

2017 SUSPENSION

Front Suspension - Bolt EV

SPECIFICATIONS

FASTENER SPECIFICATIONS

Reusable Threaded Fastener Tightening Specifications

Application	Specification
	Metric (English)
NOTE: <i>All fasteners listed in this table can be reused after removal.</i>	
Front Lower Control Arm Front Bolt	120 N.m (89 lb ft)
Front Lower Control Arm Rear Nut	100 N.m (74 lb ft)
Front Stabilizer Shaft Link Nut	100 N.m (74 lb ft)
Front Suspension Strut Mount Nut	22 N.m (16 lb ft)
Front Suspension Strut Nut	160 N.m (118 lb ft)
Front Suspension Strut Upper Mounting Nut	85 N.m (63 lb ft)
Front Wheel Hub Bolt	
• First Pass:	65 N.m (48 lb ft)
• Final Pass:	30 - 45 Degrees
Steering Knuckle Nut	
• First Pass:	30 N.m (22 lb ft)
• Final Pass:	120 - 135 Degrees

REPAIR INSTRUCTIONS

STABILIZER SHAFT REPLACEMENT

Removal Procedure

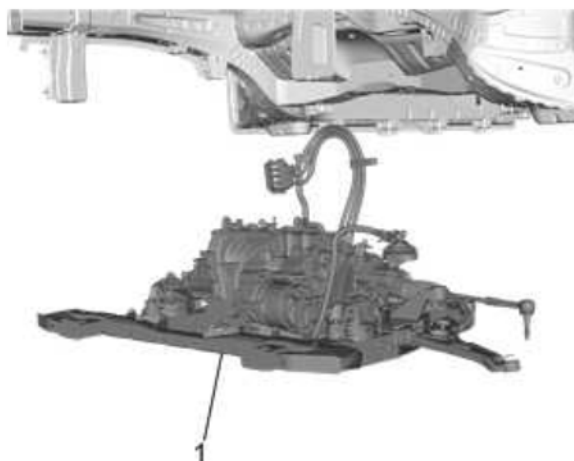


Fig. 1: Automatic Transmission and Drivetrain and Front Suspension Frame Assembly
Courtesy of GENERAL MOTORS COMPANY

1. Remove Automatic Transmission and Drivetrain and Front Suspension Frame Assembly (1). Remove - Refer to **Drivetrain and Front Suspension Frame Removal and Installation**

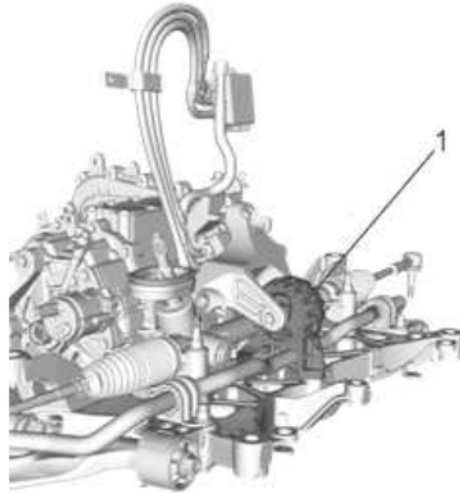


Fig. 2: Drive Motor Rear Mount
Courtesy of GENERAL MOTORS COMPANY

2. Remove Drive Motor Rear Mount (1). Refer to **Drive Motor Rear Mount Replacement**

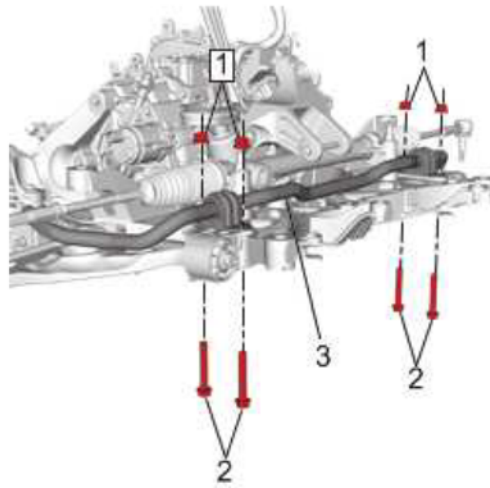


Fig. 3: Front Lower Control Arm Rear Nuts, Bolts And Front Stabilizer Shaft
Courtesy of GENERAL MOTORS COMPANY

3. Remove Front Lower Control Arm Rear Nuts (1) (Qty: 4)
4. Remove Front Lower Control Arm Rear Bolts (2) (Qty: 4)
5. Remove Front Stabilizer Shaft (3) @ Drivetrain and Front Suspension Crossmember

Installation Procedure

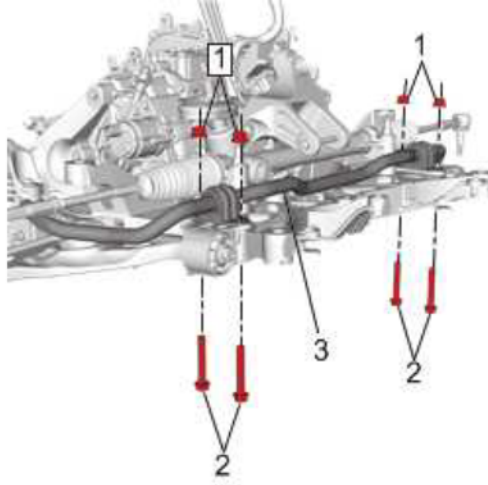


Fig. 4: Front Lower Control Arm Rear Nuts, Bolts And Front Stabilizer Shaft
 Courtesy of GENERAL MOTORS COMPANY

1. Install Front Stabilizer Shaft (3) @ Drivetrain and Front Suspension Crossmember
2. Install Front Lower Control Arm Rear Bolts (2) (Qty: 4)

CAUTION: Refer to [Fastener Caution](#)

3. Install and tighten Front Lower Control Arm Rear Nuts (1) (Qty: 4) to 100 N.m (74 lb ft)

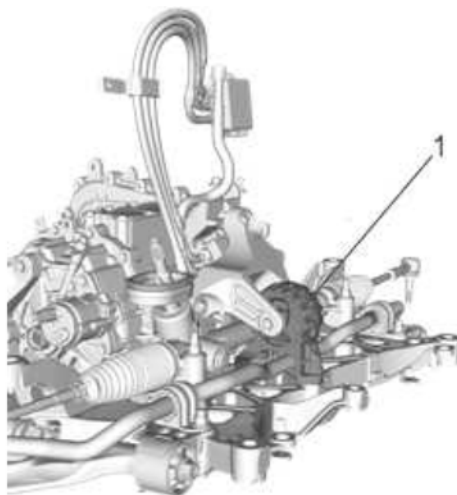
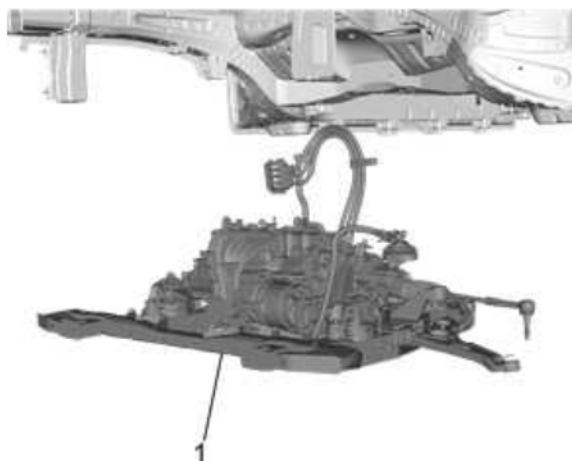


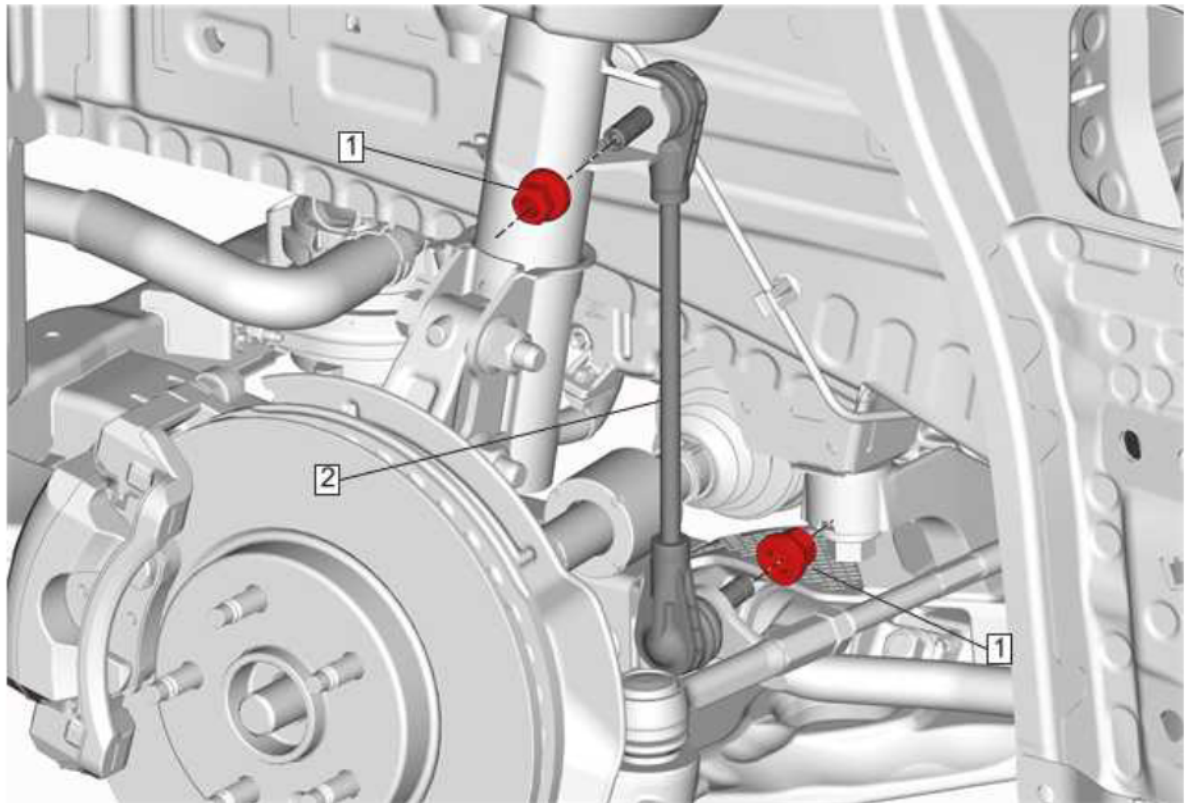
Fig. 5: Drive Motor Rear Mount
 Courtesy of GENERAL MOTORS COMPANY

4. Install Drive Motor Rear Mount (1). Refer to [Drive Motor Rear Mount Replacement](#)



5. Install Automatic Transmission and Drivetrain and Front Suspension Frame Assembly (1). Refer to [Drivetrain and Front Suspension Frame Removal and Installation](#)

STABILIZER SHAFT LINK REPLACEMENT



[Fig. 7: Stabilizer Shaft Link](#)

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 front tire and wheel assembly. Refer to Tire and Wheel Removal and Installation	
1	Front Stabilizer Shaft Link Nut (Qty: 2) CAUTION: Refer to Fastener Caution . Tighten 100 N.m (74 lb ft)
2	Front Stabilizer Shaft Link Procedure 1. Install the front tire and wheel assembly. Refer to Tire and Wheel Removal and Installation 2. Lower the vehicle.

