

2010 Cadillac SRX

2010 ACCESSORIES & EQUIPMENT Adjustable Pedals - SRX

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Adjustable Pedals SRX

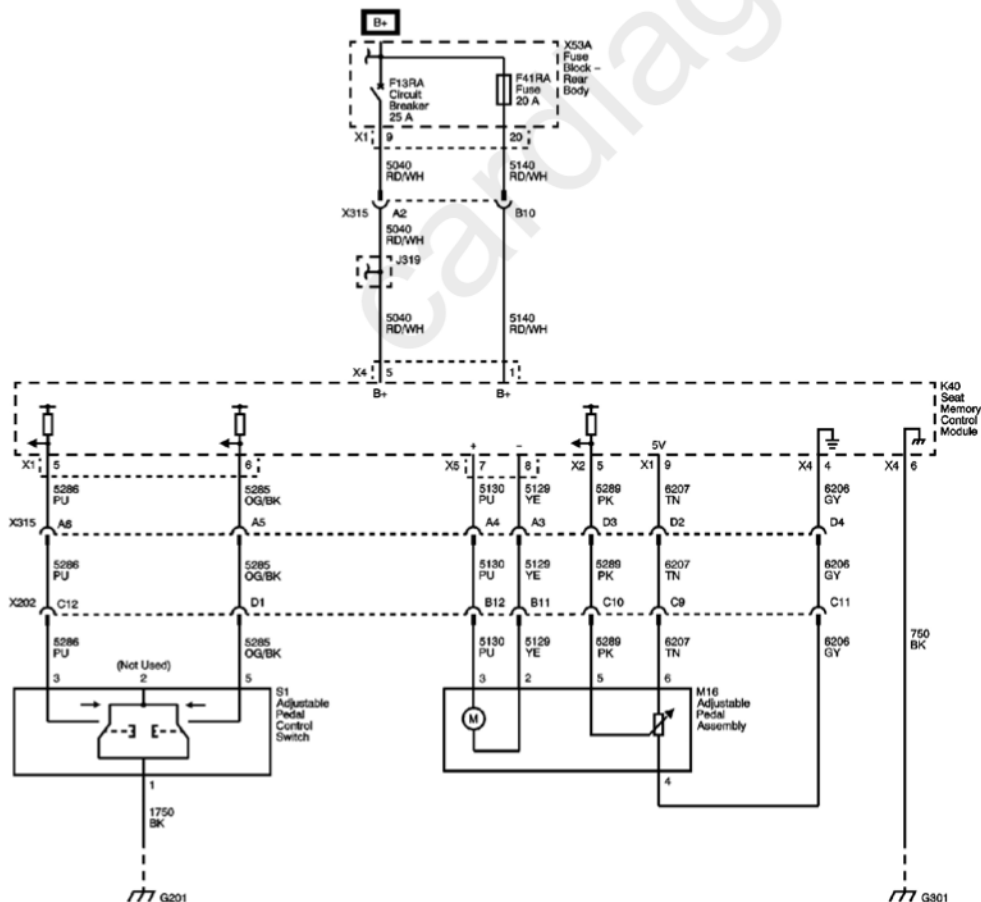
SP CI ICATIONS

FASTENER TI TENIN SPECIFICATIONS

Application	Specification	
	Metric	English
Accelerator Pedal Adjuster Actuator Bolt	N.m	80 lb in
Accelerator Pedal with Position Sensor Bolt	N.m	80 lb in
Adjustable Pedal Assembly Bolt	21 N.m	15 lb ft
Adjustable Pedal Assembly Nut	21 N.m	15 lb ft

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ADJUSTABLE PEDAL SC EMATICS



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Fig 1 Adjustable Pedals Circuit Schematic (JF4)

Courtesy of GENERAL MOTORS CORP

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DTC	Description
DTC B3604 or B3605	B3604 02: Adjustable Pedal Forward Switch Circuit Short to Ground B3605 02: Adjustable Pedal Rearward Switch Circuit Short to Ground
DTC B3606	B3606 01: Adjustable Pedal Position Sensor Circuit Short to Battery B3606 06: Adjustable Pedal Position Sensor Circuit Short to Ground or Open B3606 5A: Adjustable Pedal Position Sensor Circuit Not Plausible B3606 61: Adjustable Pedal Position Sensor Stuck
DTC B3607	B3607 4B: Adjustable Pedal Motor Circuit Calibration Not Learned

DTC B3604 OR B3605

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptors

DTC B3604 0

Adjustable Pedal Forward Switch Circuit Short to Ground

DTC B3605 0

Adjustable Pedal Rearward Switch Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to ground	Open/ igh Resistance	Short to Voltage	Signal Performance
Adjustable Pedals Forward Switch Signal	B3604 02	1	-	-
Adjustable Pedals Rearward Switch Signal	B3605 02	1	-	-
Ground	-	1	-	-

1. Adjustable Pedals Malfunction**Circuit/System Description**

Ground is supplied at all times to the adjustable pedal switch. When the pedals switch is pressed, a 5 V reference voltage is applied through the switch contacts and the switch signal circuit to the memory seat control module. The memory seat control module then commands the adjustable pedals motor to move in response to the switch signal.

Conditions for Running the DTC

The memory seat control module must be powered.

Conditions for Setting the DTC

The forward and rearward switch signal circuits are active at the same time.

Action Taken When the DTC Sets

Adjustable pedals operation will be disabled.

Conditions for Clearing the DTC

- The current DTC will clear and set the code to history, 3 seconds after the fault is no longer present and the power mode changes to OFF then back to ACC or RUN.
- The history DTC will clear after 50 consecutive fault-free ignition cycles have occurred.

Reference Information**Schematic Reference****Adjustable Pedal Schematics****Connector End View Reference****Component Connector End Views****Description and Operation****Adjustable Pedals Description and Operation****Electrical Information Reference**

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Ignition ON, vehicle in P (Park), observe the scan tool Adjustable Pedal Control Switch parameters while pressing the adjustable pedal switch in both directions. The readings should change between Inactive and Active for both directions.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the S1 adjustable pedal control switch.
2. Wait 3 minutes, test for less than 10 ohms between the ground circuit terminal 1 and ground.
 - o If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the scan tool Adjustable Pedal Control Switch parameter is Inactive.
 - o If not the specified value, test the signal circuit terminal 3 and signal circuit terminal 5 for a short to ground. If the circuits test normal, replace K40 memory seat control module.
4. Install a 3 A fused jumper wire between the signal terminal 3 and ground. The scan tool Adjustable Pedals Direction Command parameter should be Forward.
 - o If not the specified value, test the signal circuit for an open/high resistance. If the circuit tests normal, replace K40 memory seat control module.
5. Install a 3 A fused jumper wire between the signal terminal 5 and ground. The scan tool Adjustable Pedals Direction Command parameter should be Rearward.
 - o If not the specified value, test the signal circuit for an open/high resistance. If the circuit tests normal, replace K40 memory seat control module.
6. If all circuits tests normal, replace the S1 adjustable pedal control switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the S1 adjustable pedal control switch.
2. Test for infinite resistance between the signal terminal 3 and the ground terminal 1 with the switch in the open position.
 - o If not the specified value, replace the S1 adjustable pedal control switch.
3. Test for less than 2 ohms between the signal terminal 3 and the ground terminal 1 with the switch in the closed position.
 - o If greater than the specified range, replace the S1 adjustable pedal control switch.
4. Test for infinite resistance between the signal terminal 5 and the ground terminal 1 with the switch in the open position.
 - o If not the specified value, replace the S1 adjustable pedal control switch.
5. Test for less than 2 ohms between the signal terminal 5 and the ground terminal 1 with the switch in the closed position.
 - o If greater than the specified range, replace the S1 adjustable pedal control switch.

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Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Brake and Accelerator Pedal Adjuster Switch Replacement**
- **Control Module References** for memory seat control module replacement, setup, and programming

DTC B3606

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptors

DTC B3606 01

Adjustable Pedal Position Sensor Circuit Short to Battery

DTC B3606 06

Adjustable Pedal Position Sensor Circuit Short to Ground or Open

DTC B3606 5A

Adjustable Pedal Position Sensor Circuit Not Plausible

DTC B3606 61

Adjustable Pedal Position Sensor Stuck

Diagnostic Fault Information

Circuit	Short to ground	Open/ High Resistance	Short to Voltage	Signal Performance
5 V Reference	B3606 06	B3606 06	B3606 01	B3606 5A
Adjustable Brake Pedal Position Sensor Signal	B3606 06	B3606 06	B3606 01	B3633 5A
Adjustable Pedals Motor Forward Control	-	B3606 61	-	B3606 5A
Adjustable Pedals Motor Rearward Control	-	B3606 61	-	B3606 5A
Memory Seat Sensor Low Reference	-	B3606 01, B3606 61	-	B3606 5A

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Circuit/System Description

The K40 memory seat control module monitors the location of the adjustable pedals using the adjustable pedals position sensor. The adjustable pedals position sensor is supplied with 5 V reference and ground circuits from the memory seat control module. The position sensor signal circuits are referenced from ground within the memory seat control module. The signal voltage monitored by the module ranges from 0.22-4.75 V and is determined by the wiper location on the resistor within the position sensor.

Conditions for Running the DTC

The memory seat control module must be powered.

Conditions for Setting the DTC

B3606 01

The analog input from the adjustable brake pedal position sensor is greater than 4.75 V, the sensor will be considered out of range and the memory seat control module will set this DTC.

B3606 06

The analog input from the adjustable brake pedal position sensor is less than 0.22 V, the sensor will be considered out of range and the memory seat control module will set this DTC.

B3606 5A

This DTC will set if the memory seat control module is controlling the motor in one direction and the adjustable brake pedal position sensor is tracking the motor in the opposite direction. The sensor is either mounted or wired incorrectly, or the polarity of the motor control circuits are reversed.

B3606 61

This DTC will set, if the memory seat control module is driving the adjustable pedal motor but does not see a voltage change from the adjustable brake pedal position sensor.

Action Taken When the DTC Sets

Memory recall functions will be suspended.

Conditions for Clearing the DTC

- The current DTC will become a history DTC when the fault is no longer present and the ignition has been cycled.
- The history DTC will clear after 50 consecutive fault-free ignition cycles have occurred.

Reference Information

Schematic Reference

Adjustable Pedal Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Adjustable Pedals Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Ignition ON, observe the scan tool Adjustable Pedals Position Sensor parameters. The readings should be between 1.5 V and 3.4 V and change while adjusting the pedals position.

Circuit/System Testing

B3606 01 and B3606 06

1. Ignition OFF, disconnect the harness connector at the M16 adjustable pedal assembly.
2. Ignition OFF, test for less than 10 ohms between the low reference circuit terminal 4 and ground.
 - If greater than the specified range, test the low reference circuit for an open/high resistance. If the circuit tests normal, replace the K40 memory seat control module.
3. Ignition ON, test for 4.8-5.2 V between the 5 V reference circuit terminal 6 and ground.
 - If less than the specified range, test the 5 V reference circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K40 memory seat control module.
 - If greater than the specified range, test the 5 V reference circuit for a short to voltage. If the circuit tests normal, replace the K40 memory seat control module.
4. Ignition ON, verify the scan tool Adjustable Pedals Horizontal Position parameter is less than 0.45 V.
 - If greater than the specified range, test the signal circuit terminal 5 for a short to voltage. If the circuit tests normal, replace the K40 memory seat control module.
5. Install a 3 A fused jumper wire between the signal circuit terminal 5 and the 5 V reference circuit terminal 6.
6. Verify the scan tool Adjustable Pedals Horizontal Position parameter is greater than 4.75 V.
 - If less than the specified range, test the signal circuit for short to ground or an open/high resistance.

If the circuit tests normal, replace the K40 memory seat control module.

6. If all circuits test normal, test or replace the M16 adjustable pedal assembly.

B3606 61

1. Ignition ON, verify that no other adjustable pedal DTCs are set.
 - If other adjustable pedal DTCs are set, diagnosis those DTCs first.
2. Ignition OFF, disconnect the harness connector at M16 adjustable pedal assembly.
3. Connect a test lamp between the motor control circuit terminal 2 and terminal 3.
4. Ignition ON, verify that a test lamp illuminates while commanding the adjustable pedals to move in both directions with the scan tool.
 - If the test lamp does not illuminate, test the motor control circuits for an open/high resistance. If the circuits test normal replace the K40 memory seat control module.
5. If all circuits test normal, test or replace the M16 adjustable pedal assembly.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Brake Pedal Assembly Replacement**
- **Control Module References** for the K40 memory seat control module replacement, setup, and programming

DTC B3607**Diagnostic Instructions**

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor**DTC B3607 4B**

Adjustable Pedal Motor Circuit Calibration Not Learned

Circuit/System Description

After replacement of adjustable pedal mechanical components or if the memory seat control module is reprogrammed or replaced, the adjustable pedals softstop positions must be learned.

Conditions for Running the DTC

The memory seat control module must be powered.

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Conditions for Setting the DTC

This DTC will set if the pedals actuator softstops are not learned.

Action Taken When the DTC Sets

Manual and memory adjustable pedals operation will be disabled.

Conditions for Clearing the DTC

- The current DTC will become a history DTC when the fault is no longer present and the ignition has been cycled.
- The history DTC will clear after 50 consecutive fault-free ignition cycles have occurred.

Reference Information

Schematic Reference

Adjustable Pedal Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Adjustable Pedals Description and Operation

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON, verify that no other adjustable pedal DTCs are set.
 - If other adjustable pedal DTCs are set, refer to **Diagnostic Trouble Code (DTC) List - Vehicle**.
2. Observe the scan tool Adjustable Pedals Softstop Learn Status parameter. The parameter reading should be learned.
 - If not the specified value, perform the scan tool Learn Adjustable Pedals Softstops procedure. Refer

to **Adjustable Pedal System Calibration**. If the DTC resets, replace the K40 memory seat control module.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

Control Module References for memory seat control module replacement, setup, and programming

SYMPTOMS - ADJUSTABLE PEDALS

IMPORTANT: The following steps must be completed before using the symptom table.

1. Perform the **Diagnostic System Check - Vehicle** before using the symptom table in order to verify that all of the following are true:
 - There are no DTCs set.
 - The control modules can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions.

Refer to **Adjustable Pedals Description and Operation**.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the adjustable pedal system. Refer to **Checking Aftermarket Accessories**.
- Inspect the adjuster cables for proper connections or damage.
- Inspect the adjuster screws and slides for damage or conditions which may obstruct movement.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to **Testing for Intermittent Conditions and Poor Connections**.

Symptom List

Refer to **Adjustable Pedals Malfunction** in order to diagnose the symptom.

ADJUSTABLE PEDALS MALFUNCTION

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

Diagnostic Fault Information

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Circuit	Short to Ground	Open igh Resistance	Short to Voltage	Signal Performance
Position Sensor 5 V Reference	B3606 01	B3606 06	B3606 06	-
Position Sensor Signal	B3606 06	B3606 06	B3606 06	-
Forward Switch Signal	2	2	B3604 01	-
Rearward Switch Signal	3	3	B3605 01	-
Motor Control A	1	1	1	-
Motor Control B	1	1	1	-
Position Sensor Low Reference	-	B3606 06	-	-
Switch Ground	-	1	-	-
1. Adjustable Pedals Inoperative 2. Adjustable Pedals Forward Inoperative 3. Adjustable Pedals Rearward Inoperative				

Circuit System Description

The adjustable pedals assembly is moved forward or backward by a motor which is fixed to the brake pedal actuator with a drive cable to the accelerator pedal actuator. The memory seat control module controls the adjustable pedals motor by applying battery voltage to one of the outputs and ground to the other. The adjustable pedals motor is bidirectional and the direction of the pedal assembly travel is determined by which of the motor control circuits is switched to battery positive voltage while the other is grounded. The adjustable pedals forward and rearward switches are inputs to the memory seat control module. When the switch is operated to the forward or rearward direction, it supplies a ground path for the signal inputs from the memory seat control module.

