Front Suspension - Hummer H2

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Brake Hose Bracket Bolt	9 N.m	80 lb in
Brake Hose Clip Bolts	12 N.m	106 lb in
Hub and Bearing Assembly to Steering Knuckle Bolts	180 N.m	133 lb ft
Jounce Bumper Stud Nut	30 N.m	22 lb ft
Lower Control Arm Ball Joint Stud Nut	100 N.m	74 lb ft
Lower Control Arm to Frame Nuts	175 N.m	129 lb ft
Sensor Wheel Speed Mounting Bolt	18 N.m	13 lb ft
Shock Absorber Tennon Nut	20 N.m	15 lb ft
Shock Absorber to Lower Control Arm Nut	80 N.m	59 lb ft
Stabilizer Shaft Insulator Clamp Bolts	50 N.m	37 lb ft
Stabilizer Shaft Link Nuts	14 N.m	10 lb ft
Torsion Bar Support Mounting Nuts	110 N.m	81 lb ft
Upper Control Arm Ball Joint Stud Nut	50 N.m	37 lb ft
Upper Control Arm to Frame Nuts	190 N.m	140 lb ft
Wheel Drive Shaft Nut	235 N.m	173 lb ft

REPAIR INSTRUCTIONS

STABILIZER SHAFT REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the nuts from the link bolt assemblies.

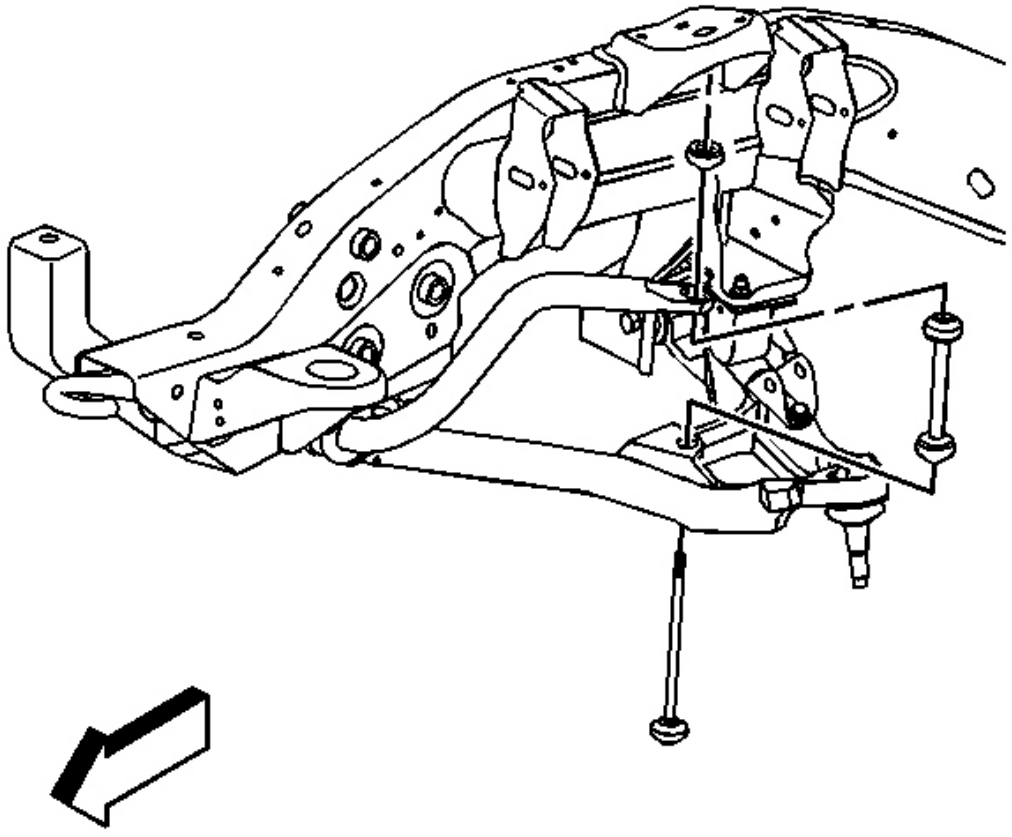


Fig. 1: Link Bolts & Link Assemblies
Courtesy of GENERAL MOTORS CORP.

3. Remove the link bolts.
4. Remove the link assemblies.
5. Remove the engine protection shield. Refer to **Engine Protection Shield Replacement** .

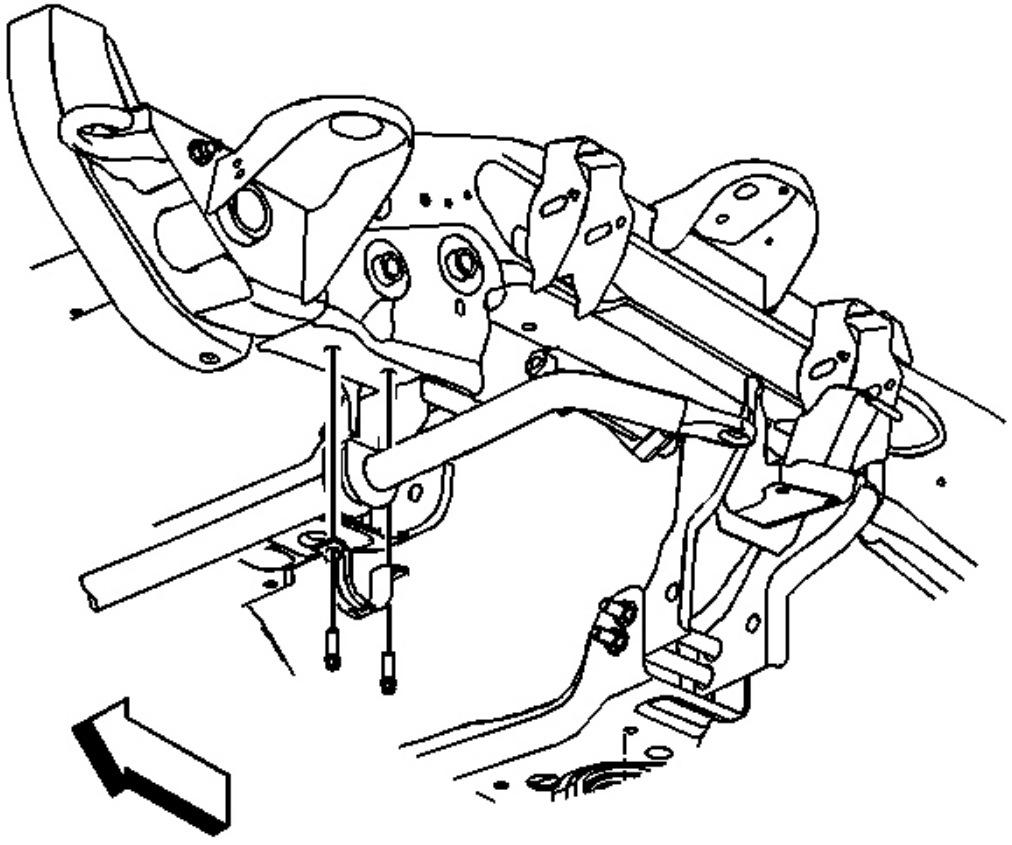


Fig. 2: Insulators & Stabilizer Shaft
Courtesy of GENERAL MOTORS CORP.

6. Remove the insulator clamp bolts.
7. Remove the clamps.
8. Remove the stabilizer shaft.
9. Remove the insulators.
10. Inspect all of the parts for wear and damage.

Installation Procedure

1. Place the insulators on the stabilizer shaft with the slits facing toward the front of the vehicle.

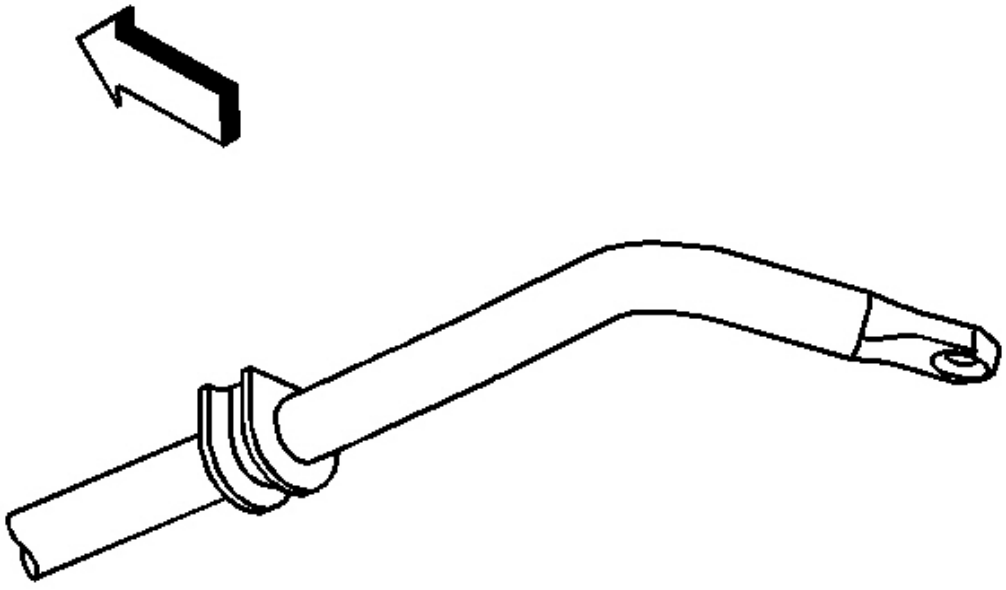


Fig. 3: Placing Insulators On Stabilizer Shaft
Courtesy of GENERAL MOTORS CORP.

