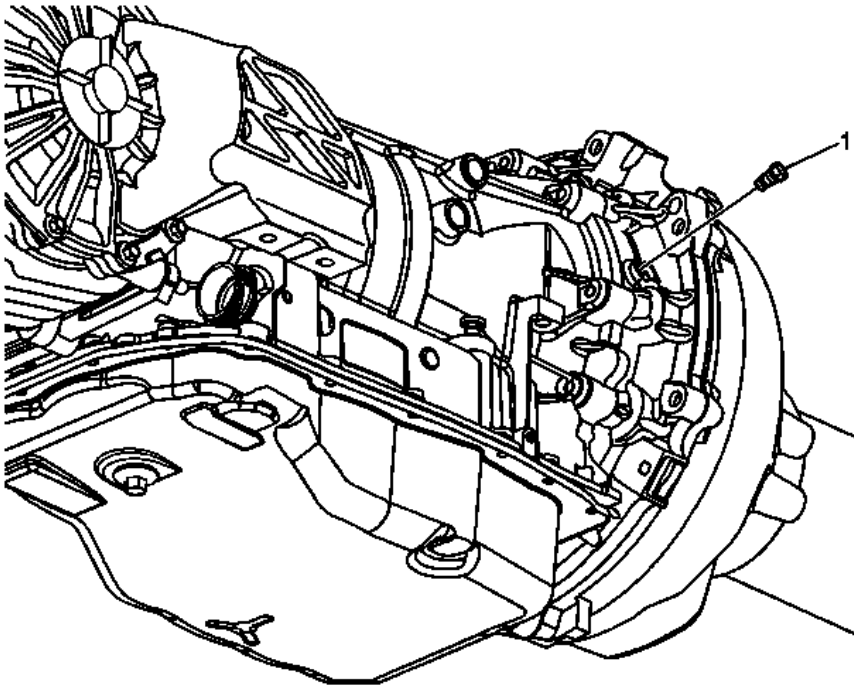


Fig. 18: Identifying Oil Pressure Test Plug
 Courtesy of GENERAL MOTORS COMPANY

Automatic Transmission Fluid Pressure Test Hole Plug Replacement

Callout	Component Name
Preliminary Procedure Raise the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
1	Oil Pressure Test Plug CAUTION: Refer to <u>Component Fastener Tightening Caution</u> . Procedure 1. Clean the surrounding area around the oil pressure test plug. 2. Check the transmission fluid level. Refer to <u>Transmission Fluid Level and Condition Check</u> and <u>Transmission Fluid Fill Procedure</u> . Tighten 11 (97 lb in)

AUTOMATIC TRANSMISSION ELECTRICAL CONNECTOR PASSAGE SLEEVE REPLACEMENT

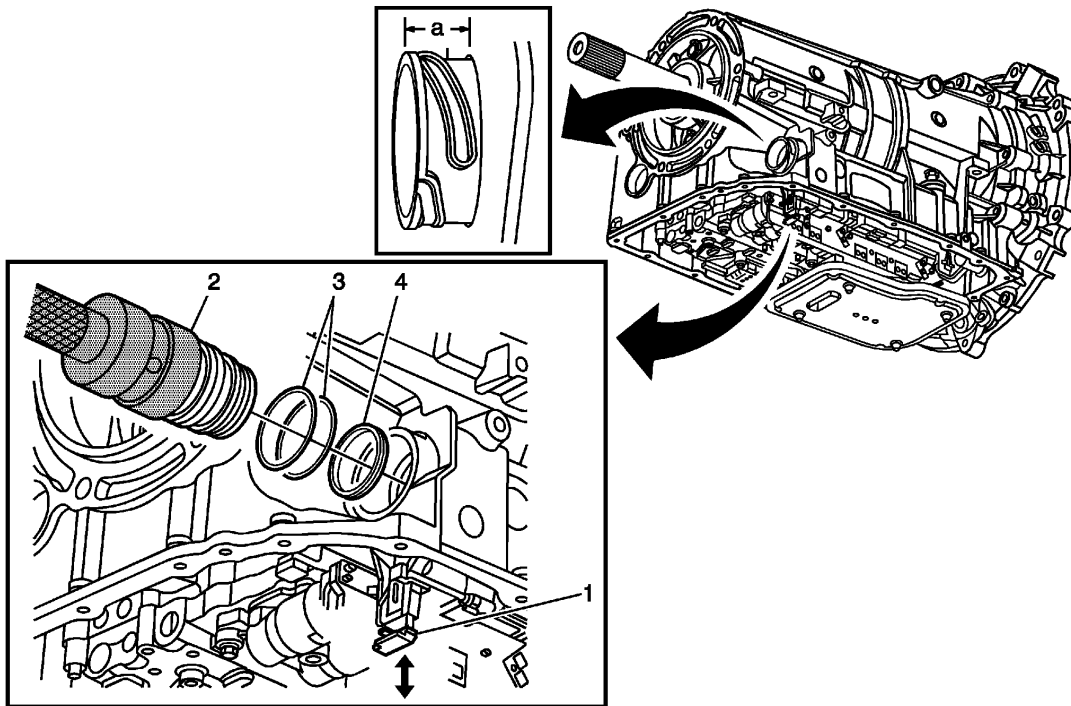


Fig. 19: Automatic Transmission Electrical Connector Passage Sleeve Component View
 Courtesy of GENERAL MOTORS COMPANY

Automatic Transmission Electrical Connector Passage Sleeve Replacement

Callout	Component Name
CAUTION: Orientate the alignment tab inside the passage sleeve with the slot in the electrical connector of the control solenoid valve assembly. Push the sleeve straight into the case bore and connector. Do NOT rotate the sleeve at any time. Ensure the sleeve is fully seated into the case. When the sleeve is properly installed, the distance from the case surface to the end of the sleeve should be 14-16 mm. Even though the correct electrical connections may still be maintained, failure to ensure proper installation of the sleeve may result in a fluid leak around the sleeve lip seal and into the sleeve cavity.	
Preliminary Procedures 1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the transmission oil pan. Refer to <u>Automatic Transmission Fluid, Fluid Pan and/or Filter Replacement</u>. 3. Disconnect the vehicle wire harness electrical connector from the transmission electrical connector passage sleeve.	
1	Electrical Connector Slide Lock Procedure Pull down on the slide lock to remove the sleeve. Push up on the slide lock after sleeve installation.

2	Procedure 1. Use the DT 47715 remover/installer and J 42183 handle to remove and install the electrical connector passage sleeve. 2. The distance (a) from the case surface to the end of the sleeve should be 14-16 mm. Special Tools • DT 47715 Electrical Connector Passage Sleeve Remover/Installer • J 42183 Driver Handle For equivalent regional tools, refer to Special Tools .
3	O-Ring Seal (Qty: 2) Procedure Use a NEW O-ring seal.
4	Lip Seal Procedure Use a NEW lip seal.

TRANSMISSION FLUID FILLER TUBE PLUG REPLACEMENT

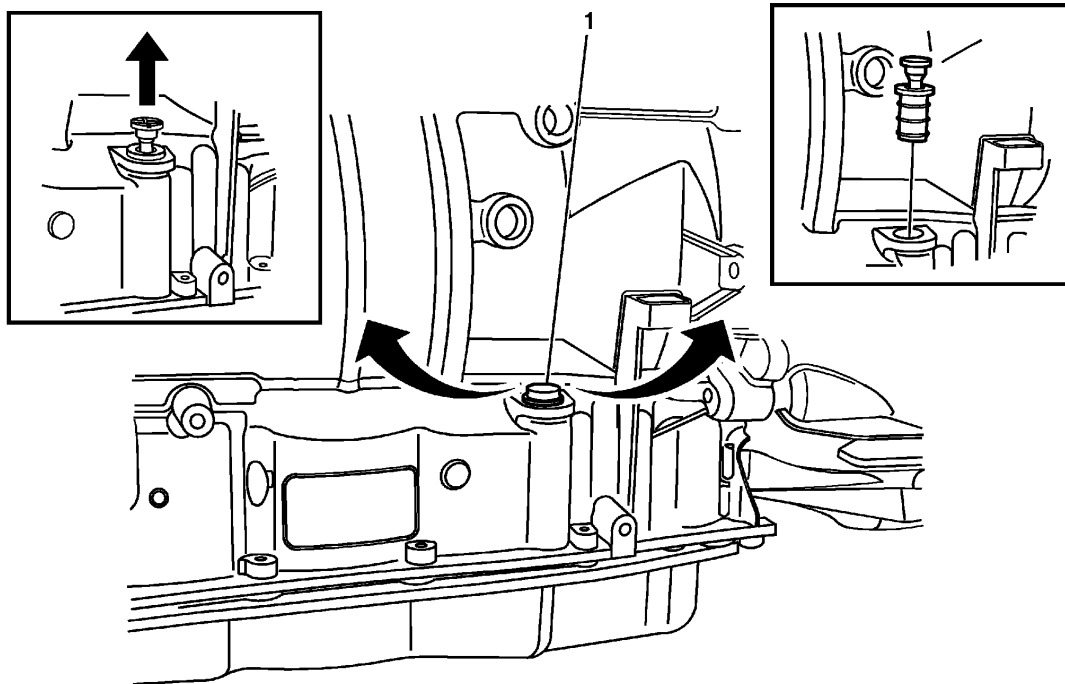


Fig. 20: Transmission Fluid Filler Tube Plug Component View
Courtesy of GENERAL MOTORS COMPANY

Transmission Fluid Filler Tube Plug Replacement

Callout	Component Name
Preliminary Procedure Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
1	Transmission Fluid Filler Tube Plug Procedure 1. Clean the area around the filler tube plug before removal. 2. Use a door trim tool to release the filler tube plug interlock.

AUTOMATIC TRANSMISSION FLUID PAN DRAIN PLUG REPLACEMENT

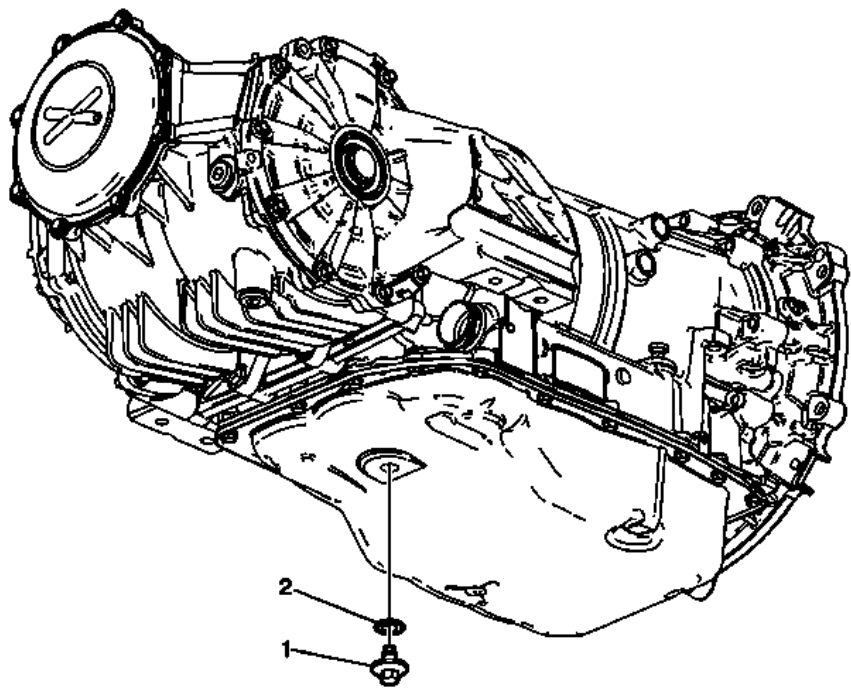


Fig. 21: Automatic Transmission Fluid Pan Drain Plug
Courtesy of GENERAL MOTORS COMPANY

Automatic Transmission Fluid Pan Drain Plug Replacement

Callout	Component Name
Preliminary Procedure Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
	Fluid Drain Pan Plug CAUTION:

1	Procedure
	1. Clean the surrounding area around the fluid drain plug. 2. Check the transmission fluid level. Refer to <u>Transmission Fluid Level and Condition Check</u> and <u>Transmission Fluid Fill Procedure</u> .
2	Tighten 25 (18 lb ft)
	Fluid Drain Pan Plug Seal

AUTOMATIC TRANSMISSION FLUID, FLUID PAN AND/OR FILTER REPLACEMENT

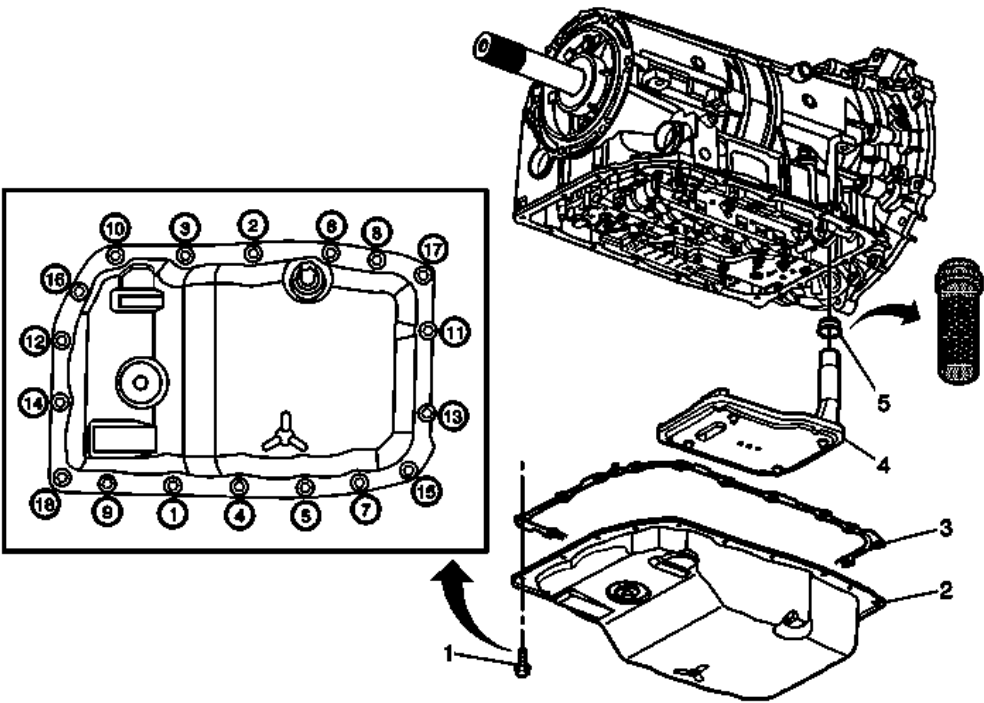


Fig. 22: Fluid, Fluid Pan and/or Filter Component View
 Courtesy of GENERAL MOTORS COMPANY

Automatic Transmission Fluid, Fluid Pan and/or Filter Replacement

Callout	Component Name
CAUTION: Use Dexron VI transmission fluid only. Failure to use the proper fluid may result in transmission internal damage.	
Preliminary Procedures	

2. Place a suitable drain pan under the transmission.	
1	Transmission Fluid Pan Bolt (Qty: 18) CAUTION: Refer to <u>Fastener Caution</u> . Procedure Tighten the bolts in the sequence shown. Tighten 9 (80 lb in)
2	Transmission Fluid Pan Assembly Procedure 1. Check the condition of the draining fluid. Refer to <u>Transmission Fluid Level and Condition Check</u> . 2. Fill the transmission with the proper fluid. Refer to <u>Transmission General Specifications</u> and <u>Transmission Fluid Fill Procedure</u> . 3. Fill the transmission with the proper amount of transmission fluid. Refer to <u>Fluid Capacity Specifications</u> and <u>Transmission Fluid Level and Condition Check</u> .
3	Transmission Fluid Pan Gasket NOTE: The fluid pan gasket is reusable. Inspect the gasket to determine if it may be reused.
4	Fluid Filter Assembly Procedure 1. Pull the fluid filter assembly straight out. Do not bend or twist the filter neck. 2. Use a new fluid filter assembly.
5	Fluid Filter Seal Assembly CAUTION: Do not damage the case sealing surface when removing the filter seal assembly. Procedure 1. Use a screwdriver or snap ring pliers to remove the filter seal. 2. Use the DT 47848 installer and the J 42183 handle to install the filter seal. 3. Use a new fluid filter seal assembly.

Special Tools

- **DT 47848** Seal Installer
- **J 42183** Driver Handle

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

TRANSMISSION MOUNT INSPECTION

CAUTION: Phenolic spacer must be present to prevent galvanic/corrosive reaction and/or excessive temperature conduction between engine mount bracket and engine mount. Replace mount if phenolic spacer is missing or damaged. Failure to ensure phenolic spacer is intact and not damaged can lead to premature failure of engine mount and/or engine mount bracket.

NOTE: Before replacing any transmission mount due to suspected fluid loss, verify that the source of the fluid is the transmission mount, not the transmission or accessories.

1. Install the transmission support fixture. Slightly raising the transmission removes the weight from the transmission mount and creates slight tension in the rubber.
2. Observe the transmission mount while raising the transmission. Replace the transmission mount if the transmission mount exhibits any of the following conditions:
 - The hard rubber surface is covered with heat check cracks.
 - The rubber is separated from the metal plate of the transmission mount.
 - The rubber is split through the center of the transmission mount.
 - The GLYCOL™ fluid is leaking from the transmission mount.
3. If there is movement between the metal plate of the transmission mount and its attaching points, lower the transmission on the transmission mount. Tighten the bolts or nuts attaching the transmission mount to the frame or transmission. Refer to **Transmission Mount Replacement** .

TRANSMISSION MOUNT REPLACEMENT

Special Tools

- **CH-50732** Socket 18 mm
- **J-33432-B** Transverse Spring Compressor

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

Removal Procedure

1. Raise and suitably support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the rear tire and wheel assemblies. Refer to **Tire and Wheel Removal and Installation** .
3. Place a screw jack and a piece of wood under the transmission where it mates with the driveline support assembly.
4. Remove the underbody side rail cross braces from the vehicle. Refer to **Underbody Side Rail Cross Brace Replacement (Rear)** , **Underbody Side Rail Cross Brace Replacement (Front)** .

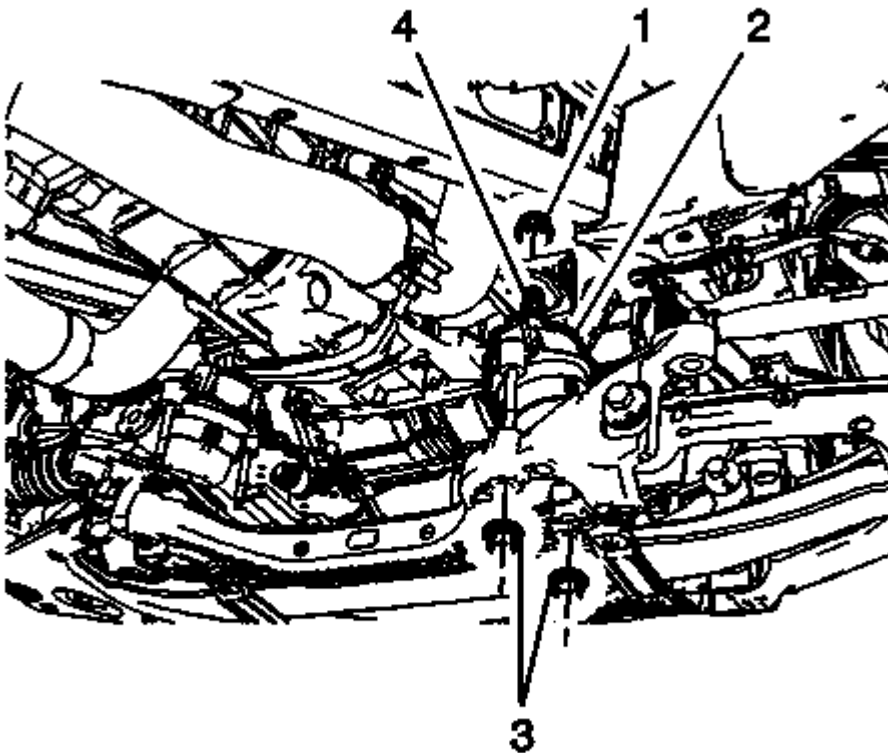


Fig. 23: Transmission Mounts
Courtesy of GENERAL MOTORS COMPANY

5. Remove the upper transmission mount fastener (1).
6. Remove the lower transmission mount-to-lower rear suspension crossmember fasteners (3).
7. Using the **J-33432-B** compressor, compress the transverse spring until the spring adjuster is not contacting the lower control arm.
8. Place a screw jack under the rear center section of the crossmember.
9. Remove the lower shock bolt. Refer to **Shock Absorber Replacement (without FE2, FE4)** , **Shock Absorber Replacement (with FE2, FE4)** .

NOTE: Spring may require further compression to allow crossmember to lower.

10. Remove the crossmember mounting fasteners, then lower the screw jack and crossmember to gain mount removal clearance.
11. Remove the transmission mount.

Installation Procedure

1. Install the transmission mount.
2. Using the **J-33432-B** compressor, release compression on spring.
3. Using a screw jack under the rear center section of the crossmember, raise the crossmember.
4. Align the crossmember dowel pins to the frame rails.

CAUTION: Refer to **Fastener Caution** .

5. Using ONLY hand tools, install the crossmember mounting fasteners.
6. Using a torque wrench and the appropriate socket, alternately and evenly tighten to 160 (118 lb ft).
7. Install the lower shock bolt. Refer to **Shock Absorber Replacement (without FE2, FE4)** , **Shock Absorber Replacement (with FE2, FE4)** .
8. Remove the **J-33432-B** compressor from the transverse spring.
9. Remove the screw jacks.

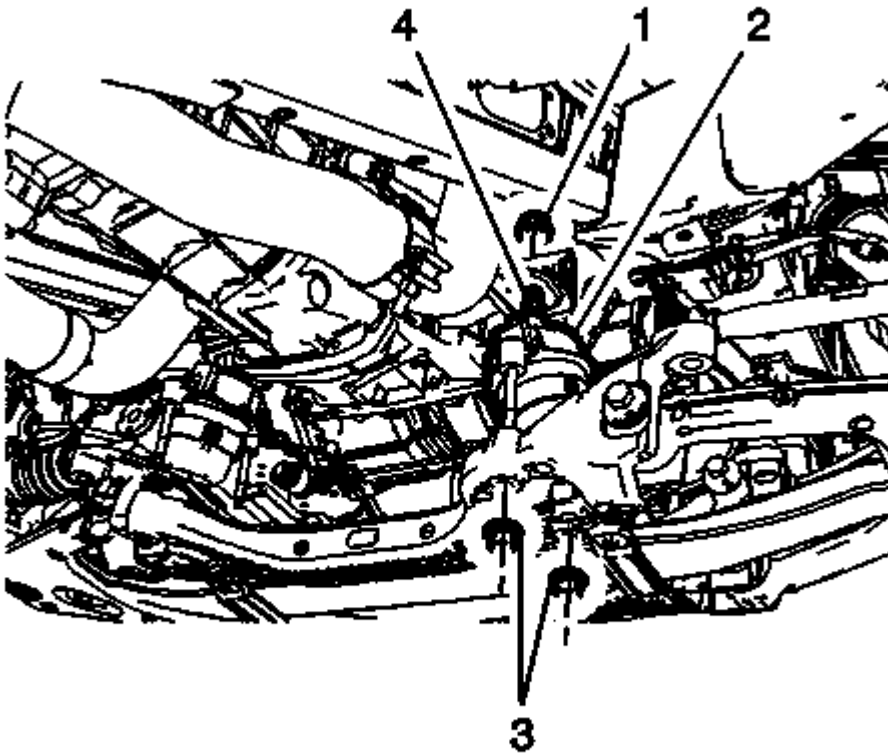


Fig. 24: Transmission Mounts

Courtesy of GENERAL MOTORS COMPANY

NOTE: Hold the transmission mount stud (4) with a suitable socket to prevent the stud from rotating in the mount. If the stud becomes loose, replace the transmission mount.

10. Using **CH-50732** socket or equivalent, install the transmission mount fastener (1) and tighten to 70 (52 lb ft).
11. Install the lower mount-to-rear suspension crossmember fasteners and tighten to 43 (32 lb ft).
12. Install the underbody side rail cross braces to the vehicle. Refer to **Underbody Side Rail Cross Brace Replacement (Rear)** , **Underbody Side Rail Cross Brace Replacement (Front)** .
13. Install the rear tire and wheel assemblies. Refer to **Tire and Wheel Removal and Installation** .
14. Lower the vehicle.

