

ACCESSORIES & EQUIPMENT

Bolted Exterior Body Panels and Closures - CTS Sedan

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Front Compartment Front Panel Bolt	11	97 lb in
Front Compartment Front Panel Lower Bolt	11	97 lb in
Front End Sheet Metal Cross Brace Bolt	9	80 lb in
Front End Sheet Metal Diagonal Brace Bolt	22	16 lb ft
Front End Sheet Metal Diagonal Brace Nut	22	16 lb ft
Front Fender Front Lower Bracket Bolt	9	80 lb in
Front Fender Lower Bolts	9	80 lb in
Front Fender Nut	9	80 lb in
Front Fender Rear Bolts	9	80 lb in
Front Fender Upper Bolts	9	80 lb in
Front Side Door Check Link Bolt	32	24 lb ft
Front Side Door Check Link Nut	11.5	9 lb ft
Front Side Door Hinge to Body Bolt	32	24 lb ft
Front Side Door Hinge to Door Bolt	25	18 lb ft
Front Side Door Lower Hinge to Door Bolt	25	18 lb ft
Front Side Door Upper Hinge to Door Bolt	25	18 lb ft
Hood Hinge Nuts/Bolts	22	16 lb ft
Hood Primary and Secondary Latch Bolts	22	16 lb ft
Plenum Front Panel Bolt	9	80 lb in
Plenum Front Panel Nut	9	80 lb in
Plenum Side Panel Nut	8	71 lb in
Rear Compartment Lid Bolt	9	80 lb in
Rear Compartment Lid Hinge Bolt	9	80 lb in
Rear Side Door Check Link Bolt	32	24 lb ft
Rear Side Door Check Link Nut	11.5	9 lb ft
Rear Side Door Lower Hinge to Body Bolt	32	24 lb ft
Rear Side Door Lower Hinge to Door Bolt	25	18 lb ft
Rear Side Door Upper Hinge to Door Bolt	25	18 lb ft
Rear Side Door Upper Hinge to Body Bolt	32	24 lb ft
Rear Side Door Weatherstrip Screw	2.5	22 lb in

SCHEMATIC WIRING DIAGRAMS

HOOD LATCH WIRING SCHEMATICS

Hood Ajar Switch

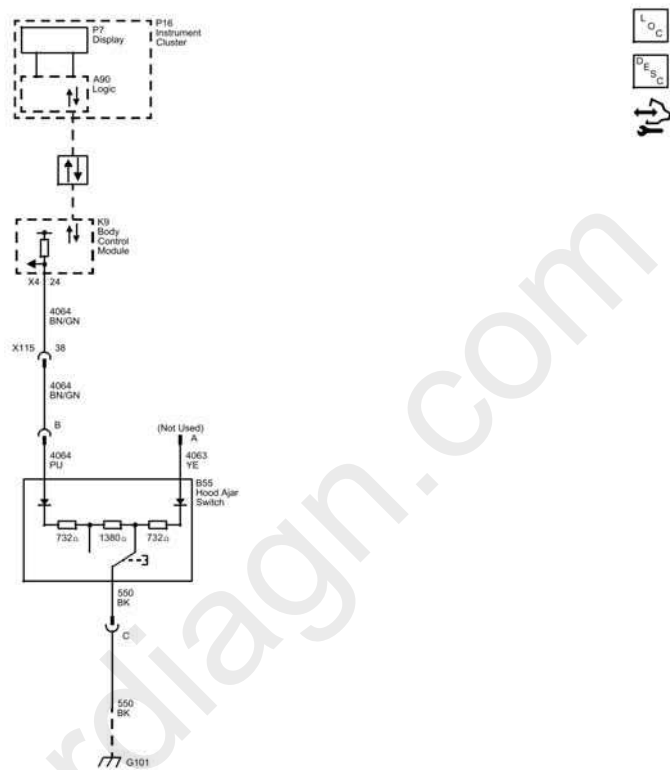


Fig. 1: Hood Ajar Switch
Courtesy of GENERAL MOTORS COMPANY

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC CODE INDEX

DIAGNOSTIC CODE INDEX

DTC	Description
DTC B3006	DTC B3006 Hood Ajar Circuit
DTC P257D-P257F	DTC P257D Engine Hood Switch Performance DTC P257E Engine Hood Switch Circuit Low Voltage DTC P257F Engine Hood Switch Circuit High Voltage

DTC B3006: HOOD AJAR CIRCUIT

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

Hood Ajar Circuit

For symptom byte information, refer to **Symptom Byte List**

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal - Terminal B	B3006 02	B3006 01, B3006 04	B3006 01	-
Signal - Terminal A*	P257E	P257F	P257F	-
Low Reference*	-	B3006 01, B3006 04, P257F*	-	-
Ground**	-	B3006	-	-
*with KL9 **without KL9				

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. The hood ajar switch contains a resistor ladder. This resistor ladder will vary the voltage seen by the body control module by pulling down the applied voltage based on the position of the switch. The engine control module also monitors the hood ajar switch on vehicles equipped with KL9.

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 - SEDAN

Description and Operation

Keyless Entry System Description and Operation (With ATH) , Keyless Entry System Description and Operation (Without ATH)

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 Position parameter is Open with the hood open and Closed with the hood closed
 - **If the parameter does not change**

Refer to Circuit/System Testing.

- **If the parameter changes**

3. All OK.

Circuit/System Testing

Without KL9

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the B55 Hood Ajar Switch. It may take up to 2 min 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 10.5 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.

With KL9

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the B55 Hood Ajar

Switch. It may take up to 2 min for all vehicle systems to power down.

2. Test for less than 10 ohms between the low reference circuit terminal C and ground.
 - **If 10 ohms or greater**
 1. Ignition OFF, disconnect the harness connector at the K20 Engine Control Module.
 2. Test for less than 2 ohms in the low reference circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, replace the K20 Engine Control Module.
 - **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 or engine control module replacement, programming, and setup.

DTC P257D-P257F: ENGINE HOOD 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 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	-
Low Reference	-	B3006 04, P257F	-	-

Circuit/System Description

The engine control module applies 5 V 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 engine control module by pulling down the applied voltage based on the position of the switch.

Conditions for Running the DTC

Ignition ON.

Conditions for Setting the DTC

P257D

The engine control module detects a plausibility error between the observed hood ajar position and the reported hood ajar position.

P257E

The engine control module detects a short to ground in the hood ajar signal input to the engine control module.

P257F

The engine control module detects a short to voltage or an open/high resistance in the hood ajar signal input to the engine control module.

Action Taken When the DTC Sets

Engine start/stop function will be disabled.

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 - SEDAN

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 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.

- **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 2 min for all vehicle systems to power down.
2. Test for less than 10 ohms between the low reference circuit terminal C and ground.
 - **If 10 ohms or greater**
 1. Ignition OFF, disconnect the harness connector at the K20 Engine Control Module.
 2. Test for less than 2 ohms in the low reference circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, replace the K20 Engine Control Module.
 - **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 K20 Engine 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 K20 Engine 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 K20 Engine 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 K20 Engine 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 engine 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

Hood Ajar Circuit

For symptom byte information, refer to **Symptom Byte List**

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal - Terminal B	B3006 02	B3006 01, B3006 04	B3006 01	-
Signal - Terminal A*	P257E	P257F	P257F	-
Low Reference*	-	B3006 01, B3006 04, P257F*	-	-
Ground**	-	B3006	-	-
*with KL9 **without KL9				

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. The hood ajar switch contains a resistor ladder. This resistor ladder will vary the voltage seen by the body control module by pulling down the applied voltage based on the position of the switch. The engine control module also monitors the hood ajar switch on vehicles equipped with KL9.

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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- **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 Position parameter is Open with the hood open and Closed with the hood closed
 - **If the parameter does not change**

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

Circuit/System Testing

Without KL9

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the B55 Hood Ajar Switch. It may take up to 2 min 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 10.5 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.

With KL9

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the B55 Hood Ajar Switch. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 ohms between the low reference circuit terminal C and ground.
 - **If 10 ohms or greater**
 1. Ignition OFF, disconnect the harness connector at the K20 Engine Control Module.
 2. Test for less than 2 ohms in the low reference circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, replace the K20 Engine Control Module.
 - **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 or engine control module replacement, programming, and setup.

REPAIR INSTRUCTIONS

FRONT END SHEET METAL CROSS BRACE REPLACEMENT

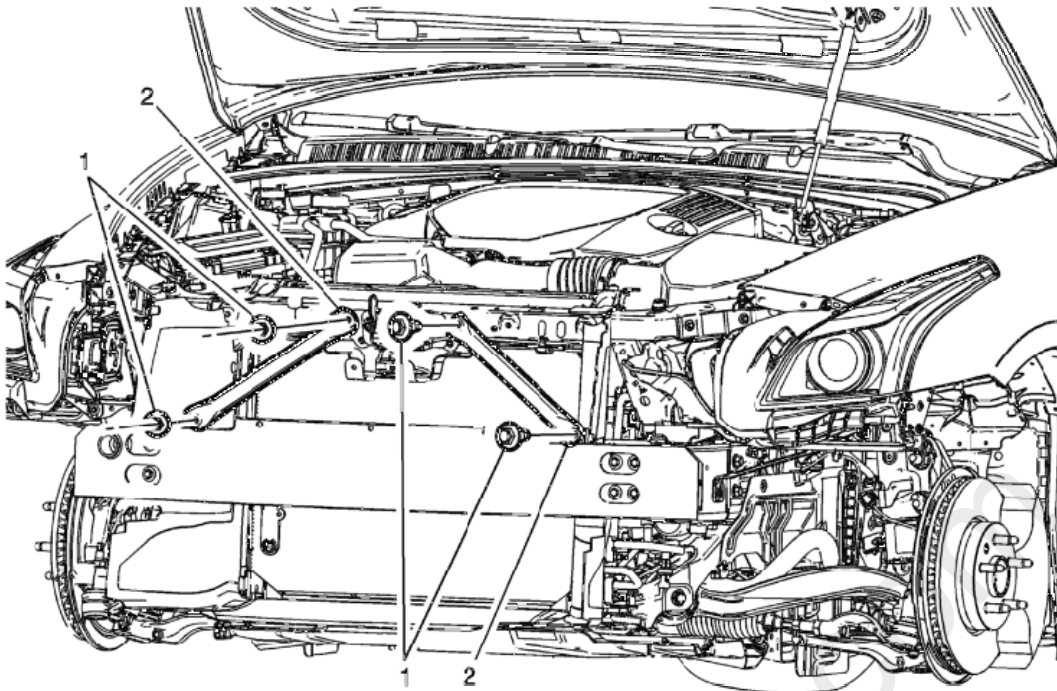


Fig. 2: Front End Sheet Metal Cross Brace
Courtesy of GENERAL MOTORS COMPANY

Front End Sheet Metal Cross Brace Replacement

Callout	Component Name
Preliminary Procedure Remove the front bumper fascia. Refer to <u>Front Bumper Fascia Replacement</u>	
1	Front End Sheet Metal Cross Brace Bolt (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 9 (80 lb in)
2	Front End Sheet Metal Cross Brace (Qty: 2)

FRONT END SHEET METAL DIAGONAL BRACE REPLACEMENT - LEFT SIDE

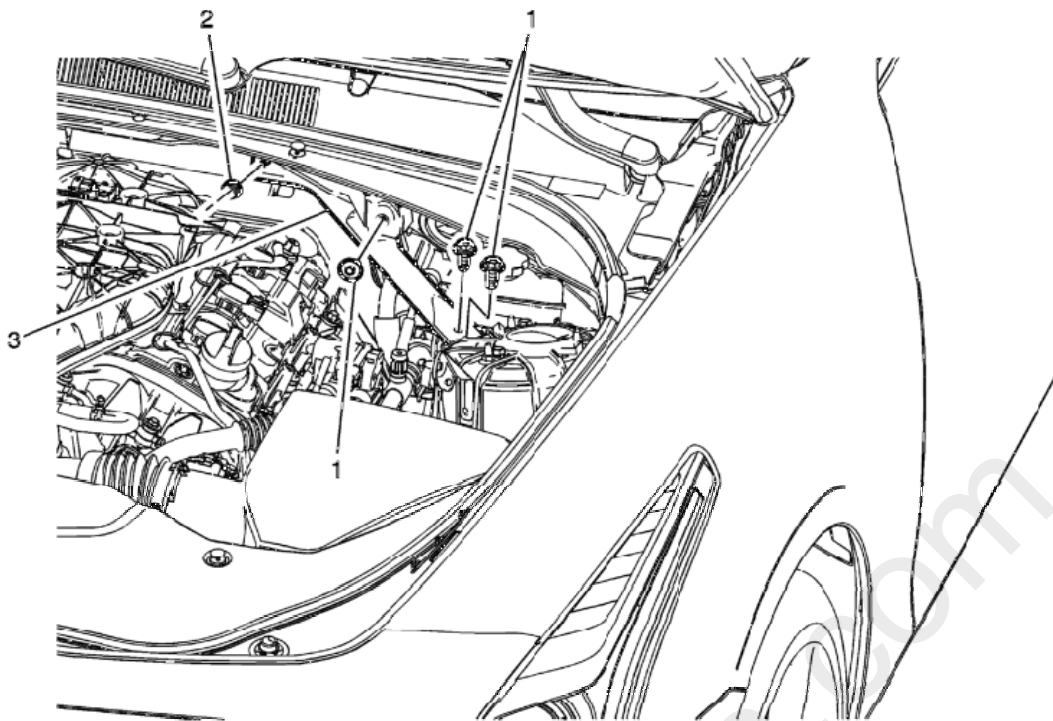


Fig. 3: Front End Sheet Metal Diagonal Brace - Left Side
 Courtesy of GENERAL MOTORS COMPANY

Front End Sheet Metal Diagonal Brace Replacement - Left Side

Callout	Component Name
Preliminary Procedure	
1. Remove the plenum front panel. Refer to <u>Plenum Front Panel Replacement</u> .	
1	Front End Sheet Metal Diagonal Brace Bolt (Qty 3) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 22 (16 lb ft)
2	Front End Sheet Metal Diagonal Brace Nut Tighten 22 (16 lb ft)
3	Front End Sheet Metal Diagonal Brace

FRONT END SHEET METAL DIAGONAL BRACE REPLACEMENT - RIGHT SIDE

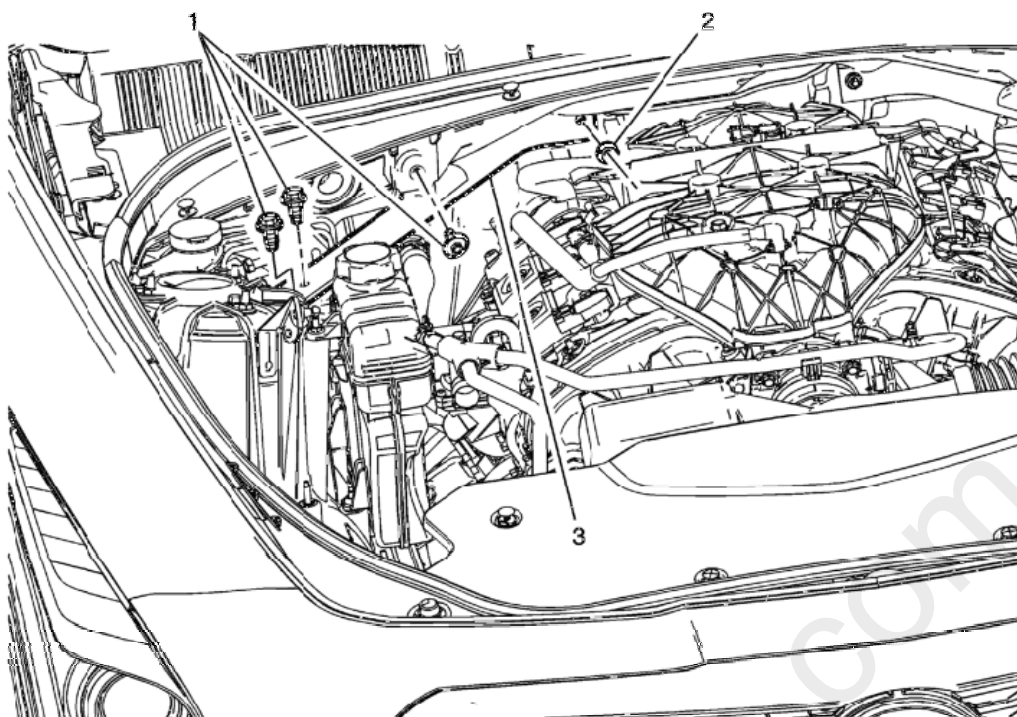


Fig. 4: Front End Sheet Metal Diagonal Brace - Right Side
 Courtesy of GENERAL MOTORS COMPANY

Front End Sheet Metal Diagonal Brace Replacement - Right Side

Callout	Component Name
Preliminary Procedure	
1. Remove the plenum front panel. Refer to <u>Plenum Front Panel Replacement</u>	
1	Front End Sheet Metal Diagonal Brace Bolt (Qty 3) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 22 (16 lb ft)
2	Front End Sheet Metal Diagonal Brace Nut Tighten 22 (16 lb ft)
3	Front End Sheet Metal Diagonal Brace

FRONT FENDER FRONT LOWER BRACKET REPLACEMENT

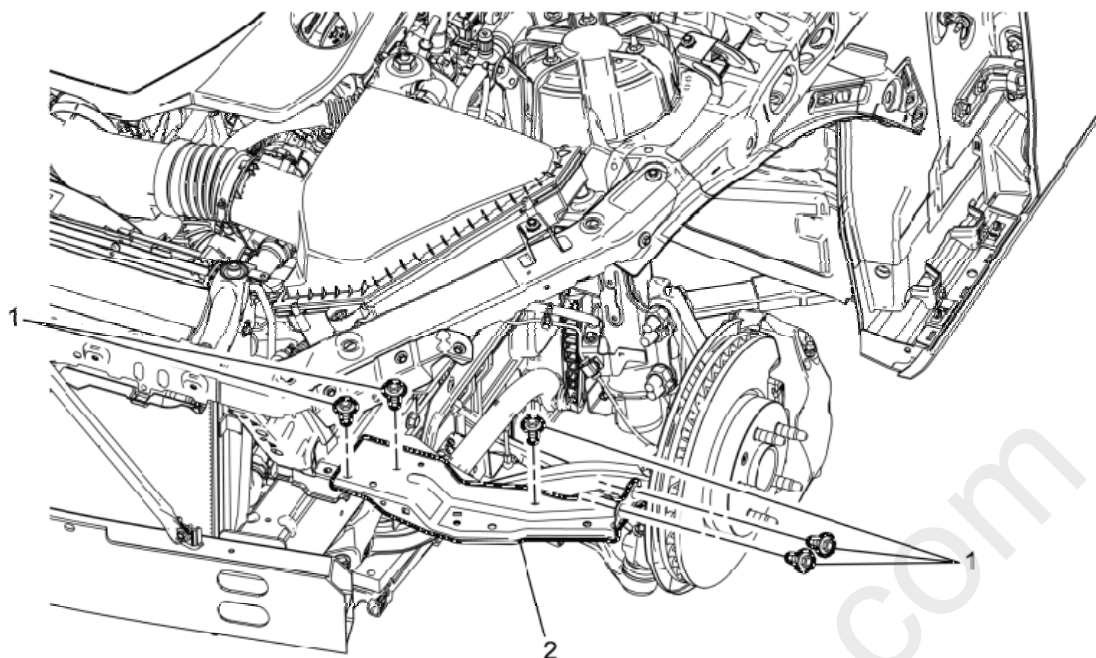


Fig. 5: Front Fender Front Lower Bracket
 Courtesy of GENERAL MOTORS COMPANY

Front Fender Front Lower Bracket 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</u> . 3. If replacing the left side fender brace, remove the air intake splash shield. Refer to <u>Intake Air Splash Shield Replacement</u> , for the 2.0L (LTG) engine or <u>Intake Air Splash Shield Replacement</u> for the 3.6L engine. 4. If replacing the left side fender brace, remove the left hand high note horn. Refer to <u>Horn Replacement (Left Hand High Note)</u> , <u>Horn Replacement (Right Hand Low Note)</u> 5. If replacing the right side fender brace, remove the right hand low note horn. Refer to <u>Horn Replacement (Left Hand High Note)</u> , <u>Horn Replacement (Right Hand Low Note)</u>	
1	Front Fender Front Lower Bracket Bolt (Qty: 5) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 9 (80 lb in)

	Front Fender Front Lower Bracket
2	Procedure 1. Disconnect the electrical harness from the front fender front lower bracket. 2. Transfer parts as needed.

