

2013 ACCESSORIES & EQUIPMENT

Bolted Exterior Body Panels and Closures - Malibu

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Front Bumper Impact Bar Bolt	100 N.m	74 lb ft
Front End Upper Tie Bar Bolt	9 N.m	80 lb in
Front End Upper Tie Bar Lower Bolt	22 N.m	16 lb ft
Front Fender Bolts	9 N.m	80 lb in
Front Side Door Check Link Bolt to Body	22 N.m	16 lb ft
Front Side Door Check Link Nut	10 N.m	89 lb in
Front Side Door Lower Hinge to Body Bolt	32 N.m	24 lb ft
Front Side Door Lower Hinge to Door Bolt	25 N.m	18 lb ft
Front Side Door Upper Hinge to Body Bolt	32 N.m	24 lb ft
Front Side Door Upper Hinge to Door Bolt	25 N.m	18 lb ft
Hood Hinge Bolts	22 N.m	16 lb ft
Hood Hinge Nuts	22 N.m	16 lb ft
Hood Primary and Secondary Latch Bolts	22 N.m	16 lb ft
Rear Compartment Lid Bolt	9 N.m	80 lb in
Rear Compartment Lid Hinge Bolt	22 N.m	16 lb ft
Rear Side Door Check Link Bolt to Body	22 N.m	16 lb ft
Rear Side Door Check Link Nut	10 N.m	89 lb in
Rear Side Door Lower Hinge to Body Bolts	32 N.m	24 lb ft
Rear Side Door Lower Hinge to Door Bolts	25 N.m	18 lb ft
Rear Side Door Upper Hinge to Body Bolts	32 N.m	24 lb ft
Rear Side Door Upper Hinge to Door Bolts	25 N.m	18 lb ft

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC CODE INDEX

DIAGNOSTIC CODE INDEX

DTC	Description
DTC B3006	DTC B3006 01 Hood Ajar Circuit Short to Battery
	DTC B3006 02 Hood Ajar Circuit Short to Ground
	DTC B3006 04 Hood Ajar Circuit Open
	DTC P257D Engine Hood Switch Performance

DTC P257D-P257F

DTC P257E Engine Hood Switch Circuit Low Voltage
DTC P257F Engine Hood Switch Circuit High Voltage

DTC B3006**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 B3006 01**

Hood Ajar Circuit Short to Battery

DTC B3006 02

Hood Ajar Circuit Short to Ground

DTC B3006 04

Hood Ajar Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal - Terminal B	B3006 02	B3006 04	B3006 01	-
Signal - Terminal A*	P257E	P257F	P257F	P257D
Ground	-	B3006 04	-	-
*with HP6				

Circuit/System Description

The Body Control Module applies B+ to the hood ajar signal circuit and monitors the voltage to determine the position of the hood. When the hood is closed, the switch is open and voltage remains high. When the hood is open, the switch is closed and the voltage is pulled low.

Conditions for Running the DTC

The Body Control Module continuously monitors for this DTC

Conditions for Setting the DTC

B3006 01

The Body Control Module detects that the hood ajar switch signal circuit is shorted to battery.

B3006 02

The Body Control Module detects that the hood ajar switch signal circuit is shorted to ground.

B3006 04

The Body Control Module detects that the hood ajar switch signal circuit is open.

Action Taken When the DTC Sets

- The hood ajar switch input will be ignored as a content theft deterrent trigger.
- Remote vehicle start will be disabled.

Conditions for Clearing the DTC

- A current DTC will clear when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 40 malfunction free ignition cycles.

Reference Information

Schematic Reference

Immobilizer Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Keyless Entry System Description and Operation (without BTM) , Keyless Entry System Description and Operation (with BTM)

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. Verify the scan tool Body Control Module Hood Ajar Switch parameter is Open with the hood open and Closed with the hood closed
 - o **If the parameter does not change**

Refer to Circuit/System Testing below.

- o **If the parameter changes**
3. All OK.

Circuit/System Testing

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the B55 Hood Ajar Switch. It may take up to two minutes for all vehicle systems to power down.
2. Test for less than 10 ohms between the ground circuit terminal C and ground.
 - o **If 10 ohms or greater**
 1. Ignition OFF
 2. Test for less than 2 ohms in the ground circuit end to end.
 - o If 2 ohms or greater, repair the open/high resistance in the circuit.
 - o If less than 2 ohms, repair the open/high resistance in the ground connection.
 - o **If less than 10 ohms**
3. Ignition ON.
4. Test for greater than 11.5 V between the signal circuit terminal B and ground.
 - o **If 11.5 V or less**
 1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit and ground.
 - o If less than infinite resistance, repair the short to ground on the circuit.
 - o If Infinite resistance.
 3. Test for less than 2 ohms in the signal circuit end to end.
 - o If 2 ohms or greater, repair the open/high resistance in the circuit.
 - o If less than 2 ohms, replace the K9 Body Control Module.
 - o **If greater than 11.5 V**
5. Ignition OFF, disconnect the X4 and X7 harness connector at the K9 Body Control Module, ignition ON.
6. Test for less than 1 V between the signal circuit terminal B and ground.
 - o **If 1 V or greater**

Repair the short to voltage on the circuit.

- **If less than 1 V**

7. Test or replace the B55 Hood Ajar Switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the B55 Hood Ajar Switch.
2. Test for 2738-3350 ohms between the signal terminal A and the signal terminal B with the hood latch in the CLOSED position.

- **If not between 2738-3350 ohms**

Replace the B55 Hood Ajar Switch.

- **If between 2738-3350 ohms**

3. Test for 658-806 ohms between the signal terminal A and the ground terminal C with the hood latch in the CLOSED position.

- **If not between 658-806 ohms**

Replace the B55 Hood Ajar Switch.

- **If between 658-806 ohms**

4. Test for 2080-2545 ohms between the signal terminal B and the ground terminal C with the hood latch in the CLOSED position.

- **If not between 2080-2545 ohms**

Replace the B55 Hood Ajar Switch.

- **If between 2080-2545 ohms**

5. Test for 2738-3350 ohms between the signal terminal A and the signal terminal B with the hood latch in the OPEN position.

- **If not between 2738-3350 ohms**

Replace the B55 Hood Ajar Switch.

- **If between 2738-3350 ohms**

6. Test for 2080-2545 ohms between the signal terminal A and the ground terminal C with the hood latch in the OPEN position.

- **If not between 2080-2545 ohms**

Replace the B55 Hood Ajar Switch.

- **If between 2080-2545 ohms**

7. Test for 658-806 ohms between the signal terminal B and the ground terminal C with the hood latch in

the OPEN position.

- If not between 658-806 ohms

Replace the B55 Hood Ajar Switch.

- If between 658-806 ohms

8. All OK.

Repair Instructions

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

- **Hood Primary and Secondary Latch Replacement**
- **Control Module References** for Body Control Module replacement, programming, and setup

DTC P257D-P257F

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 P257D

Engine Hood Switch Performance

DTC P257E

Engine Hood Switch Circuit Low Voltage

DTC P257F

Engine Hood Switch Circuit High Voltage

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal - Terminal B	B3006 02	B3006 04	B3006 01	-
Signal - Terminal A	P257E	P257F	P257F	P257D
Ground	-	B3006 04, P257F	-	-

Circuit/System Description

The Starter/Generator Control Module applies B+ to the hood ajar signal 2 circuit and monitors the voltage to determine the position of the hood. The hood ajar switch contains a multiplexed resistor. This resistor will vary the voltage seen by the Starter/Generator Control Module by pulling down the applied voltage based on the position of the switch.

Conditions for Running the DTC

Propulsion system is active.

Conditions for Setting the DTC

P257D

The hood ajar switch signal 2 voltage as measured by the Starter/Generator Control Module is not within a valid voltage range.

P257E

The hybrid powertrain control module 2 detects a short to ground in the hood ajar signal input to the Starter/Generator Control Module.

P257F

The hybrid powertrain control module 2 detects a short to voltage or an open/high resistance in the hood ajar signal input to the Starter/Generator Control Module.

Action Taken When the DTC Sets

The engine will start and run whenever the vehicle ignition is on or the vehicle speed is less than 5 kph (3 mph).

Conditions for Clearing the DTC

DTCs P257D, P257E, and P257F are Type B DTCs.

Reference Information

Schematic Reference

Immobilizer Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Hood Ajar Indicator 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.
2. Verify the scan tool Hybrid Powertrain Control Module Hood Position parameter is Open when the hood is open and Closed when the hood is closed.
 - **If the parameter does not change**

Refer to Circuit/System Testing below.
 - **If the parameter changes**
3. All OK.

Circuit/System Testing

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the B55 Hood Ajar Switch. It may take up to two minutes for all vehicle systems to power down.
2. Test for less than 10 ohms between the ground circuit terminal C and ground.
 - **If 10 ohms or greater**
 1. Ignition OFF
 2. Test for less than 2 ohms in the ground circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, repair the open/high resistance in the ground connection.
 - **If less than 10 ohms**
3. Ignition ON.
4. Verify DTC P257F is set as current
 - **If DTC P257F is not set as current**
 1. Ignition OFF, disconnect the harness connector at the K59 Starter/Generator Control Module.
 2. Test for infinite resistance between the signal circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K59 Starter/Generator Control Module.
 - **If DTC P257F is set as current**

5. Install a 5 A fused jumper wire between the signal circuit terminal A and ground. Ignition ON
6. Verify DTC P257E is set as current.
 - **If DTC P257E is not set as current**
 1. Ignition OFF, disconnect the harness connector at the K59 Starter/Generator Control Module.
 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 ohms in the signal circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, replace the K59 Starter/Generator Control Module.
 - **If DTC P257E is set as current**
7. Test or replace the B55 Hood Ajar Switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the B55 Hood Ajar Switch.
2. Test for 2738-3350 ohms between the signal terminal A and the signal terminal B with the hood latch in the CLOSED position.
 - **If not between 2738-3350 ohms**

Replace the B55 Hood Ajar Switch.
 - **If between 2738-3350 ohms**
3. Test for 658-806 ohms between the signal terminal A and the ground terminal C with the hood latch in the CLOSED position.
 - **If not between 658-806 ohms**

Replace the B55 Hood Ajar Switch.
 - **If between 658-806 ohms**
4. Test for 2080-2545 ohms between the signal terminal B and the ground terminal C with the hood latch in the CLOSED position.
 - **If not between 2080-2545 ohms**

Replace the B55 Hood Ajar Switch.
 - **If between 2080-2545 ohms**
5. Test for 2738-3350 ohms between the signal terminal A and the signal terminal B with the hood latch in the OPEN position.
 - **If not between 2738-3350 ohms**

Replace the B55 Hood Ajar Switch.

- **If between 2738-3350 ohms**
- 6. Test for 2080-2545 ohms between the signal terminal A and the ground terminal C with the hood latch in the OPEN position.
 - **If not between 2080-2545 ohms**

Replace the B55 Hood Ajar Switch.
 - **If between 2080-2545 ohms**
 - 7. Test for 658-806 ohms between the signal terminal B and the ground terminal C with the hood latch in the OPEN position.
 - **If not between 658-806 ohms**

Replace the B55 Hood Ajar Switch.
 - **If between 658-806 ohms**
- 8. All OK.

Repair Instructions

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

- **Hood Primary and Secondary Latch Replacement**
- **Control Module References** for Starter/Generator Control Module or Body Control Module replacement, programming, and setup

SYMPTOMS - BOLTED EXTERIOR BODY PANELS AND CLOSURES

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

1. Perform the **Diagnostic System Check - Vehicle** before using the symptom tables 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 links.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to **Hood Ajar Indicator Description and Operation**.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the systems. Refer to **Checking Aftermarket Accessories**.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

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 **Hood Ajar Indicator/Message Malfunction** in order to diagnose the symptom.

HOOD AJAR INDICATOR/MESSAGE 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.

DTC Descriptors

DTC B3006 01

Hood Ajar Circuit Short to Battery

DTC B3006 02

Hood Ajar Circuit Short to Ground

DTC B3006 04

Hood Ajar Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal - Terminal B	B3006 02	B3006 04	B3006 01	-
Signal - Terminal A*	P257E	P257F	P257F	P257D
Ground	-	B3006 04	-	-

*with HP6

Circuit/System Description

The Body Control Module applies B+ to the hood ajar signal circuit and monitors the voltage to determine the position of the hood. When the hood is closed, the switch is open and voltage remains high. When the hood is open, the switch is closed and the voltage is pulled low.

Conditions for Running the DTC

The Body Control Module continuously monitors for this DTC

Conditions for Setting the DTC

B3006 01

The Body Control Module detects that the hood ajar switch signal circuit is shorted to battery.

B3006 02

The Body Control Module detects that the hood ajar switch signal circuit is shorted to ground.

B3006 04

The Body Control Module detects that the hood ajar switch signal circuit is open.

Action Taken When the DTC Sets

- The hood ajar switch input will be ignored as a content theft deterrent trigger.
- Remote vehicle start will be disabled.

Conditions for Clearing the DTC

- A current DTC will clear when the conditions for setting the DTC are no longer present.
- A history DTC will clear after 40 malfunction free ignition cycles.

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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 Body Control Module Hood Ajar Switch parameter is Open with the hood open and Closed with the hood closed
 - **If the parameter does not change**

Refer to Circuit/System Testing below.

- **If the parameter changes**
3. All OK.

Circuit/System Testing

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the B55 Hood Ajar Switch. It may take up to two minutes for all vehicle systems to power down.
2. Test for less than 10 ohms between the ground circuit terminal C and ground.
 - **If 10 ohms or greater**
 1. Ignition OFF
 2. Test for less than 2 ohms in the ground circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, repair the open/high resistance in the ground connection.
 - **If less than 10 ohms**
3. Ignition ON.
4. Test for greater than 11.5 V between the signal circuit terminal B and ground.
 - **If 11.5 V or less**
 1. Ignition OFF, disconnect the harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal 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 ohms in the signal circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, replace the K9 Body Control Module.
 - **If greater than 11.5 V**
5. Ignition OFF, disconnect the X4 and X7 harness connector at the K9 Body Control Module, ignition ON.