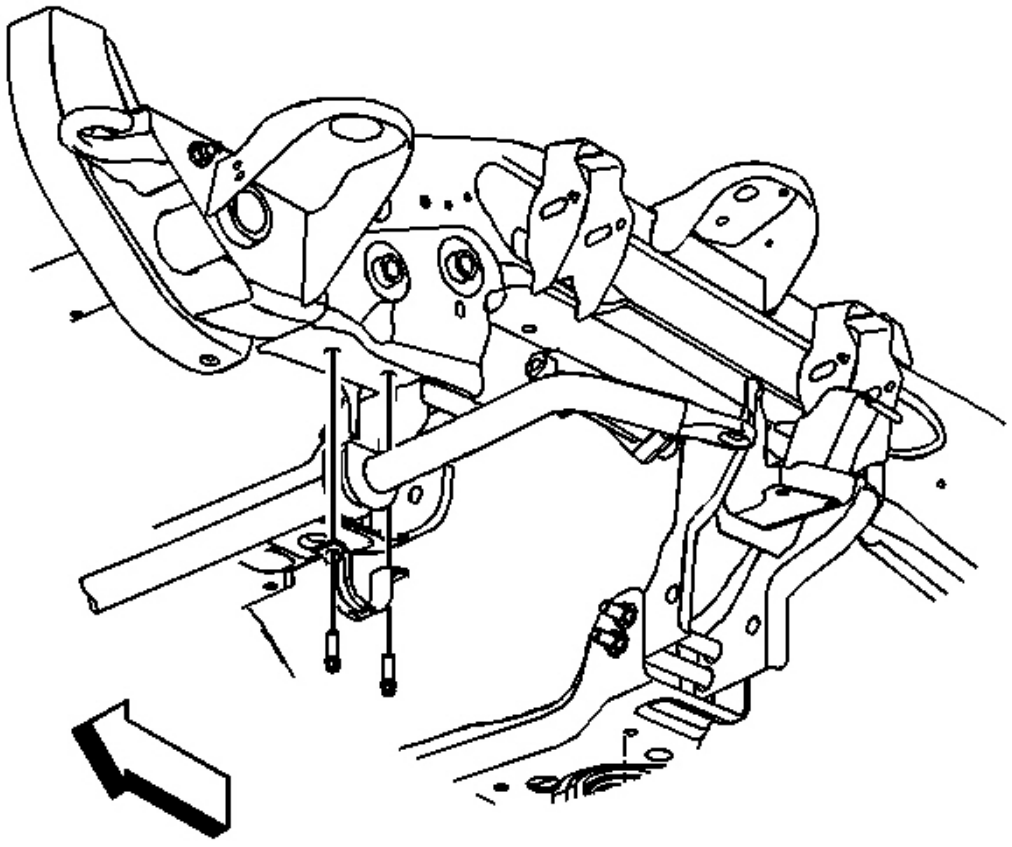


Fig. 4: Insulators & Stabilizer Shaft
Courtesy of GENERAL MOTORS CORP.

2. Install the insulators to the stabilizer shaft.
3. Install the stabilizer shaft.
4. Install the clamps over the insulators and the stabilizer shaft.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Install insulator clamp bolts.

   Tighten: Tighten the bolts to 50 N.m (37 lb ft).

6. Support the lower control arms at curb height.
7. Perform the following procedure before installing the bolts.

- Remove all traces of the original adhesive patch.
- Clean the threads of the bolt with denatured alcohol or equivalent and allow to dry.
- Apply Threadlocker GM P/N 12345382 (Canadian P/N 10953489).

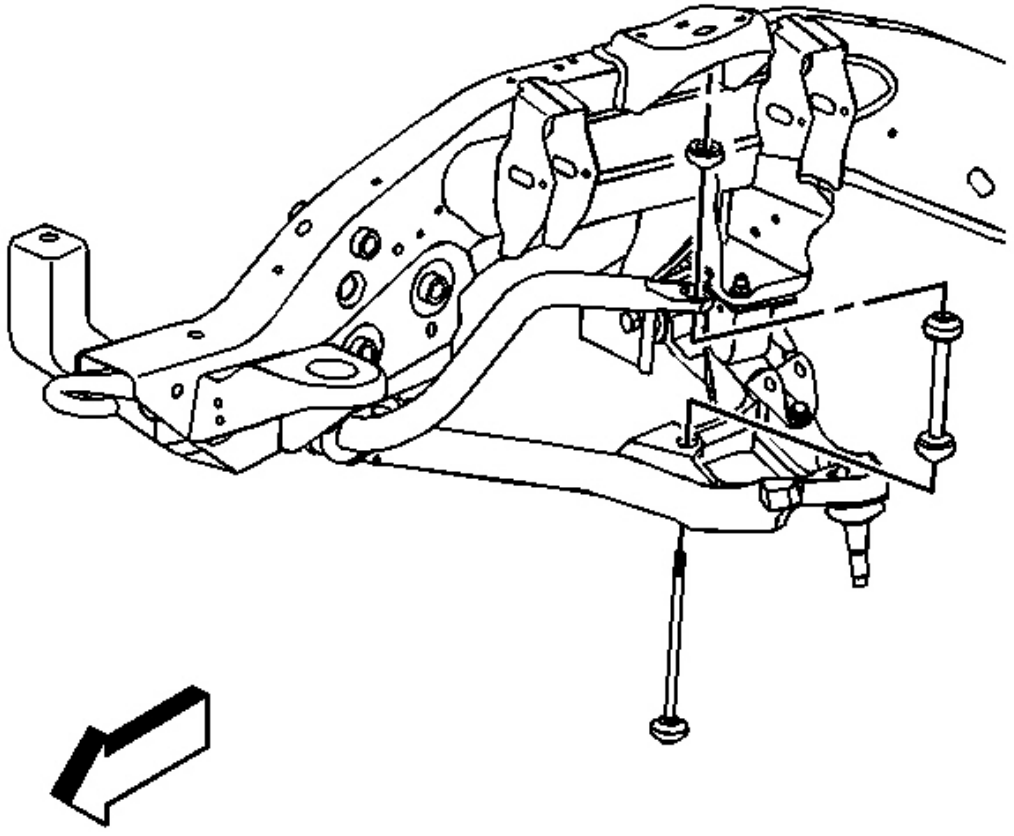


Fig. 5: Link Bolts & Link Assemblies
Courtesy of GENERAL MOTORS CORP.

8. Install the link assemblies.
9. Install the link bolts.
10. Install the nuts to the link bolt assemblies.

    Tighten: Tighten the nut to 14 N.m (10 lb ft).

11. Ensure that the threads of the link bolt protrude 2 to 4 threads above the link nut.
12. Install the engine protections shield. Refer to **Engine Protection Shield Replacement** .

13. Lower the vehicle.

STABILIZER SHAFT LINK REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.

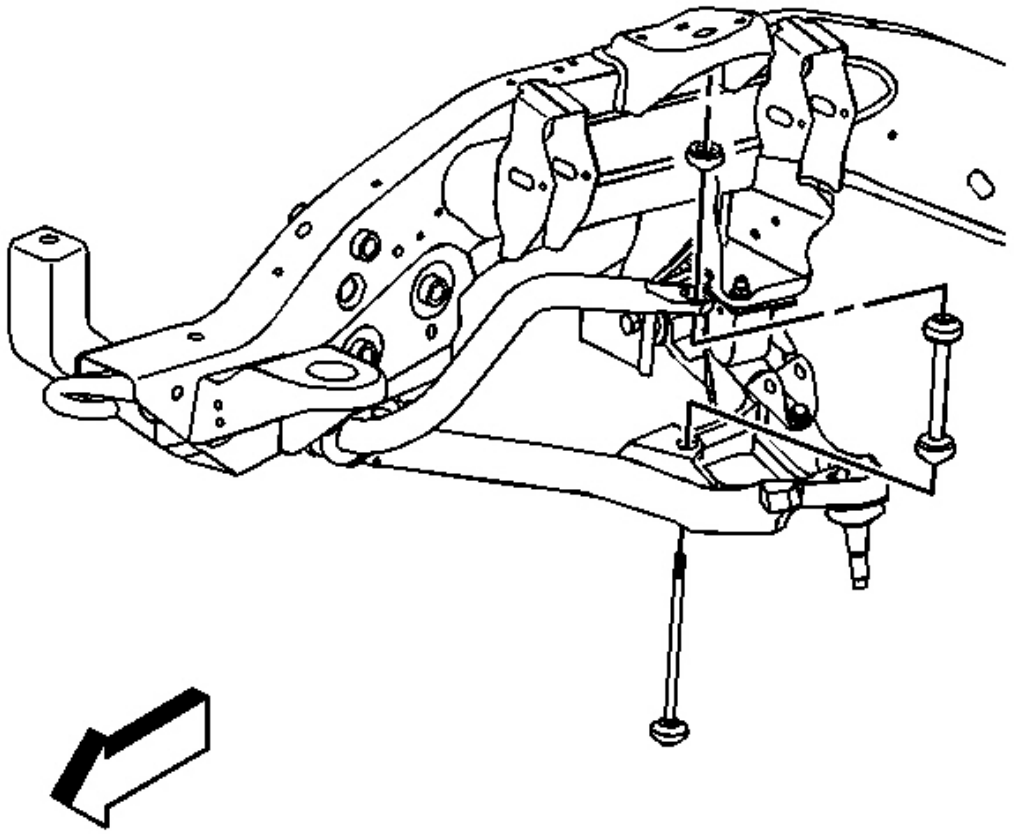


Fig. 6: Link Bolts & Link Assemblies
Courtesy of GENERAL MOTORS CORP.

