

ACCESSORIES & EQUIPMENT

Bumpers and Fascias - CTS Sedan

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Front Air Deflector Bolt	5	44 lb in
Front Bumper Fascia Air Deflector Screw	2.5	22 lb in
Front Bumper Fascia Center Support Lower Bolt	2.5	22 lb in
Front Bumper Fascia Center Support Upper Bolt	9	80 lb in
Front Bumper Fascia Outer Bracket Bolt	9	80 lb in
Front Bumper Fascia Reinforcement Bolt	4	35 lb in
Front Bumper Fascia Upper Bolt	4	35 lb in
Front Bumper Impact Bar Bolt	32	24 lb ft
Front Bumper Lower Shutter Bolt	2.5	22 lb in
Rear Bumper Fascia Bolt	2.5	22 lb in
Rear Bumper Fascia Lower Bracket Bolt	2.5	22 lb in
Rear Bumper Fascia Outer Bolt	2.5	22 lb in
Rear Bumper Fascia Reflector Screw	2	18 lb in
Rear Bumper Impact Bar Nut	40	30 lb ft

SCHEMATIC WIRING DIAGRAMS

ACTIVE GRILLE AIR SHUTTER WIRING SCHEMATICS

Active Grille Air Shutter ((LFX or LTG) without UGN)



DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC CODE INDEX

DTC P059F OR U0284: ACTIVE GRILLE AIR SHUTTER

DTC Descriptors

DTC U0284

Lost Communication with Active Grille Air Shutter 1 Motor Module

DTC P059F

Active Grille Air Shutter Performance

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ignition	U0284, P059F	U0284, P059F	--	--
Control - Terminal 3	U0284, P059F	U0284, P059F	U0284, P059F	U0284, P059F
Control - Terminal 12	U0284, P059F	U0284, P059F	U0284, P059F	U0284, P059F
Ground	-	U0284, P059F	-	--

Circuit/System Description

The active grille air shutter actuator closes louvers at the front bumper to enhance vehicle aerodynamics in driving situations where cooling and A/C loads are relatively low and high levels of front end airflow are not required. If high levels of airflow are required the active grille air shutter actuator opens the louvers. The control signal from the chassis control module, ignition and ground circuits enable the active grille air shutter actuator to operate. If the conditions for opening the louvers are reached the chassis control module commands the active grille air shutter actuator to open the louvers.

Conditions for Running the DTC

- The engine is running.
- The ignition voltage is greater than 10 V.
- The DTC runs continuously when the above conditions are met.

Conditions for Setting the DTC

- The DTC P059F will be set during a key cycle when the commanded louver position can not be achieved after 3 attempts are made to move the louver. The DTC will be stored as current for this key cycle but the malfunction indicator lamp (MIL) will not be illuminated.
- On the next key cycle the louver will be commanded to move again. If the commanded louver position can not be achieved after 3 more attempts, the MIL will be illuminated and DTC P059F will be set as current.
- The DTC U0284 will set if there is no communication on the bi-directional control circuit.

Action Taken When the DTC Sets

DTC P059F is a type B DTC.

Conditions for Clearing the DTC

DTC P059F is a type B DTC.

Reference Information

Schematic Reference

Active Grille Air Shutter Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX - SEDAN

Description and Operation

Active Grille Air Shutter 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 DTC U0109 is not set.
 - **If DTC U0109 is set**

Refer to Diagnostic Trouble Code (DTC) List - Vehicle for further diagnosis.

- **If DTC U0109 is not set**

3. Verify the active grille air shutter actuator opens and closes the louvers at the front bumper when performing the Active Grille Air Shutter System test with a scan tool.
 - **If the louvers at the front bumper do not open and close and the test result is fail**

Refer to Circuit/System Testing.

- **If the louvers at the front bumper open and close and the test result is pass**

4. Verify none of the following conditions are present:
 - Snow or ice packed in the front fascia which prevents the louvers from moving.
 - Debris or foreign objects which prevent the louvers from moving.
 - **If any of the conditions are present**

Clear any snow, ice or foreign objects from the front grille.

- **If none of the conditions are present**

5. All OK

Circuit/System Testing

1. Ignition OFF, and all vehicle systems OFF, disconnect the harness connector at the M96 Active Grille Air Shutter Actuator. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 ohms between the ground circuit terminal 2 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 a test lamp illuminates between the ignition circuit terminal 3 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF.
 2. Test for less than 2 ohms in the ignition circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, verify the fuse is not open and there is voltage at the fuse. Refer to **Power Mode Mismatch** .
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF.
 2. Test for infinite resistance between the ignition circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the M96 Active Grille Air Shutter Actuator.
 - **If the test lamp illuminates**
5. Connect a test lamp between the control circuit terminal 1 and the ignition circuit terminal 3.
6. Verify the test lamp turns On and Off when performing the Active Grille Air Shutter System test with a scan tool.
 - **If the test lamp is always Off**
 1. Ignition OFF, disconnect the harness connector at the K38 Chassis Control Module, ignition ON.

2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Ignition OFF.
4. Test for less than 2 ohms in the control circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, replace the K38 Chassis Control Module.
 - **If the test lamp is always On**
 1. Ignition OFF, disconnect the harness connector at the K38 Chassis Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K38 Chassis Control Module.
 - **If the test lamp turns On and Off**
7. Ignition OFF, connector the harness connector at the M96 Active Grille Air Shutter Actuator. Disconnect the harness connector at the K38 Chassis Control Module, Ignition ON.
8. Test for greater than 11 V between the control circuit terminal 12 and ground.
 - **If 11 V or less**
 1. Ignition OFF, disconnect the harness connector at the M96 Active Grille Air Shutter Actuator.
 2. Test for less than 2 ohms in the control circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, replace the M96 Active Grille Air Shutter Actuator.
 - **If greater than 11 V**
9. Test or replace the M96 Active Grille Air Shutter Actuator.
10. Verify DTC U0284 is not set.
 - **If the DTC is set**

Replace the K38 Chassis Control Module.
 - **If the DTC is not set**
11. All OK

Repair Instructions

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

Control Module References for chassis control module replacement, programming and setup.

ACTIVE GRILLE AIR SHUTTER 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 U0284

Lost Communication with Active Grille Air Shutter 1 Motor Module

DTC P059F

Active Grille Air Shutter Performance

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ignition	U0284, P059F	U0284, P059F	--	--
Control - Terminal 3	U0284, P059F	U0284, P059F	U0284, P059F	U0284, P059F
Control - Terminal 12	U0284, P059F	U0284, P059F	U0284, P059F	U0284, P059F
Ground	-	U0284, P059F	-	--

Circuit/System Description

The active grille air shutter actuator closes louvers at the front bumper to enhance vehicle aerodynamics in driving situations where cooling and A/C loads are relatively low and high levels of front end airflow are not required. If high levels of airflow are required the active grille air shutter actuator opens the louvers. The control signal from the chassis control module, ignition and ground circuits enable the active grille air shutter actuator to operate. If the conditions for opening the louvers are reached the chassis control module commands the active grille air shutter actuator to open the louvers.

Conditions for Running the DTC

- The engine is running.
- The ignition voltage is greater than 10 V.
- The DTC runs continuously when the above conditions are met.

Conditions for Setting the DTC

- The DTC P059F will be set during a key cycle when the commanded louver position can not be achieved after 3 attempts are made to move the louver. The DTC will be stored as current for this key cycle but the malfunction indicator lamp (MIL) will not be illuminated.
- On the next key cycle the louver will be commanded to move again. If the commanded louver position can not be achieved after 3 more attempts, the MIL will be illuminated and DTC P059F will be set as

current.

- The DTC U0284 will set if there is no communication on the bi-directional control circuit.