HOOD PRIMARY LATCH RELEASE CABLE REPLACEMENT

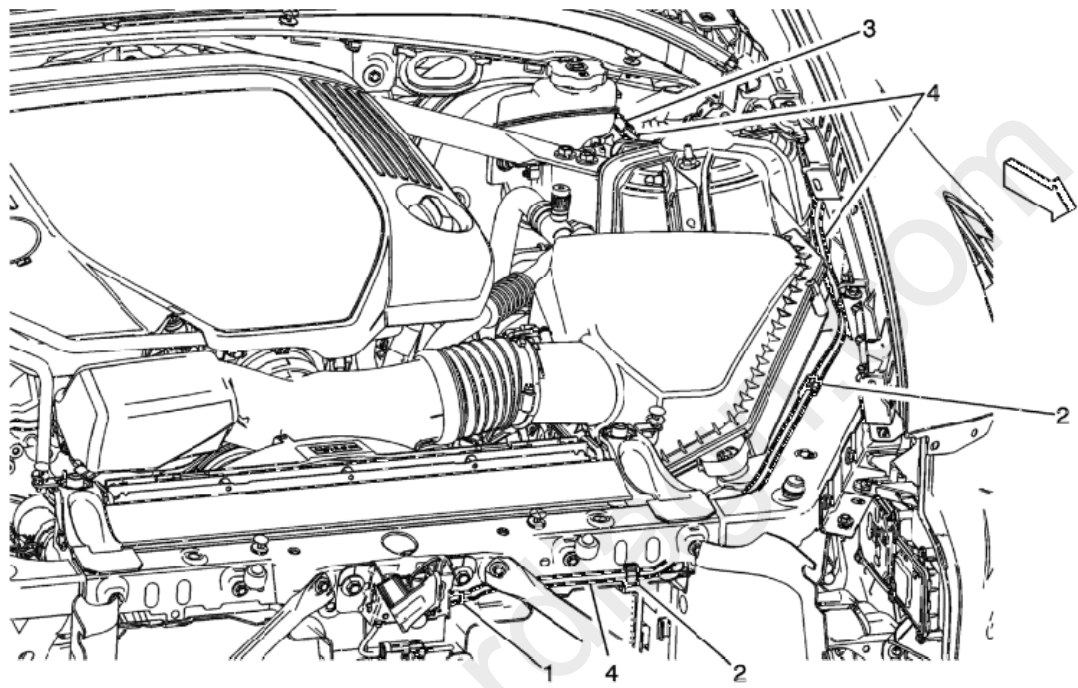


Fig. 6: Hood Primary Latch Release Cable
 Courtesy of GENERAL MOTORS COMPANY

Hood Primary Latch Release Cable Replacement

Callout	Component Name
Preliminary Procedure	
1. Remove the front bumper fascia center support. Refer to <u>Front Bumper Fascia Center Support Replacement (Upper)</u> , <u>Front Bumper Fascia Center Support Replacement (Lower)</u> . 2. Remove the left side instrument panel lower trim panel insulator. Refer to <u>Instrument Panel Lower Trim Panel Insulator Replacement - Left Side</u> 3. Remove the plenum upper panel hole plug.	
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 primary latch release cable from the hood primary latch release cable retainer.
3	Hood Primary Latch Release Cable Grommet
4	Hood Primary Latch Release Cable Procedure Release the cable from the hood primary latch release cable handle.

FRONT SIDE DOOR WINDOW FRAME COVER REPLACEMENT

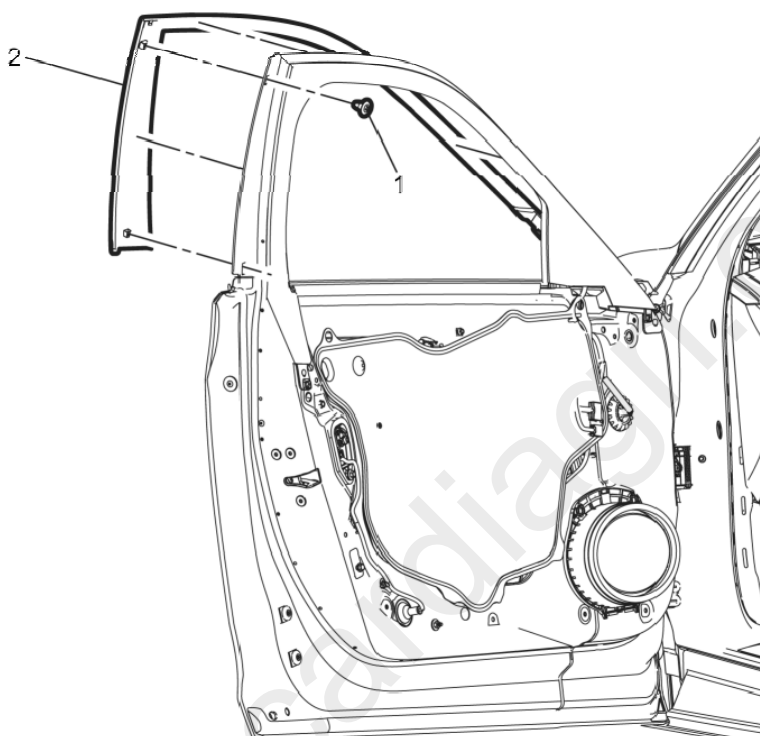


Fig. 7: Front Side Door Window Frame Cover
Courtesy of GENERAL MOTORS COMPANY

Front Side Door Window Frame Cover Replacement

Callout	Component Name
Preliminary Procedures	
1. Remove the front side door window belt reveal molding. Refer to <u>Front Side Door Window Belt Reveal Molding Replacement</u> . 2. It is only necessary to reposition the front side door weatherstrip. Only do those steps in the procedure that will remove the weatherstrip enough to gain access to the screw. Refer to <u>Front Side Door Weatherstrip Replacement - Door Side.</u>	
	Front Side Door Window Frame Cover Screw

1	CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 N.m (22 lb in) NOTE: Use HAND TOOLS ONLY when tightening the fastener.
2	Front Side Door Window Frame Cover 1. Use a suitable tool, remove the frame cover from the vehicle. 2. Use a solution of 50/50 isopropyl alcohol and water to clean the adhesive surface. 3. Peel the protective film from the foam tape and apply the tape to the latch cover. 4. Peel the protective film from the foam tape and insert the latch cover to the vehicle.

REAR SIDE DOOR WINDOW FRAME FRONT COVER REPLACEMENT

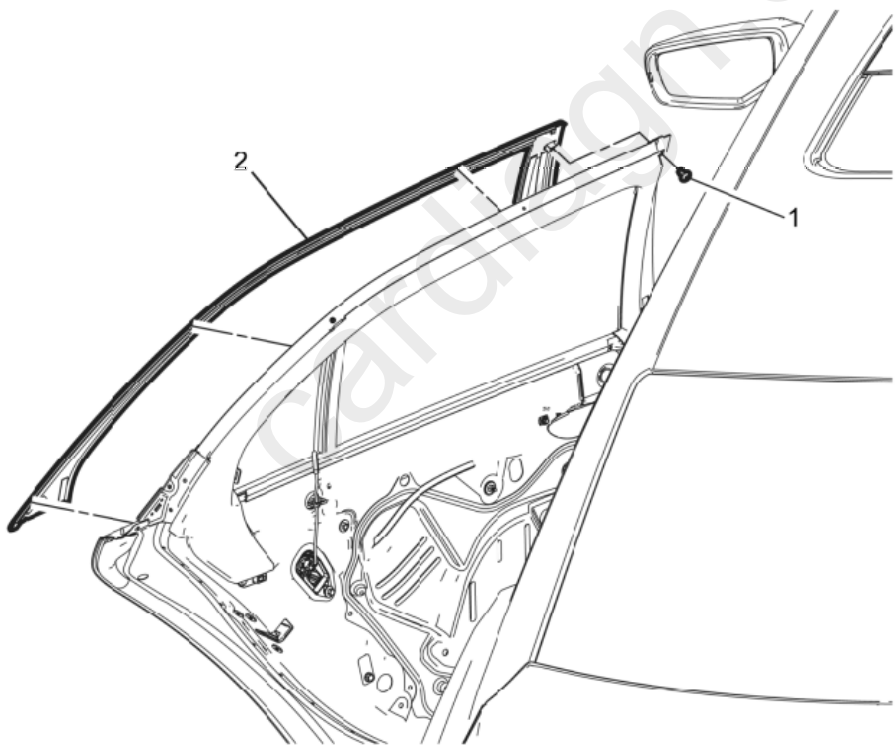


Fig. 8: Rear Side Door Window Frame Front Cover
 Courtesy of GENERAL MOTORS COMPANY

Rear Side Door Window Frame Front Cover Replacement

Callout	Component Name
Preliminary Procedures	

1. Remove the rear side door window belt reveal molding. Refer to **Rear Side Door Window Belt Reveal Molding Replacement** .
2. It is only necessary to reposition the rear side door weatherstrip. Only do those steps in the procedure that will remove the weatherstrip enough to gain access to the screw. Refer to **Rear Side Door Weatherstrip Replacement - Door Side**.

1	Rear Side Door Window Frame Front Cover Screw CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 N.m (22 lb in) NOTE: Use HAND TOOLS ONLY when tightening the fastener
2	Rear Side Door Window Frame Front Cover 1. Use a suitable tool, remove the frame cover from the vehicle. 2. Use a solution of 50/50 isopropyl alcohol and water to clean the adhesive surface. 3. Peel the protective film from the foam tape and apply the tape to the latch cover. 4. Peel the protective film from the foam tape and insert the latch cover to the vehicle.

FRONT SIDE DOOR ADJUSTMENT

Removal Procedure

Up/Down or In/Out Adjustment

1. Open the door.

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.

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

CAUTION: Refer to Fastener Caution .

1. Install the door side hinge bolts.

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

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.
2. Remove the front fender insulator. Refer to Front Fender Insulator Replacement.
3. Loosen the body side hinge bolts, but do not remove the bolts from the door.
4. Adjust the door fore and aft by repositioning the door as needed.

Installation Procedure

CAUTION: Refer to Fastener Caution .

1. Install the body side hinges bolts.

Tighten

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

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

FRONT SIDE DOOR REPLACEMENT

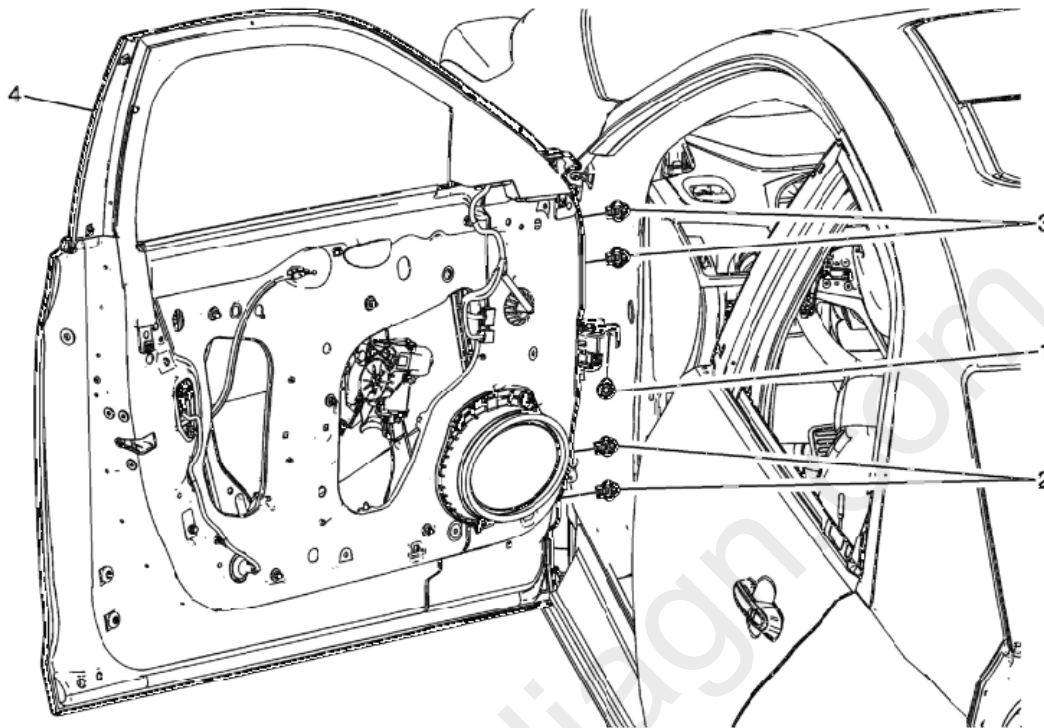


Fig. 9: Front Side Door
Courtesy of GENERAL MOTORS COMPANY

Front Side Door Replacement

Callout	Component Name
WARNING: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.	
Preliminary Procedures 1. Apply masking tape to the fender and door edges. 2. Open the door to the full open position. 3. Disable the supplementary inflatable restraint (SIR) system. Refer to <u>SIR Disabling and Enabling</u> . 4. Disconnect the door electrical connector and reposition door harness boot as needed.	
	Front Side Door Check Link Bolt

1	CAUTION: Refer to <u>Fastener Caution</u> . Procedures 1. Mark the location of the hinge before removing the bolts with a grease pencil. 2. Slide the check link cover rearward to gain access to the check link bolt. Tighten 32 N.m (24 lb ft)
2	Front Side Door Lower Hinge Bolt to Door (Qty: 2) Procedure Support the door before removing the hinge bolts. Tighten 25 N.m (18 lb ft)
3	Front Side Door Upper Hinge Bolt to Door (Qty: 2) Tighten 25 N.m (18 lb ft)
4	Front Side Door Procedures 1. With an assistant, remove the door. 2. Transfer all necessary components. 3. Adjust the door if needed. Refer to <u>Front Side Door Adjustment</u>. 4. Adjust the door striker if needed. Refer to <u>Front Side Door Lock Striker Adjustment</u> . NOTE: Inspect the door for proper operation before installing the door trim.

REAR SIDE DOOR ADJUSTMENT

Removal Procedure

Up/Down or In/Out Adjustment

1. Open the door.

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 quarter panel edge and the door edges.

Loosen the door side hinge bolts.

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

CAUTION: Refer to Fastener Caution .

1. Install the door side hinge bolts.

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

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 quarter panel edge and door edges.

Loosen the body side hinge bolts.

Do not remove the bolts from the door.

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

Installation Procedure

CAUTION: Refer to Fastener Caution .

1. Install the body side hinges bolts.

Tighten

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

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

REAR SIDE DOOR REPLACEMENT

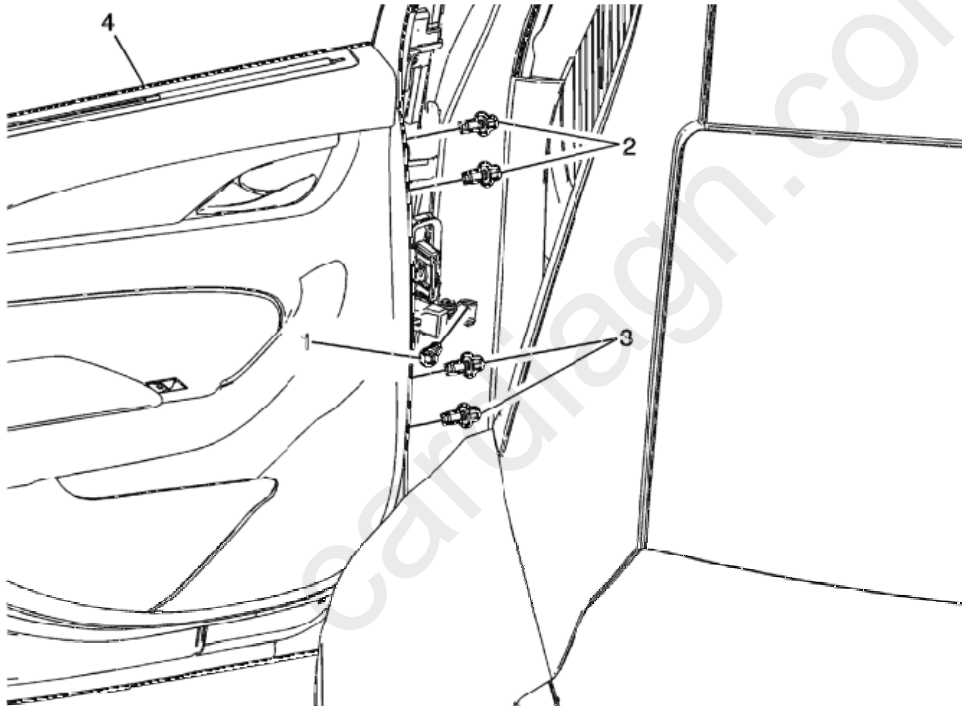


Fig. 10: Rear Side Door

Courtesy of GENERAL MOTORS COMPANY

Rear Side Door Replacement

Callout	Component Name
WARNING: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.	

Preliminary Procedures

1. Apply masking tape around the perimeter of painted surfaces.
2. Open the front side door to the full open position.
3. Disable the supplementary inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling** .
4. Disconnect the door electrical connector and reposition door harness boot as needed.