Reference Information

Schematic Reference

Adjustable Pedal Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Adjustable Pedals Description and Operation

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- iring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit System Verification

1. Verify DTC B3604, B3605, B3606, or B3607 is not set.
 - If any of the DTCs are set, refer to **Diagnostic Trouble Code DTC List Vehicle**.
2. Ignition ON, observe the scan tool Adjustable Pedals Control Switch and Adjustable Pedal Direction Command parameters while cycling the adjustable pedal switch between the FWD and RWD position. The appropriate parameter should change between Active and Inactive as commanded.
 - If the parameters do not change between the specified values, refer to **Adjustable Pedal Switch Circuit Malfunction**.
3. Verify the scan tool Adjustable Pedals Horizontal Position parameter is between 0.45-4.55 V.
 - If not within the specified range, refer to **Adjustable Pedal Motor Circuit Malfunction**.
4. Command the adjustable pedals to move forward and rearward. The pedals should move in the commanded direction.
 - If the pedals do not move in the commanded direction, refer to **Adjustable Pedal Switch Circuit Malfunction**.

Circuit System Testing**Adjustable Pedal Switch Circuit Malfunction**

1. Ignition OFF, disconnect the harness connector at the S1 adjustable pedal switch.
2. Wait 3 minutes, test for less than 10 ohms between the ground circuit terminal 1 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
3. Ignition ON, verify the scan tool Adjustable Pedal Control Switch parameter is Inactive.
 - If not the specified value, test the signal circuit terminal 3 and signal circuit terminal 5 for a short to ground. If the circuits test normal, replace the K40 memory seat control module.
4. Install a 3 A fused jumper wire between the signal terminal 3 and ground. The scan tool Adjustable Pedals Direction Command parameter should be Forward.
 - If not the specified value, test the signal circuit for an open/high resistance. If the circuit tests normal, replace the K40 memory seat control module.
5. Install a 3 A fused jumper wire between the signal terminal 5 and ground. The scan tool Adjustable Pedals Direction Command parameter should be Rearward.
 - If not the specified value, test the signal circuit for an open/high resistance. If the circuit tests normal, replace the K40 memory seat control module.
6. If all circuits tests normal, test or replace the S1 adjustable pedal switch.

Adjustable Pedal Position Sensor Circuit Malfunction

1. Ignition OFF, disconnect the harness connector at the M16 adjustable pedal assembly.
2. Ignition OFF, test for less than 10 ohms between the low reference circuit terminal 4 and ground.

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- If greater than the specified range, test the low reference circuit for an open/high resistance. If the circuit tests normal, replace the K40 memory seat control module.
- 3. Ignition ON, test for 4.8-5.2 V between the 5 V reference circuit terminal 6 and ground.
 - If less than the specified range, test the 5 V reference circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K40 memory seat control module.
 - If greater than the specified range, test the 5 V reference circuit for a short to voltage. If the circuit tests normal, replace the K40 memory seat control module.
- 4. Verify the scan tool Adjustable Pedals Horizontal Position parameter is less than 0.45 V.
 - If greater than the specified range, test the signal circuit terminal 5 for a short to voltage. If the circuit tests normal, replace the K40 memory seat control module.
- 5. Install a 3 A fused jumper wire between the signal circuit terminal 5 and the 5 V reference circuit terminal 6.
- 6. Verify the scan tool Adjustable Pedals Horizontal Position parameter is greater than 4.55 V.
 - If less than the specified range, test the signal circuit for short to ground or an open/high resistance. If the circuit tests normal, replace the K40 memory seat control module.
- 6. If all circuits test normal, test or replace the M16 adjustable pedal assembly.

Adjustable Pedal Motor Circuit Malfunction

- 1. Ignition OFF, disconnect the harness connector at the M16 adjustable pedal assembly.
- 2. Ignition ON, test for 1.5-2.5 V between the control circuit terminals listed below and ground:
 - Control circuit terminal 2
 - Control circuit terminal 3
 - If greater than the specified range, test the control circuit for a short to voltage. If the circuit tests normal, replace the K40 memory seat control module.
 - If less than the specified range, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace K40 memory seat control module.
- 3. Connect the test lamp between the control circuit terminal 2 and the control circuit terminal 3.
- 4. Command the adjustable pedals to move forward and rearward. The test lamp should illuminate each time the pedals are commanded to move.
 - If the test lamp does not illuminate, replace the K40 memory seat control module.
- 5. If all circuits test normal, test or replace the M16 adjustable pedal assembly.

Repair Procedures

Perform **Diagnostic Repair Verification** the after completing the diagnostic procedure.

- **Brake and Accelerator Pedal Adjuster Switch Replacement**
- **Brake Pedal Assembly Replacement**
- **Control Module References** for K40 memory seat control module replacement, setup, and programming

AD STABLE PEDAL SYSTEM CALIBRATION

The memory seat module monitors the locations of both pedal assemblies in order to prevent a step over condition from occurring. Any time adjustable pedal system components are replaced, such as a memory seat module or pedal position sensors, the system must be calibrated. The calibration procedure allows the memory seat module to store the position sensor value through the full range of pedal travel.

1. Install a scan tool.
2. Go to the Memory Seat Module, Special Functions menu.
3. Using the scan tool Output Controls operate the pedals to the full forward position.
4. Start the calibration procedure and allow the memory seat module to operate the pedals to the rearward stop and return to the forward stop without activating any switch inputs.

BRAKE AND ACCELERATOR PEDAL ADJUSTERS ITC REPLACEMENT**Removal Procedure**

NOTE : Refer to **WARNING** .

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling** .

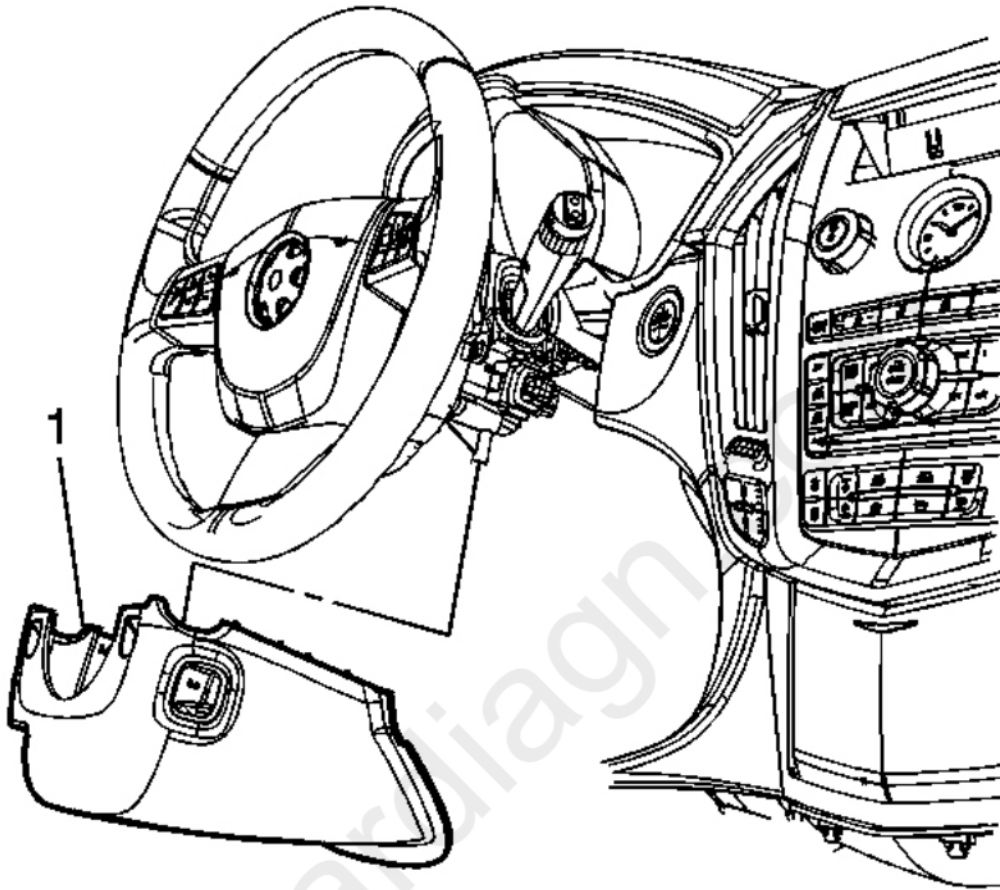


Fig. : Identifying Lower Steering Column Shroud
Courtesy of GENERAL MOTORS CORP.

2. Remove the lower steering column shroud (1). Refer to **Steering Column Shroud Replacement** .

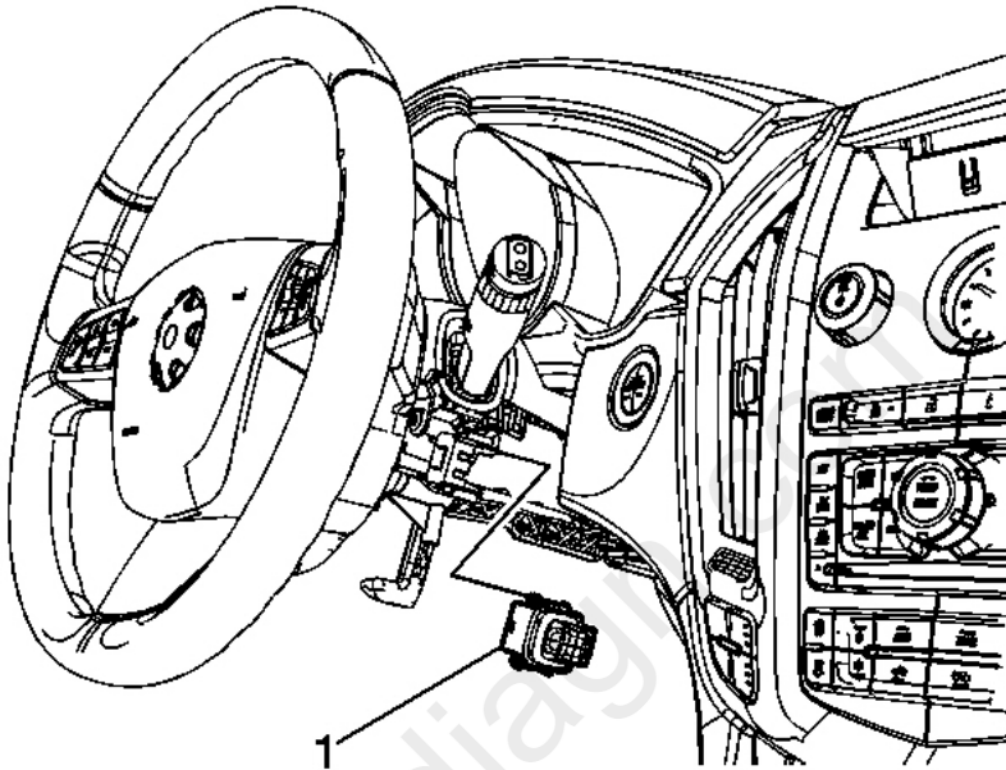


Fig. 3: Identifying Brake & Accelerator Pedal Adjuster Switch Electrical Connector
Courtesy of GENERAL MOTORS CORP.

3. Disconnect the brake and accelerator pedal adjuster switch electrical connector.
4. Compress the locking tabs and remove the brake and accelerator pedal adjuster switch (1).

Installation Procedure

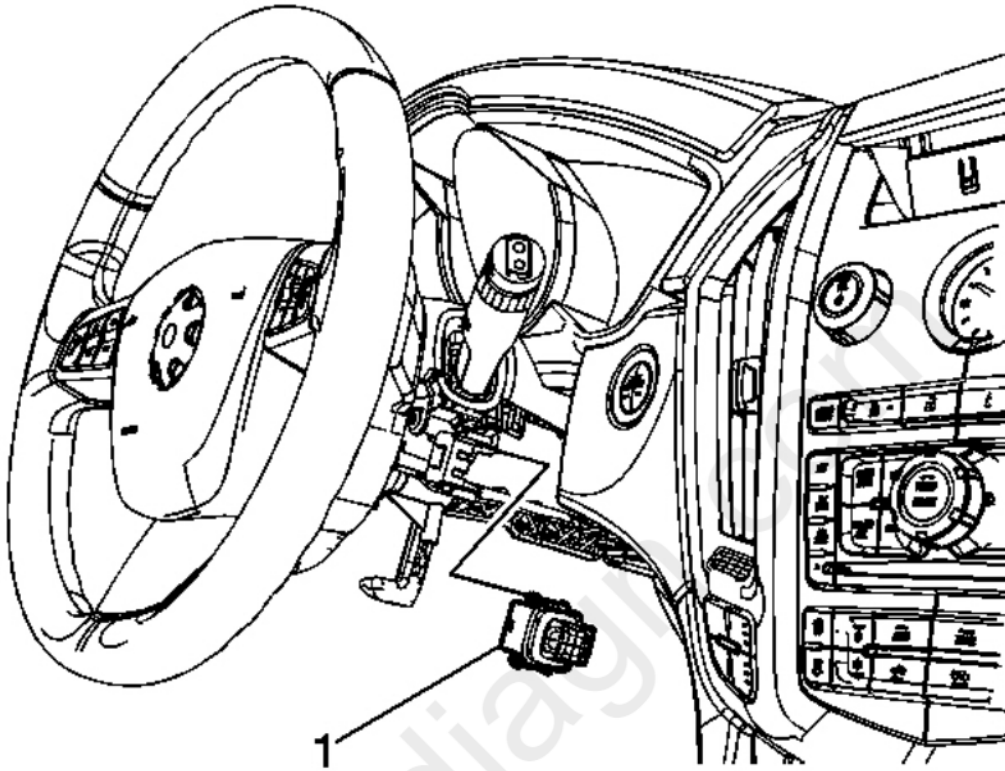


Fig. 4: Identifying Brake & Accelerator Pedal Adjuster Switch Electrical Connector
Courtesy of GENERAL MOTORS CORP.

1. Install the adjuster switch (1) to the steering column.

NOTE: **Ensure the brake and accelerator pedal adjuster switch harness is correctly routed and secure.**

2. Connect the brake and accelerator pedal adjuster switch electrical connector.

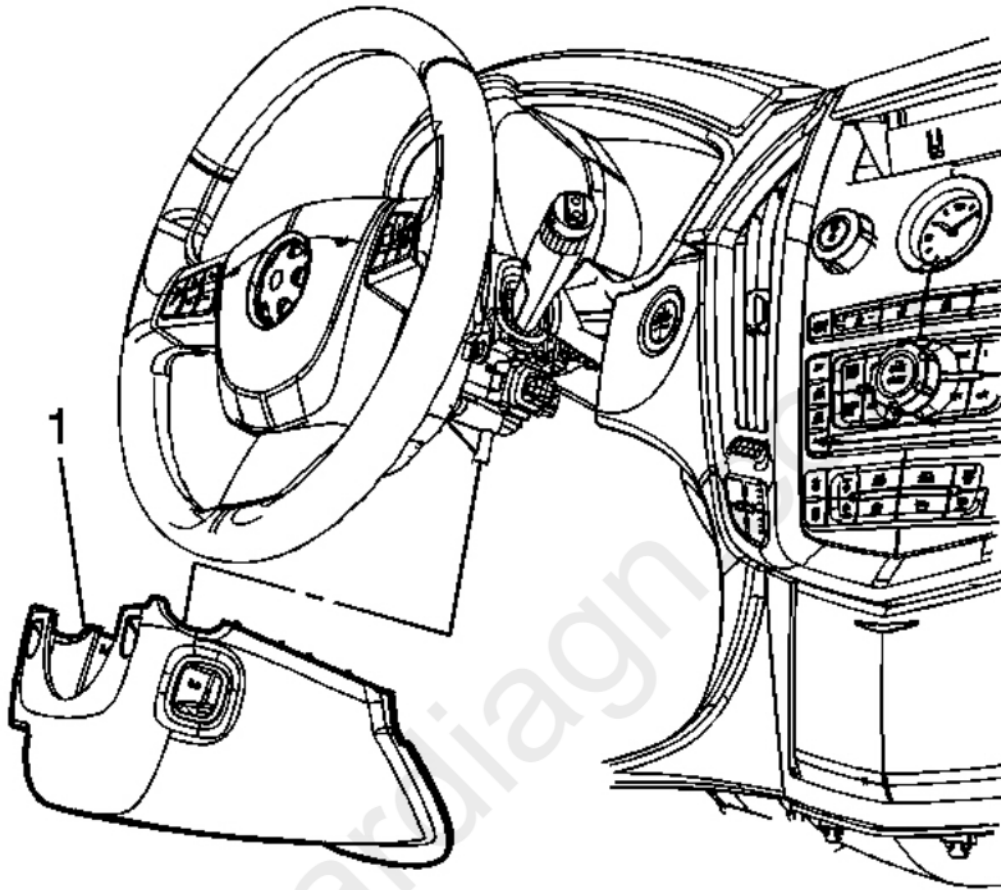


Fig. 5: Identifying Lower Steering Column Shroud
Courtesy of GENERAL MOTORS CORP.

