

2017 ACCESSORIES AND EQUIPMENT

Adjustable Pedals - Sierra, Silverado

SPECIFICATIONS

FASTENER SPECIFICATIONS

Reusable Threaded Fastener Tightening Specifications

NOTE:

All fasteners listed in this table can be reused after removal.

Application	Specification
	Metric (English)
Accelerator Pedal Adjuster Actuator Nut	9 N.m (80 lb in)
Accelerator Pedal Position Sensor Bolt	9 N.m (80 lb in)
Brake and Accelerator Pedal Adjuster Position Sensor Bolt	3 N.m (27 lb in)

SCHEMATIC WIRING DIAGRAMS

ADJUSTABLE PEDAL WIRING SCHEMATICS

Adjustable Pedals (without A45)

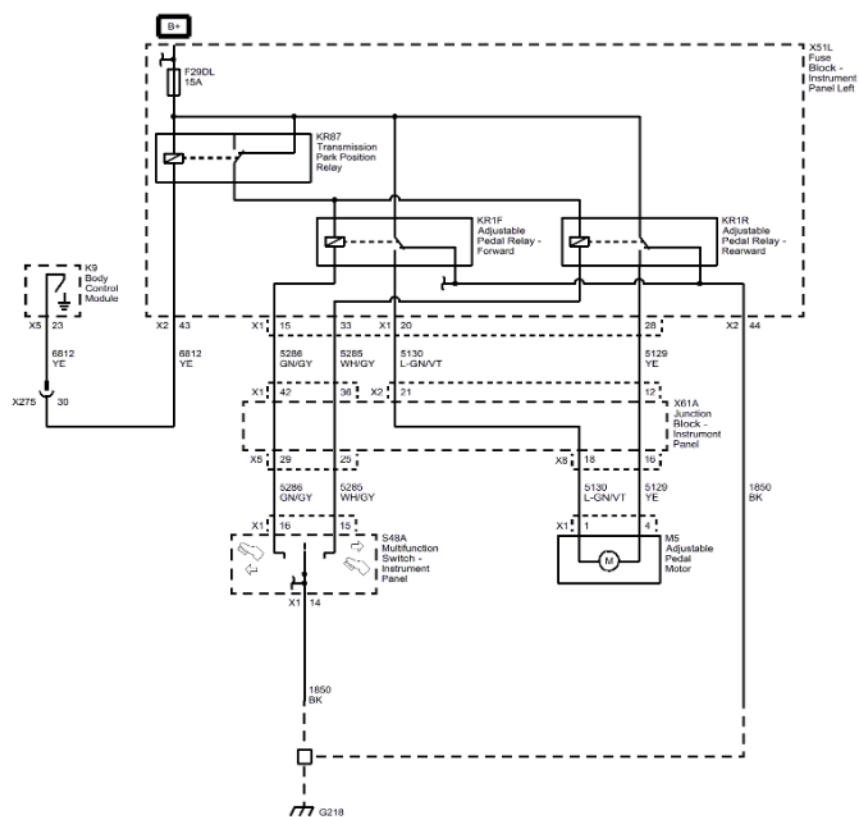


Fig. 1: Adjustable Pedals (without A45)
 Courtesy of GENERAL MOTORS COMPANY

Adjustable Pedals (A45)

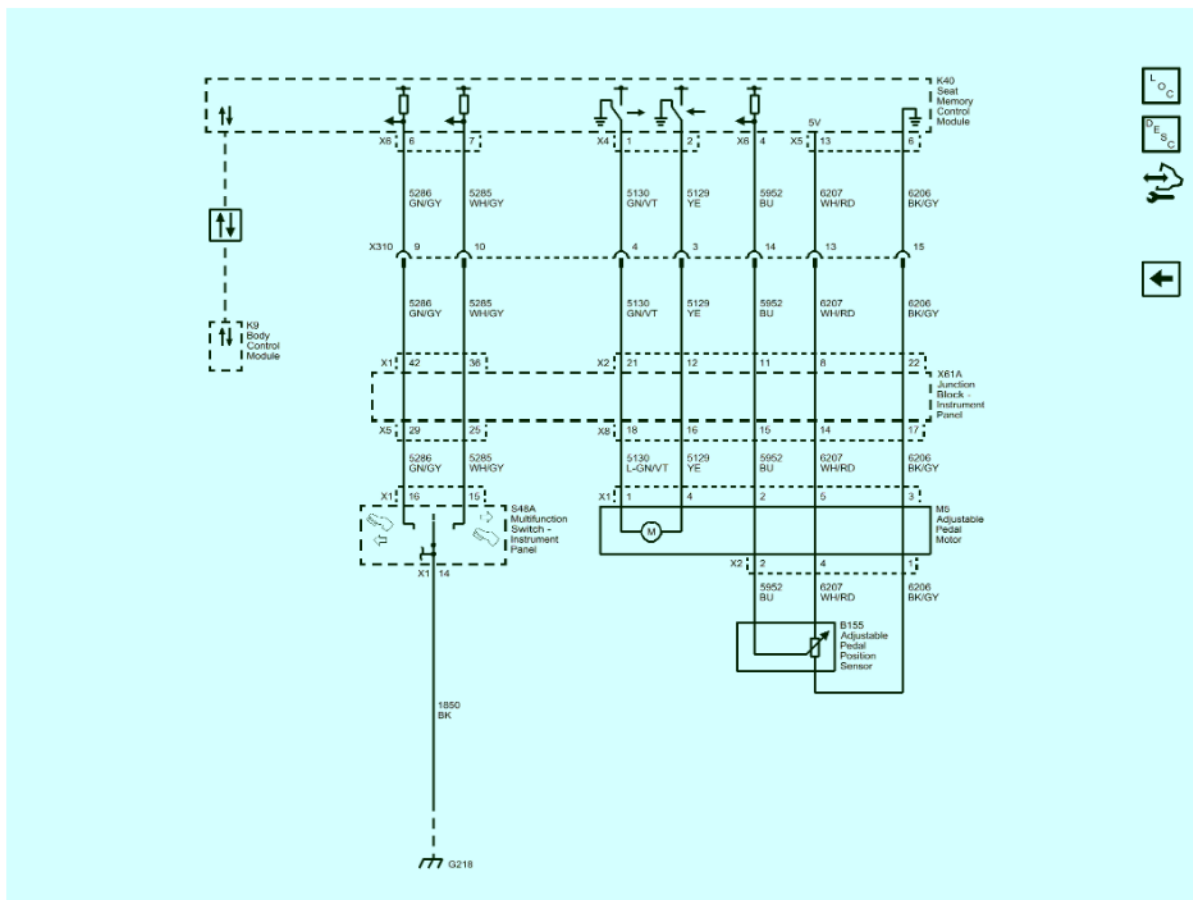


Fig. 2: Adjustable Pedals (A45)
 Courtesy of GENERAL MOTORS COMPANY

DIAGNOSTIC INFORMATION AND PROCEDURES

DTC B3604 OR B3605: ADJUSTABLE PEDAL FORWARD/REARWARD SWITCH

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 59

Adjustable Pedal Forward Switch Circuit Protection Time-Out

DTC B3605 59

Adjustable Pedal Rearward Switch Circuit Protection Time-Out

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Adjustable Pedals Forward Switch Signal	B3604 59	1	-	-
Adjustable Pedals Rearward Switch Signal	B3605 59	1	-	-
Ground	-	1	-	-
1. Adjustable Pedals Malfunction				

Circuit/System Description

Ground is supplied at all times to the adjustable pedal switch. The adjustable pedal forward and rearward switches are inputs to the seat memory control module. When the switch is operated to the forward or rearward direction, it supplies a ground path for the signal inputs from the seat memory control module. The seat memory control module then commands the adjustable pedals motor to move in response to the switch signal.

Conditions for Running the DTC

The seat memory control module must be powered.

Conditions for Setting the DTC

B3604 02

The seat memory control module detects short to ground in the forward signal circuit for greater than 60 s.

B3605 02

The seat memory control module detects a short to ground in the rearward signal circuit for greater than 60 s.

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 s 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 - INDEX

Description and Operation

Adjustable Pedals Description and Operation (Without A45)Adjustable Pedals Description and

Operation (With A45)

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, transmission selector in P (Park).
2. Verify the scan tool Adjustable Pedal Control Switch parameter changes from Inactive to Rearward and Forward while pressing the adjustable pedal switch in both directions.
 - **If the parameter does not change**
Refer to Circuit/System Testing.
 - **If the parameter changes**
3. All OK.

Circuit/System Testing

1. Ignition OFF and all vehicle systems OFF, scan tool disconnected, disconnect the X1 harness connector at the S48A Multifunction Switch - Instrument Panel. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 14 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Adjustable Pedal Control Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X6 harness connector at the K40 Seat Memory Control Module.
 2. Test for infinite resistance between the signal circuit terminal 16 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K40 Seat Memory Control Module.
 3. Test for infinite resistance between the signal circuit terminal 15 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.

- If infinite resistance, replace the K40 Seat Memory Control Module.

- **If Inactive**

5. Install a 3 A fused jumper wire between the signal circuit terminal 16 and ground.

6. Verify the scan tool Adjustable Pedal Control Switch parameter is Forward.

- **If not Forward**

1. Ignition OFF, disconnect the X6 harness connector at the K40 Seat Memory Control Module.

2. Test for less than 2 Ω in the signal circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the K40 Seat Memory Control Module.

- **If Forward**

7. Install a 3 A fused jumper wire between the signal circuit terminal 15 and ground.

8. Verify the scan tool Adjustable Pedal Control Switch parameter is Rearward.

- **If not Rearward**

1. Ignition OFF, disconnect the X6 harness connector at the K40 Seat Memory Control Module.

2. Test for less than 2 Ω in the signal circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the K40 Seat Memory Control Module.

- **If Rearward**

9. Test or replace the S48A Multifunction Switch - Instrument Panel.

Component Testing

1. Ignition OFF, disconnect the X1 harness connector at the S48A Multifunction Switch - Instrument Panel.
It may take up to 2 min for all vehicle systems to power down.

2. Test for infinite resistance between the signal terminal 16 and ground terminal 14 with the switch in the open position.

- **If less than infinite resistance**

Replace the S48A Multifunction Switch - Instrument Panel.

- **If infinite resistance**

3. Test for less than 2 Ω between the signal terminal 16 and ground terminal 14 with the switch in the closed position.

- **If 2 Ω or greater**

Replace the S48A Multifunction Switch - Instrument Panel.

- **If less than 2 Ω**

4. Test for infinite resistance between the signal terminal 15 and ground terminal 14 with the switch in the open position.

- **If less than infinite resistance**

Replace the S48A Multifunction Switch - Instrument Panel.

- **If infinite resistance**

5. Test for less than 2 Ω between the signal circuit terminal 15 and ground terminal 14 with the switch in the closed position.

- **If 2 Ω or greater**

Replace the S48A Multifunction Switch - Instrument Panel.

- **If less than 2 Ω**

6. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Vehicle Stability Control System Switch Replacement](#)
- [Control Module References](#) for seat memory control module replacement, programming and setup

DTC B3606: ADJUSTABLE PEDAL POSITION SENSOR

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 Low Voltage/Open

DTC B3606 5A

Adjustable Pedal Position Sensor Circuit Not Plausible

DTC B3606 61

Adjustable Pedal Position Sensor Circuit Stuck

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
5 V Reference	B3606 06	B3606 06	B3601 01	B3601 5A
Signal	B3606 06	B3606 06	B3601 01	B3601 5A
Low Reference	-	B3606 06	-	-

Circuit/System Description

The driver seat memory control module monitors the location of the adjustable pedals using the adjustable pedal

position sensor. The adjustable pedal position sensor is supplied with 5 V reference and ground circuits from the driver seat memory control module. The position sensor signal circuit is referenced from ground within the driver seat memory control module. The signal voltage monitored by the driver seat memory control module ranges from 0.45-4.55 V.

Conditions for Running the DTC

System voltage to the driver seat memory control module must be 9-16 V.

Conditions for Setting the DTC

B3606 01

The driver seat memory control module has detected a short to battery on the position sensor signal circuit.

B3606 06

The driver seat memory control module has detected an open/high resistance on the position sensor signal circuit.

B3606 5A

The driver seat memory control module has detected erratic voltage or voltage beyond the expected range on the position sensor signal circuit.

B3606 61

The driver seat memory control module has commanded the adjustable pedals but does not detect a voltage change in the position sensor signal circuit.

Action Taken When the DTC Sets

The driver seat memory control module will suspended memory recall functions for the adjustable pedals for as long as the fault is present.

