

2014 ELECTRICAL**Wiring Systems and Power Management - Repair Instructions - Acadia, Enclave And Traverse****REPAIR INSTRUCTIONS****GMLAN AND MEDIA ORIENTED SYSTEMS TRANSPORT (MOST) WIRING REPAIRS****Special Tools**

- **EL-38125-10** Splice Sleeve Crimping Tool
- DuraSeal splice sleeves
- A wire stripping tool

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

The DuraSeal splice sleeves have the following 2 critical features:

- A special heat shrink sleeve environmentally seals the splice. The heat shrink sleeve contains a sealing adhesive inside.
- A cross hatched (knurled) core crimp provides necessary contact integrity for the sensitive, low energy circuits.

The GM Local Area Network (GMLAN) System requires special wiring repair procedures due to the sensitive nature of the circuitry. Follow the specific procedures and instructions when working on GMLAN connectors and terminals.

GMLAN Repairs

NOTE: When making a repair to any GMLAN network, the original wire length after the repair must be the same length as before the repair. If the network is a twisted pair, the twist must be maintained after the repair is completed.

GMLAN has 2 types of networks, low speed and high speed. Low speed GMLAN has a single wire and works at slow speeds. High speed GMLAN has 2 wires in a twisted pair and works at higher speeds. For more information on GMLAN, refer to **Data Link Communications Description and Operation** .

GMLAN Connector Terminal Repair

NOTE: A terminated lead can be used to replace damaged connector terminals for both high speed and low speed GMLAN systems. When making a connector terminal repair on a GMLAN high speed system with twisted pair wires, do not untwist the wires more than necessary to make the repair.

If the individual terminals are damaged on any GMLAN connection, use the appropriate connector repair

procedure in order to repair the terminal. Refer to **Connector Repairs** for the appropriate connector repair procedure.

GMLAN Wire Repair

NOTE: Refer to Wiring Repairs in the service information connector end views or the vehicle schematics in order to determine the correct wire size for the circuit you are repairing. You must obtain this information in order to ensure circuit integrity.

If any wire except the pigtail is damaged, repair the wire by splicing in a new section of wire of the same gauge size (0.5 mm², 0.8 mm², 1.0 mm² etc.). Use the DuraSeal splice sleeves and **EL-38125-10** tool. For wiring repair, refer to **Splicing Copper Wire Using Splice Sleeves**.

Media Oriented Systems Transport (MOST) Wiring Repair

NOTE: If harness repair/analysis is performed, MOST bus Twist Pair unshielded wire should be 0.22 mm gauge wire with at least one twist per each 1 45/64 inch (45 mm) and must not be untwisted for more than 3 15/16 of an inch (10 cm).

The following conditions need to be met to ensure a valid continuity:

- Untwisted length for all MOST 50 circuits at each wire harness connector should be no longer 50 mm max (25 mm preferred).
- When wire repairs are made, a minimum 25 twists/meter for all MOST 50 circuits.
- MOST 50 has specific receive and transmit I/O.

The transmit of one module is connected to receive of the next module in ring topology.

RELAY REPLACEMENT (ATTACHED TO WIRE HARNESS)

Removal Procedure

1. Locate the relay. Refer to the **Master Electrical Component List** to locate the relay in the vehicle.

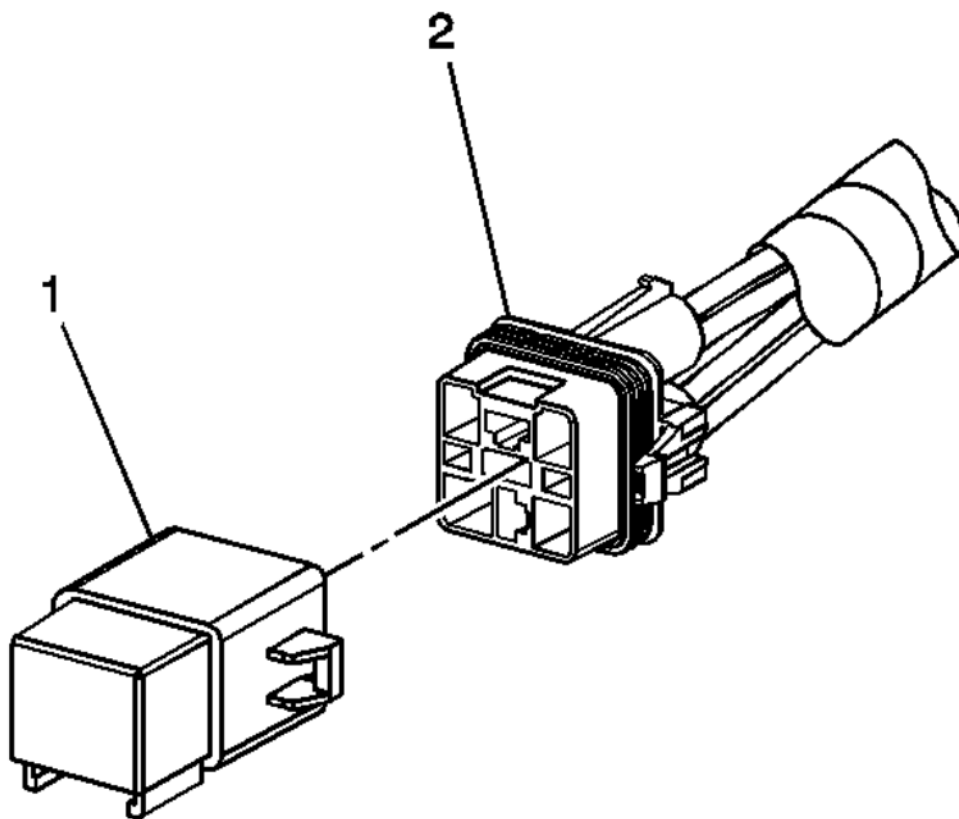


Fig. 1: Identifying Relay & Wire Harness Connector
Courtesy of GENERAL MOTORS COMPANY