3. Install the lower steering column shroud (1). Refer to Steering Column Shroud Replacement.
4. Enable the SIR system. Refer to SIR Disabling and Enabling.

BRAKE PEDAL ASSEMBLY REPLACEMENT

Removal Procedure

NOTE: Move the adjustable pedal assembly to the full forward, front of vehicle position prior to removing components. Failure to place the adjustable pedal assembly in the full forward position may result in incorrect accelerator and brake pedal step-over height and improper adjustable pedal function.

1. Move the adjustable pedal assembly to the full forward, front of vehicle position.
2. Turn the ignition to the position.
3. Remove the instrument panel tie bar. Refer to **Instrument Panel Tie Bar Replacement**.
4. Remove the brake pedal position sensor. Refer to **Brake Pedal Position Sensor Replacement**.

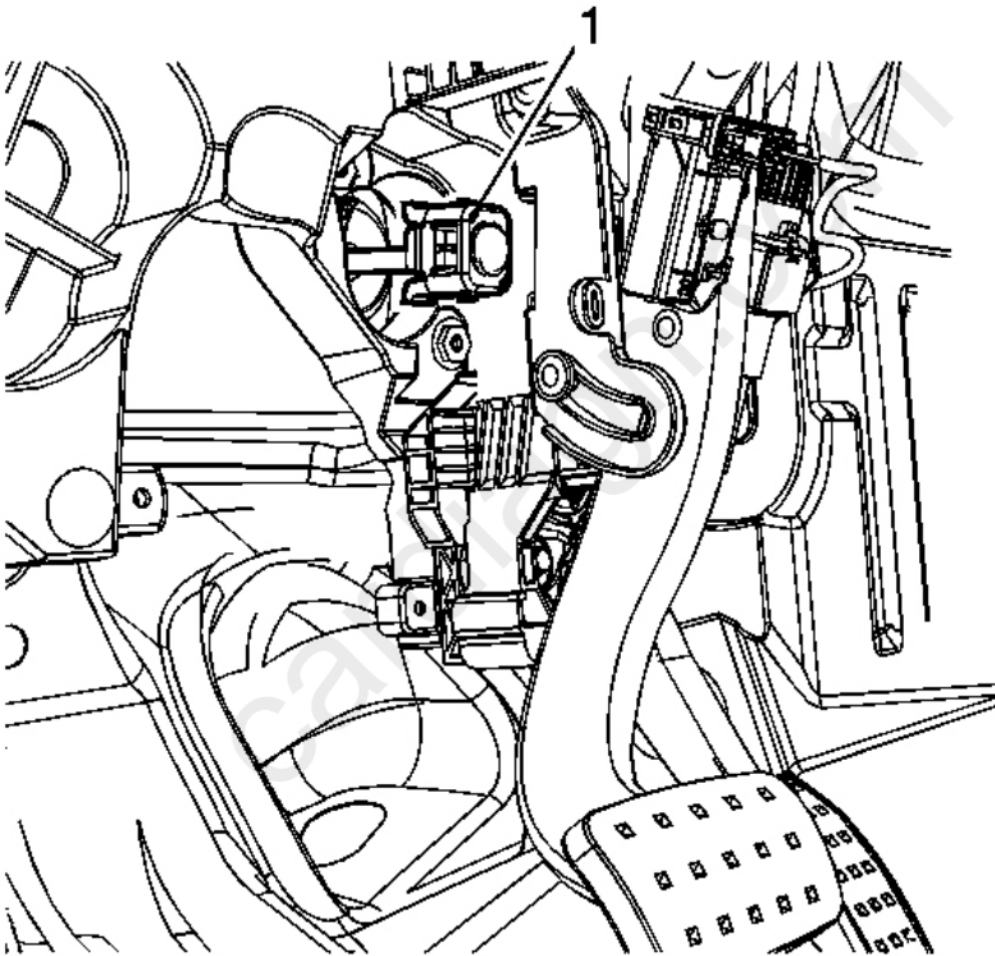


Fig. 6: Identifying Brake Booster Pushrod Retainer
Courtesy of GENERAL MOTORS CORP.

NOTE: Do not reuse the power vacuum brake booster pushrod retainer.

5. Release the power vacuum brake booster pushrod retainer (1) from the brake pedal by pulling the brake pedal rearward.

6. Discard the power vacuum brake booster pushrod retainer.
7. Disconnect the accelerator pedal position sensor electrical connector.
8. Disconnect the adjustable pedal assembly electrical connector.
9. Remove the power vacuum brake booster. Refer to **Power Vacuum Brake Booster Replacement**.

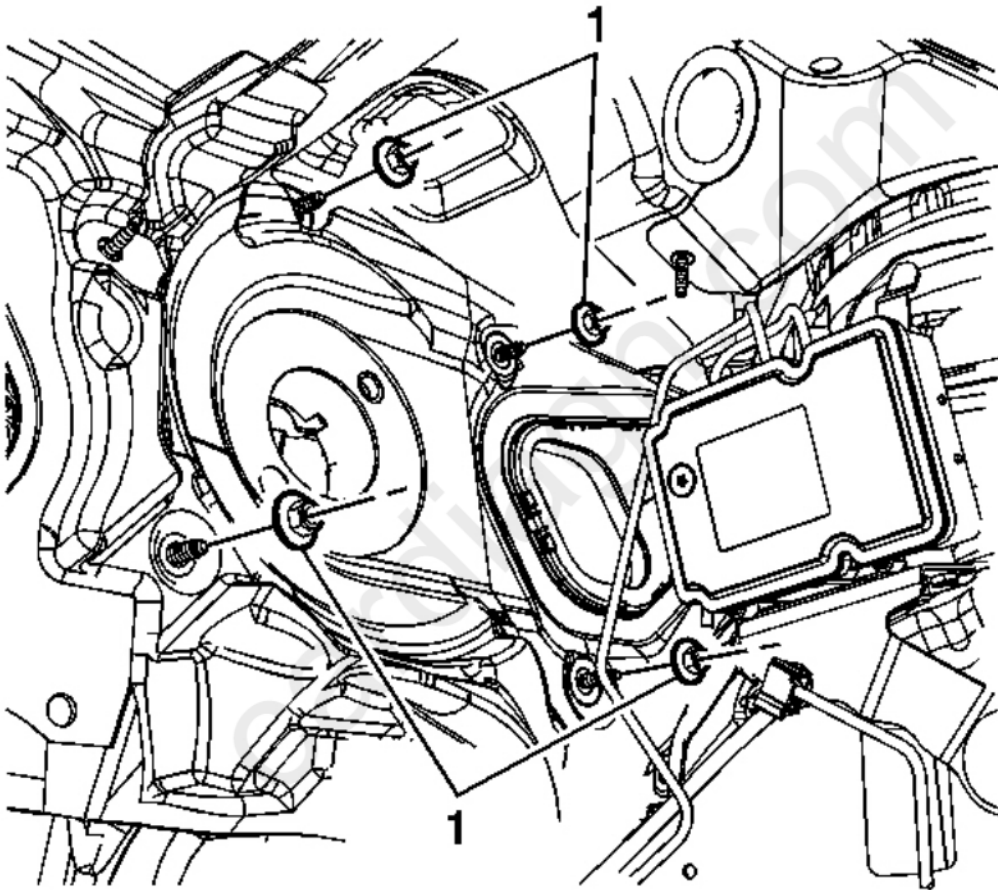


Fig. 7: Identifying Brake Pedal Assembly Nuts
Courtesy of GENERAL MOTORS CORP.

10. Remove the brake pedal assembly nuts (1).
11. Remove the adjustable pedal assembly.

Installation Procedure

1. Install the adjustable pedal assembly.

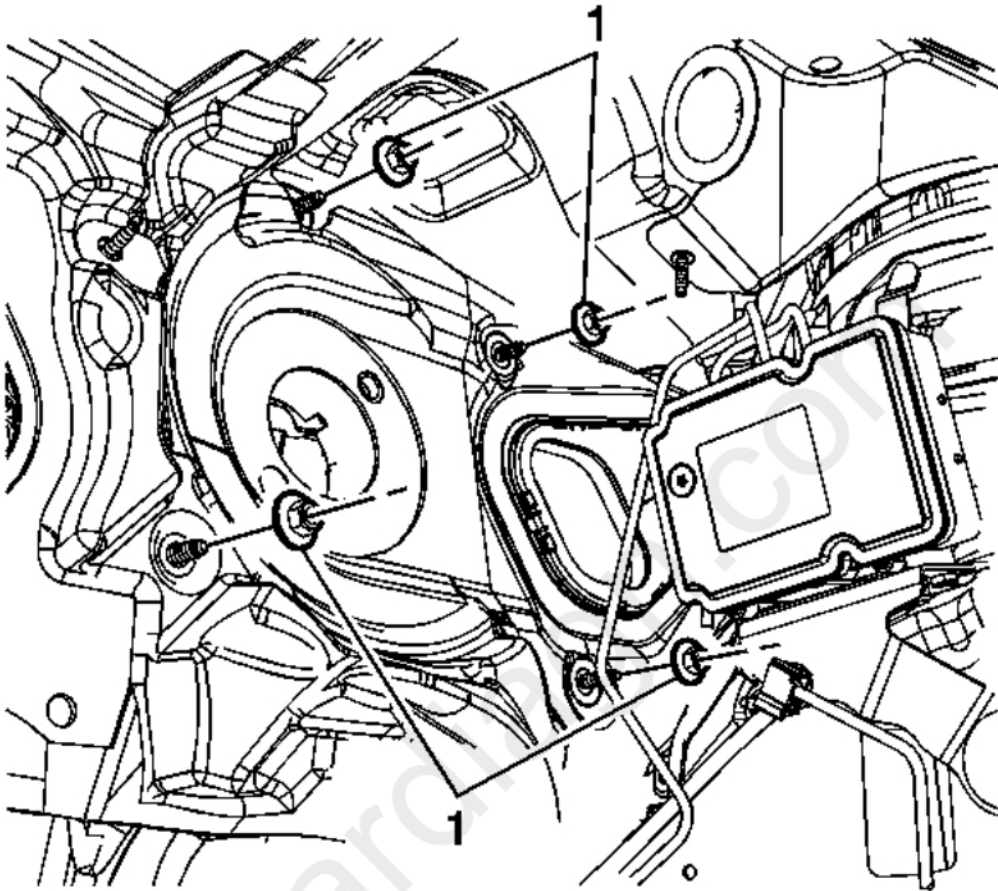


Fig. : Identifying Brake Pedal Assembly Nuts
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

2. Install the adjustable pedal assembly nuts (1) and tighten to 21 N.m (15 lb ft).
3. Install the power vacuum brake booster. Refer to Power Vacuum Brake Booster Replacement .

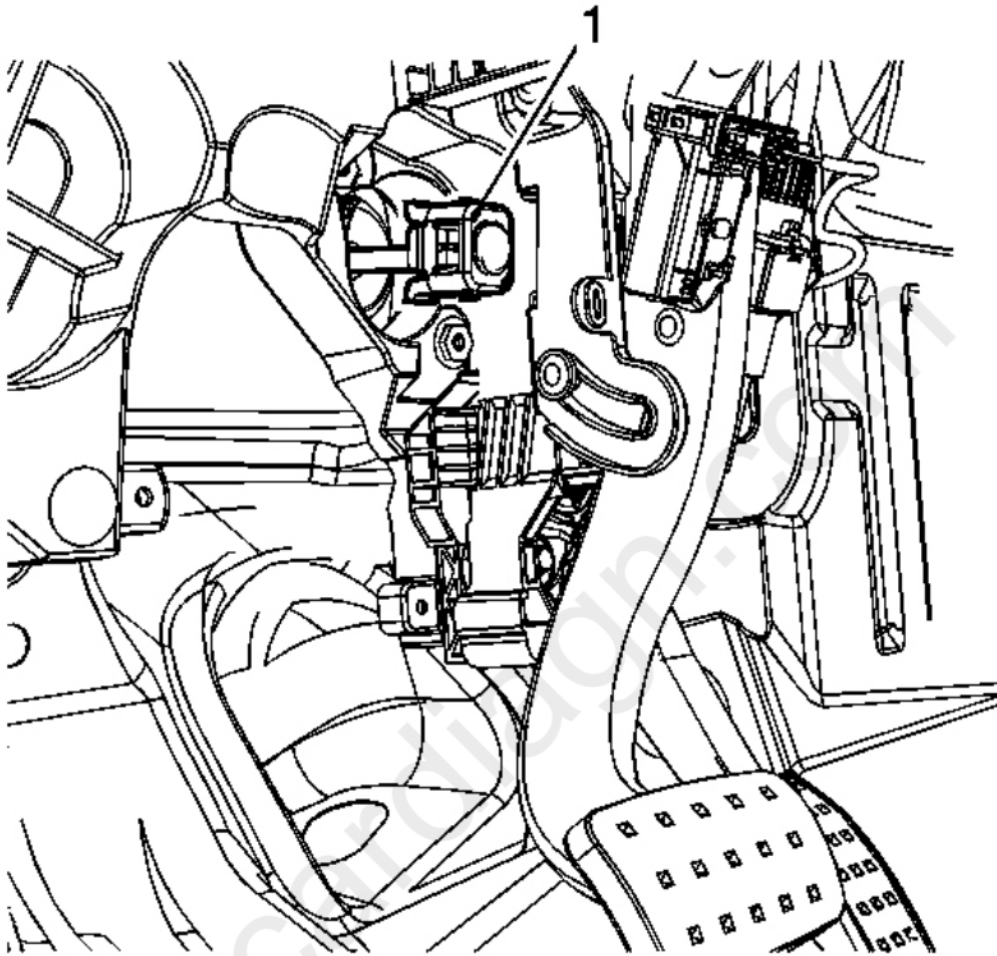


Fig. : Identifying Brake Booster Pushrod Retainer
Courtesy of GENERAL MOTORS CORP.

4. Install a new power vacuum brake booster pushrod retainer to the power vacuum brake booster pushrod.

NOTE: **Ensure the power vacuum brake booster pushrod retainer is fully seated in the brake pedal arm.**

5. Connect the power vacuum brake booster pushrod retainer (1) to the brake pedal.
6. Connect the adjustable pedal assembly electrical connector.
7. Connect the accelerator pedal position sensor electrical connector.
8. Install the brake pedal position sensor. Refer to **Brake Pedal Position Sensor Replacement** .

- . Install the instrument panel tie bar. Refer to Instrument Panel Tie Bar Replacement .

ACCELERATOR PEDAL ADJUSTER ACTUATOR REPLACEMENT

Removal Procedure

NOTE: Move the adjustable pedal assembly to the full forward, front of vehicle position prior to removing components. Failure to place the adjustable pedal assembly in the full forward position may result in incorrect accelerator and brake pedal step-over height and improper adjustable pedal function.

1. Move the adjustable pedal assembly to the full forward, front of vehicle position.
2. Remove the driver knee bolster panel. Refer to Driver Knee Bolster Panel Replacement .