Conditions for Clearing the DTC

- The DTC becomes history when the conditions for setting the DTC are no longer present.
- The history DTC clears after 100 malfunction-free ignition cycles.

Reference Information

Schematic Reference

Adjustable Pedal Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

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- [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
2. Verify the scan tool Adjustable Pedals Horizontal Position parameter is between 0.45-4.55 V and varies while commanding the pedals FORWARD and BACKWARD with the adjustable pedal switch.
 - **If not between 0.45-4.55 V or does not change**

Refer to Circuit/System Testing.
 - **If between 0.45-4.55 V and changes**
3. All OK.

[Circuit/System Testing](#)

1. Ignition OFF, disconnect the X5 and X6 harness connectors at the K40 Seat Memory Control Module.
2. Test for infinite resistance between the circuit terminals listed below and ground:
 - Signal circuit terminal 4 X6
 - 5 V reference circuit terminal 13 X5
 - Low reference circuit terminal 6 X5
 - **If less than infinite resistance**
 1. Ignition OFF, disconnect the X2 harness connector at the M5 Adjustable Pedal Motor.
 2. Test for infinite resistance between each control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the B155 Adjustable Pedal Position Sensor.
 - **If infinite resistance**
3. Ignition ON
4. Test for less than 1 V between the circuit terminals listed below and ground:
 - Signal circuit terminal 4 X6
 - 5 V reference circuit terminal 13 X5
 - Low reference circuit terminal 6 X5
 - **If 1 V or greater**
 1. Ignition OFF, disconnect the X2 harness connector at the M5 Adjustable Pedal Motor.
 2. Test for less than 1 V between each control circuit and ground.
 - If greater than 1 V, repair the short to voltage on the circuit.

- If less than 1 V, replace the B155 Adjustable Pedal Position Sensor.

- **If less than 1 V**

5. Ignition OFF

6. Disconnect the X1 harness connector at the M5 Adjustable Pedal Motor.

7. Test for less than 2 Ω between the circuit terminals listed below:

- K40 Seat Memory Control Module signal circuit terminal 4 X6 and the M5 Adjustable Pedal Motor 2 X1
- K40 Seat Memory Control Module 5 V reference circuit terminal 13 X5 and the M5 Adjustable Pedal Motor 5 X1
- K40 Seat Memory Control Module low reference circuit terminal 6 X5 and the M5 Adjustable Pedal Motor 3 X1
- **If 2 Ω or greater**

Repair the open/high resistance in the circuit.

- **If less than 2 Ω**

8. Replace the K40 Seat Memory Control Module.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Brake and Accelerator Pedal Adjuster Position Sensor Replacement](#)
- [Control Module References](#) for driver seat memory control module replacement, programming and setup

DTC B3631: ADJUSTABLE FOOT PEDAL

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 B3631 00

Adjustable Foot Pedal Inhibit Circuit

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Park Enable Relay Control	B3631 00	1	2	-
1. Adjustable Pedal Inhibit Inoperative 2. Adjustable Pedals Inoperative				

Circuit/System Description

Voltage to the adjustable pedal switch is supplied through the park enable relay while in a de-energized state. The transmission park relay is controlled by the body control module (BCM) through a low side drive control circuit and will be energized whenever the ignition is in the accessory, run, or crank positions and the transmission is in the P (park) position.

Conditions for Running the DTC

- The ignition is ON.
- The BCM attempts to energize the transmission park relay.

Conditions for Setting the DTC

The BCM detects a short to ground on the transmission park relay control circuit while attempting to activate the output.

Action Taken When the DTC Sets

The adjustable pedal functions will be disabled for as long as the fault is current.

Conditions for Clearing the DTC

- The DTC becomes history when the conditions for setting the DTC are no longer present.
- The history DTC clears after 100 malfunction-free ignition cycles.

Reference Information

Schematic Reference

Adjustable Pedal Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

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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.

2. Transmission shift selector in the P (park) position.
3. Verify the brake and accelerator pedals move while pressing the adjustable pedal switch in both directions.

- **If the brake and accelerator pedals do not move**

Refer to Circuit/System Testing.

- **If the brake and accelerator pedals move**

4. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the X2 harness connector at the X51L Fuse Block- Instrument Panel Left. Ignition ON.
2. Connect a test lamp between the control circuit terminal 43 and B+.
3. Verify the test lamp turns ON and OFF when moving the transmission selector between P (park) and R (reverse).

- **If the test lamp is always OFF**

1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Ignition OFF.
4. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.

- **If the test lamp is always ON**

1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.

- **If the test lamp turns ON and OFF**

4. Replace the X51L Fuse Block- Instrument Panel Left.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

Control Module References for the control module replacement, programming and setup

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 \(Without A45\)](#)[Adjustable Pedals Description and Operation \(With A45\)](#).

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 \(With A45\)](#)[Adjustable Pedals Malfunction \(Without A45\)](#) in order to diagnose the symptom.

ADJUSTABLE PEDALS MALFUNCTION (WITH A45)

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

Circuit	Short to Ground	Open/High 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	B3604 59	2	-	-
Rearward Switch Signal	B3605 59	2	-	-
Adjustable Pedal Motor Control 1 X1	B3920 02	1	B3920 01	-
Adjustable Pedal Motor Control 4 X1	B3920 02	1	B3920 01	-
Position Sensor Low Reference	-	B3606 06	-	-
Instrument Panel Multifunction Switch Ground	-	1	-	-
1. Adjustable Pedals Motor Inoperative 2. Adjustable Pedals Switch Malfunction				

Circuit/System Description

The adjustable pedal 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 seat memory control module controls the adjustable pedal motor by applying battery voltage to one of the outputs and ground to the other. The adjustable pedal 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 pedal forward and rearward switches are inputs to the seat memory control module. When the switch is operated to the forward or rearward direction, it supplies a ground path for the signal inputs from the seat memory control module.

Reference Information

Schematic Reference

Adjustable Pedal Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

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- 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. 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 .

- **If any of the DTCs are not set**

2. Verify the scan tool Adjustable Pedal Control Switch parameter changes from Inactive to Forward and Rearward while pressing the adjustable pedal switch in both directions.

- **If the parameter does not change**

Refer to Circuit/System Testing - Adjustable Pedal Switch Malfunction.

- **If the parameter changes**

3. Command the Adjustable Pedals Forward/Rearward with a scan tool. The brake and accelerator pedals should move in the commanded direction.

- **If the pedals do not move in the commanded direction**

Refer to Circuit/System Testing - Adjustable Pedal Motor Malfunction.

- **If the pedals move in the commanded direction**

4. Verify the scan tool Adjustable Pedals Horizontal Position parameter is between 0.45-4.55 V and varies while commanding the pedals FORWARD and BACKWARD with the adjustable pedal switch.

- **If not within the specified range or does not vary**

Refer to Circuit/System Testing - Adjustable Pedal Position Sensor Malfunction.

- **If in the specified range and varies**

5. All OK.

Circuit/System Testing

Adjustable Pedal Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, scan tool disconnected, disconnect the X1 harness connector at the S48A Multifunction Switch - Instrument Panel. It may take up to 2 min for all vehicle systems to power down.

2. Test for less than 10 Ω between the ground circuit terminal 14 and ground.

- **If 10 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

3. Ignition ON.

4. Verify the scan tool Adjustable Pedal Control Switch parameter is Inactive.

- **If not Inactive**

1. Ignition OFF, disconnect the X6 harness connector at the K40 Seat Memory Control Module.

2. Test for infinite resistance between the signal circuit terminal 16 and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, replace the K40 Seat Memory Control Module.

3. Test for infinite resistance between the signal circuit terminal 15 and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, replace the K40 Seat Memory Control Module.

- **If Inactive**

5. Install a 3 A fused jumper wire between the signal circuit terminal 16 and ground.

6. Verify the scan tool Adjustable Pedals Direction Command parameter is Forward.

- **If not Forward**

1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the X6 harness connector at the K40

Seat Memory Control Module.

2. Test for less than 2 Ω in the signal circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the K40 Seat Memory Control Module.

• **If Forward**

7. Install a 3 A fused jumper wire between the signal circuit terminal 15 and ground.

8. Verify the scan tool Adjustable Pedals Direction Command parameter is Rearward.

• **If not Rearward**

1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the X6 harness connector at the K40 Seat Memory Control Module.

2. Test for less than 2 Ω in the signal circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the K40 Seat Memory Control Module.

• **If Rearward**

9. Test or replace the S48A Multifunction Switch - Instrument Panel.

Adjustable Pedal Motor Malfunction

1. Ignition OFF, disconnect the X1 harness connector at the M5 Adjustable Pedal Motor.

2. Connect a test lamp between the control circuit terminal 1 and control circuit terminal 4. Ignition ON.

3. Verify the test lamp illuminates while commanding the Adjustable Pedals Forward/Rearward with a scan tool.

• **If the test lamp does not illuminate**

1. Ignition OFF, remove the test lamp, disconnect the X4 harness connector at the K40 Seat Memory Control Module.

2. Test for infinite resistance between each control circuit and ground.

- If less than Infinite resistance, repair the short to ground on the circuit.
- If infinite resistance

3. Test for less than 2 Ω between each control circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , test or replace the K40 Seat Memory Control Module.

• **If the test lamp illuminates**

4. Test or replace the M5 Adjustable Pedal Motor.

Adjustable Pedal Position Sensor Malfunction

1. Ignition OFF, disconnect the X5 and X6 harness connectors at the K40 Seat Memory Control Module.

2. Test for infinite resistance between the circuit terminals listed below and ground:

- Signal circuit terminal 4 X6
- 5 V reference circuit terminal 13 X5
- Low reference circuit terminal 6 X5

• **If less than infinite resistance**

1. Ignition OFF, disconnect the X2 harness connector at the M5 Adjustable Pedal Motor.

2. Test for infinite resistance between each control circuit and ground.
 - If less than Infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the B155 Adjustable Pedal Position Sensor.

- **If infinite resistance**

3. Ignition ON

4. Test for less than 1 V between the circuit terminals listed below and ground:

- Signal circuit terminal 4 X6
- 5 V reference circuit terminal 13 X5
- Low reference circuit terminal 6 X5

- **If 1 V or greater**

1. Ignition OFF, disconnect the X2 harness connector at the M5 Adjustable Pedal Motor.

2. Test for less than 1 V between each control circuit and ground.

- If greater than 1 V, repair the short to voltage on the circuit.
- If less than 1 V, replace the B155 Adjustable Pedal Position Sensor.

- **If less than 1 V**

5. Ignition OFF

6. Disconnect the X1 harness connector at the M5 Adjustable Pedal Motor.

7. Test for less than 2 Ω between the circuit terminals listed below:

- K40 Seat Memory Control Module signal circuit terminal 4 X6 and the M5 Adjustable Pedal Motor 2 X1
- K40 Seat Memory Control Module 5 V reference circuit terminal 13 X5 and the M5 Adjustable Pedal Motor 5 X1
- K40 Seat Memory Control Module low reference circuit terminal 6 X5 and the M5 Adjustable Pedal Motor 3 X1
- If 2 Ω or greater, repair the open/high resistance in the circuit.

- **If less than 2 Ω**

8. Replace the K40 Seat Memory Control Module.

Repair Instructions

Perform [Diagnostic Repair Verification](#) after completing the repair.

- [Brake and Accelerator Pedal Assembly Replacement](#)
- [Vehicle Stability Control System Switch Replacement](#)
- [Control Module References](#) for seat memory control module replacement, programming and setup.

ADJUSTABLE PEDALS MALFUNCTION (WITHOUT A45)

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

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Transmission Park Position Relay B+	2	2	-	-
Adjustable Pedal Forward Relay Control	2	2	2	-
Adjustable Pedal Rearward Relay Control	2	2	2	-
Adjustable Pedal Motor Control Terminal 1	2	2	2	-
Adjustable Pedal Motor Control Terminal 2	2	2	2	-
Transmission Park Position Relay Control	B3631 00	1	2	-
Adjustable Pedal Switch Ground	-	2	-	-
1. Adjustable Pedal Inhibit Inoperative 2. Adjustable Pedals Inoperative				

Circuit/System Description

Voltage to the adjustable pedal switch is supplied through the transmission park relay while in a energized state. The transmission park relay is controlled by the body control module (BCM) through a low side drive control circuit and will be de-energized whenever the ignition is in the accessory, run, or crank positions and the transmission is in reverse or the cruise control is engaged. The adjustable pedals switch controls the adjustable pedals relay by applying ground to one of the coils. In an inactive state both of the relay switch contacts are closed to battery voltage and when one of the relay coils is energized its switch contact is closed to ground.

