

2013 ACCESSORIES & EQUIPMENT

Frame and Underbody - Malibu

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Frame-to-Body Bolt - Front	160	118 lb ft
Frame-to-Body Bolt - Rear		
• First Pass	100	74 lb ft
• Final Pass	+ 60 to 75 degrees	
Frame-to-Body Reinforcement Bolt		
• First Pass	60	44 lb ft \
• Final Pass	+ 30 degrees	
Front Transmission Mount-to-Frame Bolt	100	74 lb ft
Front Wheelhouse Liner - Front Screw	2.5	22 lb in
Rear Support to Body Bolt		
• First Pass	90	66 lb ft
• Second Pass	+ 180 degrees	
• Final Pass	+ 15 degrees	
Rear Transmission Mount-to-Frame Bolt	100	74 lb ft
Rear Wheelhouse Panel Liner Nut	2	18 lb in
Rear Wheelhouse Panel Liner Screw	3	27 lb in
Steering Gear Bolt		
• First Pass	110	81 lb ft
• Second Pass	+ 180 degrees	
• Final Pass	+ 15 degrees	
Underbody Rear Air Outer Deflector Bracket Fastener	9	80 lb in

REPAIR INSTRUCTIONS

FRONT COMPARTMENT SPLASH SHIELD REPLACEMENT

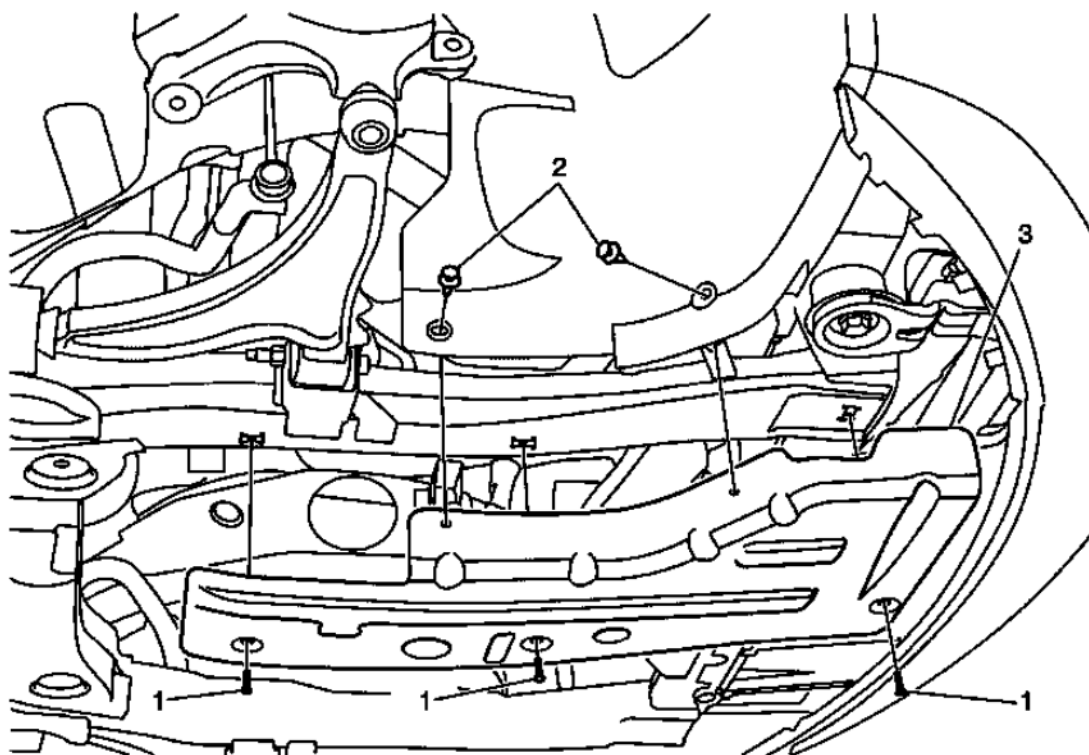


Fig. 1: Front Compartment Splash Shield & Mounting Components
 Courtesy of GENERAL MOTORS COMPANY

Front Compartment Splash Shield Replacement

Callout	Component Name
Preliminary Procedures 1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> 2. Remove the front wheelhouse front liner. Refer to <u>Front Wheelhouse Front Liner Replacement (Left Side)</u>, <u>Front Wheelhouse Front Liner Replacement (Right Side)</u>.	
1	Front Compartment Splash Shield Fastener (Qty 3) CAUTION: Refer to <u>Fastener Caution</u> .
2	Front Compartment Splash Shield Retainer (Qty 2)
3	Front Compartment Splash Shield

UNDERBODY FRONT AIR DEFLECTOR REPLACEMENT - LEFT SIDE

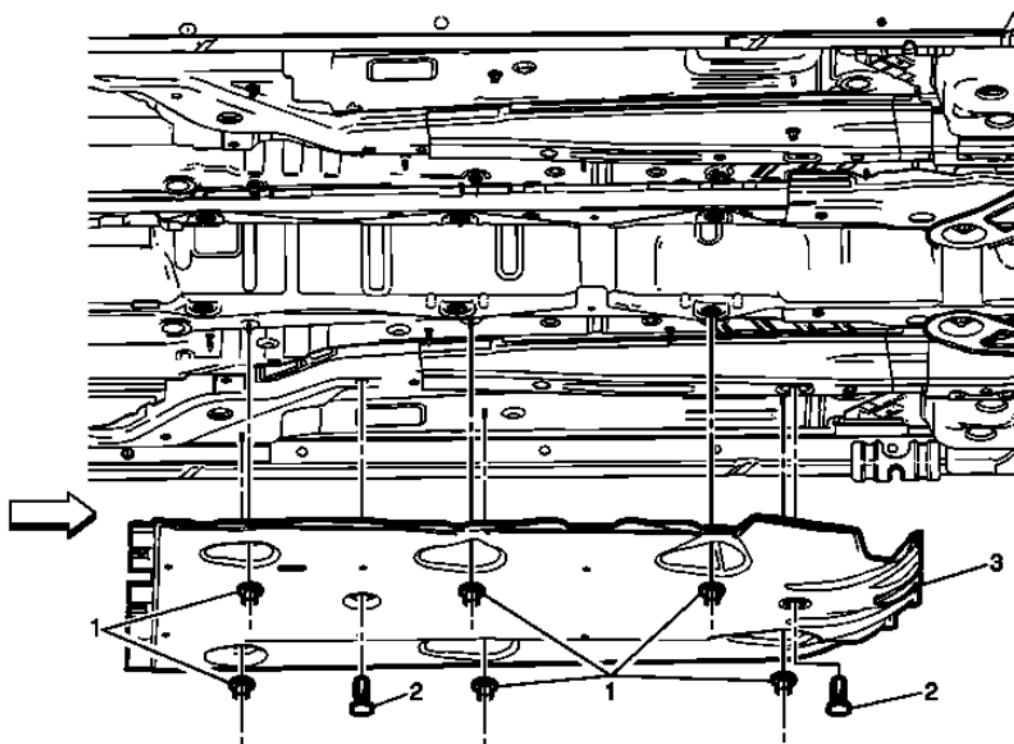


Fig. 2: Underbody Front Air Deflector - Left Side
 Courtesy of GENERAL MOTORS COMPANY

Underbody Front Air Deflector Replacement - Left Side

Callout	Component Name
WARNING: Do not use a service jack to lift this vehicle. Lifting the vehicle with a jack could cause the vehicle to slip off the jack and roll; this could cause injury or death.	
Preliminary Procedures 1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove rear air deflector replacement left side. Refer to <u>Underbody Rear Air Deflector Replacement - Left Side</u>.	
1	Underbody Front Air Deflector Fastener (Qty: 6) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 N.m (22 lb in)
2	Underbody Left Front Air Deflector Fastener (Qty: 2)
3	Underbody Left Front Air Deflector

UNDERBODY FRONT AIR DEFLECTOR REPLACEMENT - RIGHT SIDE

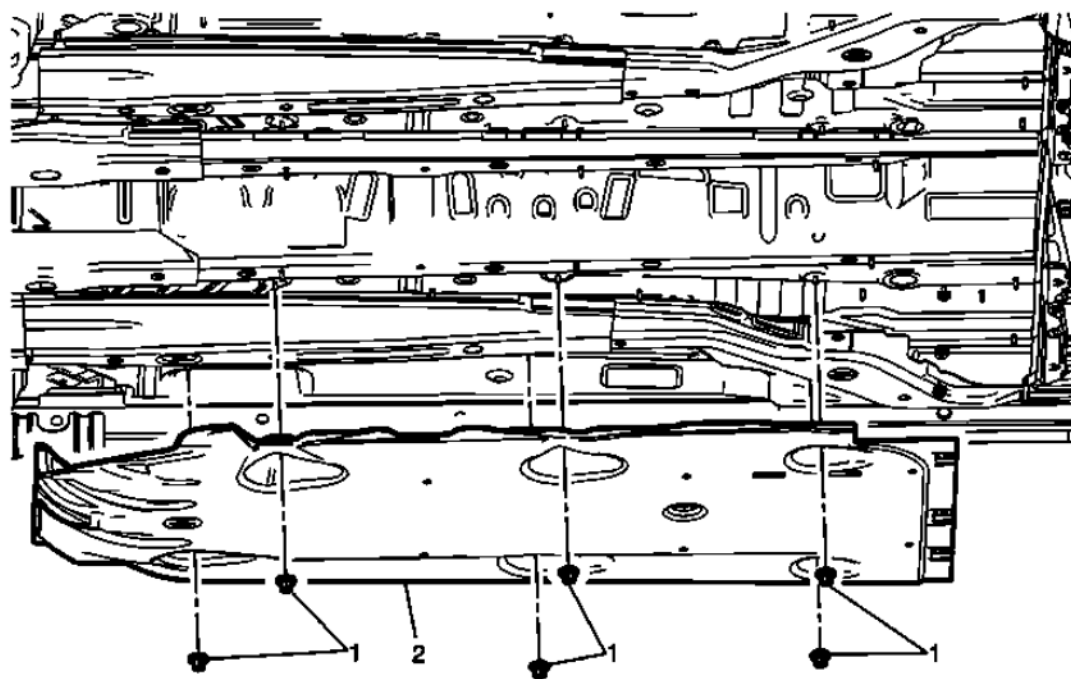


Fig. 3: Underbody Front Air Deflector - Right Side
Courtesy of GENERAL MOTORS COMPANY