MANUAL SHIFT SHAFT AND SEAL REPLACEMENT

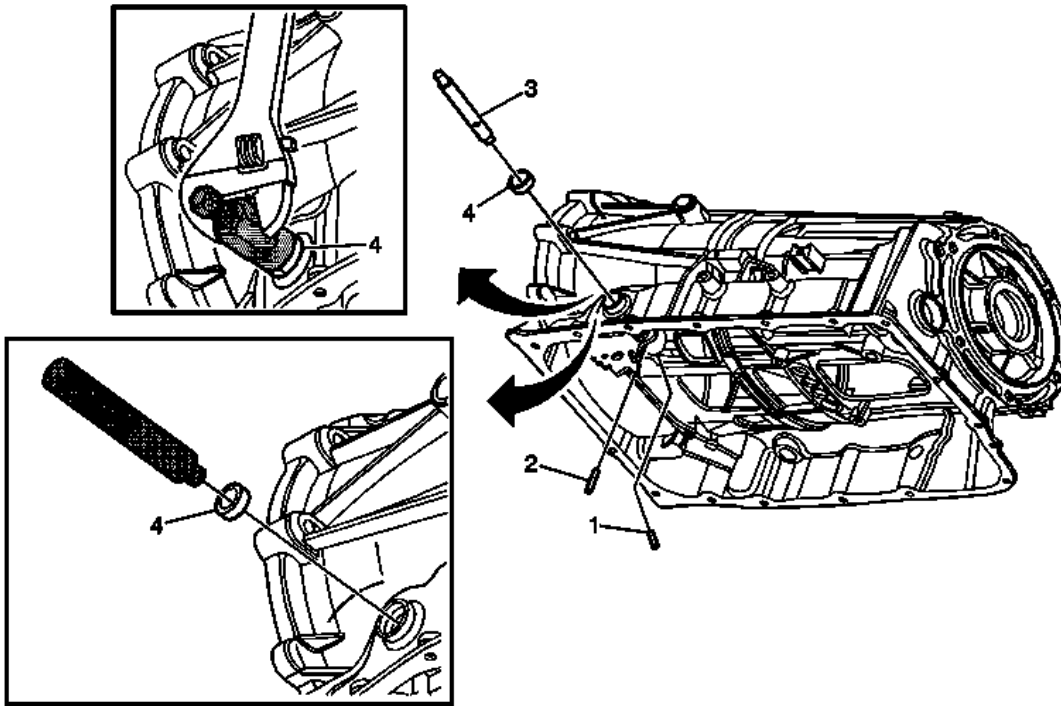


Fig. 25: Manual Shaft & Seal
Courtesy of GENERAL MOTORS COMPANY

Manual Shift Shaft and Seal Replacement

Callout	Component Name
Preliminary Procedures	
1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the transmission fluid pan. Refer to <u>Automatic Transmission Fluid, Fluid Pan and/or Filter Replacement</u>. 3. Remove the control valve body. Refer to <u>Control Valve Lower Body and Upper Body Replacement</u>.	
1	Manual Shift Shaft Pin Procedure 1. Discard the pin. Replace with NEW pin. 2. "Walk" the pin out using side cutters.
2	Manual Shift Detent Lever Hub Pin Procedure 1. Discard the pin. Replace with NEW pin. 2. "Walk" the pin out using side cutters.

3	NOTE: The manual shaft must be removed to replace the manual shaft seal.
4	Manual Shift Shaft Seal Procedure 1. Use the J 45201 remover to remove the seal from the transmission case. 2. Use the DT 47770 installer to install the seal into the transmission case. Special Tools • DT 47770 Seal Installer • J 45201 Cooler Line Seal Remover For equivalent regional tools, refer to Special Tools .

MANUAL SHIFT DETENT LEVER AND PARK PAWL ACTUATOR REPLACEMENT

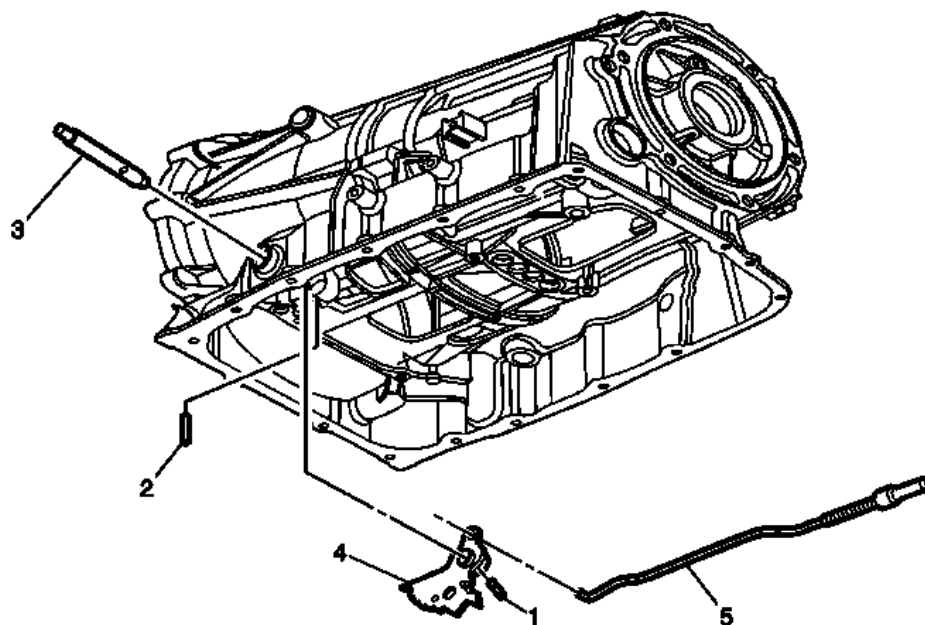


Fig. 26: Manual Shift Detent Lever and Park Pawl Actuator
Courtesy of GENERAL MOTORS COMPANY

Manual Shift Detent Lever and Park Pawl Actuator Replacement

Callout	Component Name
Preliminary Procedure Remove the valve body. Refer to Control Valve Lower Body and Upper Body Replacement .	
1	Manual Shaft Detent Lever Hub Pin NOTE: • Discard the pin. Replace with NEW pin. • "Walk" the pin out using side cutters.
2	Manual Shift Shaft Pin NOTE: • Discard the pin. Replace with NEW pin. • "Walk" the pin out using side cutters.
3	Manual Shift Shaft
4	Manual Shaft Detent Lever Assembly
5	Park Pawl Actuator Assembly

MANUAL SHIFT SHAFT POSITION SWITCH REPLACEMENT

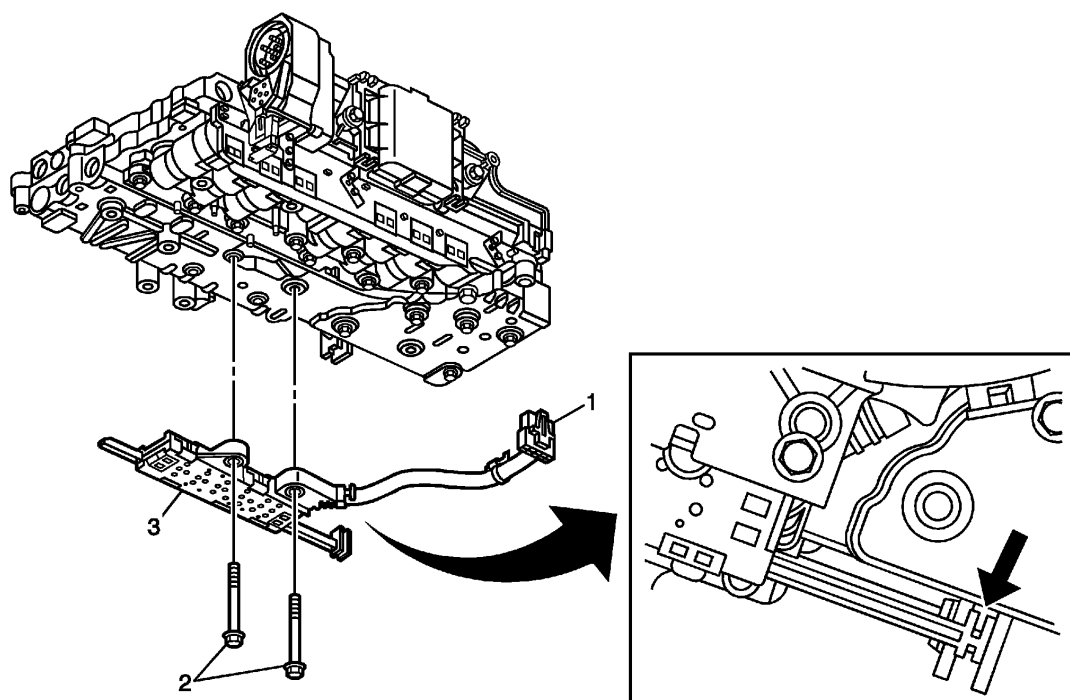


Fig. 27: Manual Shift Shaft Position Switch Component View
Courtesy of GENERAL MOTORS COMPANY

Manual Shift Shaft Position Switch Replacement

Preliminary Procedures

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the transmission fluid pan and filter. Refer to **Automatic Transmission Fluid, Fluid Pan and/or Filter Replacement**.

1	Manual Shift Shaft Position Switch Assembly Electrical Connector NOTE: • Release the connector lock before disconnecting. Engage the connector lock after connecting. • The wiring harness clip near the connector does not need to be replaced if broken or missing. The clip is used during manufacturing to keep the wire harness clear during an automated bolt installation process. If the clip is damaged, simply remove and discard.
2	Manual Shift Shaft Position Switch Assembly Bolt CAUTION: Refer to <u>Fastener Caution</u> . Tighten 12 (106 lb in)
3	Manual Shift Shaft Position Switch Assembly Procedure Align the switch activator slide with the manual valve link.

CONTROL SOLENOID VALVE AND TRANSMISSION CONTROL MODULE ASSEMBLY REPLACEMENT

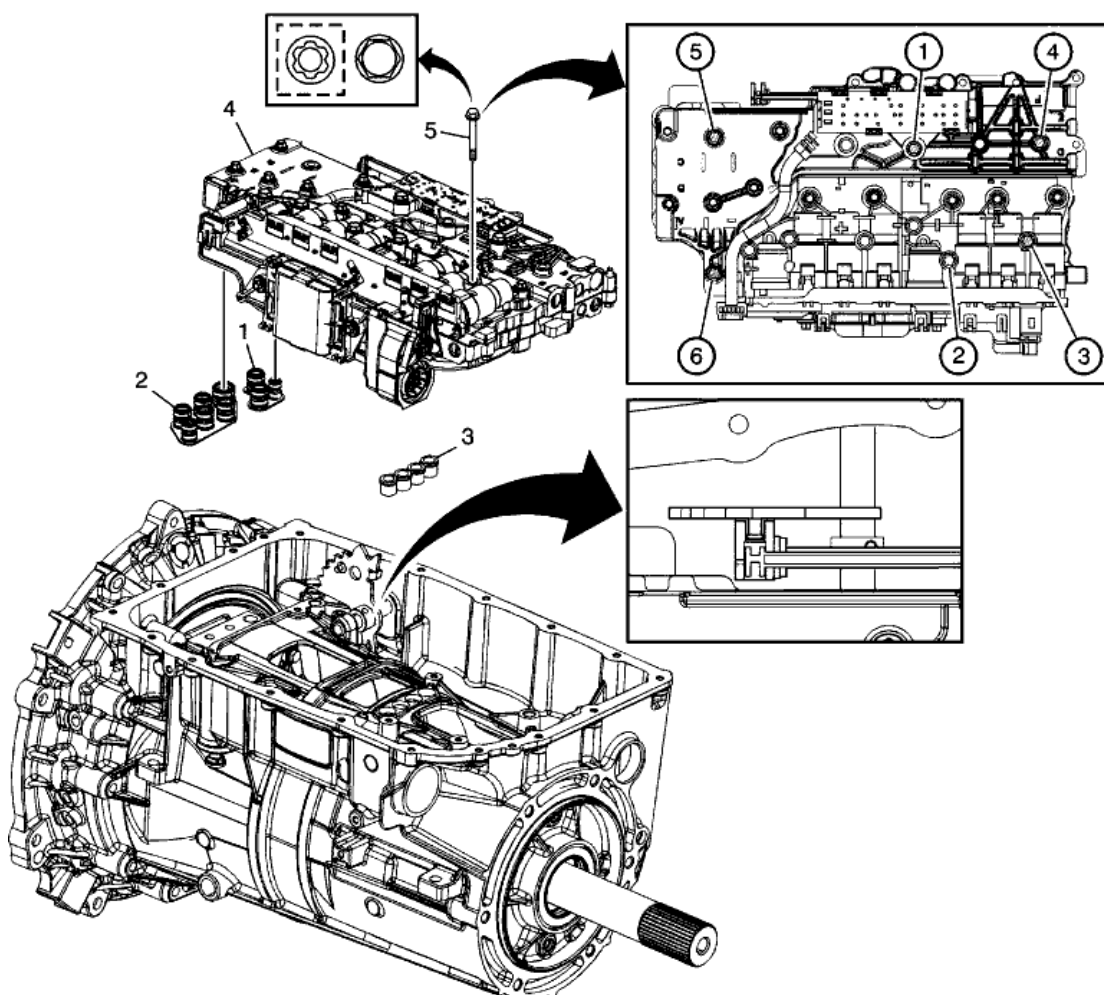


Fig. 28: Installing Control Valve Body Assembly
 Courtesy of GENERAL MOTORS COMPANY

Control Solenoid Valve and Transmission Control Module Assembly Replacement

Callout	Component Name
Preliminary Procedure Remove the control valve body assembly. Refer to Control Valve Lower Body and Upper Body Replacement .	
1	NEW Fluid Pump Seal Assembly
2	NEW Fluid Pump Seal Assembly
3	NEW Center Support Fluid Passage Seal Assembly
4	Control Valve Body Assembly CAUTION: The control valve body assembly needs to be lowered into place vertically, with no lateral movement. Lateral movement can damage the pass through connector pins

	Procedure 1. Note the lengths of the bolts when removed for correct positioning during installation. 2. Align the manual shift shaft position switch activator slide with the detent lever guide pin.
5	Bolt M5 x 73 (Qty: 6) CAUTION: Refer to <u>Fastener Caution</u> . Procedure 1. Tighten in the sequence shown. 2. If a NEW TCM has been installed into the vehicle, the NEW module needs to be reprogrammed. Refer to <u>Service Programming System (SPS)</u> . 3. Perform the Reset Transmission Adapts. Refer to <u>Reset Transmission Adapts</u> . NOTE: The Service Fast Learn Adapts procedure must be performed when one of the following repairs have been made to the vehicle. Failure to perform the procedure after one of the following repairs may result in poor transmission performance, as well as transmission DTCs being set: • Transmission internal service/overhaul • Valve body repair or replacement • Control solenoid valve assembly replacement • TCM software/calibration update • Any service in response to a shift quality concern Tighten 8 (71 lb in) Special Tool DT-48285 Valve Body TORX Plus Socket (if applicable) For equivalent regional tools, refer to <u>Special Tools</u> .

CONTROL VALVE LOWER BODY AND UPPER BODY REPLACEMENT

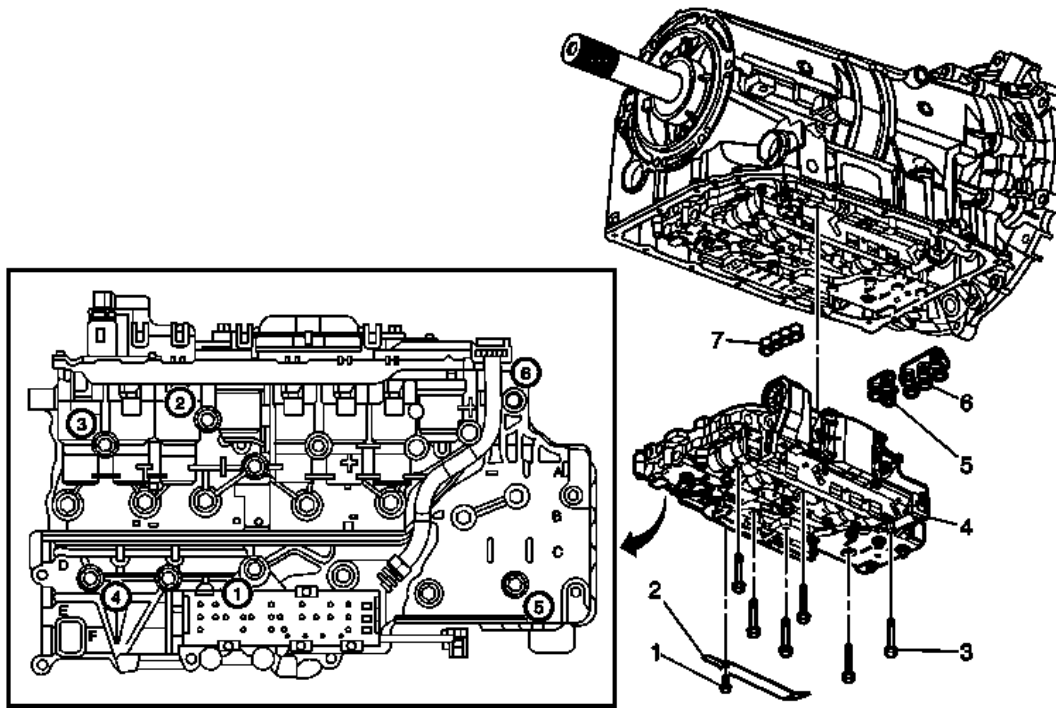


Fig. 29: Replacing Control Valve Lower and Upper Body
 Courtesy of GENERAL MOTORS COMPANY

Control Valve Lower Body and Upper Body Replacement

Callout	Component Name
Preliminary Procedure Remove the transmission electrical connector. Refer to <u>Automatic Transmission Electrical Connector Passage Sleeve Replacement</u> .	
1	Manual Shaft Detent Bolt CAUTION: Refer to <u>Fastener Caution</u> . Tighten 12 (106 lb in)
2	Manual Shaft Detent Assembly
3	Control Valve Assembly Bolt (Qty: 6) Procedure 1. Do not remove all the bolts in the control valve body assembly. Remove only the bolts indicated.

	Tighten 8 (71 lb in)
4	Control Valve Assembly
5	Fluid Pump Seal Procedure Discard seal and replace with new.
6	Fluid Pump Seal Procedure Discard seal and replace with new.
7	Center Support Fluid Passage Seal Procedure 1. Discard seal and replace with new. 2. It is recommended that transmission adaptive pressure (TAP) information be reset. Transmission performance may be affected as new TAP values are learned. Refer to Reset Transmission Adapts . 3. If replacing the control valve body assembly, remove the Control Solenoid Valve and Transmission Control Module Assembly Replacement and the Manual Shift Shaft Position Switch Replacement.

INPUT AND OUTPUT SPEED SENSOR REPLACEMENT

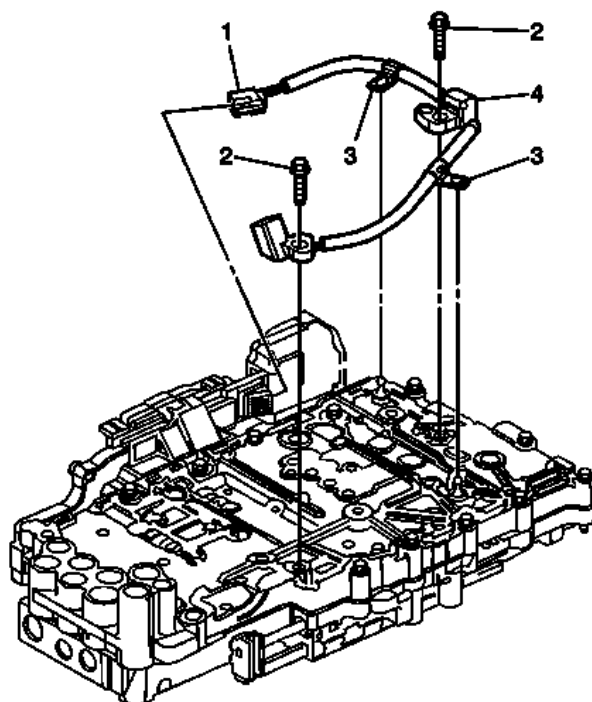


Fig. 30: Input & Output Speed Sensor

Courtesy of GENERAL MOTORS COMPANY

Input and Output Speed Sensor Replacement

Callout	Component Name
Preliminary Procedures 1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the transmission fluid pan and filter. Refer to <u>Automatic Transmission Fluid, Fluid Pan and/or Filter Replacement</u> . 3. Remove the upper and lower valve body assembly. Refer to <u>Control Valve Lower Body and Upper Body Replacement</u> .	
1	Speed Sensor Electrical Connector
2	Input and Output Speed Sensor Assembly Bolt (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 12 (106 lb in)
3	Input and Output Speed Sensor Assembly Clip (Qty: 2) Procedure Inspect the wiring harness clips for damage. Replace if necessary.
4	Input and Output Speed Sensor Assembly

TRANSMISSION REPLACEMENT

Special Tools

- **J-42055** Drivetrain Support Fixture
- **J-42386-A** Flywheel Holding Tool

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

Removal Procedure

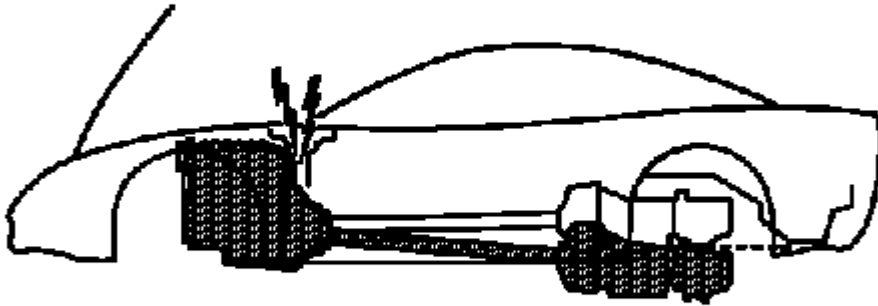


Fig. 31: Tilting Down Rear Of Driveline
Courtesy of GENERAL MOTORS COMPANY

WARNING: Refer to Battery Disconnect Warning .

CAUTION: Failure to follow the proper removal and installation procedures may result in damage to the engine crankshaft thrust bearing.

CAUTION: When tilting down the rear of the driveline, observe the clearance between the rear of the engine and the composite dash panel. Do not allow the engine to rest unsupported against the composite dash panel or vehicle damage may result.

CAUTION: When lowering and removing the rear of the driveline, observe the clearance between the rear of the transaxle assembly and the underbody to prevent damage.

Connection .

2. Raise and suitably support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
3. Remove the rear tire and wheel assemblies. Refer to **Tire and Wheel Removal and Installation** .
4. Remove the intermediate pipe assembly. Refer to **Intermediate Pipe Replacement** .

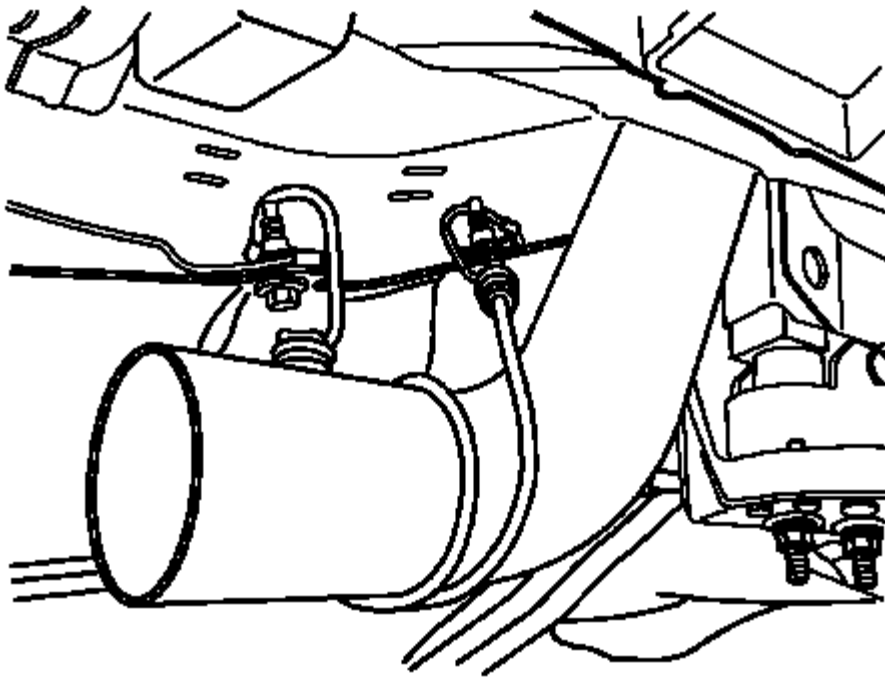


Fig. 32: View Of Tied Off Muffler Assembly
Courtesy of GENERAL MOTORS COMPANY

5. Tie off the left hand muffler assembly to the underbody to support the muffler out of the way.
6. Remove the right hand muffler assembly. Refer to **Exhaust Muffler Replacement - Right Side** .
7. Remove the floor panel tunnel reinforcement. Refer to **Floor Panel Tunnel Panel Reinforcement Replacement** .