1	Rear Side Door Check Link Bolt CAUTION: Refer to <u>Fastener Caution</u> . Procedures 1. Mark the location of the hinge before removing the bolts with a grease pencil. 2. Slide the check link cover rearward to gain access to the check link bolt. Tighten 32 N.m (24 lb ft)
2	Rear Side Door Upper Hinge Bolt to Door (Qty: 2) Procedure Support the door before removing the hinge bolts. Tighten 25 N.m (18 lb ft)
3	Rear Side Door Lower Hinge Bolt to Door (Qty: 2) Tighten 25 N.m (18 lb ft)
4	Rear Side Door Procedures 1. With an assistant, remove the door. 2. Transfer all necessary components. 3. Adjust the door if needed. Refer to <u>Rear Side Door Adjustment</u>. 4. Adjust the door striker if needed. Refer to <u>Rear Side Door Lock Striker Adjustment</u> . NOTE: Inspect the door for proper operation before installing the door trim.

FRONT FENDER REPLACEMENT

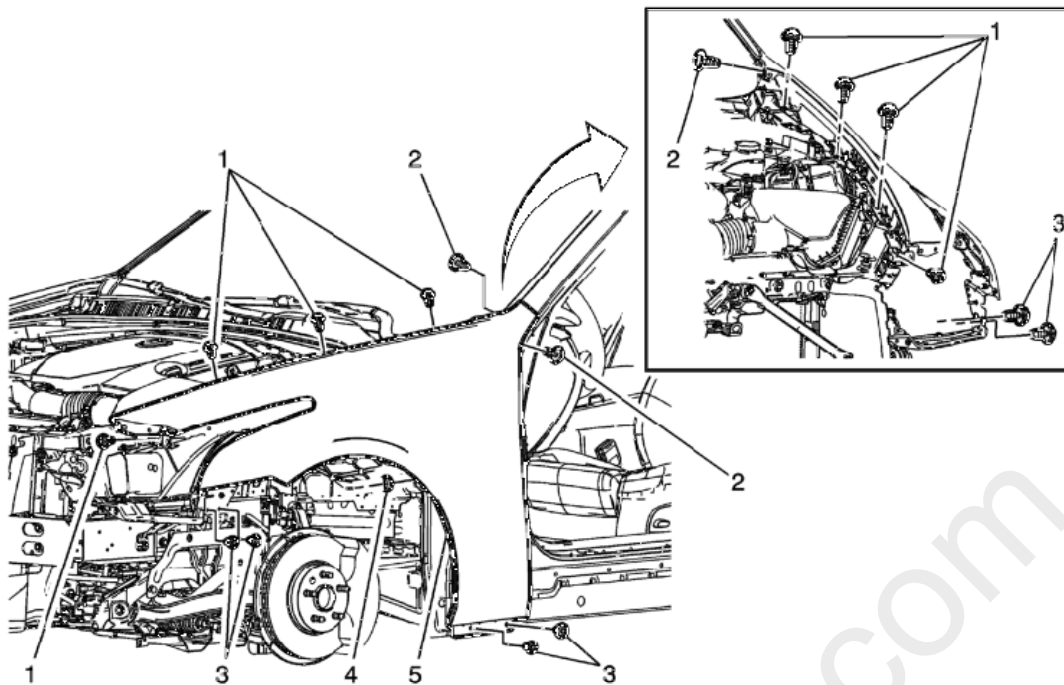


Fig. 11: Front Fender
 Courtesy of GENERAL MOTORS COMPANY

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 air inlet grille panel. Refer to <u>Air Inlet Grille Panel Replacement</u> . 3. Remove the headlamp. Refer to <u>Headlamp Replacement</u> . 4. Remove the front fender insulator. Refer to <u>Front Fender Insulator Replacement</u>. 5. Remove the rocker panel molding. Refer to <u>Rocker Panel Molding Replacement</u>	
1	Front Fender Upper Bolt (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 9 (80 lb in)
2	Front Fender Rear Bolt (Qty: 2) Tighten 9 (80 lb in)
	Front Fender Lower Bolt (Qty: 4)

3	Tighten 9 (80 lb in)
4	Front Fender Nut Tighten 9 (80 lb in)
5	Front Fender Procedure Transfer parts as needed.

FRONT SIDE DOOR WIRING HARNESS REPLACEMENT

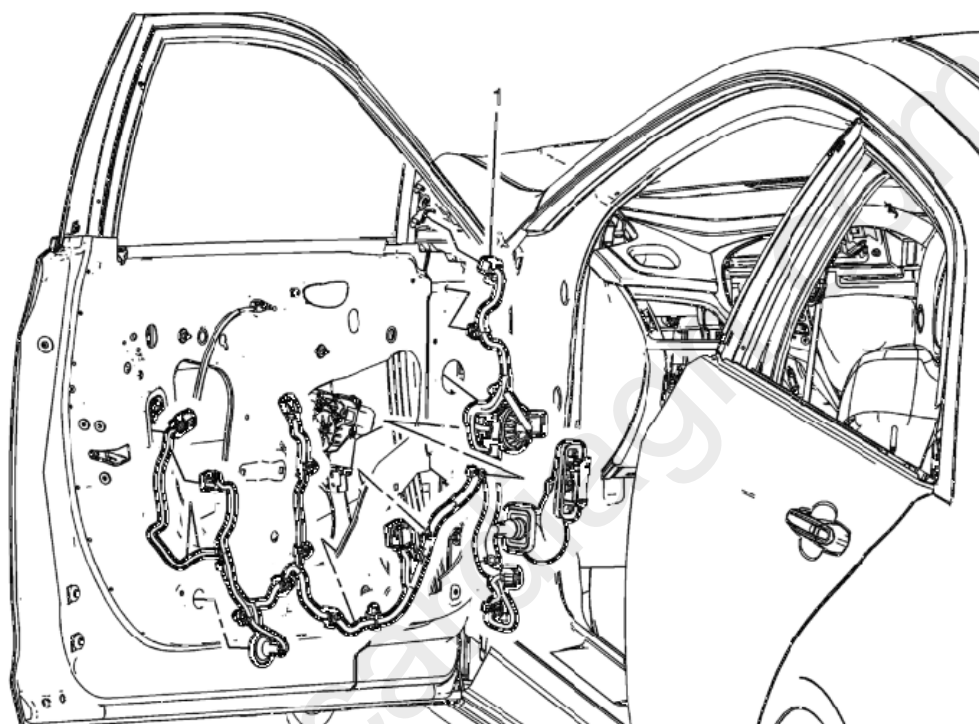


Fig. 12: Front Side Door Wiring Harness
Courtesy of GENERAL MOTORS COMPANY

Front Side Door Wiring Harness Replacement

Callout	Component Name
Preliminary Procedures	
1. Remove the front side door window garnish molding. Refer to <u>Front Side Door Window Garnish Molding Replacement</u> . 2. Remove the front side door speaker. Refer to <u>Radio Front Speaker Replacement</u> . 3. Remove the front side door water deflector.	
1	Front Side Door Wiring Harness Procedure

Disconnect electrical connectors.

FRONT SIDE DOOR UPPER HINGE AND LOWER HINGE REPLACEMENT

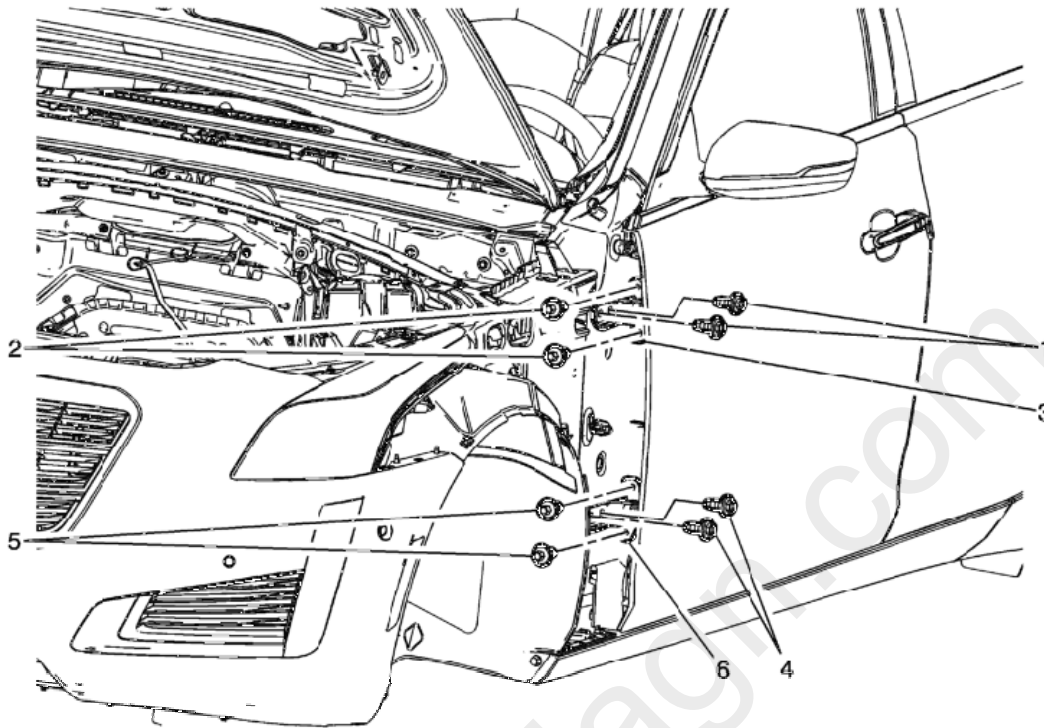


Fig. 13: Front Side Door Upper Hinge and Lower Hinge
Courtesy of GENERAL MOTORS COMPANY

Front Side Door Upper Hinge and Lower Hinge Replacement

Callout	Component Name
Preliminary Procedures	
1. Remove the front fender. Refer to Front Fender Replacement. 2. Mark the location of the hinge before removing the bolts with a grease pencil.	
1	Front Side Door Upper Hinge Bolt to Body (Qty: 2) CAUTION: Refer to Fastener Caution . Procedures 1. Keep door in closed position. 2. Replace one hinge at a time.

	Tighten 32 N.m (24 lb ft)
2	Front Side Door Upper Hinge Bolt to Door (Qty: 2) Tighten 25 N.m (18 lb ft)
3	Front Side Door Upper Hinge
4	Front Side Door Lower Hinge Bolt to Body (Qty: 2) Tighten 32 N.m (24 lb ft)
5	Front Side Door Lower Hinge Bolt to Door (Qty: 2) Tighten 25 N.m (18 lb ft)
6	Front Side Door Lower Hinge Procedure 1. Check the door for proper alignment, adjust as necessary. Refer to <u>Front Side Door Adjustment</u>. 2. If the door striker needs adjusting. Refer to <u>Front Side Door Lock Striker Adjustment</u>. NOTE: Inspect the door for proper operation.

HOOD HINGE REPLACEMENT

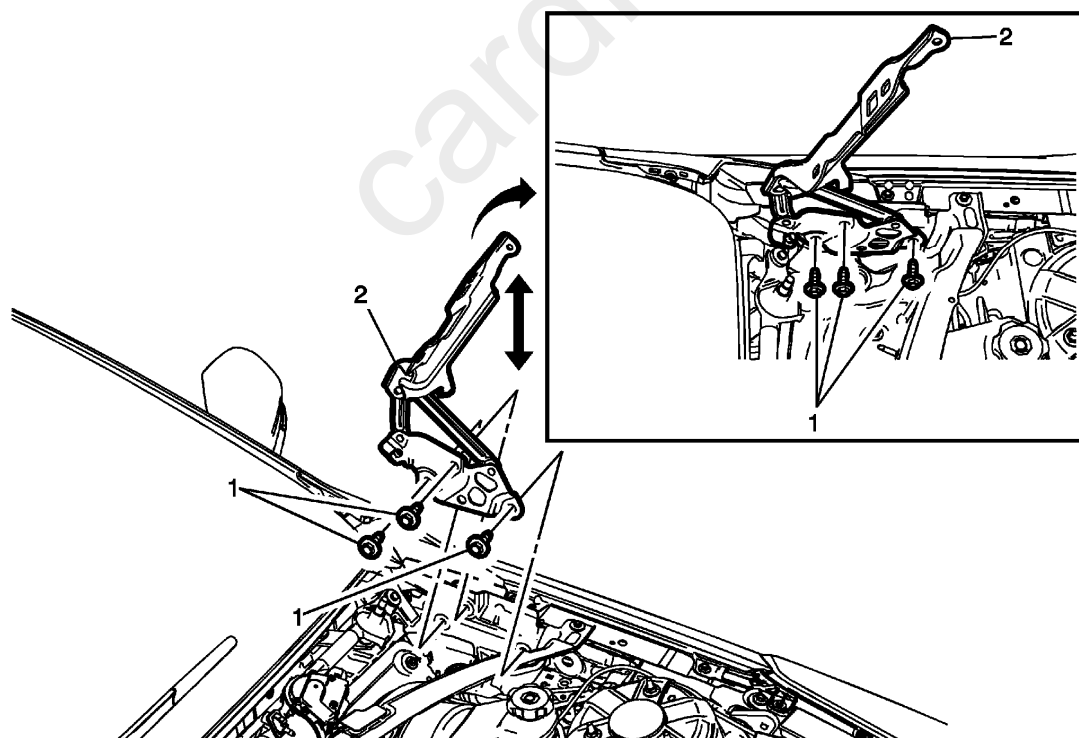


Fig. 14: Hood Hinge

Courtesy of GENERAL MOTORS COMPANY

Hood Hinge Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the hood. Refer to <u>Hood Replacement</u>. 2. Remove the air inlet grille panel. Refer to <u>Air Inlet Grille Panel Replacement</u>. 3. Remove the left and right hand plenum side panel. Refer to <u>Plenum Side Panel Replacement - Left Side</u>, <u>Plenum Side Panel Replacement - Right Side</u>	
1	Hood Hinge Bolt (Qty: 3) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 22 (16 lb ft)
2	Hood Hinge Procedure Adjust the hood and hinge if needed. Refer to <u>Hood Adjustment</u> .

REAR COMPARTMENT LID HINGE REPLACEMENT

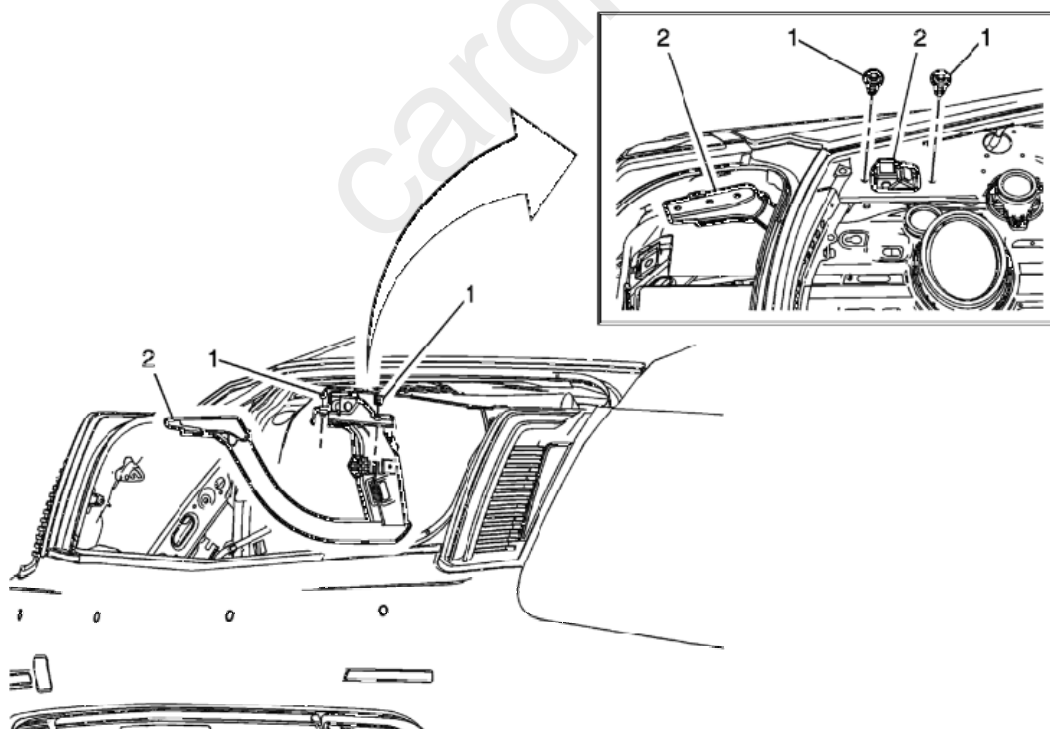


Fig. 15: Rear Compartment Lid Hinge
 Courtesy of GENERAL MOTORS COMPANY

Rear Compartment Lid Hinge Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the rear compartment lid. Refer to <u>Rear Compartment Lid Replacement</u>. 2. Remove the rear window panel trim. Refer to <u>Rear Window Panel Trim Replacement (With DB3)</u> , <u>Rear Window Panel Trim Replacement (Without DB3)</u> . 3. Remove the rear compartment lid hinge spring. Refer to <u>Rear Compartment Lid Hinge Spring Replacement</u>. 4. If servicing the right rear compartment lid hinge, disconnect the rear compartment lid strut from the hinge. Refer to <u>Rear Compartment Lid Strut Replacement</u>	
1	Rear Compartment Lid Hinge Bolt (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> Tighten 9 (80 lb in)
2	Rear Compartment Lid Hinge 1. If servicing the right hinge, remove the harness from the hinge tube. 2. Adjust the rear compartment lid if needed. Refer to <u>Rear Compartment Lid Adjustment</u>

REAR COMPARTMENT LID HINGE SPRING REPLACEMENT

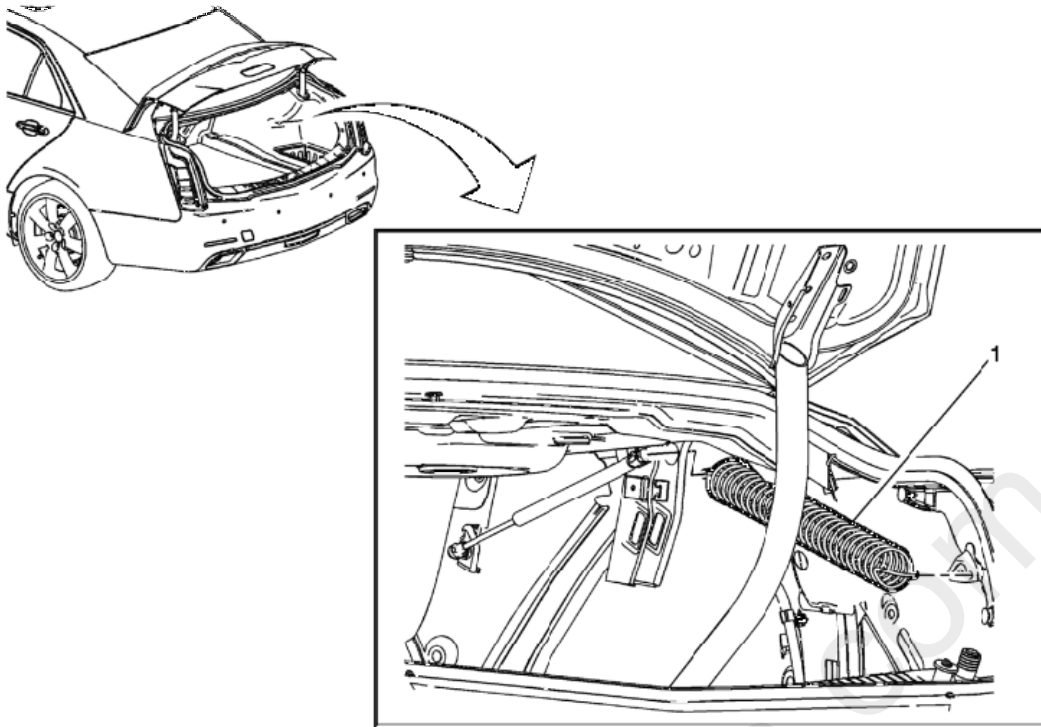


Fig. 16: Rear Compartment Lid Hinge Spring
 Courtesy of GENERAL MOTORS COMPANY

Rear Compartment Lid Hinge Spring Replacement

Callout	Component Name
WARNING: Refer to <u>Eye Protection Warning</u> .	
Preliminary Procedures	
1. Reposition the left side rear compartment side trim panel enough to gain access to the left side spring. Refer to <u>Rear Compartment Side Trim Replacement - Left Side</u> . 2. Reposition the right side rear compartment side trim panel enough to gain access to the right side spring. Refer to <u>Rear Compartment Side Trim Replacement - Right Side</u> .	
1	Rear Compartment Lid Hinge Spring Procedure 1. Pull the rear compartment lid spring backwards and unhook the rear compartment lid spring from the rear compartment lid hinge spring bracket. NOTE: There are two possible tension settings for the spring that will affect the speed the compartment lid will open. The factory installed tension is the slot toward the front of the vehicle. To increase the opening speed, place the springs in the slot most rearward.