2. Remove any fasteners which hold the relay in place.
3. Remove any connector position assurance (CPA) devices or secondary locks.
4. Separate the relay (1) from the wire harness connector (2).

NOTE: Use care when removing a relay in a wiring harness when the relay is secured by fasteners or tape.

Installation Procedure

1. Connect the relay (1) to the wire harness connector (2).

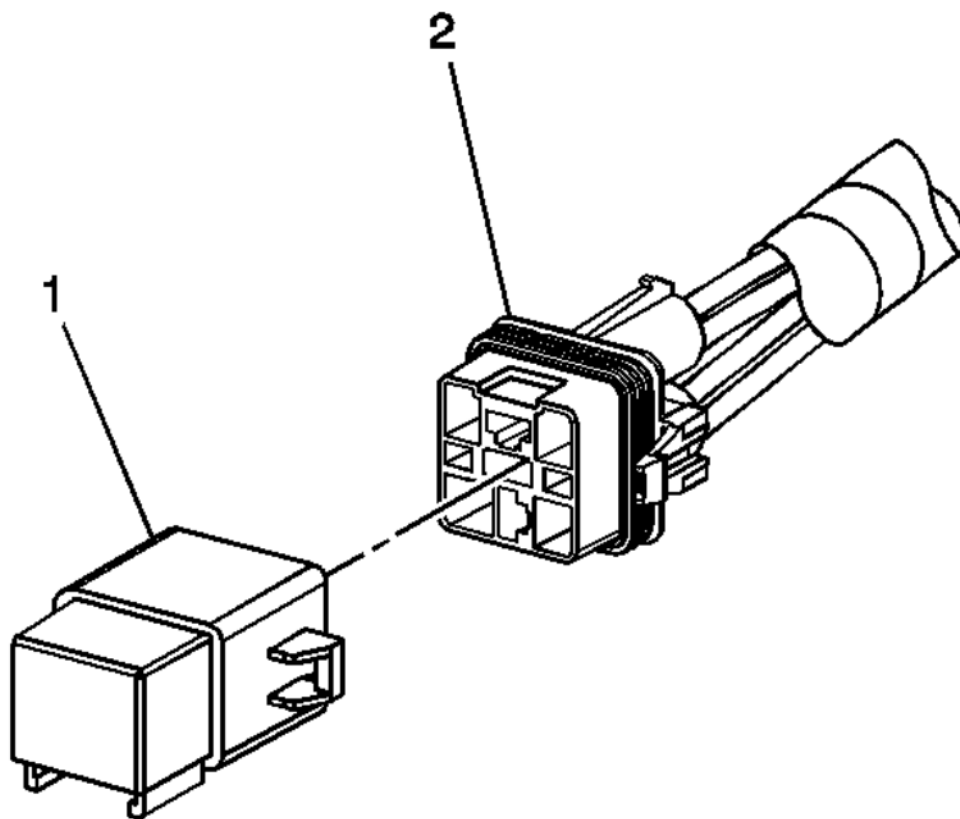


Fig. 2: Identifying Relay & Wire Harness Connector
Courtesy of GENERAL MOTORS COMPANY

2. Install any connector position assurance (CPA) devices or secondary locks.
3. Install the relay using any fasteners or tape that originally held the relay in place.

RELAY REPLACEMENT (WITHIN AN ELECTRICAL CENTER)

Special Tools

EL-43244 Relay Puller Pliers

Removal Procedure

1. Remove the electrical center cover.
2. Locate the relay. Refer to **Electrical Center Identification Views** to locate the electrical center where the relay exists.

NOTE:

- Always note the orientation of the relay.
- If equipped with a notch style relay; observe the location of the notch on the old relay to verify the new relay is installed with the notch in the same location.
- Ensure that the electrical center is secure, as not to put added stress on the wires or terminals.

