

ACCESSORIES & EQUIPMENT

Frame and Underbody - CTS Sedan

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Engine Compartment Lower Noise Shield Bolt	5	44 lb in
Frame Body Brace Fastener	50	37 lb ft
Frame to Body Bolts - Front Fastener	100	74 lb ft
Frame to Body Bolts - Rear Fastener	100	74 lb ft
Floor Panel Cross Bar Fastener	22	16 lb ft
Jack Pad Bolts	9	80 lb in
Rear Suspension Cradle Bolts		
• First Pass	100	74 lb ft
• Final Pass	+90°	
Stabilizer Shaft Fastener	22	16 lb ft
Transmission Mount and Support Bolts	60	44 lb ft
Transmission Travel Mount Bolt	100	74 lb ft
Underbody Air Deflector Fasteners	9	80 lb in
Vacuum Mount Tank and Solenoid Fastener	9	80 lb in

REPAIR INSTRUCTIONS

ENGINE LOWER FRONT SPLASH SHIELD REPLACEMENT

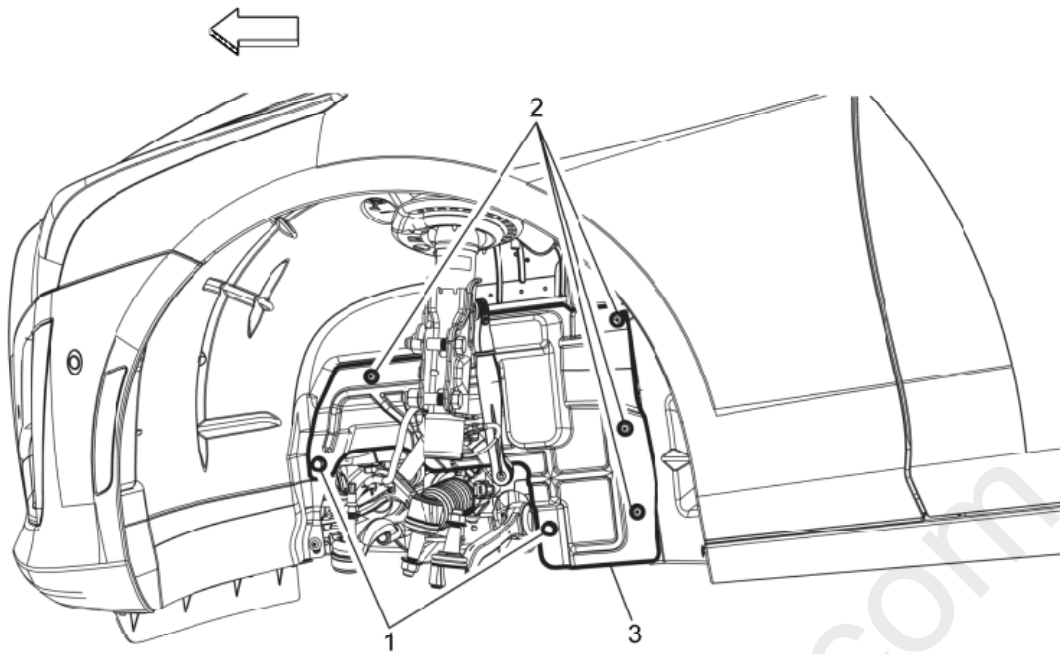


Fig. 1: Engine Lower Front Splash Shield
 Courtesy of GENERAL MOTORS COMPANY

Engine Lower Front Splash Shield Replacement

Callout	Component Name
Preliminary Procedure Remove the tire and wheel assembly. Refer to <u>Tire and Wheel Removal and Installation</u> .	
1	Engine Lower Front Splash Shield Push-In Retainer (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> .
2	Engine Lower Front Splash Shield Screw (Qty: 4)
3	Engine Lower Front Splash Shield

FRONT COMPARTMENT LOWER NOISE SHIELD REPLACEMENT (AWD)

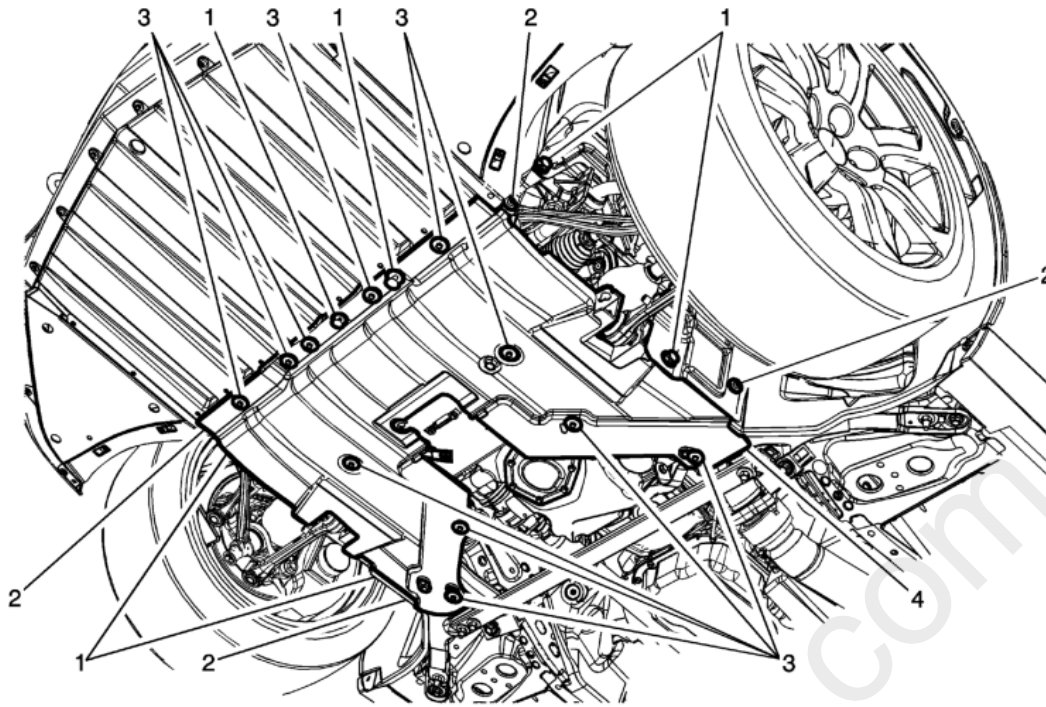


Fig. 2: Front Compartment Lower Noise Shield (AWD)
 Courtesy of GENERAL MOTORS COMPANY

Front Compartment Lower Noise Shield Replacement (AWD)

Callout	Component Name
Preliminary Procedure	
Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
1	Engine Compartment Lower Noise Shield Push-In Retainer (Qty: 6)
2	Engine Compartment Lower Noise Shield Screw (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> .
3	Engine Compartment Lower Noise Shield Bolt (Qty: 11) Tighten 5 (44 lb in)
4	Engine Compartment Lower Noise Shield

FRONT COMPARTMENT LOWER NOISE SHIELD REPLACEMENT (RWD)

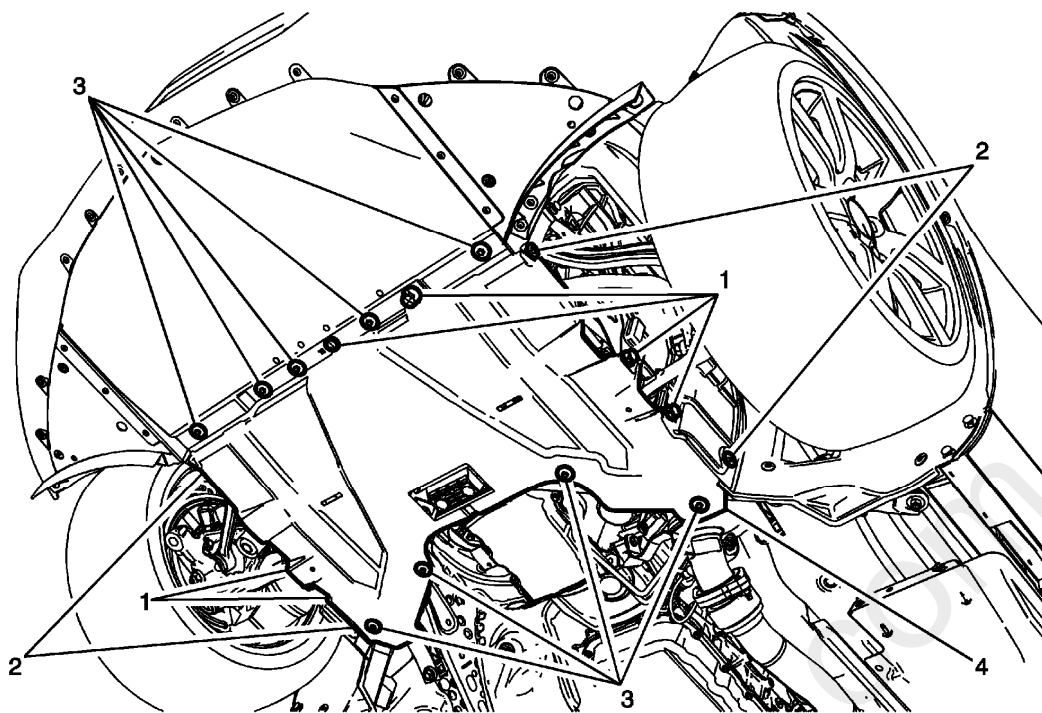


Fig. 3: Front Compartment Lower Noise Shield (RWD)
 Courtesy of GENERAL MOTORS COMPANY

Front Compartment Lower Noise Shield Replacement (RWD)

Callout	Component Name
Preliminary Procedure	
Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .	
1	Engine Compartment Lower Noise Shield Push-In Retainer (Qty: 6)
2	Engine Compartment Lower Noise Shield Screw (Qty: 4) CAUTION: Refer to Fastener Caution .
3	Engine Compartment Lower Noise Shield Bolt (Qty: 9) Tighten 5 (44 lb in)
4	Engine Compartment Lower Noise Shield

UNDERBODY FRONT AIR DEFLECTOR REPLACEMENT - LEFT SIDE

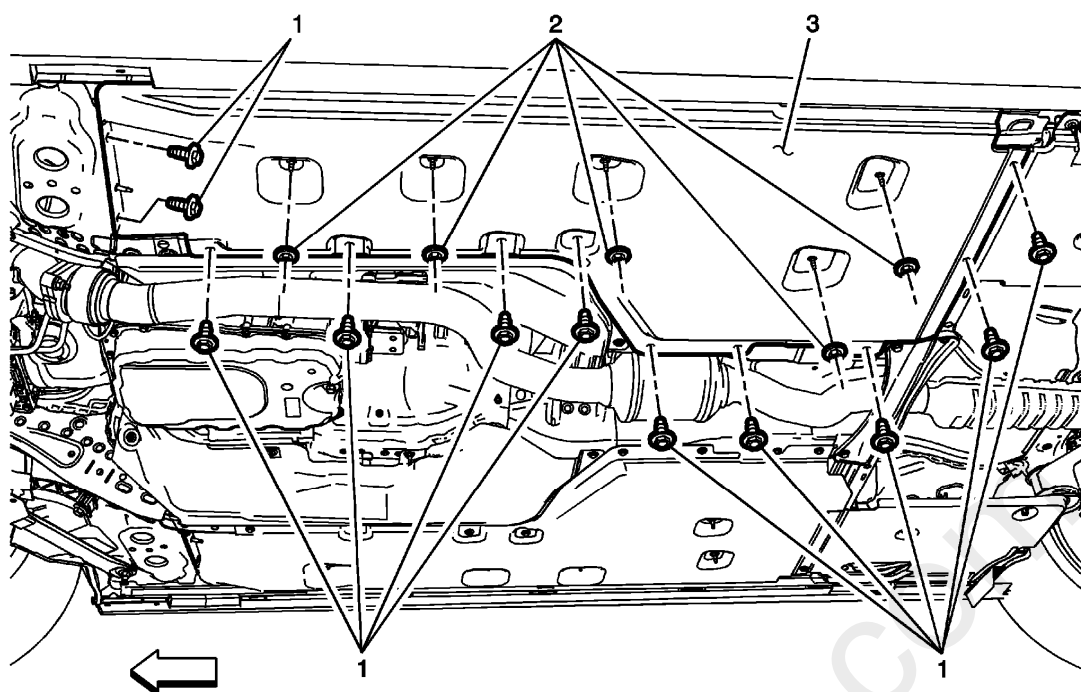


Fig. 4: Underbody Front Air Deflector - Left Side
 Courtesy of GENERAL MOTORS COMPANY

Underbody Front Air Deflector Replacement - Left Side

Callout	Component Name
Preliminary Procedure	
Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
1	Underbody Front Air Deflector Bolt (Qty 11) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 9 (80 lb in)
2	Underbody Front Air Deflector Nut (Qty 5) Tighten 9 (80 lb in)
3	Underbody Front Air Deflector

UNDERBODY FRONT AIR DEFLECTOR REPLACEMENT - RIGHT SIDE

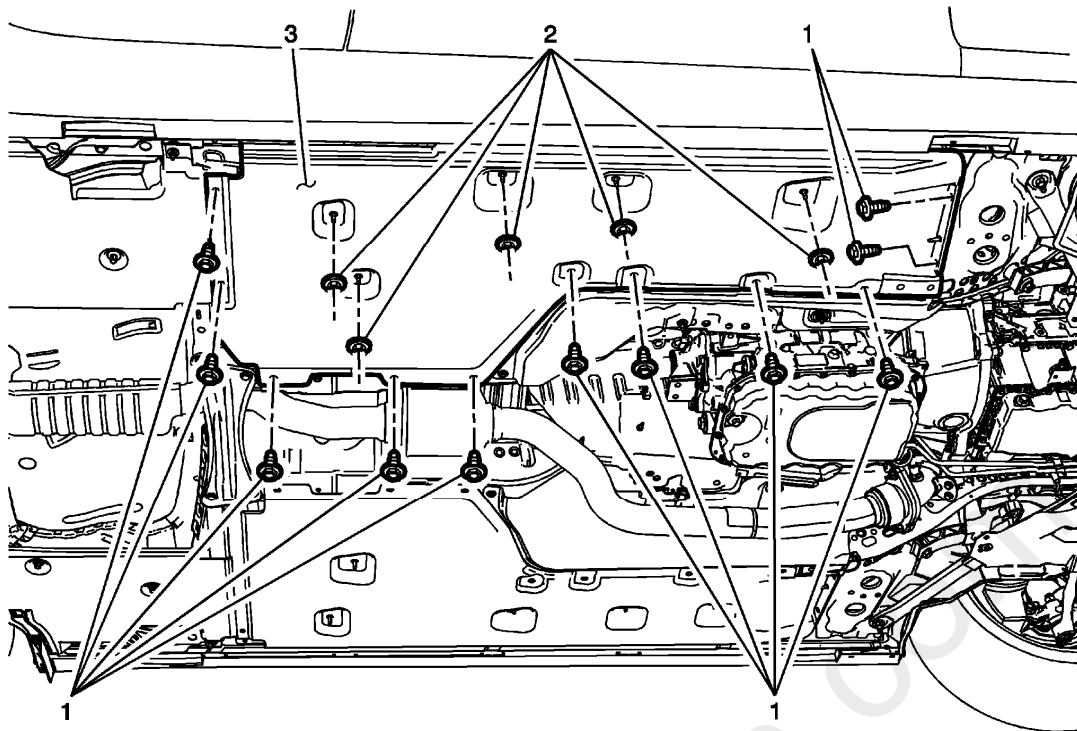


Fig. 5: Underbody Front Air Deflector - Right Side
Courtesy of GENERAL MOTORS COMPANY

Underbody Front Air Deflector Replacement - Right Side

Callout	Component Name
Preliminary Procedure	
Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
1	Underbody Front Air Deflector Bolt (Qty: 11) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 9 (80 lb in)
2	Underbody Front Air Deflector Nut (Qty: 5) Tighten 9 (80 lb in)
3	Underbody Front Air Deflector

UNDERBODY REAR AIR DEFLECTOR REPLACEMENT - LEFT SIDE

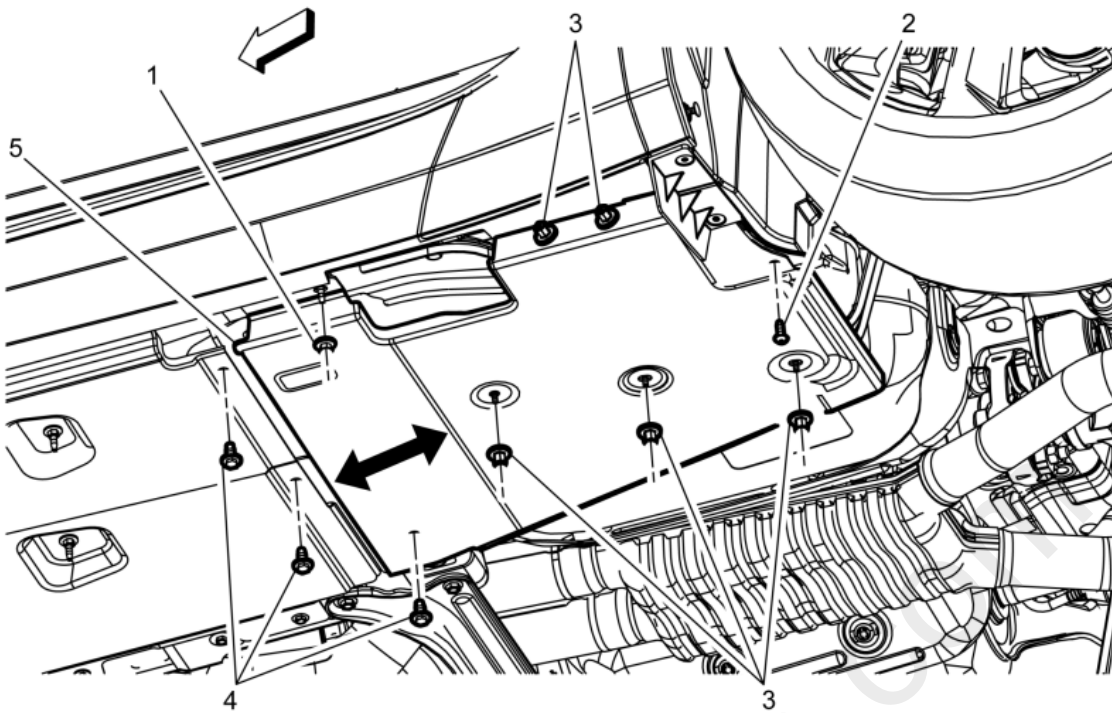


Fig. 6: Underbody Rear Air Deflector - Left Side
 Courtesy of GENERAL MOTORS COMPANY

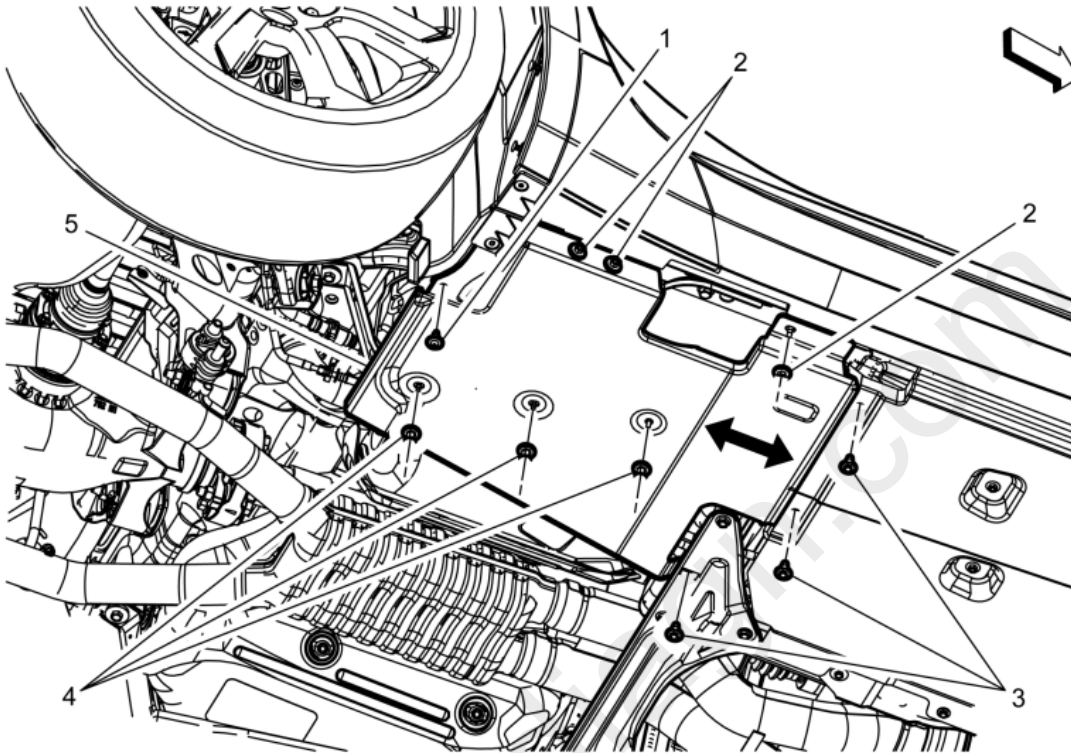
Underbody Rear Air Deflector Replacement - Left Side

Callout	Component Name
Preliminary Procedures	
1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the rear tire front air deflector. Refer to <u>Rear Tire Front Air Deflector Replacement</u> .	
1	Underbody Rear Air Deflector Fastener CAUTION: Refer to <u>Fastener Caution</u> . Tighten 9 (80 lb in)
2	Underbody Rear Air Deflector Screw (Qty: 1)
3	Underbody Rear Air Deflector Fasteners (Qty: 5) Tighten 2.5 (22 lb in)
4	Underbody Rear Air Deflector Fasteners (Qty: 3) Tighten 9 (80 lb in)

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Underbody Rear Air Deflector**Procedure**

Slide the rear air deflector out from the front air deflector.

UNDERBODY REAR AIR DEFLECTOR REPLACEMENT - RIGHT SIDE**Fig. 7: Underbody Rear Air Deflector - Right Side**

Courtesy of GENERAL MOTORS COMPANY

Underbody Rear Air Deflector Replacement - Right Side

Callout	Component Name
Preliminary Procedures	
1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
2. Remove the rear tire front air deflector. Refer to <u>Rear Tire Front Air Deflector Replacement</u> .	
1	Underbody Rear Air Deflector Fastener (Qty: 1) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 (22 lb in)
	Underbody Rear Air Deflector Fastener

2	Tighten 9 (80 lb in)
3	Underbody Rear Air Deflector Fasteners (Qty: 3) Tighten 9 (80 lb in)
4	Underbody Rear Air Deflector Fasteners (Qty: 3) Tighten 2.5 (22 lb in)
5	Underbody Rear Air Deflector Procedure Slide the rear air deflector out from the front air deflector.

DRIVETRAIN AND FRONT SUSPENSION CRADLE REPLACEMENT

Special Tools

J-39580 Engine Support Stand

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

Removal Procedure

NOTE: Suspension components attached to the frame use Torque-to-Yield fasteners and must be **DISCARDED** and replaced with **NEW** Torque Angle Yield (TAY) fasteners. The frame to body fasteners are not TAY fasteners.

NOTE: Vehicle alignment is not required if the cradle is being lowered or dropped to perform another procedure. This vehicle is equipped with a cradle to body aligning feature: cradle to body through holes or self-aligning pins that are part of the cradle or body. Only align if replacing the cradle with a **NEW** part and transferring components.

1. Using mechanics wire, support the radiator and AC condenser assembly to the vehicle body.
2. Install the engine support fixture. Refer to **Engine Support Fixture** , for the 3.6L engines or **Engine Support Fixture** for the 2.0L, 2.5L engines.

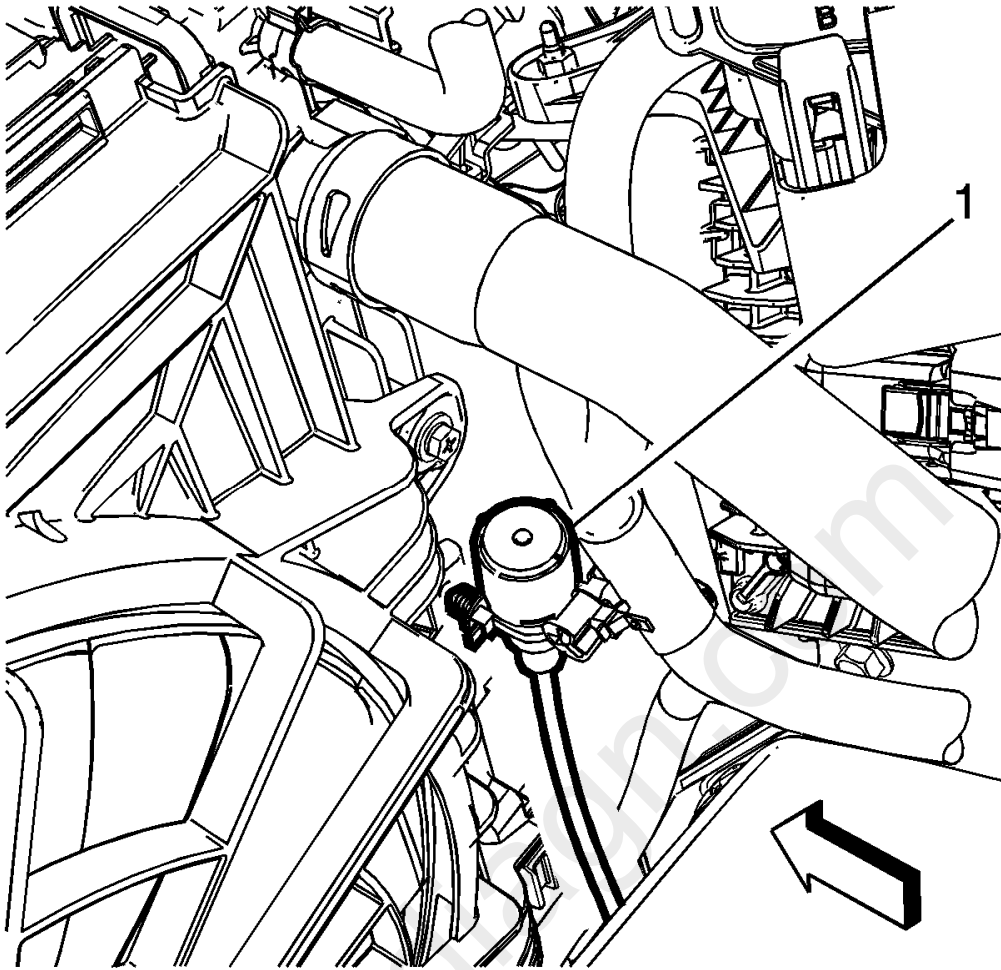


Fig. 8: Vacuum Filter
Courtesy of GENERAL MOTORS COMPANY

3. If equipped with vacuum controlled engine mounts, disconnect the vacuum filter (1) from the radiator assembly.

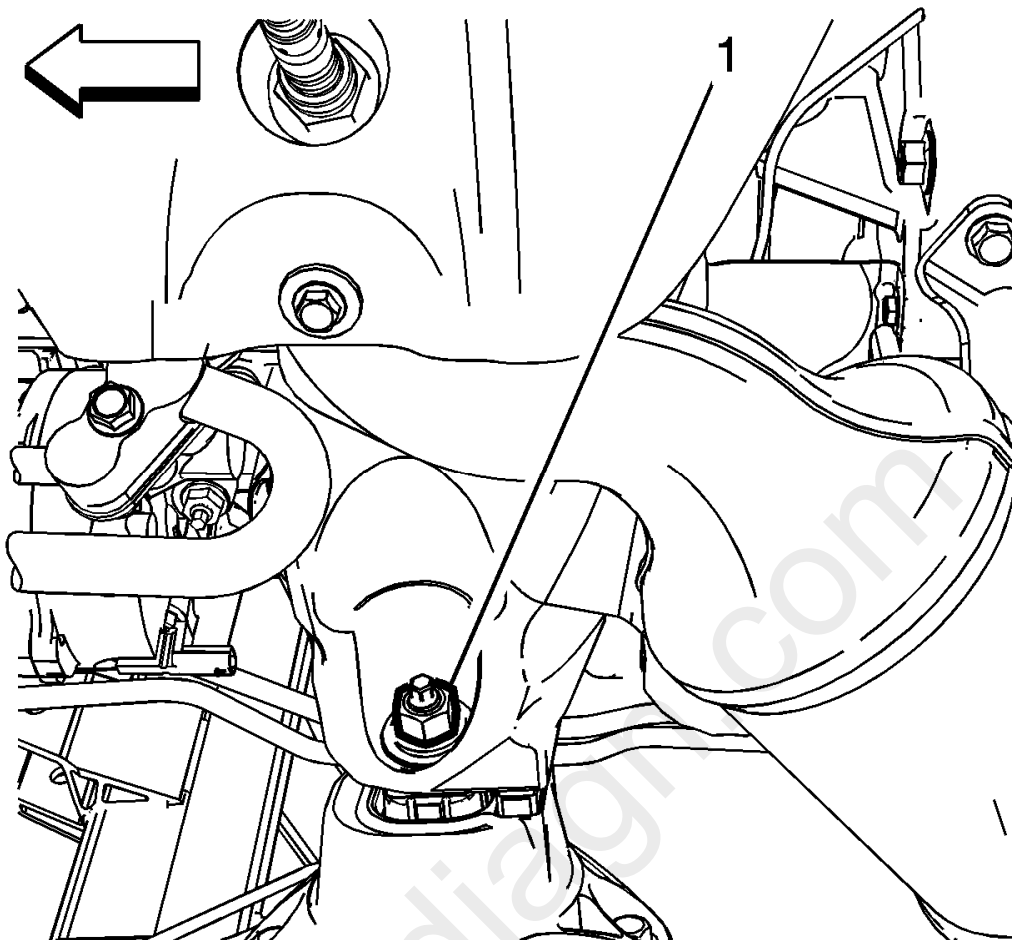


Fig. 9: Left Engine Mount Fastener
Courtesy of GENERAL MOTORS COMPANY

4. Remove the left engine mount fastener (1).
5. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .

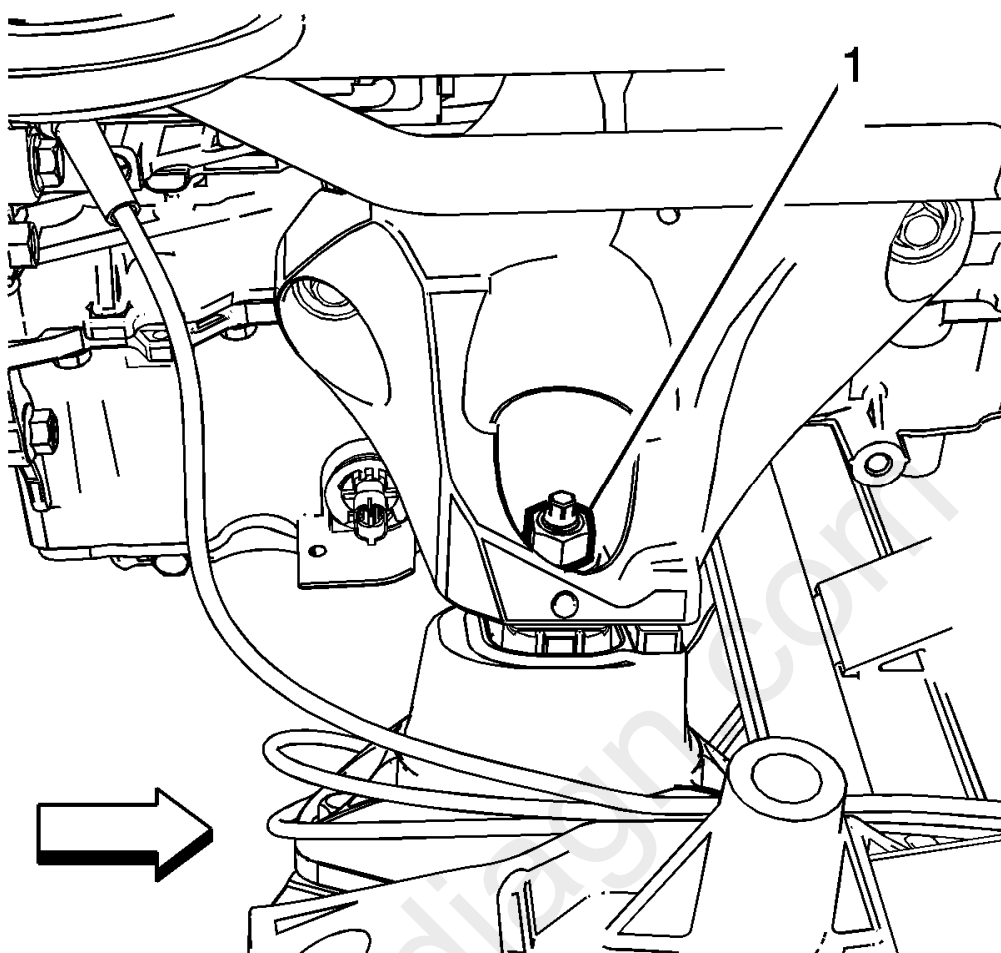


Fig. 10: Right Engine Mount Fastener
Courtesy of GENERAL MOTORS COMPANY

6. Remove the right engine mount fastener (1).
7. Remove the front wheels. Refer to **Tire and Wheel Removal and Installation** .
8. Remove the front bumper fascia air deflector. Refer to **Front Bumper Fascia Air Deflector Replacement - Center** .
9. Remove the engine lower front splash shields. Refer to **Engine Lower Front Splash Shield Replacement**.
10. Remove the front compartment lower noise shield. Refer to **Front Compartment Lower Noise Shield Replacement (AWD)**, **Front Compartment Lower Noise Shield Replacement (RWD)**.