6. Test for less than 1 V between the signal circuit terminal B and ground.

- **If 1 V or greater**

Repair the short to voltage on the circuit.

- **If less than 1 V**

7. Test or replace the B55 Hood Ajar Switch.

Component Testing

1. Ignition OFF, disconnect the harness connector at the B55 Hood Ajar Switch.
2. Test for 2738-3350 ohms between the signal terminal A and the signal terminal B with the hood latch in the CLOSED position.

- **If not between 2738-3350 ohms**

Replace the B55 Hood Ajar Switch.

- **If between 2738-3350 ohms**

3. Test for 658-806 ohms between the signal terminal A and the ground terminal C with the hood latch in the CLOSED position.

- **If not between 658-806 ohms**

Replace the B55 Hood Ajar Switch.

- **If between 658-806 ohms**

4. Test for 2080-2545 ohms between the signal terminal B and the ground terminal C with the hood latch in the CLOSED position.

- **If not between 2080-2545 ohms**

Replace the B55 Hood Ajar Switch.

- **If between 2080-2545 ohms**

5. Test for 2738-3350 ohms between the signal terminal A and the signal terminal B with the hood latch in the OPEN position.

- **If not between 2738-3350 ohms**

Replace the B55 Hood Ajar Switch.

- **If between 2738-3350 ohms**

6. Test for 2080-2545 ohms between the signal terminal A and the ground terminal C with the hood latch in the OPEN position.

- **If not between 2080-2545 ohms**

Replace the B55 Hood Ajar Switch.

- If between 2080-2545 ohms
- 7. Test for 658-806 ohms between the signal terminal B and the ground terminal C with the hood latch in the OPEN position.

- If not between 658-806 ohms

Replace the B55 Hood Ajar Switch.

- If between 658-806 ohms

- 8. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- Hood Primary and Secondary Latch Replacement
- Control Module References for Body Control Module replacement, programming, and setup

REPAIR INSTRUCTIONS

FRONT END UPPER TIE BAR REPLACEMENT

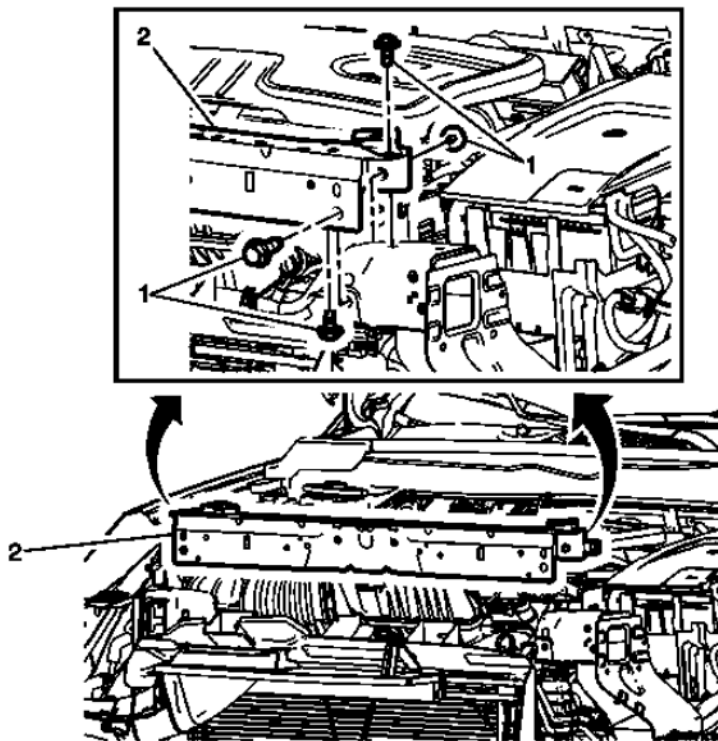


Fig. 1: Front End Upper Tie Bar
Courtesy of GENERAL MOTORS COMPANY

Front End Upper Tie Bar Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the front bumper fascia. Refer to <u>Front Bumper Fascia Replacement</u> . 2. Remove the front bumper fascia center support. Refer to <u>Front Bumper Fascia Center Support Replacement</u> . 3. Remove the hood primary and secondary latch. Refer to <u>Hood Primary and Secondary Latch Replacement</u>.	
1	Front End Upper Tie Bar Bolt (Qty: 8) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 22 (16 lb ft)
2	Front End Upper Tie Bar Procedure Transfer parts as needed.

HOOD PRIMARY LATCH RELEASE CABLE REPLACEMENT

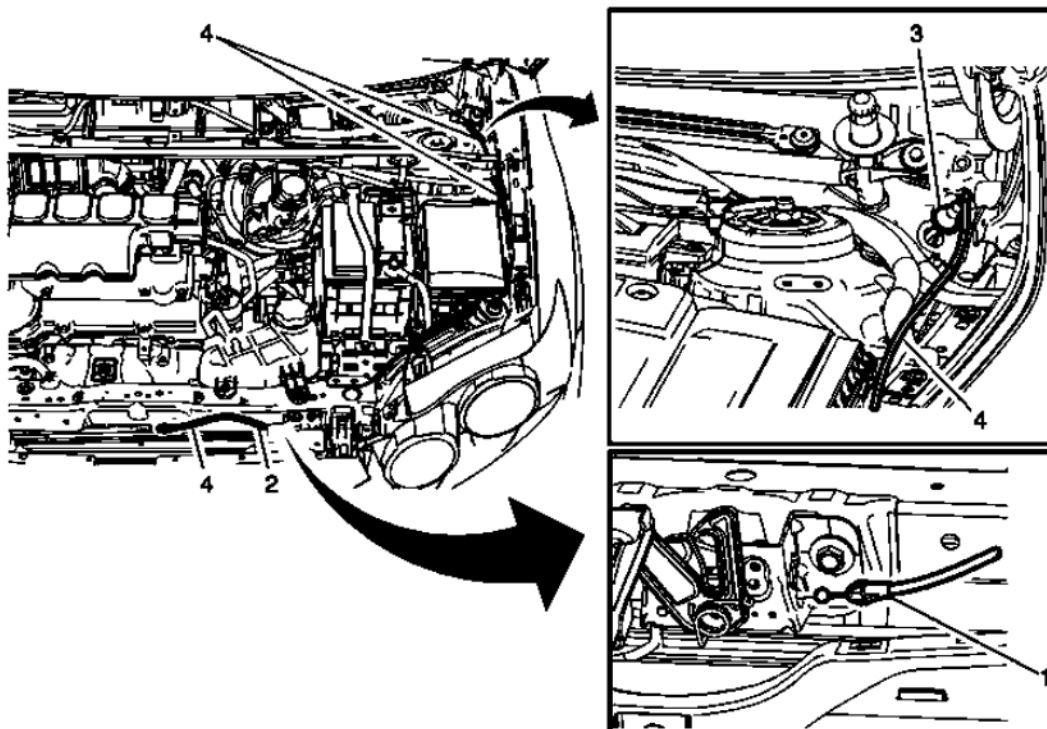


Fig. 2: Hood Primary Latch Release Cable

Courtesy of GENERAL MOTORS COMPANY

Hood Primary Latch Release Cable Replacement

Callout	Component Name
Preliminary Procedure Remove the front bumper fascia center support. Refer to <u>Front Bumper Fascia Center Support Replacement</u> .	
1	Hood Primary Latch Cable Procedure Disconnect the hood primary latch release cable from the primary hood latch.
2	Hood Primary Latch Release Cable Retainer Procedure Disconnect the hood release cable retainers from the hood release cable.
3	Hood Primary Latch Release Cable Grommet
4	Hood Primary Latch Release Cable Procedure Disconnect the hood primary latch release cable handle from the hood latch cable.

FRONT SIDE DOOR ADJUSTMENT

Up/Down or In/Out Adjustment

NOTE: The door side upper and lower hinge bolts must remain tight enough to retain door adjusted position.

1. Loosen the bolts on the door side upper and lower hinges. Do not remove the bolts.
2. Adjust the door up or down by repositioning the door as needed.
3. Adjust the door in or out by repositioning the door as needed.

CAUTION: Refer to **Fastener Caution**

4. Tighten the door side upper and lower hinge bolts.

Tighten

Tighten the bolts to 25 N.m (18 lb ft).

Fore/Aft Adjustment

1. Remove the front fender insulator in order to gain access to the body side hinge bolts.
2. Adjust the door fore and aft by repositioning the door as needed.

CAUTION: Refer to Fastener Caution

- 3. Tighten the body side upper and lower hinge bolts.

Tighten

Tighten the bolts to 32 N.m (24 lb ft).

- 4. Check the door for open / close drag if needed adjust the striker as necessary. Refer to **Front Side Door Lock Striker Adjustment**
- 5. Install the front fender insulator.

FRONT SIDE DOOR REPLACEMENT

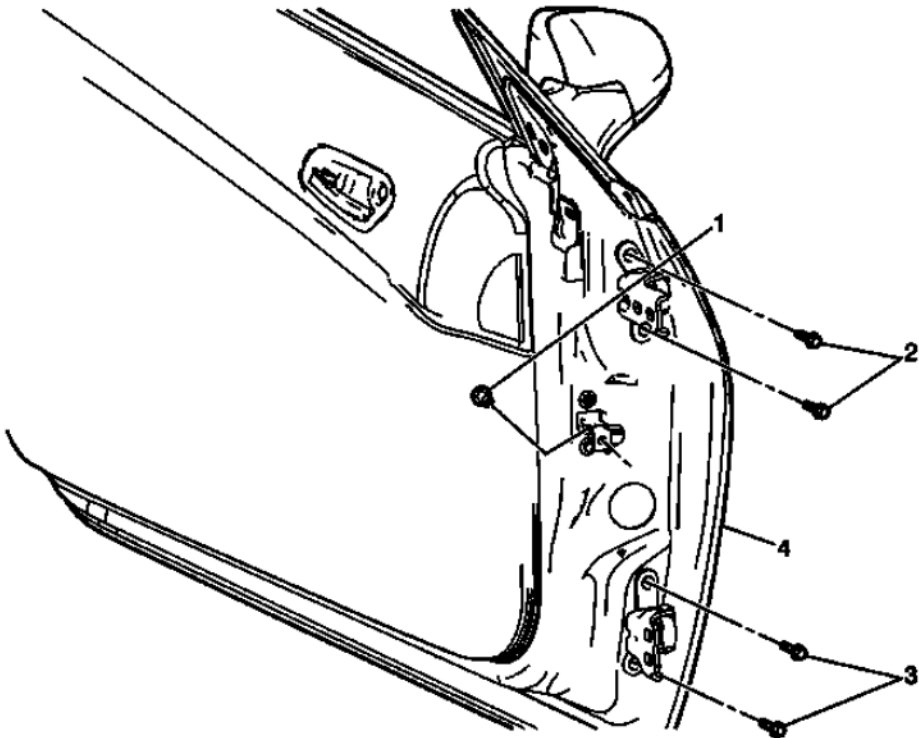


Fig. 3: Identifying Front Side Door Hinge bolts
Courtesy of GENERAL MOTORS COMPANY

Front Side Door Replacement

Callout	Component Name
WARNING: Refer to <u>SIR Warning</u>	
Preliminary Procedures	

1. Place masking tape on the rear edge of the fender and the front edge of the door to prevent clipping the paint when removing to door.
2. Mark the location of the hinge before removing the bolts with a grease pencil.
3. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
4. Remove the front door trim if replacing the door. Refer to **Front Side Door Trim Replacement**.

1	Front Side Door Check Link Bolt to Body CAUTION: Refer to <u>Fastener Caution</u> Procedure 1. Remove the water deflector. 2. Disconnect the door electrical connector. 3. Remove the fender inner liner to access door bolts. 4. Support the door before removing the hinge bolts. 5. With an assistant, remove the door from the vehicle. Tighten 22 N.m (16 lb ft)
2	Front Side Door Upper Hinge Bolt to Door (Qty: 2) Tighten 25 N.m (18 lb ft)
3	Front Side Door Lower Hinge Bolt to Door (Qty: 2) Tighten 25 N.m (18 lb ft)
4	Front Side Door Assembly Procedure 1. When replacing the door it is necessary to transfer all of the internal components. 2. Check the door for proper alignment, Refer to <u>Front Side Door Adjustment</u>.

REAR SIDE DOOR ADJUSTMENT

Removal Procedure

Up/Down or In/Out Adjustment

1. Open the rear door.

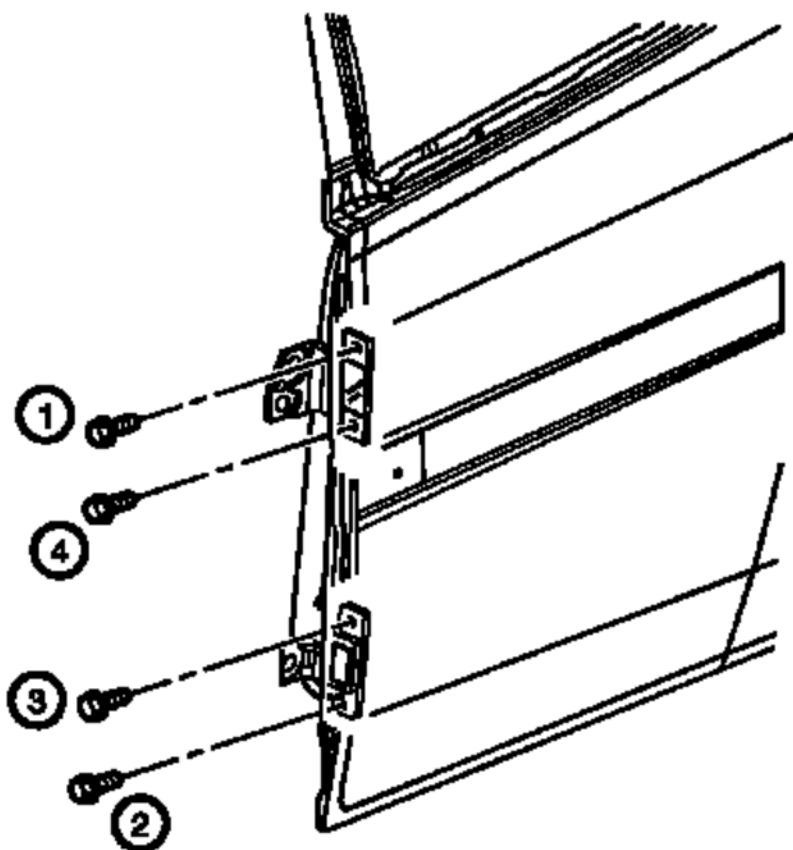


Fig. 4: Door Side Upper and Lower Hinges
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Paint Damage Caution

NOTE: The door side upper and lower hinge bolts must remain tight enough to retain door adjusted position.