Underbody Front Air Deflector Replacement - Right Side

Callout	Component Name
WARNING: Do not use a service jack to lift this vehicle. Lifting the vehicle with a jack could cause the vehicle to slip off the jack and roll; this could cause injury or death.	
Preliminary Procedure 1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove rear air deflector replacement right side. Refer to <u>Underbody Rear Air Deflector Replacement - Right Side</u> .	
1	Underbody Front Air Deflector Fastener (Qty: 8) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 N.m (22 lb in)
2	Underbody Right Front Air Deflector

UNDERBODY REAR AIR DEFLECTOR REPLACEMENT - LEFT SIDE

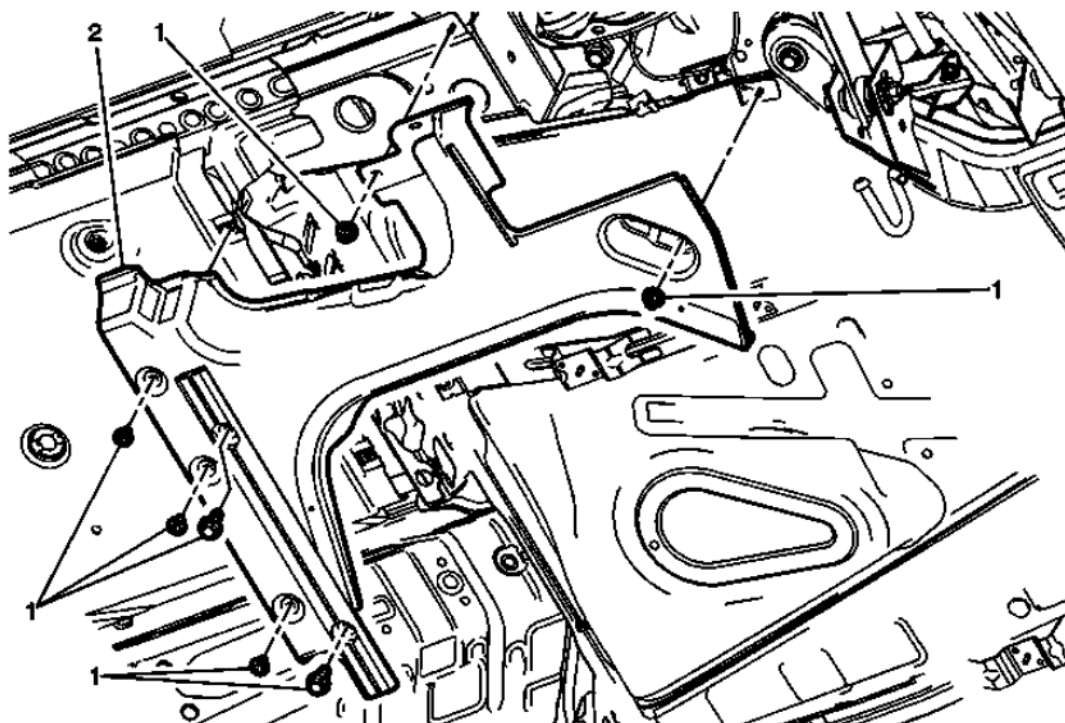


Fig. 4: Underbody Rear Air Deflector - Left Side
Courtesy of GENERAL MOTORS COMPANY

Underbody Rear Air Deflector Replacement - Left Side

Callout	Component Name
WARNING: Do not use a service jack to lift this vehicle. Lifting the vehicle with a jack could cause the vehicle to slip off the jack and roll; this could cause injury or death.	
Preliminary Procedure Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .	
1	Underbody Front Air Deflector Fasteners(Qty 7) CAUTION: Refer to Fastener Caution .
2	Underbody Left rear Air Deflector

UNDERBODY REAR AIR DEFLECTOR REPLACEMENT - RIGHT SIDE

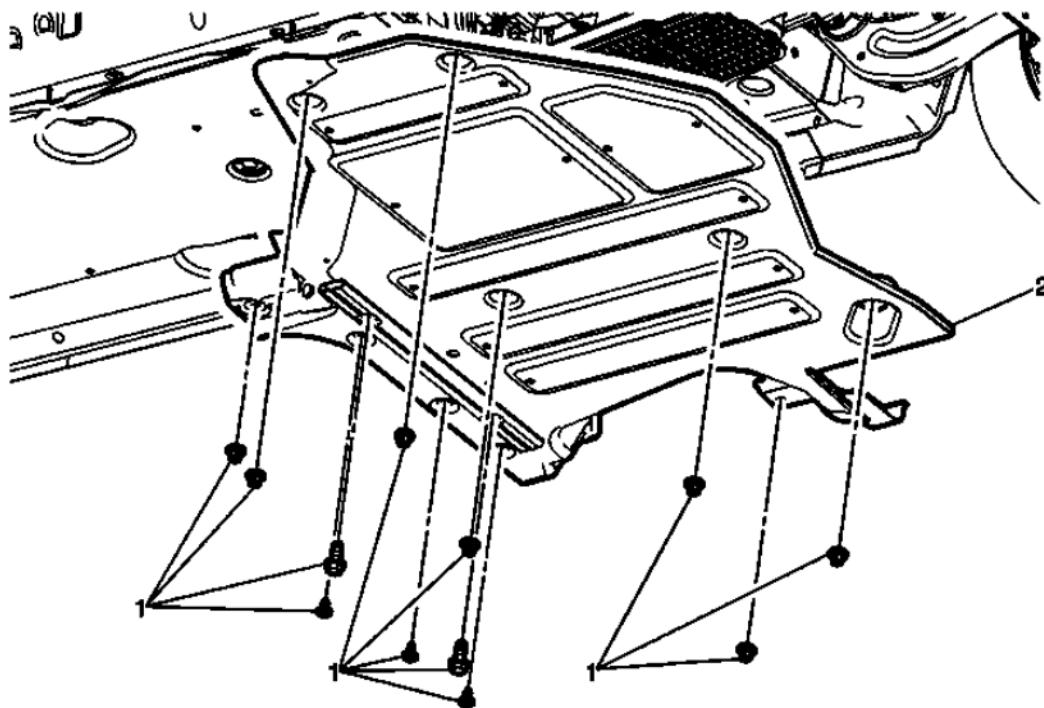


Fig. 5: Underbody Rear Air Deflector - Right Side

Courtesy of GENERAL MOTORS COMPANY

Underbody Rear Air Deflector Replacement - Right Side

Callout	Component Name
WARNING: Do not use a service jack to lift this vehicle. Lifting the vehicle with a jack could cause the vehicle to slip off the jack and roll; this could cause injury or death.	
Preliminary Procedure Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
1	Underbody Front Air Deflector Fastener (Qty: 12) CAUTION: Refer to <u>Fastener Caution</u> .
2	Underbody Right Rear Air Deflector

UNDERBODY REAR AIR OUTER DEFLECTOR BRACKET REPLACEMENT - RIGHT SIDE

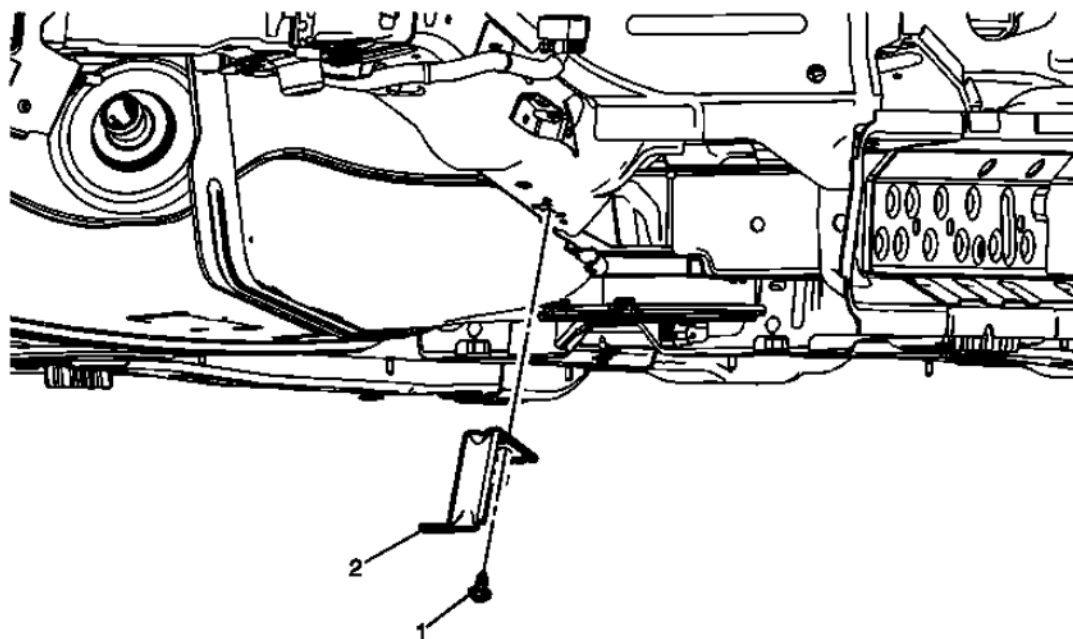


Fig. 6: Underbody Rear Air Outer Deflector Bracket - Right Side
 Courtesy of GENERAL MOTORS COMPANY