FRONT WHEEL BEARING AND HUB REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#)

2. Remove the front tire and wheel assembly. Refer to [Tire and Wheel Removal and Installation](#)

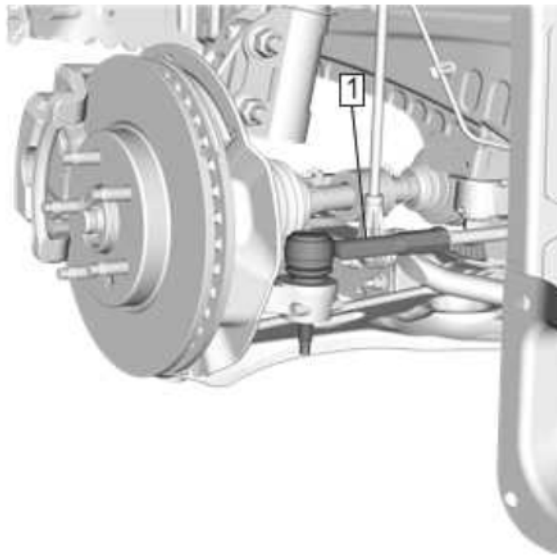


Fig. 8: Steering Linkage Outer Tie Rod

Courtesy of GENERAL MOTORS COMPANY

3. Separate Steering Linkage Outer Tie Rod (1) @ Steering Knuckle. Refer to [Steering Linkage Outer Tie Rod Replacement](#)

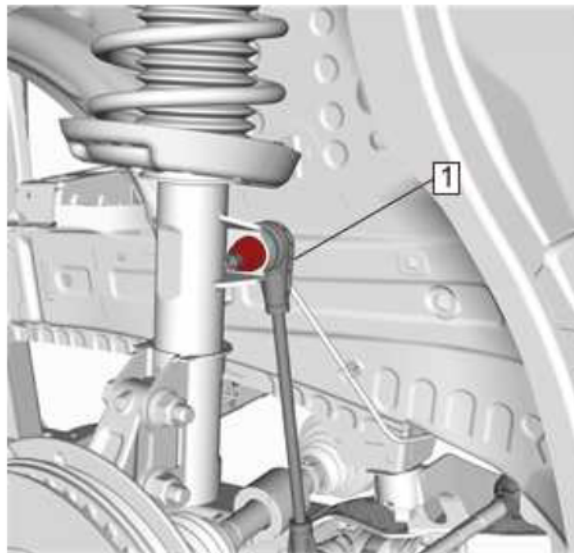
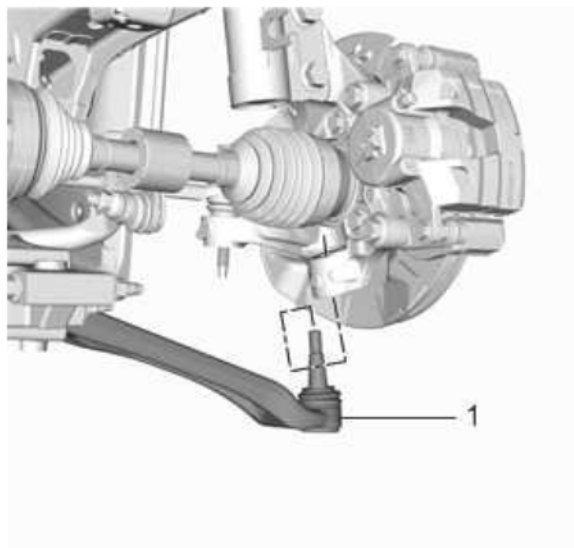


Fig. 9: Front Stabilizer Shaft Link

Courtesy of GENERAL MOTORS COMPANY

4. Separate Front Stabilizer Shaft Link (1) @ Front Suspension Strut. Refer to [Stabilizer Shaft Link Replacement](#)



5. Separate Front Lower Control Arm Ball Joint (1) @ Steering Knuckle. Refer to [**Lower Control Arm Replacement**](#)

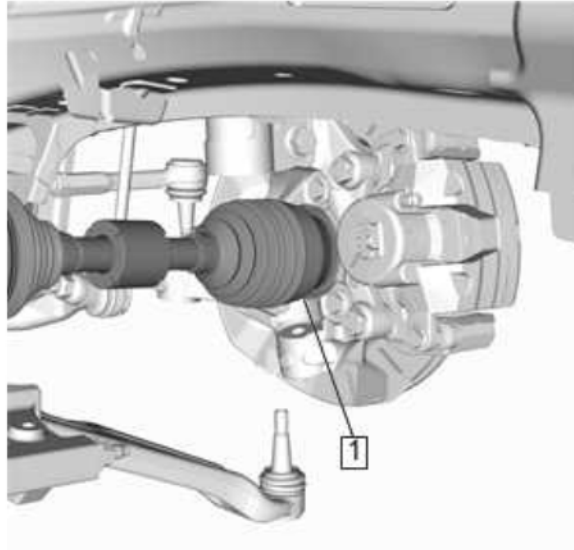


Fig. 11: Front Wheel Drive Shaft
Courtesy of GENERAL MOTORS COMPANY

6. Separate Front Wheel Drive Shaft (1) @ Front Wheel Hub. Refer to [**Front Wheel Drive Shaft Replacement**](#)

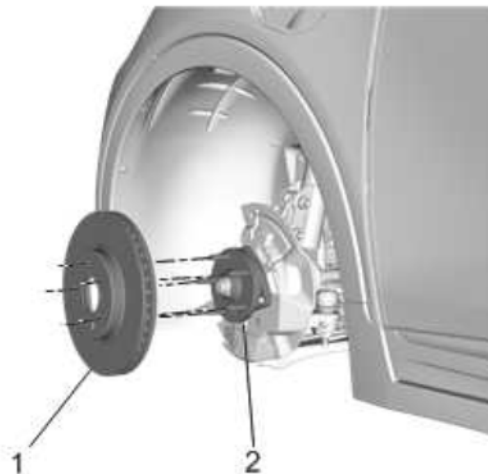


Fig. 12: Front Brake Rotor And Front Wheel Hub
Courtesy of GENERAL MOTORS COMPANY

7. Remove Front Brake Rotor (1) @ Front Wheel Hub (2). Refer to [**Front Brake Rotor Replacement**](#)

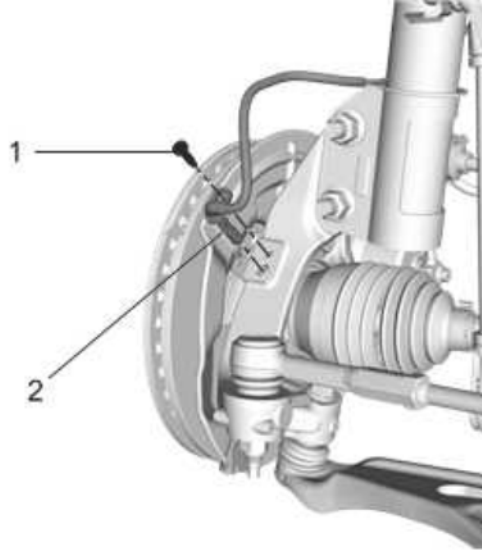


Fig. 13: Front Wheel Speed Sensor And Bolt
Courtesy of GENERAL MOTORS COMPANY

8. Remove Front Wheel Speed Sensor Bolt (1) @ Steering Knuckle
9. Remove Front Wheel Speed Sensor (2) @ Steering Knuckle

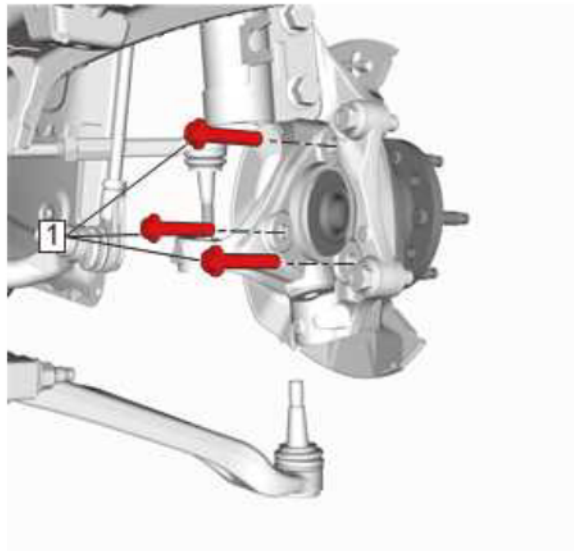


Fig. 14: Front Wheel Hub Bolts
Courtesy of GENERAL MOTORS COMPANY

10. Remove Front Wheel Hub Bolts (1) (Qty: 3)

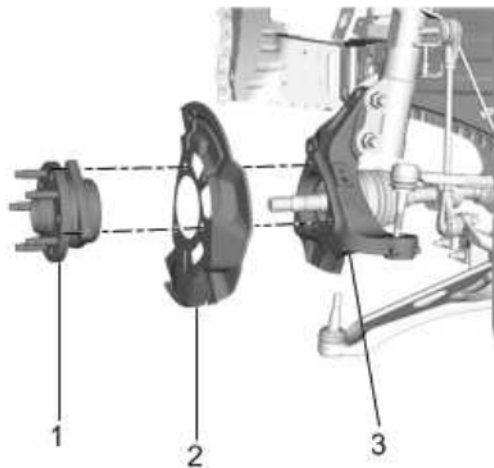


Fig. 15: Front Wheel Bearing/Hub Assembly, Brake Shield And Steering Knuckle
Courtesy of GENERAL MOTORS COMPANY