2. Apply masking tape to the fender and the door edges.

Loosen the door side hinge bolts in the specified sequence (1, 2, 3, 4).

Do not remove the bolts from the door.

3. Adjust the door up or down by repositioning the door as needed.
4. Adjust the door in or out by repositioning the door as needed.

Installation Procedure

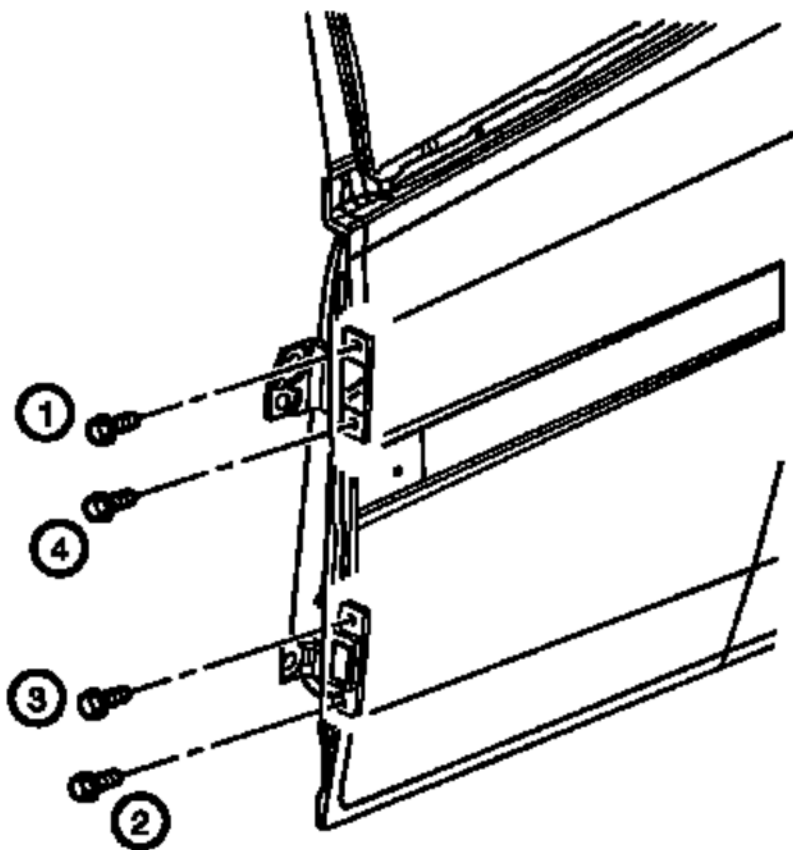


Fig. 5: Door Side Upper and Lower Hinges
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution

1. Install the door side hinge bolts in the specified sequence (1, 2, 3, 4).

Tighten

Tighten the bolts to 25 N.m (18 lb ft).

2. Inspect the door for proper operation and alignment.
3. Remove the masking tape.

Removal Procedure

Fore/Aft Adjustment

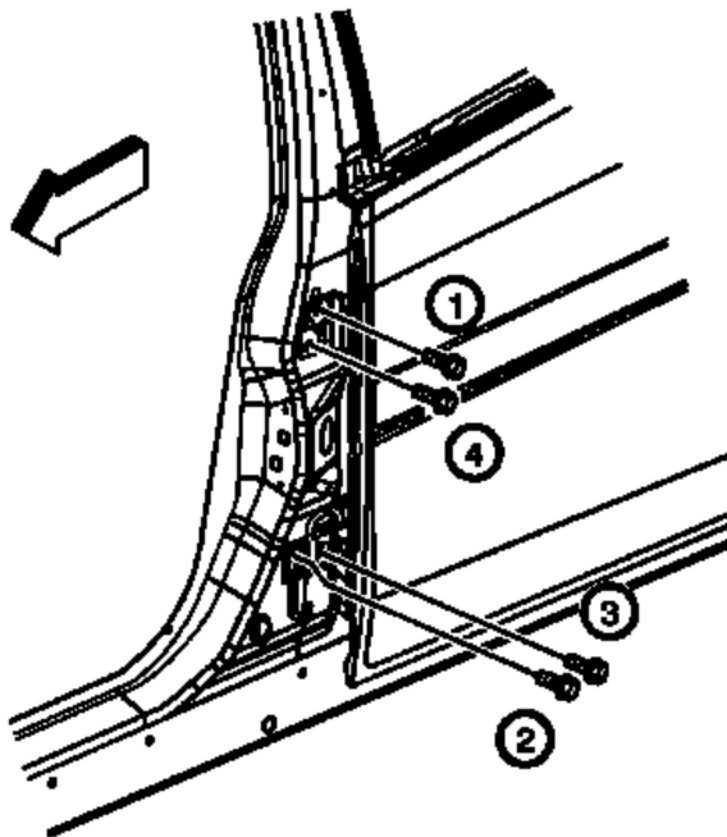


Fig. 6: Hinge Pillar Side Bolts (Rear Door)
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Paint Damage Caution

NOTE: The door side upper and lower hinge bolts must remain tight enough to retain door adjusted position.

1. Apply masking tape to the fender and door edges.

Loosen the body side hinge bolts in the specified sequence (1, 2, 3, 4).

Do not remove the bolts from the door.

2. Adjust the door fore and aft by repositioning the door as needed.

Installation Procedure

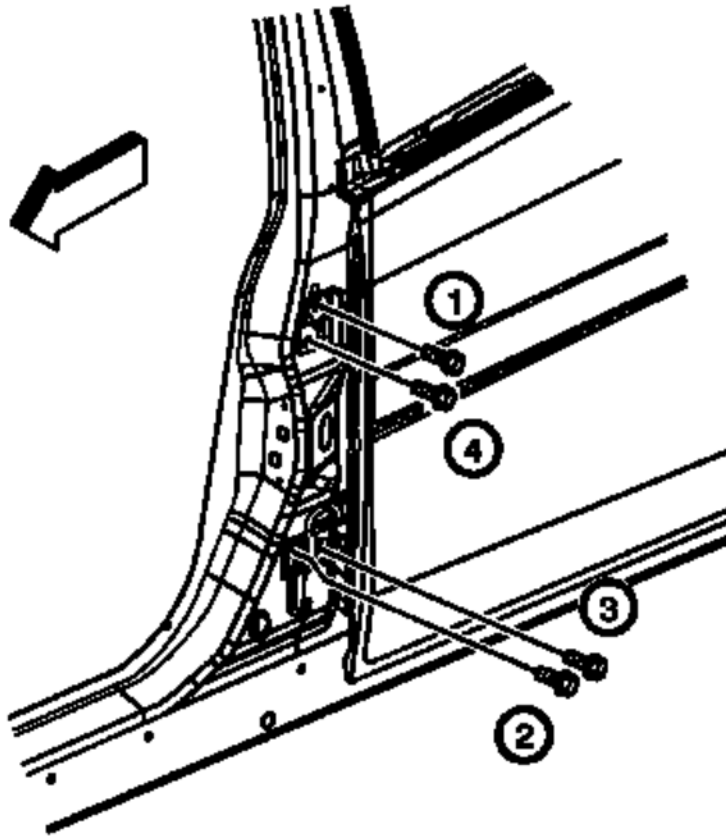


Fig. 7: Hinge Pillar Side Bolts (Rear Door)
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution

1. Install the body side hinges bolts in the specified sequence (1, 2, 3, 4).

Tighten

32 N.m (24 lb ft)

2. Check the door for open / close drag if needed adjust the striker as necessary. Refer to Rear Side Door Lock Striker Adjustment
3. Inspect the door for proper operation and alignment.
4. Remove the masking tape.

REAR SIDE DOOR REPLACEMENT

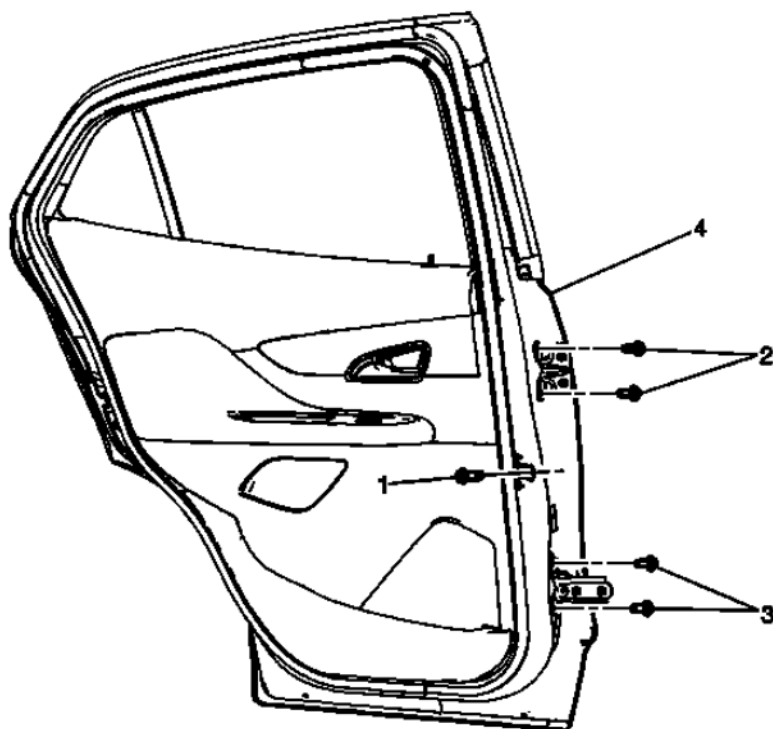


Fig. 8: View Rear Side Door
 Courtesy of GENERAL MOTORS COMPANY

Rear Side Door Replacement

Callout	Component Name
WARNING: Refer to <u>SIR Warning</u>	
Preliminary Procedures 1. Place masking tape on the rear edge of the fender and the front edge of the door to prevent clipping the paint when removing. 2. Mark the location of the hinge before removing the bolts with a grease pencil. 3. Disable the supplemental inflatable restraint (SIR) system. Refer to <u>SIR Disabling and Enabling</u>. 4. Remove the rear door trim if replacing the door. Refer to <u>Rear Side Door Trim Replacement</u>.	
1	Rear Side Door Check Link Bolt to Body CAUTION: Refer to <u>Fastener Caution</u> Procedure 1. Remove the water deflector. 2. Disconnect the door electrical connector.

	3. Support the door before removing the hinge bolts. 4. With an assistant, remove the door. Tighten 22 N.m (16 lb ft)
2	Rear Side Door Upper Hinge Bolt to Body (Qty: 2) Tighten 32 N.m (24 lb ft)
3	Rear Side Door Lower Hinge Bolt to Body (Qty: 2) Tighten 32 N.m (24 lb ft)
4	Rear Side Door Assembly Procedure 1. When replacing the door it is necessary to transfer all of the internal components. 2. Check the door for proper alignment, Refer to <u>Rear Side Door Adjustment</u>.

FRONT FENDER REPLACEMENT

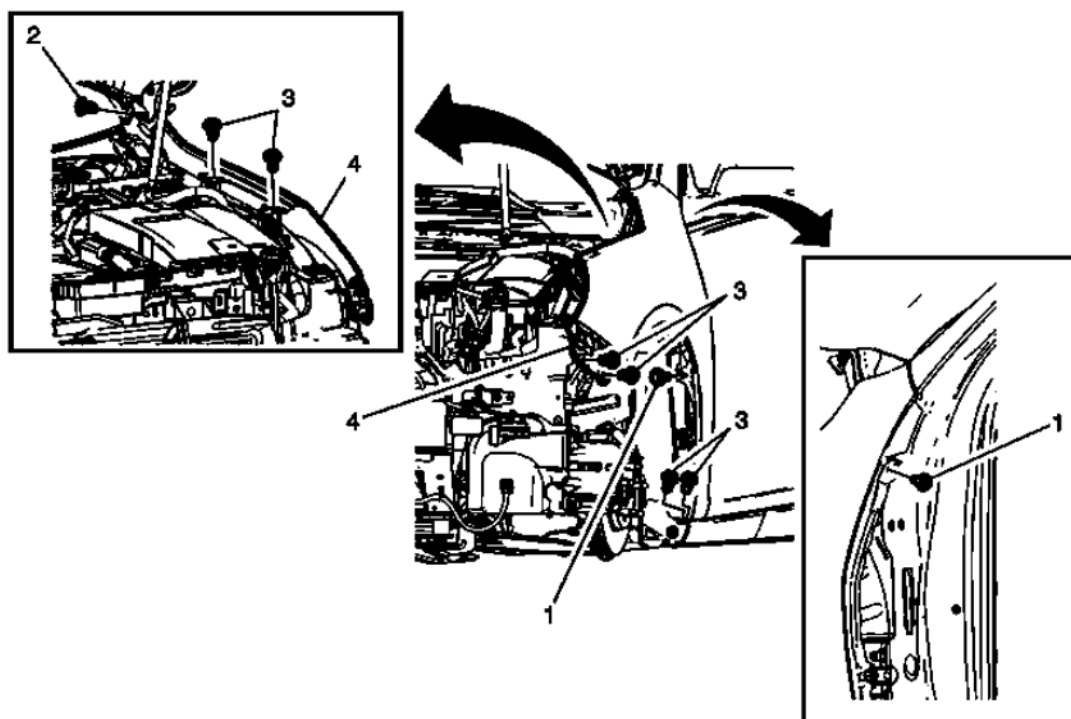


Fig. 9: Front Fender

Courtesy of GENERAL MOTORS COMPANY

Front Fender Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the front bumper fascia. Refer to <u>Front Bumper Fascia Replacement</u> . 2. Remove the headlamp. Refer to <u>Headlamp Replacement (Left Side)</u> , <u>Headlamp Replacement (Right Side)</u> . 3. Remove the front wheelhouse liner rear. Refer to <u>Front Wheelhouse Rear Liner Replacement (Left Side)</u> , <u>Front Wheelhouse Rear Liner Replacement (Right Side)</u> . 4. Remove the air inlet grille panel. Refer to <u>Air Inlet Grille Panel Replacement</u> . 5. Remove the air inlet grille panel extension. Refer to <u>Air Inlet Grille Panel Extension Replacement</u> .	
1	Front Fender Bolt (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> . Procedure Loosen the bolt. Do not remove bolt. Tighten 9 N.m (80 lb in)
2	Front Fender Bolt Procedure Loosen the bolt. Do not remove bolt. Tighten 9 N.m (80 lb in)
3	Front Fender Bolt (Qty: 6) Tighten 9 N.m (80 lb in)
4	Front Fender