2. Remove the nuts from the link bolt assemblies.
3. Remove the link bolts.
4. Remove the link assemblies.

Installation Procedure

1. Support the lower control arms at curb height.
2. Perform the following procedure before installing the bolts.
    - Remove all traces of the original adhesive patch.
    - Clean the threads of the bolt with denatured alcohol or equivalent and allow to dry.
    - Apply Threadlocker GM P/N 12345382 (Canadian P/N 10953489).

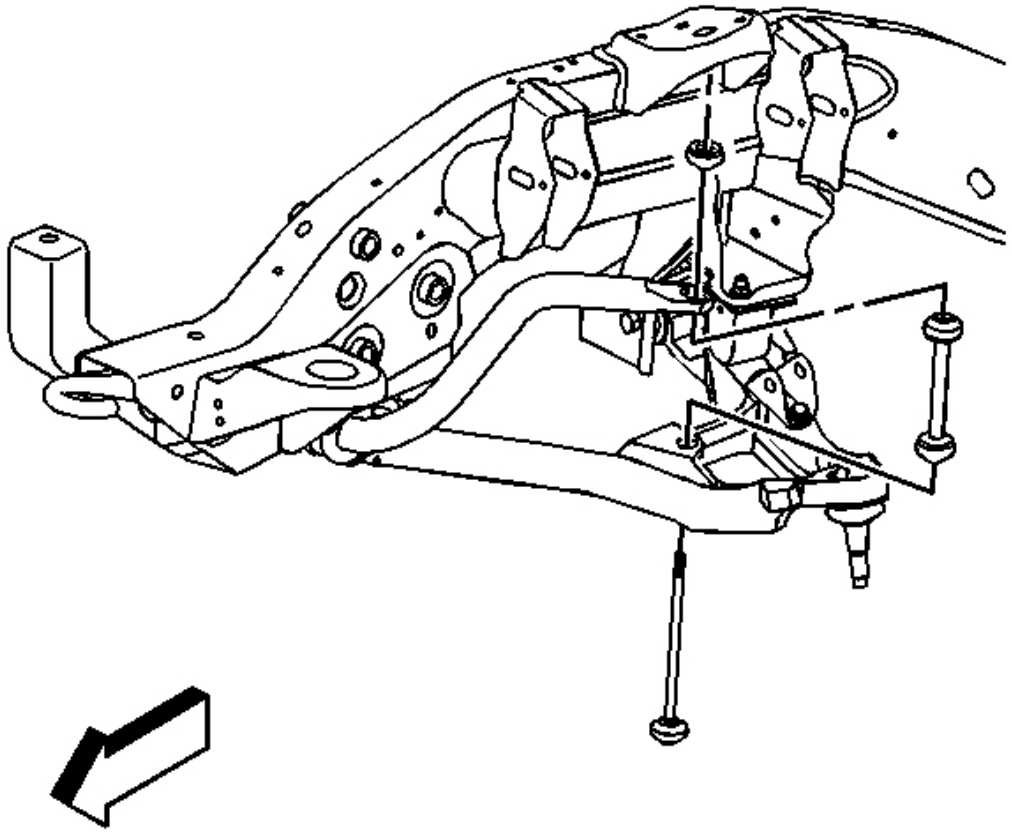


Fig. 7: Link Bolts & Link Assemblies
Courtesy of GENERAL MOTORS CORP.

3. Install the link assemblies.
4. Install the link bolts.
5. Install the nuts to the link bolt assemblies.

Tighten: Tighten the nut to 14 N.m (10 lb ft).

6. Ensure that the threads of the link bolt protrude 2 to 4 threads above the link nut.
7. Lower the vehicle.

STABILIZER SHAFT INSULATOR REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the engine protection shield. Refer to **Engine Protection Shield Replacement** .

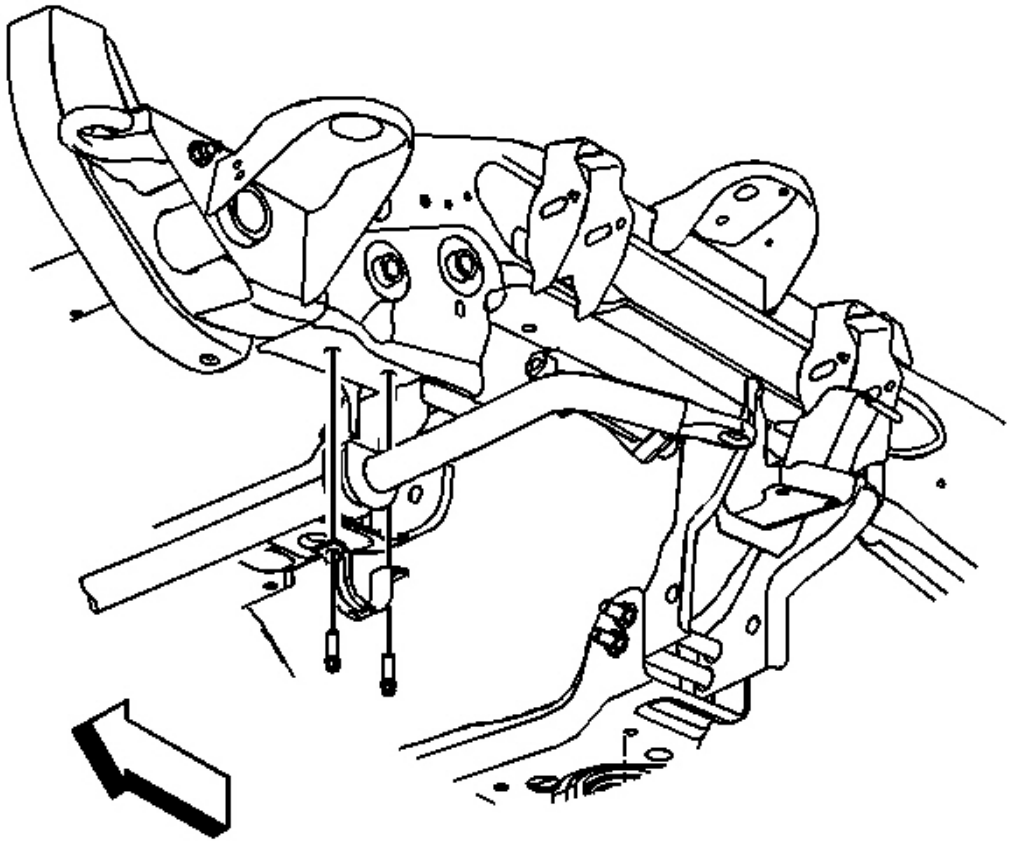


Fig. 8: Insulators & Stabilizer Shaft
Courtesy of GENERAL MOTORS CORP.

3. Remove the insulator clamp bolts.
4. Remove the clamps.

5. Remove the insulators.
6. Inspect all of the parts for wear and damage.

Installation Procedure

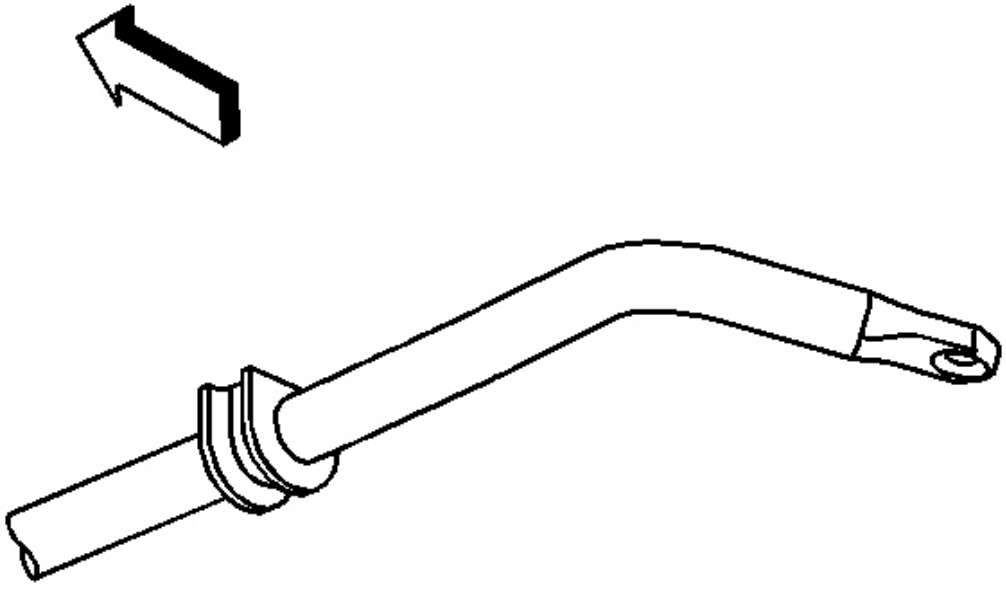


Fig. 9: Placing Insulators On Stabilizer Shaft
Courtesy of GENERAL MOTORS CORP.