Underbody Rear Air Outer Deflector Bracket Replacement - Right Side

Callout	Component Name
WARNING: Do not use a service jack to lift this vehicle. Lifting the vehicle with a jack could cause the vehicle to slip off the jack and roll; this could cause injury or death.	
Preliminary Procedure 1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove underbody rear air deflector right side. Refer to <u>Underbody Rear Air Deflector Replacement - Right Side</u>.	
1	Underbody Rear Air Outer Deflector Bracket Right Side Fastener (Qty: 1) CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 9 (80 lb in)
2	Underbody Rear Air Outer Deflector Bracket Right Side

UNDERBODY REAR AIR OUTER DEFLECTOR BRACKET REPLACEMENT - LEFT SIDE

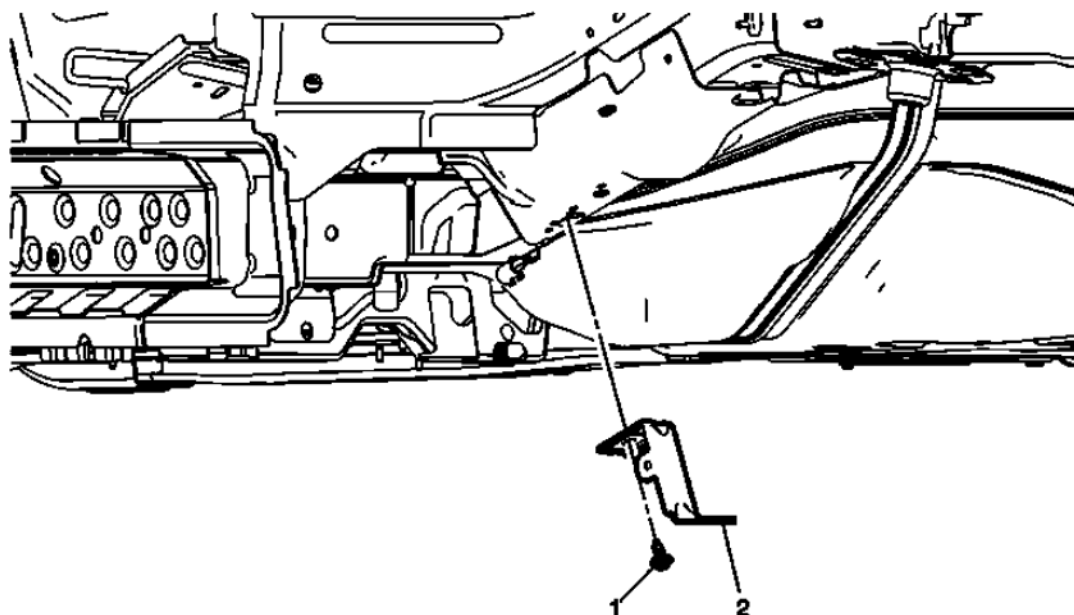


Fig. 7: Underbody Rear Air Outer Deflector Bracket - Left Side
Courtesy of GENERAL MOTORS COMPANY

Underbody Rear Air Outer Deflector Bracket Replacement - Left Side

Callout	Component Name
WARNING: Do not use a service jack to lift this vehicle. Lifting the vehicle with a jack could cause the vehicle to slip off the jack and roll; this could cause injury or death.	
Preliminary Procedure 1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove underbody rear air deflector left side. Refer to <u>Underbody Rear Air Deflector Replacement - Left Side</u>.	
1	Underbody Rear Air Outer Deflector Bracket Left Side Fastener (Qty: 1) CAUTION: Refer to <u>Fastener Caution</u> . Tighten: 9 (80 lb in)

DRIVETRAIN AND FRONT SUSPENSION FRAME REPLACEMENT

Removal Procedure

1. Install the engine support fixture. Refer to Engine Support Fixture .
2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .
3. Remove the front wheels. Refer to Tire and Wheel Removal and Installation .
4. Remove the front fascia. Refer to Front Bumper Fascia Replacement .
5. Remove the front compartment splash shield. Refer to Front Compartment Splash Shield Replacement .

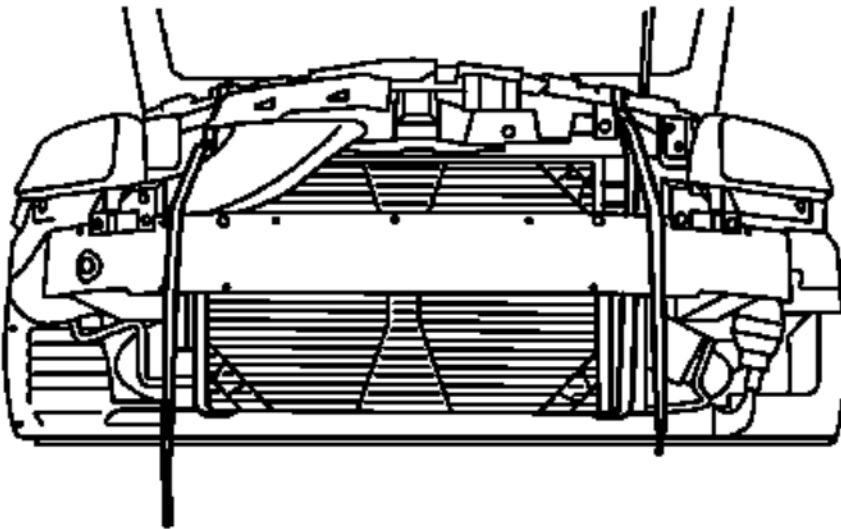


Fig. 8: Tying Radiator, Air Conditioning Condenser And Fan Module Assembly To Upper Radiator Support
Courtesy of GENERAL MOTORS COMPANY

6. Tie the radiator, air conditioning condenser, and fan module assembly to the upper radiator support to keep the assembly with the vehicle when the frame is lowered.
7. Disconnect the left and right stabilizer links from the strut assemblies. Refer to Stabilizer Shaft Link Replacement .

8. Remove the two steering gear retaining bolts. Refer to **Steering Gear Replacement (LUK, MHH)** , **Steering Gear Replacement (LCV, MH8)** , **Steering Gear Replacement (LTG, M7W)** .
9. Using mechanics wire, suspend the steering gear from the powertrain.
10. Remove the front exhaust pipe. Refer to **Exhaust Front Pipe Replacement (LUK)** , **Exhaust Front Pipe Replacement (LCV)** , **Exhaust Front Pipe Replacement (LTG)** .

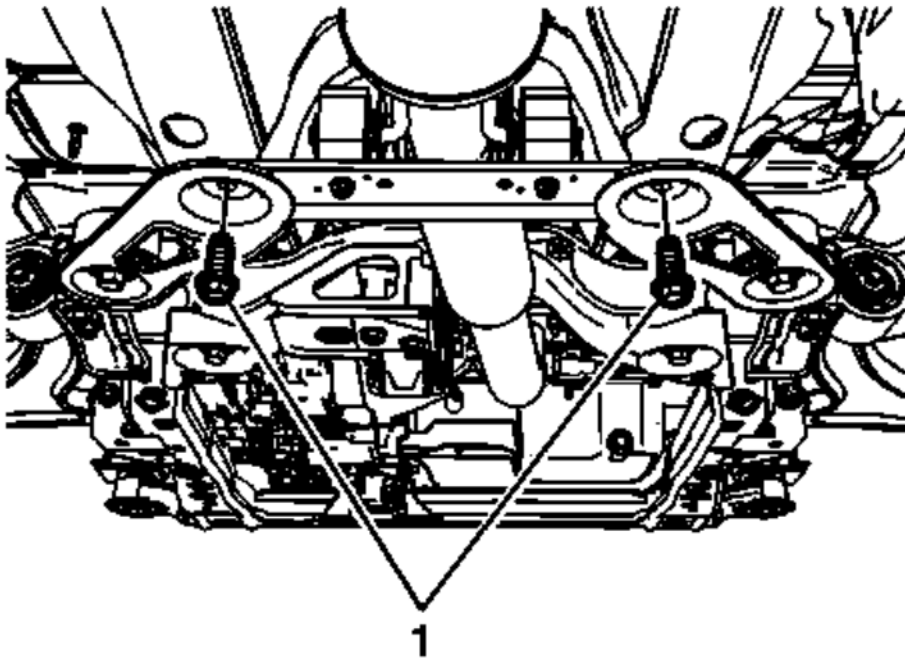


Fig. 9: frame reinforcement fasteners
Courtesy of GENERAL MOTORS COMPANY

11. Remove the frame reinforcement fasteners (1).

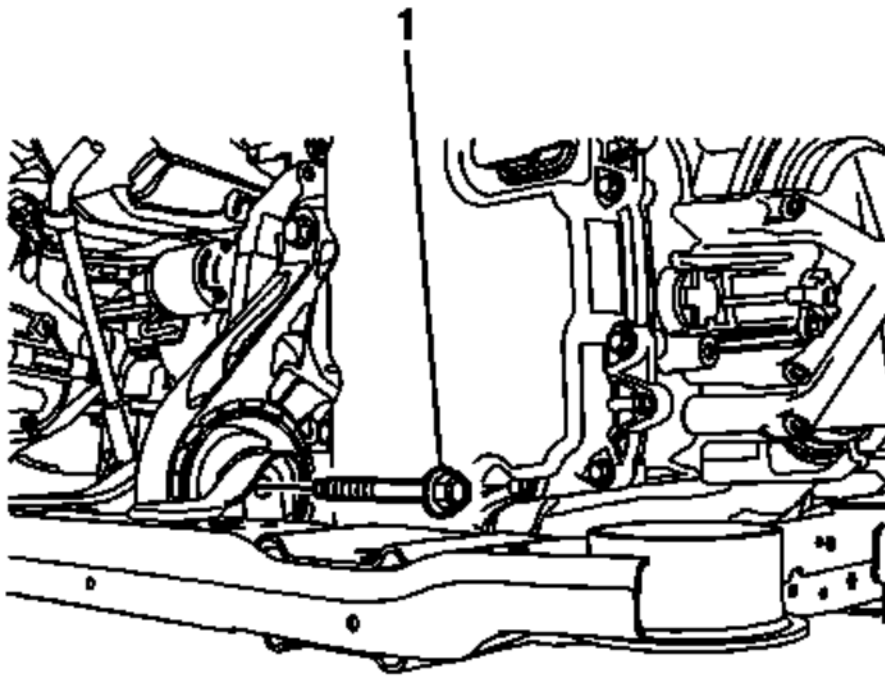


Fig. 10: Identifying Front Transmission Mount Through Bolt
Courtesy of GENERAL MOTORS COMPANY