REAR SIDE DOOR UPPER HINGE AND LOWER HINGE REPLACEMENT

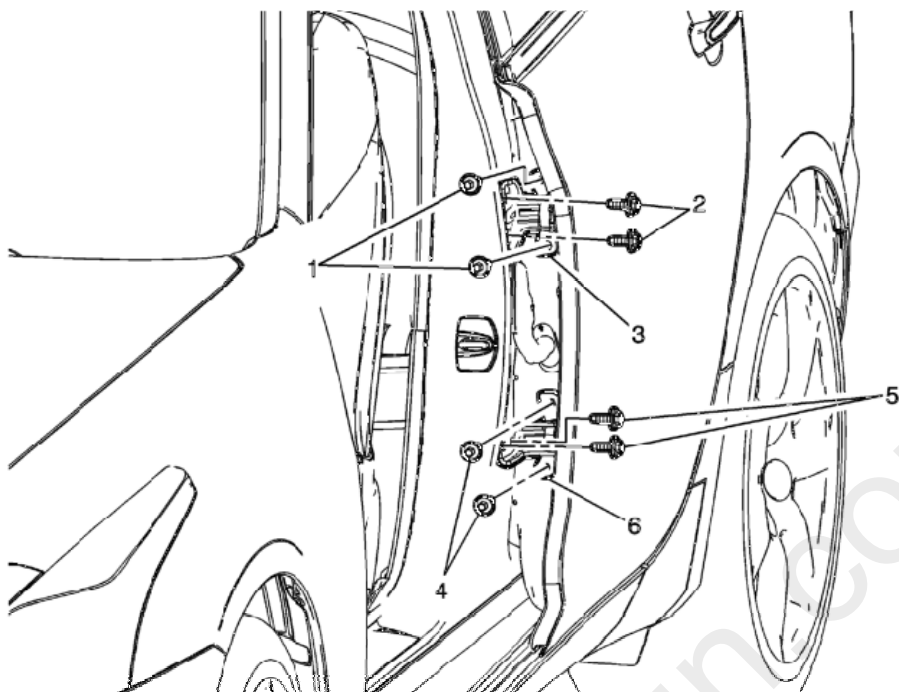


Fig. 17: Rear Side Door Upper Hinge and Lower Hinge
Courtesy of GENERAL MOTORS COMPANY

Rear Side Door Upper Hinge and Lower Hinge Replacement

Callout	Component Name
1	Rear Side Door Upper Hinge to Door Bolt (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> . Procedures 1. Mark the location of the hinge being removed. 2. Keep door in closed position. 3. Replace one hinge at a time. Tighten 25 N.m (18 lb ft)
2	Rear Side Door Upper Hinge to Body Bolt (Qty: 2) Tighten 32 N.m (24 lb ft)

3	Rear Side Door Upper Hinge
4	Rear Side Door Lower Hinge to Door Bolt (Qty: 2) Tighten 25 N.m (18 lb ft)
5	Rear Side Door Lower Hinge to Body Bolt (Qty: 2) Tighten 32 N.m (24 lb ft)
6	Rear Side Door Lower Hinge Procedure 1. Check the door for proper alignment, adjust as necessary. Refer to <u>Rear Side Door Adjustment.</u> 2. If the door striker needs adjusting. Refer to <u>Rear Side Door Lock Striker Adjustment .</u> NOTE: Inspect the door for proper operation.

HOOD ADJUSTMENT

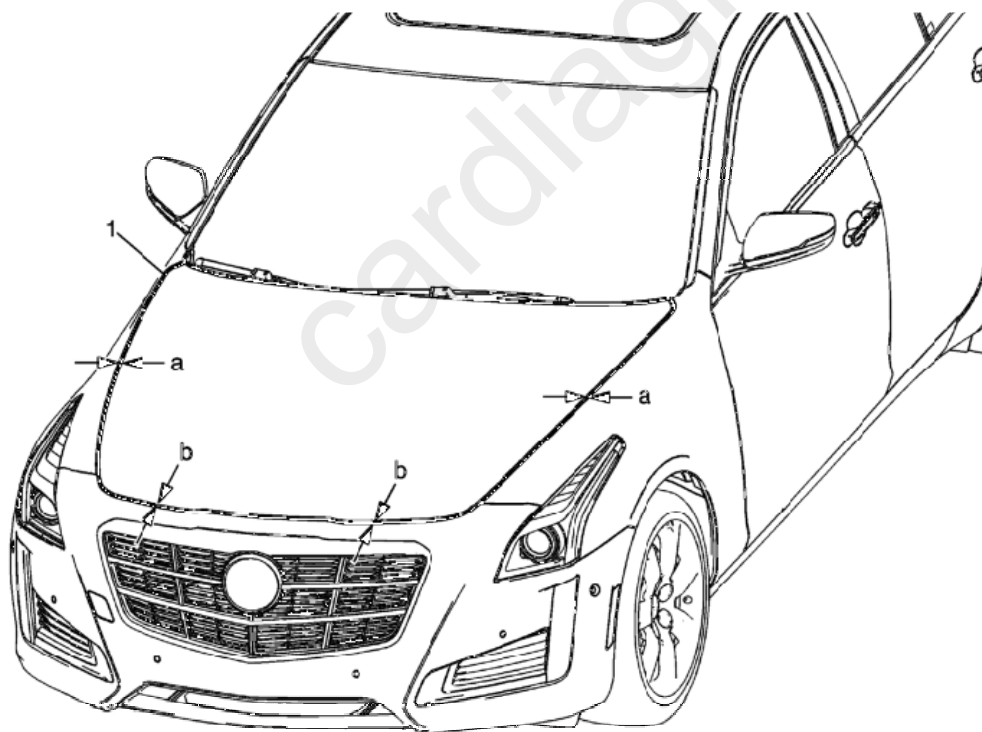


Fig. 18: Hood Adjustment

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 bolts. 2. Adjust the hood in order to obtain an even gap on both sides between the hood and the fenders, and the front bumper fascia and so that the hood is flush with both fenders on the front edge, the front bumper fascia. 3. Loosen and adjust the hood primary and secondary latch and the hood bumpers as necessary to obtain the adjustment. Adjustment: • Hood to front fender (a) 3.0 mm $\pm$.75 mm (0.12 in $\pm$ 0.03 in) • Hood to front fascia (b) 3.0 mm $\pm$ 1.0 mm (0.12 in $\pm$ 0.04 in) Tighten 22 (16 lb ft)

HOOD REPLACEMENT

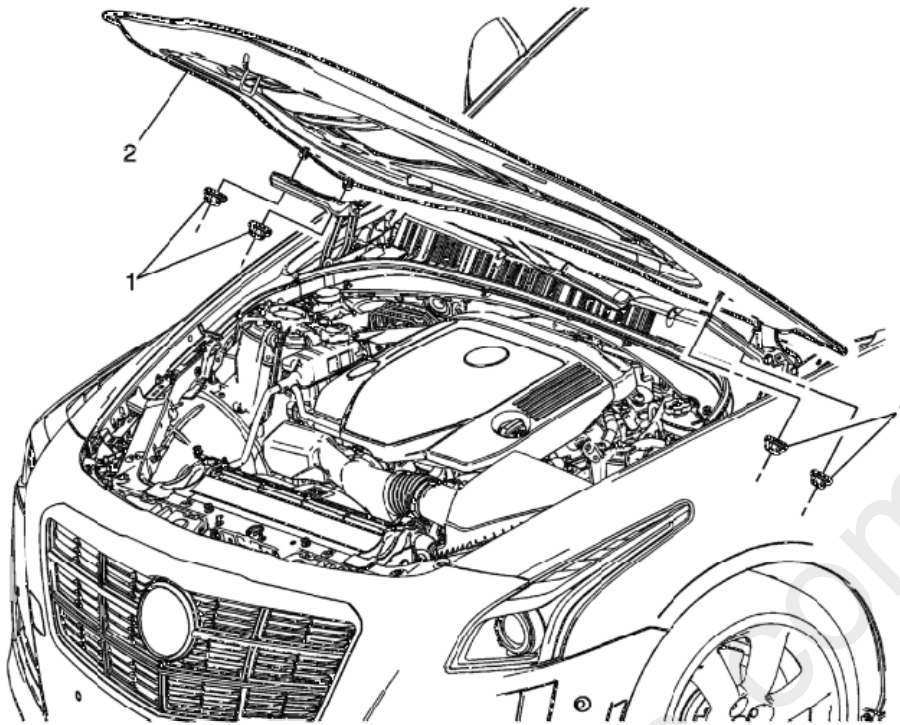


Fig. 19: Hood

Courtesy of GENERAL MOTORS COMPANY

Hood Replacement

Callout	Component Name
Preliminary Procedure Disconnect the hood struts from the hood. Refer to <u>Hood Strut Replacement</u>	
1	Hood Hinge Nut (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> . Procedure Mark the hood or hinge position in order to aid in hood installation. Tighten 22 (16 lb ft)
2	Hood Procedure 1. Remove the hood from the vehicle with the aid of an assistant. 2. Transfer parts as needed. 3. Adjust the hood if needed. Refer to <u>Hood Adjustment</u>.

FRONT FENDER INSULATOR REPLACEMENT

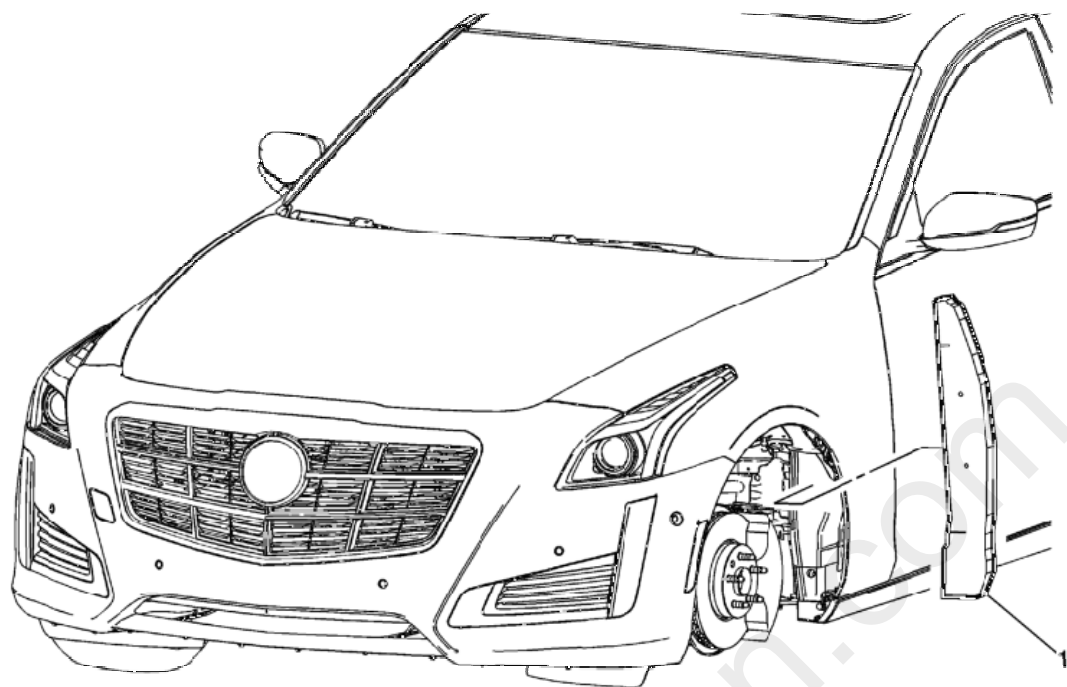


Fig. 20: Front Fender Insulator
Courtesy of GENERAL MOTORS COMPANY

Front Fender Insulator Replacement

Callout	Component Name
Preliminary Procedure Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement . If replacing the right side fender insulator, remove the windshield washer solvent container. Refer to Windshield Washer Solvent Container Replacement	
1	Front Fender Insulator Procedure 1. Grasp the front fender insulator and pull from the rear of the fender. 2. Firmly press the fender insulator into the rear of the fender until fully seated.

HOOD INSULATOR REPLACEMENT

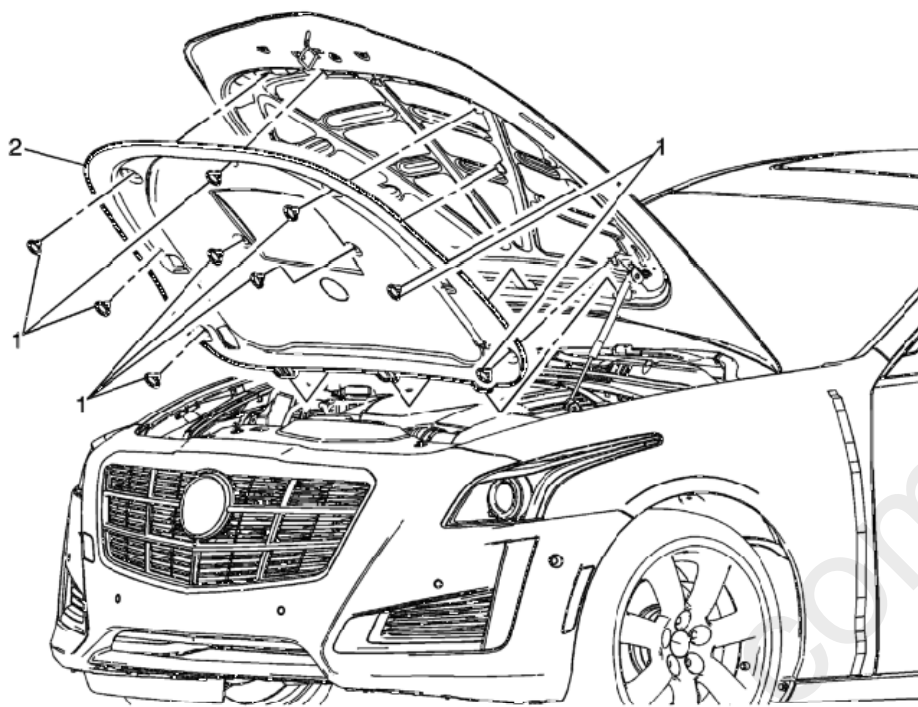


Fig. 21: Hood Insulator

Courtesy of GENERAL MOTORS COMPANY

Hood Insulator Replacement

Callout	Component Name
Preliminary Procedure	
Disconnect both hood struts from hood. Refer to <u>Hood Strut Replacement</u>	
1	Hood Insulator Plastic Retainer (Qty: 9)
2	Hood Insulator Procedure Ensure the 3 integral tabs are secured to the hood.

HOOD PRIMARY AND SECONDARY LATCH REPLACEMENT

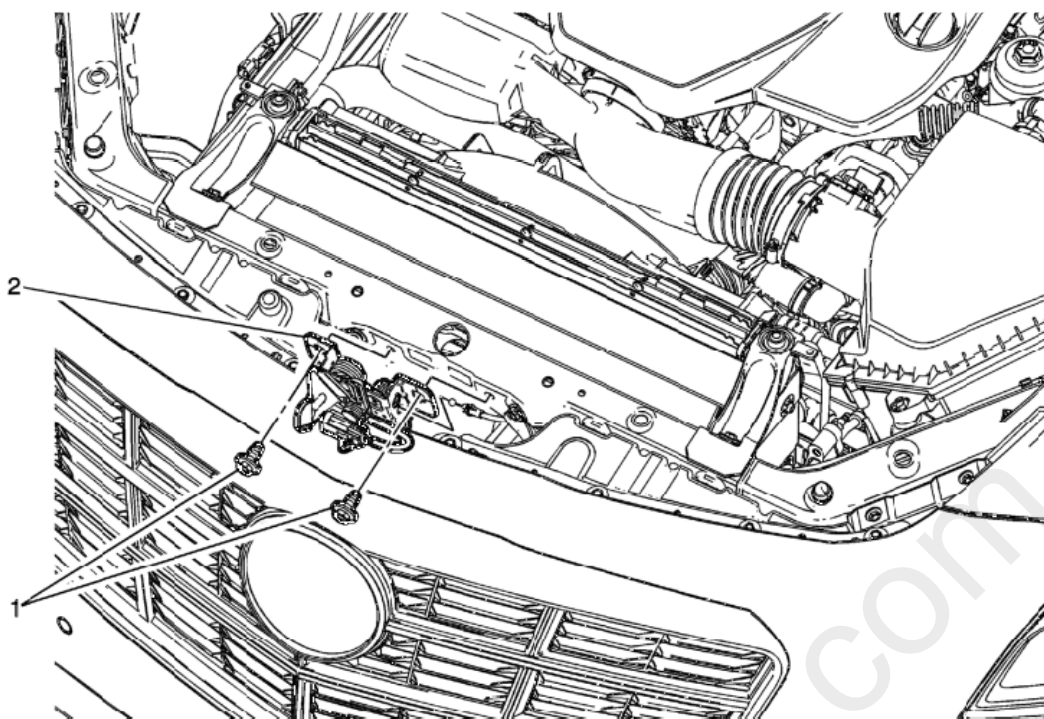


Fig. 22: Hood Primary and Secondary Latch
 Courtesy of GENERAL MOTORS COMPANY

Hood Primary and Secondary Latch Replacement

Callout	Component Name
Preliminary Procedure Remove the front compartment front sight shield. Refer to <u>Front Compartment Front Sight Shield Replacement</u> .	
1	Hood Primary and Secondary Latch Bolt (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> . 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. 3. Adjust the hood as necessary. Refer to <u>Hood Adjustment</u>.