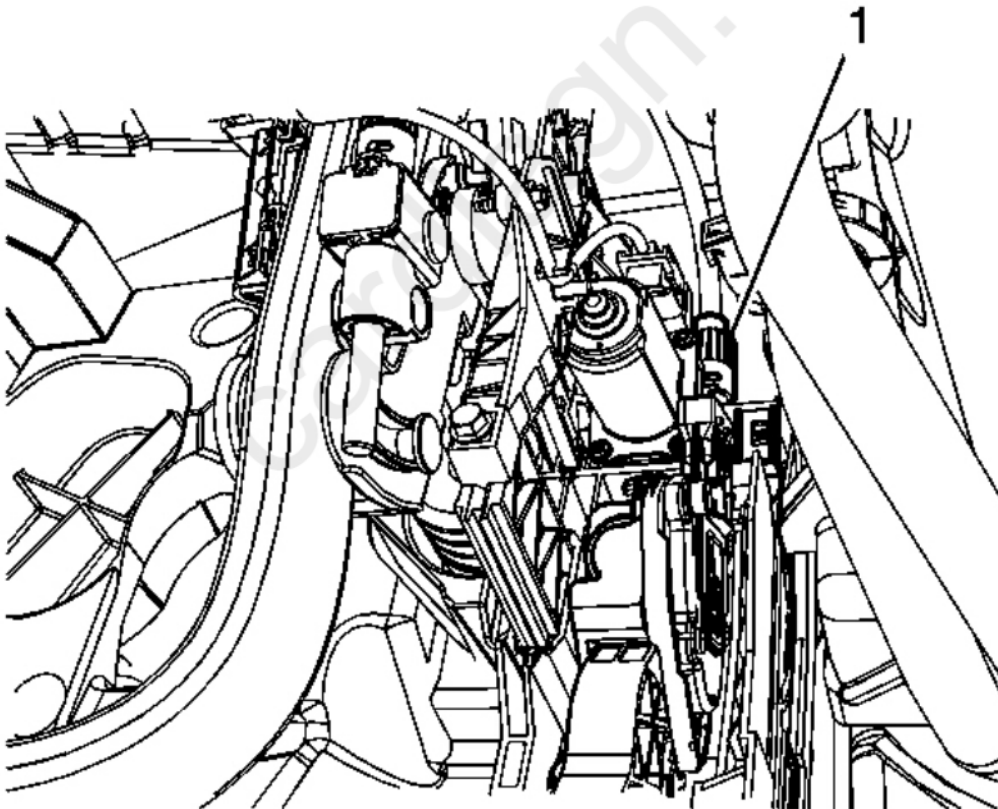


Fig. : Locating Brake Pedal Adjuster Actuator Cable Collar
Courtesy of GENERAL MOTORS CORP.

3. Rotate the brake pedal adjuster actuator cable collar (1) counter clockwise and disconnect the cable from the brake and accelerator pedal adjuster actuator motor.

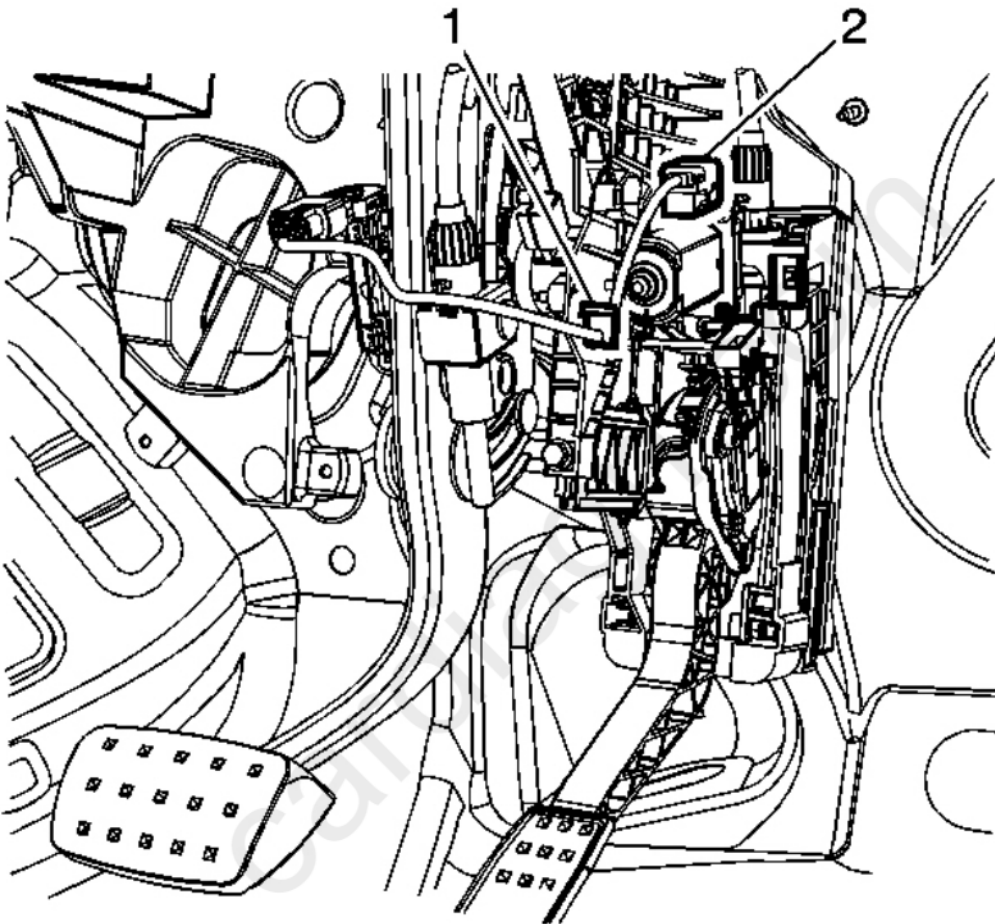


Fig. : Identifying Brake Pedal Bracket Clip & Pedal Adjuster Position Sensor Harness Electrical Connector

Courtesy of GENERAL MOTORS CORP.

4. Release the brake and accelerator pedal adjuster position sensor harness from the brake pedal bracket clip (1).
5. Disconnect the brake and accelerator pedal adjuster position sensor harness electrical connector (2).
6. Position the harness aside.

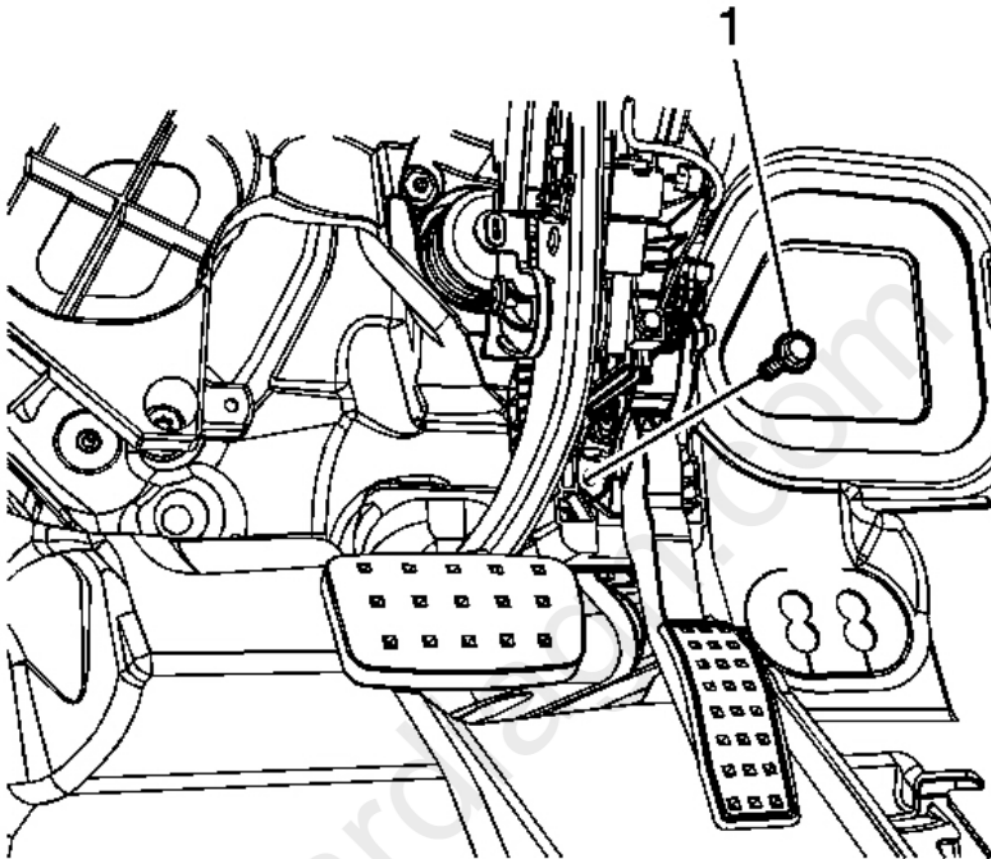


Fig. 2: Identifying Accelerator Pedal it Position Sensor Assembly Bolt
Courtesy of GENERAL MOTORS CORP.

7. Disconnect the accelerator pedal with position sensor assembly electrical connector.
8. Remove the accelerator pedal with position sensor assembly bolt (1).

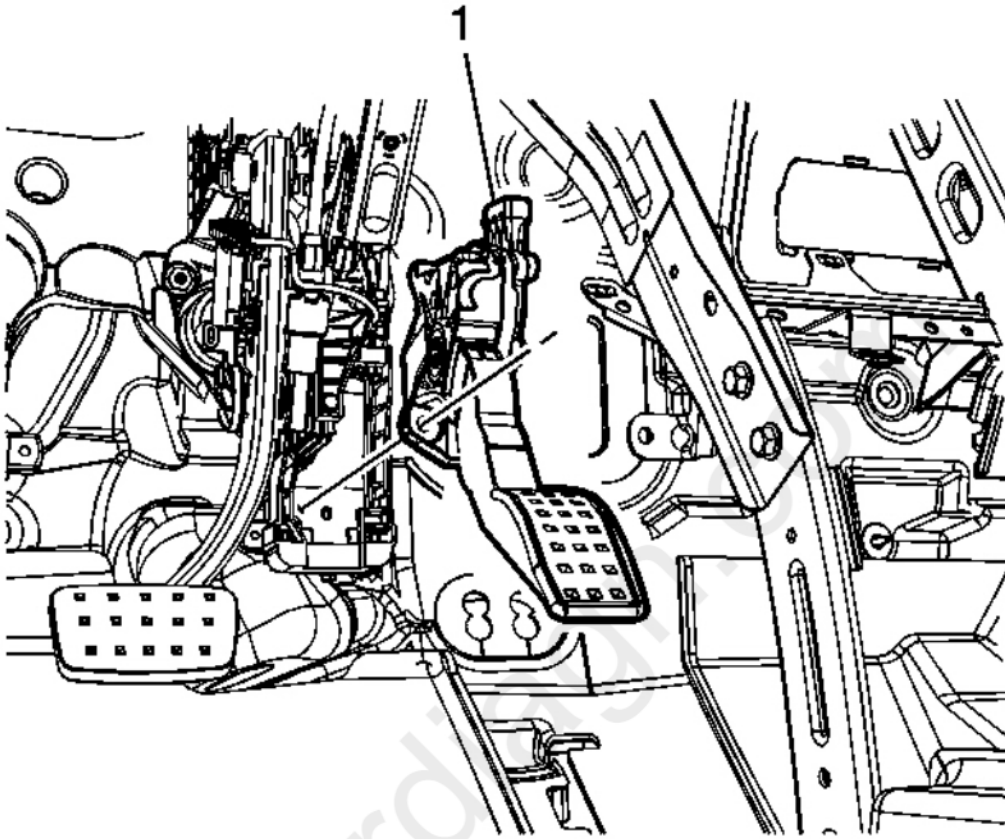


Fig 13 Identifying Accelerator Pedal With Position Sensor Assembly
Courtesy of GENERAL MOTORS CORP

- Remove the accelerator pedal with position sensor assembly (1).

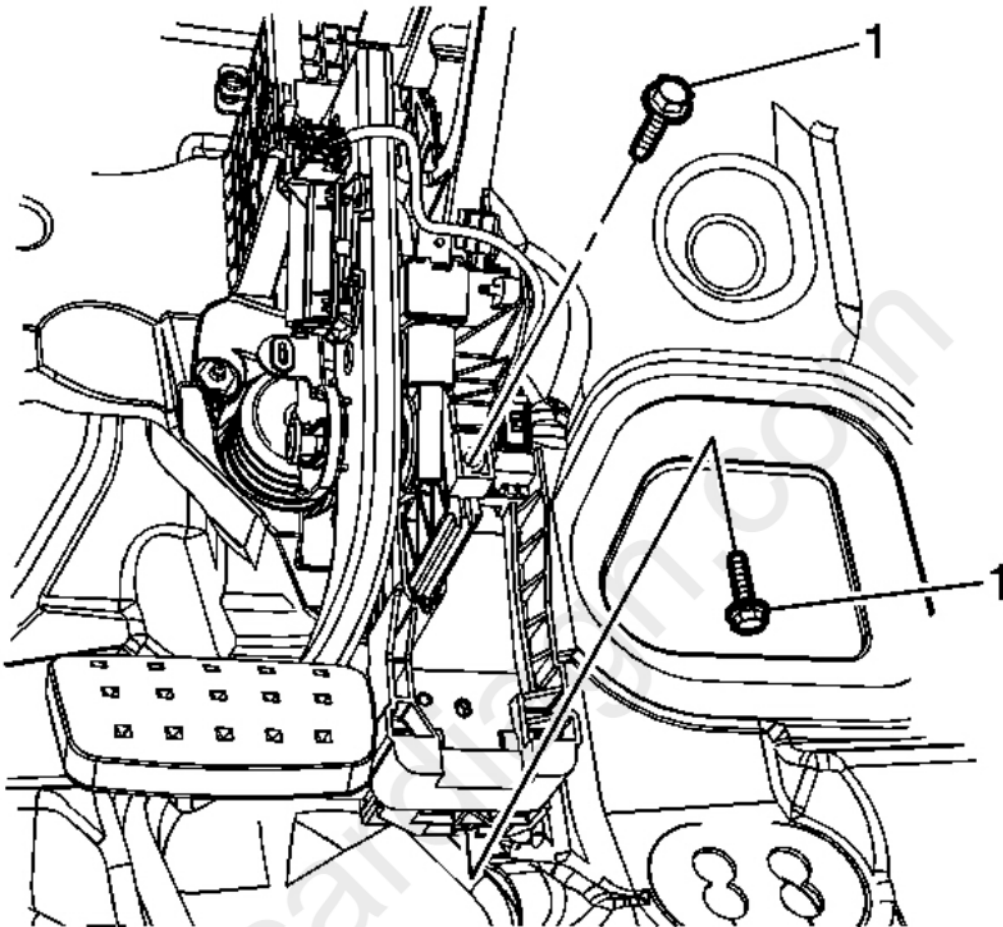


Fig 14 View Of Accelerator Pedal Adjuster Actuator Bolts
Courtesy of GENERAL MOTORS CORP

10. Remove the accelerator pedal adjuster actuator bolts (1).

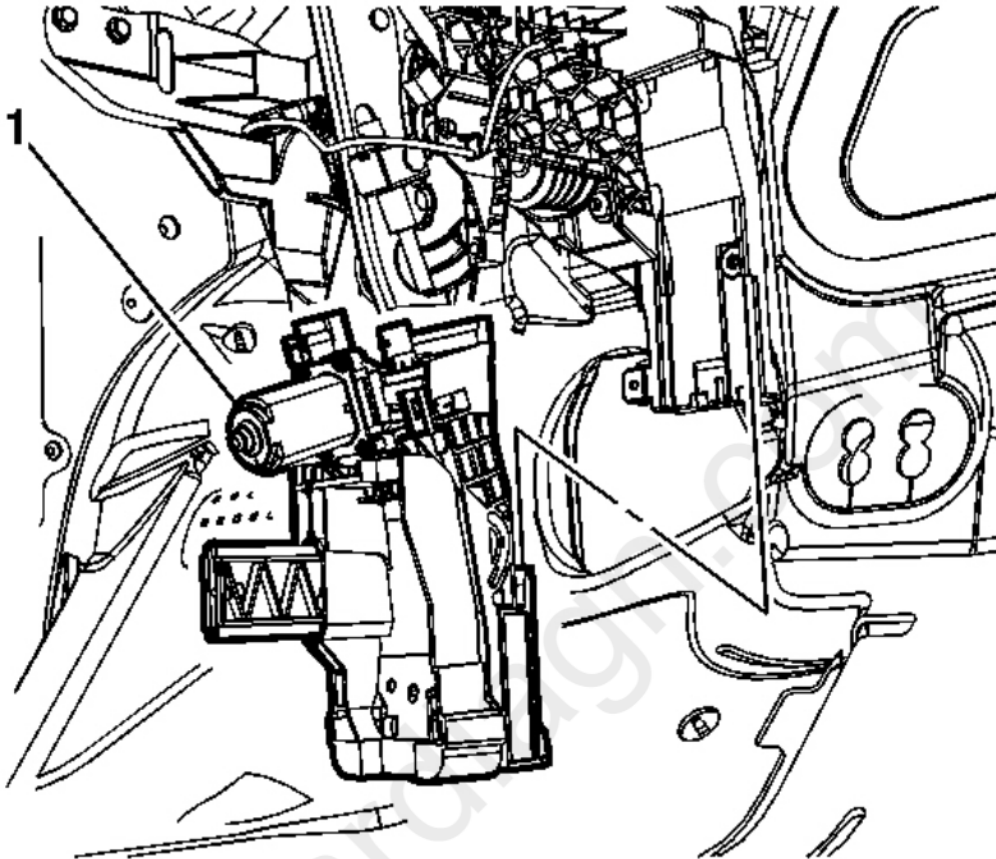


Fig 15 Identifying Accelerator Pedal Adjuster Actuator
Courtesy of GENERAL MOTORS CORP

11. Remove the accelerator pedal adjuster actuator (1) from the brake pedal assembly by sliding the actuator assembly downward.