Action Taken When the DTC Sets

DTC P059F is a type B DTC.

Conditions for Clearing the DTC

DTC P059F is a type B DTC.

Reference Information

Schematic Reference

Active Grille Air Shutter Schematics

Connector End View Reference

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Active Grille Air Shutter 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 DTC U0109 is not set.
 - **If DTC U0109 is set**

Refer to **Diagnostic Trouble Code (DTC) List - Vehicle** for further diagnosis.

- **If DTC U0109 is not set**

3. Verify the active grille air shutter actuator opens and closes the louvers at the front bumper when

performing the Active Grille Air Shutter System test with a scan tool.

- **If the louvers at the front bumper do not open and close and the test result is fail**

Refer to Circuit/System Testing.

- **If the louvers at the front bumper open and close and the test result is pass**

4. Verify none of the following conditions are present:

- Snow or ice packed in the front fascia which prevents the louvers from moving.
- Debris or foreign objects which prevent the louvers from moving.
- **If any of the conditions are present**

Clear any snow, ice or foreign objects from the front grille.

- **If none of the conditions are present**

5. All OK

Circuit/System Testing

1. Ignition OFF, and all vehicle systems OFF, disconnect the harness connector at the M96 Active Grille Air Shutter Actuator. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 ohms between the ground circuit terminal 2 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 a test lamp illuminates between the ignition circuit terminal 3 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF.
 2. Test for less than 2 ohms in the ignition circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, verify the fuse is not open and there is voltage at the fuse. Refer to **Power Mode Mismatch** .
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF.
 2. Test for infinite resistance between the ignition circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the M96 Active Grille Air Shutter Actuator.
 - **If the test lamp illuminates**

5. Connect a test lamp between the control circuit terminal 1 and the ignition circuit terminal 3.
6. Verify the test lamp turns On and Off when performing the Active Grille Air Shutter System test with a scan tool.
 - **If the test lamp is always Off**
 1. Ignition OFF, disconnect the harness connector at the K38 Chassis Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Ignition OFF.
 4. Test for less than 2 ohms in the control circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, replace the K38 Chassis Control Module.
 - **If the test lamp is always On**
 1. Ignition OFF, disconnect the harness connector at the K38 Chassis Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K38 Chassis Control Module.
 - **If the test lamp turns On and Off**
 - 7. Ignition OFF, connector the harness connector at the M96 Active Grille Air Shutter Actuator. Disconnect the harness connector at the K38 Chassis Control Module, Ignition ON.
 - 8. Test for greater than 11 V between the control circuit terminal 12 and ground.
 - **If 11 V or less**
 1. Ignition OFF, disconnect the harness connector at the M96 Active Grille Air Shutter Actuator.
 2. Test for less than 2 ohms in the control circuit end to end.
 - If 2 ohms or greater, repair the open/high resistance in the circuit.
 - If less than 2 ohms, replace the M96 Active Grille Air Shutter Actuator.
 - **If greater than 11 V**
 - 9. Test or replace the M96 Active Grille Air Shutter Actuator.
 - 10. Verify DTC U0284 is not set.
 - **If the DTC is set**

Replace the K38 Chassis Control Module.
 - **If the DTC is not set**
 - 11. All OK

Repair Instructions

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

Control Module References for chassis control module replacement, programming and setup.

REPAIR INSTRUCTIONS

FRONT BUMPER FASCIA ENERGY ABSORBER REPLACEMENT

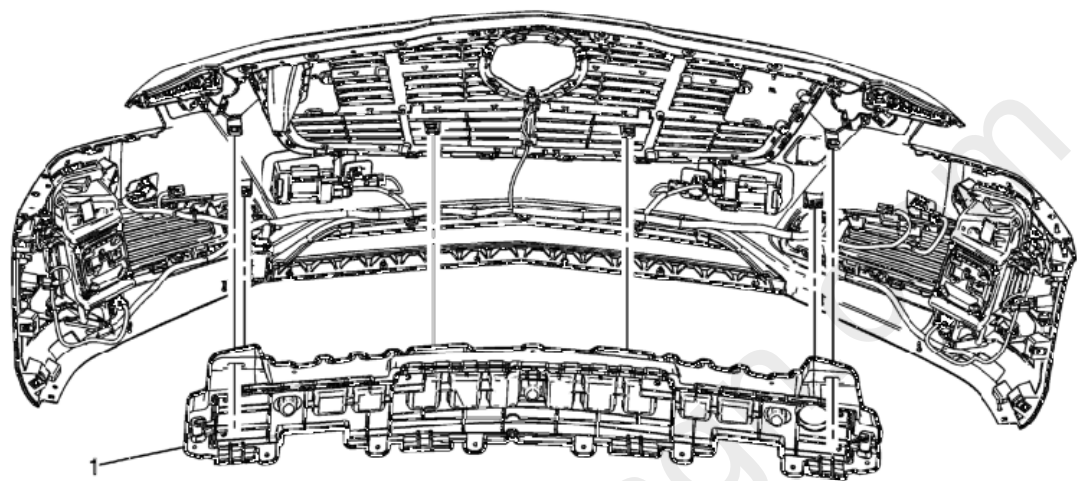


Fig. 2: Front Bumper Fascia Energy Absorber
Courtesy of GENERAL MOTORS COMPANY

Front Bumper Fascia Energy Absorber Replacement

Callout	Component Name
Preliminary Procedure Remove the front bumper fascia. Refer to <u>Front Bumper Fascia Replacement</u> .	
1	Front Bumper Fascia Energy Absorber
	Procedure 1. Place the bumper fascia face down on a clean protected surface. 2. Disconnect the electrical harness retainers from the spacer and the absorber. 3. Remove the seven plastic retaining screws from the absorber. 4. Remove the six metal retaining clips holding the absorber to the fascia. 5. Remove the absorber from the fascia.

FRONT BUMPER FASCIA ENERGY LOWER ABSORBER REPLACEMENT

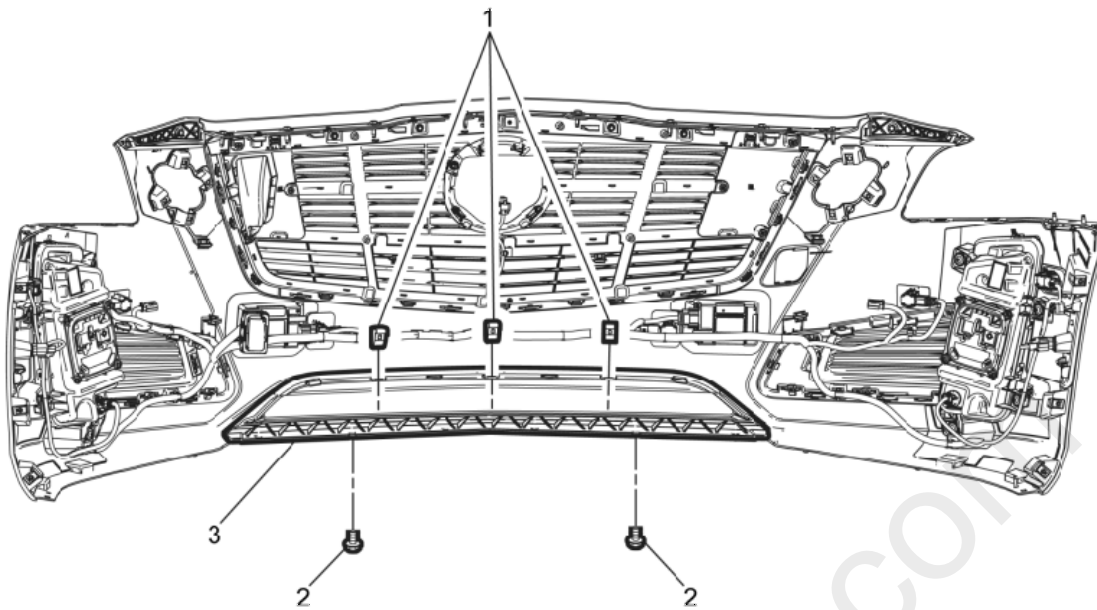


Fig. 3: Front Bumper Fascia Energy Lower Absorber
 Courtesy of GENERAL MOTORS COMPANY

