

2017 ACCESSORIES AND EQUIPMENT

Bumpers and Fascias - Sierra, Silverado

SPECIFICATIONS

FASTENER SPECIFICATIONS

Reusable Threaded Fastener Tightening Specifications

Note: All fasteners listed in this table can be reused after removal.	
Application	Specification Metric (English)
Front Air Deflector Extension Bolt	6 N.m (53 lb in)
Front Bumper Fascia Air Deflector Bolt	6 N.m (53 lb in)
Front Bumper Fascia Air Deflector Retainer	6 N.m (53 lb in)
Front Bumper Fascia Bolt	6 N.m (53 lb in)
Front Bumper Fascia Side Bracket Bolt	7 N.m (62 lb in)
Front Bumper Fascia Support Bracket Screw	6 N.m (53 lb in)
Front Bumper Fascia Trim Cap Bolt	2.5 N.m (22 lb in)
Front Bumper Filler Bolt	6 N.m (53 lb in)
Front Bumper Impact Bar Bolt	100 N.m (74 lb ft)
Front Bumper Impact Bar Brace Bolt	55 N.m (41 lb ft)
Front Bumper Impact Bar Bracket Bolt	100 N.m (74 lb ft)
Front Bumper Impact Bar Bracket Bolt to Bumper	58 N.m (43 lb ft)
Front Bumper Impact Bar Bracket Bolt to Frame End	58 N.m (43 lb ft)
Front Bumper Impact Bar Lower Bracket Bolt	55 N.m (41 lb ft)
Front Bumper Impact Bar Outer Reinforcement Bolt	58 N.m (43 lb ft)
Front Bumper Impact Bar Skid Plate Bolt	2.5 N.m (22 lb in)
Front Bumper Lower Impact Bar Bolt	58 N.m (43 lb ft)
Front Bumper Outer Filler Bolt	7 N.m (62 lb in)
Front Bumper Shutter Bolt	6 N.m (53 lb in)
Impact Bar Adjustment Bracket Bolt	58 N.m (43 lb ft)
Inner Front Bumper Impact Bar Bolt	100 N.m (74 lb ft)
Outer Front Bumper Impact Bar Bolt	58 N.m (43 lb ft)
Rear Bumper Bolt to Side Plate	40 N.m (30 lb ft)
Rear Bumper Fascia Step Pad Bolt	2.5 N.m (22 lb in)
Rear Bumper Impact Bar Brace Bolt	50 N.m (37 lb ft)
Rear Bumper Impact Bar Brace Nut	70 N.m (52 lb ft)
Rear Bumper Impact Bar Lower Brace Bolt	140 N.m (103 lb ft)
Rear Bumper Impact Bar Upper Brace Bolt	40 N.m (30 lb ft)
Rear Bumper Step Pad Insert Bolt	2.5 N.m (22 lb in)
Rear Bumper Step Outer Pad Bolt	2.5 N.m (22 lb in)

SCHEMATIC WIRING DIAGRAMS

ACTIVE GRILLE AIR SHUTTER WIRING SCHEMATICS

Active Grille Air Shutter

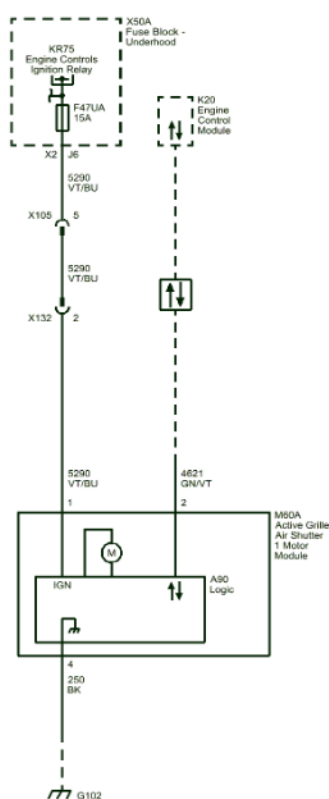


Fig. 1: Active Grille Air Shutter

Courtesy of GENERAL MOTORS COMPANY

DIAGNOSTIC INFORMATION AND PROCEDURES

DTC P059F OR P151E: ACTIVE GRILLE AIR SHUTTER

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 P059F

Active Grille Air Shutter 1 Performance

DTC P151E

Active Grille Air Shutter Actuator 1 Signal Message Counter Incorrect

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ignition	P059F, P151E	P059F, P151E	--	--
Local Interconnect Network Serial Data Bus	U1510	U1510	U1510	U1510
Ground	-	P059F, P151E	-	--

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 Local Interconnect Network (LIN) Serial Data Bus signal from the engine 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 engine control module commands the active grille air shutter actuator to open the louvers.

Conditions for Running the DTC

- Ignition On/Vehicle in Service Mode.
- The battery 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 5 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. The malfunction indicator lamp will illuminate in the second key cycle after a failed movement attempt is made in each of two back to back key cycles.
- The DTC P151E will set if there is a serial data communication failure.

Action Taken When the DTC Sets

DTC P059F and P151E are type B DTCs.

Conditions for Clearing the DTC

DTC P059F and P151E are type B DTCs.

Reference Information

Schematic Reference

Active Grille Air Shutter Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

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/Vehicle in Service Mode.
2. Verify DTC U1510 is not set.
 - **If DTC U1510 is set**
Refer to [Diagnostic Trouble Code \(DTC\) List - Vehicle](#) for further diagnosis.
 - **If DTC U1510 is not set**
3. Verify the active grille air shutter position parameter changes from 0% (fully open) to 100% (fully closed) when using the scan tool ECM Active Grille Air Shutter Position control function.
 - **If the louvers at the front bumper do not open and close**
Refer to Circuit/System Testing.
 - **If the louvers at the front bumper open and close**
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/Vehicle Off and all vehicle systems Off, disconnect the harness connector(s) at the active grille air shutter actuator(s). It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit and ground.
 - **If 10 Ω or greater**
 1. Ignition/Vehicle Off.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition On/Vehicle in Service Mode.

4. Verify a test lamp illuminates between the ignition circuit and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition/Vehicle Off.

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

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , 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/Vehicle 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 the test lamp illuminates**

5. Ignition/Vehicle Off, disconnect the harness connector at the K20 Engine Control Module.

1. Test for infinite resistance between the LIN Serial Data Bus circuit and ground.

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

2. Test for less than 2 Ω in the LIN Serial Data Bus circuit end to end.

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

3. Test for less than 1 V between the LIN Serial Data Bus circuit and ground.

- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V

6. Test or replace the M60A Active Grille Air Shutter 1 Motor Module.

7. Verify DTCs P059F, P151E or U1510 are not set while operating the vehicle under the conditions for setting the DTC.

- **If the DTC is set**

Replace the K20 Engine Control Module.

- **If the DTC is not set**

8. All OK.

Repair Instructions

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

[Control Module References](#) for control module replacement, programming and setup.

SYMPTOMS - ACTIVE GRILLE AIR SHUTTER

NOTE: 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 link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to [Active Grille Air Shutter Description and Operation](#).

Visual/Physical Inspection

- Inspect for aftermarket devices which may affect the operation of the system. Refer to [Checking Aftermarket Accessories](#).
- Inspect the easily accessible or visible system components for obvious damage or conditions which may 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

[Active Grille Air Shutter 1 Malfunction](#)

ACTIVE GRILLE AIR SHUTTER 1 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 P059F

Active Grille Air Shutter 1 Performance

DTC P151E

Active Grille Air Shutter Actuator 1 Signal Message Counter Incorrect

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ignition	P059F, P151E	P059F, P151E	--	--
Local Interconnect Network Serial Data Bus	U1510	U1510	U1510	U1510
Ground	-	P059F, P151E	-	--

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 Local Interconnect Network (LIN) Serial Data Bus signal from the engine 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 engine control module commands the active grille air shutter actuator to open the louvers.

Conditions for Running the DTC

- Ignition On/Vehicle in Service Mode.
- The battery 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 5 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. The malfunction indicator lamp will illuminate in the second key cycle after a failed movement attempt is made in each of two back to back key cycles.
- The DTC P151E will set if there is a serial data communication failure.

Action Taken When the DTC Sets

DTC P059F and P151E are type B DTCs.

Conditions for Clearing the DTC

DTC P059F and P151E are type B DTCs.

Reference Information

Schematic Reference

Active Grille Air Shutter Schematics

Connector End View Reference

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

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition On/Vehicle in Service Mode.

2. Verify DTC U1510 is not set.

- **If DTC U1510 is set**

Refer to [Diagnostic Trouble Code \(DTC\) List - Vehicle](#) for further diagnosis.

- **If DTC U1510 is not set**

3. Verify the active grille air shutter position parameter changes from 0% (fully open) to 100% (fully closed) when using the scan tool ECM Active Grille Air Shutter Position control function.

- **If the louvers at the front bumper do not open and close**

Refer to Circuit/System Testing.

- **If the louvers at the front bumper open and close**

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/Vehicle Off and all vehicle systems Off, disconnect the harness connector(s) at the active grille air shutter actuator(s). It may take up to 2 minutes for all vehicle systems to power down.

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

- **If 10 Ω or greater**

1. Ignition/Vehicle Off.

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

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

- **If less than 10 Ω**

3. Ignition On/Vehicle in Service Mode.

4. Verify a test lamp illuminates between the ignition circuit and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition/Vehicle Off.

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

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , 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/Vehicle 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 the test lamp illuminates**

5. Ignition/Vehicle Off, disconnect the harness connector at the K20 Engine Control Module.

1. Test for infinite resistance between the LIN Serial Data Bus circuit and ground.

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

2. Test for less than 2 Ω in the LIN Serial Data Bus circuit end to end.

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

3. Test for less than 1 V between the LIN Serial Data Bus circuit and ground.

- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V

6. Test or replace the M60A Active Grille Air Shutter 1 Motor Module.

7. Verify DTCs P059F, P151E or U1510 are not set while operating the vehicle under the conditions for setting the DTC.

- **If the DTC is set**

Replace the K20 Engine Control Module.

- **If the DTC is not set**

8. All OK.

Repair Instructions

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

[Control Module References](#) for control module replacement, programming and setup.

REPAIR INSTRUCTIONS

FRONT BUMPER IMPACT BAR REPLACEMENT (1500)

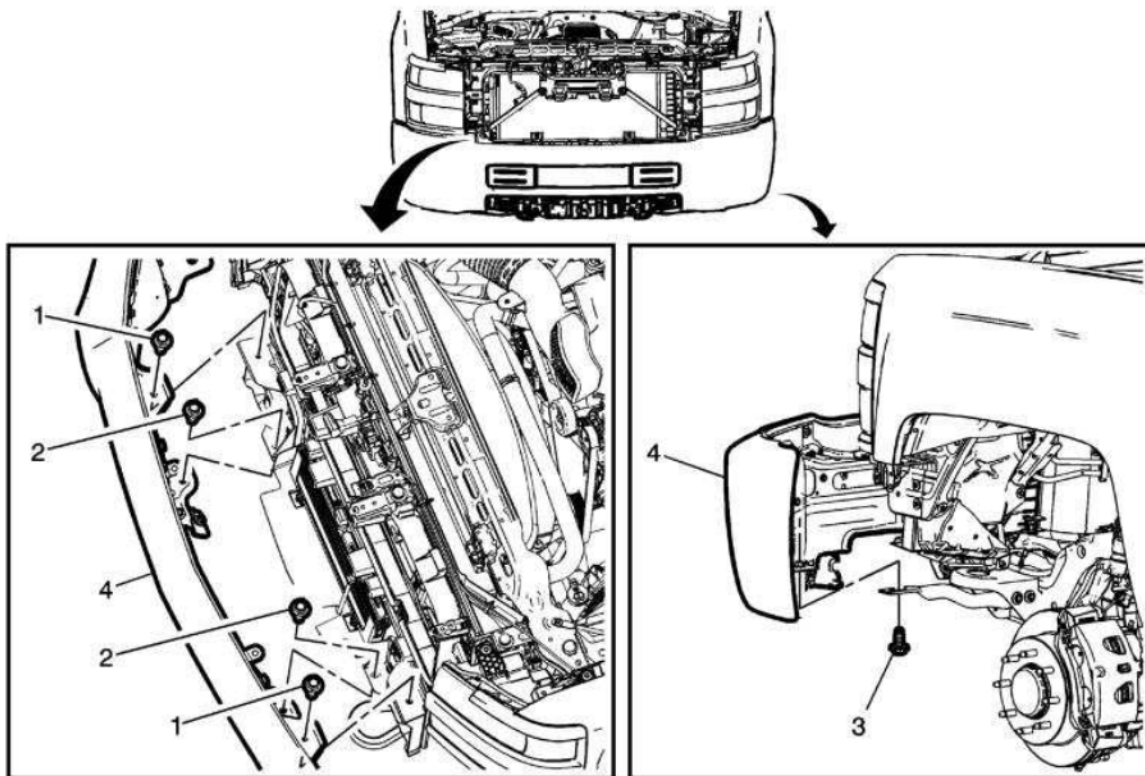


Fig. 2: Front Bumper Impact Bar (LML)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove the radiator grille. Refer to Front Grille Replacement (GMC) Front Grille Replacement (Chevrolet) . 2. Remove the front bumper fascia trim cap. Refer to Front Bumper Fascia Trim Cap Replacement (GMC). 3. Remove the front bumper fascia air deflector. Refer to Front Bumper Fascia Air Deflector Replacement (GMC)Front Bumper Fascia Air Deflector Replacement (Chevrolet 1500)	
1	Front Bumper Impact Bar Bolt (Qty: 2) CAUTION: Refer to Fastener Caution . Tighten 100 N.m (74 lb ft)
2	Front Bumper Impact Bar Bracket Bolt (Qty: 2) Tighten 100 N.m (74 lb ft)

Callout	Component Name
3	Front Bumper Impact Bar Brace Bolt (Qty 2) Tighten 55 N.m (41 lb ft)
4	Front Bumper Impact Bar Procedure • Disconnect any electrical connectors. • Transfer any parts as needed.