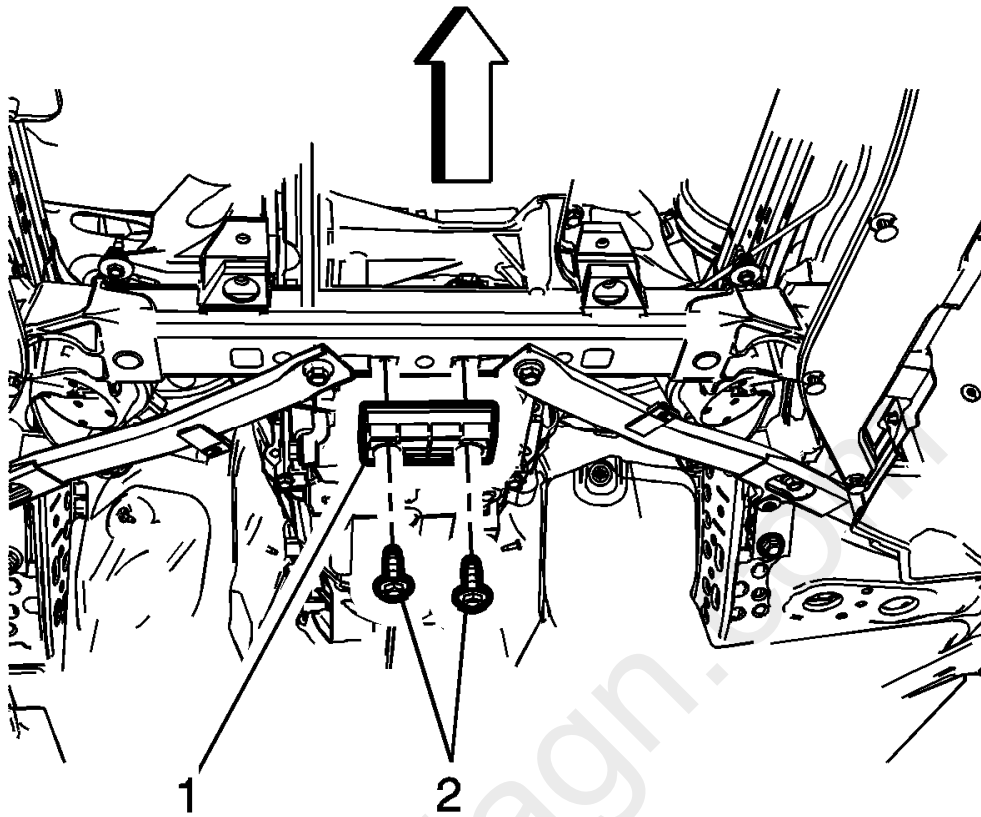


Fig. 11: Jack Pad

Courtesy of GENERAL MOTORS COMPANY

11. Remove the jack pad fasteners (2) and jack pad (1) from the frame.

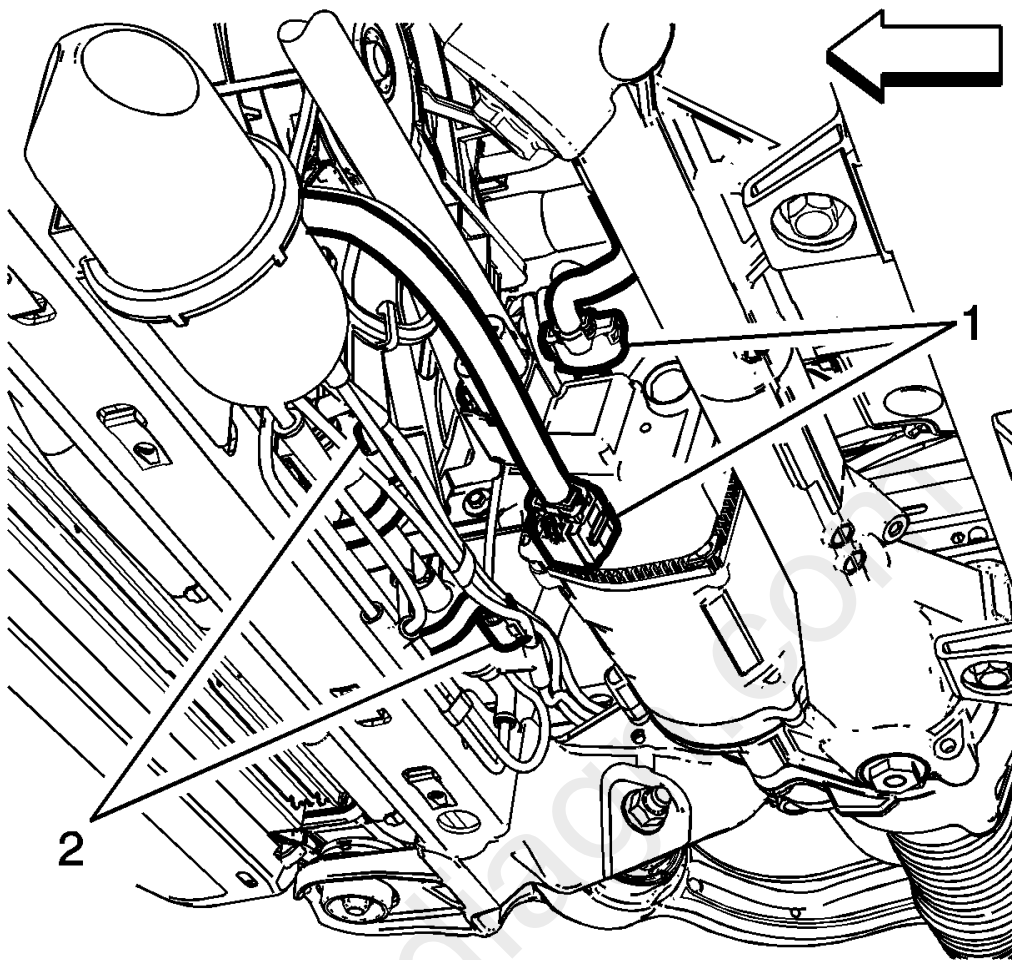


Fig. 12: Electric Power Steering Electrical Connectors
Courtesy of GENERAL MOTORS COMPANY

12. Disconnect the electric power steering electrical connectors (1). Refer to **FEP Connectors (Steering Gear)** .
13. Disconnect the lower steering intermediate shaft (1) from the electric power steering assembly (2). Refer to **Intermediate Steering Shaft Replacement (RWD)** , **Intermediate Steering Shaft Replacement (AWD)** .
14. If equipped, disconnect the electrical connectors from the engine mount vacuum control solenoids (2).

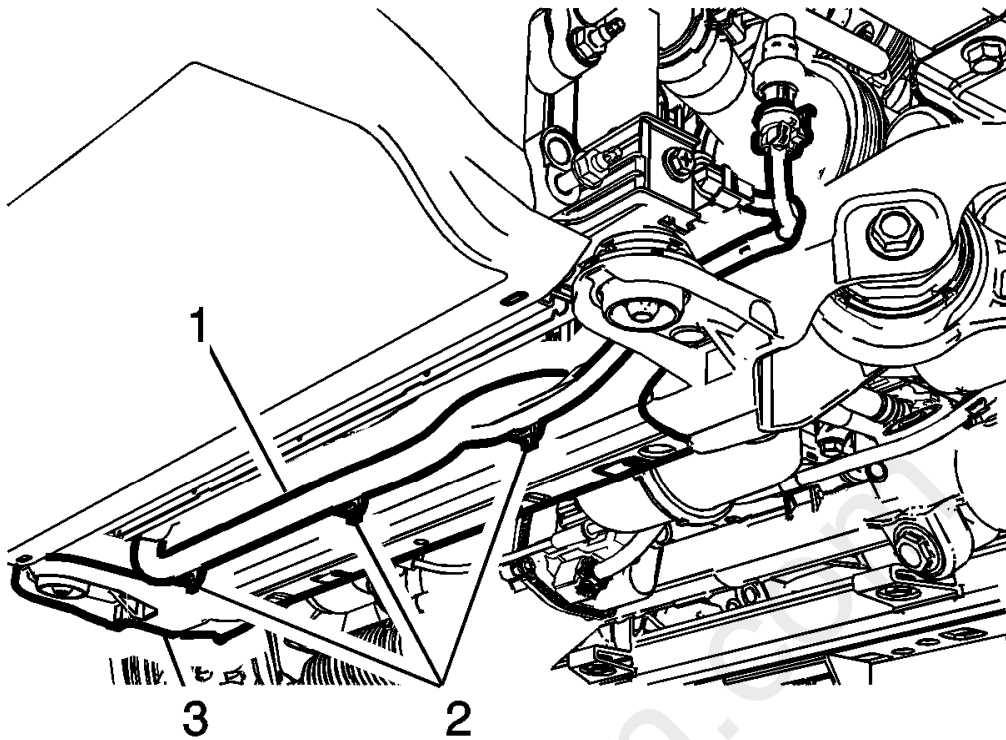


Fig. 13: Electrical Harness
Courtesy of GENERAL MOTORS COMPANY

15. Disconnect the electrical harness (1) from the frame (3).

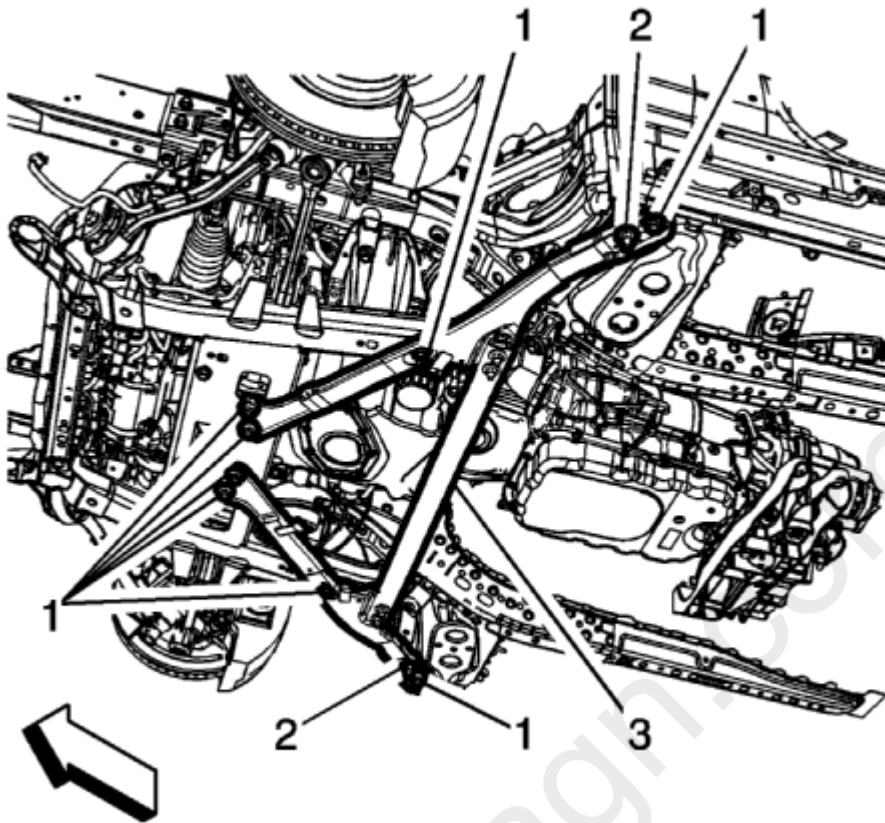


Fig. 14: Frame Brace

Courtesy of GENERAL MOTORS COMPANY

16. Remove the frame brace fasteners (1 and 2).
17. Remove the frame brace (3) from the vehicle.

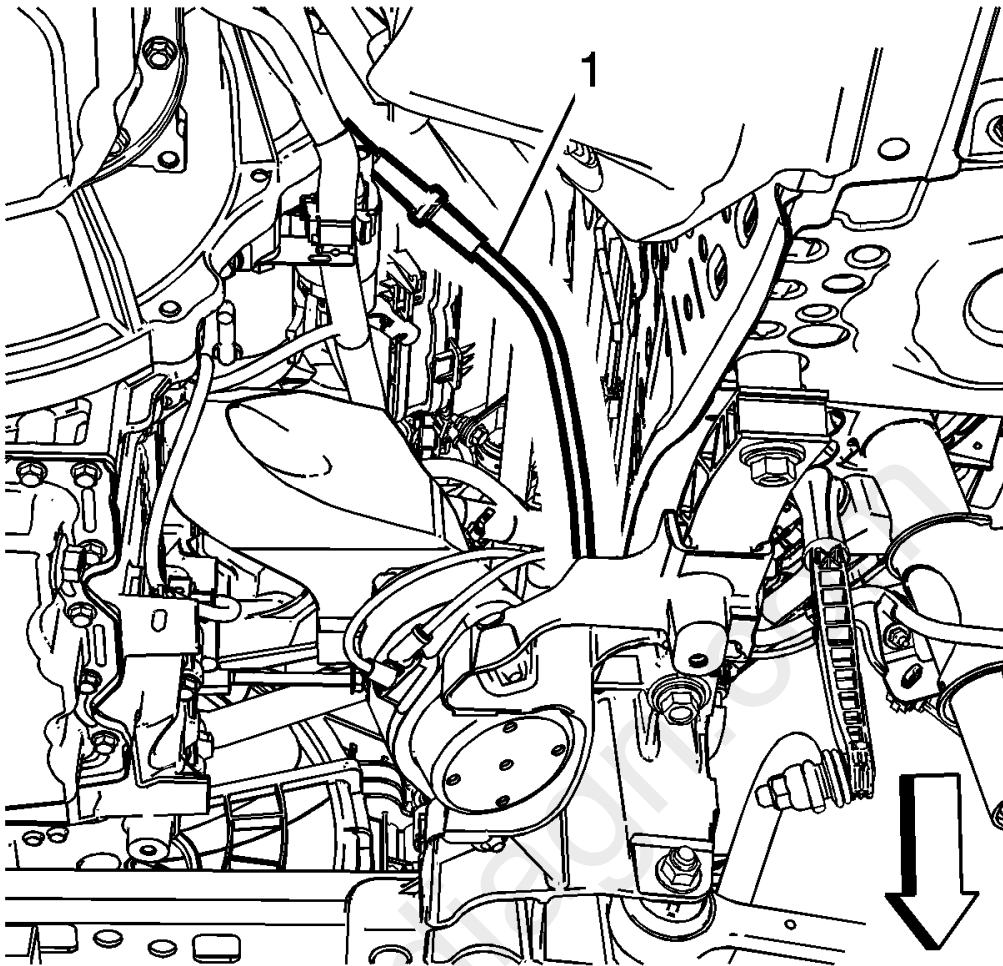


Fig. 15: Engine Mount Vacuum Line
Courtesy of GENERAL MOTORS COMPANY

18. If equipped, disconnect the engine mount vacuum line (1).
19. Disconnect the right and left lower stabilizer shaft links from the stabilizer bar. Refer to **Stabilizer Shaft Link Replacement** .
20. Disconnect the outer tie rod ends from the steering knuckles. Refer to **Steering Linkage Outer Tie Rod Replacement (AWD)** , **Steering Linkage Outer Tie Rod Replacement (RWD)** .
21. Disconnect the front lower control front links from the front suspension frame. Refer to **Front Lower Control Front Link Replacement (RWD)** , **Front Lower Control Front Link Replacement (AWD)** .
22. Disconnect the front lower control rear links from the front suspension frame. Refer to **Front Lower Control Rear Link Replacement** .

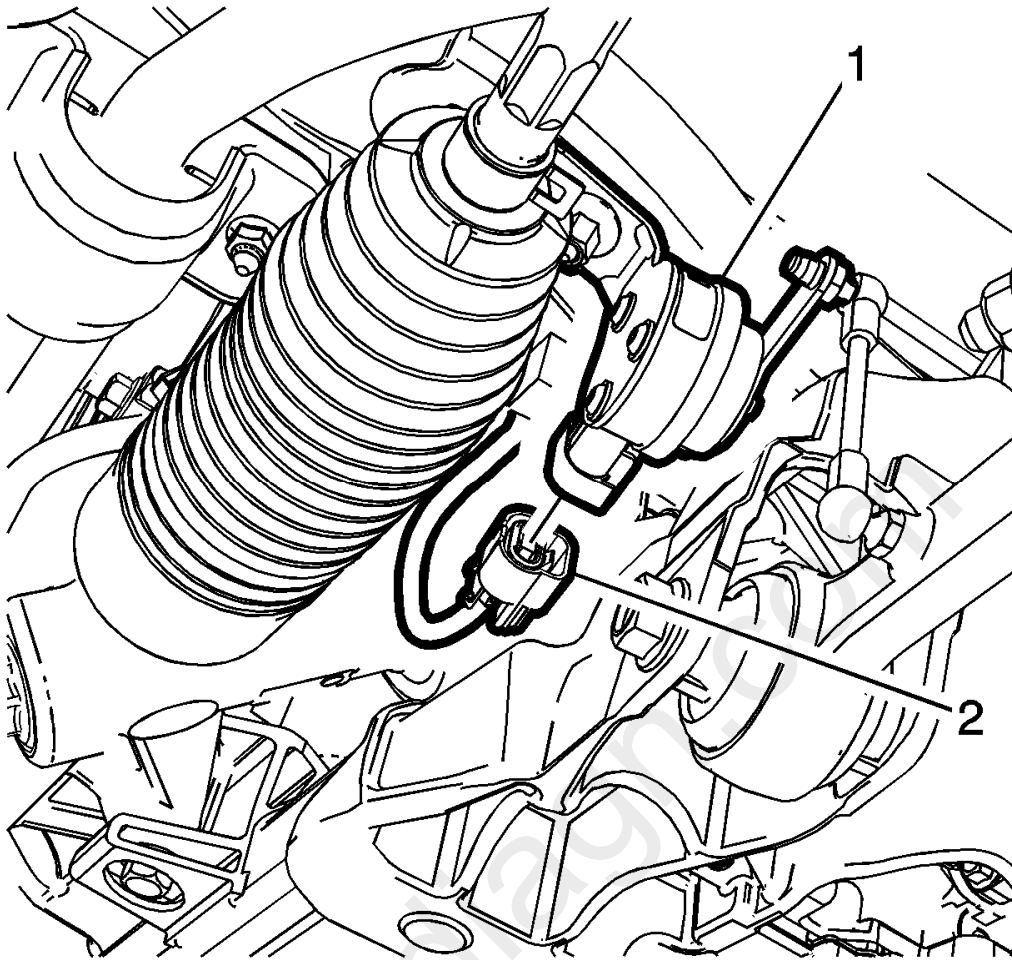


Fig. 16: Electronic Level Sensor & Electrical Connector
Courtesy of GENERAL MOTORS COMPANY

23. Disconnect the ride height sensor (2) connector from the ride height sensor (1).
24. Remove the front wheel drive shafts, if equipped with AWD. Refer to **Front Wheel Drive Shaft Replacement - Left Side** , and **Front Wheel Drive Shaft Replacement - Right Side** .
25. Disconnect the engine oil cooler inlet and outlet hose from the cradle, if equipped. Refer to **Engine Oil Cooler Inlet and Outlet Hose Replacement (Upper)** , **Engine Oil Cooler Inlet and Outlet Hose Replacement (Lower)** .

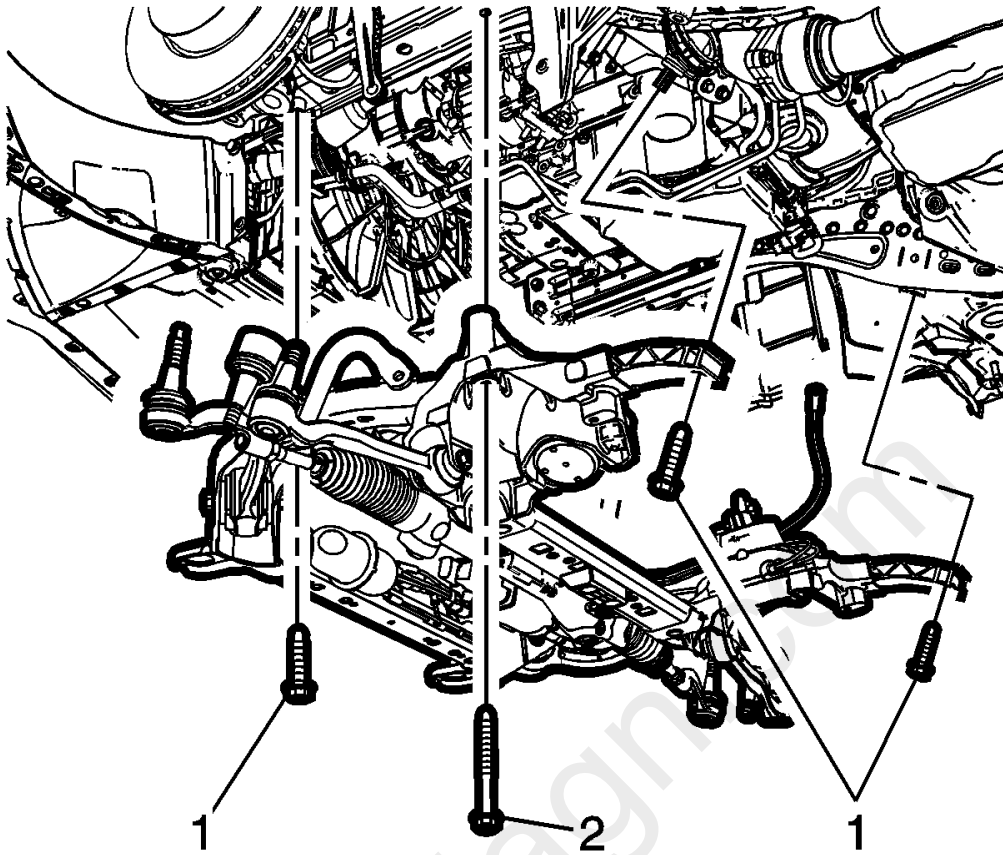


Fig. 17: Frame Mounting Points
Courtesy of GENERAL MOTORS COMPANY

26. Install **J-39580** stand under the frame.
27. Lower the vehicle to the frame support table.
28. Remove the six frame mounting bolts (1, 2).
29. With the aid of an assistant, carefully raise the body from the frame.
30. Ensure when raising the body the following items are clear from the frame:
 - Vacuum lines
 - Steering knuckles
 - Electrical wiring harnesses
 - Oil coolers lines

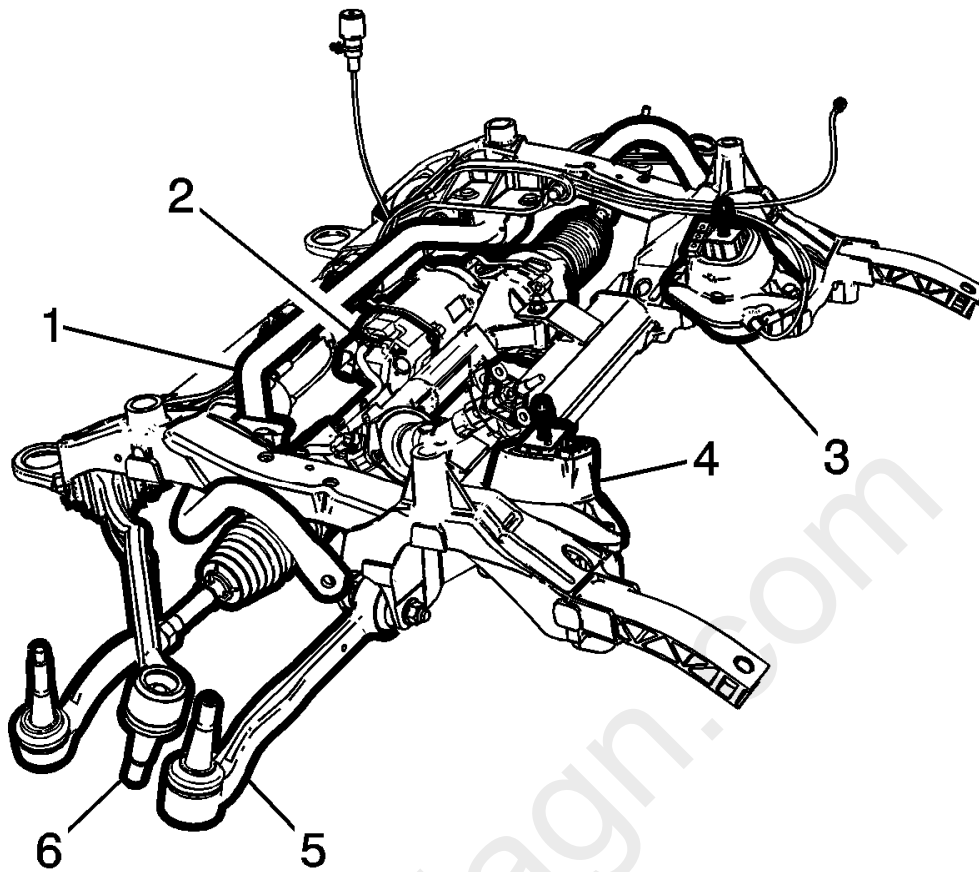


Fig. 18: Frame Transfer Components
 Courtesy of GENERAL MOTORS COMPANY

31. If the frame is being replaced, transfer the following components to the new frame;

NOTE: For AWD vehicles only, mark the stabilizer shaft to ensure the correct position when reinstalling.

- Stabilizer shaft (1). Refer to Stabilizer Shaft Replacement (RWD) , Stabilizer Shaft Replacement (AWD) .
- Electric belt drive rack and pinion steering gear (2). Refer to Electric Belt Drive Rack and Pinion Steering Gear Replacement (AWD) , Electric Belt Drive Rack and Pinion Steering Gear Replacement (RWD) .
- Right engine mount (3). Refer to Engine Mount Replacement - Right Side , for the 2.0L, 2.5L, engines or Engine Mount Bracket Replacement - Right Side (LFX) , Engine Mount Bracket Replacement - Right Side (LF3) for the 3.6L engine.
- Left engine mount (4). Refer to Engine Mount Replacement - Left Side (LTG) , for the 2.0L, 2.5L, engines or Engine Mount Bracket Replacement - Left Side (LFX) , Engine Mount

Bracket Replacement - Left Side (LF3) for the 3.6L engine.

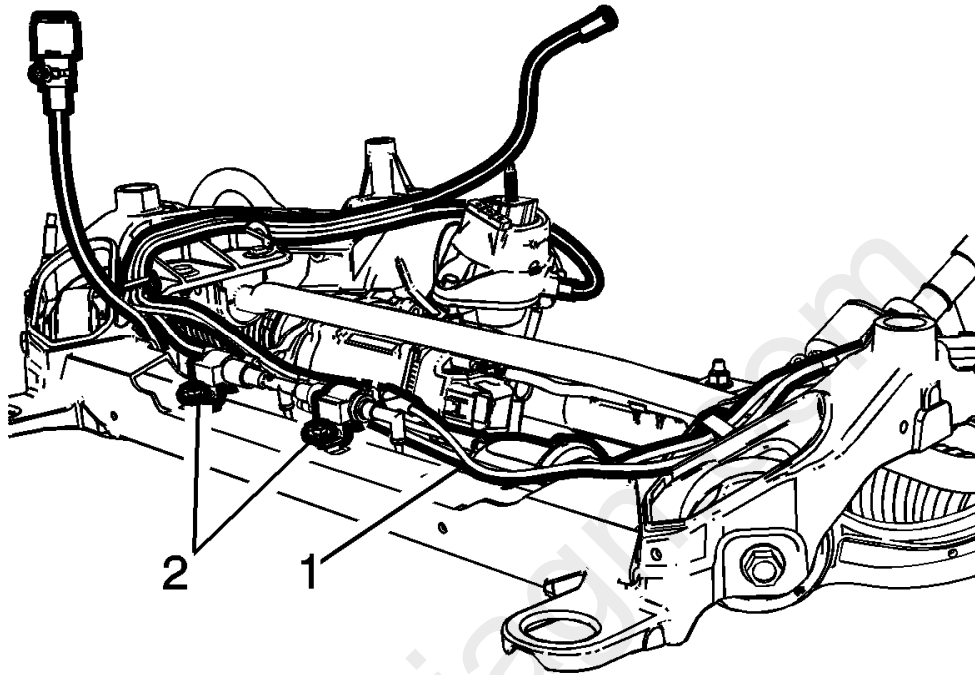


Fig. 19: Vacuum Controlled Engine Mount System
Courtesy of GENERAL MOTORS COMPANY

32. If equipped with vacuum controlled engine mounts, transfer the vacuum system (1) from the frame.
33. Install the vacuum solenoid (2) fasteners and tighten to 9 (80 lb in).

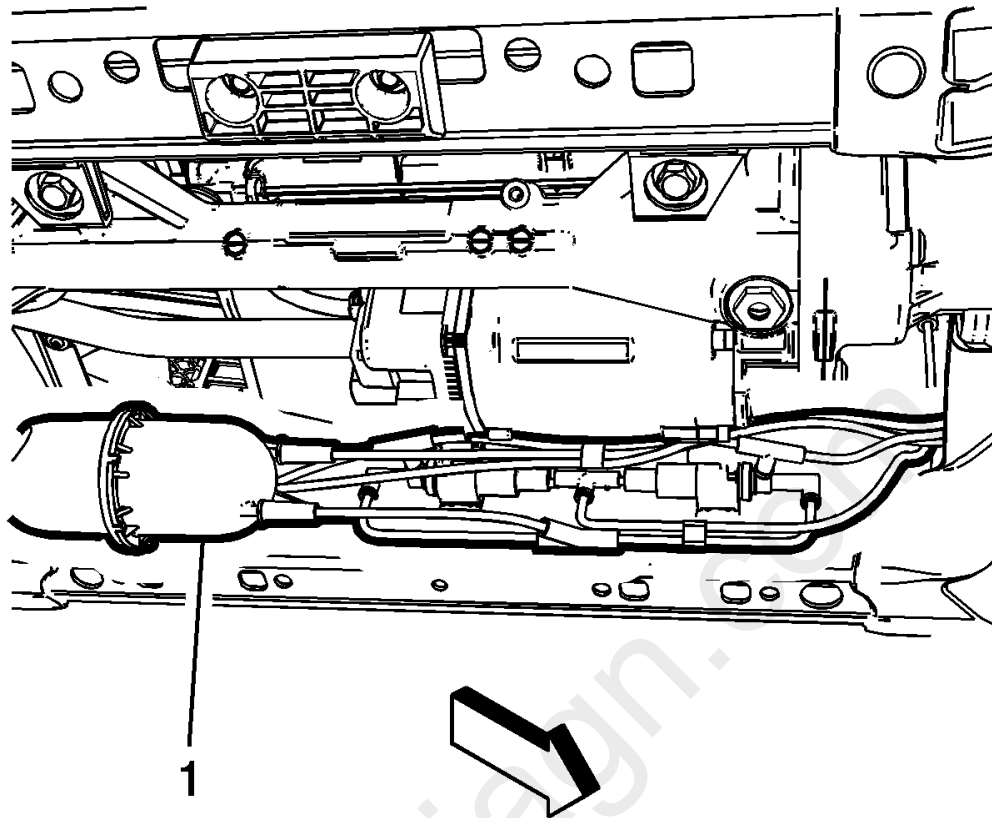


Fig. 20: Vacuum Tank
Courtesy of GENERAL MOTORS COMPANY

34. Install the vacuum tank fastener (1) and tighten to 9 (80 lb in).
35. With the aid of an assistant, remove the frame from the support fixture.

Installation Procedure

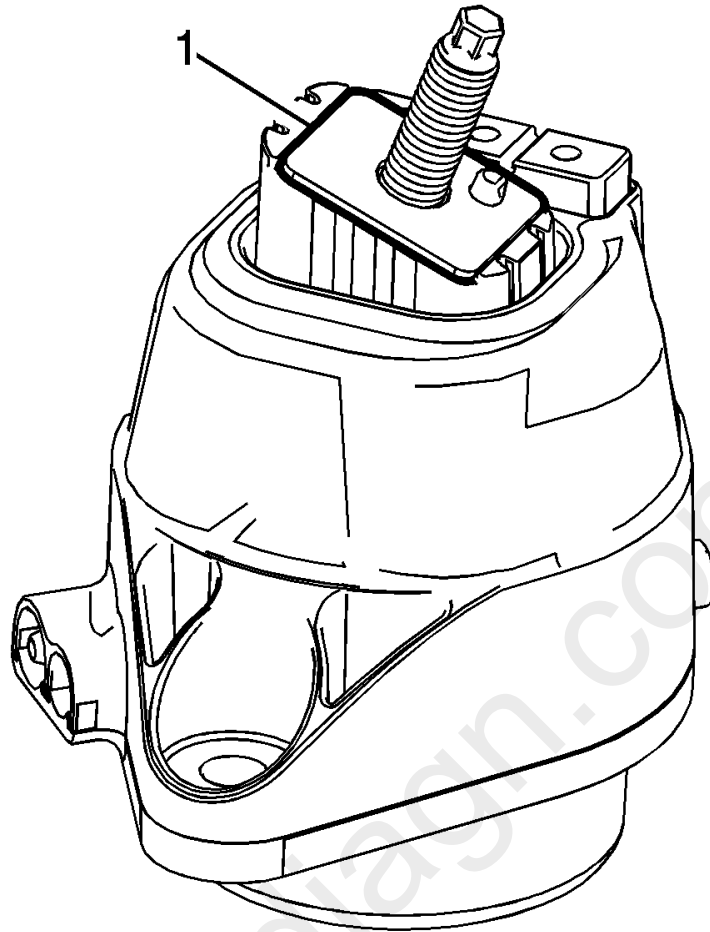


Fig. 21: Phenolic Spacer

Courtesy of GENERAL MOTORS COMPANY

CAUTION: Phenolic spacer must be present to prevent galvanic/corrosive reaction and/or excessive temperature conduction between engine mount bracket and engine mount. Replace mount if phenolic spacer is missing or damaged. Failure to ensure phenolic spacer is intact and not damaged can lead to premature failure of engine mount and/or engine mount bracket.

NOTE: Suspension components attached to the frame use Torque-to-Yield fasteners and must be **DISCARDED** and replaced with **NEW** Torque Angle Yield (TAY) fasteners. The frame to body fasteners are not TAY fasteners.

1. Inspect the engine mount to ensure the phenolic spacer (1) is in place and not damaged.
2. With the aid of an assistant, position and secure the new frame assembly to the support fixture.
3. With the aid of an assistant, carefully lower the body to the frame.
4. Ensure the following components are clear from the frame:

- Vacuum lines
- Steering knuckles
- Electrical wiring harnesses
- Oil cooler lines

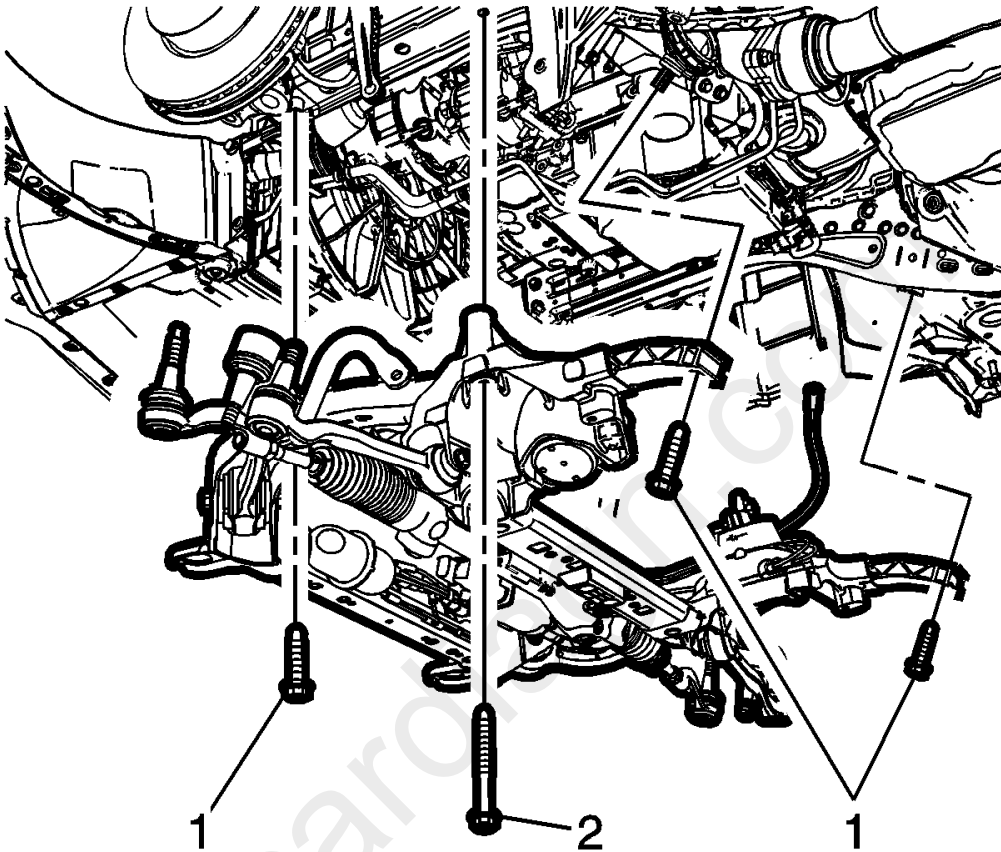


Fig. 22: Frame Mounting Points

Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution .