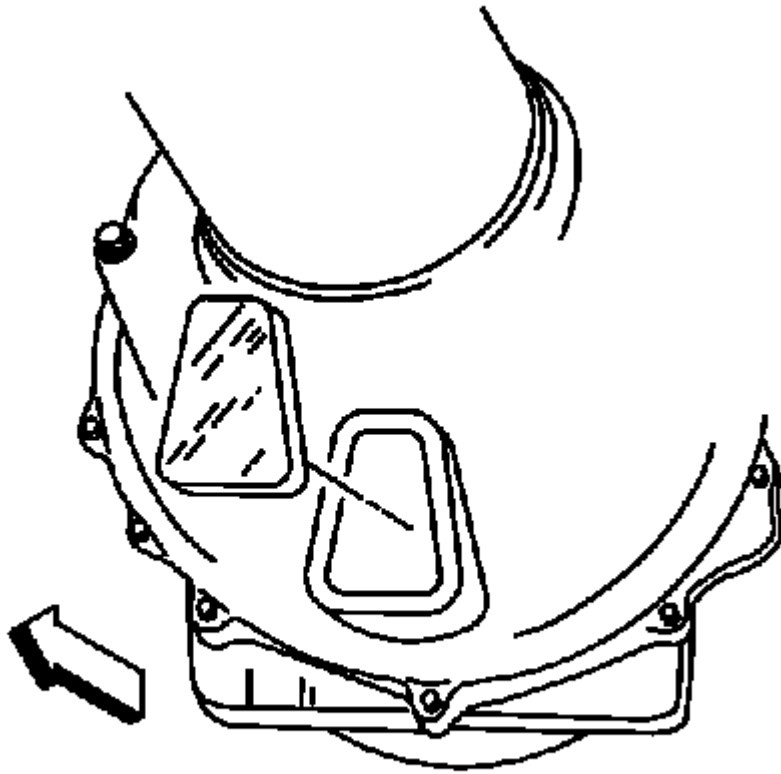


Fig. 33: Rear Bellhousing Access Plug
Courtesy of GENERAL MOTORS COMPANY

8. Using a flat-bladed screwdriver, remove the rear bellhousing access plug.

NOTE: **The following step must be performed to assure proper torque converter balance during installation.**

9. Matchmark the transmission flexplate to the transmission torque converter through the access hole in the rear bellhousing.

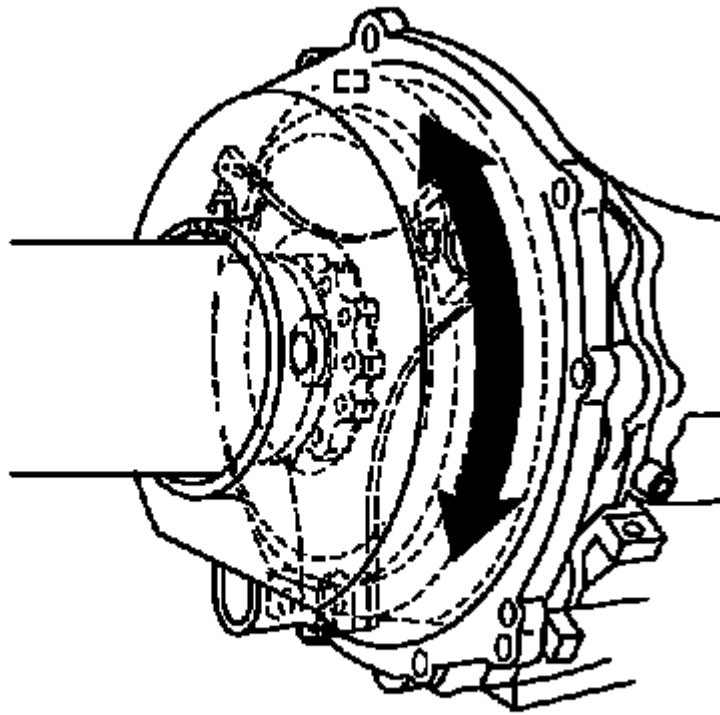


Fig. 34: Engine Flywheel & Flexplate
Courtesy of GENERAL MOTORS COMPANY

10. Turn the engine flywheel through the starter motor opening until one of the flexplate to torque converter bolts lines up with the access hole.

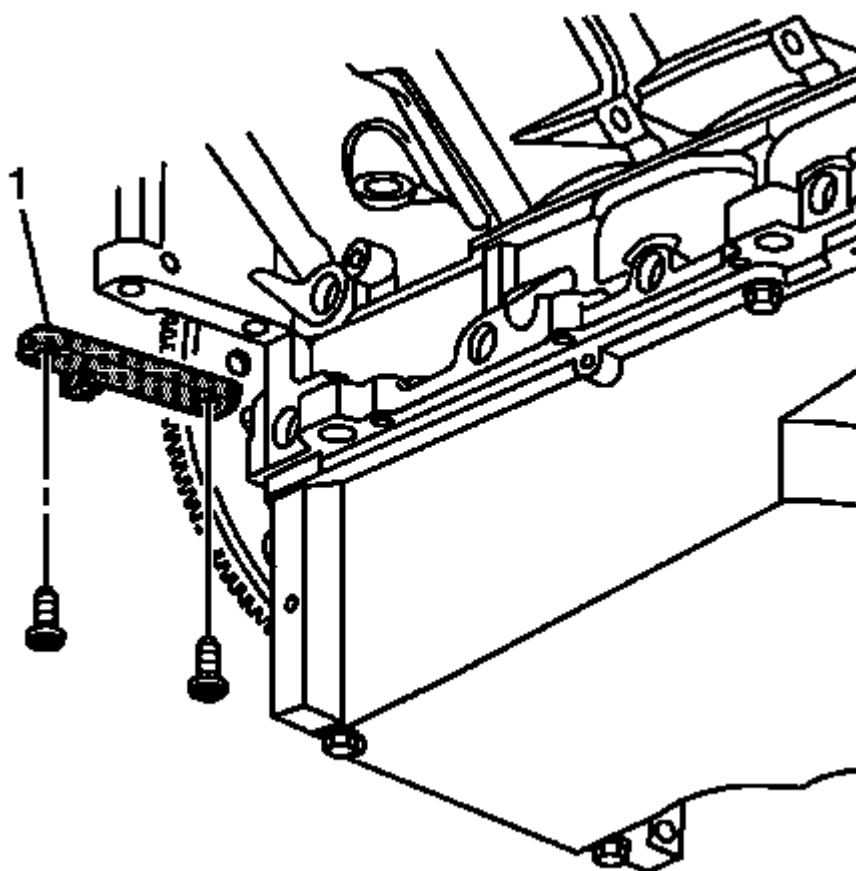


Fig. 35: View Of J 42386-A & Flywheel
Courtesy of GENERAL MOTORS COMPANY

11. Install the **J-42386-A** flywheel holding tool (1) to the engine flywheel, in order to keep the flywheel from turning.

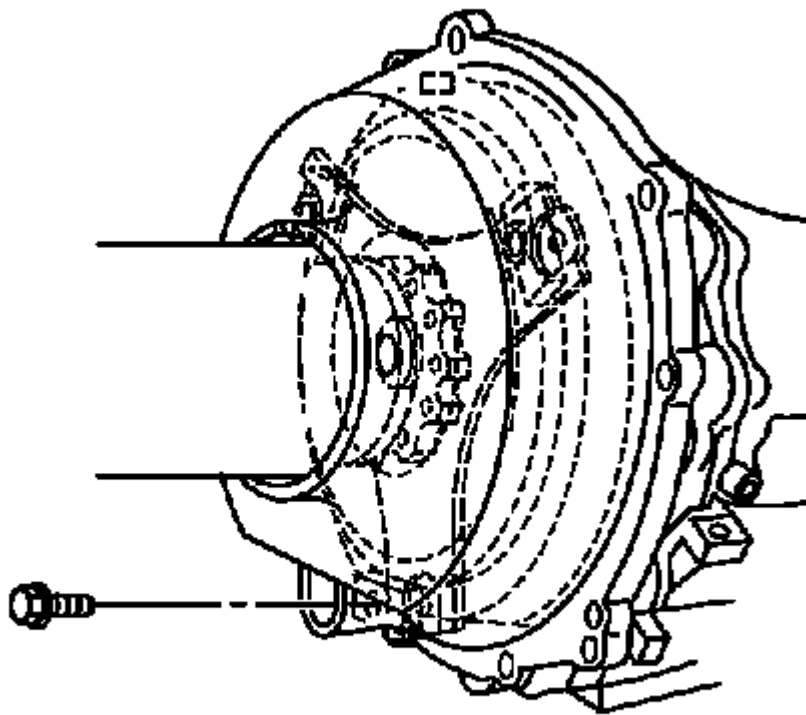


Fig. 36: Flexplate & Torque Converter Bolt
Courtesy of GENERAL MOTORS COMPANY

12. Remove the flexplate to torque converter bolt.
13. Remove the **J-42386-A** flywheel holding tool.
14. Repeat steps 7-10 to remove the 2 remaining bolts.

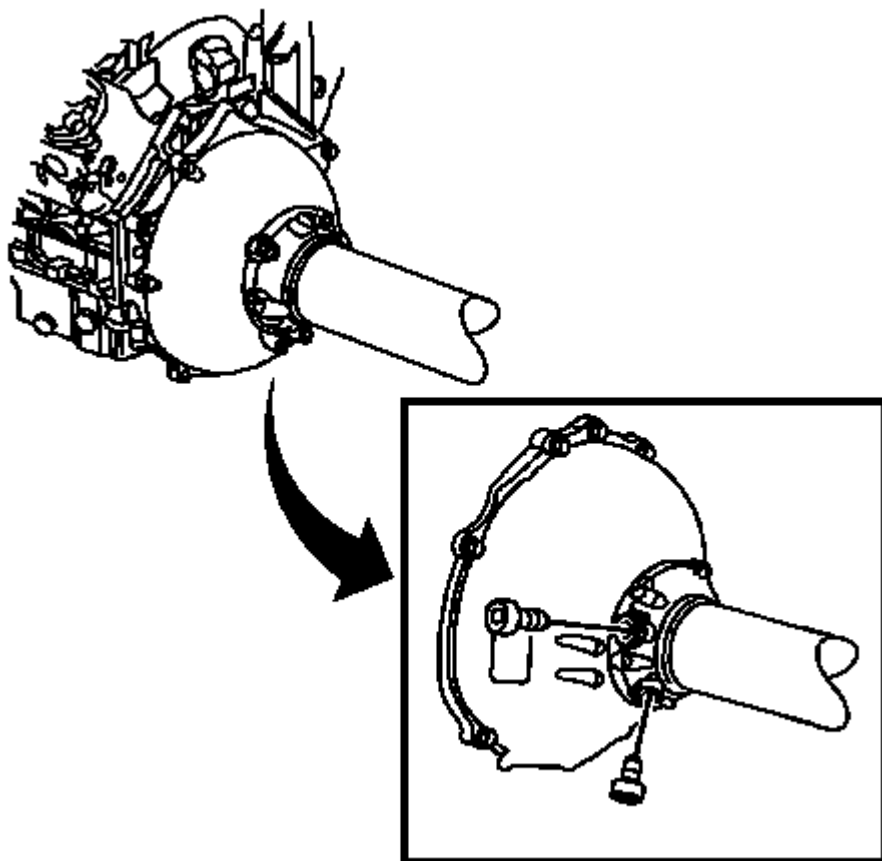


Fig. 37: Identifying Plug Bolts On Front Of Driveline Support Assembly
Courtesy of GENERAL MOTORS COMPANY

15. Remove the two plug bolts from the front of driveline support assembly.

CAUTION: Refer to Fastener Caution .

NOTE:

- The propeller input shaft front bearing positioning bolts are intended to remain torqued to specification and in place UNTIL INSTRUCTED in the installation procedure.
- Failure to use the minimum length fastener specified will prevent proper retention of the propeller input shaft front bearing during disassembly or installation.

16. Install two bolts, M10 - 1.5 X 55 mm or longer, in place of the plug bolts.

The long bolts are located to maintain the propeller input shaft front bearing in original position during removal and installation. Tighten the propeller input shaft front bearing positioning bolts to 35 (26 lb ft).

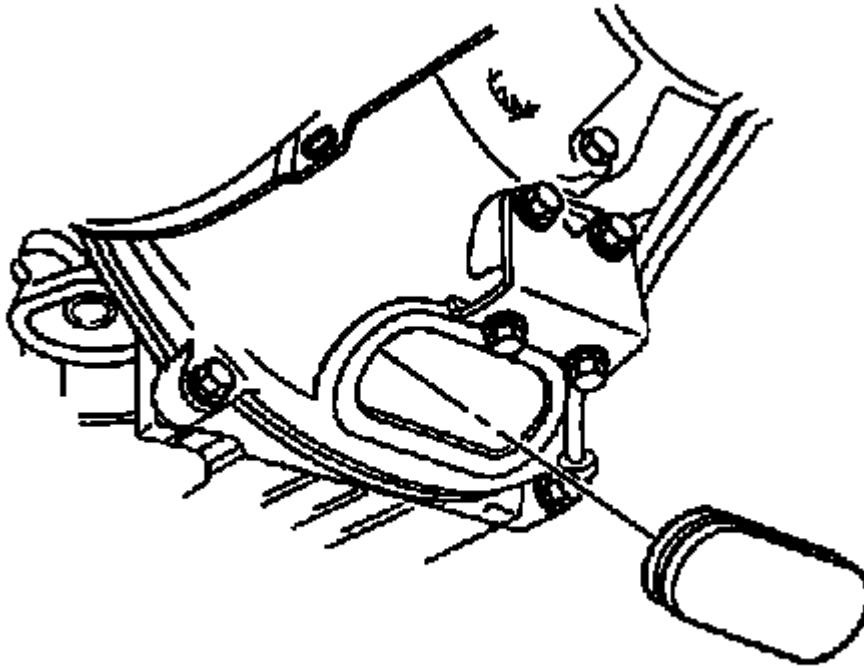


Fig. 38: View Of Engine Flywheel Housing Access Plug
Courtesy of GENERAL MOTORS COMPANY

17. Using a flat-bladed screwdriver, remove the engine flywheel housing access plug.

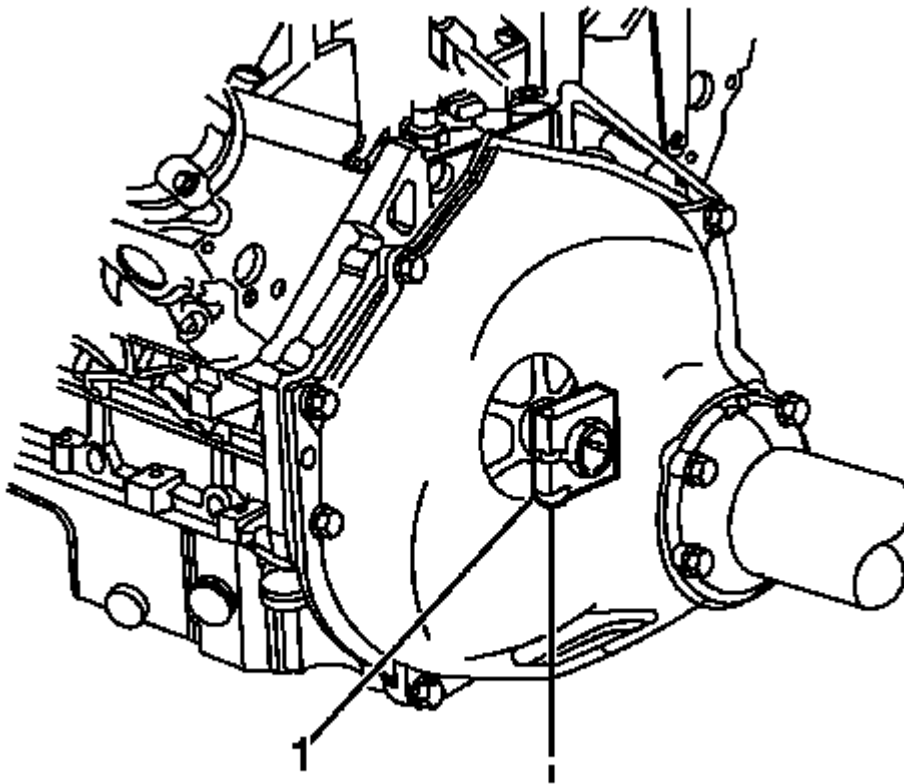


Fig. 39: View Of Propeller Shaft Hub Clamp Bolt
Courtesy of GENERAL MOTORS COMPANY

18. Loosen the propeller shaft hub clamp bolt (1).

Rotate the engine at the flywheel, if necessary for alignment.

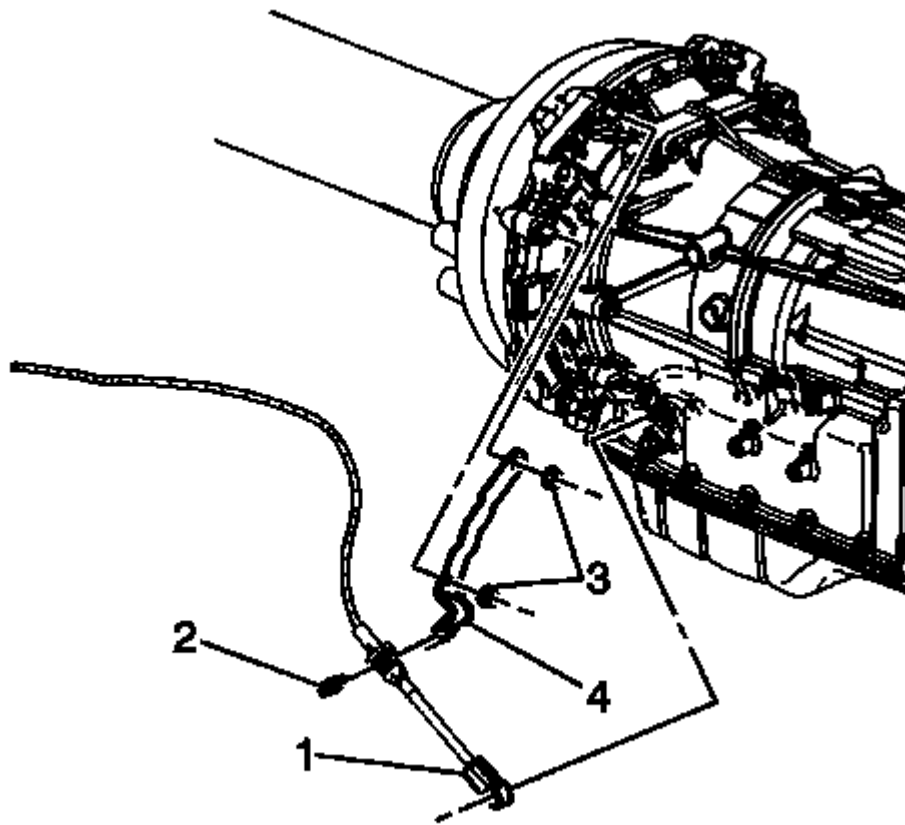


Fig. 40: View Of Transmission Shift Cable Bracket & Retaining Nuts
Courtesy of GENERAL MOTORS COMPANY

19. Remove the nuts (3) retaining the transmission shift cable bracket (4) to the transmission.
20. Disconnect the transmission shift control cable from the transmission shift lever.

Unsnap to release the cable.

21. Position the transmission shift cable (1) and bracket aside.

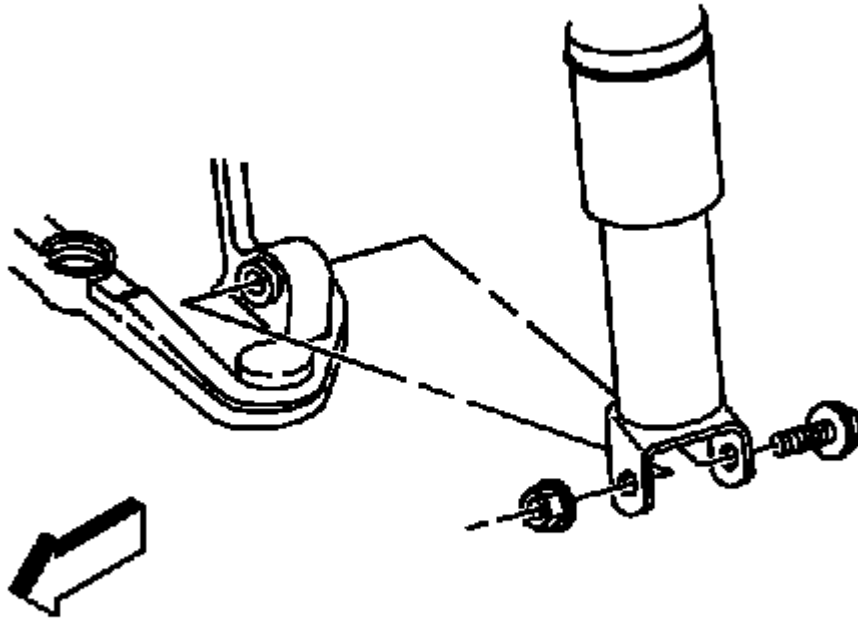


Fig. 41: View Of Shock Absorber Mounting To Control Arm
Courtesy of GENERAL MOTORS COMPANY

22. Remove the rear spring. Refer to **Rear Spring Replacement** .
23. Support the lower control arm with a straight jack.
24. Disconnect the outer end from the suspension knuckle. Refer to **Adjust Link Replacement** .
25. Remove the shock absorber lower mounting bolt.
26. Disconnect the lower ball joint from the suspension knuckle. Refer to **Knuckle Replacement (without J55)** , **Knuckle Replacement (with J55)** .
27. Remove the straight jack from the control arm.
28. Repeat steps 21-25 for the other side of the vehicle.

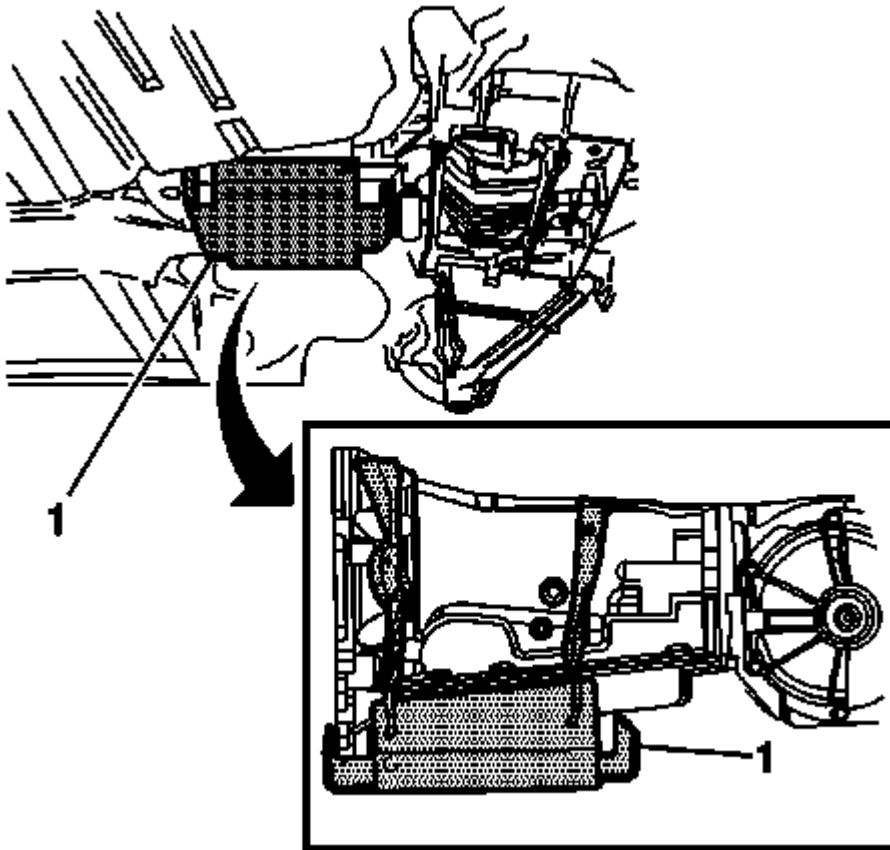


Fig. 42: View Of J 42055 On Transmission
Courtesy of GENERAL MOTORS COMPANY

29. Assemble the **J-42055** drivetrain support fixture.
30. Install the **J-42055** drivetrain support fixture to a transmission jack.
31. Position and firmly secure the **J-42055** drivetrain support fixture (1) with the transmission jack to the transmission.
32. Disconnect the wiring harness and brake pipe clip retainers from the rear suspension crossmember.
33. Remove the differential to transmission lower nut.

