

2017 TRANSMISSION

Automatic Transmission - 6T40 (MNH MNK) - Repair Instructions - On Vehicle - Encore, Trax

REPAIR INSTRUCTIONS - ON VEHICLE

CONNECTOR RECONNECTION - AUTOMATIC TRANSMISSION

Special Tools

EL-35616 Terminal Test Probe Kit

For equivalent regional tools, refer to [Special Tools](#).

When the condition is not currently present, but is indicated in DTC history, the cause may be intermittent. An intermittent may also be the cause when there is a customer complaint, but the symptom cannot be duplicated. Refer to the Symptom Table of the system that is suspect of causing the condition before trying to locate an intermittent condition.

Most intermittent conditions are caused by faulty electrical connections or wiring. Inspect for the following items:

- Loose, corroded, or painted terminal stud/fastener
- Wiring broken inside the insulation
- Poor connection between the male and female terminal at a connector
- A terminal not seated all the way into the connector body
- Poor terminal to wire connection - Some conditions which fall under this description are poor crimps, poor solder joints, crimping over the wire insulation rather than the wire itself, and corrosion in the wire to terminal contact area, etc.
- Pierced or damaged insulation can allow moisture to enter the wiring causing corrosion. The conductor can corrode inside the insulation, with little visible evidence. Look for swollen and stiff sections of wire in the suspect circuits.
- Wiring which has been pinched, cut, or its insulation rubbed through may cause an intermittent open or short as the bare area touches other wiring or parts of the vehicle.
- Wiring that comes in contact with hot or exhaust components
- Refer to [Inducing Intermittent Fault Conditions](#) in order to duplicate the conditions required, in order to verify the customer concern.
- Refer to [Testing for Electrical Intermittents](#) for test procedures to detect intermittent open, high resistance, short to ground, and short to voltage conditions.
- Refer to [Scan Tool Snapshot Procedure](#) for advanced intermittent diagnosis and Vehicle Data Recorder operation.

Testing for Terminal Fretting

Some intermittent conditions can be caused by wire terminal fretting corrosion. Fretting corrosion is a build-up of insulating, oxidized wear debris that can form when there is a small motion between electrical contacts. The oxidized wear debris can pile up enough at the electrical contact spots that the electrical resistance across the connection increases. Movement between the contacting surfaces as small as 10 to 100 microns can cause fretting. To put this in perspective, a sheet of paper is about 100 microns thick, so fretting motion is small and hard to see. Vibration and thermal expansion/contraction are the main sources that create fretting motion. Since vehicles vibrate and can experience large temperature swings, they are a good source for fretting motion. Tin, copper, nickel, and iron surfaces are all susceptible to fretting corrosion. Fretting corrosion can be difficult to see but it looks like small, dark smudges on the terminals contact surface.

To correct a fretting condition disconnect the suspect connector and add dielectric grease / lubricant (Nyogel 760G or equivalent, meeting GM specification 9986087) to both sides of the connector terminals. Then reconnect the connector and wipe away any excess lubricant. This will correct the additional terminal contact resistance due to the terminal fretting corrosion.

Testing for Proper Terminal Contact

It is important to test terminal contact at the component and any inline connectors before replacing a suspect component. Mating terminals must be inspected to ensure good terminal contact. A poor connection between the male and female terminal at a connector may be the result of contamination or deformation.

Contamination may be caused by the connector halves being improperly connected. A missing or damaged connector seal, damage to the connector itself, or exposing the terminals to moisture and dirt can also cause contamination. Contamination, usually in the underhood or underbody connectors, leads to terminal corrosion, causing an open circuit or intermittently open circuit.

Deformation is caused by probing the mating side of a connector terminal without the proper adapter. Always use the **EL-35616** kit when probing connectors. Other causes of terminal deformation are improperly joining the connector halves, or repeatedly separating and joining the connector halves. Deformation, usually to the female terminal contact tang, can result in poor terminal contact causing an open or intermittently open circuit.

Testing for Proper Terminal Contact in Bussed Electrical Centers

It is very important to use the correct test adapter when testing for proper terminal contact of fuses and relays in a bussed electrical center. Use the **EL-35616** kit to test for proper terminal contact. Failure to use the **EL-35616** kit can result in improper diagnosis of the bussed electrical center.

Follow the procedure below in order to test terminal contact:

1. Separate the connector halves.
2. Visually inspect the connector halves for contamination. Contamination may result in a white or green build-up within the connector body or between terminals. This causes high terminal resistance, intermittent contact, or an open circuit. An underhood or underbody connector that shows signs of contamination should be replaced in its entirety: terminals, seals, and connector body.
3. Using an equivalent male terminal/terminated lead, verify that the retention force is significantly different between a known good terminal and the suspect terminal. Replace the female terminal in question.

Flat Wire Connectors

There are no serviceable parts for flat wire connectors on the harness side or the component side.

Follow the procedure below in order to test terminal contact:

1. Remove the component in question.
2. Visually inspect each side of the connector for signs of contamination. Avoid touching either side of the connector as oil from your skin may be a source of contamination as well.
3. Visually inspect the terminal bearing surfaces of the flat wire circuits for splits, cracks, or other imperfections that could cause poor terminal contact. Visually inspect the component side connector to ensure that all of the terminals are uniform and free of damage or deformation.
4. Insert the appropriate adapter into the flat wire harness connector in order to test the circuit in question.

Control Module/Component Voltage and Grounds

Poor voltage or ground connections can cause widely varying symptoms.

- Test all control module voltage supply circuits. Many vehicles have multiple circuits supplying voltage to a control module. Other components in the system may have separate voltage supply

circuits that may also need to be tested. Inspect connections at the module/component connectors, fuses, and any intermediate connections between the voltage source and the module/component. A test lamp or a DMM may indicate that voltage is present, but neither tests the ability of the circuit to carry sufficient current. Operate the component to test the ability of the circuit to carry sufficient current. Refer to [Circuit Testing](#) , and [Power Distribution Schematics \(Buick\)](#), [Power Distribution Schematics \(Chevrolet\)](#) .

- Test all control module ground and system ground circuits. The control module may have multiple ground circuits. Other components in the system may have separate grounds that may also need to be tested. Inspect grounds for clean and tight connections at the grounding point (screw or stud). Inspect the connections at the component and in splice packs, where applicable. Operate the component to test the ability of the circuit to carry sufficient current. Refer to [Circuit Testing](#) , and [Ground Distribution Schematics \(Buick\)](#), [Ground Distribution Schematics \(Chevrolet\)](#) .

Temperature Sensitivity

- An intermittent condition may occur when a component/connection reaches normal operating temperature. The condition may occur only when the component/connection is cold, or only when the component/connection is hot.
- Freeze Frame, Failure Records, Snapshot, or Vehicle Data Recorder data may help with this type of intermittent condition, where applicable.
- If the intermittent is related to heat, review the data for a relationship with the following:
 - High ambient temperatures
 - Underhood/engine generated heat
 - Circuit generated heat due to a poor connection, or high electrical load
 - Higher than normal load conditions, towing, etc.
- If the intermittent is related to cold, review the data for the following:
 - Low ambient temperatures - In extremely low temperatures, ice may form in a connection or component. Inspect for water intrusion.
 - The condition only occurs on a cold start.
 - The condition goes away when the vehicle warms up.
- Information from the customer may help to determine if the trouble follows a pattern that is temperature related.
- If temperature is suspected of causing an intermittent fault condition, attempt to duplicate the condition. Refer to [Inducing Intermittent Fault Conditions](#) in order to duplicate the conditions required.

Electromagnetic Interference and Electrical Noise

Some electrical components/circuits are sensitive to electromagnetic interference or other types of electrical noise. Inspect for the following conditions:

- A mis-routed harness that is too close to high voltage/high current devices such as secondary ignition components, motors, generator etc. - These components may induce electrical noise on a circuit that could interfere with normal circuit operation.
- Electrical system interference caused by a malfunctioning relay, or a control module driven solenoid or switch - These conditions can cause a sharp electrical surge. Normally, the condition will occur when the malfunctioning component is operating.
- Installation of non-factory or aftermarket add on accessories such as lights, 2-way radios, amplifiers, electric motors, remote starters, alarm systems, cell phones, etc. - These accessories may create interference in other circuits while operating and the interference would disappear when the accessory is not operating. Refer to [Checking Aftermarket Accessories](#) .
- Test for an open diode across the A/C compressor clutch and for other open diodes. Some relays may contain a clamping diode.
- The generator may be allowing AC noise into the electrical system.

Incorrect Control Module

- There are only a few situations where reprogramming a control module is appropriate:

- A new service control module is installed.
- A control module from another vehicle is installed.
- Revised software/calibration files have been released for this vehicle.

NOTE: **DO NOT re-program the control module with the SAME software/calibration files that are already present in the control module. This is not an effective repair for any type of concern.**

- Verify that the control module contains the correct software/calibration. If incorrect programming is found, reprogram the control module with the most current software/calibration. Refer to [Control Module References](#) for replacement, setup, and programming.

MANUAL SHIFT DETENT LEVER WITH SHAFT POSITION SWITCH ASSEMBLY REPLACEMENT

Special Tools

DT-41229 Manual Shaft Pin Installer

For equivalent regional tools, refer to [Special Tools](#) .

Removal Procedure

1. Remove the engine coolant fan shroud. Refer to [Engine Coolant Fan Shroud Replacement \(2H0\)](#), [Engine Coolant Fan Shroud Replacement \(LUV\)](#), [Engine Coolant Fan Shroud Replacement \(LE2\)](#) .
2. Remove the automatic transmission range selector lever. Refer to [Automatic Transmission Range Selector Lever Replacement](#).
3. Remove the control valve body. Refer to [Control Valve Body Replacement](#).

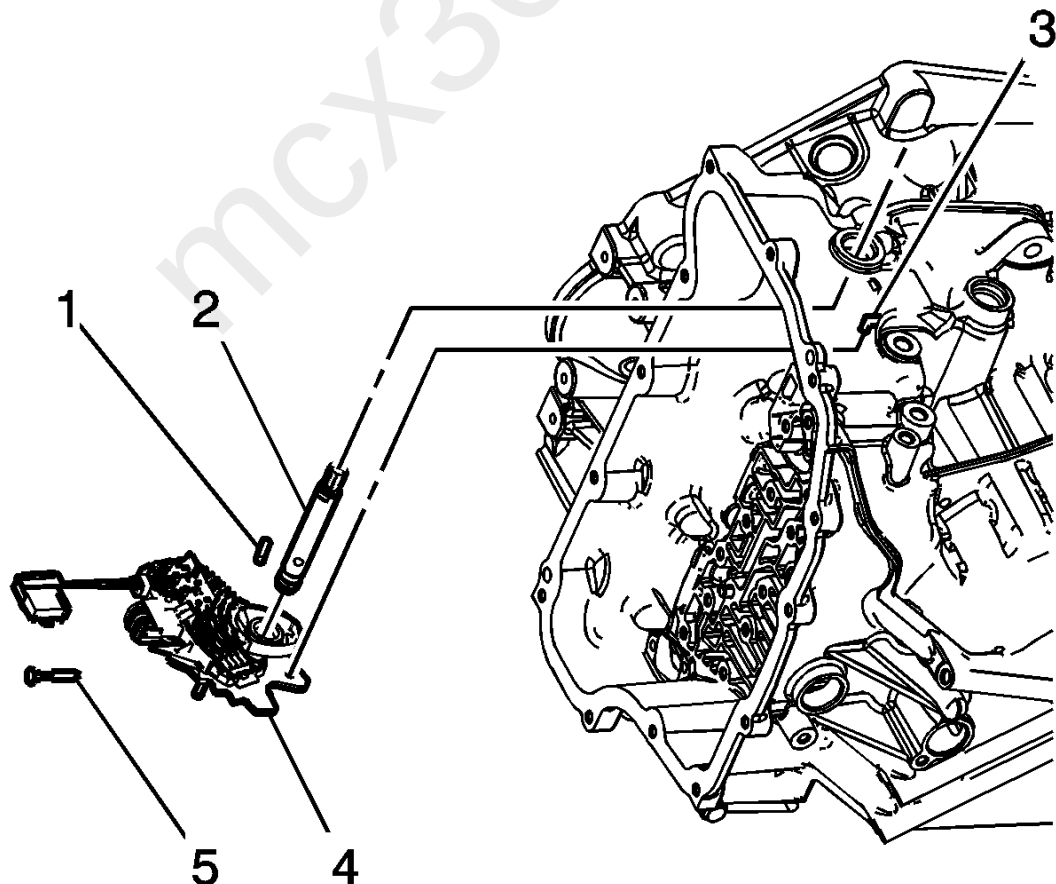


Fig. 1: View Of Manual Shift Detent Lever & Shaft Position Switch Assembly.
Courtesy of GENERAL MOTORS COMPANY

4. Remove the manual shaft detent lever hub pin (1) using a pry bar and pliers.
5. Remove and DISCARD the manual shift shaft pin (5).
6. Remove the manual shaft (2).

NOTE: Disconnect the actuator rod (3) from the detent lever assembly. Do not remove the actuator rod from the transmission case.

7. Remove the manual shaft detent (with shift position switch) lever assembly (4).

Installation Procedure

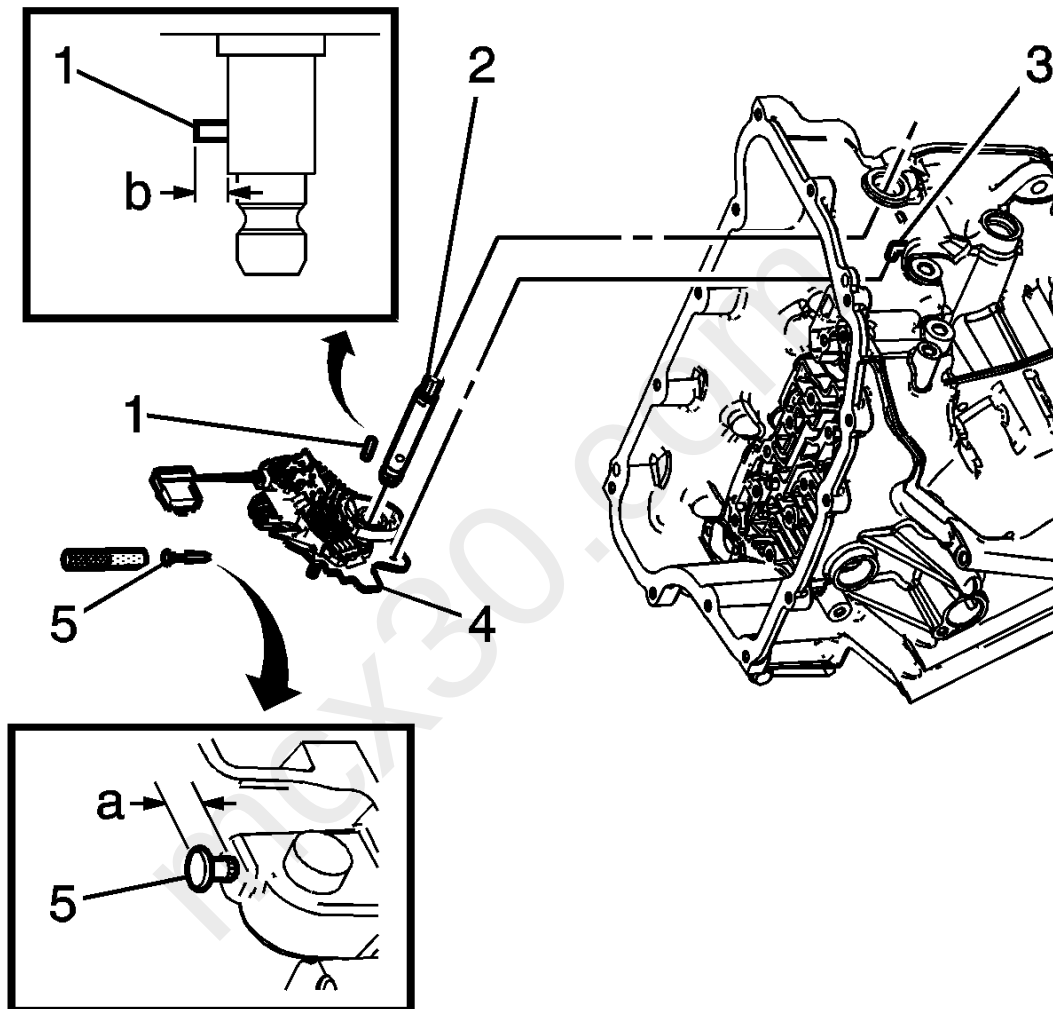


Fig. 2: Identifying Manual Shift Detent (W/Shift Position Switch) Lever Assembly.
Courtesy of GENERAL MOTORS COMPANY

NOTE: Connect the actuator rod (3) to the detent lever assembly.

1. Install the manual shaft detent (with shift position switch) lever assembly (4).
2. Install the manual shaft (2).
3. Install the manual shaft detent lever hub pin (1).

Specification

Install the manual shaft detent lever hub pin to height of 7.9 mm (0.38 in) (b).

CAUTION: Use J 41229 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.

4. Install the NEW manual shift shaft pin (5) using **DT-41229** pin installer. Use a NEW pin to ensure proper engagement with the case.

Specification

Inspect pin installed height is within 7.2-8.2 mm (0.28-0.32 in) (a).

5. Install the control valve body. Refer to [Control Valve Body Replacement](#).
6. Install the automatic transmission range selector lever. Refer to [Automatic Transmission Range Selector Lever Replacement](#).
7. Install the engine coolant fan shroud. Refer to [Engine Coolant Fan Shroud Replacement \(2H0\)](#), [Engine Coolant Fan Shroud Replacement \(LUV\)](#), [Engine Coolant Fan Shroud Replacement \(LE2\)](#).
8. Perform the transmission adaptive values learn procedure. Refer to [Transmission Adaptive Values Learn](#).

TRANSMISSION CONTROL LEVER KNOB REPLACEMENT (CHEVROLET OR HOLDEN)

The transmission control lever knob is not serviceable separately. Refer to [Transmission Control Replacement](#).

TRANSMISSION CONTROL LEVER KNOB REPLACEMENT (EXCEPT CHEVROLET OR HOLDEN)

Removal Procedure

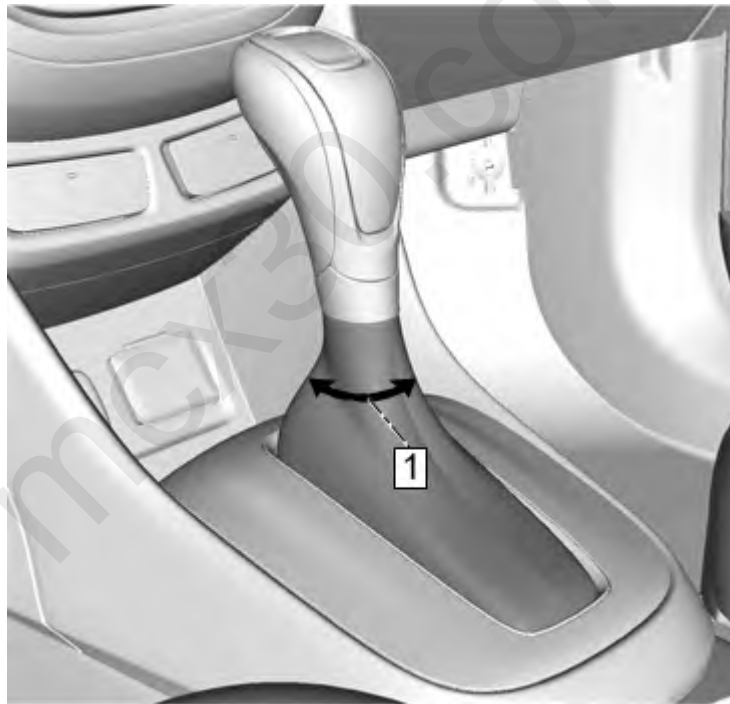


Fig. 3: Shift Boot

Courtesy of GENERAL MOTORS COMPANY

1. Cut the shift boot in area shown (1), then pull the shift boot downward.

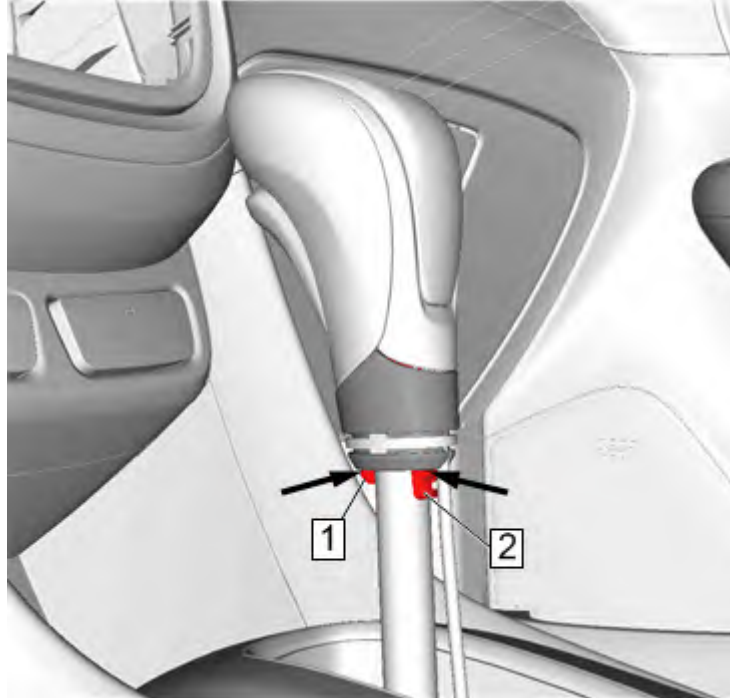


Fig. 4: Shift Knob Collar Retaining Tabs

Courtesy of GENERAL MOTORS COMPANY

2. Cut the shift knob collar retaining tabs (1, 2) in the area shown.

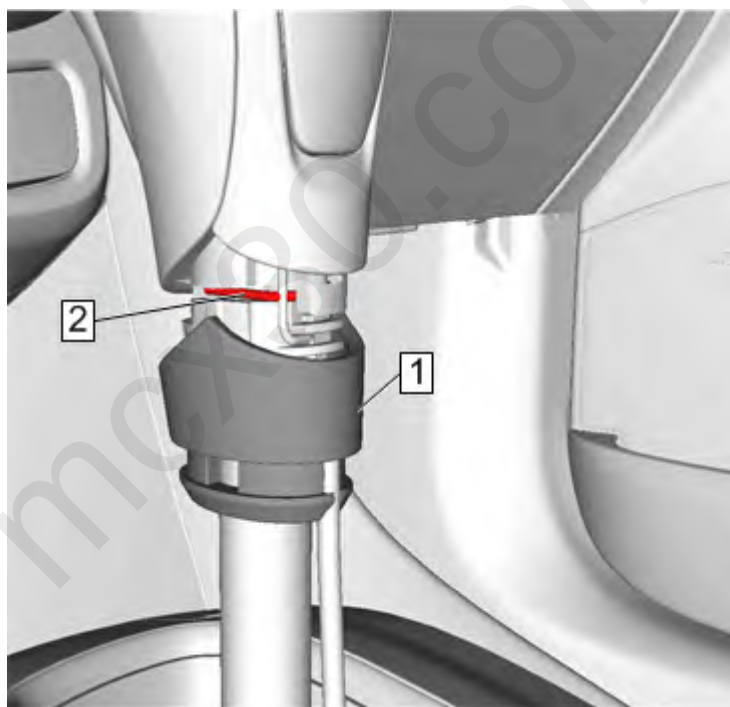


Fig. 5: Knob Extension

Courtesy of GENERAL MOTORS COMPANY

3. Slide the knob extension (1) downward.
4. Remove the shift knob retaining clip (2).

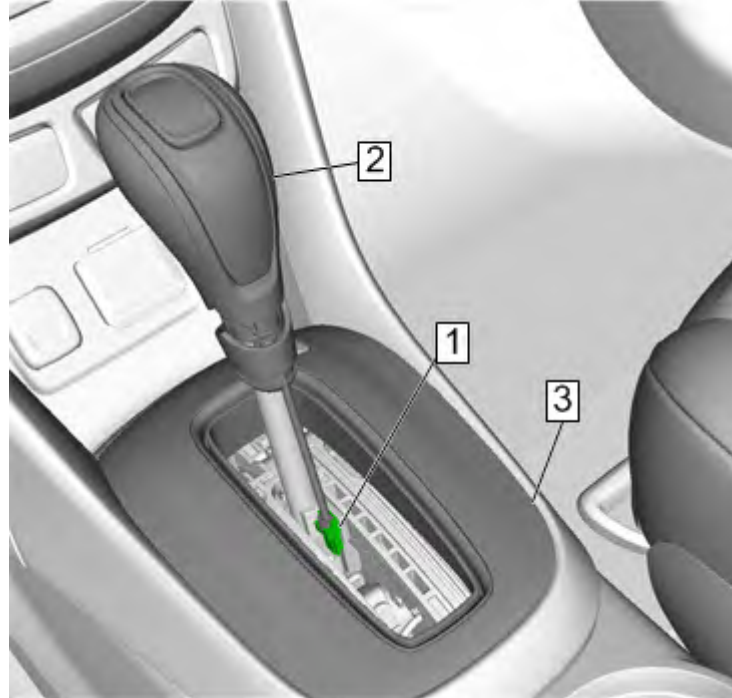


Fig. 6: Shift Knob Electrical Connector

Courtesy of GENERAL MOTORS COMPANY

5. Disconnect the shift knob electrical connector (1).
6. Using a trim tool, remove and DISCARD the shift bezel (3)
7. Remove and DISCARD the shift knob assembly (2).

Installation Procedure

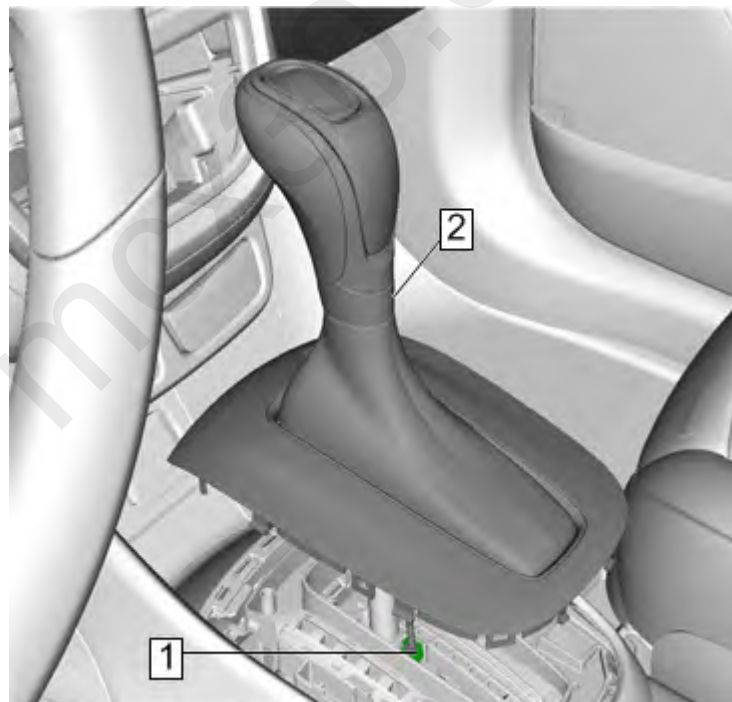


Fig. 7: Shift Knob Assembly Electrical Connector

Courtesy of GENERAL MOTORS COMPANY

1. Connect the shift knob assembly electrical connector (1).

NOTE: Pull up on the shift knob after installation, to ensure the knob clip is locked in place.

2. Install the NEW shift knob and bezel assembly (2).

TRANSMISSION CONTROL REPLACEMENT

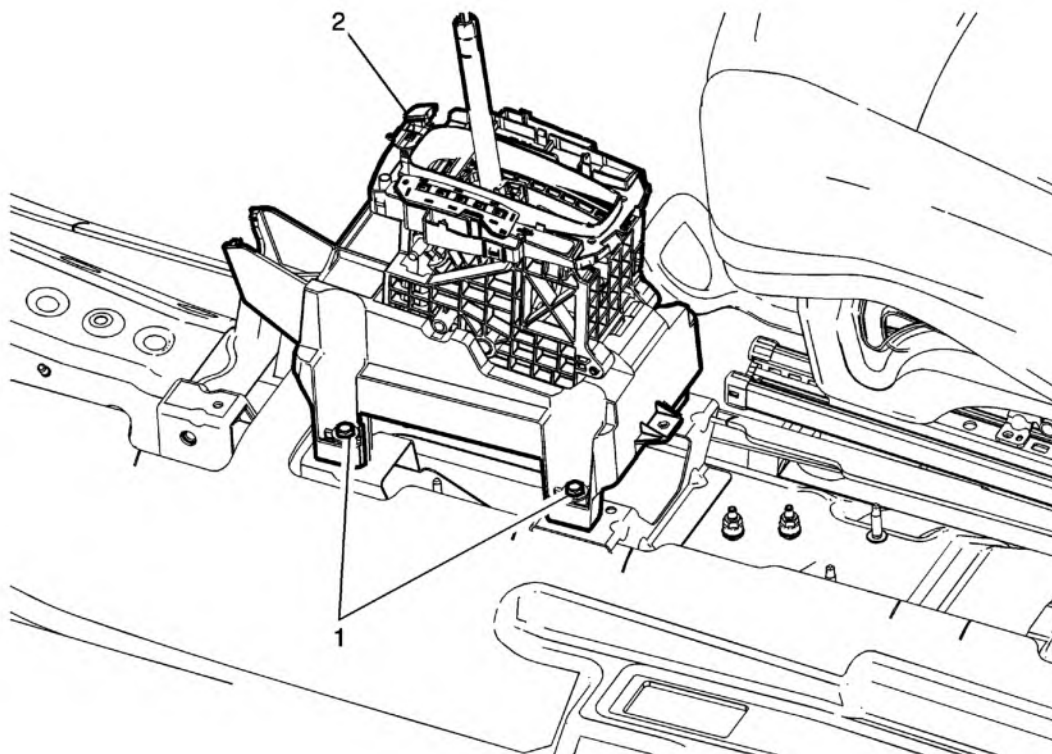


Fig. 8: Transmission Control Assembly
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the front floor console. Refer to Front Floor Console Replacement (Buick) Front Floor Console Replacement (Chevrolet). WARNING: After installing the transmission range selector shift cable, pull up and push down on ALL connections to verify that the connections are fully seated and properly engaged. Failure to perform this task can result in the vehicle not being able to shift into PARK causing potential vehicle damage and bodily injury. 2. Disconnect the range selector lever cable. Refer to Range Selector Lever Cable Replacement. 3. Disconnect the transmission control electrical connectors.	
1	Transmission Control Fastener (Qty: 4) CAUTION: Refer to Fastener Caution. Tighten 9 N.m (80 lb in)
2	Transmission Control

AUTOMATIC TRANSMISSION RANGE SELECTOR LEVER REPLACEMENT

Removal Procedure

1. Set the park brake and chock the wheels.

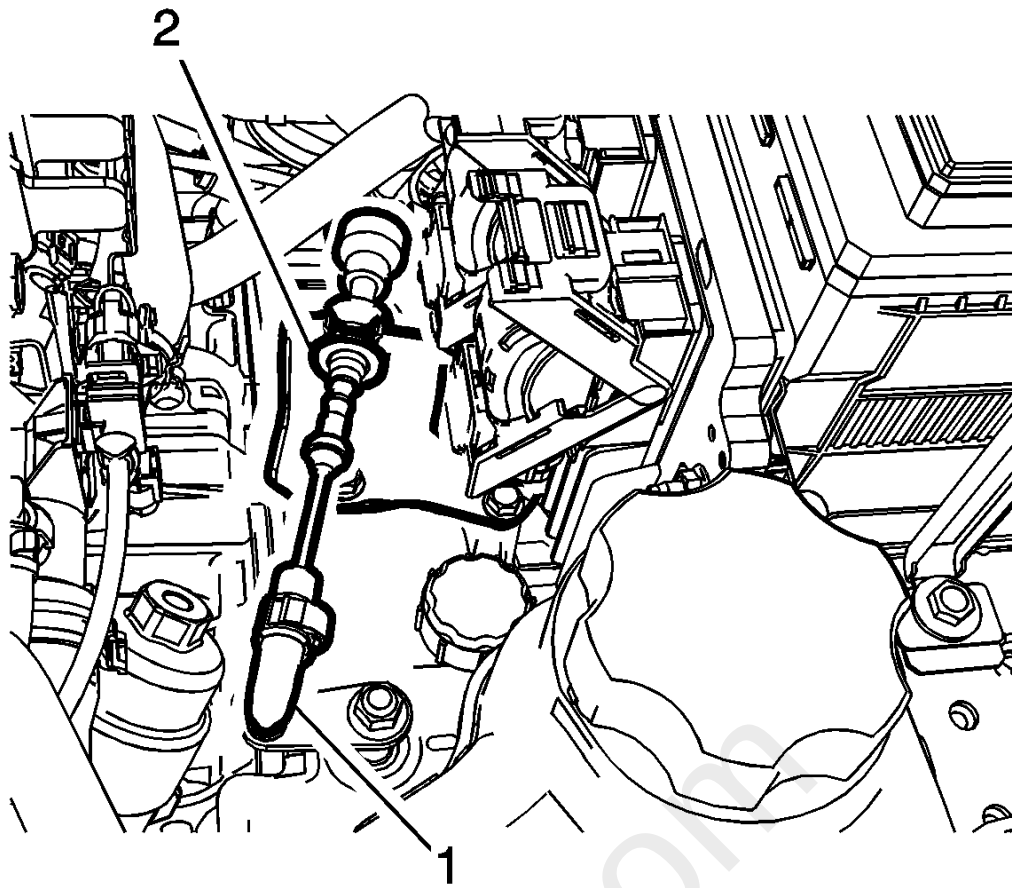


Fig. 9: Automatic Transmission Range Selector Lever Cable Terminal & Shift Lever Pin
Courtesy of GENERAL MOTORS COMPANY

2. Disconnect the transmission range selector lever cable terminal (1) from the transmission manual shift lever pin.
3. Press the locking tabs inward in order to release the transmission range selector lever cable (2) from the cable bracket.