5. Install the four frame mountings bolts (1) and tighten to 100 (74 lb ft).
6. Install the two center frame to body bolts (2) and tighten to 100 (74 lb ft).
7. Connect the right and left lower stabilizer shaft links to the stabilizer bar. Refer to Stabilizer Shaft Link Replacement .
8. Install the front wheel drive shafts, if equipped with AWD. Refer to Front Wheel Drive Shaft

Replacement - Left Side , and Front Wheel Drive Shaft Replacement - Right Side .

NOTE: **Ensure correct position from the previously marked spots.**

9. Tighten the NEW stabilizer shaft fasteners and tighten 22 (16 lb ft).
10. Connect the outer tie rod ends to the steering knuckles. Refer to **Steering Linkage Outer Tie Rod Replacement (AWD) , Steering Linkage Outer Tie Rod Replacement (RWD) .**
11. Connect the front lower control front links to the front suspension frame. Refer to **Front Lower Control Front Link Replacement (RWD) , Front Lower Control Front Link Replacement (AWD) .**
12. Connect the front lower control rear links to the front suspension frame. Refer to **Front Lower Control Rear Link Replacement .**

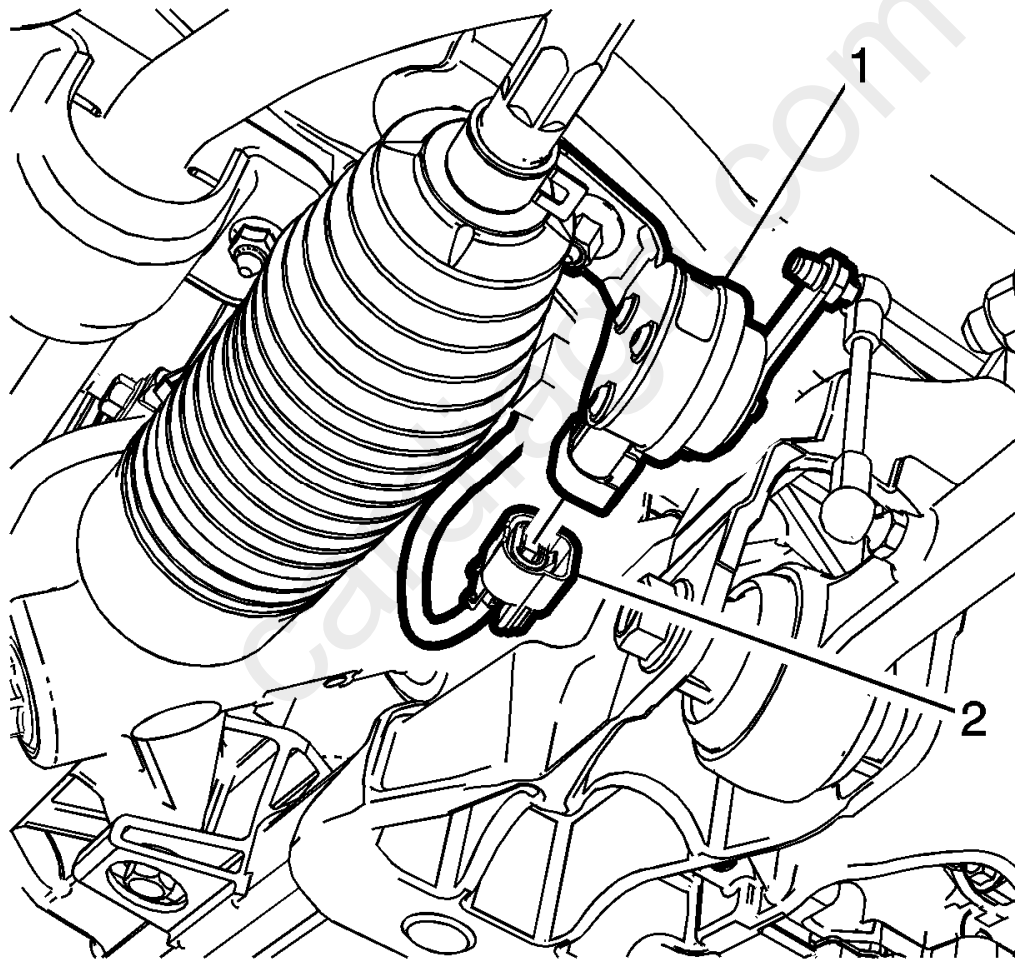


Fig. 23: Electronic Level Sensor & Electrical Connector
Courtesy of GENERAL MOTORS COMPANY

13. Connect the ride height sensor (2) connector to the ride height sensor (1).
14. Connect the oil cooler lines to the front suspension frame, if equipped. Refer to **Engine Oil Cooler Inlet and Outlet Hose Replacement (Upper) , Engine Oil Cooler Inlet and Outlet Hose Replacement**

(Lower) .

15. Raise the vehicle.
16. Remove the **J-39580** stand from under the vehicle.

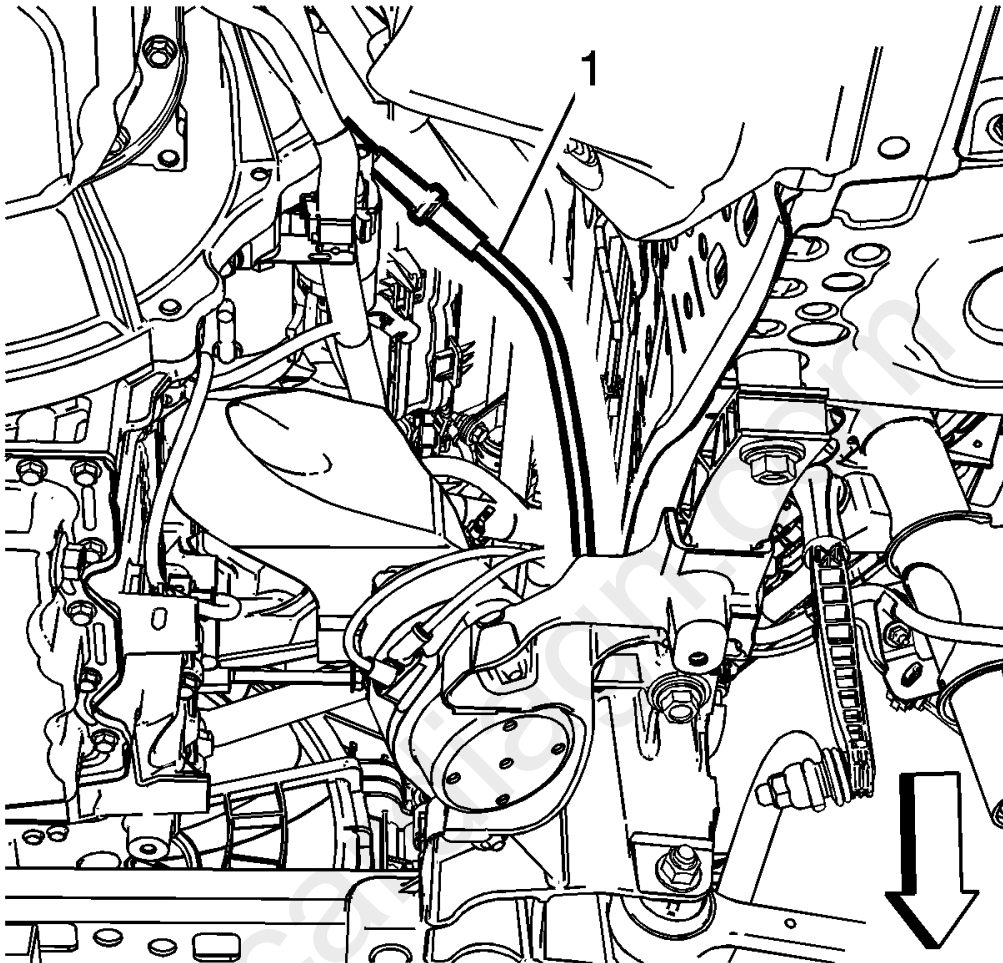


Fig. 24: Engine Mount Vacuum Line
Courtesy of GENERAL MOTORS COMPANY

17. If equipped, connect the engine mount vacuum line (1).

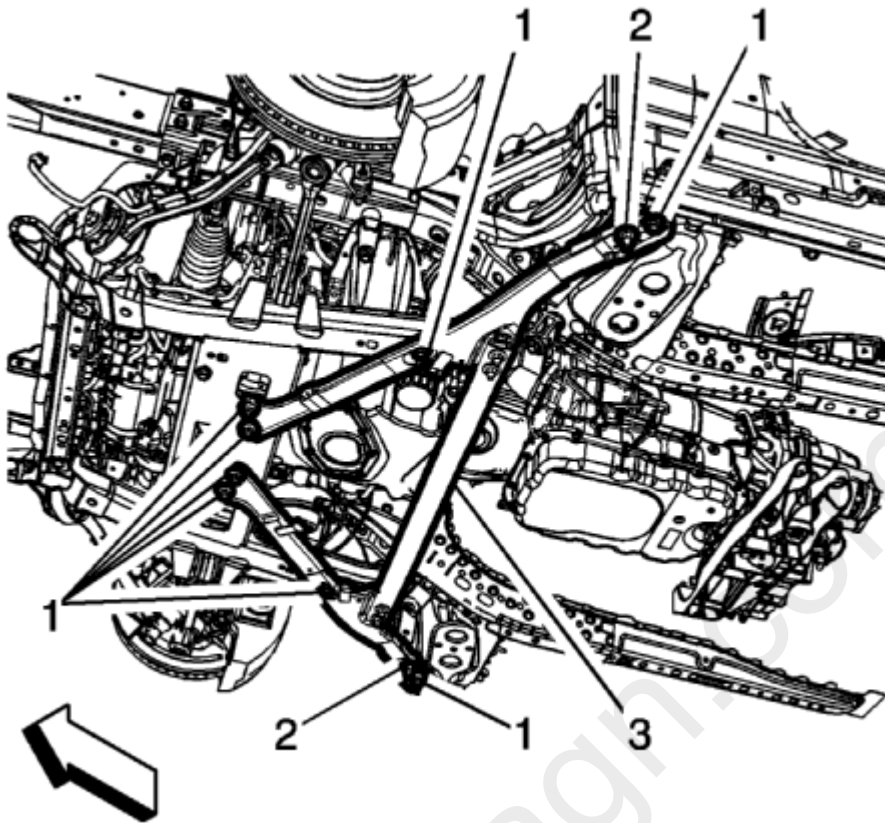


Fig. 25: Frame Brace

Courtesy of GENERAL MOTORS COMPANY

18. Apply red loctite® 743 or equivalent to the fasteners (1), then install the frame brace (3) and fasteners to the vehicle and tighten the fasteners to 50 (37 lb ft).
19. Install the nuts (2) and tighten to 50 (37 lb ft)

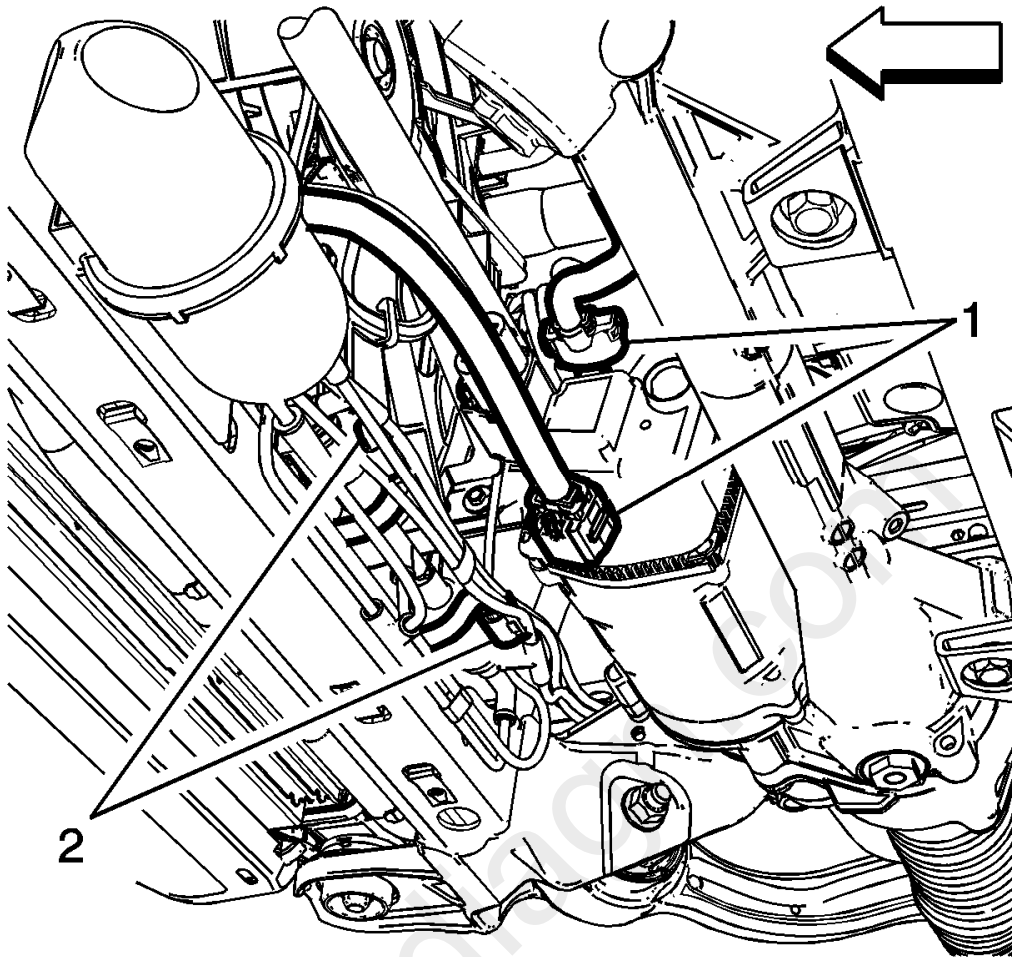


Fig. 26: Electric Power Steering Electrical Connectors
Courtesy of GENERAL MOTORS COMPANY

20. Connect the electric power steering electrical connectors (1).
21. Connect the lower steering intermediate shaft (1) to the electric power steering assembly (2). Refer to **Intermediate Steering Shaft Replacement (RWD)** , **Intermediate Steering Shaft Replacement (AWD)** .
22. If equipped, connect the electrical connectors to the engine mount vacuum control solenoids (2).

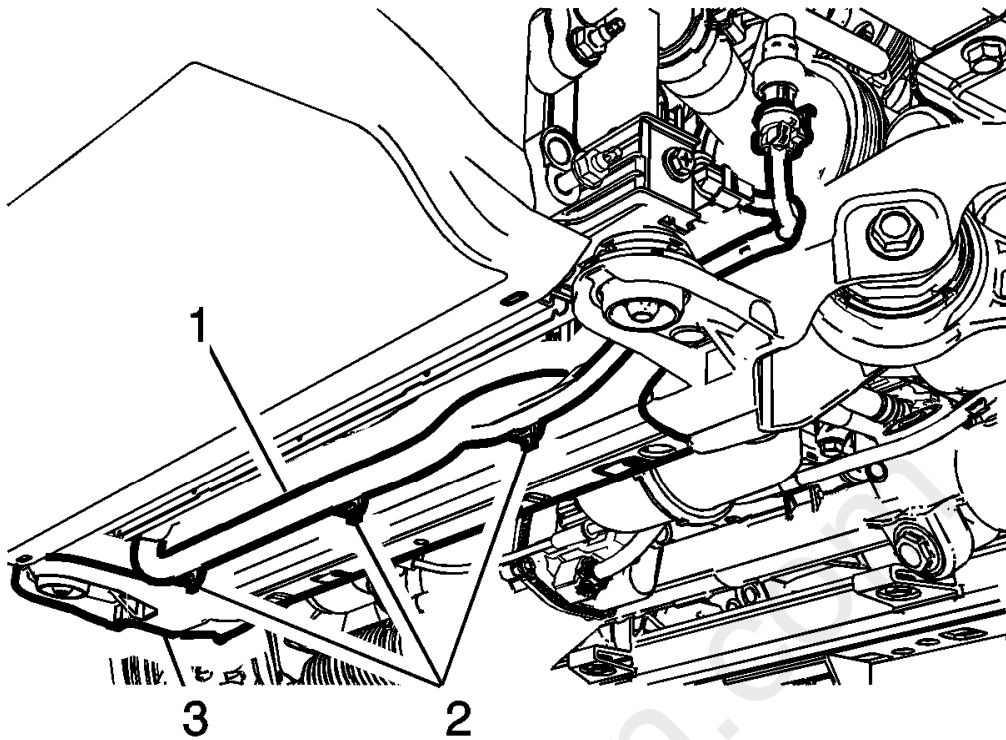


Fig. 27: Electrical Harness
Courtesy of GENERAL MOTORS COMPANY

23. Connect the electrical harness (1) to the frame (3).

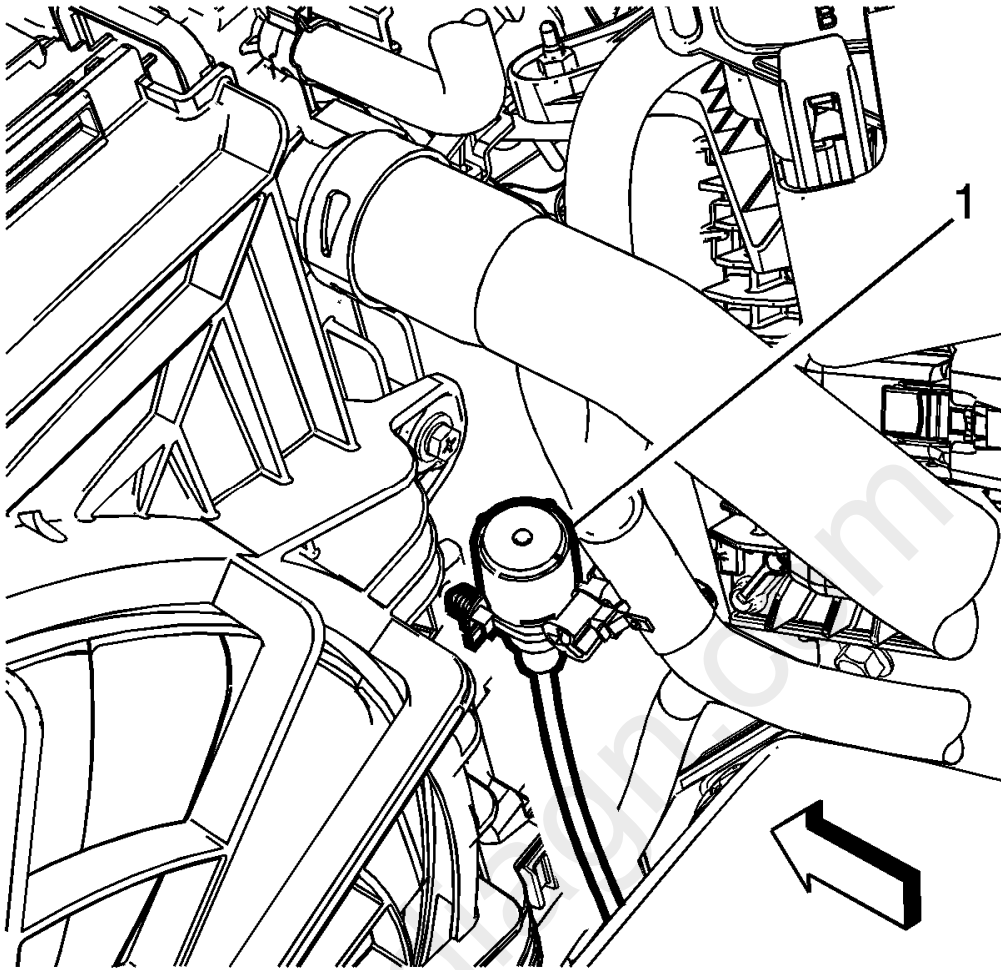


Fig. 28: Vacuum Filter
Courtesy of GENERAL MOTORS COMPANY

24. If equipped with vacuum controlled engine mounts, connect the vacuum filter (1) to the radiator assembly.
25. Remove the mechanics wire supporting the radiator assembly.
26. Install the front compartment lower noise shield. Refer to **Front Compartment Lower Noise Shield Replacement (AWD)**, **Front Compartment Lower Noise Shield Replacement (RWD)**.
27. Install the engine lower front splash shields. Refer to **Engine Lower Front Splash Shield Replacement**.
28. Install the front tires and wheels. Refer to **Tire and Wheel Removal and Installation**.
29. Install the front compartment lower noise shield. Refer to **Front Compartment Lower Noise Shield Replacement (AWD)**, **Front Compartment Lower Noise Shield Replacement (RWD)**.

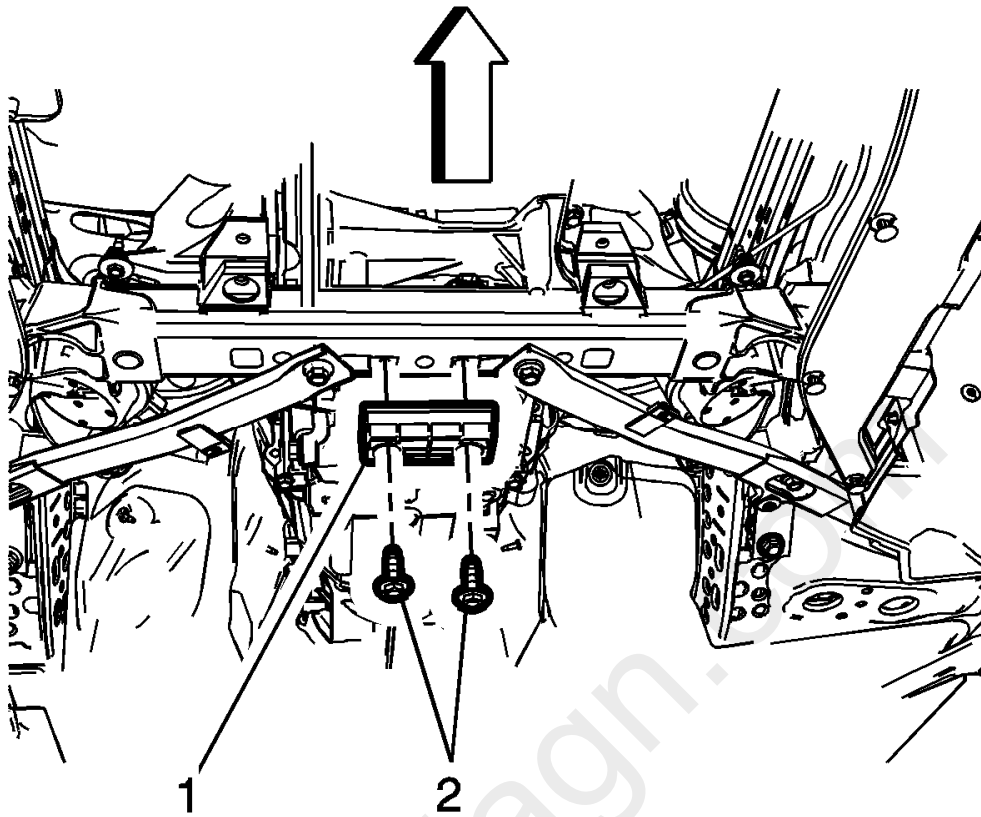


Fig. 29: Jack Pad
Courtesy of GENERAL MOTORS COMPANY

30. Install the jack pad (1) and fasteners (2) and tighten to 9 (80 lb in).

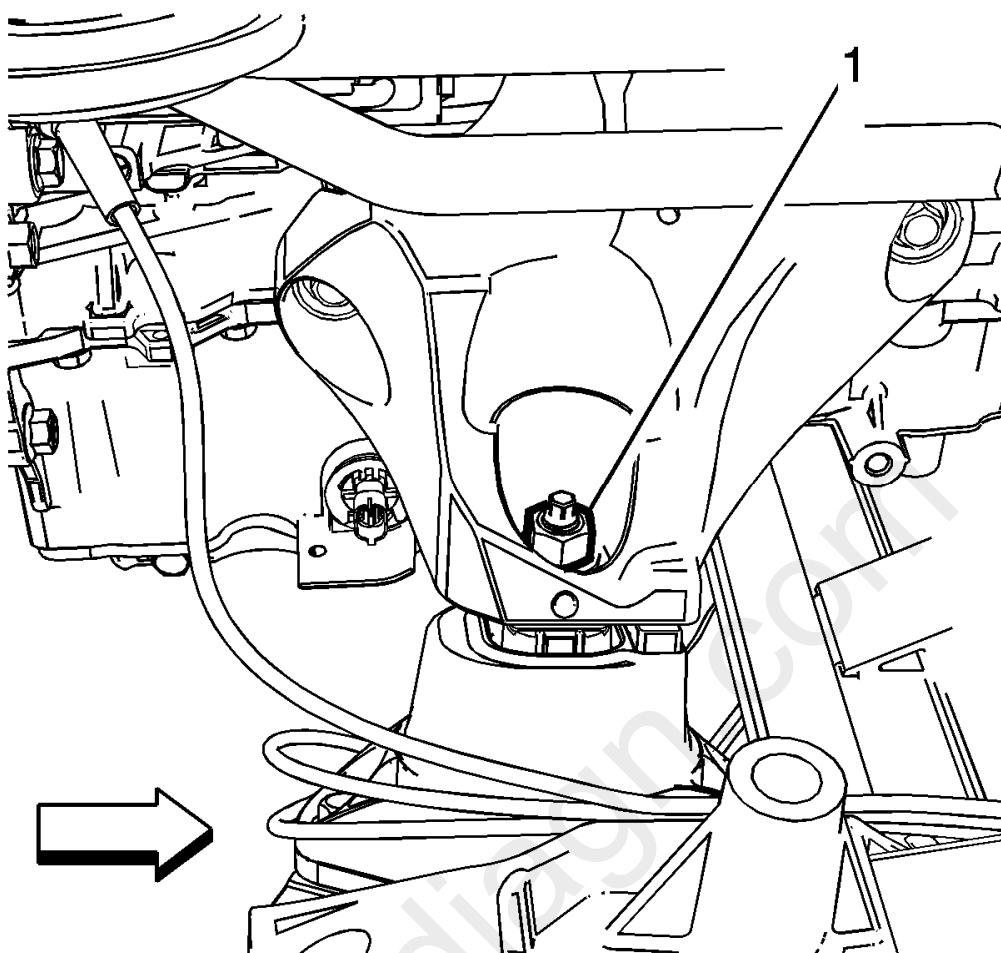


Fig. 30: Right Engine Mount Fastener
Courtesy of GENERAL MOTORS COMPANY

31. Install the right engine mount to engine mount bracket fastener (1). Refer to **Engine Mount Replacement - Right Side** , for the 2.0L, 2.5L, engines or **Engine Mount Bracket Replacement - Right Side (LFX)** , **Engine Mount Bracket Replacement - Right Side (LF3)** for the 3.6L engine.
32. Lower the vehicle.

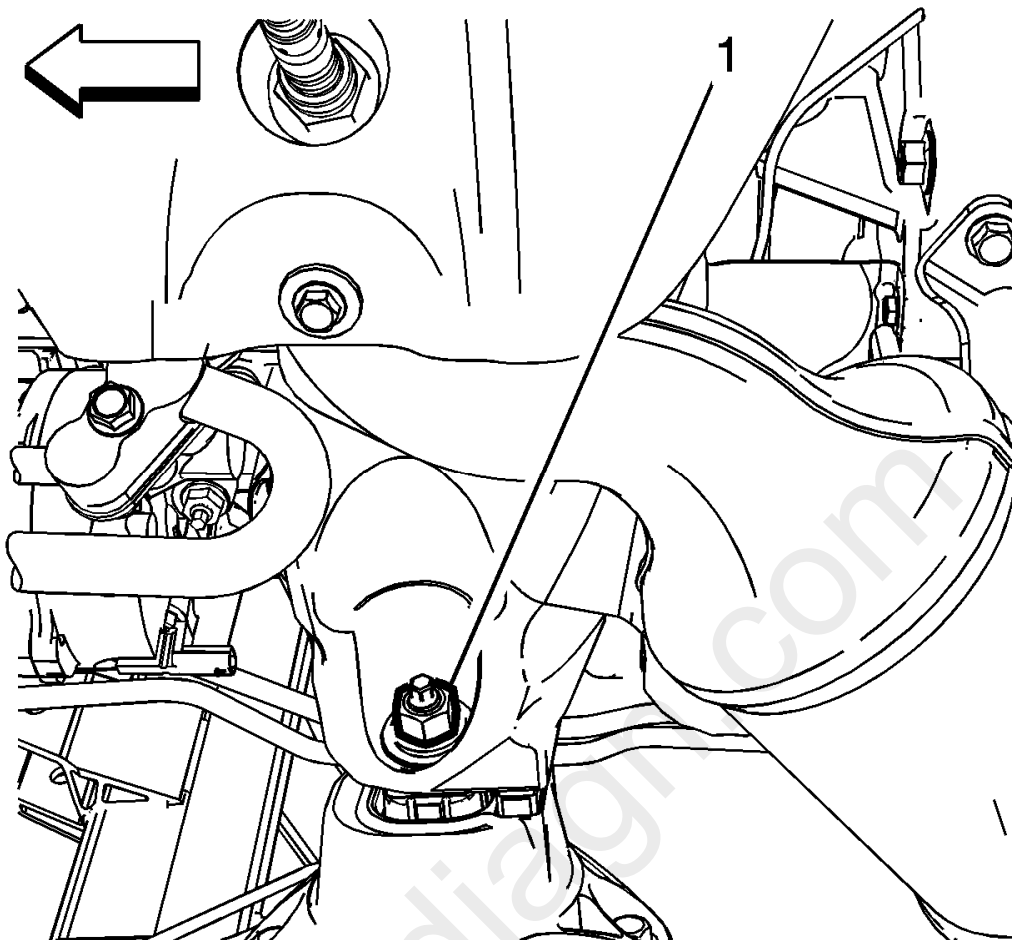


Fig. 31: Left Engine Mount Fastener
Courtesy of GENERAL MOTORS COMPANY

33. Install the left engine mount to engine mount bracket fastener (1). Refer to **Engine Mount Replacement - Left Side (LTG)** , for the 2.0L, 2.5L, engines or **Engine Mount Bracket Replacement - Left Side (LFX)** , **Engine Mount Bracket Replacement - Left Side (LF3)** for the 3.6L engine.
34. Remove the engine support fixture.
35. Align the vehicle only if replacing the drivetrain and front suspension frame. Refer to **Wheel Alignment Measurement** .

DRIVETRAIN AND FRONT SUSPENSION FRAME REMOVAL AND INSTALLATION

Special Tools

J-39580 Engine Support Stand

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

Removal Procedure

NOTE: Suspension components attached to the frame use Torque-to-Yield fasteners and must be **DISCARDED** and replaced with **NEW** Torque Angle Yield (TAY) fasteners. The frame to body fasteners are not TAY fasteners.

NOTE: Vehicle alignment is not required if the cradle is being lowered or dropped to perform another procedure. This vehicle is equipped with a cradle to body aligning feature: cradle to body through holes or self-aligning pins that are part of the cradle or body. Only align if replacing the cradle with a **NEW** part and transferring components.

1. Using mechanics wire, support the radiator and AC condenser assembly to the vehicle body.
2. Install the engine support fixture. Refer to **Engine Support Fixture** , for the 3.6L engines or **Engine Support Fixture** for the 2.0L, 2.5L engines.

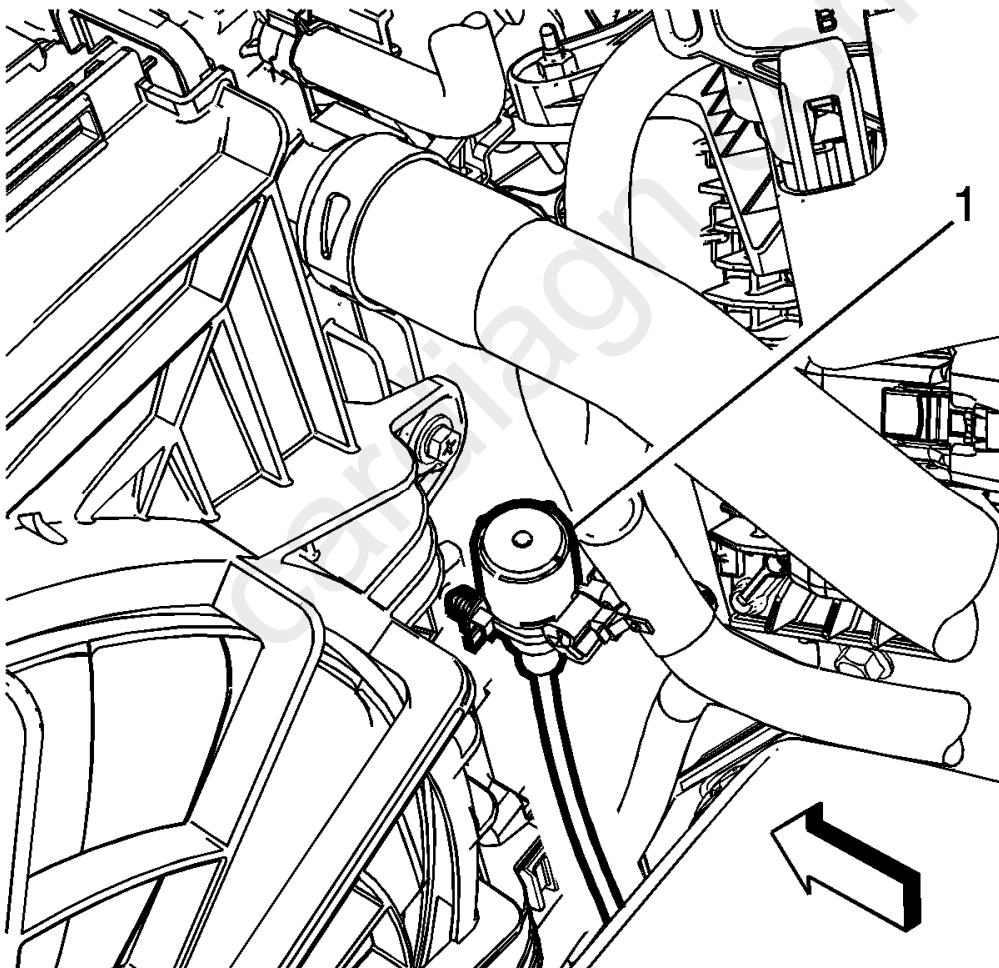


Fig. 32: Vacuum Filter

Courtesy of GENERAL MOTORS COMPANY

3. If equipped with vacuum controlled engine mounts, disconnect the vacuum filter (1) from the radiator

assembly.