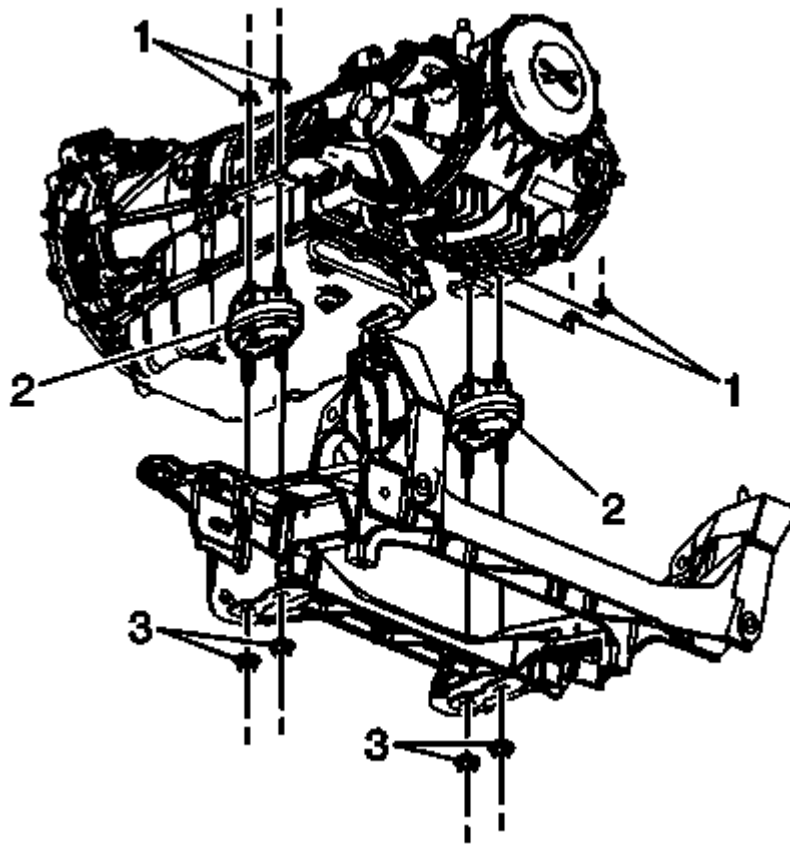


Fig. 43: Locating Transaxle Mounts & Nuts
Courtesy of GENERAL MOTORS COMPANY

34. Remove the transaxle mount to rear crossmember nuts (3).

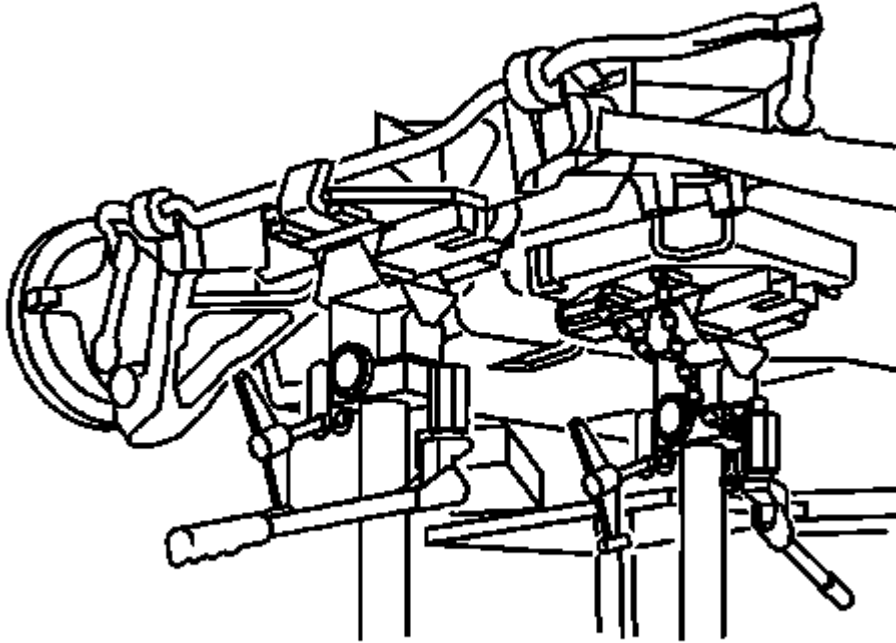


Fig. 44: View Of Correct Transmission Jack Placement
Courtesy of GENERAL MOTORS COMPANY

35. Position a transmission jack under the rear suspension crossmember and firmly secure the crossmember to the jack.
36. Using ONLY HAND TOOLS, remove the rear suspension crossmember retaining nuts.

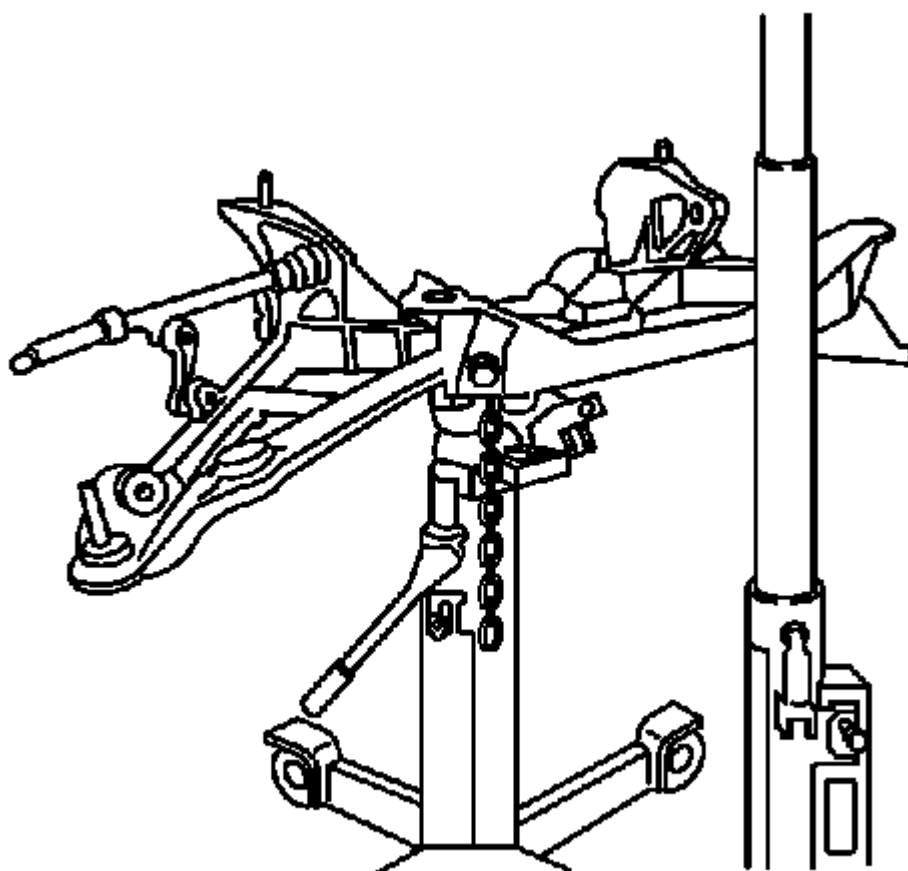


Fig. 45: View Of Rear Suspension Crossmember
Courtesy of GENERAL MOTORS COMPANY

37. With the aid of an assistant, slowly lower the rear suspension crossmember away from the vehicle frame rails and remove the crossmember.

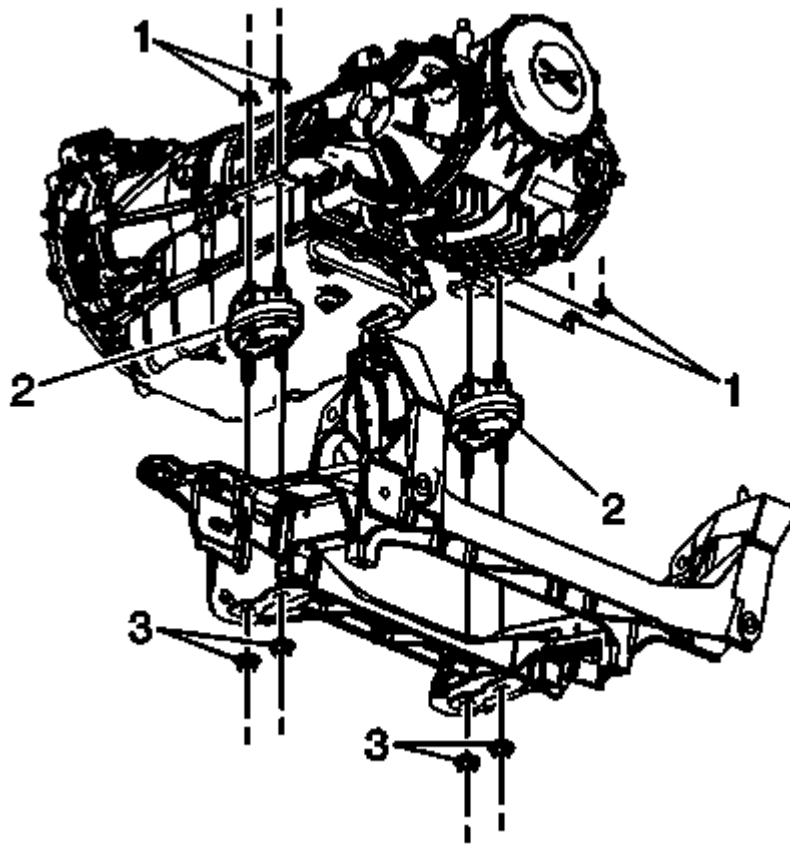


Fig. 46: Locating Transaxle Mounts & Nuts
Courtesy of GENERAL MOTORS COMPANY

38. Remove the transaxle mount bracket to differential nuts (1).
39. Remove the transaxle mount (2).
40. Using a pry bar, CAREFULLY release the axle shafts from the differential.
41. Tie off the axle shafts to the underbody to support the shafts out of the way.

The LH muffler assembly pipe toward the rear offers a good location to help support the LH axle shaft.

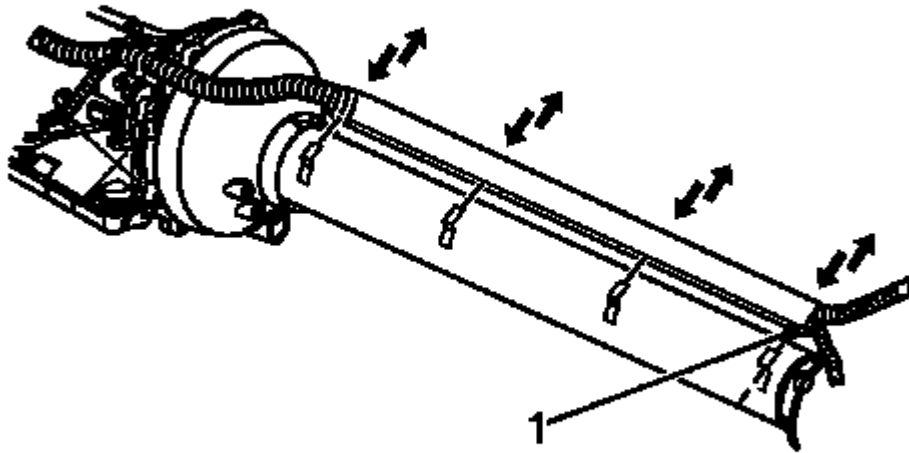


Fig. 47: View Of Wiring Harness Retainer
Courtesy of GENERAL MOTORS COMPANY

42. Release the retainer (1) securing (and positioning) the wiring harness to the L-shaped brackets along the driveline support assembly, then slide the harness up out of the brackets and position out of the way.

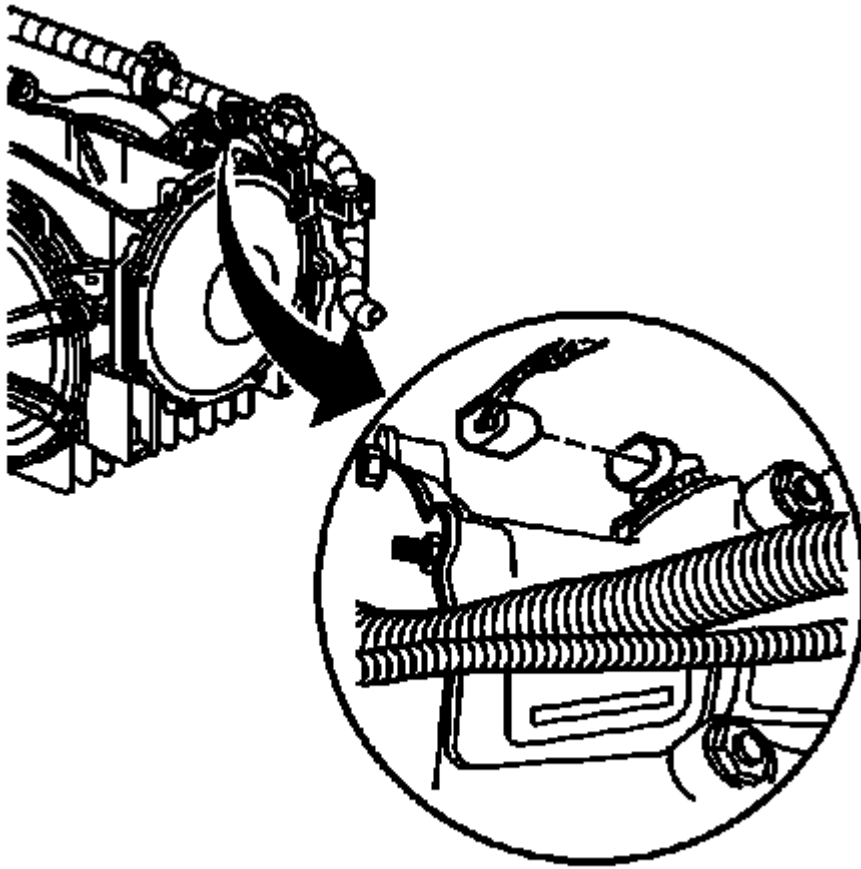


Fig. 48: Vehicle Speed Sensor (VSS) Electrical Connector
Courtesy of GENERAL MOTORS COMPANY

43. SLOWLY lower the driveline approximately 5 cm (2 in), while simultaneously adjusting the angle of tilt, in order to access the electrical connectors.
44. Disconnect the vehicle speed sensor (VSS) electrical connector.

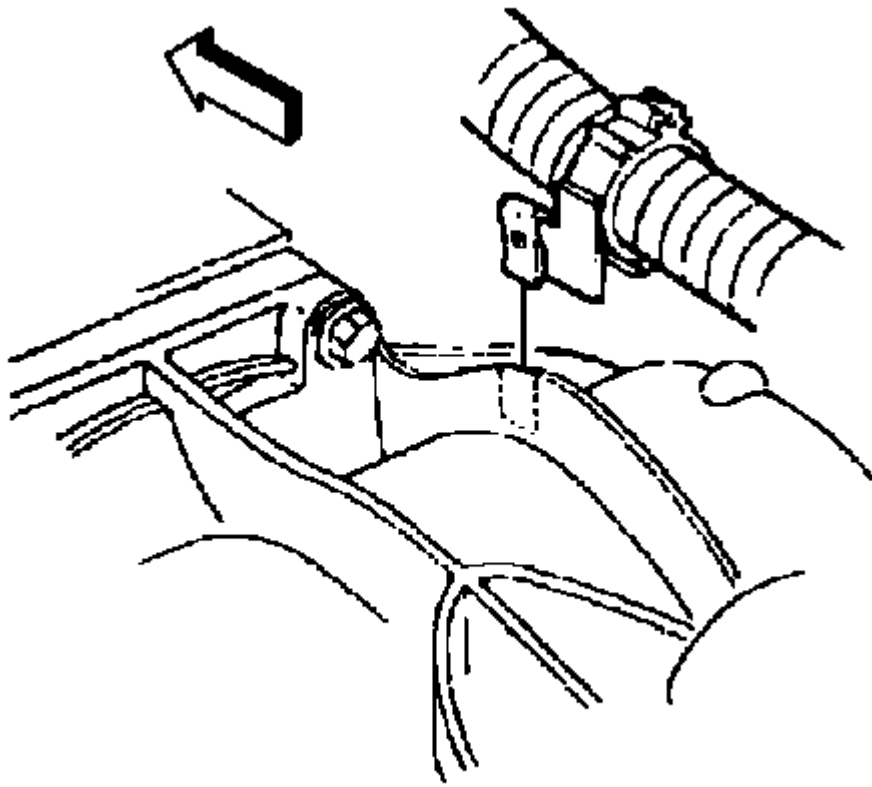


Fig. 49: Wiring Harness Retainer To Stud At Differential Rear Cover
Courtesy of GENERAL MOTORS COMPANY

45. Disconnect the wiring harness retainer from the stud at the differential rear cover.
46. Disconnect the wiring harness retainer clip from the top of the differential.

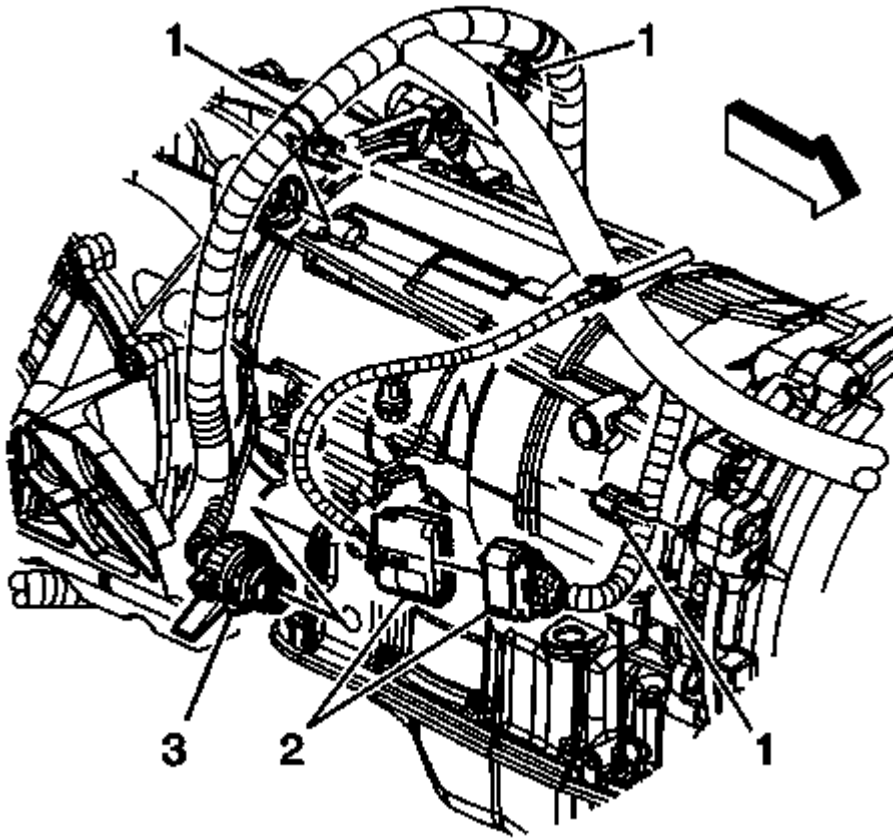


Fig. 50: View Of Transmission Harness 20-Way Connector
Courtesy of GENERAL MOTORS COMPANY

47. Disconnect the transmission harness 20-way connector (3).

Depress both tabs on the connector and pull straight up; do not pry the connector.

48. Remove the bolt retaining the transmission wiring harness to the LH side of the transmission case.

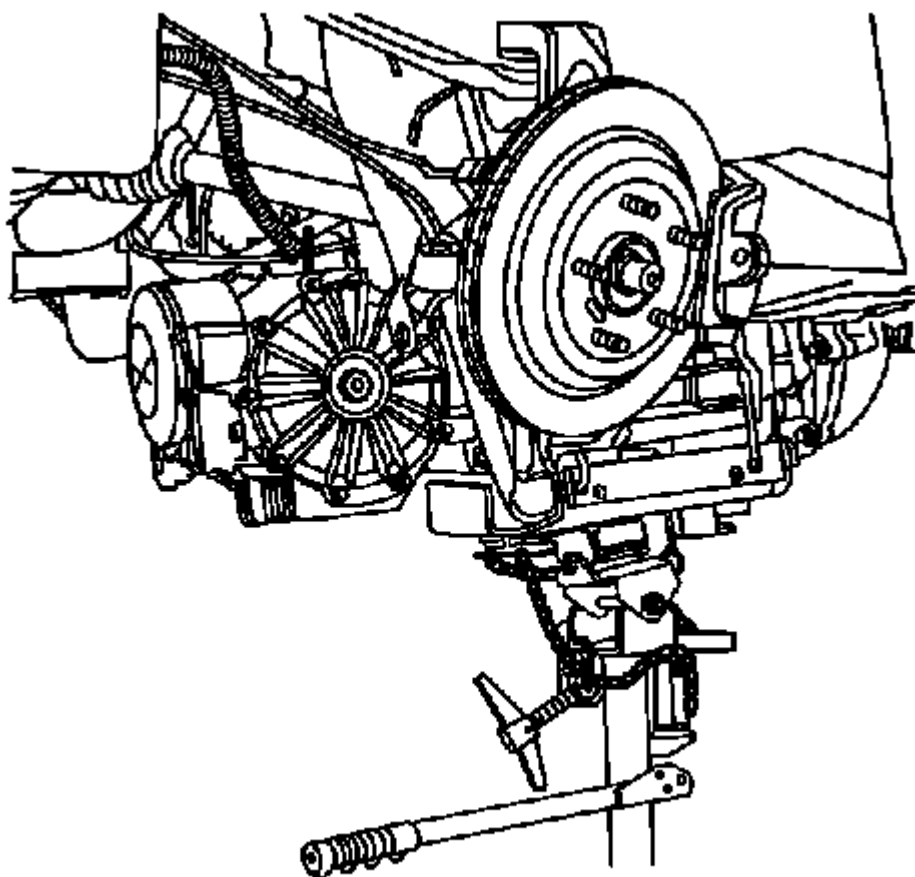


Fig. 51: View Of Wiring Harness & Top Of Transmission
Courtesy of GENERAL MOTORS COMPANY

49. SLOWLY lower the driveline, while simultaneously adjusting the angle of tilt and observe the relationship between the top rear of the differential and the lowest part of the rear compartment panel floor (the center storage compartment between the frame rails). The differential should not be lowered more than approximately EVEN with the specified body point of reference.

The engine positive crankcase ventilation (PCV) pipes which route along the rear of the engine intake manifold will likely contact the dash panel.

50. Release the wiring harness from the harness retainer along the top of the transmission.
51. Check to be sure that the wiring harness is free from the driveline being removed.

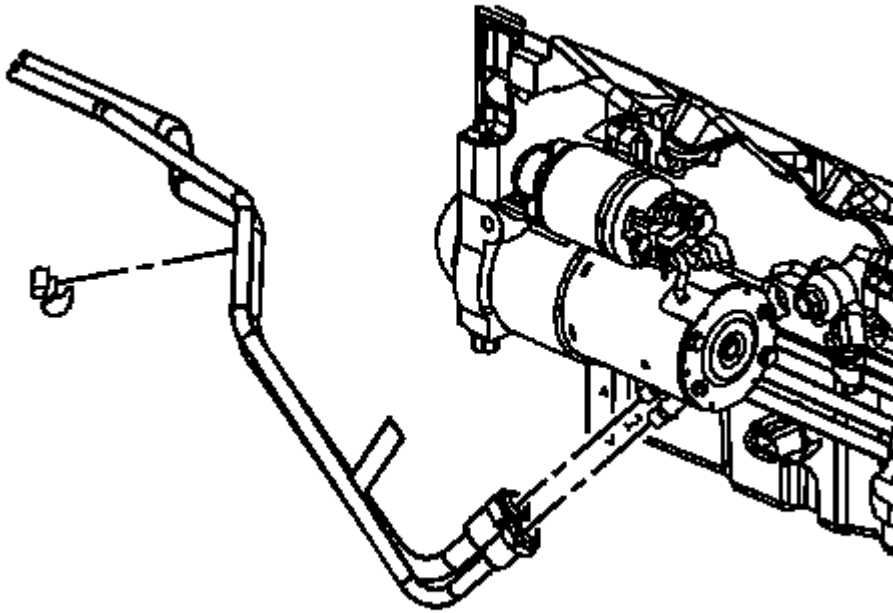


Fig. 52: Upper & Lower Transmission Oil Cooler Lines At Intermediate Lines
Courtesy of GENERAL MOTORS COMPANY

52. Disconnect the transmission oil cooler rear pipes from the junction fittings at the engine flywheel housing, then cap the pipes and plug the junction fittings to prevent contamination. Refer to **Transmission Fluid Cooler Inlet and Outlet Pipe Replacement (MEL, MEP)** , **Transmission Fluid Cooler Inlet and Outlet Pipe Replacement (MYC)** , **Transmission Fluid Cooler Inlet and Outlet Pipe Replacement (MEL Convertible)** , **Transmission Fluid Cooler Inlet and Outlet Pipe Replacement (MYC Convertible)** .

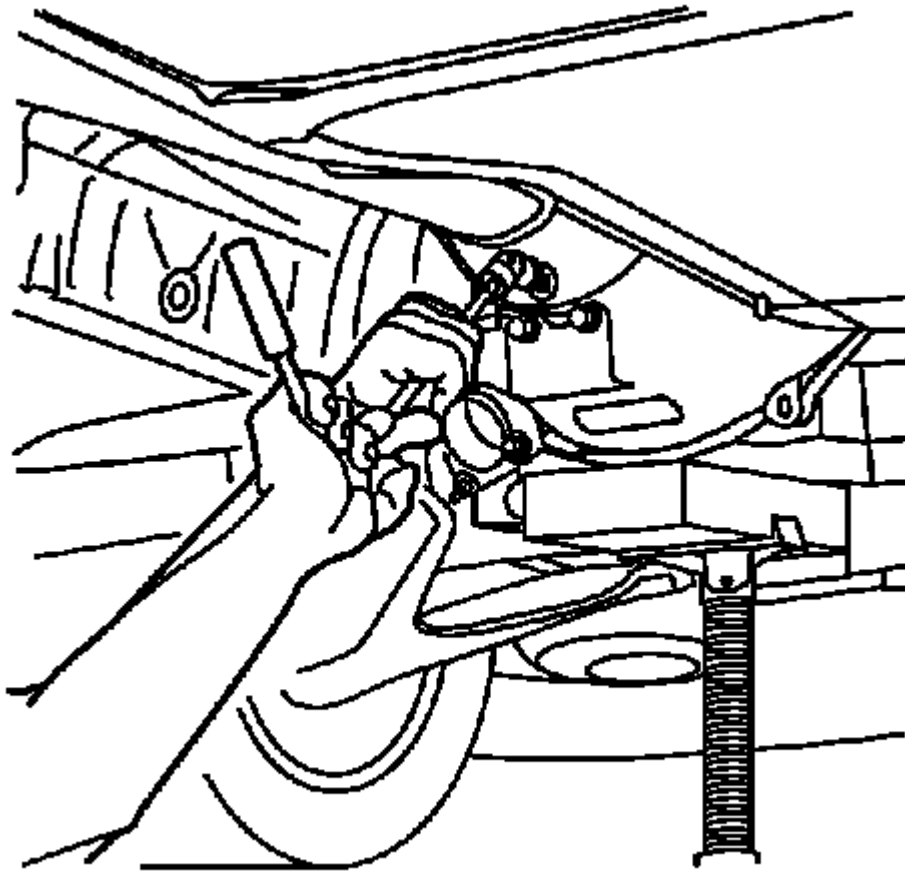


Fig. 53: Driveline Support Assembly To Engine Flywheel Housing Bolts
Courtesy of GENERAL MOTORS COMPANY

53. Using a block of wood to protect the engine oil pan, place a straight jack under the rear of the engine oil pan to support the engine from stressing the composite dash panel.
54. Remove the five driveline support assembly to engine flywheel housing bolts.