Reference Information

Schematic Reference

Adjustable Pedal Schematics

Connector End View Reference

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- [Wiring Repairs](#)

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify the scan tool Park/Neutral Position Switch parameter in ECM Automatic Transmission Data changes from Off to On while moving the transmission shift selector from the P (park) position.
 - **If the parameter does not change**

Refer to Circuit/System Testing - Park Position Switch Malfunction.
 - **If the parameter changes**
3. Verify the adjustable pedals move forward and rearward when using the appropriate switch on the S48A Multifunction Switch - Instrument Panel.
 - **If the adjustable pedals do not move as commanded**

Refer to Circuit/System Testing - Adjustable Pedals Malfunction
 - **If the adjustable pedals move as commanded**
4. All OK.

Circuit/System Testing

Park Position Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the B81B Park Position Switch. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal B and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Park Switch Status parameter is Off.
 - **If not Off**
 1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal A and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Off**
5. Install a 3 A fused jumper wire between the signal circuit terminal A and ground.
6. Verify the scan tool Park Switch Status parameter is On.
 - **If not On**
 1. Ignition OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the K9 Body

Control Module, ignition ON.

2. Test for less than 1 V between the signal circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.

- **If On**

7. Test or replace the B81B Park Position Switch.

Adjustable Pedals Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the X1 harness connector at the S48A Multifunction Switch - Instrument Panel. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 14 and ground.

- **If 10 Ω or greater**

1. Ignition OFF.
2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

3. Connect the X1 harness connector at the S48A Multifunction Switch - Instrument Panel and disconnect the X1 and X2 harness connector at the X51L Fuse Block- Instrument Panel Left.
4. Test for less than 10 Ω between the ground circuit terminal 44 X2 and ground.

- **If 10 Ω or greater**

1. Ignition OFF.
2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

5. Connect a test lamp between the control circuit terminal 43 X2 and B+.
6. Verify the test lamp turns ON and OFF when moving the transmission selector between P (park) and R (reverse).

- **If the test lamp is always OFF**

1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Ignition OFF.
4. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.

- **If the test lamp is always ON**

1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.

- **If the test lamp turns ON and OFF**

7. Connect a test lamp between the control circuit terminal 15 X1 and B+.
8. Verify the test lamp turns ON and OFF pressing the Forward switch on the S48A Multifunction Switch - Instrument Panel.

- **If the test lamp is always OFF**

1. Ignition OFF, disconnect the harness connector at the S48A Multifunction Switch - Instrument Panel, ignition ON.
2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Ignition OFF.
4. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , test or replace the S48A Multifunction Switch - Instrument Panel.

- **If the test lamp is always ON**

1. Ignition OFF, disconnect the harness connector at the S48A Multifunction Switch - Instrument Panel.
2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, test or replace the S48A Multifunction Switch - Instrument Panel.

- **If the test lamp turns ON and OFF**

9. Connect a test lamp between the control circuit terminal 33 X1 and B+.
10. Verify the test lamp turns ON and OFF pressing the Rearward switch on the S48A Multifunction Switch - Instrument Panel.

- **If the test lamp is always OFF**

1. Ignition OFF, disconnect the harness connector at the S48A Multifunction Switch - Instrument Panel, ignition ON.
2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Ignition OFF.
4. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , test or replace the S48A Multifunction Switch - Instrument Panel.

- **If the test lamp is always ON**

1. Ignition OFF, disconnect the harness connector at the S48A Multifunction Switch - Instrument Panel.

2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, test or replace the S48A Multifunction Switch - Instrument Panel.
- **If the test lamp turns ON and OFF**
11. Ignition OFF, connect the X1 and X2 harness connector at the X51L Fuse Block- Instrument Panel Left and disconnect the harness connector at the M5 Adjustable Pedal Motor.
12. Test for less than 10 Ω between the control circuit terminal 1 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF, disconnect the harness connector at the X51L Fuse Block- Instrument Panel Left.
 2. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X51L Fuse Block- Instrument Panel Left.
 - **If less than 10 Ω**
13. Test for less than 10 Ω between the control circuit terminal 4 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF, disconnect the harness connector at the X51L Fuse Block- Instrument Panel Left.
 2. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X51L Fuse Block- Instrument Panel Left.
 - **If less than 10 Ω**
14. Connect a test lamp between control circuit terminal 1 and control circuit terminal 4, ignition ON.
15. Verify the test lamp turns ON when commanding the Forward and Reverse states when pressing the appropriate switch on the S48A Multifunction Switch - Instrument Panel
 - **If the test lamp remains OFF during either of the commands**
 1. Ignition OFF, remove the test lamp, disconnect the harness connector at the X51L Fuse Block- Instrument Panel Left.
 2. Test for infinite resistance between each control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the X51L Fuse Block- Instrument Panel Left.
 - **If the test lamp turns ON during each of the commands**
16. Test or replace the M5 Adjustable Pedal Motor.

Component Testing

Multifunction Switch

1. Ignition OFF, disconnect the harness connector at the S48A Multifunction Switch-Instrument Panel.
2. Test for infinite resistance between the signal terminal 15 and the ground terminal 14 with the switch in the center position.
 - **If less than infinite resistance**

Replace the S48A Multifunction Switch-Instrument Panel.
 - **If infinite resistance**

3. Test for infinite resistance between the signal terminal 16 and the ground terminal 14 with the switch in the center position.
 - **If less than infinite resistance**
Replace the S48A Multifunction Switch-Instrument Panel.
 - **If infinite resistance**
4. Test for less than 2 Ω between the signal terminal 16 and the ground terminal 14 with the switch in the Forward position.
 - **If 2 Ω or greater**
Replace the S48A Multifunction Switch-Instrument Panel.
 - **If less than 2 Ω**
5. Test for less than 2 Ω between the signal terminal 15 and the ground terminal 14 with the switch in the Rearward position.
 - **If 2 Ω or greater**
Replace the S48A Multifunction Switch-Instrument Panel.
 - **If less than 2 Ω**
6. All OK

Adjustable Pedal Motor

1. Ignition OFF, disconnect the harness connector at the M5 Adjustable Pedal Motor.
2. Install a 15 A fused jumper wire between one of the control terminals and 12 V. Momentarily install a jumper wire between the other control terminal and ground. Reverse the jumper wires at least two times, the M5 Adjustable Pedal Motor should perform the Forward and Rearward functions.
 - **If the M5 Adjustable Pedal Motor does not perform the Forward and Rearward functions**
Replace the M5 Adjustable Pedal Motor.
 - **If the M5 Adjustable Pedal Motor performs the Forward and Rearward functions**
3. All OK

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Brake Pedal Assembly Replacement \(With JF4\)](#) [Brake Pedal Assembly Replacement \(Without JF4\)](#)
- [Vehicle Stability Control System Switch Replacement](#)
- [Underhood Electrical Center or Junction Block Replacement](#)
- [Control Module References](#) for BCM replacement, programming and setup

REPAIR INSTRUCTIONS

ACCELERATOR PEDAL ADJUSTER ACTUATOR REPLACEMENT

Removal Procedure

NOTE: Position 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. Position the adjustable pedal assembly to the full forward, front of vehicle position.
2. Disconnect the accelerator pedal adjuster actuator motor electrical connector.

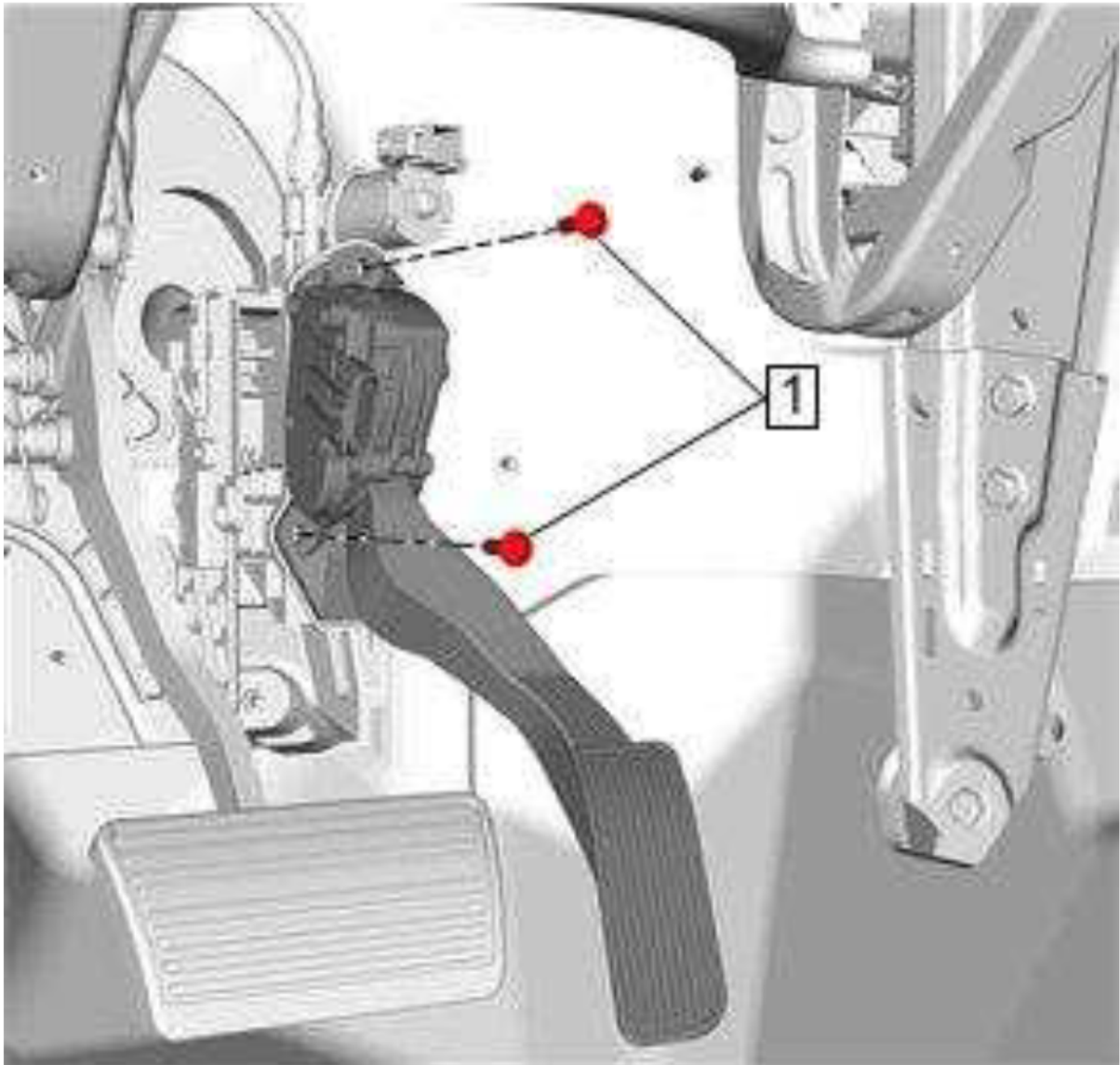


Fig. 3: Accelerator Pedal Position Sensor Bolts
Courtesy of GENERAL MOTORS COMPANY