12. Remove the front transmission mount through bolt (1).

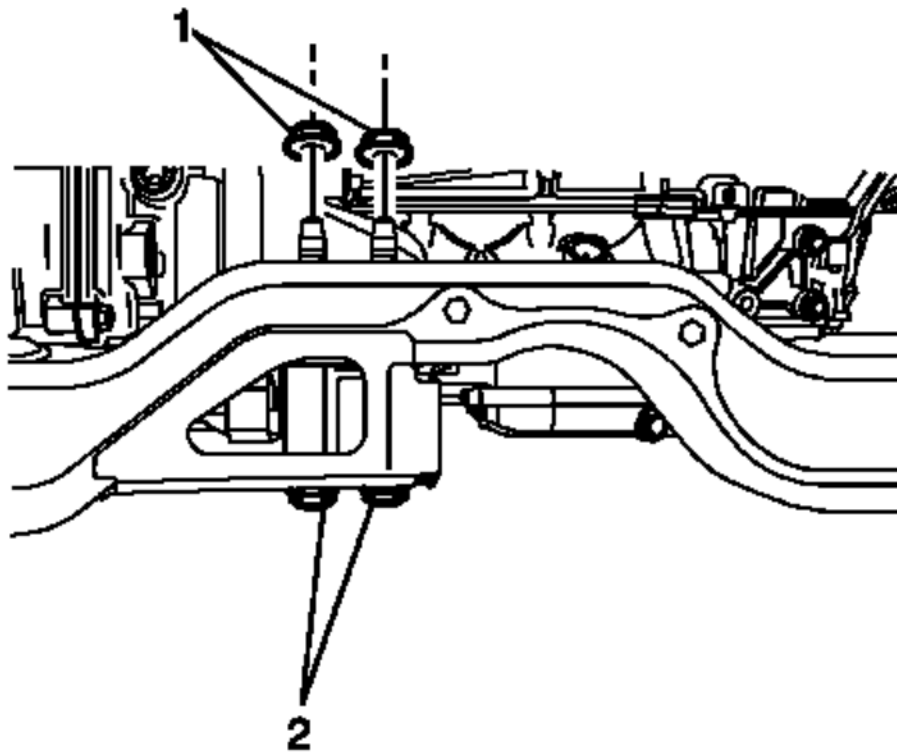


Fig. 11: Rear Mount To Frame Fasteners
Courtesy of GENERAL MOTORS COMPANY

13. Remove the rear transmission mount to frame fasteners (1, 2).
14. Separate the lower ball joints from the steering knuckles (1). Refer to **Lower Control Arm Replacement** .

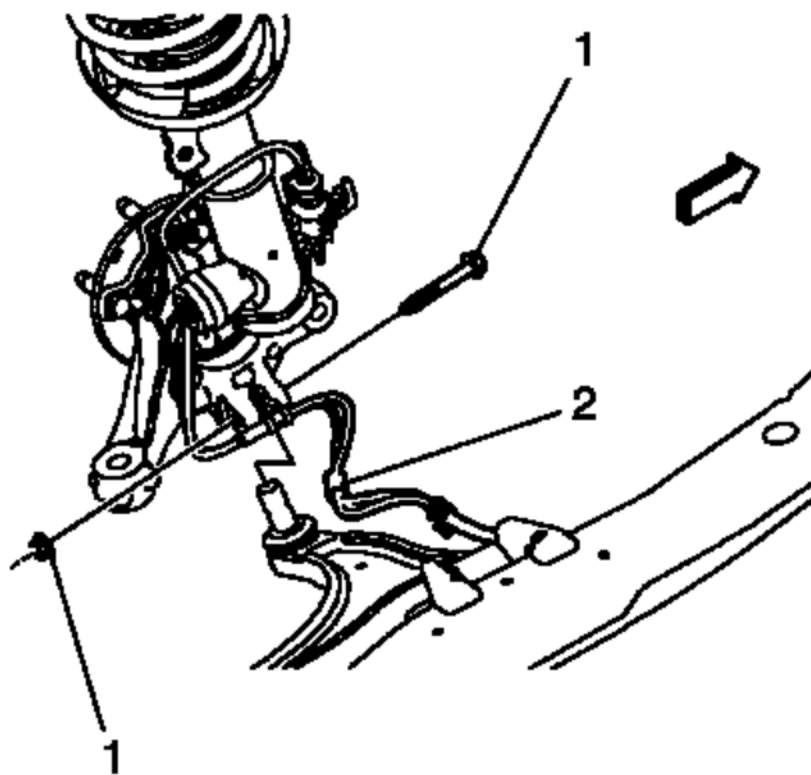


Fig. 12: Electrical Harness And Power Steering Cooler Line Clips
Courtesy of GENERAL MOTORS COMPANY

15. Remove the electrical harness from the clips in the frame (2).
16. Mark the location of the frame using spray paint for correct positioning during installation.
17. Carefully lower the vehicle until the frame contacts the support table.
18. Remove the two rear frame-to-body bolts.
19. Remove the frame reinforcements.
20. Remove the two front frame-to-body bolts.
21. Carefully raise the vehicle to separate the frame from the body.

NOTE: **Do not separate the stabilizer bar bracket from the insulator and stabilizer bar when transferring parts.**

22. If replacing the frame, transfer components as necessary.

Installation Procedure

1. Carefully lower the vehicle until contacts the frame assembly and is correctly positioned within the spray painted areas.

CAUTION: Refer to Fastener Caution .

2. Install the frame retaining bolts then tighten the bolts to 160 N.m (118 lb ft).

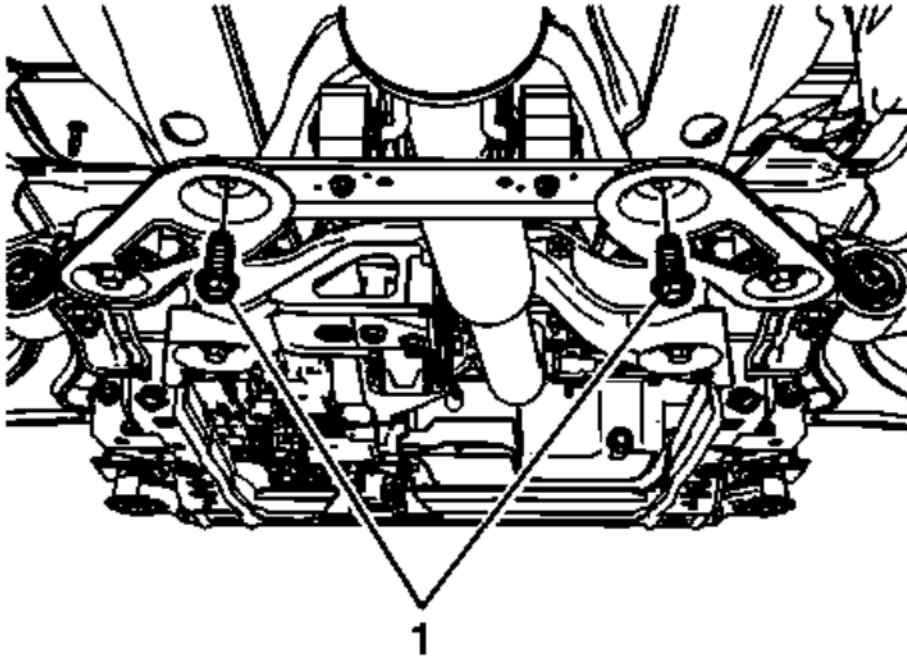


Fig. 13: frame reinforcement fasteners
Courtesy of GENERAL MOTORS COMPANY

3. Install the frame reinforcements then tighten the bolts (1) to 60 N.m (44 lb ft) plus 30 degrees.
4. Remove the mechanics wire and install the steering gear with NEW bolts and tighten to 110 N.m (81 lb ft) plus 150 degrees, plus 15 degrees.