Front Bumper Fascia Energy Lower Absorber Replacement

Callout	Component Name
Preliminary Procedure Remove the Front Bumper Fascia. Refer to <u>Front Bumper Fascia Replacement</u>	
1	Front Bumper Fascia Energy Lower Absorber Clip (Qty: 3) Procedure 1. Place the bumper fascia face down on a clean protected surface. 2. Remove the clips.
2	Front Bumper Fascia Energy Lower Absorber Bolt (Qty 2) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 (22 lb in)
3	Front Bumper Fascia Energy Lower Absorber

FRONT BUMPER IMPACT BAR REPLACEMENT

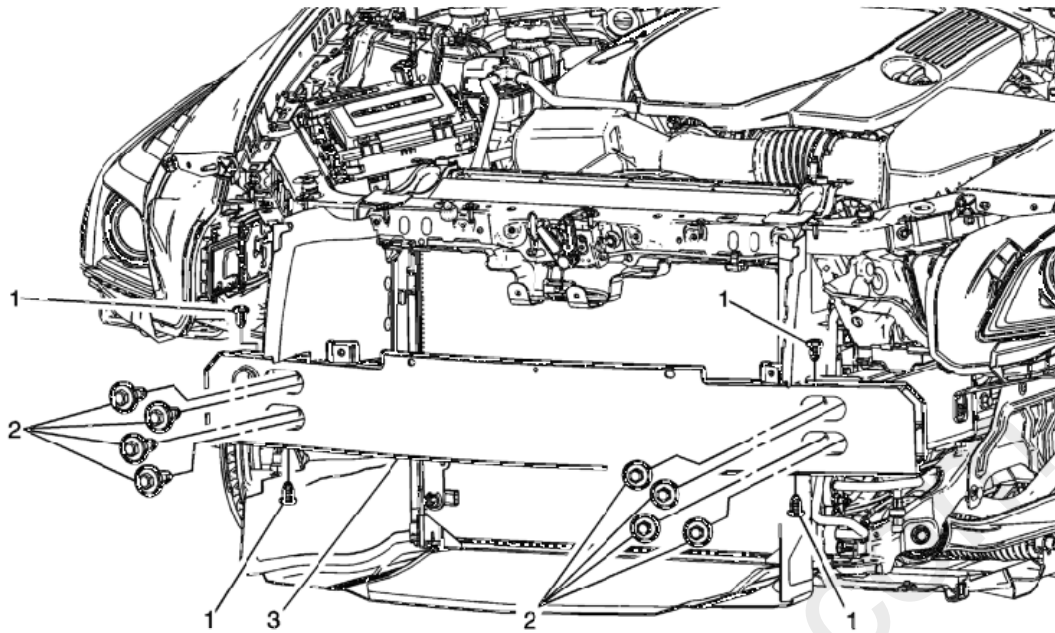


Fig. 4: Front Bumper Impact Bar
 Courtesy of GENERAL MOTORS COMPANY

Front Bumper Impact Bar Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the front bumper fascia center support lower. Refer to <u>Front Bumper Fascia Center Support Replacement (Upper)</u>, <u>Front Bumper Fascia Center Support Replacement (Lower)</u> 2. Remove the forward range radar module if equipped. Refer to <u>Forward Range Radar Module Replacement</u> 3. Remove the front end sheet metal cross braces. Refer to <u>Front End Sheet Metal Cross Brace Replacement</u> 4. Remove the ambient air temperature sensor. Refer to <u>Ambient Air Temperature Sensor Replacement</u> .	
1	Radiator Air Baffle Push-In Retainers (Qty 4) Procedure Remove the 4 radiator air baffle push-in retainers.
2	Front Bumper Impact Bar Bolt (Qty: 8) CAUTION: Refer to <u>Fastener Caution</u> .

	Tighten 32 (24 lb ft)
3	Front Bumper Impact Bar Procedure Unclip and reposition the electrical harnesses.

FRONT BUMPER FASCIA REPLACEMENT

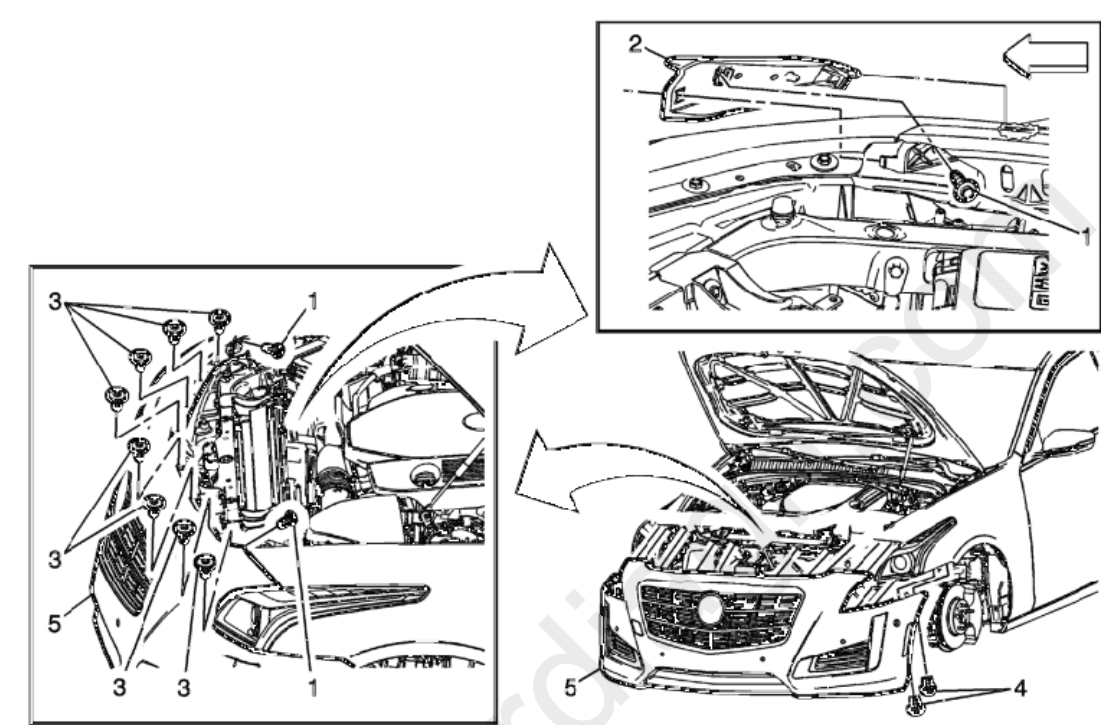


Fig. 5: Front Bumper Fascia
Courtesy of GENERAL MOTORS COMPANY

Front Bumper Fascia Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the front compartment front sight shield. Refer to Front Compartment Front Sight Shield Replacement . 2. Remove the front wheelhouse liners . Refer to Front Wheelhouse Liner Replacement . 3. Remove the front bumper fascia air deflector center. Refer to Front Bumper Fascia Air Deflector Replacement - Center.	
1	Front Bumper Fascia Reinforcement Bolt (Qty: 2) CAUTION: Refer to Fastener Caution .