3. Using the EL-43244 (1) position the tool on opposing corners of the relay (2).

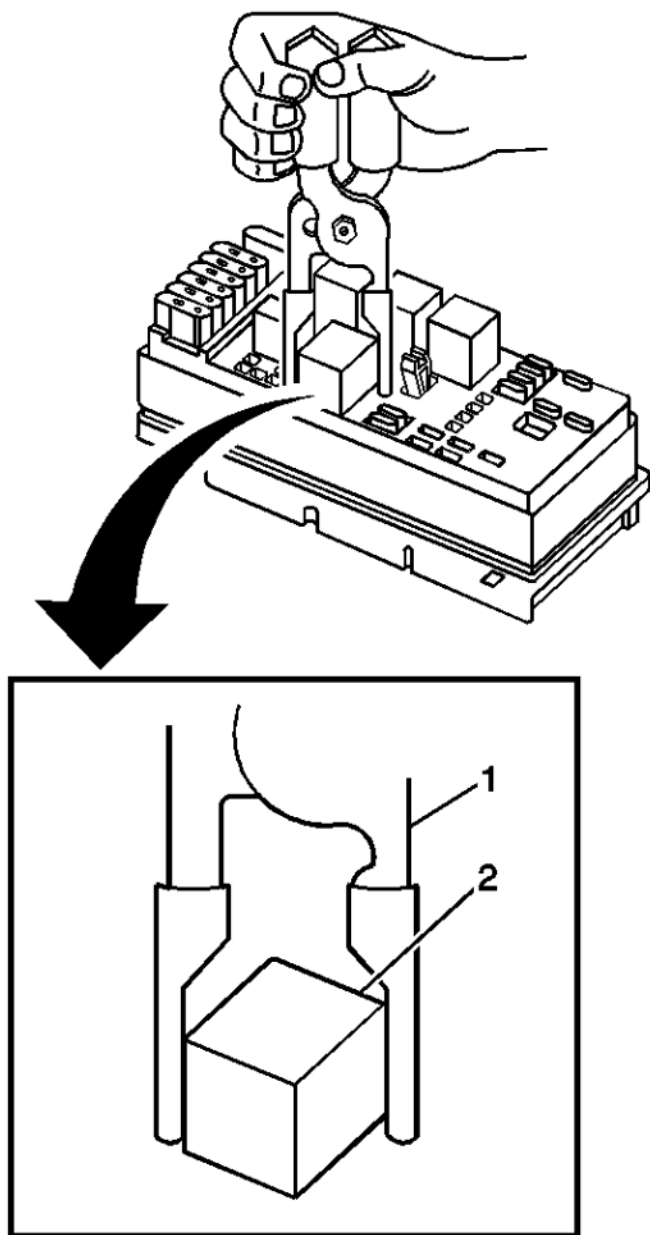


Fig. 3: Removing/Installing Relay

Courtesy of GENERAL MOTORS COMPANY

4. Remove the relay (2) from the electrical center.

CAUTION: Use EL-43244 to pull the relay straight out from the electrical center terminals. The use of pliers or a flat bladed tool could damage the electrical center.

Installation Procedure

1. Install the relay (2) in the same position as removed.

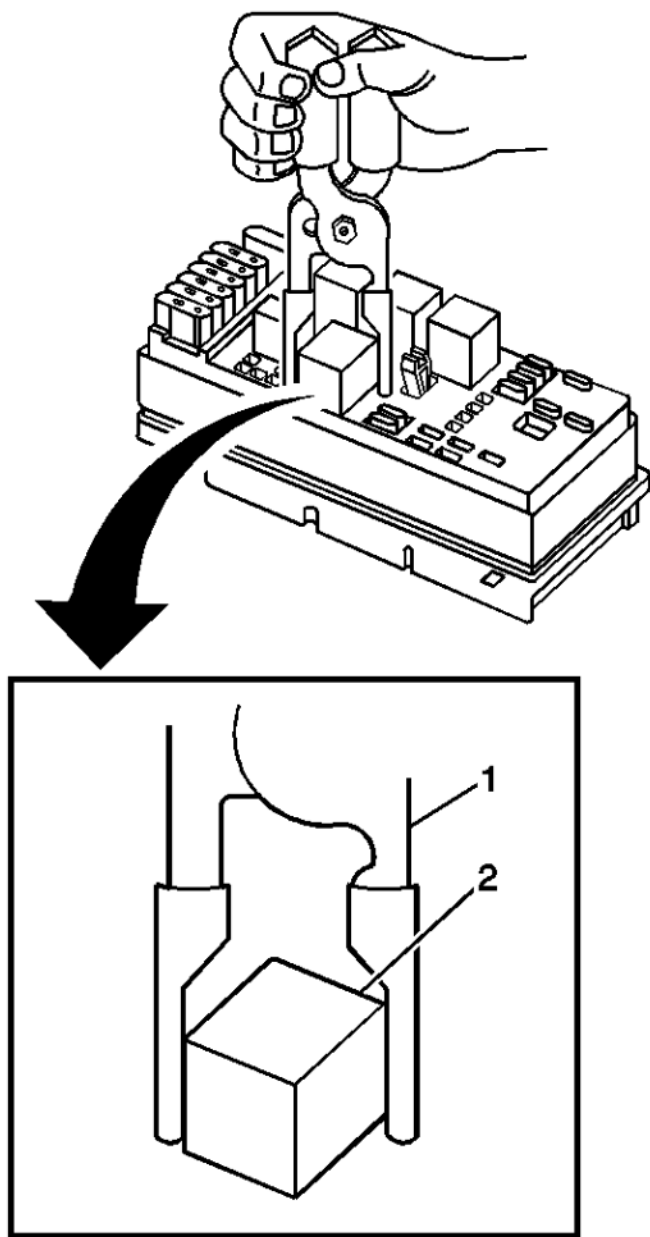


Fig. 4: Removing/Installing Relay

Courtesy of GENERAL MOTORS COMPANY

2. Install the electrical center cover.

GROUND REPAIR

Electrical Grounds

Proper electrical system function relies on secure, positive, corrosion-free ground connections. Loose, stripped or corroded connections increase the possibility of improper system function and loss of module communication. These conditions may also lead to unnecessary repairs and component replacements.