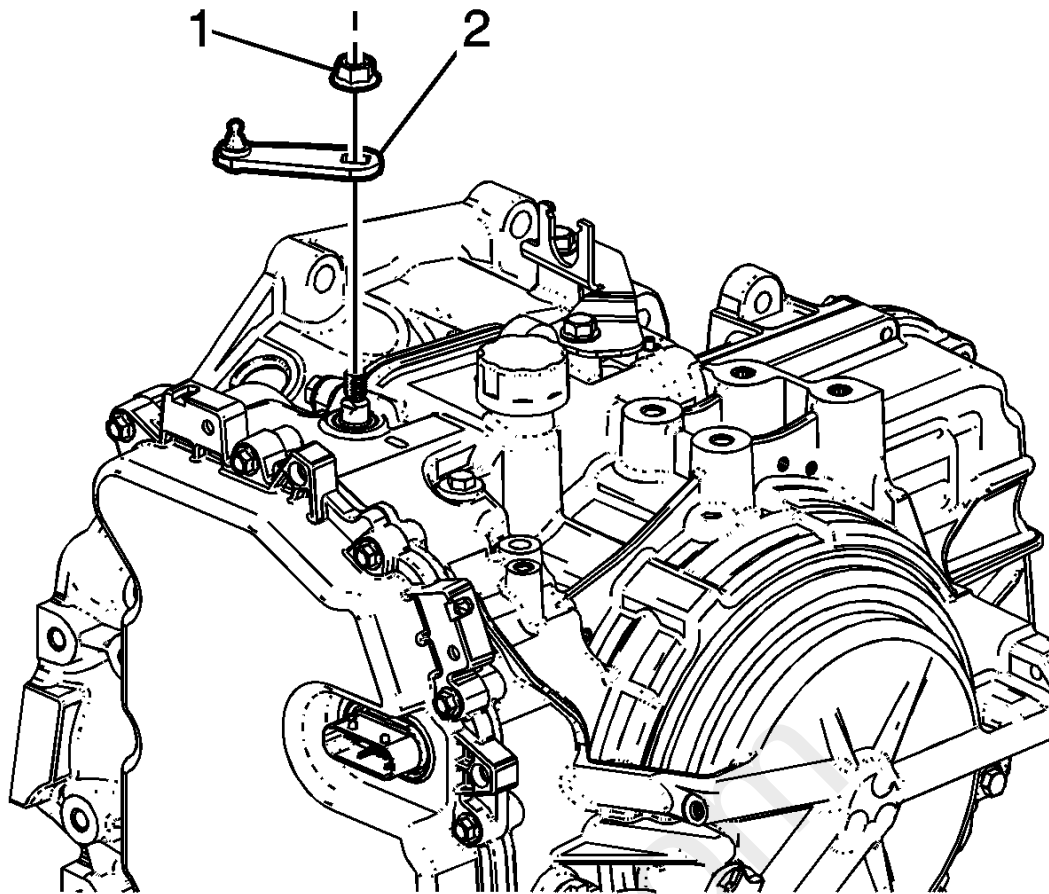


Fig. 10: View Of Transmission Range Selector Lever

Courtesy of GENERAL MOTORS COMPANY

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.

4. Remove the transmission range selector lever nut (1).
5. Remove the transmission range selector lever (2).

Installation Procedure

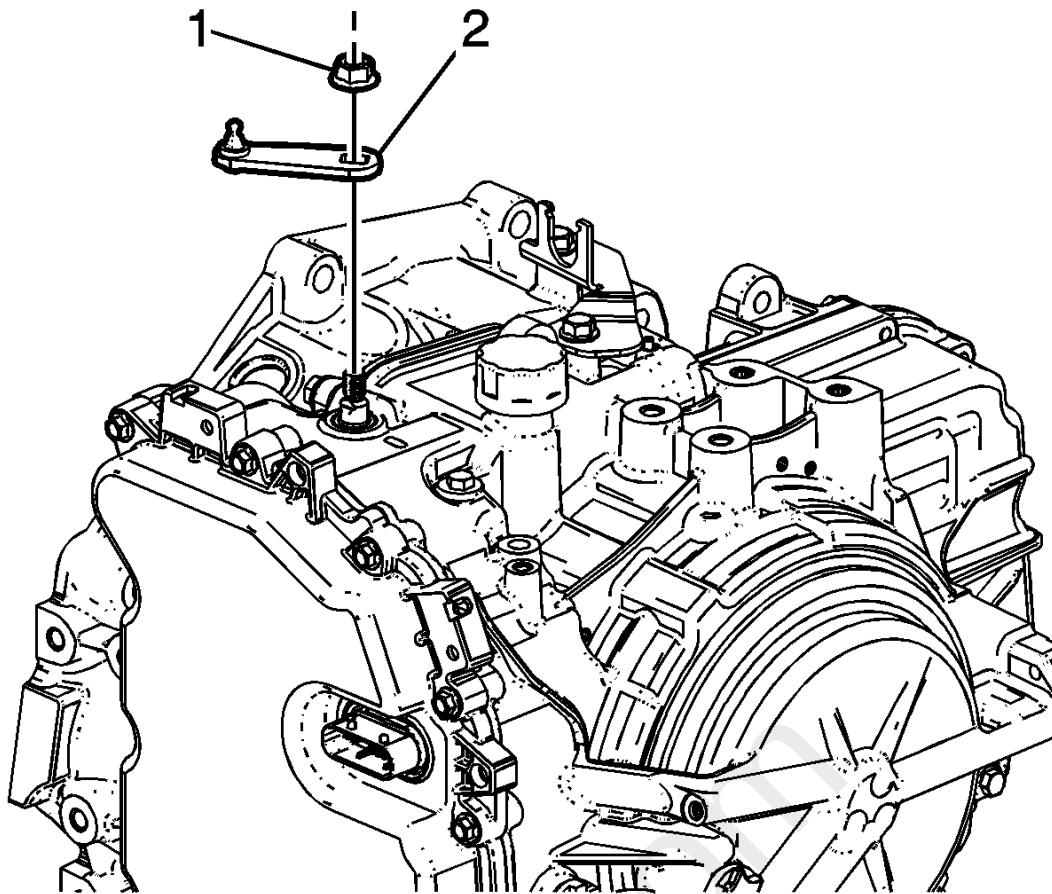


Fig. 11: View Of Transmission Range Selector Lever

Courtesy of GENERAL MOTORS COMPANY

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.

1. Install the transmission range selector lever (2).

CAUTION: Refer to [Fastener Caution](#) .

2. Install the transmission range selector lever nut (1) and tighten to 30 N.m (22 lb ft).

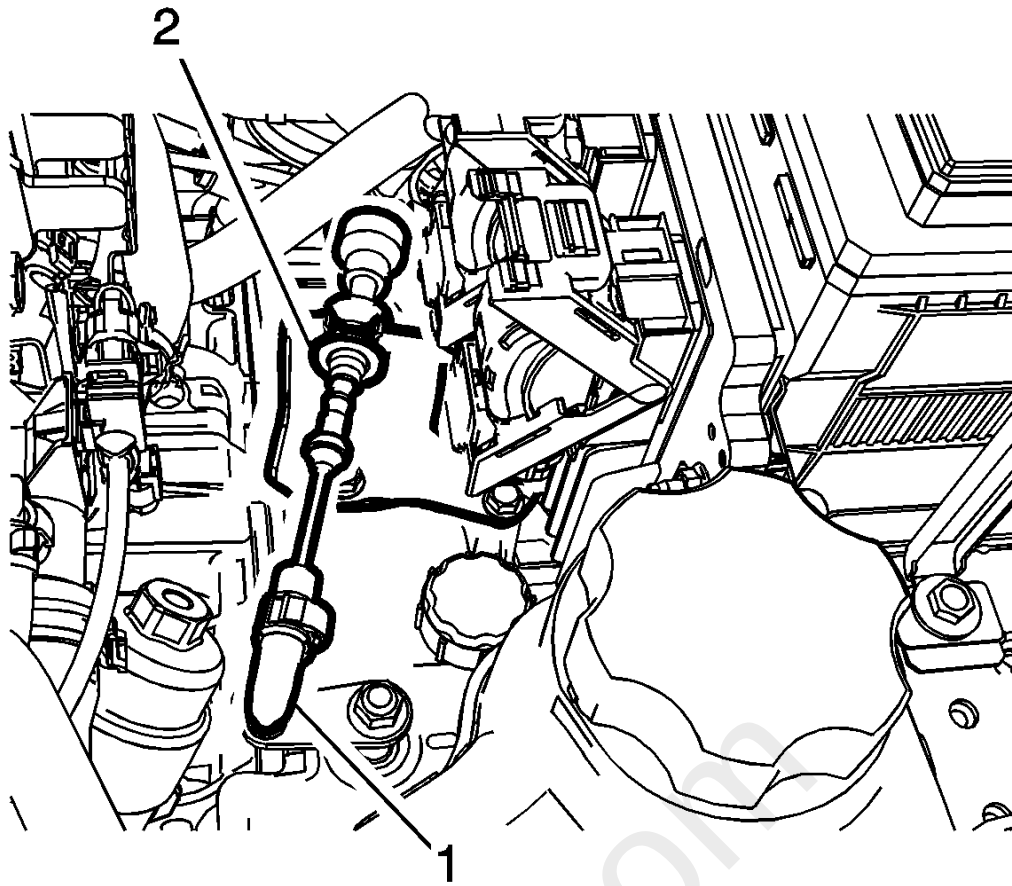


Fig. 12: Automatic Transmission Range Selector Lever Cable Terminal & Shift Lever Pin
Courtesy of GENERAL MOTORS COMPANY

3. Install the transmission range selector lever cable (2) to the cable bracket.

WARNING: After installing the transmission range selector shift cable, pull up and push down on ALL connections to verify that the connections are fully seated and properly engaged. Failure to perform this task can result in the vehicle not being able to shift into PARK causing potential vehicle damage and bodily injury.

4. Connect the transmission range selector lever cable terminal (1) to the transmission manual shift lever pin.
5. Check the range selector cable adjustment. Refer to [Range Selector Lever Cable Adjustment](#).

RANGE SELECTOR LEVER CABLE REPLACEMENT

Removal Procedure

1. Set the park brake and chock the wheels.

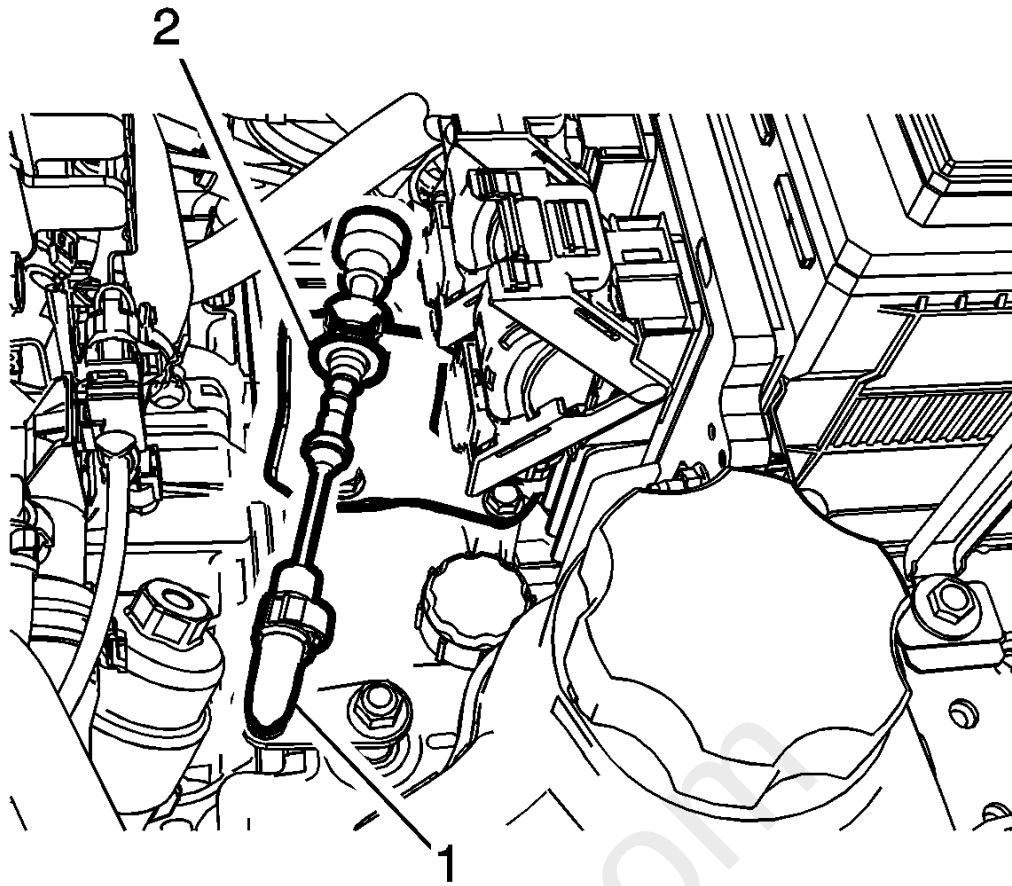


Fig. 13: Automatic Transmission Range Selector Lever Cable Terminal & Shift Lever Pin
Courtesy of GENERAL MOTORS COMPANY

2. Disconnect the transmission range selector lever cable terminal (1) from the transmission manual shift lever pin.
3. Press the locking tabs inward in order to release the transmission range selector lever cable (2) from the cable bracket.
4. Remove the front floor console stowage tray. Refer to [**Front Floor Console Stowage Tray Replacement \(Buick\)**](#), [**Front Floor Console Stowage Tray Replacement \(Chevrolet\)**](#).

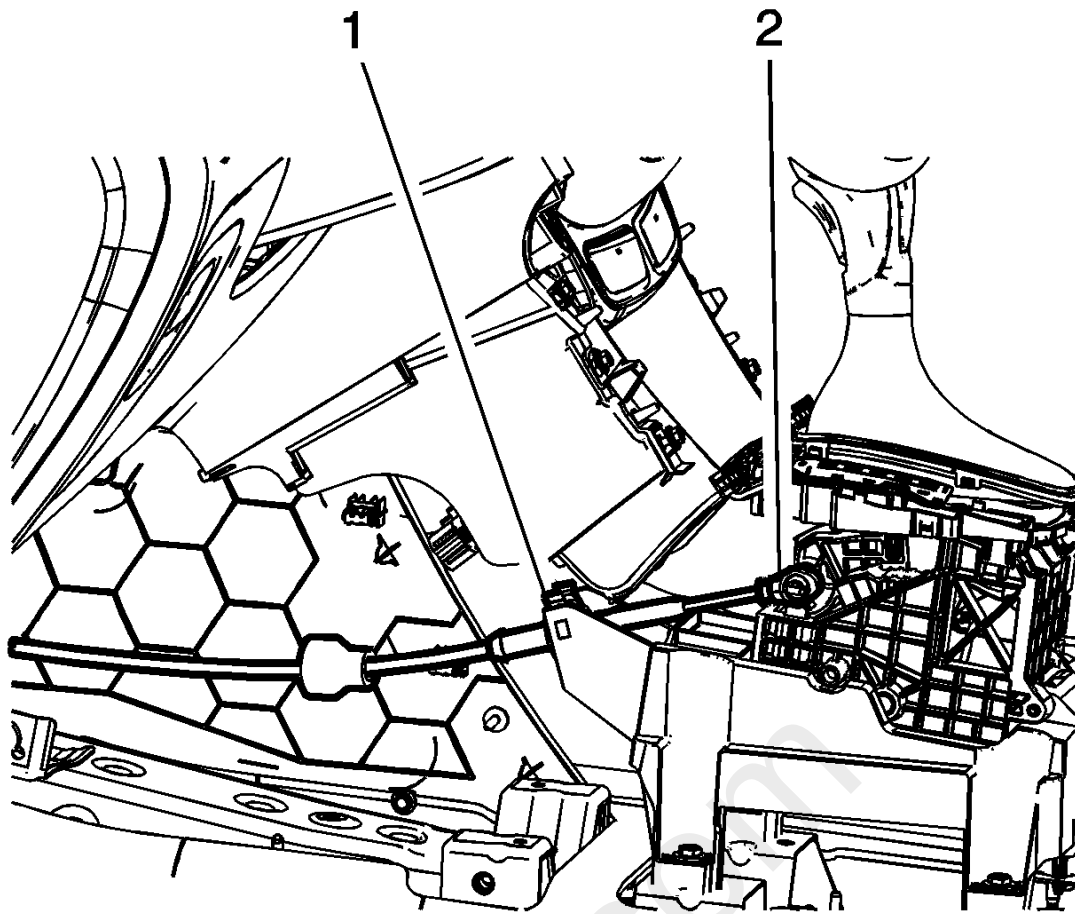


Fig. 14: Cable Terminal And Cable Retainer

Courtesy of GENERAL MOTORS COMPANY

5. Disconnect the transmission range selector lever cable terminal (2) from the shift lever pin.
6. Release the transmission range selector lever cable retainer (1) and remove the transmission range selector cable from the transmission control lever base.

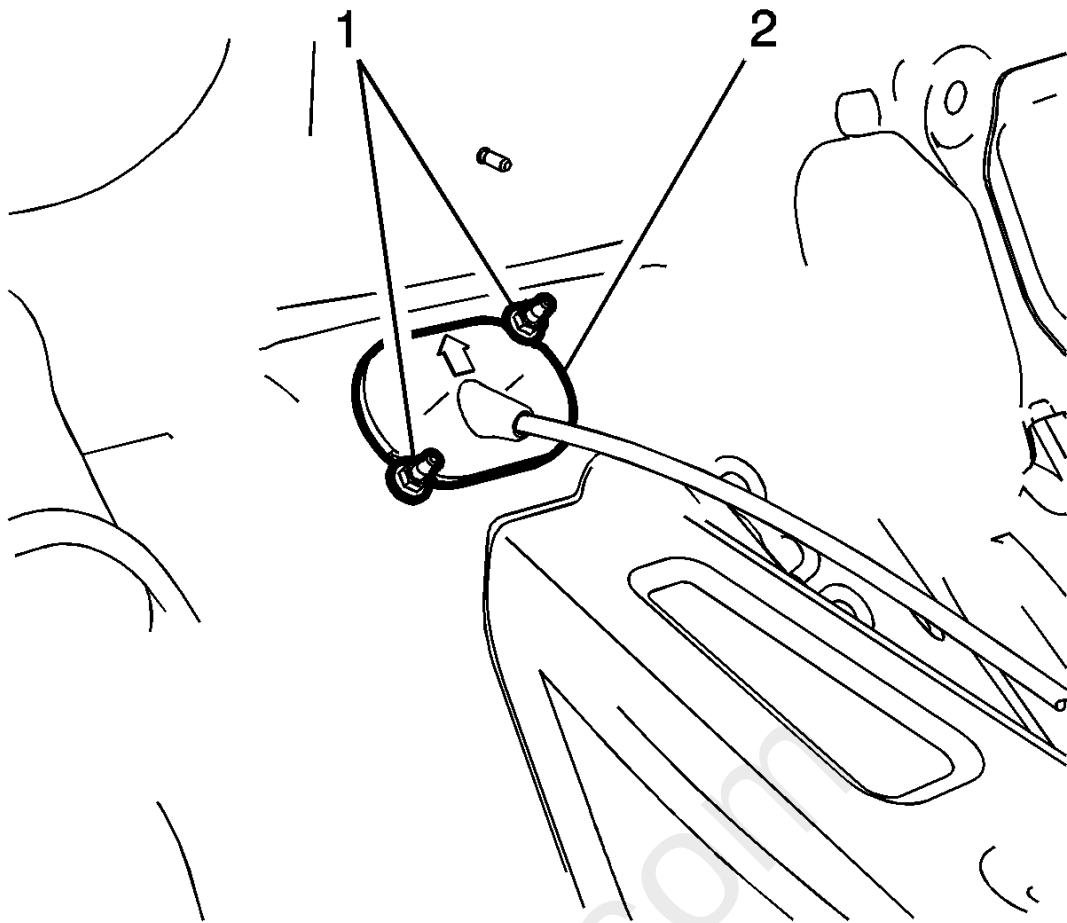


Fig. 15: Gear Shift Cable Grommet & Fasteners
Courtesy of GENERAL MOTORS COMPANY

7. Move the floor carpet in order to gain access to the gear shift cable grommet (2).
8. Remove the grommet fasteners (1) and the transmission range selector lever cable grommet from the cowl panel.
9. Remove the transmission range selector lever cable from the vehicle.

Installation Procedure

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

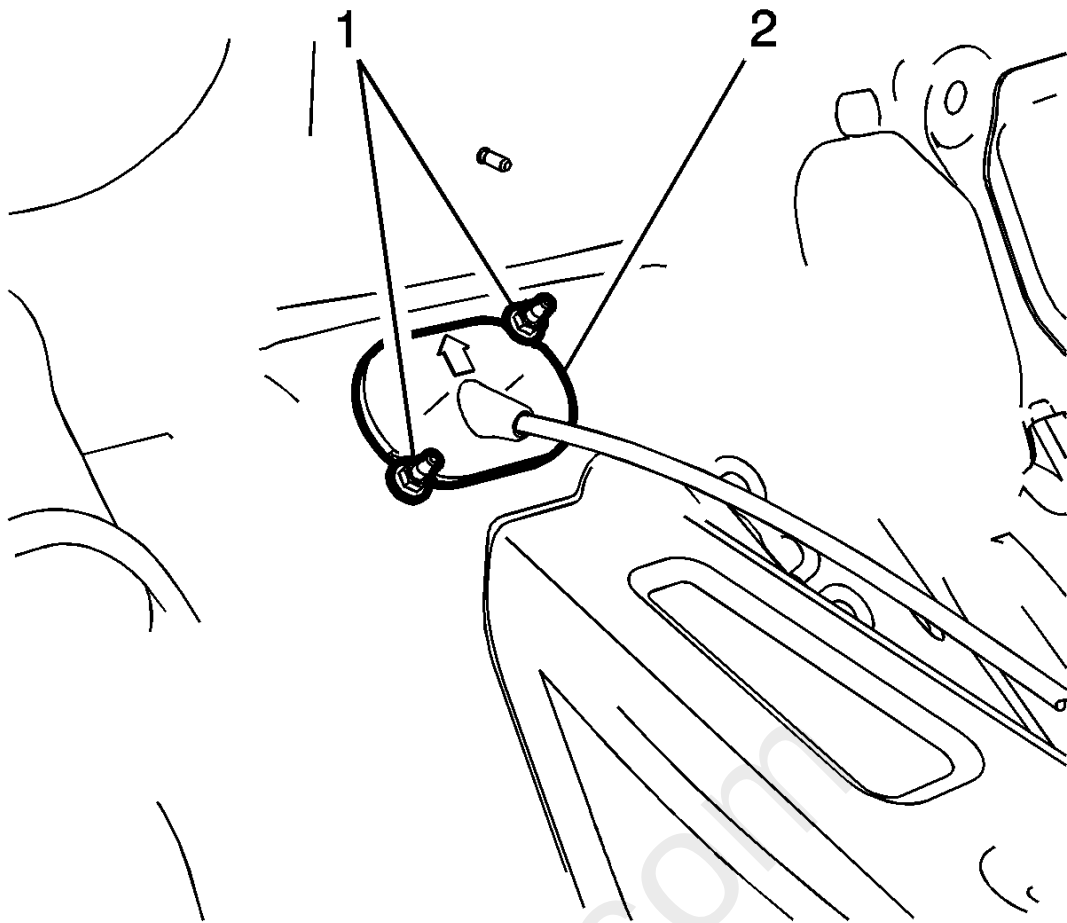


Fig. 16: Gear Shift Cable Grommet & Fasteners
Courtesy of GENERAL MOTORS COMPANY

2. Install the transmission range selector lever cable grommet to the cowl panel.

CAUTION: Refer to [Fastener Caution](#) .

3. Install the grommet fasteners (2) and tighten to 9 N.m (80 lb in).

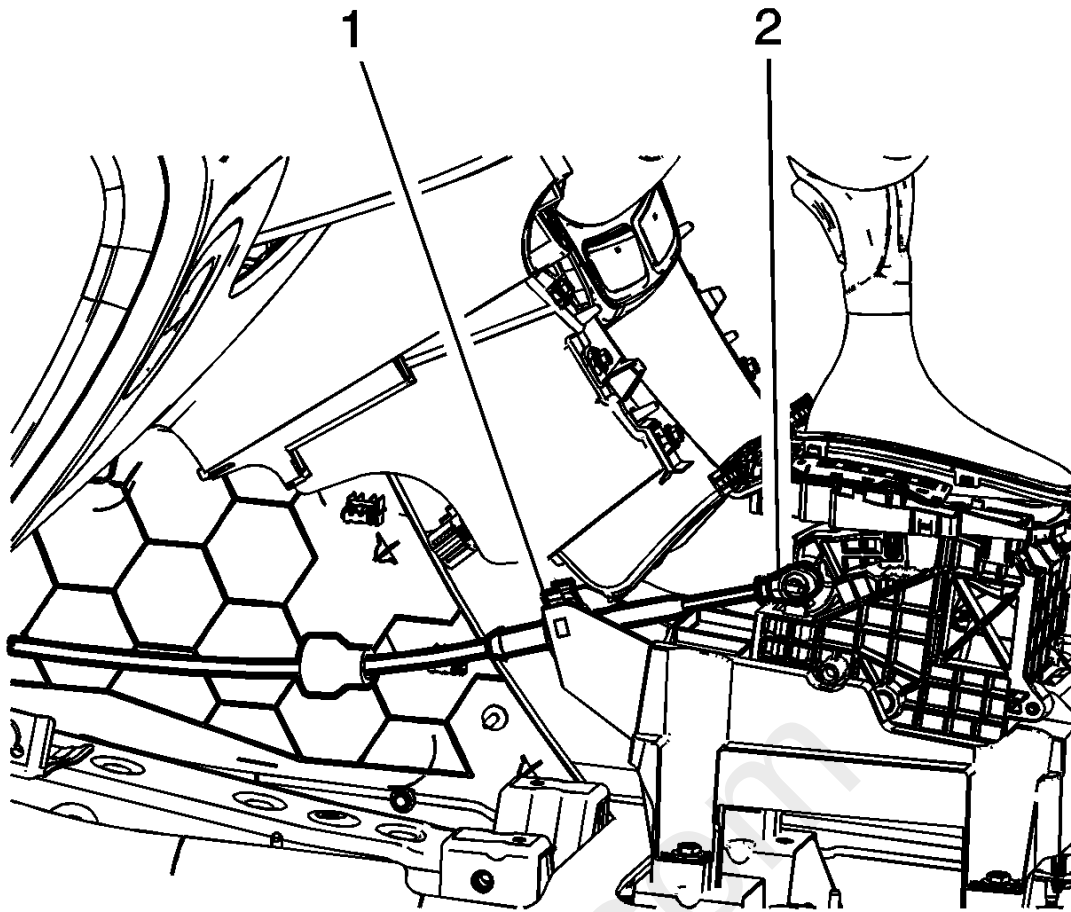


Fig. 17: Cable Terminal And Cable Retainer

Courtesy of GENERAL MOTORS COMPANY

4. Install the transmission range selector lever cable to the transmission control lever base. Insure the cable retainer (1) is fully secured to the transmission control lever base.

WARNING: After installing the transmission range selector shift cable, pull up and push down on ALL connections to verify that the connections are fully seated and properly engaged. Failure to perform this task can result in the vehicle not being able to shift into PARK causing potential vehicle damage and bodily injury.

5. Connect the transmission range selector lever cable terminal (2) to the shift lever pin.
6. Install the front floor console stowage tray. Refer to [Front Floor Console Stowage Tray Replacement \(Buick\)](#), [Front Floor Console Stowage Tray Replacement \(Chevrolet\)](#).

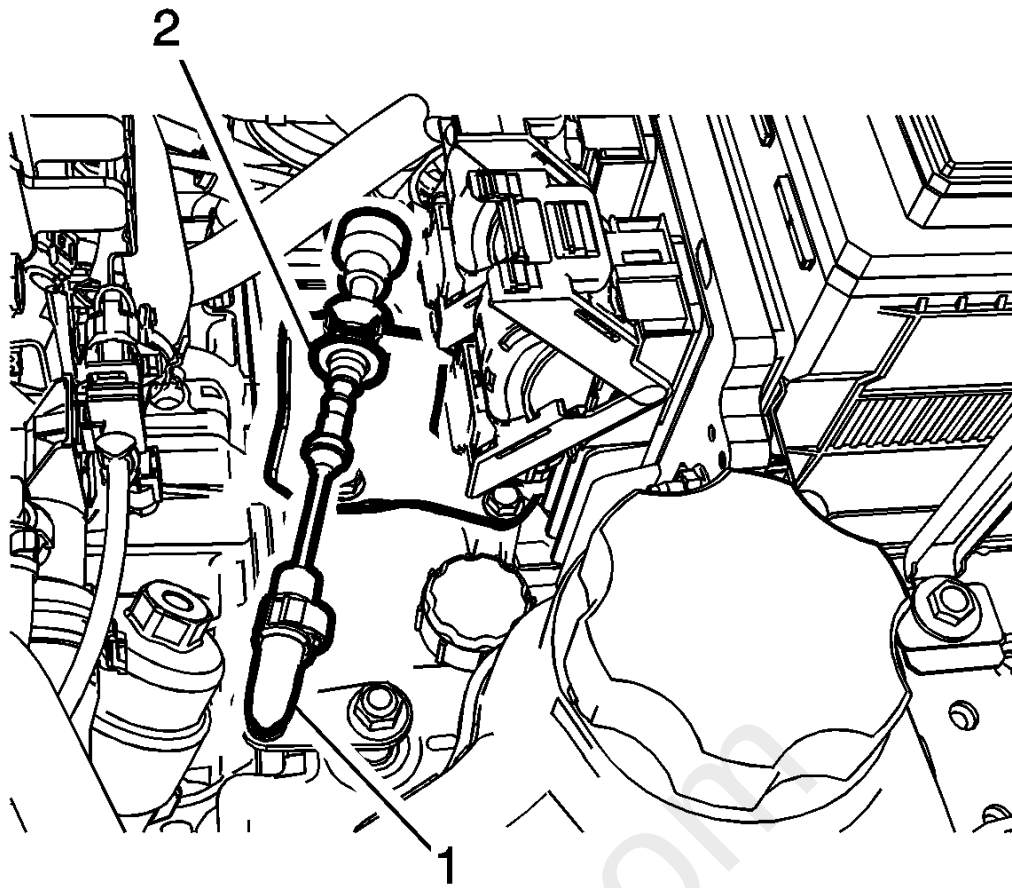


Fig. 18: Automatic Transmission Range Selector Lever Cable Terminal & Shift Lever Pin
Courtesy of GENERAL MOTORS COMPANY

7. Install the transmission range selector lever cable (2) to the cable bracket.
8. Connect the transmission range selector lever cable terminal (1) to the transmission manual shift lever pin.
9. Adjust the automatic transmission range selector lever 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.

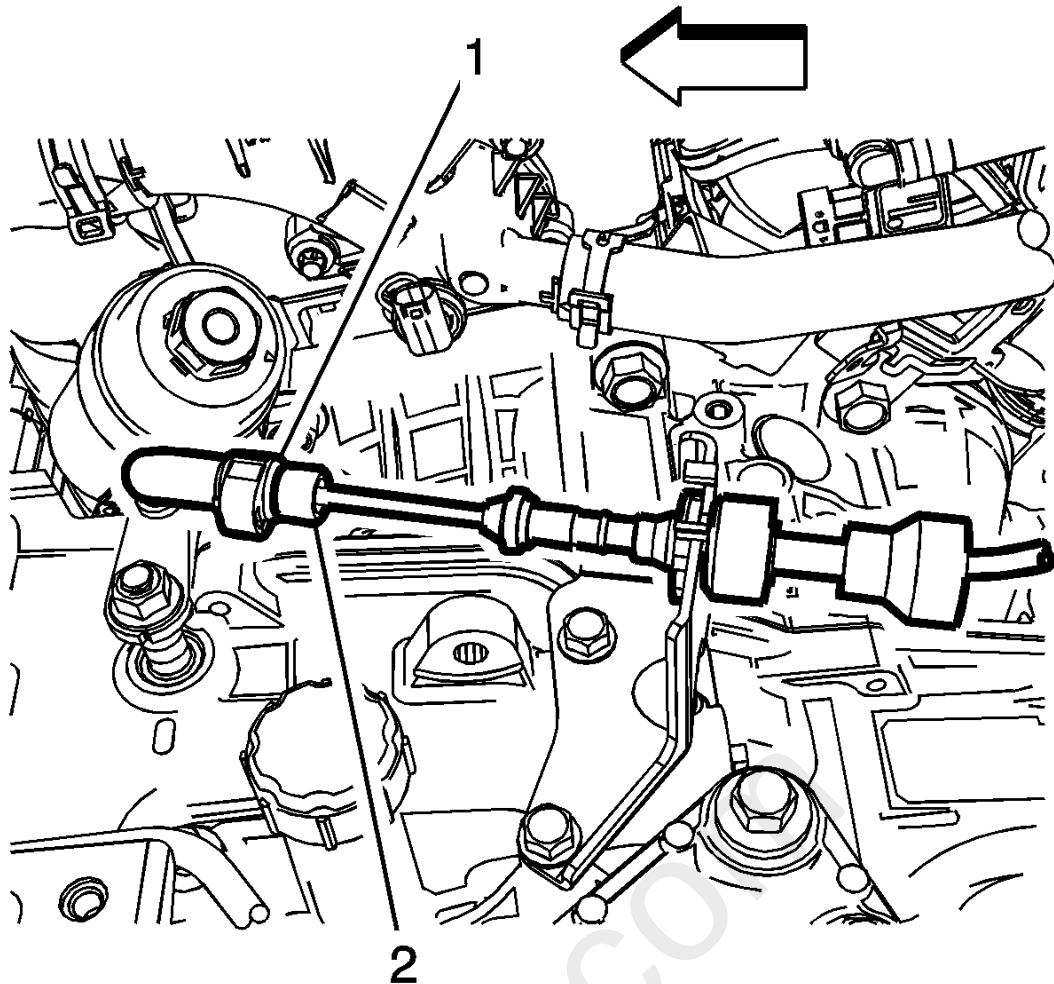


Fig. 19: Cable Tube & Adjuster Clip
Courtesy of GENERAL MOTORS COMPANY

4. Release the range select cable adjuster clip (1).
5. Depress the adjuster clip (1) locking the adjuster clip completely.
6. Ensure the cable tube (2) is secure.

WARNING: After installing the transmission range selector shift cable, pull up and push down on ALL connections to verify that the connections are fully seated and properly engaged. Failure to perform this task can result in the vehicle not being able to shift into PARK causing potential vehicle damage and bodily injury.