	Tighten 4 (35 lb in)
2	Front Bumper Fascia Reinforcement (Qty 2)
3	Front Bumper Fascia Upper Bolt (Qty: 8) Tighten 4 (35 lb in)
4	Front Bumper Fascia Outer Bracket Bolt (Qty: 4) Tighten 9 (80 lb in)
5	Front Bumper Fascia Procedure 1. Carefully push a small nylon wedge between the fascia and the headlamp bracket. Insert a small flat-bladed tool into the fascia slot and depress the snaps (2 on each side) one at a time and pull on the fascia at the same time to gradually remove the fascia from the headlamp bracket. 2. Disconnect any electrical connectors. 3. Transfer components as necessary.

FRONT BUMPER FASCIA GUIDE REPLACEMENT

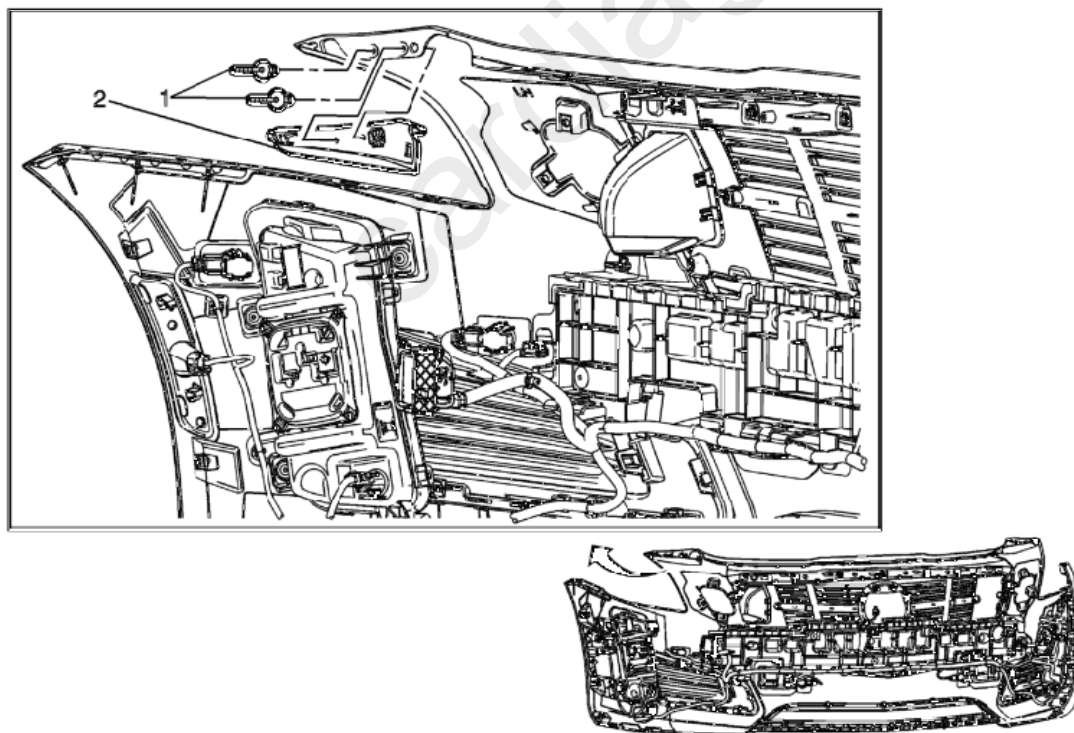


Fig. 6: Front Bumper Fascia Guide

Courtesy of GENERAL MOTORS COMPANY

Front Bumper Fascia Guide Replacement

Callout	Component Name
WARNING: Eye protection must be worn when drilling rivets to reduce the chance of personal injury.	
Preliminary Procedures 1. Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement 2. Place the bumper fascia face down on a clean protected surface.	
1	Front Bumper Fascia Guide Rivet (Qty: 2)
2	Front Bumper Fascia Guide

FRONT BUMPER FASCIA CENTER SUPPORT REPLACEMENT (UPPER)

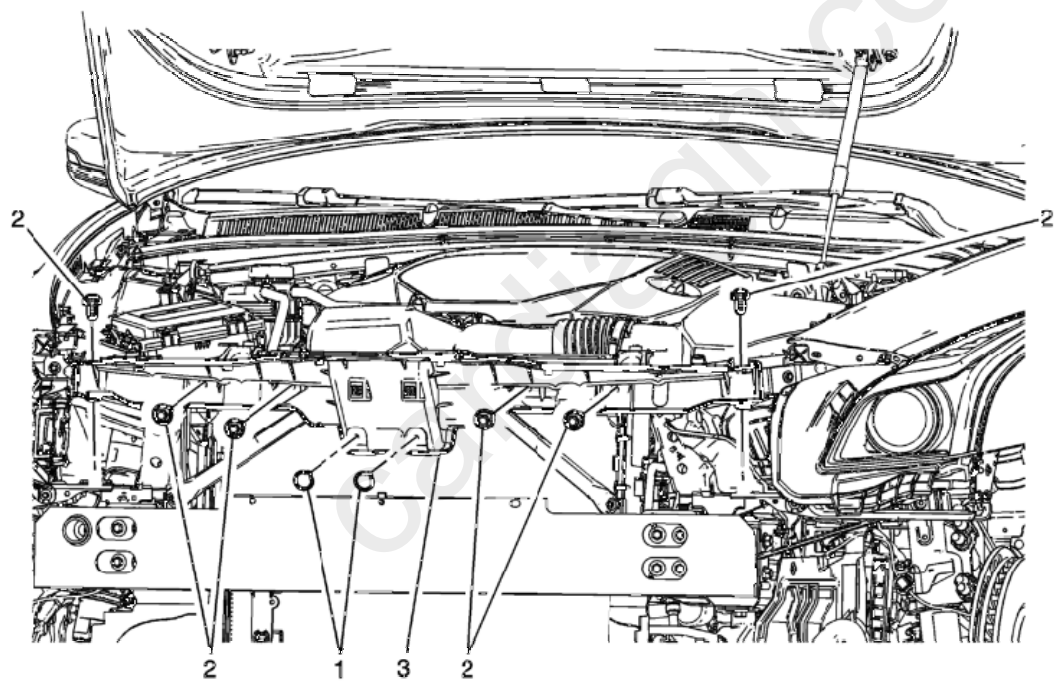


Fig. 7: Front Bumper Fascia Center Support (Upper)
Courtesy of GENERAL MOTORS COMPANY

Front Bumper Fascia Center Support Replacement (Upper)

Callout	Component Name
Preliminary Procedure 1. Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement .	