In general, electrical ground connections are accomplished using one or a combination of, three attachment methods:

- Welded M6 stud and nut
- Welded M6 nut and bolt
- Welded M8 nut and bolt

CAUTION: Use GM approved replacement fasteners with conductive finish for electrical ground repair.

Determine which attachment method is used and carry out the appropriate repair.

M6 Weld Stud Replacement

1. Select a location adjacent the damaged or missing M6 ground stud having 20 mm (0.79 in) clearance behind the panel surface and 20 mm (0.79 in) clearance surrounding the M6 rivet stud flange.
2. Using GM approved residue-free solvent or equivalent, remove any grease from the repair site and allow to dry.
3. Drill a 10 mm (0.40 in) diameter hole through the panel.

NOTE: Ensure 20 mm (0.79 in) clearance is maintained behind the panel to be drilled.

4. Carefully remove paint and primer from the area surrounding the rivet stud flange until bare metal is visible.
5. Select a replacement conductive M6 rivet stud. Refer to GM parts catalog for the correct part number and application.

CAUTION: Use GM approved replacement fasteners with conductive finish for electrical ground repair.

6. Using a rivet stud installer, install the replacement conductive M6 rivet stud.
7. Ensure the new rivet stud is securely fastened, with no detectable movement.
8. Completely wrap the threads of the rivet stud with painters tape or equivalent.

NOTE: The rivet stud and surrounding panel area must be properly refinished prior to the installation of the ground terminal and nut to maintain positive electrical grounding.

9. Refinish the repair area using an anti-corrosion primer. Refer to **Anti-Corrosion Treatment and Repair**.
10. Allow the refinished repair area to cure sufficiently before removing the protective material applied to the rivet stud threads.
11. Remove the painters tape or equivalent from the rivet stud threads.
12. Using GM approved residue-free solvent or equivalent, thoroughly clean the rivet stud threads to remove any adhesive and allow to dry.
13. Carefully remove any corrosion from the electrical ground wire terminal. Refer to **Testing for Intermittent Conditions and Poor Connections**.
14. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new conductive M6 rivet stud threads.
15. Install the ground terminal to the new rivet stud.
16. Select a new, conductive M6 nut. Refer to GM parts catalog for the correct part number and application.
17. Install the M6 nut and tighten to 8 N.m (71 lb in).

CAUTION: Refer to **Fastener Caution**.

18. Check for proper system operation.

M6 Weld Nut

1. If the M6 weld nut at the electrical ground location is damaged or stripped, a new, conductive self-threading M7 bolt may be used to secure the ground terminal. Refer to GM parts catalog for the correct part number and application.

CAUTION: Use GM approved replacement fasteners with conductive finish for electrical ground repair.

2. Using GM approved residue-free solvent or equivalent, remove any grease from the surface surrounding the weld nut and allow to dry.
3. Remove any loose metal particles from the damaged or stripped weld nut with a stiff brush.
4. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new, conductive, self-threading M7 bolt threads.
5. Carefully remove any corrosion from the electrical ground terminal. Refer to **Testing for Intermittent Conditions and Poor Connections**.
6. Install the electrical ground terminal to the new, conductive M7 bolt.
7. Install the M7 bolt and tighten to 9 N.m (80 lb in).

CAUTION: Refer to Fastener Caution .

8. Check for proper system operation.

M6 Weld Nut (Alternative Repair)

1. If the electrical ground location is accessible from both sides of the panel, a conductive M6 bolt and a conductive M6 nut may be used to secure the electrical ground terminal. Refer to GM parts catalog for the correct part number and application.

CAUTION: Use GM approved replacement fasteners with conductive finish for electrical ground repair.

2. Select a location adjacent the damaged M6 weld nut having 20 mm (0.79) clearance behind the panel surface and 20 mm (0.79) clearance surrounding the new electrical ground site.
3. Using GM approved residue-free solvent or equivalent, remove any grease from the surface surrounding the ground location and allow to dry.
4. Drill a 10 mm (0.40 in) diameter hole through the panel.

NOTE: Ensure 20 mm (0.79 in) clearance is maintained behind the panel to be drilled.

5. Carefully remove paint and primer from the area surrounding the new ground site until bare metal is visible.
6. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new, conductive M6 bolt threads.
7. Carefully remove any corrosion from the electrical ground terminal. Refer to **Testing for Intermittent Conditions and Poor Connections** .
8. Install the electrical ground terminal and new, conductive M6 bolt to the ground location.
9. Install the conductive M6 nut and tighten to 8 N.m (71 lb in).

CAUTION: Refer to Fastener Caution .

10. Refinish the repair area using an anti-corrosion primer. Refer to **Anti-Corrosion Treatment and Repair** .

NOTE: The repair area must be properly refinished to maintain positive electrical grounding.

11. Check for proper system operation.

M8 Weld Nut

1. If the M8 weld nut electrical ground location is accessible from both sides of the panel, a conductive M8 bolt and a conductive M8 nut may be used to secure the ground terminal. Refer to GM parts catalog for the correct part numbers and application.

CAUTION: Use GM approved replacement fasteners with conductive finish for electrical ground repair.