FRONT BUMPER IMPACT BAR REPLACEMENT (2500, 3500)

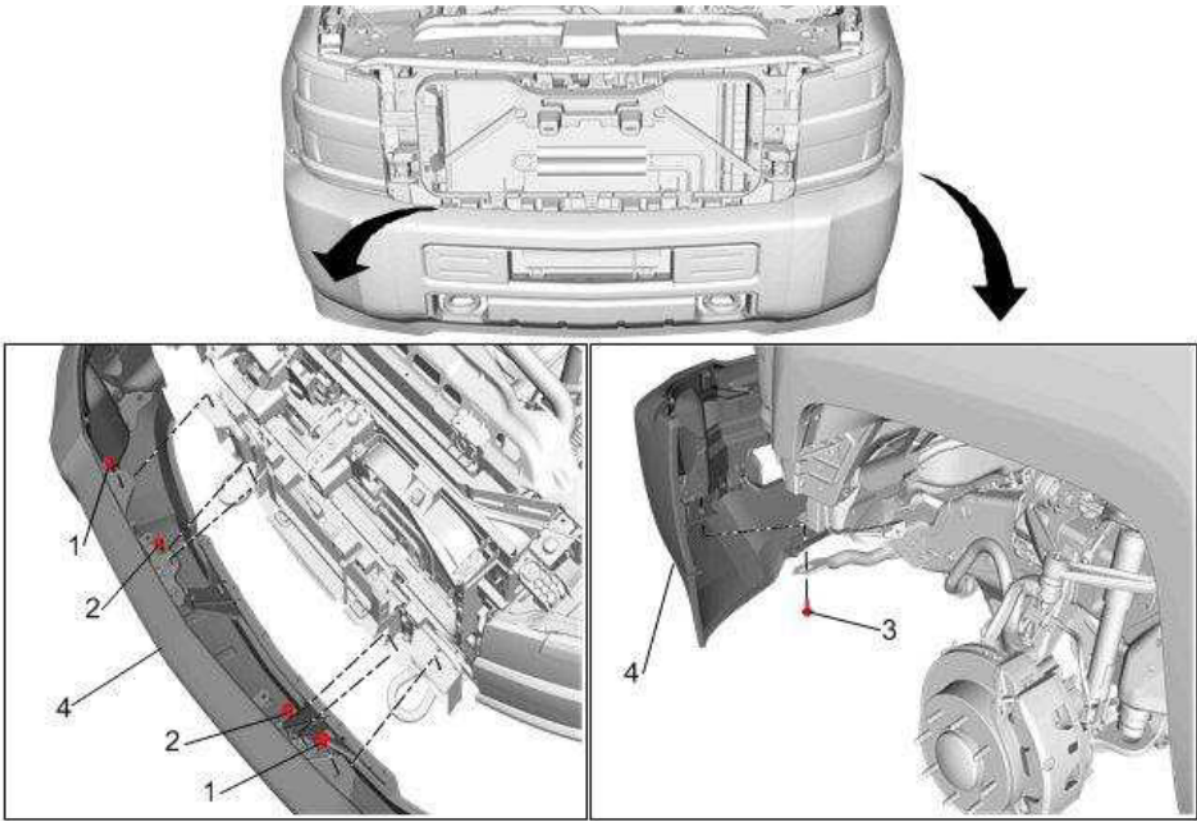


Fig. 3: Front Bumper Impact Bar (2500, 3500)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the radiator grille. Refer to Front Grille Replacement (Chevrolet 2500 3500) Front Grille Replacement (GMC 2500 3500) .	

Callout	Component Name
1	Front Bumper Impact Bar Bolt (Qty: 2) CAUTION: Refer to Fastener Caution . Tighten 100 N.m (74 lb ft)
2	Front Bumper Impact Bar Bracket Bolt (Qty: 2) Tighten 100 N.m (74 lb ft)
3	Front Bumper Impact Bar Brace Bolts (Qty 2) Tighten 55 N.m (41 lb ft)
4	Front Bumper Impact Bar Procedure • Disconnect any electrical connectors. • Remove the front bumper fascia air deflector. Refer to Front Bumper Fascia Air Deflector Replacement (GMC)Front Bumper Fascia Air Deflector Replacement (Chevrolet 2500, 3500). • Transfer any parts as needed.

FRONT BUMPER IMPACT BAR ADJUSTMENT

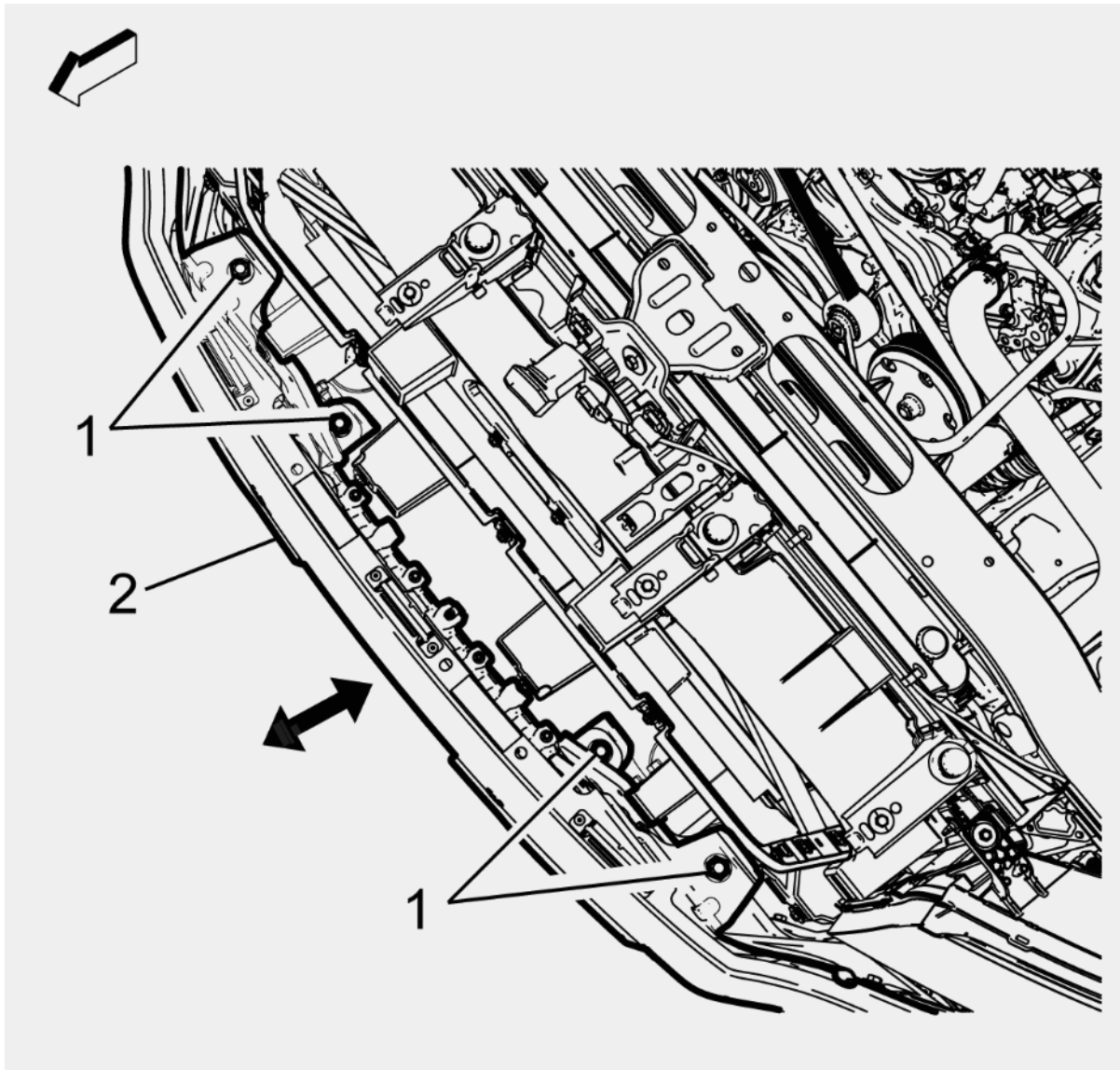


Fig. 4: Inner Front Bumper Impact Bar Bolts
Courtesy of GENERAL MOTORS COMPANY

1. Measure the distance and document the impact bar to the headlamp and fenders and note how much movement of the impact bar is needed to the right, left, up, down, fore and aft to achieve an equal gap to the fenders and headlamps.
2. Remove the grille. Refer to [Front Grille Replacement \(GMC\)](#) [Front Grille Replacement \(Chevrolet 2500 3500\)](#) [Front Grille Replacement \(GMC 2500 3500\)](#) [Front Grille Replacement \(Chevrolet\)](#)
3. Loosen the inner front bumper impact bar bolts (1).
4. Loosen the outer front bumper impact bar support bolts.
5. Align the front bumper impact bar fore and aft (2) in order to achieve an equal gap to the lower edge of the headlamps and fender.

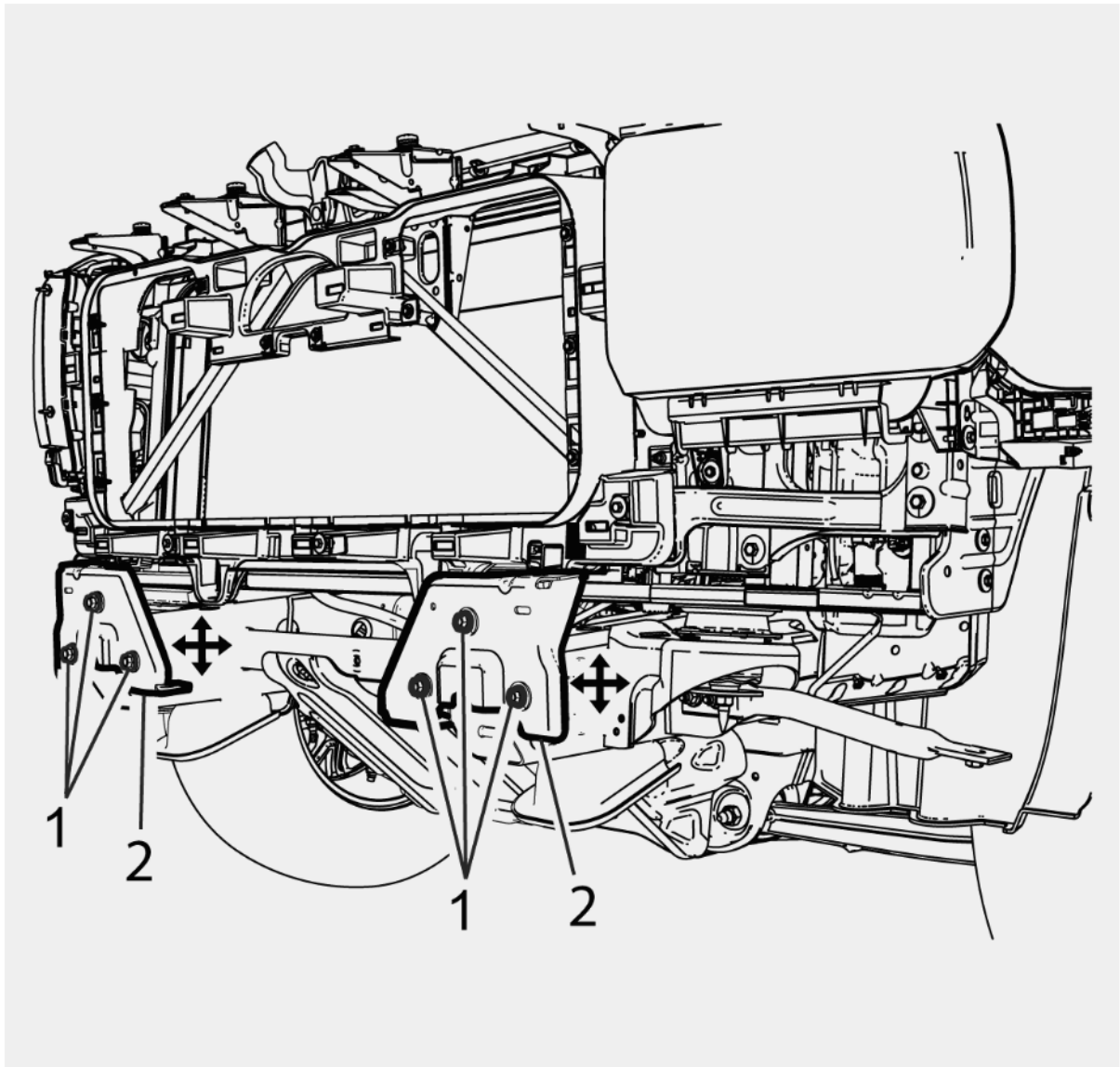


Fig. 5: Adjustment Brackets

Courtesy of GENERAL MOTORS COMPANY

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

6. Remove front bumper impact bar. Refer to [Front Bumper Impact Bar Replacement \(1500\)Front Bumper Impact Bar Replacement \(2500, 3500\)](#)
7. With a grease pencil mark the bumper adjustment bracket, top and side.
8. Loosen the impact bar adjustment bracket bolts (1) and move the adjustment bracket (2) to the pre determined measurements. Refer to step 1.
9. Tighten the impact bar adjustment bracket bolts to 58 N.m (43 lb ft)
10. Install the front bumper impact bar. Refer to [Front Bumper Impact Bar Replacement \(1500\)Front Bumper Impact Bar Replacement \(2500, 3500\)](#).
11. Tighten the inner front bumper impact bar bolts to 100 N.m (74 lb ft)
12. Tighten the outer front bumper impact bar support bolts to 58 N.m (43 lb ft).
13. Install the grill. Refer to [Front Grille Replacement \(GMC\) Front Grille Replacement \(Chevrolet 2500 3500\) Front Grille Replacement \(GMC 2500 3500\) Front Grille Replacement \(Chevrolet\)](#)

FRONT BUMPER IMPACT BAR SKID PLATE REPLACEMENT (GMC)

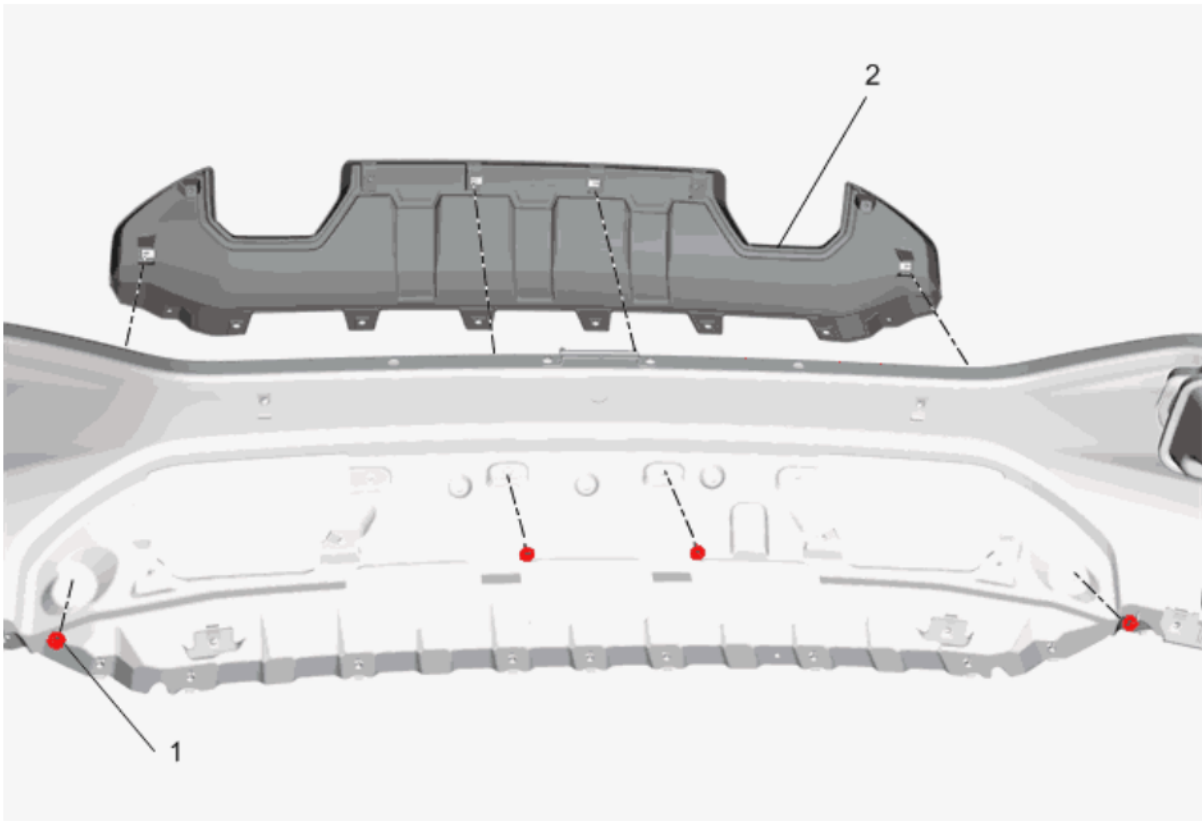


Fig. 6: Front Bumper Impact Bar Skid Plate (GMC)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Front Bumper Impact Bar Bracket Replacement (To Frame End)Front Bumper Impact Bar Bracket Replacement (GMC To Bumper)	
1	Front Bumper Impact Bar Skid Plate Bolt CAUTION: Refer to Fastener Caution . Tighten 2.5 N.m (22 lb in)
2	Front Bumper Impact Bar Skid Plate