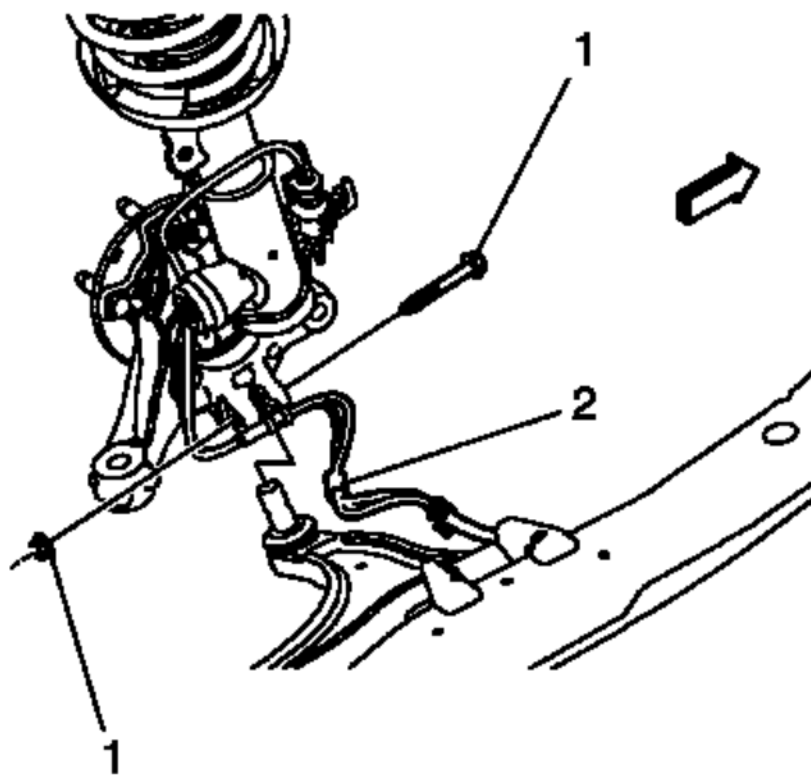


Fig. 14: Electrical Harness And Power Steering Cooler Line Clips
Courtesy of GENERAL MOTORS COMPANY

5. Install the electrical harness and the power steering cooler line to the clips in the frame (2).
6. Connect the ball joint studs to the steering knuckles (1). Refer to **Lower Control Arm Replacement**.

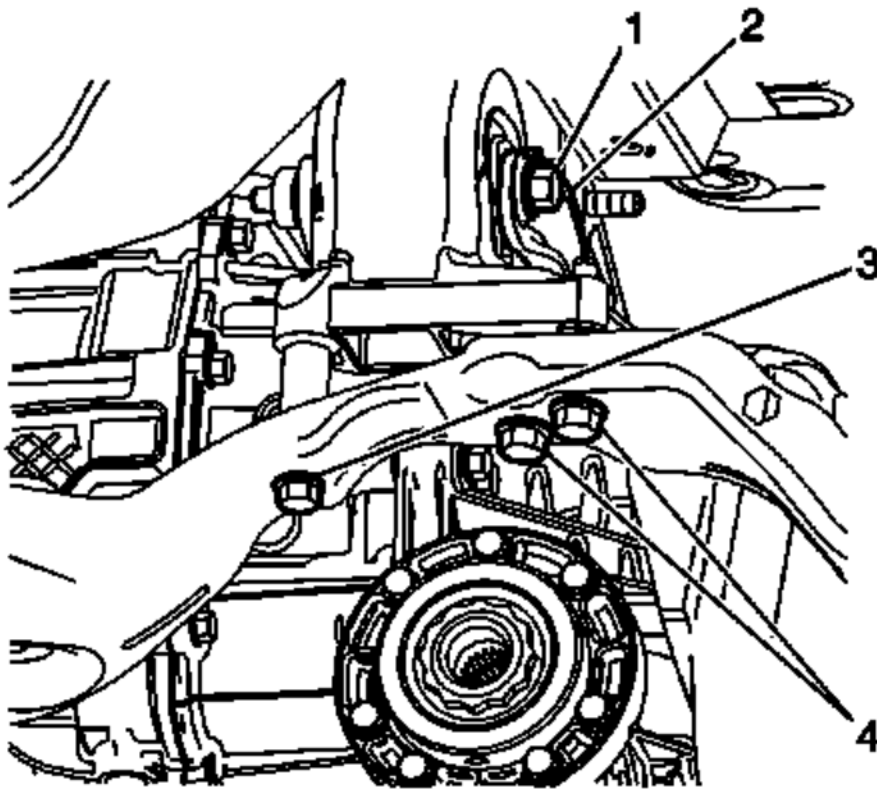


Fig. 15: Transaxle Mount Components

Courtesy of GENERAL MOTORS COMPANY

7. Install the rear transmission mount through bolt (1) and tighten to 100 N.m (74 lb ft).
8. Install the front transmission mount bolts and nut then tighten to 100 N.m (74 lb ft).
9. Untie the radiator, air conditioning condenser, and fan module assembly from the upper radiator support.
10. Connect the left and right stabilizer links to the strut assemblies. Refer to **Stabilizer Shaft Link Replacement** .
11. Install the front exhaust pipe. Refer to **Exhaust Front Pipe Replacement (LUK)** , **Exhaust Front Pipe Replacement (LCV)** , **Exhaust Front Pipe Replacement (LTG)** .
12. Remove the engine support fixture.
13. Install the front fascia. Refer to **Front Bumper Fascia Replacement** .
14. Install the front compartment splash shield. Refer to **Front Compartment Splash Shield Replacement** .
15. Install the front wheels. Refer to **Tire and Wheel Removal and Installation** .
16. Lower the vehicle.
17. Check the wheel alignment.

REAR SUSPENSION SUPPORT REPLACEMENT (GNC)

Removal Procedure

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .
2. Remove the rear tire and wheel assemblies. Refer to Tire and Wheel Removal and Installation .
3. Remove the rear muffler assembly. Refer to Exhaust Muffler Replacement (LCV, LUK) , Exhaust Muffler Replacement (LTG) .
4. Disconnect the stabilizer shaft from stabilizer shaft links. Refer to Stabilizer Shaft Link Replacement (GNC) .
5. Remove the park brake cables from the support. Refer to Parking Brake Rear Cable Replacement .
6. Remove the lower control arms from the vehicle. Refer to Lower Control Arm Replacement .
7. Remove the adjust links from the from the vehicle. Refer to Adjust Link Replacement (GNC) .
8. Remove the upper control arm inner fasteners. Refer to Upper Control Arm Replacement (GNC) .
9. Position a transmission jack under the rear support and firmly secure the support to the jack with straps.
10. Mark the location of the frame using spray paint for correct positioning during installation.

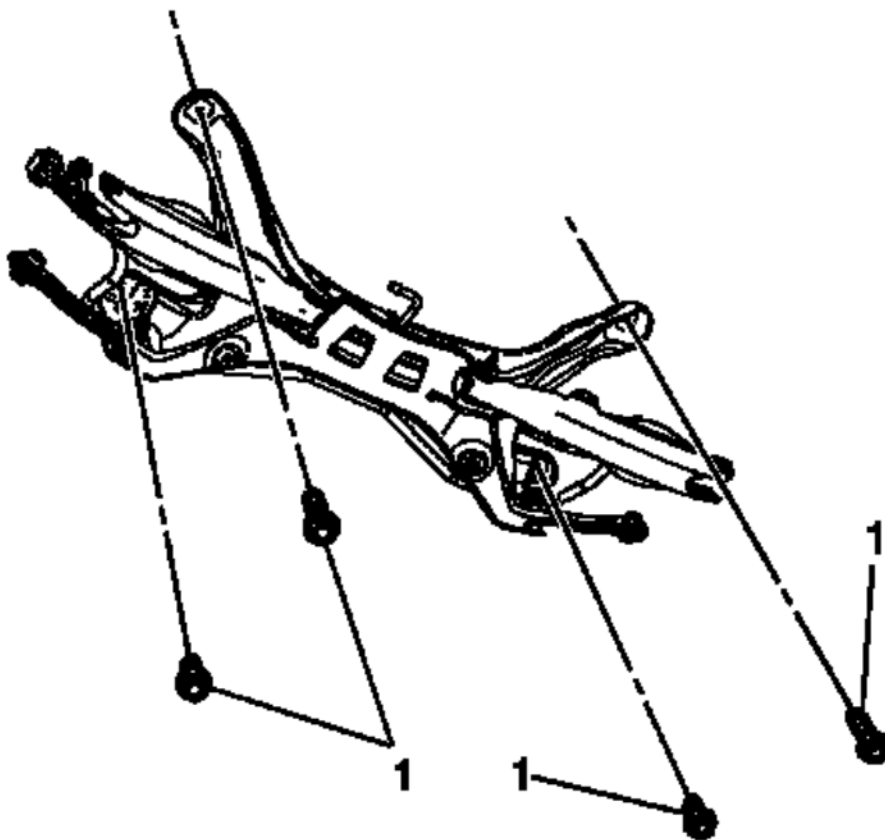


Fig. 16: Identifying Support Assembly To Body Bolts (Sedan/Coupe)
Courtesy of GENERAL MOTORS COMPANY

11. Remove the support fastener and discard them.

12. With the aid of an assistant, lower the support from the transmission jack stand.
13. Remove the stabilizer shaft from the rear support.

Installation Procedure

NOTE: When transferring any suspension components, refer to each suspension component replacement procedure for the proper torque specifications.

1. Install the stabilizer shaft assembly on to the support. Refer to Stabilizer Shaft Replacement (GNC) .
2. With the aid of an assistant, position the rear support onto the transmission jack and firmly secure the support to the jack with straps.
3. Carefully lower the vehicle until contacts the frame assembly and is correctly positioned within the spray painted areas.