FRONT SIDE DOOR UPPER HINGE AND LOWER HINGE REPLACEMENT

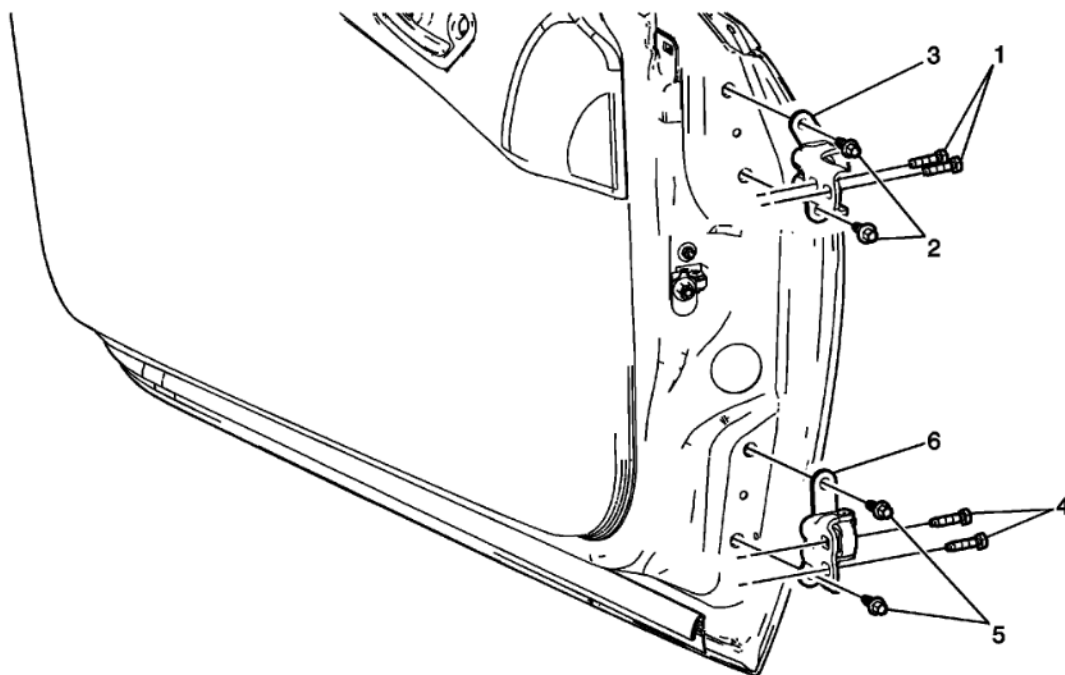


Fig. 10: View Of Front Side Door Hinge
 Courtesy of GENERAL MOTORS COMPANY

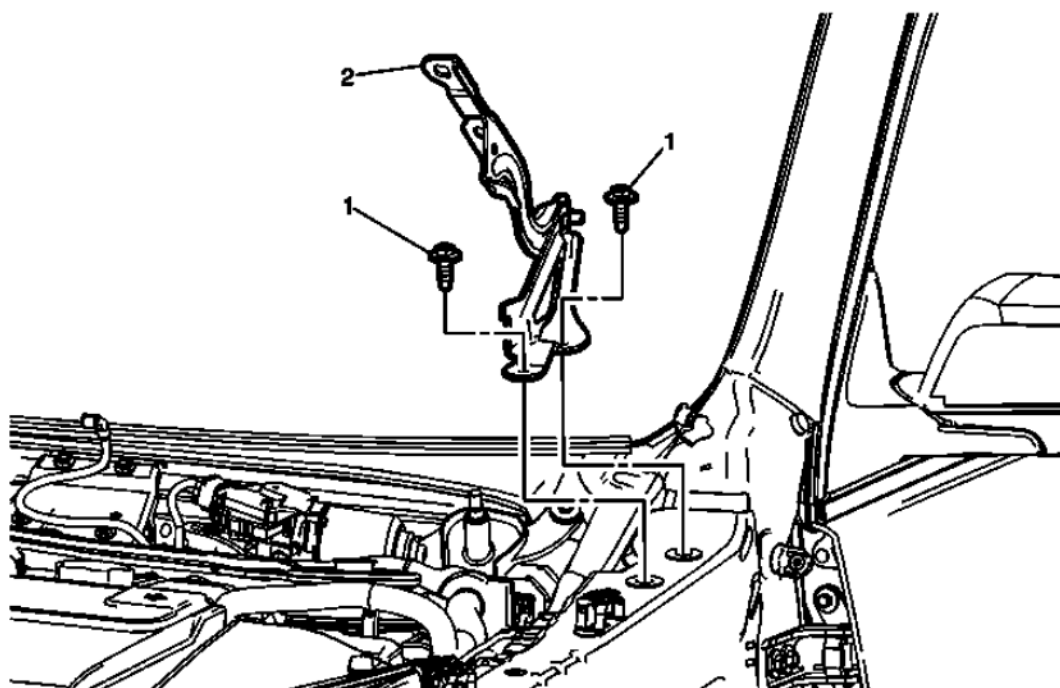
Front Side Door Upper Hinge and Lower Hinge Replacement

Callout	Component Name
Preliminary Procedure Remove the front side door. Refer to <u>Front Side Door Replacement</u> .	
1	Front Side Door Upper Hinge to Body Bolt (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> Tighten 32 N.m (24 lb ft)
2	Front Side Door Upper Hinge to Door Bolt (Qty: 2) Tighten 25 N.m (18 lb ft)
3	Front Side Door Upper Hinge
4	Front Side Door Lower Hinge to Body Bolt (Qty: 2) Tighten 32 N.m (24 lb ft)
5	Front Side Door Lower Hinge to Door Bolt (Qty: 2) Tighten 25 N.m (18 lb ft)

Front Side Door Lower Hinge

Procedure

Check the door for proper alignment, Refer to **Front Side Door Adjustment**.

HOOD HINGE REPLACEMENT**Fig. 11: Hood Hinge**

Courtesy of GENERAL MOTORS COMPANY

Hood Hinge Replacement

Callout	Component Name
Preliminary Procedures	
1. Remove the hood. Refer to Hood Replacement . 2. Remove the front fender. Refer to Front Fender Replacement .	
1	Hood Hinge Bolt (Qty: 2) CAUTION: Refer to Fastener Caution . Tighten 22 N.m (16 lb ft)

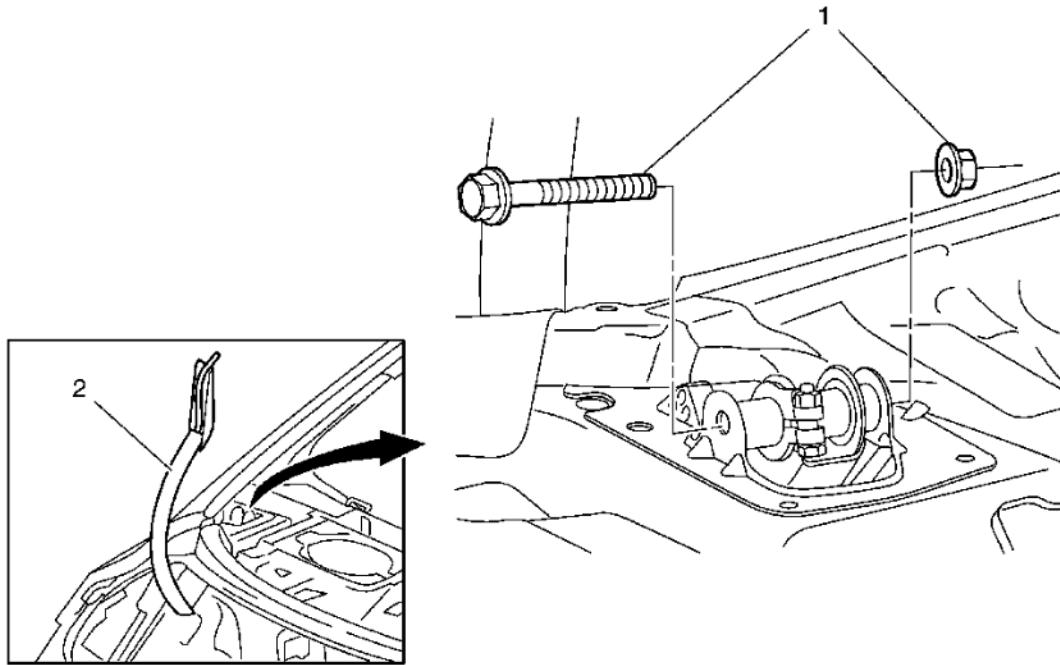
REAR COMPARTMENT LID HINGE REPLACEMENT

Fig. 12: Rear Compartment Lid Hinge & Fastener
 Courtesy of GENERAL MOTORS COMPANY

Rear Compartment Lid Hinge Replacement

Callout	Component Name
Preliminary Procedures	
1. Remove the rear compartment lid. Refer to Rear Compartment Lid Replacement. 2. Remove the rear window trim panel. Refer to Rear Window Panel Trim Replacement (Without HP6) , Rear Window Panel Trim Replacement (With HP6) . 3. Remove the rear compartment lid hinge spring. Refer to Rear Compartment Lid Hinge Spring Replacement . 4. Remove the rear compartment lid hinge strut, for the right hinge. Refer to Rear Compartment Lid Strut Replacement.	
1	Rear Compartment Lid Hinge Fastener CAUTION: Refer to Fastener Caution

	Tighten 22 N.m (16 lb ft)
2	Rear Compartment Lid Hinge

REAR SIDE DOOR UPPER HINGE AND LOWER HINGE REPLACEMENT

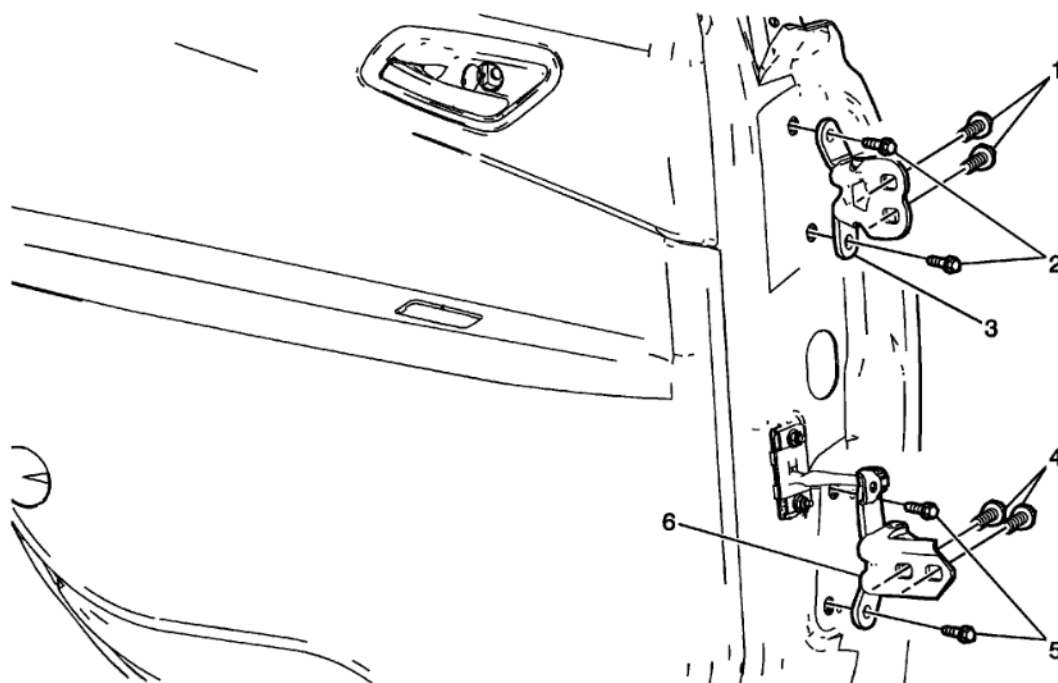


Fig. 13: View Of Rear Side Door Hinge
Courtesy of GENERAL MOTORS COMPANY

Rear Side Door Upper Hinge and Lower Hinge Replacement

Callout	Component Name
1	Rear Side Door Upper Hinge to Body Bolts (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> Procedure 1. Mark the location of the hinge before removing the bolts with a grease pencil. 2. Support the door before removing the hinge bolts.