REAR COMPARTMENT LID ADJUSTMENT

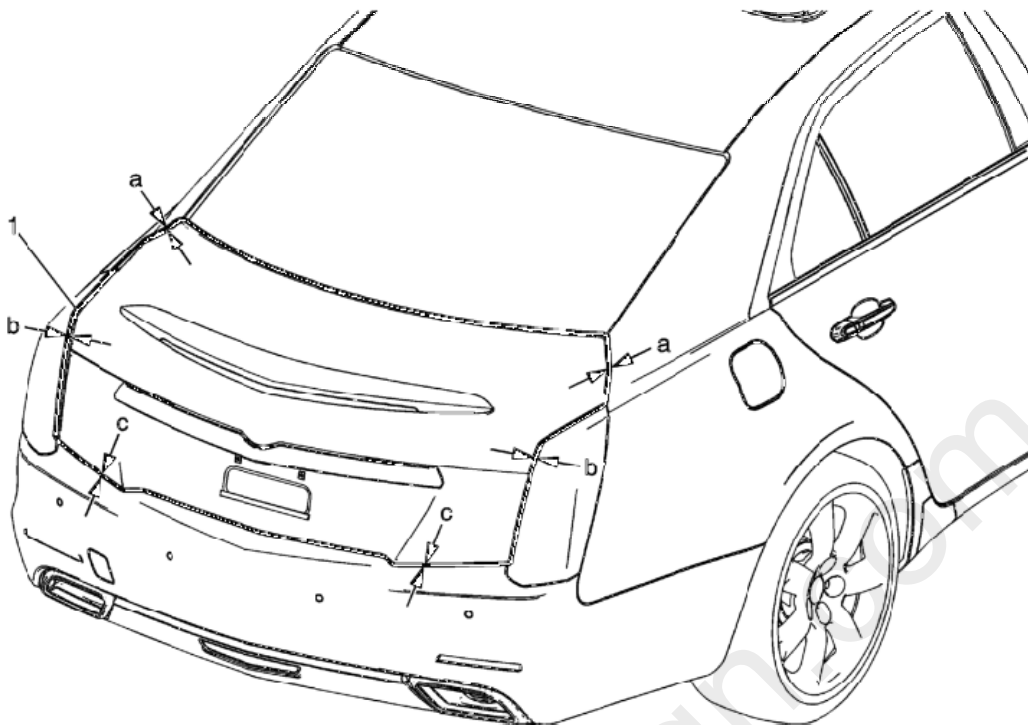


Fig. 23: Rear Compartment Lid
Courtesy of GENERAL MOTORS COMPANY

Rear Compartment Lid Adjustment

Callout	Component Name
Preliminary Procedures	
1. Remove the rear compartment inner panel trim. Refer to <u>Rear Compartment Lid Inner Panel Trim Replacement</u> .	
2. Remove the rear end trim finish panel. Refer to <u>Rear End Trim Finish Panel Replacement</u> .	
1	Rear Compartment Lid CAUTION: Refer to <u>Fastener Caution</u> Procedure 1. Loosen the rear compartment lid hinge bolts (Qty: 4) to perform adjustments (a) and (b). Loosen the rear compartment latch striker bolts to perform adjustment (c). 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 tail lamp, and the rear bumper fascia and so that the rear compartment lid is flush with the quarter outer panel, the rear tail 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 $\pm$ 1.0 mm (0.12 in $\pm$ 0.04 in) • Rear compartment lid to rear bumper fascia (c) 5.5 mm $\pm$ 1.5 mm (0.22 in $\pm$ 0.06 in)
	Tighten 9 (80 lb in)

REAR COMPARTMENT LID REPLACEMENT

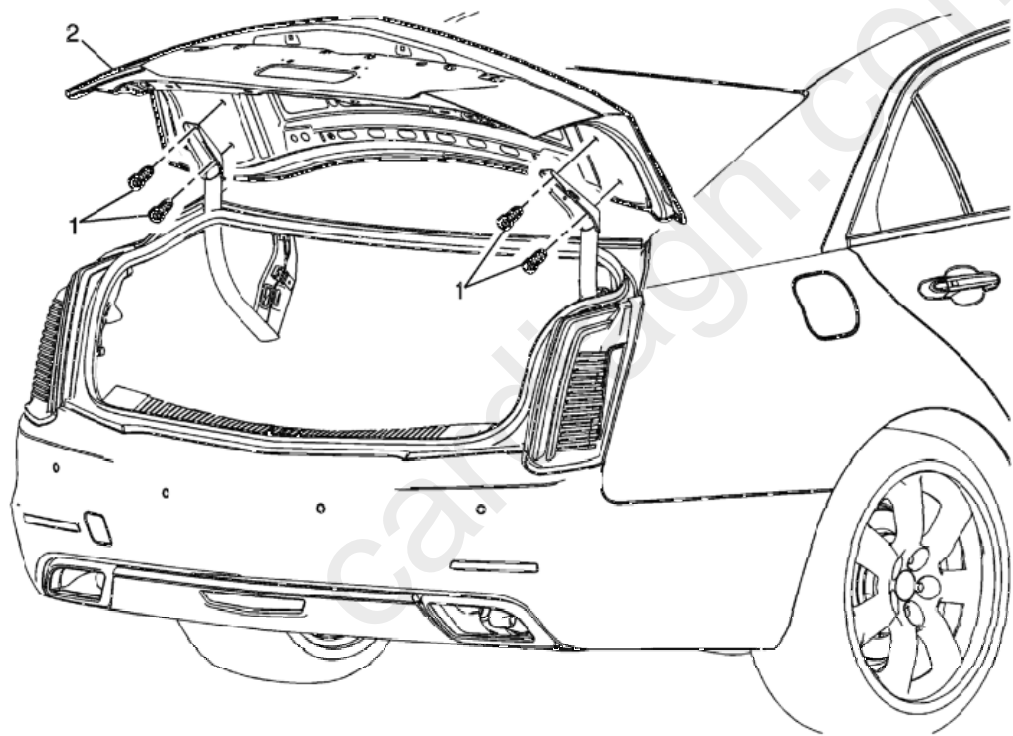


Fig. 24: Rear Compartment Lid
 Courtesy of GENERAL MOTORS COMPANY

Rear Compartment Lid Replacement

Callout	Component Name
Preliminary Procedures	
1.	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)

1	CAUTION: Refer to <u>Fastener Caution</u> . Tighten 9 (80 lb in)
2	Rear Compartment Lid Procedure 1. Disconnect the electrical connectors and harness retainers. 2. Remove the electrical harness from the rear compartment lid. 3. Remove the rear compartment with the aid of an assistant. 4. Transfer parts as needed. 5. Adjust the rear compartment lid if needed. Refer to <u>Rear Compartment Lid Adjustment</u>.

FRONT SIDE DOOR CHECK LINK REPLACEMENT

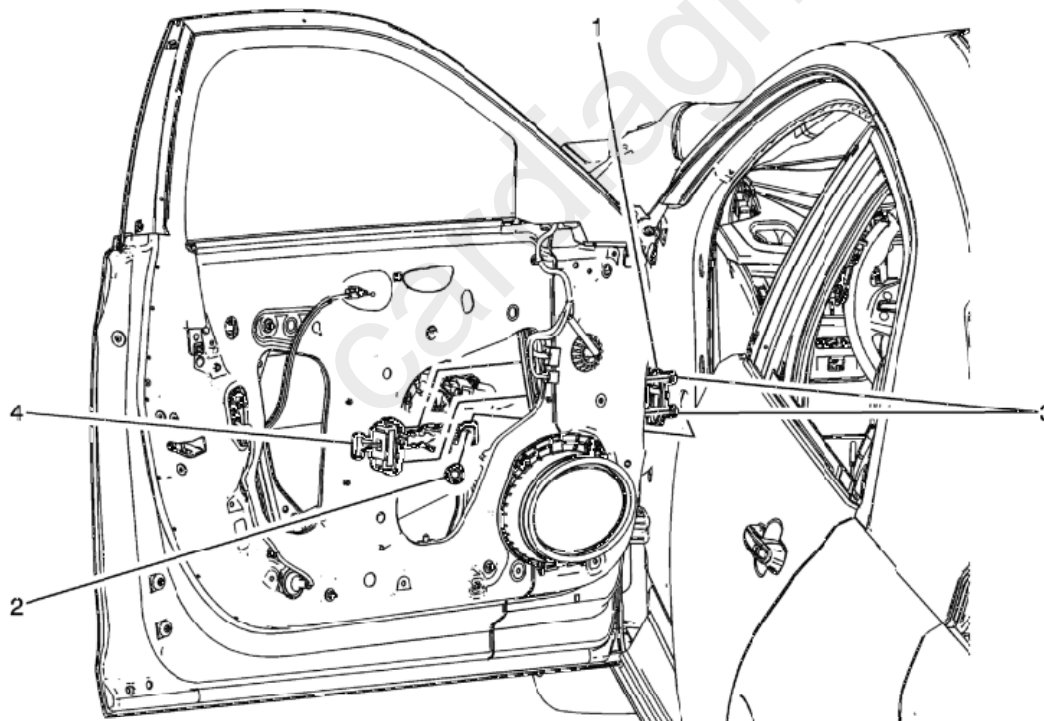


Fig. 25: Front Side Door Check Link
Courtesy of GENERAL MOTORS COMPANY

Front Side Door Check Link Replacement

Callout	Component Name
Preliminary Procedures 1. Open the front side door to the full open position. 2. Place the front side door window in the full closed position. 3. Remove the front side door trim. Refer to <u>Front Side Door Trim Replacement</u> . 4. Remove the front side door water deflector.	
1	Front Side Door Check Link Grommet
2	Front Side Door Check Link Bolt CAUTION: Refer to <u>Fastener Caution</u> . Procedure Slide front side door check link cover away from frame. Tighten 32 N.m (24 lb ft)
3	Front Side Door Check Link Nut (Qty: 2) Tighten 11.5 N.m (9 lb ft)
4	Front Side Door Check Link Procedure Remove the front side door check link cover. Refer to <u>Front Side Door Check Link Cover Replacement</u> . NOTE: Inspect the door for proper operation before installing the door trim.

REAR SIDE DOOR CHECK LINK REPLACEMENT

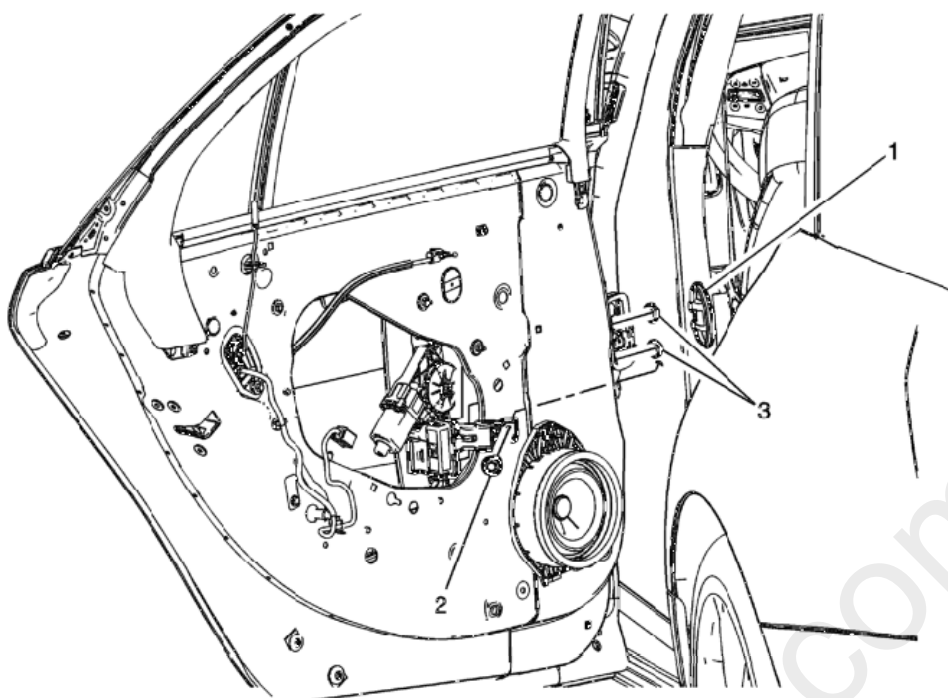


Fig. 26: Rear Side Door Check Link

Courtesy of GENERAL MOTORS COMPANY

Rear Side Door Check Link Replacement

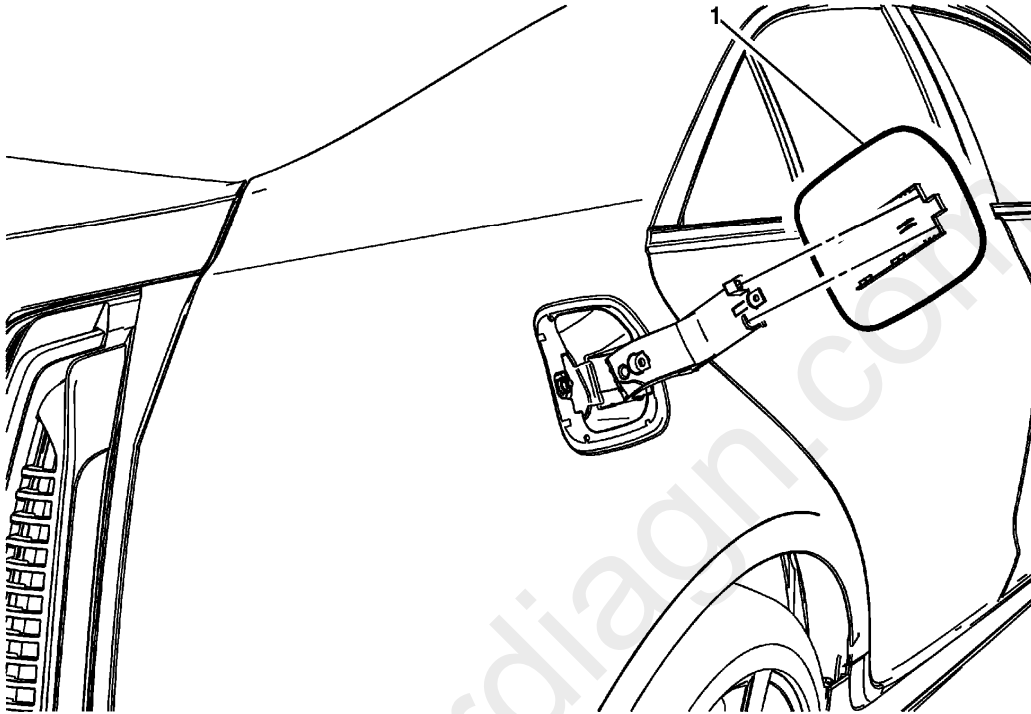
Callout	Component Name
Preliminary Procedures	
1. Open the rear side door to the full open position. 2. Remove the rear side door trim panel. Refer to <u>Rear Side Door Trim Replacement</u> . 3. Remove the rear side radio speaker. Refer to <u>Radio Rear Side Door Speaker Replacement</u> .	
1	Rear Side Door Check Link Grommet
2	Rear Side Door Check Link Bolt CAUTION: Refer to <u>Fastener Caution</u> . Procedure Slide rear side door check link cover away from frame. Tighten 32 N.m (24 lb ft)
3	Rear Side Door Check Link Nut (Qty: 2) Tighten 11.5 N.m (9 lb ft)

4

Rear Side Door Check Link

NOTE:

Inspect the door for proper operation before installing the door trim.

FUEL TANK FILLER DOOR REPLACEMENT**Fig. 27: Fuel Tank Filler Door**

Courtesy of GENERAL MOTORS COMPANY

Fuel Tank Filler Door Replacement

Callout	Component Name
1	Fuel Tank Filler Door 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

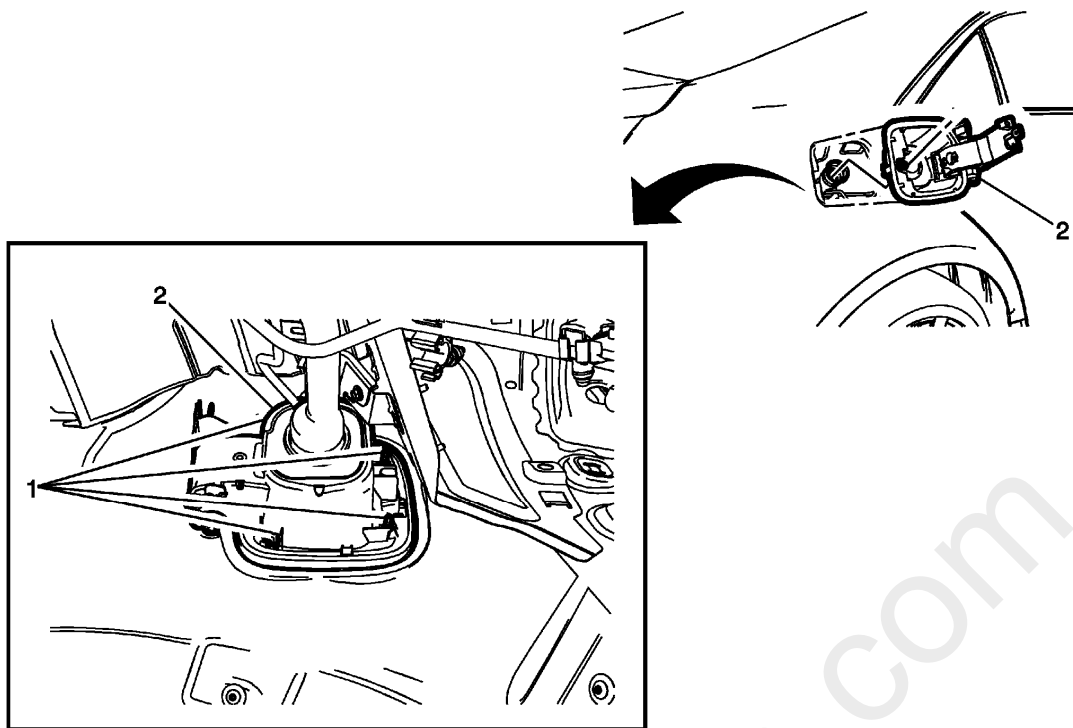


Fig. 28: Fuel Tank Filler Pipe Housing
 Courtesy of GENERAL MOTORS COMPANY

Fuel Tank Filler Pipe Housing Replacement

Callout	Component Name
Preliminary Procedures	
1. Remove the fuel tank filler door. Refer to <u>Fuel Tank Filler Door Replacement</u> . 2. Loosen the lower filler pipe bolt and remove the upper filler pipe bolt. Refer to <u>Fuel Tank Filler Pipe Replacement</u> .	
1	Fuel Tank Filler Pipe Housing Retainer (Qty: 4) Procedure - Using a flat-bladed tool, release the fuel tank filler pipe housing retainers through the wheelhouse opening. - Disconnect the electrical connector if equipped with a locking actuator. - Transfer the actuator if equipped.
2	Fuel Tank Filler Pipe Housing Procedure - Position the fuel tank filler pipe housing to the panel and the fuel filler pipe. - Press the fuel tank filler pipe housing to the panel until fully seated.

3. Ensure the fuel tank filler pipe housing seal is fully seated to the filler pipe.
4. Connect electrical connector to the locking actuator if equipped.