2. Select a location adjacent to M8 weld nut having 20 mm (0.79 in) clearance behind the panel surface and 20 mm (0.79 in) clearance surrounding the new electrical ground site.
3. Using GM approved residue-free solvent or equivalent, remove any grease from the surface surrounding the ground location and allow to dry.
4. Drill a 10 mm (0.40 in) diameter hole through the panel.

NOTE: Ensure 20 mm (0.79 in) clearance is maintained behind the panel to be drilled.

5. Carefully remove paint and primer from the area surrounding the new ground site until bare metal is visible.
6. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new, conductive M8 bolt threads.
7. Carefully remove any corrosion from the electrical ground terminal. Refer to **Testing for Intermittent Conditions and Poor Connections**.
8. Install the electrical ground terminal and new, conductive M8 bolt to the ground location.
9. Install the conductive M8 nut and tighten to 22 N.m (16 lb ft).

CAUTION: Refer to Fastener Caution.

10. Refinish the repair area using an anti-corrosion primer. Refer to **Anti-Corrosion Treatment and Repair**.

NOTE: The repair area must be properly refinished to maintain positive electrical grounding.

11. Check for proper system operation.

M8 Weld Nut (Alternative Repair)

1. If the M8 weld nut electrical ground location is not accessible from both sides of the panel, a conductive M6 rivet stud and a conductive M6 nut may be used to secure the ground terminal. Refer to GM parts catalog for the correct part numbers and application.

CAUTION: Use GM approved replacement fasteners with conductive finish for electrical ground repair.

2. Select a location adjacent the damaged M8 weld nut having 20 mm (0.79 in) clearance behind the panel surface and 20 mm (0.79 in) clearance surrounding the new, conductive M6 rivet stud flange.
3. Using GM approved residue-free solvent or equivalent, remove any grease from the repair site and allow to dry.
4. Drill a 10 mm (0.40 in) diameter hole through the panel.

NOTE: Ensure 20 mm (0.79 in) clearance is maintained behind the panel to be drilled.

5. Carefully remove paint and primer from the area surrounding the rivet stud flange until bare metal is visible.
6. Using a rivet stud installer, install the replacement conductive M6 rivet stud.
7. Ensure the new rivet stud is securely fastened, with no detectable movement.
8. Completely wrap the threads of the rivet stud with painters tape or equivalent.

NOTE: The rivet stud and surrounding panel area must be properly refinished prior to the installation of the ground terminal and nut to maintain positive electrical grounding.

9. Refinish the repair area using an anti-corrosion primer. Refer to **Anti-Corrosion Treatment and Repair**.
10. Allow the refinished repair area to cure sufficiently before removing the protective material applied to the rivet stud threads.
11. Remove the painters tape or equivalent from the rivet stud threads.
12. Using GM approved residue-free solvent or equivalent, thoroughly clean the rivet stud threads to remove any adhesive and allow to dry.
13. Carefully remove any corrosion from the electrical ground wire terminal. Refer to **Testing for Intermittent Conditions and Poor Connections**.
14. Using a small brush, apply Dielectric Lubricant GM P/N 12377900 (Canadian P/N 10953529) to the new conductive M6 rivet stud threads.
15. Install the ground terminal to the new, conductive M6 rivet stud.
16. Install the conductive M6 nut and tighten to 8 N.m (71 lb in).

CAUTION: Refer to Fastener Caution.

17. Check for proper system operation.

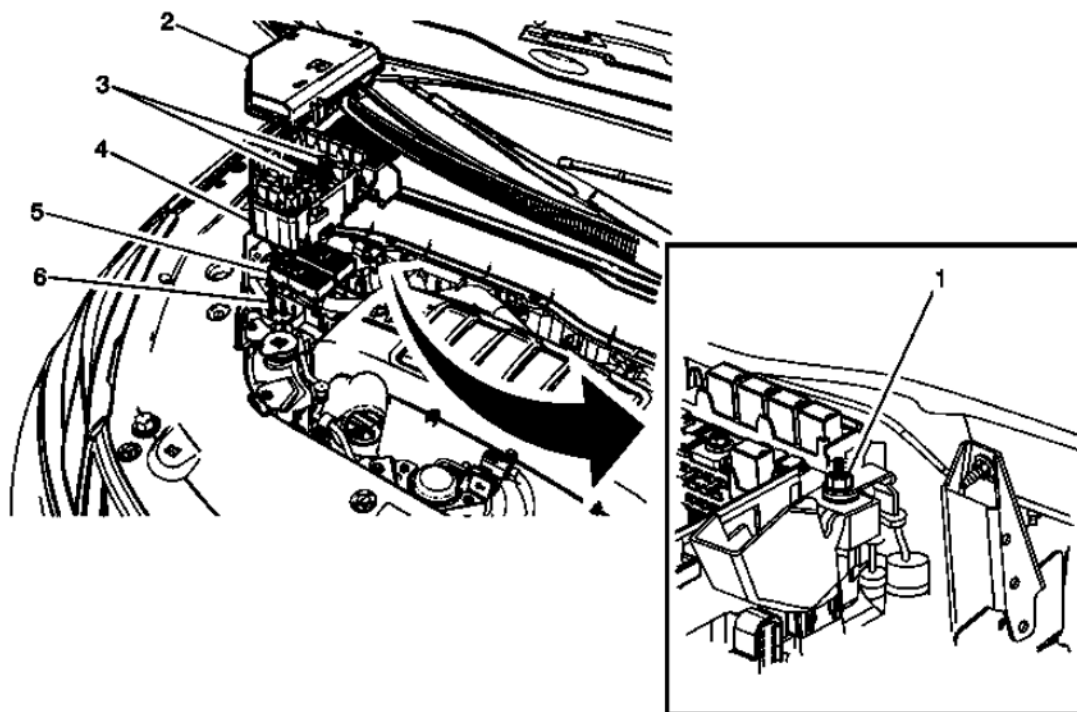
UNDERHOOD ELECTRICAL CENTER OR JUNCTION BLOCK REPLACEMENT