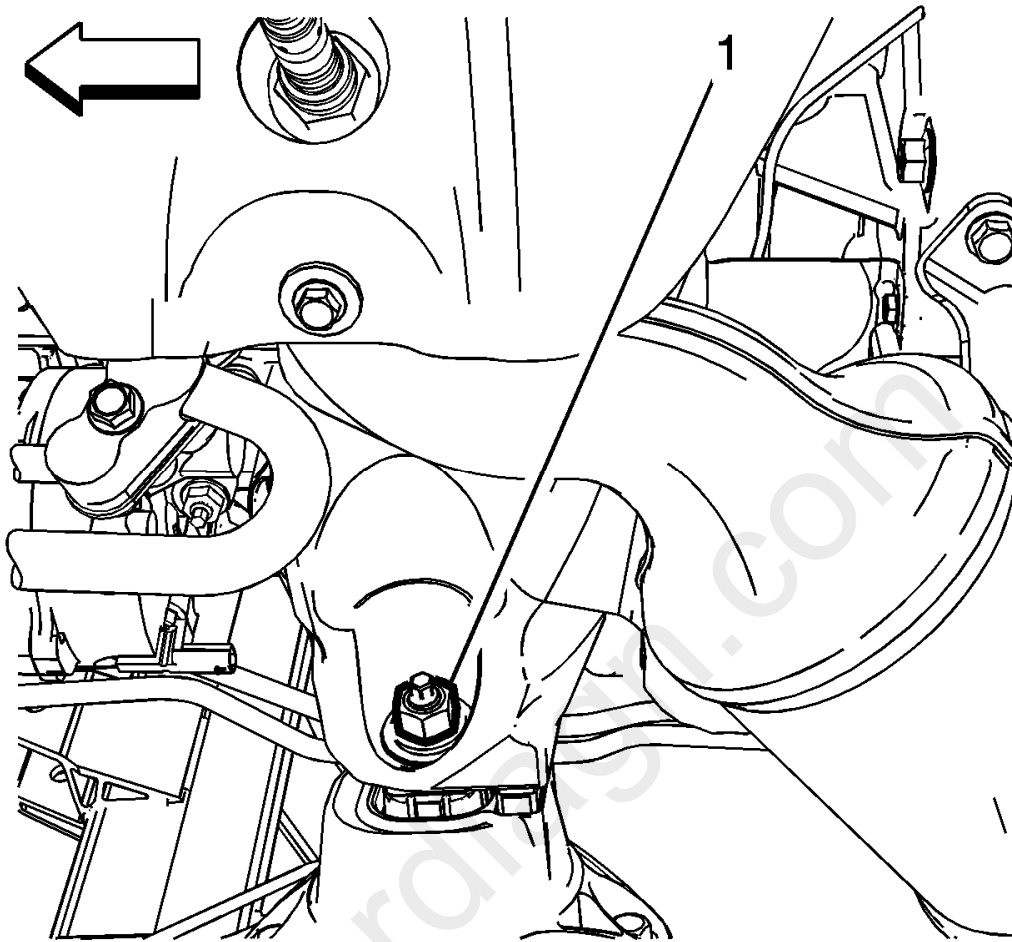


Fig. 33: Left Engine Mount Fastener
Courtesy of GENERAL MOTORS COMPANY

4. Remove the left engine mount fastener (1).
5. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .

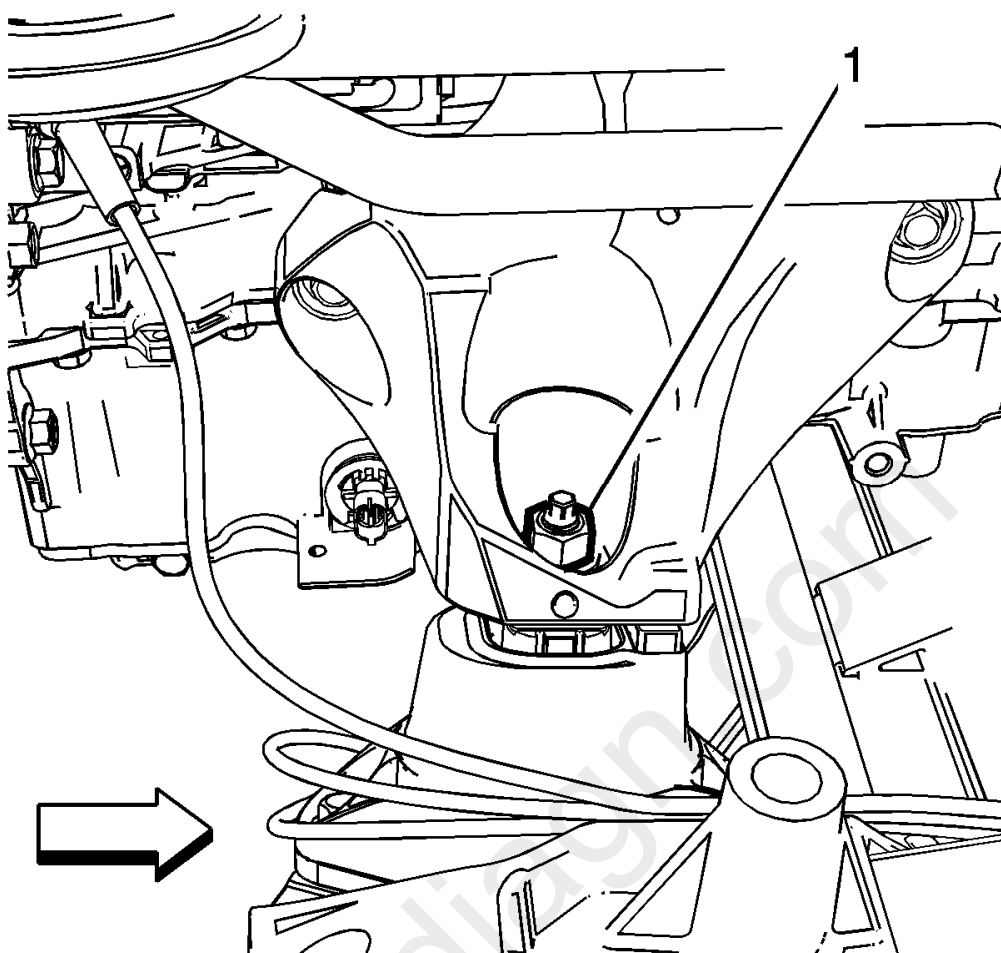


Fig. 34: Right Engine Mount Fastener
Courtesy of GENERAL MOTORS COMPANY

6. Remove the right engine mount fastener (1).
7. Remove the front wheels. Refer to **Tire and Wheel Removal and Installation** .
8. Remove the front bumper fascia air deflector. Refer to **Front Bumper Fascia Air Deflector Replacement - Center** .
9. Remove the engine lower front splash shields. Refer to **Engine Lower Front Splash Shield Replacement**.
10. Remove the front compartment lower noise shield. Refer to **Front Compartment Lower Noise Shield Replacement (AWD)**, **Front Compartment Lower Noise Shield Replacement (RWD)**.

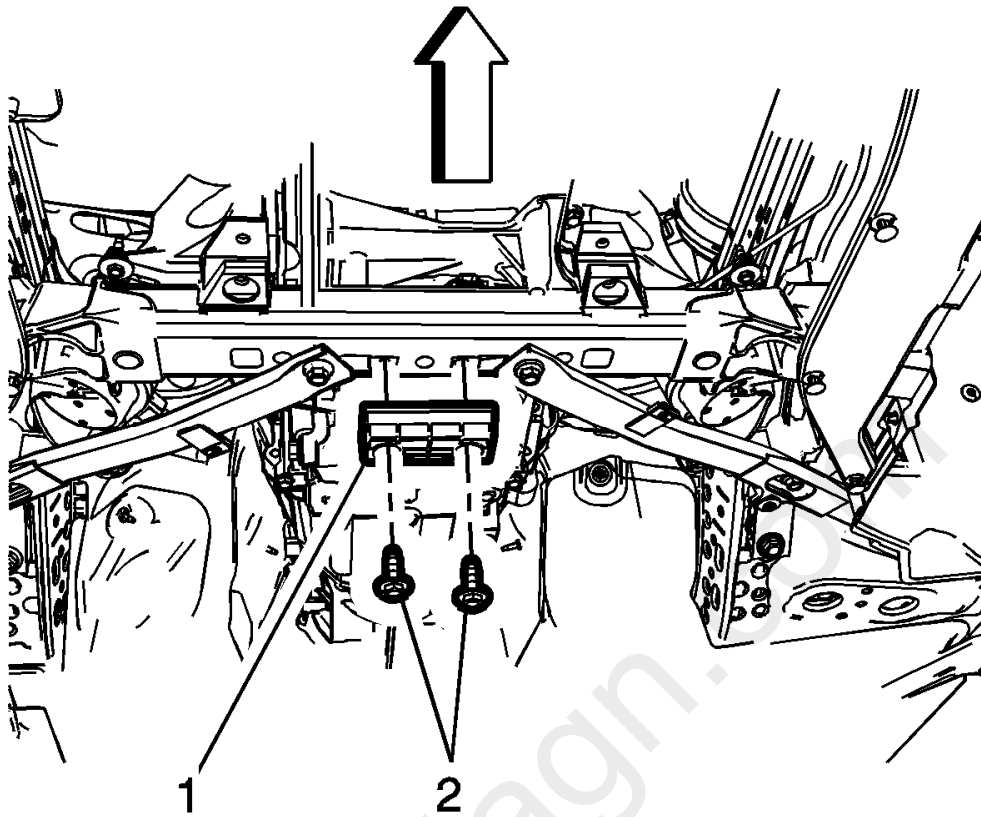


Fig. 35: Jack Pad
Courtesy of GENERAL MOTORS COMPANY

11. Remove the jack pad fasteners (2) and jack pad (1) from the frame.

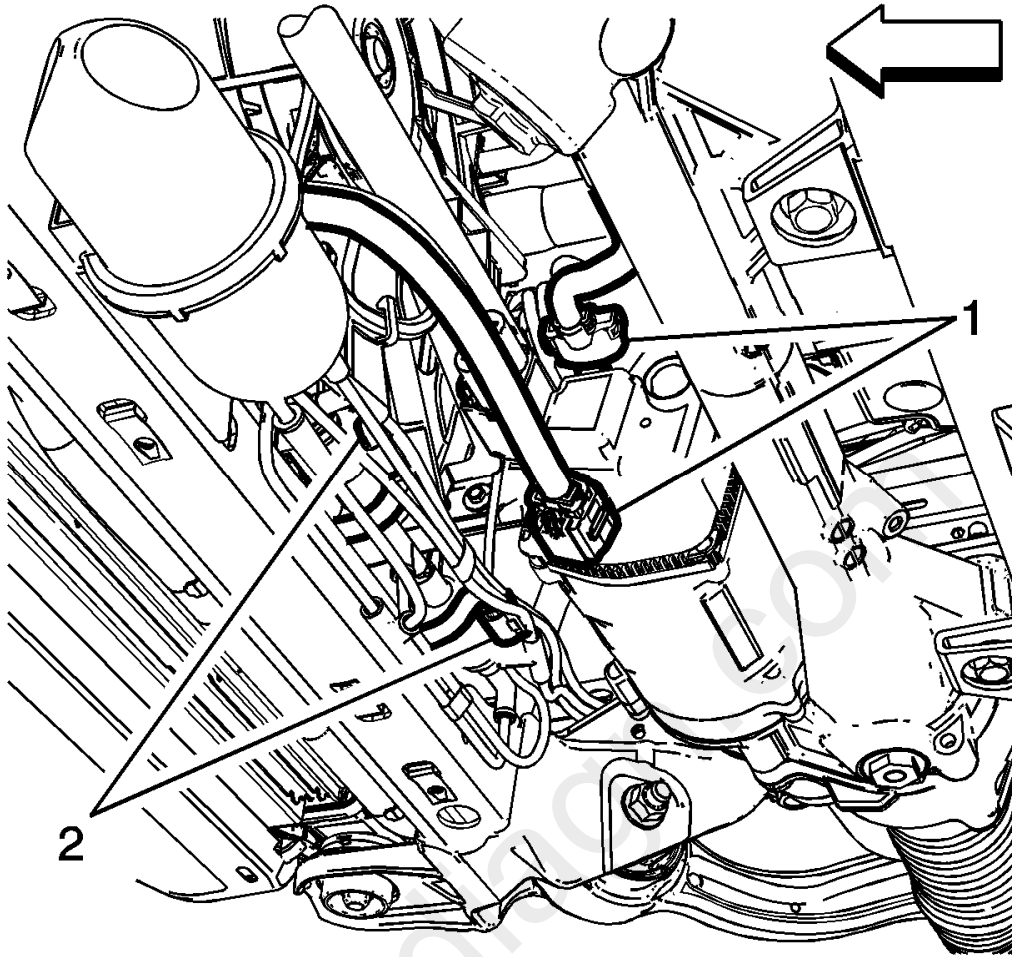


Fig. 36: Electric Power Steering Electrical Connectors
Courtesy of GENERAL MOTORS COMPANY

12. Disconnect the electric power steering electrical connectors (1). Refer to **FEP Connectors (Steering Gear)** .
13. Disconnect the lower steering intermediate shaft (1) from the electric power steering assembly (2). Refer to **Intermediate Steering Shaft Replacement (RWD)** , **Intermediate Steering Shaft Replacement (AWD)** .
14. If equipped, disconnect the electrical connectors from the engine mount vacuum control solenoids (2).

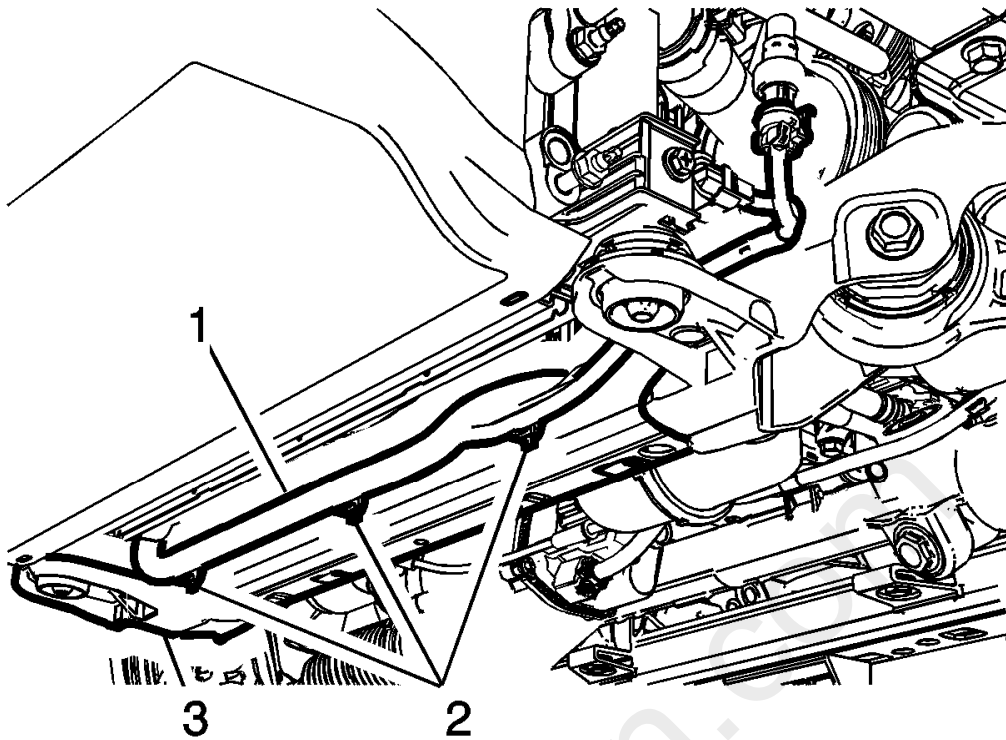


Fig. 37: Electrical Harness
Courtesy of GENERAL MOTORS COMPANY

15. Disconnect the electrical harness (1) from the frame (3).

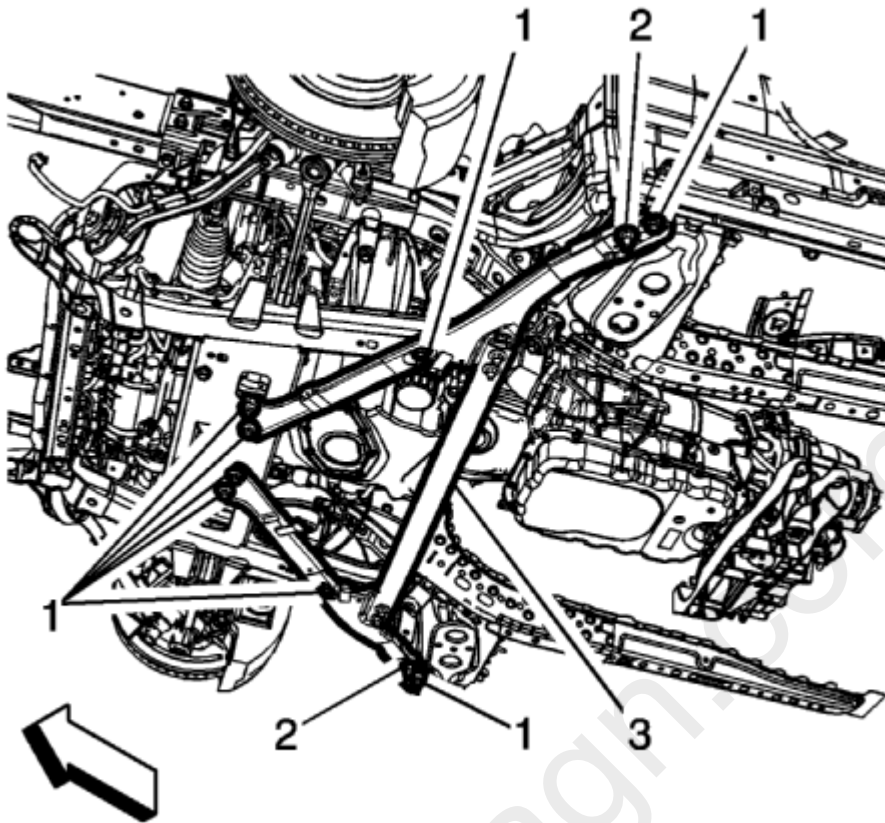


Fig. 38: Frame Brace

Courtesy of GENERAL MOTORS COMPANY

16. Remove the frame brace fasteners (1 and 2).
17. Remove the frame brace (3) from the vehicle.

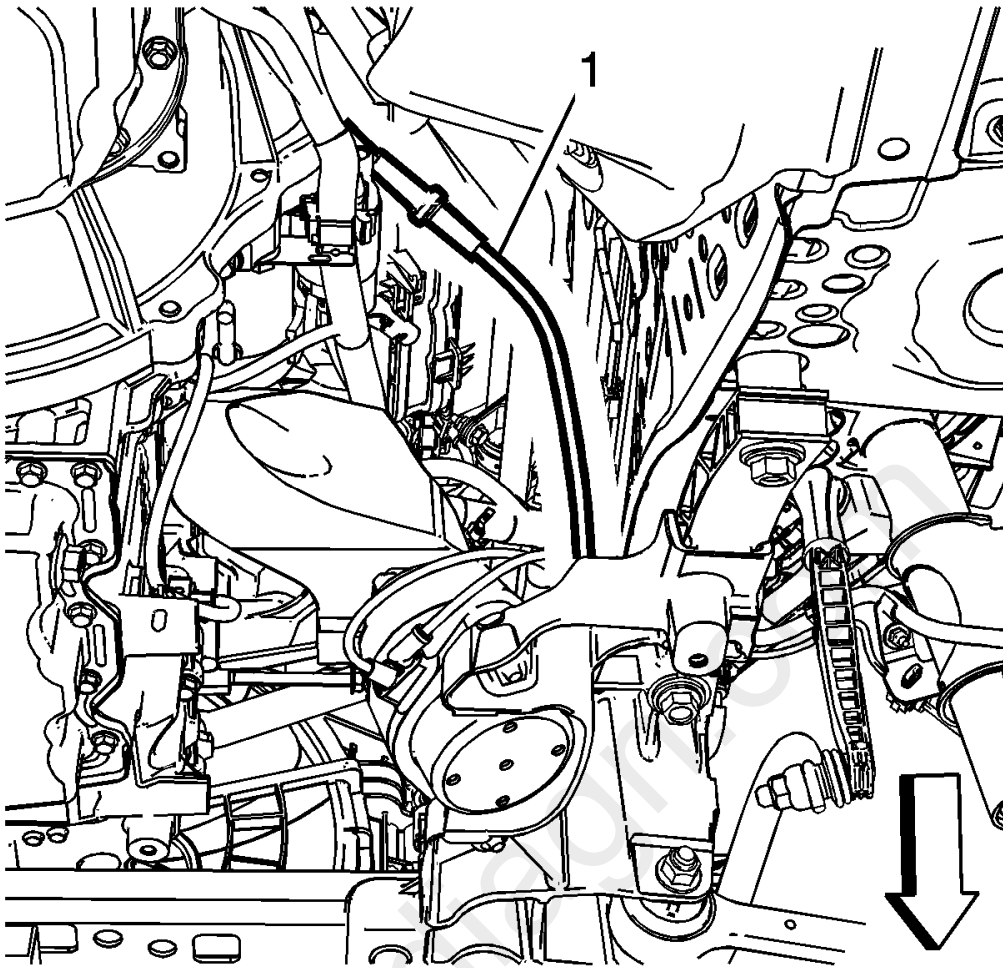


Fig. 39: Engine Mount Vacuum Line
Courtesy of GENERAL MOTORS COMPANY

18. If equipped, disconnect the engine mount vacuum line (1).
19. Disconnect the right and left lower stabilizer shaft links from the stabilizer bar. Refer to **Stabilizer Shaft Link Replacement** .
20. Disconnect the outer tie rod ends from the steering knuckles. Refer to **Steering Linkage Outer Tie Rod Replacement (AWD)** , **Steering Linkage Outer Tie Rod Replacement (RWD)** .
21. Disconnect the front lower control front links from the front suspension frame. Refer to **Front Lower Control Front Link Replacement (RWD)** , **Front Lower Control Front Link Replacement (AWD)** .
22. Disconnect the front lower control rear links from the front suspension frame. Refer to **Front Lower Control Rear Link Replacement** .

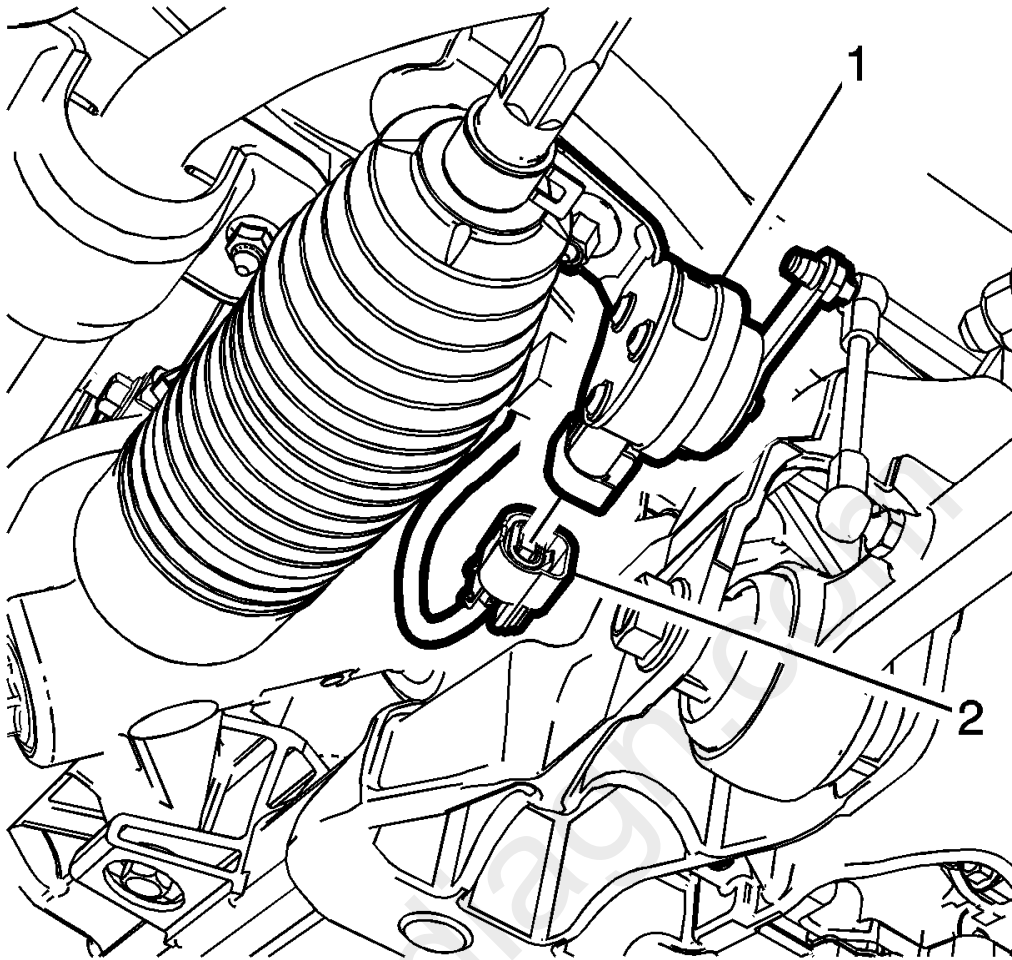


Fig. 40: Electronic Level Sensor & Electrical Connector
Courtesy of GENERAL MOTORS COMPANY

23. Disconnect the ride height sensor (2) connector from the ride height sensor (1).
24. Remove the front wheel drive shafts, if equipped with AWD. Refer to **Front Wheel Drive Shaft Replacement - Left Side** , and **Front Wheel Drive Shaft Replacement - Right Side** .
25. Disconnect the engine oil cooler inlet and outlet hose from the cradle, if equipped. Refer to **Engine Oil Cooler Inlet and Outlet Hose Replacement (Upper)** , **Engine Oil Cooler Inlet and Outlet Hose Replacement (Lower)** .

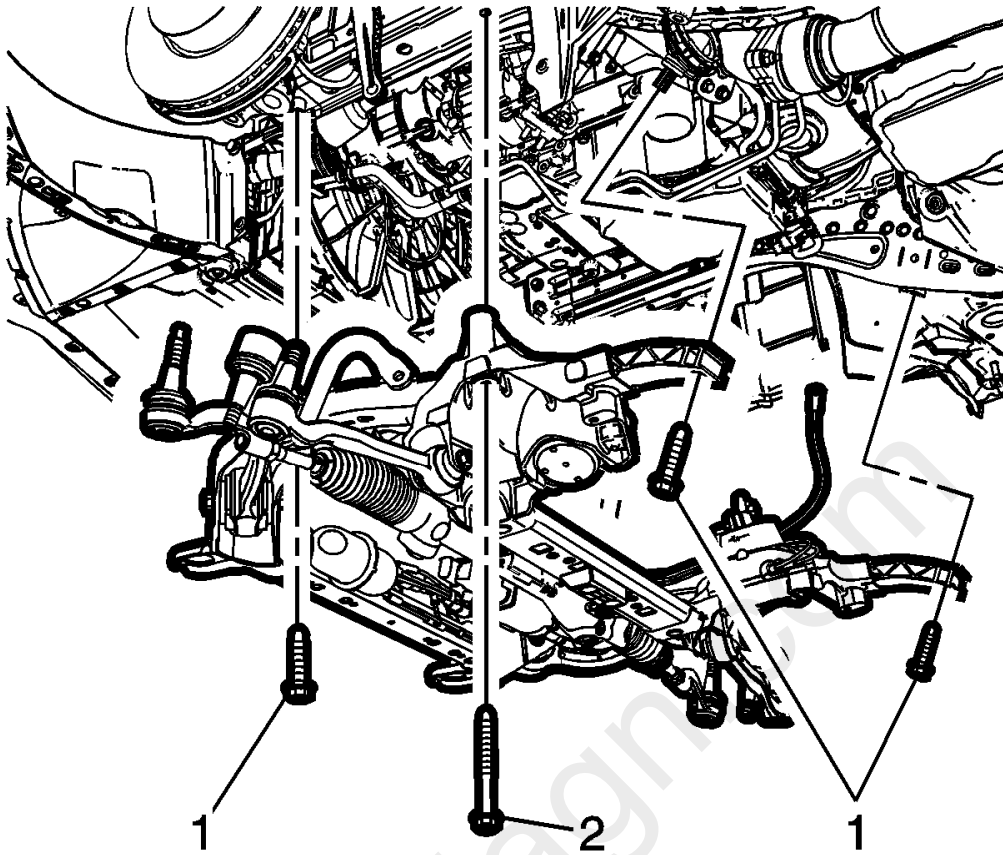


Fig. 41: Frame Mounting Points

Courtesy of GENERAL MOTORS COMPANY

26. Install **J-39580** stand under the frame.
27. Lower the vehicle to the frame support table.
28. Remove the six frame mounting bolts (1, 2).
29. With the aid of an assistant, carefully raise the body from the frame.
30. Ensure when raising the body the following items are clear from the frame:
 - Vacuum lines
 - Steering knuckles
 - Electrical wiring harnesses
 - Oil coolers lines

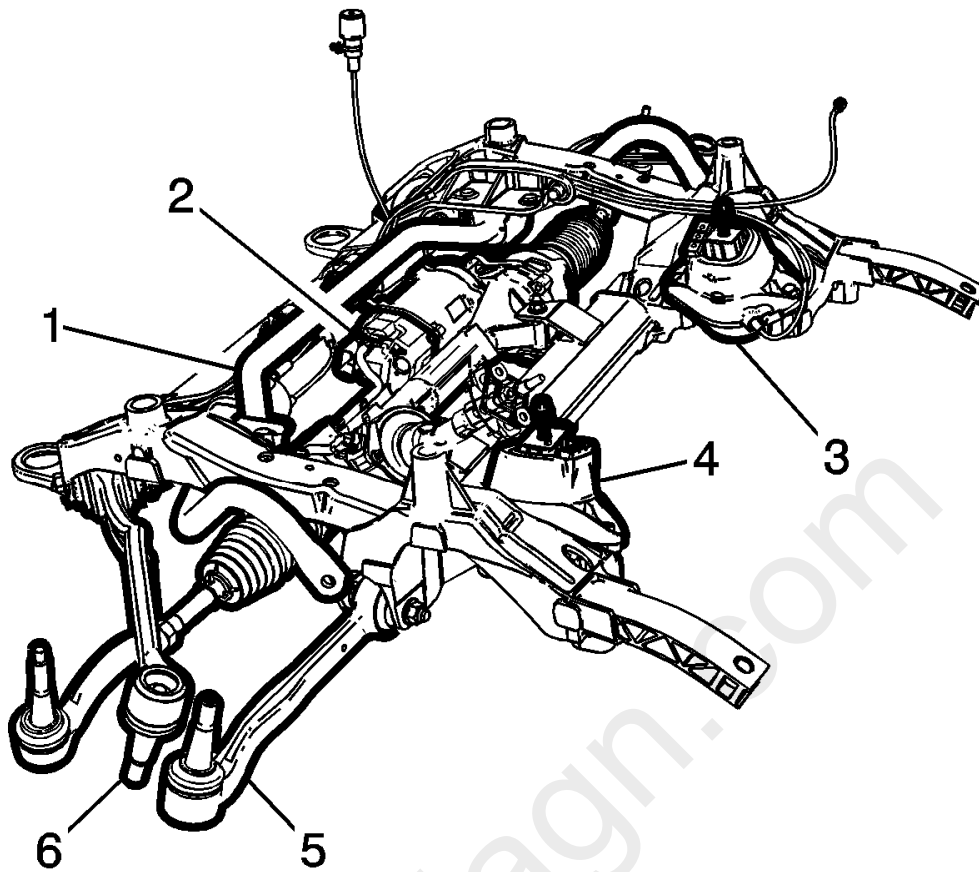


Fig. 42: Frame Transfer Components
 Courtesy of GENERAL MOTORS COMPANY

31. If the frame is being replaced, transfer the following components to the new frame;

NOTE: For AWD vehicles only, mark the stabilizer shaft to ensure the correct position when reinstalling.

- Stabilizer shaft (1). Refer to Stabilizer Shaft Replacement (RWD) , Stabilizer Shaft Replacement (AWD) .
- Electric belt drive rack and pinion steering gear (2). Refer to Electric Belt Drive Rack and Pinion Steering Gear Replacement (AWD) , Electric Belt Drive Rack and Pinion Steering Gear Replacement (RWD) .
- Right engine mount (3). Refer to Engine Mount Replacement - Right Side , for the 2.0L, 2.5L, engines or Engine Mount Bracket Replacement - Right Side (LFX) , Engine Mount Bracket Replacement - Right Side (LF3) for the 3.6L engine.
- Left engine mount (4). Refer to Engine Mount Replacement - Left Side (LTG) , for the 2.0L, 2.5L, engines or Engine Mount Bracket Replacement - Left Side (LFX) , Engine Mount

Bracket Replacement - Left Side (LF3) for the 3.6L engine.