HOOD STRUT REPLACEMENT

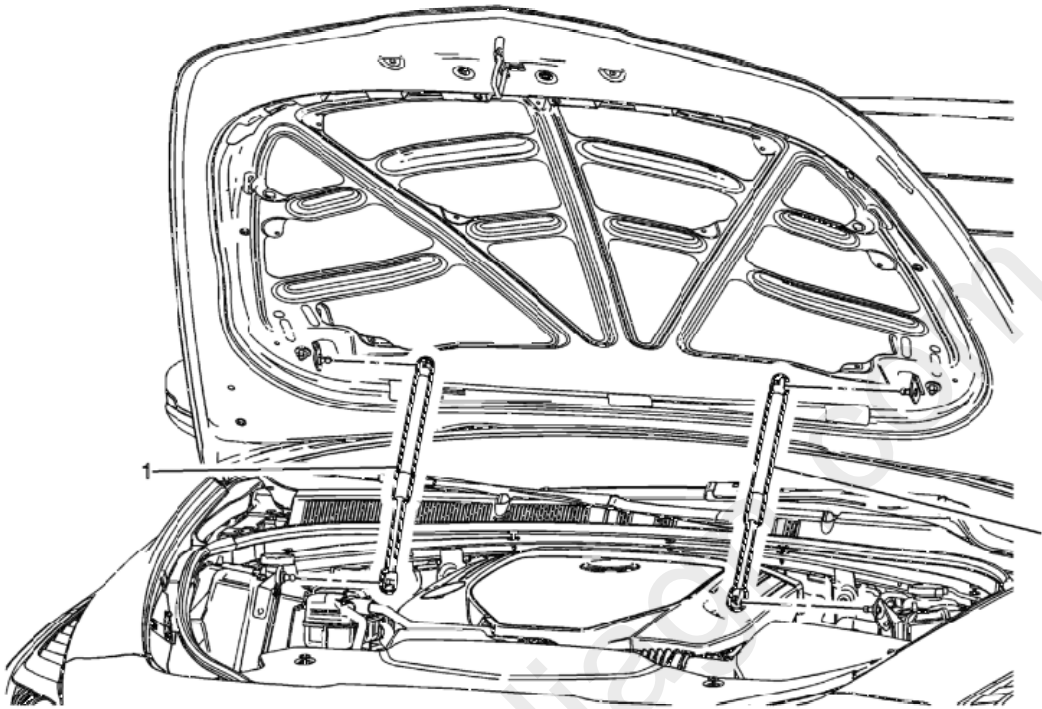


Fig. 29: Hood Strut

Courtesy of GENERAL MOTORS COMPANY

Hood Strut Replacement

Callout	Component Name
1	Hood Strut (Qty 2) 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. Procedure Remove the metal clip at the ends of the hood strut, then pull away from the stud.

HOOD FRONT SEAL REPLACEMENT

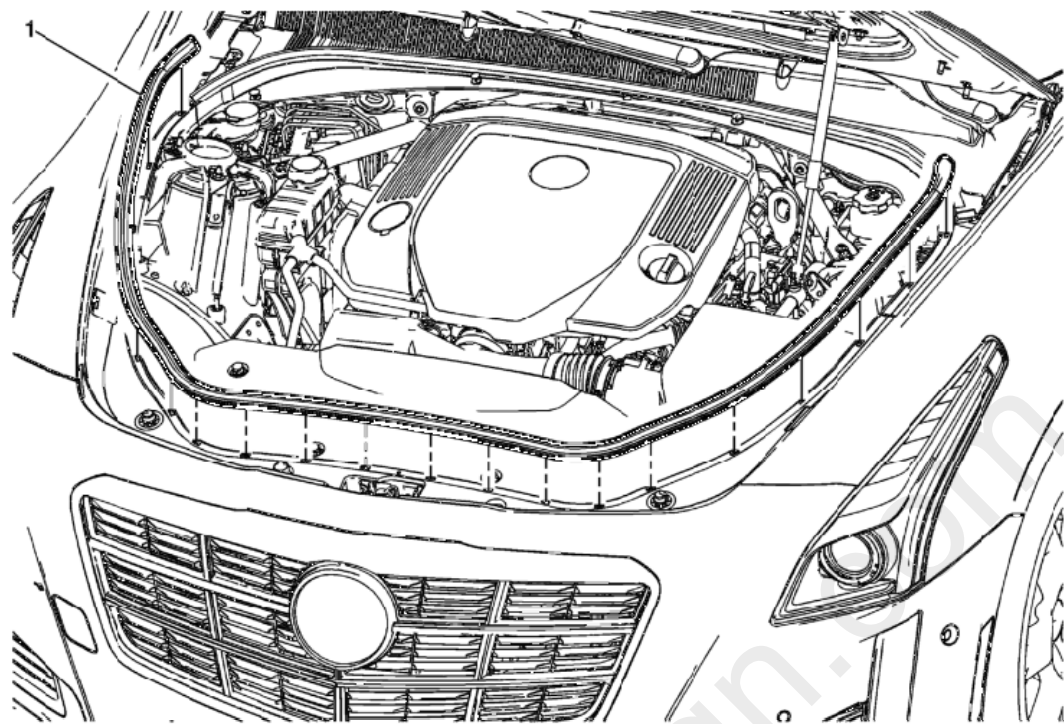


Fig. 30: Hood Front Seal
Courtesy of GENERAL MOTORS COMPANY

Hood Front Seal Replacement

Callout	Component Name
1	Hood Front Seal Procedure The hood front seal is held in place with plastic retainers that are part of the front compartment front sight shield. Carefully pull the seal to the right/left to release the seal from the retainers on the sight shield.

HOOD REAR SEAL REPLACEMENT

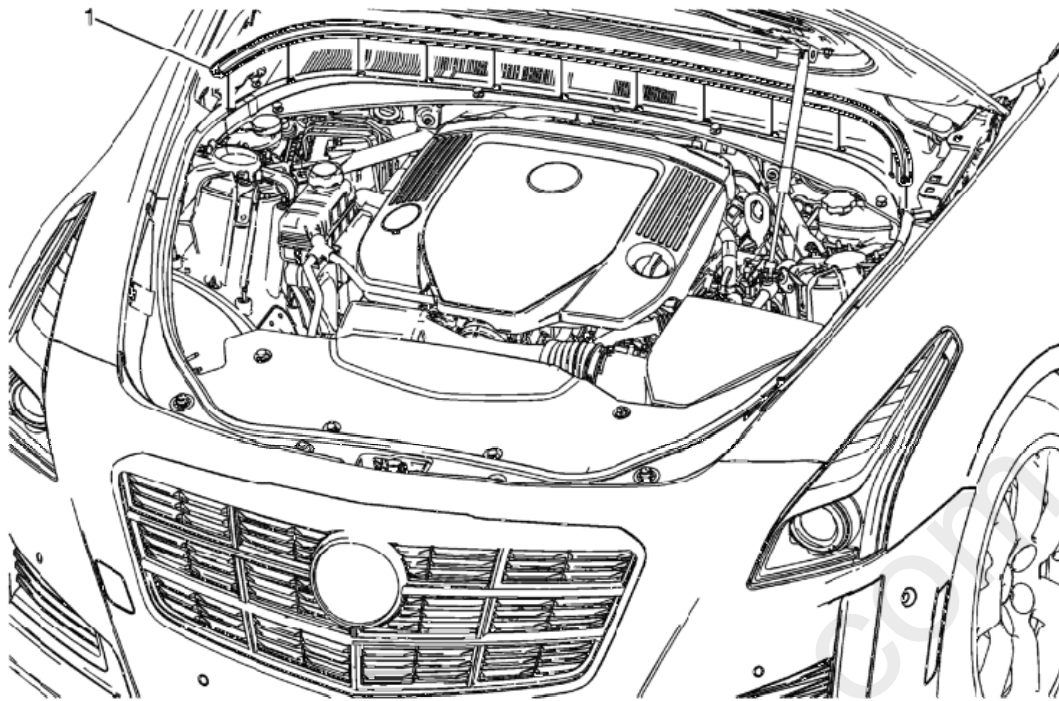


Fig. 31: Hood Rear Seal
 Courtesy of GENERAL MOTORS COMPANY

Hood Rear Seal Replacement

Callout	Component Name
1	Hood Front Weatherstrip Procedure The hood rear seal is held in place with plastic retainers that are part of the air inlet grille panel. Carefully pull the rear seal to the right/left to release from the retainers on the air inlet grille panel.

PLENUM FRONT PANEL REPLACEMENT

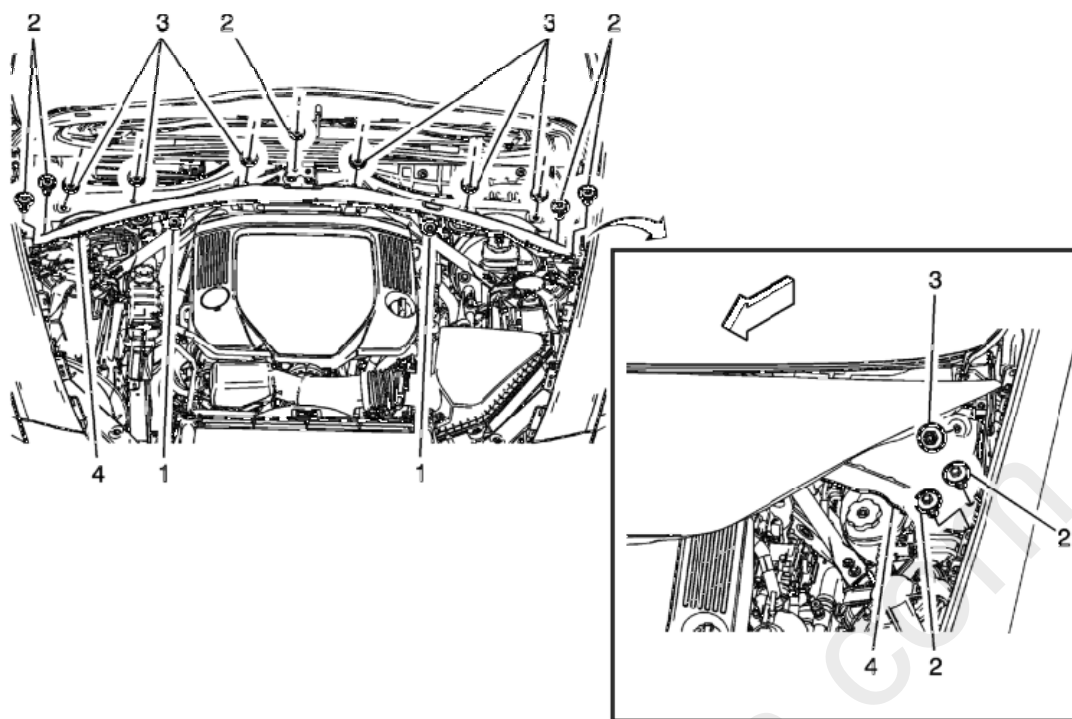


Fig. 32: Plenum Front Panel
Courtesy of GENERAL MOTORS COMPANY

Plenum Front Panel Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the windshield wiper system module. Refer to <u>Windshield Wiper System Module Replacement</u> . 2. Remove the air inlet grille panel air deflector. Refer to <u>Air Inlet Grille Panel Air Deflector Replacement</u> . 3. Remove the front compartment side sight shields. Refer to <u>Front Compartment Side Sight Shield Replacement</u> 4. Remove the left and right hand plenum side panel. Refer to <u>Plenum Side Panel Replacement - Left Side, Plenum Side Panel Replacement - Right Side</u>	
1	Diagonal Brace to Plenum Bolt (Qty 2) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 22 (16 lb ft)
	Plenum Front Panel Bolt (Qty: 5)

2	Tighten 9 (80 lb in)
3	Plenum Front Panel Nut (Qty: 6) Tighten 9 (80 lb in)
4	Plenum Front Panel Procedure 1. Remove the electrical harness grommet from the panel. 2. Ensure all seals are in place before installation.

PLENUM SIDE PANEL REPLACEMENT - RIGHT SIDE

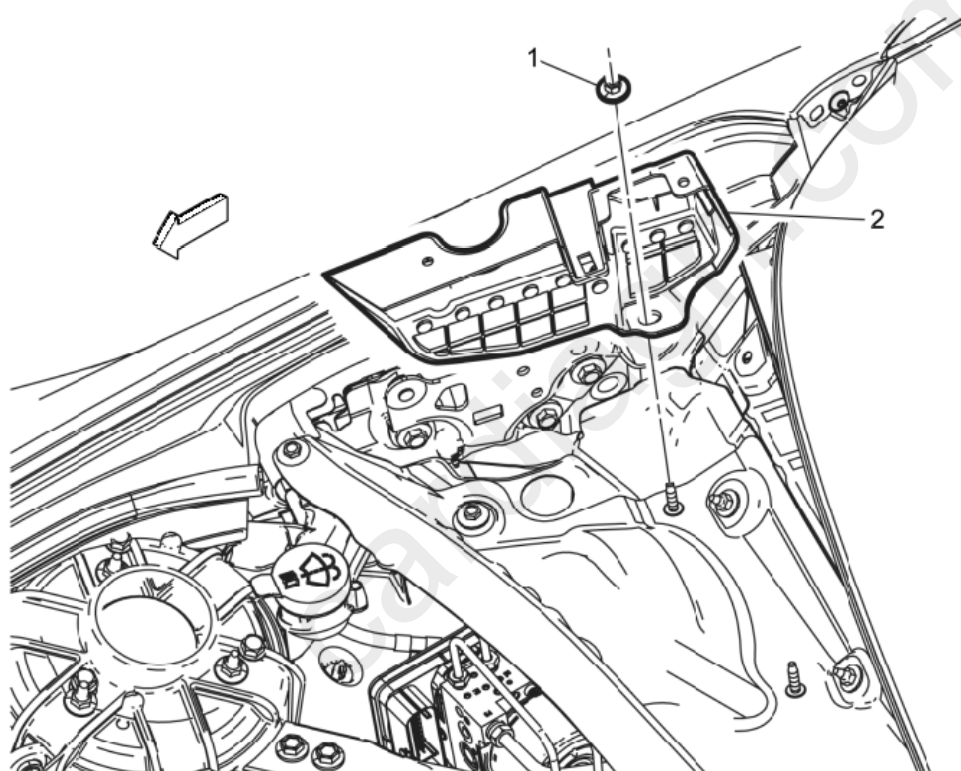


Fig. 33: Plenum Side Panel - Right Side
Courtesy of GENERAL MOTORS COMPANY

Plenum Side Panel Replacement - Right Side

Callout	Component Name
Preliminary Procedures	
1.	Remove the air inlet grille panel. Refer to <u>Air Inlet Grille Panel Replacement</u>
2.	Remove the air inlet grille panel air deflector. Refer to <u>Air Inlet Grille Panel Air Deflector Replacement</u> .

1	Plenum Side Panel Nut CAUTION: Refer to <u>Fastener Caution</u> . Tighten 8 (71 lb in)
2	Plenum Side Panel Procedure 1. Remove the electrical connector. 2. Transfer parts. (The ambient air quality sensor must be transferred.).

PLENUM SIDE PANEL REPLACEMENT - LEFT SIDE

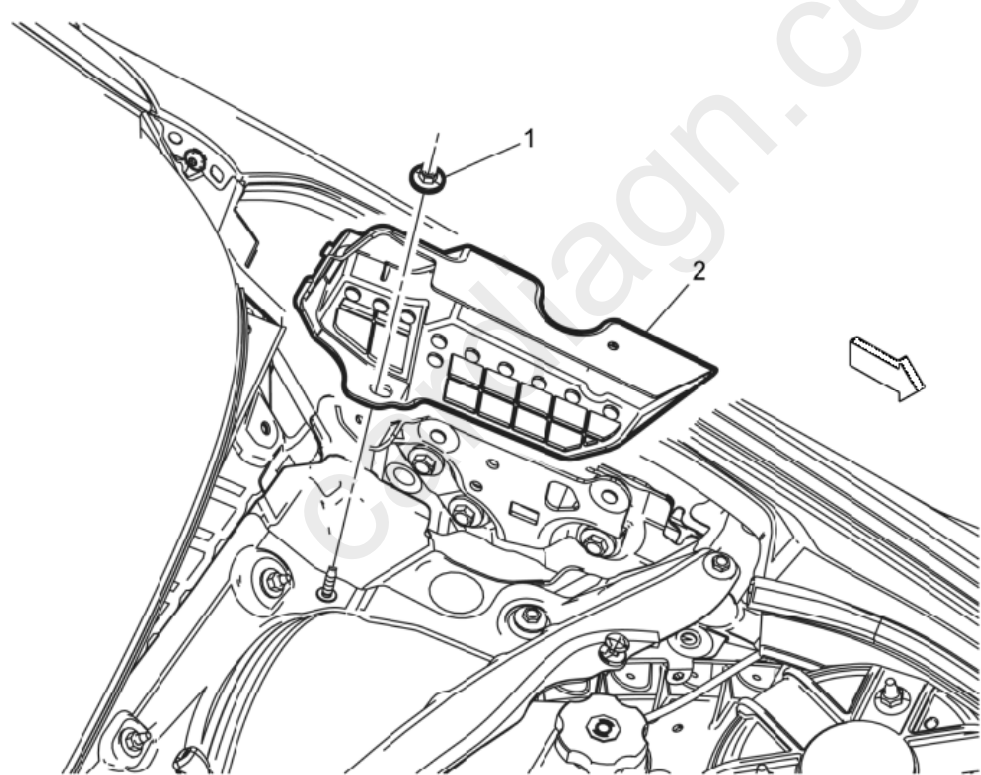


Fig. 34: Plenum Side Panel - Left Side
 Courtesy of GENERAL MOTORS COMPANY

Plenum Side Panel Replacement - Left Side

Callout	Component Name
Preliminary Procedures	

1. Remove the air inlet grille panel. Refer to **Air Inlet Grille Panel Replacement** .
2. Remove the windshield wiper system module. Refer to **Windshield Wiper System Module Replacement** .