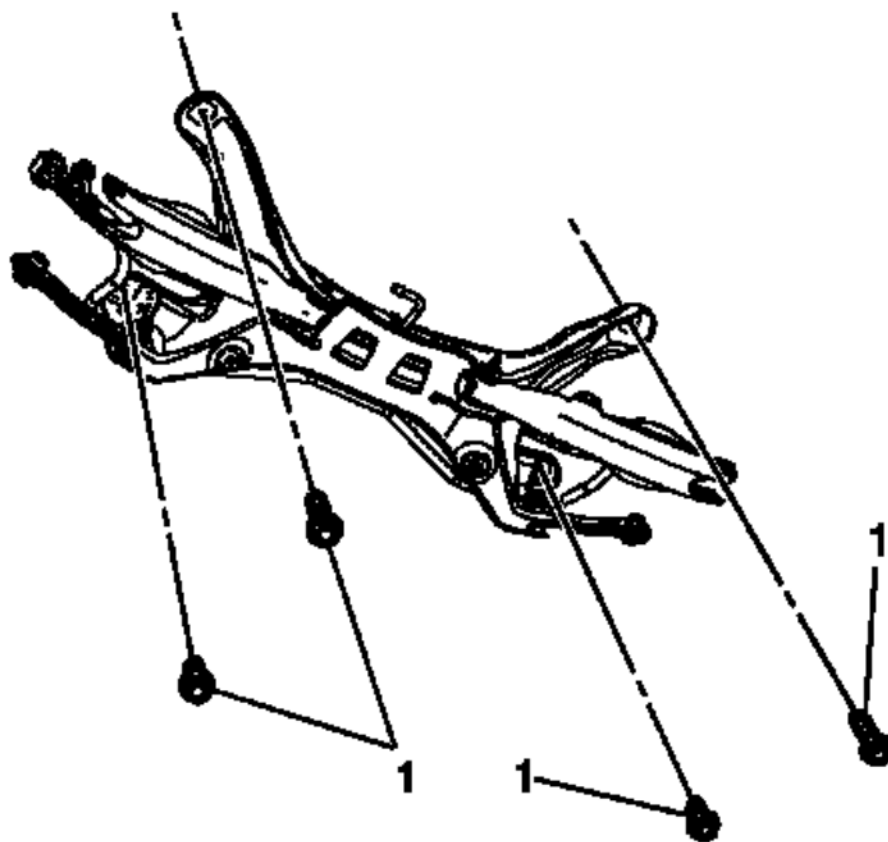


Fig. 17: Identifying Support Assembly To Body Bolts (Sedan/Coupe)
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution .

4. Install the NEW support fastener and tighten to 90 N.m (66 lb ft).
5. Tighten the support fastener an additional 120 degrees then 15 degrees.
6. Remove the transmission jack stand.
7. Install the upper control arm inner fasteners. Refer to **Upper Control Arm Replacement (GNC)** .
8. Install the adjust links to the support. Refer to **Adjust Link Replacement (GNC)** .
9. Install the lower control arms. Refer to **Lower Control Arm Replacement** .
10. Install the park brake cables to the rear support. Refer to **Parking Brake Rear Cable Replacement** .
11. Install the rear muffler assembly. Refer to **Exhaust Muffler Replacement (LCV, LUK)** , **Exhaust Muffler Replacement (LTG)**
12. Connect the stabilizer shaft to the stabilizer shaft links. Refer to **Stabilizer Shaft Link Replacement (GNC)** .
13. Install the rear tire and wheel assemblies. Refer to **Tire and Wheel Removal and Installation** .
14. Lower the vehicle.
15. Realign the rear suspension. Refer to **Wheel Alignment Measurement** .

DRIVETRAIN AND FRONT SUSPENSION FRAME INSULATOR REPLACEMENT

Special Tools

- **J-45296-1** Frame Insulator Remover and Installer
- **J-45725-2** Bushing Replacer

For equivalent regional tools, refer to **Special Tools**.

Removal Procedure

1. Separate the frame from the body approximately 70 mm. Refer to **Drivetrain and Front Suspension Frame Replacement**.

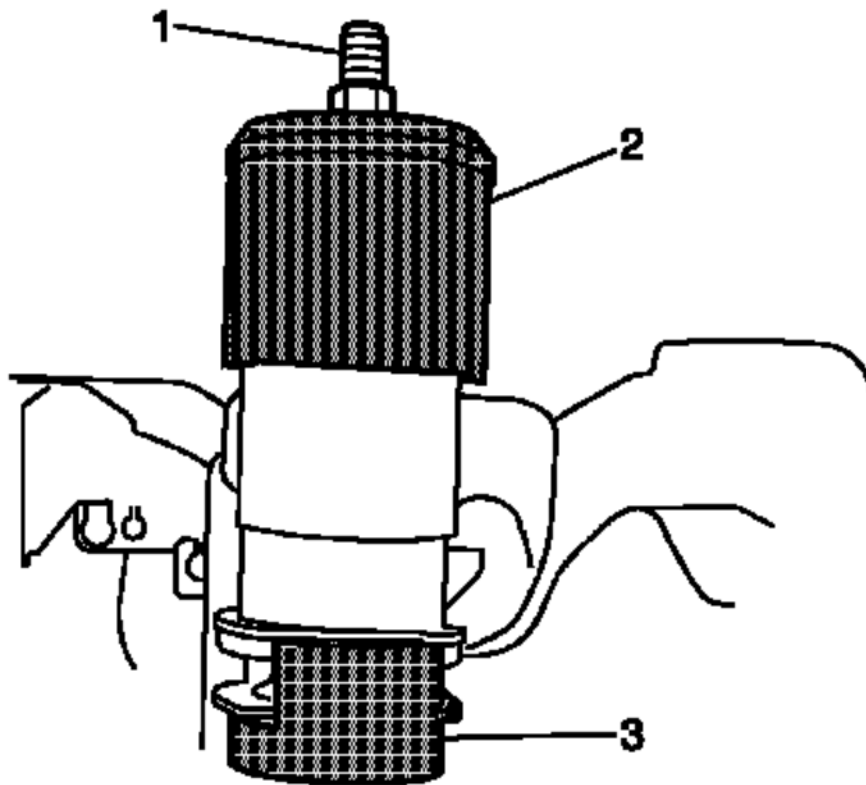


Fig. 18: Removing/Installing Bushings
Courtesy of GENERAL MOTORS COMPANY

2. Remove the bushings using J-45296-1 remover and installer and J-45725-2 replacer (2).

Installation Procedure

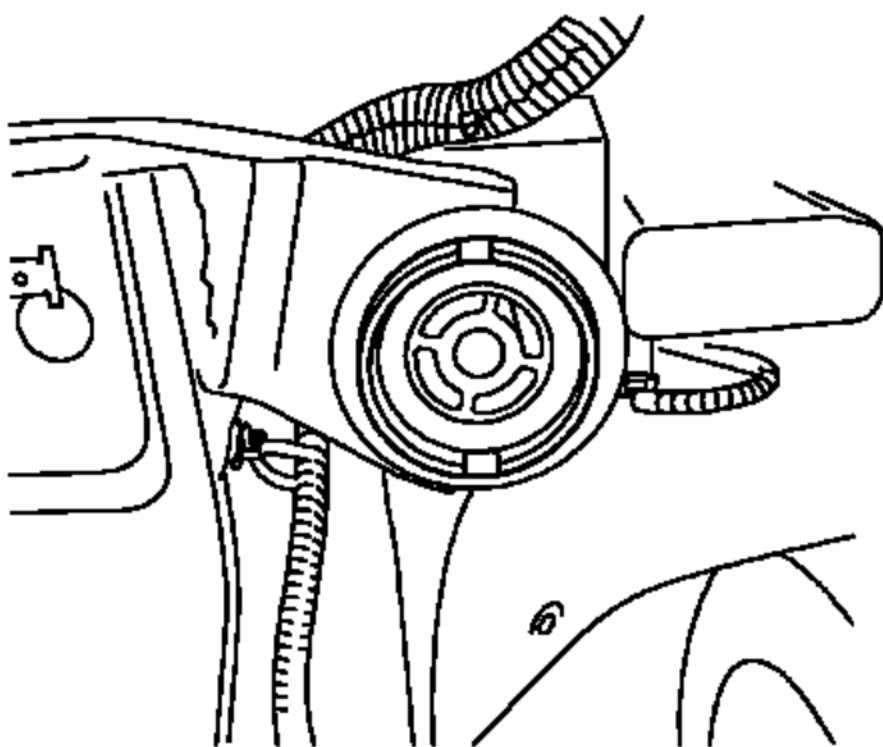


Fig. 19: Locating Front Bushing

Courtesy of GENERAL MOTORS COMPANY

1. Locate the front bushings as shown.

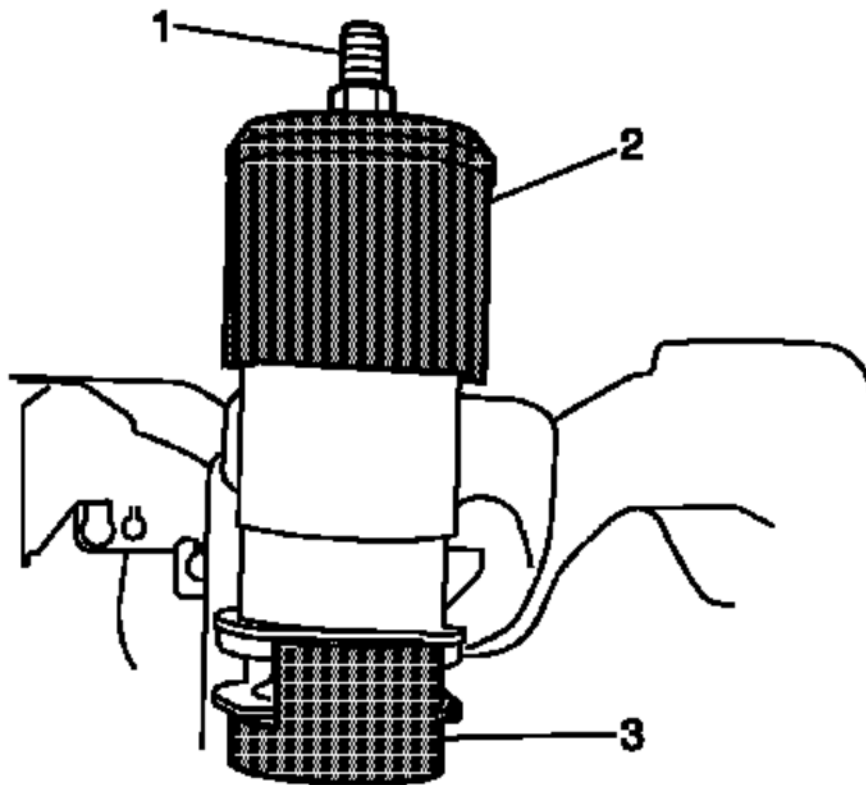


Fig. 20: Removing/Installing Bushings
Courtesy of GENERAL MOTORS COMPANY

2. Install the bushings using **J-45296-1** remover and installer and **J-45725-2** replacer (2).
3. Install the frame to the body. Refer to **Drivetrain and Front Suspension Frame Replacement**.