	Tighten 32 N.m (24 lb ft)
2	Rear Side Door Upper Hinge to Door Bolts (Qty: 2) Tighten 25 N.m (18 lb ft)
3	Rear Side Door Upper Hinge Assembly Procedure Check the door for proper alignment, Refer to <u>Rear Side Door Adjustment.</u>
4	Rear Side Door Lower Hinge to Body Bolts (Qty: 2) Tighten 25 N.m (18 lb ft)
5	Rear Side Door Lower Hinge to Door Bolts (Qty: 2) Tighten 25 N.m (18 lb ft)
6	Rear Side Door Lower Hinge Assembly Procedure Check the door for proper alignment, Refer to <u>Rear Side Door Adjustment.</u>

HOOD ADJUSTMENT

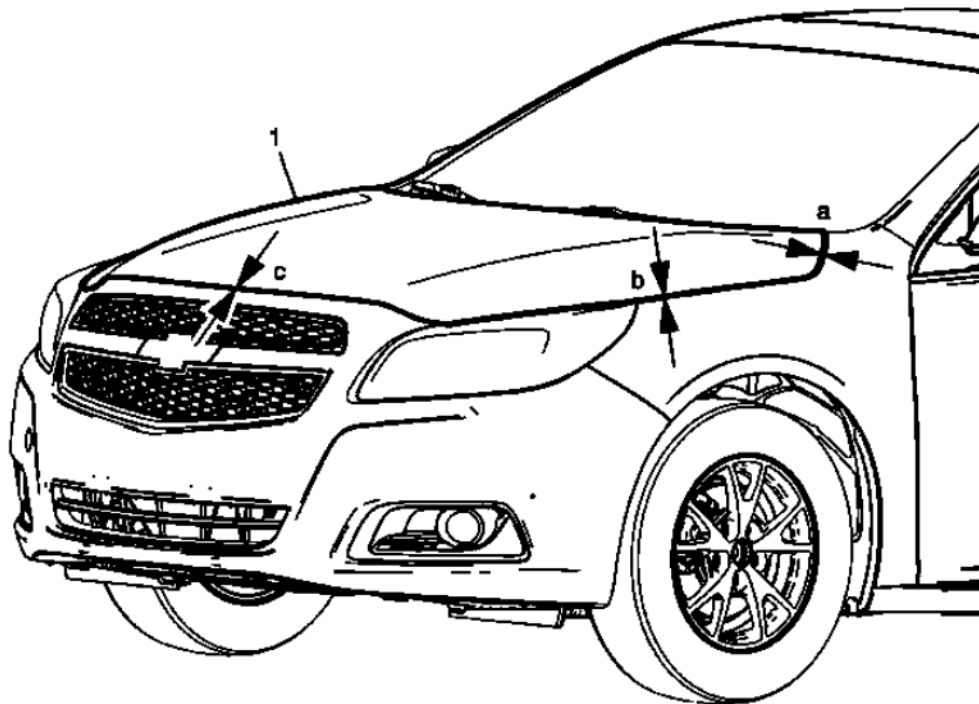


Fig. 14: Hood Adjustment Points

Courtesy of GENERAL MOTORS COMPANY

Hood Adjustment

Callout	Component Name
1	Hood CAUTION: Refer to <u>Fastener Caution</u> . Procedure 1. Loosen the 4 hood hinge nuts. 2. Adjust the hood in order to obtain an even gap on both sides between the hood and the fenders, the headlamps and the front bumper fascia and so that the hood is flush with both fenders on the front edge, the front bumper fascia and the headlamps. Adjustment: • Hood to front fender (a) 3.0 mm $\pm$ 0.75 mm (0.12 in $\pm$ 0.03 in) • Hood to headlamp (b) 3.0 mm $\pm$ 1.0 mm (0.12 in $\pm$ 0.04 in) • Hood to front bumper fascia (c) 3.0 mm $\pm$ 1.0 mm (0.12 in $\pm$ 0.04 in) Tighten 22 N.m (16 lb ft)

HOOD REPLACEMENT

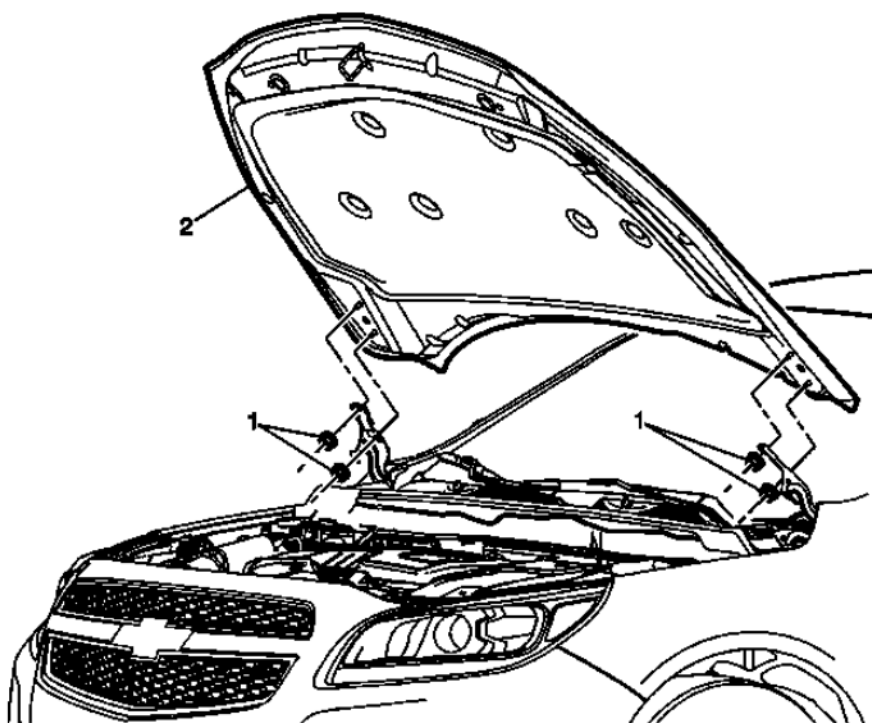


Fig. 15: Hood Hinge Nut

Courtesy of GENERAL MOTORS COMPANY

Hood Replacement

Callout	Component Name
Preliminary Procedure Disconnect the hood strut. Refer to Hood Strut Replacement .	
1	Hood Hinge Nut (Qty: 4) CAUTION: Refer to Fastener Caution . Procedure Mark the hood or hinge position in order to aid in hood installation. Tighten 22 N.m (16 lb ft)
2	Hood Procedure 1. Transfer parts as needed. 2. Adjust the hood if needed. Refer to Hood Adjustment.

HOOD INSULATOR REPLACEMENT

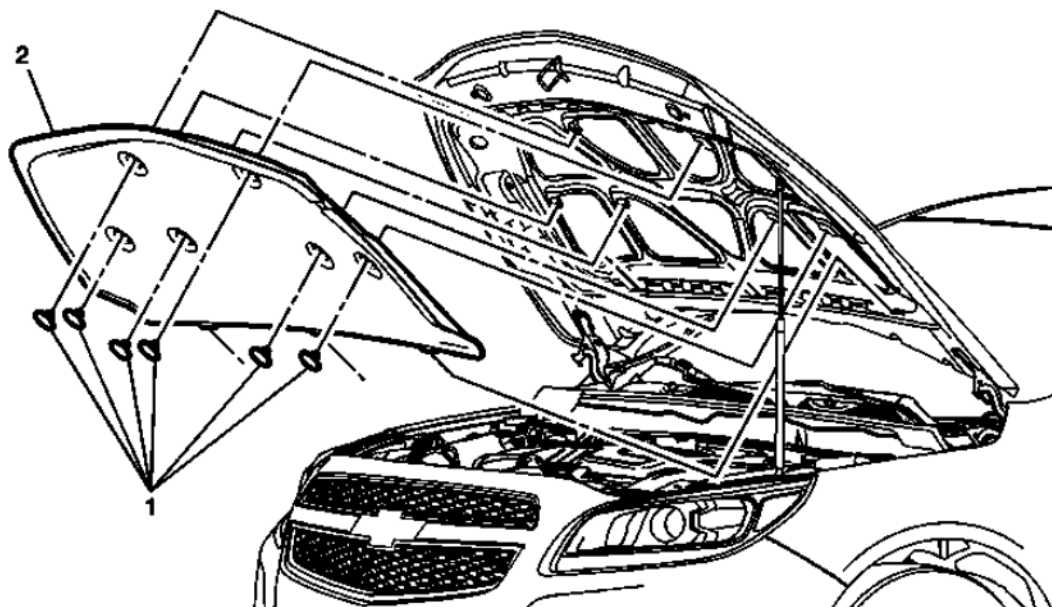


Fig. 16: Hood Insulator

Courtesy of GENERAL MOTORS COMPANY

Hood Insulator Replacement

Callout	Component Name
1	Hood Insulator Plastic Retainer (Qty: 6)
2	Hood Insulator Procedure Ensure the 3 integral tabs are secured to the hood.

HOOD PRIMARY AND SECONDARY LATCH REPLACEMENT

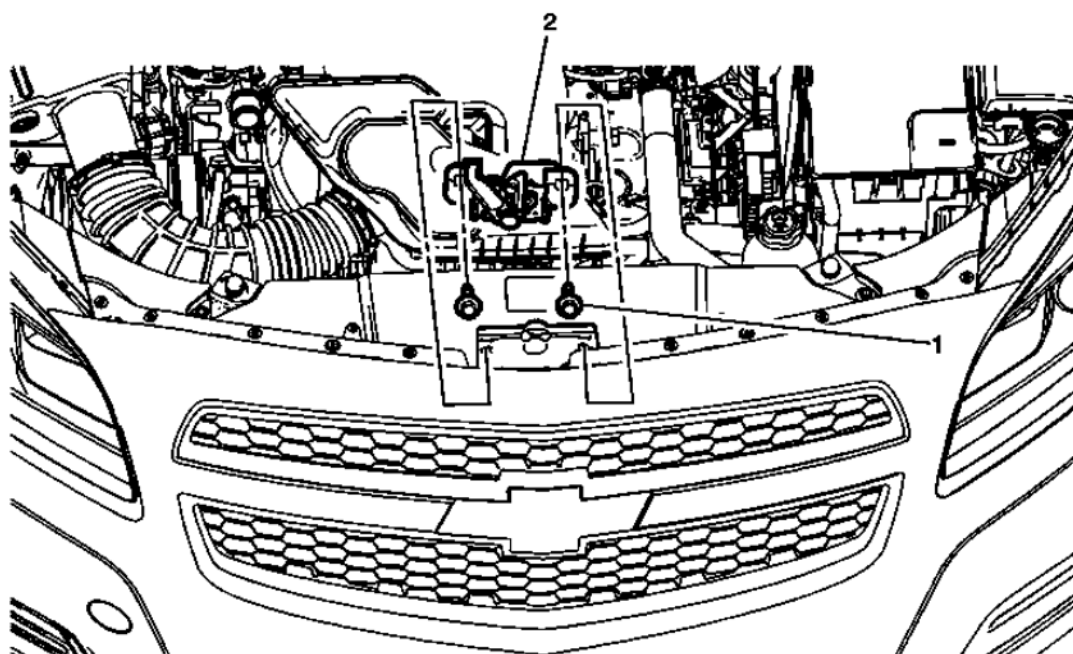


Fig. 17: Hood Primary and Secondary Latch
 Courtesy of GENERAL MOTORS COMPANY

Hood Primary and Secondary Latch Replacement

Callout	Component Name
1	Hood Primary and Secondary Latch Bolt (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> . NOTE: Mark the location of the original hood latch before removing the bolt for reference. Tighten 22 (16 lb ft)
2	Hood Primary and Secondary Latch Procedure 1. Disconnect the release cable from the hood primary latch. 2. Disconnect the electrical connector.

REAR COMPARTMENT LID ADJUSTMENT

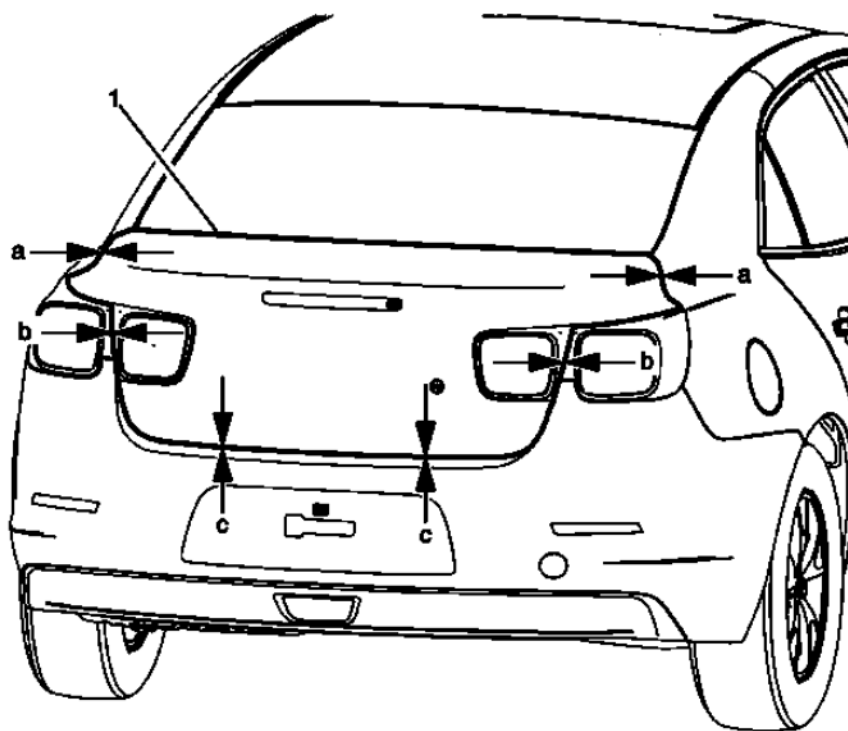


Fig. 18: Rear Compartment Lid
 Courtesy of GENERAL MOTORS COMPANY

Rear Compartment Lid Adjustment

Callout	Component Name
1	Rear Compartment Lid CAUTION: Refer to <u>Fastener Caution</u> . Procedure 1. Loosen the rear compartment lid hinge bolts (Qty: 4) to adjust the rear compartment lid. 2. Adjust the rear compartment lid in order to obtain an even gap between the rear compartment lid and the quarter outer panel the rear fog lamp and the rear bumper fascia and so that the rear compartment lid is flush with the quarter outer panel, the rear fog lamp and the rear bumper fascia. Adjustment • Rear compartment lid to quarter outer panel (a) 3.0 mm $\pm$ 0.75 mm (0.12 in $\pm$ 0.03 in)

- Tail lamp to rear compartment lid
(b) 3.0 mm ± 1.0 mm (0.12 in ± 0.04 in)
- Rear compartment lid to rear bumper fascia
(c) 5.5 mm ± 1.5 mm (0.22 in ± 0.06 in)