11. Remove Front Wheel Bearing and Hub Assembly (1) @ Steering Knuckle (3)
12. Remove Front Brake Shield (2) @ Steering Knuckle (3)

Installation Procedure

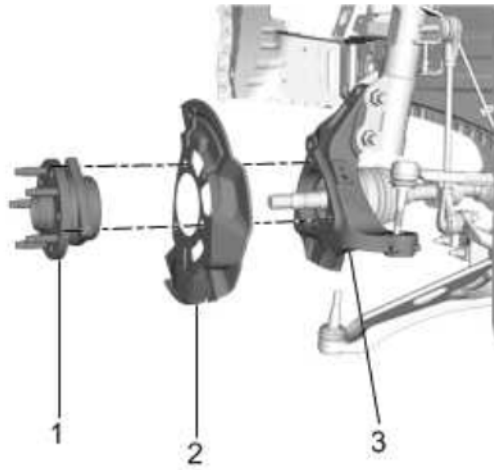


Fig. 16: Front Wheel Bearing/Hub Assembly, Brake Shield And Steering Knuckle
Courtesy of GENERAL MOTORS COMPANY

1. Install Front Brake Shield (2) @ Steering Knuckle (3)
2. Install Front Wheel Bearing and Hub Assembly (1) @ Steering Knuckle (3)

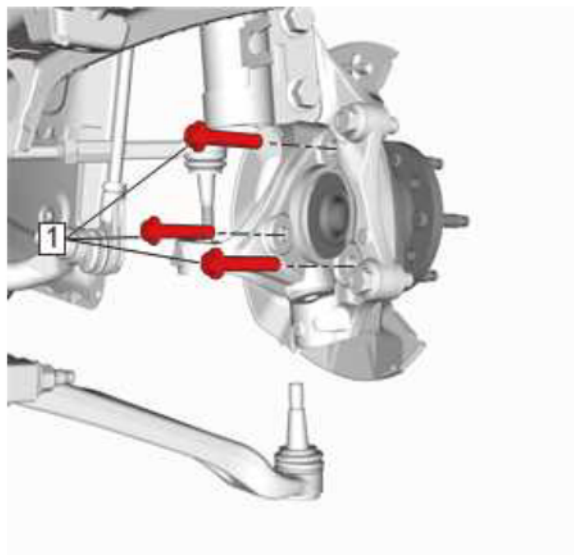


Fig. 17: Front Wheel Hub Bolts
Courtesy of GENERAL MOTORS COMPANY

3. Install and tighten Front Wheel Hub Bolts (1) (Qty: 3)
 1. First Pass: 65 N.m (48 lb ft)
 2. Final Pass: 30 - 45 Degrees

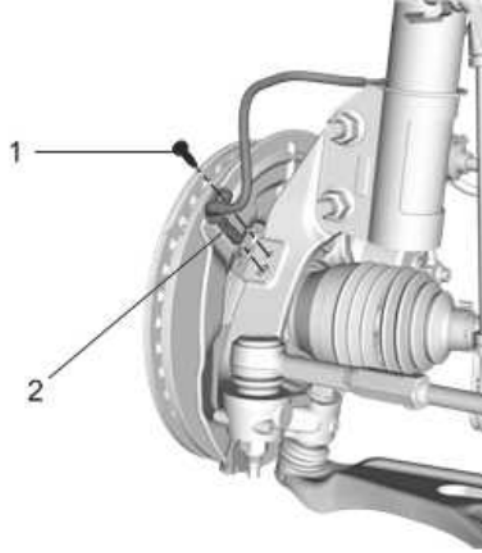


Fig. 18: Front Wheel Speed Sensor And Bolt
Courtesy of GENERAL MOTORS COMPANY

4. Install Front Wheel Speed Sensor (2) @ Steering Knuckle
5. Install and tighten Front Wheel Speed Sensor Bolt (1) @ Steering Knuckle. Refer to [Front Wheel Speed Sensor Replacement](#)

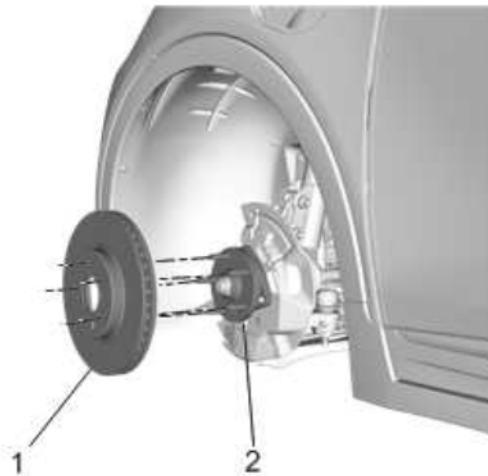


Fig. 19: Front Brake Rotor And Front Wheel Hub
Courtesy of GENERAL MOTORS COMPANY

6. Install Front Brake Rotor (1) @ Front Wheel Hub (2). Refer to [Front Brake Rotor Replacement](#)

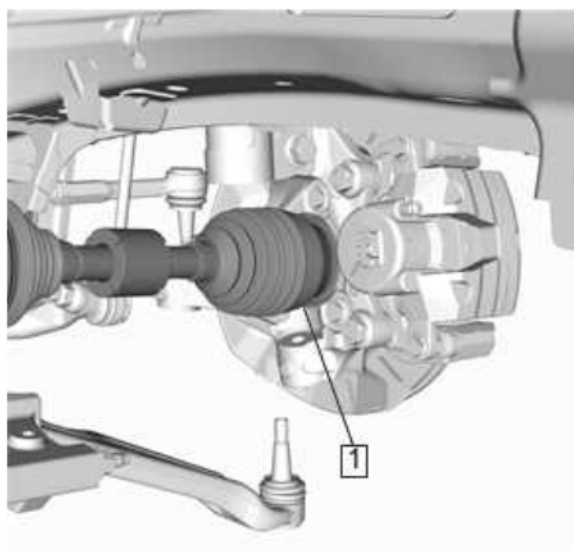


Fig. 20: Front Wheel Drive Shaft
Courtesy of GENERAL MOTORS COMPANY

7. Install Front Wheel Drive Shaft (1) @ Front Wheel Hub. Refer to [Front Wheel Drive Shaft Replacement](#)

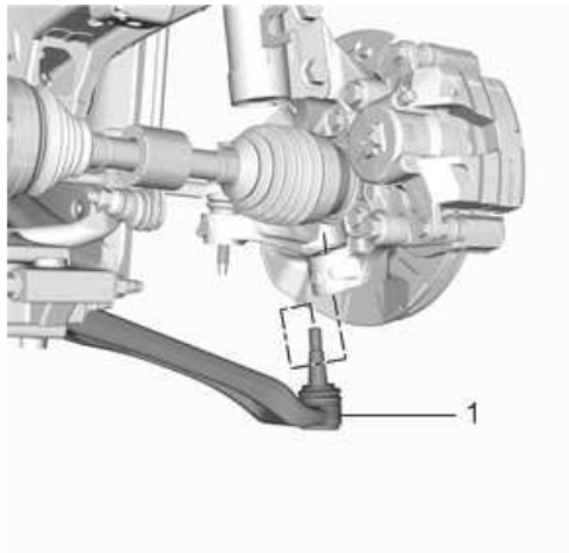


Fig. 21: Front Lower Control Arm Ball Joint
Courtesy of GENERAL MOTORS COMPANY

8. Install Front Lower Control Arm Ball Joint (1) @ Steering Knuckle. Refer to [Lower Control Arm Replacement](#)

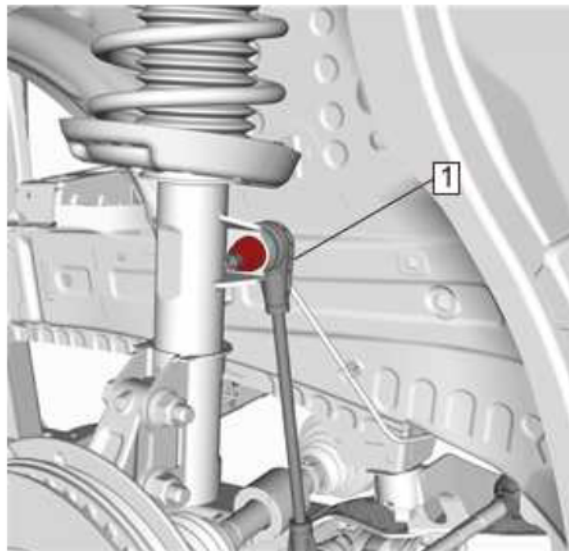


Fig. 22: Front Stabilizer Shaft Link
Courtesy of GENERAL MOTORS COMPANY

9. Install Front Stabilizer Shaft Link (1) @ Front Suspension Strut. Refer to [Stabilizer Shaft Link Replacement](#)

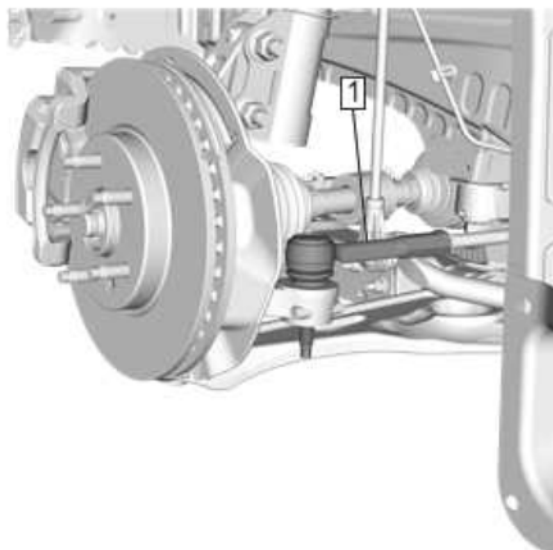


Fig. 23: Steering Linkage Outer Tie Rod
Courtesy of GENERAL MOTORS COMPANY

10. Install Steering Linkage Outer Tie Rod (1) @ Steering Knuckle. Refer to [Steering Linkage Outer Tie Rod Replacement](#)
11. Install the front tire and wheel assembly. Refer to [Tire and Wheel Removal and Installation](#)
12. Lower the vehicle.