2. Remove the front bumper fascia center support lower. <u>Front Bumper Fascia Center Support Replacement (Upper), Front Bumper Fascia Center Support Replacement (Lower)</u>	
3. Remove the forward range module if equipped. Refer to <u>Forward Range Radar Module Replacement</u>	
1	Radiator Air Upper Baffle Retainer (Qty: 2)
2	Front Bumper Fascia Center Support Bolt (Qty: 6) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 9 (80 lb in)
3	Front Bumper Fascia Center Support

FRONT BUMPER FASCIA CENTER SUPPORT REPLACEMENT (LOWER)

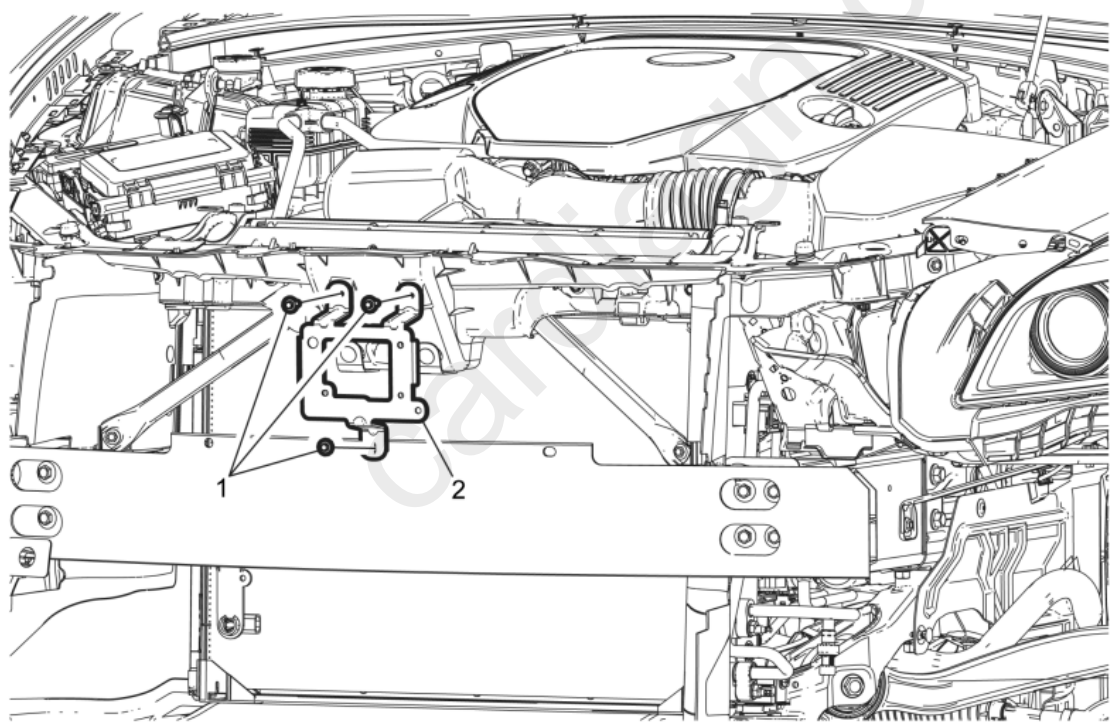


Fig. 8: Front Bumper Fascia Center Support (Lower)
Courtesy of GENERAL MOTORS COMPANY

Front Bumper Fascia Center Support Replacement (Lower)

Callout	Component Name
Preliminary Procedure	

1. Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement . 2. Remove the forward range module if equipped. Refer to Forward Range Radar Module Replacement	
1	Front Bumper Fascia Center Support Bolt (Qty: 3) CAUTION: Refer to Fastener Caution . Tighten 2.5 (22 lb in)
2	Front Bumper Fascia Center Support

FRONT BUMPER LOWER SHUTTER REPLACEMENT

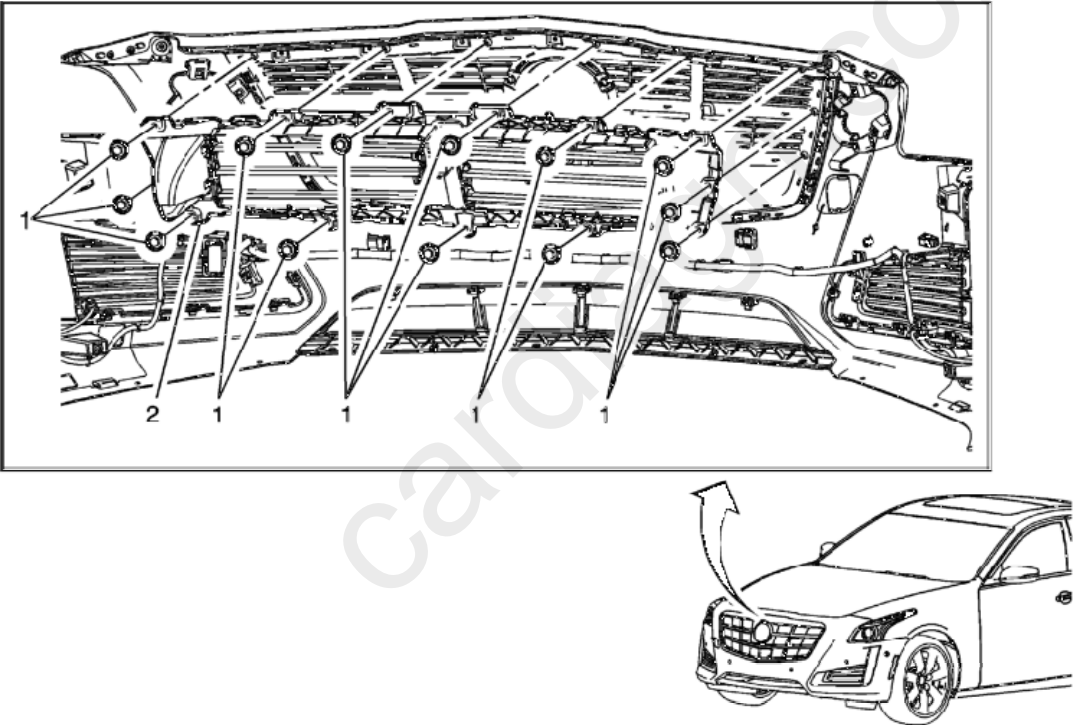


Fig. 9: Front Bumper Lower Shutter
Courtesy of GENERAL MOTORS COMPANY

Front Bumper Lower Shutter Replacement

Callout	Component Name
Preliminary Procedures Remove the front bumper fascia energy absorber. Refer to Front Bumper Fascia Energy Absorber Replacement .	
	Front Bumper Lower Shutter Bolt (Qty: 13)