3. Accelerator Pedal Position Sensor Bolt (1) - Remove

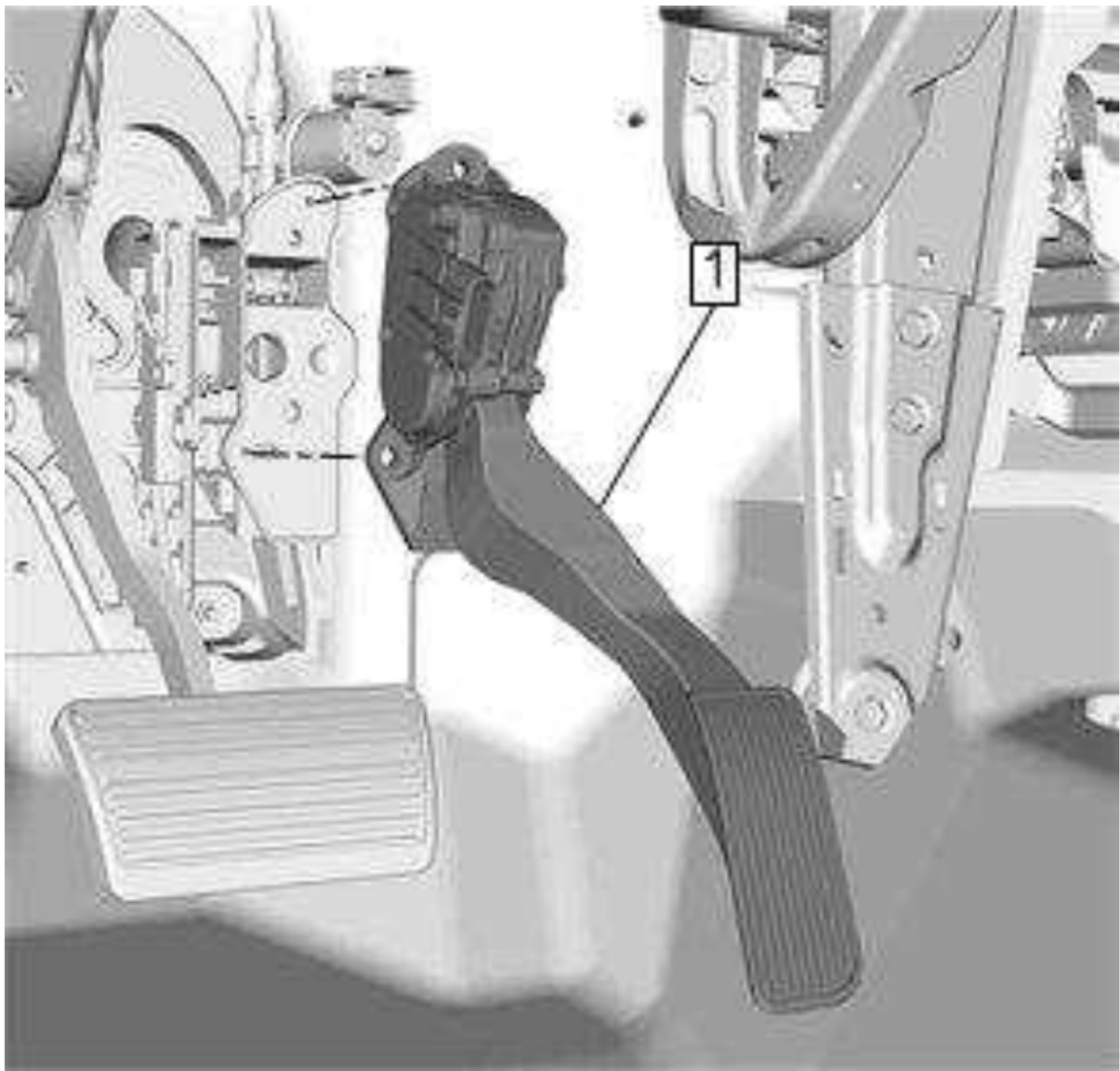


Fig. 4: Accelerator Pedal Position Sensor

Courtesy of GENERAL MOTORS COMPANY

4. Accelerator Pedal Position Sensor (1) - Remove

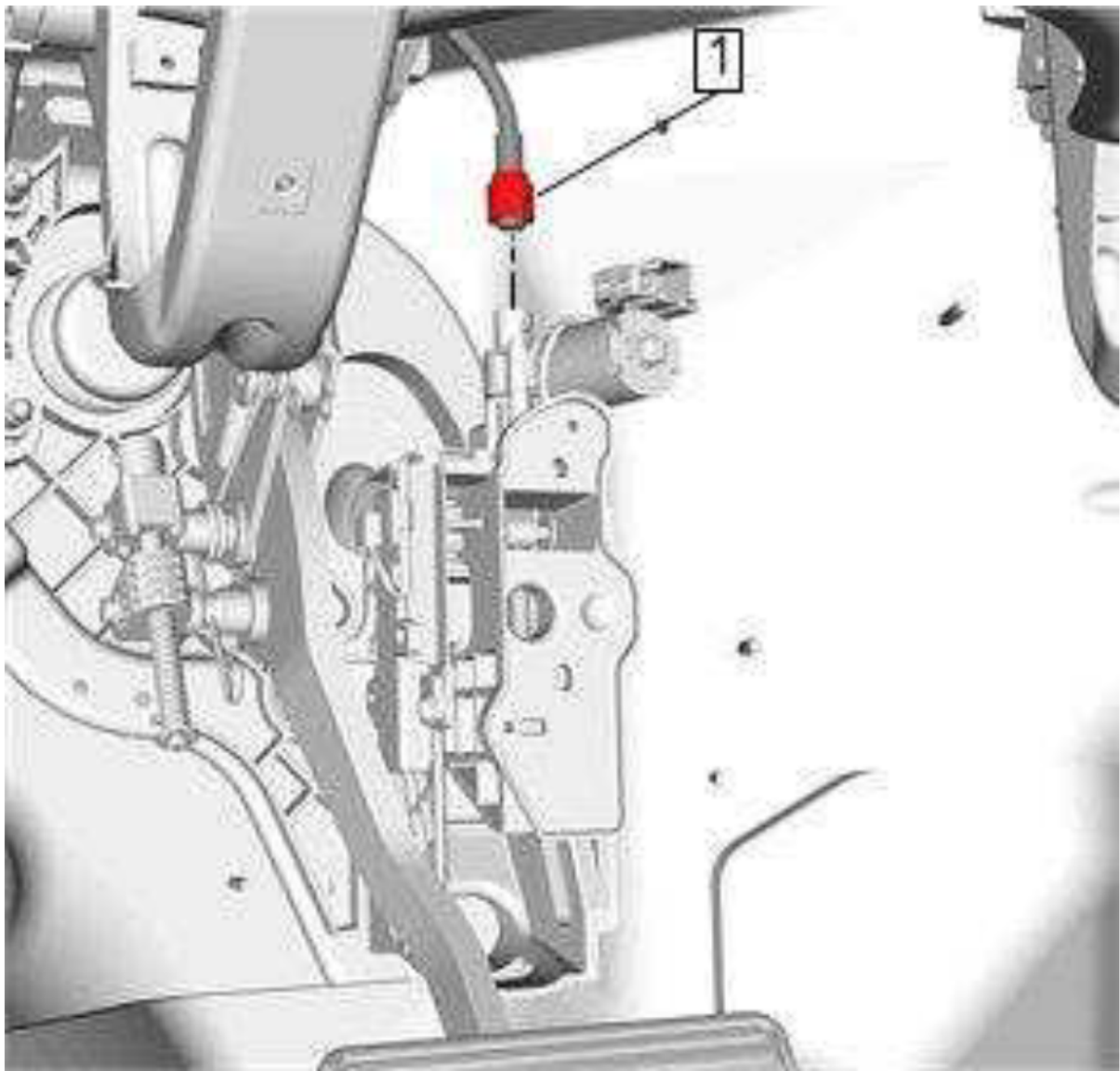


Fig. 5: Brake Pedal Adjuster Actuator Cable Fitting
Courtesy of GENERAL MOTORS COMPANY

5. Brake Pedal Adjuster Actuator Cable Fitting (1) - Disconnect
6. Disconnect the brake and accelerator pedal adjuster position sensor harness electrical connector.