Installation Procedure

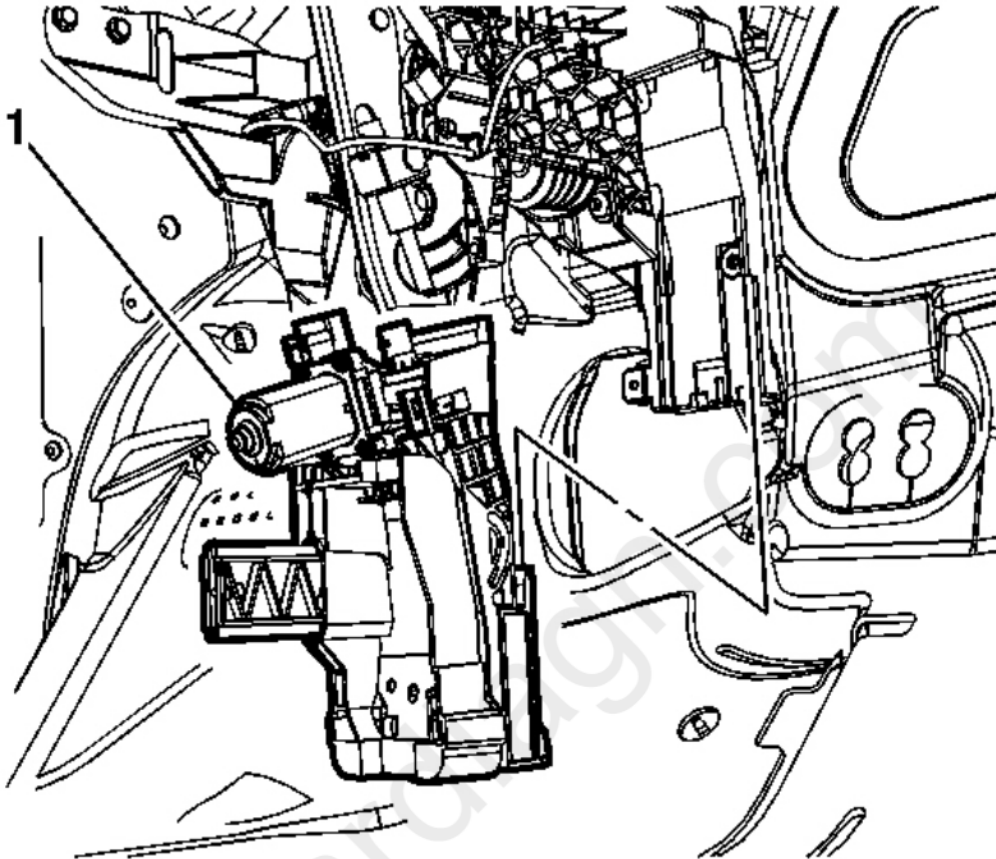


Fig 16 Identifying Accelerator Pedal Adjuster Actuator
Courtesy of GENERAL MOTORS CORP

1. Install the accelerator pedal adjuster actuator (1) to the brake pedal assembly.

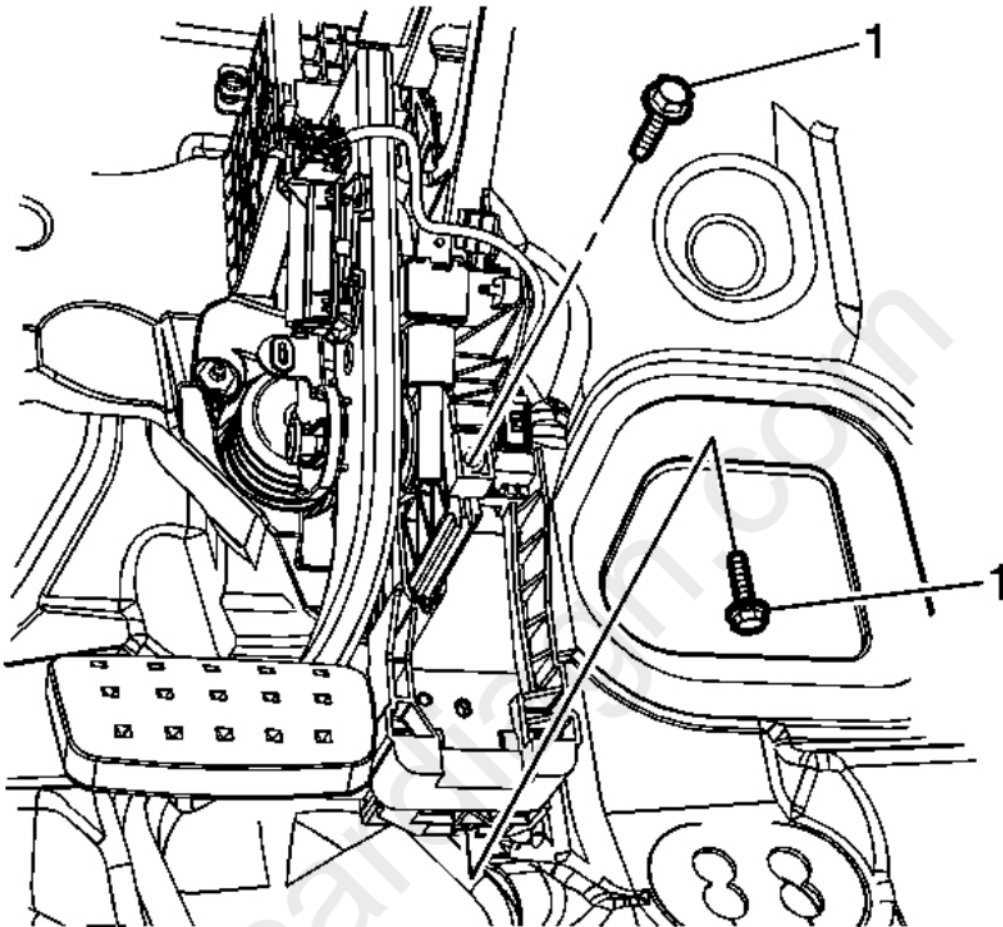


Fig 17 View Of Accelerator Pedal Adjuster Actuator Bolts
Courtesy of GENERAL MOTORS CORP

CAUTION: Refer to Fastener Caution .

2. Install the accelerator pedal adjuster actuator bolts (1) and tighten to N.m (80 lb in).

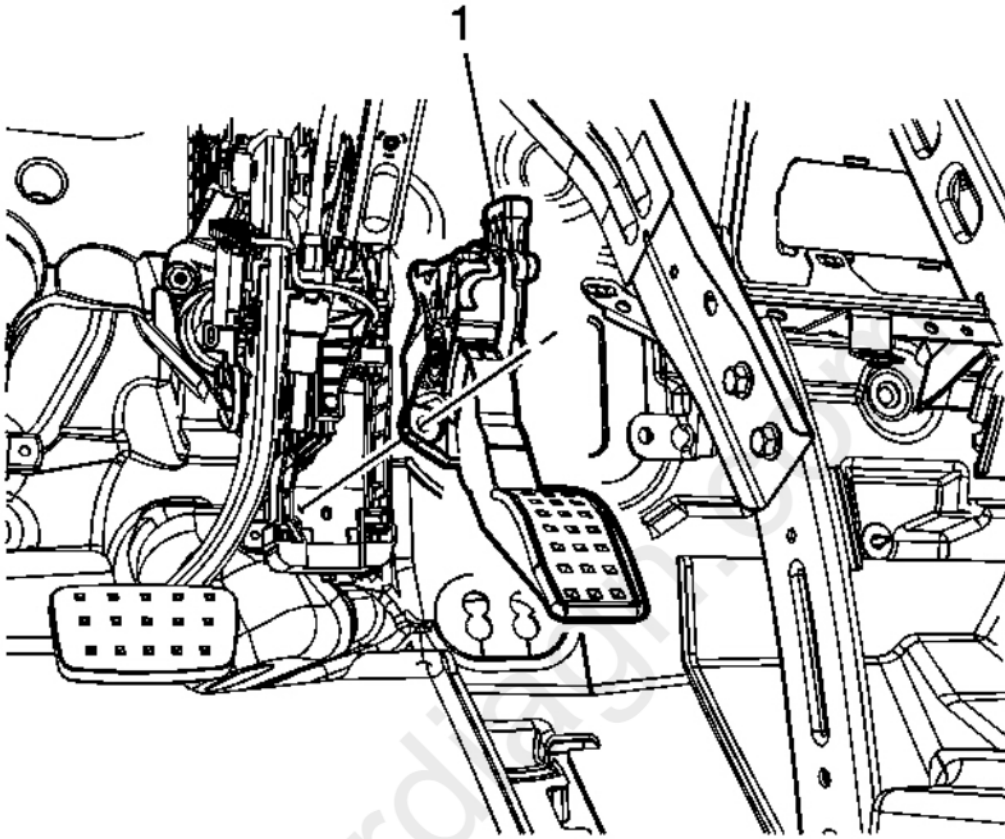


Fig. : Identifying Accelerator Pedal it Position Sensor Assembly
Courtesy of GENERAL MOTORS CORP.

3. Install the accelerator pedal with position sensor assembly (1).

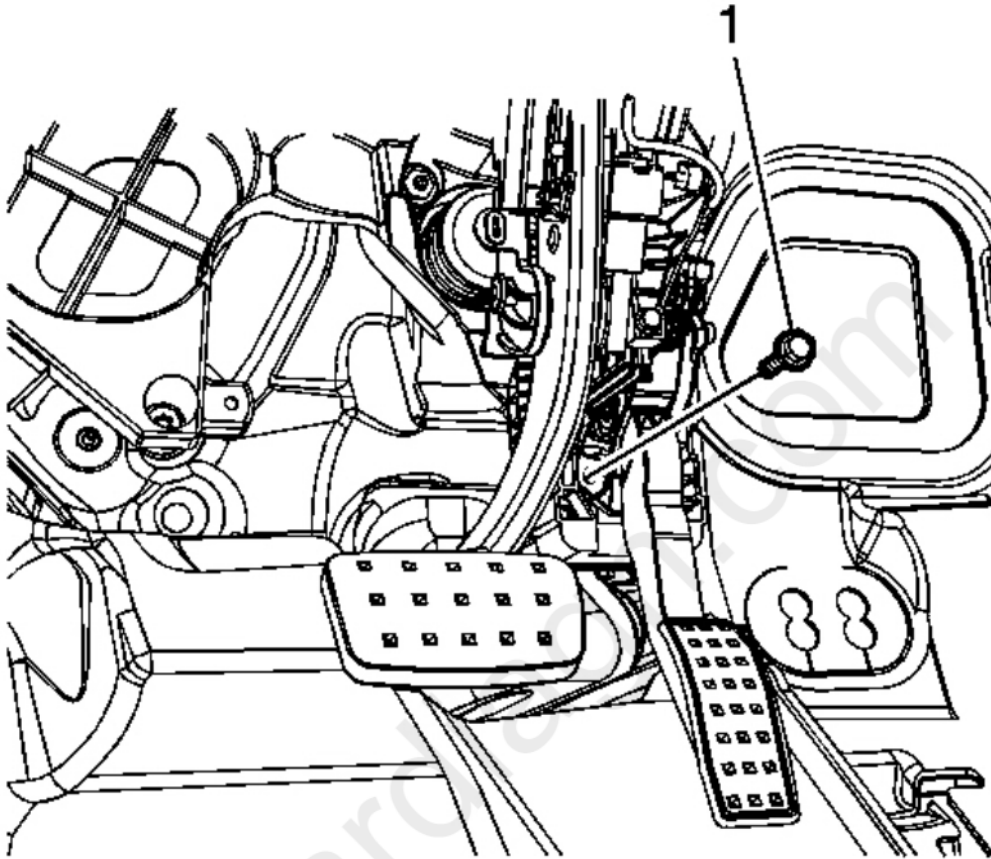


Fig. : Identifying Accelerator Pedal it Position Sensor Assembly Bolt
Courtesy of GENERAL MOTORS CORP.

4. Install the accelerator pedal with position sensor assembly bolt (1) and tighten to 9 N.m (80 lb in).

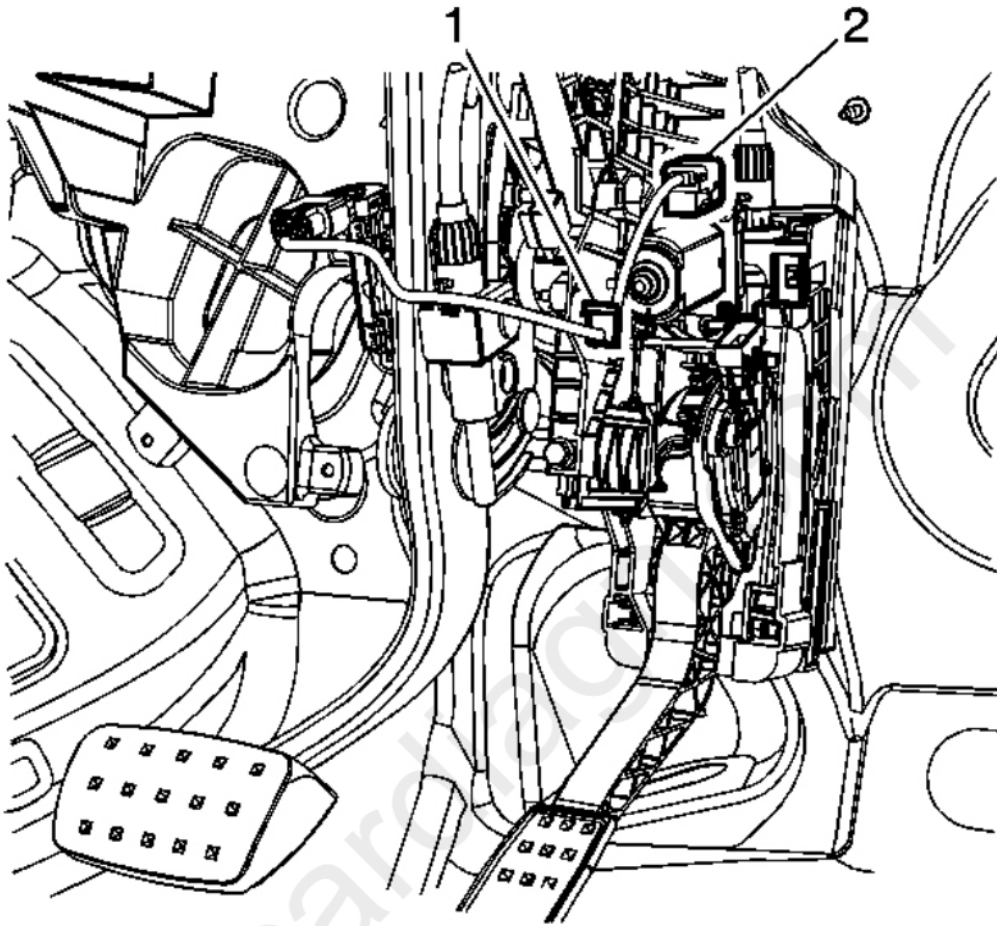


Fig. 2 : Identifying Brake Pedal Bracket Clip & Pedal Adjuster Position Sensor Harness Electrical Connector

Courtesy of GENERAL MOTORS CORP.

5. Install the brake and accelerator pedal adjuster position sensor harness to the brake pedal bracket clip (1).
6. Connect the brake and accelerator pedal adjuster position sensor harness electrical connector (2).