1	CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 (22 lb in)
2	Front Bumper Lower Shutter

FRONT BUMPER FASCIA OUTER BRACKET REPLACEMENT

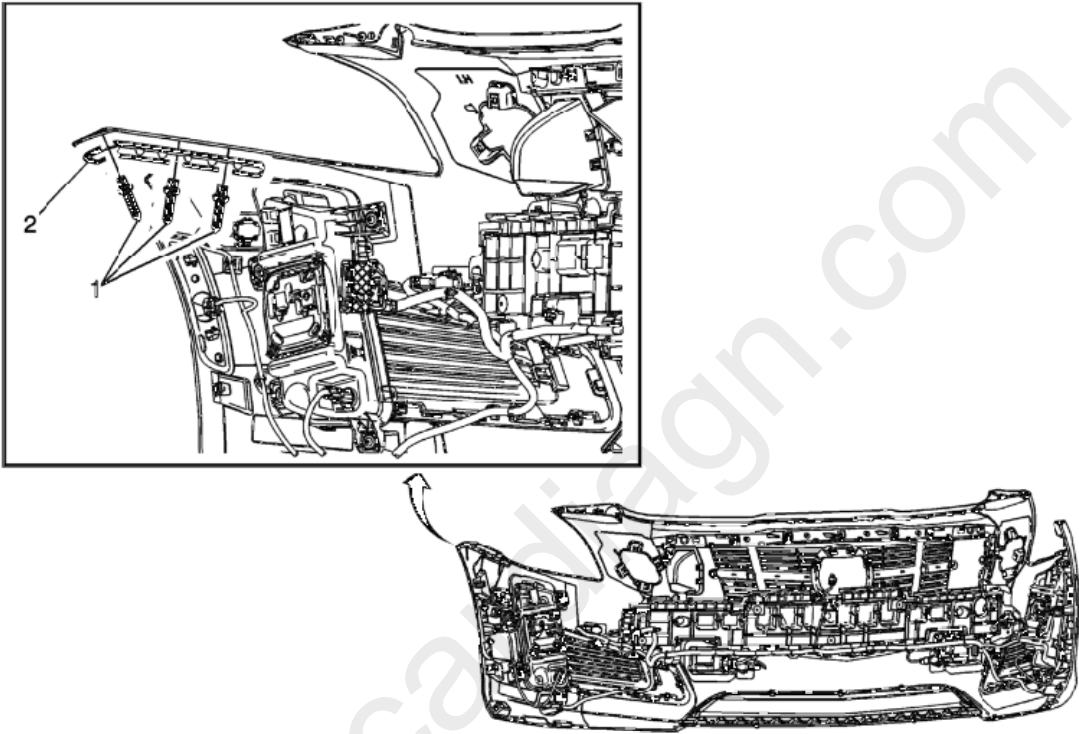


Fig. 10: Front Bumper Fascia Outer Bracket
 Courtesy of GENERAL MOTORS COMPANY

Front Bumper Fascia Outer Bracket Replacement

Callout	Component Name
WARNING: Eye protection must be worn when drilling rivets to reduce the chance of personal injury.	
Preliminary Procedures	
1. Remove the front bumper fascia. Refer to <u>Front Bumper Fascia Replacement</u>	
2. Place the bumper fascia face down on a clean protected surface.	
1	Front Bumper Fascia Outer Bracket Rivet (Qty: 3)

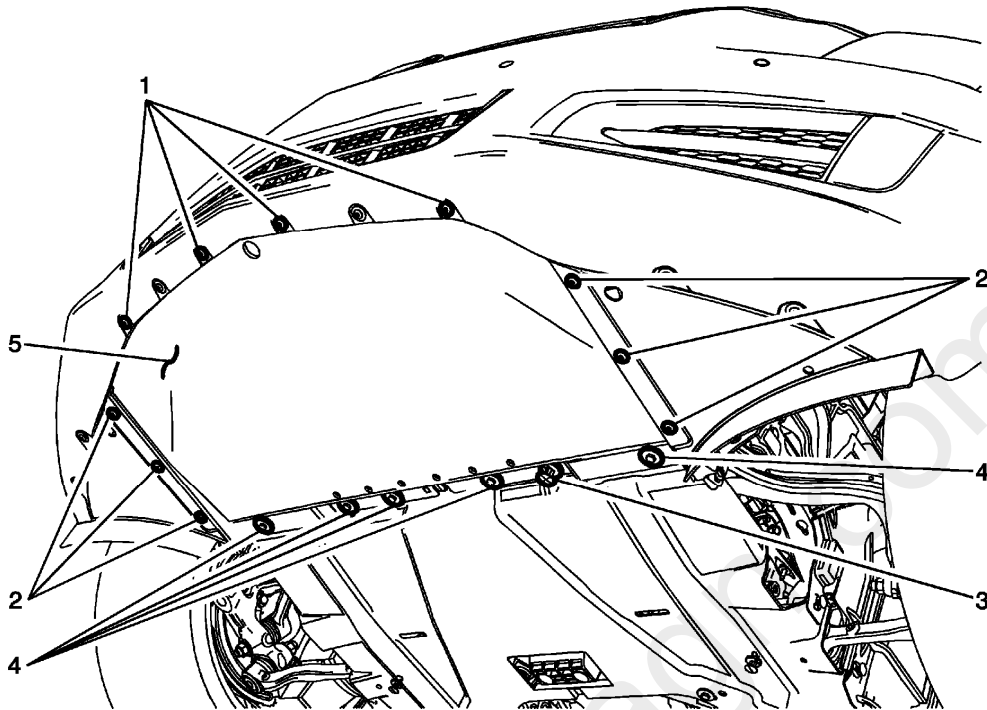
FRONT BUMPER FASCIA AIR DEFLECTOR REPLACEMENT - CENTER

Fig. 11: Front Bumper Fascia Air Deflector - Center
Courtesy of GENERAL MOTORS COMPANY

Front Bumper Fascia Air Deflector Replacement - Center

Callout	Component Name
Preliminary Procedure	
Remove the both front tire air deflectors. Refer to <u>Front Tire Front Air Deflector Replacement</u>	
1	Front Air Deflector Screw (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 (22 lb in)
2	Front Air Deflector Screw (Qty: 6) Tighten 2.5 (22 lb in)
3	Front Air Deflector Push-In Retainer
	Front Air Deflector Bolt (Qty: 5)

4	Tighten 5 (44 lb in)
5	Front Air Deflector Procedure Slide the front air deflector rearward and out from the front fascia.

REAR BUMPER FASCIA MOLDING REPLACEMENT

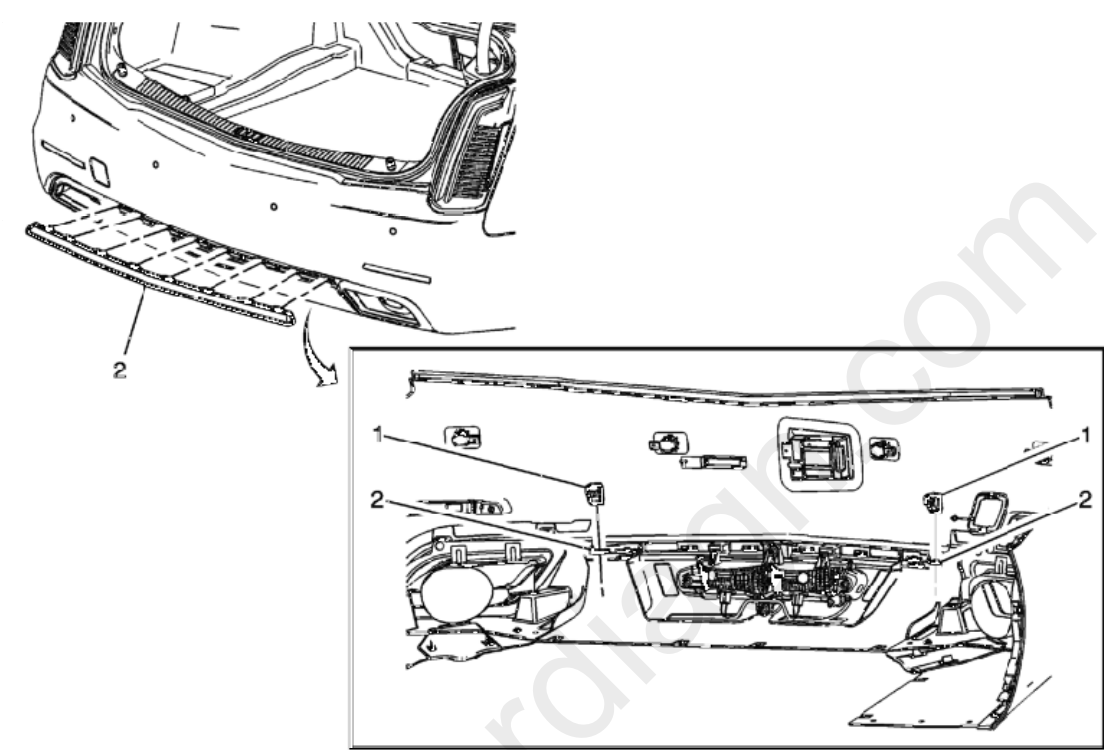


Fig. 12: Rear Bumper Fascia Molding
 Courtesy of GENERAL MOTORS COMPANY

Rear Bumper Fascia Molding Replacement

Callout	Component Name
Preliminary Procedure Remove the rear bumper fascia energy absorber. Refer to <u>Rear Bumper Fascia Energy Absorber Replacement</u> .	
1	Rear Bumper Fascia Molding Clip (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> .
2	Rear Bumper Fascia Molding Procedure

1. Place the rear bumper fascia down on a clean protected surface.
2. Release the retainer tabs and push the rear bumper fascia molding out from the rear bumper fascia.