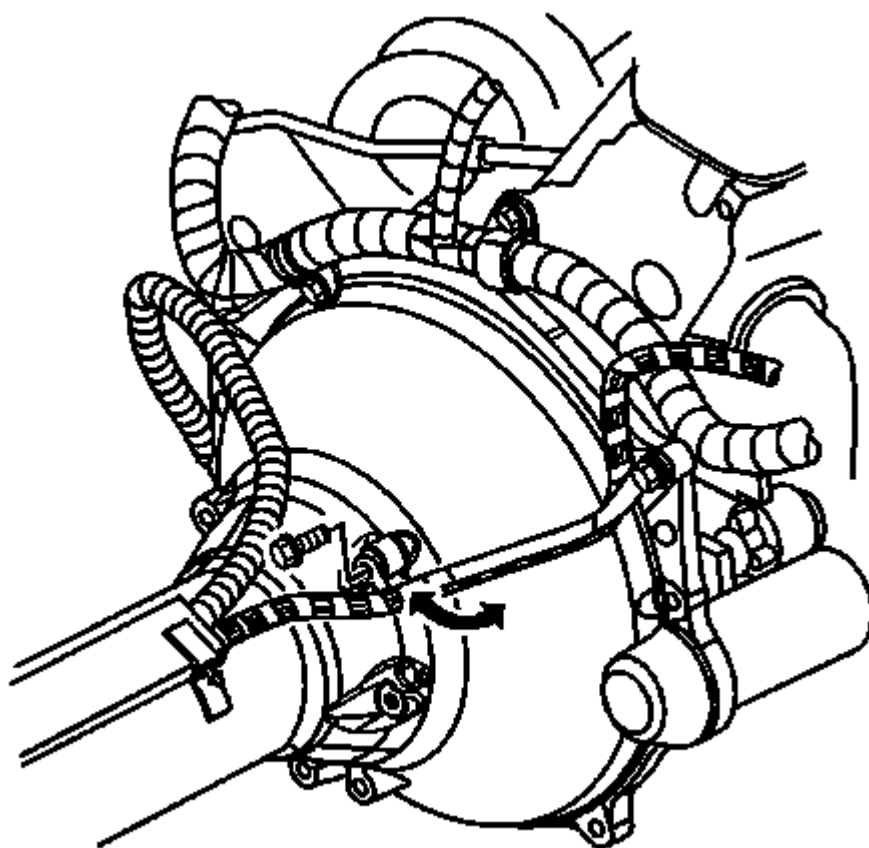


Fig. 54: Repositioning Wiring Harness Bracket
Courtesy of GENERAL MOTORS COMPANY

55. Carefully bend the wiring harness bracket away from the driveline, toward the driveline tunnel wall in order to make a clear removal path for the driveline.

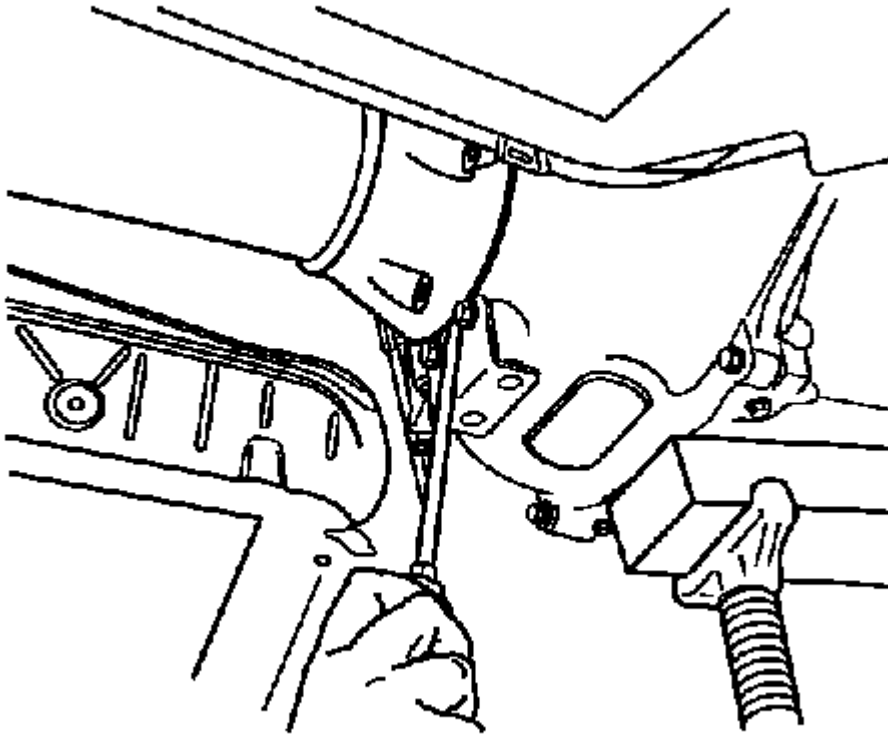


Fig. 55: Separating Driveline From Engine
Courtesy of GENERAL MOTORS COMPANY

NOTE: The aid of an assistant will be necessary for the remaining steps.

56. Have an assistant insert a flat bladed screwdriver or similar tool, between the edge of the driveline support assembly and the engine flywheel housing, then begin to pry the driveline loose from the engine.

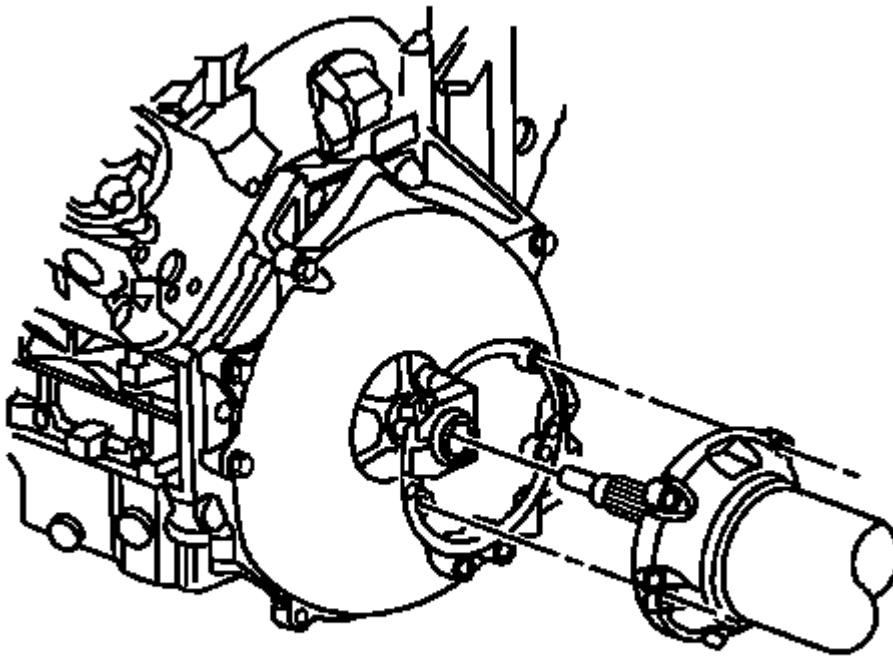


Fig. 56: View Of Driveline From Engine
Courtesy of GENERAL MOTORS COMPANY

57. Have an assistant guide the front of the driveline during the removal of the driveline from the vehicle.
58. SLOWLY lower the driveline, while simultaneously adjusting the angle of tilt and pulling the driveline away from the engine UNTIL the propeller input shaft at the front of the driveline support assembly just clears the engine flywheel housing.
59. SLOWLY lower the driveline completely out of the vehicle.

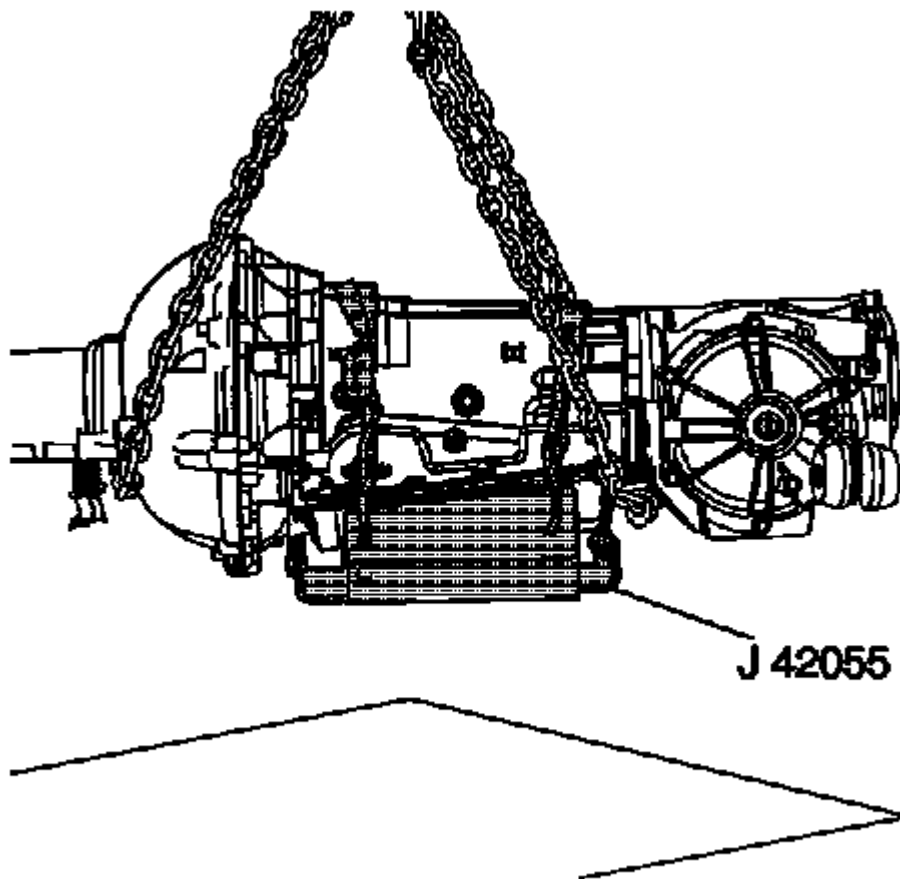


Fig. 57: View Of Transmission & J 42055
Courtesy of GENERAL MOTORS COMPANY

60. Position the chainfall or equivalent, of a lift device in a way which will protect the transmission oil cooler rear pipes and the rear exhaust hangers located on the driveline support assembly.
61. Using the lift device, raise the driveline to relieve the weight from the transmission jack.
62. Disconnect the **J-42055** drivetrain support fixture from the transmission jack ONLY, the **J-42055** drivetrain support fixture will provide stability to the driveline components while working on a bench.
63. Position the driveline on a workbench with the lift device still attached.
64. Support the driveline support assembly and the differential for additional balance.
65. Remove the lift device from the driveline.

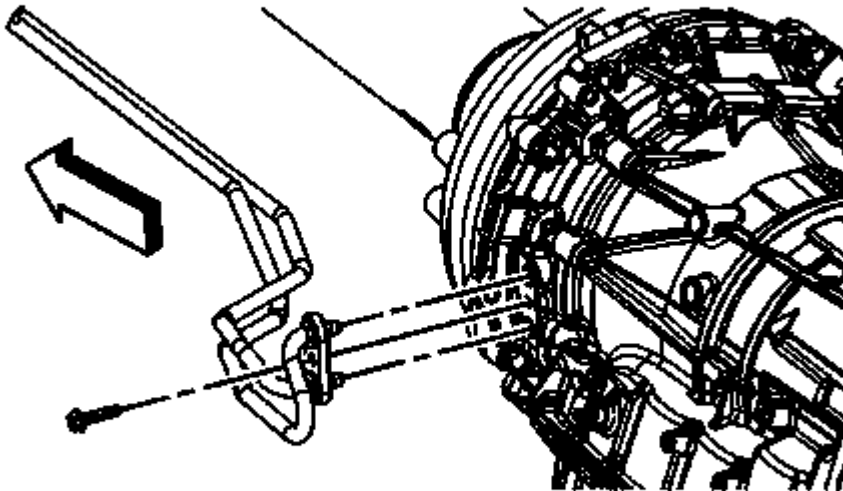


Fig. 58: View Of Transmission Oil Cooler Pipes
Courtesy of GENERAL MOTORS COMPANY

66. Disconnect the transmission oil cooler rear pipes from the fittings on the transmission, then cap the pipes and plug the transmission fittings to prevent contamination. Refer to **Transmission Fluid Cooler Inlet and Outlet Pipe Replacement (MEL, MEP)** , **Transmission Fluid Cooler Inlet and Outlet Pipe Replacement (MYC)** , **Transmission Fluid Cooler Inlet and Outlet Pipe Replacement (MEL Convertible)** , **Transmission Fluid Cooler Inlet and Outlet Pipe Replacement (MYC Convertible)** .

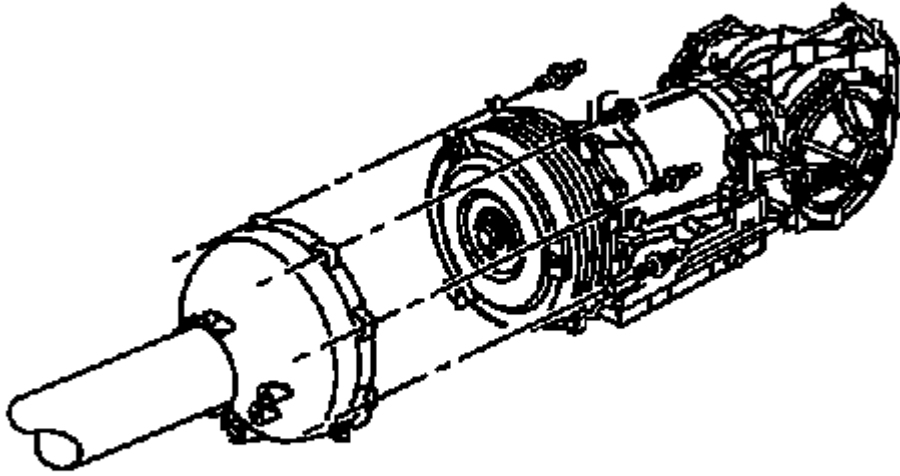


Fig. 59: View Of Transmission, Driveline Support Assembly & Bolts
Courtesy of GENERAL MOTORS COMPANY

67. Remove the transmission to driveline support assembly bolts/studs.
68. Insert a flat-bladed screwdriver or similar tool, between the edge of the driveline support assembly and the transmission, then begin to pry the driveline support assembly loose from the transmission.
69. Slowly slide the driveline support assembly away from the transmission while supporting the transmission torque converter.
70. Using a strap positioned from side to side, secure the transmission torque converter to the transmission.

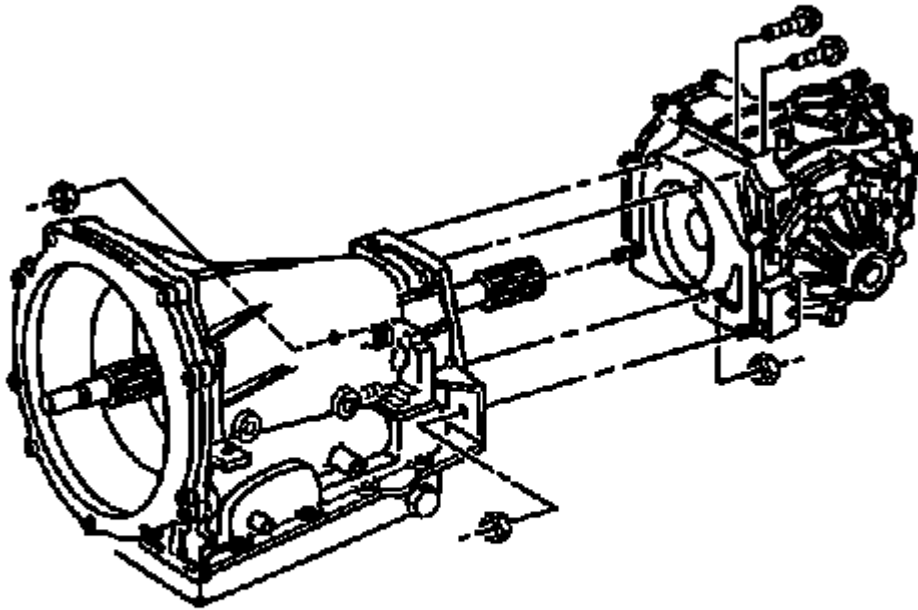


Fig. 60: View Of Differential To Transmission Bolts & Nuts
Courtesy of GENERAL MOTORS COMPANY

71. Remove the differential to transmission bolts and nuts.

NOTE: Use care when separating the differential from the transmission to not damage the transmission output shaft seal in the differential plate.

72. SLOWLY slide the differential from the transmission.

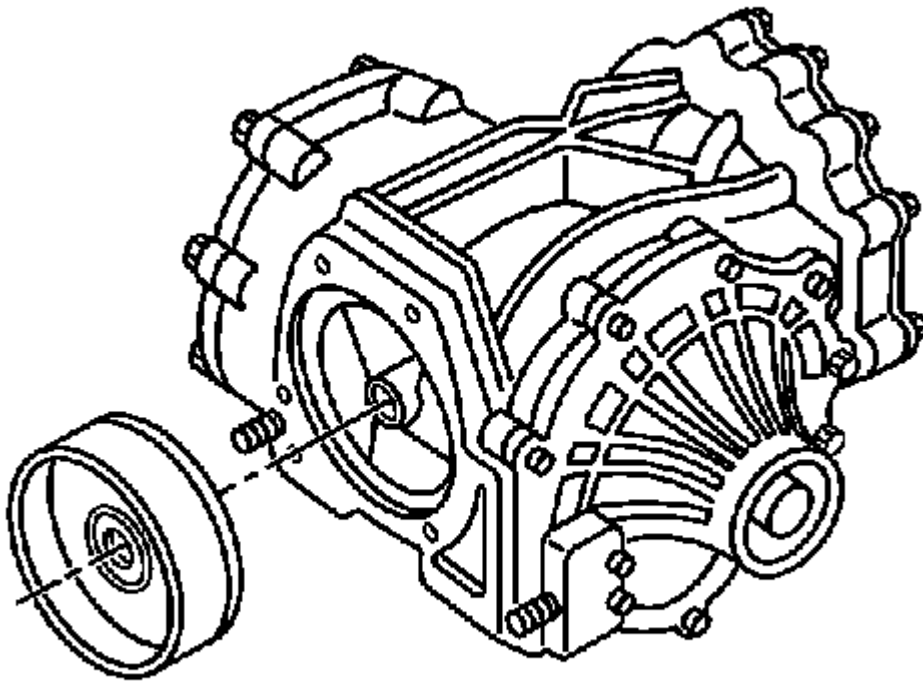


Fig. 61: Differential & Plate
Courtesy of GENERAL MOTORS COMPANY

73. Remove the differential plate from the differential.
74. Remove the transmission from the **J-42055** drivetrain support fixture, if necessary.
75. Flush and flow test the transmission oil cooler and lines. Refer to **Transmission Fluid Cooler Flushing and Flow Test (6L80)** .

Installation Procedure

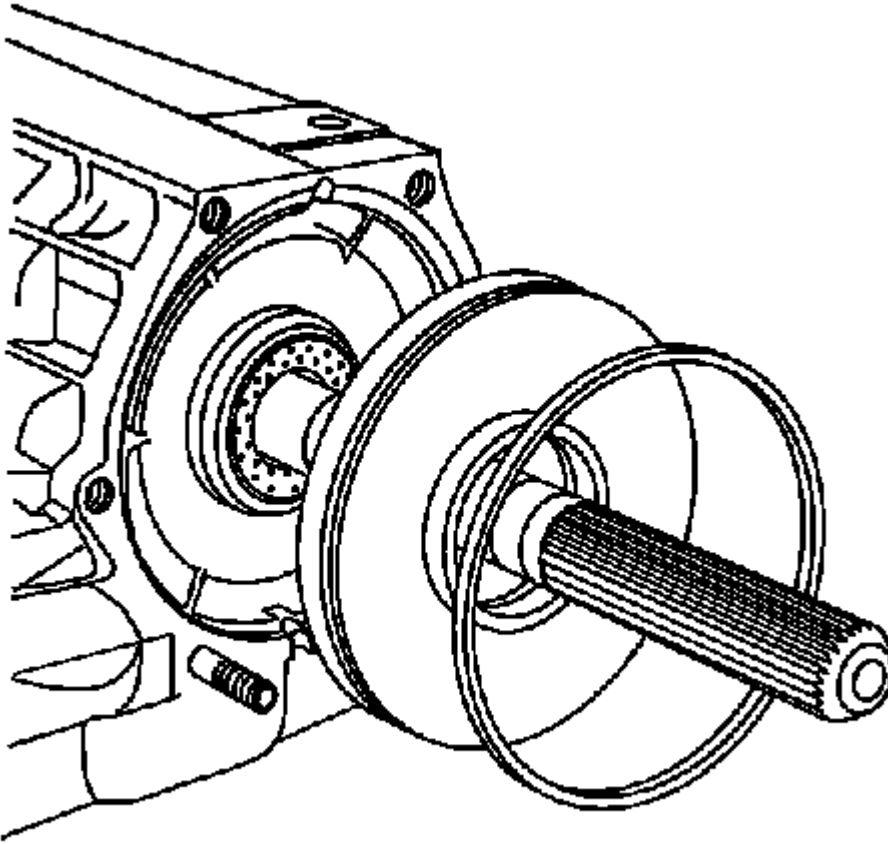


Fig. 62: Installing Differential O-Ring
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Failure to follow the proper removal and installation procedures may result in damage to the engine crankshaft thrust bearing.

1. Install the transmission to the **J-42055** drivetrain support fixture, if removed.
2. Install the differential plate to the transmission, use care not to damage the transmission output seal in the rear of the plate.
3. Position the differential plate seal flush with the transmission case.

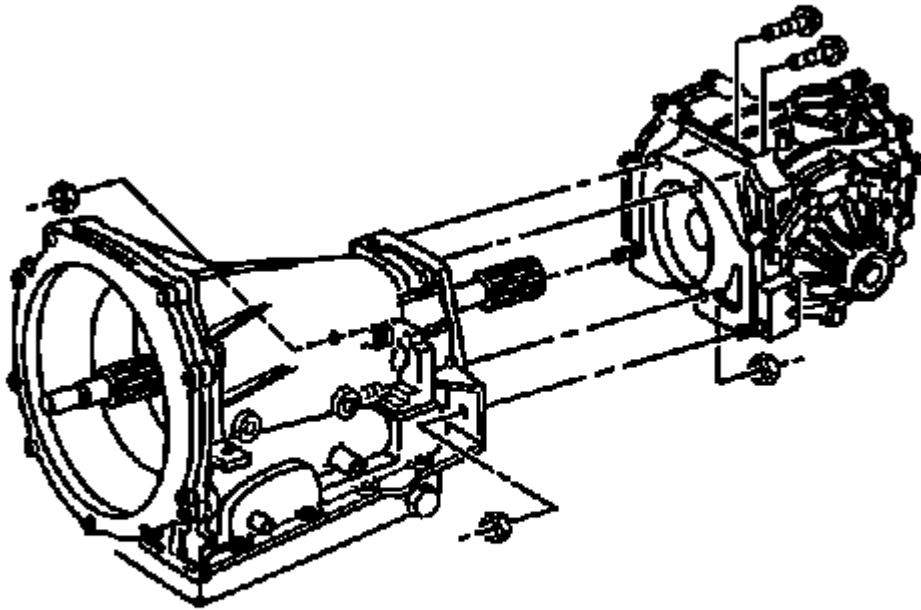


Fig. 63: View Of Differential To Transmission Bolts & Nuts
Courtesy of GENERAL MOTORS COMPANY

4. SLOWLY slide the differential to the transmission.

CAUTION: Refer to Fastener Caution .

5. Install the differential to transmission bolts and nuts. Tighten the differential to transmission bolts and nuts to 50 (37 lb ft).