STEERING KNUCKLE REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#)
2. Remove the front tire and wheel assembly. Refer to [Tire and Wheel Removal and Installation](#)

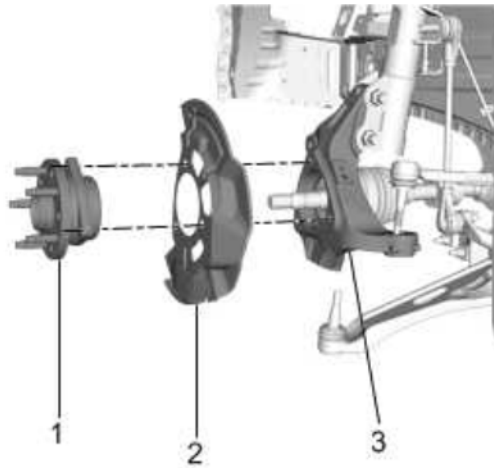


Fig. 24: Front Wheel Bearing/Hub Assembly, Brake Shield And Steering Knuckle
Courtesy of GENERAL MOTORS COMPANY

3. Remove Front Wheel Bearing and Hub Assembly (1) @ Steering Knuckle (3). Refer to [Front Wheel Bearing and Hub Replacement](#)
4. Remove Front Brake Shield (2) @ Steering Knuckle (3)

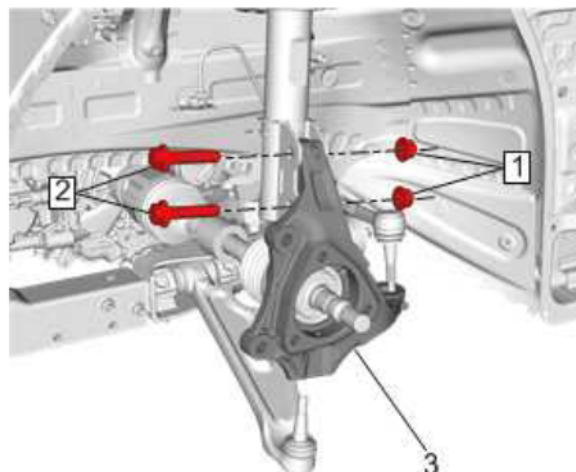


Fig. 25: Front Suspension Strut Nuts, Bolts And Steering Knuckle
Courtesy of GENERAL MOTORS COMPANY

5. Remove Front Suspension Strut Nuts (1) (Qty: 2)
6. Remove Front Suspension Strut Bolts (2) (Qty: 2)
7. Remove Steering Knuckle (3) @ Vehicle

Installation Procedure

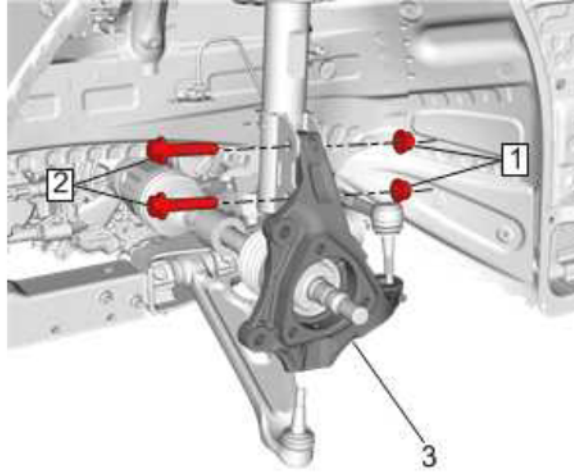


Fig. 26: Front Suspension Strut Nuts, Bolts And Steering Knuckle
 Courtesy of GENERAL MOTORS COMPANY

1. Install Steering Knuckle (3) @ Vehicle
2. Install Front Suspension Strut Bolts (2) (Qty: 2)

CAUTION: Refer to [Fastener Caution](#)

3. Install and tighten Front Suspension Strut Nuts (1) (Qty: 2) to 160 N.m (118 lb ft)

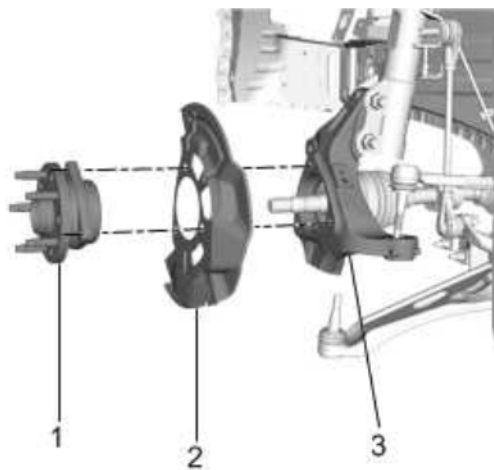


Fig. 27: Front Wheel Bearing/Hub Assembly, Brake Shield And Steering Knuckle
 Courtesy of GENERAL MOTORS COMPANY

4. Install Front Brake Shield (2) @ Steering Knuckle (3)
5. Install Front Wheel Bearing and Hub Assembly (1) @ Steering Knuckle (3). Refer to [Front Wheel Bearing and Hub Replacement](#)
6. Install the front tire and wheel assembly. Refer to [Tire and Wheel Removal and Installation](#)
7. Lower the vehicle.

LOWER CONTROL ARM REPLACEMENT

Special Tools

- CH-42188-B Ball Joint Separator
- J-42188-2A 6 mm Hex Key

Equivalent regional tools: [Special Tools](#)

Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#)
2. Remove the front tire and wheel assembly. Refer to [Tire and Wheel Removal and Installation](#)
3. Remove Front Compartment Air Deflector. Refer to [Front Compartment Air Deflector Replacement](#)

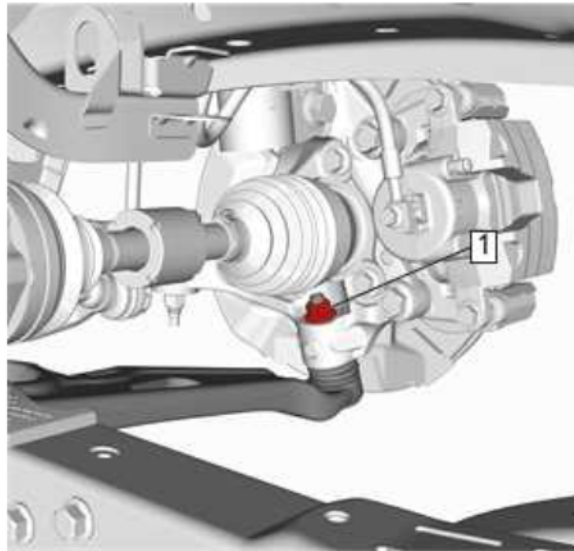


Fig. 28: Steering Knuckle Nut

Courtesy of GENERAL MOTORS COMPANY

4. Loosen Steering Knuckle Nut (1) @ Front Lower Control Arm

Use the J-42188-2A 6 mm Hex Key to prevent the ball joint pivot from being rotated.

5. Use the CH-42188-B ball joint separator to separate the front lower control arm from the steering knuckle.
6. Remove Steering Knuckle Nut (1) @ Front Lower Control Arm