1	Plenum Side Panel Nut CAUTION: Refer to <u>Fastener Caution</u> . Tighten 8 (71 lb in)
2	Plenum Side Panel

FRONT COMPARTMENT FRONT SIGHT SHIELD REPLACEMENT

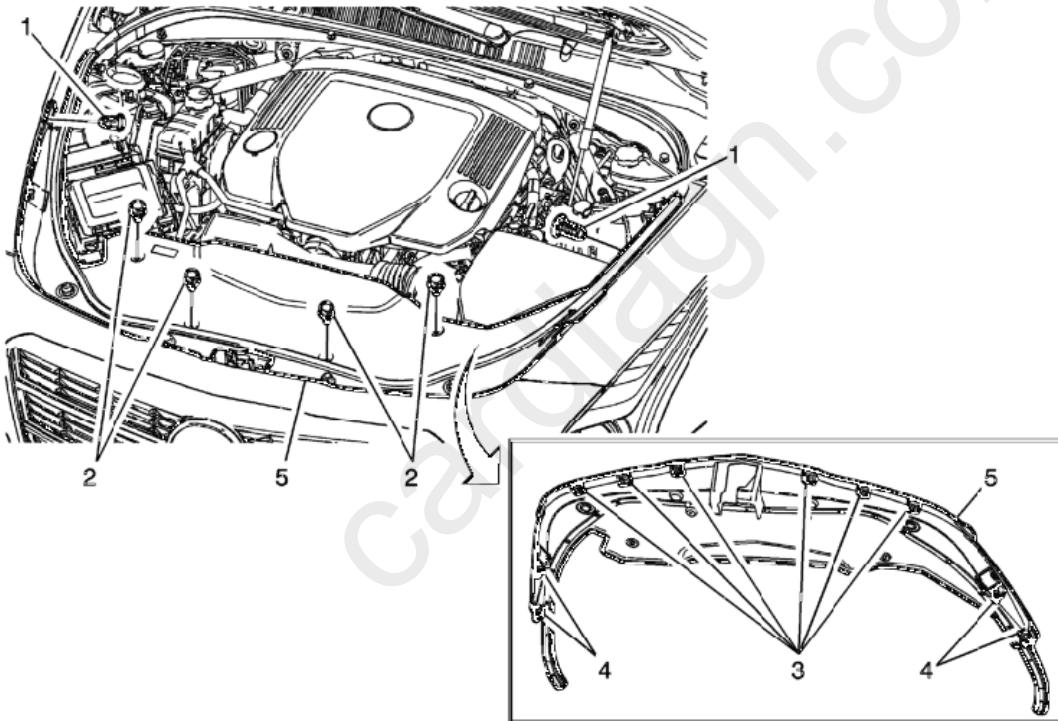


Fig. 35: Front Compartment Front Sight Shield
Courtesy of GENERAL MOTORS COMPANY

Front Compartment Front Sight Shield Replacement

Callout	Component Name
1	Front Compartment Front Sight Shield Retainer (Qty: 2)
2	Front Compartment Front Sight Shield Push-In Retainer (Qty: 4)
	Front Compartment Front Sight Shield Retainer (Qty 6)

3	NOTE: Using a suitable tool, disengage the 6 hidden retainers along the front edge of the front compartment front sight shield.
4	Front Compartment Front Sight Shield Clip (Qty 4)
5	Front Compartment Front Sight Shield

FRONT COMPARTMENT SIDE SIGHT SHIELD REPLACEMENT

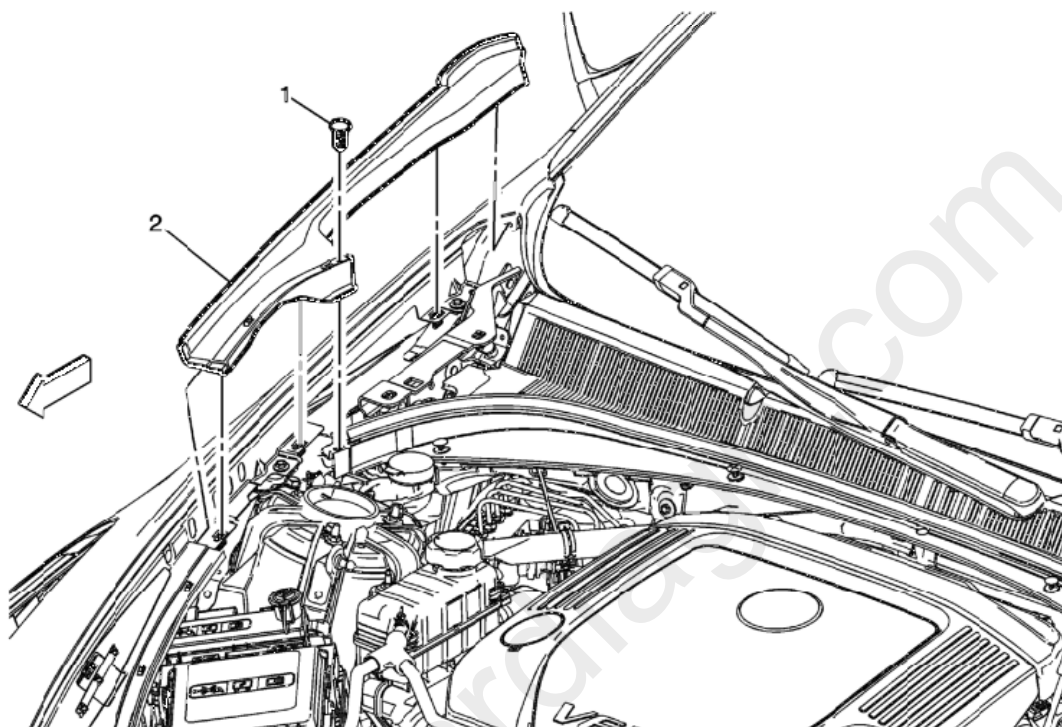


Fig. 36: Front Compartment Side Sight Shield
Courtesy of GENERAL MOTORS COMPANY

Front Compartment Side Sight Shield Replacement

Callout	Component Name
Preliminary Procedure	
Reposition the rear portions of the front compartment front sight shield that overlap the side sight shields. Refer to <u>Front Compartment Front Sight Shield Replacement</u>	
1	Front Compartment Side Sight Shield Push-In Retainer
2	Front Compartment Side Sight Shield
	Procedure
	1. Using a suitable plastic tool, release the 3 hidden retainers from the fender.
	2. To install, position the front guide pin to the side sight shield first.

REAR SIDE DOOR LOWER AUXILIARY WEATHERSTRIP REPLACEMENT

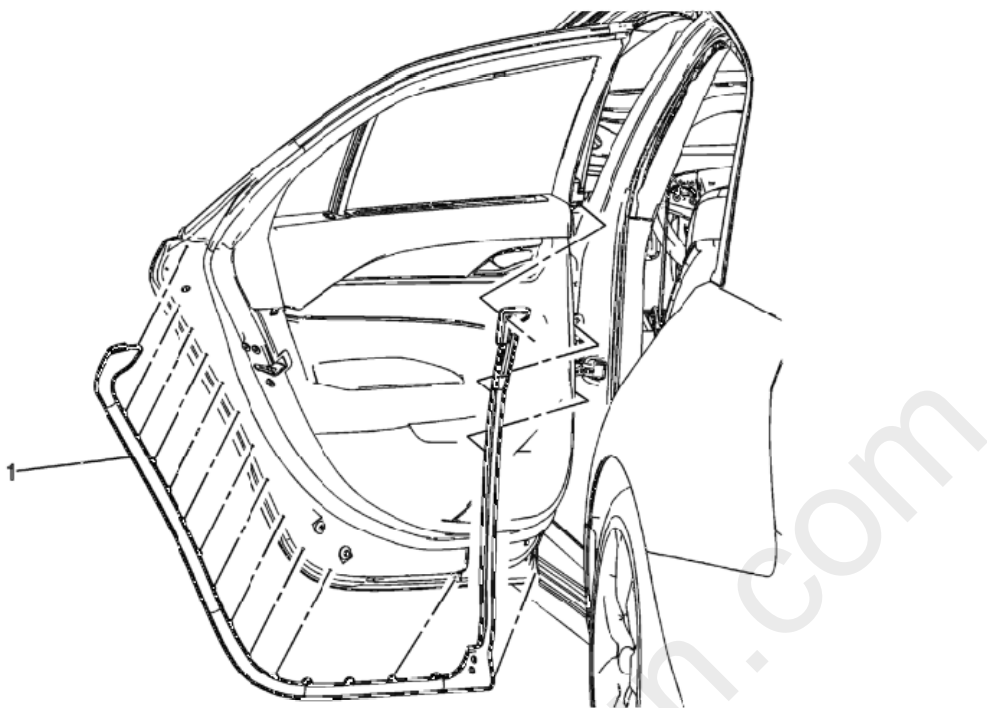


Fig. 37: Rear Side Door Lower Auxiliary Weatherstrip
 Courtesy of GENERAL MOTORS COMPANY

Rear Side Door Lower Auxiliary Weatherstrip Replacement

Callout	Component Name
1	Rear Side Door Lower Auxiliary Weatherstrip Procedures 1. Open the rear side door to the full open position. 2. Using a suitable tool, release the push in pin retainers from the door. 3. Ensure that the weatherstrip is fully seated in the door. NOTE: Inspect the door to ensure a proper seal after the weatherstrip has been installed.

REAR COMPARTMENT LID STRUT REPLACEMENT

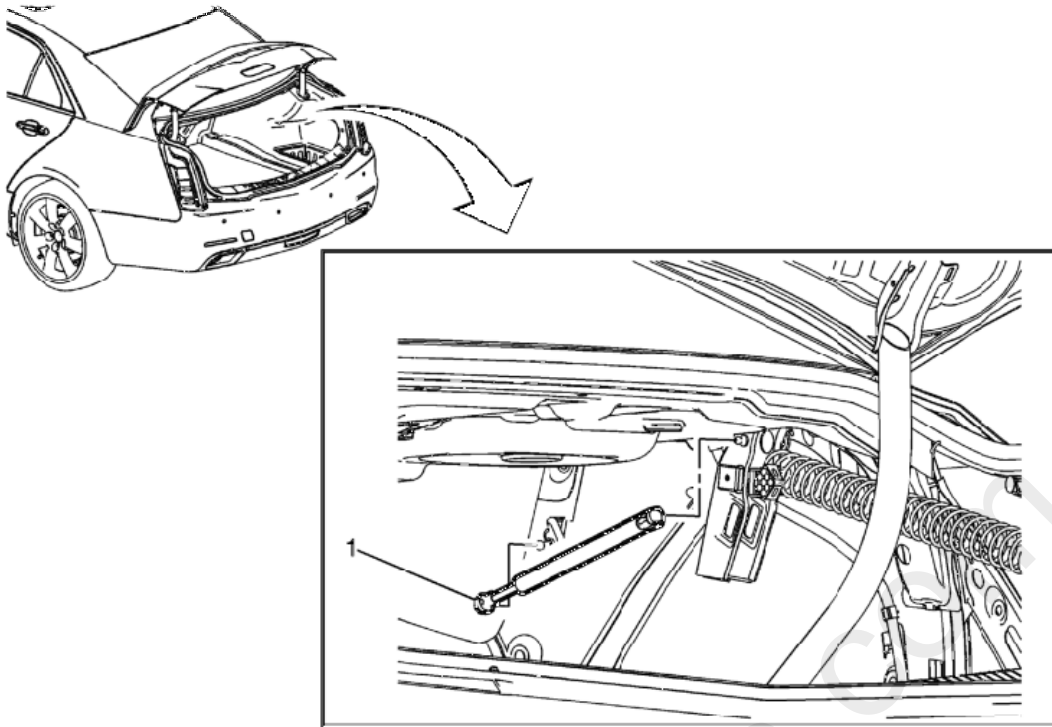


Fig. 38: Rear Compartment Lid Strut
 Courtesy of GENERAL MOTORS COMPANY

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 Reposition the right side rear compartment side trim panel. Refer to <u>Rear Compartment Side Trim Replacement - Right Side</u> .	
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 COMPARTMENT FRONT PANEL REPLACEMENT

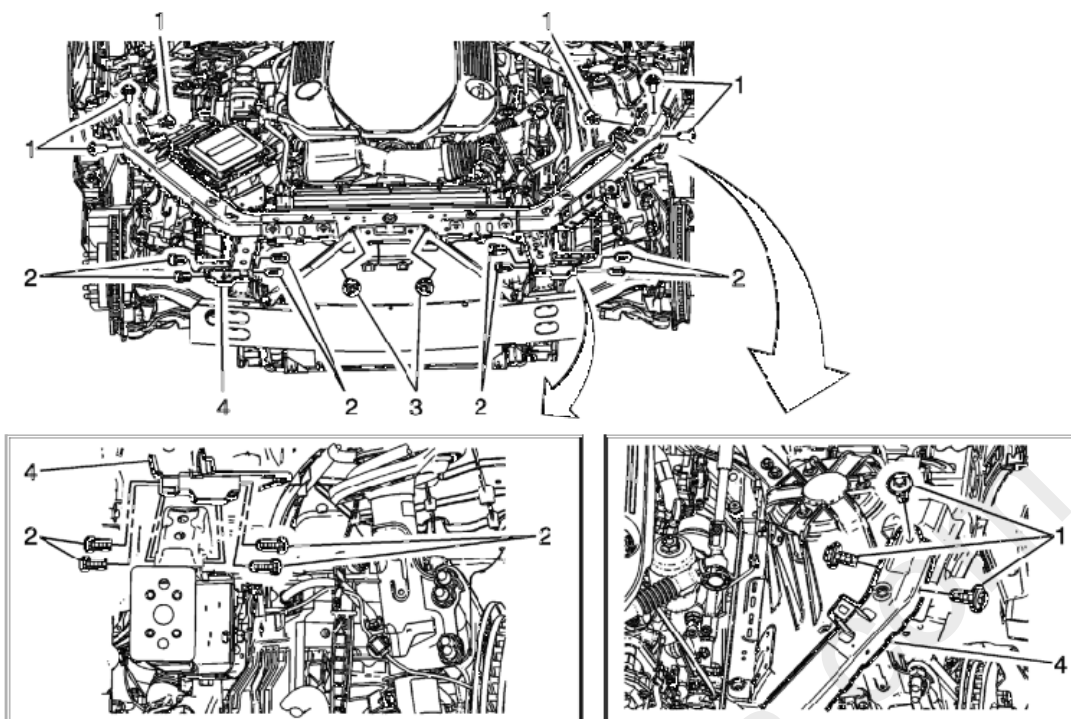


Fig. 39: Front Compartment Front Panel
 Courtesy of GENERAL MOTORS COMPANY

Front Compartment Front Panel Replacement

Callout	Component Name
Preliminary Procedures	
1. Disable the SIR system. Refer to <u>SIR Disabling and Enabling</u> 2. Remove the front fenders. Refer to <u>Front Fender Replacement</u>. 3. Remove the air cleaner. Refer to <u>Air Cleaner Assembly Replacement (LFX)</u> , <u>Air Cleaner Assembly Replacement (LF3)</u> , or <u>Air Cleaner Assembly Replacement</u> 4. Reposition the radiator with the A/C condenser from the upper tie bar. Refer to <u>Radiator Upper Bracket Replacement (LFX, LTG)</u> . 5. Remove the hood primary and secondary latch. Refer to <u>Hood Primary and Secondary Latch Replacement</u>. 6. Airbag front end discriminating sensor. Refer to <u>Airbag Front End Discriminating Sensor Replacement</u> . 7. Front bumper fascia center support. Refer to <u>Front Bumper Fascia Center Support Replacement (Upper)</u> , <u>Front Bumper Fascia Center Support Replacement (Lower)</u> . 8. Remove the front fender front lower bracket. Refer to <u>Front Fender Front Lower Bracket Replacement</u>.	
	Front Compartment Front Panel Bolt (Qty: 6)

1	CAUTION: Refer to <u>Fastener Caution</u> . Tighten 11 (97 lb in)
2	Front Compartment Front Panel Lower Bolt (Qty: 8) Tighten 11 (97 lb in)
3	Front End Sheet Metal Cross Brace Upper Bolt (Qty 2) NOTE: Reposition each brace if needed.
4	Front Compartment Front Panel Procedure 1. Disconnect the electrical connectors/harnesses as needed. 2. Disconnect the hood latch cable from the tie bar. 3. Transfer any parts as needed.

FRONT SIDE DOOR FRONT AUXILIARY WEATHERSTRIP REPLACEMENT

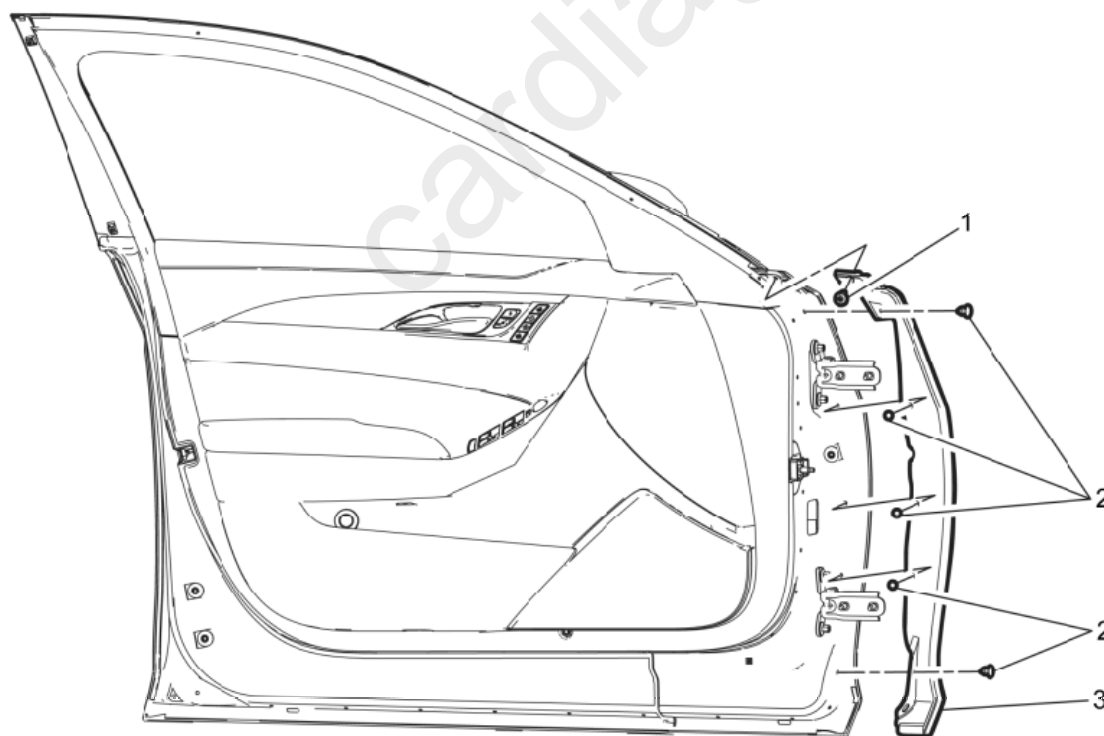


Fig. 40: Front Side Door Front Auxiliary Weatherstrip

Courtesy of GENERAL MOTORS COMPANY

Front Side Door Front Auxiliary Weatherstrip Replacement

Callout	Component Name
Preliminary Procedures 1. Open front side door to full open position. 2. Reposition front side door weatherstrip to door in the area of auxiliary weatherstrip to access upper auxiliary retainer. Refer to <u>Front Side Door Weatherstrip Replacement - Door Side</u> . 3. Remove 2 front side door lower auxiliary weatherstrip retainers at the front edge of lower auxiliary weatherstrip and reposition lower auxiliary weatherstrip to access front side door front auxiliary weatherstrip retainer. Refer to <u>Front Side Door Lower Auxiliary Weatherstrip Replacement</u> .	
1	Front Side Door Window Belt Reveal Molding Fastener CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 N.m (22 lb in).
2	Front Side Door Front Auxiliary Weatherstrip Retainer (Qty: 5) Procedure Using a suitable tool, remove retainers from around doors edge.
3	Front Side Door Front Auxiliary Weatherstrip