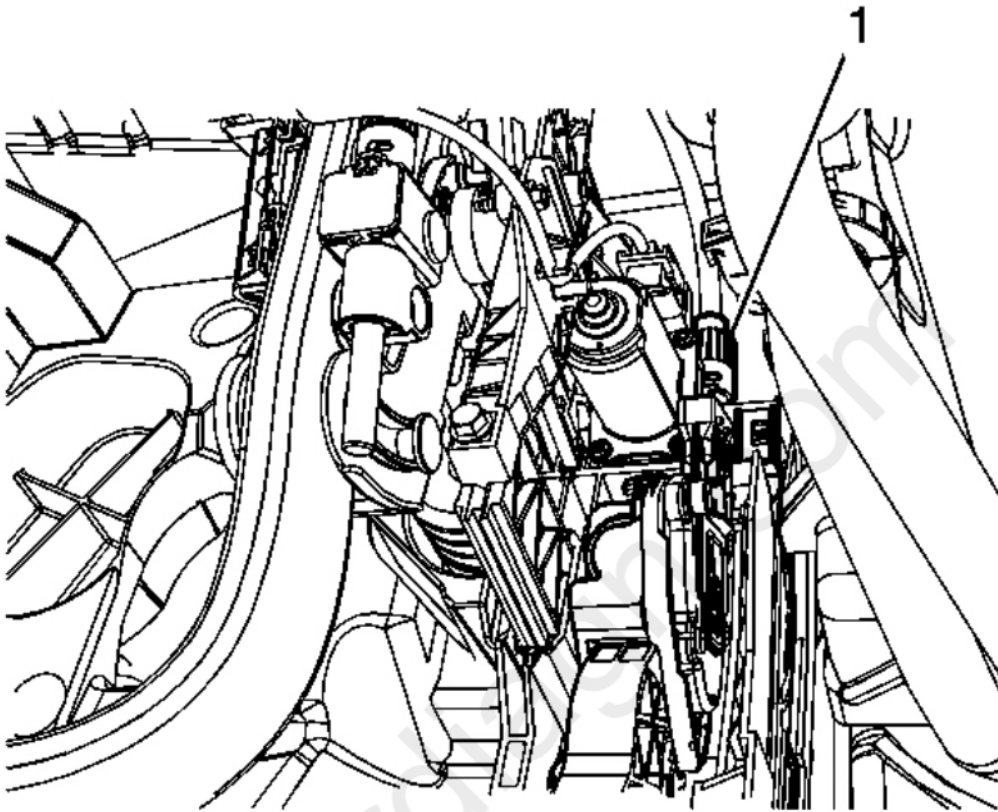


Fig. 2 : Locating Brake Pedal Adjuster Actuator Cable Collar
Courtesy of GENERAL MOTORS CORP.

7. Install the brake pedal adjuster actuator cable to the accelerator pedal adjuster actuator motor.
8. Rotate the brake pedal adjuster actuator cable collar (1) clockwise to secure the cable to the brake and accelerator pedal adjuster actuator motor.
9. Connect the accelerator pedal with position sensor assembly electrical connector.
10. Calibrate the adjustable pedal system. Refer to Adjustable Pedal System Calibration.
11. Remove the driver knee bolster panel. Refer to Driver Knee Bolster Panel Replacement.

BRAKE AND ACCELERATOR PEDAL ADJUSTER ACTUATOR MOTOR REPLACEMENT

Removal Procedure

NOTE: Move the adjustable pedal assembly to the full forward, front of vehicle position prior to removing components. Failure to place the adjustable pedal assembly

in the full forward position may result in incorrect accelerator and brake pedal step-over height and improper adjustable pedal function.

1. Move the adjustable pedal assembly to the full forward, front of vehicle position.

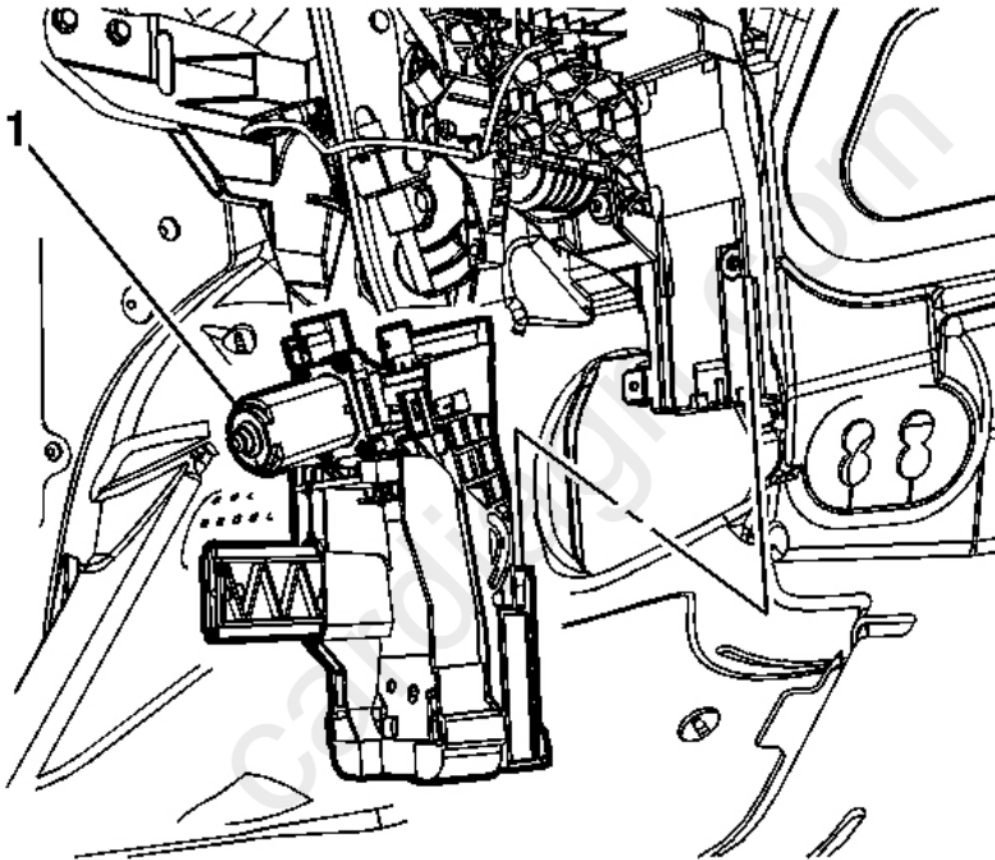


Fig. 22: Identifying Accelerator Pedal Adjuster Actuator
Courtesy of GENERAL MOTORS CORP.

2. Remove the accelerator pedal adjuster actuator (1). Refer to **Accelerator Pedal Adjuster Actuator Replacement**.
3. Insert a square drive tool into the brake pedal adjuster actuator cable drive, rotate the brake and accelerator pedal adjuster actuator motor drive screw to extend the accelerator pedal adjuster actuator to the full rearward position.

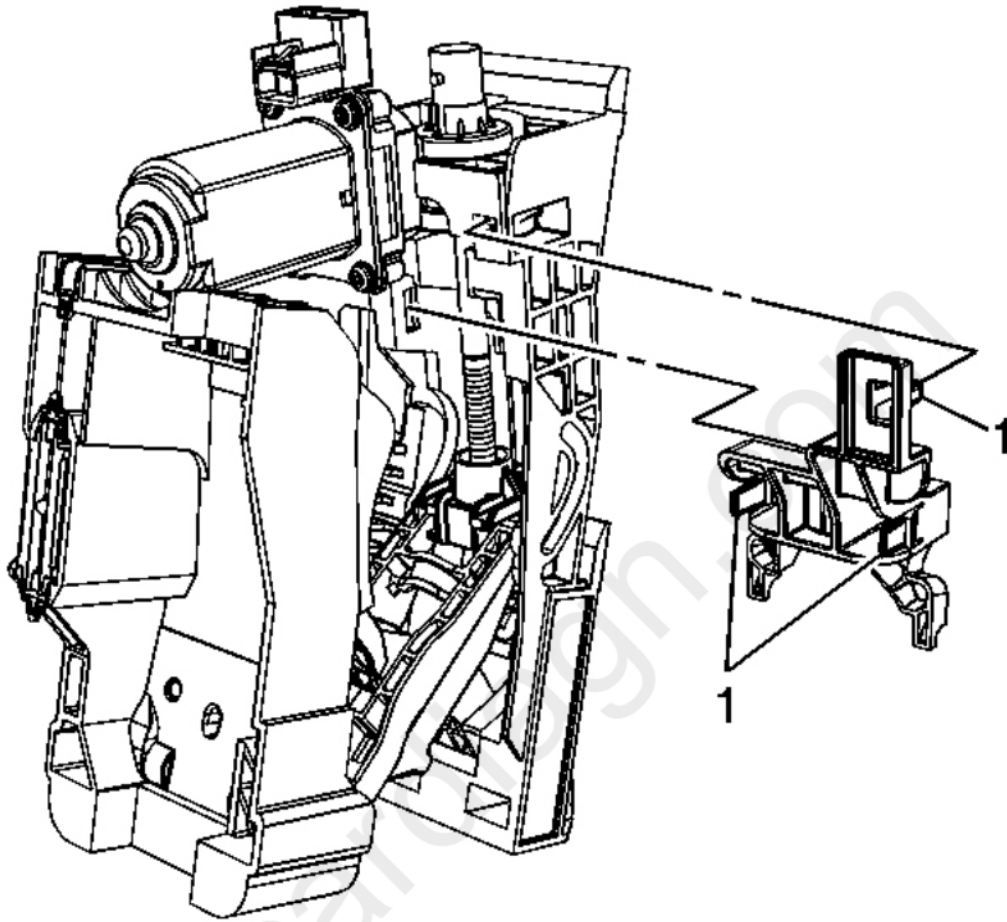


Fig. 23: Identifying Adjustable Pedal Actuator Motor & Retainer Locking Tabs
Courtesy of GENERAL MOTORS CORP.

4. Remove adjustable pedal actuator motor retainer by compressing the locking tabs (1).

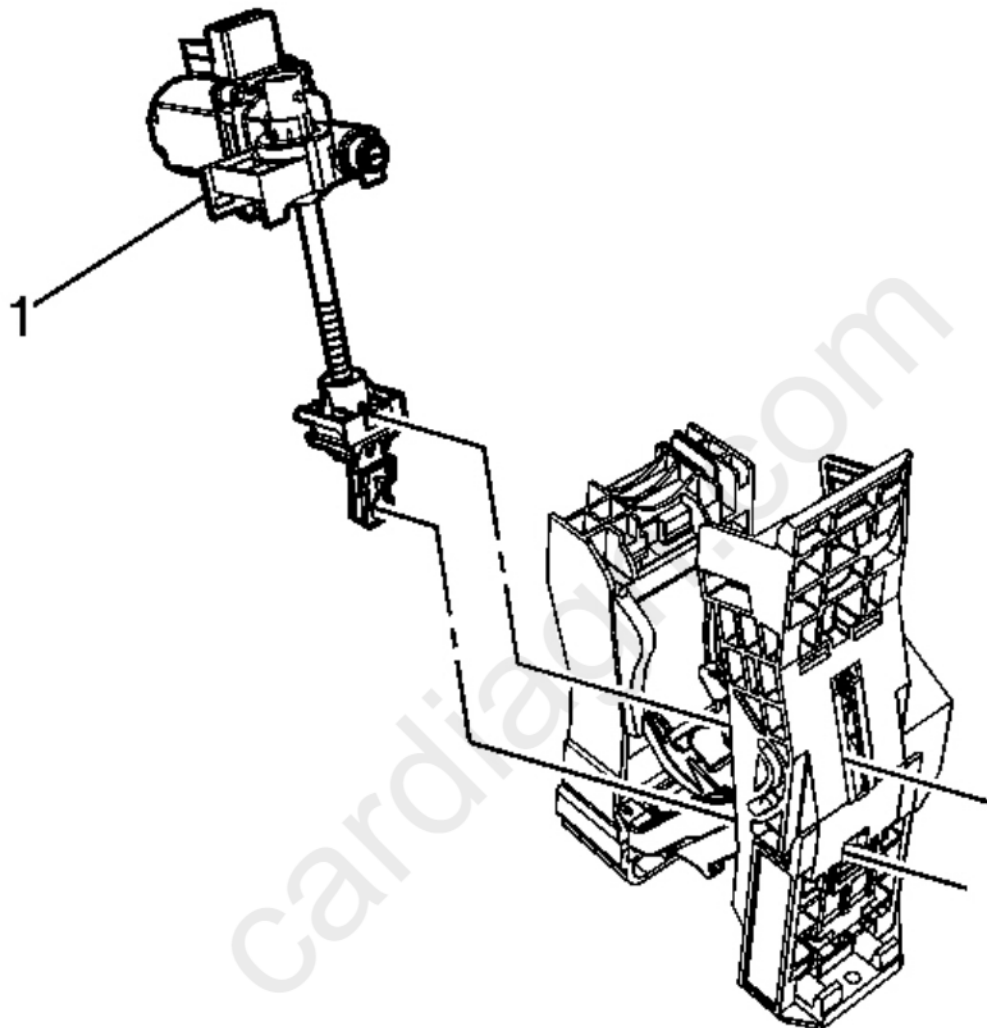


Fig. 24: View Of Accelerator Pedal Adjuster Actuator Lever Arm & Actuator Motor Jack
Courtesy of GENERAL MOTORS CORP.

5. Disconnect the accelerator pedal adjuster actuator lever arm from the actuator motor jack.
 - Slide the adjustable pedal actuator motor (1) upward and disengage the actuator motor jack and screw guide from the adjuster actuator.
 - Remove the brake and accelerator pedal adjuster actuator motor.

Installation Procedure

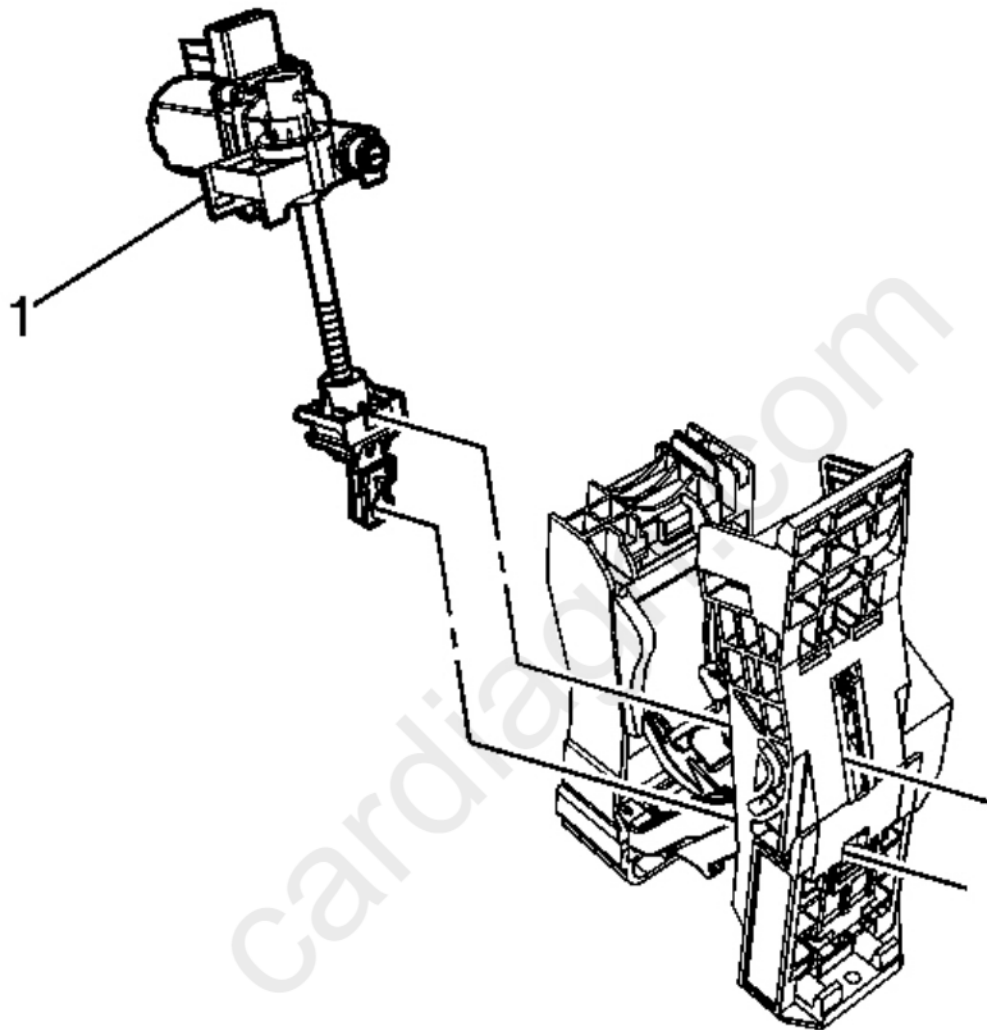


Fig. 25: View Of Accelerator Pedal Adjuster Actuator Lever Arm & Actuator Motor Jack
Courtesy of GENERAL MOTORS CORP.