FRONT BUMPER IMPACT BAR BRACKET REPLACEMENT (TO FRAME END)

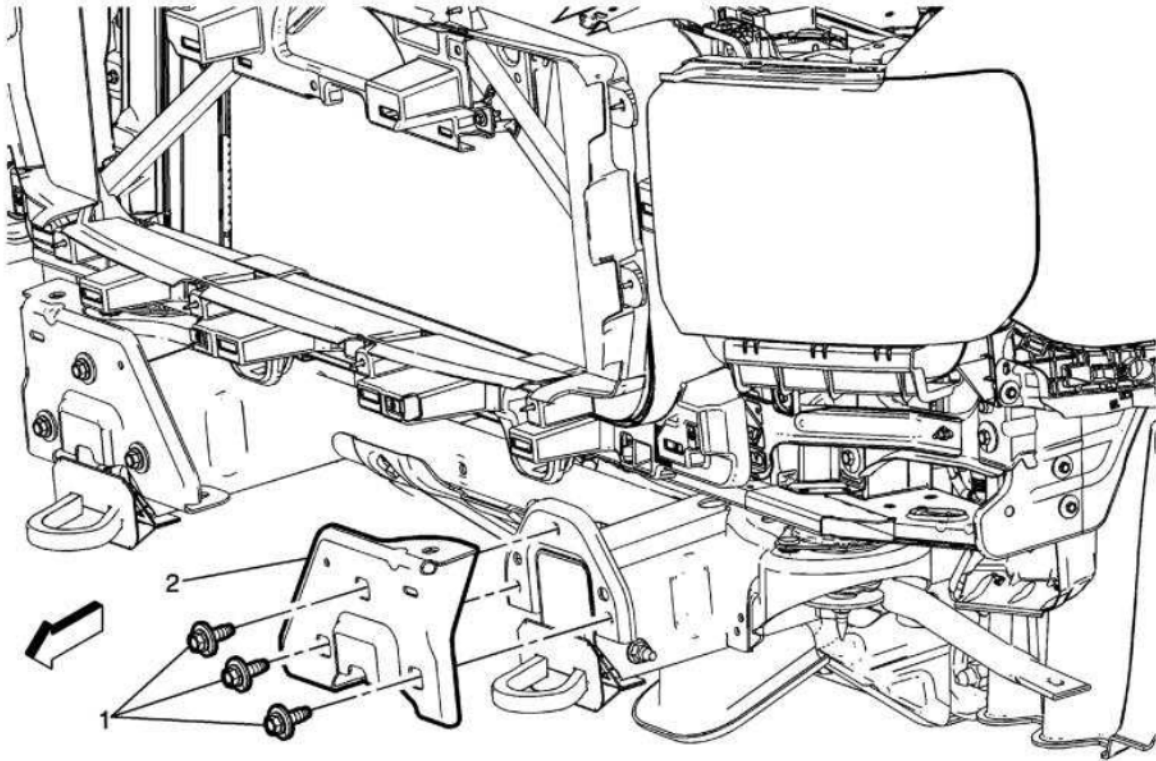


Fig. 7: Front Bumper Impact Bar Bracket (To Frame End)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front bumper impact bar. Refer to <u>Front Bumper Impact Bar Replacement (1500)Front Bumper Impact Bar Replacement (2500, 3500).</u>	
1	Front Bumper Impact Bar Bracket Bolt to Frame End (Qty: 3) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 58 N.m (43 lb ft)
2	Front Bumper Impact Bar Bracket

FRONT BUMPER IMPACT BAR BRACKET REPLACEMENT (GMC TO BUMPER)

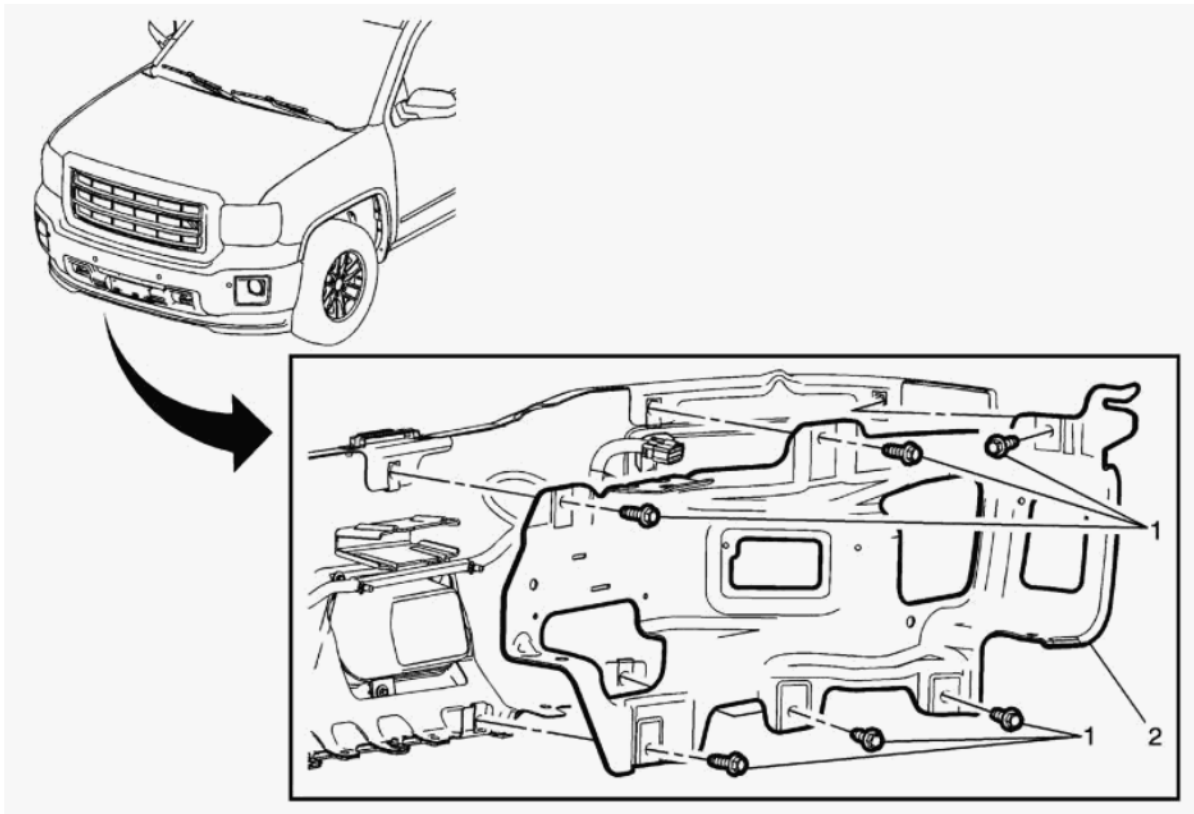


Fig. 8: Front Bumper Impact Bar Bracket (GMC To Bumper)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front bumper impact bar. Refer to Front Bumper Impact Bar Replacement (1500) Front Bumper Impact Bar Replacement (2500, 3500) .	
1	Front Bumper Impact Bar Bracket Bolt to Bumper (Qty: 6) CAUTION: Refer to Fastener Caution . Tighten 58 N.m (43 lb ft)
2	Front Bumper Impact Bar Bracket Procedure Unclip and reposition the wire harnesses as necessary.

FRONT BUMPER IMPACT BAR LOWER BRACKET REPLACEMENT

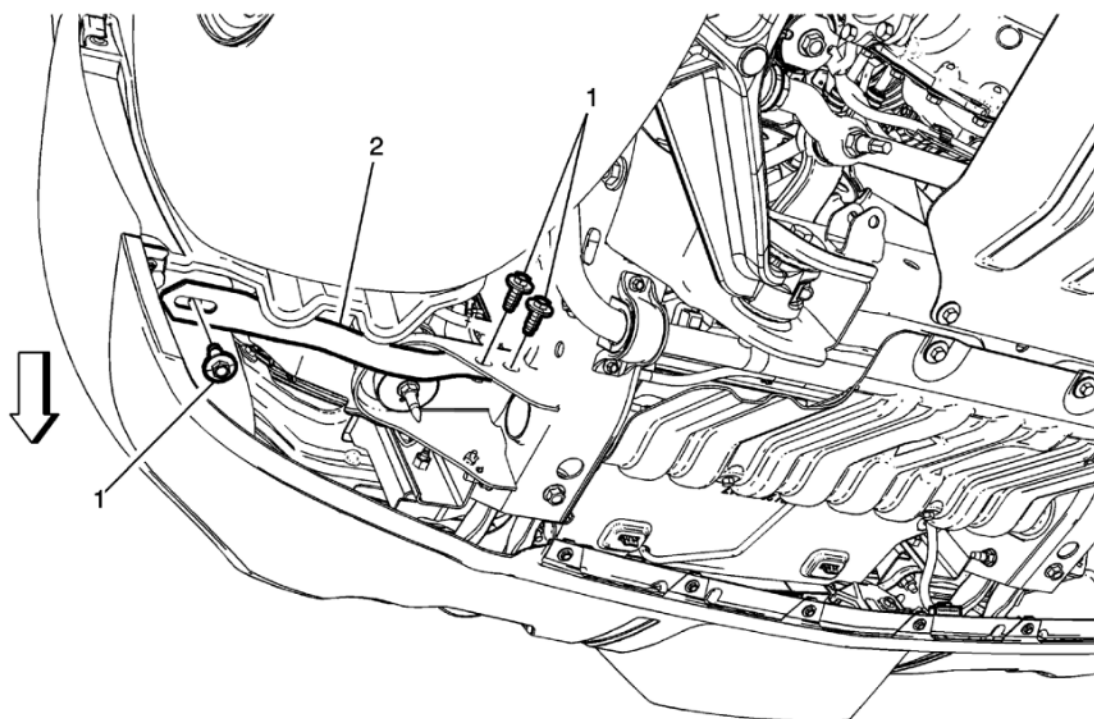


Fig. 9: Front Bumper Impact Bar Lower Bracket

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle	
1	Front Bumper Impact Bar Lower Bracket Bolt (Qty: 3) CAUTION: Refer to Fastener Caution . Tighten 55 N.m (41 lb ft)
2	Front Bumper Impact Bar Lower Bracket

FRONT BUMPER IMPACT BAR UPPER BRACKET REPLACEMENT (GMC)

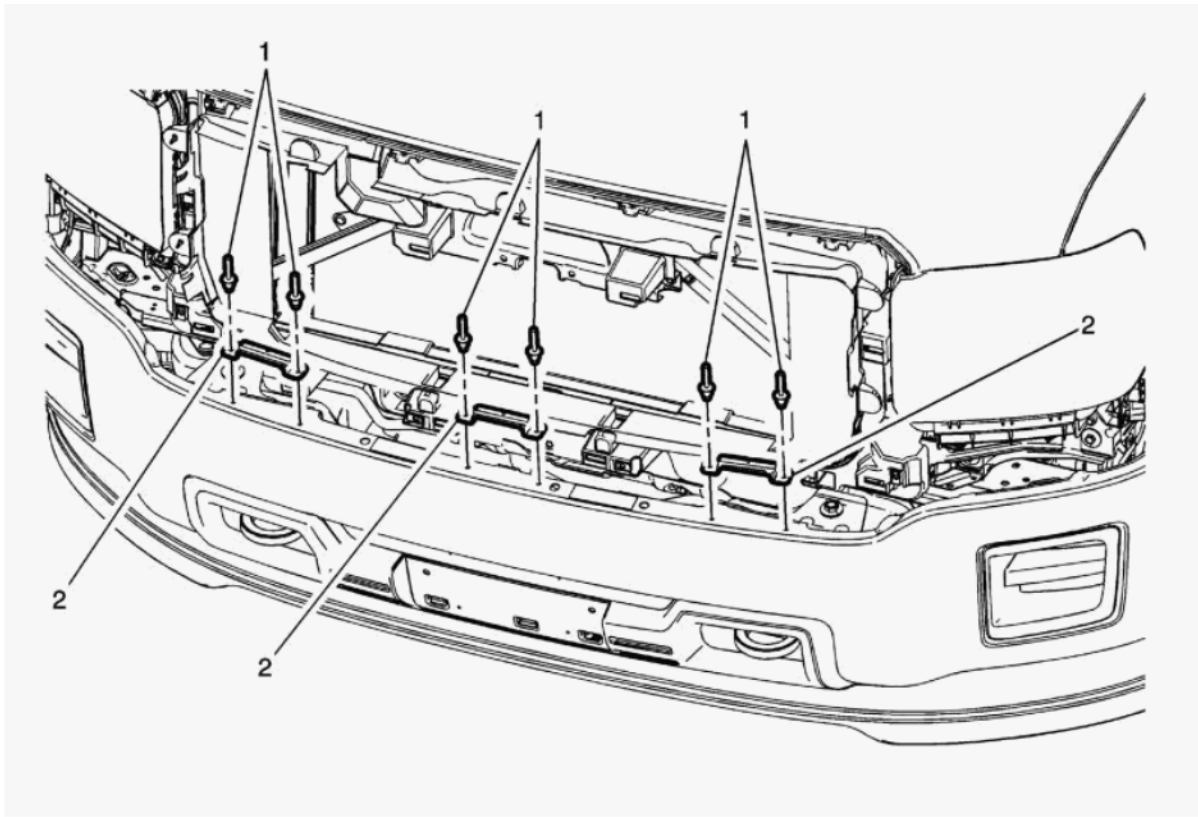


Fig. 10: Front Bumper Impact Bar Upper Bracket (GMC)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: Refer to Eye Protection Warning .	
Preliminary Procedure Remove the front bumper fascia trim cap. Refer to Front Bumper Fascia Trim Cap Replacement (GMC)	
1	Front Bumper Impact Bar Upper Bracket Rivet (Qty: 6) CAUTION: Refer to Fastener Caution .
2	Front Bumper Impact Bar Upper Bracket (Qty: 3)

FRONT BUMPER IMPACT BAR UPPER BRACKET REPLACEMENT (CHEVROLET)