7. Check the transmission range select lever in all gear selections for proper operation.

RANGE SELECTOR LEVER CABLE BRACKET REPLACEMENT

Removal Procedure

1. Set the park brake and chock the wheels.
2. Remove the battery tray. Refer to [Battery Tray Replacement](#).

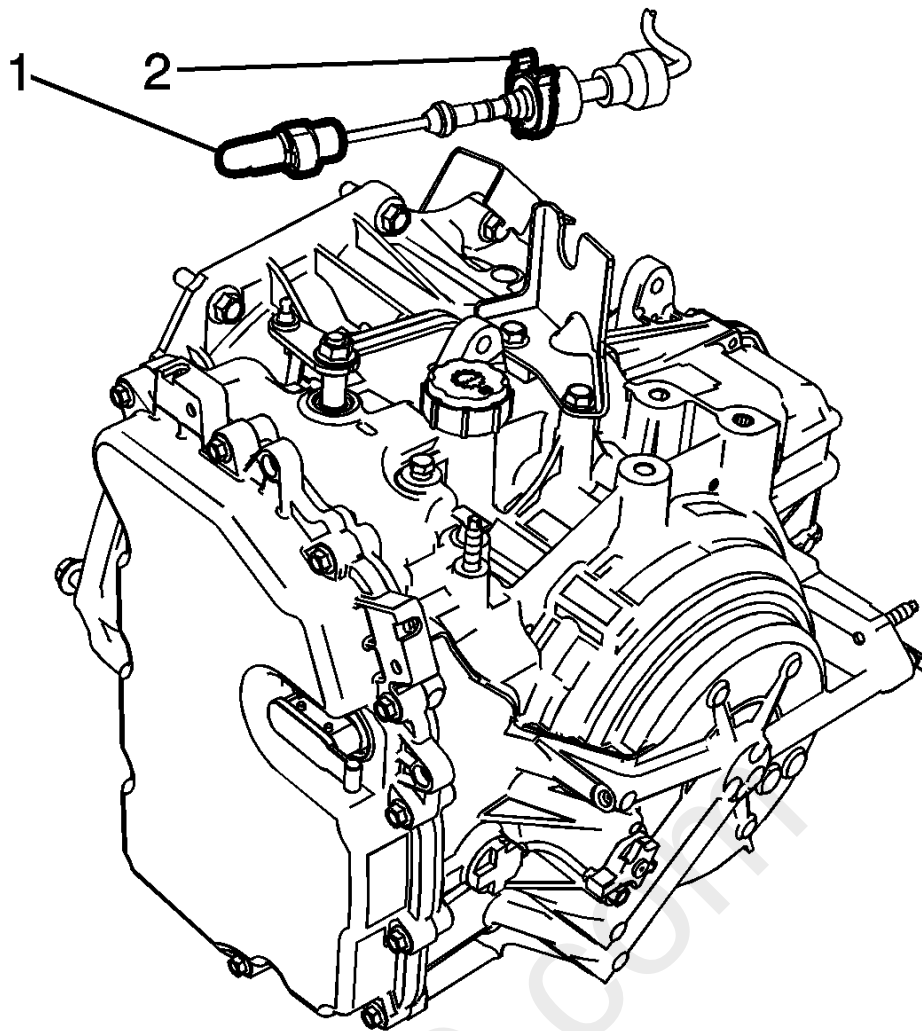


Fig. 20: Range Selector Lever Cable

Courtesy of GENERAL MOTORS COMPANY

3. Disconnect the range selector cable end (1) from the range selector lever.
4. Disconnect the range selector cable (2) from the range selector cable bracket.

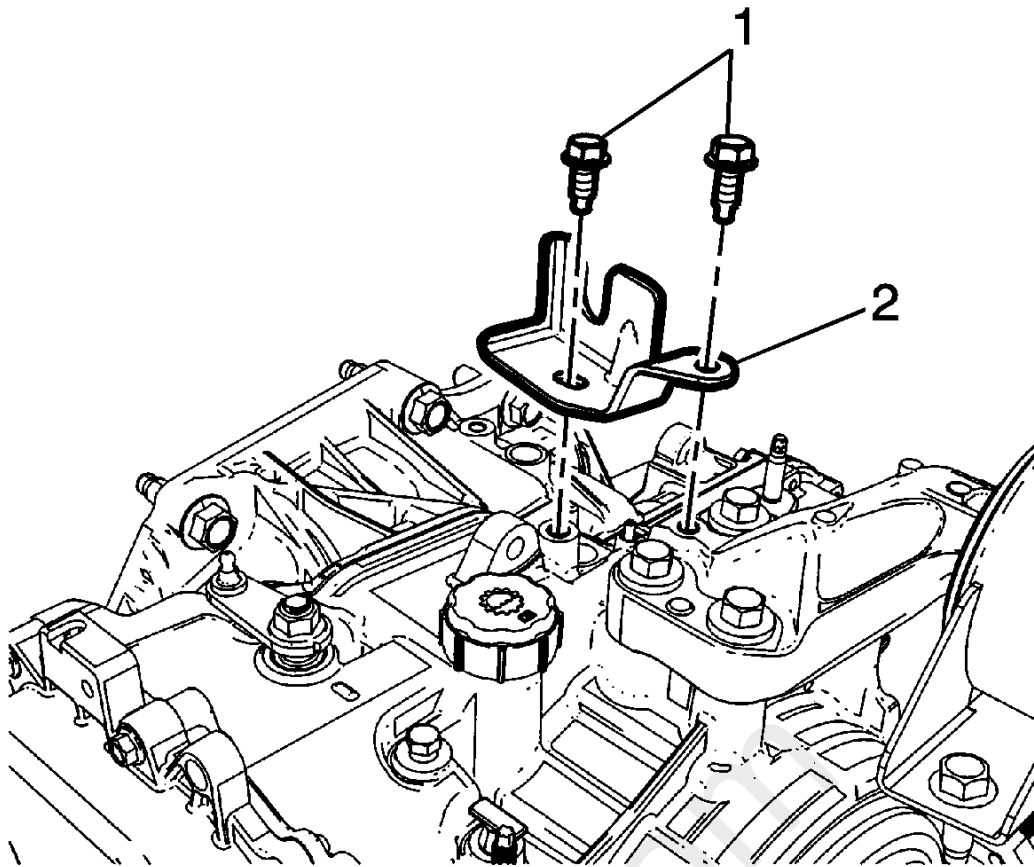


Fig. 21: Range Selector Cable Bracket And Bolts
Courtesy of GENERAL MOTORS COMPANY

5. Remove the transmission range selector cable bracket bolts (1).
6. Remove the transmission range selector cable bracket (2).

Installation Procedure

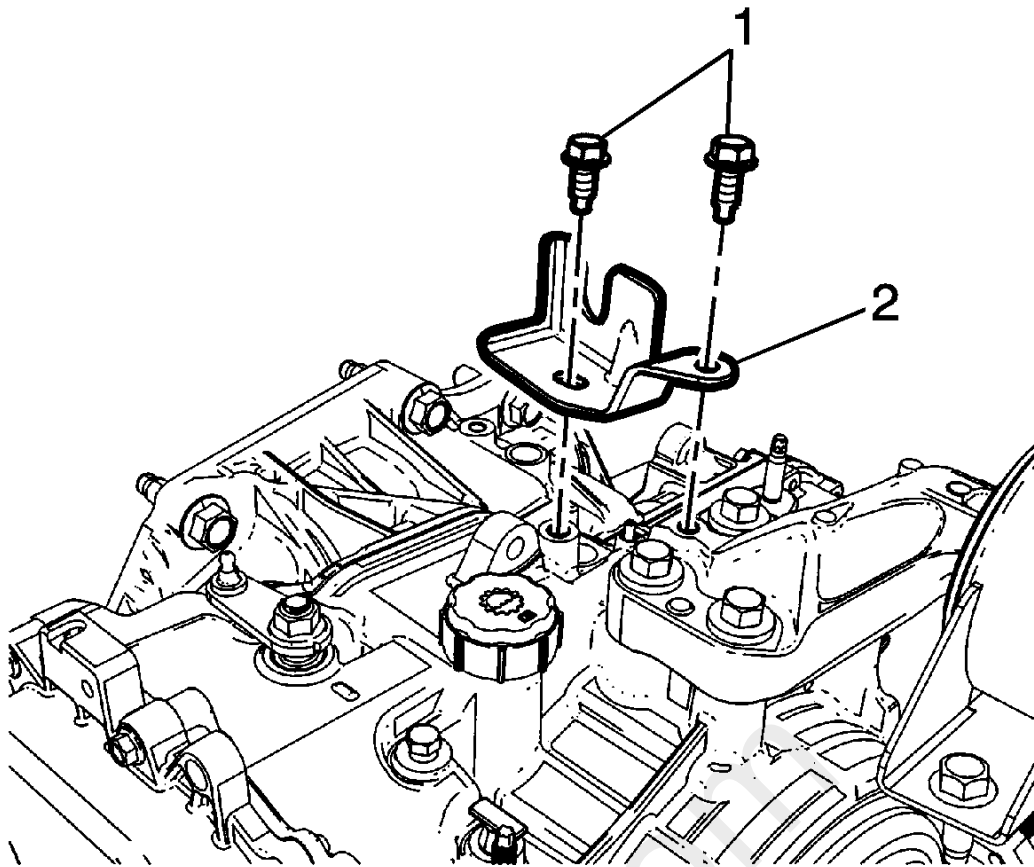


Fig. 22: Range Selector Cable Bracket And Bolts
Courtesy of GENERAL MOTORS COMPANY

1. Install the transmission range selector cable bracket (2).

CAUTION: Refer to **Fastener Caution** .

2. Install the transmission range selector cable bracket bolts (1) and tighten to 22 N.m (16 lb ft).

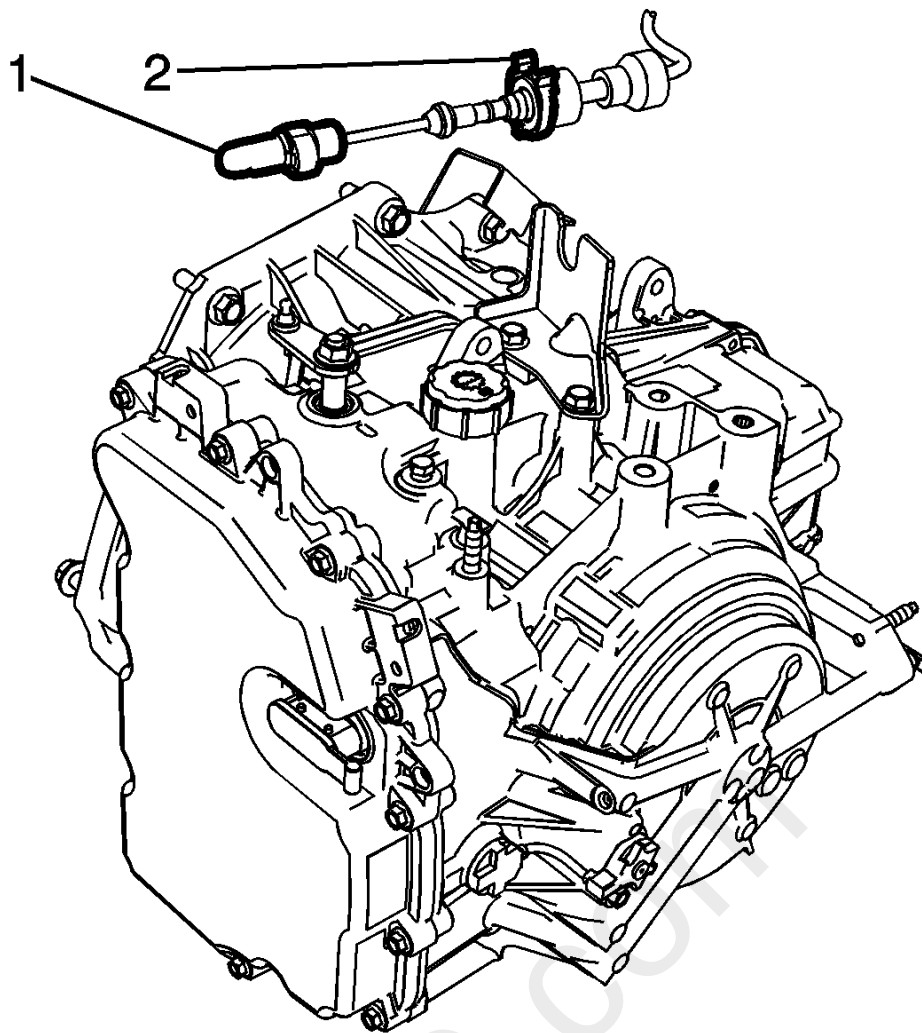


Fig. 23: Range Selector Lever Cable

Courtesy of GENERAL MOTORS COMPANY

3. Connect the range selector cable (2) to the range selector cable bracket.
4. Connect the range selector cable end (1) to the range selector lever.
5. Check the range selector cable adjustment. Refer to [Range Selector Lever Cable Adjustment](#).
6. Install the battery tray. Refer to [Battery Tray Replacement](#).

TRANSMISSION FLUID DRAIN AND FILL

Removal Procedure

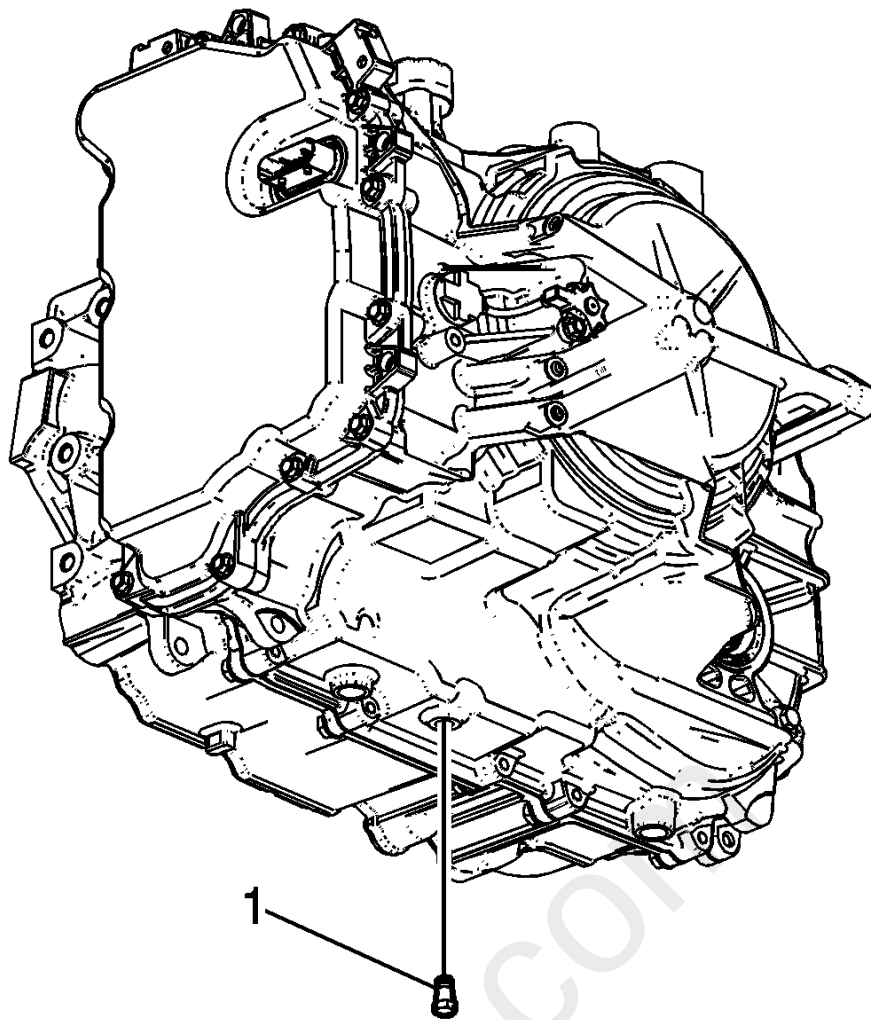


Fig. 24: Identifying Fluid Level Hole Plug
Courtesy of GENERAL MOTORS COMPANY

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#) .
2. Remove the fluid drain plug (1).
3. Drain transmission fluid into a suitable container.

CAUTION: Refer to [Component Fastener Tightening Caution](#) .

4. Install the fluid drain plug (1) and tighten to 12 N.m (106 lb in).

Installation Procedure

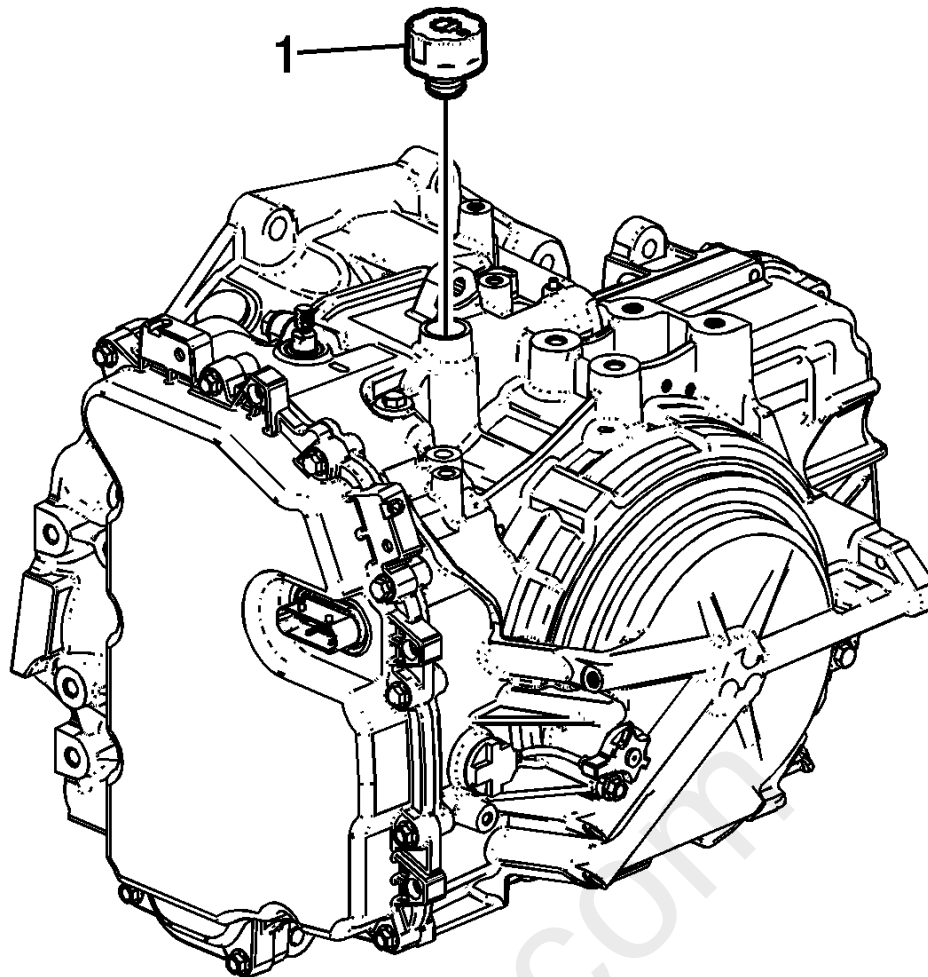


Fig. 25: Identifying Fluid Fill Cap

Courtesy of GENERAL MOTORS COMPANY

1. Lower the vehicle.
2. Remove the fluid fill cap (1).
3. Fill the transmission to the proper level with the correct fluid. Refer to [Transmission Fluid Level and Condition Check](#) , and [Adhesives, Fluids, Lubricants, and Sealers](#) .
4. Install the fluid fill cap (1).

AUXILIARY FLUID ACCUMULATOR REPLACEMENT

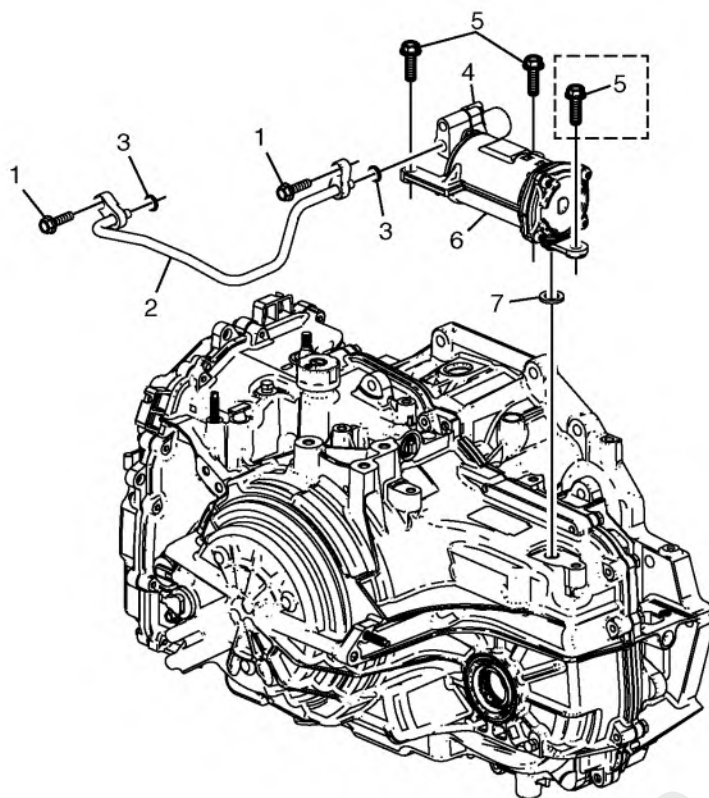


Fig. 26: Auxiliary Fluid Accumulator Components

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Set the park brake and chock the wheels. 2. Remove the battery tray. Battery Tray Replacement . 3. Disconnect the range selector cable from the range selector lever. Range Selector Lever Cable Replacement. 4. Remove the left front wheelhouse liner. Front Wheelhouse Liner Replacement (Chevrolet) Front Wheelhouse Liner Replacement (Buick)	
1	A/Trans Auxiliary Fluid Accumulator Pipe Bolts (Qty: 2) NOTE: Check the fluid. CAUTION: Refer to Fastener Caution . Tighten 22 N.m (16 lb ft)
2	A/Trans Auxiliary Fluid Accumulator Pipe Procedure Fasten pipe to auxiliary accumulator and tighten bolt just enough to hold in place.. Align pipe to case and tighten bolt just enough to hold in place.
3	A/Trans Auxiliary Fluid Accumulator Pipe Seals (Qty: 2) NOTE: Install NEW seals.
4	A/Trans Auxiliary Fluid Accumulator Solenoid Connector.

Callout	Component Name
5	A/Trans Auxiliary Fluid Accumulator Bolts (Qty: 3) Tighten 22 N.m (16 lb ft)
6	A/Trans Auxiliary Fluid Accumulator
7	A/Trans Auxiliary Fluid Accumulator Seal NOTE: Install NEW seal.

TRANSMISSION FLUID ACCUMULATOR PIPE REPLACEMENT

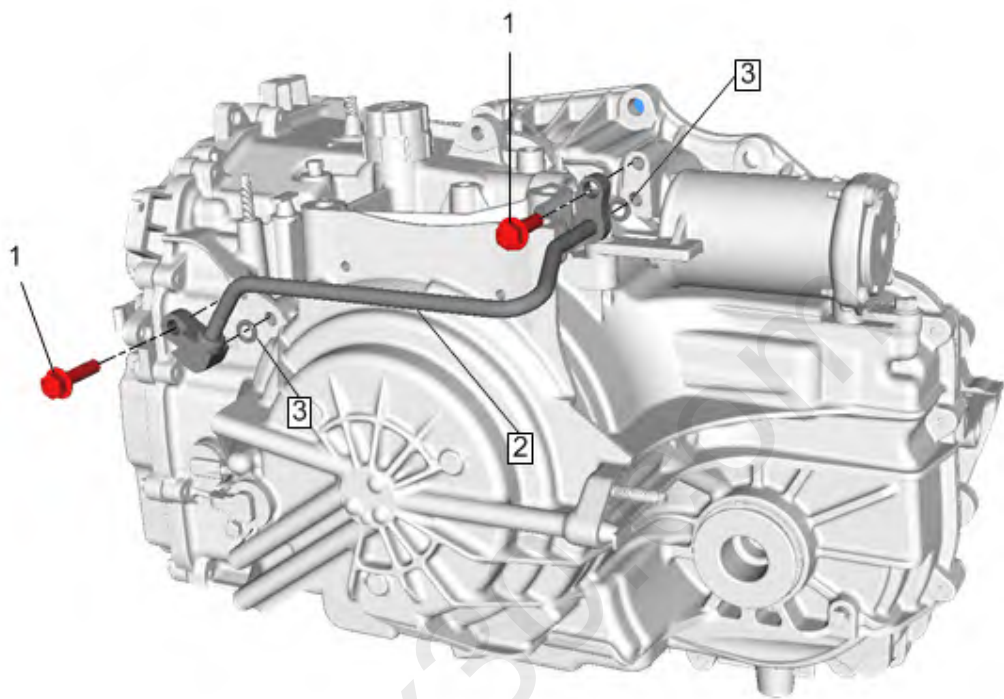


Fig. 27: Transmission Fluid Accumulator Pipe
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the battery tray. Battery Tray Replacement . 2. Remove the left front wheelhouse liner. Front Wheelhouse Liner Replacement (Chevrolet) Front Wheelhouse Liner Replacement (Buick)	

Callout	Component Name
1	A/Trans Auxiliary Fluid Accumulator Bolts (Qty: 2) CAUTION: Refer to Fastener Caution . Procedure 1. Fasten pipe to auxiliary accumulator and tighten bolt just enough to hold in place. 2. Align pipe to case and tighten bolt just enough to hold in place. 3. Check the transmission fluid level. Transmission Fluid Level and Condition Check Tighten 22 N.m (16 lb ft)
2	A/Trans Fluid Accumulator Pipe
3	A/Trans Fluid Accumulator Pipe Seals (Qty: 2) NOTE: Install NEW seals.

AUTOMATIC TRANSMISSION FLUID PRESSURE TEST HOLE PLUG REPLACEMENT

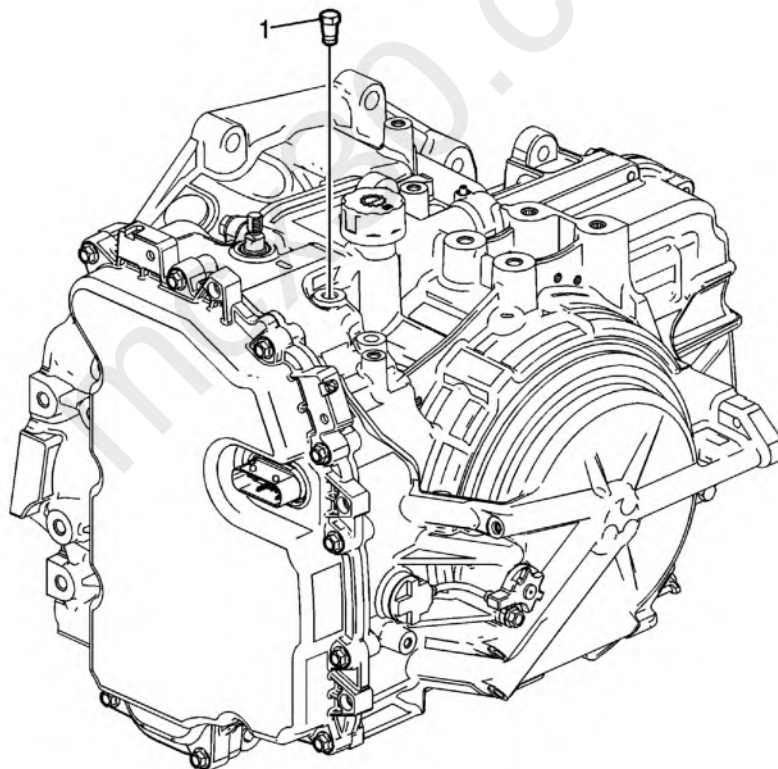


Fig. 28: Identifying Pressure Test Plug
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name

Callout	Component Name
1	Fluid Pressure Test Plug CAUTION: Refer to Component Fastener Tightening Caution . Tighten 12 N.m (106 lb in)

FRONT WHEEL DRIVE SHAFT SEAL REPLACEMENT - LEFT SIDE

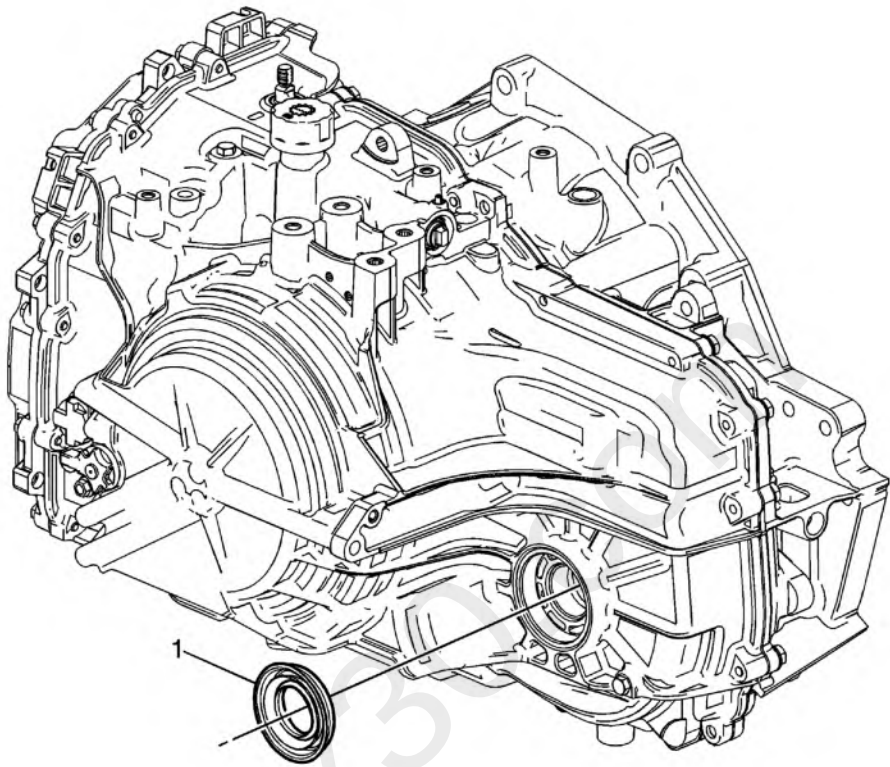


Fig. 29: Identifying Left Front Wheel Drive Shaft Seal
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Raise and support 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 .	
Empty space for additional content	

Callout	Component Name
	Left Front Wheel Drive Shaft Oil Seal
	Procedure 1. For seal removal use GE-6125-1B slide hammer with DT-23129 universal seal remover. 2. For seal installation use GE-8092 driver handle with DT-47790 seal installer.
1	Special Tools • DT-23129 Universal Seal Remover • DT-47790 Seal Installer • GE-6125-1B Slide Hammer • GE-8092 Driver Handle For equivalent regional tools, refer to Special Tools .

FRONT WHEEL DRIVE SHAFT SEAL REPLACEMENT - RIGHT SIDE (AWD)

Removal Procedure

1. Remove the transfer case. Refer to [Transfer Case Replacement](#) .

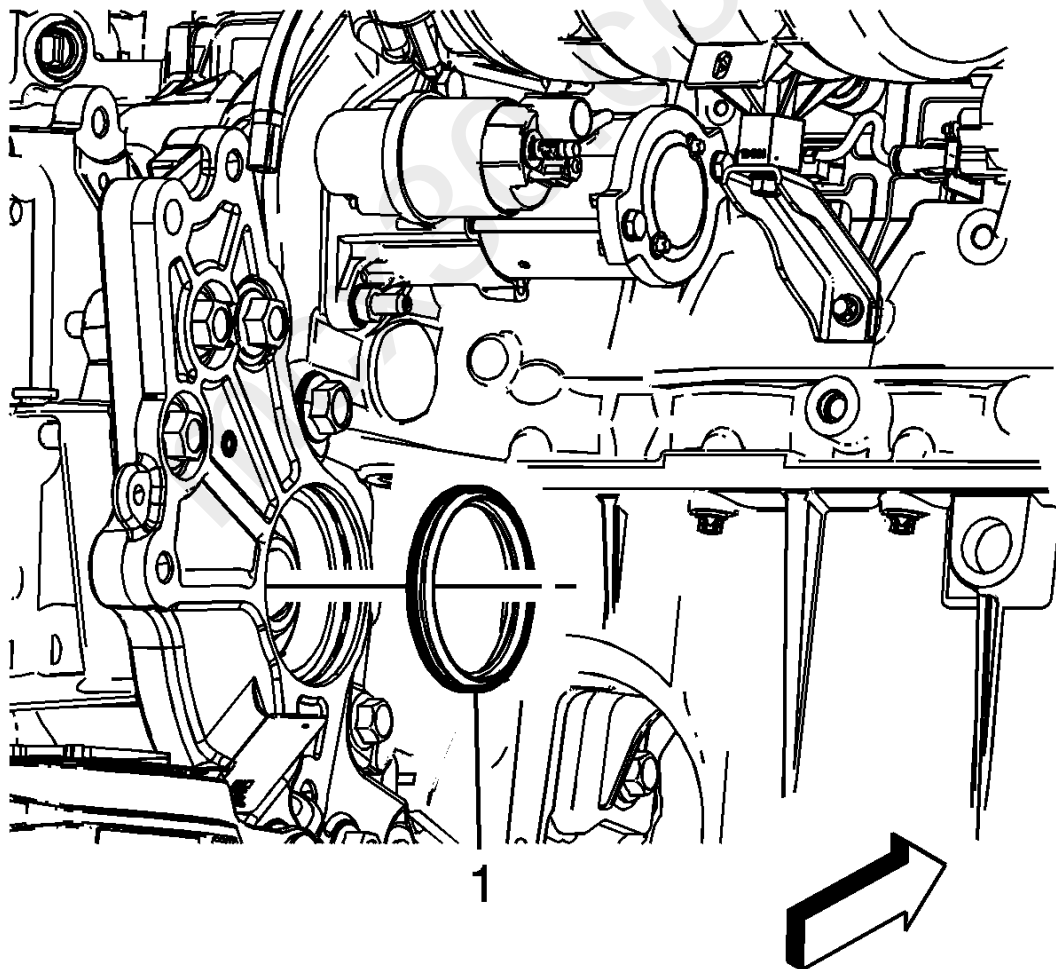


Fig. 30: Transfer Case-To-Transfer Case Bracket Seal
 Courtesy of GENERAL MOTORS COMPANY

2. Remove and discard the transfer case adapter seal (1).

Installation Procedure

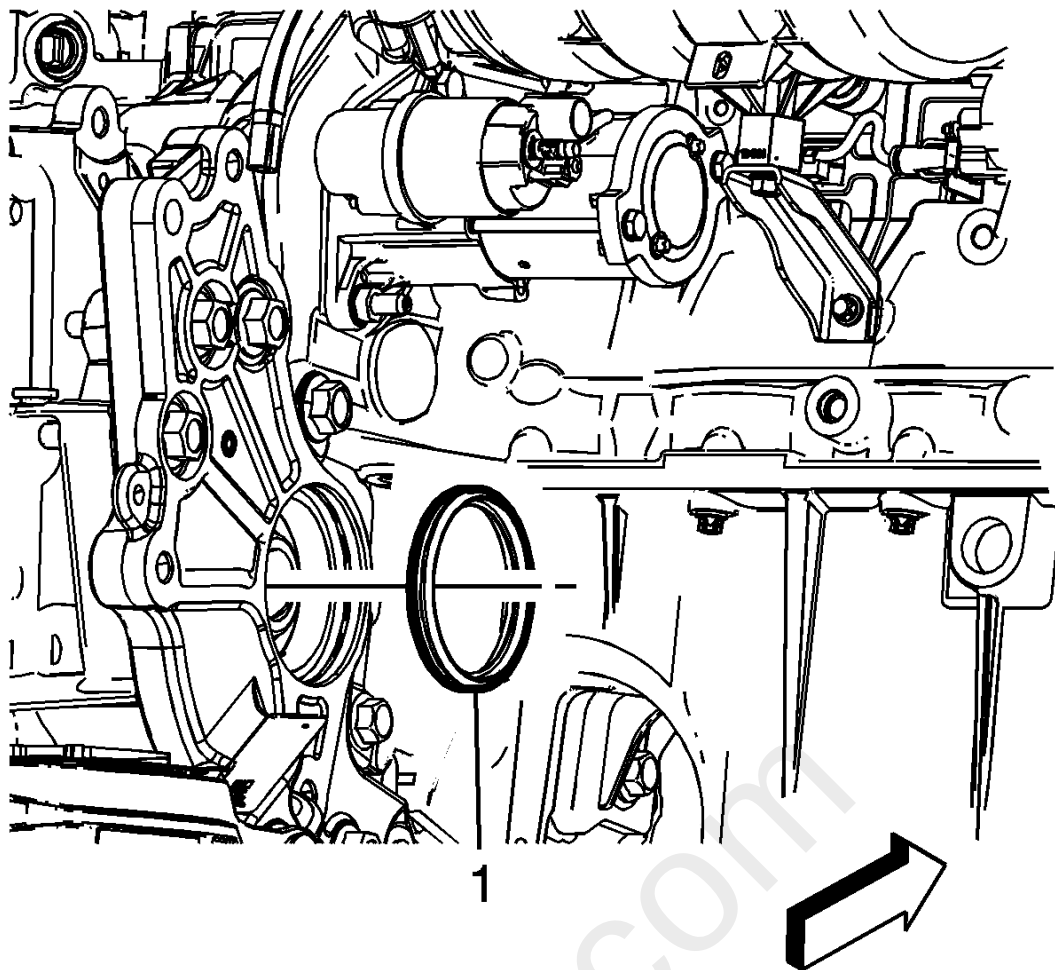


Fig.31: Transfer Case-To-Transfer Case Bracket Seal

Courtesy of GENERAL MOTORS COMPANY

1. Clean the contact surfaces of the transmission, transfer case adapter bracket, and PTU.
2. Lightly lubricate the adapter seal with transmission oil prior to installation.