1. Install the brake and accelerator pedal adjuster actuator motor to the accelerator pedal adjuster actuator.
2. Slide the adjustable pedal actuator motor (1) downward and engage the actuator motor jack and screw guide in the adjuster actuator.
3. Connect the accelerator pedal adjuster actuator lever arm to the actuator motor jack.

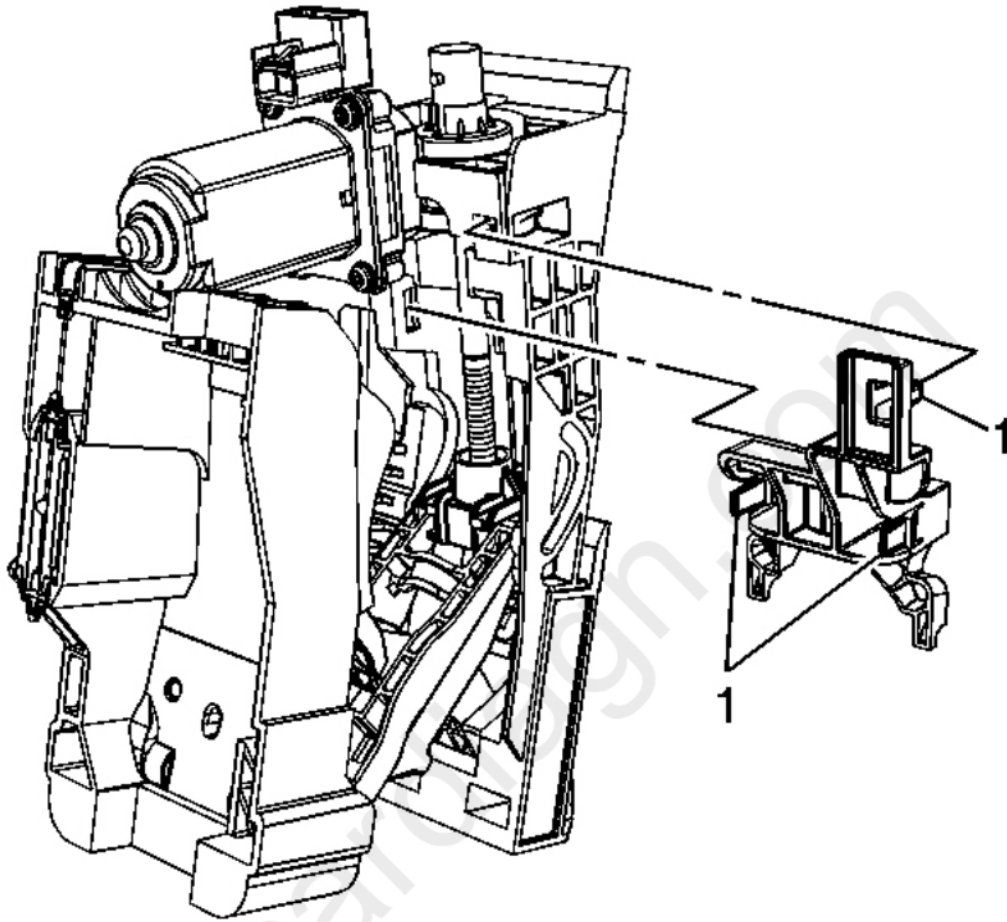


Fig. 26: Identifying Adjustable Pedal Actuator Motor & Retainer Locking Tabs
Courtesy of GENERAL MOTORS CORP.

4. Install actuator motor retainer by inserting the locking tabs (1) into the accelerator pedal adjuster actuator.

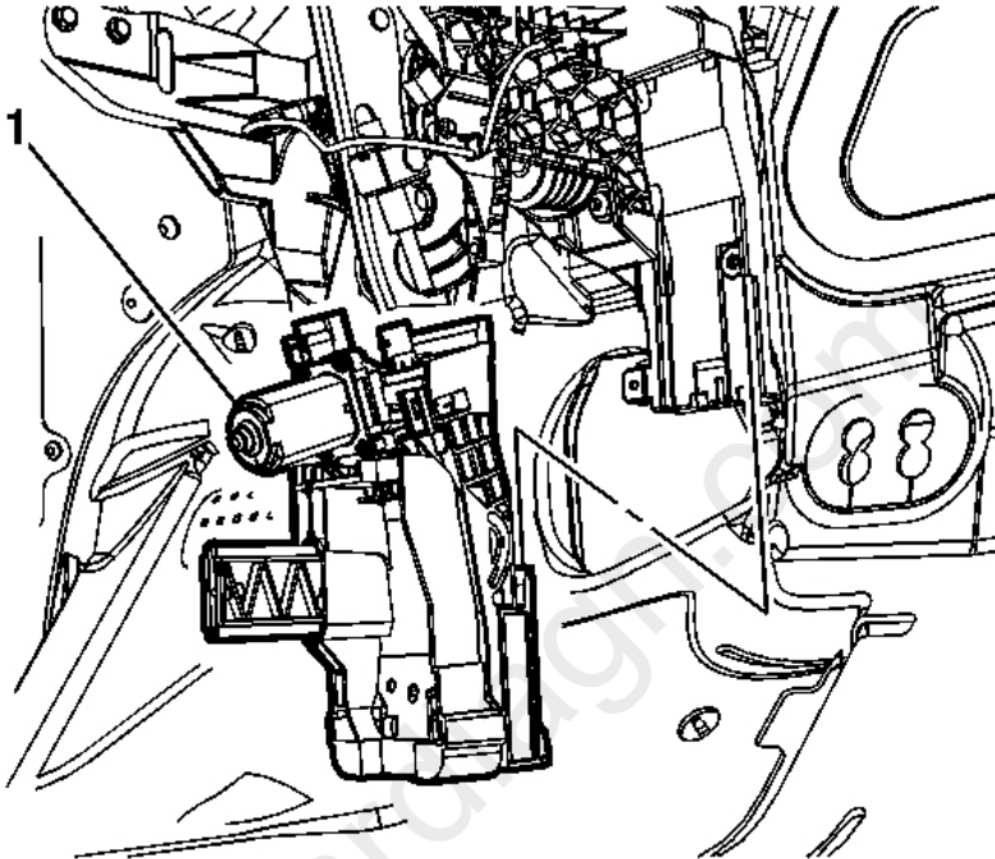


Fig. 27: Identifying Accelerator Pedal Adjuster Actuator
Courtesy of GENERAL MOTORS CORP.

5. Insert a square drive tool into the brake pedal adjuster actuator cable drive, rotate the brake and accelerator pedal adjuster actuator motor drive screw to retract the accelerator pedal adjuster actuator to the full forward position.
6. Install the accelerator pedal adjuster actuator (1). Refer to **Accelerator Pedal Adjuster Actuator Replacement**.

BRAKE PEDAL ADJUSTER ACTUATOR CABLE REPLACEMENT

Removal Procedure

NOTE: Move the adjustable pedal assembly to the full forward, front of vehicle position prior to removing components. Failure to place the adjustable pedal assembly in the full forward position may result in incorrect accelerator and brake pedal

step-over height and improper adjustable pedal function.

1. Move the adjustable pedal assembly to the full forward, front of vehicle position.
2. Remove the driver knee bolster. Refer to **Driver Knee Bolster Panel Replacement**

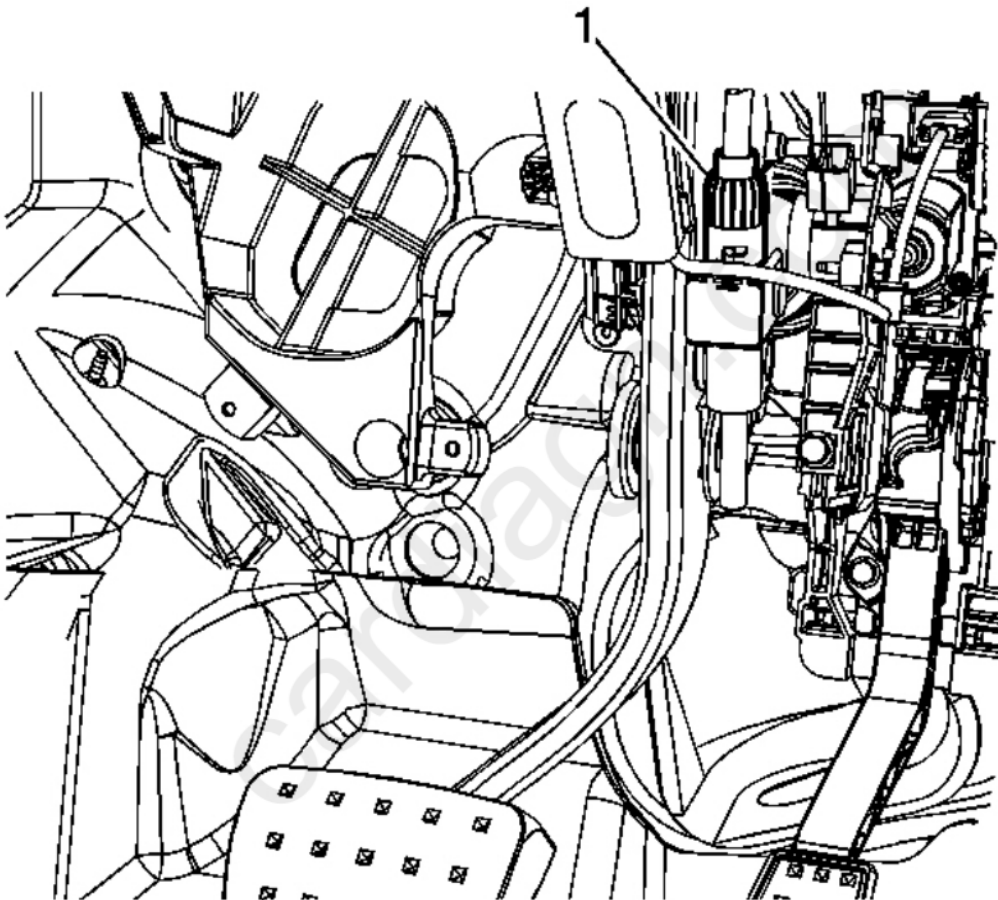


Fig. 28: Identifying Pedal Adjuster Actuator Cable Locking Collar
Courtesy of GENERAL MOTORS CORP.

3. Release the brake pedal adjuster actuator cable locking collar (1) from the brake pedal adjuster actuator assembly by rotating the collar counterclockwise.

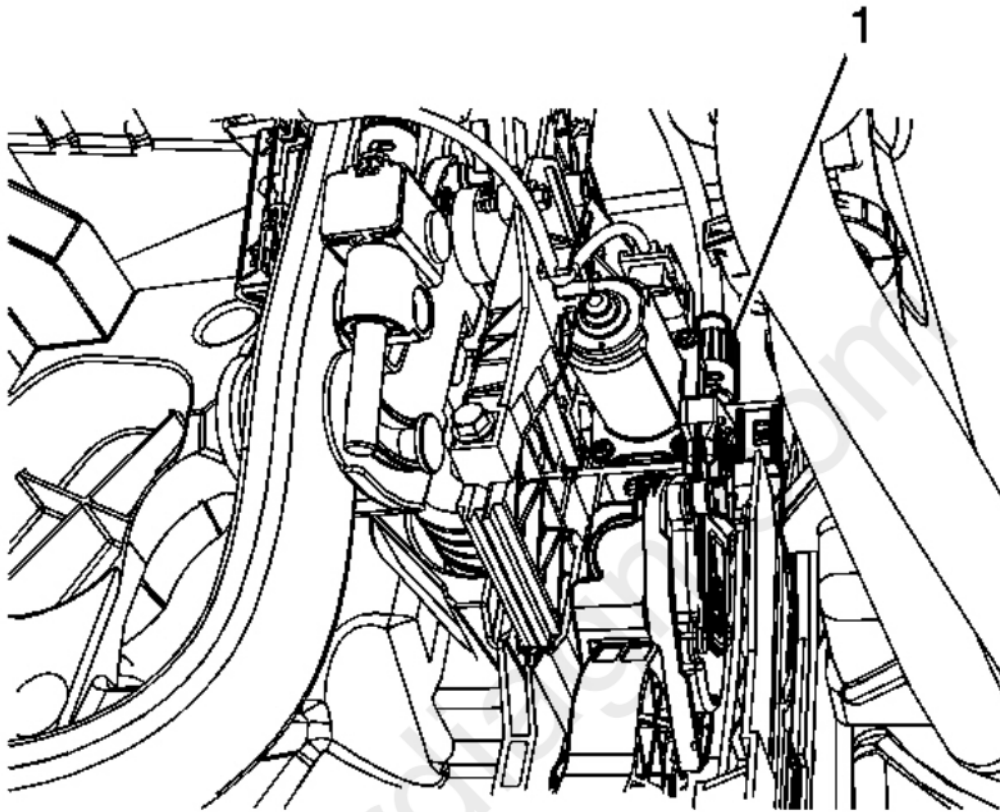


Fig. 29: Locating Brake Pedal Adjuster Actuator Cable Collar
Courtesy of GENERAL MOTORS CORP.

4. Release the brake pedal adjuster actuator cable locking collar (1) from the brake and accelerator adjuster actuator motor by rotating the collar counterclockwise.

NOTE: **Note the cable routing.**

5. Remove the brake pedal adjuster actuator cable from the adjustable pedal assembly.

Installation Procedure

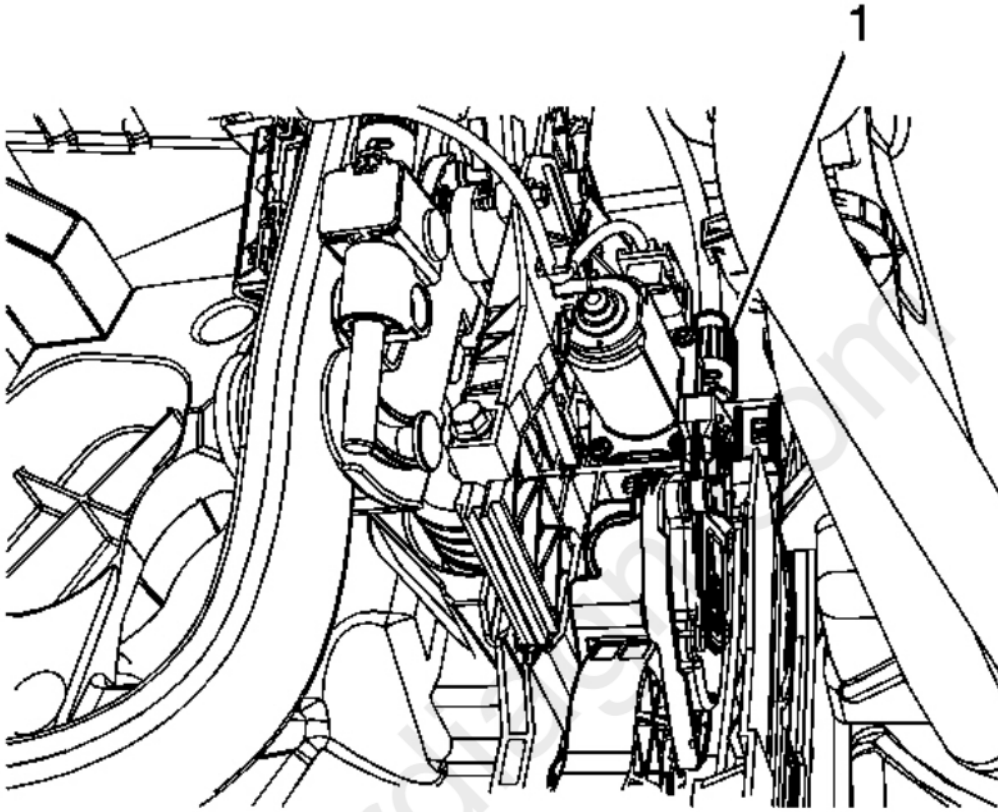


Fig. 30: Locating Brake Pedal Adjuster Actuator Cable Collar
Courtesy of GENERAL MOTORS CORP.