REAR BUMPER FASCIA REPLACEMENT

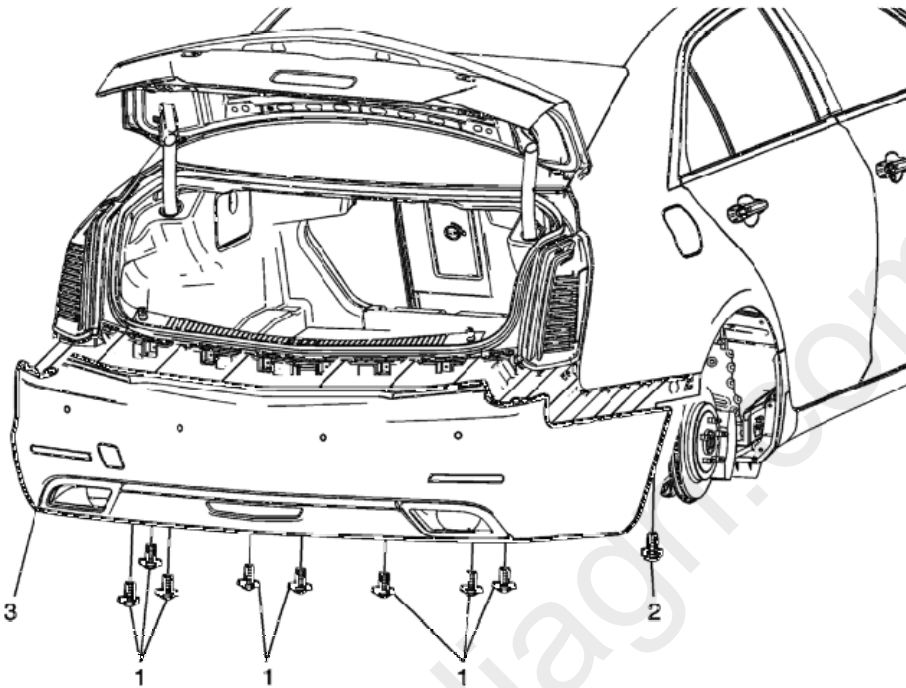


Fig. 13: Rear Bumper Fascia
 Courtesy of GENERAL MOTORS COMPANY

Rear Bumper Fascia Replacement

Callout	Component Name
Preliminary Procedure Reposition the left and right rear wheelhouse liner to gain access to the rear fascia outer bolts. Refer to <u>Rear Wheelhouse Liner Replacement</u> .	
1	Rear Bumper Fascia Bolt (Qty: 8) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 (22 lb in)
2	Rear Bumper Fascia Outer Bolt (Qty: 2) Tighten

	2.5 (22 lb in)
	Rear Bumper Fascia
3	Procedure 1. Carefully push a small nylon wedge between the fascia and the rear fascia brackets. Insert a small flat-bladed tool into the fascia slot and depress the snaps one at a time and pull on the fascia at the same time to gradually remove the fascia from the rear fascia brackets. 2. Disconnect the electrical connector. 3. Transfer parts as needed.

REAR BUMPER LOWER FASCIA BRACKET REPLACEMENT

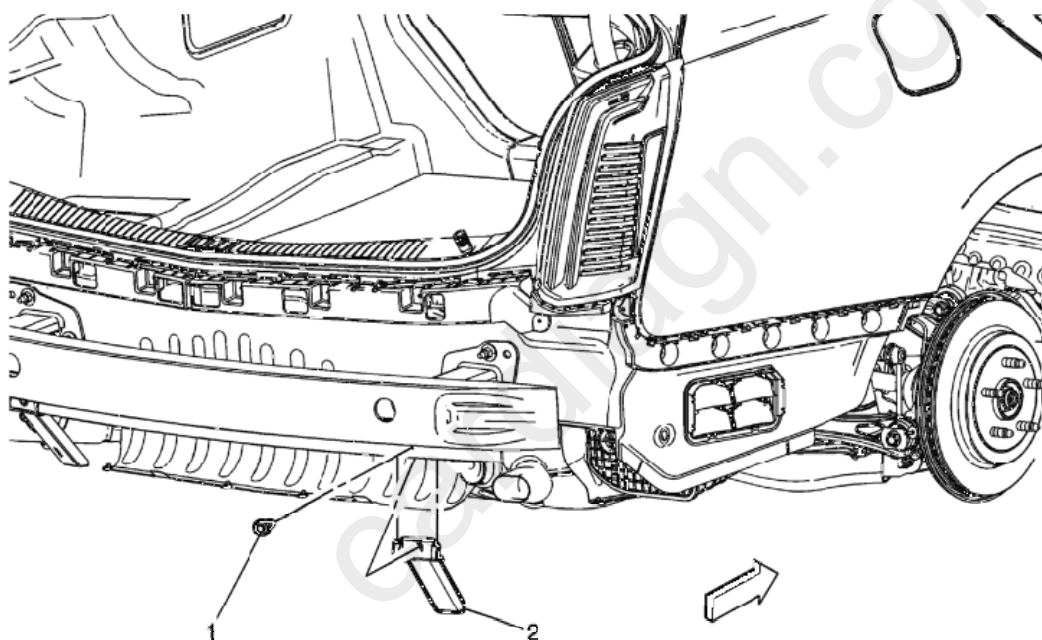


Fig. 14: Rear Bumper Lower Fascia Bracket
Courtesy of GENERAL MOTORS COMPANY

Rear Bumper Lower Fascia Bracket Replacement

Callout	Component Name
Preliminary Procedure	
Remove the rear bumper fascia. Refer to <u>Rear Bumper Fascia Replacement</u> .	
	Rear Bumper Fascia Lower Bracket Bolt (Qty: 2)
	CAUTION:

1	Refer to <u>Fastener Caution</u> . Tighten 2.5 (22 lb in)
2	Rear Bumper Fascia Lower Bracket (Qty: 2)

REAR BUMPER FASCIA ENERGY ABSORBER REPLACEMENT

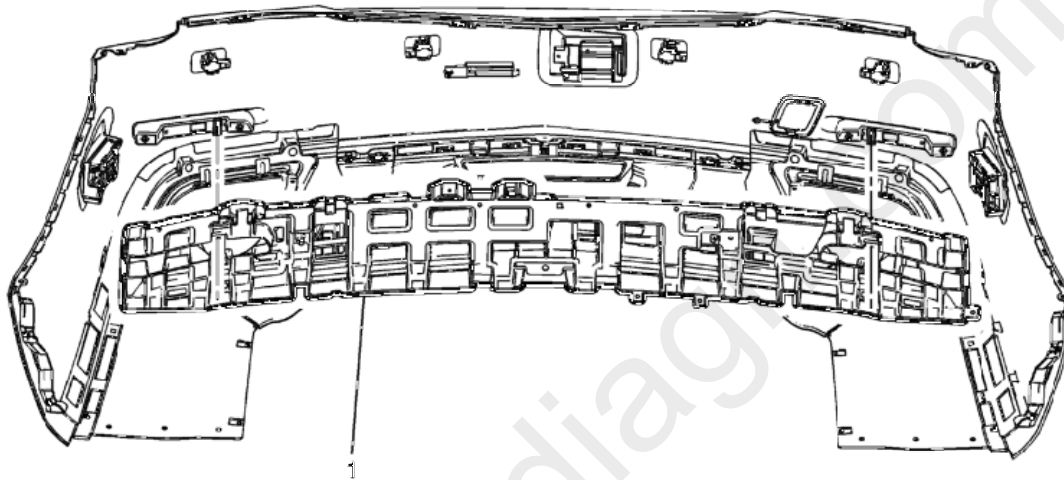


Fig. 15: Rear Bumper Fascia Energy Absorber
Courtesy of GENERAL MOTORS COMPANY

Rear Bumper Fascia Energy Absorber Replacement

Callout	Component Name
Preliminary Procedure	
1. Remove the rear bumper fascia . Refer to <u>Rear Bumper Fascia Replacement</u>. 2. Remove the backup lamps if equipped. Refer to <u>Backup Lamp Replacement</u> 3. Remove the backup and rear fog lamps if equipped. Refer to <u>Backup and Rear Fog Lamp Replacement (Export Only)</u>	
1	Rear Bumper Energy Absorber
	Procedure