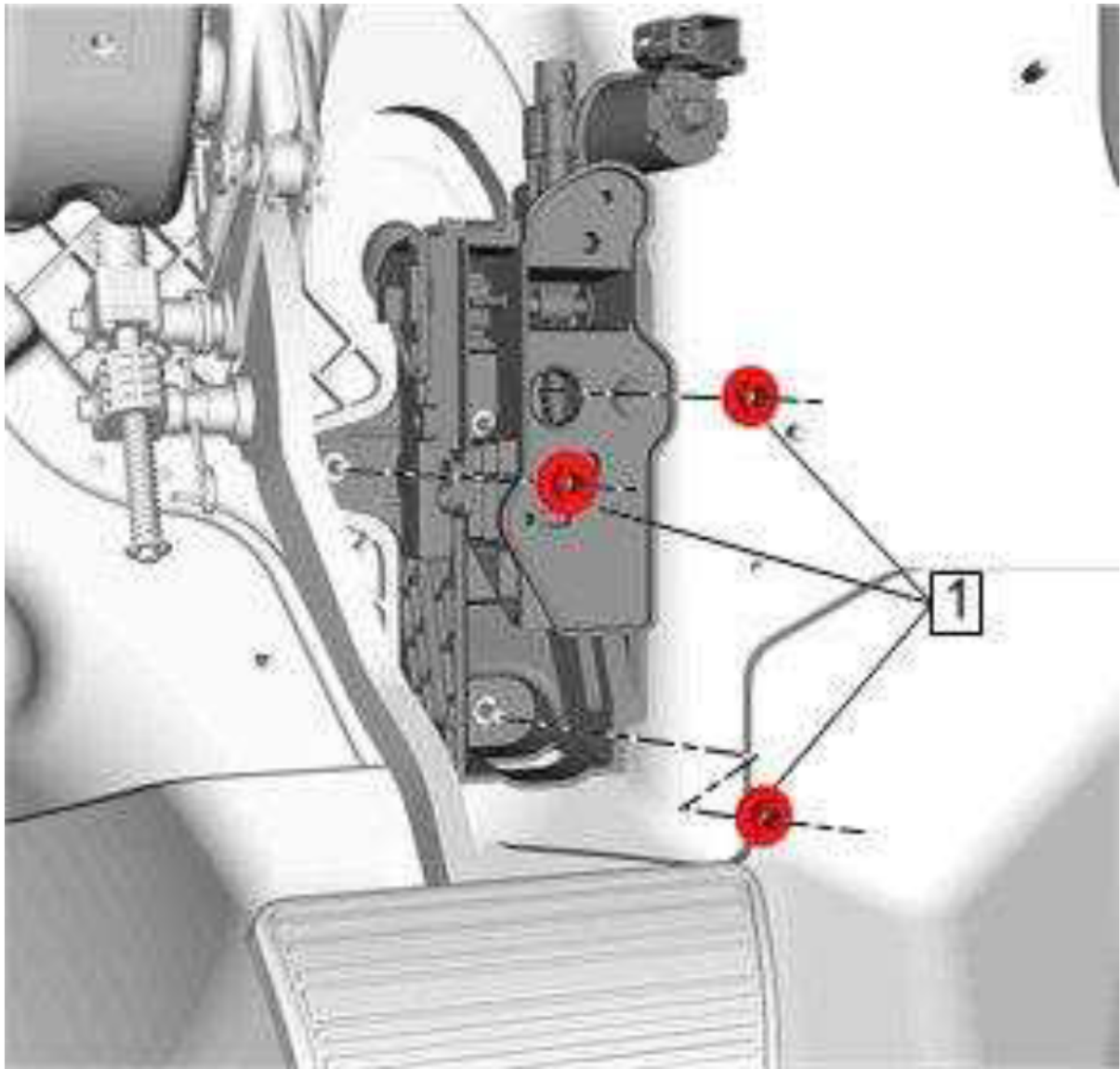


Fig. 6: Accelerator Pedal Adjuster Actuator Nuts

Courtesy of GENERAL MOTORS COMPANY

7. Accelerator Pedal Adjuster Actuator Nut (1) - Remove

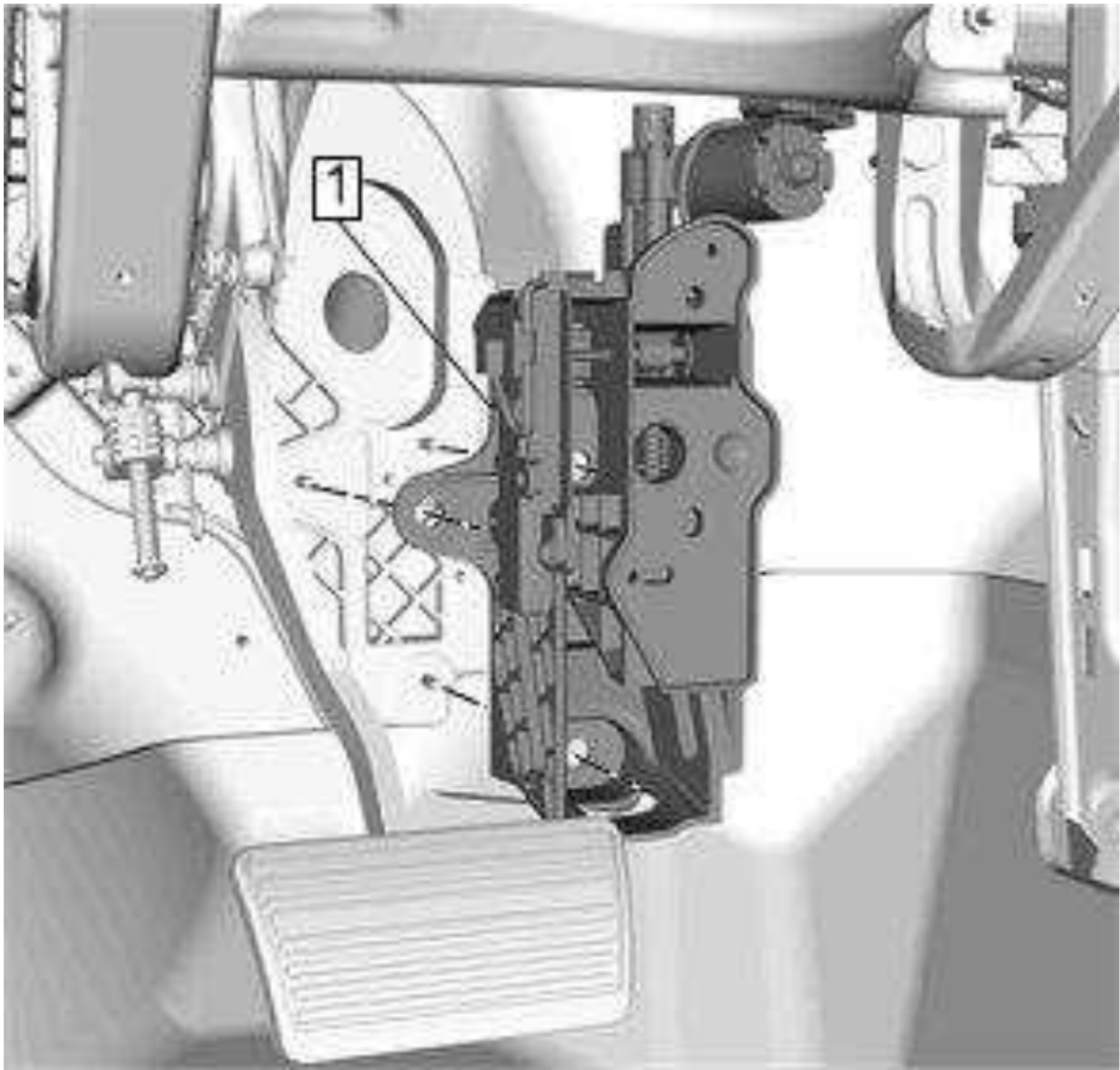


Fig. 7: Accelerator Pedal Adjuster Actuator
Courtesy of GENERAL MOTORS COMPANY

8. Accelerator Pedal Adjuster Actuator (1) - Remove
9. **Brake and Accelerator Pedal Adjuster Position Sensor Replacement** - Remove

Installation Procedure

1. **Brake and Accelerator Pedal Adjuster Position Sensor Replacement** - Install

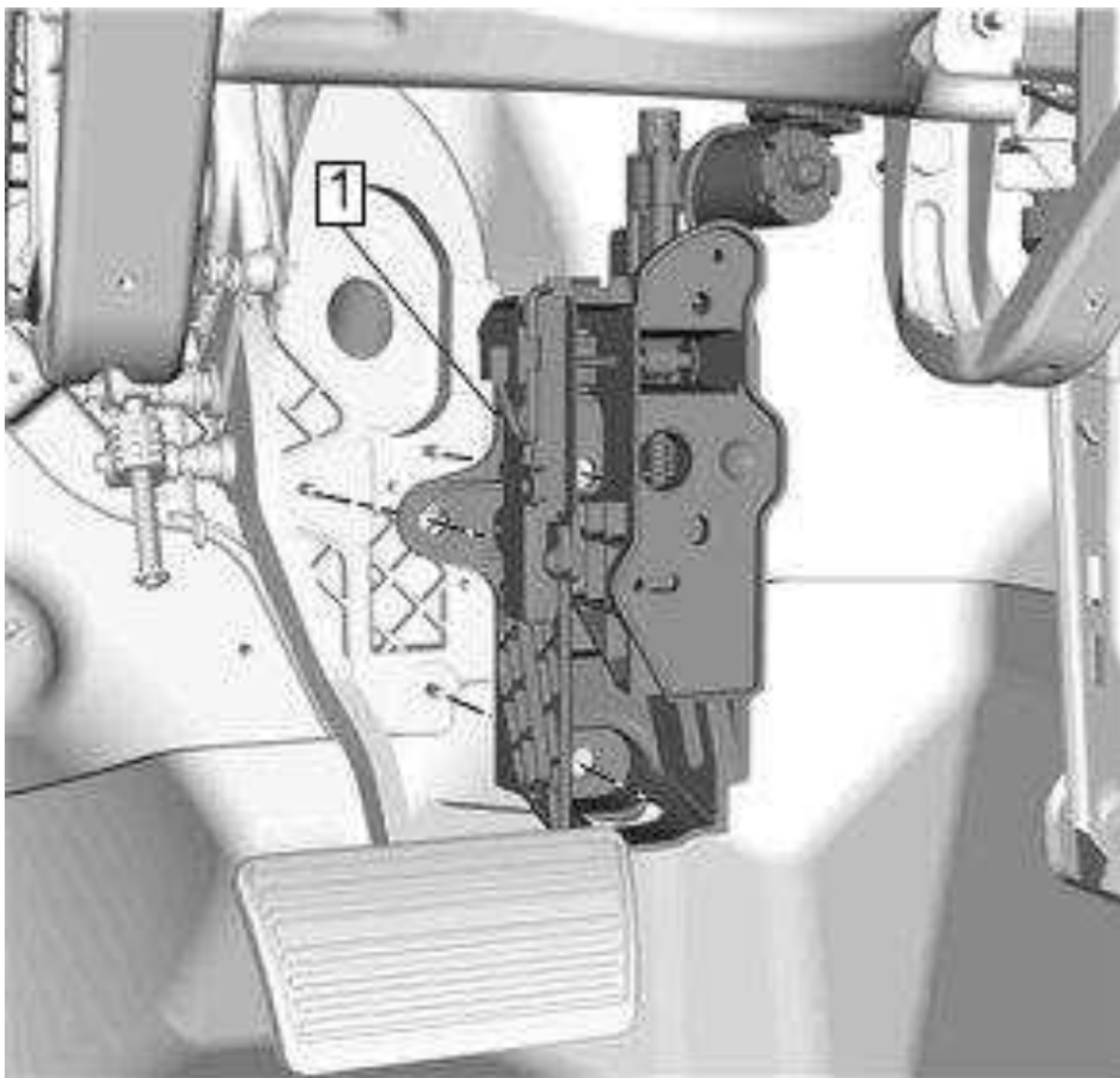


Fig. 8: Accelerator Pedal Adjuster Actuator
Courtesy of GENERAL MOTORS COMPANY

2. Accelerator Pedal Adjuster Actuator (1) - Install

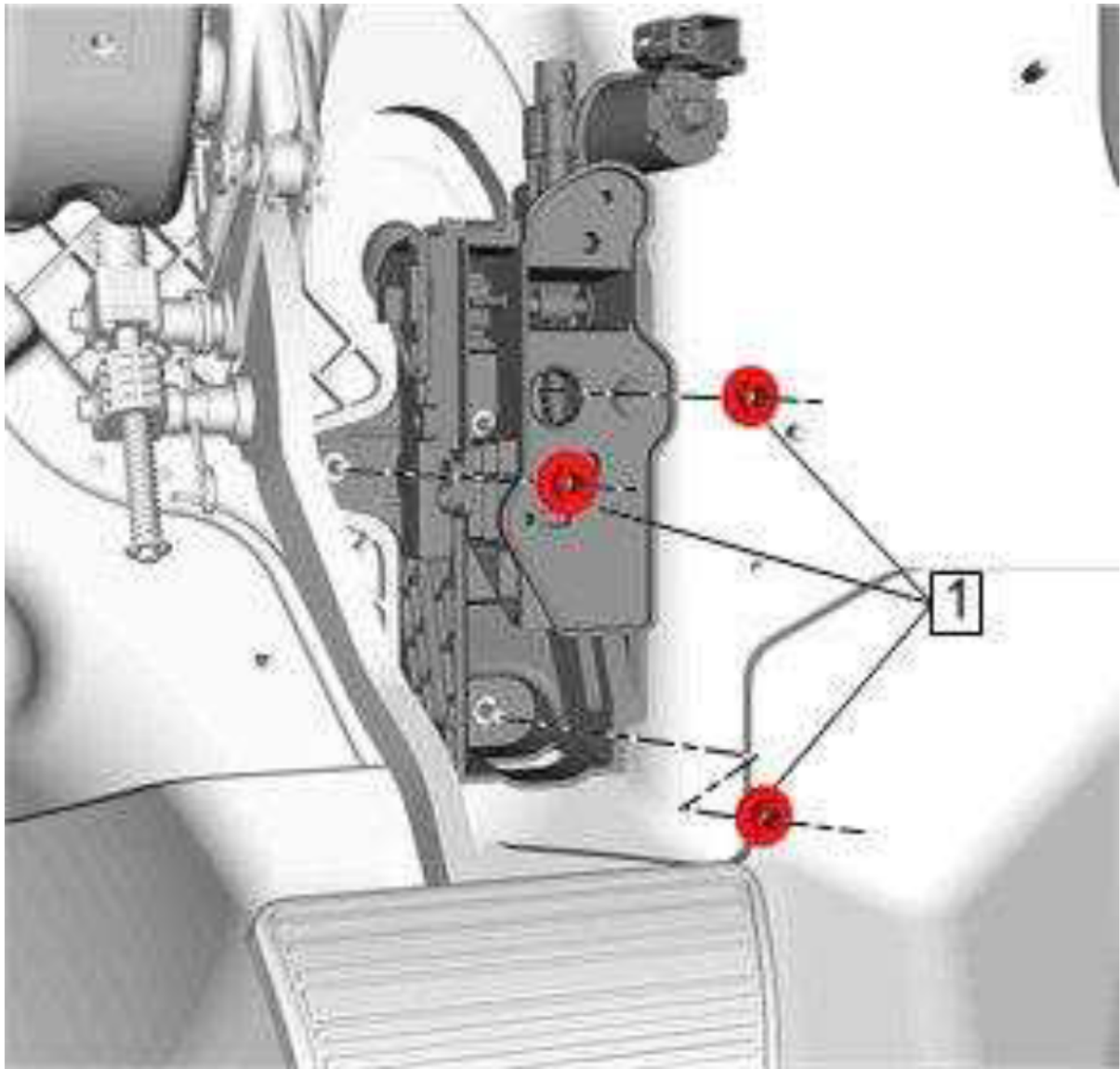


Fig. 9: Accelerator Pedal Adjuster Actuator Nuts

Courtesy of GENERAL MOTORS COMPANY

CAUTION: Fastener Caution

3. Accelerator Pedal Adjuster Actuator Nut (1) - Install and tighten 9 N.m (80 lb in)
4. Connect the brake and accelerator pedal adjuster position sensor harness electrical connector.

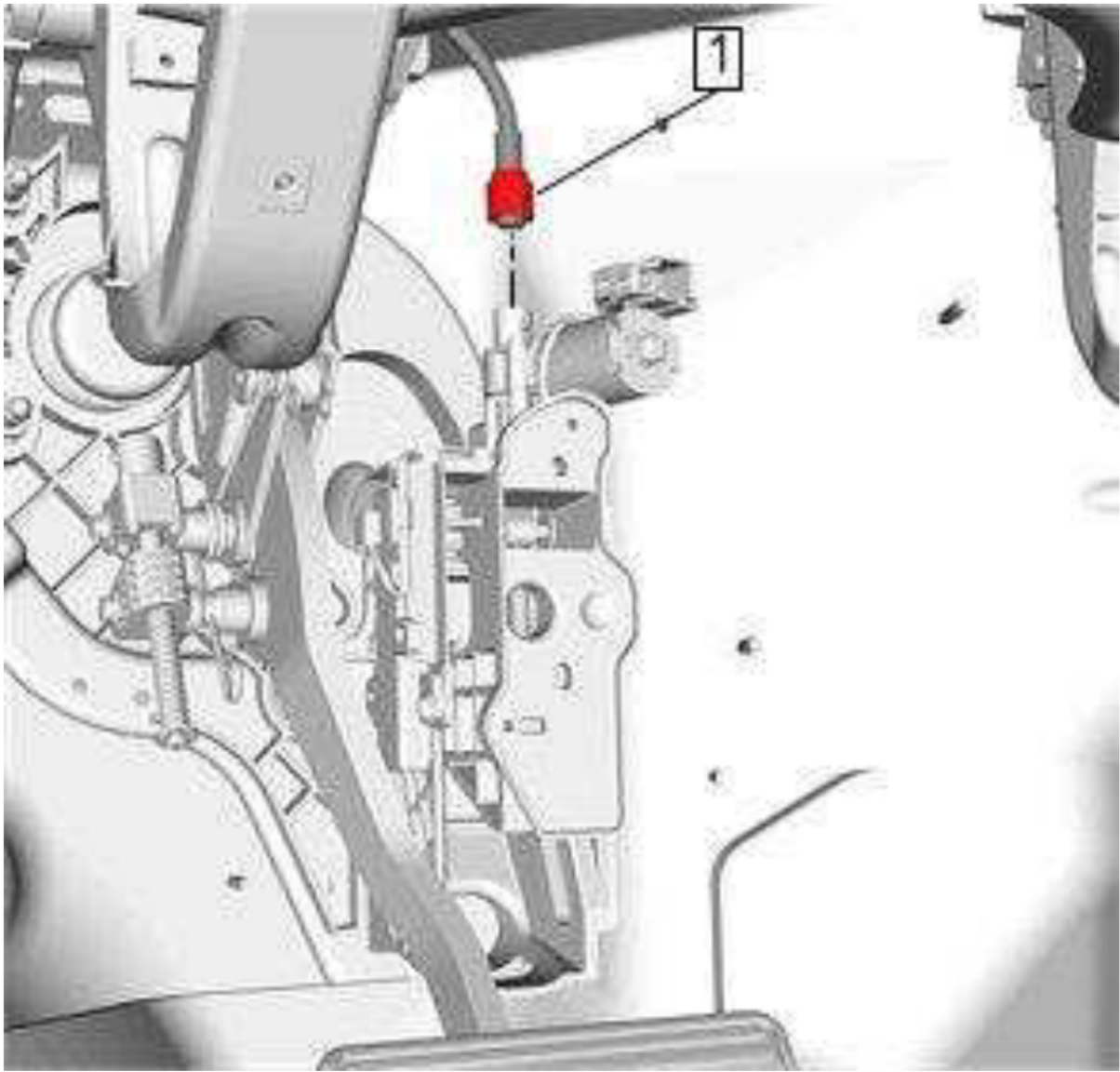


Fig. 10: Brake Pedal Adjuster Actuator Cable Fitting
Courtesy of GENERAL MOTORS COMPANY