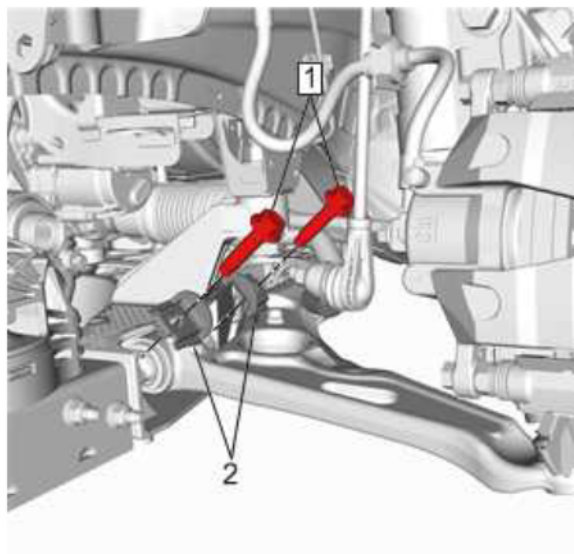


Fig. 29: Front Lower Control Arm Front Bolts And Brackets

Courtesy of GENERAL MOTORS COMPANY

7. Remove Front Lower Control Arm Front Bolts (1) (Qty: 2)
8. Remove Front Lower Control Arm Front Brackets (2) (Qty: 2)

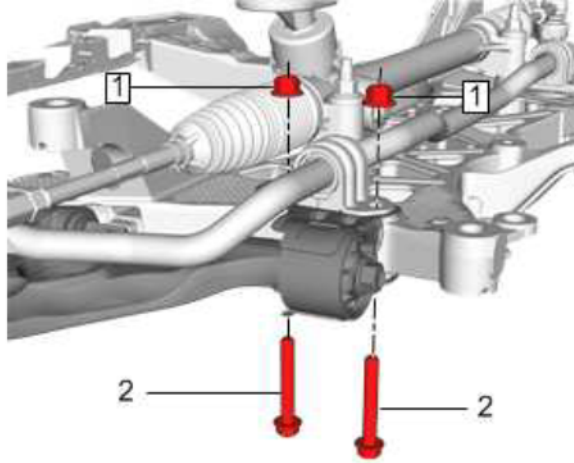


Fig. 30: Front Lower Control Arm Rear Nuts And Bolts

Courtesy of GENERAL MOTORS COMPANY

9. Remove Front Lower Control Arm Rear Nuts (1) (Qty: 2)
10. Remove Front Lower Control Arm Rear Bolts (2) (Qty: 2)

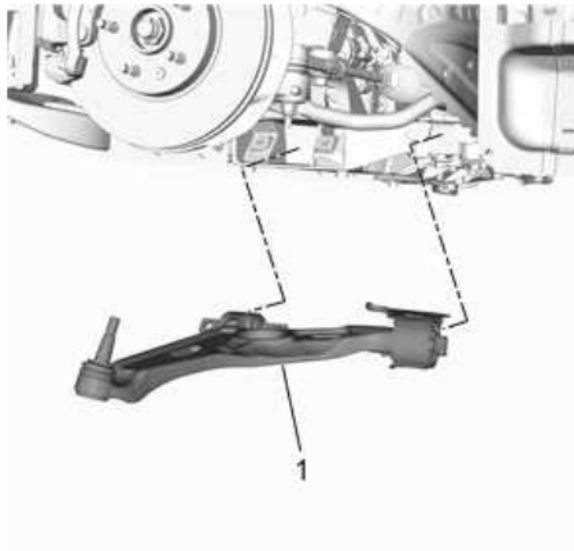


Fig. 31: Front Lower Control Arm

Courtesy of GENERAL MOTORS COMPANY

11. Remove Front Lower Control Arm (1) @ Vehicle

Installation Procedure

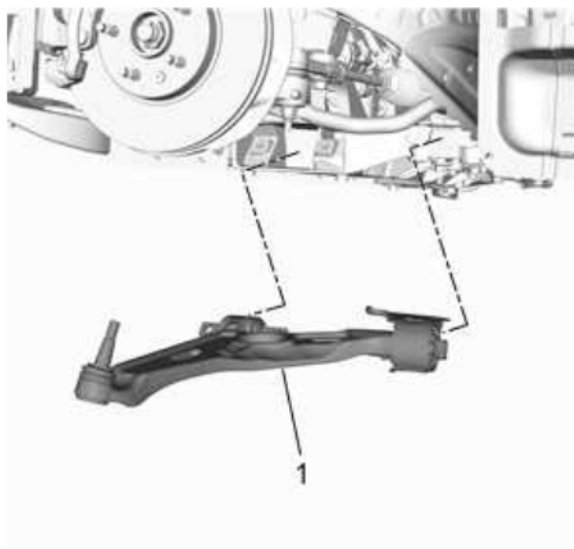


Fig. 32: Front Lower Control Arm
Courtesy of GENERAL MOTORS COMPANY

1. Install Front Lower Control Arm (1) @ Vehicle

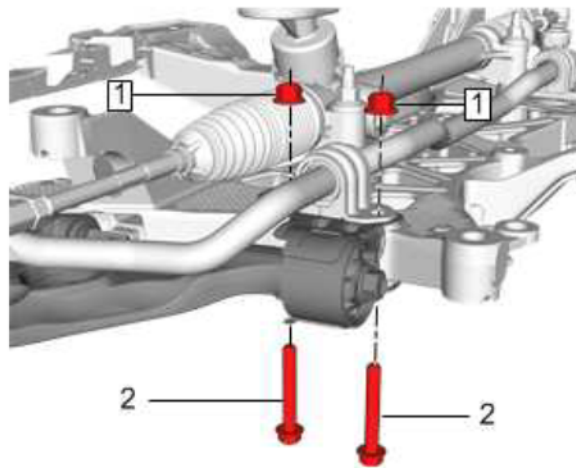


Fig. 33: Front Lower Control Arm Rear Nuts And Bolts
Courtesy of GENERAL MOTORS COMPANY

2. Install Front Lower Control Arm Rear Bolts (2) (Qty: 2)

CAUTION: Refer to **Fastener Caution**

3. Install and tighten Front Lower Control Arm Rear Nuts (1) (Qty: 2) to 100 N.m (74 lb ft)

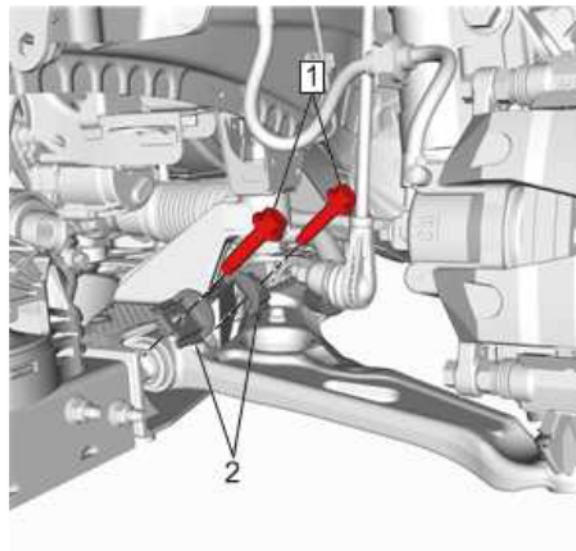


Fig. 34: Front Lower Control Arm Front Bolts And Brackets
Courtesy of GENERAL MOTORS COMPANY

4. Install Front Lower Control Arm Front Brackets (2) (Qty: 2)
5. Install and tighten Front Lower Control Arm Front Bolts (1) (Qty: 2) to 120 N.m (89 lb ft)

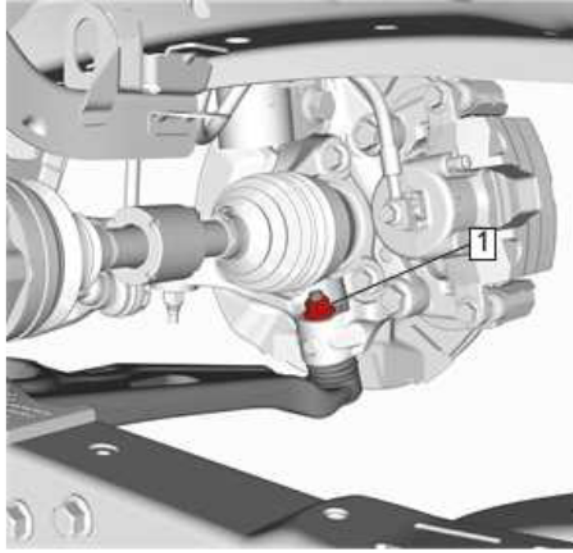


Fig. 35: Steering Knuckle Nut

Courtesy of GENERAL MOTORS COMPANY

6. Install and tighten Steering Knuckle Nut (1) @ Front Lower Control Arm

Use the J-42188-2A 6 mm Hex Key to prevent the ball joint pivot from being rotated.

1. First Pass: 30 N.m (22 lb ft)
2. Final Pass: 120 - 135 Degrees
7. Install Front Compartment Air Deflector. Refer to [Front Compartment Air Deflector Replacement](#)
8. Install the front tire and wheel assembly. Refer to [Tire and Wheel Removal and Installation](#)
9. Lower the vehicle.

WHEEL STUD REPLACEMENT

Special Tools

CH-43631 Ball Joint Separator

Equivalent regional tools: [Special Tools](#)

Removal Procedure

1. Remove Front Wheel Bearing and Hub Assembly. Refer to [Front Wheel Bearing and Hub Replacement](#)

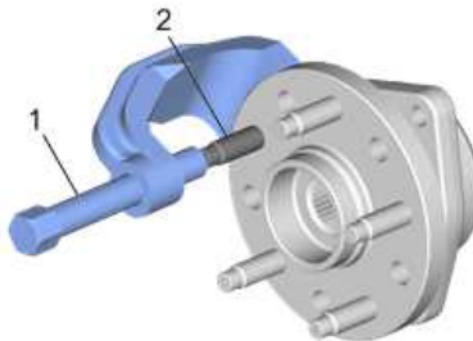


Fig. 36: Separator And Wheel Stud

Courtesy of GENERAL MOTORS COMPANY

2. Use the **CH-43631** separator (1) to remove the wheel stud (2) from the flange on the hub assembly. [enr.com](#)
- DISCARD the stud.

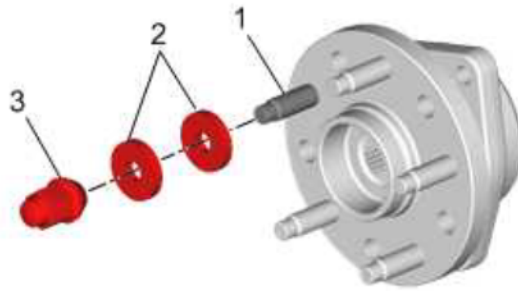


Fig. 37: Wheel Stud, Flat Washers And Wheel Nut

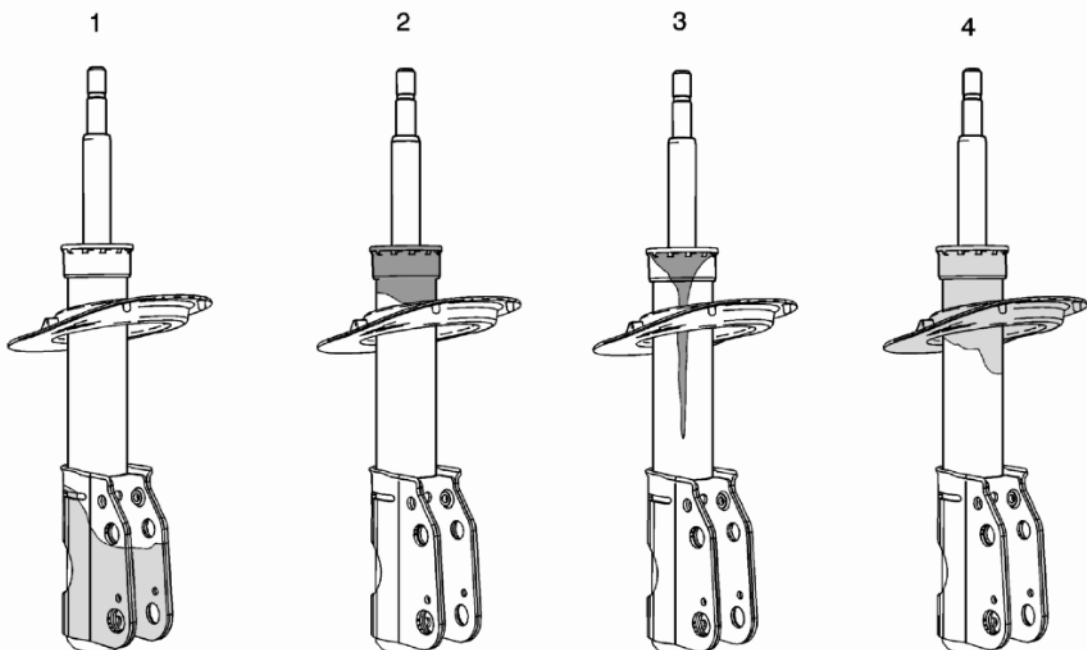
Courtesy of GENERAL MOTORS COMPANY

1. Position the NEW wheel stud (1) in the flange on the hub assembly.
2. Install the CH-45101-100 conical brake rotor washers or flat washers (2) and an OLD wheel nut (3) on the wheel stud.
3. Use a suitable tool to prevent the flange on the hub assembly from rotating.
4. Tighten the wheel nut until the wheel stud is firmly seated.
5. Remove the wheel nut and flat washers.
6. Install Front Wheel Bearing and Hub Assembly. Refer to [Front Wheel Bearing and Hub Replacement](#)

STRUT AND SHOCK ABSORBER INSPECTION

NOTE: The strut assembly **DOES NOT** have to be removed from the vehicle to perform the following inspection procedure.