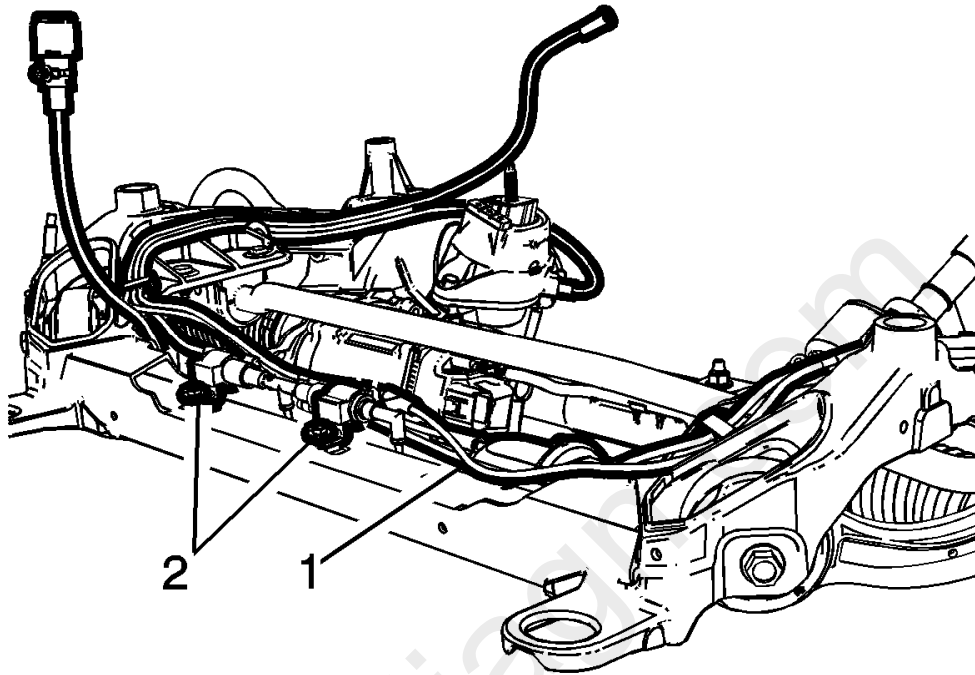


Fig. 43: Vacuum Controlled Engine Mount System
Courtesy of GENERAL MOTORS COMPANY

32. If equipped with vacuum controlled engine mounts, transfer the vacuum system (1) from the frame.
33. Install the vacuum solenoid (2) fasteners and tighten to 9 (80 lb in).

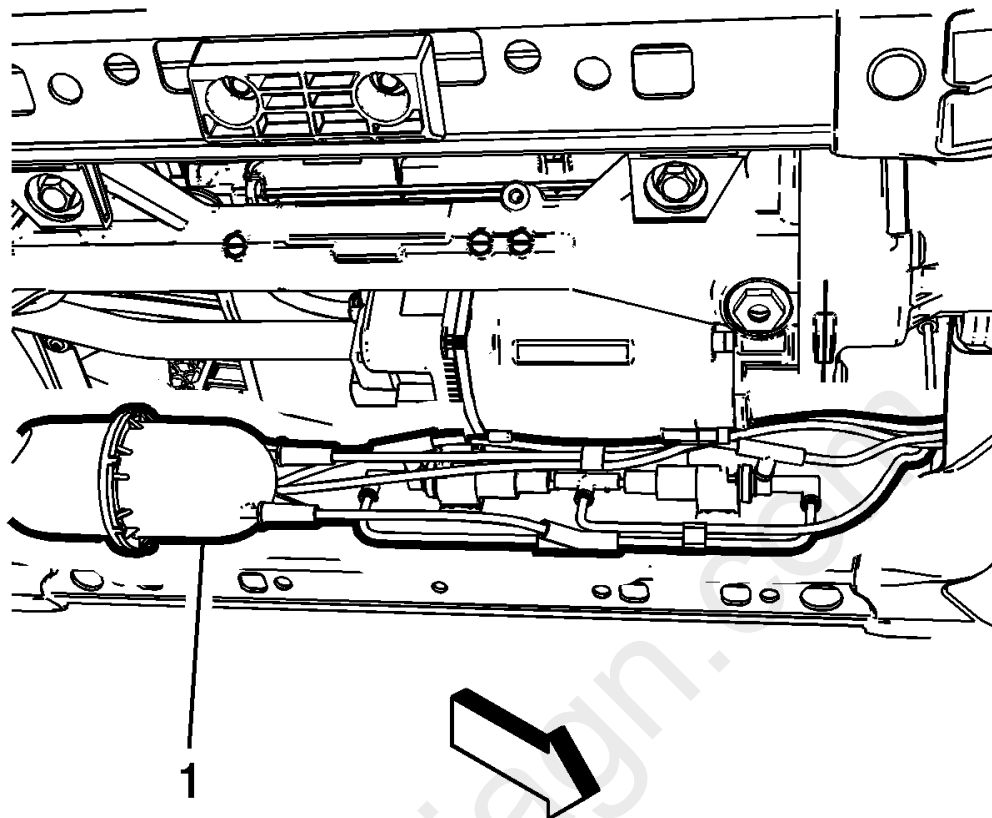


Fig. 44: Vacuum Tank
Courtesy of GENERAL MOTORS COMPANY

34. Install the vacuum tank fastener (1) and tighten to 9 (80 lb in).
35. With the aid of an assistant, remove the frame from the support fixture.

Installation Procedure

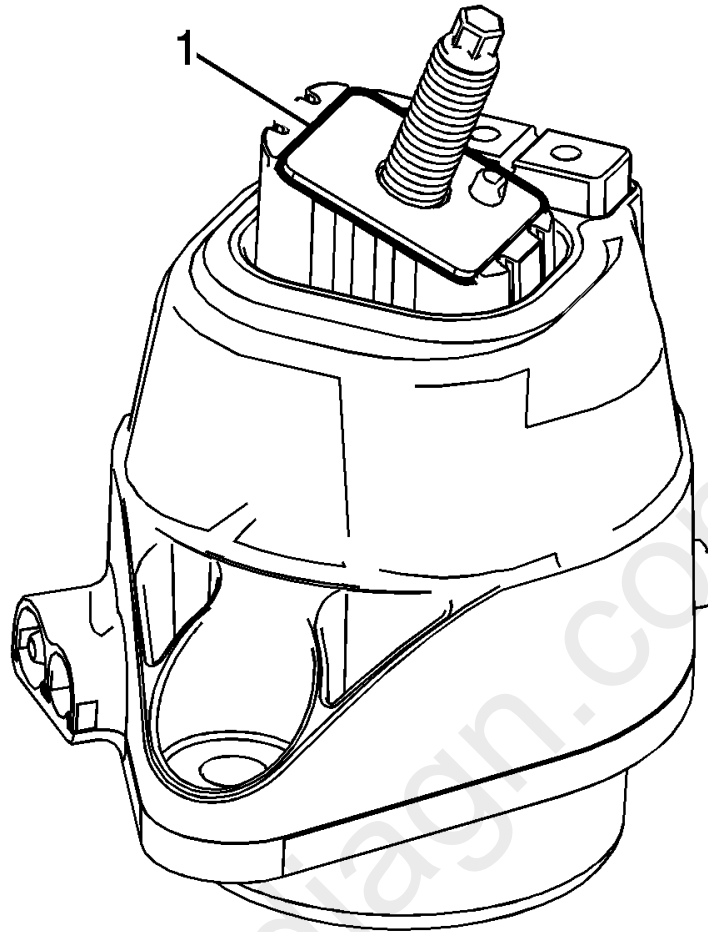


Fig. 45: Phenolic Spacer

Courtesy of GENERAL MOTORS COMPANY

CAUTION: Phenolic spacer must be present to prevent galvanic/corrosive reaction and/or excessive temperature conduction between engine mount bracket and engine mount. Replace mount if phenolic spacer is missing or damaged. Failure to ensure phenolic spacer is intact and not damaged can lead to premature failure of engine mount and/or engine mount bracket.

NOTE: Suspension components attached to the frame use Torque-to-Yield fasteners and must be **DISCARDED** and replaced with **NEW** Torque Angle Yield (TAY) fasteners. The frame to body fasteners are not TAY fasteners.

1. Inspect the engine mount to ensure the phenolic spacer (1) is in place and not damaged.
2. With the aid of an assistant, position and secure the new frame assembly to the support fixture.
3. With the aid of an assistant, carefully lower the body to the frame.
4. Ensure the following components are clear from the frame:

- Vacuum lines
- Steering knuckles
- Electrical wiring harnesses
- Oil cooler lines

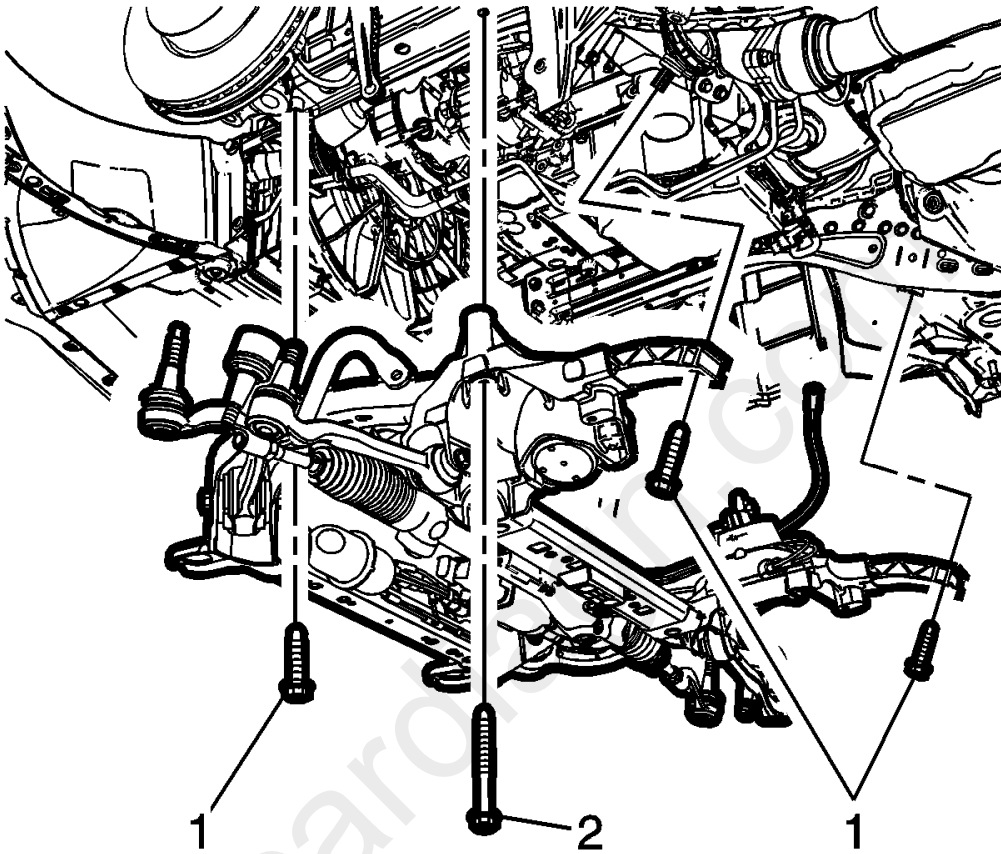


Fig. 46: Frame Mounting Points

Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution .

5. Install the four frame mountings bolts (1) and tighten to 100 (74 lb ft).
6. Install the two center frame to body bolts (2) and tighten to 100 (74 lb ft).
7. Connect the right and left lower stabilizer shaft links to the stabilizer bar. Refer to Stabilizer Shaft Link Replacement .
8. Install the front wheel drive shafts, if equipped with AWD. Refer to Front Wheel Drive Shaft

Replacement - Left Side , and Front Wheel Drive Shaft Replacement - Right Side .

NOTE: **Ensure correct position from the previously marked spots.**

9. Tighten the NEW stabilizer shaft fasteners and tighten 22 (16 lb ft).
10. Connect the outer tie rod ends to the steering knuckles. Refer to **Steering Linkage Outer Tie Rod Replacement (AWD) , Steering Linkage Outer Tie Rod Replacement (RWD) .**
11. Connect the front lower control front links to the front suspension frame. Refer to **Front Lower Control Front Link Replacement (RWD) , Front Lower Control Front Link Replacement (AWD) .**
12. Connect the front lower control rear links to the front suspension frame. Refer to **Front Lower Control Rear Link Replacement .**

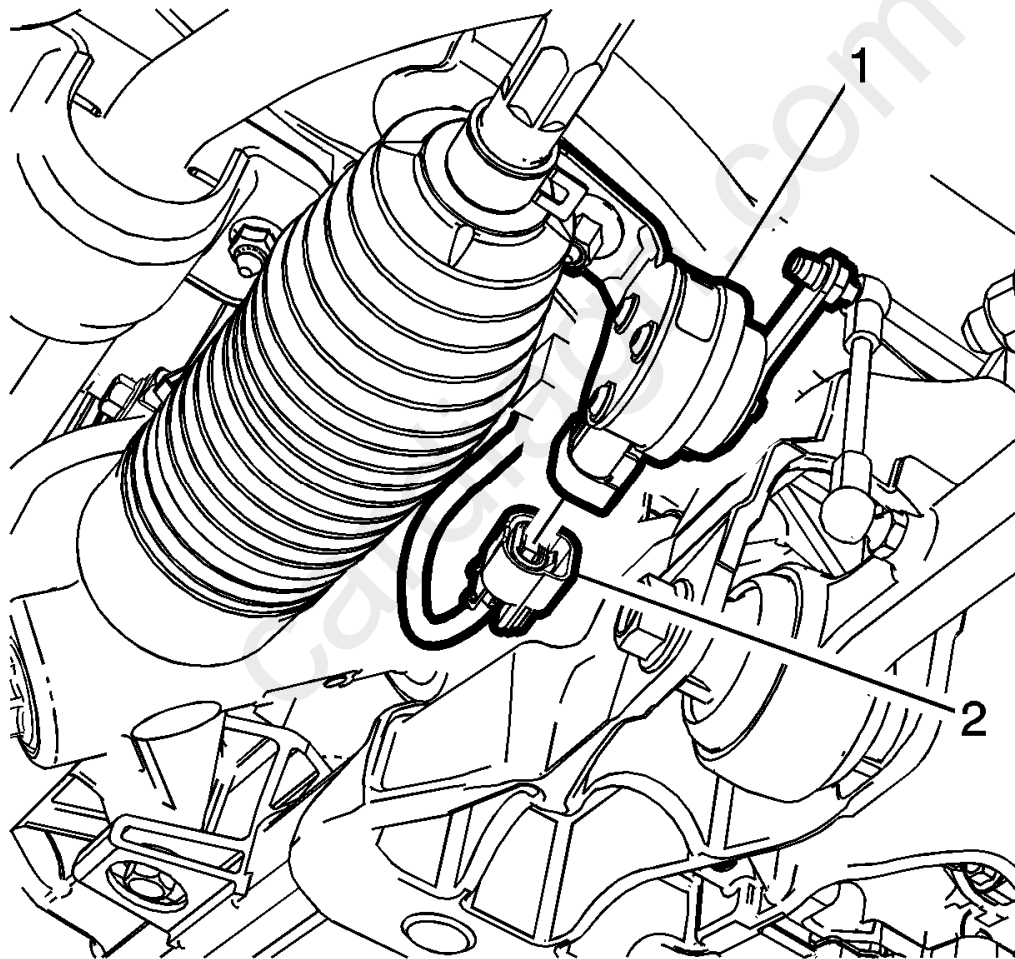


Fig. 47: Electronic Level Sensor & Electrical Connector
Courtesy of GENERAL MOTORS COMPANY

13. Connect the ride height sensor (2) connector to the ride height sensor (1).
14. Connect the oil cooler lines to the front suspension frame, if equipped. Refer to **Engine Oil Cooler Inlet and Outlet Hose Replacement (Upper) , Engine Oil Cooler Inlet and Outlet Hose Replacement**

(Lower) .

15. Raise the vehicle.
16. Remove the **J-39580** stand from under the vehicle.

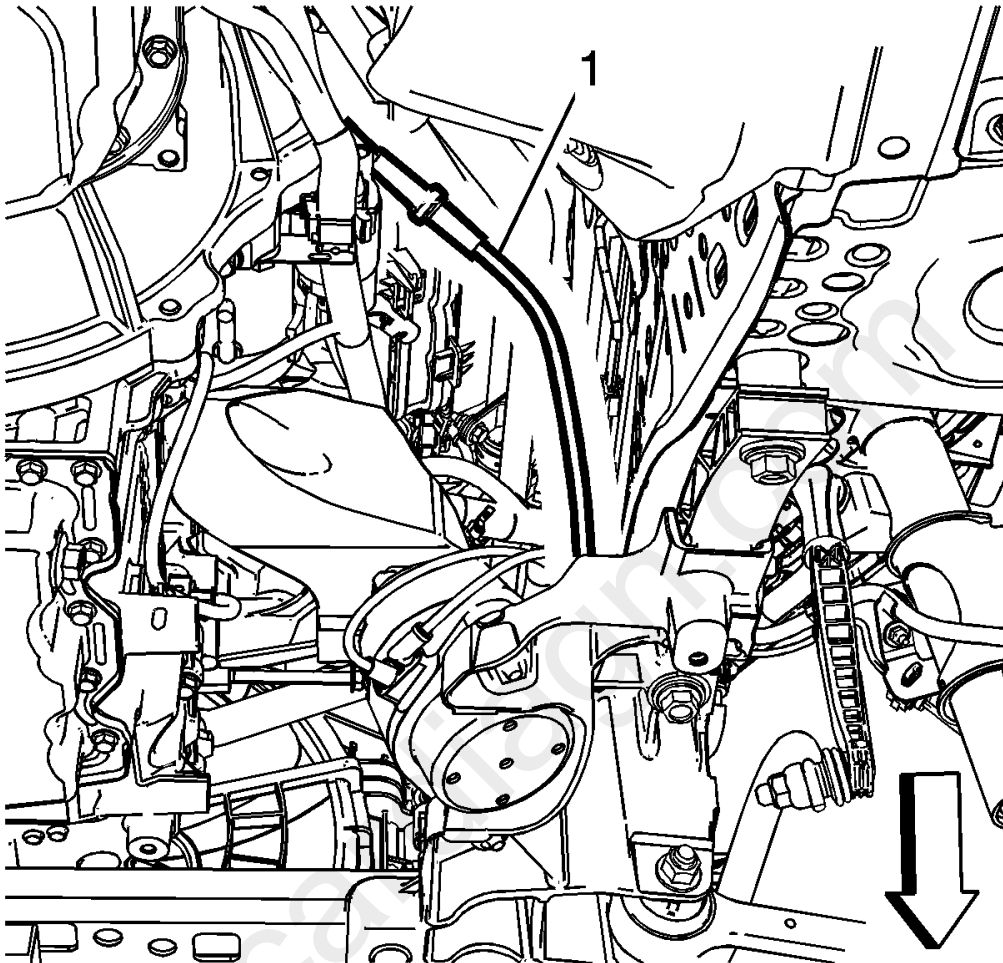


Fig. 48: Engine Mount Vacuum Line
Courtesy of GENERAL MOTORS COMPANY

17. If equipped, connect the engine mount vacuum line (1).

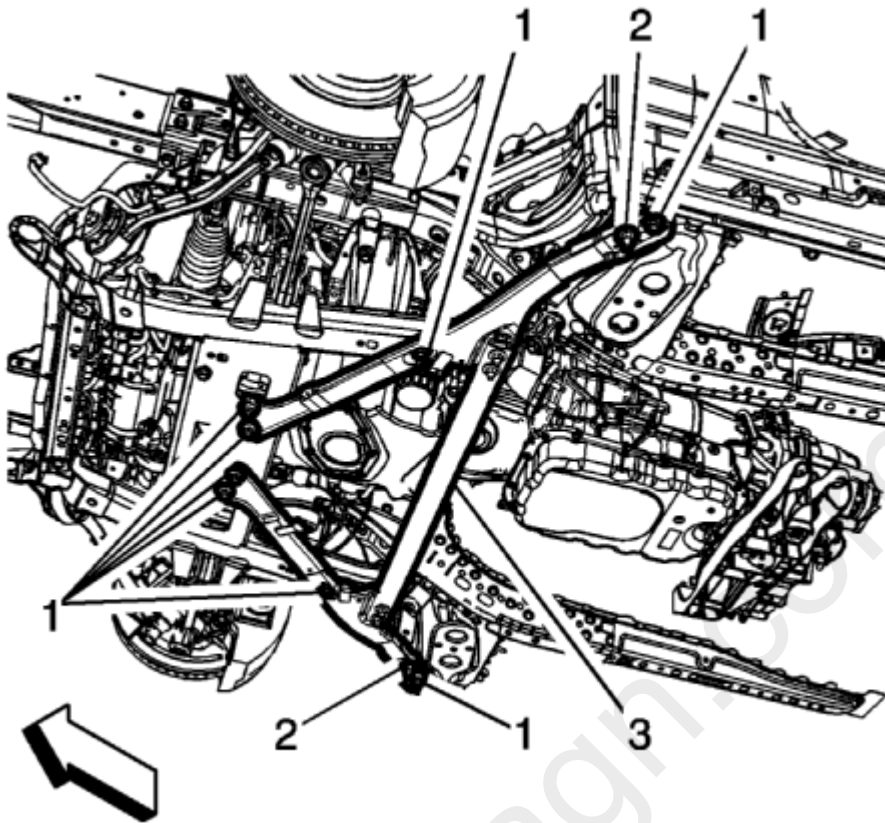


Fig. 49: Frame Brace

Courtesy of GENERAL MOTORS COMPANY

18. Apply red loctite® 743 or equivalent to the fasteners (1), then install the frame brace (3) and fasteners to the vehicle and tighten the fasteners to 50 (37 lb ft).
19. Install the nuts (2) and tighten to 50 (37 lb ft)

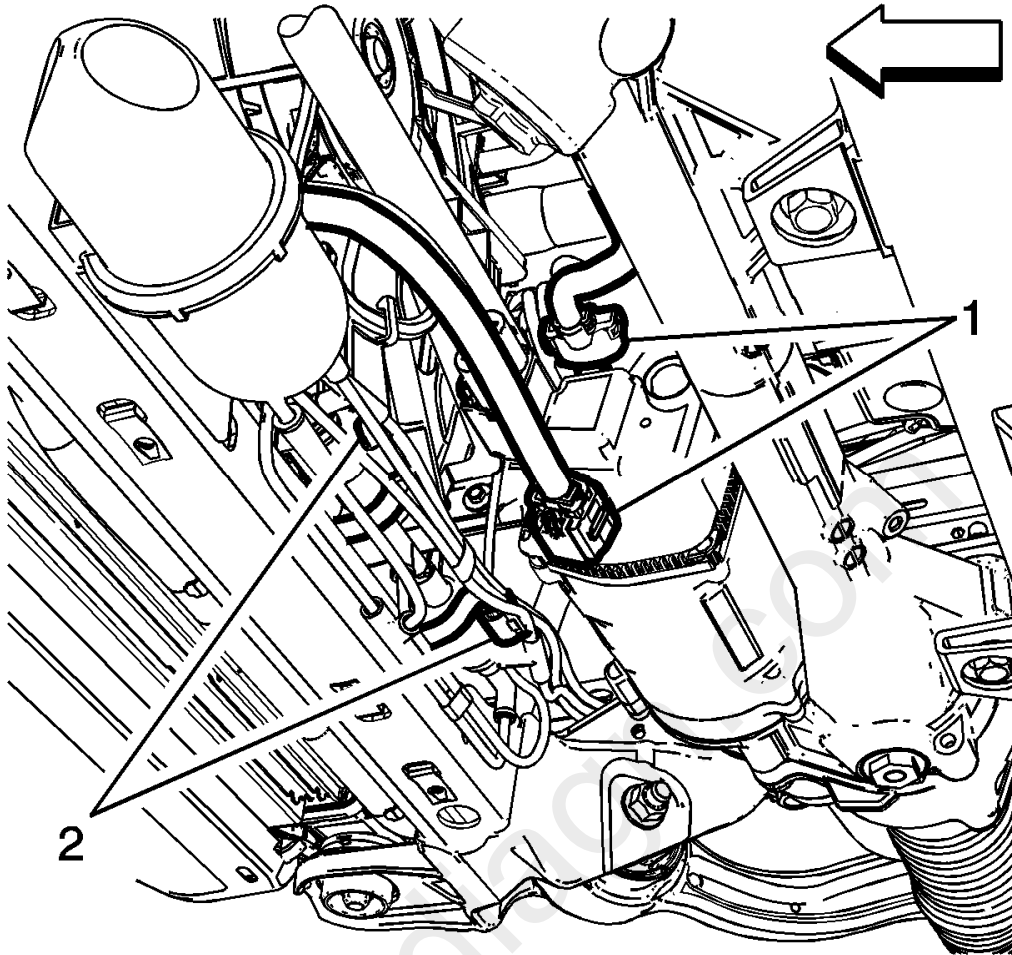


Fig. 50: Electric Power Steering Electrical Connectors
Courtesy of GENERAL MOTORS COMPANY

20. Connect the electric power steering electrical connectors (1).
21. Connect the lower steering intermediate shaft (1) to the electric power steering assembly (2). Refer to **Intermediate Steering Shaft Replacement (RWD)** , **Intermediate Steering Shaft Replacement (AWD)** .
22. If equipped, connect the electrical connectors to the engine mount vacuum control solenoids (2).

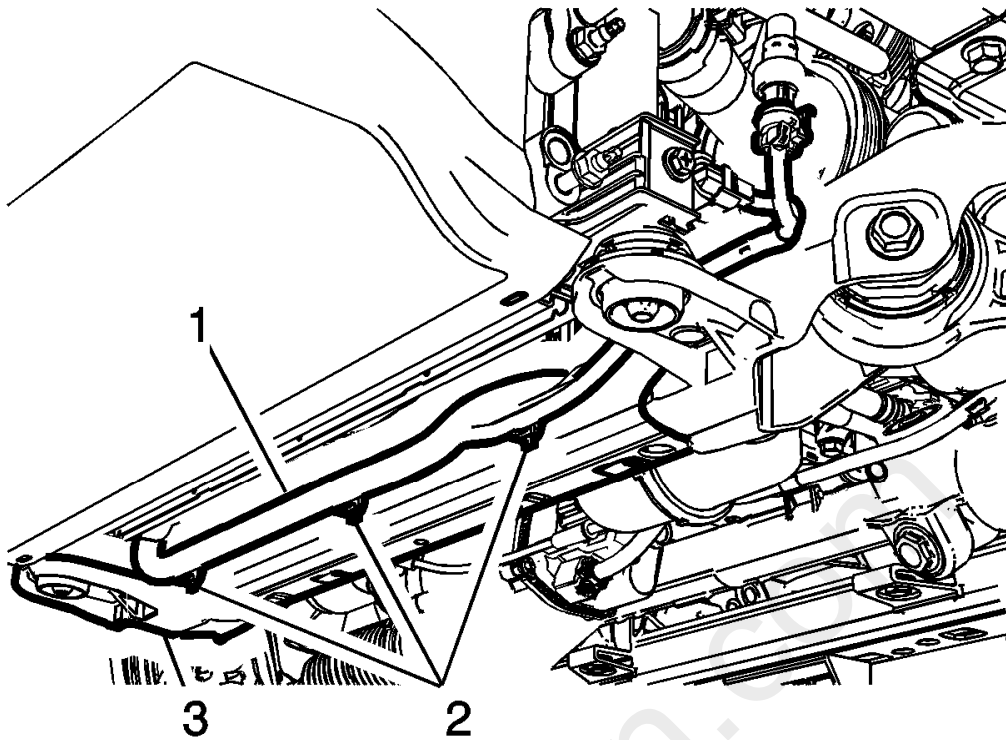


Fig. 51: Electrical Harness
Courtesy of GENERAL MOTORS COMPANY

23. Connect the electrical harness (1) to the frame (3).

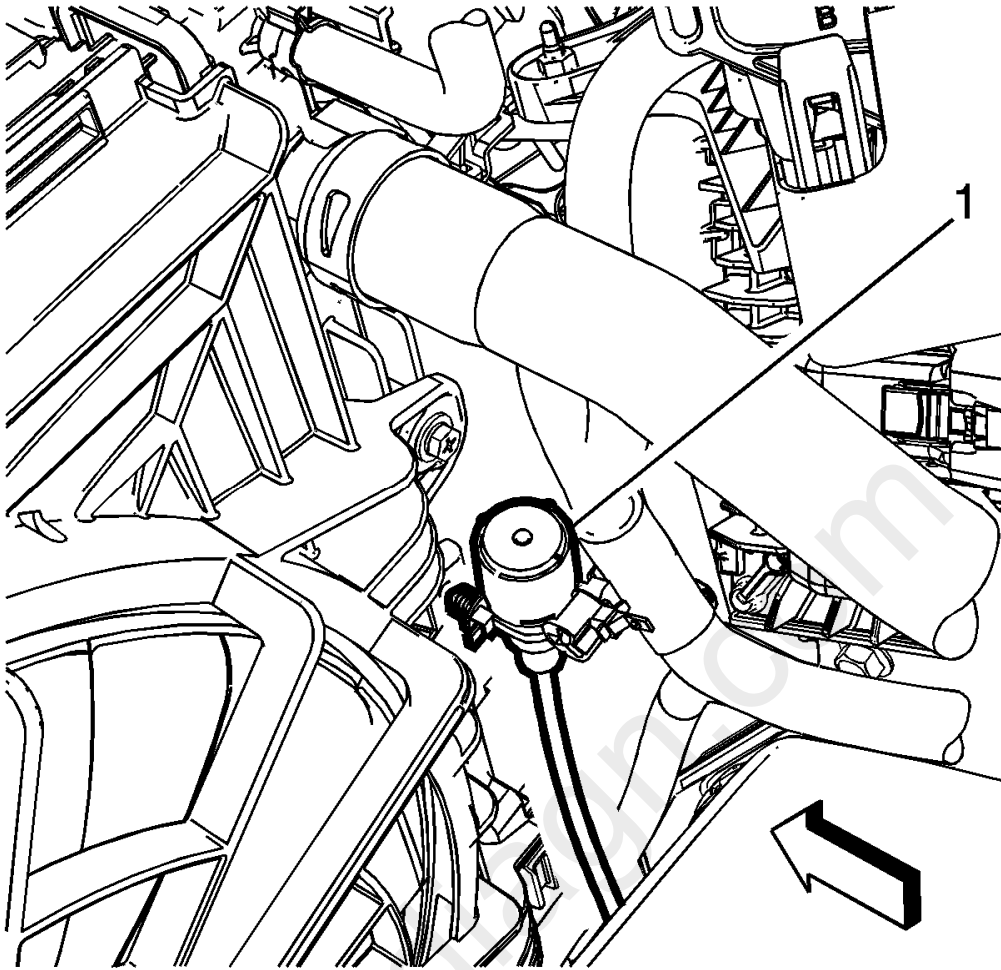


Fig. 52: Vacuum Filter
Courtesy of GENERAL MOTORS COMPANY

24. If equipped with vacuum controlled engine mounts, connect the vacuum filter (1) to the radiator assembly.
25. Remove the mechanics wire supporting the radiator assembly.
26. Install the front compartment lower noise shield. Refer to **Front Compartment Lower Noise Shield Replacement (AWD)**, **Front Compartment Lower Noise Shield Replacement (RWD)**.
27. Install the engine lower front splash shields. Refer to **Engine Lower Front Splash Shield Replacement**.
28. Install the front tires and wheels. Refer to **Tire and Wheel Removal and Installation**.
29. Install the front compartment lower noise shield. Refer to **Front Compartment Lower Noise Shield Replacement (AWD)**, **Front Compartment Lower Noise Shield Replacement (RWD)**.

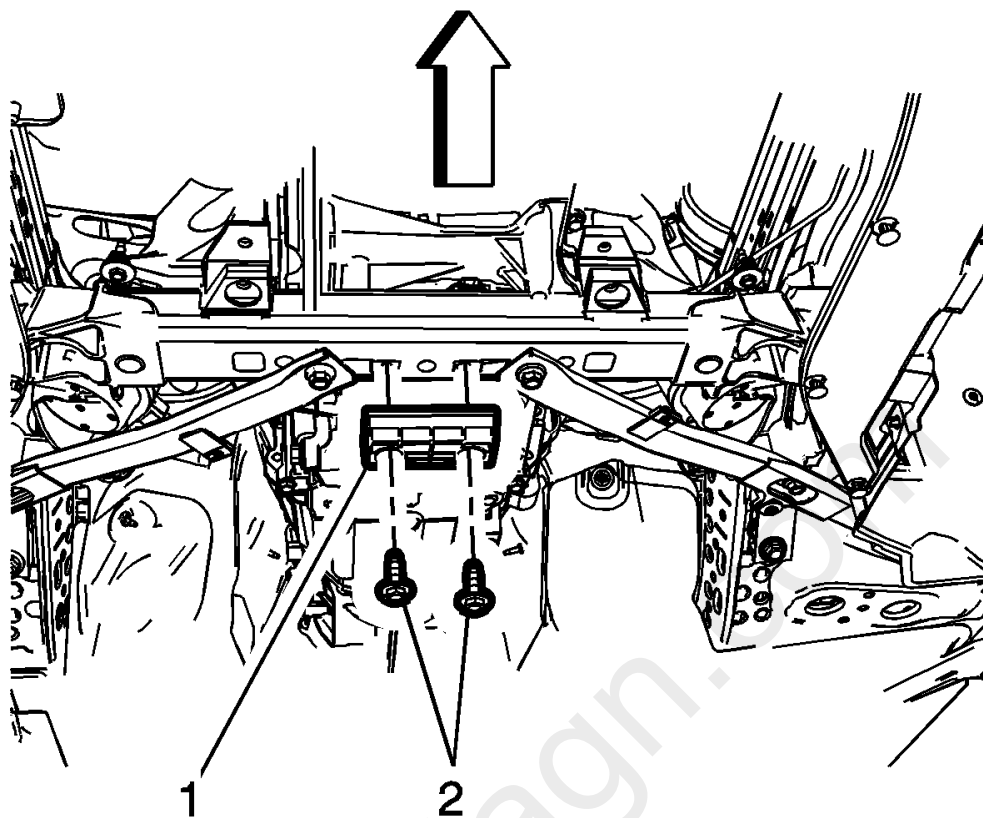


Fig. 53: Jack Pad

Courtesy of GENERAL MOTORS COMPANY

30. Install the jack pad (1) and fasteners (2) and tighten to 9 (80 lb in).

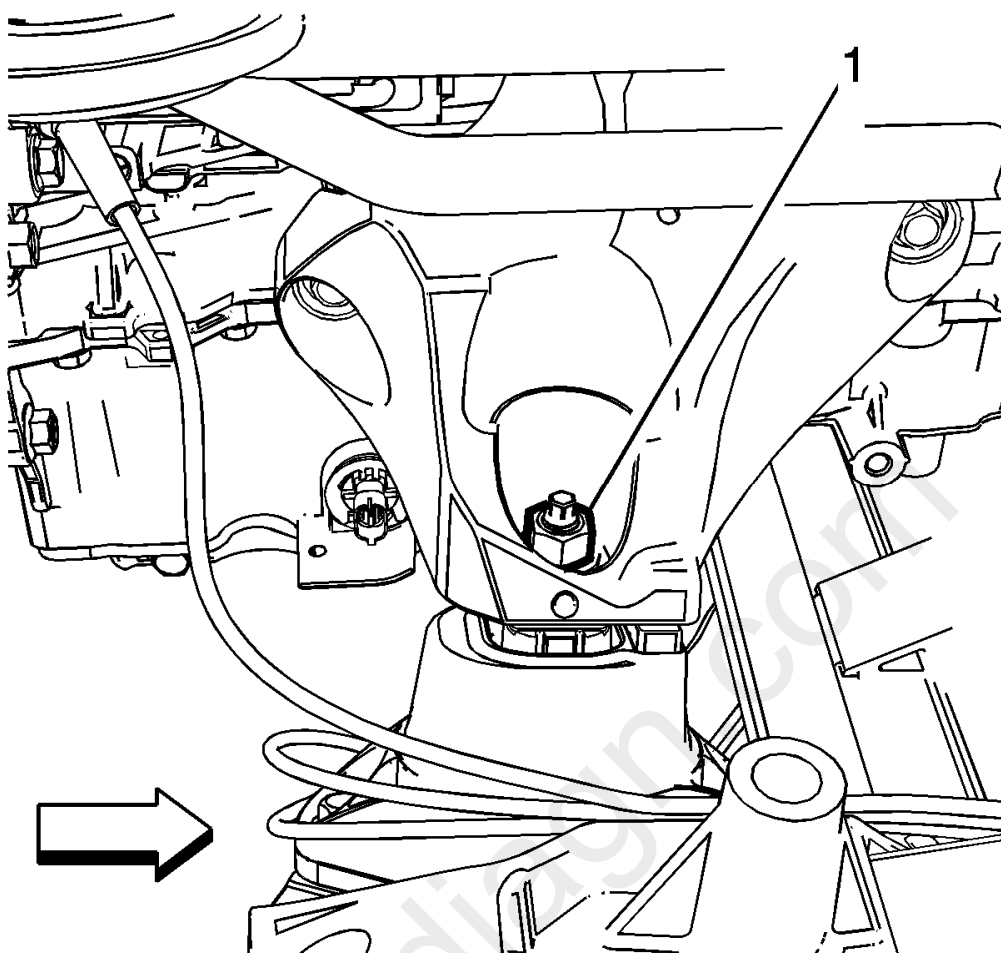


Fig. 54: Right Engine Mount Fastener
Courtesy of GENERAL MOTORS COMPANY

31. Install the right engine mount to engine mount bracket fastener (1). Refer to **Engine Mount Replacement - Right Side** , for the 2.0L, 2.5L, engines or **Engine Mount Bracket Replacement - Right Side (LFX)** , **Engine Mount Bracket Replacement - Right Side (LF3)** for the 3.6L engine.
32. Lower the vehicle.