5. Brake Pedal Adjuster Actuator Cable Fitting (1) - Connect

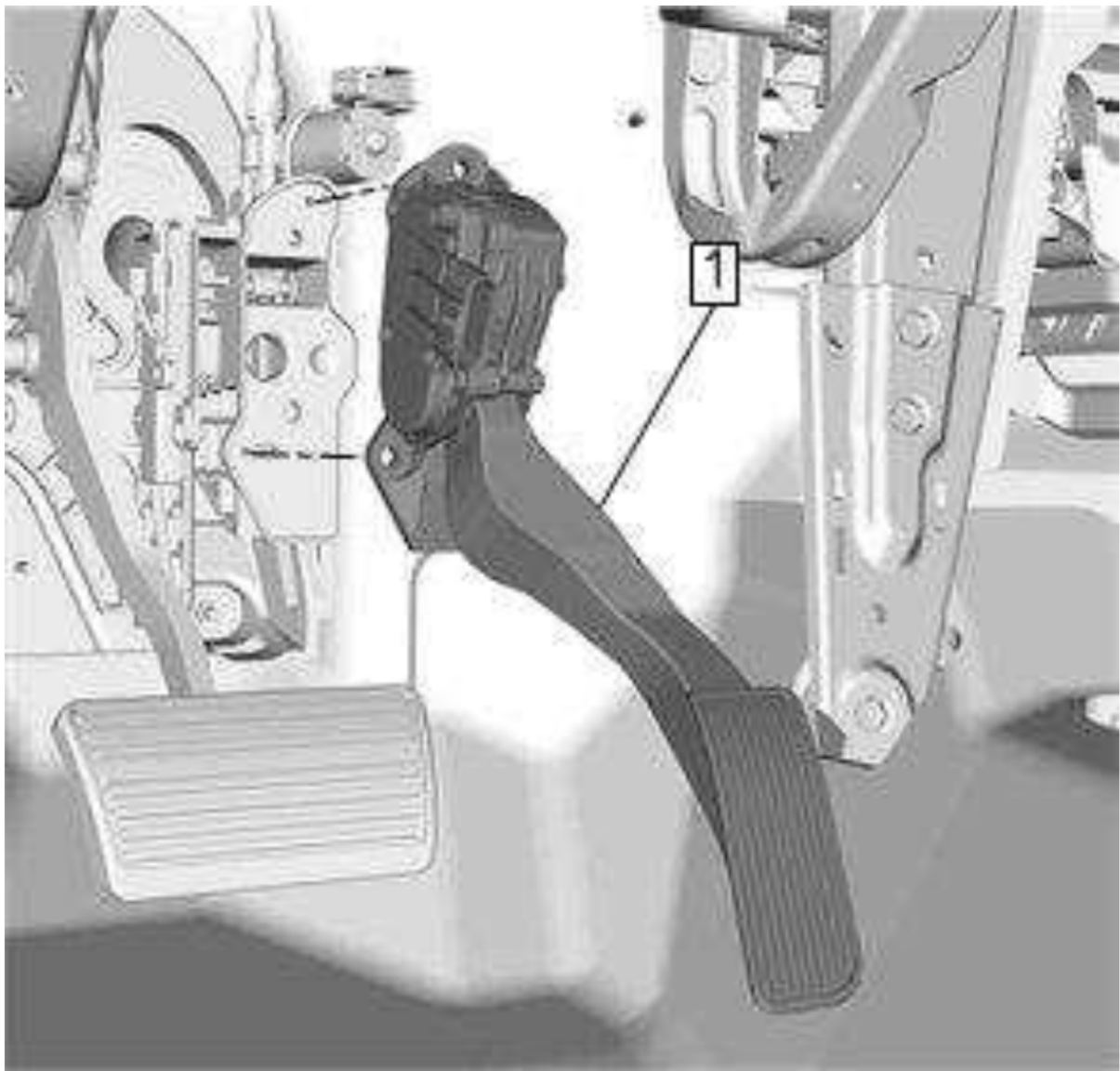


Fig. 11: Accelerator Pedal Position Sensor

Courtesy of GENERAL MOTORS COMPANY

6. Accelerator Pedal Position Sensor (1) - Install

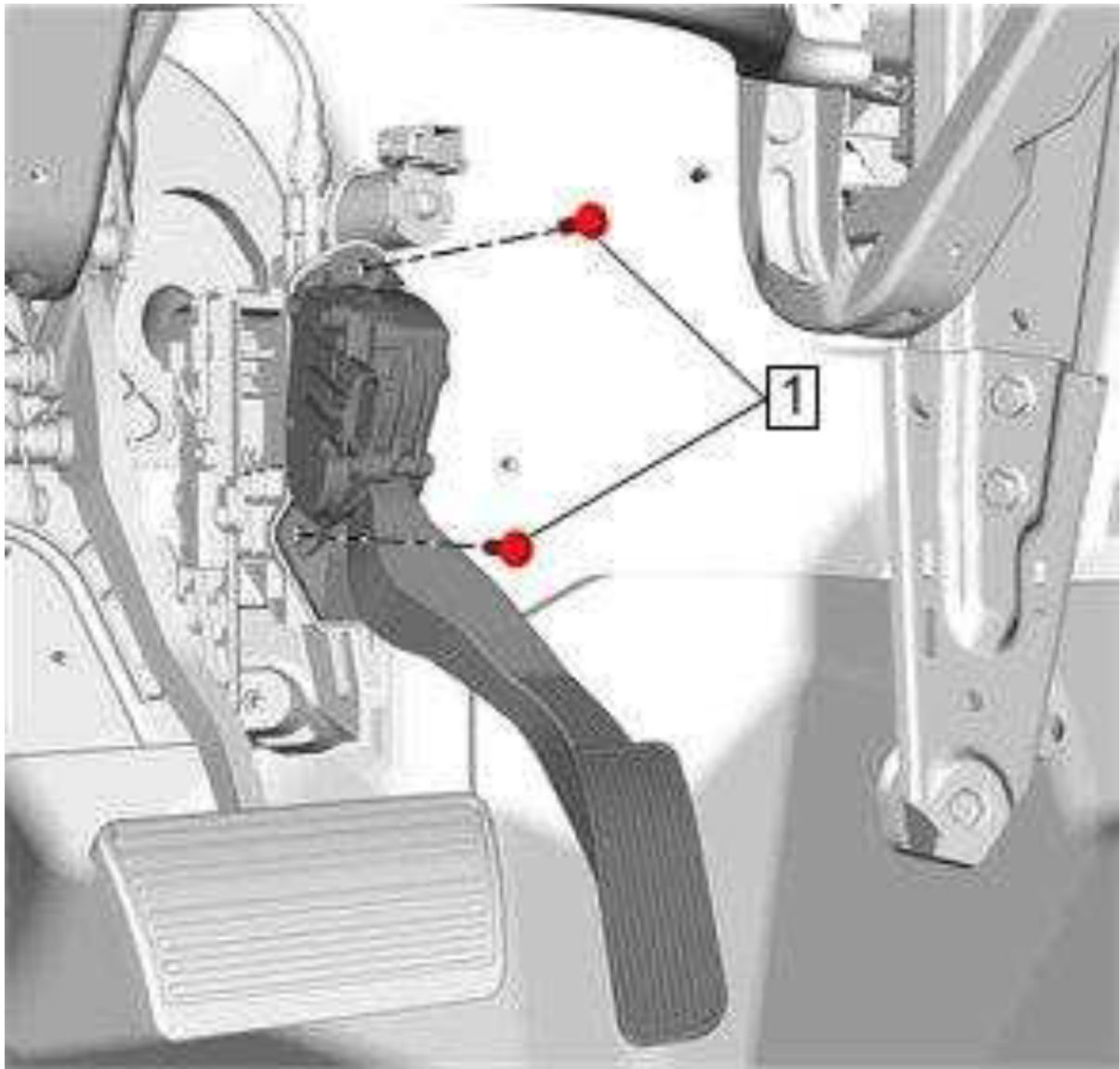


Fig. 12: Accelerator Pedal Position Sensor Bolts
Courtesy of GENERAL MOTORS COMPANY

7. Accelerator Pedal Position Sensor Bolt (1) - Install and tighten 9 N.m (80 lb in)
8. Connect the accelerator pedal adjuster actuator motor electrical connector.

BRAKE PEDAL ADJUSTER ACTUATOR CABLE REPLACEMENT

Removal Procedure

1. Turn the ignition switch to the OFF position.

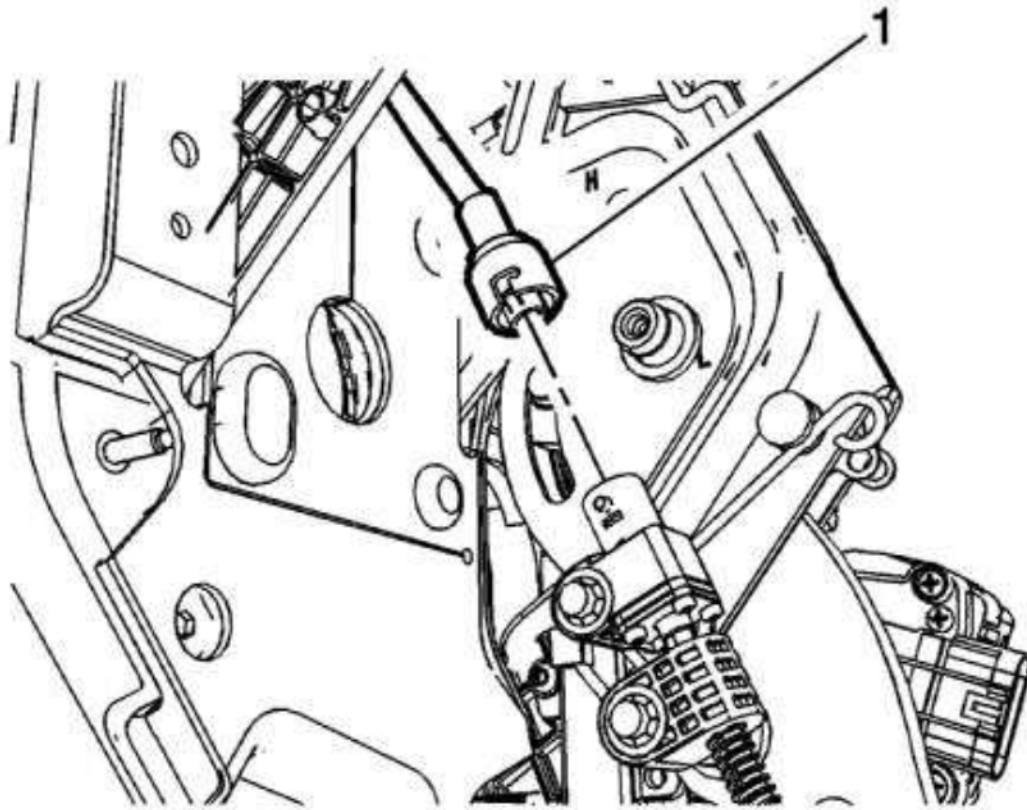


Fig. 13: Brake Pedal Adjuster Actuator Cable
Courtesy of GENERAL MOTORS COMPANY

2. Remove the brake pedal adjuster actuator cable (1) from the brake pedal adjuster actuator.
 1. Rotate the brake pedal adjuster actuator cable collar counter clockwise.
 2. Compress the secondary locking tabs located below the cable collar alignment pins with a pointed tool.
 3. Pull the brake pedal adjuster actuator cable upward.