NOTE: A light film of oil on the top portion of the strut is normal. **DO NOT** replace the strut for this condition.



Condition 1

Oil or fluid residue only on the bottom of the strut tube or on other strut components and not originating from the shaft seal, is not a strut related problem. DO NOT replace the strut, look for other external leaks.

Condition 2

Light film/residue on the strut tube, but not on the spring seat and originating from the shaft seal, is a NORMAL condition. DO NOT replace the strut.

Condition 3

Oil drip or trail down the strut tube and originating from the shaft seal, is an ABNORMAL condition. Replace the strut.

Condition 4

Extreme wet film of oil covering the strut tube and pooling in the spring seat and originating from the shaft seal, is an ABNORMAL condition. Replace the strut.

Inspection

1. Verify the customer's concern is present. If the concern is present, continue to the next step. If the concern is not present, then the vehicle is operating normally.

NOTE: **The strut assembly DOES NOT have to be removed from the vehicle to perform the following inspection procedure.**

2. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#) .
3. Visually inspect each of the shock absorbers or struts for external fluid leaks. Refer to the following conditions 1, 2, 3, and 4 for visual inspection.
 - If conditions 1 or 2 are found, continue to step 4.
 - If conditions 3 or 4 are found, replace strut. Refer to Strut Replacement.
4. If equipped with electronic suspension control system, ensure that the system is working properly. Refer to Diagnostic Starting Point-Electronic Suspension Control.
5. Use your hands in order to lift up and push down on each corner of the vehicle 3 times. Remove your hands from the vehicle. If the corner motion exceeds 2 cycles, replace the strut. If the strut does not exceed 2 cycles, NO repair is necessary.

STRUT ASSEMBLY REMOVAL AND INSTALLATION

Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#)
2. Remove the front tire and wheel assembly. Refer to [Tire and Wheel Removal and Installation](#)

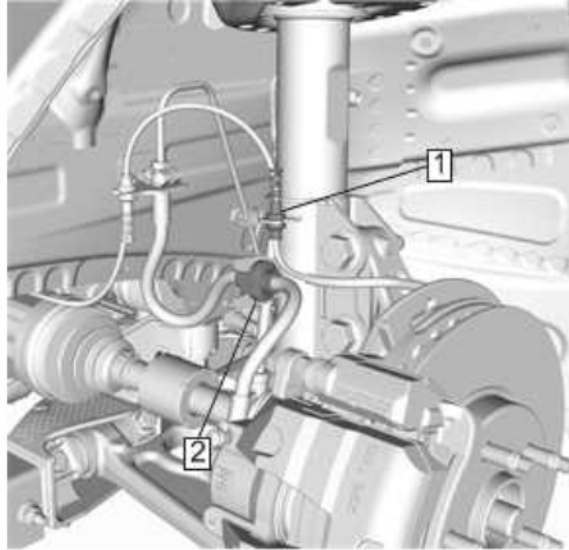


Fig. 39: Front Wheel Speed Sensor Wiring Harness Grommet And Front Brake Hose Grommet
Courtesy of GENERAL MOTORS COMPANY

3. Remove Front Wheel Speed Sensor Wiring Harness Grommet (1) @ Front Suspension Strut
4. Remove Front Brake Hose Grommet (2) @ Front Suspension Strut

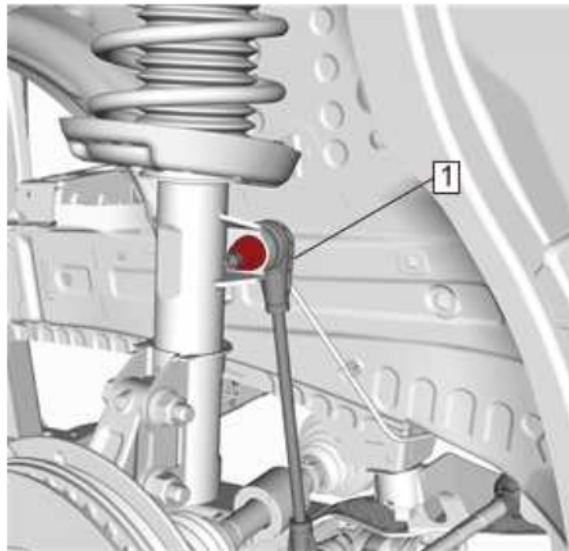


Fig. 40: Front Stabilizer Shaft Link
Courtesy of GENERAL MOTORS COMPANY

5. Separate Front Stabilizer Shaft Link (1) @ Front Suspension Strut. Refer to [Stabilizer Shaft Link Replacement](#)

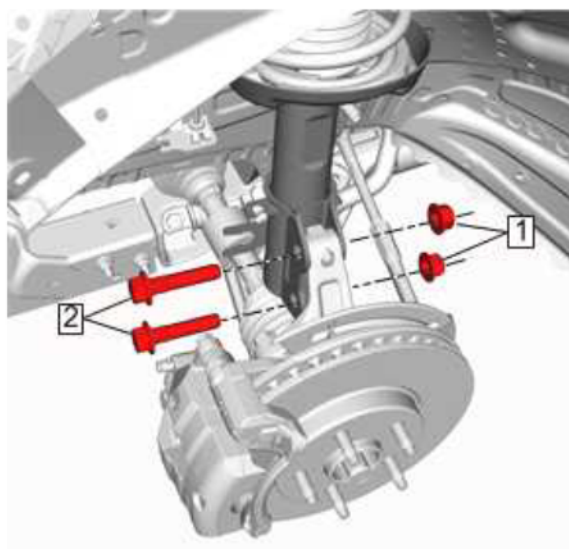


Fig. 41: Front Suspension Strut Nuts And Bolts
Courtesy of GENERAL MOTORS COMPANY

6. Remove Front Suspension Strut Nuts (1) (Qty: 2)
7. Remove Front Suspension Strut Bolts (2) (Qty: 2)
8. Remove Air Inlet Grille Panel. Refer to [Air Inlet Grille Panel Replacement](#)
9. Remove Windshield Wiper System Module. Refer to [Windshield Wiper System Module Replacement](#)

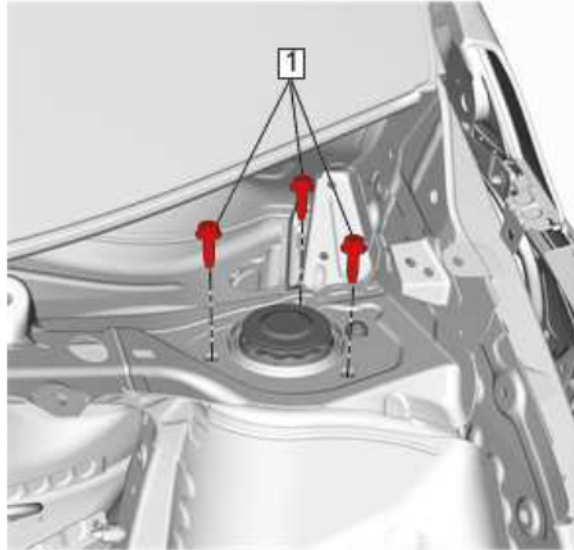


Fig. 42: Front Suspension Strut Mount Nuts
Courtesy of GENERAL MOTORS COMPANY

10. Remove Front Suspension Strut Mount Nuts (1) (Qty: 3)

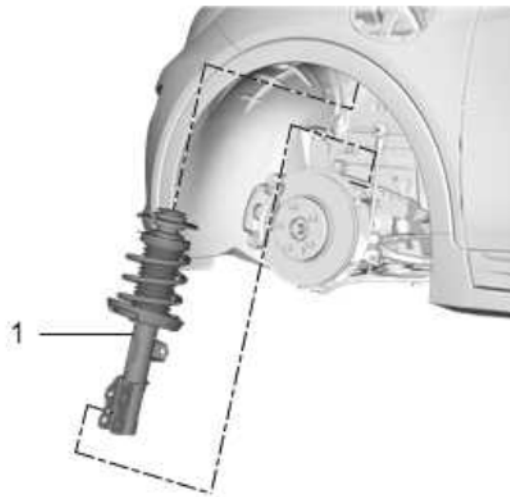


Fig. 43: Front Suspension Strut
Courtesy of GENERAL MOTORS COMPANY

11. Remove Front Suspension Strut (1) @ Vehicle

Installation Procedure

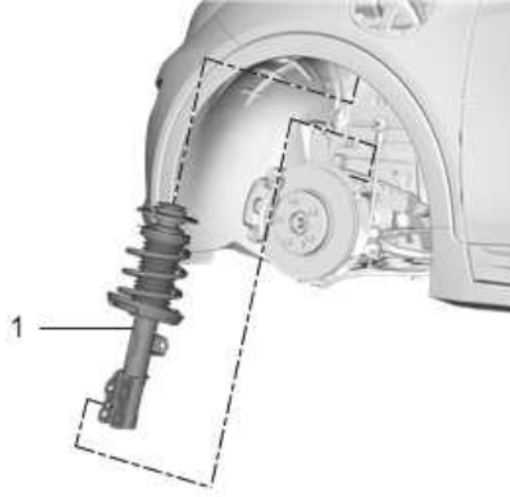


Fig. 44: Front Suspension Strut

Courtesy of GENERAL MOTORS COMPANY

1. Install Front Suspension Strut (1) @ Vehicle

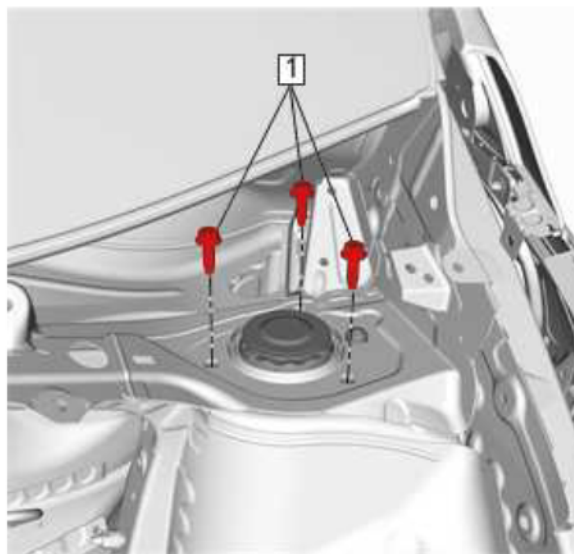


Fig. 45: Front Suspension Strut Mount Nuts

Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to [Fastener Caution](#)