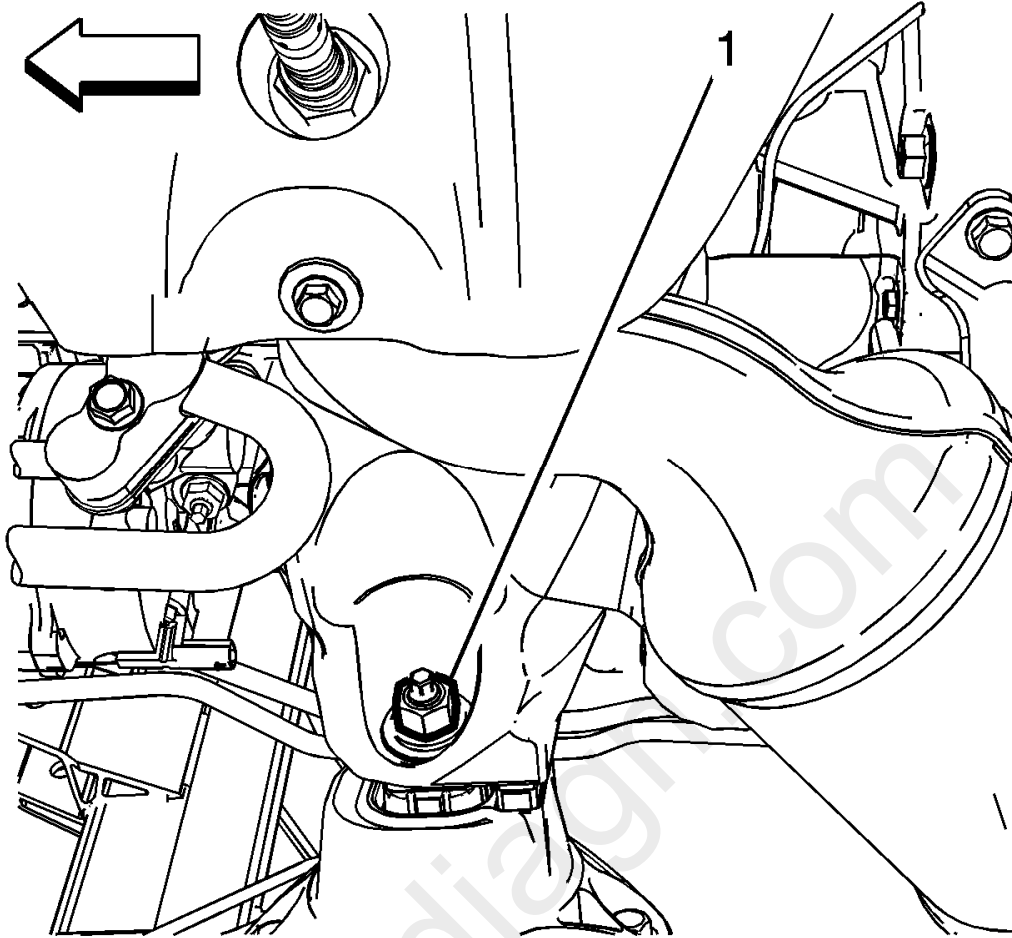


Fig. 55: Left Engine Mount Fastener
Courtesy of GENERAL MOTORS COMPANY

33. Install the left engine mount to engine mount bracket fastener (1). Refer to **Engine Mount Replacement - Left Side (LTG)** , for the 2.0L, 2.5L, engines or **Engine Mount Bracket Replacement - Left Side (LFX)** , **Engine Mount Bracket Replacement - Left Side (LF3)** for the 3.6L engine.
34. Remove the engine support fixture.

REAR SUSPENSION CRADLE REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the rear tire front air deflector from the vehicle. Refer to **Rear Tire Front Air Deflector Replacement** .
3. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
4. Remove the rear wheel speed sensor. Refer to **Rear Wheel Speed Sensor Replacement** .
5. Remove the rear wheel drive shaft. Refer to **Rear Wheel Drive Shaft Replacement (LFX,LF3)** , **Rear**

Wheel Drive Shaft Replacement (LTG) .

6. Remove the rear brake caliper and relocate to the side. Refer to **Rear Brake Caliper Replacement** .
7. Remove the electronic park brake control module. Refer to **Electronic Parking Brake Control Module Replacement** .
8. Remove the park brake cables from the knuckles. Refer to **Parking Brake Rear Cable Replacement** .
9. Remove the rear parking brake anchor backing plate from the knuckles. Refer to **Rear Parking Brake Anchor Backing Plate Replacement** .
10. Remove the lower shock absorber bolts from the lower control arm. Refer to **Shock Absorber Replacement**
11. Remove the differential carrier assembly from the vehicle. Refer to **Differential Carrier Assembly Replacement (226mm eLSD)** , **Differential Carrier Assembly Replacement (195mm Axle)** .
12. Remove the front and rear suspension bracket from the vehicle. Refer to **Rear Suspension Bracket Replacement (Front)** , **Rear Suspension Bracket Replacement (Rear)** .

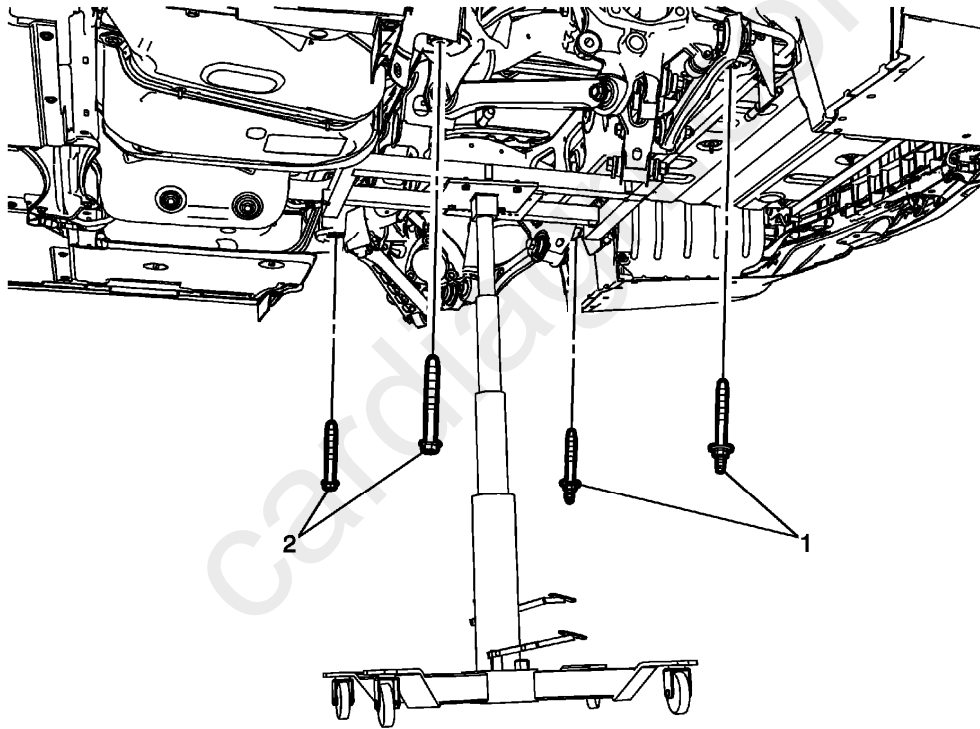


Fig. 56: Rear Suspension Cradle Rear Mounting Bolts
Courtesy of GENERAL MOTORS COMPANY

NOTE: Ensure that the rear suspension cradle is securely attached to the hydraulic jack stand

13. Support the rear suspension cradle with a suitable hydraulic jack.
14. Remove the and discard the rear suspension cradle rear mounting bolts (1). DO NOT reuse. Replace with NEW only.

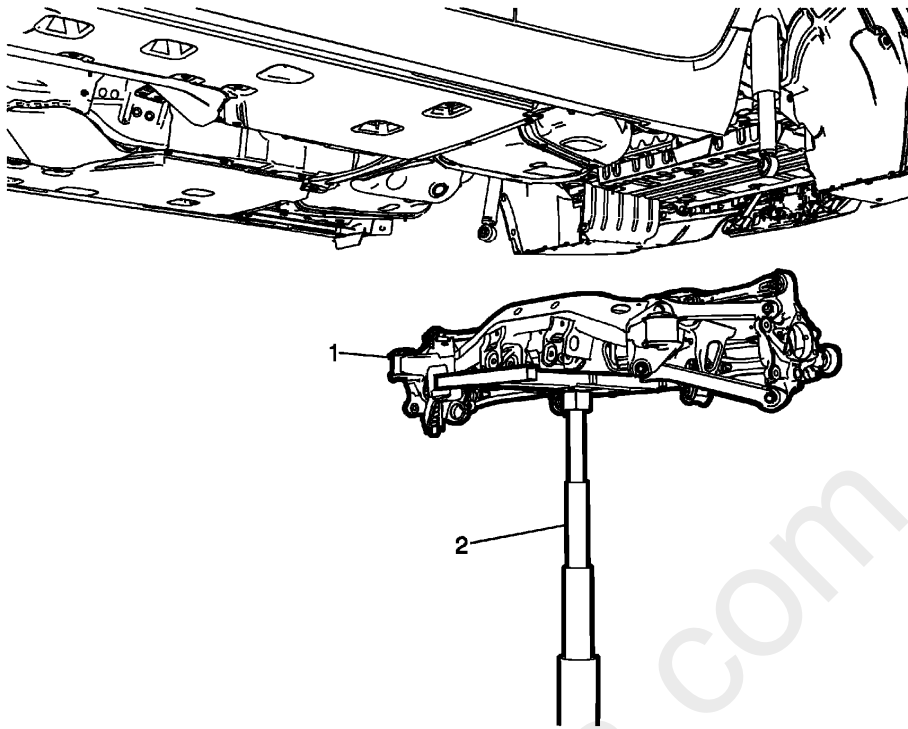


Fig. 57: Rear Suspension Cradle

Courtesy of GENERAL MOTORS COMPANY

15. Using the hydraulic jack stand (2), remove the rear suspension cradle (1) from the vehicle.
16. With the aide of an assistant, remove the rear suspension cradle (1) from the hydraulic jack stand (2) and position on a suitable work area.

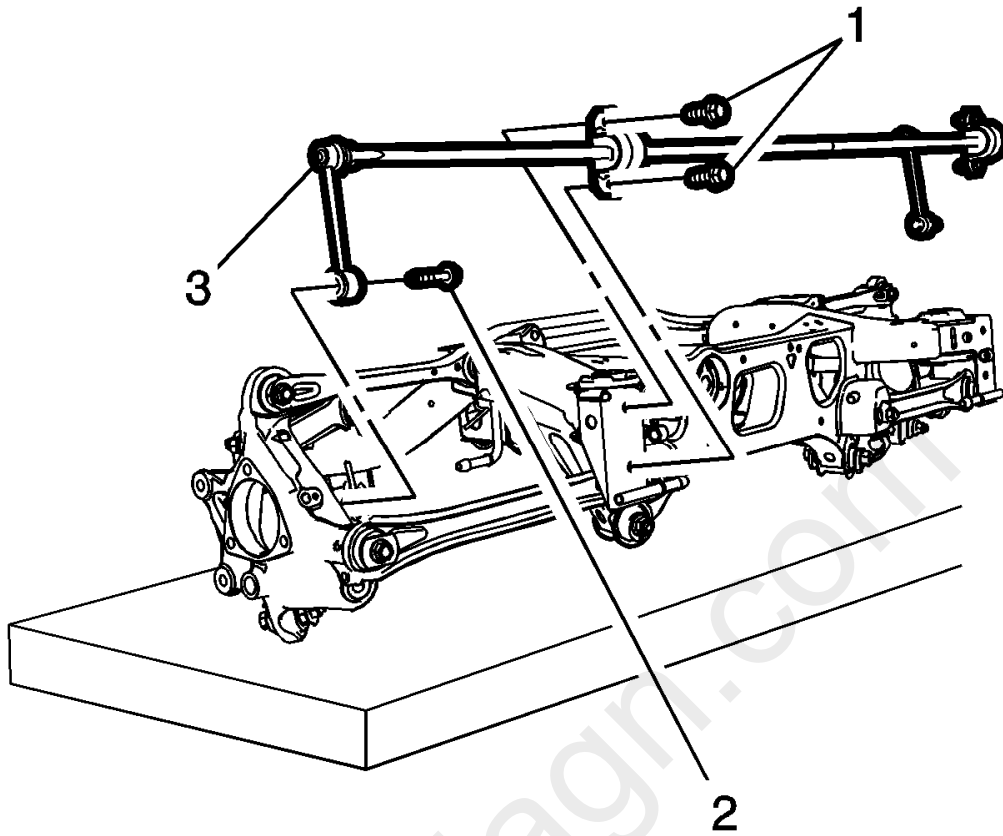


Fig. 58: Stabilizer Shaft Assembly
Courtesy of GENERAL MOTORS COMPANY

NOTE: There are two different size bolts for the stabilizer shaft clamp bolts. mark the relationship of the bolts

17. Remove and discard the 4 stabilizer shaft insulator bolts (1). DO NOT reuse. Replace with NEW only.
18. Remove and discard the stabilizer link bolt (2). DO NOT reuse. Replace with NEW only.
19. Remove the stabilizer shaft assembly (3) from the rear suspension cradle.

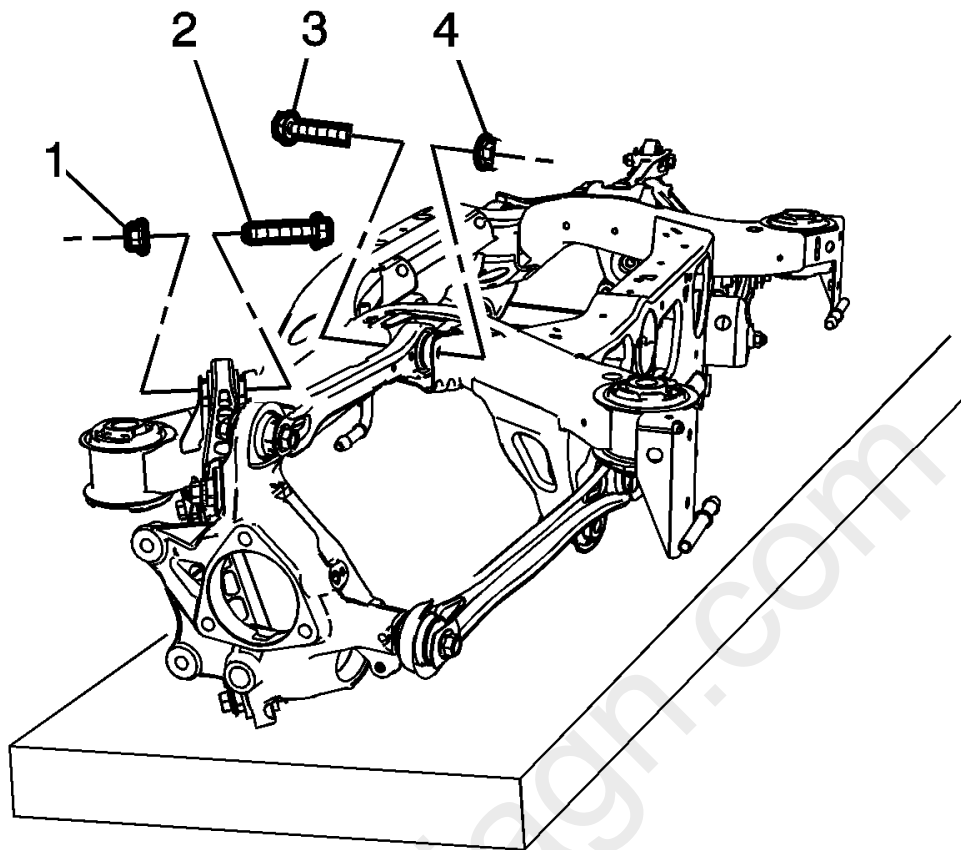


Fig. 59: Rear Suspension Components
Courtesy of GENERAL MOTORS COMPANY

20. Remove the upper control arm nut (1).
21. Remove and discard the upper control arm bolt (2). DO NOT reuse. Replace with NEW only.
22. Remove the upper trailing arm nut (4).
23. Remove and discard the upper trailing arm bolt (3). DO NOT reuse. Replace with NEW only.

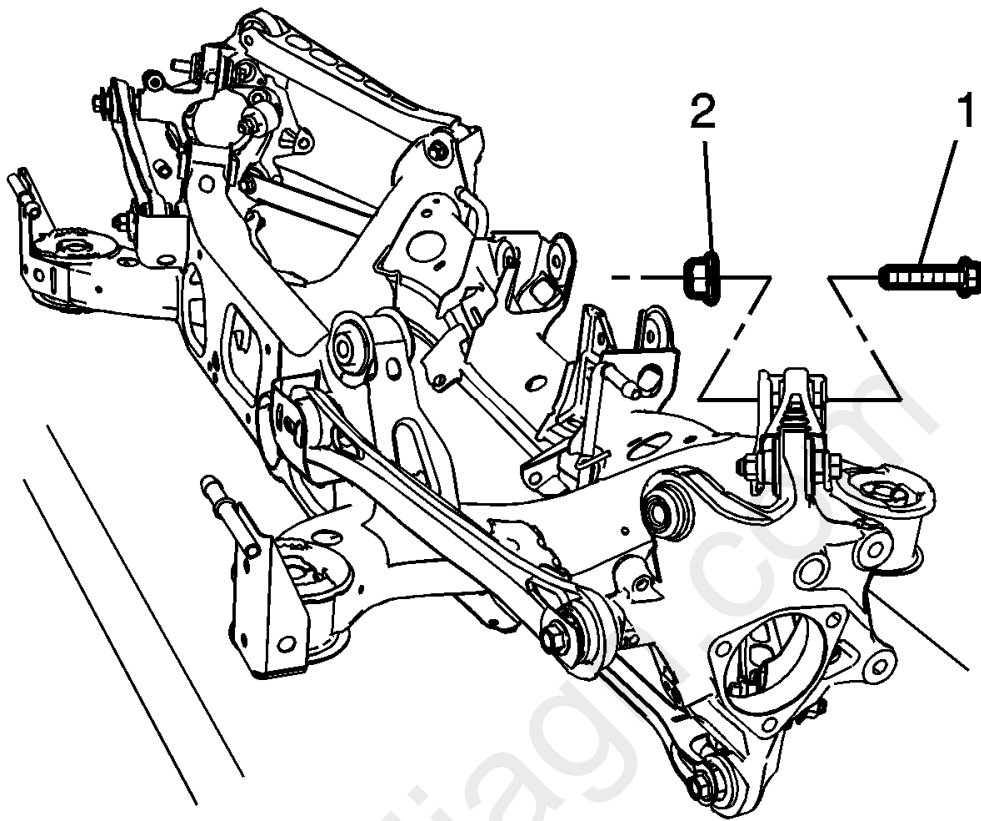


Fig. 60: Lower Control Arm Bolt
Courtesy of GENERAL MOTORS COMPANY

24. With the aide of an assistant, rotate the rear suspension cradle over.
25. Remove the lower control arm nut (2).
26. Remove and discard the lower control arm bolt (1). DO NOT reuse. Replace with NEW only.

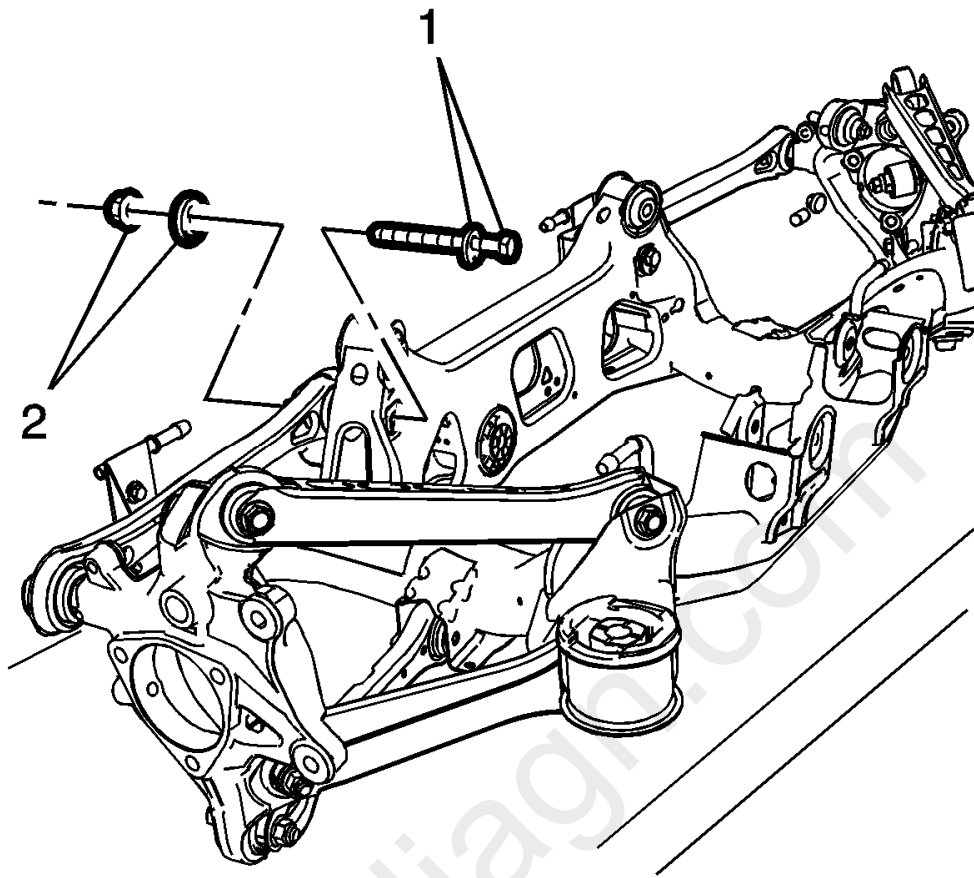


Fig. 61: Adjust Link Bolt And Washer
Courtesy of GENERAL MOTORS COMPANY

NOTE: **DO NOT** discard the washers. The washers can be reused.

27. Remove the adjust link nut and washer (2).
28. Remove and discard the adjust link bolt and washer (1). **DO NOT** reuse. Replace with **NEW** only.

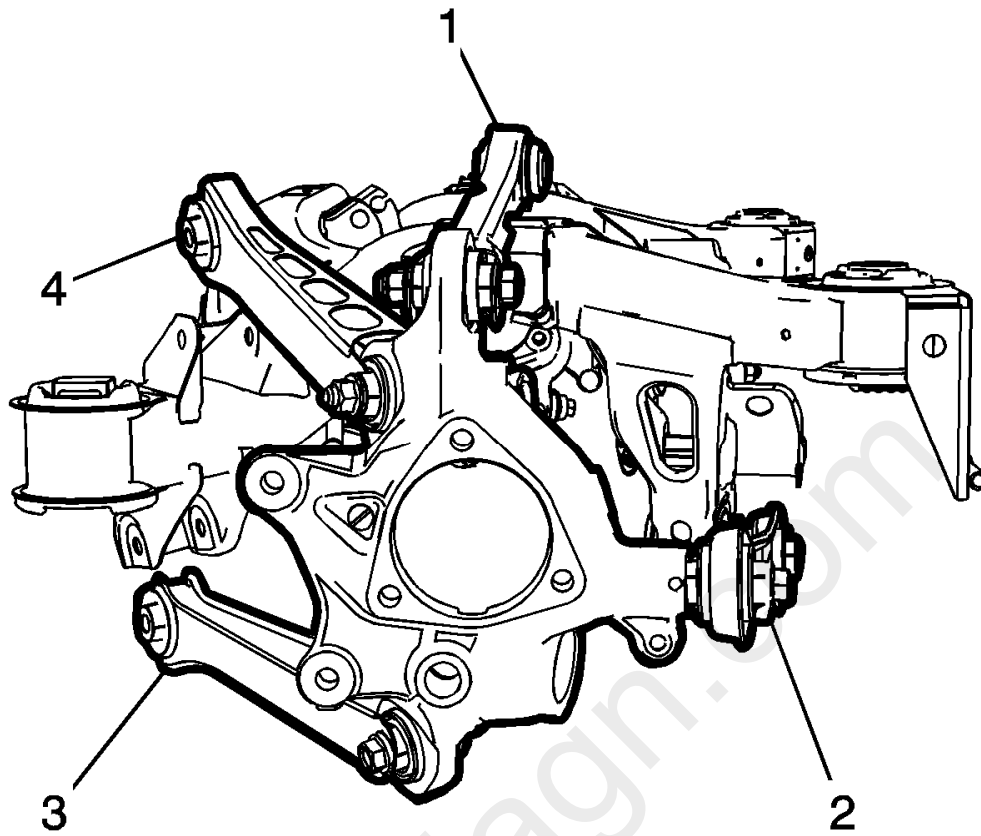


Fig. 62: Knuckle Components

Courtesy of GENERAL MOTORS COMPANY

29. Slightly rotate the upper control arm (1), adjust link (2), lower control arm (3) and the upper control arm (4) to allow the removal of the knuckle assembly.

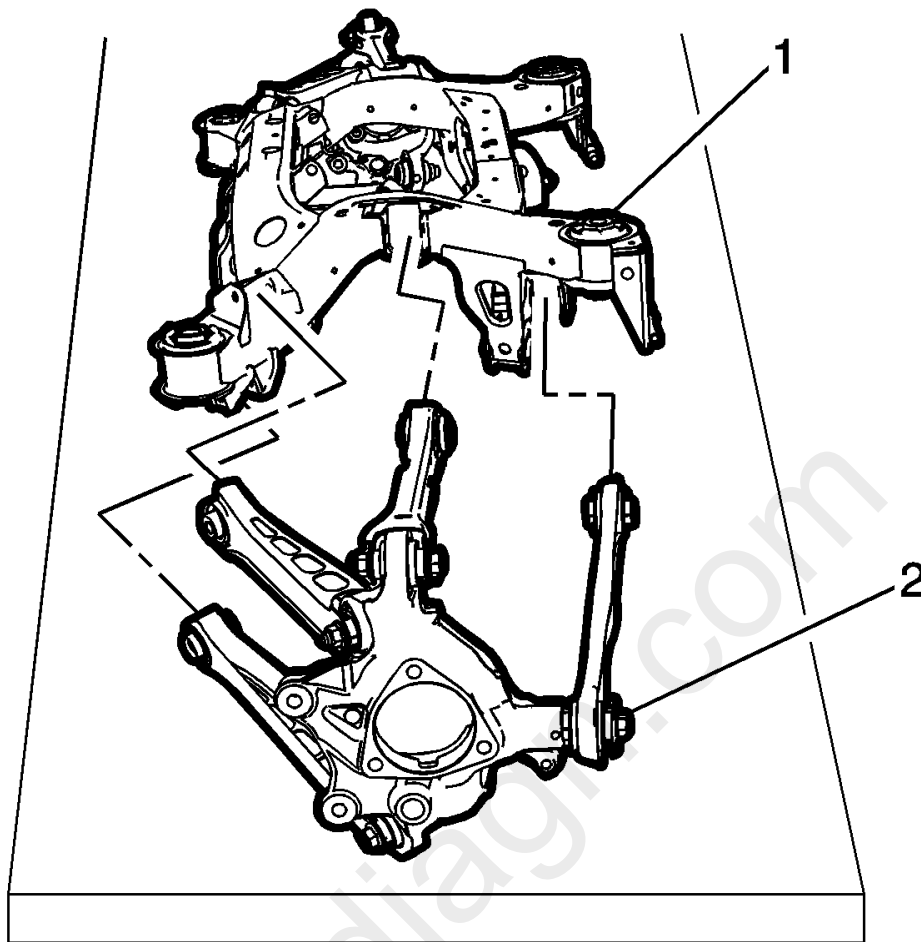


Fig. 63: Knuckle

Courtesy of GENERAL MOTORS COMPANY

30. Remove the knuckle assembly (2) from the rear suspension cradle (1).

Installation Procedure

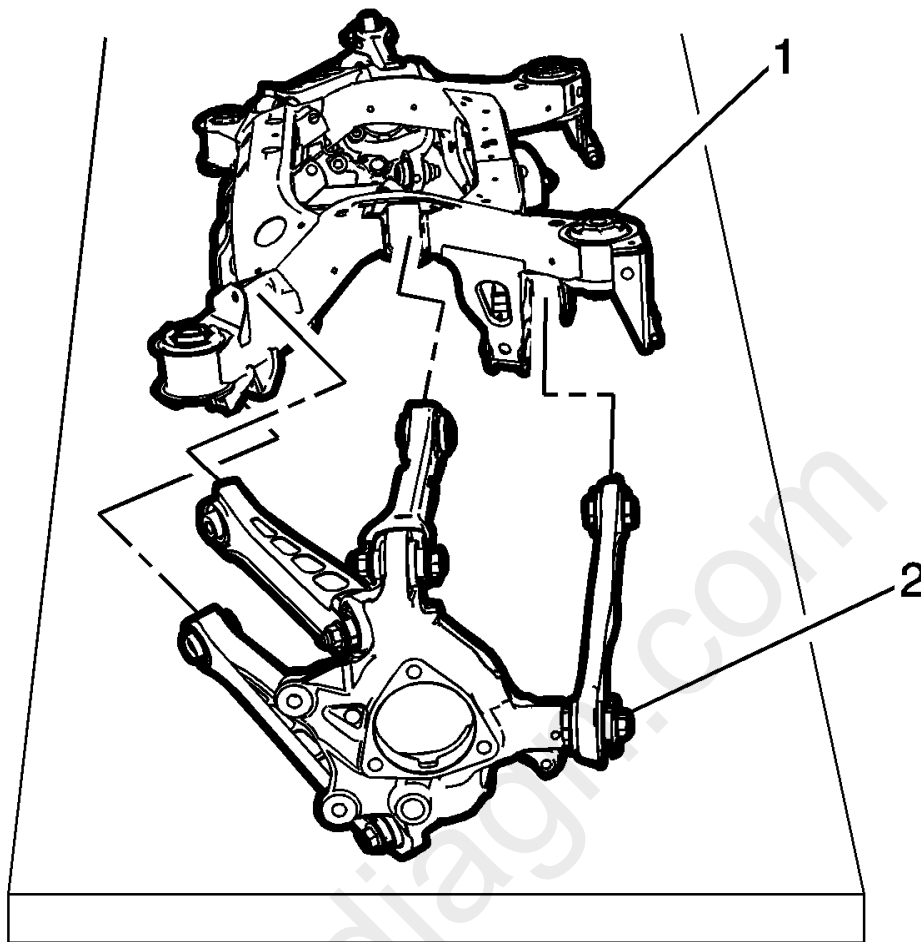


Fig. 64: Knuckle

Courtesy of GENERAL MOTORS COMPANY

1. Position the knuckle assembly (2) in the rear suspension cradle (1).

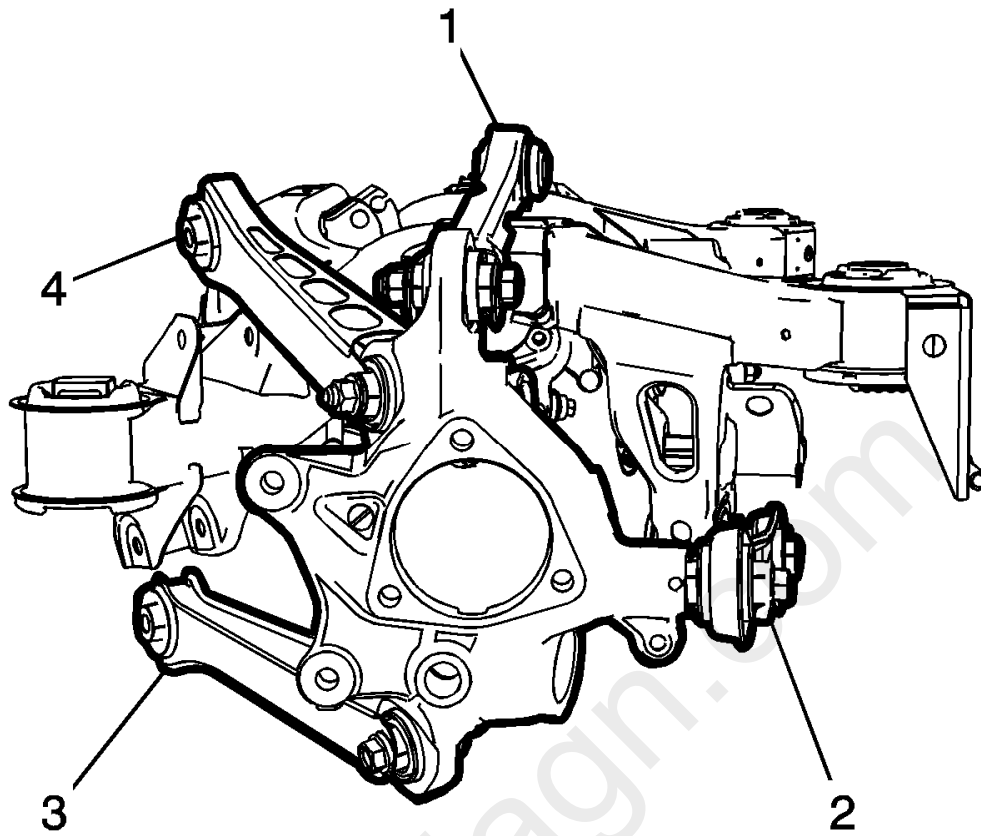


Fig. 65: Knuckle Components

Courtesy of GENERAL MOTORS COMPANY

2. Rotate the upper control arm (1), adjust link (2), lower control arm (3) and the upper control arm (4) to allow the installation of the knuckle assembly.