NOTE: Install the OD groove of the seal onto the raised area in the adapter seal bore. A properly installed seal will be installed 2.66 mm (0.10 in) below the machined surface when measured from the PTU side of bracket.

3. Install a new transfer case adapter seal (1). Refer to [Transfer Case Assemble](#).
4. Install the transfer case. Refer to [Transfer Case Replacement](#).

FRONT WHEEL DRIVE SHAFT SEAL REPLACEMENT - RIGHT SIDE (FWD)

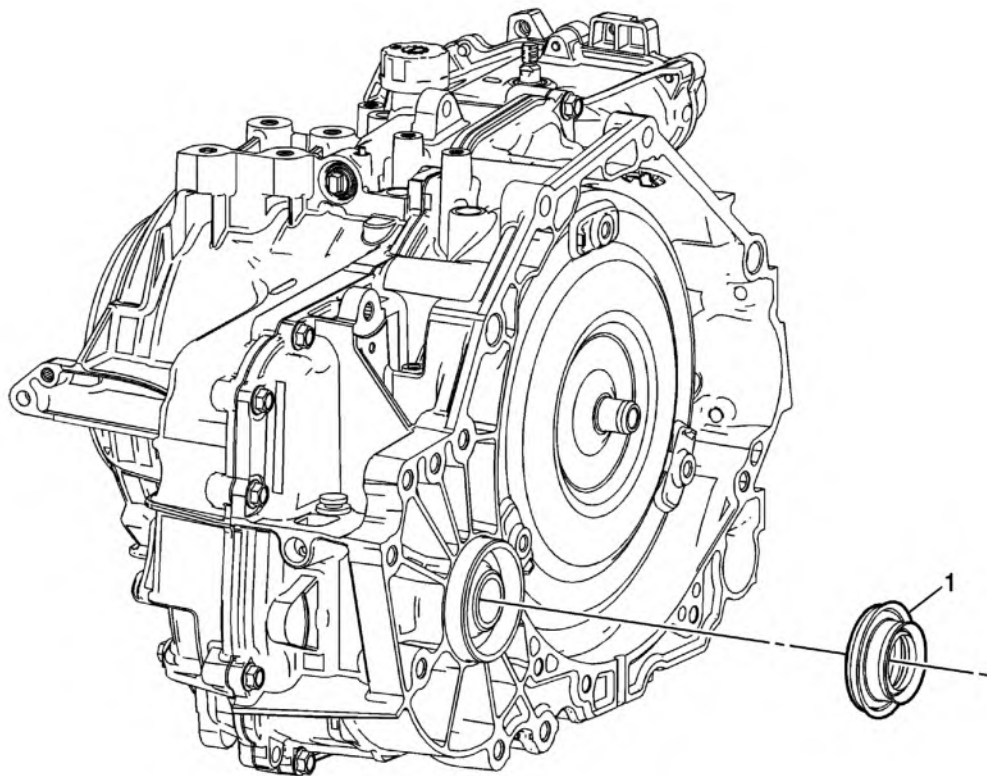


Fig. 32: Identifying Right Front Wheel Drive Shaft Seal

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle . 2. Remove the front wheel drive intermediate shaft. Refer to Front Wheel Drive Intermediate Shaft Replacement (LE2 with MNH) Front Wheel Drive Intermediate Shaft Replacement (LUV with MR5) .	
1	Right Front Wheel Drive Shaft Oil Seal Procedure 1. For seal removal use GE-6125-1B slide hammer with DT-23129 universal seal remover. 2. For seal installation use GE-8092 driver handle with DT-47790 seal installer. Special Tools • DT-23129 Universal Seal Remover • DT-47790 Seal Installer • GE-6125-1B Slide Hammer • GE-8092 Driver Handle For equivalent regional tools, refer to Special Tools .

MANUAL SHIFT SHAFT AND SEAL REPLACEMENT

Special Tools

- **DT-45201** Cooler Line Seal Remover
- **DT-49101** Seal Installer

For equivalent regional tools, refer to [Special Tools](#) .

Removal Procedure

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](#).

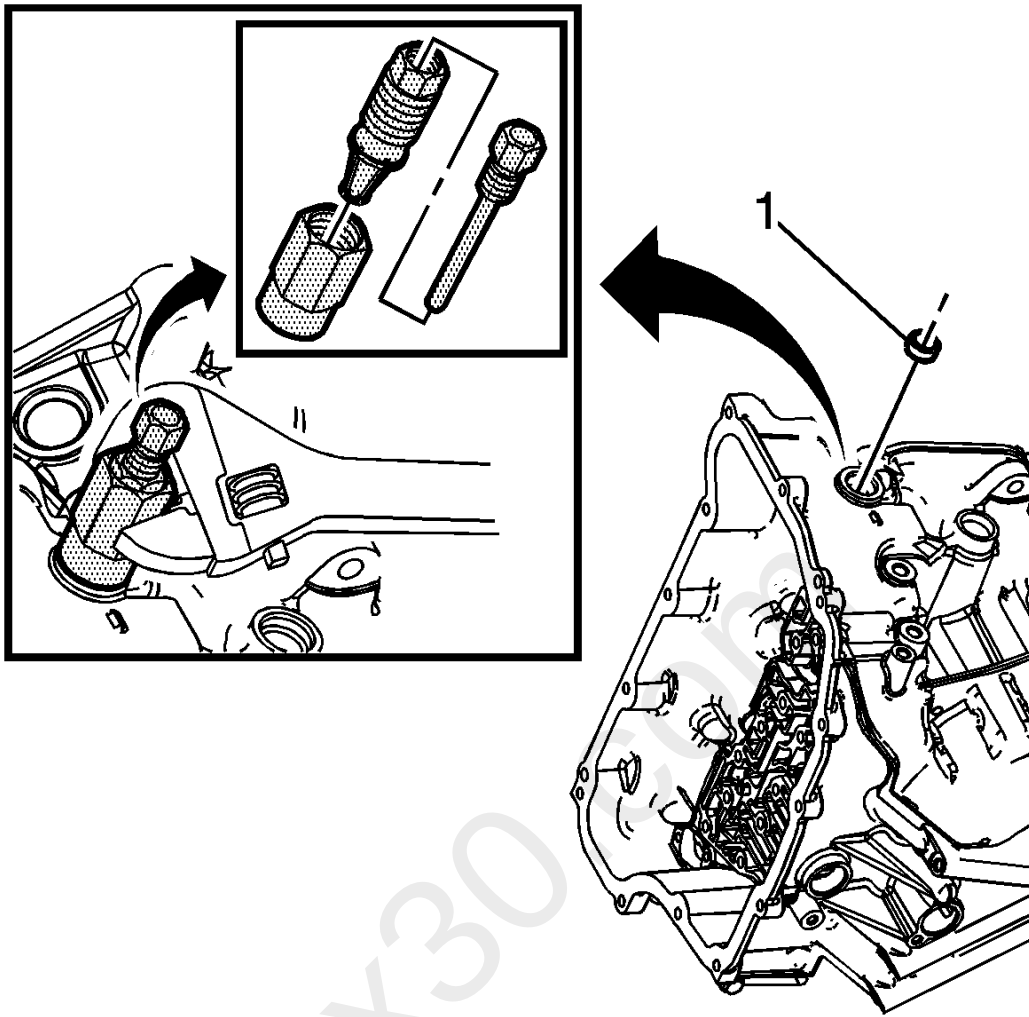


Fig. 33: Cooler Line Seal Remover

Courtesy of GENERAL MOTORS COMPANY

3. Remove the manual shaft seal (1) using **DT-45201** remover.

Installation Procedure

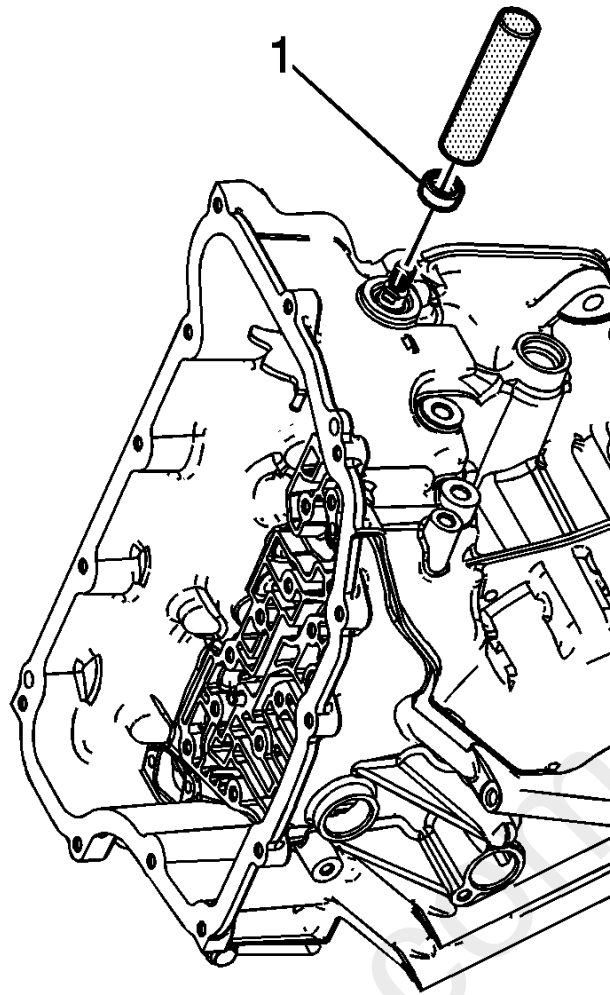


Fig. 34: Manual Shaft Seal Installation Tool

Courtesy of GENERAL MOTORS COMPANY

1. Install the manual shaft seal (1) using **DT-49101** seal installer.
2. Install the manual shaft and position switch assembly. Refer to [Manual Shift Detent Lever with Shaft Position Switch Assembly Replacement](#).
3. Install the battery tray. Refer to [Battery Tray Replacement](#) .

CONTROL SOLENOID VALVE AND TRANSMISSION CONTROL MODULE ASSEMBLY REPLACEMENT

Removal Procedure

1. Remove the transmission control valve body cover. Refer to [Control Valve Body Cover Replacement](#).

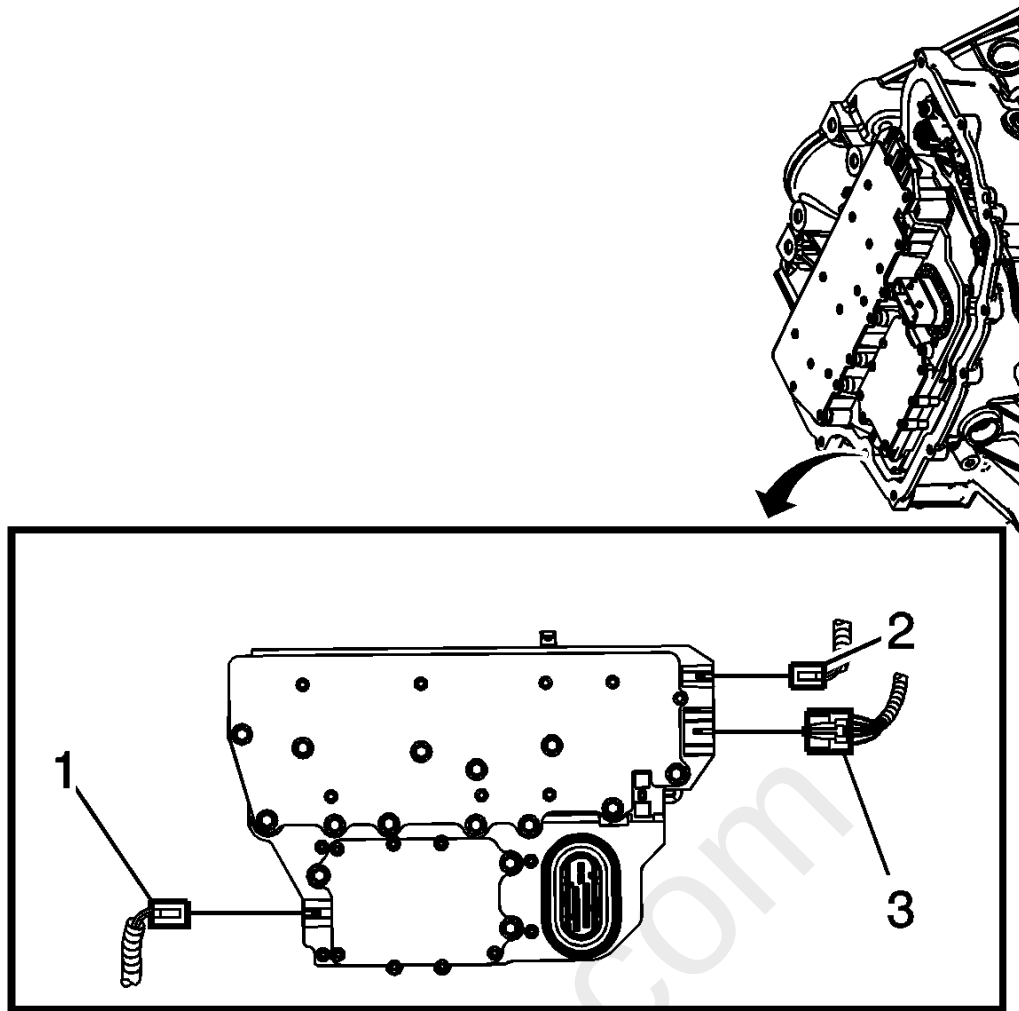


Fig.35: Identifying Speed Sensor & Shift Position Switch Electrical Connectors
Courtesy of GENERAL MOTORS COMPANY

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

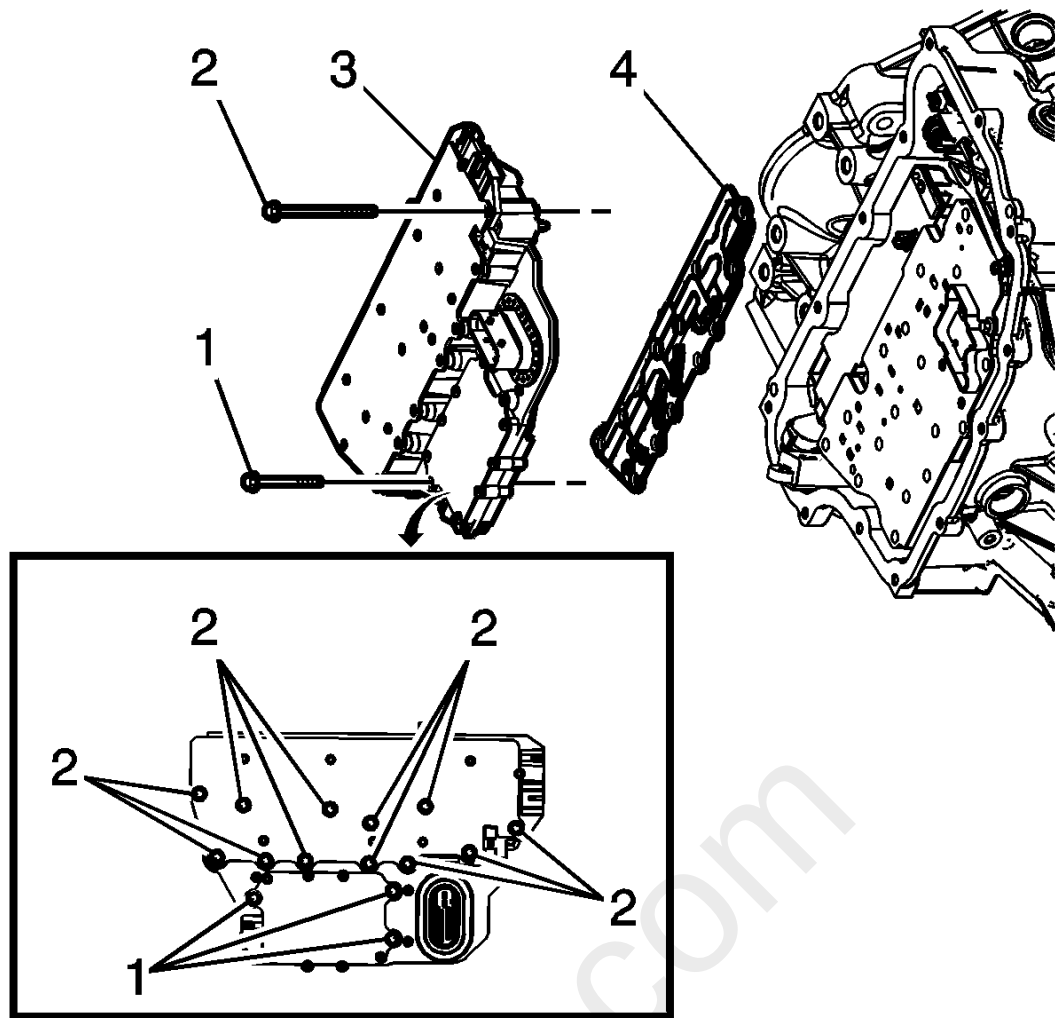


Fig. 36: Locating Control Valve Body & Bolts
 Courtesy of GENERAL MOTORS COMPANY

5. Remove the 3 control solenoid valve assembly bolts (1) M5 x 40.5.
6. Remove the 12 control solenoid valve assembly bolts (2) M6 x 97.
7. Remove the control solenoid valve assembly with transmission control module (3).

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.

8. Remove the control solenoid valve assembly filter plate (4). Discard the filter plate. It is not reusable.
9. Inspect the pressure switch seals for damage or contamination. Replace the control solenoid valve assembly as necessary.
10. Inspect the channel plate bolt pass through holes for damage or burnelling. Any damage could cause leaking. Replace as necessary.

Installation Procedure

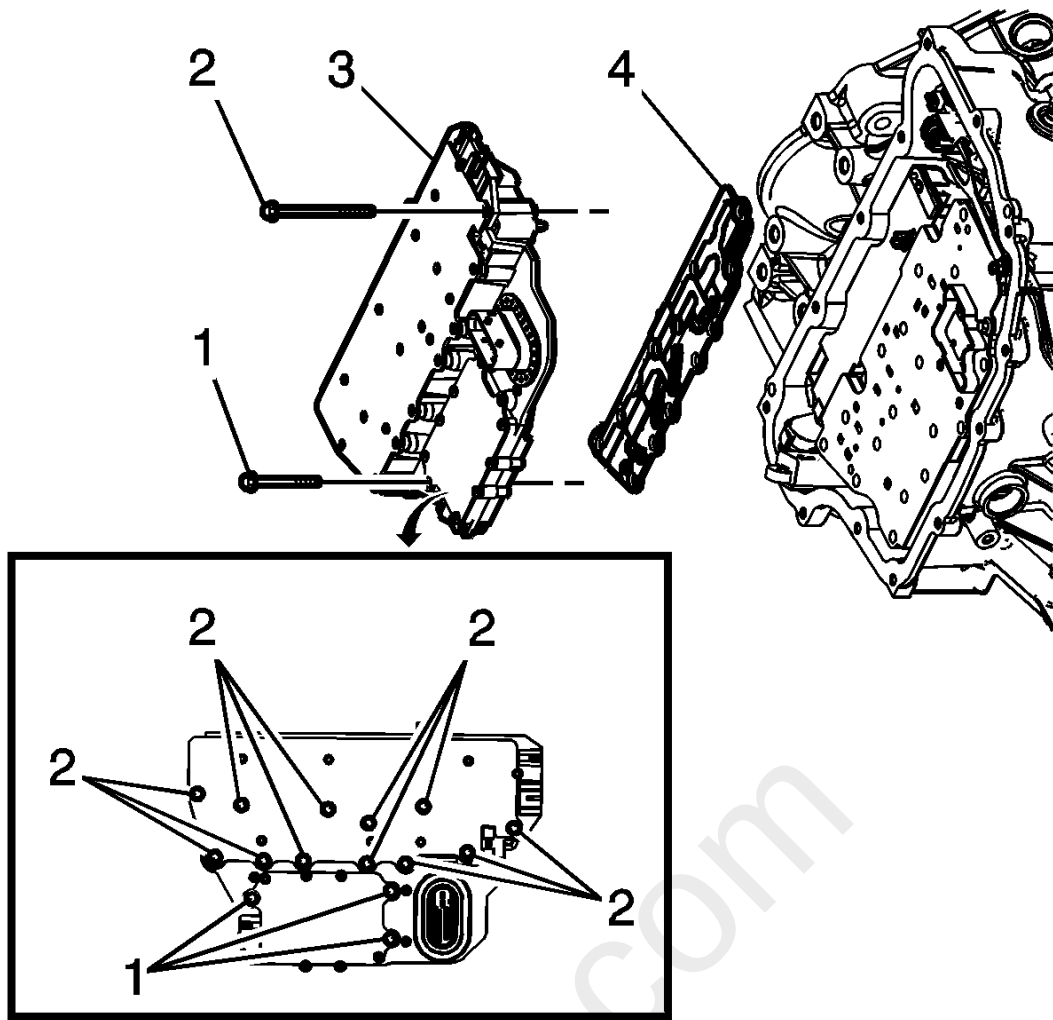


Fig.37: Locating Control Valve Body & Bolts
 Courtesy of GENERAL MOTORS COMPANY

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.

1. Install a NEW control solenoid valve assembly filter plate (4) to prevent fluid leaks past the fluid seals.
2. Install the control solenoid valve assembly with transmission control module (3).
3. Hand start the control valve body bolts (1, 2).

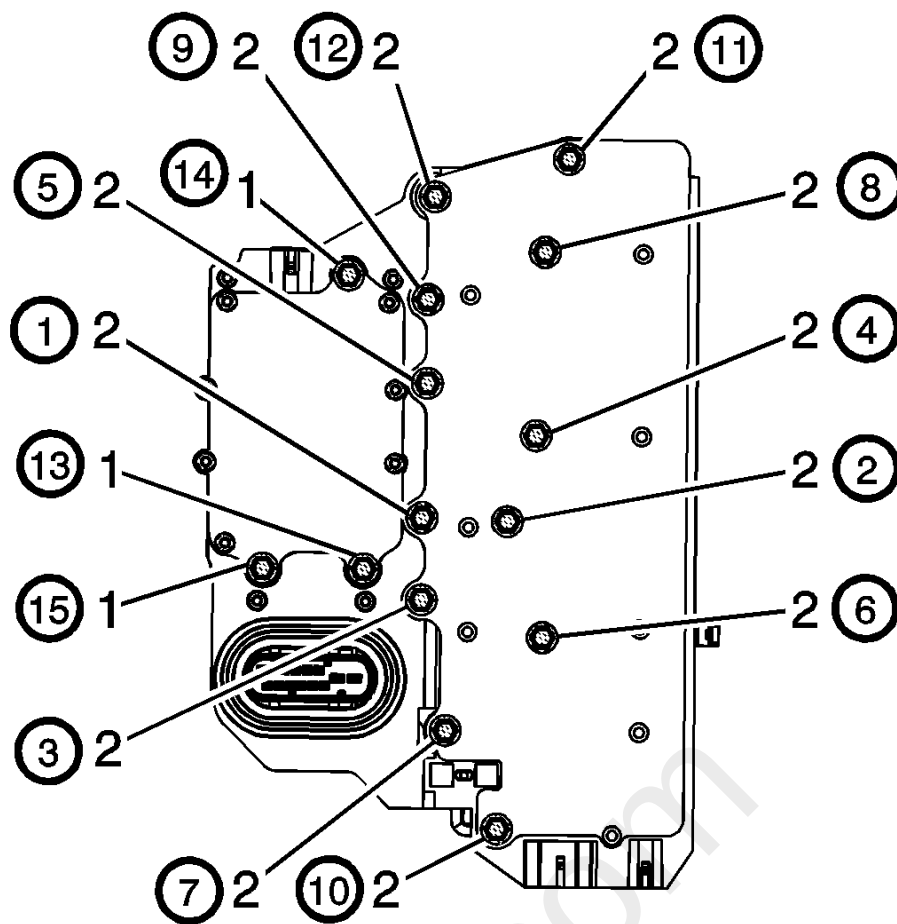


Fig. 38: Identifying Control Valve Body Bolt Tightening Sequence

Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to [Fastener Caution](#) .

4. Secure the 12 control solenoid valve assembly bolts (2) M6 x 97 and tighten in sequence to 12 N.m (106 lb in).
5. Secure the 3 control valve body bolts (1) M5 x 40.5 and tighten in sequence to 7 N.m (62 lb in).

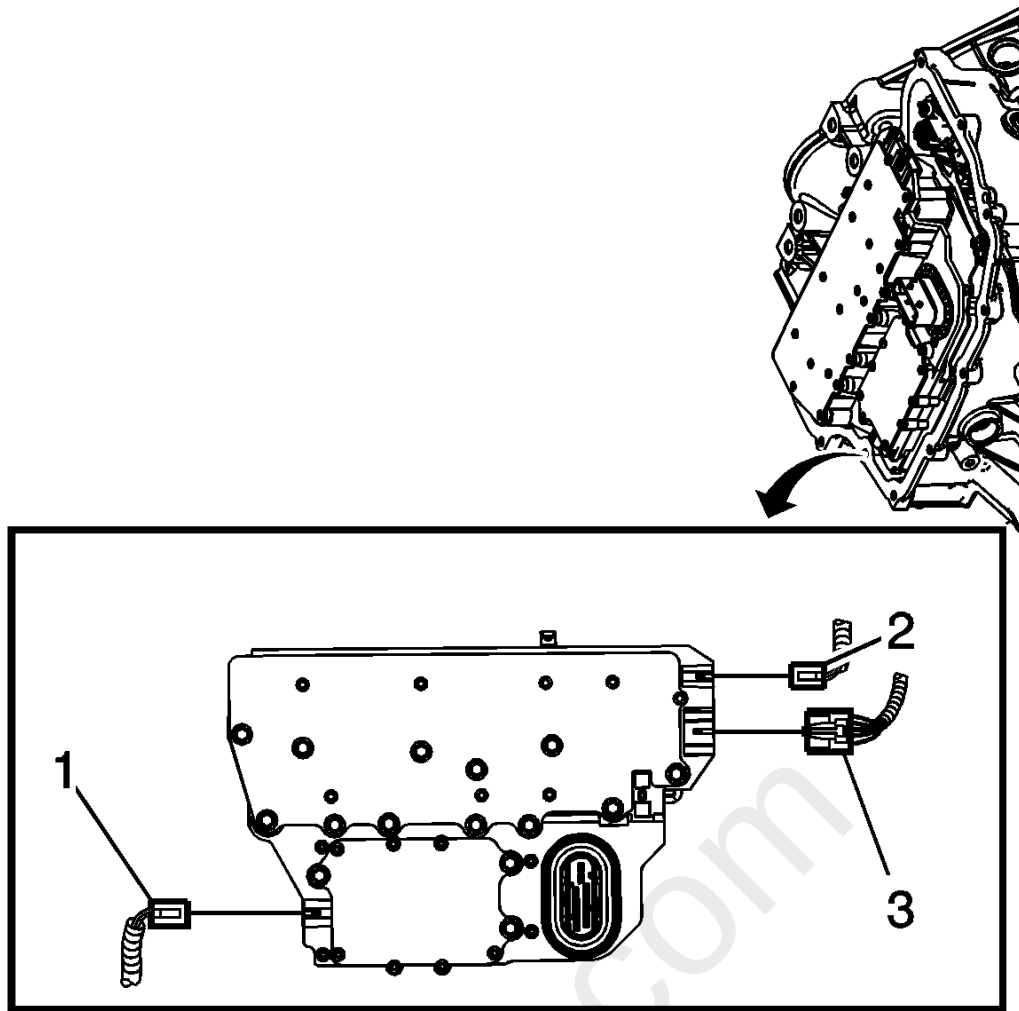


Fig. 39: Identifying Speed Sensor & Shift Position Switch Electrical Connectors
 Courtesy of GENERAL MOTORS COMPANY

6. Connect the input speed sensor electrical connector (1).
7. Connect the output speed sensor electrical connector (2).
8. Install the transmission control valve body cover. Refer to [Control Valve Body Cover Replacement](#).
9. After repairs, refer to [Control Module References](#) for programming and set up procedures.
10. Perform the transmission adaptive values learn. Refer to [Transmission Adaptive Values Learn](#).

CONTROL VALVE BODY COVER REPLACEMENT

Removal Procedure

1. Disconnect the battery negative cable. Refer to [Battery Negative Cable Disconnection and Connection \(without KL9\)](#), [Battery Negative Cable Disconnection and Connection \(with KL9\)](#).
2. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
3. Remove the underbody front air deflector. [Underbody Front Air Deflector Replacement](#).
4. Remove the left front wheel house liner. Refer to [Front Wheelhouse Liner Replacement \(Chevrolet\)](#), [Front Wheelhouse Liner Replacement \(Buick\)](#).
5. Drain the transmission fluid.
6. Disconnect the transmission fluid cooler inlet pipe from the transmission. Refer to [Transmission Fluid Cooler Inlet Pipe Replacement \(2HO\)](#).
7. Disconnect the transmission fluid cooler outlet pipe from the transmission Refer to [Transmission Fluid Cooler Outlet Pipe Replacement \(2HO\)](#).

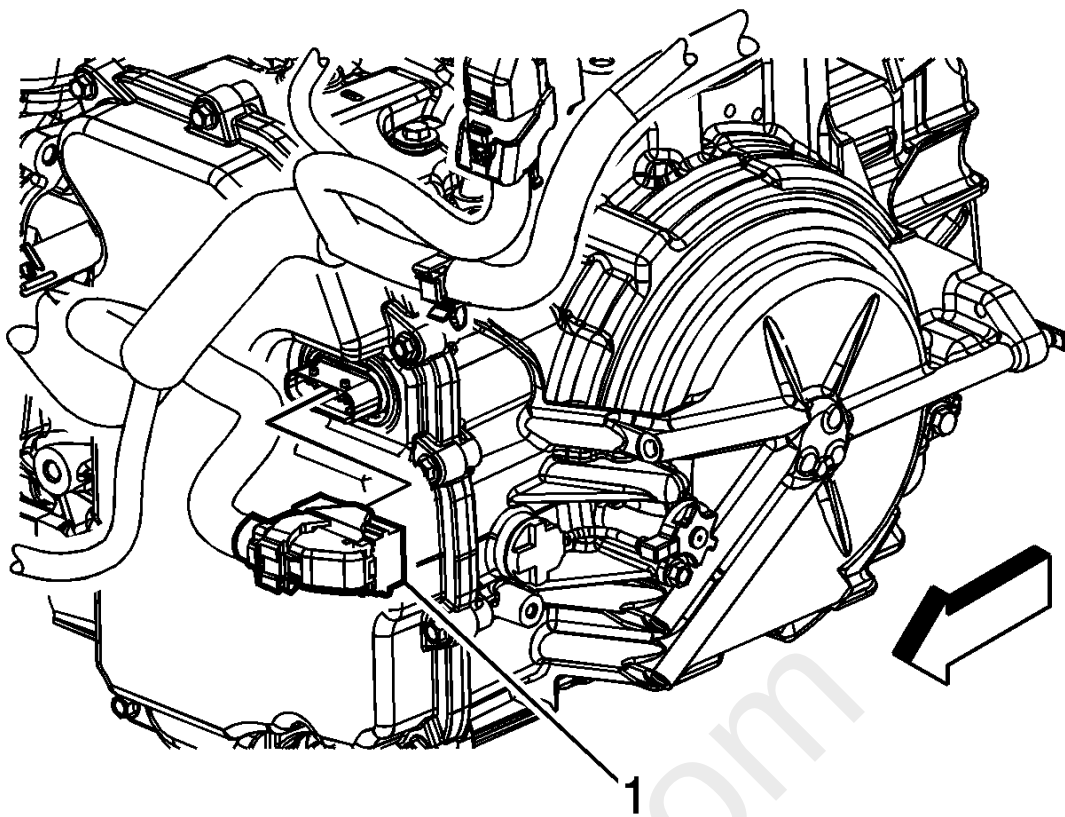


Fig. 40: Identifying Control Valve Body Transmission Control Module (TCM) Electrical Connector

Courtesy of GENERAL MOTORS COMPANY

8. Disconnect the control valve body transmission control module electrical connector (1), then unclip the wiring harness from the cover.