2. Install and tighten Front Suspension Strut Mount Nuts (1) (Qty: 3) to 22 N.m (16 lb ft)
3. Install Windshield Wiper System Module. Refer to [Windshield Wiper System Module Replacement](#)
4. Install Air Inlet Grille Panel. Refer to [Air Inlet Grille Panel Replacement](#)

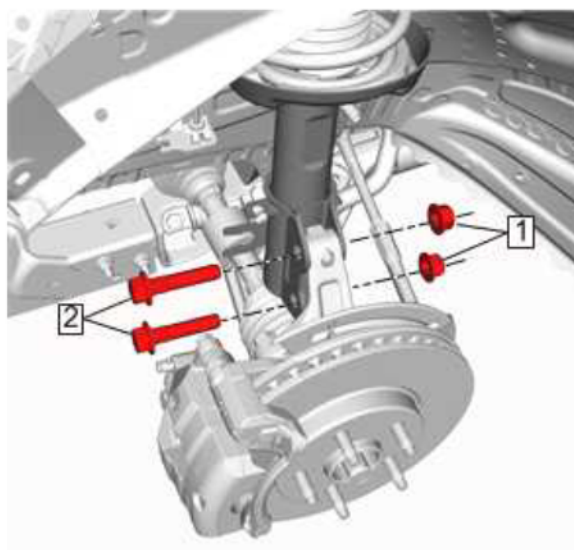


Fig. 46: Front Suspension Strut Nuts And Bolts
Courtesy of GENERAL MOTORS COMPANY

5. Install Front Suspension Strut Bolts (2) (Qty: 2)
6. Install and tighten Front Suspension Strut Nuts (1) (Qty: 2) to 160 N.m (118 lb ft)

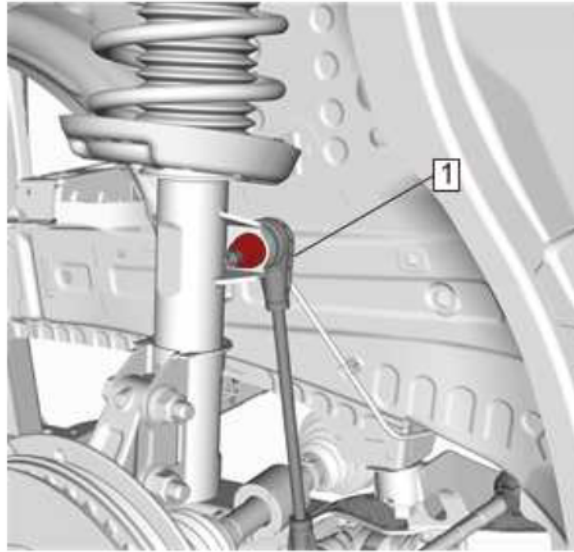


Fig. 47: Front Stabilizer Shaft Link
Courtesy of GENERAL MOTORS COMPANY

7. Install Front Stabilizer Shaft Link (1) @ Front Suspension Strut. Refer to [Stabilizer Shaft Link Replacement](#)

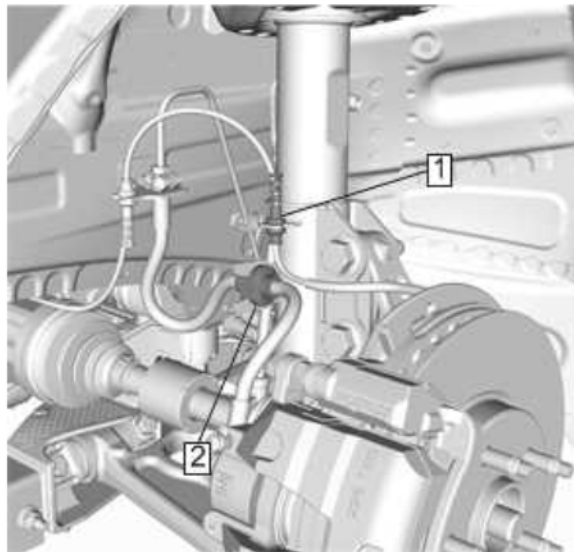


Fig. 48: Front Wheel Speed Sensor Wiring Harness Grommet And Front Brake Hose Grommet
Courtesy of GENERAL MOTORS COMPANY

8. Install Front Brake Hose Grommet (2) @ Front Suspension Strut
9. Install Front Wheel Speed Sensor Wiring Harness Grommet (1) @ Front Suspension Strut
10. Install the front tire and wheel assembly. Refer to [Tire and Wheel Removal and Installation](#)
11. Lower the vehicle.

SUSPENSION SHOCK/STRUT DISPOSAL

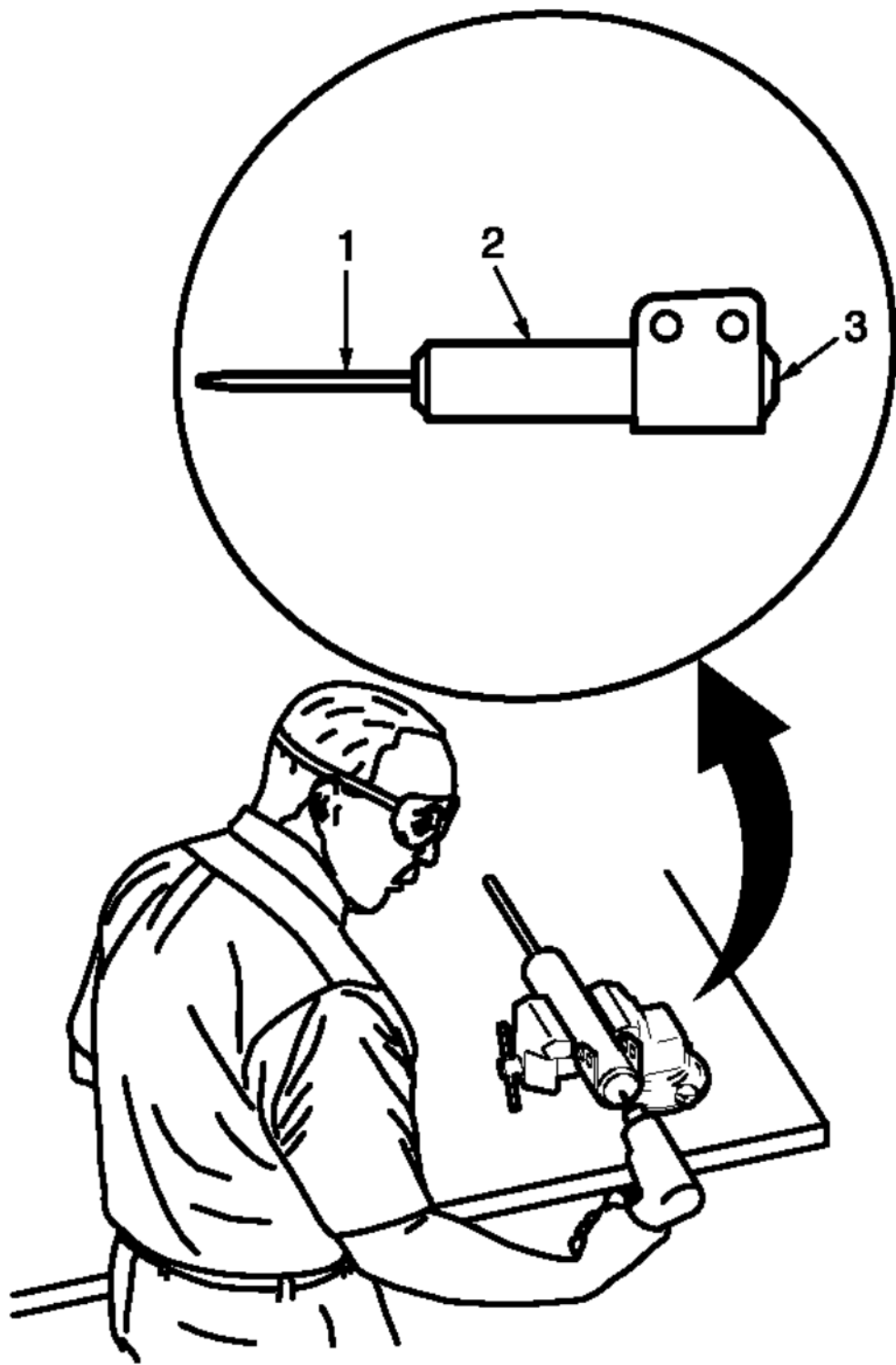


Fig. 49: Drilling Hole In Strut At Center Of End Cap
Courtesy of GENERAL MOTORS COMPANY

WARNING: Use the proper eye protection when drilling to prevent metal chips from causing physical injury.

1. Clamp the strut in a vise horizontally with the rod (1) completely extended.
2. Drill a hole in the strut at the center of the end cap (3) using a 5 mm (3/16 in) drill bit. Gas or a gas/oil mixture will exhaust when the drill bit penetrates the strut. Use shop towels in order to contain the escaping oil.
3. Remove the strut from the vise.
4. Hold the strut over a drain pan vertically with the hole down.
5. Move the rod (1) in and out of the tube (2) to completely drain the oil from the strut.