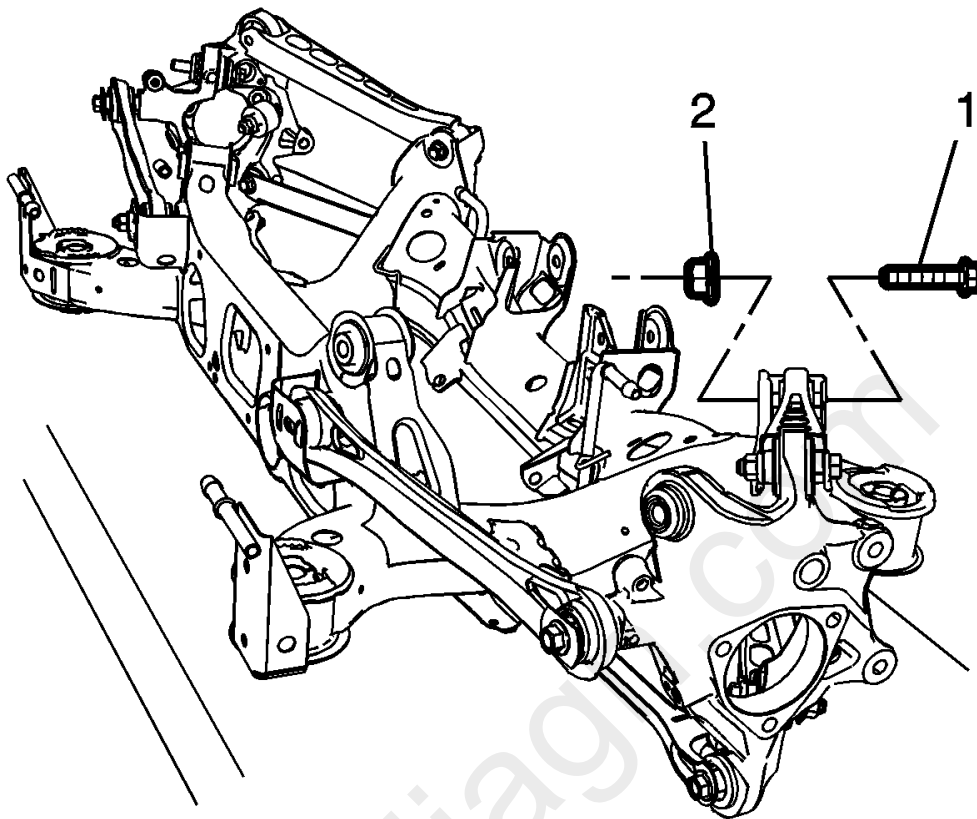


Fig. 66: Lower Control Arm Bolt
Courtesy of GENERAL MOTORS COMPANY

CAUTION: This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

3. Install the NEW lower trailing arm bolt (1) and nut (2).

CAUTION: Refer to Fastener Caution .

4. Tighten the nut to:
 - First Pass: 70 (52 lb ft)
 - Final Pass: plus 90 degrees

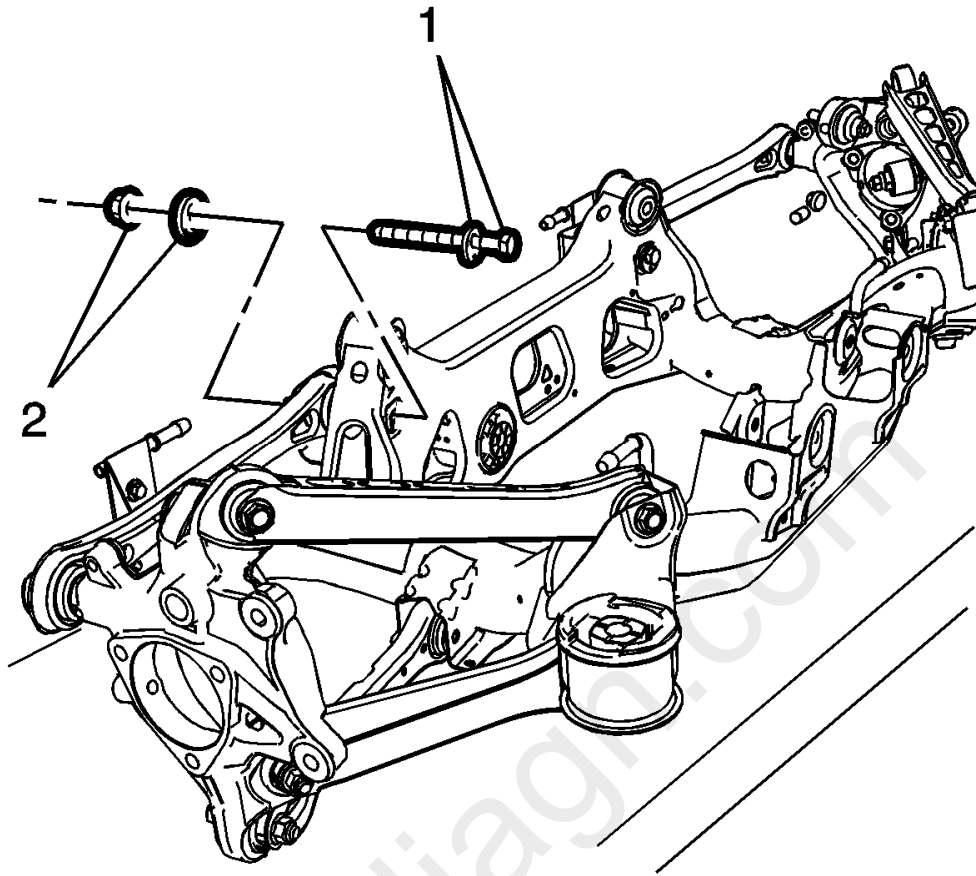


Fig. 67: Adjust Link Bolt And Washer
Courtesy of GENERAL MOTORS COMPANY

5. Install the NEW adjust link bolt and washer (1).
6. Install the nut and washer (2) then tighten the nut (2) to:
 - First Pass: 70 (52 lb ft)
 - Final Pass: plus 90 degrees
7. With the aide of an assistant, rotate the rear suspension cradle over.

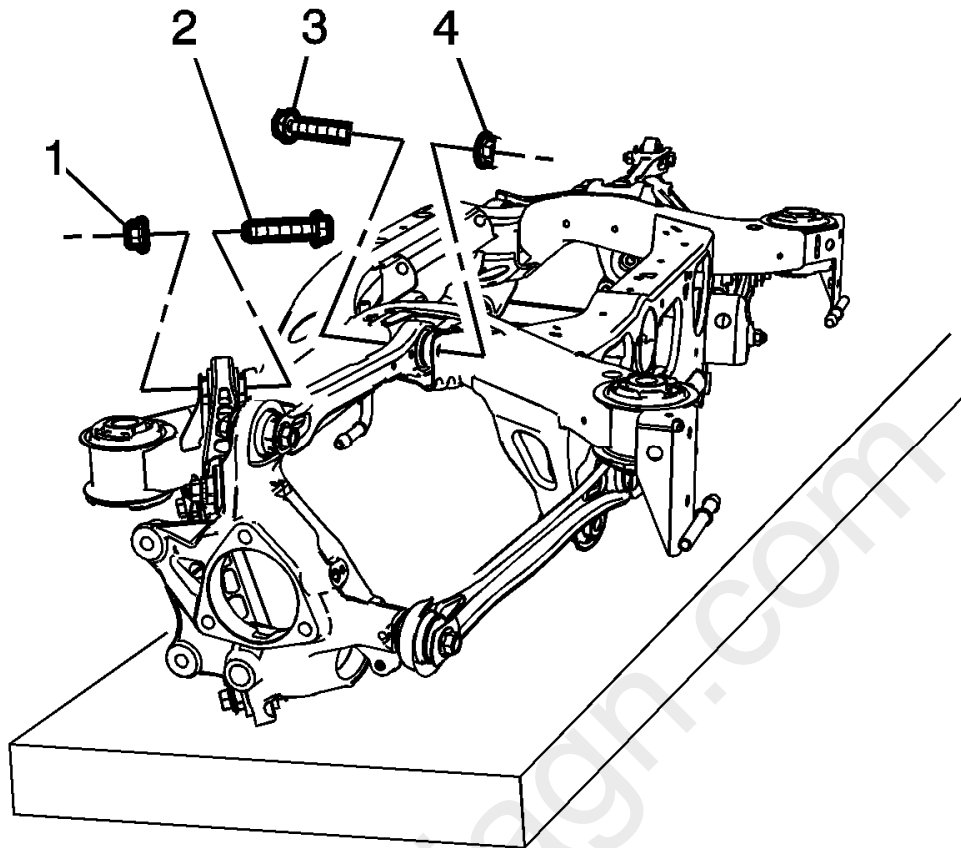


Fig. 68: Rear Suspension Components
Courtesy of GENERAL MOTORS COMPANY

8. Install the NEW upper trailing arm bolt (3).
9. Install the upper trailing arm nut (4) then tighten to:
 - First Pass: 70 (52 lb ft)
 - Final Pass: plus 90 degrees
10. Install the NEW upper control arm bolt (2).
11. Install the upper control arm nut (1) then tighten to:
 - First Pass: 70 (52 lb ft)
 - Final Pass: plus 90 degrees

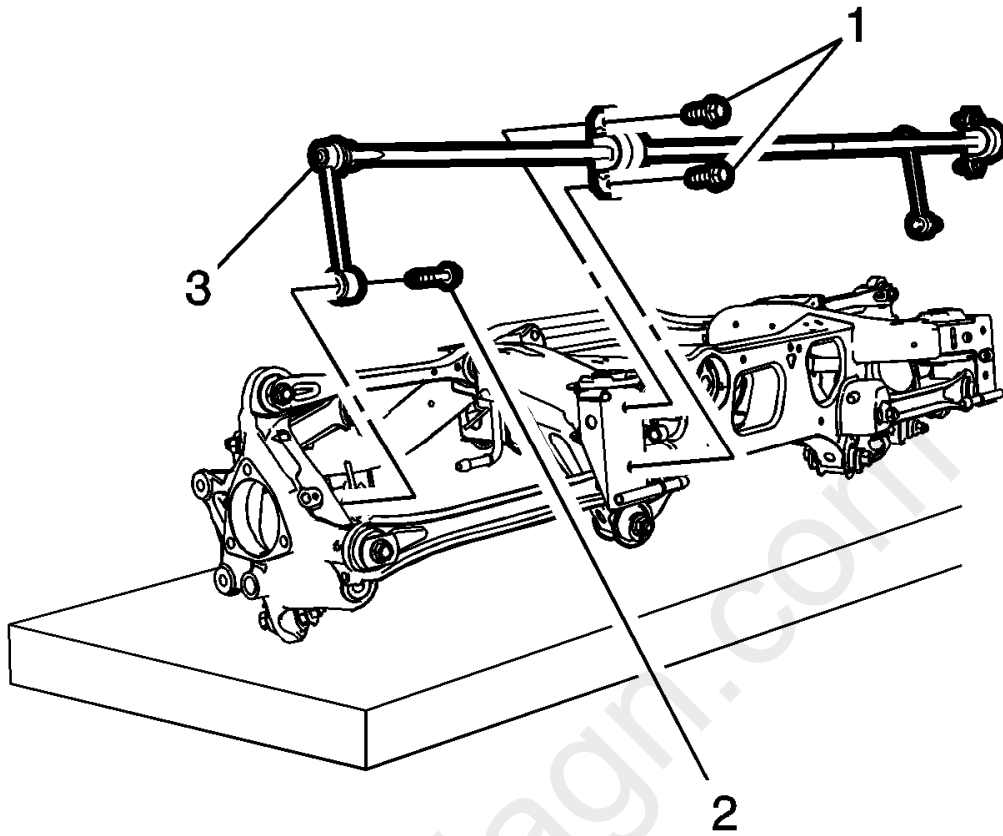


Fig. 69: Stabilizer Shaft Assembly
Courtesy of GENERAL MOTORS COMPANY

12. Position the stabilizer shaft assembly (3) on the rear suspension cradle.
13. Install the NEW stabilizer link bolt (2) then tighten to 58 (43 lb ft)

NOTE: The upper bolt will be the smaller of the two bolts.

14. Install the stabilizer shaft clamp bolts (1).
 - Tighten the upper bolt to: 22 (16 lb ft)
 - Tighten the lower bolt to: 58 (43 lb ft)

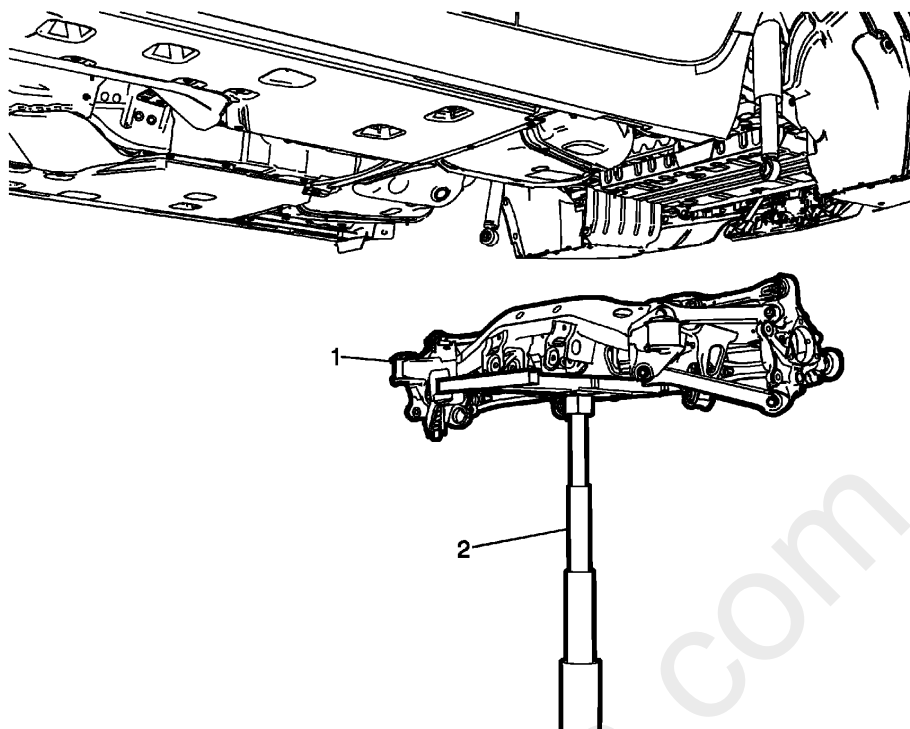


Fig. 70: Rear Suspension Cradle
Courtesy of GENERAL MOTORS COMPANY

15. Using the hydraulic jack (2), lift the rear suspension cradle into place (1).

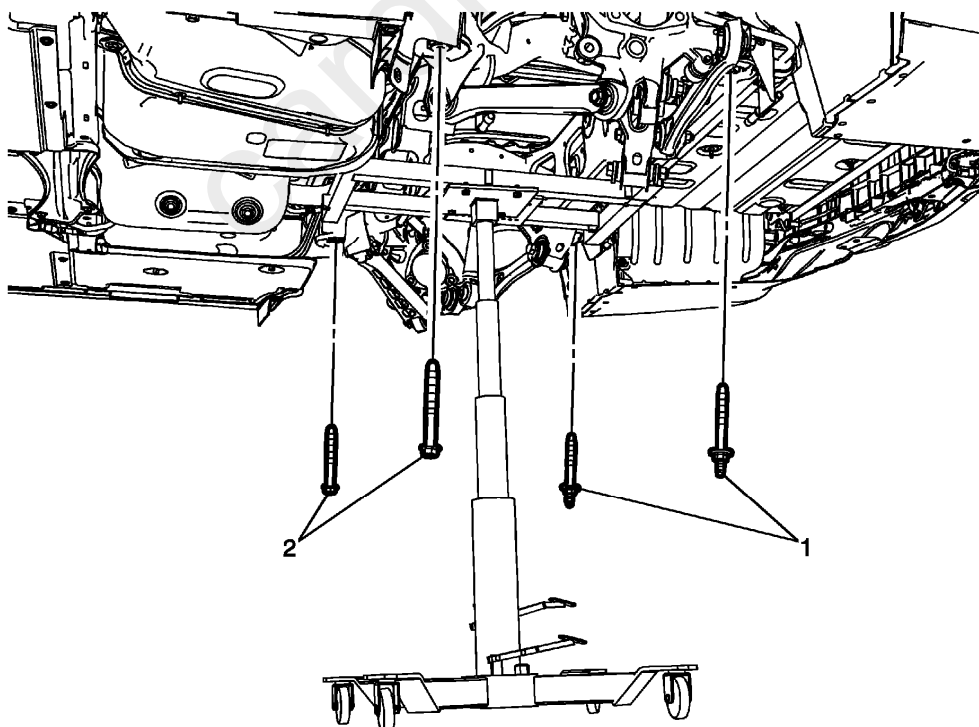


Fig. 71: Rear Suspension Cradle Mounting Bolts
Courtesy of GENERAL MOTORS COMPANY

16. Install the 2 NEW rear suspension cradle rear bolts (1) until they are finger tight.
17. Install the 2 NEW rear suspension cradle front bolts (2) until they are finger tight.
18. Tighten the 4 NEW rear suspension cradle bolts (1) and (2) to:
 - First Pass: 100 (74 lb ft)
 - Final Pass: plus 90 degrees
19. Remove the hydraulic jack.
20. Install the lower shock absorber bolts to the lower control arm. Refer to **Shock Absorber Replacement**
21. Install the front and rear suspension bracket to the rear suspension cradle. Refer to **Rear Suspension Bracket Replacement (Front)** , **Rear Suspension Bracket Replacement (Rear)** .
22. Install the electronic park brake control module. Refer to **Electronic Parking Brake Control Module Replacement** .
23. Install the rear parking brake anchor backing plate from the knuckles. Refer to **Rear Parking Brake Anchor Backing Plate Replacement** .
24. Install the differential carrier assembly in the vehicle. Refer to **Differential Carrier Assembly Replacement (226mm eLSD)** , **Differential Carrier Assembly Replacement (195mm Axle)** .
25. Install the rear brake caliper assembly. Refer to **Rear Brake Caliper Replacement** .
26. Install the park brake cables. Refer to **Parking Brake Rear Cable Replacement** .
27. Install the rear wheel drive shaft. Refer to **Rear Wheel Drive Shaft Replacement (LFX,LF3)** , **Rear Wheel Drive Shaft Replacement (LTG)** .
28. Install the rear wheel speed sensor. Refer to **Rear Wheel Speed Sensor Replacement** .
29. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
30. Install the rear tire front air deflector on the vehicle. Refer to **Rear Tire Front Air Deflector Replacement** .
31. Remove the supports and lower the vehicle.
32. Align the vehicle. Refer to **Wheel Alignment Specifications** .

REAR SUSPENSION SUPPORT MOUNT REPLACEMENT

Special Tools

DT-50806 Bushing Remove and Install Kit

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

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the tires and wheels. Refer to **Tire and Wheel Removal and Installation** .
3. Remove the rear suspension cradle. Refer to **Rear Suspension Cradle Replacement** .

4. With the aide of an assistant, position the rear suspension cradle on a suitable work bench.

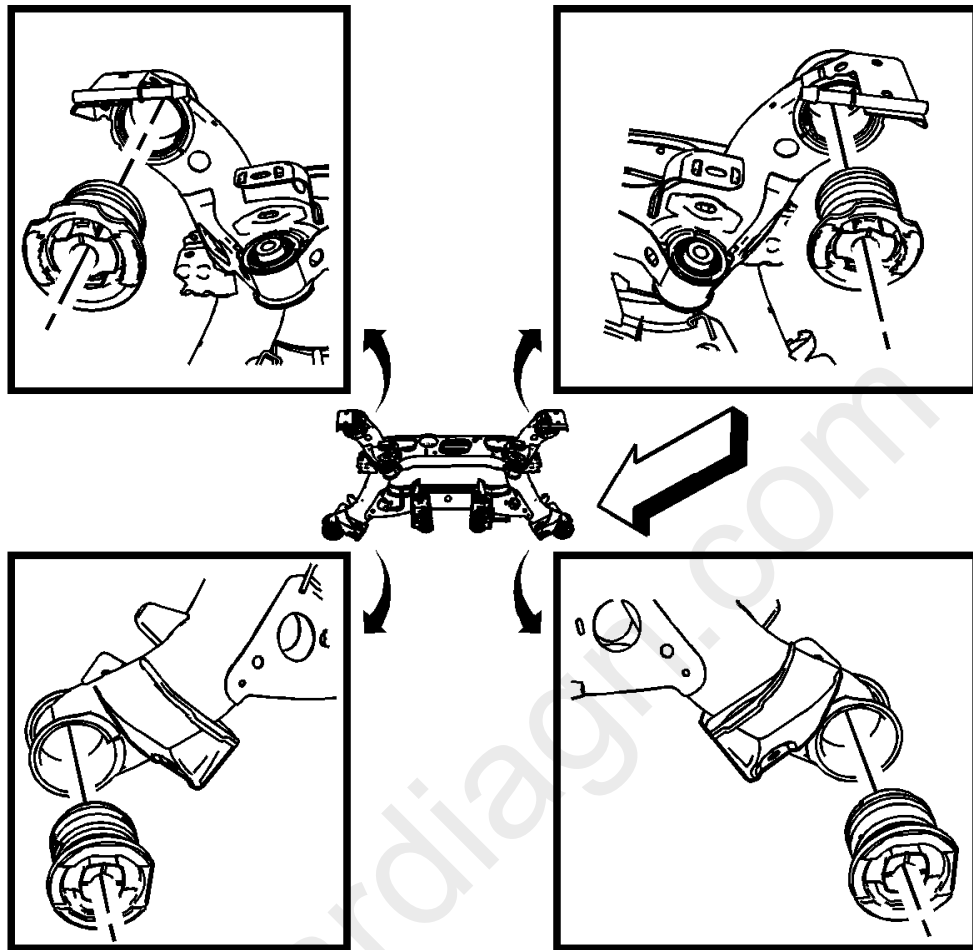


Fig. 72: Rear Suspension Support Mount
Courtesy of GENERAL MOTORS COMPANY

NOTE: Note the position of the rear suspension rear mount cut-out side and the rear suspension front mount flat side before removal.

- 5.
6. Using the appropriate tool, cut two slots on either side of the rear suspension support mount.

NOTE: When cutting out the mount , some hydraulic fluid will flow out of the mount.

7. Collapse the support mount and remove it from the rear suspension cradle.

Installation Procedure

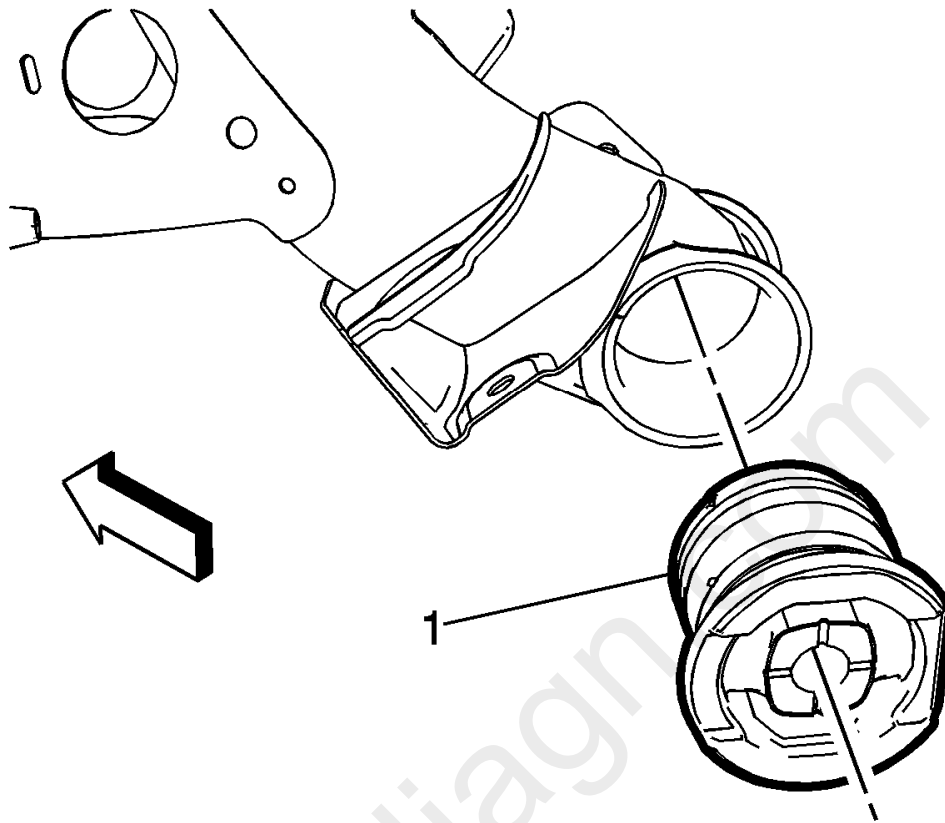


Fig. 73: Rear Suspension Support Mount
Courtesy of GENERAL MOTORS COMPANY

NOTE: For the front support mounts, ensure the flat side is in the correct position facing the passenger side of the vehicle before installing it.

1. Position the rear suspension support mount (1) in the rear suspension support.

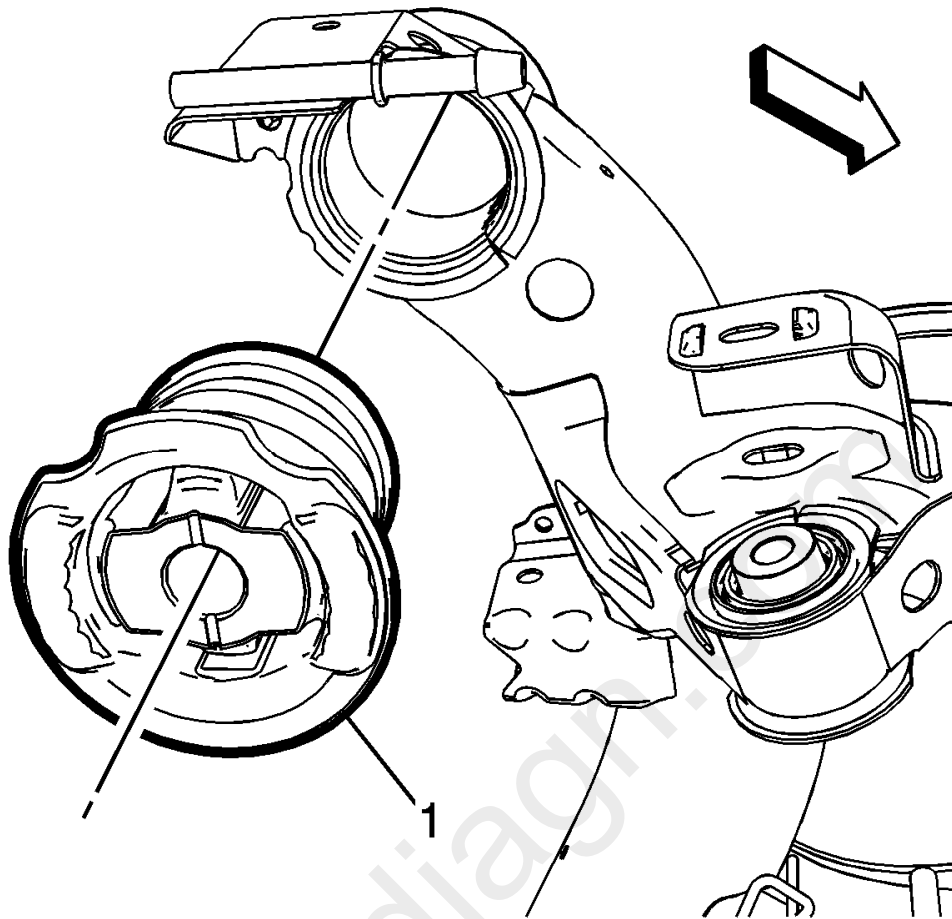


Fig. 74: Rear Suspension Support Mount
Courtesy of GENERAL MOTORS COMPANY

NOTE: For the rear support mounts, ensure the cut-out side is in the correct position facing the rear of the vehicle before installing it.

2. Position the rear suspension support mount (1) in the rear suspension support.

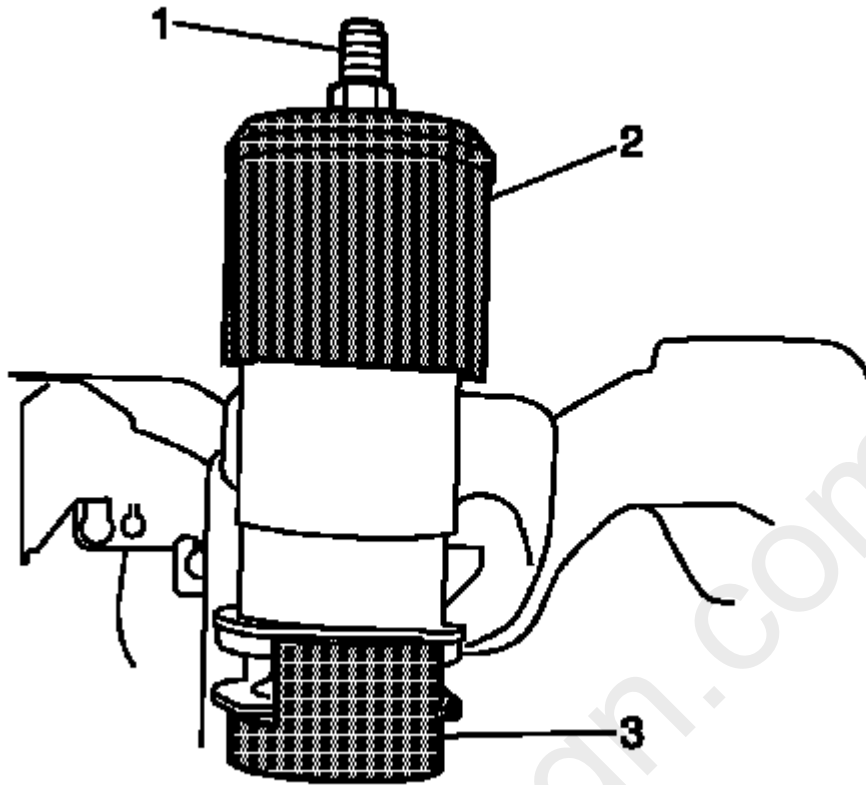


Fig. 75: Removing/Installing Bushings
Courtesy of GENERAL MOTORS COMPANY

NOTE: Apply a small amount of silicone grease on the support mount prior to installing.

3. Using the **DT-50806** kit (1), (2), and (3), install the rear suspension support bushings.
4. With the aid of an assistant, position the rear support onto the transmission jack and firmly secure the support to the jack with straps.
5. Install the rear suspension cradle. Refer to **Rear Suspension Cradle Replacement**.
6. Install the tires and wheels. Refer to **Tire and Wheel Removal and Installation** .
7. Remove the support and lower the vehicle.
8. Check the rear alignment. Refer to **Wheel Alignment Measurement** .

FRONT WHEELHOUSE LINER REPLACEMENT

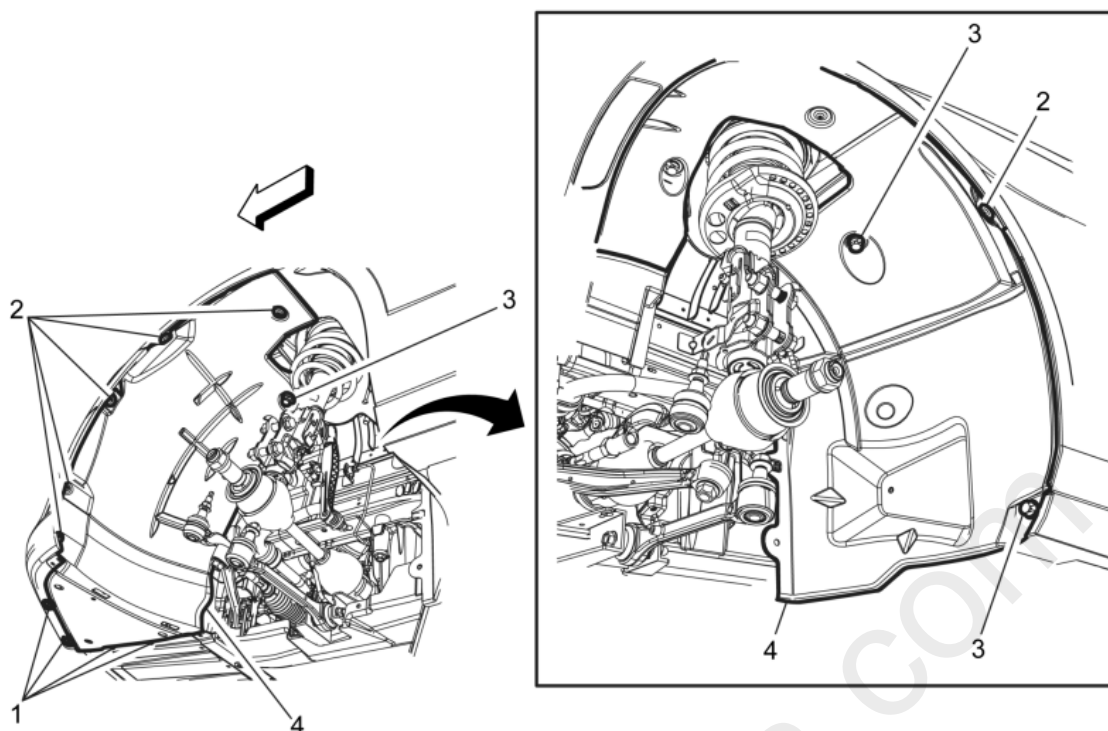


Fig. 76: Front Wheelhouse Liners
Courtesy of GENERAL MOTORS COMPANY

Front Wheelhouse Liner Replacement

Callout	Component Name
Preliminary Procedure	
1. Remove the engine lower front splash shield. Refer to <u>Engine Lower Front Splash Shield Replacement</u>. 2. Remove the front tire front air deflector. Refer to <u>Front Tire Front Air Deflector Replacement</u>.	
1	Front Bumper Fascia and Air Deflector Fasteners (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 (22 lb in)
2	Front Wheelhouse Liner Fasteners (Qty: 6) Tighten 2.5 (22 lb in)
3	Front Wheelhouse Liner Push-In Retainer (Qty: 3)
4	Front Wheelhouse Liner

REAR WHEELHOUSE LINER REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .
2. Remove the rear wheel. Refer to Tire and Wheel Removal and Installation .
3. Remove the rear tire front air deflector. Refer to Rear Tire Front Air Deflector Replacement.