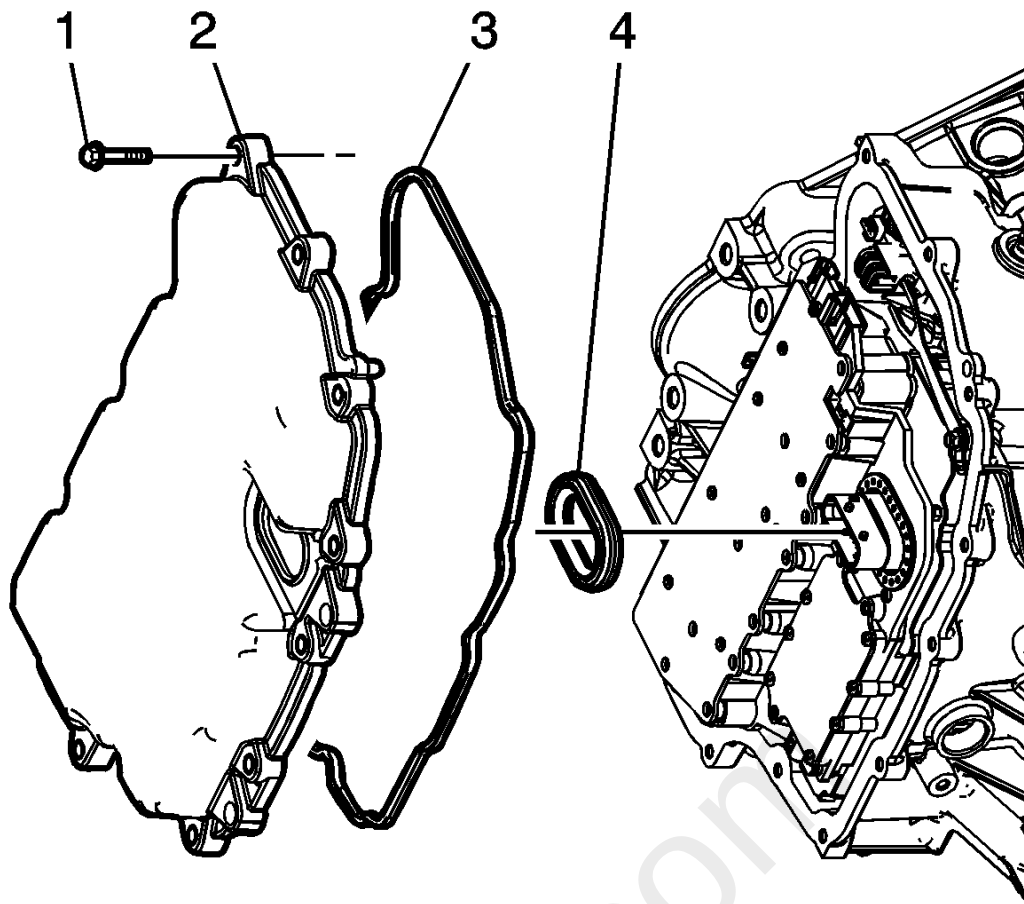


Fig. 41: View Of Control Valve Body

Courtesy of GENERAL MOTORS COMPANY

9. Remove the control valve body cover bolts (1).
10. Remove the control valve body cover (2).
11. Remove the control valve body cover gasket (3).

CAUTION: Support the control solenoid valve assembly around the connector when removing the seal. Excessive pulling force can damage the internal electrical connections.

12. Remove the control valve body cover wiring connector hole seal (4).
13. Remove all traces of the old gasket material. Clean the transmission case and control valve body cover gasket surfaces.

Installation Procedure

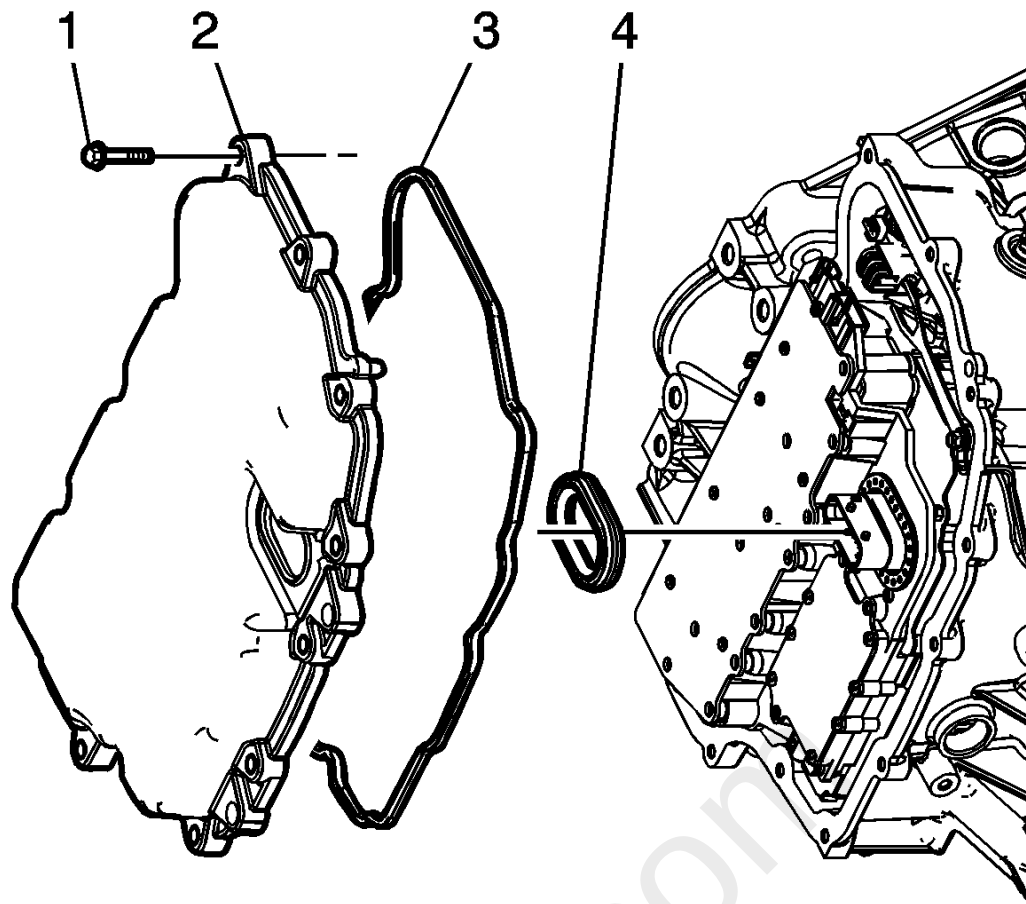


Fig. 42: View Of Control Valve Body

Courtesy of GENERAL MOTORS COMPANY

1. Install the control valve body cover wiring connector hole seal (4).
2. Install the control valve body cover gasket (3) to the control valve body cover.
3. Install the control valve body cover (2).
4. Hand start the control valve body cover bolts (1).

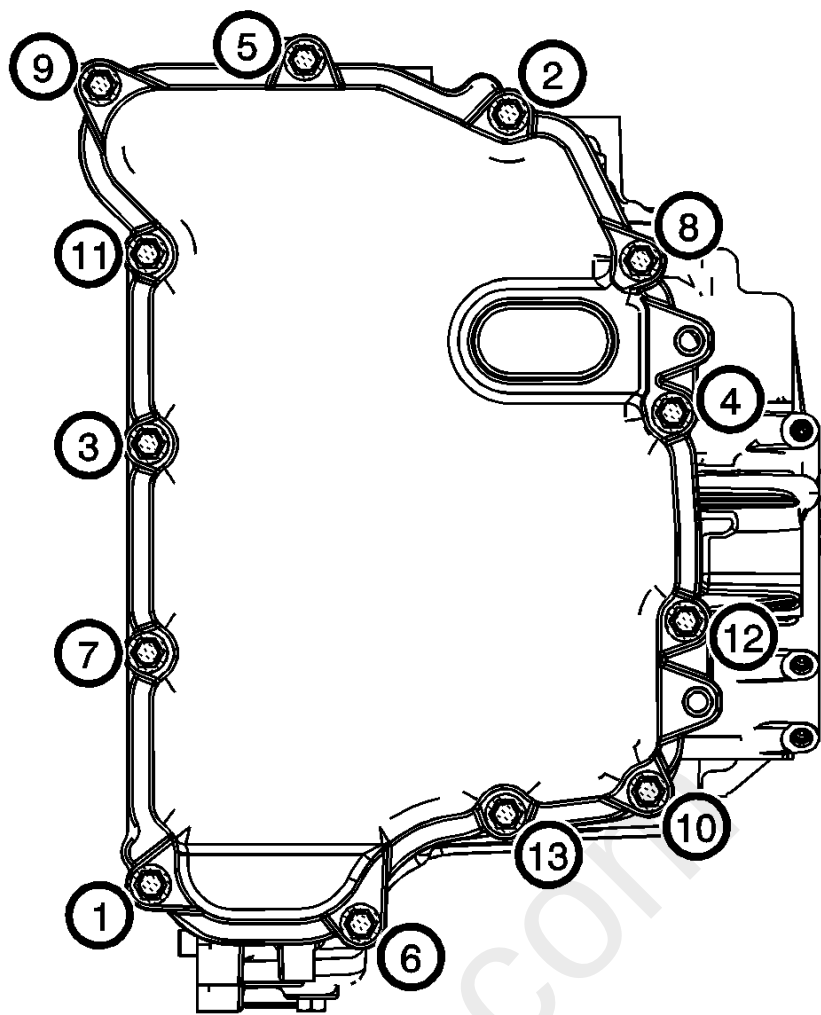


Fig. 43: Identifying Valve Body Cover Bolt Tightening Sequence

Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to [Fastener Caution](#) .

NOTE: Install all control valve body cover bolts and studs by hand then torque all bolts and studs in sequence.

5. Install the control valve body cover bolts. Tighten the bolts in sequence to 12 N.m (106 lb in).

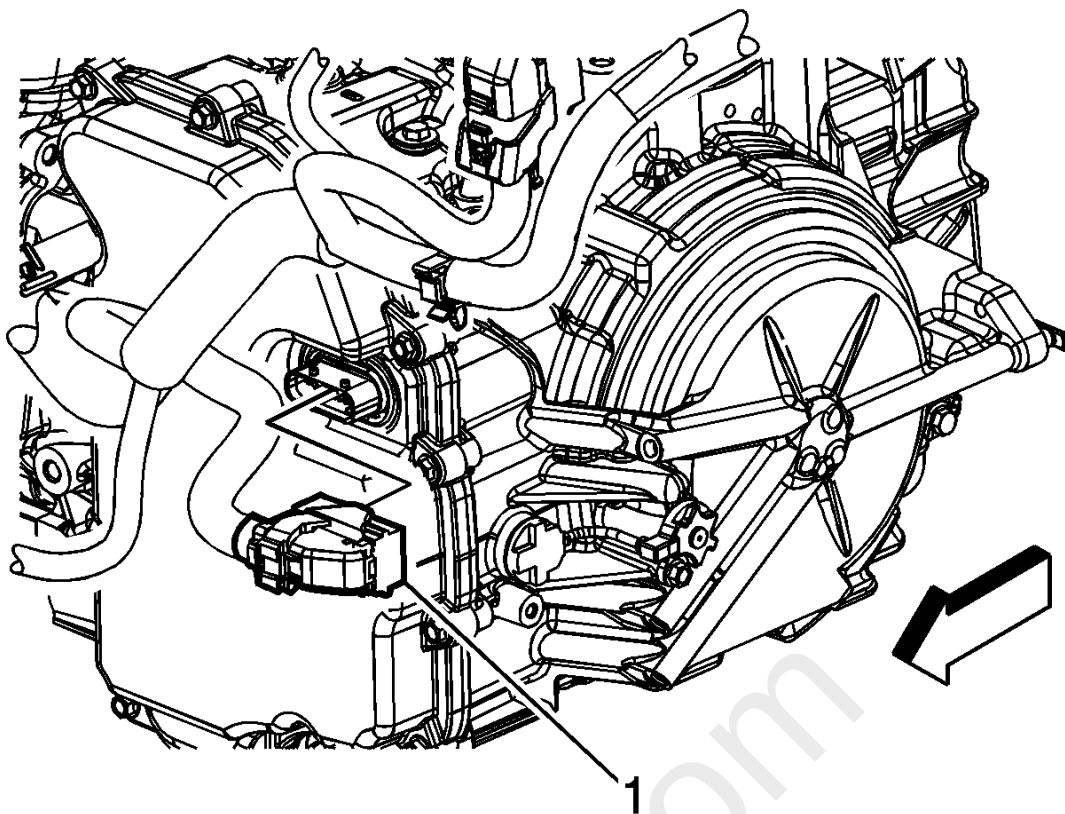


Fig. 44: Identifying Control Valve Body Transmission Control Module (TCM) Electrical Connector

Courtesy of GENERAL MOTORS COMPANY

6. Connect the control valve body transmission control module electrical connector (1), then clip the wiring harness to the cover.
7. Raise the vehicle.
8. Connect the transmission fluid cooler outlet pipe to the transmission Refer to [Transmission Fluid Cooler Outlet Pipe Replacement \(2HO\)](#) .
9. Connect the transmission fluid cooler inlet pipe to the transmission. Refer to [Transmission Fluid Cooler Inlet Pipe Replacement \(2HO\)](#) .
10. Install the left front wheel house liner. Refer to [Front Wheelhouse Liner Replacement \(Chevrolet\)](#) [Front Wheelhouse Liner Replacement \(Buick\)](#) .
11. Install the front bumper fascia opening lower cover. Refer to [Underbody Front Air Deflector Replacement](#) .
12. Fill the transmission with correct fluid.
13. Check transmission fluid level. Refer to [Transmission Fluid Level and Condition Check](#) .
14. Lower the vehicle.
15. Connect the battery negative cable. Refer to [Battery Negative Cable Disconnection and Connection \(without KL9\)](#) [Battery Negative Cable Disconnection and Connection \(with KL9\)](#) .
16. Check for leaks.

CONTROL VALVE BODY REPLACEMENT

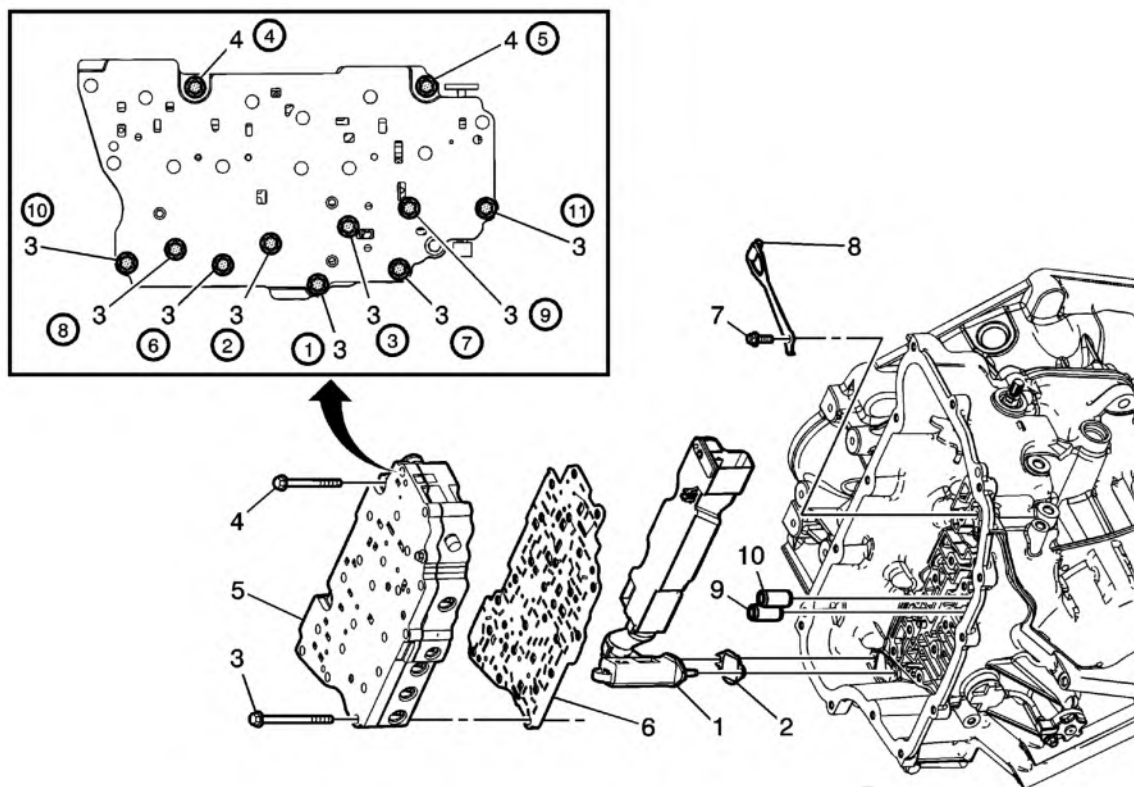


Fig. 45: View Of Control Valve Body

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the control solenoid valve and transmission control module assembly. Refer to Control Solenoid Valve and Transmission Control Module Assembly Replacement. 2. Disconnect the output speed sensor harness at retainer on fluid control valve.	
1	Fluid Level Control Valve
2	Fluid Level Control Valve Gasket Procedure DISCARD the Gasket. Use a NEW gasket ONLY.
3	Control Valve Body Bolt M6 x 60 (Qty: 9) CAUTION: Refer to Fastener Caution . NOTE: Tighten in specified sequence. Tighten 11 N.m (97 lb in)
4	Control Valve Body Bolt M6 x 53 (Qty: 2) NOTE: Tighten in specified sequence. Tighten 11 N.m (97 lb in)

Callout	Component Name
5	Control Valve Body Assembly Procedure 1. After repairs, refer to Control Module References for programming and set up procedures. 2. Perform the transmission adaptive values learn. Refer to Transmission Adaptive Values Learn .
6	Control Valve Body Spacer Plate Assembly
7	Manual Shaft Detent Spring Bolt M6 x 16 (Qty: 1) Tighten 12 N.m (106 lb in)
8	Manual Shaft Detent Lever Spring Assembly
9	1-2-3-4 Clutch Fluid Passage Seal NOTE: Discard the seal. It is not reusable.
10	Low/Reverse Clutch Fluid Passage Seal NOTE: Discard the seal. It is not reusable.

OUTPUT SPEED SENSOR REPLACEMENT

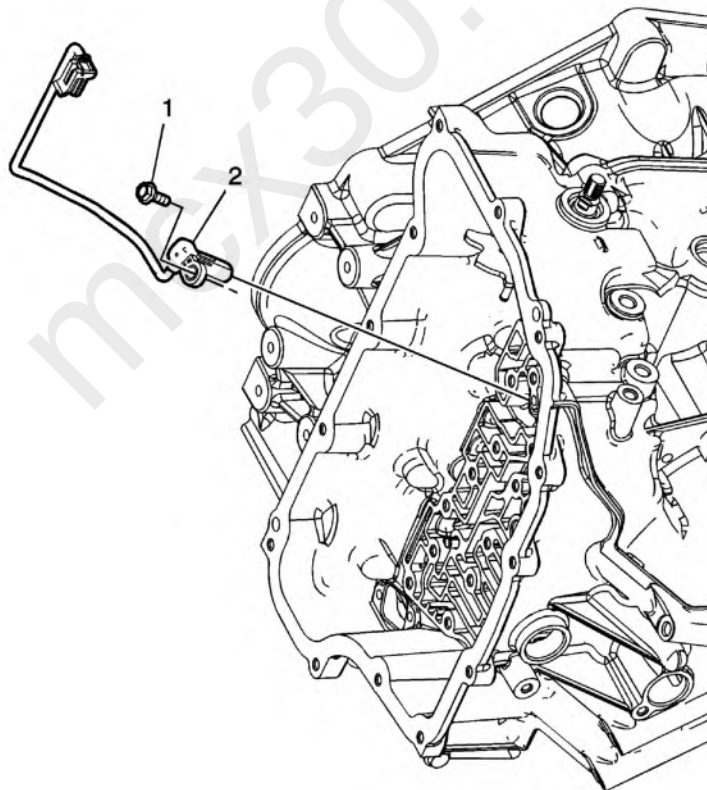


Fig. 46: Identifying Output Speed Sensor
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the control valve body. Refer to Control Valve Body Replacement .	

Callout	Component Name
1	Output Speed Sensor Bolt M6 x 18 CAUTION: Refer to Fastener Caution . Tighten 9 N.m (80 lb in)
2	Output Speed Sensor Procedure Perform the transmission adaptive values learn procedure. Refer to Transmission Adaptive Values Learn .

INPUT SPEED SENSOR REPLACEMENT

Removal Procedure

1. Remove the control valve body. Refer to [Control Valve Body Replacement](#).

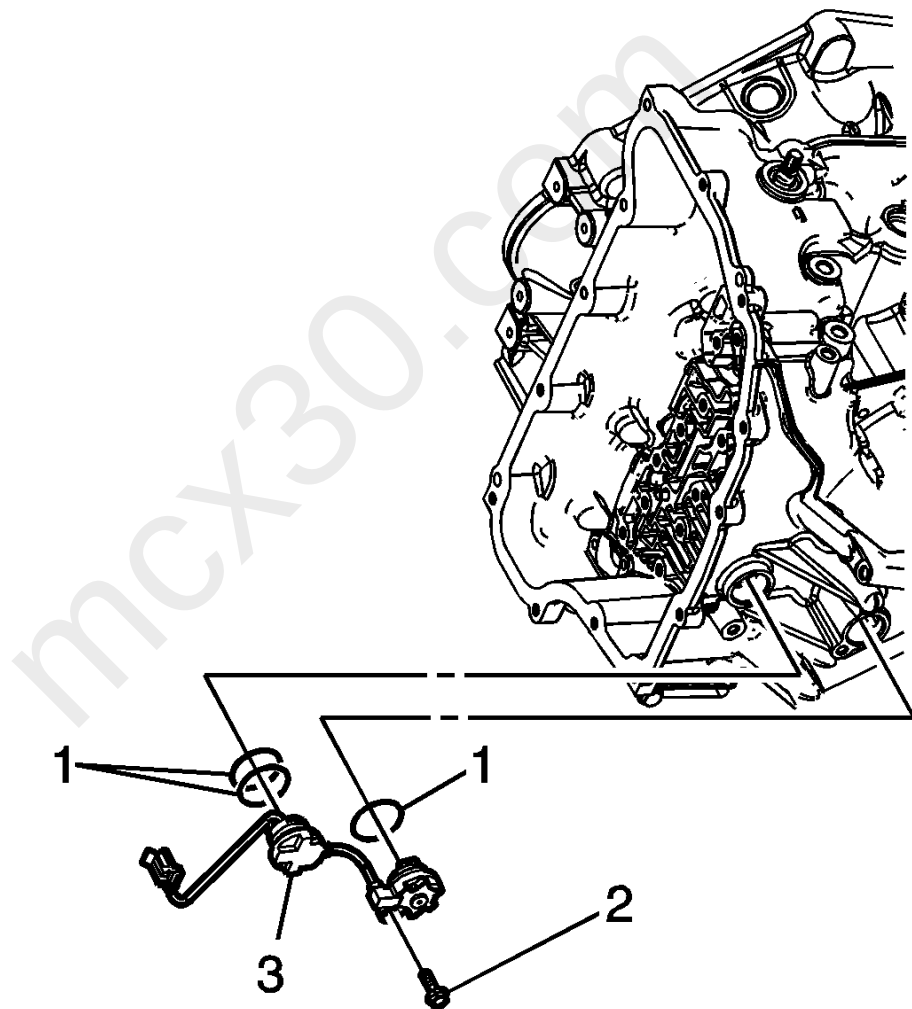


Fig. 47: Identifying Input Speed Sensor Mounting Bolt
Courtesy of GENERAL MOTORS COMPANY

2. Remove the input speed sensor bolt (2) M6 x 23.
3. Unlock the 2 retaining tabs inside the transmission housing.
4. Remove the input speed sensor (3).
5. Remove the 3 input speed sensor seals (1).

Installation Procedure

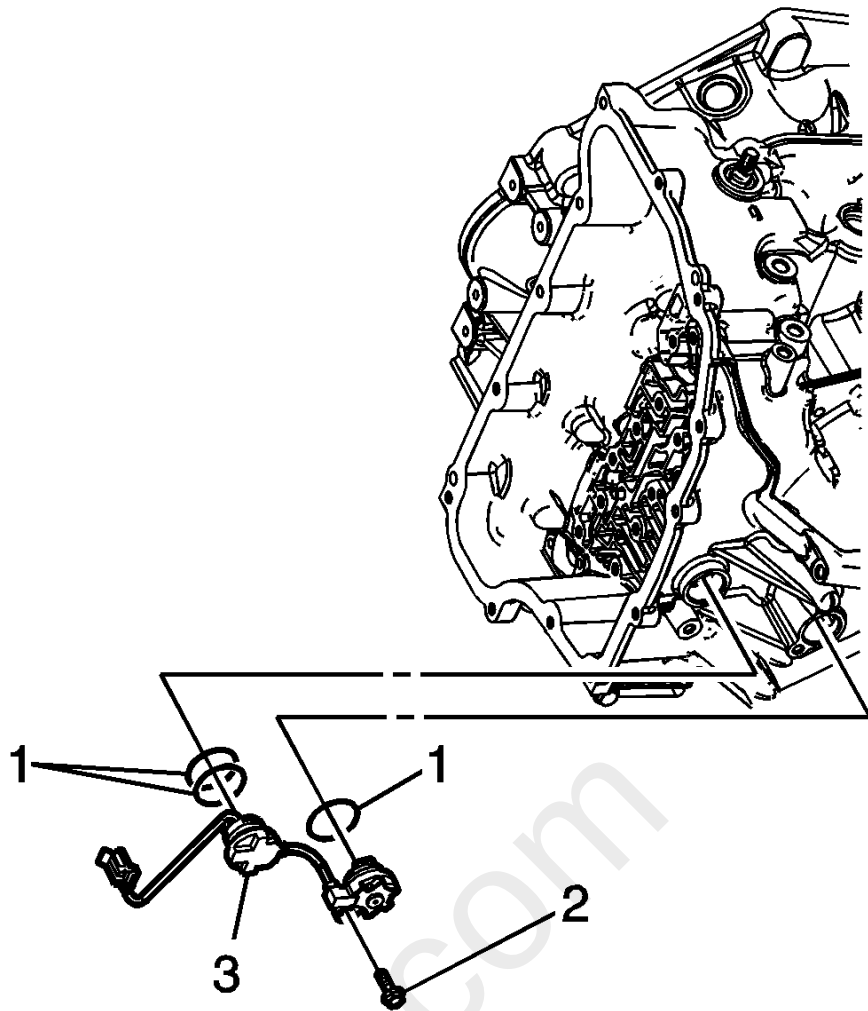


Fig. 48: Identifying Input Speed Sensor Mounting Bolt
 Courtesy of GENERAL MOTORS COMPANY

1. Install the 3 input speed sensor seals (1).
2. Install the input speed sensor (3).
3. Verify that the retaining tabs are locked completely.

CAUTION: Refer to [Fastener Caution](#) .

4. Install the input speed sensor bolt (2) M6 x 23 and tighten to 9 N.m (80 lb in).
5. Install the control valve body. Refer to [Control Valve Body Replacement](#).
6. Perform the transmission adaptive values learn procedure. Refer to [Transmission Adaptive Values Learn](#) .

TRANSMISSION MOUNT BRACKET REPLACEMENT - REAR (ALL WHEEL DRIVE)

Removal Procedure

1. Remove the transfer case. Refer to [Transfer Case Replacement](#) .

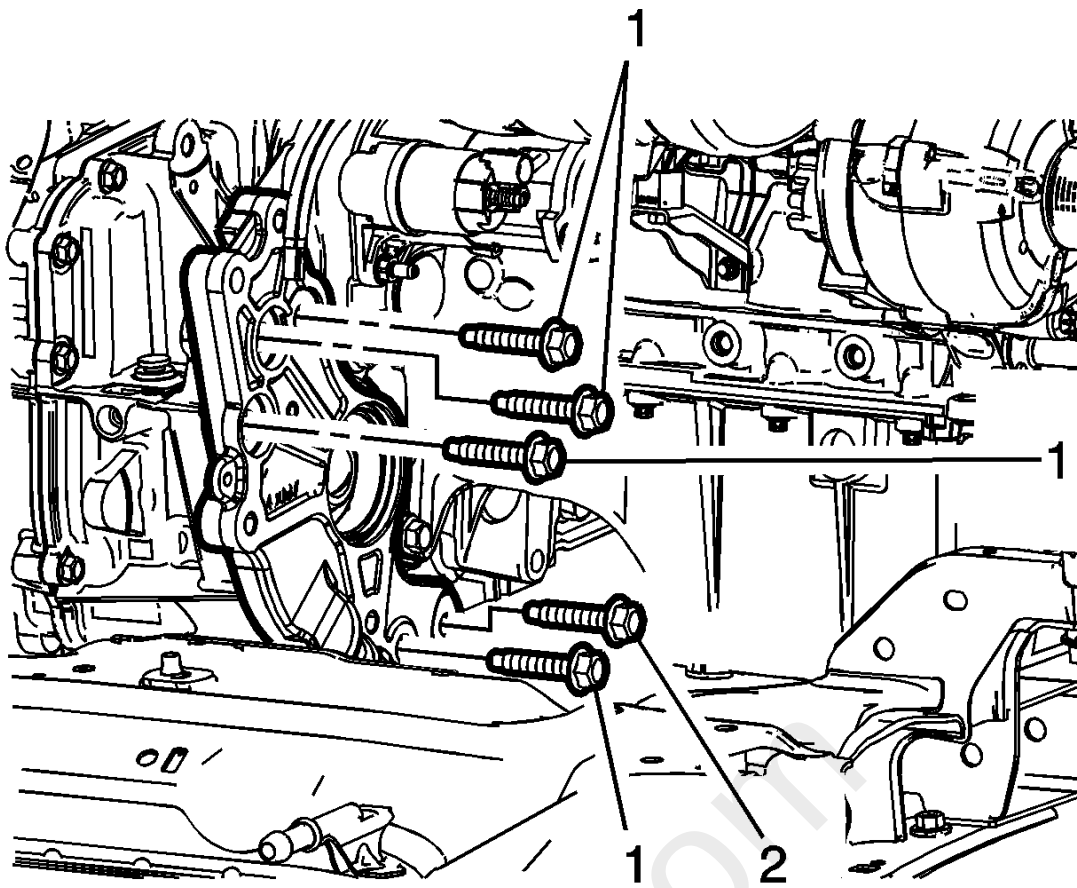


Fig. 49: Transmission Bracket Fasteners

Courtesy of GENERAL MOTORS COMPANY

2. Remove and DISCARD the five transmission bracket fasteners (1, 2).

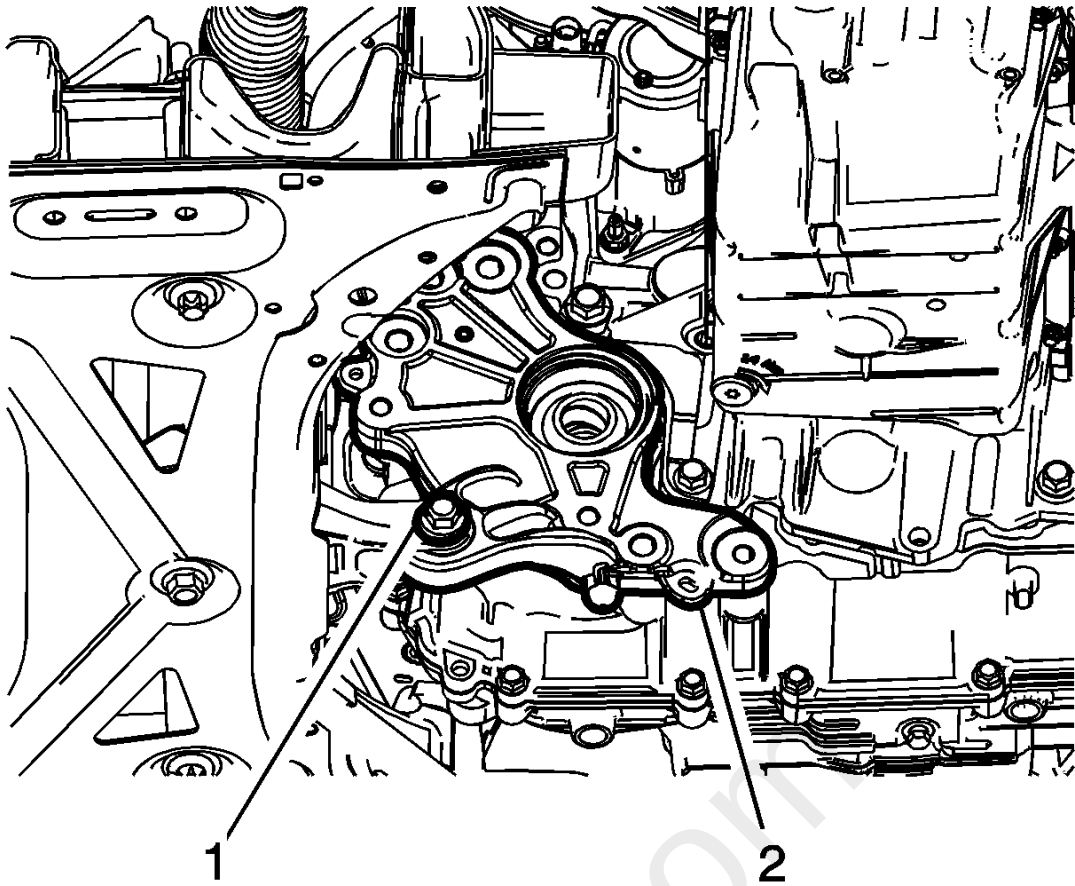


Fig. 50: Transmission Bracket And Through Bolt
Courtesy of GENERAL MOTORS COMPANY

3. Remove and DISCARD the rear transmission mount through bolt (1).
4. Remove the transmission bracket (2) from the transmission.