FRONT WHEELHOUSE FRONT LINER REPLACEMENT (LEFT SIDE)

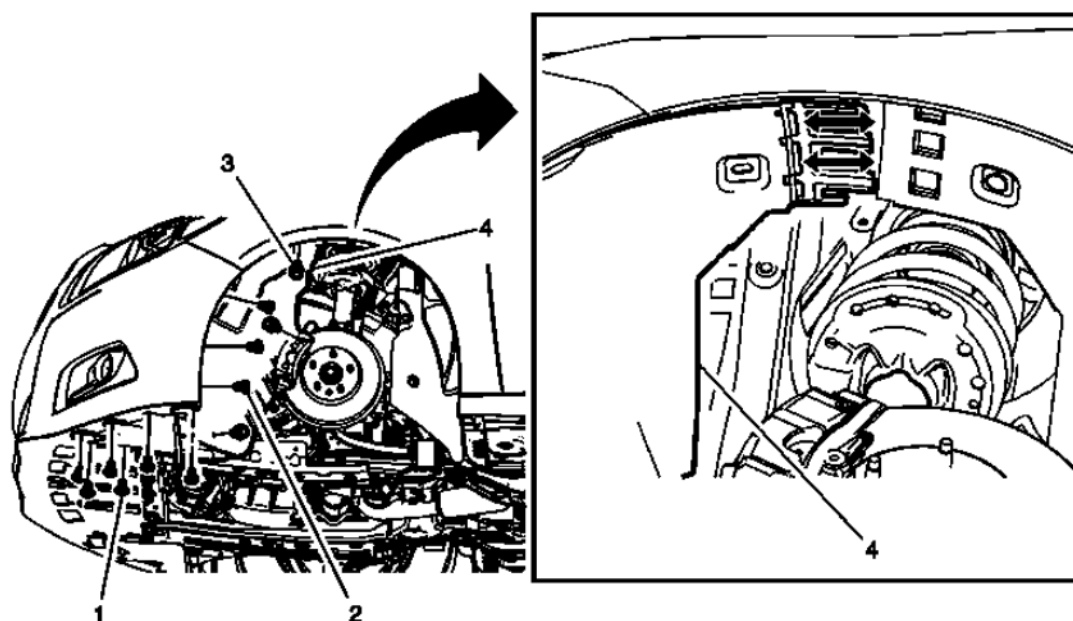


Fig. 21: Front Wheelhouse Front Liner (Left Side)

Courtesy of GENERAL MOTORS COMPANY

Front Wheelhouse Front Liner Replacement (Left Side)

Callout	Component Name
Preliminary Procedure Remove the tire and wheel assembly. Refer to <u>Tire and Wheel Removal and Installation</u> .	
1	Front Wheelhouse Front Liner Screw (Qty: 6) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 N.m (22 lb in)
2	Front Wheelhouse Front Liner Screw (Qty: 3) Tighten 2.5 N.m (22 lb in)
3	Front Wheelhouse Front Liner Push-In Retainer (Qty: 3)
4	Front Wheelhouse Front Liner Procedure Disengage the upper interlocking retainer.

FRONT WHEELHOUSE FRONT LINER REPLACEMENT (RIGHT SIDE)

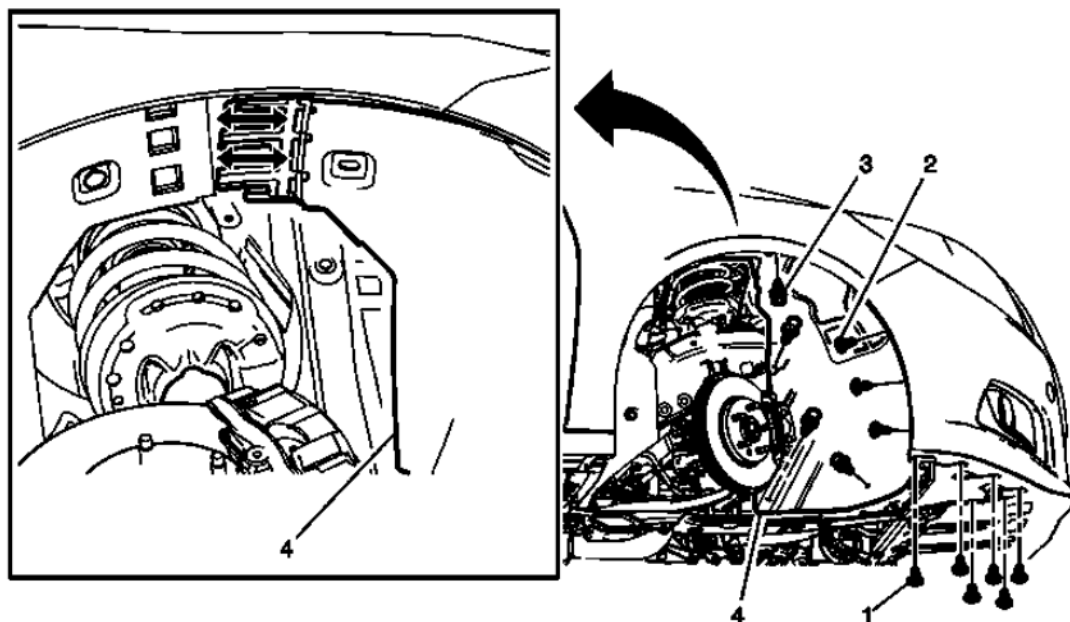


Fig. 22: Front Wheelhouse Front Liner (Right Side)
 Courtesy of GENERAL MOTORS COMPANY

Front Wheelhouse Front Liner Replacement (Right Side)

Callout	Component Name
Preliminary Procedure Remove the tire and wheel assembly. Refer to <u>Tire and Wheel Removal and Installation</u> .	
1	Front Wheelhouse Front Liner Screw (Qty: 6) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 N.m (22 lb in)
2	Front Wheelhouse Front Liner Screw (Qty: 3) Tighten 2.5 N.m (22 lb in)
3	Front Wheelhouse Front Liner Push-In Retainer (Qty: 4)
4	Front Wheelhouse Front Liner Procedure Disengage the upper interlocking retainer.

FRONT WHEELHOUSE REAR LINER REPLACEMENT (LEFT SIDE)

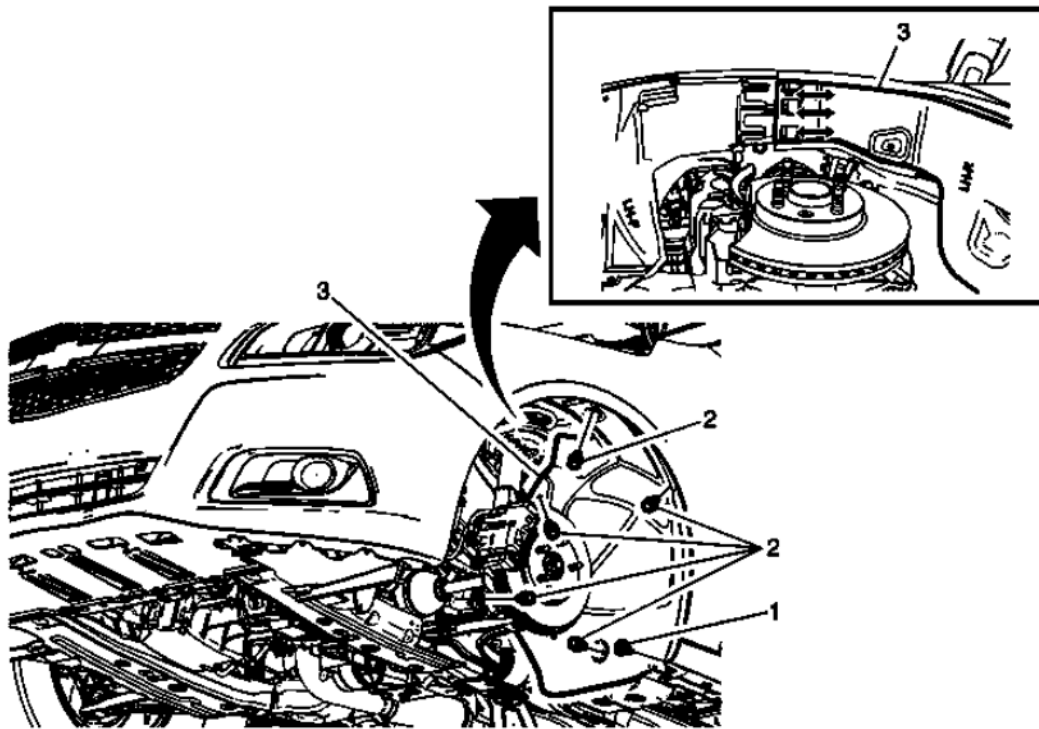


Fig. 23: Front Wheelhouse Rear Liner (Left Side)
 Courtesy of GENERAL MOTORS COMPANY

Front Wheelhouse Rear Liner Replacement (Left Side)

Callout	Component Name
Preliminary Procedure Remove the tire and wheel assembly. Refer to <u>Tire and Wheel Removal and Installation</u> .	
1	Front Wheelhouse Rear Liner Screw CAUTION: Refer to <u>Fastener Caution</u> . Tighten 3 N.m (27 lb in)
2	Front Wheelhouse Rear Liner Push-In Retainer (Qty: 5)
3	Front Wheelhouse Rear Liner Procedure Disengage the upper interlocking retainer.