Fig. 5: Underhood Electrical Center or Junction Block
 Courtesy of GENERAL MOTORS COMPANY

Underhood Electrical Center or Junction Block Replacement

Callout	Component Name
Preliminary Procedure Disconnect the battery. Refer to Battery Negative Cable Disconnection and Connection .	
1	Battery Positive Cable to Junction Block Nut CAUTION: Refer to Fastener Caution . Procedure 1. Open the access cover. 2. Disconnect the battery positive cable from the junction block by removing the nut.
2	Junction Block Cover Procedure Release the fuse block from the front compartment fuse block housing.
3	Junction Block Bolt (Qty: 2) Procedure Loosen the bolts until disengaged from the fuse block.

4	Front Compartment Fuse Block Housing
5	Front Compartment Fuse Block with Harness Procedure Reposition from the fuse block.
6	Underhood Junction Block Base Procedure Release the junction block base from the wheelhouse.

INSTRUMENT PANEL ELECTRICAL CENTER OR JUNCTION BLOCK REPLACEMENT

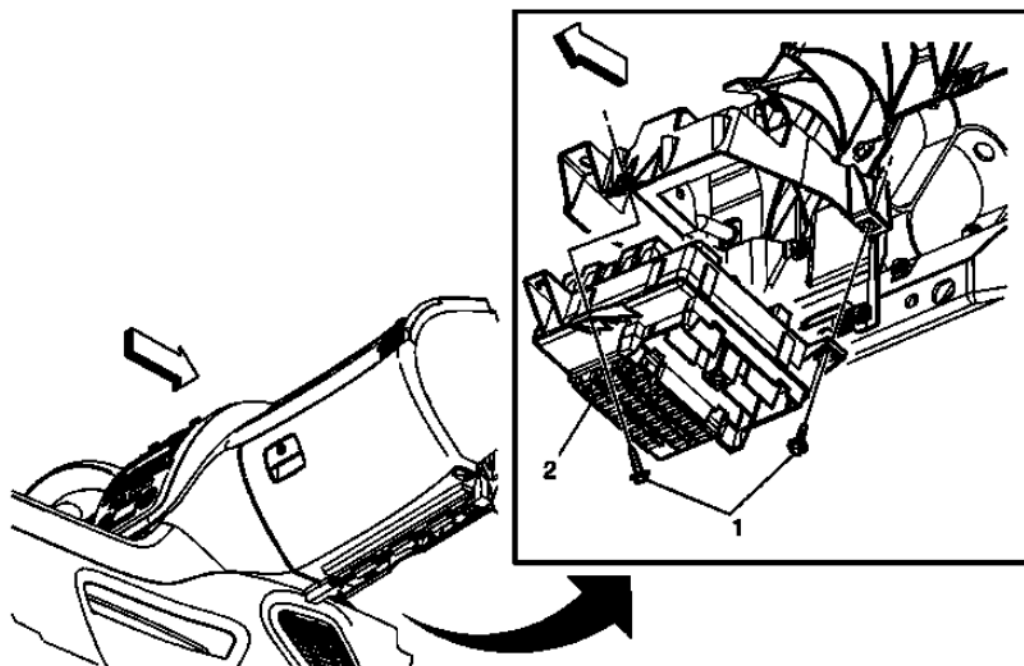


Fig. 6: View Of Instrument Panel Electrical Center
Courtesy of GENERAL MOTORS COMPANY

Instrument Panel Electrical Center or Junction Block Replacement

Callout	Component Name
Preliminary Procedure	
1.	Disconnect the battery. Refer to Battery Negative Cable Disconnection and Connection .
2.	Remove the right side instrument panel insulator. Refer to Instrument Panel Insulator Panel Replacement - Right Side .
3.	Remove the instrument panel compartment. Refer to Instrument Panel Compartment Replacement (Acadia) , Instrument Panel Compartment Replacement (Enclave) and Instrument Panel Compartment Replacement (Traverse) .
4.	Remove the front carpet retainer. Refer to Front Side Door Opening Floor Carpet Retainer

Replacement .

1	Instrument Panel Electrical Center Bracket Screw (Qty: 2) CAUTION: Refer to Fastener Caution . Tighten 2.5 N.m (22 lb in)
2	Instrument Panel Electrical Center Assembly Procedure 1. Remove the bolt securing the body wiring harness connector to the instrument panel electrical center. 2. Disconnect the electrical connections. 3. When installing the body wiring harness connector to the instrument panel electrical center, tighten the bolt until an audible clicking noise is heard.