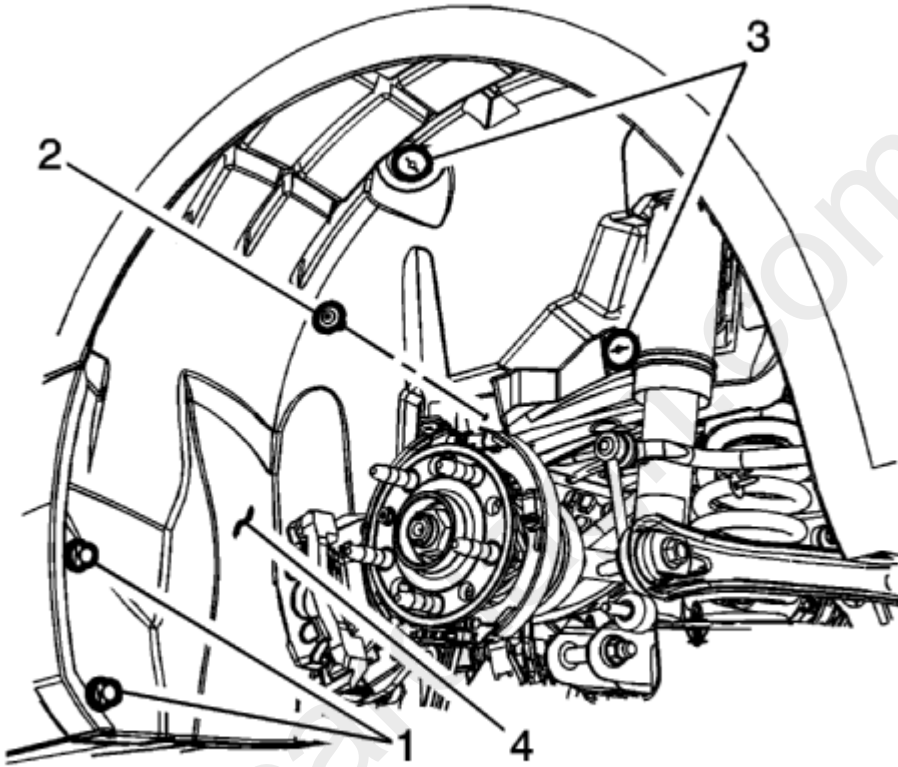


Fig. 77: Rear Wheelhouse Liner Retainers
Courtesy of GENERAL MOTORS COMPANY

4. Remove the front plastic tree retainers (1) and the inside retainers (3), from the rear wheelhouse liner (4).
5. Remove the center fastener (2).

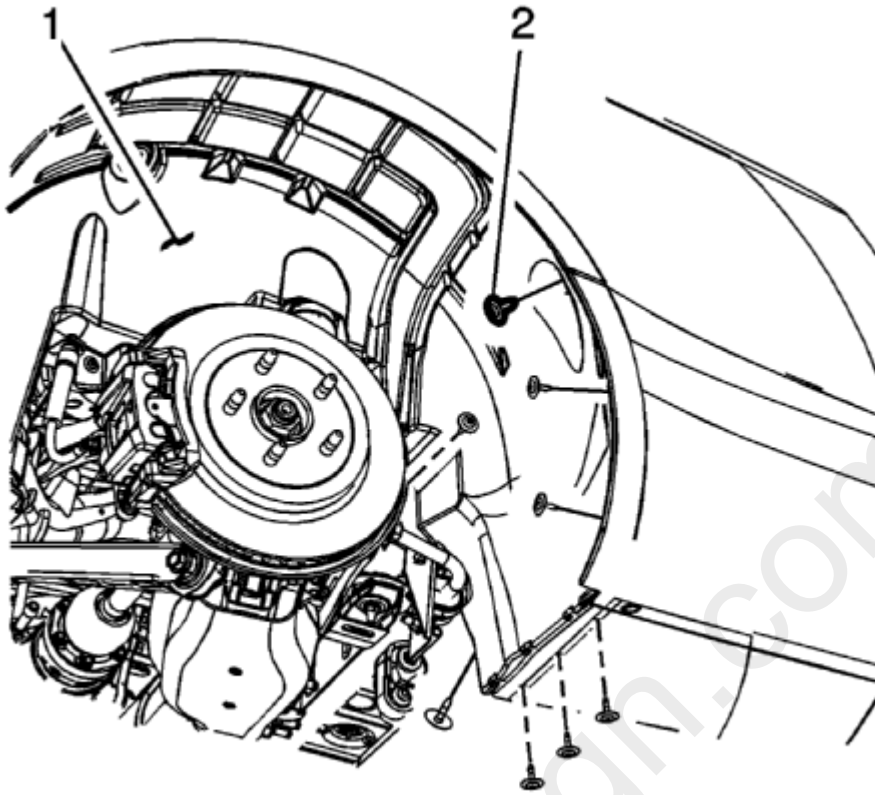


Fig. 78: Rear Wheelhouse Liner Retainers
Courtesy of GENERAL MOTORS COMPANY

6. Remove the 8 rear fasteners (2) and remove the rear wheelhouse liner (1) from the vehicle.

Installation Procedure

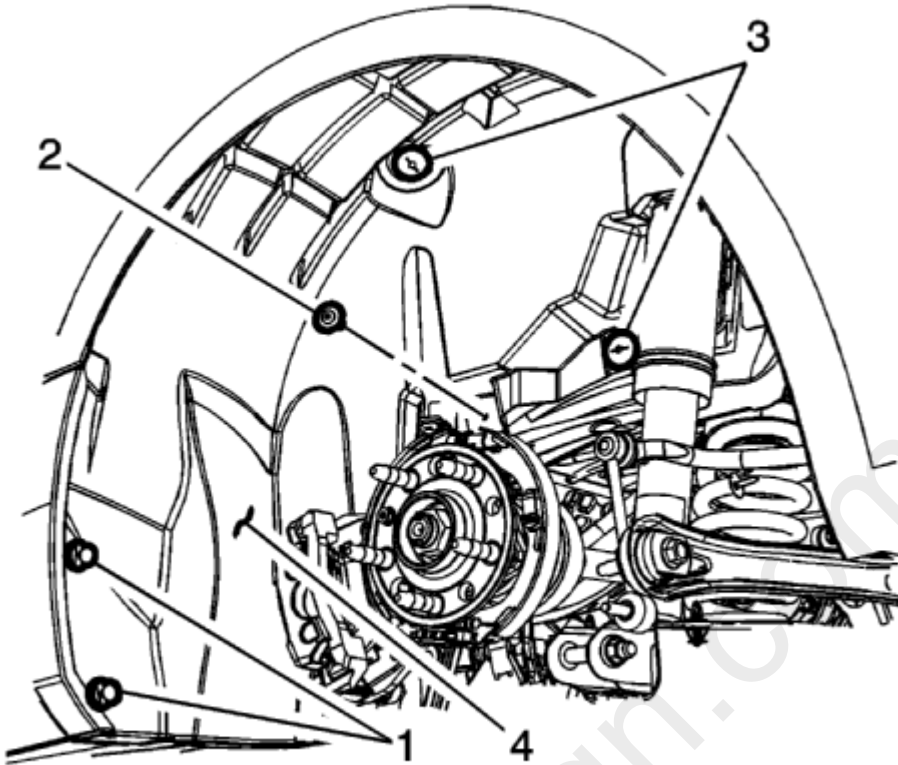


Fig. 79: Rear Wheelhouse Liner Retainers
Courtesy of GENERAL MOTORS COMPANY

1. Install the rear wheelhouse liner (4) into position with the retainers (3).

CAUTION: Refer to Fastener Caution .

2. Install the fastener (2) and tighten to 2.5 (22 lb in).
3. Install the front plastic tree retainers (1).

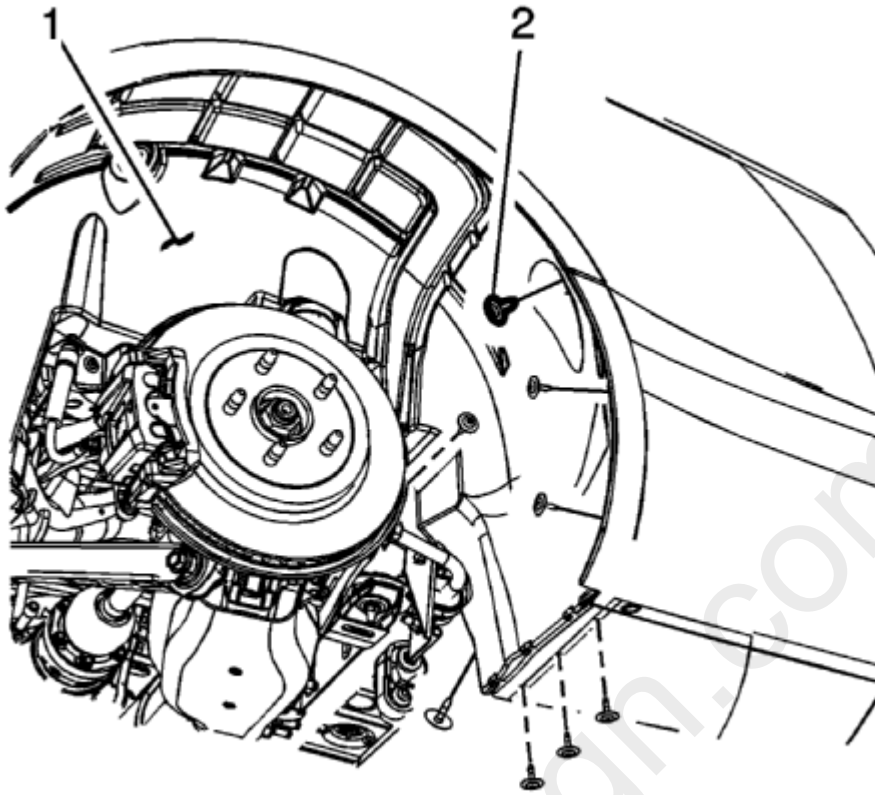


Fig. 80: Rear Wheelhouse Liner Retainers
Courtesy of GENERAL MOTORS COMPANY

4. Install the (8) fasteners (2) and tighten to 2.5 (22 lb in).
5. Install the rear tire front air deflector. Refer to **Rear Tire Front Air Deflector Replacement**.
6. Install the rear wheel. Refer to **Tire and Wheel Removal and Installation** .

FRONT TIRE FRONT AIR DEFLECTOR REPLACEMENT

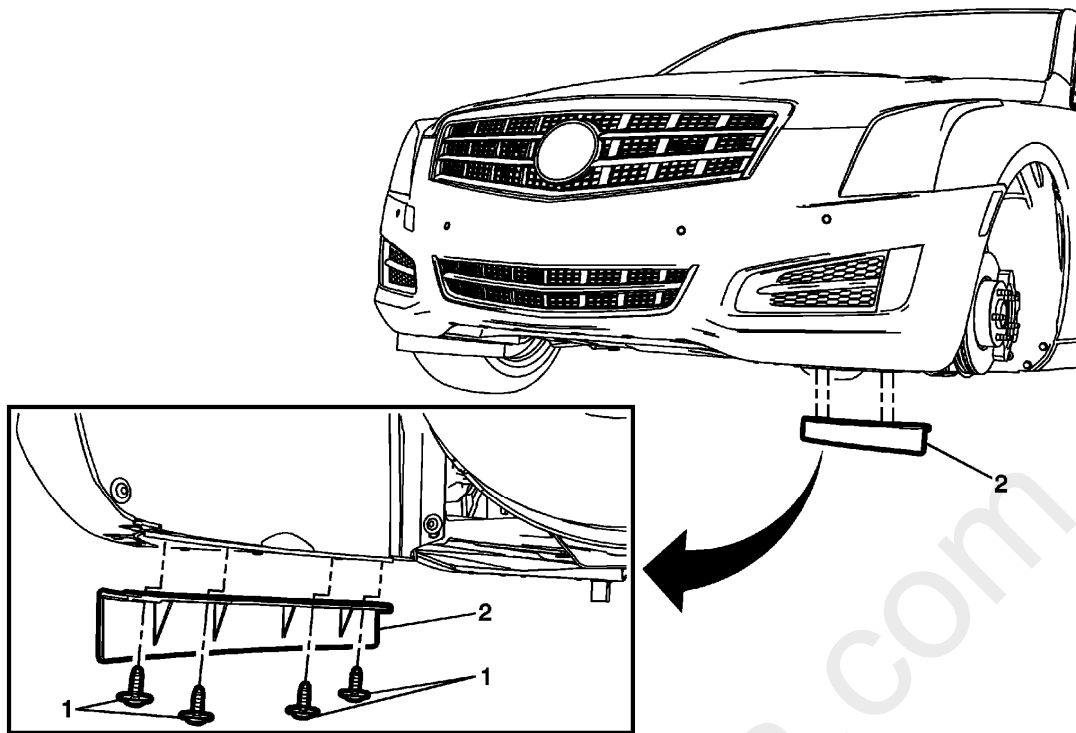


Fig. 81: Front Tire Front Air Deflector
 Courtesy of GENERAL MOTORS COMPANY

Front Tire Front Air Deflector Replacement

Callout	Component Name
Preliminary Procedure	
Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
1	Front Tire Front Air Deflector Bolt (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 2.5 (22 lb in)
2	Front Tire Front Air Deflector

REAR TIRE FRONT AIR DEFLECTOR REPLACEMENT



Fig. 82: Rear Tire Front Air Deflector
 Courtesy of GENERAL MOTORS COMPANY

Rear Tire Front Air Deflector Replacement

Callout	Component Name
1	Rear Tire Front Air Deflector Screw (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> .
2	Rear Tire Front Air Deflector

FLOOR PANEL NUMBER 2 CROSS BAR REINFORCEMENT REPLACEMENT

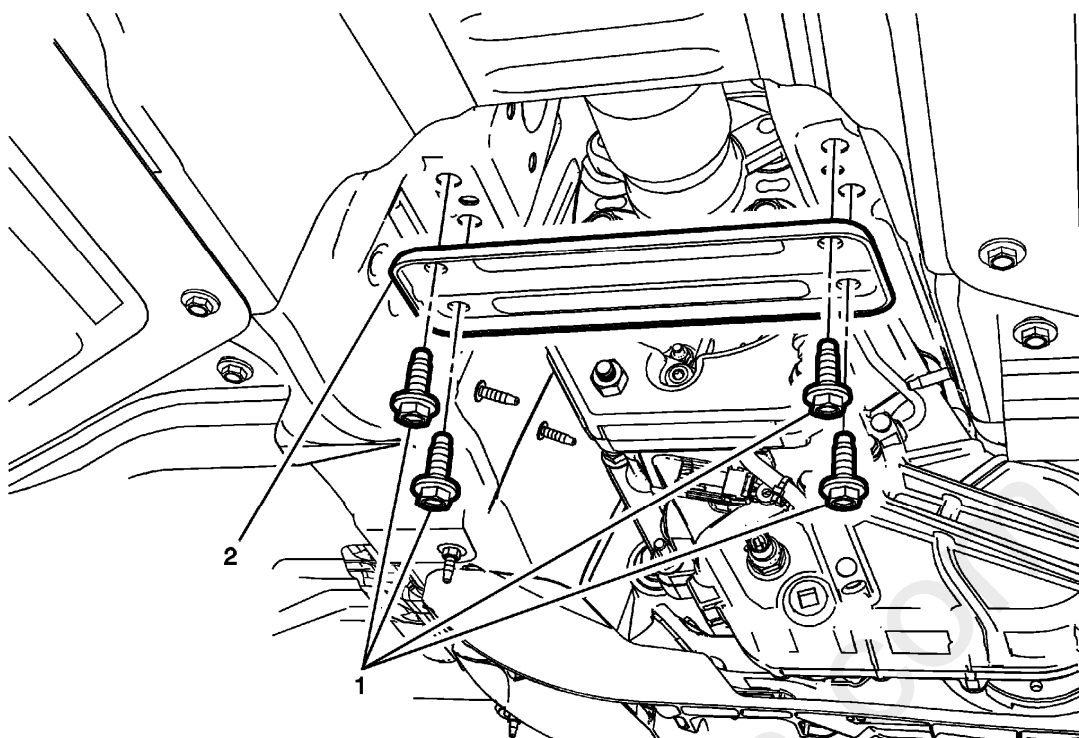


Fig. 83: Floor Panel Number 2 Cross Bar Reinforcement
 Courtesy of GENERAL MOTORS COMPANY

Floor Panel Number 2 Cross Bar Reinforcement Replacement

Callout	Component Name
Preliminary Procedure 1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> 2. If equipped with a V6 engine, remove the exhaust system. Refer to <u>Exhaust System Replacement (LF3)</u> , <u>Exhaust System Replacement (LFX)</u>	
1	Floor Panel Number 2 Cross Bar Fasteners (Qty 4) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 22 (16 lb ft)
2	Floor Panel Number 2 Cross Bar

FLOOR PANEL NUMBER 4 CROSS BAR REPLACEMENT

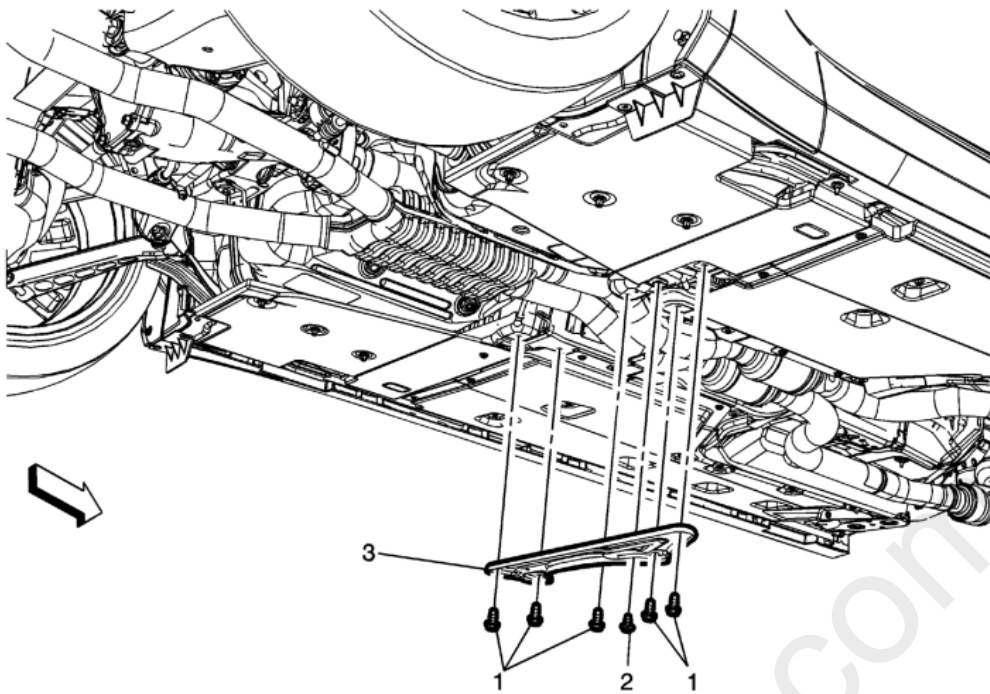


Fig. 84: Floor Panel Number 4 Cross Bar
 Courtesy of GENERAL MOTORS COMPANY

Floor Panel Number 4 Cross Bar Replacement

Callout	Component Name
Preliminary Procedures	
Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
1	Floor Panel Number 4 Cross Bar Fastener (Qty: 5) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 22 (16 lb ft)
2	Floor Panel Number 4 Cross Bar Fastener Tighten 9 (80 lb in)
3	Floor Panel Number 4 Cross Bar

TRANSMISSION SUPPORT REPLACEMENT (RWD)

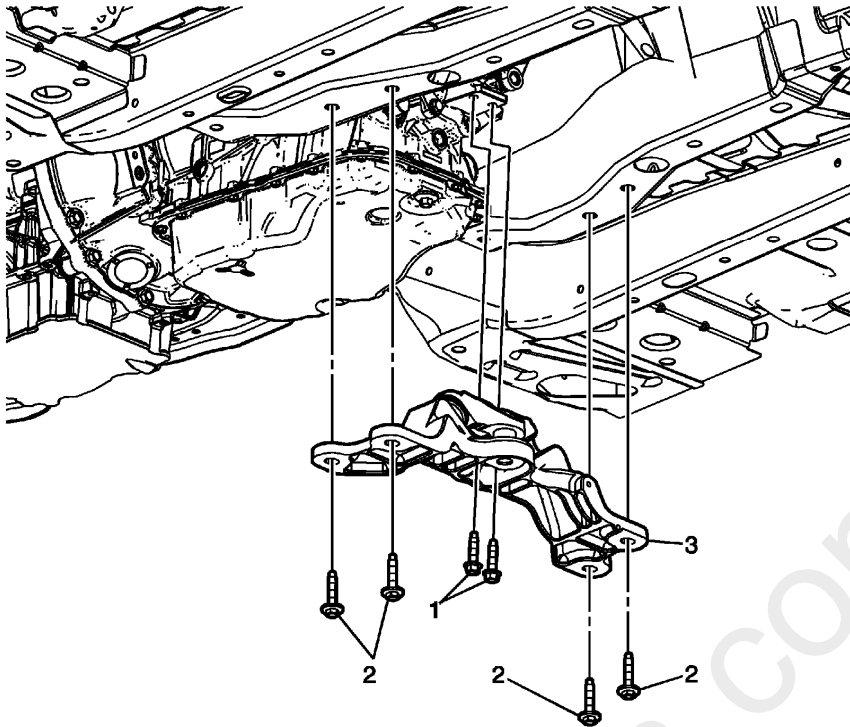


Fig. 85: Transmission Support Replacement (RWD)
 Courtesy of GENERAL MOTORS COMPANY

Transmission Support Replacement (RWD)

Callout	Component Name
Preliminary Procedures 1. Raise the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Support the transmission.	
1	Transmission Mount Bolt (Qty: 2) CAUTION: Refer to <u>Fastener Caution</u> . Tighten 60 (44 lb ft)
2	Transmission Support Bolt (Qty: 4) Tighten 60 (44 lb ft)
3	Transmission Support

TRANSMISSION SUPPORT REPLACEMENT (AWD)

Removal Procedure

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .

NOTE: The engine mounts must NOT bend or deflect from the vertical position, damage to the mount will occur.

2. Support the transmission with a suitable jack and a block of wood.

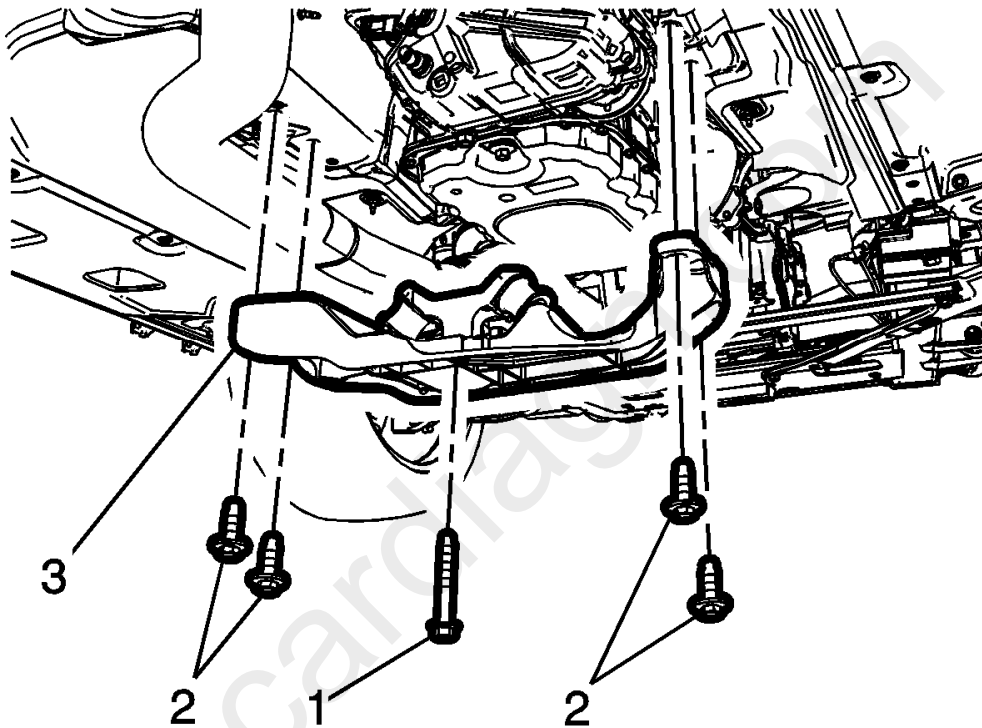


Fig. 86: Transmission Support
Courtesy of GENERAL MOTORS COMPANY

3. Remove the travel mount bolt (1).
4. Remove the transmission support retaining bolts (2), then remove the transmission support (3) from the vehicle.

Installation Procedure

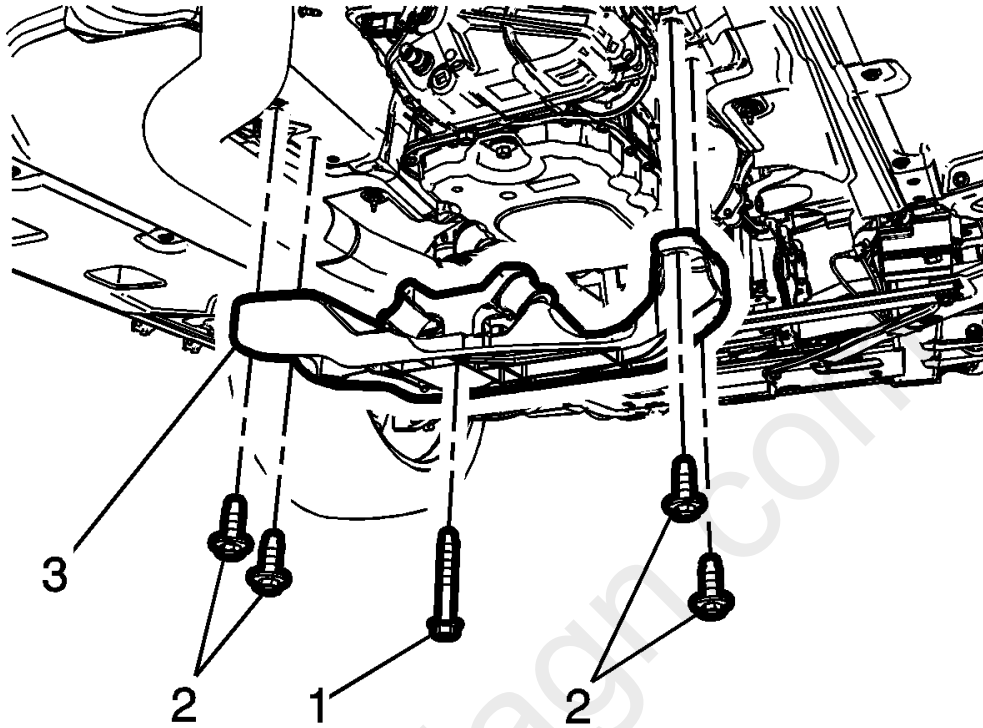


Fig. 87: Transmission Support
Courtesy of GENERAL MOTORS COMPANY

1. Install the transmission support (3).

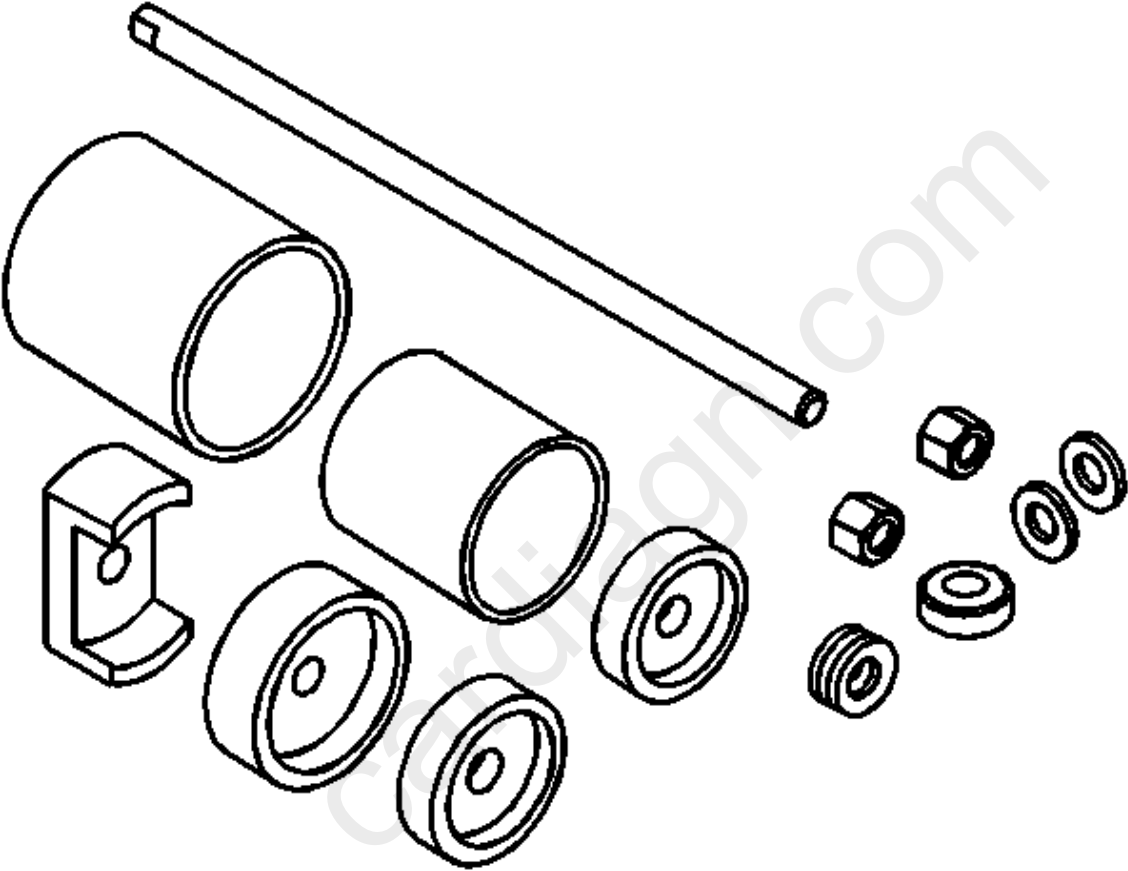
CAUTION: Refer to Fastener Caution .

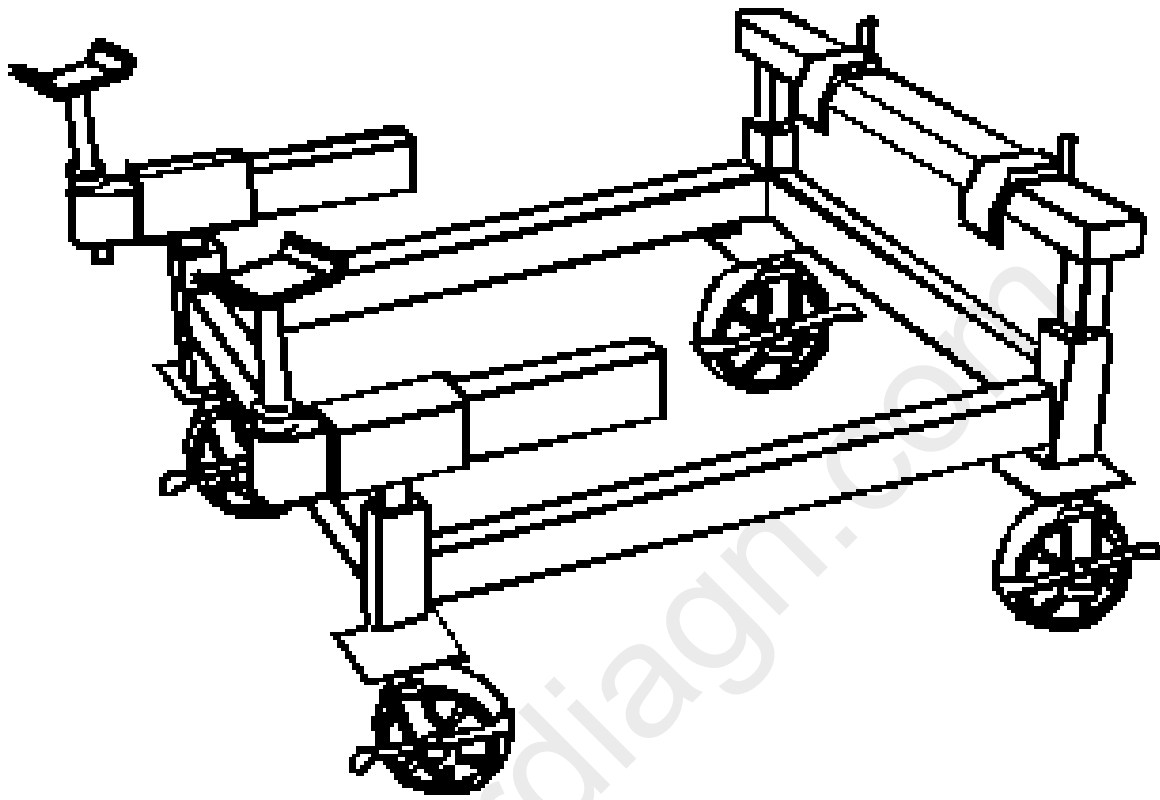
NOTE: The engine mounts must NOT bend or deflect from the vertical position, damage to the mount will occur.

2. Install the transmission support bolts (2) and tighten to 60 (44 lb ft).
3. Install the transmission travel mount bolt (1) and tighten to 100 (74 lb ft).
4. Remove the support from under the transmission.
5. Lower the vehicle.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration	Tool Number/ Description
 The illustration shows the components of the DT 50806 Bushing Remove and Install Kit. It includes two large cylindrical bushings, a long thin rod, a C-clamp, five smaller cylindrical bushings, and five hex nuts. A faint watermark 'www.motortrade.com' is visible across the center of the illustration.	DT 50806 Bushings Remove and Install Kit



J 39580
Engine
Support
Stand