Installation Procedure

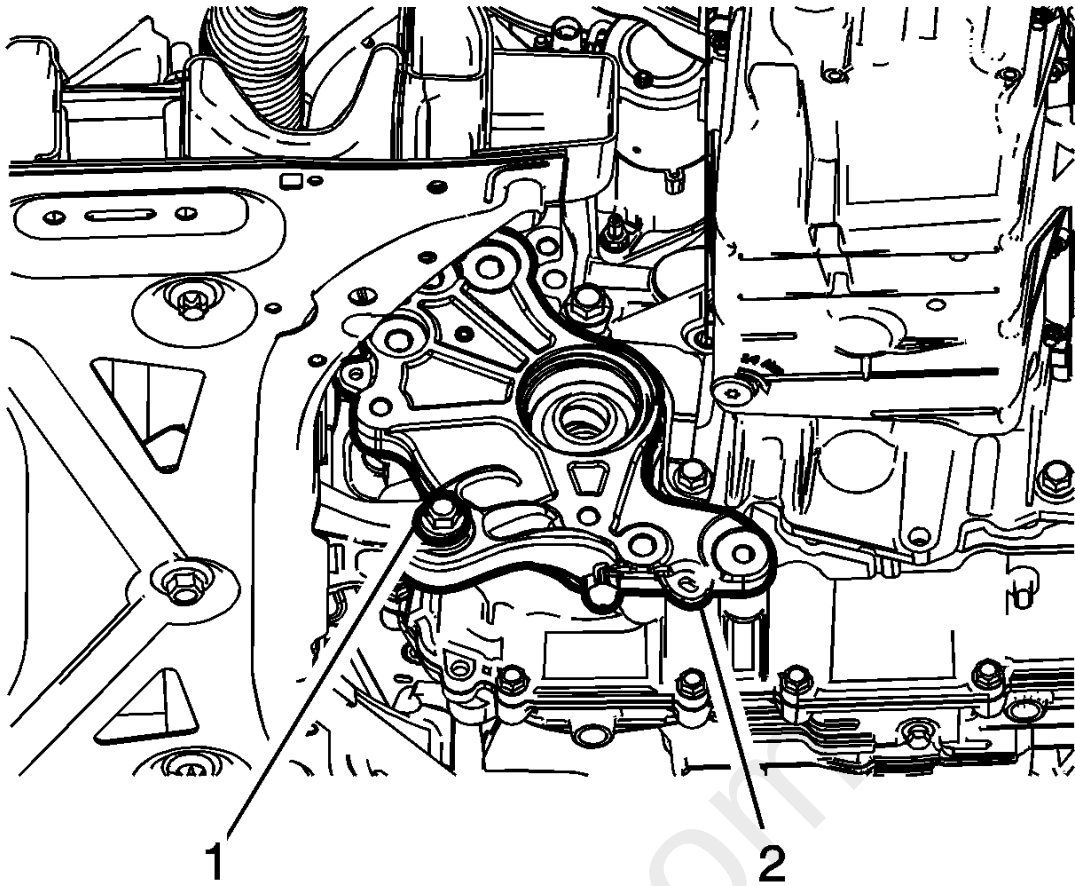


Fig. 51: Transmission Bracket And Through Bolt

Courtesy of GENERAL MOTORS COMPANY

1. Install the transmission bracket (2) to the transmission.
2. Install the NEW rear transmission through bolt (1). Do not tighten at this time.

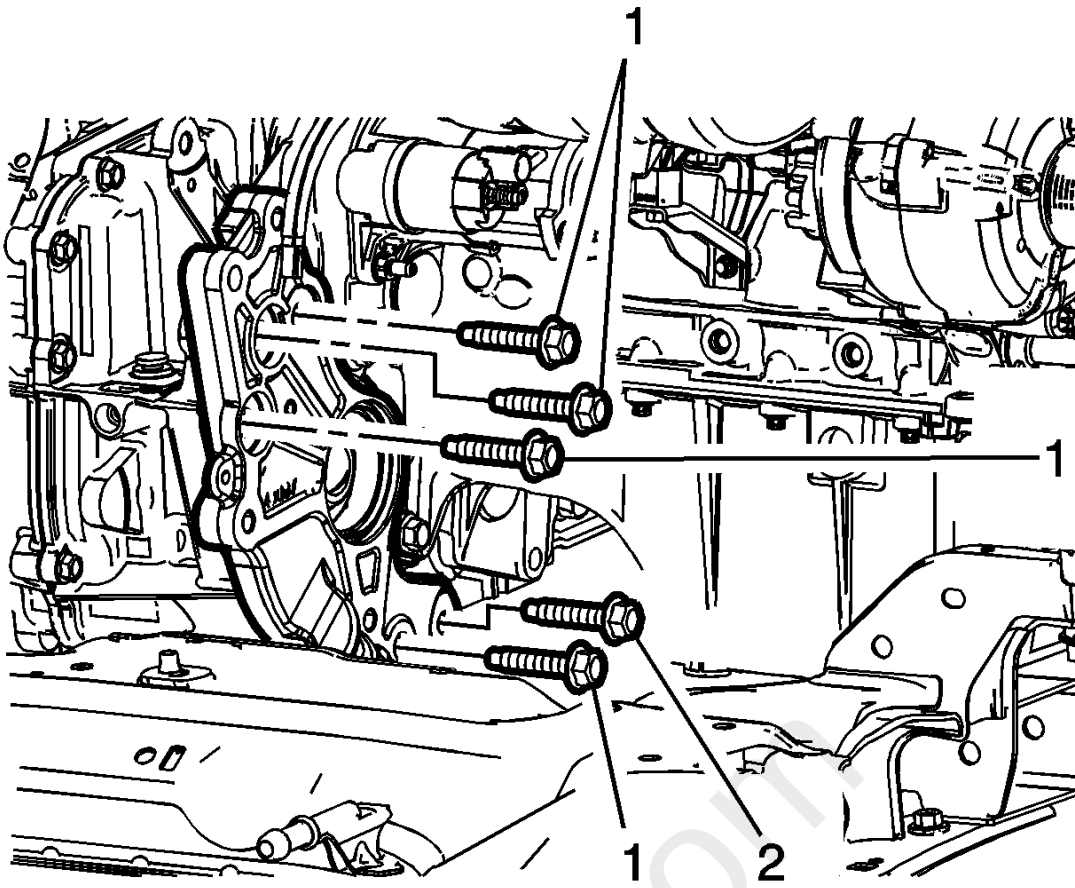


Fig. 52: Transmission Bracket Fasteners
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to [Fastener Caution](#) .

3. Install the NEW transmission bracket to transmission fasteners (1) and tighten to 100 N.m (74 lb ft) plus 30-40 degrees.
4. Install the NEW transmission bracket to transmission fastener (2) and tighten to 60 N.m (44 lb ft) plus 60-75 degrees.

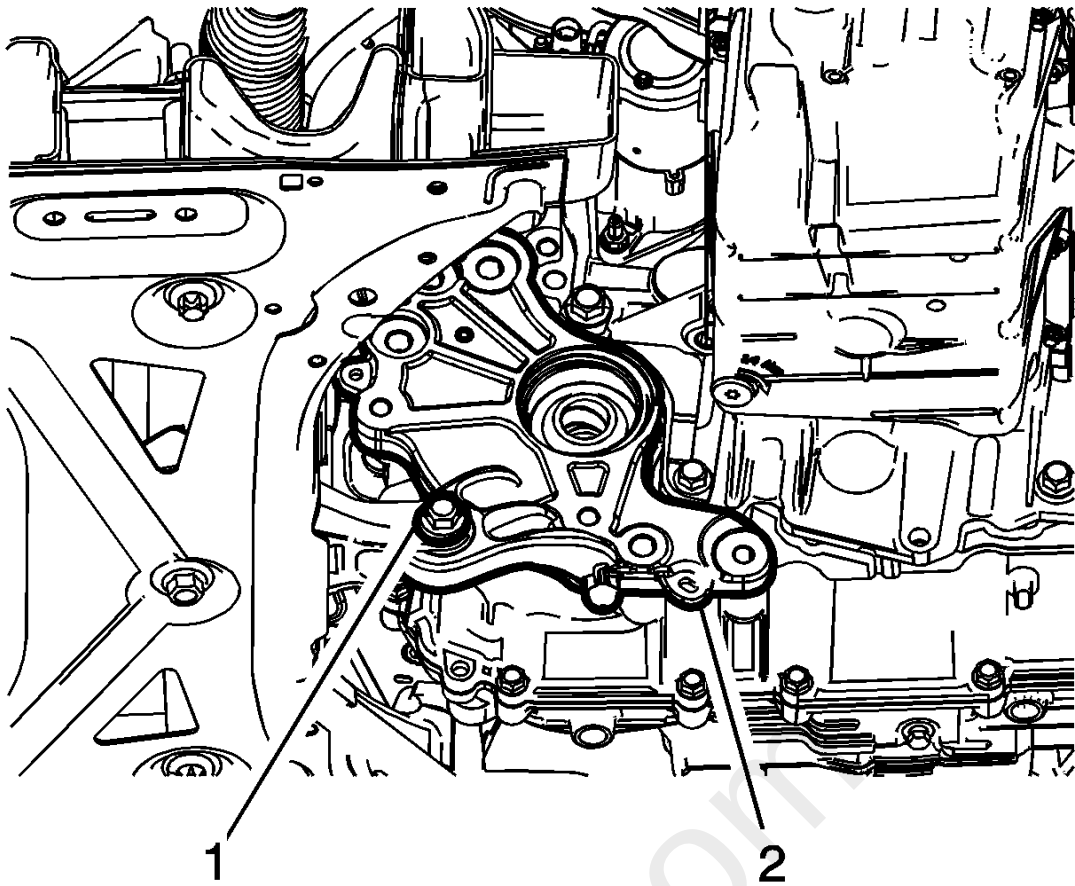


Fig. 53: Transmission Bracket And Through Bolt
Courtesy of GENERAL MOTORS COMPANY

5. Install the NEW rear transmission mount through bolt (1) and tighten to 80 N.m (59 lb ft) plus 45-60 degrees.
6. Install the transfer case. Refer to [Transfer Case Replacement](#) .

TRANSMISSION MOUNT BRACKET REPLACEMENT - REAR (FRONT WHEEL DRIVE)

Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#) .
2. Remove the exhaust front pipe. Refer to [Exhaust Front Pipe Replacement \(LUV\)](#), [Exhaust Front Pipe Replacement \(2H0\)](#), [Exhaust Front Pipe Replacement \(LE2\)](#) .
3. Using a suitable jack stand, support the rear of the transmission.

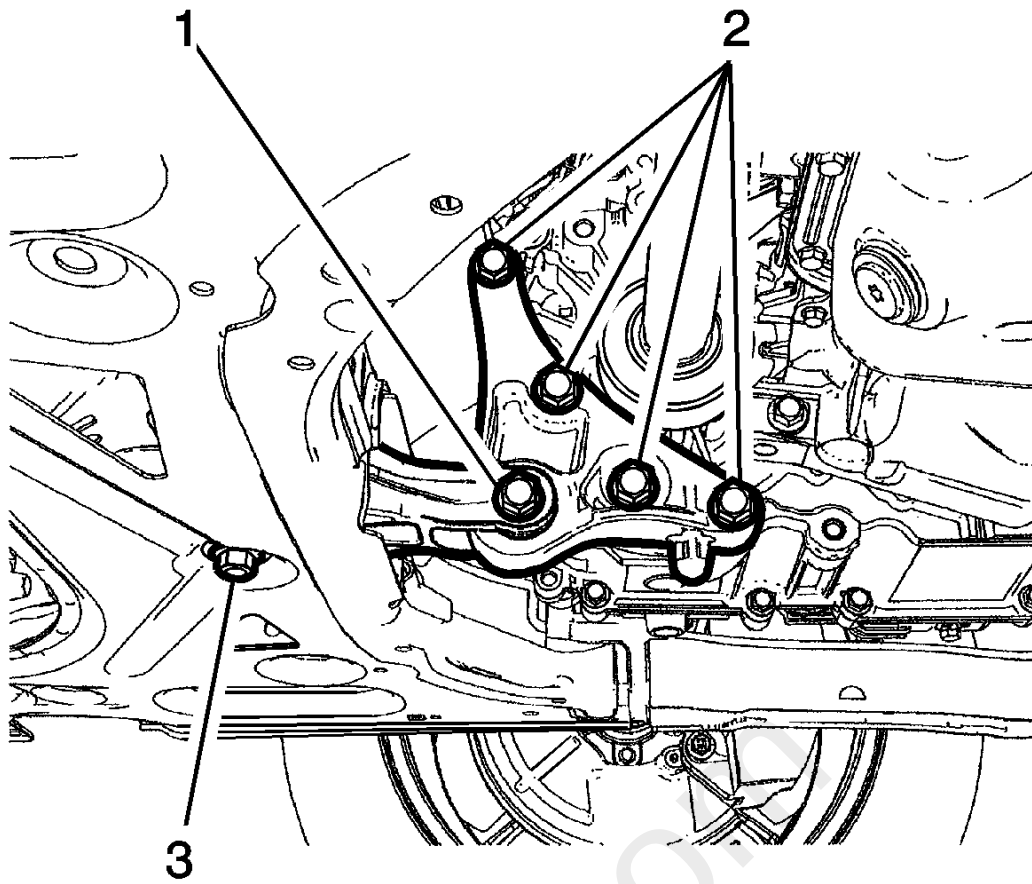


Fig. 54: Rear Transmission Mount Bracket To Rear Mount Through Bolt
Courtesy of GENERAL MOTORS COMPANY

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

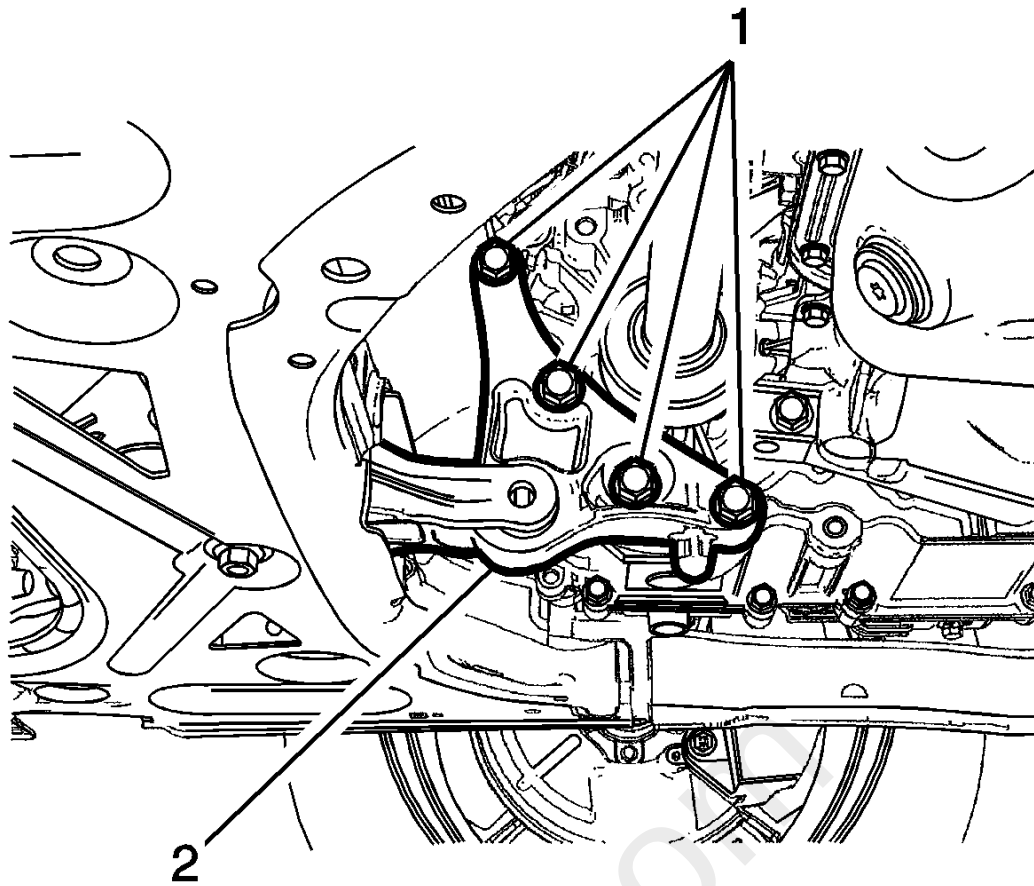


Fig. 55: Transmission Mount Bracket To Transmission Bolts

Courtesy of GENERAL MOTORS COMPANY

5. Remove and DISCARD the 4 rear transmission mount bracket to transmission bolts (1).
6. Remove the rear transmission mount bracket (2).

Installation Procedure

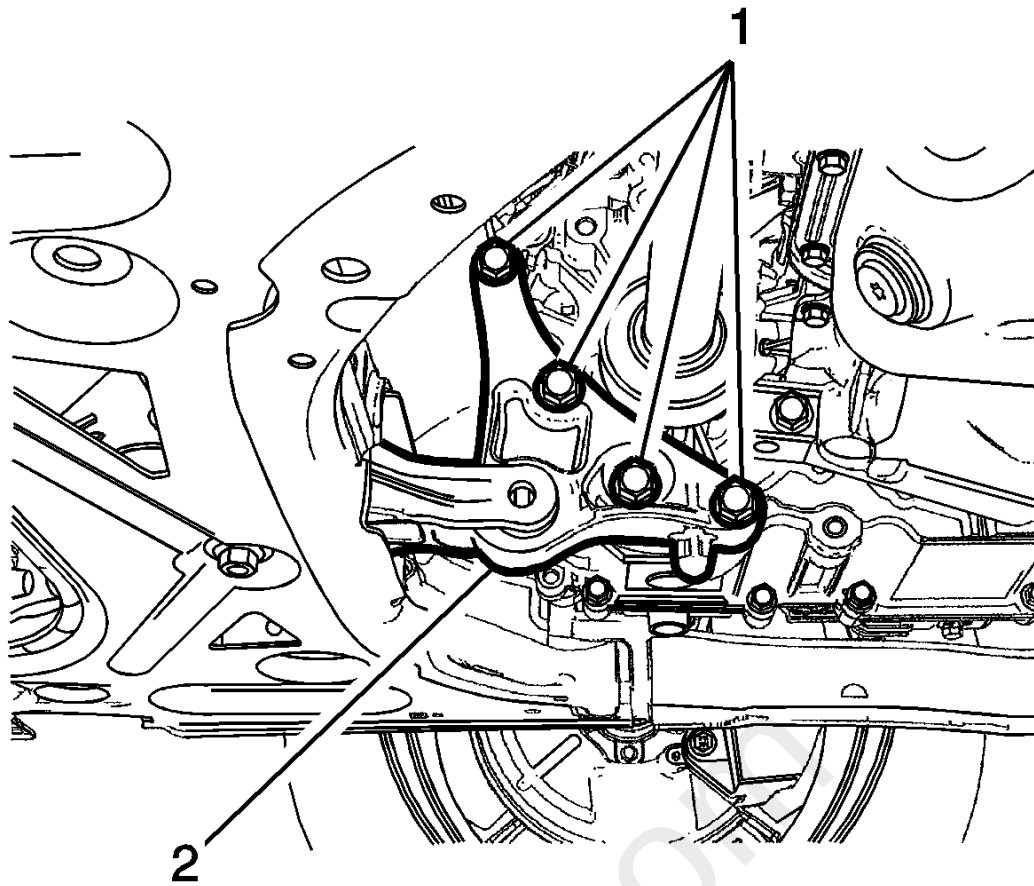


Fig. 56: Transmission Mount Bracket To Transmission Bolts

Courtesy of GENERAL MOTORS COMPANY

1. Install the rear transmission mount bracket (2).

CAUTION: Refer to **Fastener Caution** .

2. Install the 4 NEW rear transmission mount bracket to transmission bolts (1) and tighten to 100 N.m (74 lb ft) plus 30-45 degrees.

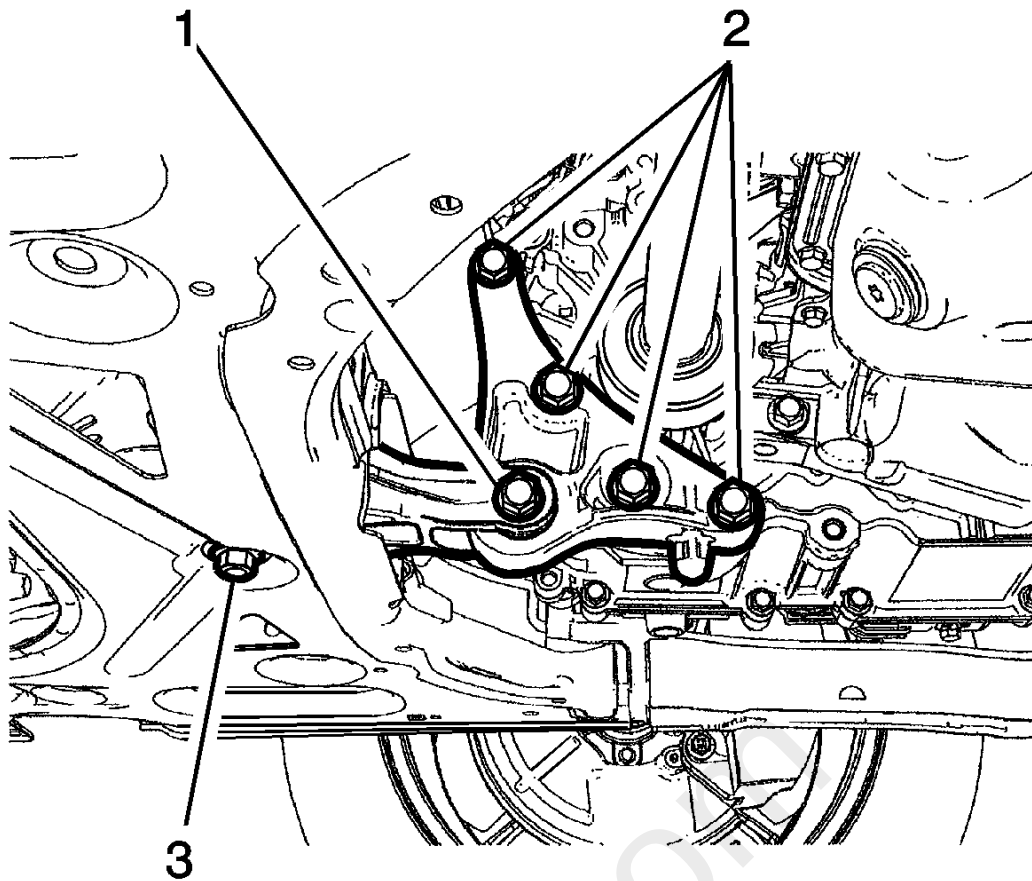


Fig. 57: Rear Transmission Mount Bracket To Rear Mount Through Bolt
Courtesy of GENERAL MOTORS COMPANY

3. Install the NEW rear transmission mount bracket to rear mount through bolt (1) and tighten to 80 N.m (59 lb ft) plus 45-60 degrees.
4. Remove the jack stand.
5. Install the exhaust front pipe. Refer to [Exhaust Front Pipe Replacement \(LUV\)](#), [Exhaust Front Pipe Replacement \(2H0\)](#), [Exhaust Front Pipe Replacement \(LE2\)](#) .
6. Lower the vehicle.

TRANSMISSION MOUNT BRACKET REPLACEMENT - LEFT SIDE

Removal Procedure

1. Remove the left transmission mount. Refer to [Transmission Mount Replacement - Left Side](#).

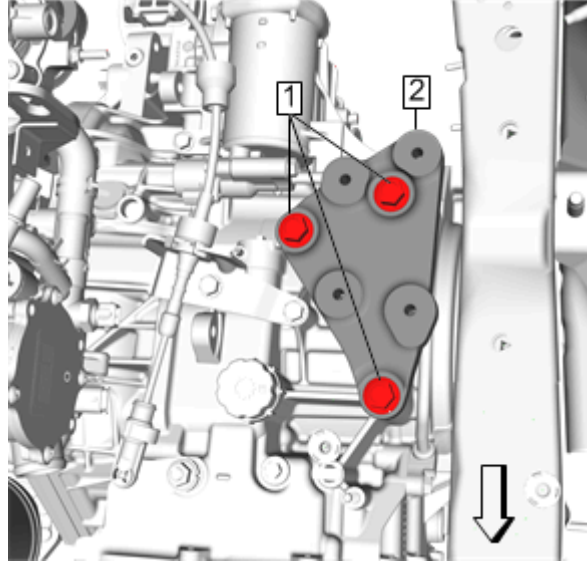


Fig. 58: Left Transmission Mount Bracket
 Courtesy of GENERAL MOTORS COMPANY

2. Remove the 4 left transmission mount bracket to transmission bolts (1).
3. Remove the left transmission mount bracket (2) from the transmission.

Installation Procedure

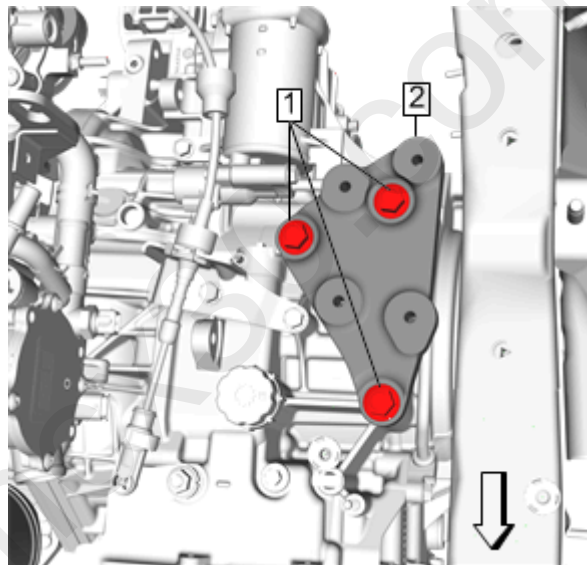


Fig. 59: Left Transmission Mount Bracket
 Courtesy of GENERAL MOTORS COMPANY

1. Install the left transmission mount bracket (2) to the transmission.

CAUTION: Refer to Fastener Caution .

2. Install the left transmission mount bracket to transmission bolts (1) and tighten to 62 N.m (46 lb ft).
3. Install the left transmission mount. Refer to Transmission Mount Replacement - Left Side.

TRANSMISSION MOUNT REPLACEMENT - LEFT SIDE

Removal Procedure

1. Remove the battery tray. Refer to Battery Tray Replacement .
2. Using a suitable jack, support the transmission.

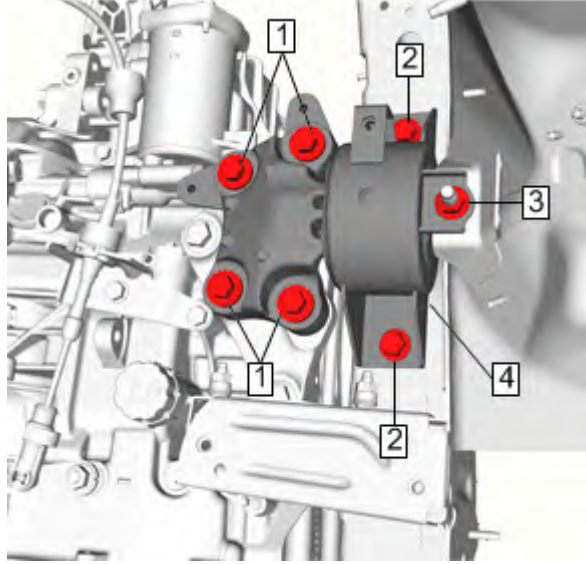


Fig. 60: Transmission Mount

Courtesy of GENERAL MOTORS COMPANY

3. Remove and DISCARD the left transmission mount to transmission bolts (1).
4. Remove the left transmission mount to body bolts (2).
5. Remove the left transmission mount to body nut (3).
6. Remove the transmission mount (4) from the vehicle.

Installation Procedure

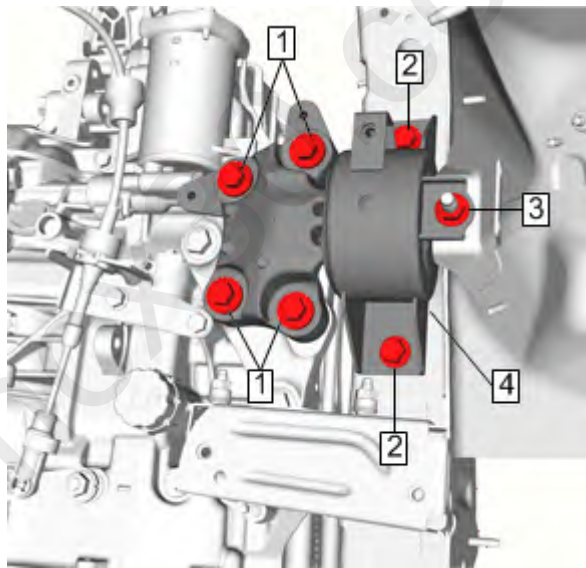


Fig. 61: Transmission Mount

Courtesy of GENERAL MOTORS COMPANY

1. Install the left transmission mount (4) to the vehicle.

CAUTION: Refer to Fastener Caution .

2. Install the transmission mount to body bolts (2) and tighten to 58 N.m (43 lb ft).
3. Install the transmission mount to body nut (3) and tighten to 58 N.m (43 lb ft).
4. Install the NEW left transmission mount to transmission bolts (1) and tighten to 50 N.m (37 lb ft) plus 60-75 degrees.
5. Remove the jack.
6. Install the battery tray. Refer to Battery Tray Replacement .

TRANSMISSION REAR MOUNT REPLACEMENT (AWD)

Removal Procedure

1. Remove the transfer case. Refer to [Transfer Case Replacement](#).

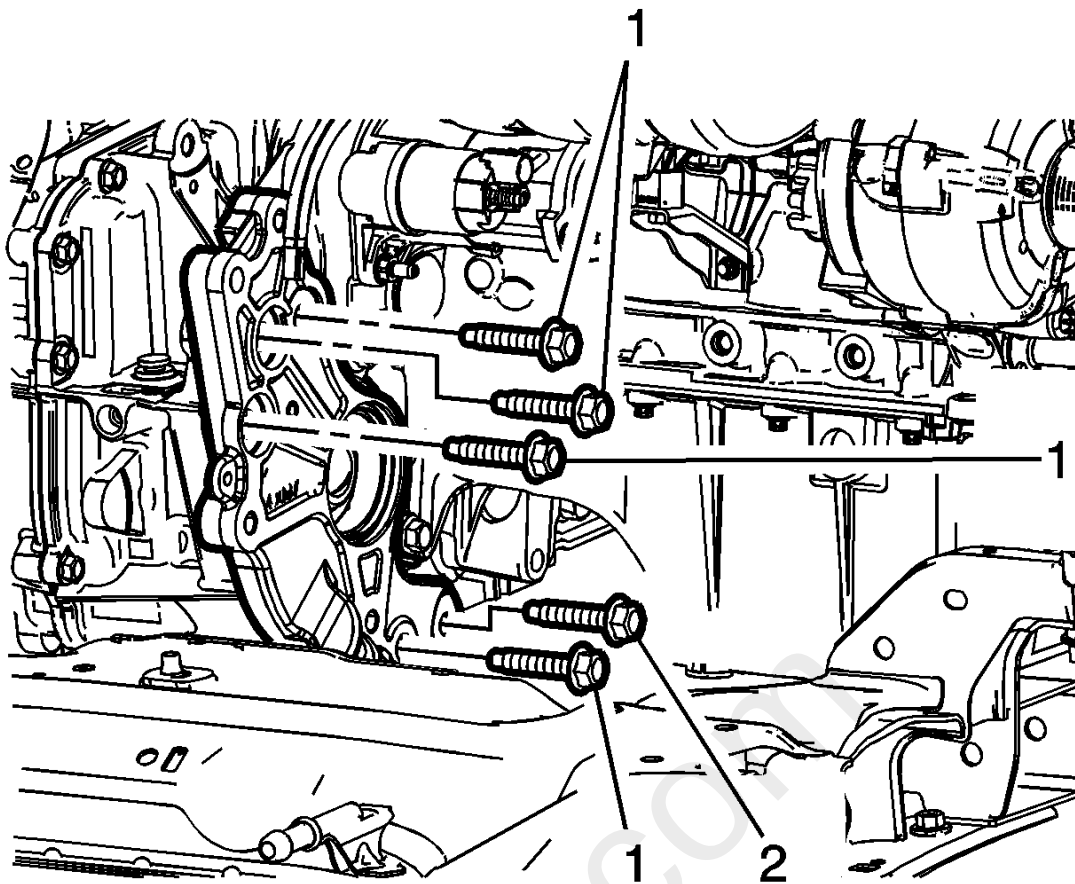


Fig. 62: Transmission Bracket Fasteners

Courtesy of GENERAL MOTORS COMPANY

2. Remove and DISCARD the five transmission bracket fasteners (1, 2).

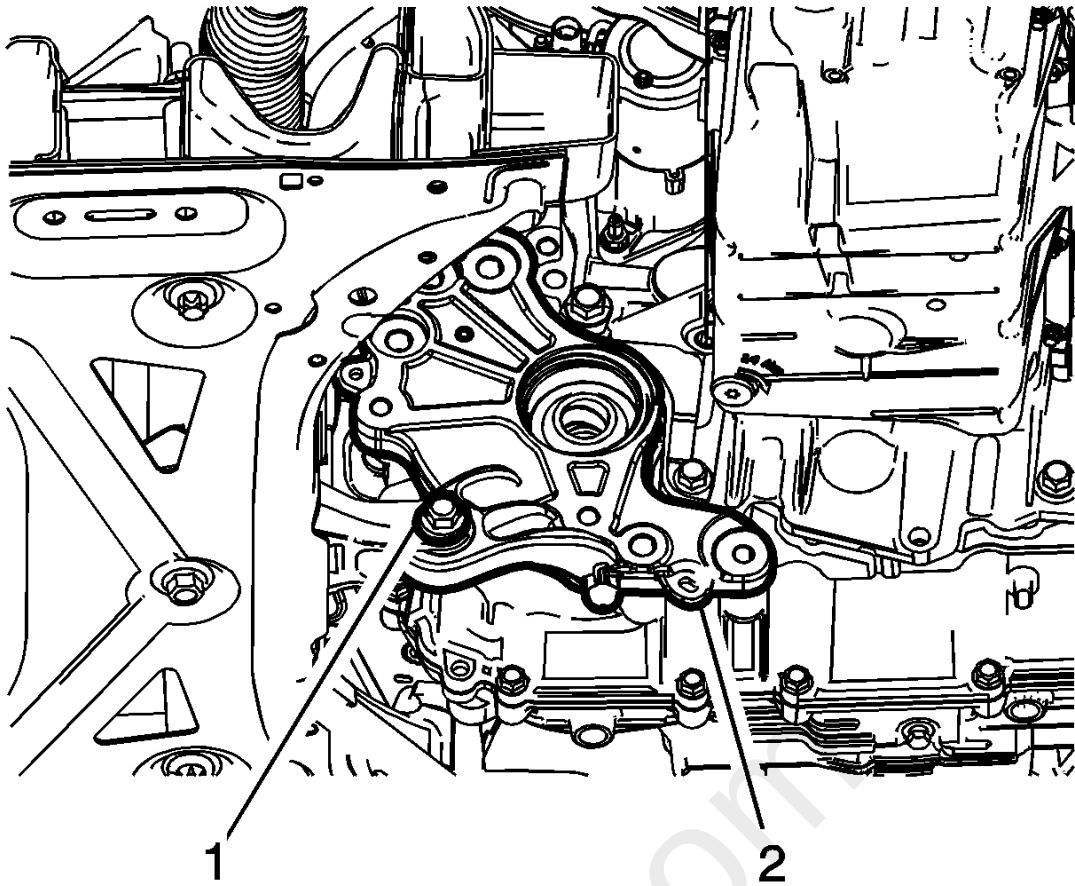


Fig. 63: Transmission Bracket And Through Bolt
Courtesy of GENERAL MOTORS COMPANY

3. Remove and DISCARD the rear transmission mount through bolt (1).
4. Remove the transmission bracket (2) from the transmission.