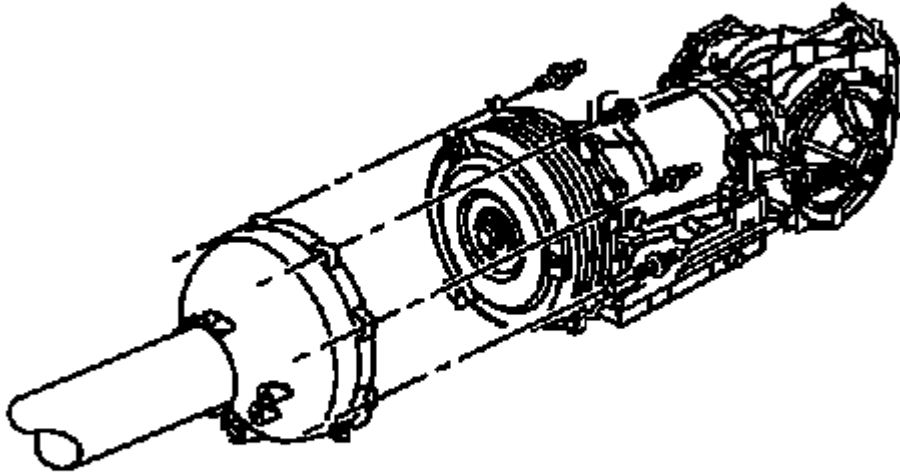


Fig. 64: View Of Transmission, Driveline Support Assembly & Bolts
Courtesy of GENERAL MOTORS COMPANY

6. Remove the strap retaining the transmission torque converter.
7. Slowly slide the driveline support assembly to the transmission, while supporting the transmission torque converter.
8. Install the transmission to driveline support assembly bolts/studs and tighten to 50 (37 lb ft).

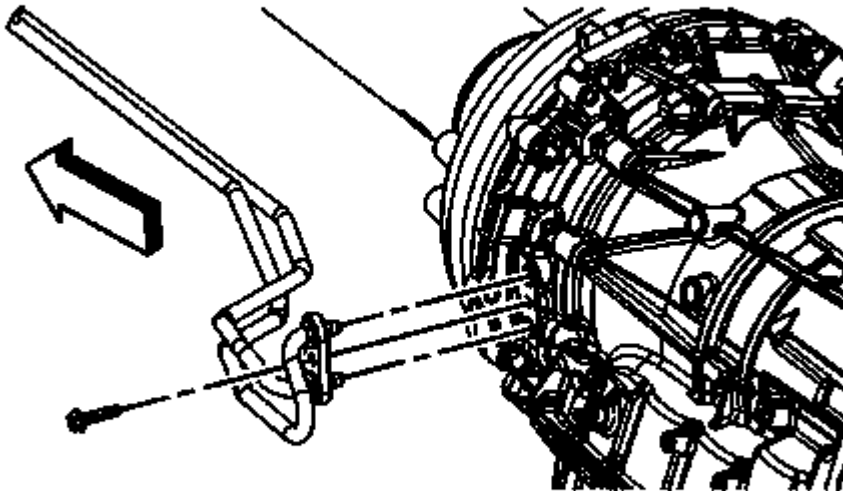


Fig. 65: View Of Transmission Oil Cooler Pipes
Courtesy of GENERAL MOTORS COMPANY

9. Remove the caps from the rear of the transmission oil cooler rear pipes and remove the plugs from the fittings on the transmission.

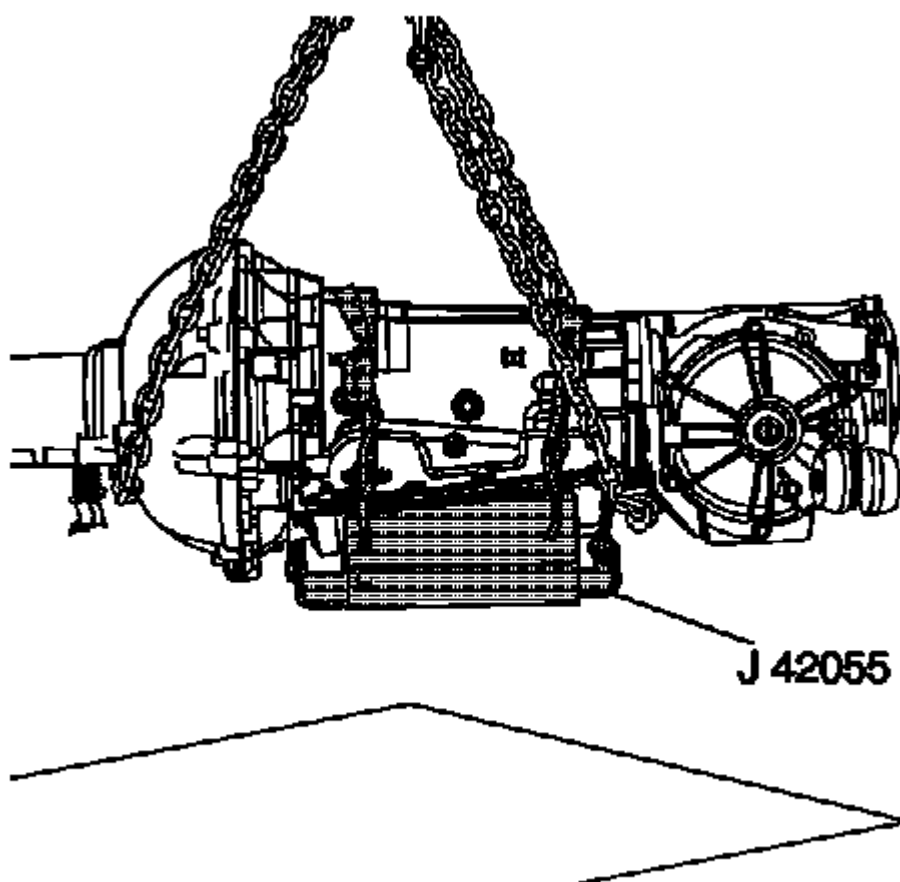


Fig. 66: View Of Transmission & J 42055
Courtesy of GENERAL MOTORS COMPANY

10. Position the chainfall or equivalent, of a lift device in a way which will protect the transmission oil cooler rear pipes and the rear exhaust hangers located on the driveline support assembly.

NOTE: **The aid of an assistant will be necessary for the following steps until the driveline is installed into the vehicle.**

11. Using the lift device, raise the driveline off the workbench and position the driveline with the **J-42055** drivetrain support fixture onto a transmission jack.
12. Connect the **J-42055** drivetrain support fixture to the transmission jack.

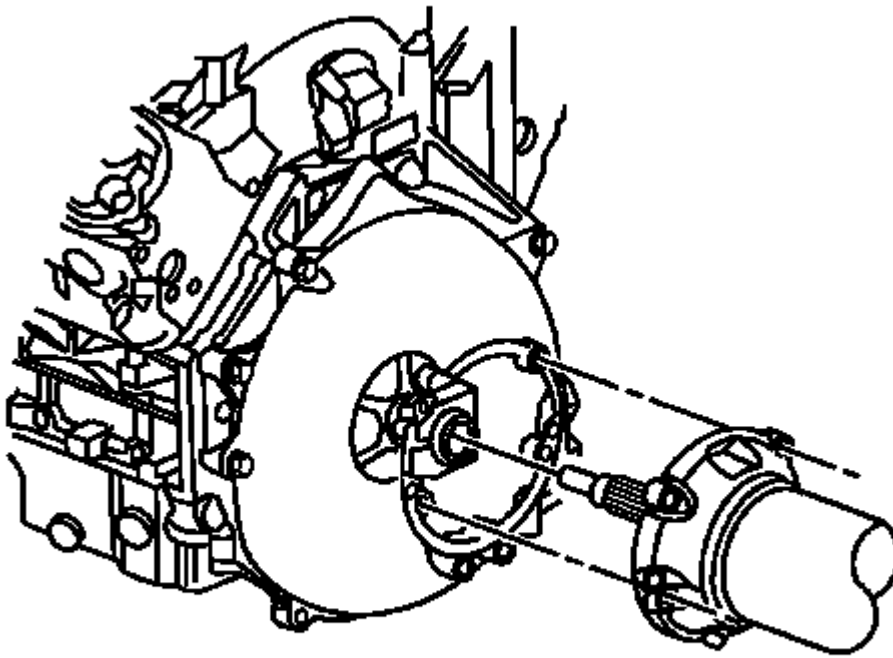


Fig. 67: View Of Driveline From Engine
Courtesy of GENERAL MOTORS COMPANY

13. Remove the lift device from the driveline.
14. Position the driveline under the vehicle.
15. Begin to raise the driveline at the approximate angle used during removal.
16. Position the wiring harness along the driveline support assembly and LOOSELY install the harness into the harness retaining slots.
17. Have an assistant guide the front of the driveline so the propeller input shaft is just to the rear of the engine flywheel housing, then raise the driveline to the PROPER HEIGHT and the PROPER ANGLE to install to the engine.

NOTE: Use care not to use too much force to install the propeller input shaft into the propeller shaft hub. The propeller input shaft front bearing positioning system is designed to withstand an insertion force not greater than 582 (130 lb).

18. Have an assistant begin to insert the propeller input shaft into the propeller shaft hub while maintaining the proper angle of the driveline, if necessary use a screwdriver to rotate the shaft slightly to bring the splines into alignment.

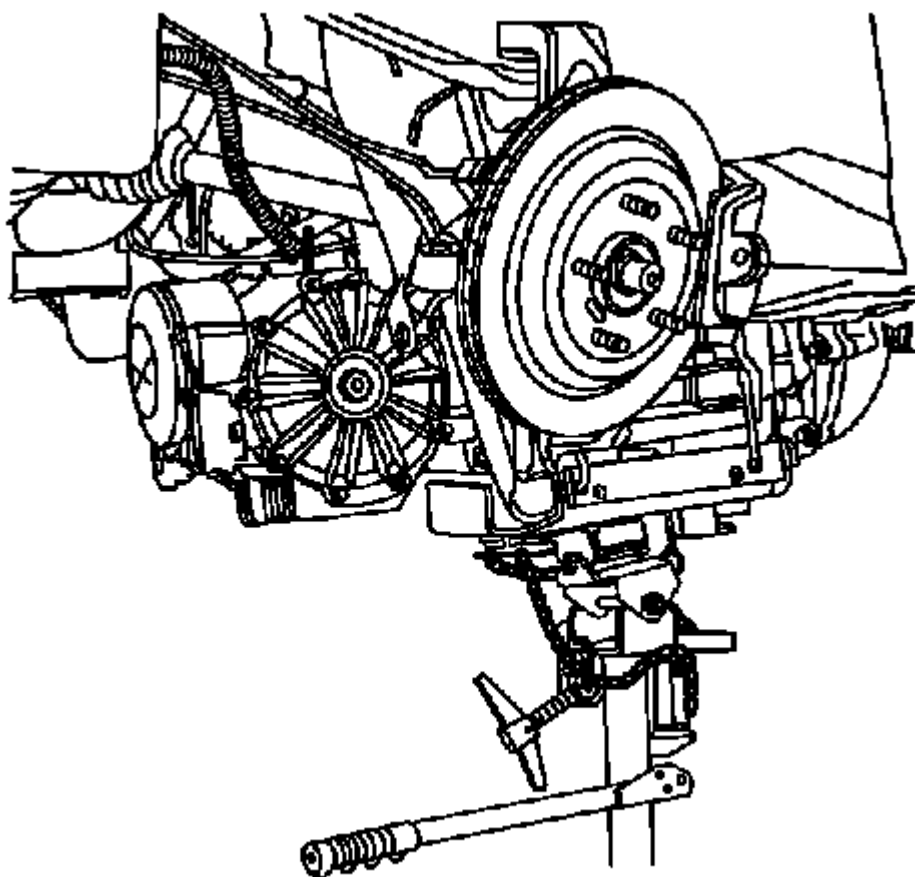


Fig. 68: View Of Wiring Harness & Top Of Transmission
Courtesy of GENERAL MOTORS COMPANY

19. SLOWLY seat the driveline to the engine flywheel housing while maintaining the proper angle of the driveline.

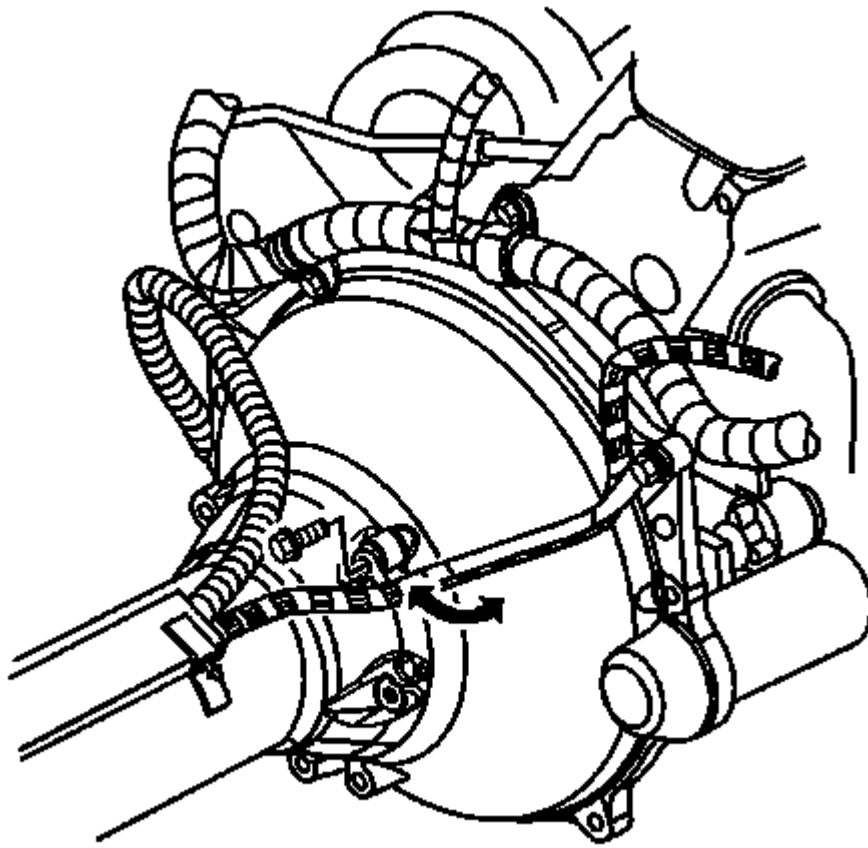


Fig. 69: Repositioning Wiring Harness Bracket
Courtesy of GENERAL MOTORS COMPANY

20. Reposition the wiring harness bracket from near the driveline tunnel wall to align with the appropriate driveline support assembly bolt hole.

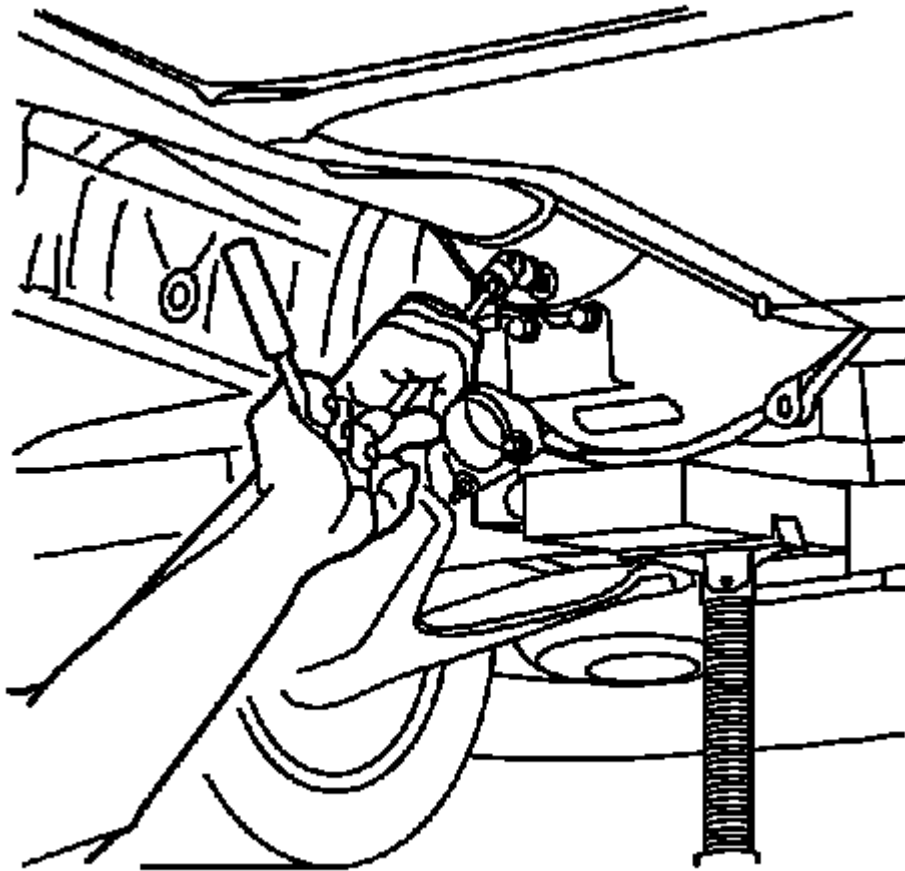


Fig. 70: Driveline Support Assembly To Engine Flywheel Housing Bolts
Courtesy of GENERAL MOTORS COMPANY

21. Install the five driveline support assembly to engine flywheel housing bolts and tighten to 50 (37 lb ft).
22. Install the wiring harness to the wiring harness retainer along the top of the transmission.
23. SLOWLY raise the driveline to approximately 5 cm (2 in) BELOW the final installed height.

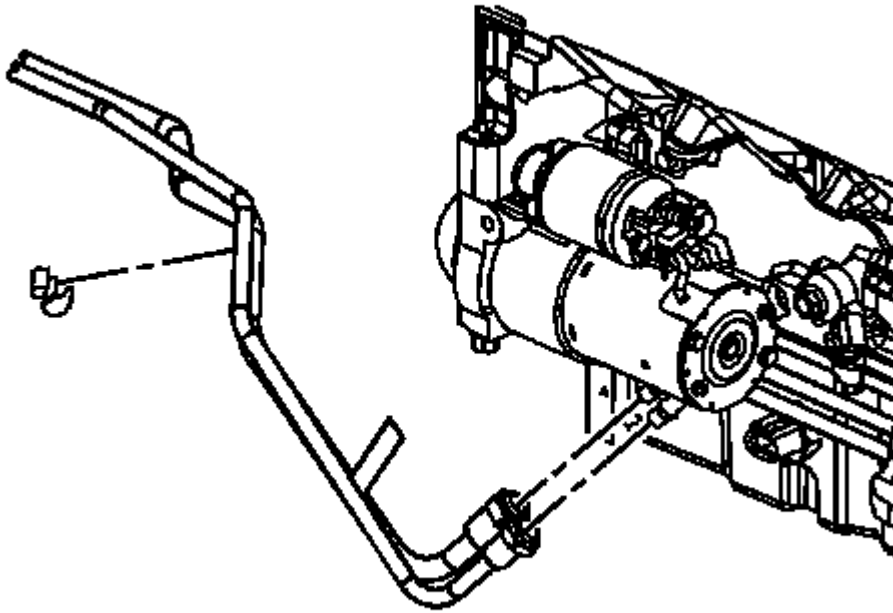


Fig. 71: Upper & Lower Transmission Oil Cooler Lines At Intermediate Lines
Courtesy of GENERAL MOTORS COMPANY

24. Remove the caps from the front of the transmission oil cooler rear pipes and remove the plugs from the junction fittings at the engine flywheel housing.

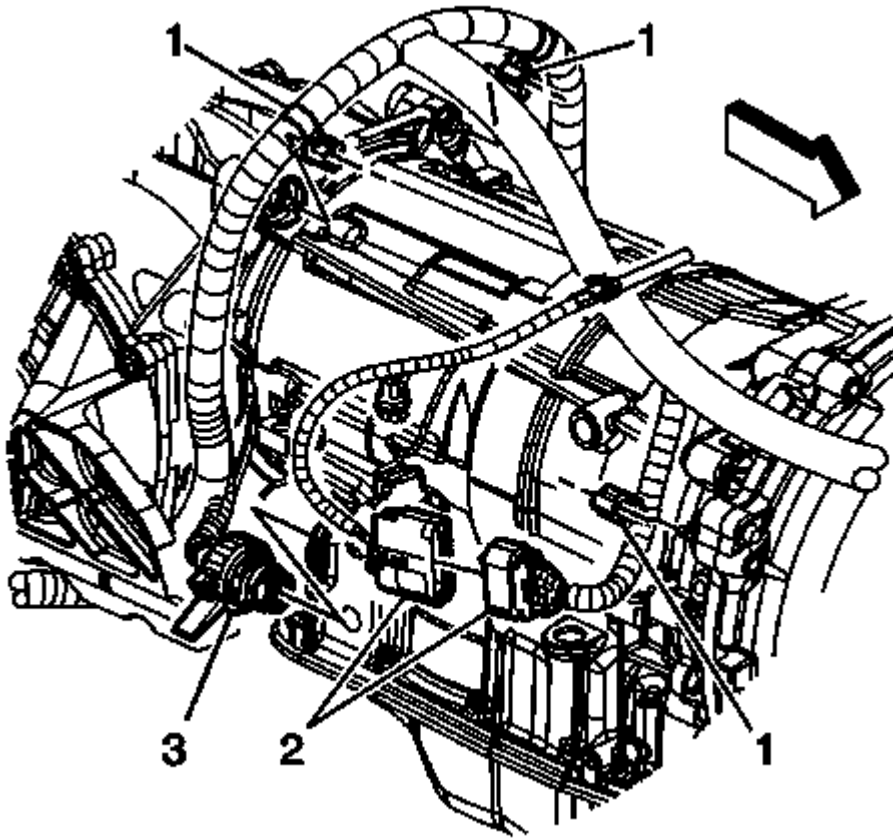


Fig. 72: View Of Transmission Harness 20-Way Connector
Courtesy of GENERAL MOTORS COMPANY

25. Connect the transmission harness 20-way connector (3).

Align the arrows on each half of the connector and insert straight down.

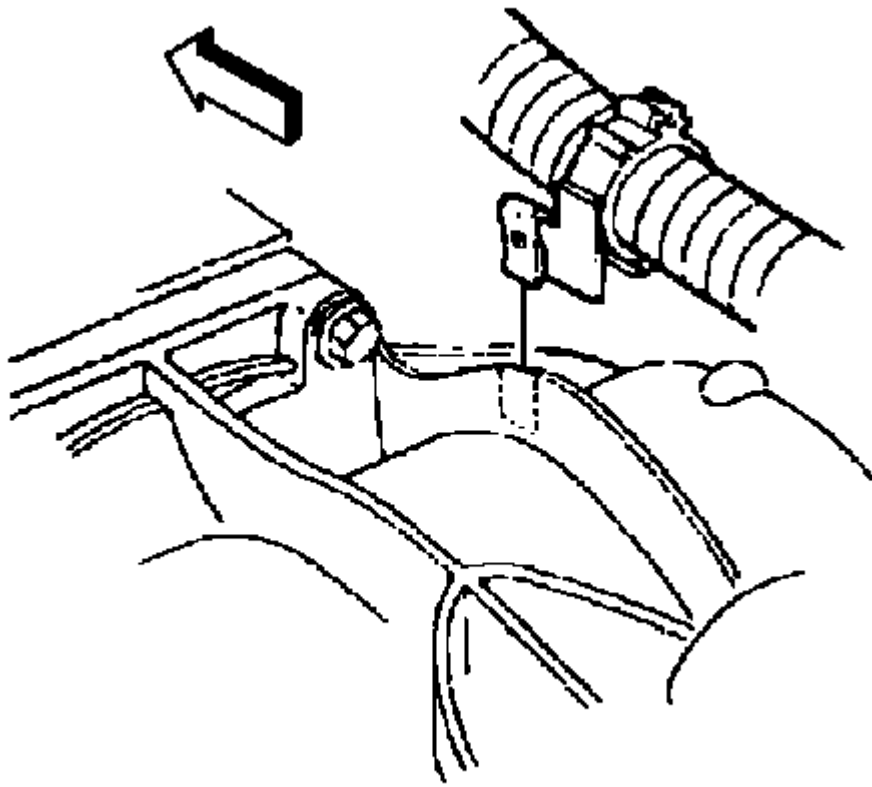


Fig. 73: Wiring Harness Retainer To Stud At Differential Rear Cover
Courtesy of GENERAL MOTORS COMPANY

26. Connect the wiring harness clip to the top of the differential.
27. Connect the wiring harness retainer to the stud at the differential rear cover.