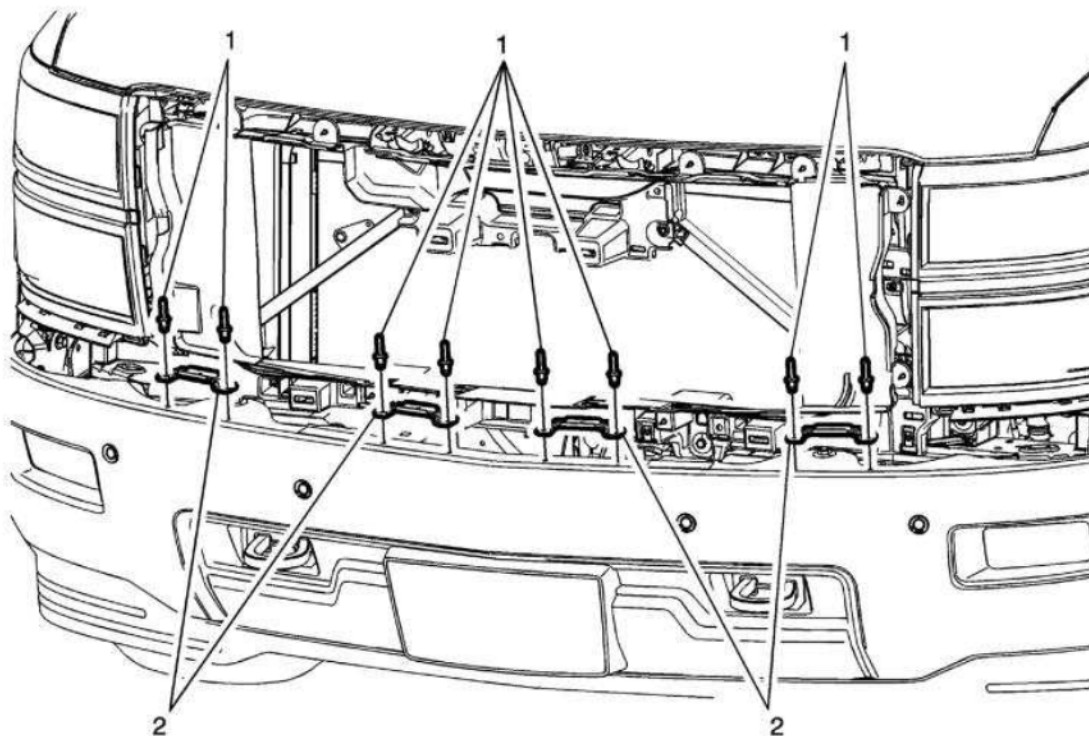


Fig. 11: Front Bumper Impact Bar Upper Bracket (Chevrolet)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: Refer to Eye Protection Warning .	
Preliminary Procedure Remove the front bumper fascia trim cap . Refer to Front Bumper Fascia Trim Cap Replacement (GMC)	
1	Front Bumper Impact Bar Upper Bracket Rivet (Qty: 8) CAUTION: Refer to Fastener Caution .
2	Front Bumper Impact Bar Upper Bracket (Qty: 4)

FRONT BUMPER IMPACT BAR OUTER BRACKET REPLACEMENT (CHEVROLET)

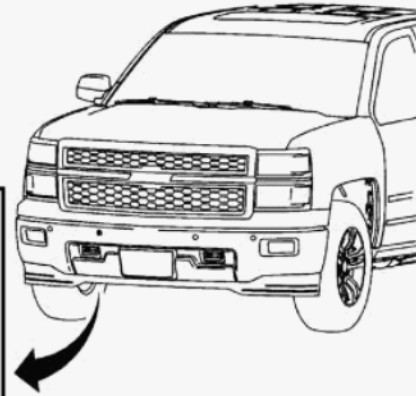
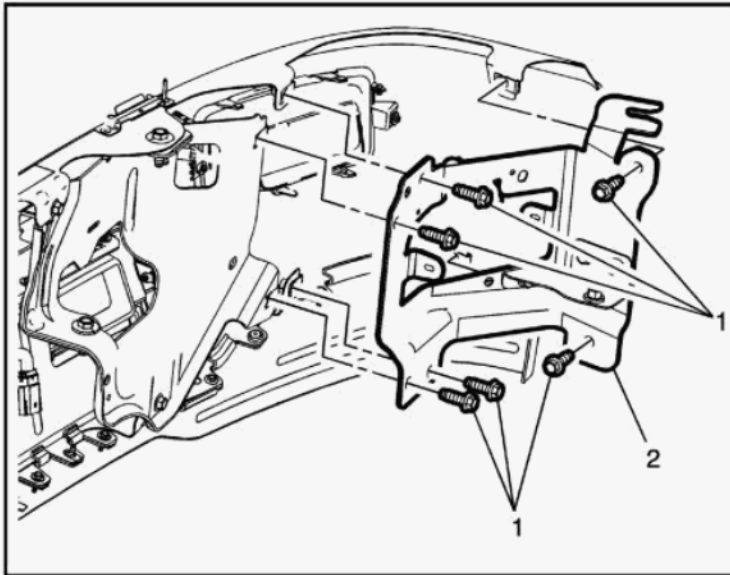


Fig. 12: Front Bumper Impact Bar Outer Bracket (Chevrolet)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Remove the front bumper impact bar. Refer to Front Bumper Impact Bar Replacement (1500) Front Bumper Impact Bar Replacement (2500, 3500). 2.	
1	Front Bumper Impact Bar Bracket Bolt to Bumper (Qty: 6) CAUTION: Refer to Fastener Caution . Tighten 58 N.m (43 lb ft)
2	Front Bumper Impact Bar Bracket Procedure Remove the front fog lamp. Refer to Front Fog Lamp Replacement (Chevrolet HD) Front Fog Lamp Replacement (Chevrolet LD)

FRONT BUMPER IMPACT BAR OUTER REINFORCEMENT REPLACEMENT

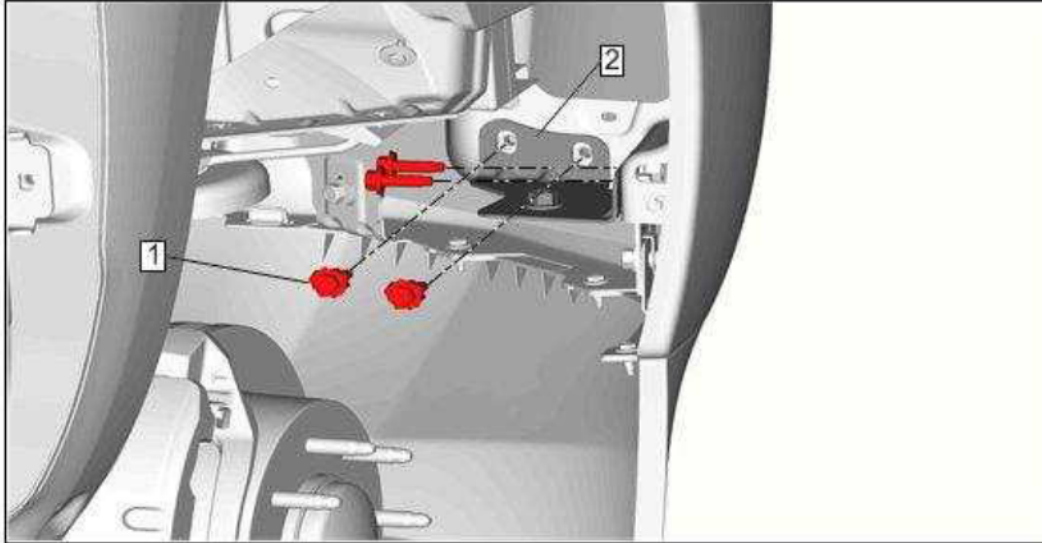


Fig. 13: Front Bumper Impact Bar Outer Reinforcement

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures <u>Front Wheelhouse Liner Replacement - Right Side</u> <u>Front Bumper Impact Bar Lower Bracket Replacement</u> <u>Intake Air Splash Shield Replacement</u>	
1	Front Bumper Impact Bar Outer Reinforcement Bolt CAUTION: Refer to <u>Fastener Caution</u> . Tighten 58 N.m (43 lb ft)
2	Front Bumper Impact Bar Outer Reinforcement

FRONT BUMPER FILLER REPLACEMENT (CHEVROLET)

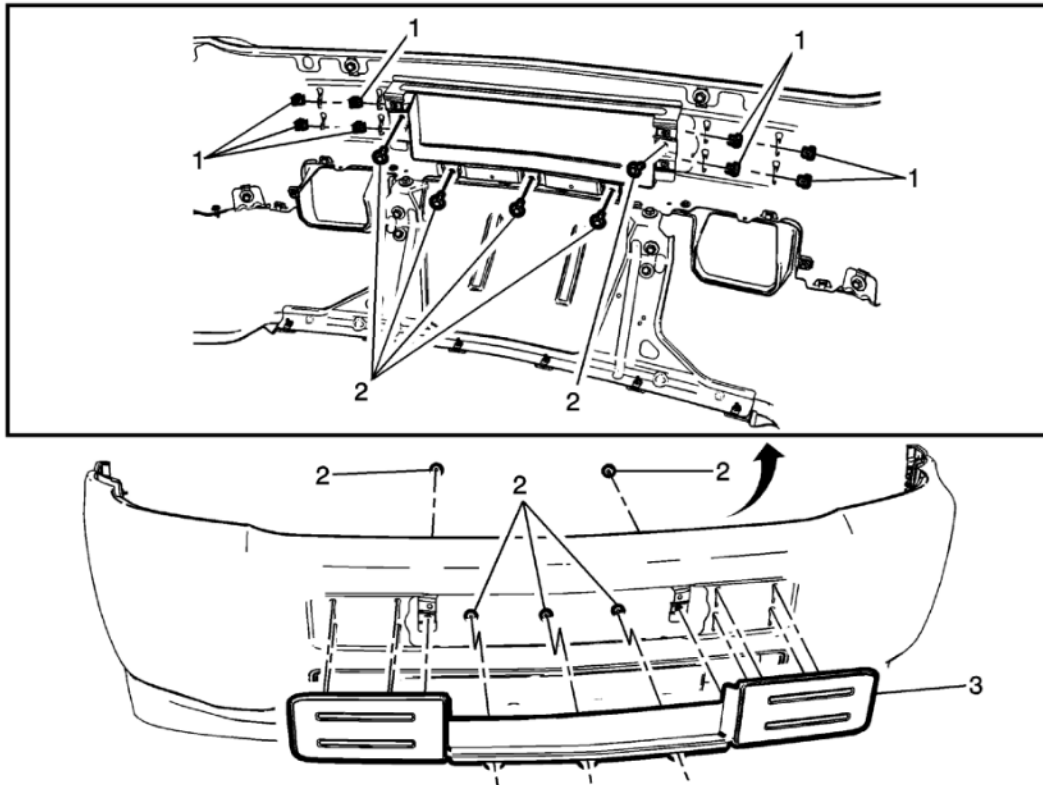


Fig. 14: Front Bumper Filler (Chevrolet)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front bumper impact bar. Refer to Front Bumper Impact Bar Replacement (1500) Front Bumper Impact Bar Replacement (2500, 3500)	
1	Front Bumper Filler Clips (Qty: 8)
2	Front Bumper Filler Bolt (Qty 5) CAUTION: Refer to Fastener Caution . Tighten 6 N.m (53 lb in)
3	Front Bumper Filler

FRONT BUMPER OUTER FRONT FILLER REPLACEMENT (CHEVROLET 2500, 3500)

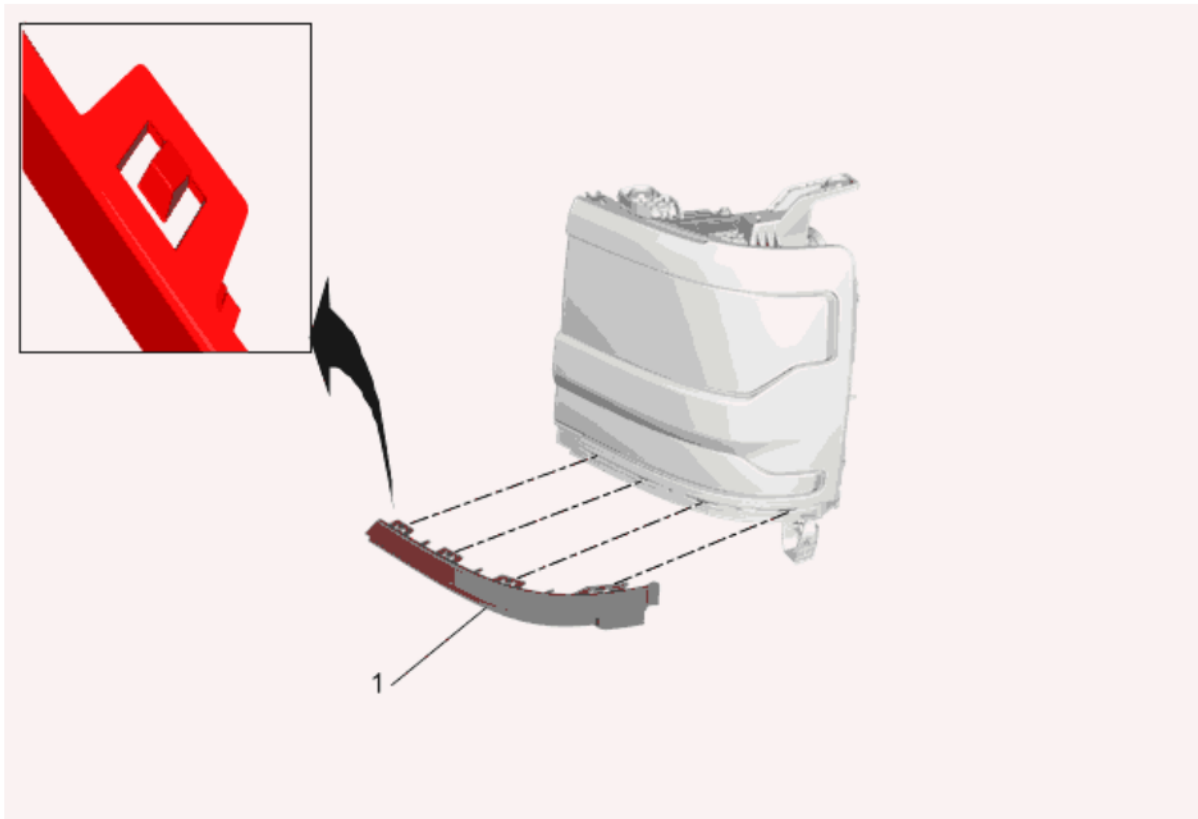


Fig. 15: Front Bumper Outer Front Filler

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure	
<u>Headlamp Replacement (Chevrolet - Left Side) Headlamp Replacement (Chevrolet - Right Side)</u>	
1	Front Bumper Outer Front Filler Procedure Using a trim type tool, release the 4 retainer tabs.