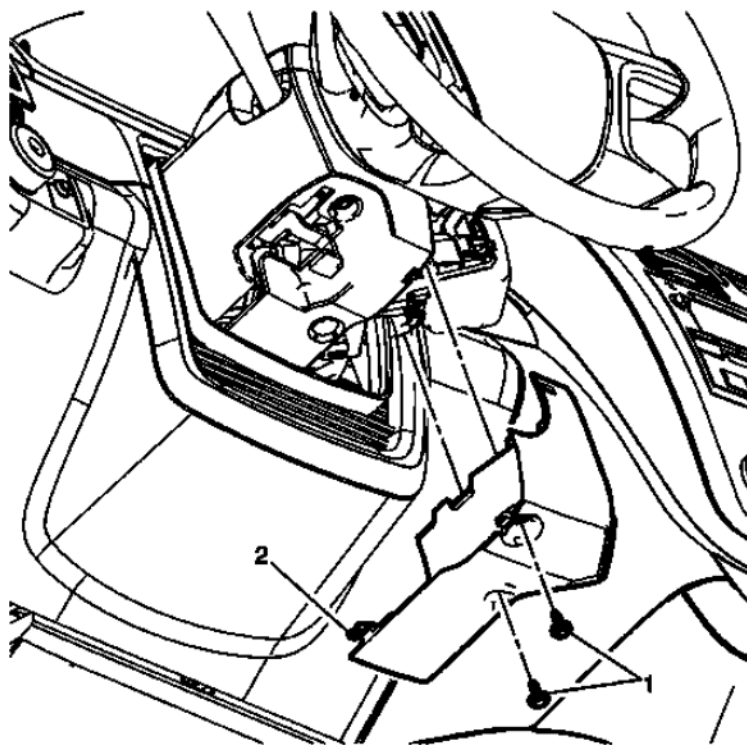
IGNITION LOCK CYLINDER OPENING TRIM COVER REPLACEMENT

Fig. 7: Ignition Lock Cylinder Opening Trim Cover
Courtesy of GENERAL MOTORS COMPANY

Ignition Lock Cylinder Opening Trim Cover Replacement

Callout	Component Name
Preliminary Procedure Remove the steering column lower trim cover bolts. Refer to <u>Steering Column Lower Trim Cover Replacement</u> .	
1	Ignition Lock Cylinder Opening Trim Cover Bolt (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> .
2	Ignition Lock Cylinder Opening Trim Cover Procedure 1. Unclip the ignition lock cylinder opening trim cover from steering column lower trim cover. 2. Separate the ignition lock cylinder opening trim cover from the steering column upper trim cover.

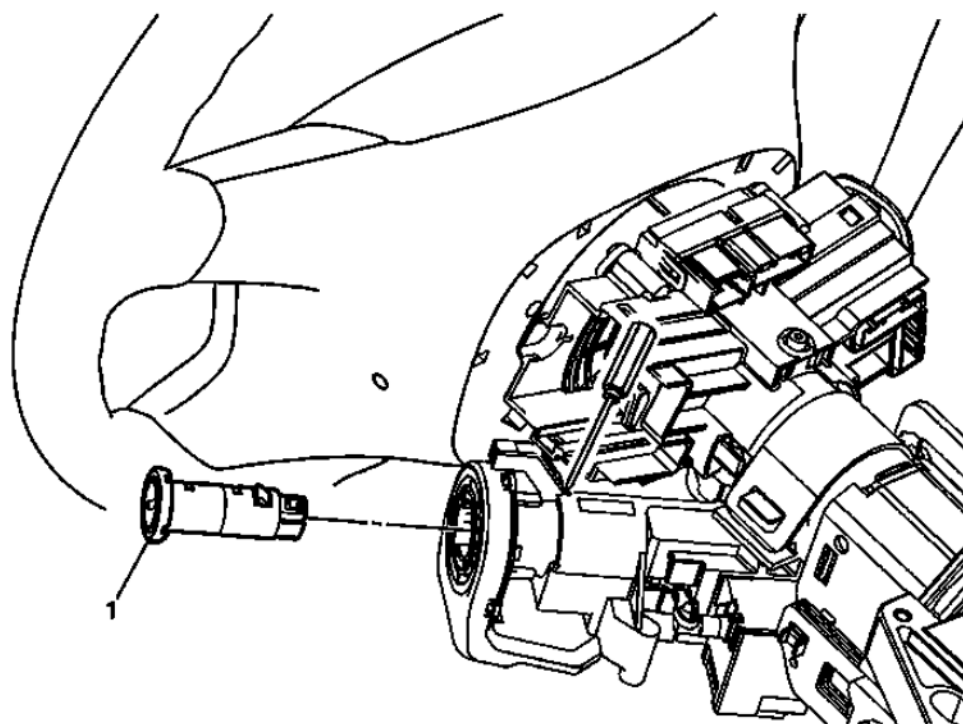
IGNITION LOCK CYLINDER REPLACEMENT

Fig. 8: View Of Ignition Lock Cylinder
Courtesy of GENERAL MOTORS COMPANY

Ignition Lock Cylinder Replacement

Callout	Component Name
Preliminary Procedures	
1. Remove the steering column upper trim cover. Refer to <u>Steering Column Upper Trim Cover Replacement</u>. 2. Remove the steering column lower trim cover. Refer to <u>Steering Column Lower Trim Cover Replacement</u>.	
1	Ignition Lock Cylinder Procedure 1. Turn the ignition lock cylinder to the RUN position. 2. Insert a pick-type tool into the proper hole on the ignition lock cylinder case and press the lock tab on the ignition lock cylinder down. 3. Pull the ignition lock cylinder out of the ignition lock cylinder case. 4. If installing a new ignition lock cylinder then refer to <u>Key and Lock Cylinder Coding</u>.