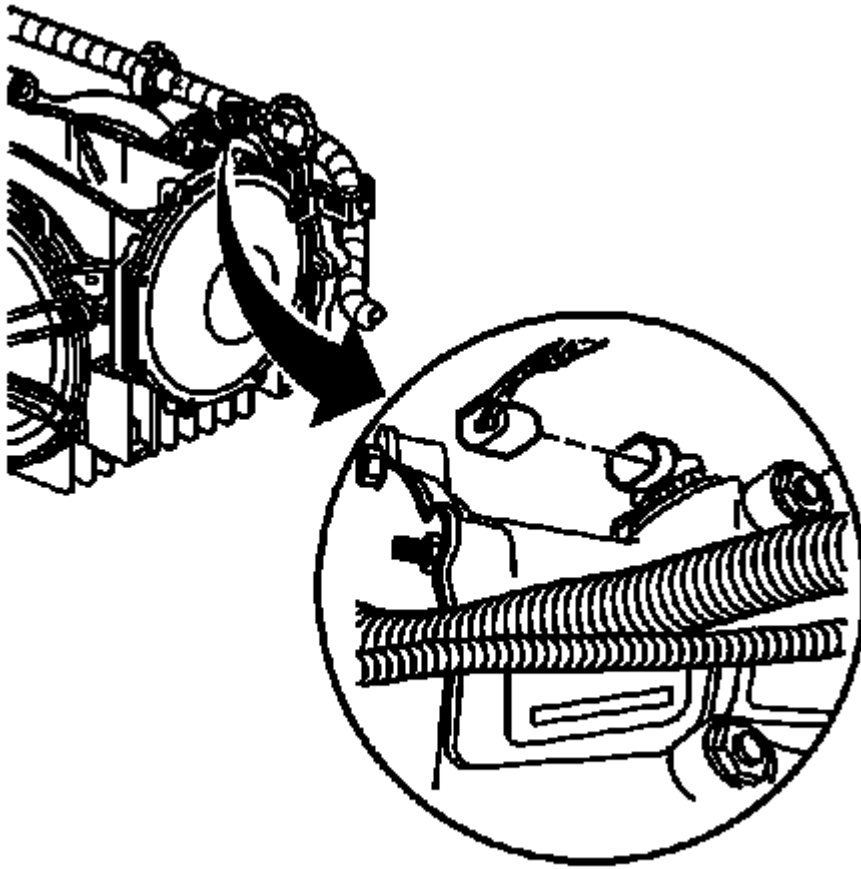


Fig. 74: Vehicle Speed Sensor (VSS) Electrical Connector
Courtesy of GENERAL MOTORS COMPANY

28. Connect the vehicle speed sensor (VSS) electrical connector.
29. Slowly raise the driveline to final installation height.
30. Remove the jack which supported the engine.
31. Remove the tie-off retainers from the axle shafts.
32. CAREFULLY align and seat the axle shafts to the differential.

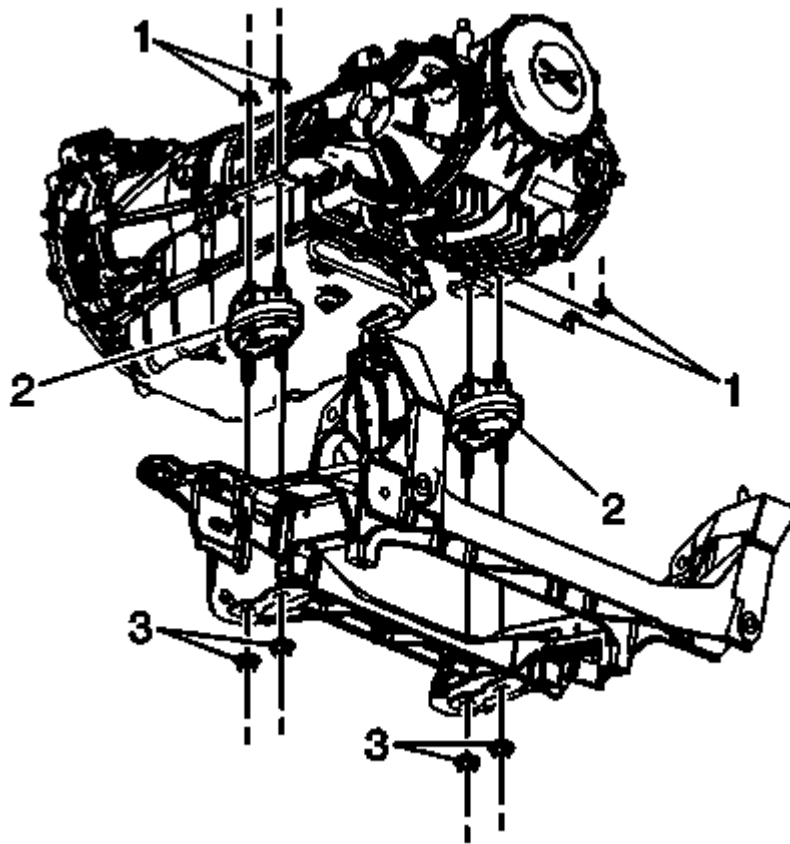


Fig. 75: Locating Transaxle Mounts & Nuts
Courtesy of GENERAL MOTORS COMPANY

33. Install the transaxle mount (2) to the differential.
34. Install the transaxle mount nuts (1) and tighten to 50 (37 lb ft).

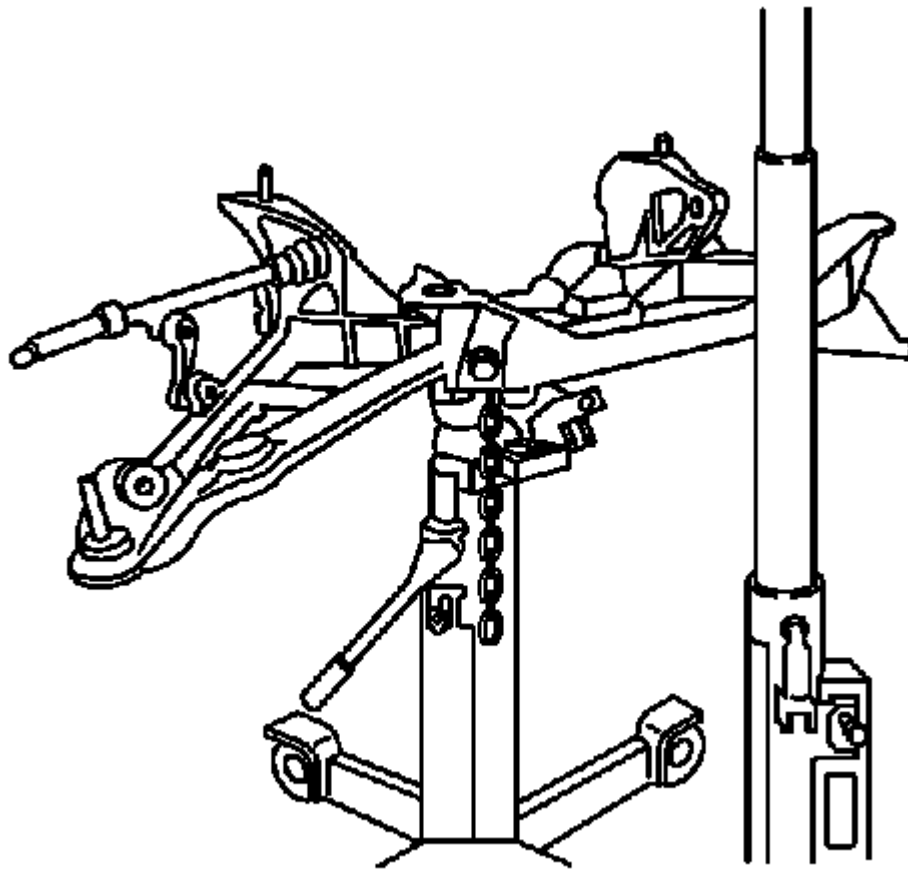


Fig. 76: View Of Rear Suspension Crossmember
Courtesy of GENERAL MOTORS COMPANY

35. With the aid of an assistant, begin to raise the rear suspension crossmember (still firmly attached to a transmission jack), to the vehicle frame rails.
36. Guide the rear suspension crossmember alignment pins into the alignment holes in the vehicle frame rails and guide the transaxle mount studs into the mounting holes in the crossmember, then raise the crossmember to seat to the frame rails.

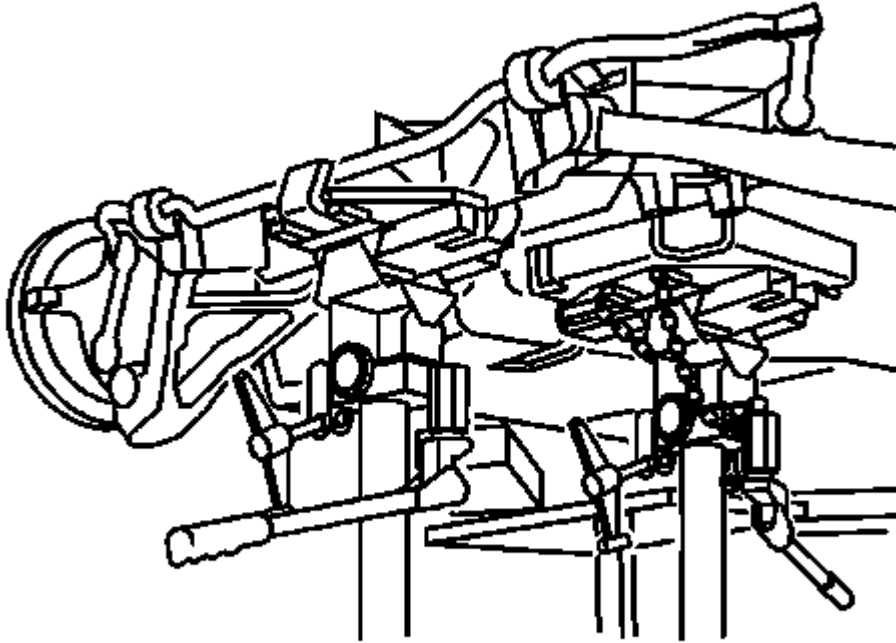


Fig. 77: View Of Correct Transmission Jack Placement
Courtesy of GENERAL MOTORS COMPANY

37. Using ONLY HAND TOOLS, install NEW rear suspension crossmember mounting nuts and tighten to 110 (81 lb ft).
38. Remove the transmission jack from the rear suspension crossmember.
39. Release the **J-42055** drivetrain support fixture from the transmission, then remove the **J-42055** drivetrain support fixture and transmission jack.

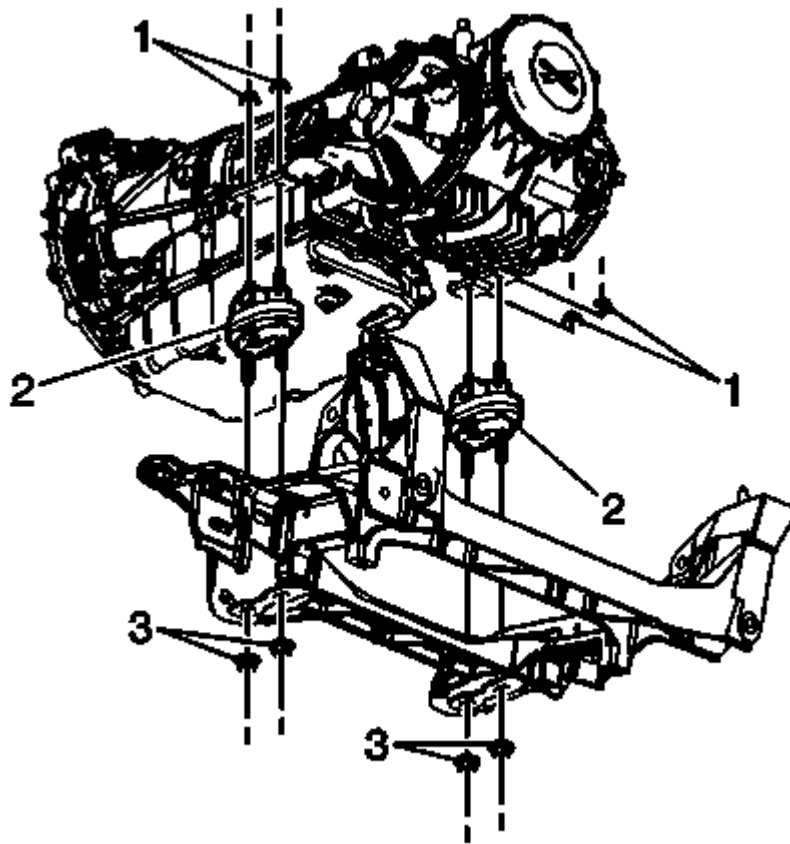


Fig. 78: Locating Transaxle Mounts & Nuts
Courtesy of GENERAL MOTORS COMPANY

40. Install the transaxle mount to rear suspension crossmember nuts (3) and tighten to 50 (37 lb ft).
41. Install the differential to transmission lower nut and tighten to 50 (37 lb ft).
42. Connect the wiring harness and brake pipe clip retainers to the rear suspension crossmember.

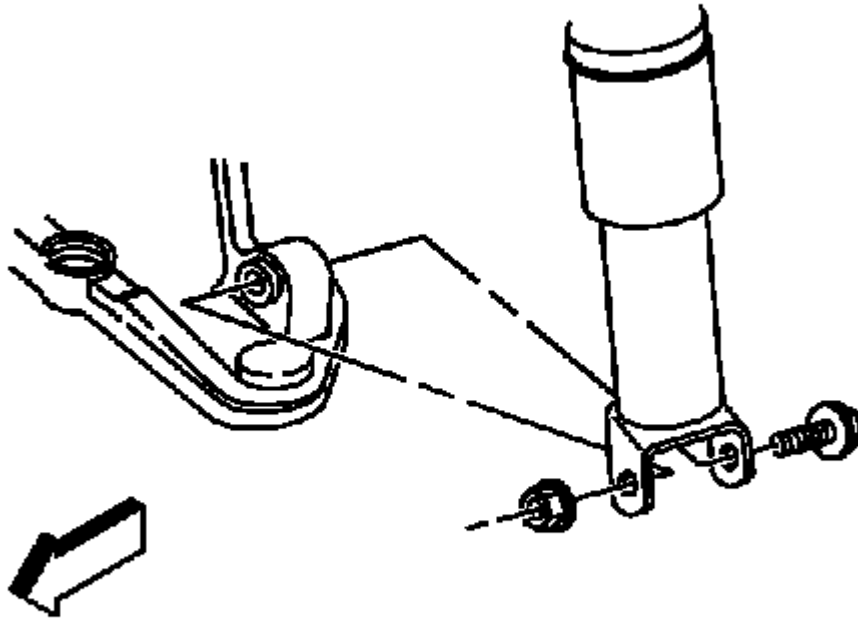


Fig. 79: View Of Shock Absorber Mounting To Control Arm
Courtesy of GENERAL MOTORS COMPANY

43. Support the lower control arm with a straight jack.
44. Connect the lower ball joint to the suspension knuckle. Refer to **Knuckle Replacement (without J55)** , **Knuckle Replacement (with J55)** .
45. Install the shock absorber lower mounting bolt and tighten to 220 (162 lb ft).
46. Connect the outer end to the suspension knuckle. Refer to **Adjust Link Replacement** .
47. Remove the straight jack from the suspension control arm.
48. Repeat steps 45-49 for the other side of the vehicle.
49. Install the rear spring. Refer to **Rear Spring Replacement** .

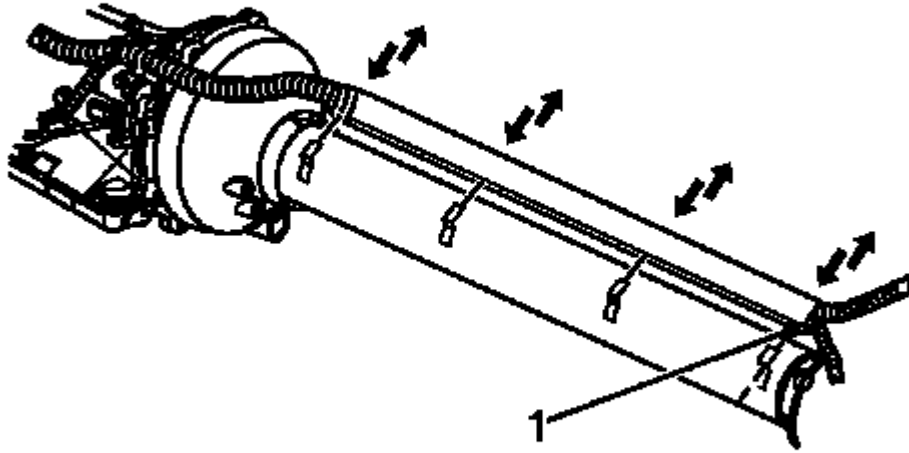


Fig. 80: View Of Wiring Harness Retainer
Courtesy of GENERAL MOTORS COMPANY

50. Carefully pull the wiring harness down into the L-shaped brackets along the driveline support assembly, align the harness retainer (locator) (1) to the hole in the forward bracket, then secure in place.

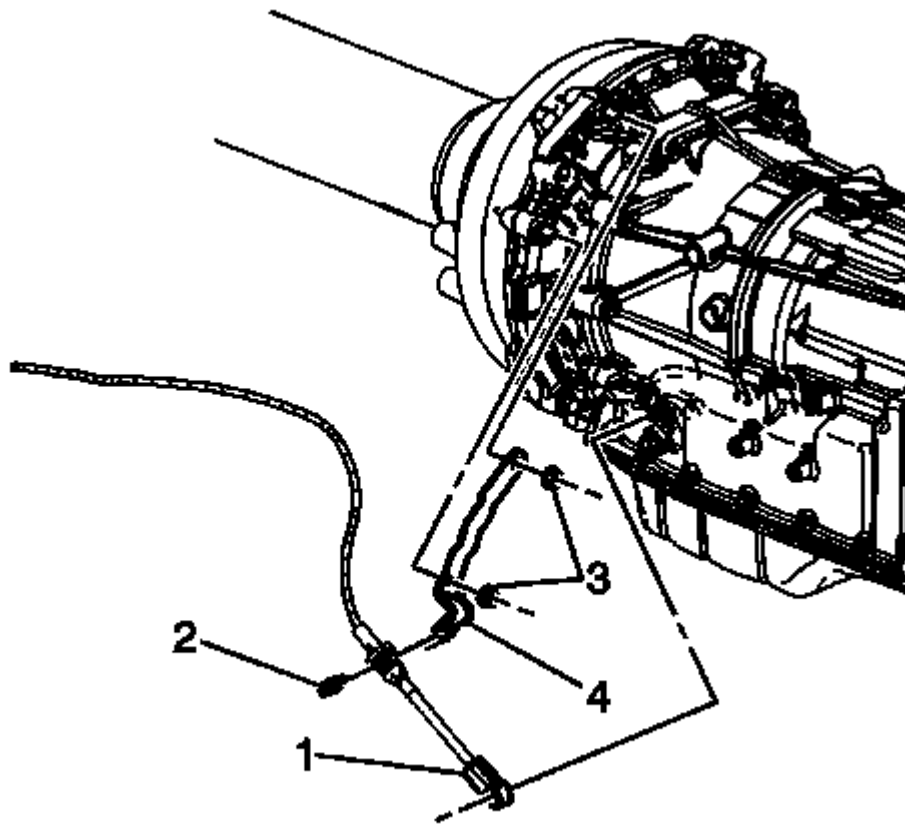


Fig. 81: View Of Transmission Shift Cable Bracket & Retaining Nuts
Courtesy of GENERAL MOTORS COMPANY

51. Install the transmission shift cable and bracket (4) into position.
52. Connect the transmission shift cable (1) to the transmission shift lever.

Press to secure the cable.

53. Install the nuts (3) retaining the transmission shift cable bracket (4) to the transmission. Tighten the transmission shift cable bracket retaining nuts to 20 (15 lb ft).

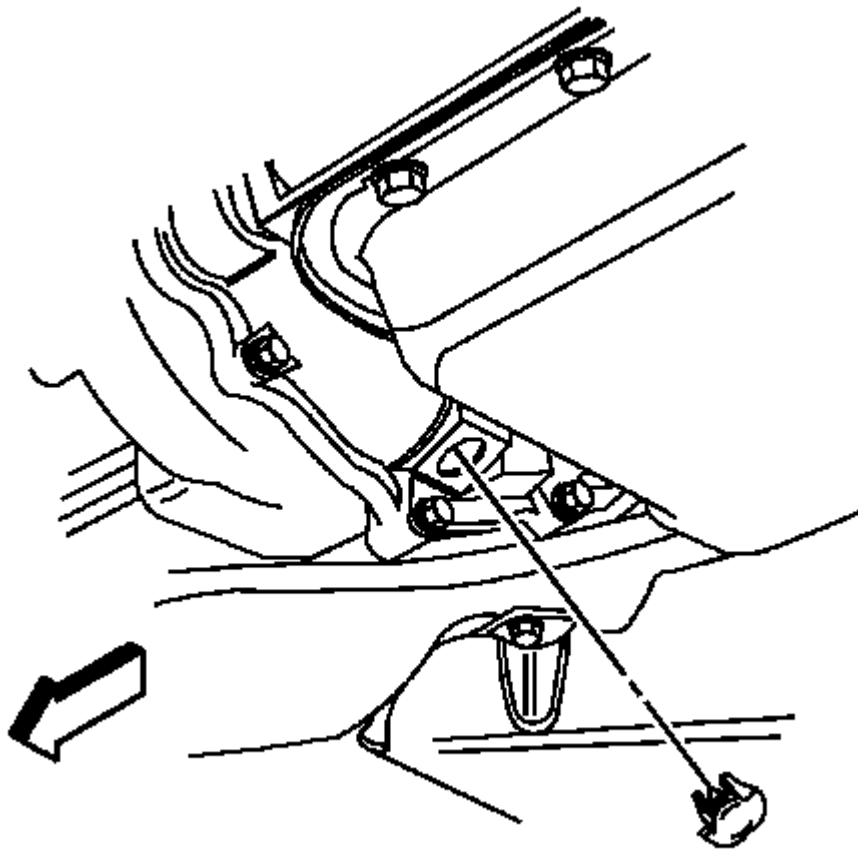


Fig. 82: Locating Torque Converter Access Plug
Courtesy of GENERAL MOTORS COMPANY

54. Using a flat-bladed screwdriver, remove the transmission torque converter access plug.

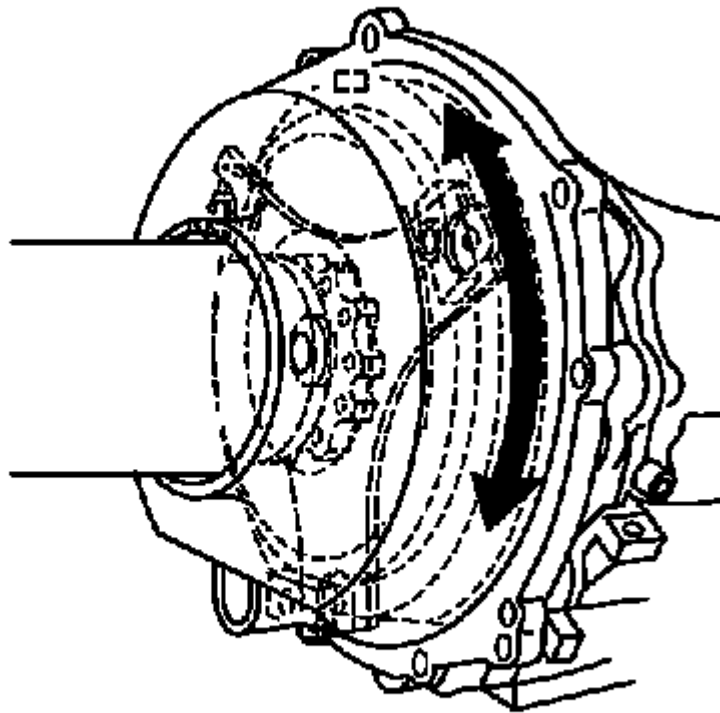


Fig. 83: Torque Converter Bolt Holes & Driveline Support Assembly Access Hole
Courtesy of GENERAL MOTORS COMPANY

55. Align one of the torque converter bolt holes with the driveline support assembly access hole, if necessary.

Carefully rotate the torque converter, working through the access holes in the rear bellhousing and the transmission housing.

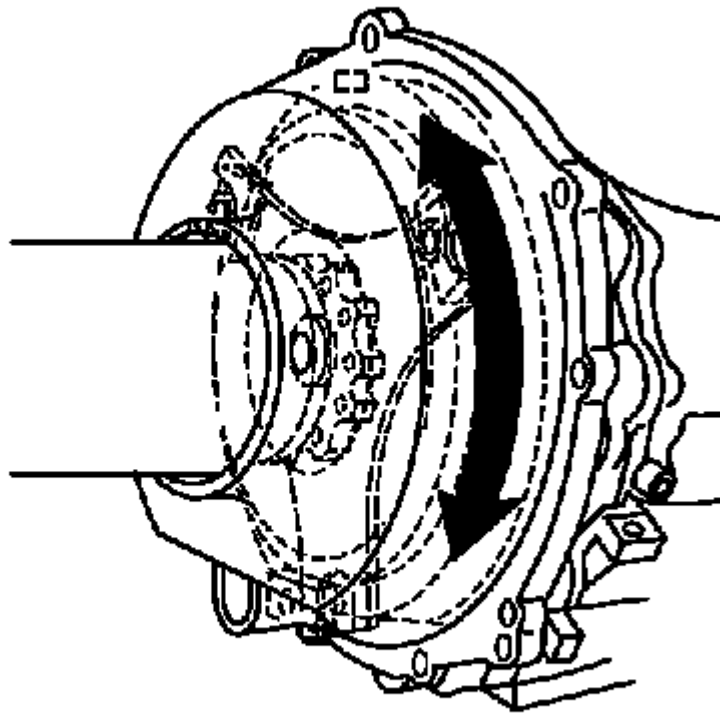


Fig. 84: Engine Flywheel & Flexplate
Courtesy of GENERAL MOTORS COMPANY

56. Align one of the flexplate bolt holes with the driveline support assembly access hole, if necessary.
 1. Remove the **J-42386-A** flywheel holding tool from the engine flywheel.
 2. Slowly turn the engine flywheel through the starter motor opening until the desired flexplate bolt hole lines up with the torque converter bolt hole.
 3. Install the **J-42386-A** flywheel holding tool to the engine flywheel, in order to keep the flywheel from turning.