FRONT BUMPER OUTER FILLER REPLACEMENT (GMC 2500, 3500)

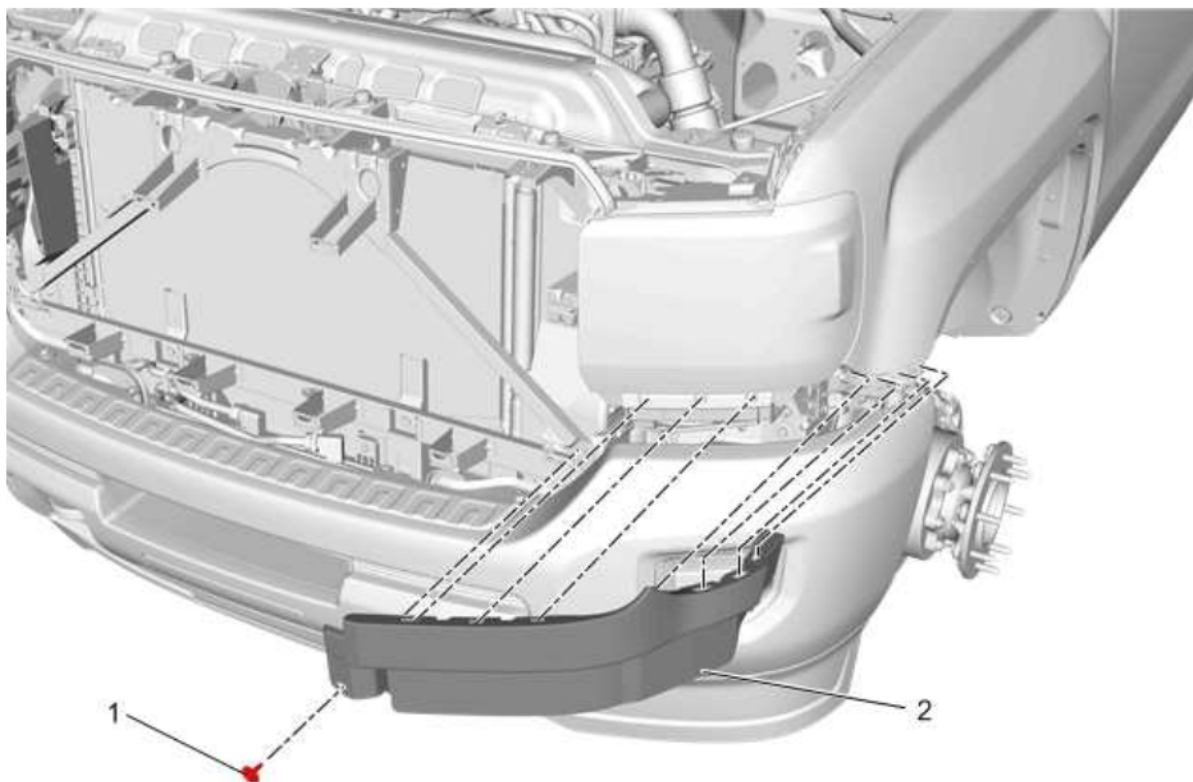


Fig. 16: Front Bumper Outer Filler (GMC 2500, 3500)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures Front Wheel Opening Molding Replacement Front Grille Replacement (GMC 2500 3500)	
1	Front Bumper Outer Filler Bolt CAUTION: Refer to Fastener Caution . Tighten 7 N.m (62 lb in)
2	Front Bumper Outer Filler Procedure - Using a trim type tool, release the retainer tabs from the fender and headlamp. - Pull the front bumper outer filler up and out from behind the front bumper.

FRONT BUMPER FASCIA REPLACEMENT (CHEVROLET)

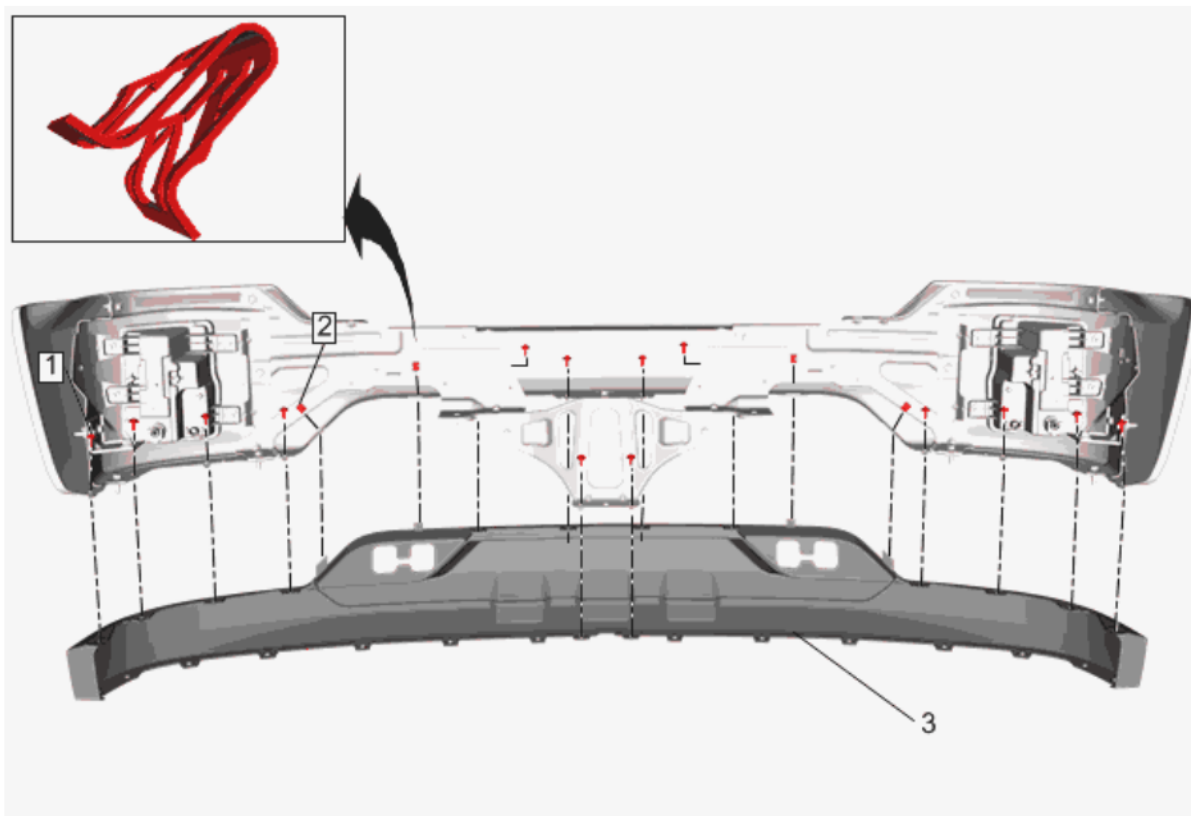


Fig. 17: Front Bumper Fascia (Chevrolet)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Front Bumper Impact Bar Replacement (1500)Front Bumper Impact Bar Replacement (2500, 3500)	
1	Front Bumper Fascia Bolt CAUTION: Refer to Fastener Caution . Tighten 6 N.m (53 lb in)
2	Front Bumper Fascia Retainer
3	Front Bumper Fascia Procedure Carefully pull the front bumper fascia down from the front bumper impact bar.

FRONT BUMPER FASCIA TRIM CAP REPLACEMENT (GMC)

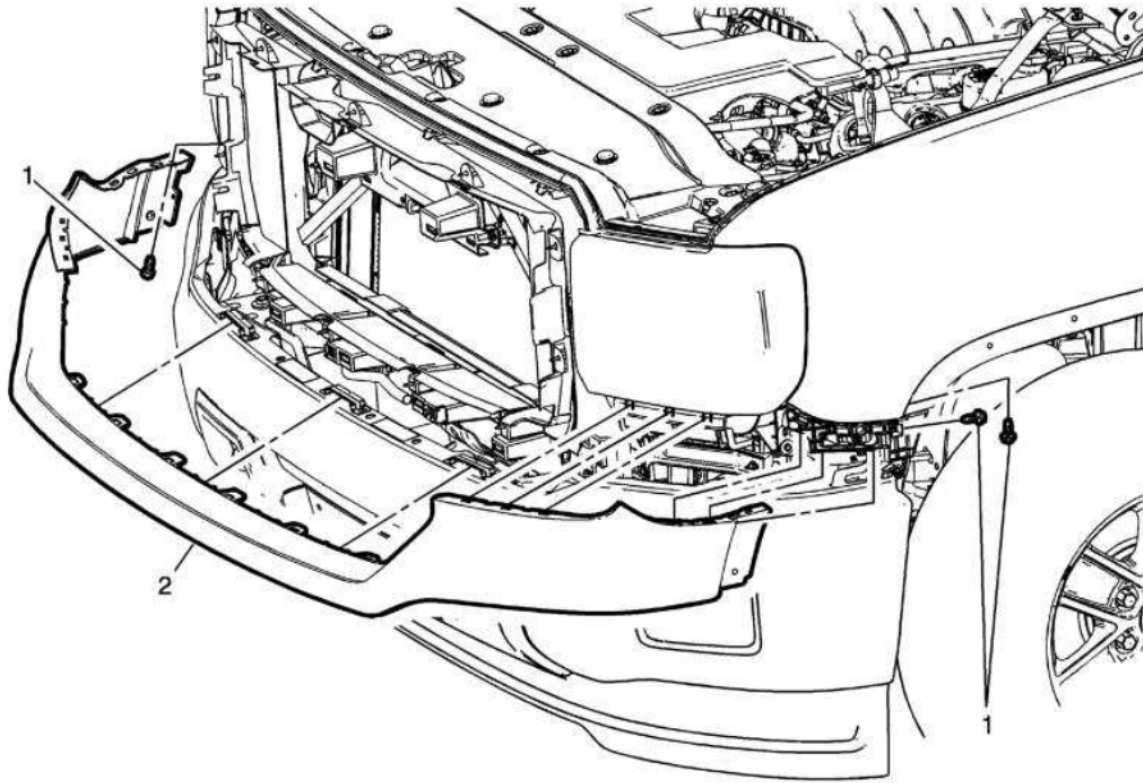


Fig. 18: Front Bumper Fascia Trim Cap (GMC)
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Front Bumper Fascia Trim Cap Bolt (Qty: 4) CAUTION: Refer to Fastener Caution . Tighten 2.5 N.m (22 lb in)
2	Front Bumper Fascia Trim Cap Procedure 1. Remove the 6 front wheelhouse liner bolts and pull back wheel liner. Refer to Front Wheelhouse Liner Replacement - Right Side , Front Wheelhouse Liner Replacement - Left Side 2. Loosen the 3 bolts that attach each front bumper fascia side brackets. Refer to Front Bumper Fascia Side Bracket Replacement 3. Carefully push a small nylon wedge between the front bumper fascia trim cap and the front bumper fascia trim cap guide. Insert a small flat-bladed tool into the trim cap slot and depress the snaps one at a time and pull on the front bumper fascia trim cap at the same time to gradually remove the trim cap from the guide and the front impact bar.

FRONT BUMPER FASCIA SIDE BRACKET REPLACEMENT

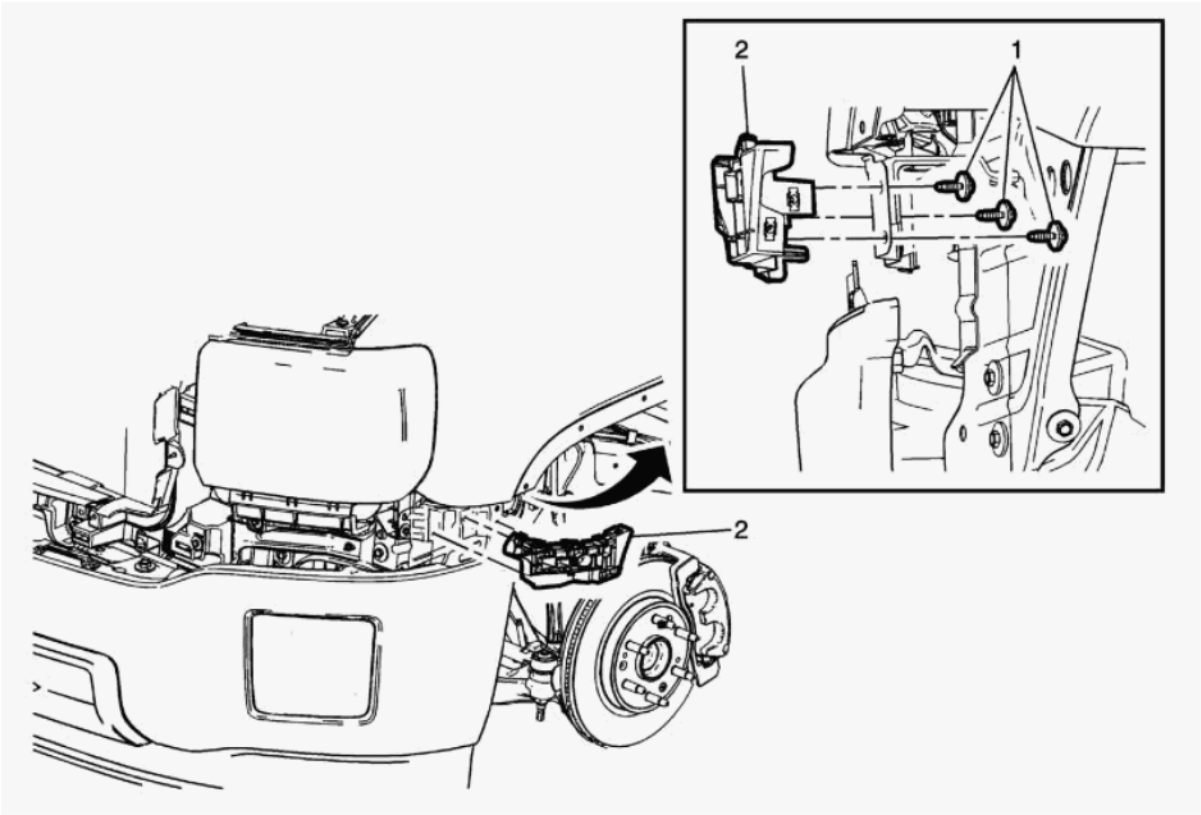


Fig. 19: Front Bumper Fascia Side Bracket
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front bumper fascia trim cap. Refer to Front Bumper Fascia Trim Cap Replacement (GMC) .	
1	Front Bumper Fascia Side Bracket Bolt (Qty: 3) CAUTION: Refer to Fastener Caution . Tighten 7 N.m (62 lb in)
2	Front Bumper Fascia Side Bracket

FRONT BUMPER LOWER SHUTTER ACTUATOR REPLACEMENT

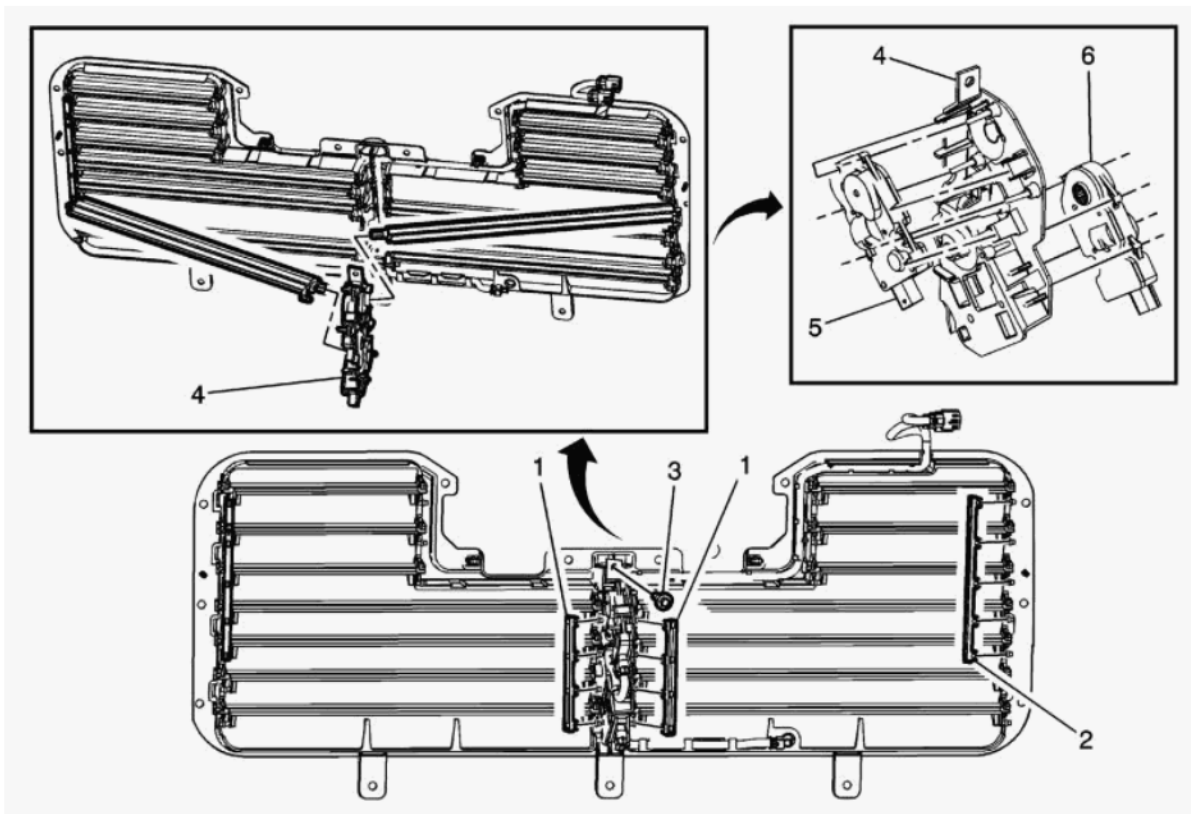


Fig. 20: Front Bumper Lower Shutter Actuator

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Remove the front bumper shutter. Refer to Front Bumper Shutter Replacement. 2. Place the front bumper lower shutter face down on a clean protected surface.	
1	Front Bumper Lower Shutter Center Link NOTE: Be careful when removing the links, not to damage the links or the louvers when removing. Procedure Pull the front bumper lower shutter center link from the pins on the front bumper lower shutter louvers.