1. Place the insulators on the stabilizer shaft with the slits facing toward the front of the vehicle.

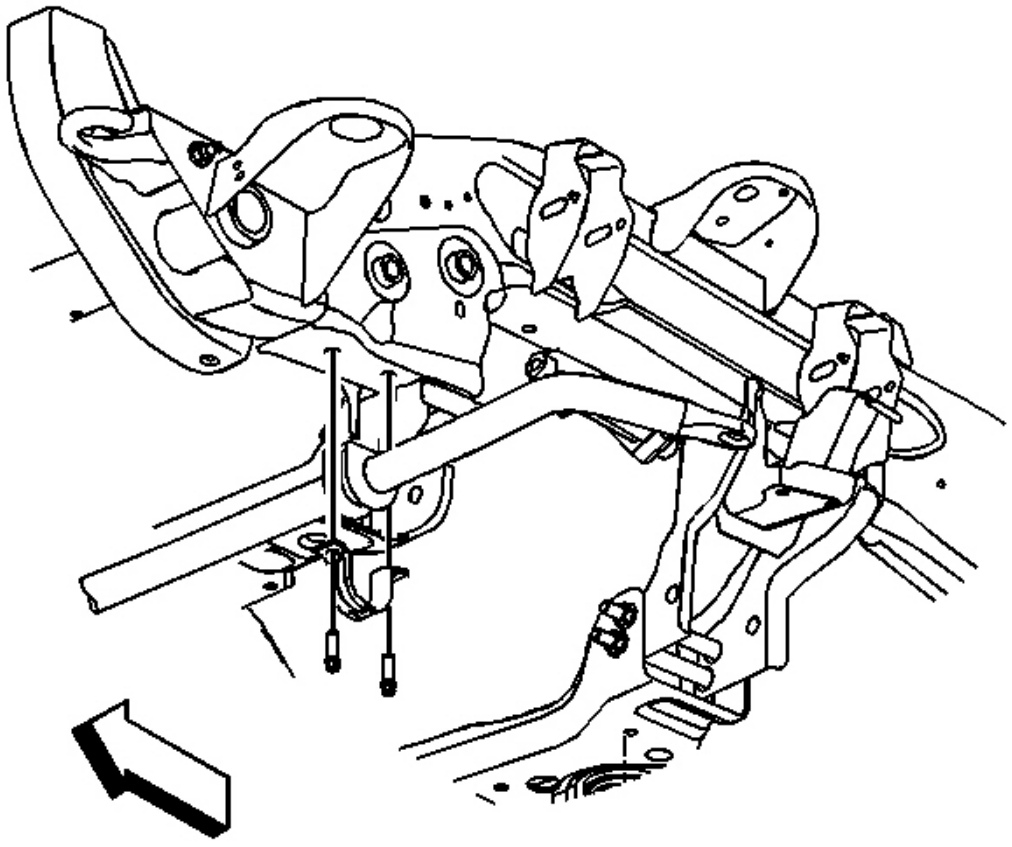


Fig. 10: Insulators & Stabilizer Shaft
Courtesy of GENERAL MOTORS CORP.

2. Install the insulators to the stabilizer shaft.
3. Install the stabilizer shaft.
4. Install the clamps over the insulators and the stabilizer shaft.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Install insulator clamp bolts.

   Tighten: Tighten the bolts to 50 N.m (37 lb ft).

6. Install the engine protection shield. Refer to **Engine Protection Shield Replacement** .
7. Lower the vehicle.

LOWER BALL JOINT REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
3. Remove the lower control arm. Refer to **Lower Control Arm Replacement** .
4. Using a press, remove the ball joint from the lower control arm.

Installation Procedure

1. Install the new ball joint using a press.

IMPORTANT: Use the outer flange of the ball joint in order to press the ball joint into place.

2. Install the lower control arm. Refer to **Lower Control Arm Replacement** .
3. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
4. Remove the safety stands.
5. Lower the vehicle.
6. Verify the wheel alignment. Refer to **Wheel Alignment Specifications** in Wheel Alignment.

STEERING KNUCKLE REPLACEMENT

Tools Required

J 43631 Ball Joint Remover. See **Special Tools and Equipment** .

J 45851 Ball Joint Separator Protector Adaptor. See **Special Tools and Equipment** .

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the tire and wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
3. Support the lower control arm.
4. Remove the wheel hub and bearing assembly. Refer to **Wheel Hub, Bearing, and Seal Replacement** .
5. Disconnect the outer tie rod to the steering knuckle. Refer to **Tie Rod Replacement - Outer** in Steering Linkage (Non- Rack and Pinion).
6. Remove the brake hose bracket retaining bolt from the steering knuckle.
7. Remove the upper control arm retaining nut and separate the upper ball joint from the steering knuckle using the **J 43631** and the **J 45851** . See **Special Tools and Equipment** .

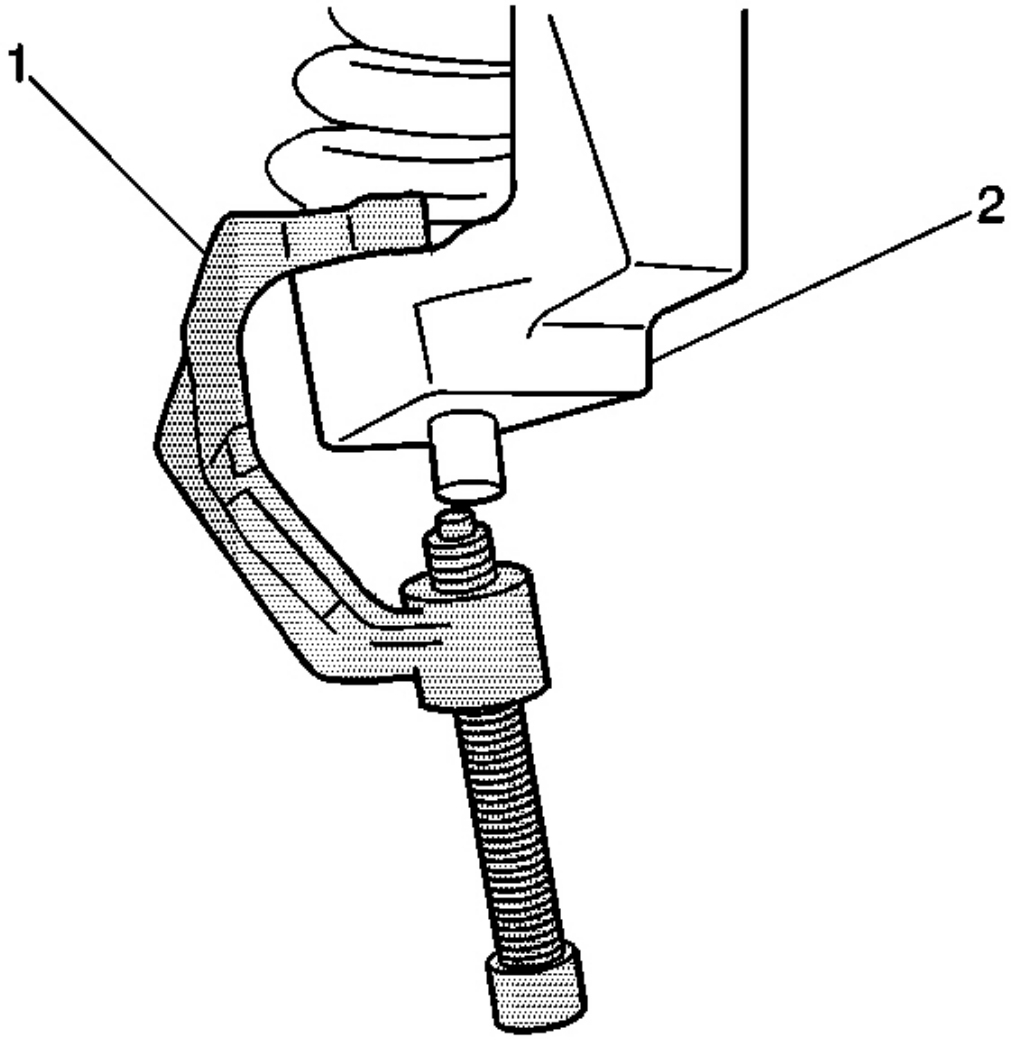


Fig. 11: Lower Ball Joint & Steering Knuckle
Courtesy of GENERAL MOTORS CORP.