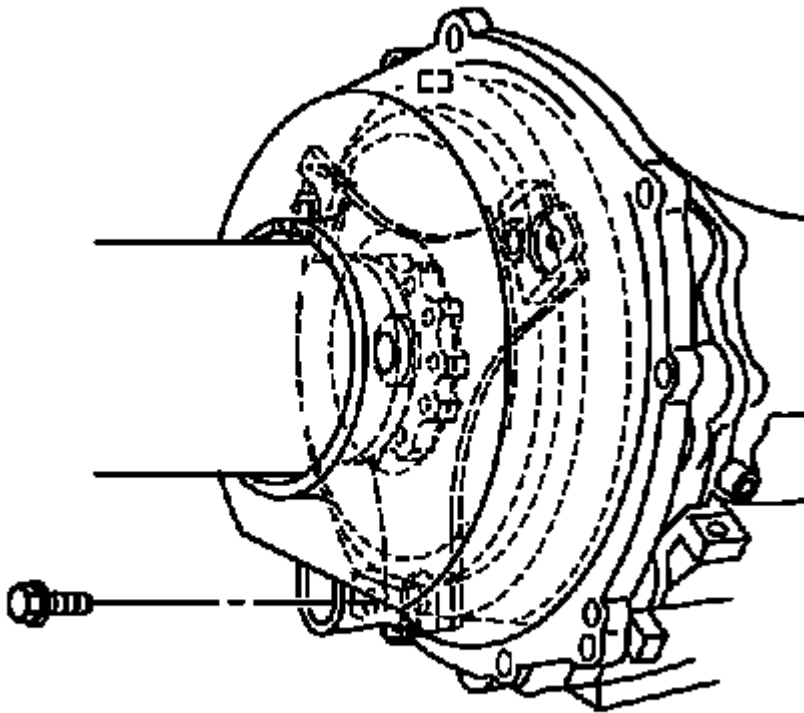


Fig. 85: Flexplate & Torque Converter Bolt
Courtesy of GENERAL MOTORS COMPANY

NOTE:

- **HAND-START** the flexplate to torque converter bolts before torquing to ensure proper alignment and to avoid cross threading.
- Carefully **WALK** the transmission torque converter to the transmission flywheel through the torque converter access plug opening, if necessary. **DO NOT** use the bolts to draw the torque converter to the flexplate.

57. Install the flexplate to torque converter bolt through the driveline support assembly access hole. **HAND-TIGHTEN** until **FINGER-TIGHT**, then torque to 63 (47 lb ft).
58. Remove the **J-42386-A** flywheel holding tool from the engine flywheel.

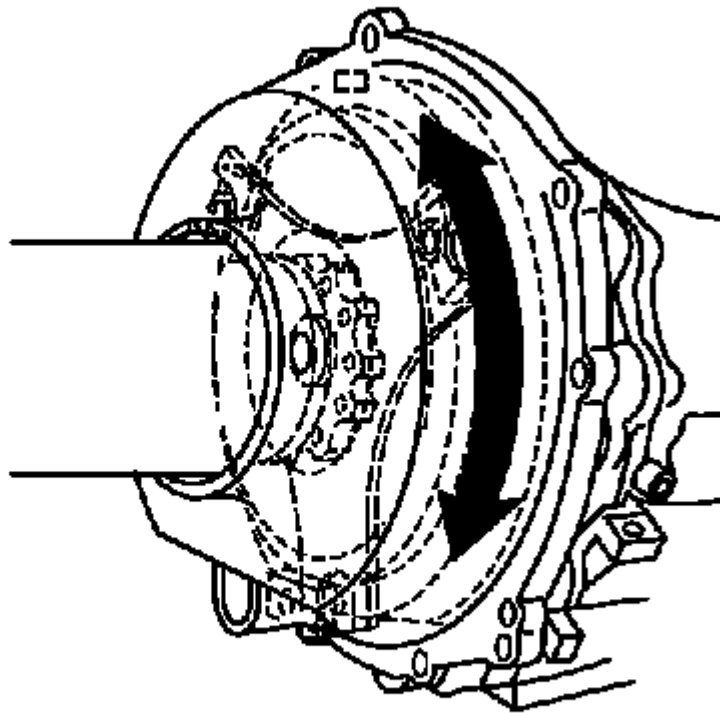


Fig. 86: Engine Flywheel & Flexplate
Courtesy of GENERAL MOTORS COMPANY

59. Turn the engine flywheel slowly until the next bolt holes line up with the rear bellhousing access hole.
60. Install the **J-42386-A** flywheel holding tool to the engine flywheel, in order to keep the flywheel from turning.
61. Repeat steps 4-7 to install the 2 remaining bolts.

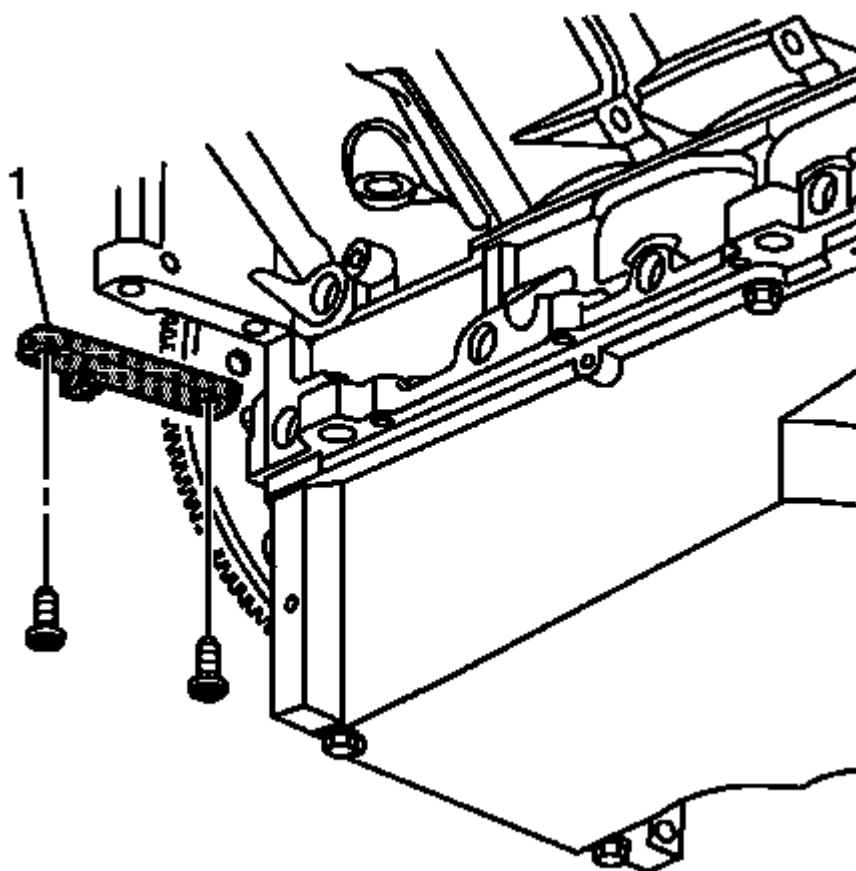


Fig. 87: View Of J 42386-A & Flywheel
Courtesy of GENERAL MOTORS COMPANY

62. Remove the **J-42386-A** flywheel holding tool (1) from the engine flywheel.

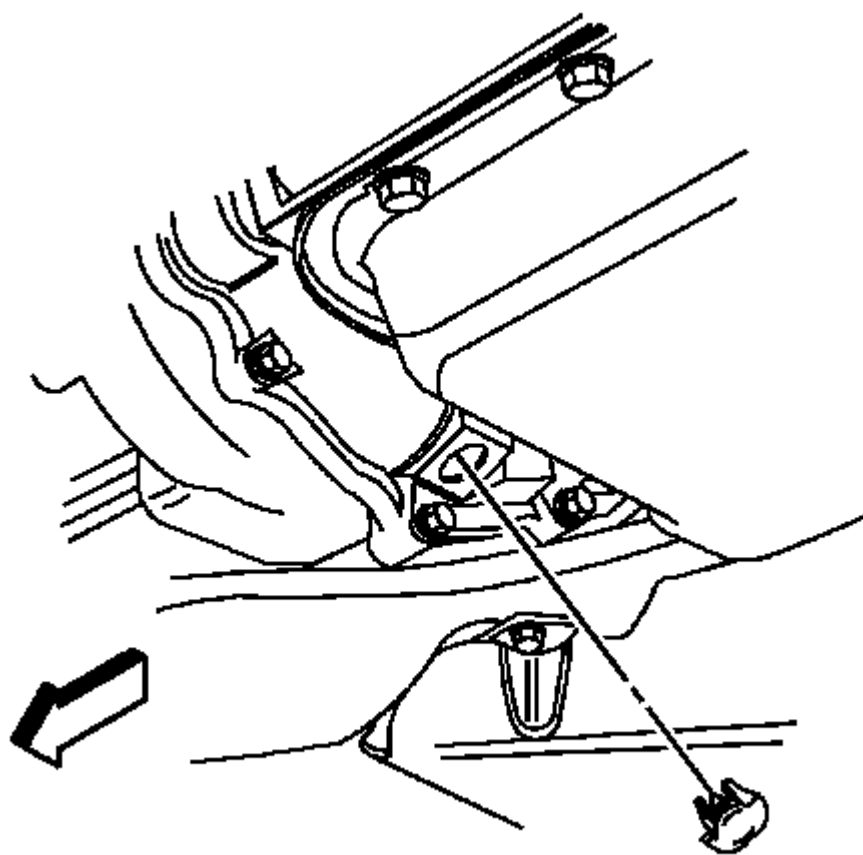


Fig. 88: Locating Torque Converter Access Plug
Courtesy of GENERAL MOTORS COMPANY

63. Install the torque converter access plug.

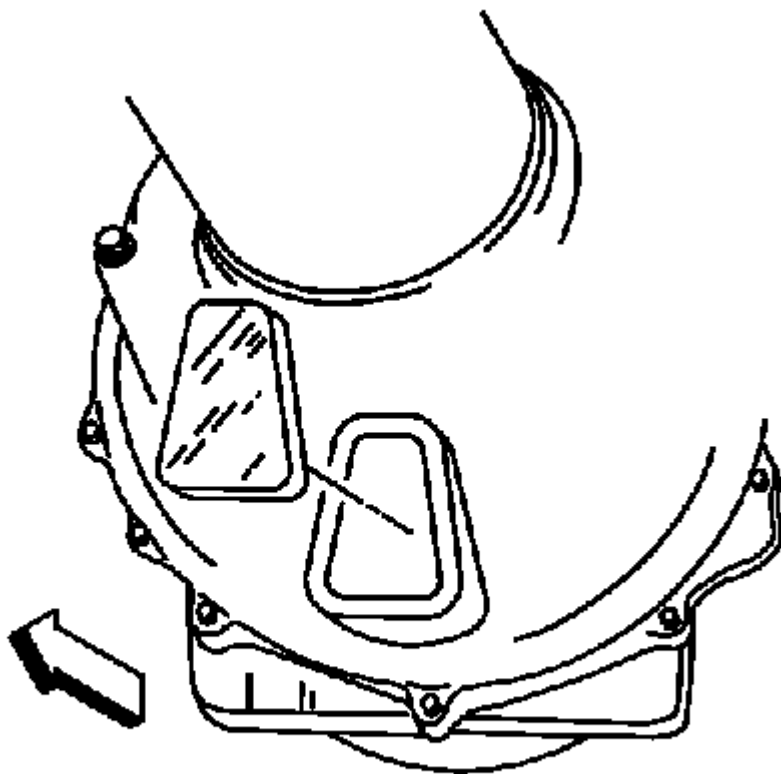


Fig. 89: Rear Bellhousing Access Plug
Courtesy of GENERAL MOTORS COMPANY

64. Install the rear bellhousing access plug.

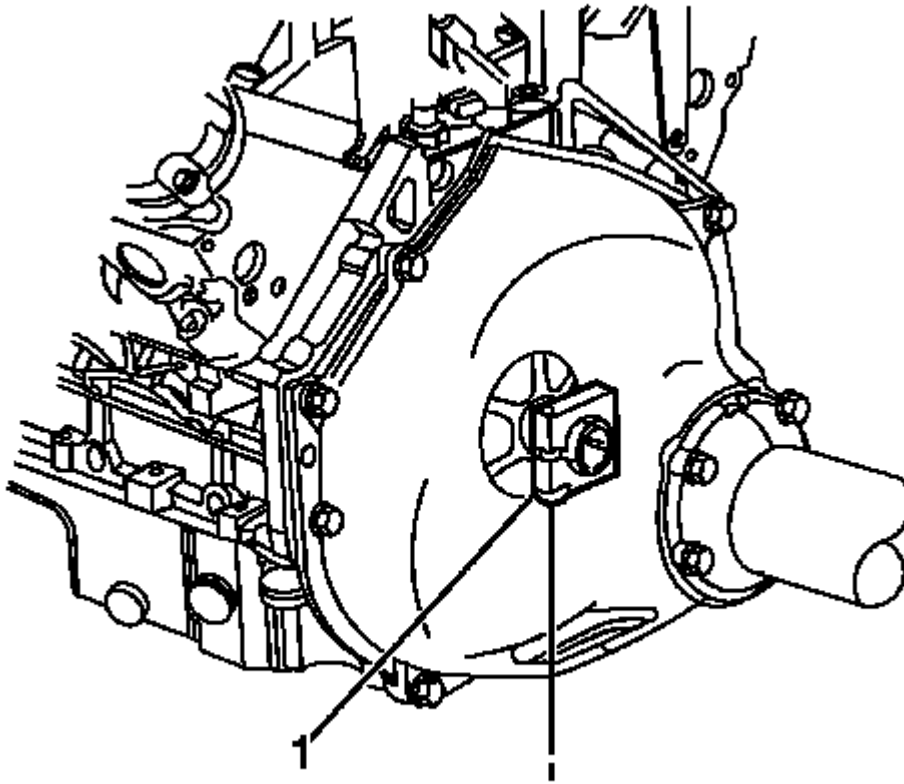


Fig. 90: View Of Propeller Shaft Hub Clamp Bolt
Courtesy of GENERAL MOTORS COMPANY

65. HAND-TIGHTEN the propeller shaft hub clamp bolt (1) until FINGER-TIGHT.

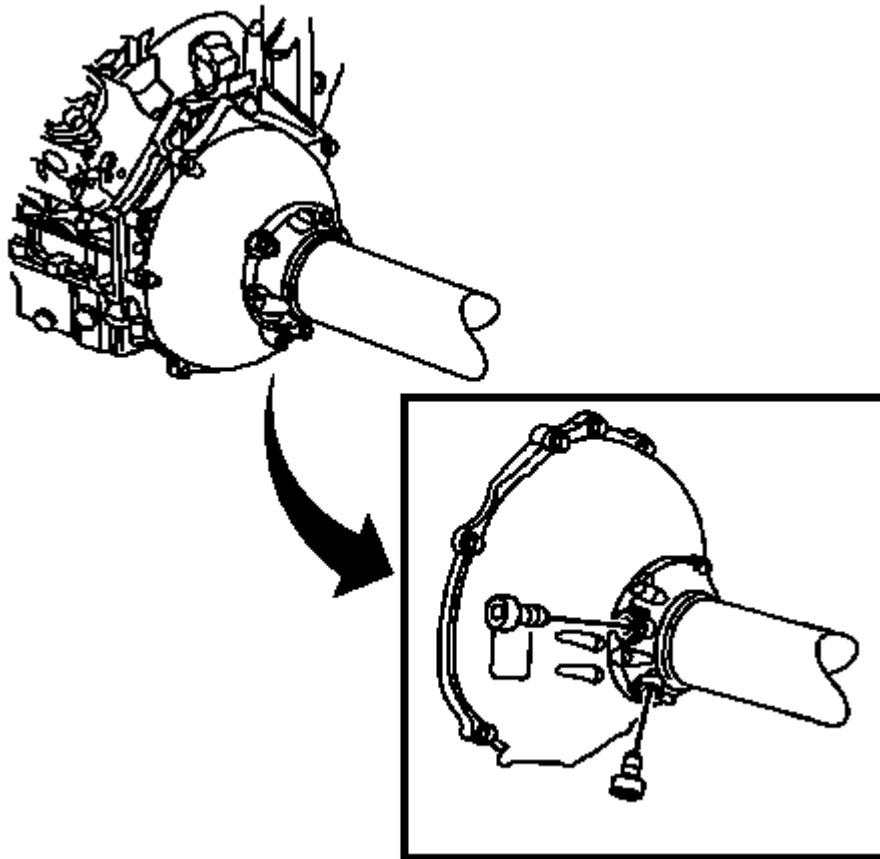


Fig. 91: Identifying Plug Bolts On Front Of Driveline Support Assembly
Courtesy of GENERAL MOTORS COMPANY

66. Remove the propeller input shaft front bearing positioning bolts (M10 - 1.5 X 55 mm) from the driveline support assembly.
67. Install the two plug bolts to the front of the driveline support assembly and tighten to 50 (37 lb ft).

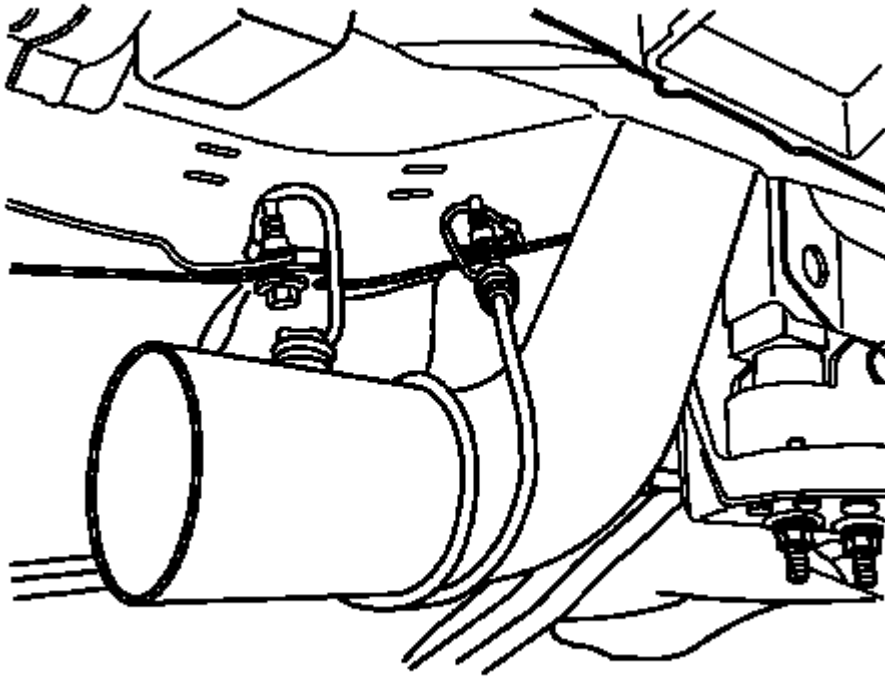


Fig. 92: View Of Tied Off Muffler Assembly
Courtesy of GENERAL MOTORS COMPANY

68. Install the floor panel tunnel reinforcement. Refer to **Floor Panel Tunnel Panel Reinforcement Replacement** .
69. Remove the tie-off retainer from the left hand muffler assembly.
70. Install the right hand muffler assembly. Refer to **Exhaust Muffler Replacement - Right Side** .
71. Install the intermediate pipe assembly. Refer to **Intermediate Pipe Replacement** .
72. Install the rear tire and wheel assemblies. Refer to **Tire and Wheel Removal and Installation** .
73. Lower the vehicle.
74. Connect the negative battery cable. Tighten the negative battery cable bolt to 15 (11 lb ft).

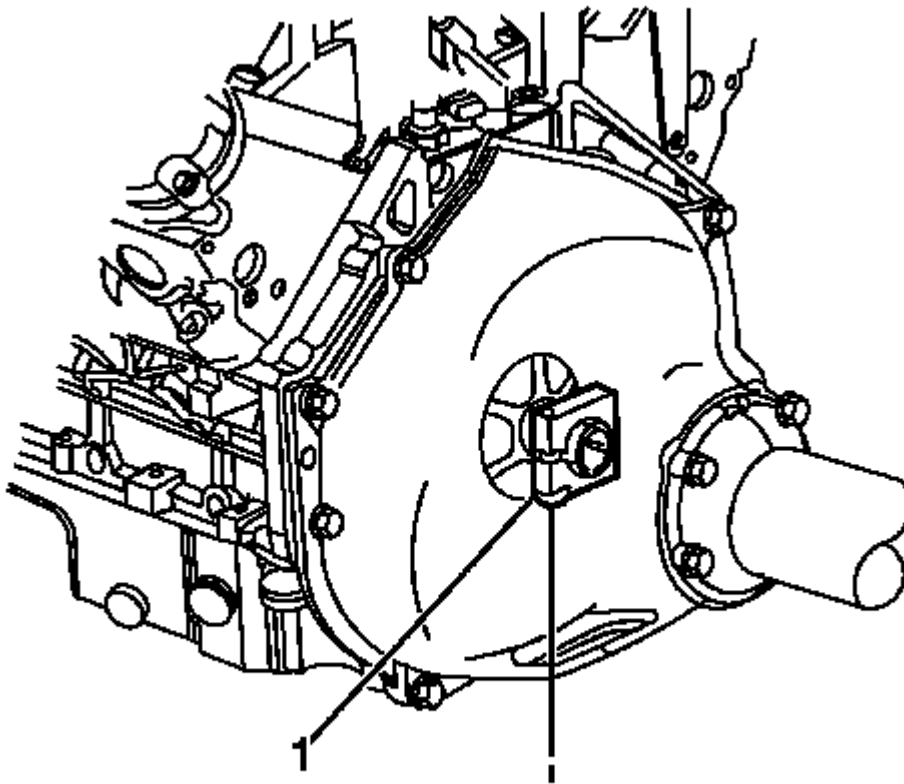


Fig. 93: View Of Propeller Shaft Hub Clamp Bolt
Courtesy of GENERAL MOTORS COMPANY

NOTE: The following steps **MUST** be performed in order to provide proper alignment of the propeller shaft hub, the propeller input shaft and the propeller input shaft front bearing.

75. Start and run the engine at idle until normal operating temperatures are reached.
Idle or drive for at least 10 minutes.
76. Turn off the engine and allow the powertrain to cool to ROOM temperature.
77. Raise the vehicle.
78. Tighten the propeller shaft hub clamp bolt (1) and tighten to 130 (96 lb ft).

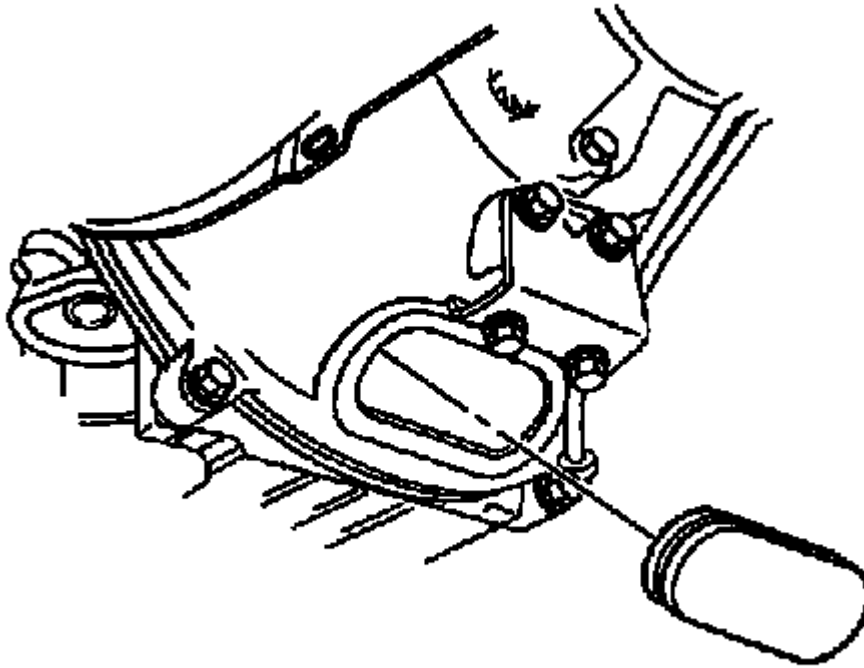


Fig. 94: View Of Engine Flywheel Housing Access Plug
Courtesy of GENERAL MOTORS COMPANY

79. Install the engine flywheel housing access plug.
80. Flush the transmission oil cooler. Refer to **Transmission Fluid Cooler Flushing and Flow Test (6L80)** .
81. Lower the vehicle.
82. If a NEW TCM has been installed into the vehicle, the NEW module needs to be reprogrammed. Refer to **Service Programming System (SPS)** .

NOTE: The Service Fast Learn Adapts procedure must be performed when one of the following repairs have been made to the vehicle. Failure to perform the procedure after one of the following repairs may result in poor transmission performance, as well as transmission DTCs being set:

- Transmission internal service/overhaul
- Valve body repair or replacement
- Control solenoid valve assembly replacement
-

- **Any service in response to a shift quality concern**

83. Perform the Reset Transmission Adapts. Refer to **Reset Transmission Adapts** .