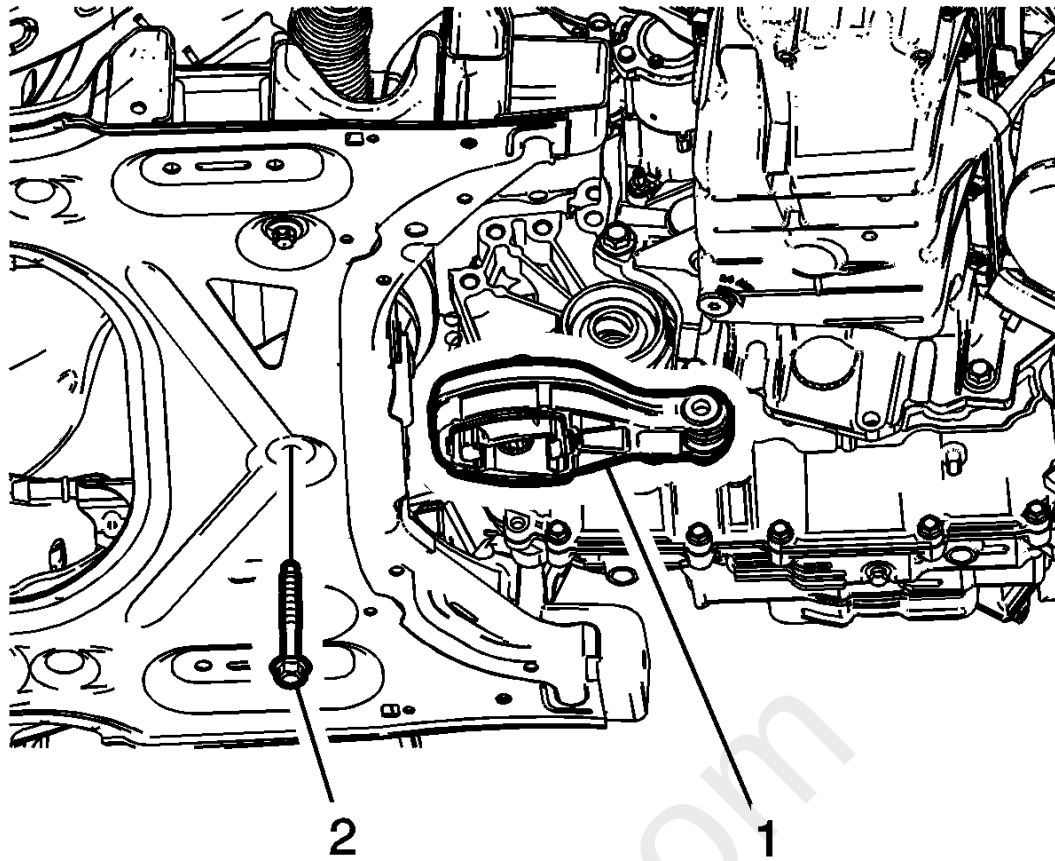


Fig. 64: Transmission Rear Mount

Courtesy of GENERAL MOTORS COMPANY

5. Remove and DISCARD the transmission rear mount fastener (2).
6. Remove the transmission rear mount (1) from the vehicle.

Installation Procedure

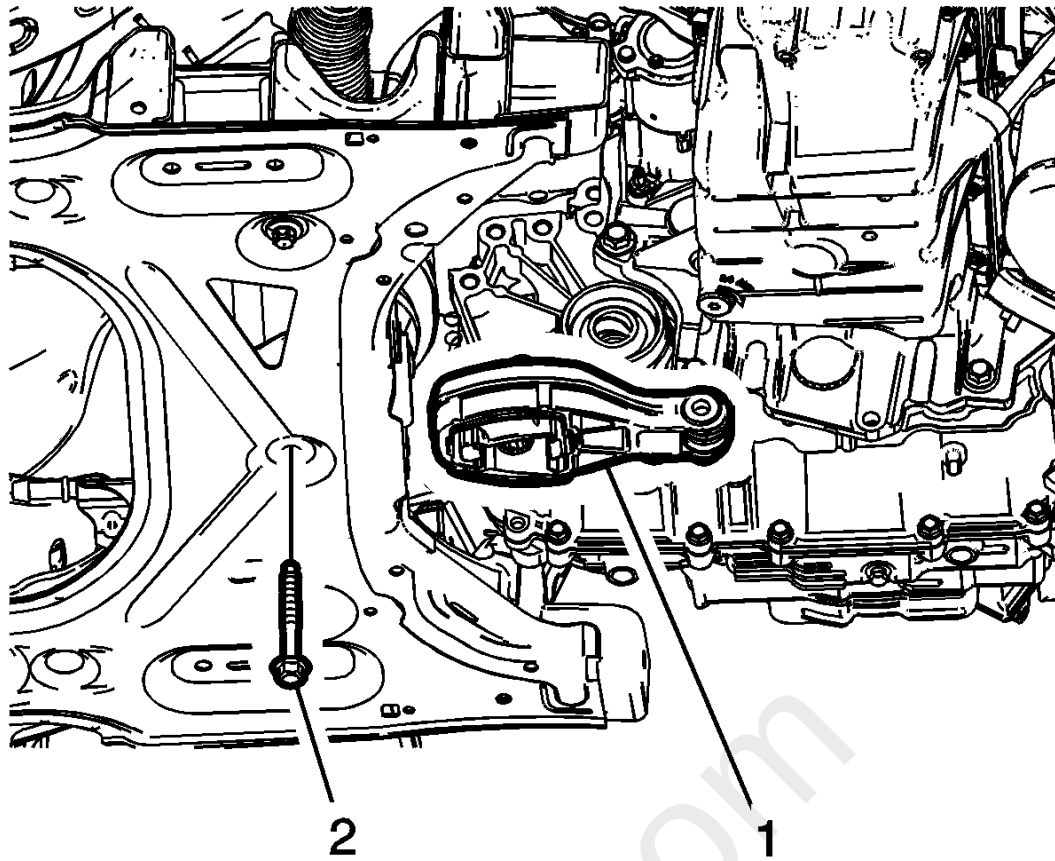


Fig. 65: Transmission Rear Mount

Courtesy of GENERAL MOTORS COMPANY

1. Install the transmission rear mount (1) to the vehicle.

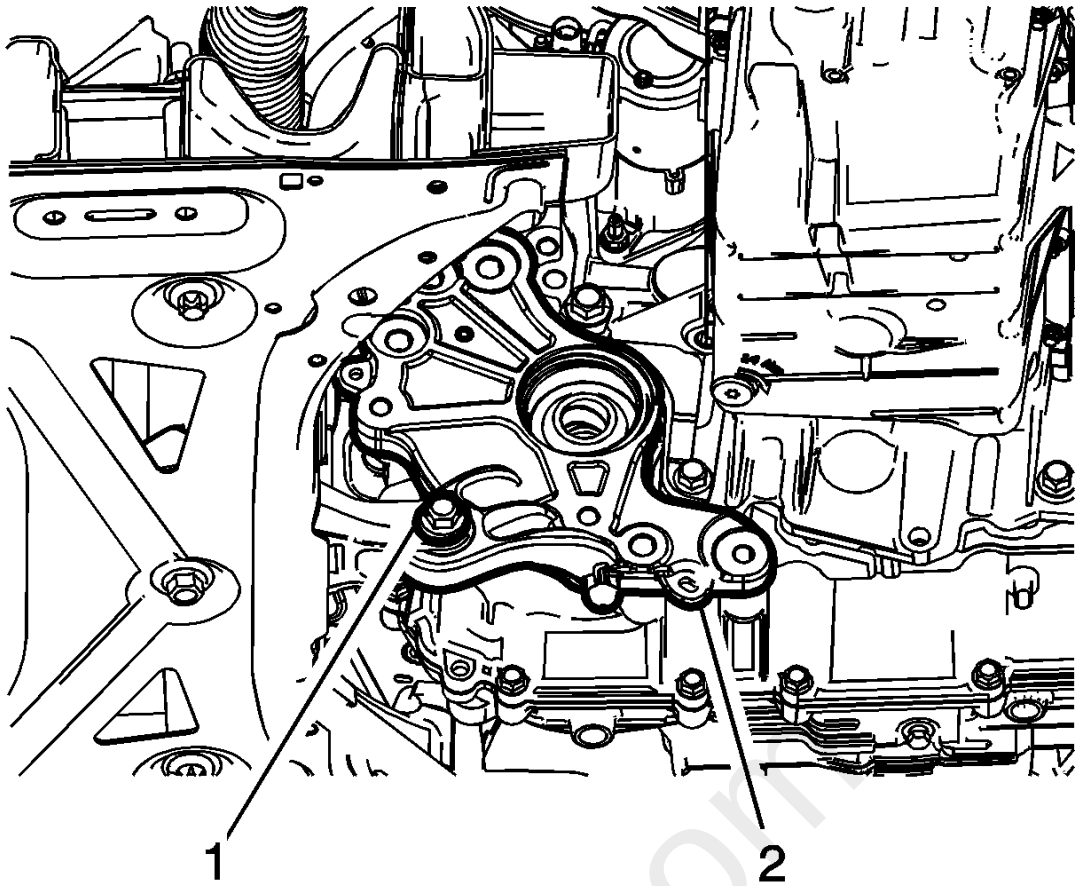


Fig. 66: Transmission Bracket And Through Bolt
Courtesy of GENERAL MOTORS COMPANY

2. Install the transmission bracket (2) to the transmission.

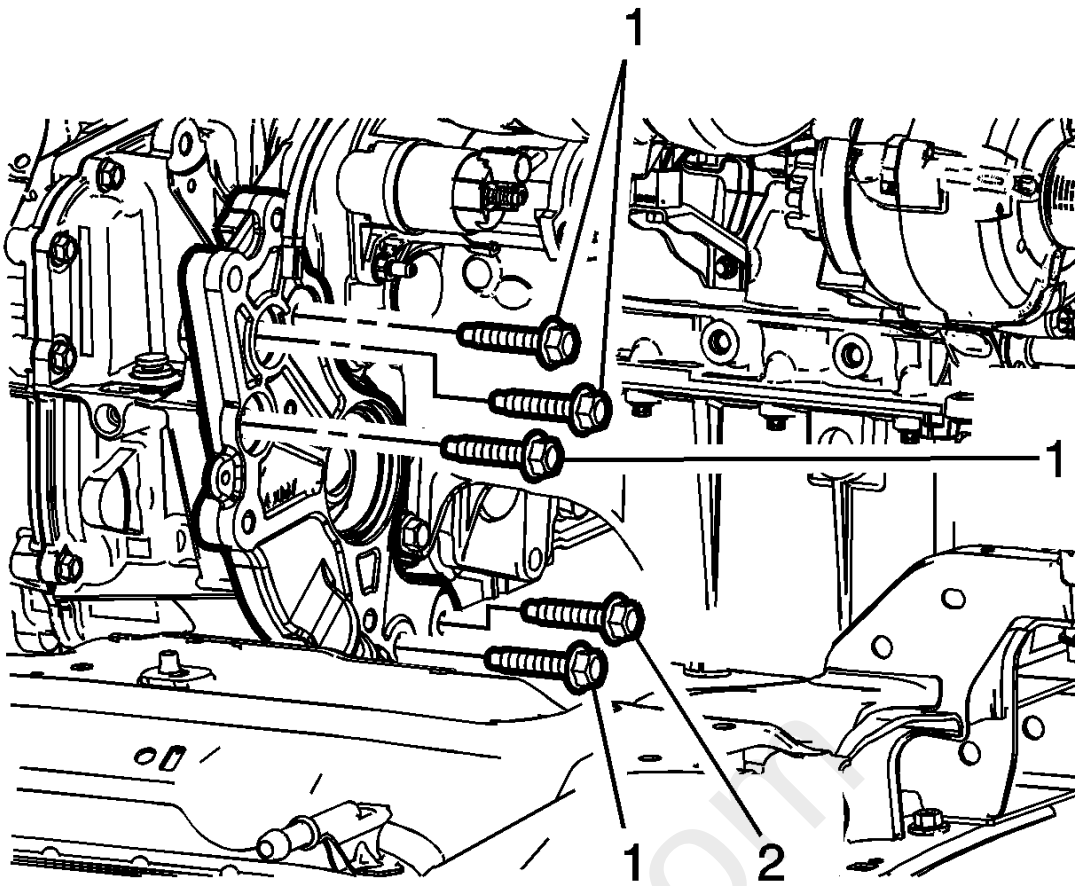


Fig. 67: Transmission Bracket Fasteners
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to [Fastener Caution](#) .

3. Install the NEW transmission bracket to transmission fasteners (1) and tighten to 100 N.m (74 lb ft) plus 30-40 degrees.
4. Install the NEW transmission bracket to transmission fastener (2) and tighten to 60 N.m (44 lb ft) plus 60-75 degrees.

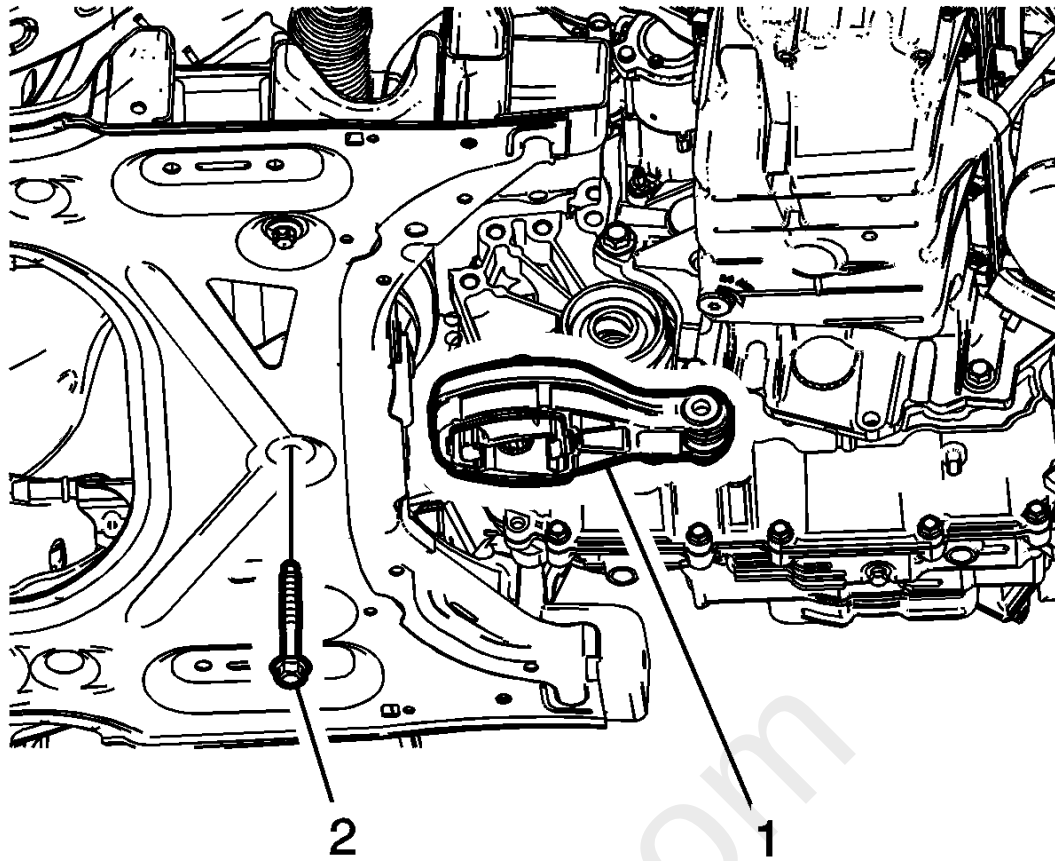


Fig. 68: Transmission Rear Mount

Courtesy of GENERAL MOTORS COMPANY

5. Install the NEW transmission rear mount fastener (2) and tighten to 100 N.m (75 lb ft) plus 90 - 105 degrees..

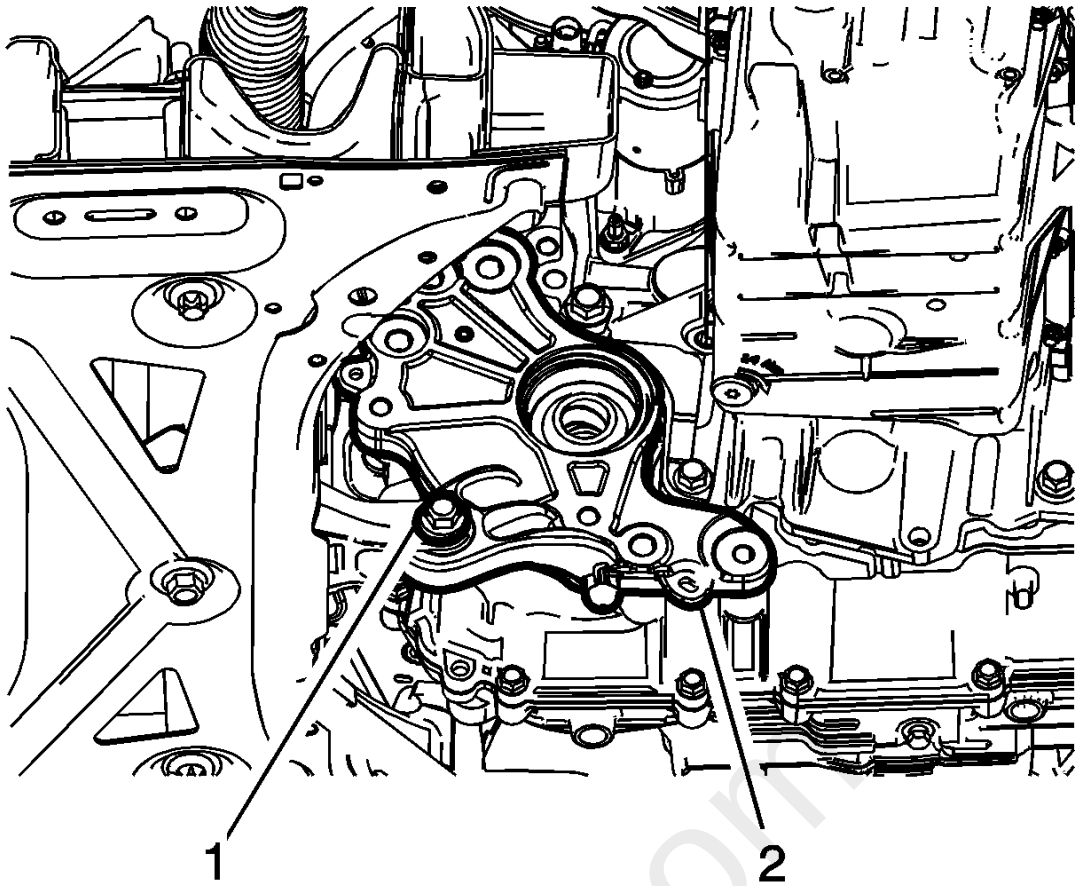


Fig. 69: Transmission Bracket And Through Bolt
Courtesy of GENERAL MOTORS COMPANY

6. Install the New rear transmission mount through bolt (1) and tighten to 80 N.m (59 lb ft) plus 45-60 degrees.
7. Install the transfer case. Refer to [Transfer Case Replacement](#) .

TRANSMISSION REAR MOUNT REPLACEMENT (FWD)

Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#) .

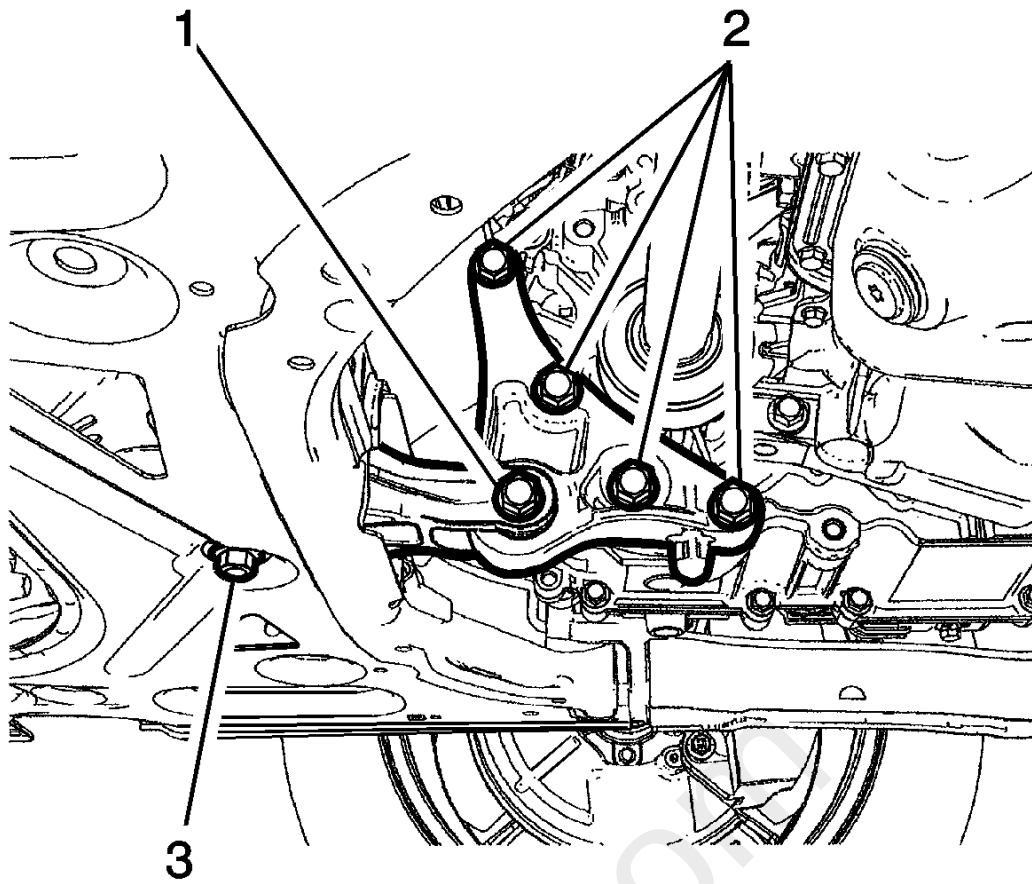


Fig. 70: Rear Transmission Mount Bracket To Rear Mount Through Bolt
Courtesy of GENERAL MOTORS COMPANY

2. Remove and DISCARD the rear transmission mount bracket to rear mount through bolt (1).
3. Remove and DISCARD the rear transmission mount bracket to transmission bolts (2).
4. Remove the rear transmission mount bracket.
5. Remove and DISCARD the rear transmission mount to frame bolt (3).
6. Remove the rear transmission mount.

Installation Procedure

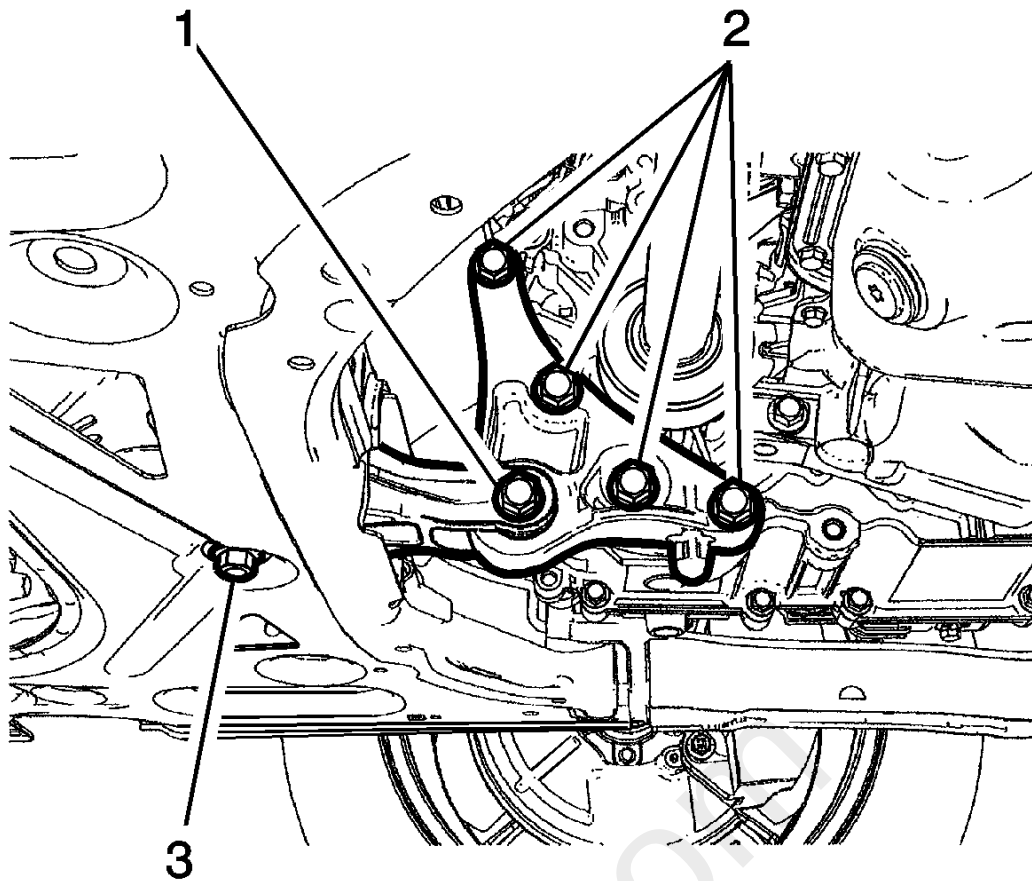


Fig. 71: Rear Transmission Mount Bracket To Rear Mount Through Bolt
 Courtesy of GENERAL MOTORS COMPANY

1. Install the rear transmission mount.

CAUTION: Refer to [Fastener Caution](#) .

2. Install the NEW rear transmission mount to frame bolt (3) and tighten to 100 N.m (74 lb ft) plus 90 - 105 degrees.
3. Install the rear transmission mount bracket.
4. Install the NEW rear transmission mount bracket to transmission bolts (2) and tighten to 100 N.m (74 lb ft) plus 30-45 degrees.
5. Install the NEW rear transmission mount bracket to rear mount through bolt (1) and tighten to 80 N.m (59 lb ft) plus 45-60 degrees.
6. Lower the vehicle.

TRANSMISSION REPLACEMENT

Removal Procedure

1. Remove the battery tray. Refer to [Battery Tray Replacement](#) .
2. Remove the front bumper fascia opening upper cover. Refer to [Front Bumper Fascia Opening Upper Cover Replacement](#) .
3. Without draining the coolant or removing the hoses, remove and position aside the radiator surge tank. Refer to [Radiator Surge Tank Replacement \(LUV, 2H0\)](#) [Radiator Surge Tank Replacement \(LE2\)](#) .
4. Remove the transmission range selector lever cable. Refer to [Range Selector Lever Cable Replacement](#) .

5. Remove the power brake booster pump assembly, if equipped. Refer to [Power Brake Booster Pump Replacement](#) .

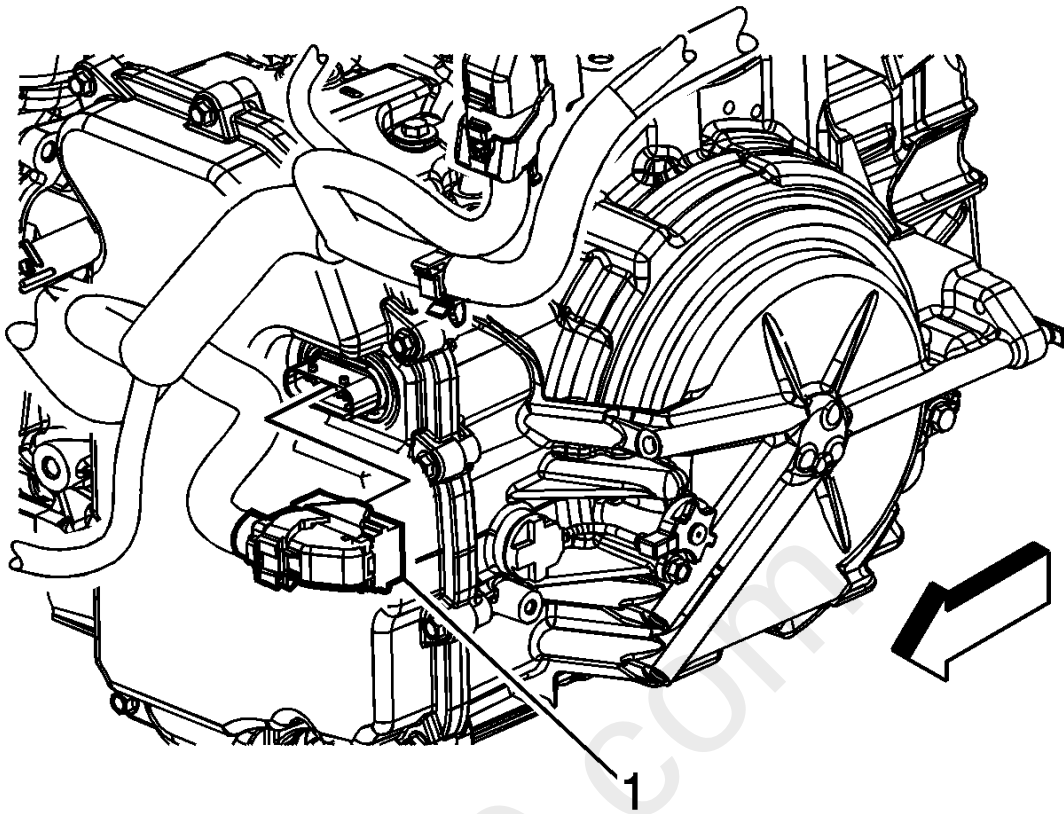


Fig. 72: Identifying Control Valve Body Transmission Control Module (TCM) Electrical Connector

Courtesy of GENERAL MOTORS COMPANY

6. Disconnect the control valve body transmission control module electrical connector (1) then unclip the connector from the transmission.
7. Remove the transmission fluid cooler inlet hose from the transmission. Refer to [Transmission Fluid Cooler Inlet Pipe Replacement \(2HO\)](#) .
8. Remove the transmission fluid cooler outlet hose from the transmission. Refer to [Transmission Fluid Cooler Outlet Pipe Replacement \(2HO\)](#) .
9. Plug and/or cap the pipes and transmission to prevent contamination.

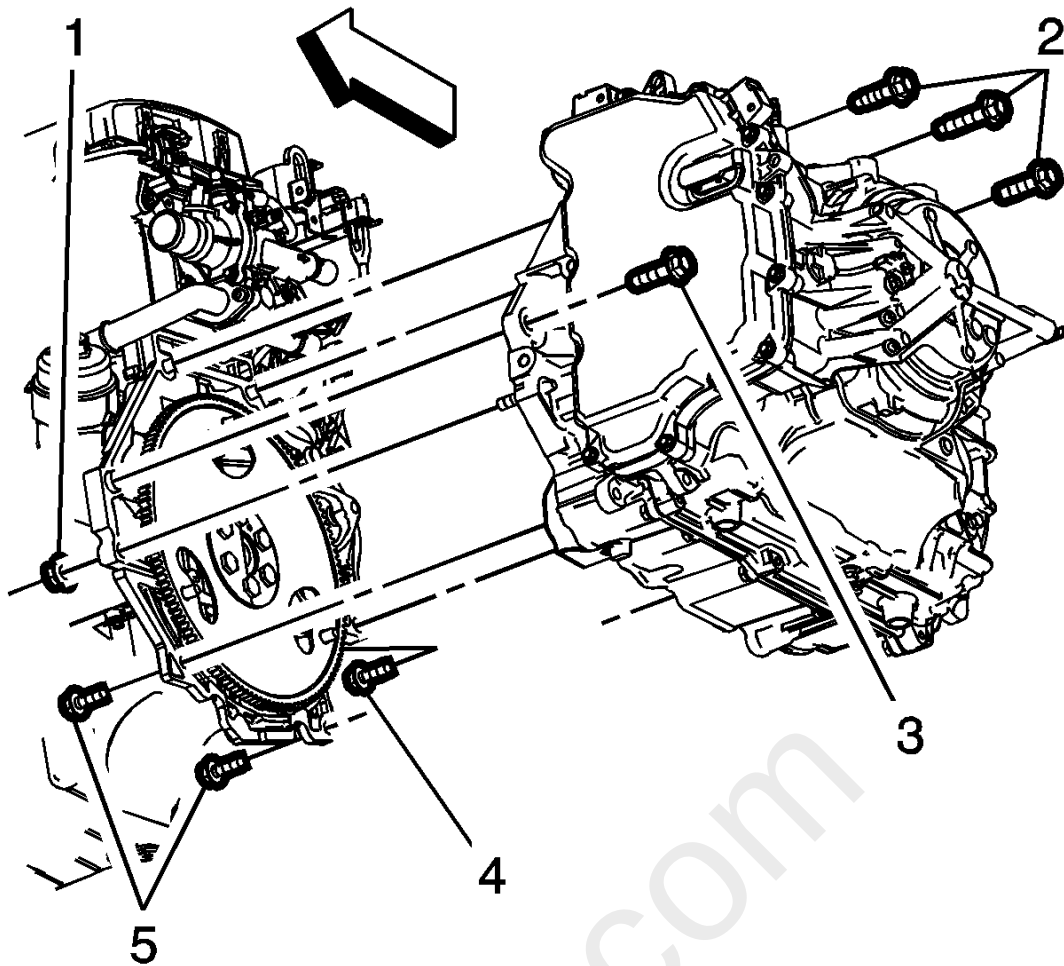


Fig. 73: Upper Transmission To Engine Bolts

Courtesy of GENERAL MOTORS COMPANY

10. Remove the upper transmission to engine bolts (2).
11. Install the support fixture. Refer to [Engine Support Fixture](#) .