Callout	Component Name
2	Front Bumper Lower Shutter Outer Link Right Side NOTE: Be careful when removing the links, not to damage the links or the louvers when removing. Procedure Pull the front bumper lower shutter outer link from the pins on the front bumper lower shutter louvers.
3	Front Bumper Lower Shutter Bolt CAUTION: Refer to Fastener Caution.
4	Front Bumper Lower Shutter Actuator Bracket Procedure 1. Disconnect the electrical connectors. 2. Carefully pull the top of the bracket forward and up to disengage the lower tab, at the same time carefully guide the two louvers out from the front bumper lower shutter actuators.
5	Front Bumper Lower Shutter Actuator - Upper Procedure 1. Pressing outward from the center of the actuator, release the four retainer tabs holding the shutter actuator. 2. Slowly pull the shutter actuator from the alignment studs and retainer tabs. 3. To reinstall, position the shutter actuator to the alignment studs and retainer tabs on the bracket and slowly press into place until the retainers are seated onto the actuator.
6	Front Bumper Lower Shutter Actuator - Lower Procedure 1. Pressing outward from the center of the actuator, release the four retainer tabs holding the shutter actuator.

Callout	Component Name
	2. Slowly pull the shutter actuator from the alignment studs and retainer tabs. 3. To reinstall, position the shutter actuator to the alignment studs and retainer tabs on the bracket and slowly press into place until the retainers are seated onto the actuator.

FRONT BUMPER FASCIA MOLDING REPLACEMENT

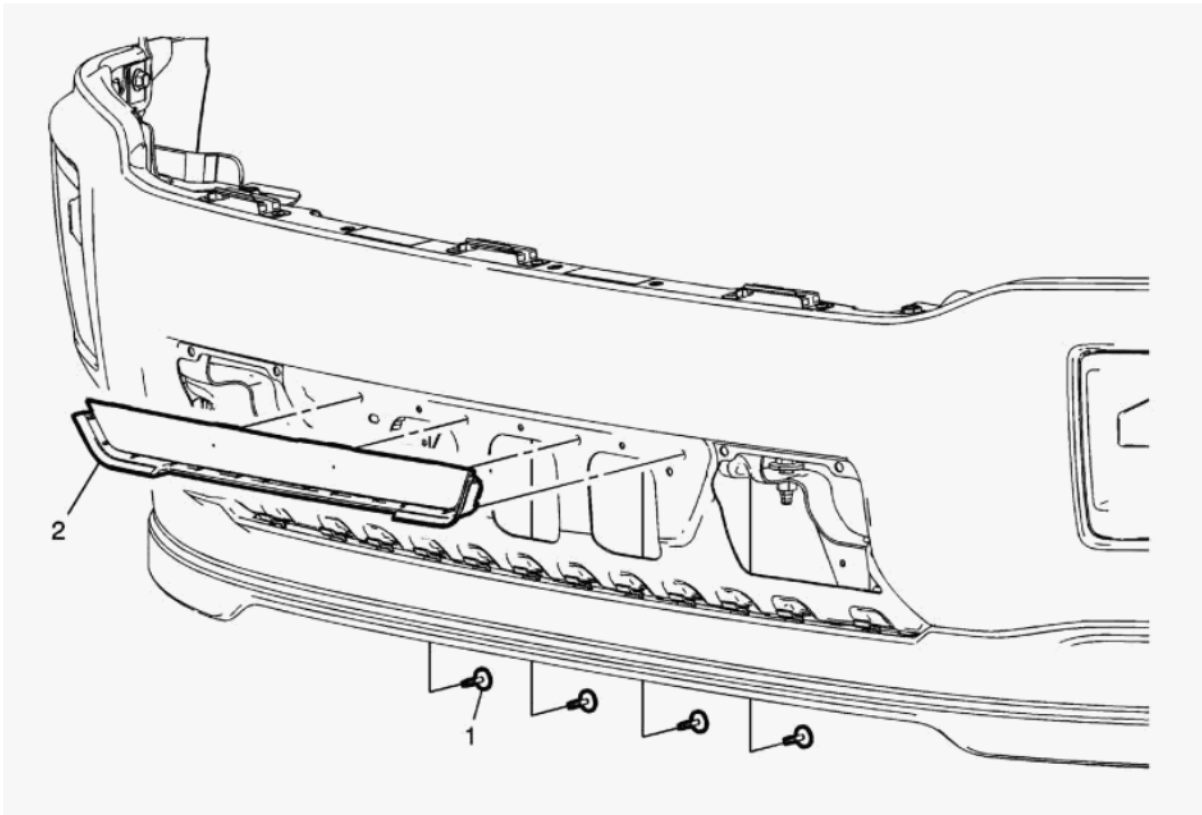


Fig. 21: Front Bumper Fascia Molding
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front bumper impact bar skid plate. Refer to Front Bumper Impact Bar Skid Plate Replacement (GMC) .	
1	Front Bumper Fascia Molding Bolt (Qty: 4) CAUTION: Refer to Fastener Caution .
2	Front Bumper Fascia Molding

FRONT BUMPER SHUTTER REPLACEMENT

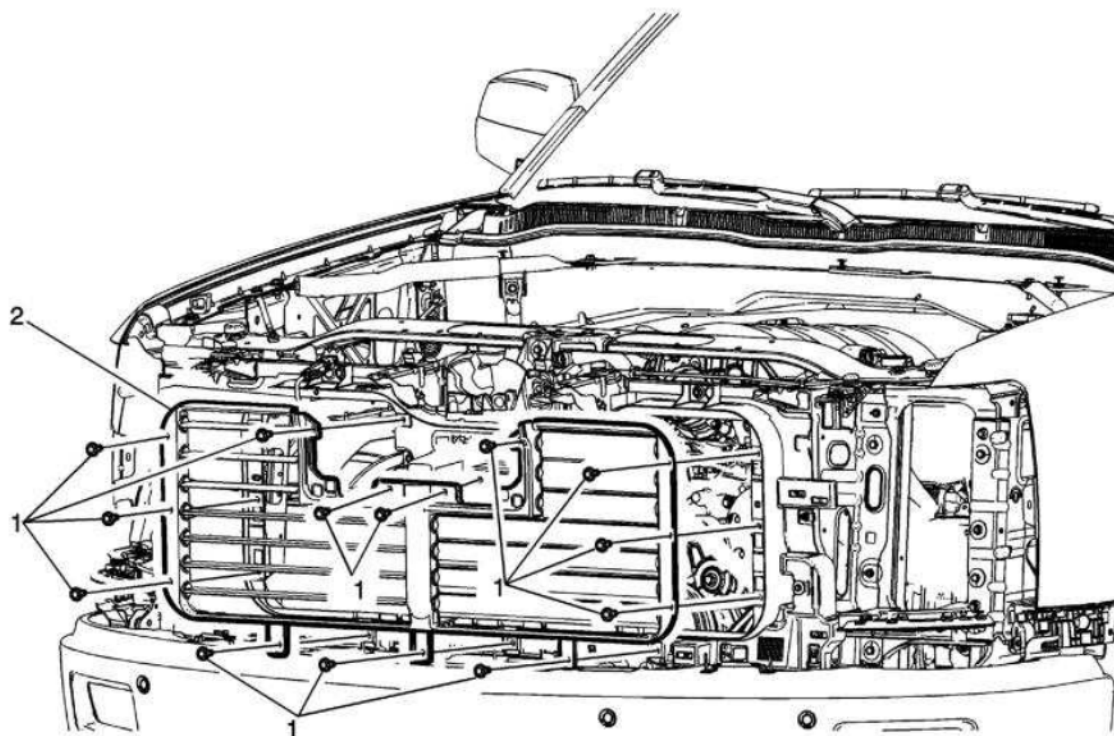


Fig. 22: Front Bumper Shutter

Courtesy of GENERAL MOTORS COMPANY

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 bumper Impact bar. Refer to Front Bumper Impact Bar Replacement (1500)Front Bumper Impact Bar Replacement (2500, 3500). 3. Remove the headlamps. Refer to Headlamp Replacement (GMC 1500) Headlamp Replacement (Chevrolet - Left Side) Headlamp Replacement (Chevrolet - Right Side) Headlamp Replacement (GMC 2500, 3500)	
1	Front Bumper Shutter Bolt (Qty: 13) CAUTION: Refer to Fastener Caution . Tighten 6 N.m (53 lb in)
2	Front Bumper Shutter Procedure Disconnect the electrical connector.

FRONT BUMPER FASCIA SUPPORT BRACKET REPLACEMENT (CHEVROLET)

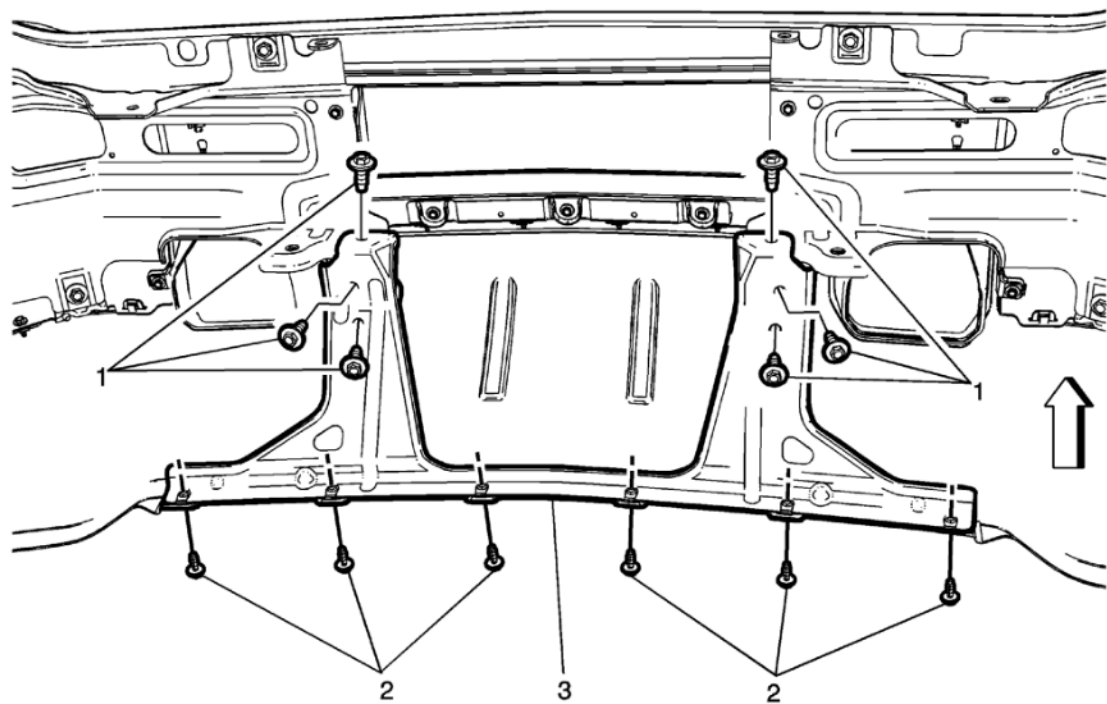


Fig. 23: Front Bumper Fascia Support Bracket (Chevrolet)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove the front bumper impact bar. Refer to Front Bumper Impact Bar Replacement (1500) Front Bumper Impact Bar Replacement (2500, 3500)	
1	Front Bumper Lower Impact Bar Bolt (Qty: 6) CAUTION: Refer to Fastener Caution . Tighten 58 N.m (43 lb ft)
2	Front Bumper Fascia Support Bracket Screw (Qty 6) Tighten 6 N.m (53 lb in)
3	Front Bumper Fascia Support Bracket

FRONT BUMPER FASCIA AIR DEFLECTOR REPLACEMENT (GMC)

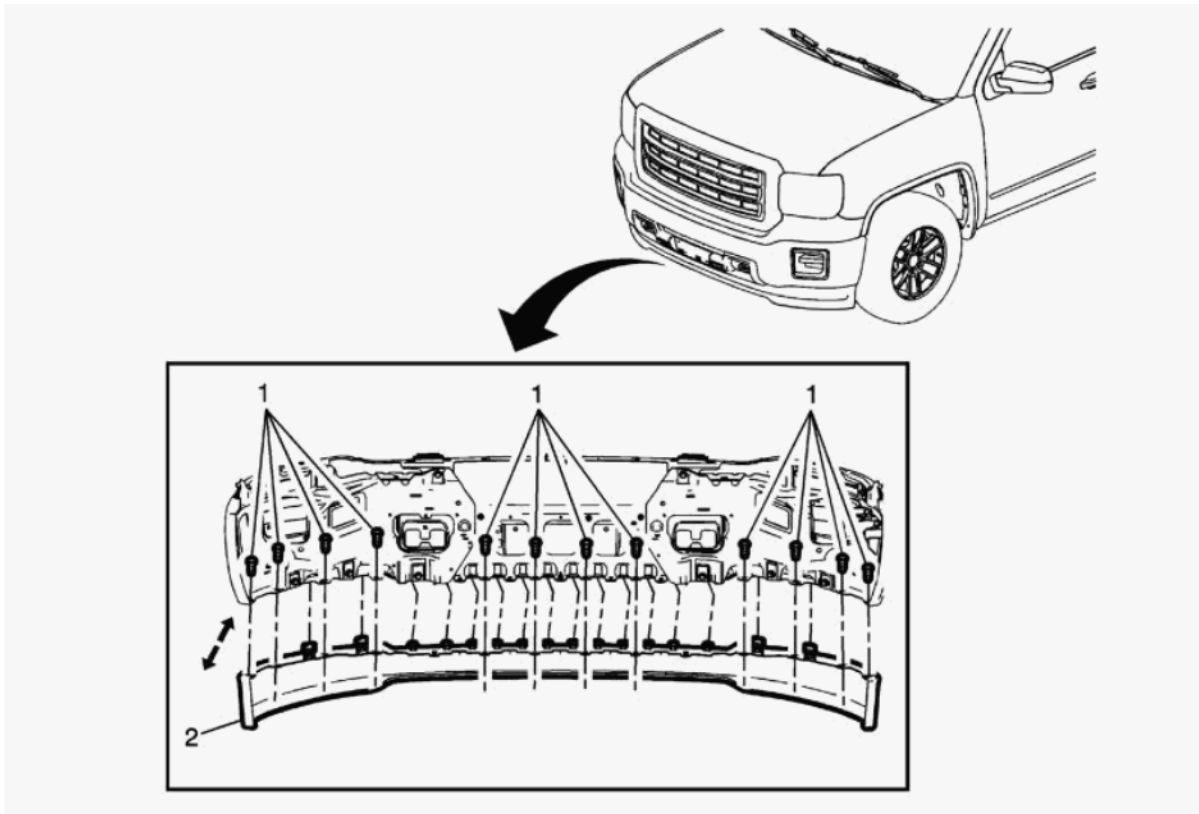


Fig. 24: Front Bumper Fascia Air Deflector (GMC)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Front Air Deflector Extension Bolt (Qty: 14) CAUTION: Refer to Fastener Caution . Tighten 6 N.m (53 lb in)
2	Front Air Deflector Extension Procedure Release the tabs on the front air deflector extension and carefully pull the front air deflector extension from the front bumper impact bar.