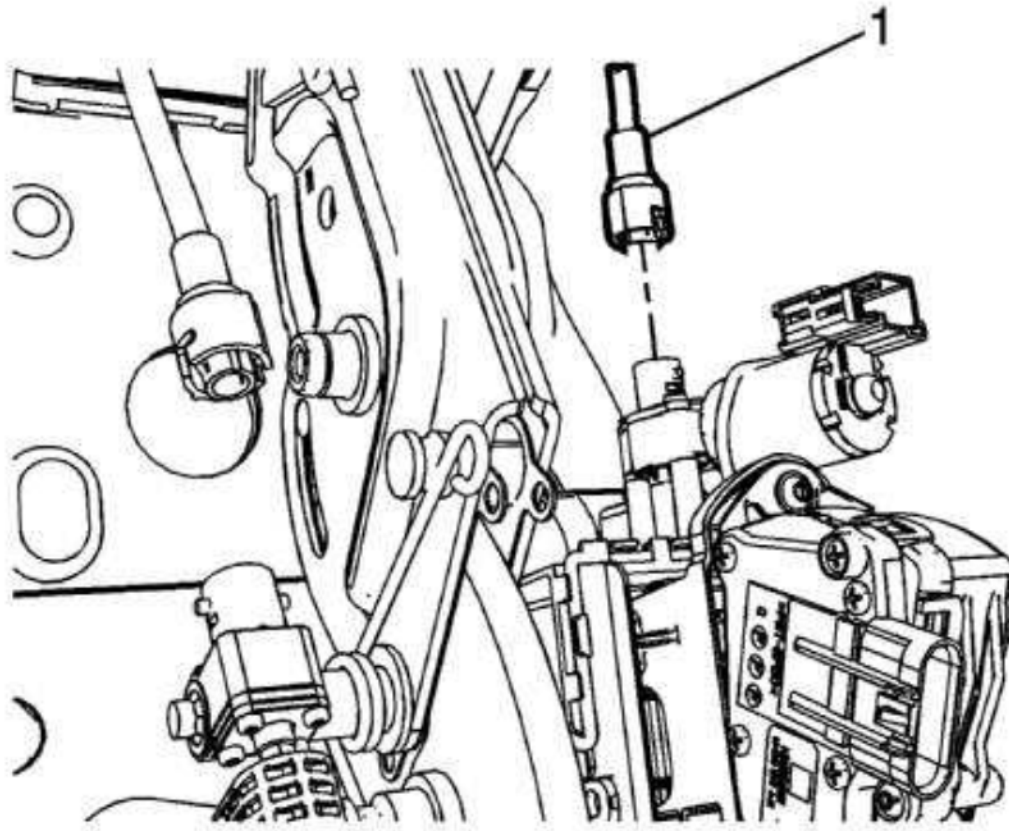


Fig. 14: Brake Pedal Adjuster Actuator Cable
Courtesy of GENERAL MOTORS COMPANY

3. Remove the brake pedal adjuster actuator cable (1) from the accelerator pedal actuator drive motor.
 1. Rotate the brake pedal adjuster actuator cable collar counter clockwise.
 2. Compress the secondary locking tabs located below the cable collar alignment pins with a pointed tool.
 3. Pull the brake pedal adjuster actuator cable upward.
4. Feed the brake pedal adjuster actuator cable through the top of the brake pedal assembly bracket.
5. Remove the brake pedal adjuster actuator cable from the brake pedal assembly.

Installation Procedure

1. Install the brake pedal adjuster actuator cable to the brake pedal assembly.
2. Feed the brake pedal adjuster actuator cable through the top of the brake pedal assembly bracket.

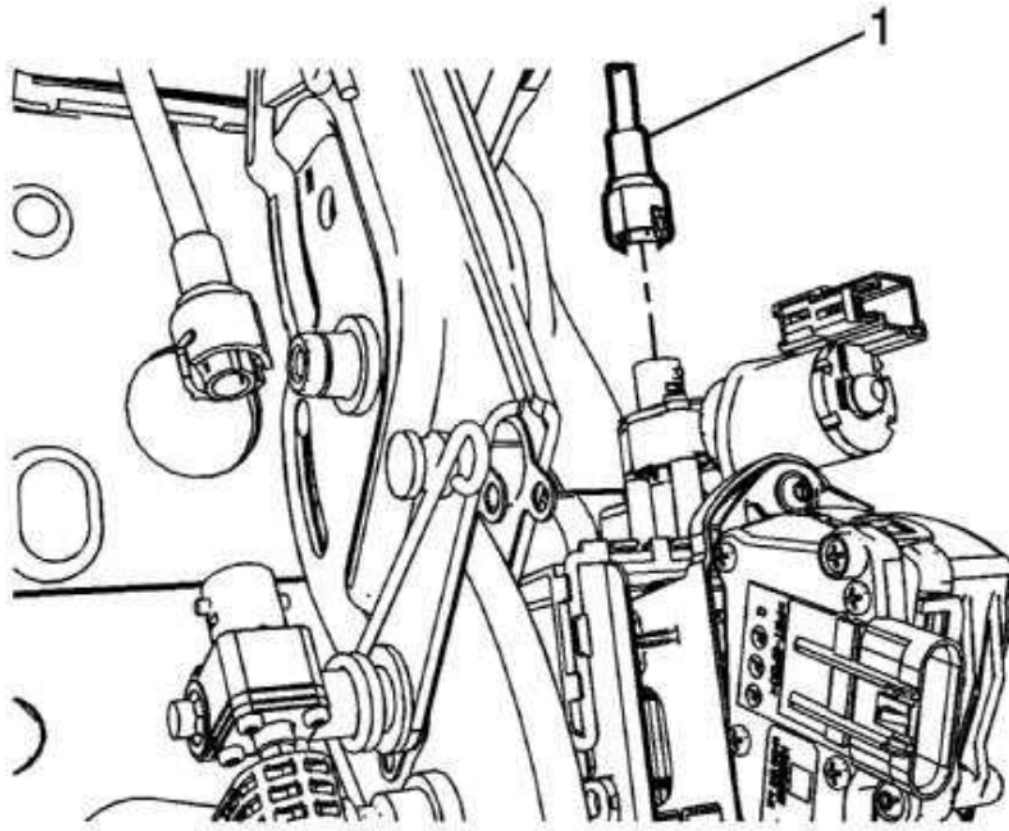


Fig. 15: Brake Pedal Adjuster Actuator Cable

Courtesy of GENERAL MOTORS COMPANY

3. Install the brake pedal adjuster actuator cable (1) to the accelerator pedal actuator drive motor.
 1. Push the brake pedal adjuster actuator cable downward until the locking tabs are fully engaged in the accelerator pedal actuator drive motor.
 2. Rotate the brake pedal adjuster actuator cable collar clockwise.

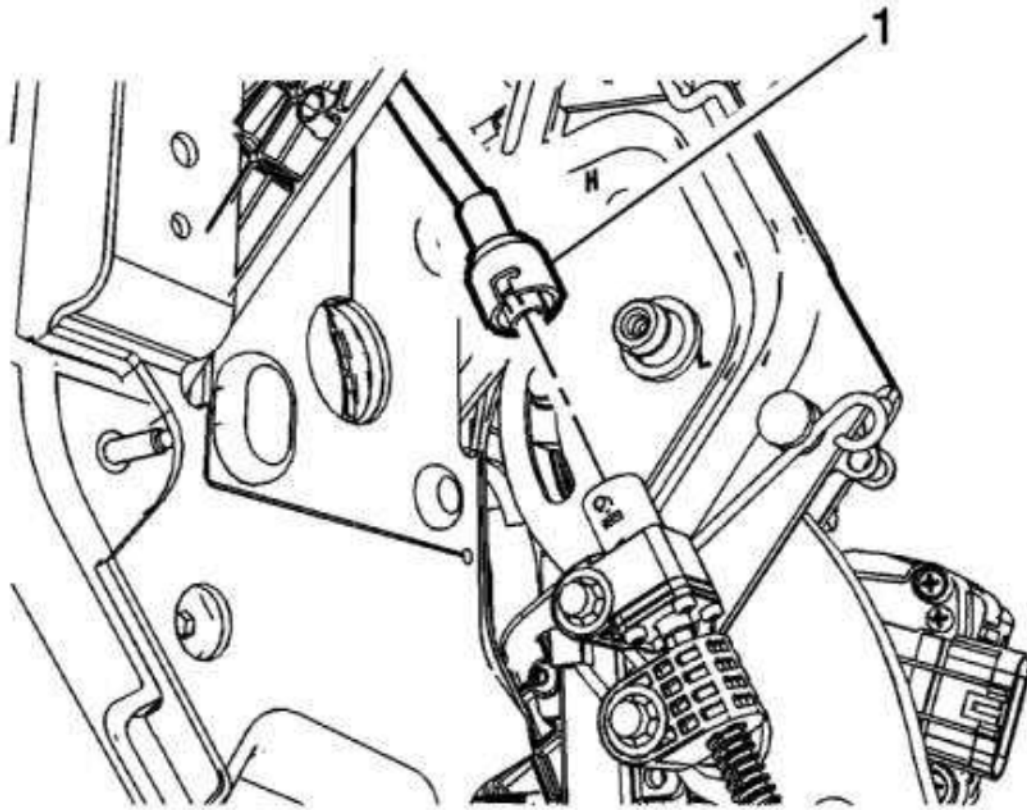


Fig. 16: Brake Pedal Adjuster Actuator Cable
Courtesy of GENERAL MOTORS COMPANY

4. Install the brake pedal adjuster actuator cable (1) to the brake pedal adjuster actuator.
 1. Push the brake pedal adjuster actuator cable downward until the locking tabs are fully engaged in the brake pedal adjuster actuator.
 2. Rotate the brake pedal adjuster actuator cable collar clockwise.

BRAKE AND ACCELERATOR PEDAL ADJUSTER POSITION SENSOR REPLACEMENT

Removal Procedure

1. Turn the ignition switch to the OFF position.
2. Disconnect the brake and accelerator pedal adjuster position sensor jumper harness electrical connector.
3. Release the jumper harness from the accelerator pedal routing clips.