8. Remove the lower control arm retaining nut. Separate the lower ball joint from the steering knuckle (2) using the **J 43631** and the **J 45851** (1). See **Special Tools and Equipment** .

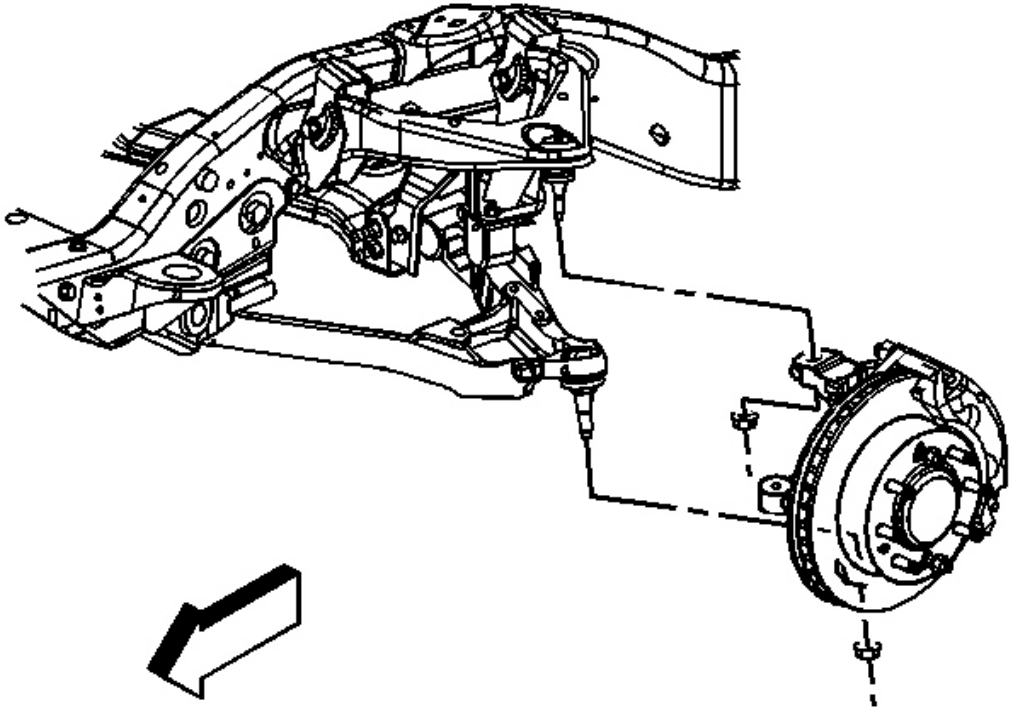


Fig. 12: Identifying Steering Knuckle
Courtesy of GENERAL MOTORS CORP.

9. Remove the steering knuckle.

Installation Procedure

1. Clean all grease and contaminants from the tapered section and the threads of the upper ball joint, the lower ball joint, and the tie rod end.
2. Clean and inspect the taper holes and the mounting surfaces of the steering knuckle. If any of the tapered holes are elongated, out of round, or damaged, replace the steering knuckle.

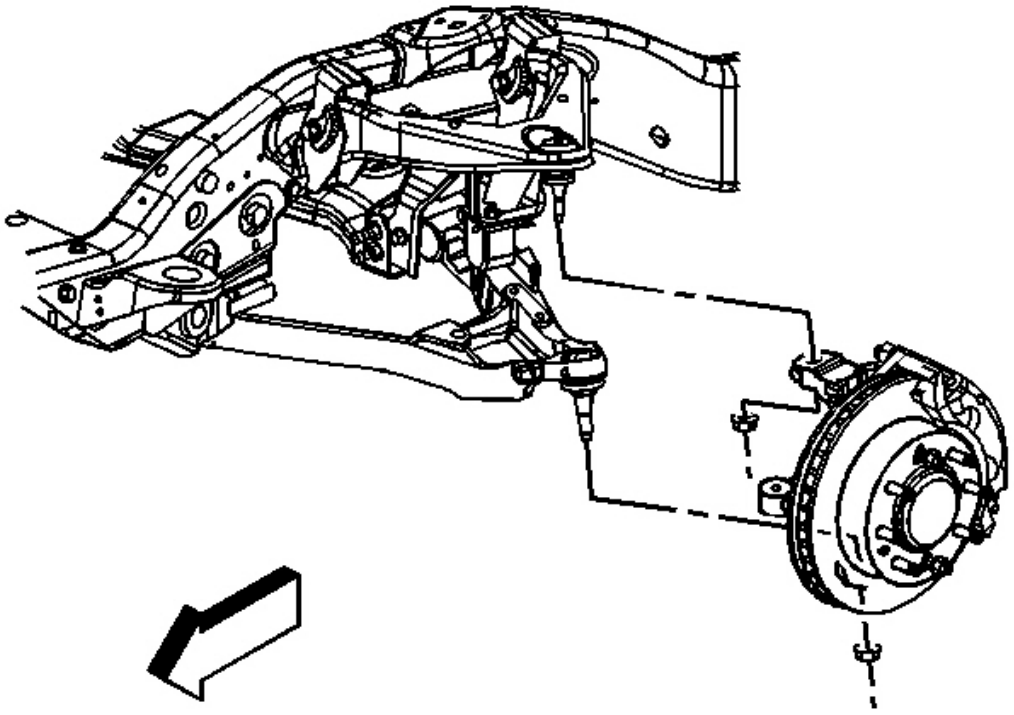


Fig. 13: Identifying Steering Knuckle
Courtesy of GENERAL MOTORS CORP.

3. Install the steering knuckle.

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Connect the lower ball joint to the steering knuckle and install the retaining nut.

   Tighten: Tighten the nut to 100 N.m (74 lb ft).

5. Connect the upper ball joint to the steering knuckle and install the retaining nut.

   Tighten: Tighten the nut to 50 N.m (37 lb ft).

6. Install the brake hose and the bracket retaining bolt to the steering knuckle

   Tighten: Tighten the bolt to 9 N.m (80 lb in).

7. Connect the outer tie rod to the steering knuckle. Refer to **Tie Rod Replacement - Outer** in Steering Linkage (Non- Rack and Pinion).
8. Install the wheel hub and bearing assembly. Refer to **Wheel Hub, Bearing, and Seal Replacement** .
9. Install the tire and wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
10. Remove the lower control arm support.
11. Lower the vehicle.
12. Verify the wheel alignment. Refer to **Wheel Alignment Specifications** .

UPPER CONTROL ARM REPLACEMENT

Tools Required

- **J 43631** Ball Joint Remover. See **Special Tools and Equipment** .
- **J 45851** Ball Joint Separator Protector Adaptors. See **Special Tools and Equipment** .

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the tire and wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
3. Remove the retaining bolt for the brake hose and the wheel speed sensor brackets.
4. Remove the wheel drive shaft. Refer to **Wheel Drive Shaft Replacement** in Wheel Drive Shafts.
5. Remove the nut at the upper ball joint. Discard the nut.
6. Disconnect the upper control arm from the steering knuckle using the **J 43631** and the **J 45851** . See **Special Tools and Equipment** .

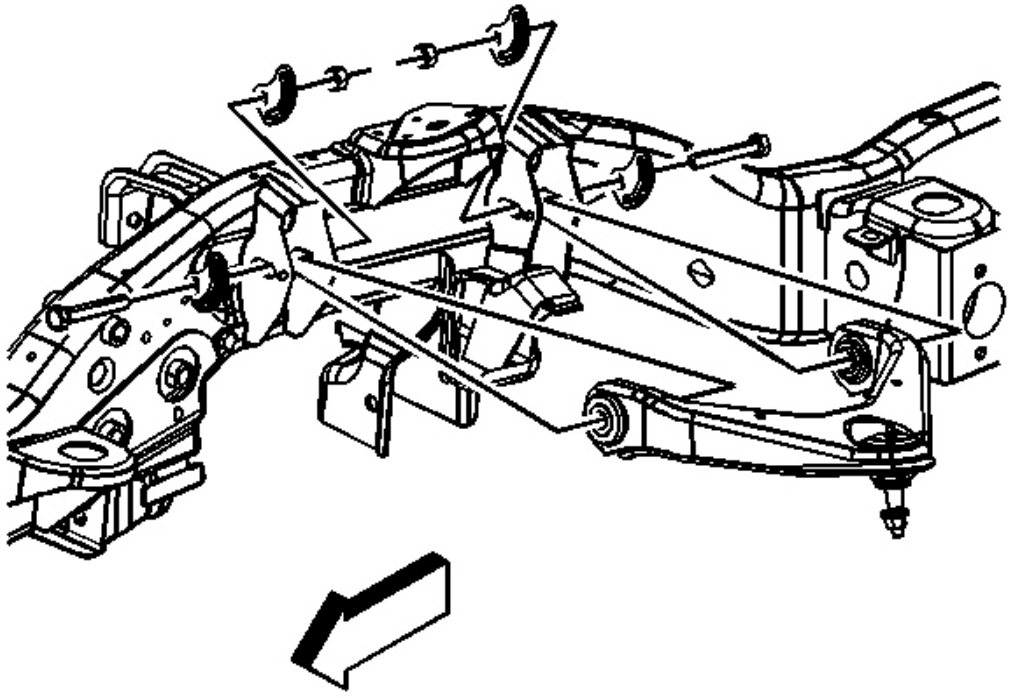


Fig. 14: Upper Control Arm
Courtesy of GENERAL MOTORS CORP.