FRONT BUMPER FASCIA AIR DEFLECTOR REPLACEMENT (CHEVROLET 2500, 3500)

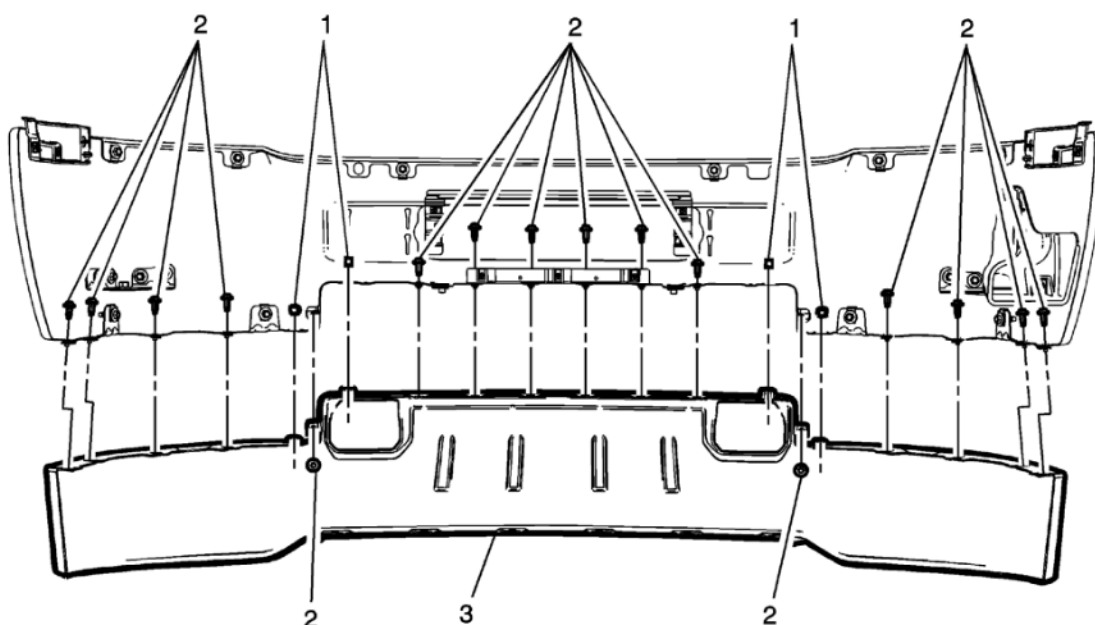


Fig. 25: Front Bumper Fascia Air Deflector (Chevrolet 2500, 3500)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Remove the front bumper impact bar lower bracket. Refer to Front Bumper Impact Bar Lower Bracket Replacement 2. Remove the front bumper impact bar outer bracket. Refer to Front Bumper Impact Bar Outer Bracket Replacement (Chevrolet) 3. Remove the bumper fascia lower support bracket. Refer to Front Bumper Fascia Support Bracket Replacement (Chevrolet)	
1	Front Bumper Fascia Air Deflector Clip (Qty: 4)
2	Front Bumper Fascia Air Deflector Bolt (Qty: 16) CAUTION: Refer to Fastener Caution . Tighten 6 N.m (53 lb in)
3	Front Bumper Fascia Air Deflector

FRONT BUMPER FASCIA AIR DEFLECTOR REPLACEMENT (CHEVROLET 1500)

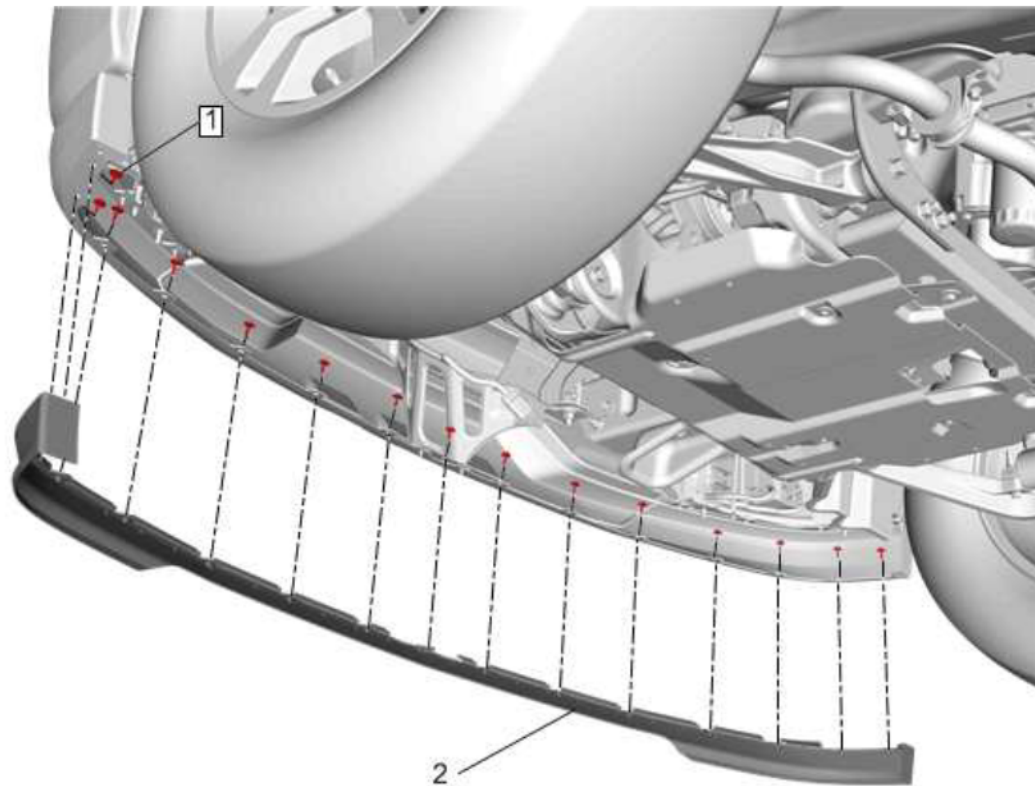


Fig. 26: Front Bumper Fascia Air Deflector (Chevrolet 1500)
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Front Bumper Fascia Air Deflector Retainer CAUTION: Refer to Fastener Caution . Tighten 6 N.m (53 lb in)
2	Front Bumper Fascia Air Deflector Procedure Carefully pull the front bumper fascia air deflector rearward from the front bumper fascia.

REAR BUMPER FASCIA OUTER SUPPORT REPLACEMENT

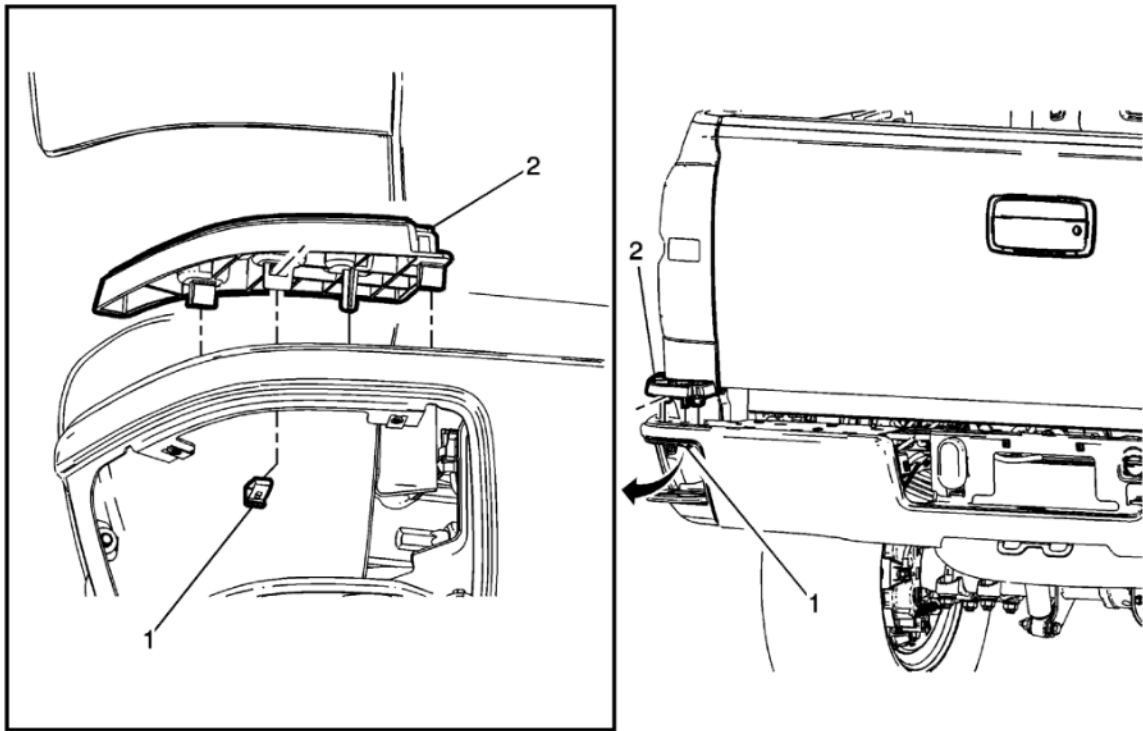


Fig. 27: Rear Bumper Fascia Outer Support
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure	
Remove the rear step pad. Refer to Rear Bumper Step Pad Insert Replacement .	
1	Rear Bumper Fascia Outer Support Clip
2	Rear Bumper Fascia Outer Support
Procedure	
Using a trim type tool release the two integral retainers.	

REAR BUMPER IMPACT BAR REPLACEMENT

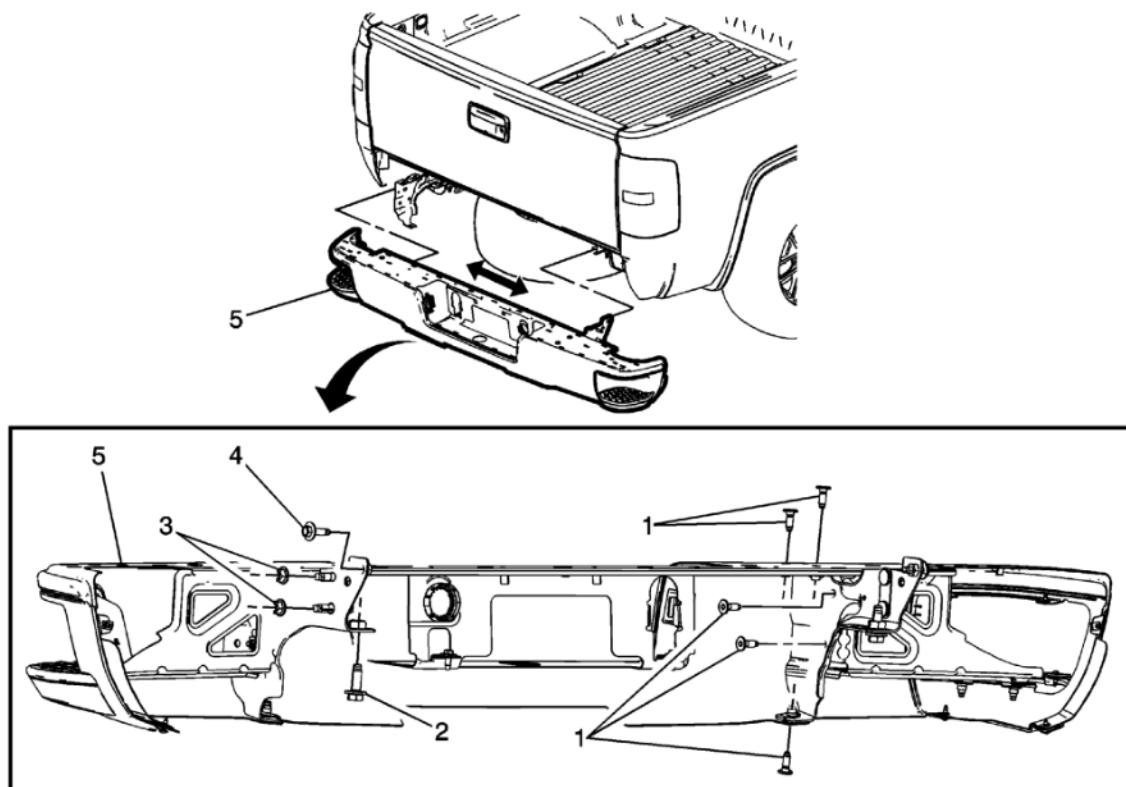


Fig. 28: Rear Bumper Impact Bar

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure 1. Remove the pickup box endgate. Refer to Pickup Box Endgate Replacement 2. Unbolt and raise slightly (50 - 75 mm) and support the pick up box. Refer to Pickup Box Replacement (Long Box) Pickup Box Replacement (Standard Box)	
	Rear Bumper Bolt To Side Plate (Qty: 5) CAUTION: Refer to Fastener Caution .
1	Tighten 40 N.m (30 lb ft) NOTE: These bolts can be removed from either the right

Callout	Component Name
	side or left side which ever is easier to access.
2	Rear Bumper Impact Bar Lower Brace Bolt Tighten 140 N.m (103 lb ft)
3	Rear Bumper Impact Bar Brace Nut (Qty: 2) Tighten 70 N.m (52 lb ft)
4	Rear Bumper Impact Bar Upper Brace Bolt Tighten 40 N.m (30 lb ft)
5	Rear Bumper Impact Bar Procedure 1. Remove the one side plate that the bumper bolts to side plate were removed from. 2. Slide the entire bumper toward the side the side plate was removed from. The bumper will be free from the vehicle. 3. Disconnect electrical as necessary. 4. Transfer parts as necessary. 5. Installation is the reverse of the removal.