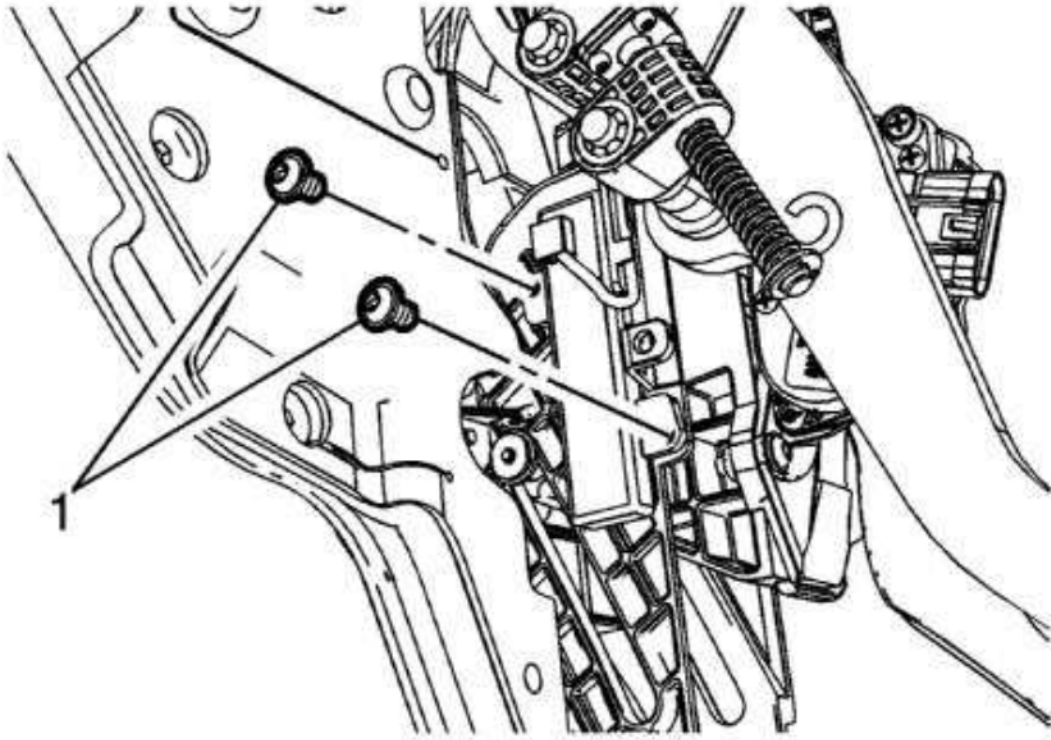


Fig. 17: Brake And Accelerator Pedal Adjuster Position Sensor Bolts
Courtesy of GENERAL MOTORS COMPANY

4. Remove the brake and accelerator pedal adjuster position sensor bolts (1).

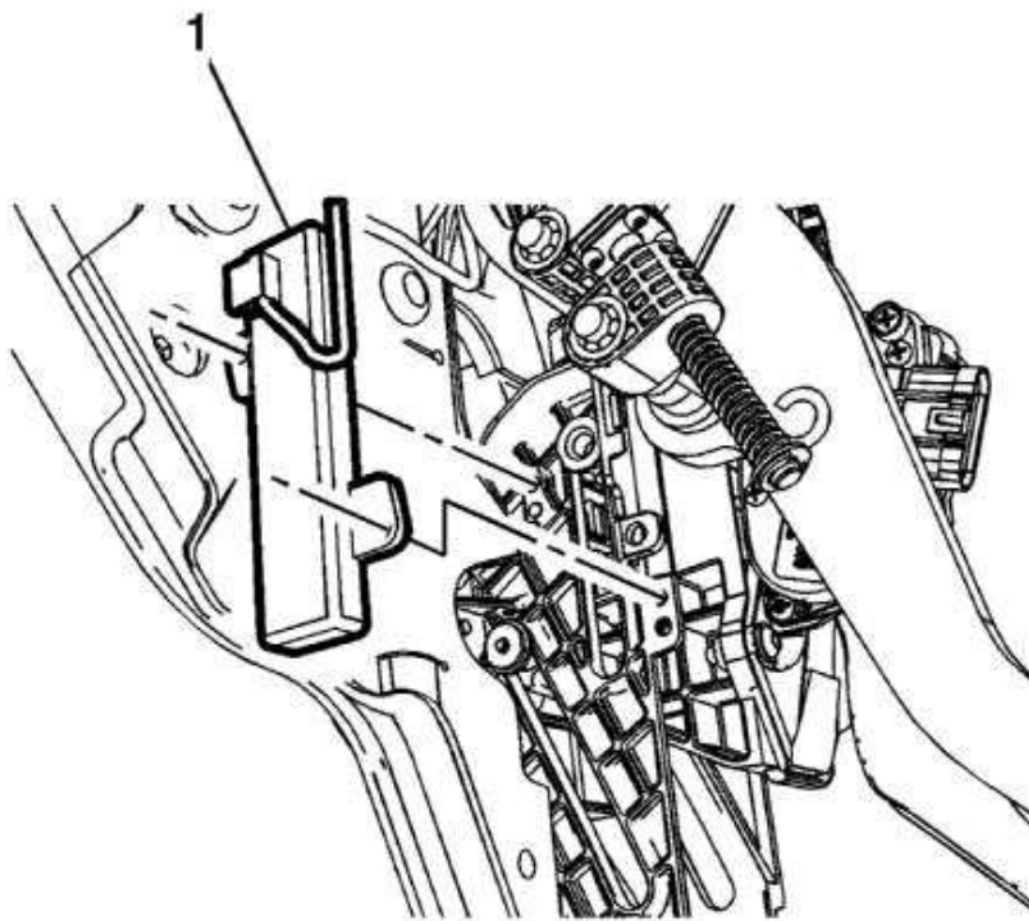


Fig. 18: Brake And Accelerator Pedal Adjuster Position Sensor

Courtesy of GENERAL MOTORS COMPANY

5. Remove the brake and accelerator pedal adjuster position sensor (1).

Installation Procedure

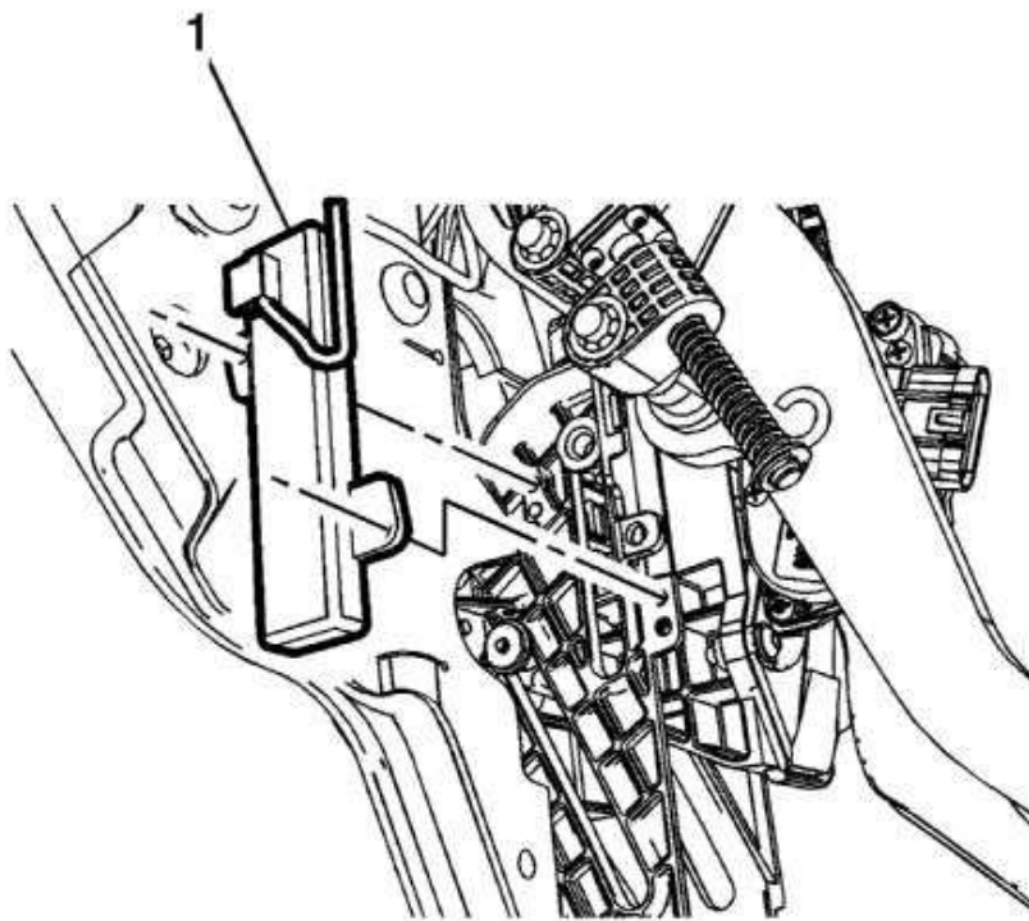


Fig. 19: Brake And Accelerator Pedal Adjuster Position Sensor

Courtesy of GENERAL MOTORS COMPANY

1. Install the brake and accelerator pedal adjuster position sensor (1).

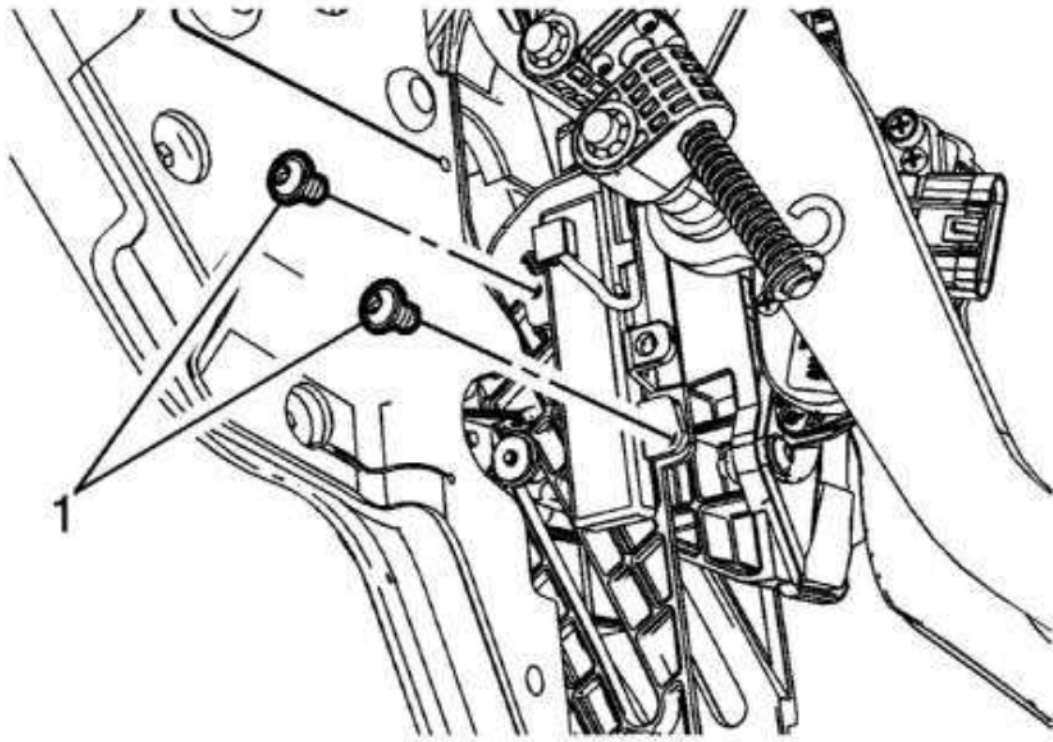


Fig. 20: Brake And Accelerator Pedal Adjuster Position Sensor Bolts

Courtesy of GENERAL MOTORS COMPANY

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

2. Install the brake and accelerator pedal adjuster position sensor bolts (1) and tighten to 3 N.m (27 lb in).
3. Install the jumper harness to the accelerator pedal routing clips.
4. Connect the brake and accelerator pedal adjuster position sensor jumper harness electrical connector.

DESCRIPTION AND OPERATION

ADJUSTABLE PEDALS DESCRIPTION AND OPERATION (WITHOUT A45)

The adjustable pedals system is controlled by the adjustable pedals switch and the adjustable pedals relay and operation can occur only while the transmission selector lever is in the park position. The adjustable pedals assembly is moved forward or rearward by a motor which is fixed to the brake pedal actuator with a drive cable to the accelerator pedal actuator. In an inactive state both of the outputs to the motor are closed to ground. The adjustable pedals switch controls the adjustable pedals relay by applying battery voltage to one of the coils. The adjustable pedals motor is bidirectional and the direction of the pedal assembly travel is determined by which of the relay output circuits is switched to battery positive voltage while the other remains grounded. The adjustable pedals system uses the same motor and sensor assembly even when it is not equipped with the memory seats.

The adjustable pedals position sensor is not used and does not have any circuits connected. The adjustable pedals position manually controlled by activating the switch in the forward or rearward direction until the desired position is reached.

ADJUSTABLE PEDALS DESCRIPTION AND OPERATION (WITH A45)

Adjustable Pedals System Components

The adjustable pedals system consists of the following components:

- The multifunction switch - instrument panel
- The seat memory control module
- The adjustable pedal motor
- The adjustable pedal position sensor

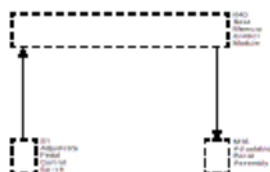


Fig. 21: Adjustable Pedals System Block Diagram

Courtesy of GENERAL MOTORS COMPANY

Adjustable Pedals System Operation

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

The adjustable pedal system is controlled by the seat memory control 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 adjustable pedal motor is controlled by the seat memory control module through two motor control circuits. In an inactive state both control circuits are closed to ground within the module. The seat memory control module drives the adjustable pedal motor in the forward or rearward direction by closing the appropriate control circuit to battery voltage. The adjustable pedal 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 pedal forward and rearward switches are inputs to the module. Battery voltage is supplied to the switch from the seat memory 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 seat memory control module that the switch is active.

The seat memory control module monitors the locations of the adjustable pedals using the adjustable pedal position sensor. The position sensor is supplied with a 5 V reference and ground circuit from the seat memory

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 seat memory control module to determine the positions of the adjustable pedals when storing or recalling memory position settings.

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