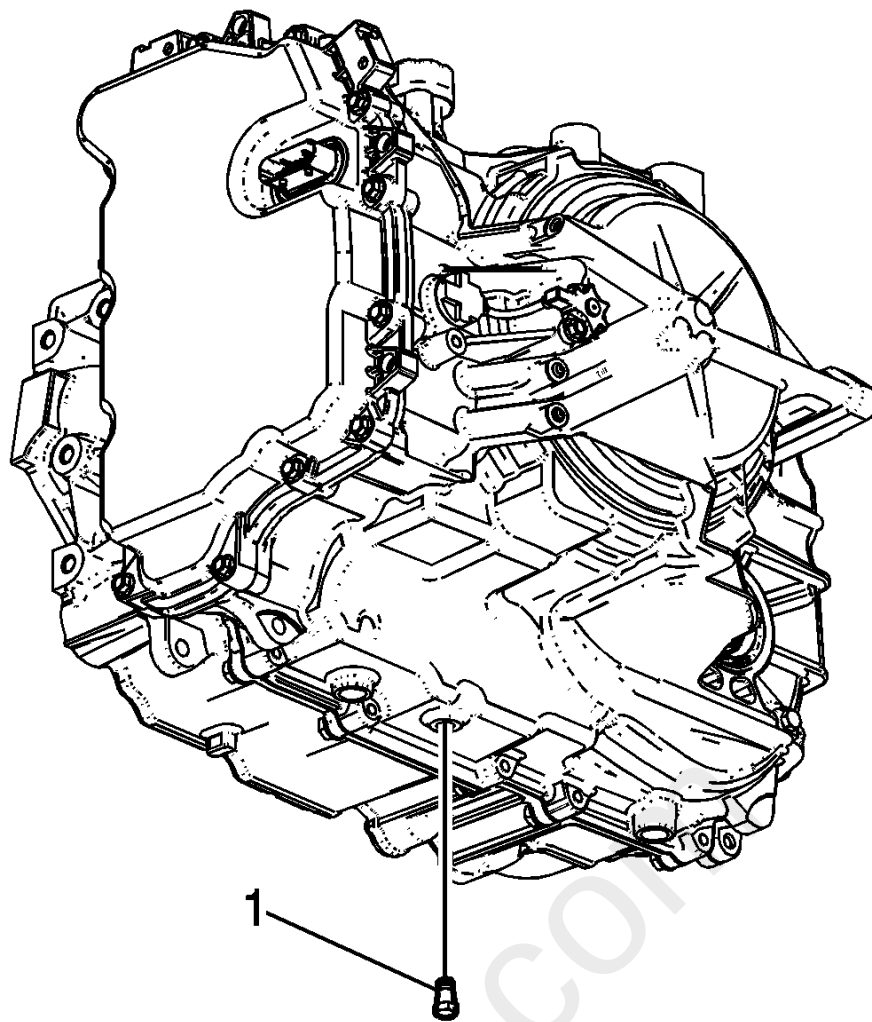


Fig. 74: Identifying Fluid Level Hole Plug
 Courtesy of GENERAL MOTORS COMPANY

12. Drain the transmission fluid. Refer to [Transmission Fluid Drain and Fill](#).
13. Remove the exhaust front pipe. Refer to [Exhaust Front Pipe Replacement \(LUV\)](#), [Exhaust Front Pipe Replacement \(2H0\)](#), [Exhaust Front Pipe Replacement \(LE2\)](#).
14. Remove the drivetrain and front suspension frame. Refer to [Drivetrain and Front Suspension Frame Replacement \(Long Cradle\)](#), [Drivetrain and Front Suspension Frame Replacement \(Short Cradle\)](#), [Drivetrain and Front Suspension Frame Replacement \(Long Cradle - V50\)](#).
15. Remove the front wheel drive shafts from the transmission. Refer to [Front Wheel Drive Shaft Replacement - Left Side](#), and [Front Wheel Drive Shaft Replacement - Right Side](#).
16. On FWD vehicles, remove the intermediate shaft. Refer to [Front Wheel Drive Intermediate Shaft Replacement \(LE2 with MNH\)](#), [Front Wheel Drive Intermediate Shaft Replacement \(LUV with MR5\)](#).
17. On AWD vehicles, remove the transfer case. Refer to [Transfer Case Replacement](#).
18. Remove the rear transmission mount bracket from the transmission. Refer to [Transmission Mount Bracket Replacement - Rear \(All Wheel Drive\)](#), [Transmission Mount Bracket Replacement - Rear \(Front Wheel Drive\)](#).
19. Remove the starter motor. Refer to [Starter Replacement \(LUV\)](#), [Starter Replacement \(2H0\)](#), [Starter Replacement \(LE2-FWD\)](#), [Starter Replacement \(LE2-AWD\)](#).

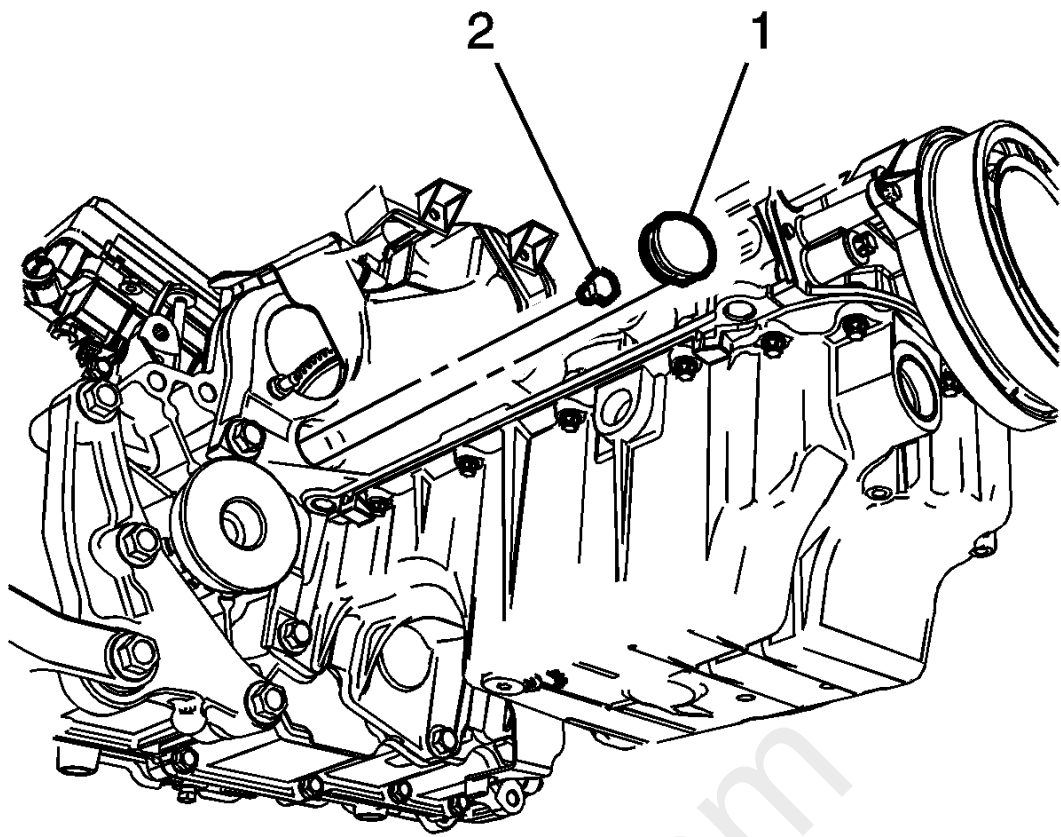


Fig. 75: Flywheel Bolts & Hole Cover

Courtesy of GENERAL MOTORS COMPANY

20. Mark the relationship of the flywheel to the torque converter for reassembly.
21. Remove the hole cover (1) and the three torque converter to flywheel fasteners (2).

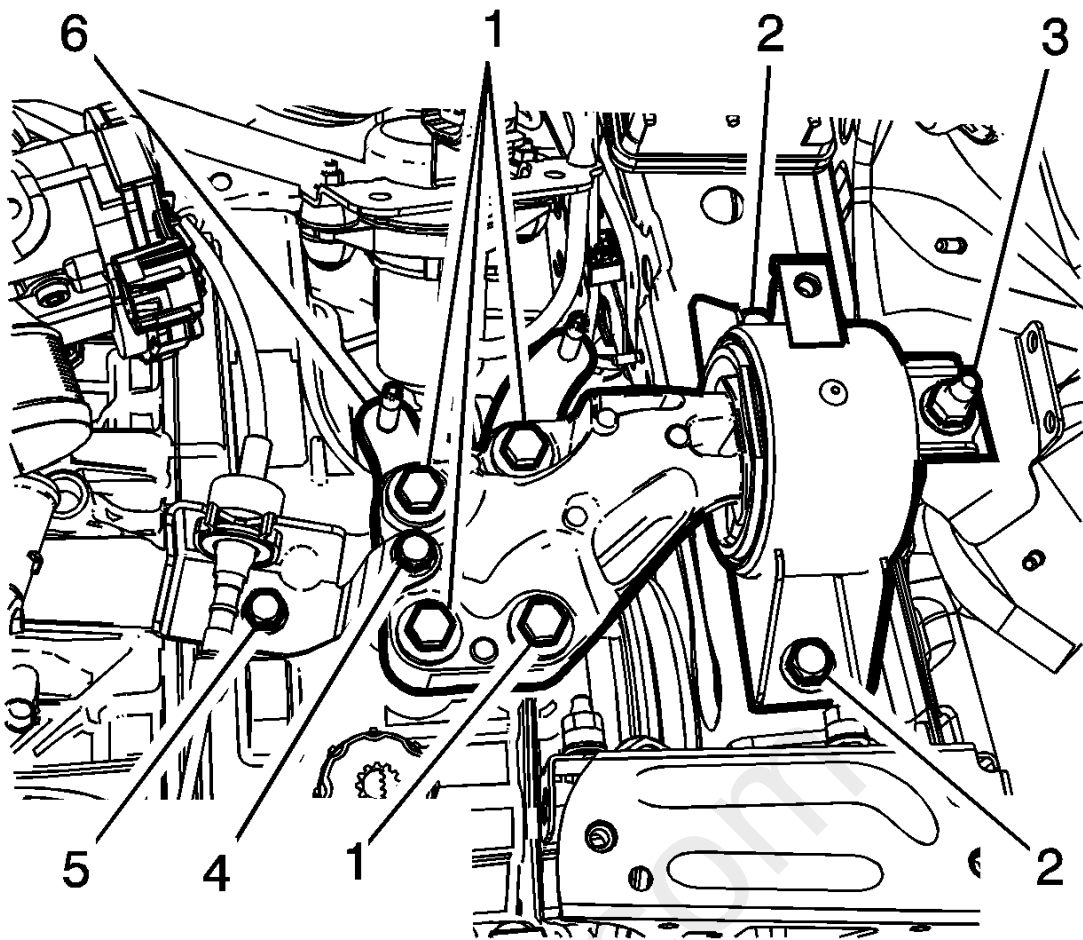


Fig. 76: Left Transmission Mount

Courtesy of GENERAL MOTORS COMPANY

22. Remove the left transmission mount (6). Refer to [Transmission Mount Replacement - Left Side](#).
23. Use a transmission jack in order to support the transmission.

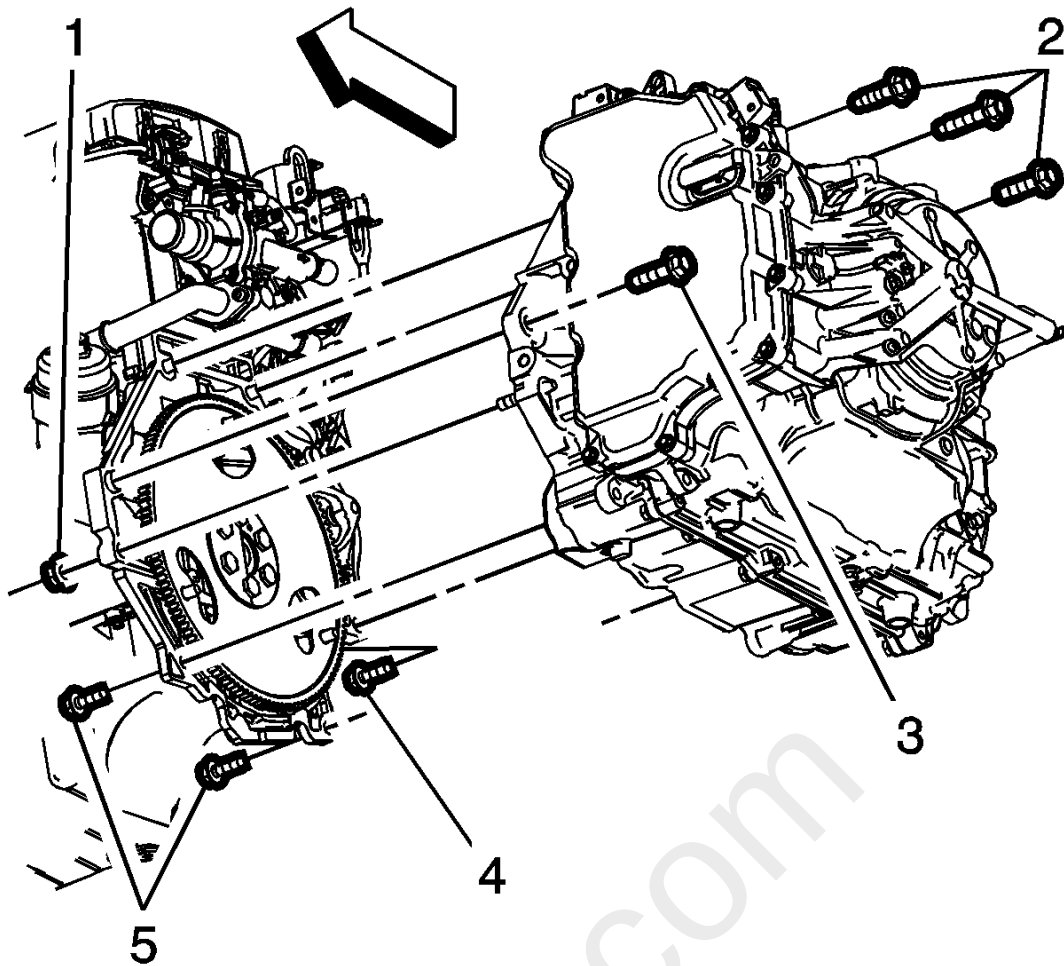


Fig. 77: Upper Transmission To Engine Bolts

Courtesy of GENERAL MOTORS COMPANY

24. Remove the lower transmission fasteners (1, 3, 4, 5).

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

25. Separate the transmission from the engine.

26. Lower the transmission with the transmission jack far enough to remove the transmission.

27. Flush and flow test the transmission oil cooler and lines. Refer to [Transmission Fluid Cooler Flow Test and Flushing \(6T40\)](#).

Installation Procedure

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

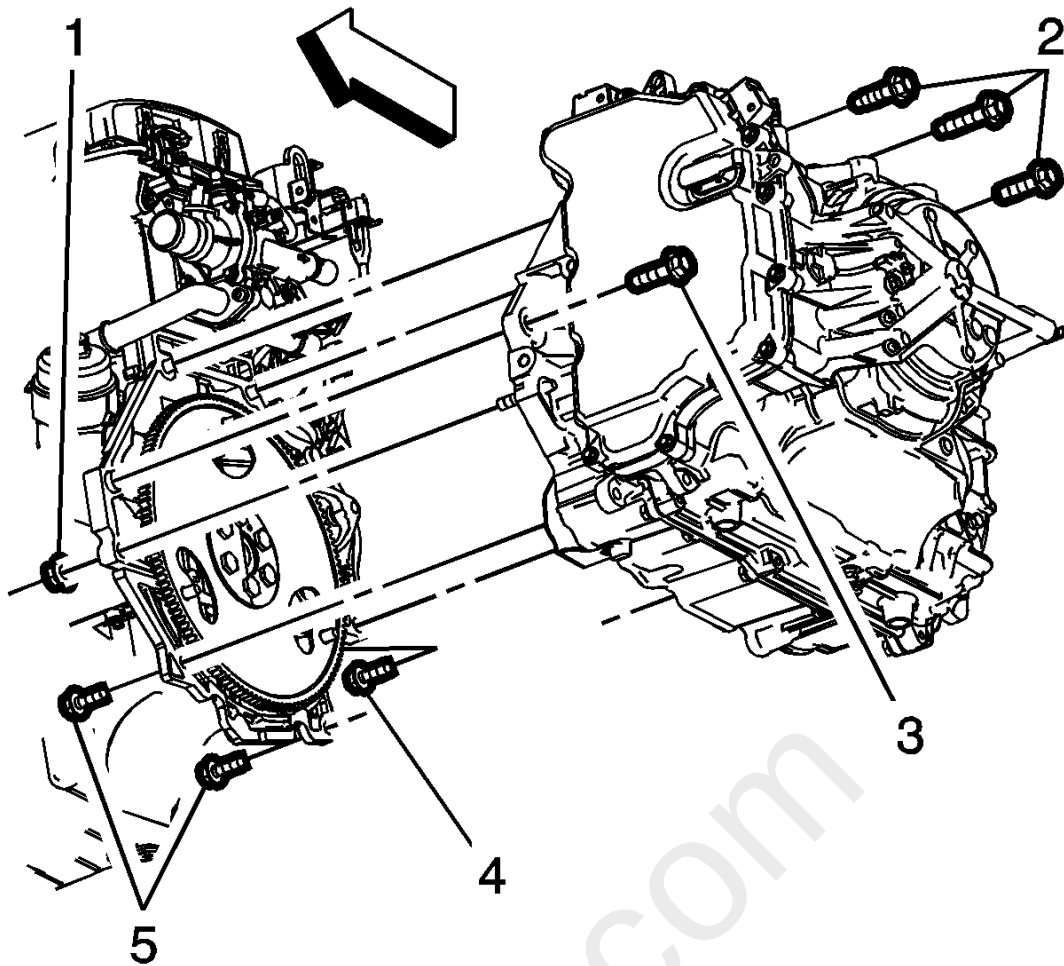


Fig. 78: Upper Transmission To Engine Bolts
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to [Fastener Caution](#) .

2. Install the transmission bolts (3, 4) and tighten to 60 N.m (44 lb ft).
3. Install the transmission bolts (5) and the transmission nut (1) and tighten to 40 N.m (30 lb ft).
4. Remove the transmission jack.

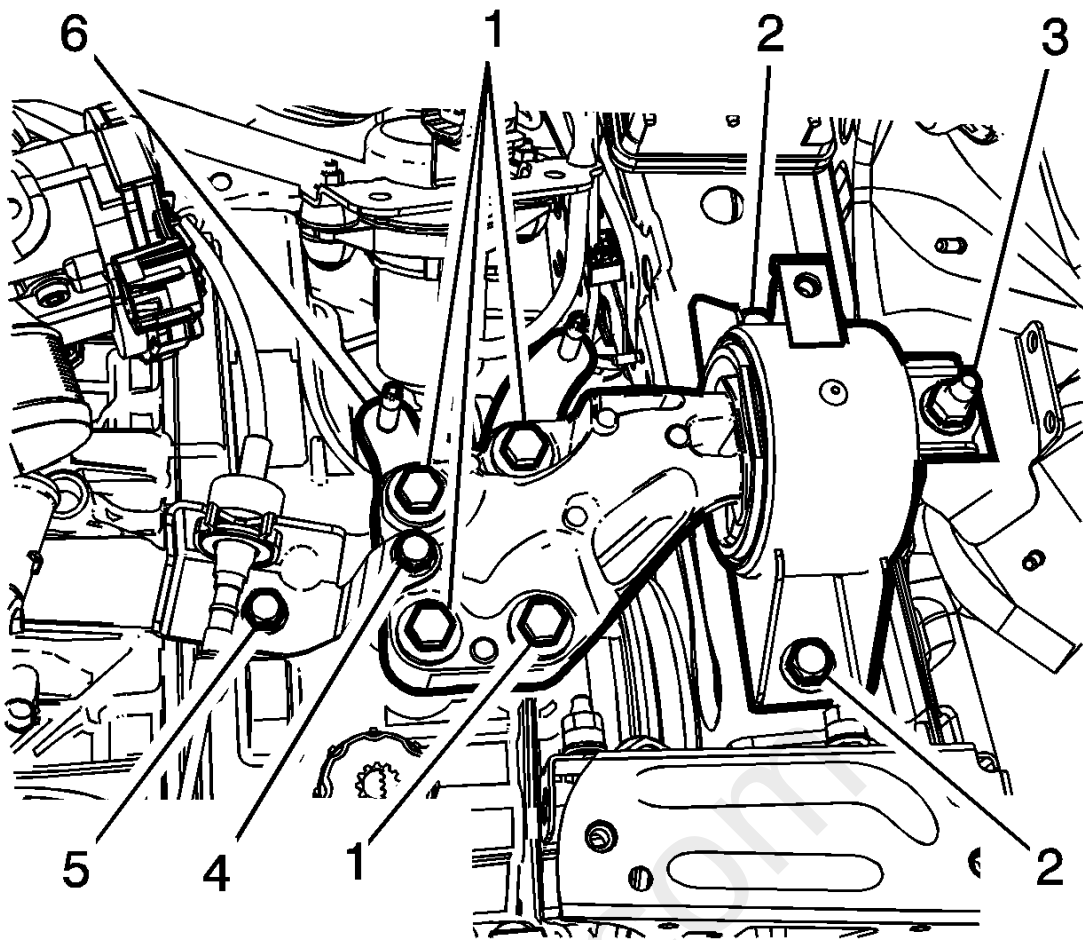


Fig. 79: Left Transmission Mount

Courtesy of GENERAL MOTORS COMPANY

5. Install the left transmission mount (6). Refer to [Transmission Mount Replacement - Left Side](#).

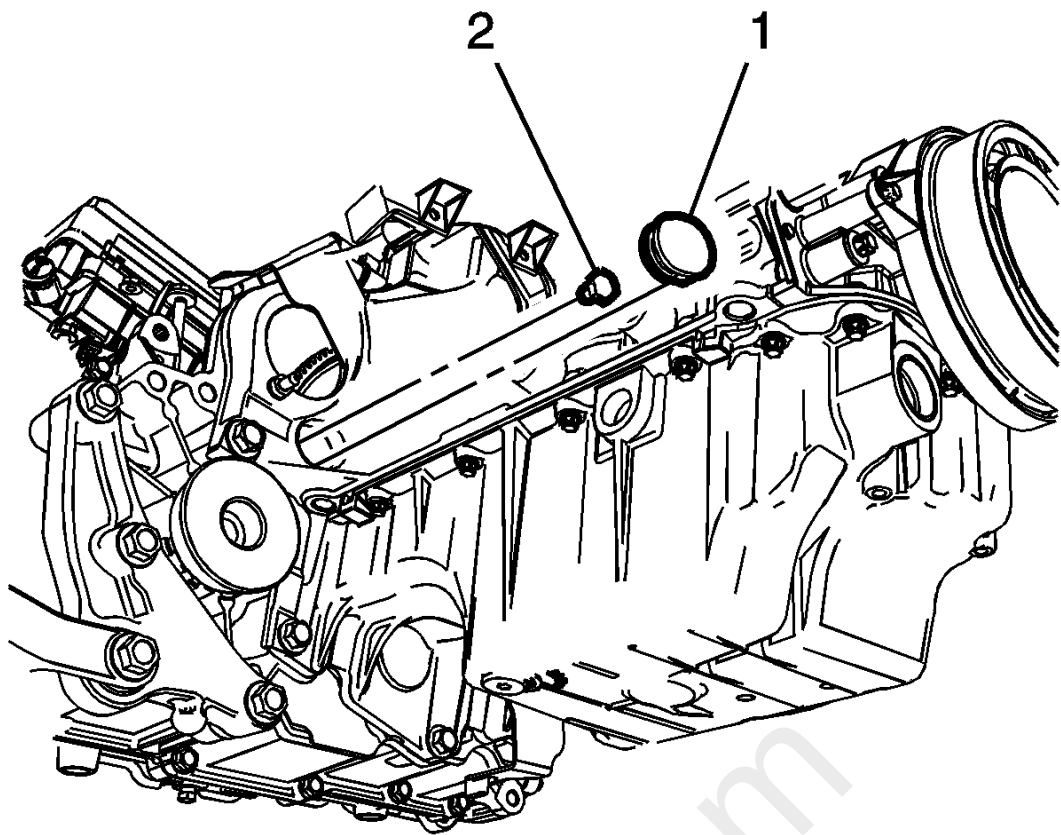


Fig. 80: Flywheel Bolts & Hole Cover

Courtesy of GENERAL MOTORS COMPANY

NOTE: If reusing the torque converter bolts, clean the threads and apply threadlocker to the threads prior to installation.

6. Install the torque converter to flywheel bolts (2) and tighten to 60 N.m (44 lb ft) and install the hole cover (1).
7. Install the starter motor. Refer to [Starter Replacement \(LUV\)](#), [Starter Replacement \(2H0\)](#), [Starter Replacement \(LE2-FWD\)](#), [Starter Replacement \(LE2-AWD\)](#).
8. Install the rear transmission mount bracket to the transmission. Refer to [Transmission Mount Bracket Replacement - Rear \(All Wheel Drive\)](#), [Transmission Mount Bracket Replacement - Rear \(Front Wheel Drive\)](#).
9. On AWD vehicles, install the transfer case. Refer to [Transfer Case Replacement](#).
10. On FWD vehicles, install the intermediate shaft. Refer to [Front Wheel Drive Intermediate Shaft Replacement \(LE2 with MNH\)](#), [Front Wheel Drive Intermediate Shaft Replacement \(LUV with MR5\)](#).
11. Install the front wheel drive shafts to the transmission. Refer to [Front Wheel Drive Shaft Replacement - Left Side](#), and [Front Wheel Drive Shaft Replacement - Right Side](#).
12. Install the drivetrain and front suspension frame. Refer to [Drivetrain and Front Suspension Frame Replacement \(Long Cradle\)](#), [Drivetrain and Front Suspension Frame Replacement \(Short Cradle\)](#), [Drivetrain and Front Suspension Frame Replacement \(Long Cradle - V5Q\)](#).
13. Install the exhaust front pipe. Refer to [Exhaust Front Pipe Replacement \(LUV\)](#), [Exhaust Front Pipe Replacement \(2H0\)](#), [Exhaust Front Pipe Replacement \(LE2\)](#).
14. Remove the support fixture. Refer to [Engine Support Fixture](#).

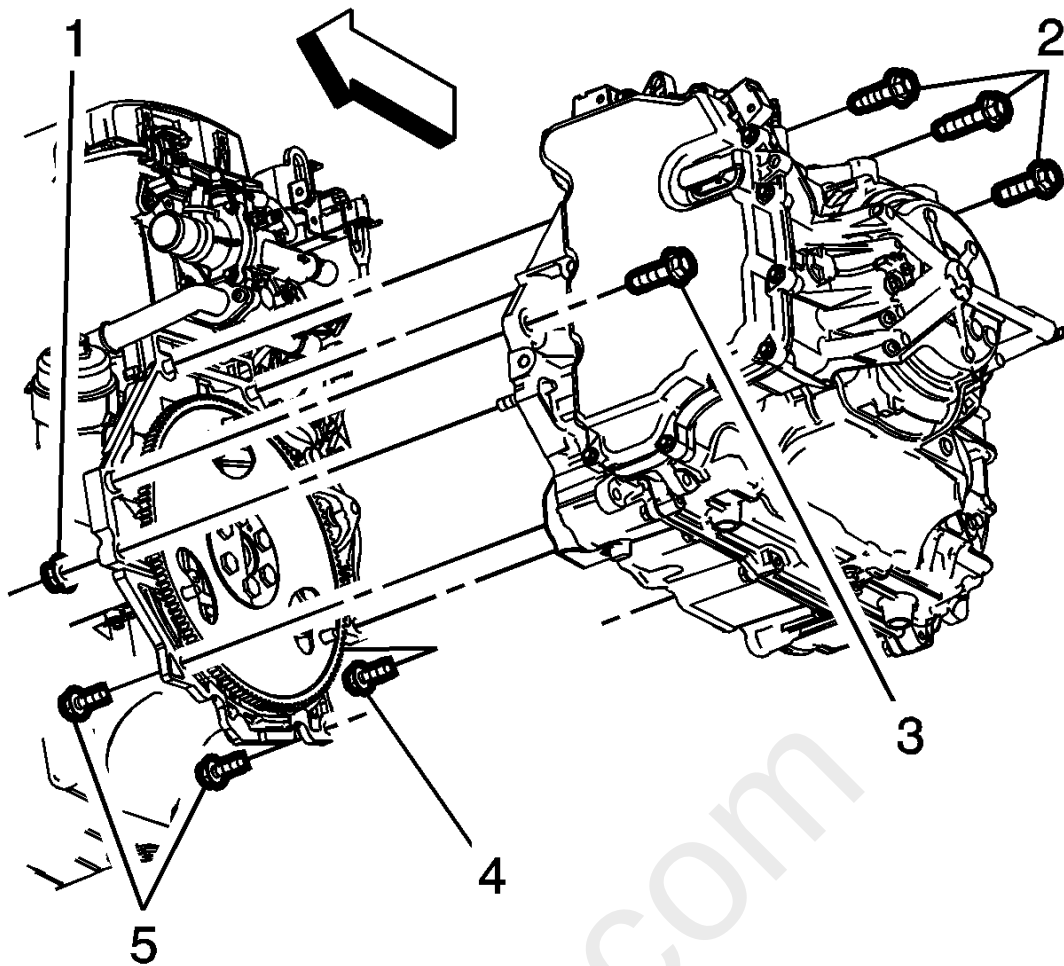


Fig. 81: Upper Transmission To Engine Bolts

Courtesy of GENERAL MOTORS COMPANY

15. Install the upper transmission to engine bolts (2) and tighten to 60 N.m (44 lb ft).

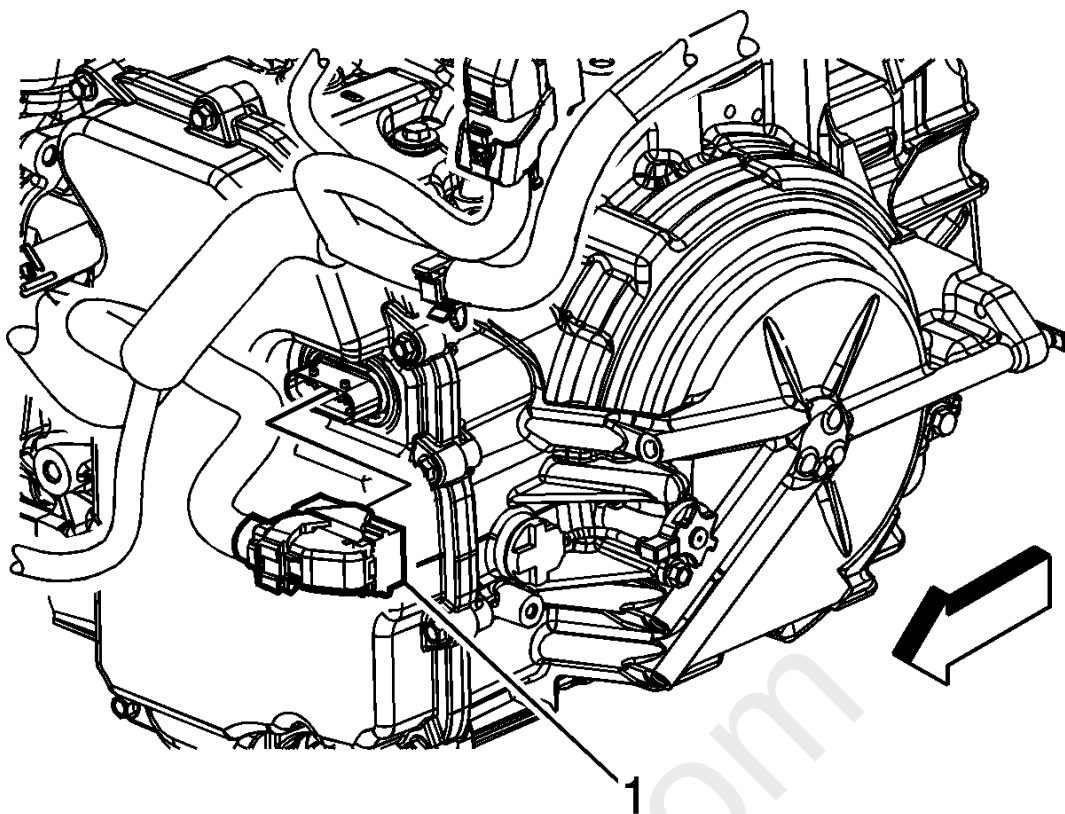


Fig. 82: Identifying Control Valve Body Transmission Control Module (TCM) Electrical Connector

Courtesy of GENERAL MOTORS COMPANY

16. Connect the control valve body transmission control module electrical connector (1) then clip the connector to the transmission.
17. Install the transmission fluid cooler outlet hose to the transmission. Refer to [Transmission Fluid Cooler Outlet Pipe Replacement \(2HO\)](#).
18. Install the transmission fluid cooler inlet hose to the transmission. Refer to [Transmission Fluid Cooler Inlet Pipe Replacement \(2HO\)](#).
19. Install the power brake booster pump assembly, if equipped. Refer to [Power Brake Booster Pump Replacement](#).
20. Install the transmission range selector lever cable. Refer to [Range Selector Lever Cable Replacement](#).
21. Adjust the automatic transmission range selector lever cable. Refer to [Range Selector Lever Cable Adjustment](#).
22. Install the radiator surge tank. Refer to [Radiator Surge Tank Replacement \(LUV, 2H0\)](#).
[Radiator Surge Tank Replacement \(LE2\)](#).
23. Install the front bumper fascia opening upper cover. Refer to [Front Bumper Fascia Opening Upper Cover Replacement](#).
24. Install the battery tray. Refer to [Battery Tray Replacement](#).
25. Fill the transmission with fluid. Refer to [Transmission Fluid Drain and Fill](#).
26. If a NEW transmission control module (TCM) has been installed into the vehicle, the NEW module needs to be reprogrammed.

NOTE:

The transmission adaptive values learn 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

27. Perform the transmission adaptive values learn. Refer to [Transmission Adaptive Values Learn](#) .

28. Road test the vehicle.

mcx30.com