STRUT, STRUT COMPONENT, OR SPRING REPLACEMENT

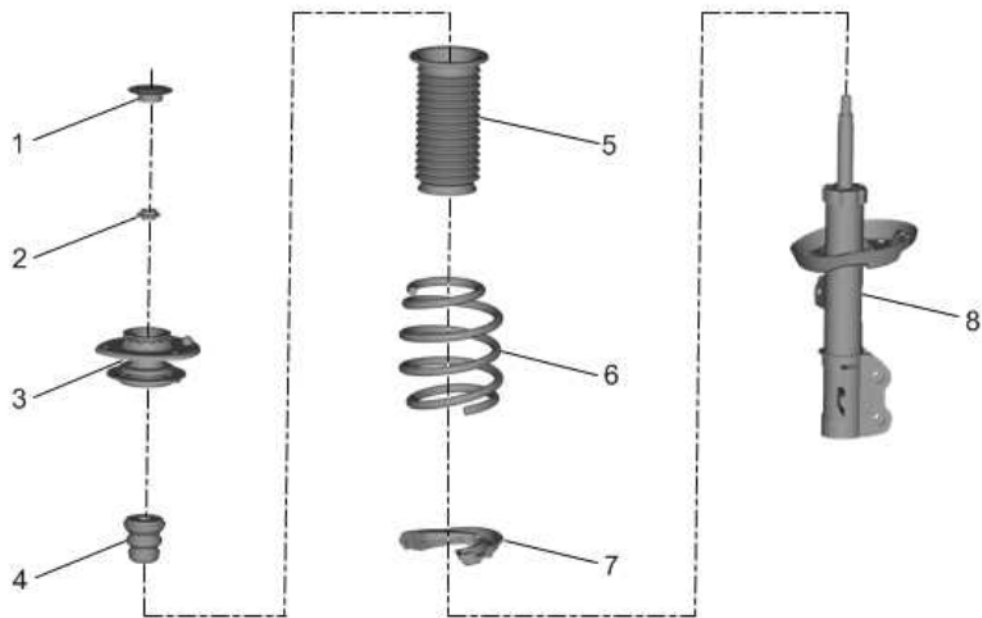


Fig. 50: Strut, Strut Component, or Spring

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: To prevent personal injury and/or component damage, use the proper tools to support and compress the coil spring prior to removal of the strut shaft nut when removing the coil spring. The coil spring is under extreme pressure and can become a projectile should the spring separate from the strut before all of the tension is relieved.	
Preliminary Procedure Remove Strut Assembly. Refer to Strut Assembly Removal and Installation	
1	Front Suspension Strut Cartridge Upper Cover
2	Front Suspension Strut Upper Mounting Nut CAUTION: Refer to Fastener Caution . Procedure 1. Use a suitable spring compressor to compress the front coil spring. 2. Use the CH-49375 strut wrench to remove and install the front suspension strut upper mounting nut. Tighten 85 N.m (63 lb ft) Special Tools CH-49375 Strut Wrench Equivalent regional tools: Special Tools
3	Front Suspension Strut Mount
4	Front Suspension Strut Bumper
5	Front Strut Boot
6	Front Coil Spring
7	Front Coil Spring Lower Insulator
8	Front Suspension Strut

FRONT SUSPENSION DESCRIPTION AND OPERATION

The front suspension has 2 primary purposes:

- Isolate the driver from irregularities in the road surface.
- Define the ride and handling characteristics of the vehicle.

The front suspension absorbs the impact of the tires traveling over irregular road surfaces and dissipates this energy throughout the suspension system. This process isolates the vehicle occupants from the road surface. The rate at which the suspension dissipates the energy and the amount of energy that is absorbed is how the suspension defines the vehicles ride characteristics.

Ride characteristics are designed into the suspension system and are not adjustable. The ride characteristics are mentioned in this description in order to aid in the understanding of the functions of the suspension system. The suspension system must allow for the vertical movement of the tire and wheel assembly as the vehicle travels over irregular road surfaces while maintaining the tire's horizontal relationship to the road.

This requires that the steering knuckle be suspended between a lower control arm and a strut assembly. The lower control arm attaches from the steering knuckle at the outermost point of the control arm. The attachment is through a ball and socket type joint. The innermost end of the control arm attached at 2 points to the vehicle frame through semi-rigid bushings. The upper portion of the steering knuckle is attached to a strut assembly. The strut assembly then connects to the vehicle body by way of an upper bearing. The steering knuckle is allowed to travel up and down independent of the vehicle body structure and frame.

This up and down motion of the steering knuckle as the vehicle travels over bumps is absorbed predominantly by the coil spring. This spring is retained under tension over the strut assembly. A strut is used in conjunction with this system in order to dampen out the oscillations of the coil spring. A strut is a basic hydraulic cylinder.

The strut is filled with oil and has a moveable shaft that connects to a piston inside the strut. Valves inside the shock absorber offer resistance to oil flow and consequently inhibit rapid movement of the piston and shaft. Each end of the shock absorber is connected in such a fashion to utilize this recoil action of a spring alone. Each end of the strut is designed as the connection point of the suspension system to the vehicle and acts as the coil spring seat. This allows the strut to utilize the dampening action to reduce the recoil of a spring alone. The lower control arm is allowed to pivot at the vehicle frame in a vertical fashion. The ball joint allows the steering knuckle to maintain the perpendicular relationship to the road surface.

Front suspensions systems utilize a stabilizer shaft. The stabilizer bar connects between the left and right lower control arm assemblies through the stabilizer link and stabilizer shaft insulators. This bar controls the amount of independent movement of the suspension when the vehicle turns. Limiting the independent movement defines the vehicles handling characteristics on turns.

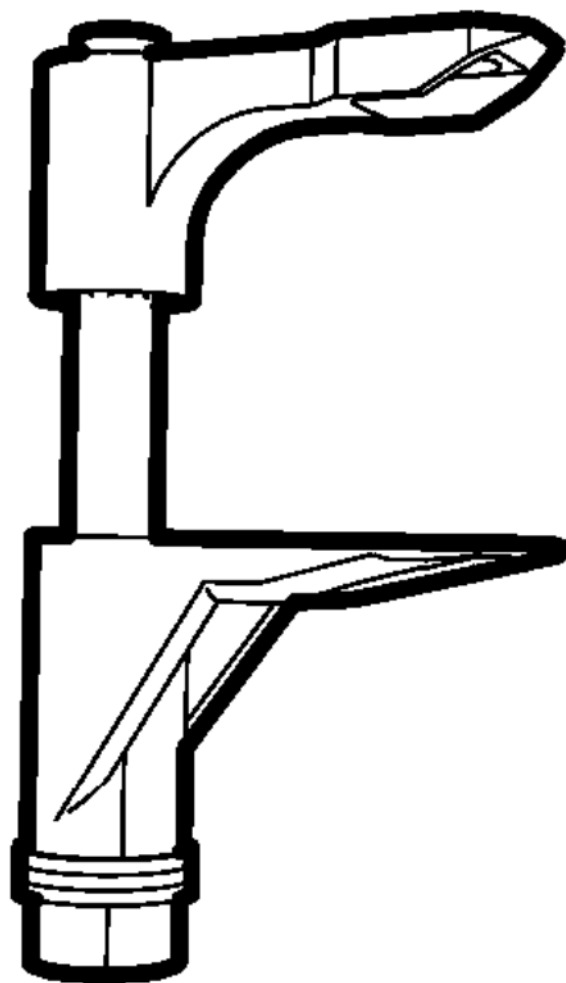
SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration	Tool Number/Description

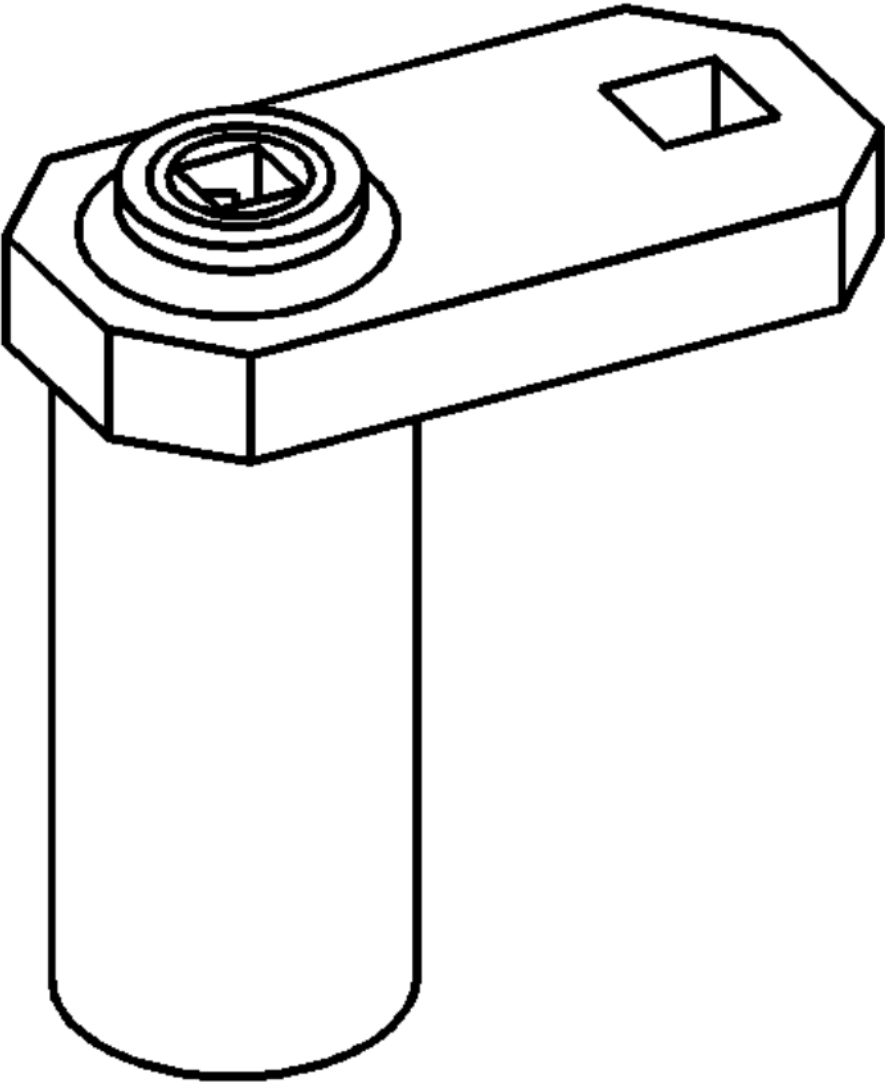
Illustration

Tool
Number/Description



CH 42188-B
J 42188-B
Tie Rod End
Joint/Ball Joint
Remover

Illustration	Tool Number/Description
	CH 43631 Ball Joint Remover

Illustration	Tool Number/Description
	CH 49375 J 42991 Strut Wrench



J 42188-2A
6 mm Hex Key