REAR BUMPER IMPACT BAR ADJUSTMENT

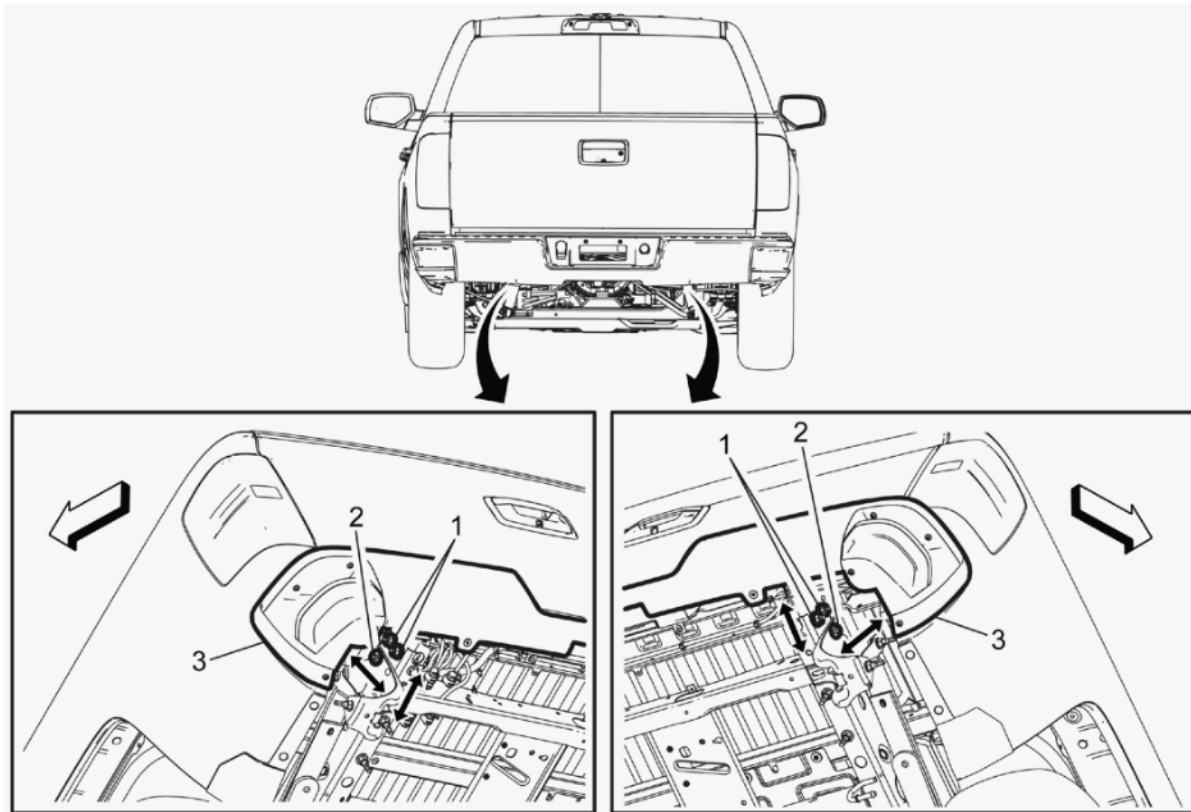


Fig. 29: Rear Bumper Impact Bar Adjustment
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Rear Bumper Impact Bar Brace Nut (Qty: 4) CAUTION: Refer to Fastener Caution . Tighten 70 N.m (52 lb ft)
2	Rear Bumper Impact Bar Upper Brace Bolt (Qty: 2) Tighten 40 N.m (30 lb ft)
3	Rear Bumper Impact Bar Procedure 1. Loosen the impact bar nuts (1) and impact bar bolts (2) adjust the impact bar up, down, fore and aft to achieve and equal gap to the pickup box outer side panel and pickup box end gate. NOTE:

Callout	Component Name
	There is no right to left movement of the impact bar, this was determined at the factory.

REAR BUMPER IMPACT BAR BRACE REPLACEMENT

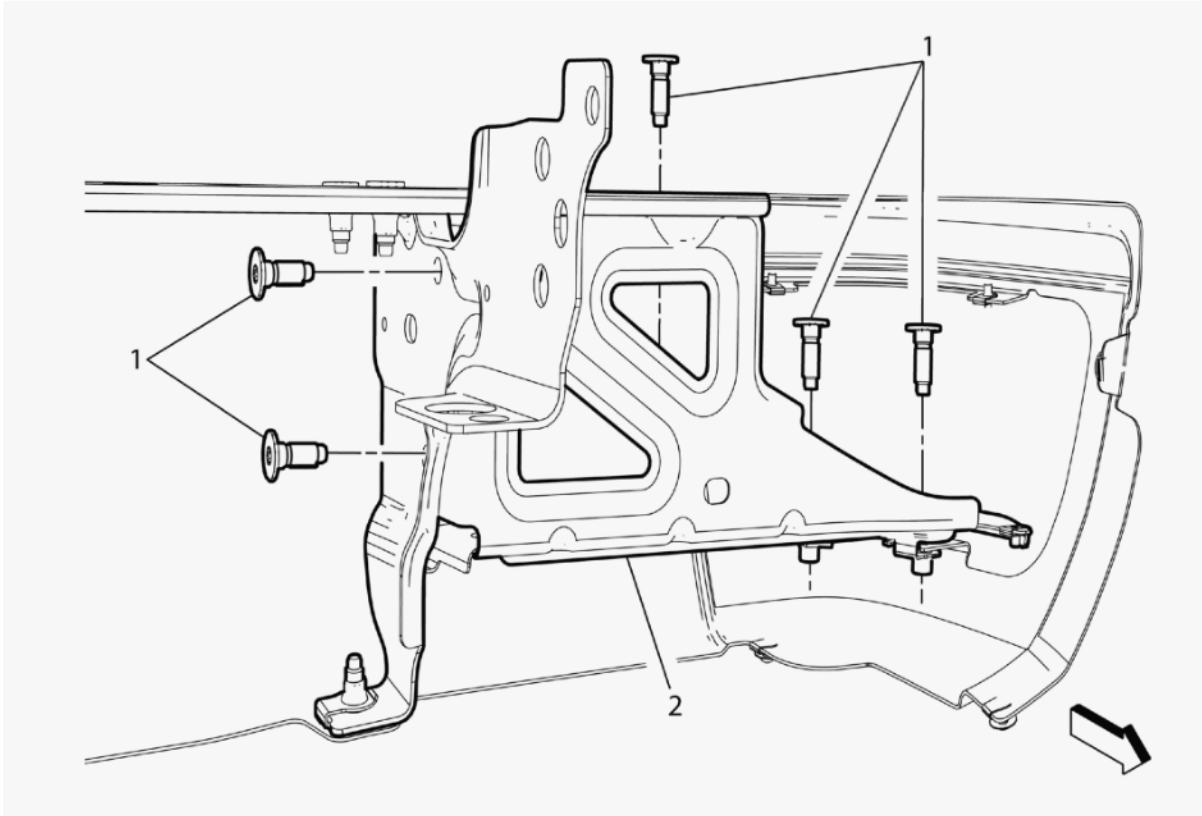


Fig. 30: Rear Bumper Impact Bar Brace
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure	
1.	Remove the rear bumper impact bar. Refer to Rear Bumper Impact Bar Replacement .
2.	

Callout	Component Name
1	Rear Bumper Impact Bar Brace Bolt (Qty: 5) CAUTION: Refer to Fastener Caution . Tighten 50 N.m (37 lb ft)
2	Rear Bumper Impact Bar Brace

REAR BUMPER STEP PAD REPLACEMENT

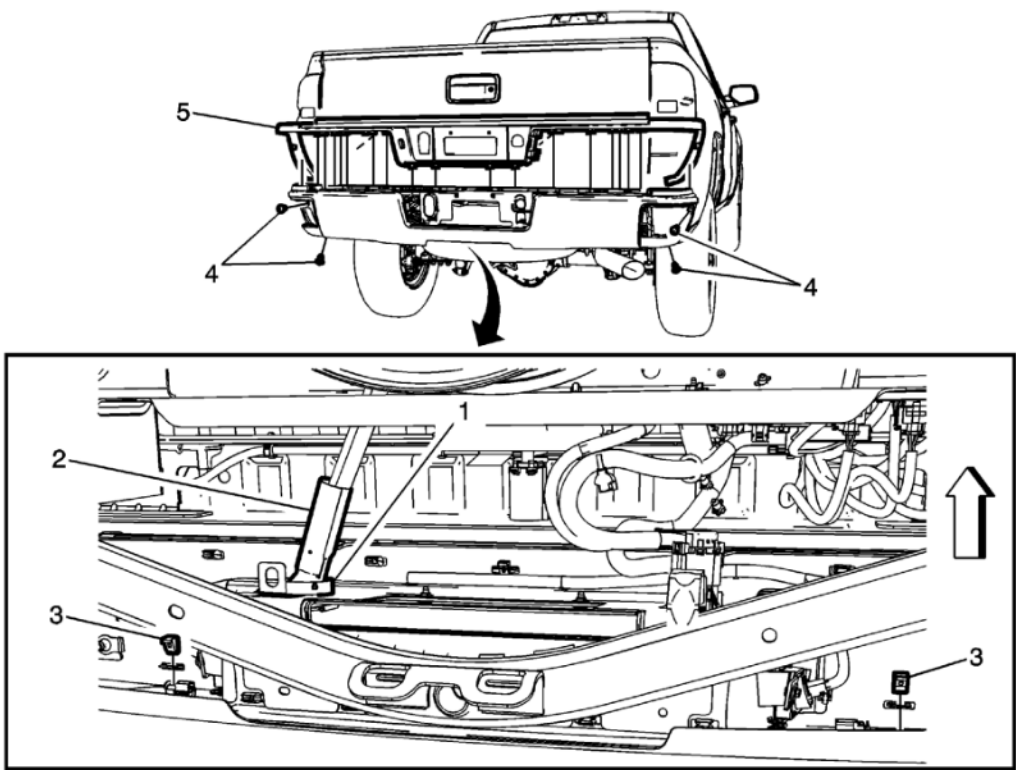


Fig. 31: Rear Bumper Step Pad
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures	
1. Remove the rear bumper impact bar. Refer to Rear Bumper Impact Bar Replacement	
2. Remove the rear bumper step pad insert. Refer to Rear Bumper Step Pad Insert Replacement	
3. Remove the rear license plate lamp. Refer to Rear License Plate Lamp Replacement	

Callout	Component Name
1	Spare Wheel Lock Case Retainer Procedure Cut the retainer off with a suitable tool.
2	Spare Wheel Lock Case Procedure Pull the spare wheel lock case out from the rear bumper.
3	Rear Bumper Fascia Step Pad Clips (Qty: 2)
4	Rear Bumper Fascia Step Pad Bolts (Qty: 4) CAUTION: Refer to <u>Fastener</u> <u>Caution</u> . Tighten 2.5 N.m (22 lb in)
5	Rear Bumper Fascia Step Pad Procedure Using a suitable trim tool release the rear bumper fascia step pad retainer tabs from the rear bumper impact bar.

REAR BUMPER STEP PAD INSERT REPLACEMENT

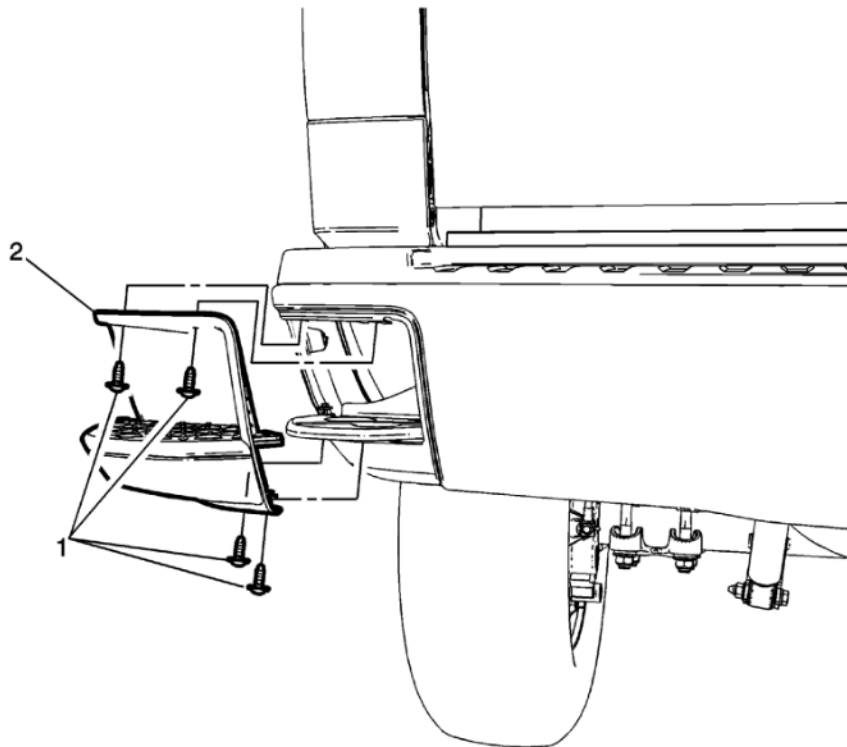


Fig. 32: Rear Bumper Step Pad Insert

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle 2. Remove the rear bumper step outer pad. Refer to Rear Bumper Step Outer Pad Replacement	
1	Rear Bumper Step Pad Insert Bolt (Qty 4) CAUTION: Refer to Fastener Caution . Tighten 2.5 N.m (22 lb in)
2	Rear Bumper Step Pad Insert

REAR BUMPER STEP OUTER PAD REPLACEMENT

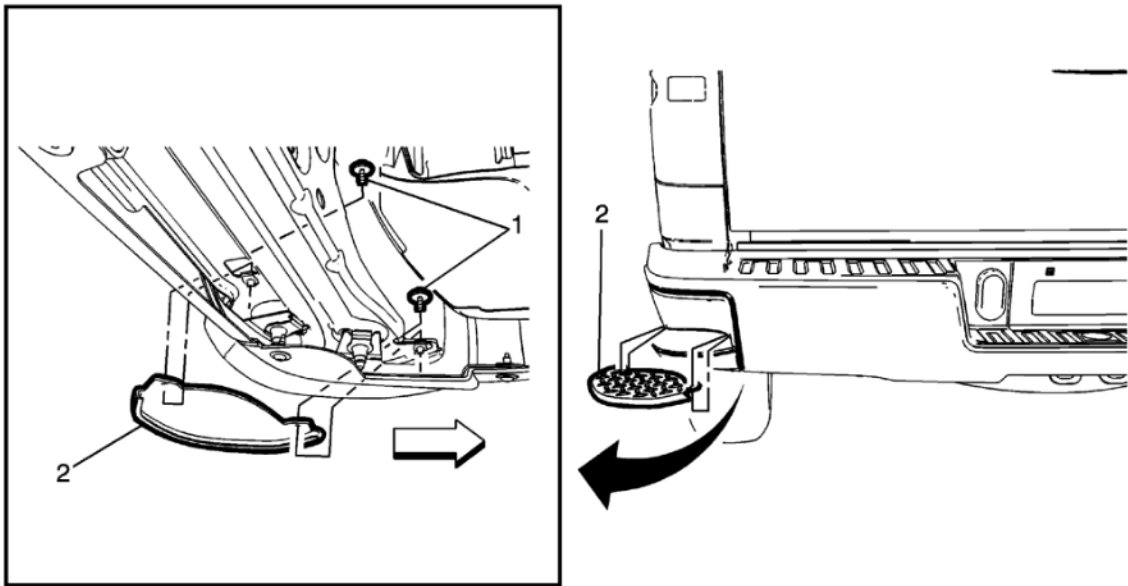


Fig. 33: Rear Bumper Step Outer Pad
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle	

Callout	Component Name
1	Rear Bumper Step Outer Pad Bolt (Qty 2) CAUTION: Refer to Fastener Caution . Tighten 2.5 N.m (22 lb in)
2	Rear Bumper Step Outer Pad

DESCRIPTION AND OPERATION

ACTIVE GRILLE AIR SHUTTER DESCRIPTION AND OPERATION

The active grille air shutter system closes shutters in the front grille 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 system will open one or both shutters. The control signal from the engine control module, ignition and ground circuits enable the active grille air shutter actuators to operate. If the conditions for opening the shutters are reached the engine control module commands the active grille air shutter actuators to open one or both shutters.

The dual active grille air shutter system consists of two aero shutter mechanisms located in the front grille for controlling the amount of air entering the engine compartment. It includes three wires; ground, power and a Local Interconnect Network (LIN) Bus serial data circuit from the engine control module to the shutter actuator. The engine 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 engine control module has the ability to command each shutter individually to the open or closed positions through communications on the LIN Bus.

The actuators are 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 km/h (25 mph) before a shutter begins to move. If low ambient temperature is detected, the shutters will remain in the closed position.

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