IGNITION AND START SWITCH REPLACEMENT

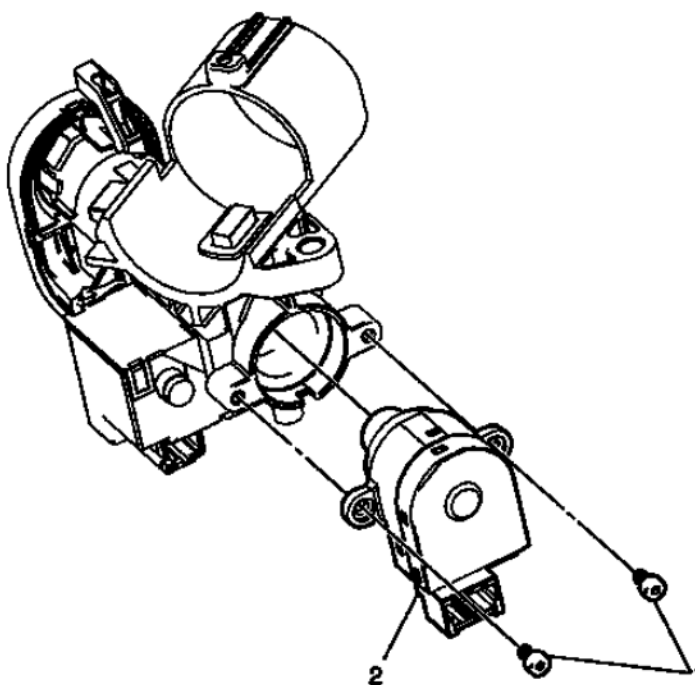


Fig. 9: Locating Ignition & Start Switch
 Courtesy of GENERAL MOTORS COMPANY

Ignition and Start Switch Replacement

Callout	Component Name
Preliminary Procedure Remove the ignition and start switch housing. Refer to Ignition and Start Switch Housing Replacement .	
1	Ignition and Start Switch Bolt (Qty: 2) CAUTION: Refer to Fastener Caution . Tighten 2 N.m (18 lb in)
2	Ignition and Start Switch

IGNITION AND START SWITCH HOUSING REPLACEMENT

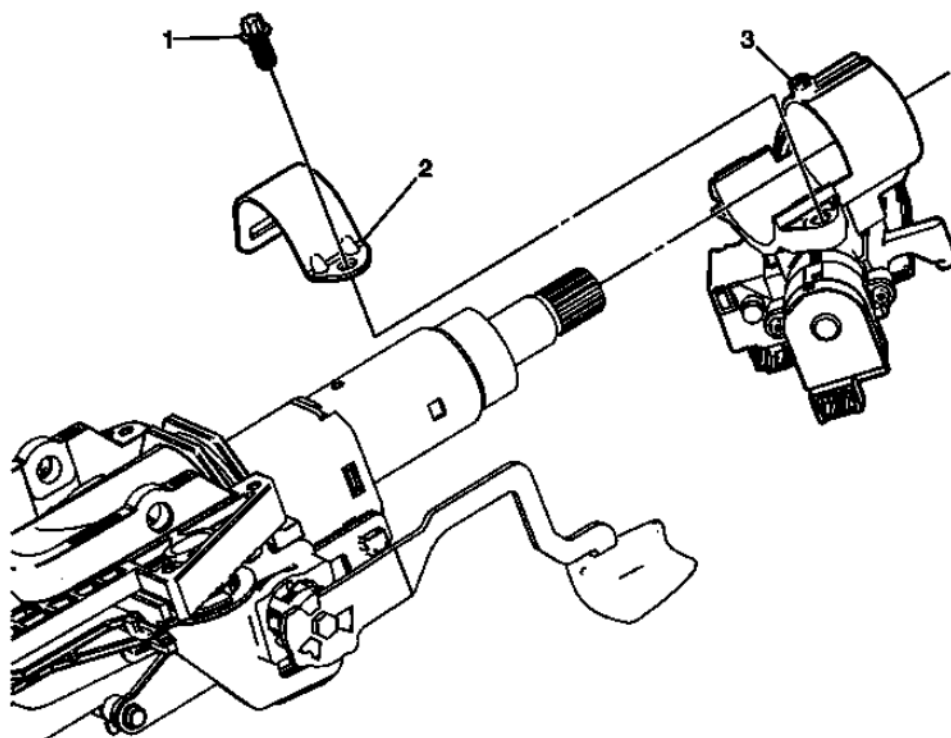


Fig. 10: Identifying Ignition & Start Switch Housing
Courtesy of GENERAL MOTORS COMPANY

Ignition and Start Switch Housing Replacement

Callout	Component Name
Preliminary Procedure Remove the turn signal switch bracket. Refer to Turn Signal Switch Bracket Replacement .	
	Ignition and Start Switch Housing Bolt

1	CAUTION: Refer to Fastener Caution . Tighten 8 N.m (71 lb in)
2	Ignition and Start Switch Housing Strap
3	Ignition and Start Switch Housing Procedure 1. Disconnect any electrical connectors as needed. 2. Transfer any parts as needed.