FRONT WHEELHOUSE REAR LINER REPLACEMENT (RIGHT SIDE)

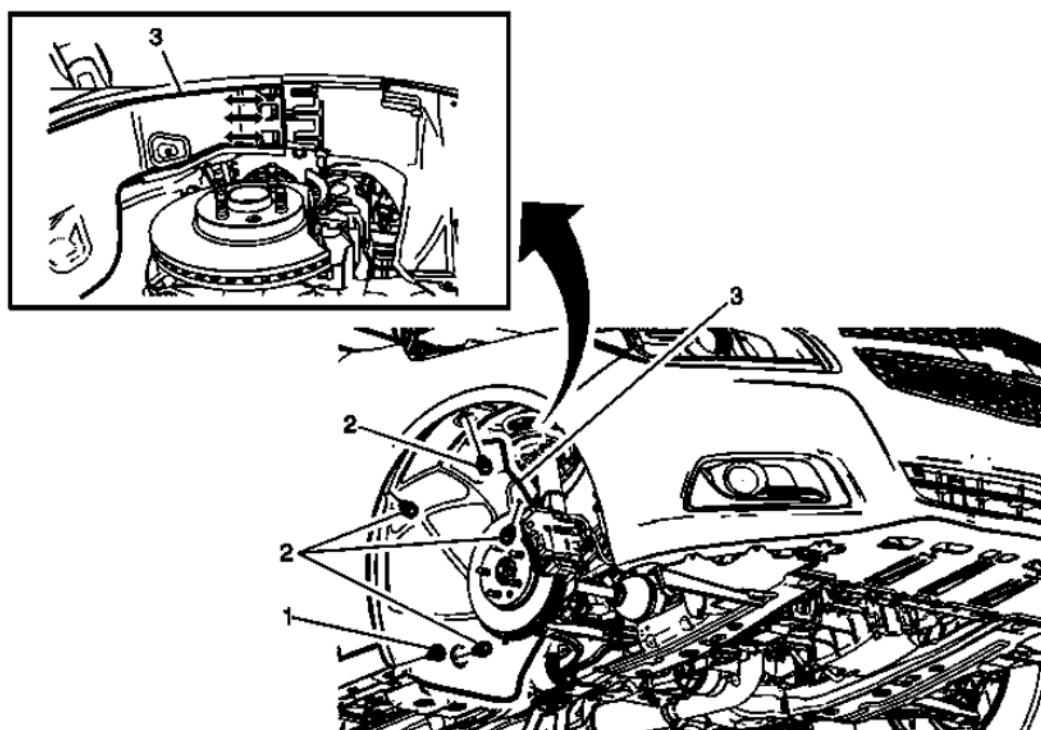


Fig. 24: Front Wheelhouse Rear Liner (Right Side)

Courtesy of GENERAL MOTORS COMPANY

Front Wheelhouse Rear Liner Replacement (Right Side)

Callout	Component Name
Preliminary Procedure Remove the tire and wheel assembly. Refer to <u>Tire and Wheel Removal and Installation</u> .	
1	Front Wheelhouse Rear Liner Screw CAUTION: Refer to <u>Fastener Caution</u> . Tighten 3 N.m (27 lb in)
2	Front Wheelhouse Rear Liner Push-In Retainer (Qty: 5)
3	Front Wheelhouse Rear Liner Procedure Disengage the upper interlocking retainer.

REAR WHEELHOUSE LINER REPLACEMENT

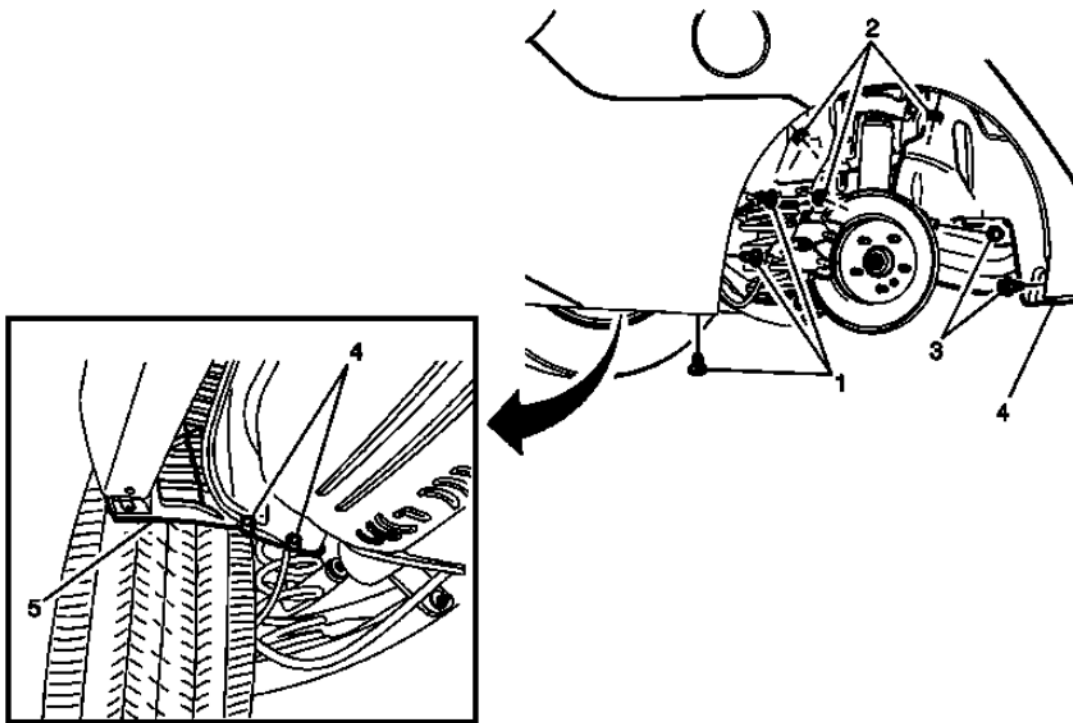


Fig. 25: Rear Wheelhouse Liner
 Courtesy of GENERAL MOTORS COMPANY

Rear Wheelhouse Liner Replacement

Callout	Component Name
Preliminary Procedure Remove the tire and wheel assembly. Refer to <u>Tire and Wheel Removal and Installation</u> .	
1	Rear Wheelhouse Panel Liner Screw (Qty: 3) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 3 N.m (27 lb in)
2	Rear Wheelhouse Panel Liner Nut (Qty: 3) Tighten 2 N.m (18 lb in)
3	Rear Wheelhouse Panel Liner Push-In Retainer (Qty: 2)
4	Heatshield Clamp, if equipped (Qty: 2)
5	Rear Wheelhouse Panel Liner

ENGINE SPLASH SHIELD REPLACEMENT

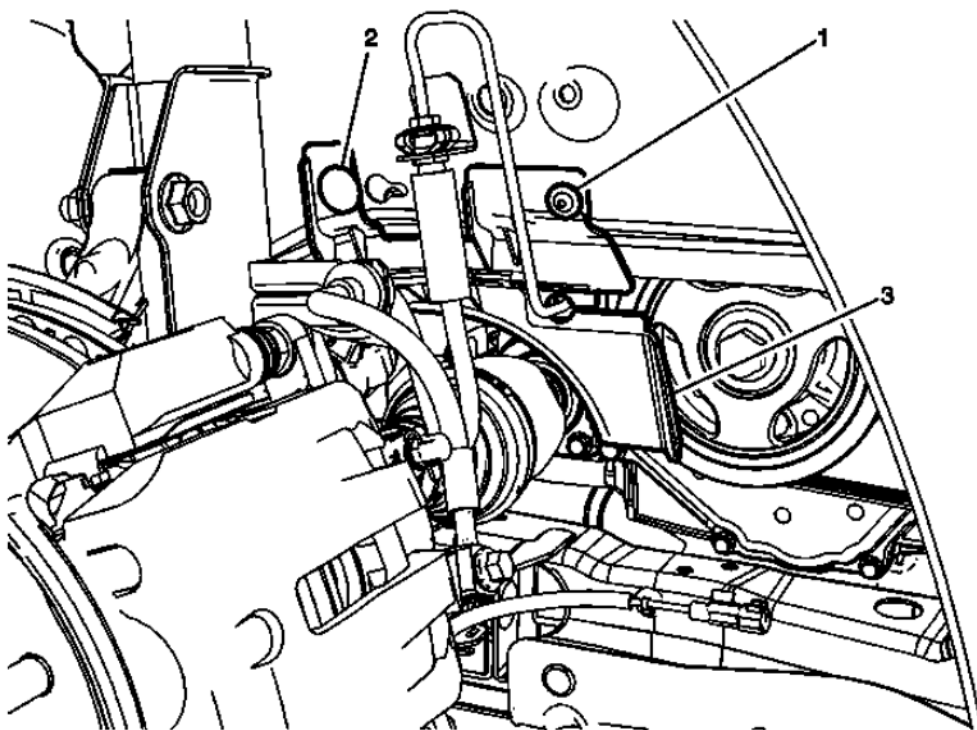


Fig. 26: Engine Splash Shield

Courtesy of GENERAL MOTORS COMPANY

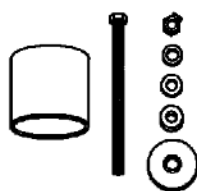
Engine Splash Shield Replacement

Callout	Component Name
Preliminary Procedure Remove the front wheelhouse front liner. Refer to Front Wheelhouse Front Liner Replacement (Left Side) , Front Wheelhouse Front Liner Replacement (Right Side) .	
1	Engine Splash Shield Plastic Screw CAUTION: Refer to Fastener Caution . Tighten 2.5 (22 lb in)
2	Engine Splash Shield Plastic Retainer
3	Engine Splash Shield

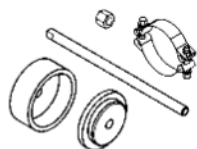
SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration	Tool Number/ Description



J-45296-1
Frame Insulator Remover and Installer



J-45725-2
Bushing Replacer