1. Install the brake pedal adjuster actuator cable to the adjustable pedal assembly.
2. Engage the brake pedal adjuster actuator cable locking collar (1) to the brake and accelerator adjuster actuator motor by rotating the collar clockwise.

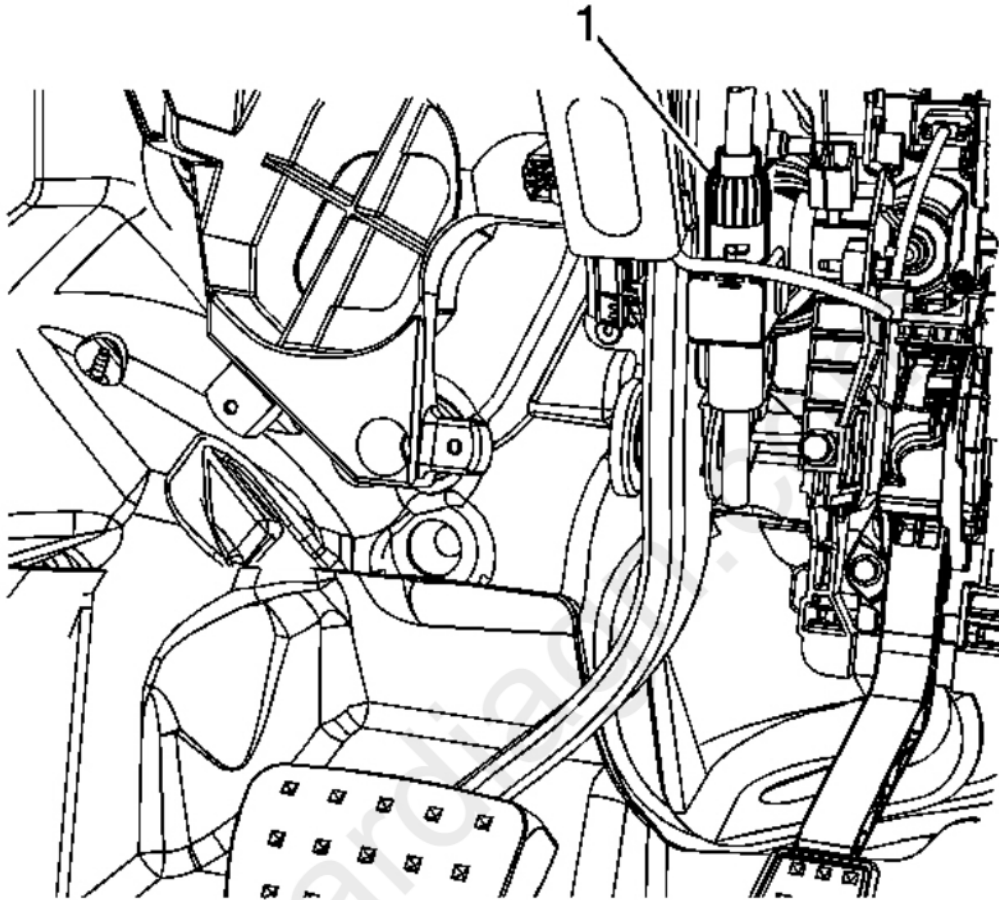


Fig. 31: Identifying Pedal Adjuster Actuator Cable Locking Collar
Courtesy of GENERAL MOTORS CORP.

3. Engage the brake pedal adjuster actuator cable locking collar (1) to the brake pedal adjuster assembly by rotating the collar clockwise.
4. Install the driver knee bolster. Refer to [Driver Knee Bolster Panel Replacement](#)
5. Calibrate the adjustable pedal system. Refer to [Adjustable Pedal System Calibration](#).

BRAKE AND ACCELERATOR PEDAL ADJUSTER POSITION SENSOR REPLACEMENT

Removal Procedure

NOTE: Move the adjustable pedal assembly to the full forward, front of vehicle position prior to removing components. Failure to place the adjustable pedal assembly in the full forward position may result in incorrect accelerator and brake pedal

step-over height and improper adjustable pedal function.

1. Move the adjustable pedal assembly to the full forward, front of vehicle position.
2. Remove the driver knee bolster panel. Refer to **Driver Knee Bolster Panel Replacement**.

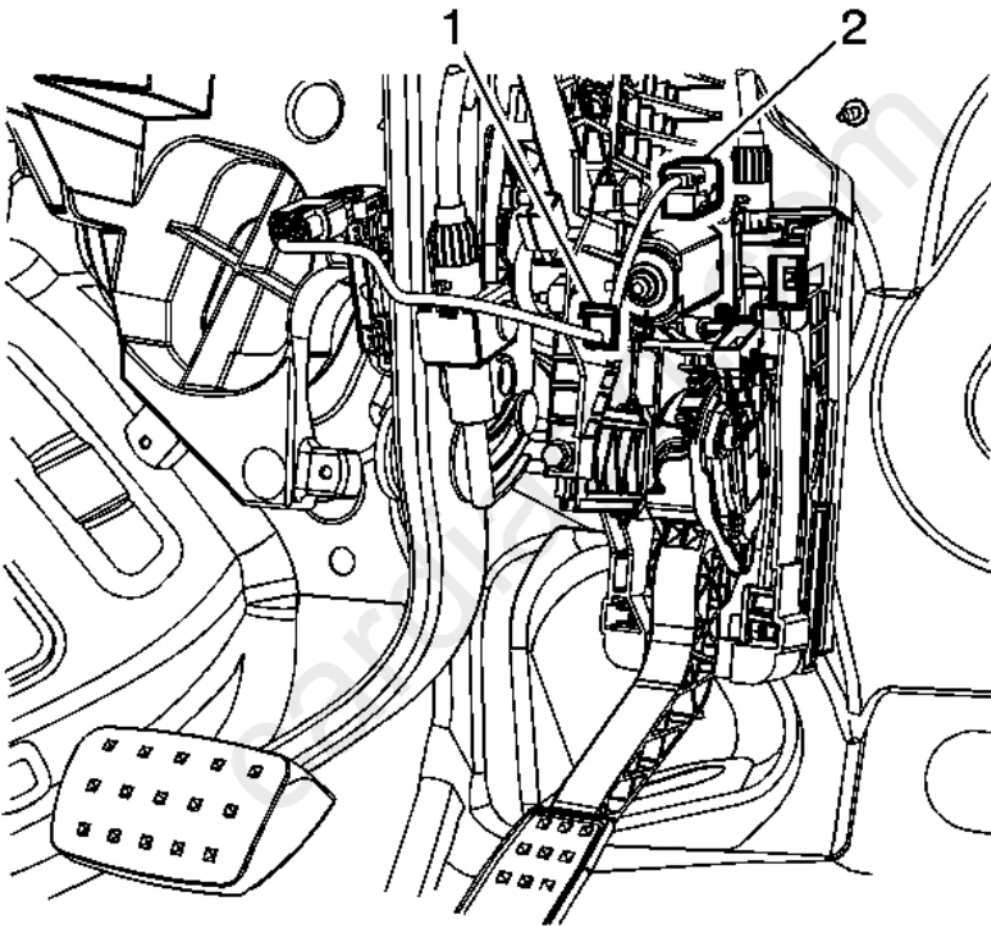


Fig. 32: Identifying Brake Pedal Bracket Clip & Pedal Adjuster Position Sensor Harness Electrical Connector

Courtesy of GENERAL MOTORS CORP.

3. Release the brake and accelerator pedal adjuster position sensor harness from the brake pedal bracket clip (1).
4. Disconnect the brake and accelerator pedal adjuster position sensor harness electrical connector (2).

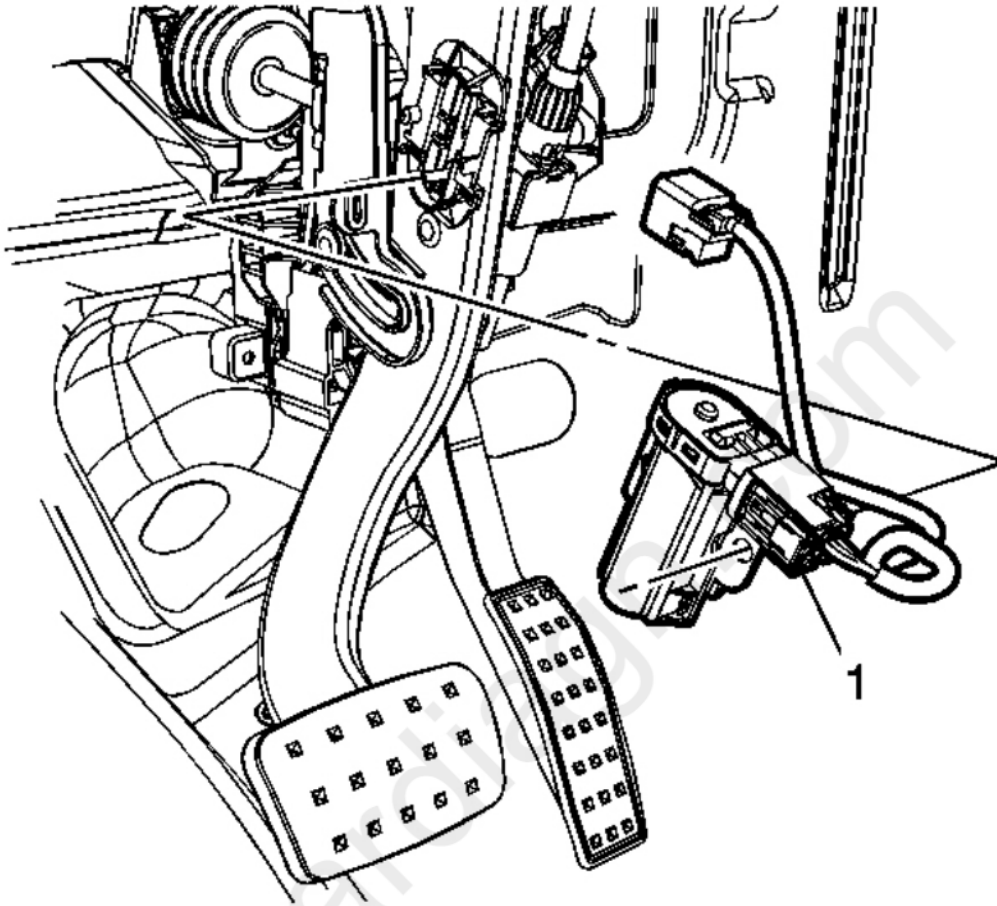


Fig. 33: View Of Brake & Accelerator Pedal Position Sensor
Courtesy of GENERAL MOTORS CORP.

5. Release the locking tabs and remove the brake and accelerator pedal position sensor (1) from the bracket on the brake pedal arm.

Installation Procedure

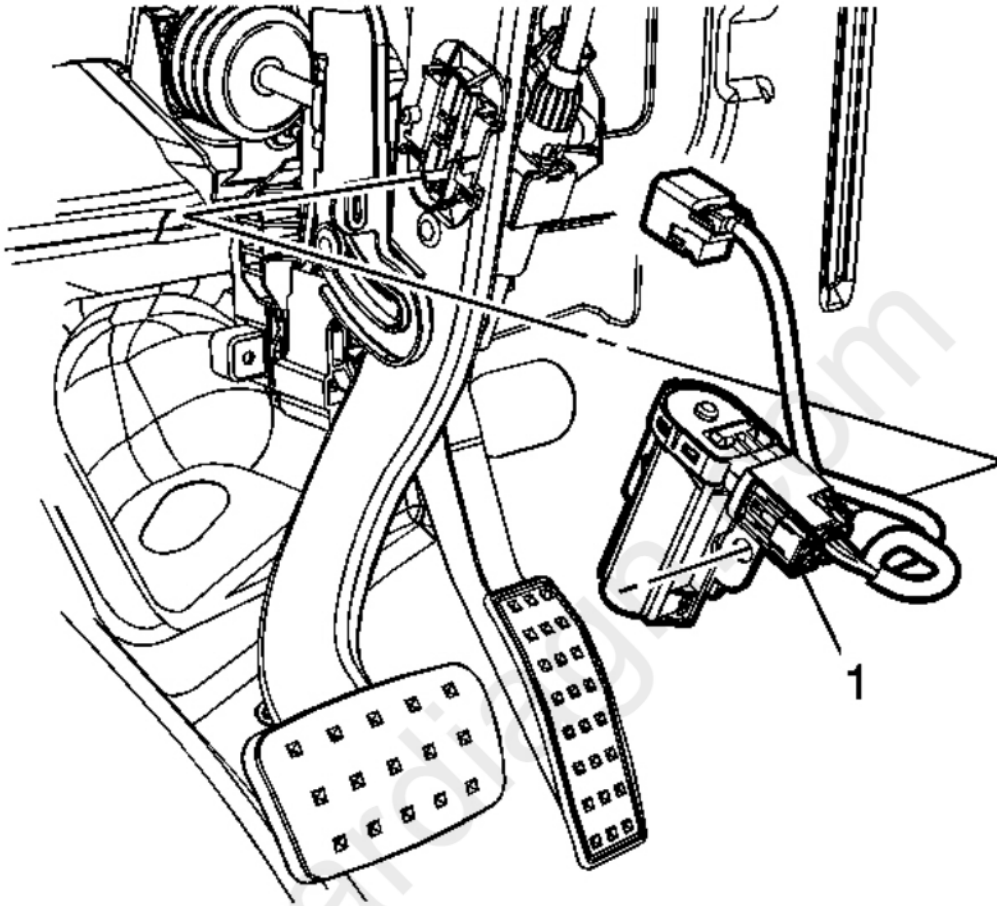


Fig. 34: View Of Brake & Accelerator Pedal Position Sensor
 Courtesy of GENERAL MOTORS CORP.

1. Install the brake and accelerator pedal position sensor (1) to the bracket on the brake pedal arm.
2. Ensure the locking tabs on the brake and accelerator pedal position sensor bracket are firmly engaged on the sensor.
3. Calibrate the adjustable pedal system. Refer to Adjustable Pedal System Calibration.
4. Install the driver knee bolster panel. Refer to Driver Knee Bolster Panel Replacement.

DESCRIPTION AND OPERATION

ADJUSTABLE PEDALS DESCRIPTION AND OPERATION

Adjustable Pedals System Components

The adjustable pedals system consists of the following components:

- The adjustable pedals switch
- The memory seat control module
- The adjustable pedals assembly
- The adjustable pedal position sensor

Adjustable Pedals System Operation

The adjustable pedals are not operable when the cruise control is engaged.

The adjustable pedal system is controlled by the memory seat module. The adjustable pedals are moved forward or backward by a motor which is fastened to the brake pedal assembly with drive cables to the brake and accelerator pedal actuators.

The adjuster motor is controlled by the memory seat control module through two motor control circuits. In an inactive state both control circuits are closed to ground within the module. The memory seat control module drives the adjuster motor in the forward or rearward direction by closing the appropriate control circuit to battery voltage. The adjuster motor is bidirectional and the direction of the pedal assembly travel is determined by which of the motor control circuits is switched to battery voltage while the other remains grounded.

The adjustable pedals forward and rearward switches are inputs to the module. Battery voltage is supplied to the switch from the memory seat control module. When the switch is operated to the forward or rearward direction the forward or rearward switch signal circuit is closed to the battery voltage circuit. Battery voltage on a switch signal circuit indicates to the memory seat control module that the switch is active.

The memory seat control module monitors the locations of the adjustable pedals using the adjustable pedals position sensor. The position sensor is supplied with a 5 V reference and ground circuit from the memory seat control module. The position sensor signal circuit is referenced from ground within the module. The position sensor signal circuit voltage levels are used by the memory seat control module to determine the positions of the adjustable pedals when storing or recalling memory position settings. Anytime adjustable pedal system components are replaced, including the memory seat control module, the system will not operate until the calibration procedure has been performed. Refer to **Adjustable Pedal System Calibration**.