Tighten
9 N.m (80 lb in)

REAR COMPARTMENT LID REPLACEMENT

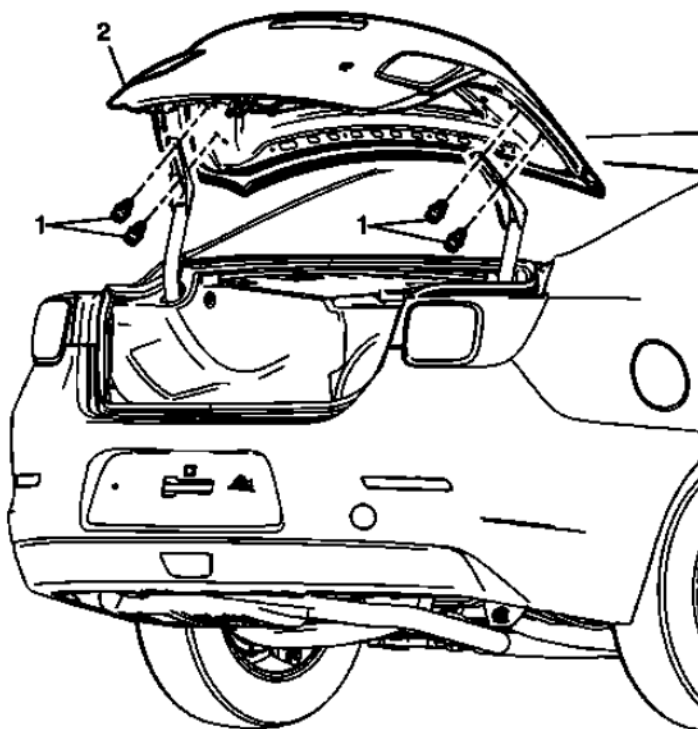


Fig. 19: Rear Compartment Lid
Courtesy of GENERAL MOTORS COMPANY

Rear Compartment Lid Replacement

Callout	Component Name
Preliminary Procedure Remove the rear compartment lid inner panel trim. Refer to <u>Rear Compartment Lid Inner Panel Trim Replacement</u> .	
	Rear Compartment Lid Bolt (Qty: 4)
	CAUTION:

1	Refer to Fastener Caution . Tighten 9 N.m (80 lb in)
2	Rear Compartment Lid Procedure 1. Disconnect the electrical connector. 2. Adjust the rear compartment lid as needed. Refer to Rear Compartment Lid Adjustment. 3. Transfer components as necessary.

FRONT SIDE DOOR CHECK LINK REPLACEMENT

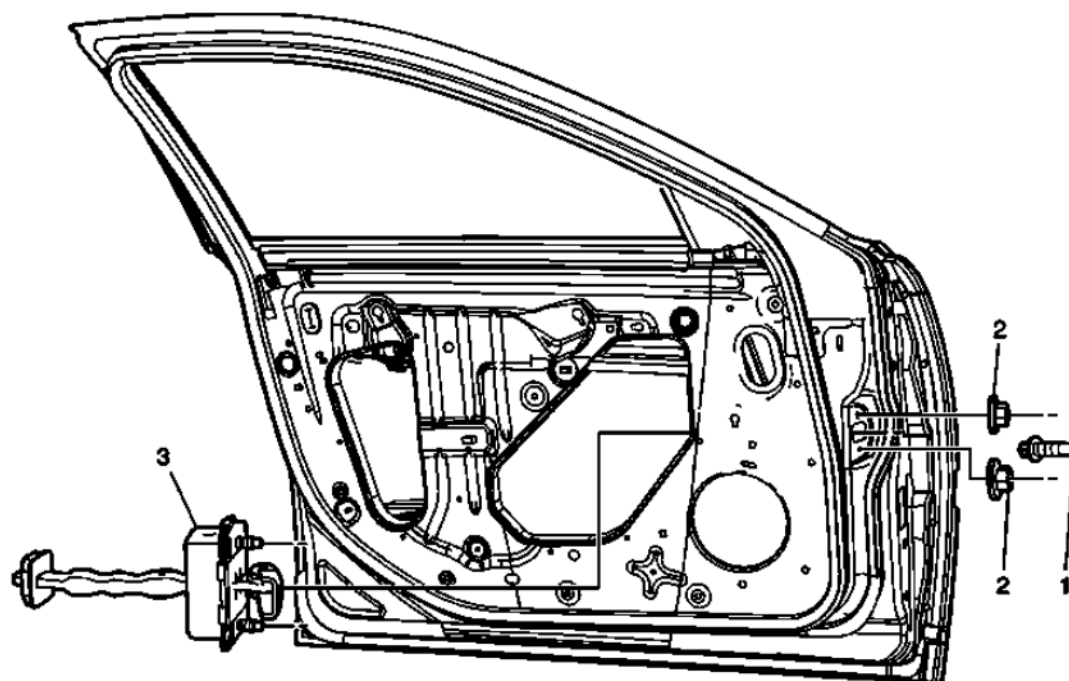


Fig. 20: Front Side Door Check Link Replacement
Courtesy of GENERAL MOTORS COMPANY

Front Side Door Check Link Replacement

Callout	Component Name
Preliminary Procedures	
1.	Place the window to a service position.

2. Remove the front side door speaker. Refer to Radio Front Side Door Speaker Replacement .	
1	Front Side Door Check Link Bolt CAUTION: Refer to Fastener Caution . Tighten 22 N.m (16 lb ft)
2	Front Side Door Check Link Nut (Qty: 2) Tighten 10 N.m (89 lb in)
3	Front Side Door Check Link Assembly

REAR SIDE DOOR CHECK LINK REPLACEMENT

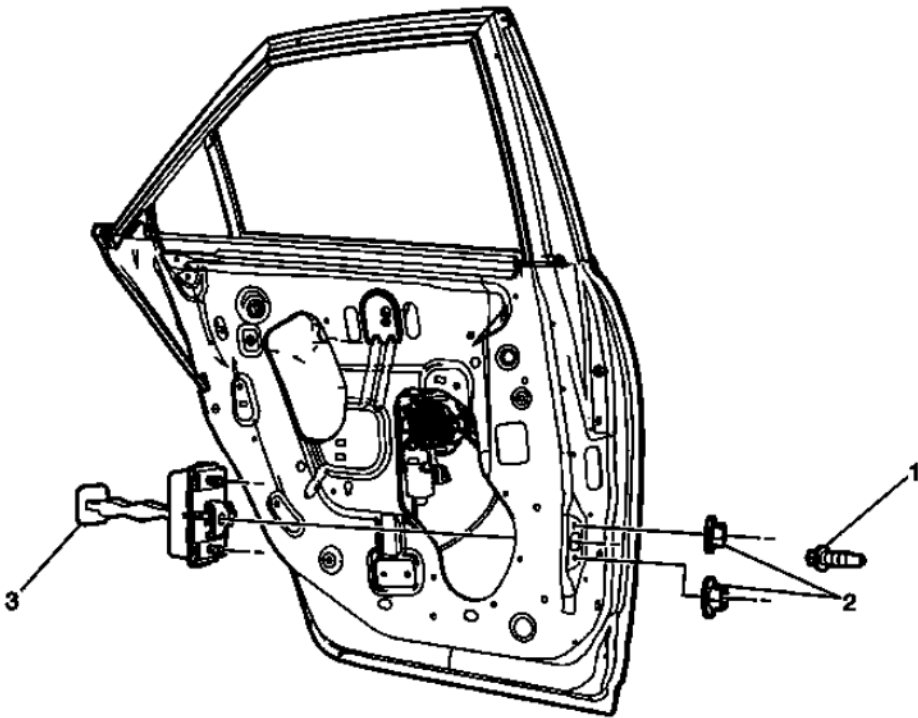


Fig. 21: Rear Side Door Check Link Replacement
 Courtesy of GENERAL MOTORS COMPANY

Rear Side Door Check Link Replacement

Callout	Component Name
Preliminary Procedures 1. Place the window in a service position.	

2. Remove the rear side door speaker. Refer to <u>Radio Rear Side Door Speaker Replacement</u>	
1	Rear Side Door Check Link Bolt CAUTION: Refer to <u>Fastener Caution</u> Tighten 22 N.m (16 lb in)
2	Rear Side Door Check Link Nut (Qty: 2) Tighten 10 N.m (89 lb in)
3	Rear Side Door Check Link Assembly Procedure Remove the check link from the inside of the door.

FUEL TANK FILLER DOOR REPLACEMENT

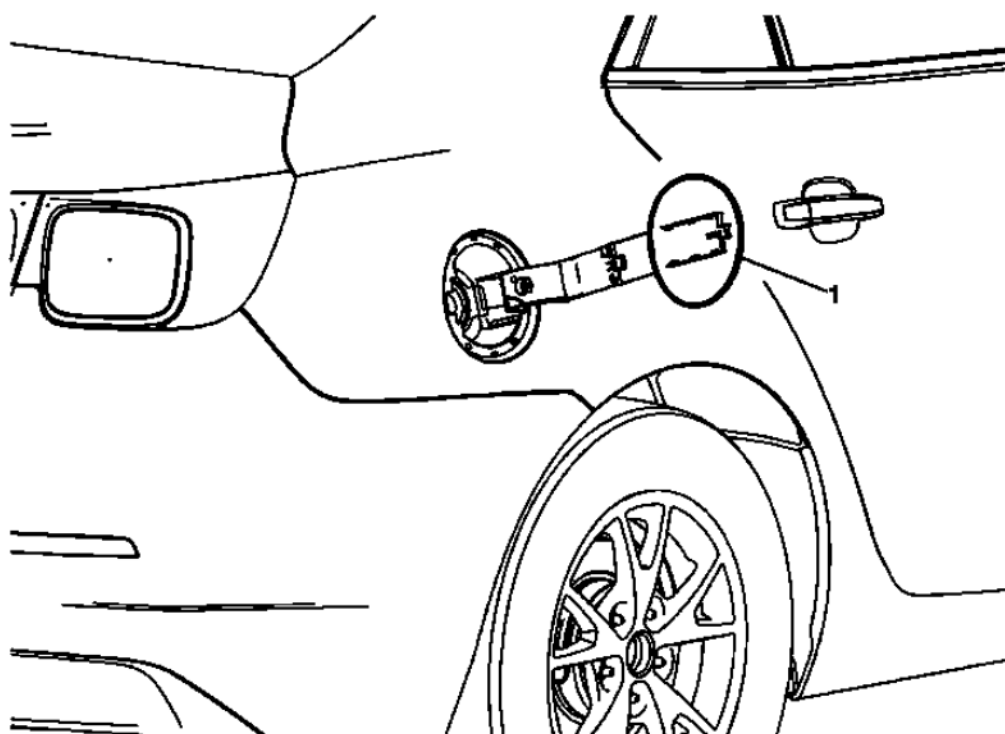


Fig. 22: Fuel Tank Filler Door
Courtesy of GENERAL MOTORS COMPANY

Fuel Tank Filler Door Replacement

Callout	Component Name
	Fuel Tank Filler Door

1

Procedure

Position the fuel tank filler door to the full open position. Using light outward sliding pressure on the filler door, release the retainer on the fuel tank filler door from the hinge.

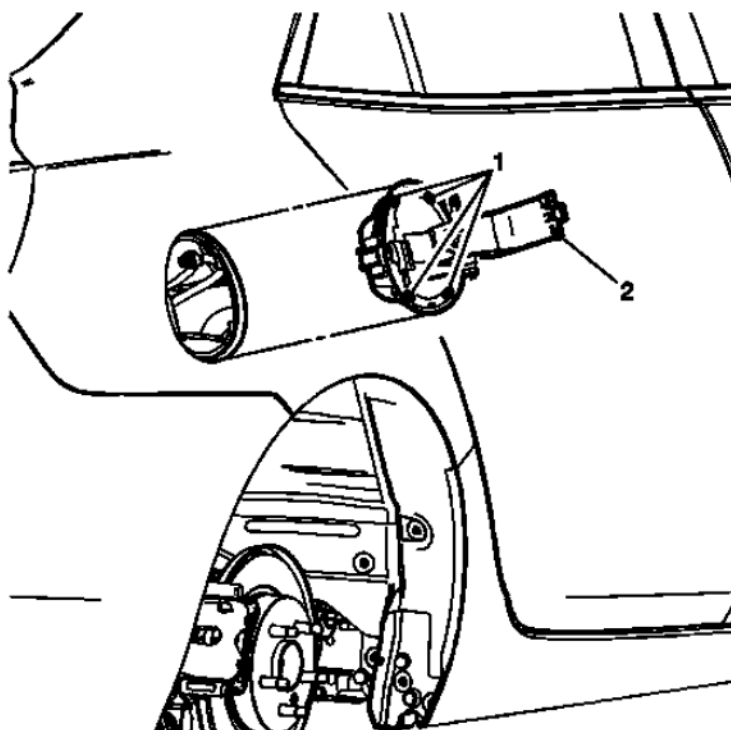
FUEL TANK FILLER PIPE HOUSING REPLACEMENT

Fig. 23: Fuel Tank Filler Pipe Housing & Retainers
Courtesy of GENERAL MOTORS COMPANY

Fuel Tank Filler Pipe Housing Replacement

Callout	Component Name
Preliminary Procedures	
1. Remove the rear right wheelhouse panel liner. Refer to Rear Wheelhouse Liner Replacement .	
2. Remove the fuel tank filler door. Refer to Fuel Tank Filler Door Replacement .	
1	Fuel Tank Filler Door Latch Housing Retainer (Qty: 4) Procedure Release the 4 filler door latch housing retainers on the back of the housing.
2	Fuel Tank Filler Door Latch Housing Procedure 1. Disconnect the electrical connector.