7. Remove the upper control arm nuts and the adjustment cams.
8. Remove the upper control arm.

Installation Procedure

1. Install the upper control arm.

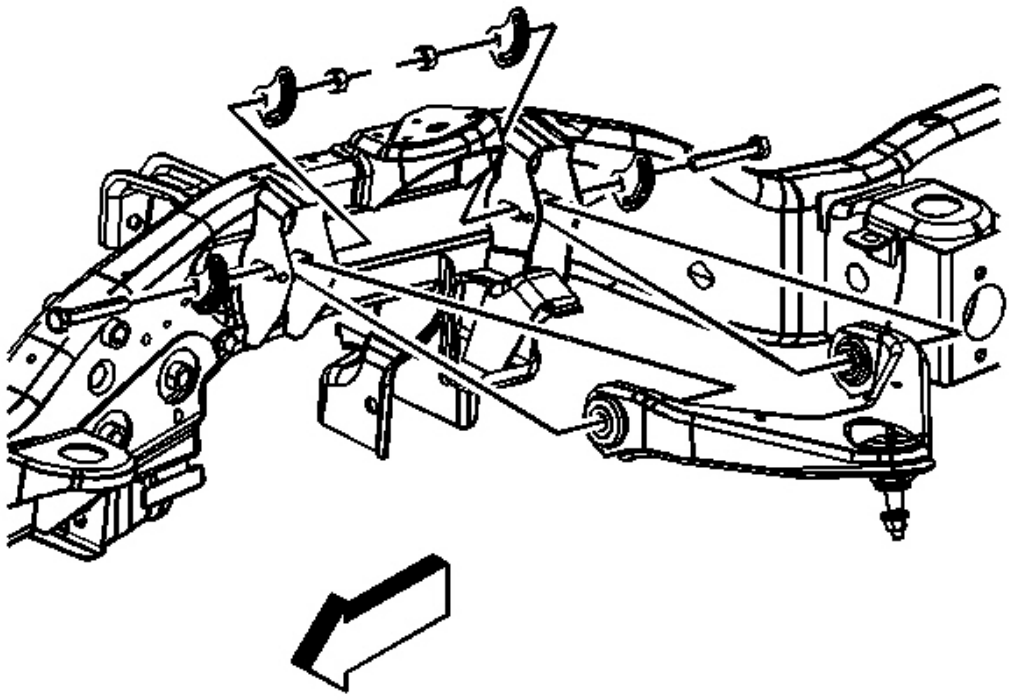


Fig. 15: Upper Control Arm
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the upper control arm bolts.

   Tighten: Tighten the nuts to 190 N.m (140 lb ft).

3. Connect the upper control arm to the steering knuckle.
4. Install the wheel drive shaft. Refer to **Wheel Drive Shaft Replacement** in Wheel Drive Shafts.
5. Install the new nut to the upper ball joint stud.

   Tighten: Tighten the nut to 50 N.m (39 lb ft).

6. Install the retaining bolts for the brake hose and wheel speed sensor brackets.

   Tighten: Tighten the bolts to 9 N.m (80 lb in).

7. Install the tire and wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
8. Lower the vehicle.
9. Verify the wheel alignment. Refer to **Wheel Alignment Specifications** in Wheel Alignment.

LOWER CONTROL ARM REPLACEMENT

Tools Required

- **J 43631** Ball Joint Remover. See **Special Tools and Equipment** .
- **J 45851** Ball Joint Separator Protector Adaptors. See **Special Tools and Equipment** .

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the tire and wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
3. Remove the stabilizer shaft links from the lower control arm. Refer to **Stabilizer Shaft Link Replacement** .
4. Remove the shock absorber lower nut and the bolt. Refer to **Shock Absorber Replacement** .
5. Remove the torsion bars. Refer to **Torsion Bar Replacement** .
6. Remove the lower ball joint stud nut. Discard the nut.

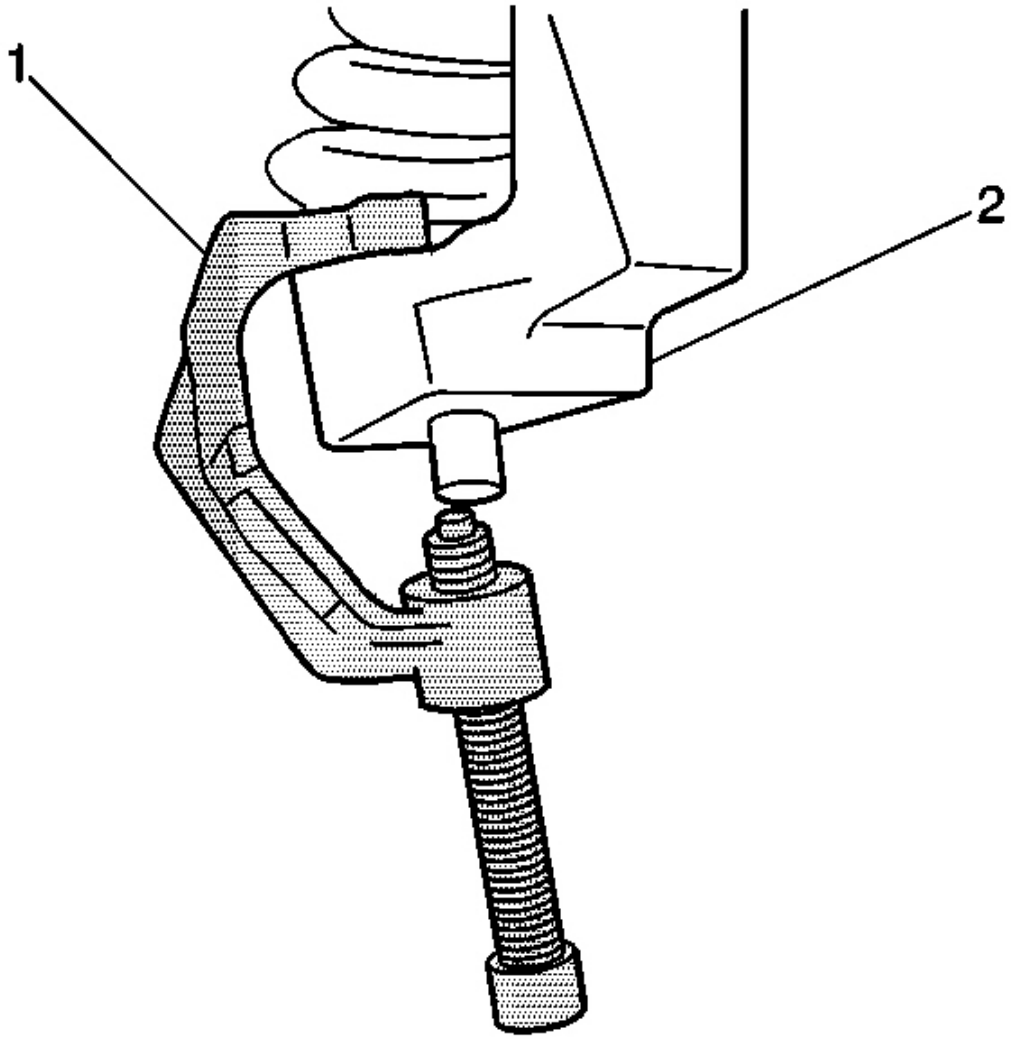


Fig. 16: Lower Ball Joint & Steering Knuckle
Courtesy of GENERAL MOTORS CORP.

7. Disconnect the lower ball joint stud from the steering knuckle using **J 43631** (1) and the **J 45851** . See **Special Tools and Equipment** .