1. Release the two retainer tabs.
2. Disconnect any electrical connector/harness.
3. Transfer parts as necessary.

REAR BUMPER IMPACT BAR REPLACEMENT

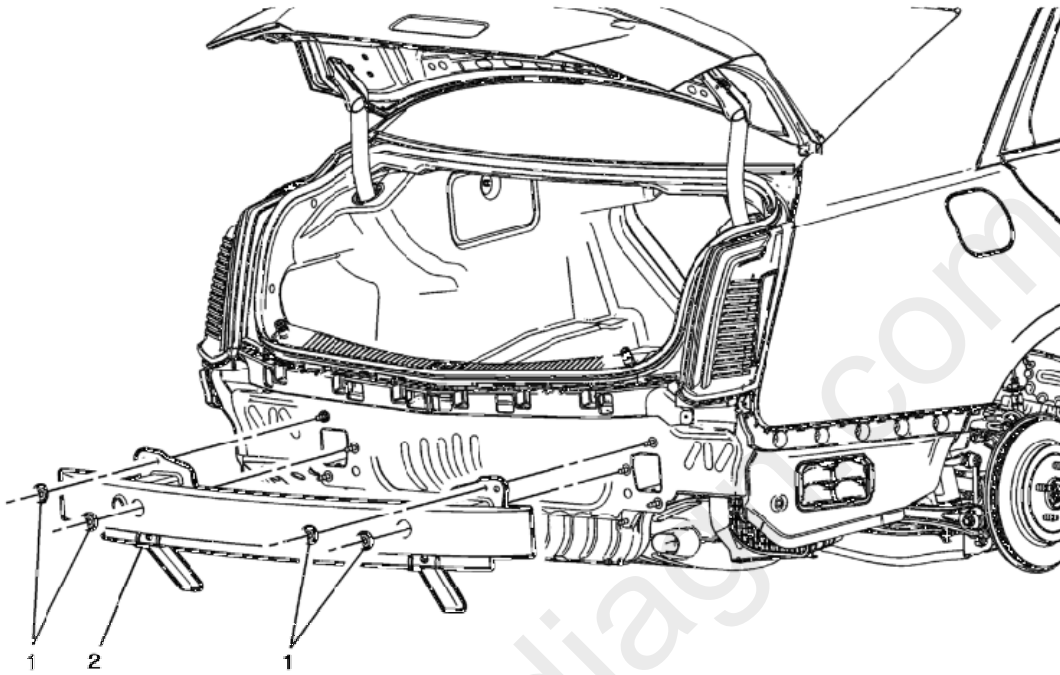


Fig. 16: Rear Bumper Impact Bar
Courtesy of GENERAL MOTORS COMPANY

Rear Bumper Impact Bar Replacement

Callout	Component Name
Preliminary Procedures	
1. Remove the rear bumper fascia. Refer to <u>Rear Bumper Fascia Replacement</u>. 2. Remove the exhaust rear muffler rear hanger. Refer to <u>Exhaust Rear Muffler Rear Hanger Replacement</u>.	
1	Rear Bumper Impact Bar Nut (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 40 (30 lb ft)

2	Rear Bumper Impact Bar Procedure Transfer parts as needed.
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REAR BUMPER FASCIA REFLECTOR REPLACEMENT

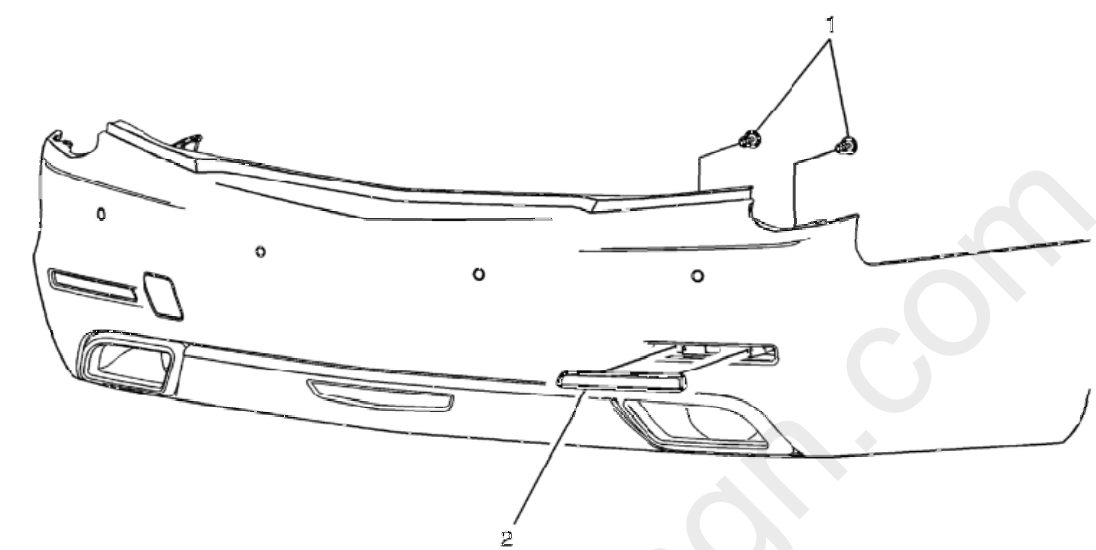


Fig. 17: Rear Bumper Fascia Reflector
 Courtesy of GENERAL MOTORS COMPANY

Rear Bumper Fascia Reflector Replacement

Callout	Component Name
Preliminary Procedures Remove the rear bumper fascia. Refer to Rear Bumper Fascia Replacement	
1	Rear Bumper Fascia Reflector Screw (Qty: 2) CAUTION: Refer to Fastener Caution . Tighten 2 (18 lb in)
2	Rear Bumper Fascia Reflector

DESCRIPTION AND OPERATION

ACTIVE GRILLE AIR SHUTTER DESCRIPTION AND OPERATION

The active grille air shutter actuator closes louvers at the front bumper to enhance vehicle aerodynamics in driving situations where cooling and A/C loads are relatively low and high levels of front end airflow are not required. If high levels of airflow are required the active grille air shutter actuator opens the louvers. The control signal from the chassis control module, ignition and ground circuits enable the active grille air shutter actuator to operate. If the conditions for opening the louvers are reached the chassis control module commands the active grille air shutter actuator to open the louvers.

The single active grille air shutter system consists of an individual motor operated mechanism hinged behind the vehicle front grille for controlling the amount of air entering the engine compartment. It includes three wires, ground, power and pulse width modulated signal to the actuator. The chassis control module determines shutter state based on various vehicle conditions such as vehicle speed, coolant temperature, fan state, refrigerant system pressure, A/C compressor state and ambient temperature. The pulsed signal controlling the shutter mechanism will be able to control the shutter to close/open positions.

The actuator is powered by an ignition circuit that is active when the key is in the RUN position. The vehicle may have to be driven for up to 13 minutes at speeds greater than 41 kph (25 mph) before the shutter begins to move. If low ambient temperature is detected, the shutter will remain in the closed position.