2. Press the fuel tank filler housing outward from the fuel filler pipe and the quarter panel.

HOOD STRUT REPLACEMENT

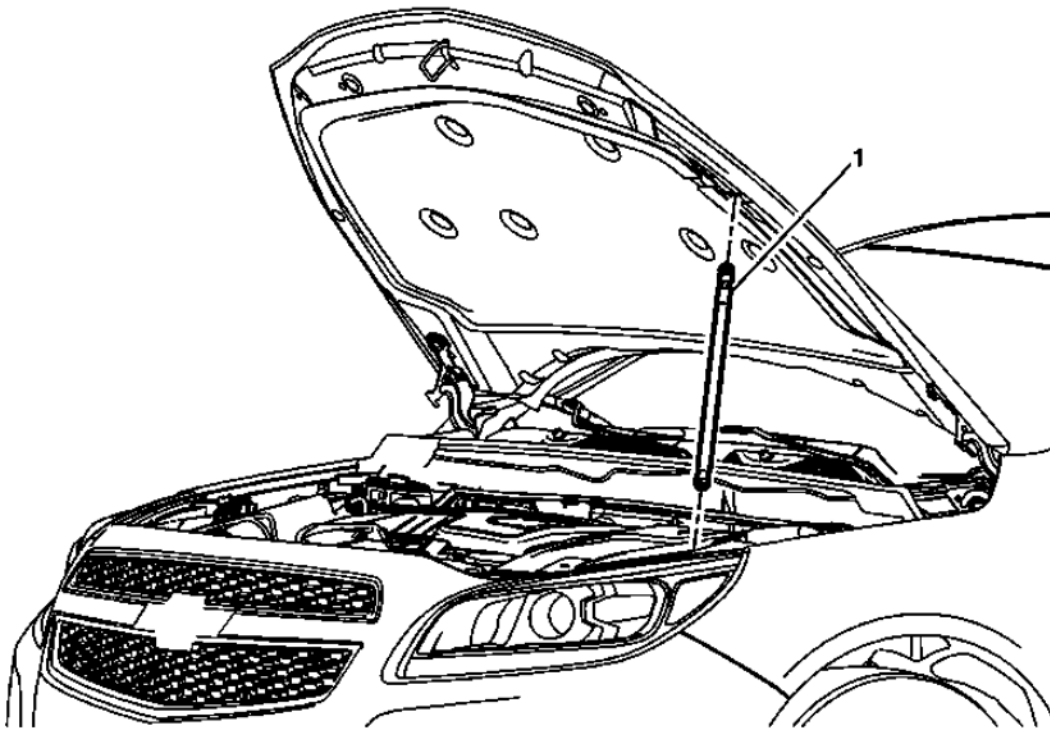


Fig. 24: Hood Strut
Courtesy of GENERAL MOTORS COMPANY

Hood Strut Replacement

Callout	Component Name
1	Hood Strut Assembly WARNING: When a hood hold open device is being removed or installed, provide alternate support to avoid the possibility of damage to the vehicle or personal injury. CAUTION: Apply pressure only at the end of the liftgate/hood assist rod that you are removing or attaching. Do NOT apply pressure to the middle of the rod because damage or bending will result. TIP: Remove the metal clip at the ends of the hood strut, then pull away from the stud.

HOOD REAR WEATHERSTRIP REPLACEMENT

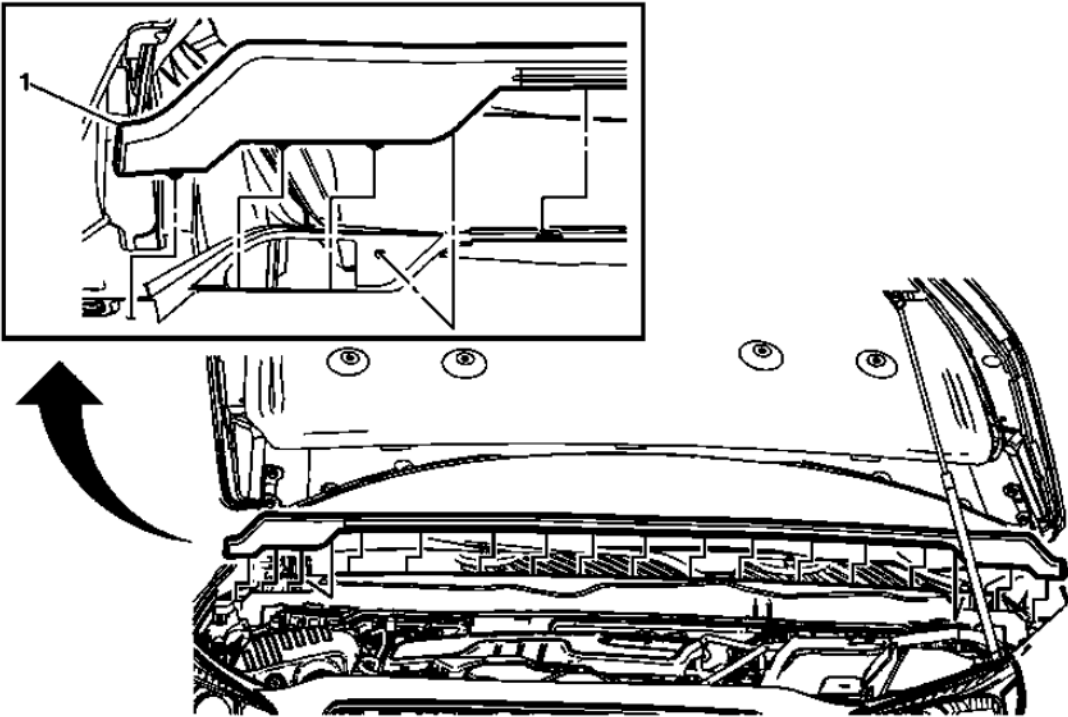


Fig. 25: Hood Rear Weatherstrip
Courtesy of GENERAL MOTORS COMPANY

Hood Rear Weatherstrip Replacement

Callout	Component Name
1	Hood Rear Weatherstrip Procedure The hood rear weatherstrip is held in place with 20 plastic retainers, 12 are part of the air inlet grille and 8 are part of the weatherstrip ends. Carefully pull the weatherstrip to the right/left to release from the retainers on the air inlet grille. Using an appropriate tool, release the retainers on the ends.

REAR COMPARTMENT LID STRUT REPLACEMENT

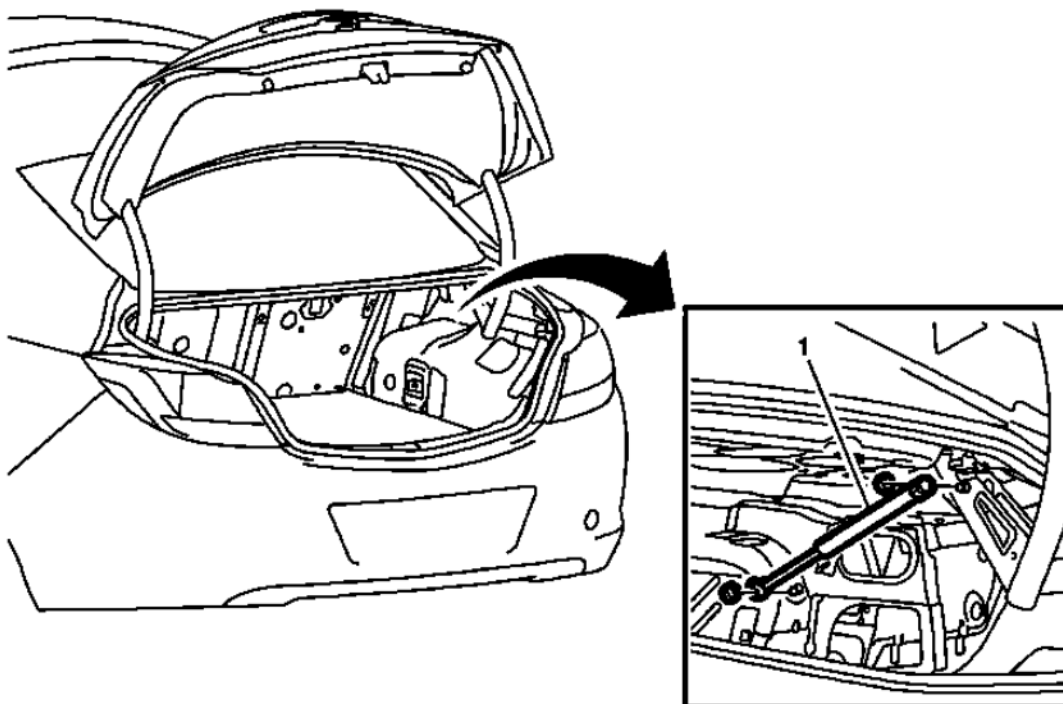


Fig. 26: Rear Compartment Lid Strut
 Courtesy of GENERAL MOTORS COMPANY

Rear Compartment Lid Strut Replacement

Callout	Component Name
WARNING: When a hood hold open device is being removed or installed, provide alternate support to avoid the possibility of damage to the vehicle or personal injury.	
CAUTION: Apply pressure only at the end of the liftgate/hood assist rod that you are removing or attaching. Do NOT apply pressure to the middle of the rod because damage or bending will result.	
Preliminary Procedure Remove the rear compartment side trim panel. Refer to Rear Compartment Side Trim Panel Replacement (without HP6) , Rear Compartment Side Trim Panel Replacement (HP6, Left Side) , Rear Compartment Side Trim Panel Replacement (HP6, Right Side) .	
1	Rear Compartment Lid Strut Procedure 1. Release the locking tabs on the strut. 2. Ensure the clip is fully seated when the rod is reinstalled. If the clip cannot be fully seated a new rod should be installed.

FRONT OR REAR SIDE DOOR LOWER WEATHERSTRIP REPLACEMENT

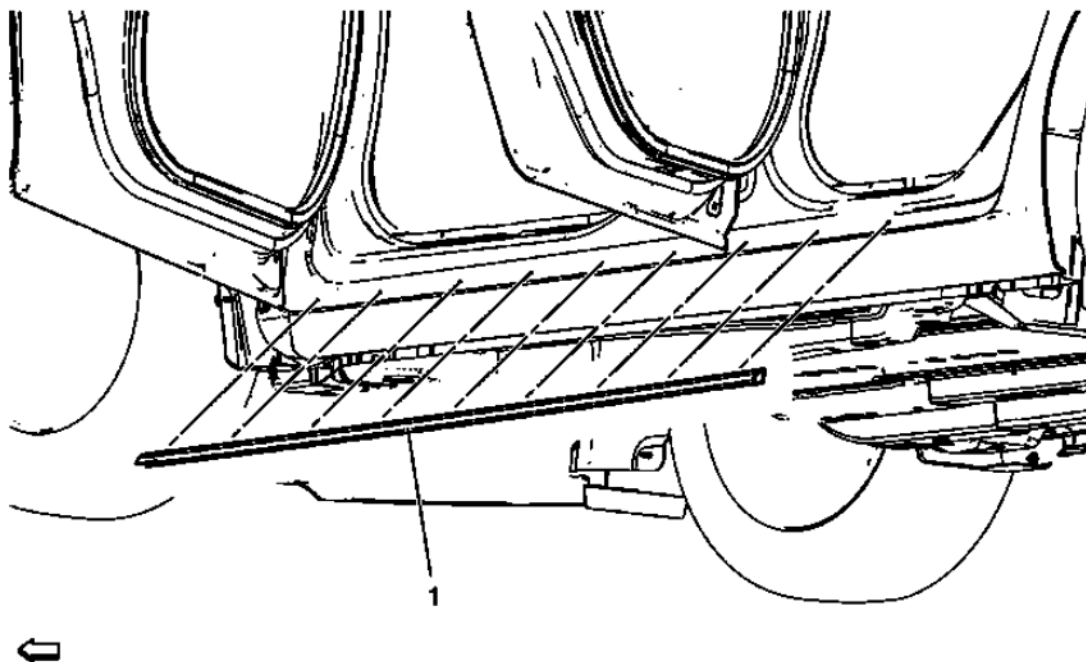


Fig. 27: Side Door Lower Weatherstrip
 Courtesy of GENERAL MOTORS COMPANY

Front or Rear Side Door Lower Weatherstrip Replacement

Callout	Component Name
1	Front and Rear Side Door Lower Weatherstrip Procedure 1. Open the side doors to the full opening position. 2. Use a suitable tool, release the retainers from the weatherstrip from the rocker outer panel.

FRONT SIDE DOOR WEATHERSTRIP REPLACEMENT

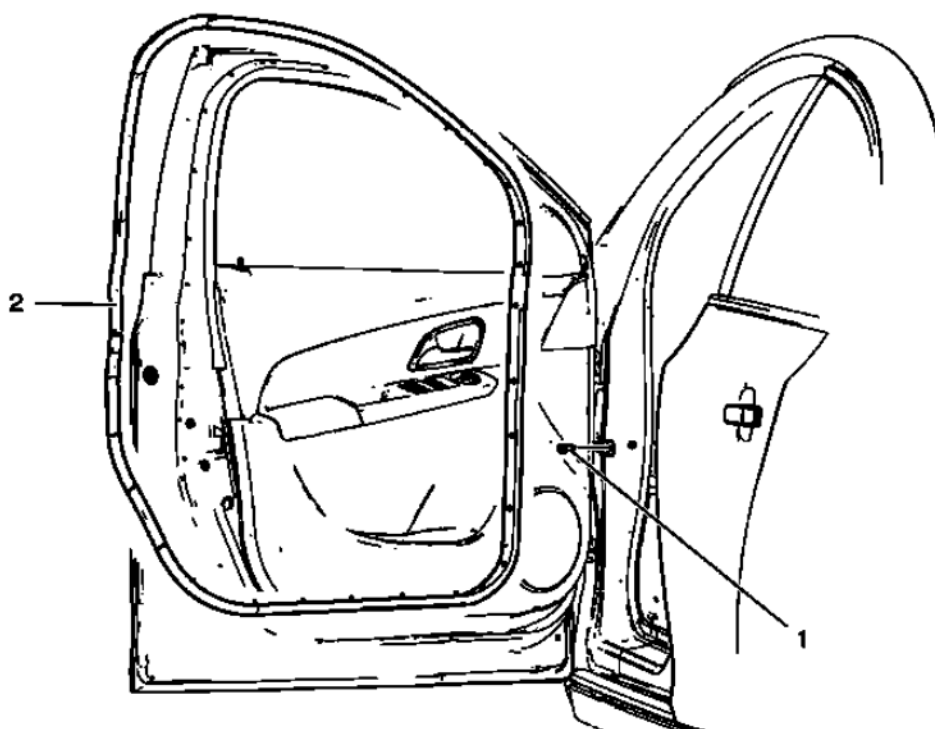


Fig. 28: Front Side Door Weatherstrip - Door Side
 Courtesy of GENERAL MOTORS COMPANY

Front Side Door Weatherstrip Replacement

Callout	Component Name
1	Front Side Door Check Bolt to Body CAUTION: Refer to <u>Fastener Caution</u> Tighten 22 N.m (16 lb ft)
2	Front Side Door Weatherstrip Procedure Use a suitable tool to release the weatherstrip retainers from around the door.