FRONT SIDE DOOR WEATHERSTRIP REPLACEMENT - DOOR SIDE

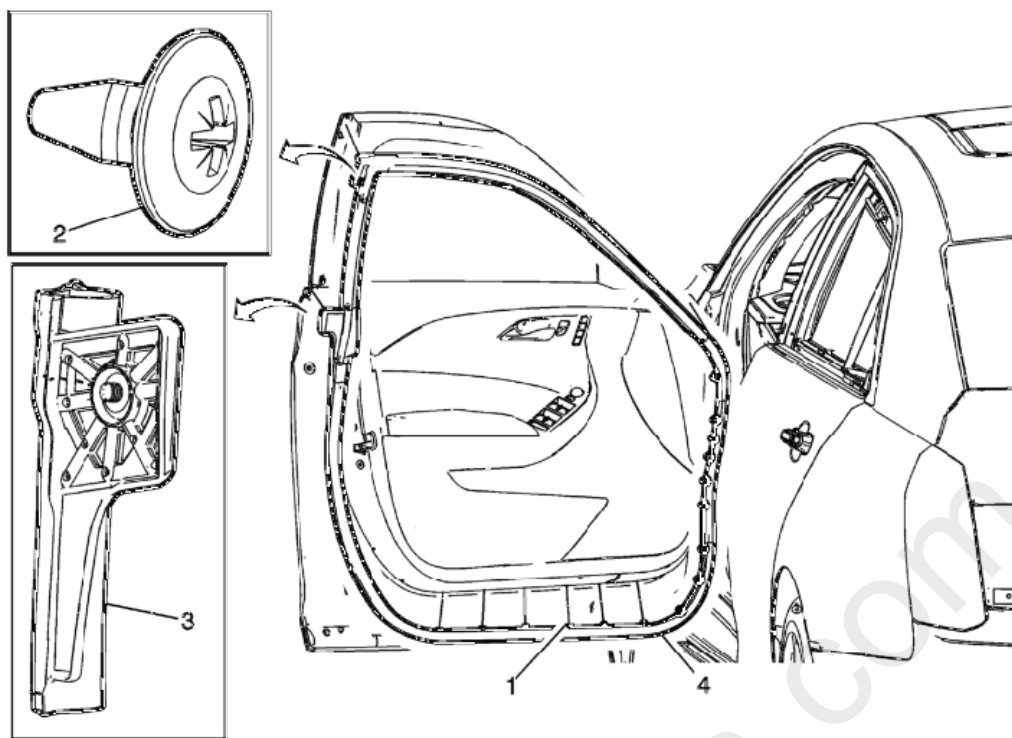


Fig. 41: Front Side Door Weatherstrip - Door Side
 Courtesy of GENERAL MOTORS COMPANY

Front Side Door Weatherstrip Replacement - Door Side

Callout	Component Name
Preliminary Procedures 1. Open the front side door to the full open position. 2. Remove the check link bolt from the body side only . Refer to <u>Front Side Door Check Link Replacement</u>.	
1	Front Side Door Weatherstrip Retainer (Qty :24) Procedure Using a suitable tool, release the push pin retainers from around the door.
2	Front Side Door Weatherstrip Screw CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 N.m (22 lb in)
3	Front Side Door Weatherstrip Retainer
	Front Side Door Weatherstrip to Door Side Procedure

4

Ensure that the weatherstrip is fully seated in the upper door frame channel.

NOTE:

Inspect the door to ensure a proper seal after the weatherstrip has been installed.

FRONT SIDE DOOR WEATHERSTRIP REPLACEMENT - BODY SIDE

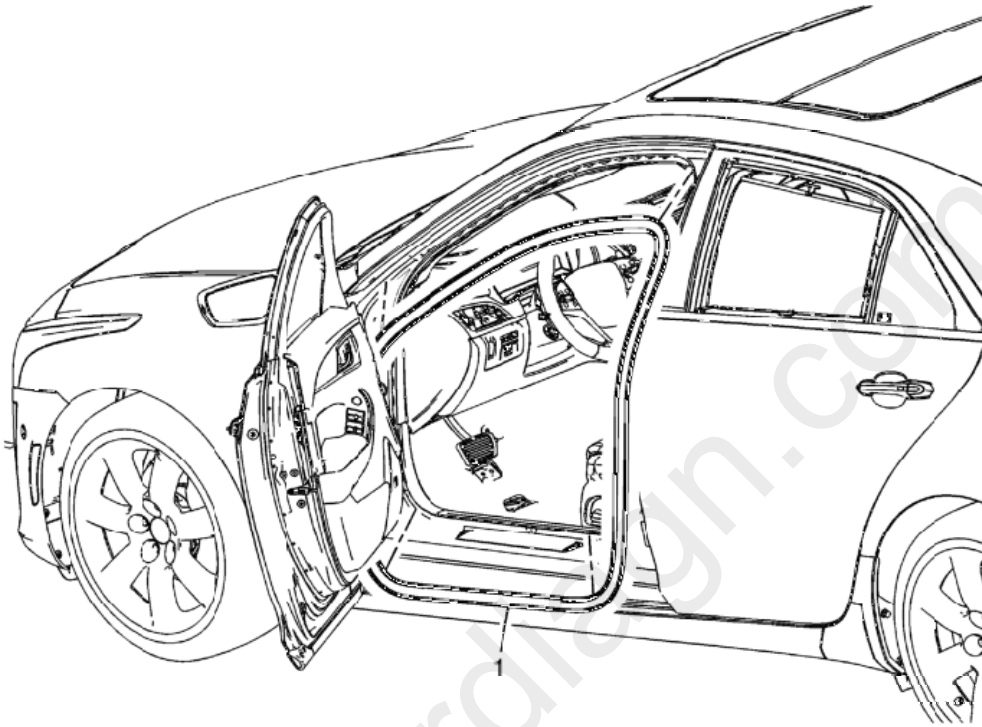


Fig. 42: Front Side Door Weatherstrip - Body Side
Courtesy of GENERAL MOTORS COMPANY

Front Side Door Weatherstrip Replacement - Body Side

Callout	Component Name
Preliminary Procedures	
1. Remove the body hinge pillar garnish molding. Refer to <u>Body Hinge Pillar Garnish Molding Replacement</u> . 2. Remove the front door sill garnish molding. Refer to <u>Front Side Door Sill Garnish Molding Replacement</u> .	
	Front Side Door Weatherstrip to Body Side
	Procedure
	1. Start at the rear upper corner of the door opening and pull the weatherstrip away from the door opening flange.

- | | |
|---|--|
| 1 | <ol style="list-style-type: none"> 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. Ensure that the weatherstrip is seated on the entire door opening flange. |
|---|--|

NOTE:

Inspect the door for a proper seal after the weatherstrip has been installed.

FRONT SIDE DOOR LOWER AUXILIARY WEATHERSTRIP REPLACEMENT

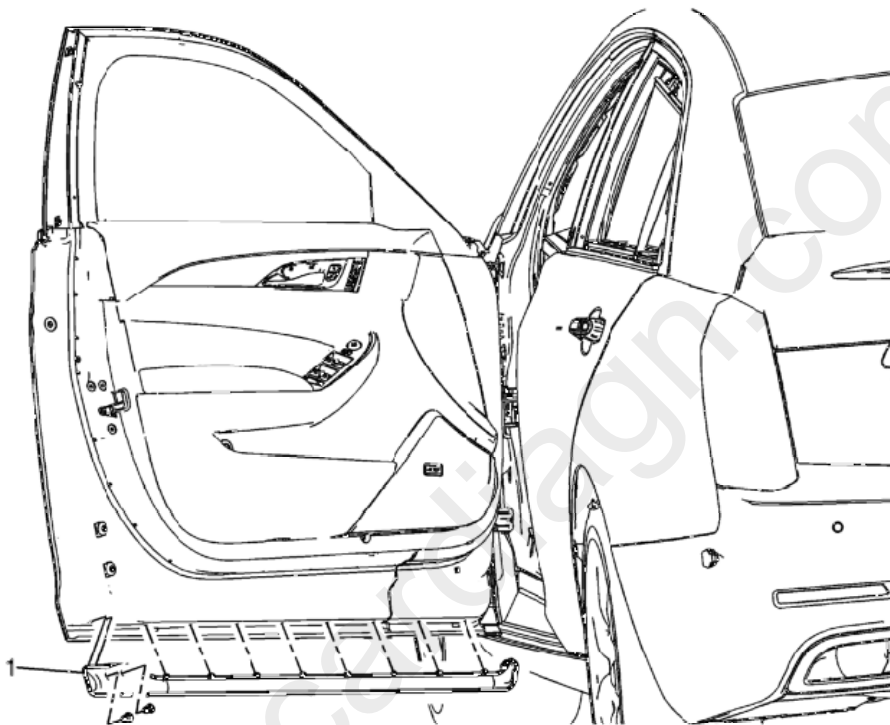


Fig. 43: Front Side Door Lower Auxiliary Weatherstrip

Courtesy of GENERAL MOTORS COMPANY

Front Side Door Lower Auxiliary Weatherstrip Replacement

Callout	Component Name
	Front Side Door Lower Auxiliary Weatherstrip
	Procedure
1	1. Open the front side door to the full open position. 2. Using the appropriate tool, remove the push pin retainers. 3. Pull the front side door lower auxiliary weatherstrip from the door.

NOTE:

Inspect the door for a proper seal after the weatherstrip has been replaced.

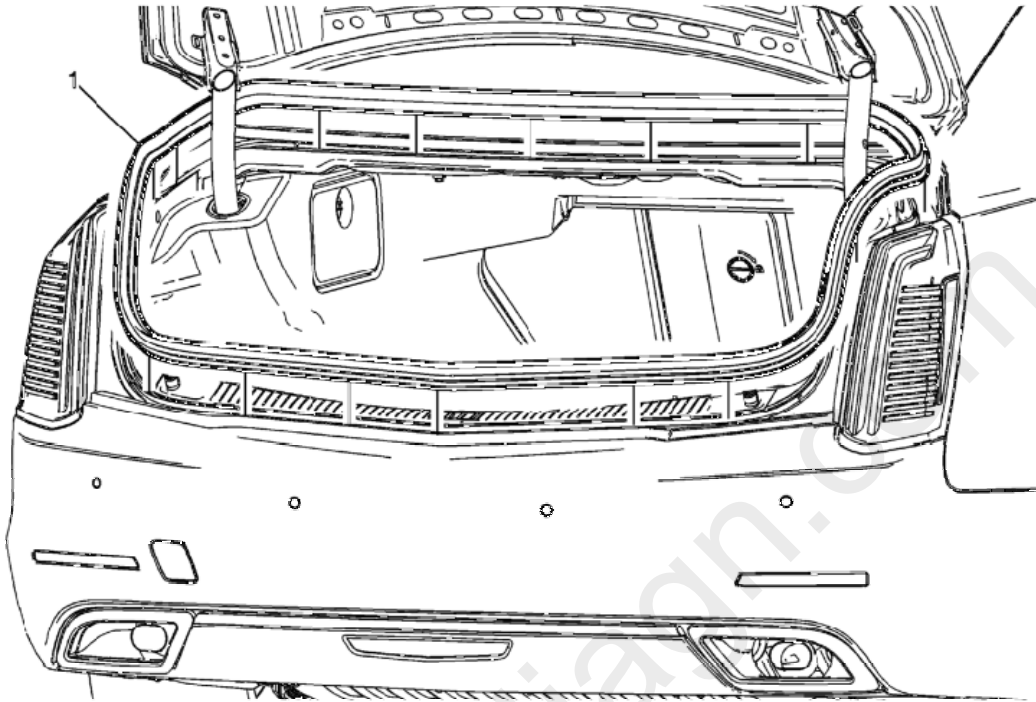
REAR COMPARTMENT LID WEATHERSTRIP REPLACEMENT

Fig. 44: Rear Compartment Lid Weatherstrip
Courtesy of GENERAL MOTORS COMPANY

Rear Compartment Lid Weatherstrip Replacement

Callout	Component Name
1	Rear Compartment Lid Weatherstrip Procedure 1. Start at the upper corner of the rear compartment opening and pull the weatherstrip away from the rear compartment opening flange. 2. Clean the area where the weatherstrip 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. 3. Position the weatherstrip in the upper corner of the rear compartment opening. 4. Working downward along the edge, install the weatherstrip on the rear compartment opening flange ensuring that the weatherstrip is fully seated in the corners. 5. Using a rubber mallet, ensure that the weatherstrip is seated on the entire rear compartment opening flange.

REAR SIDE DOOR WEATHERSTRIP REPLACEMENT - DOOR SIDE

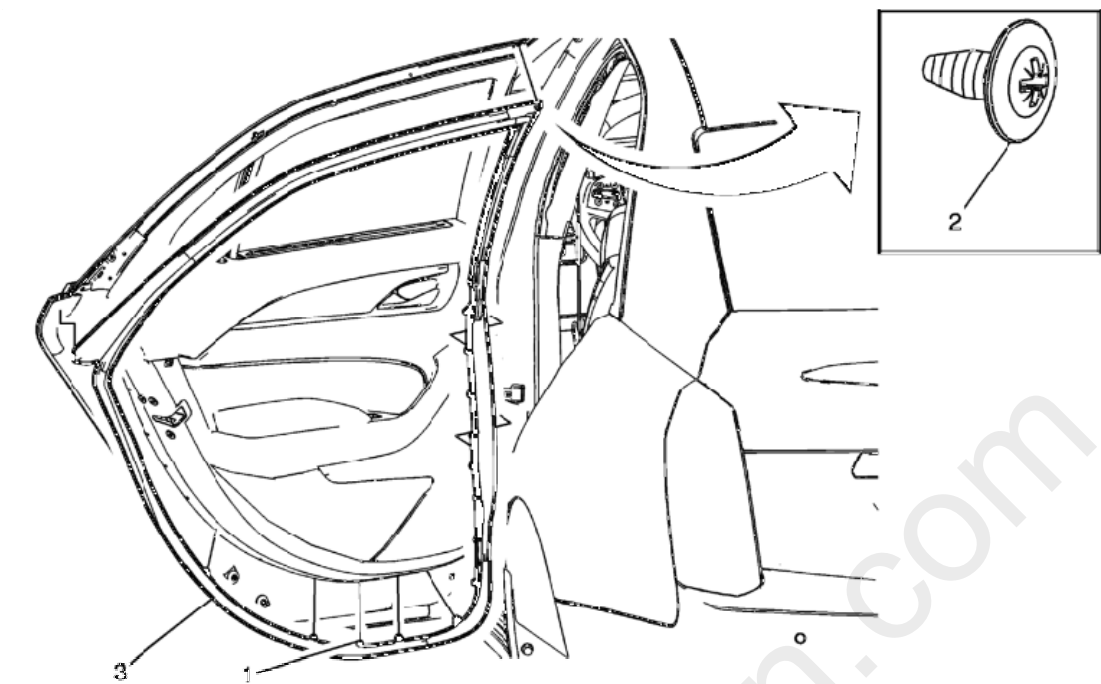


Fig. 45: Rear Side Door Weatherstrip - Door Side
 Courtesy of GENERAL MOTORS COMPANY

Rear Side Door Weatherstrip Replacement - Door Side

Callout	Component Name
Preliminary Procedures - Open the rear side door to the full open position. - Remove the check link bolt from the body side only . Refer to Rear Side Door Check Link Replacement.	
1	Rear Side Door Weatherstrip Retainer (Qty :23) Procedure Using a suitable tool, release the push in pin retainers from the door.
2	Rear Side Door Weatherstrip Screw CAUTION: Refer to Fastener Caution . Tighten 2.5 N.m (22 lb in)
	Rear Side Door Weatherstrip to Door Side Procedure

3

Ensure that the weatherstrip is fully seated in the upper door frame channel.

NOTE:

Inspect the door to ensure a proper seal after the weatherstrip has been installed.

REAR SIDE DOOR WEATHERSTRIP REPLACEMENT - BODY SIDE

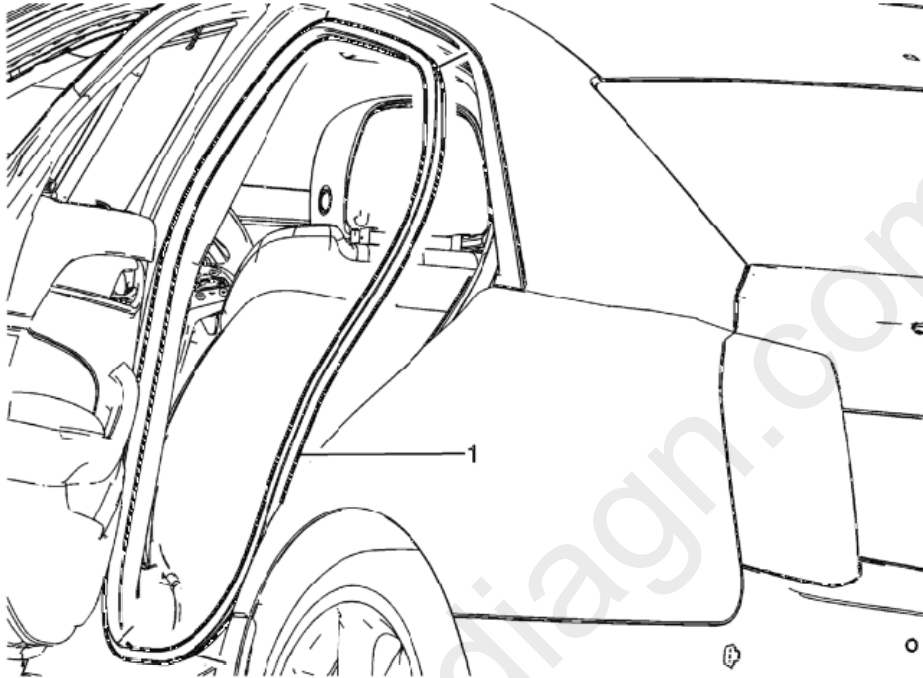


Fig. 46: Rear Side Door Weatherstrip - Body Side
Courtesy of GENERAL MOTORS COMPANY

Rear Side Door Weatherstrip Replacement - Body Side

Callout	Component Name
Preliminary Procedure Remove the rear door sill plate. Refer to <u>Rear Side Door Sill Garnish Molding Replacement</u> .	
1	Rear Side Door Weatherstrip to Body Side 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. Ensure that the weatherstrip is seated on the entire door opening flange.

DESCRIPTION AND OPERATION

HOOD AJAR INDICATOR DESCRIPTION AND OPERATION

Hood Ajar Indicator System Components

- Body control module
- Engine control module (with KL9)
- 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. The body control module uses the hood ajar input as a means to determine if unauthorized access has been gained to the underhood area during a theft attempt. The body control module will also disable remote vehicle starting (if equipped) when the hood is ajar.

Hood Ajar Operation - Engine Control Module (with KL9)

The engine 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 engine control module by pulling down the applied voltage based on the position of the switch. The engine control module monitors the hood ajar input as a disable condition for a 12 V stop/start event.