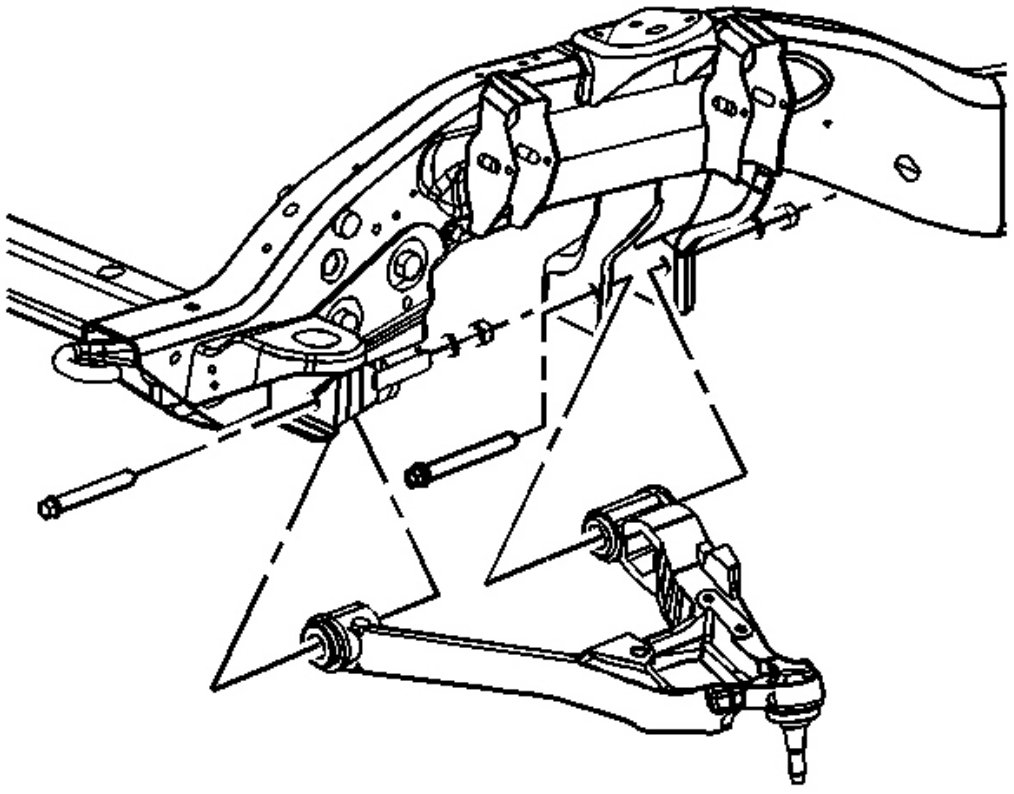


Fig. 17: Lower Control Arm Bolts
Courtesy of GENERAL MOTORS CORP.

8. Remove the lower control arm nuts and the washers.
9. Remove the lower control arm bolts.

Installation Procedure

1. Install the lower control arm.

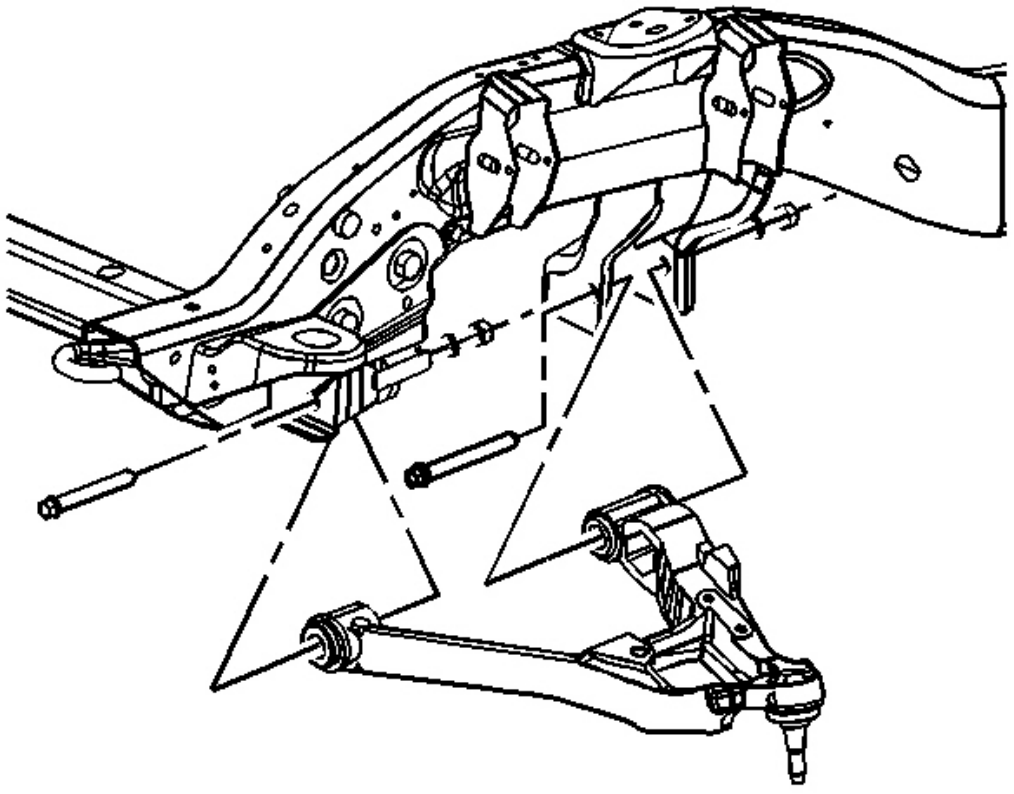


Fig. 18: Lower Control Arm Bolts
Courtesy of GENERAL MOTORS CORP.

2. Install the lower control arm bolts.

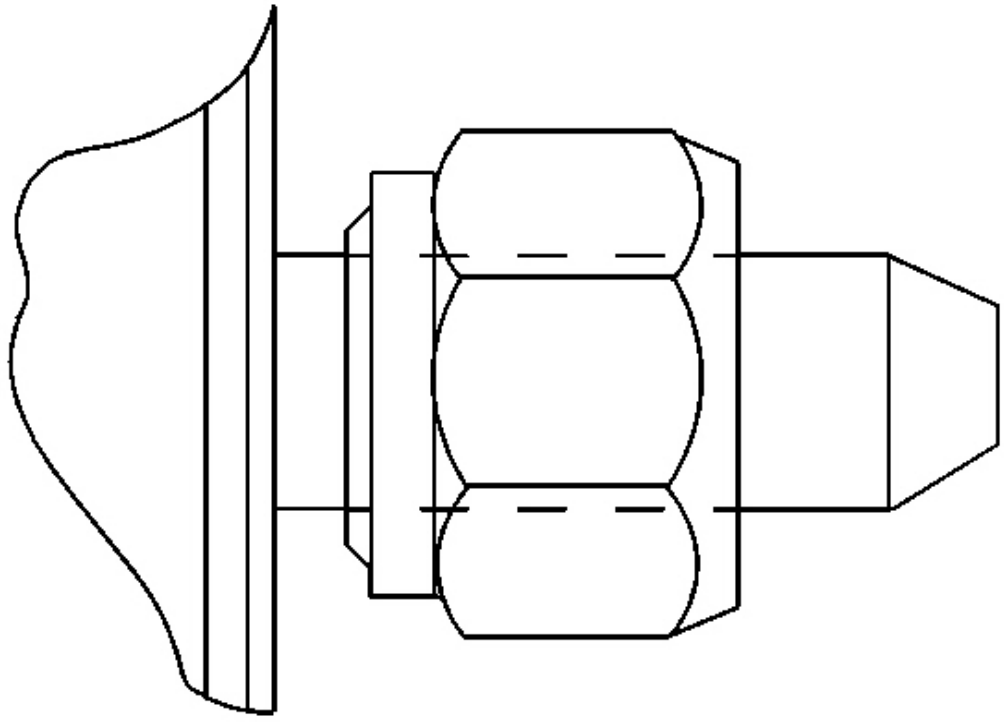


Fig. 19: Installing Washers
Courtesy of GENERAL MOTORS CORP.

3. Install the washers with the shoulder facing the arm.

NOTE: **Refer to Fastener Notice in Cautions and Notices.**

4. Install the lower control arm retaining nuts.

   Tighten: Tighten the nuts to 175 N.m (129 lb ft).

5. Connect lower ball joint stud to the steering knuckle.
6. Install the new nut to the lower ball joint stud.

   Tighten: Tighten the nut to 100 N.m (74 lb ft).

7. Install the torsion bars. Refer to **Torsion Bar Replacement** .
8. Install the shock absorber lower nut and bolt. Refer to **Shock Absorber Replacement** .

9. Install the stabilizer shaft links to the lower control arm. Refer to **Stabilizer Shaft Link Replacement** .
10. Install the tire and wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
11. Lower the vehicle.
12. Verify the wheel alignment. Refer to **Wheel Alignment Specifications** .

SPRING BUMPER REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the nut from the spring bumper stud.
3. Remove the spring bumper.

Installation Procedure

1. Install the spring bumper.

   NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the nut to the spring bumper stud.

   Tighten: Tighten the nut to 30 N.m (22 lb ft).

3. Lower the vehicle.

WHEEL STUD REPLACEMENT

Tools Required

J 43631 Ball Joint Remover. See **Special Tools and Equipment** .

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the tire and wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.