FRONT SIDE DOOR AUXILIARY WEATHERSTRIP REPLACEMENT

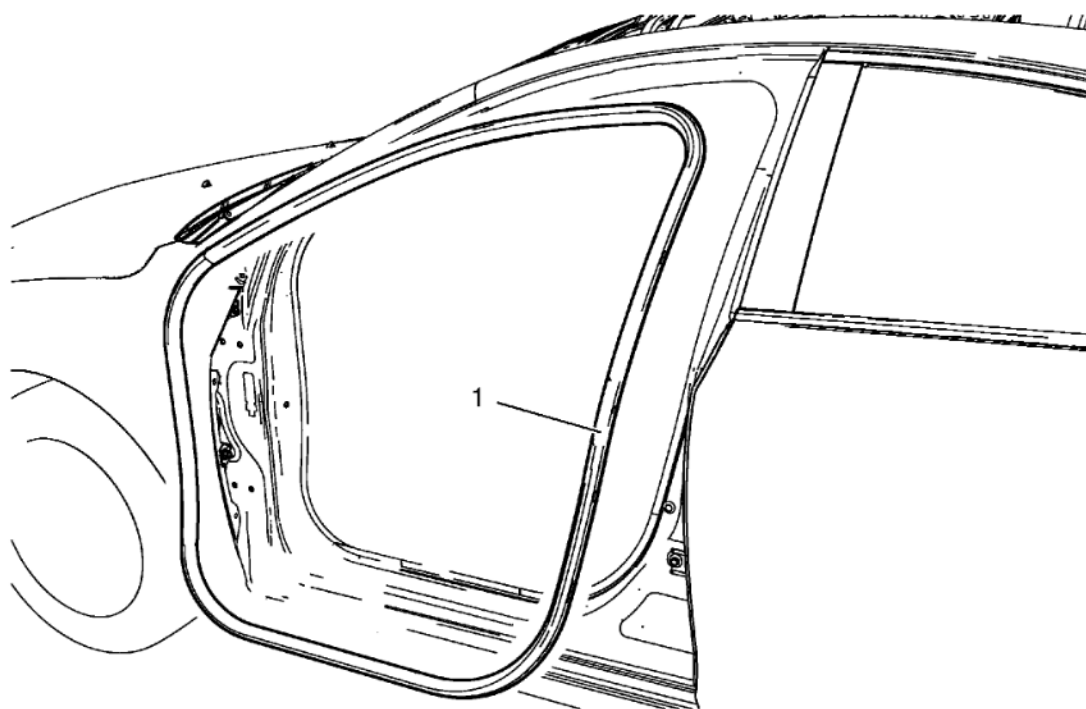


Fig. 29: Front Side Door Weatherstrip - Body Side
 Courtesy of GENERAL MOTORS COMPANY

Front Side Door Auxiliary Weatherstrip Replacement

Callout	Component Name
Preliminary Procedure Remove the center pillar lower trim panel. Refer to Center Pillar Lower Trim Panel Replacement .	
1	Front Side Door Auxiliary Weatherstrip Procedure 1. Start at the rear upper corner of the door opening and pull the weatherstrip away from the door opening flange. 2. Position the weatherstrip in the upper corner of the center pillar. 3. Working downward along the front edge, install the weatherstrip on the door opening flange ensuring that the carrier is fully seated in the corners. 4. Using a rubber mallet, ensure that the weatherstrip is seated on the entire door opening flange.

REAR COMPARTMENT LID WEATHERSTRIP REPLACEMENT

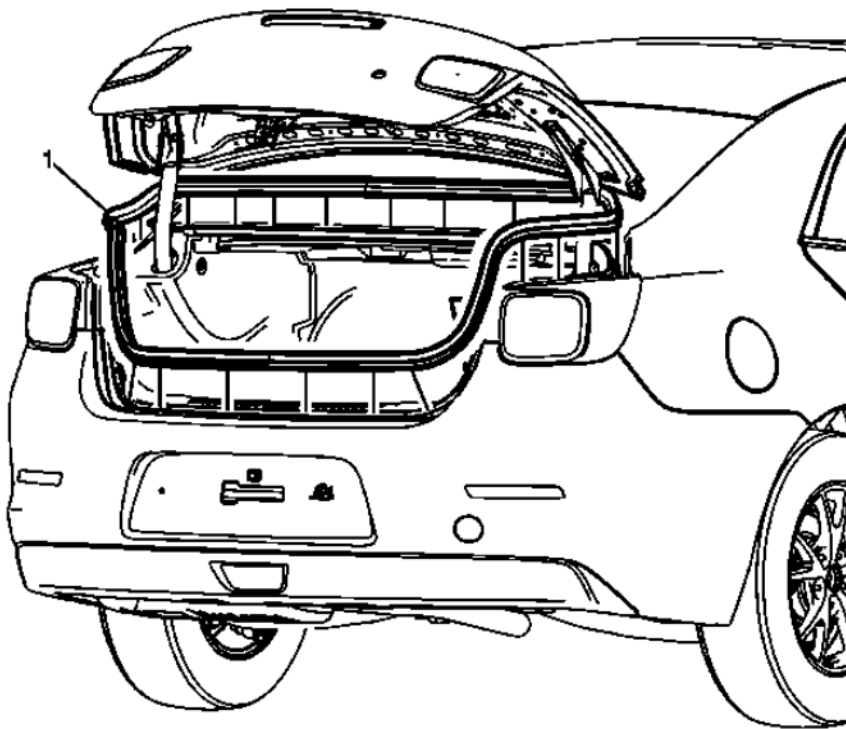


Fig. 30: Rear Compartment Lid Weatherstrip
 Courtesy of GENERAL MOTORS COMPANY

Rear Compartment Lid Weatherstrip Replacement

Callout	Component Name
1	Rear Compartment Lid Weatherstrip Procedure Clean the area where the seal will be mounted. Use a suitable solvent with a mixture of 50 percent isopropyl alcohol and 50 percent water by volume, or high-flash naphtha.

REAR SIDE DOOR AUXILIARY WEATHERSTRIP REPLACEMENT

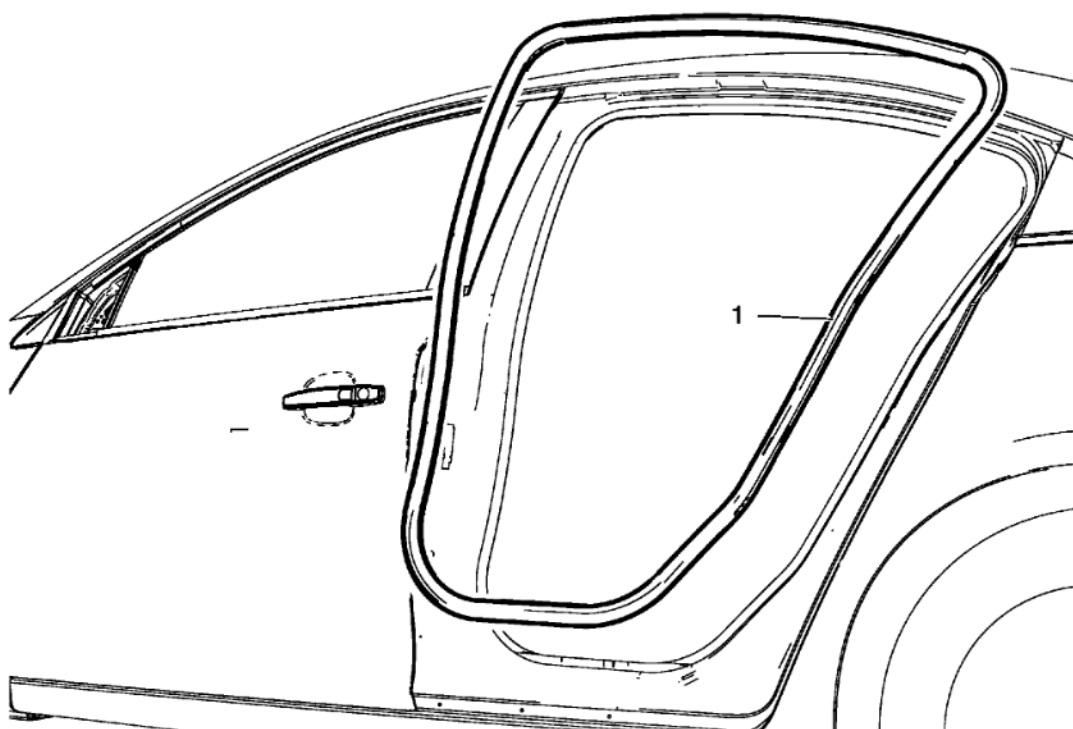


Fig. 31: Rear Side Door Weatherstrip - Body Side
 Courtesy of GENERAL MOTORS COMPANY

Rear Side Door Auxiliary Weatherstrip Replacement

Callout	Component Name
Preliminary Procedures	
1. Remove the center pillar lower trim panel. Refer to <u>Center Pillar Lower Trim Panel Replacement</u> . 2. Remove the quarter trim panel. Refer to <u>Quarter Trim Panel Replacement</u> .	
1	Rear Side Door Auxiliary Weatherstrip Procedure 1. Start at the front upper corner of the door opening and pull the weatherstrip away from the door opening flange. 2. Position the weatherstrip in the upper corner of the center pillar. 3. Working downward along the front edge, install the weatherstrip on the door opening flange ensuring that the carrier is fully seated in the corners. 4. Using a rubber mallet, ensure that the weatherstrip is seated on the entire door opening flange.

REAR SIDE DOOR WEATHERSTRIP REPLACEMENT

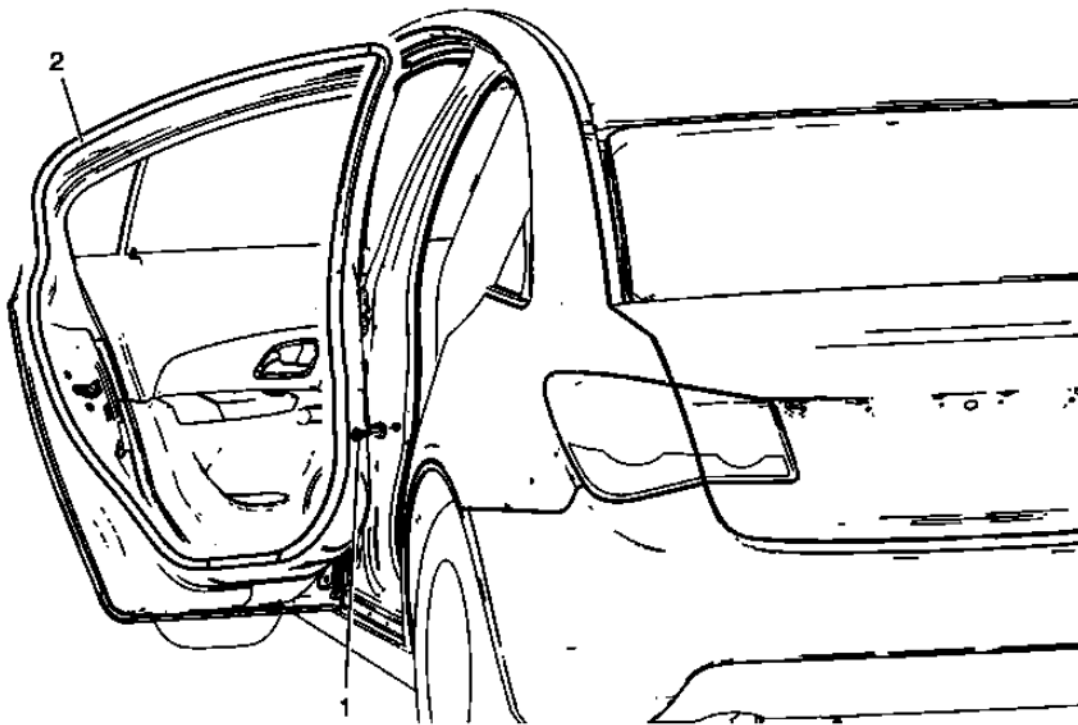


Fig. 32: Rear Side Door Weatherstrip - Door Side
Courtesy of GENERAL MOTORS COMPANY

Rear Side Door Weatherstrip Replacement

Callout	Component Name
1	Rear Side Door Check Bolt to Body CAUTION: Refer to <u>Fastener Caution</u> Tighten 22 N.m (16 lb ft)
2	Rear Side Door Weatherstrip Procedure Use a suitable tool to release the weatherstrip retainers from around the door.

DESCRIPTION AND OPERATION

HOOD AJAR INDICATOR DESCRIPTION AND OPERATION

Hood Ajar Indicator System Components

- Body Control Module (BCM)

- Starter/Generator Control Module (with RPO HP6)
- Driver information center
- Hood ajar switch, part of the hood latch assembly

Hood Ajar Operation - Body Control Module

The BCM applies B+ to the hood ajar signal circuit and monitors the voltage to determine the position of the hood. The hood ajar switch contains a multiplexed resistor. This resistor will vary the voltage seen by the BCM by pulling down the applied voltage based on the position of the switch.

Hood Ajar Operation - Starter/Generator Control Module (with RPO HP6)

The starter/generator control module applies B+ to the hood ajar signal circuit and monitors the voltage to determine the position of the hood. The hood ajar switch contains a multiplexed resistor. This resistor will vary the voltage seen by the starter/generator control module by pulling down the applied voltage based on the position of the switch.