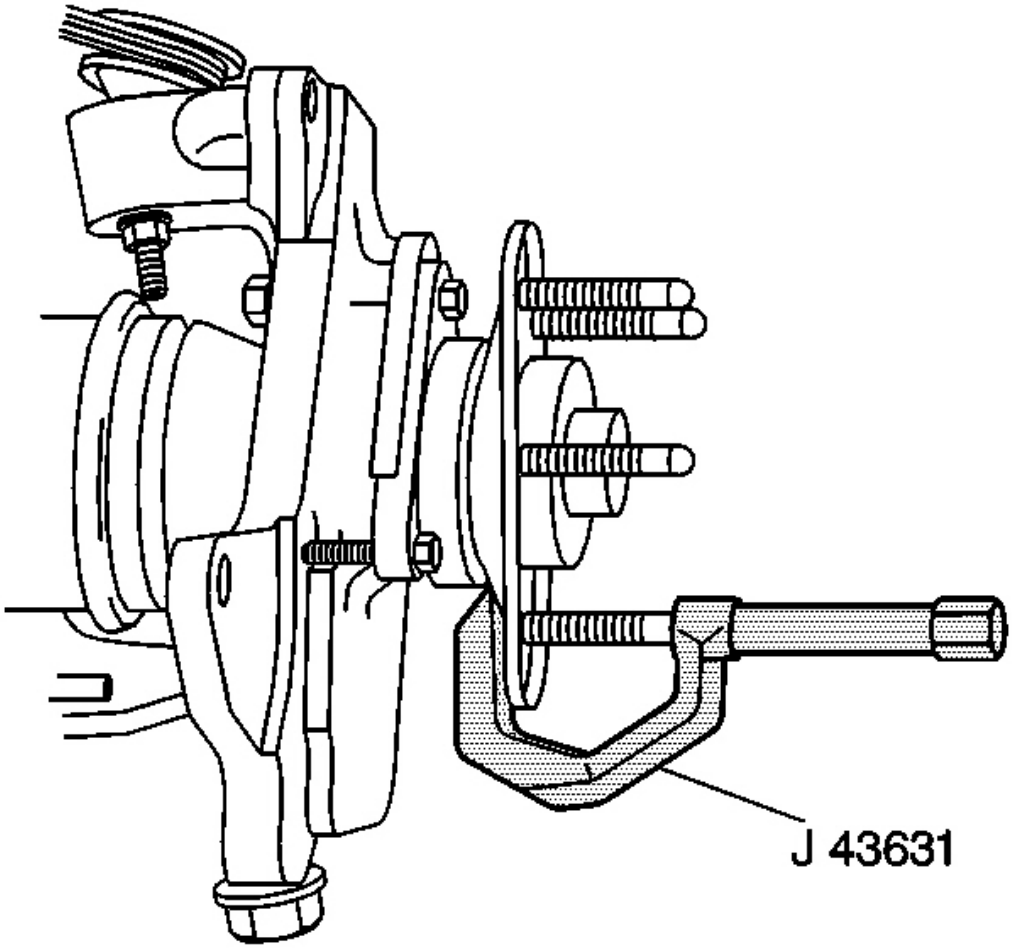


Fig. 20: Removing Wheel Stud From Hub Flange
Courtesy of GENERAL MOTORS CORP.

3. Remove the wheel stud from the hub flange using the **J 43631** . See **Special Tools and Equipment** .
4. Remove the wheel stud from the hub flange.

Installation Procedure

1. Install the new stud into the hub flange hole using firm hand pressure.

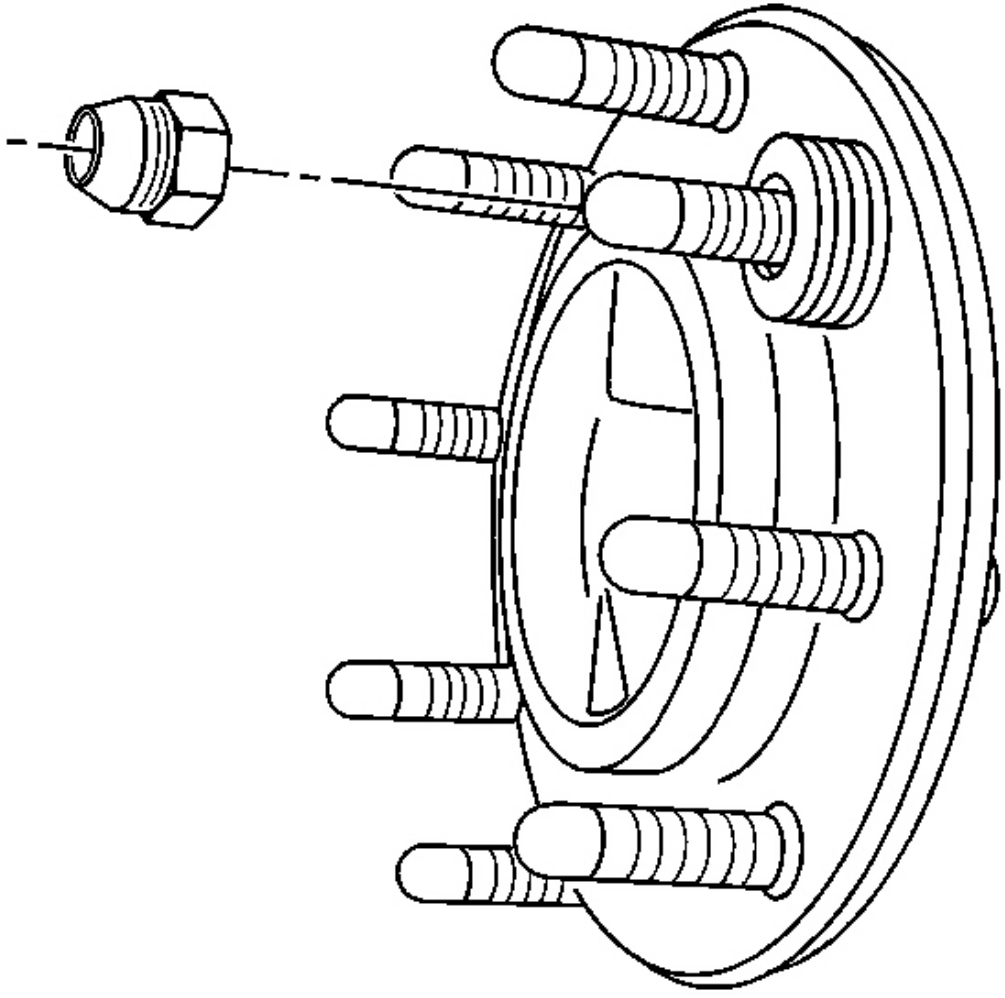


Fig. 21: Installing The New Stud Into The Hub Flange Hole
Courtesy of GENERAL MOTORS CORP.

2. Install 4 washers to the new wheel stud.
3. Thread a wheel nut onto the new stud with the flat side facing the front hub flange.
4. Tighten the lug nut until the stud contacts the back of the hub flange.
5. Remove the wheel nut.
6. Remove the washers.
7. Install the tire and wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
8. Remove the safety stands.

9. Lower the vehicle.

WHEEL HUB, BEARING, AND SEAL REPLACEMENT

NOTE: Never place vehicle on the ground with the halfshaft removed or the halfshaft nut torqued improperly. Otherwise, bearing seals may become dislodged causing premature wear and/or damage to the hub and bearing assembly.

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the tire and wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
3. Remove the rotor. Refer to **Brake Rotor Replacement - Front** in Disc Brakes.
4. Remove the wheel speed sensor and brake hose mounting bracket bolt from the steering knuckle.
5. Disconnect the electrical connection for the wheel speed sensor.
6. Remove the wheel driveshaft nut retaining cover.
7. Remove the wheel driveshaft assembly retaining nut and washer from the wheel driveshaft assembly.

   Disengage the wheel driveshaft from the wheel hub and bearing.

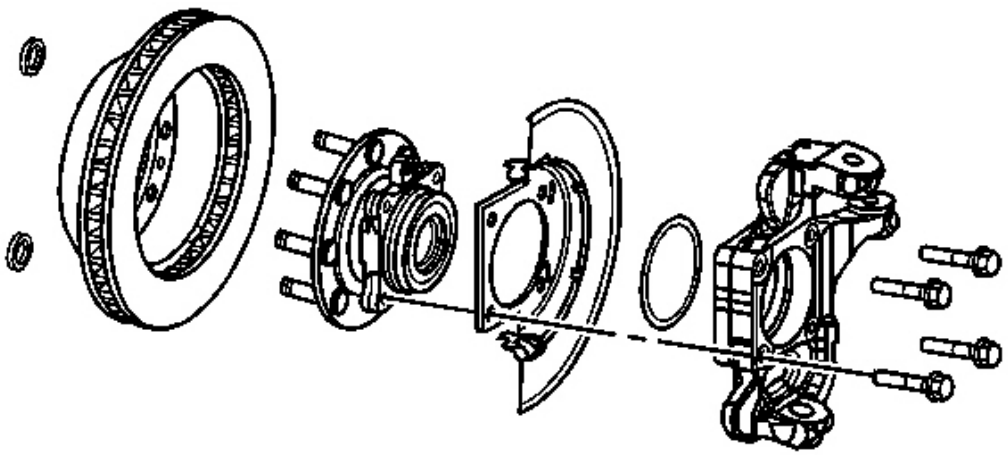


Fig. 22: O-Ring & Steering Knuckle
Courtesy of GENERAL MOTORS CORP.

8. Remove the wheel hub and bearing mounting bolts.

9. Remove the wheel hub and bearing and splash shield from the vehicle.
10. Remove the O-ring seal from the steering knuckle bore.
11. Remove the wheel speed sensor from the wheel hub and bearing.
12. Clean and inspect the O-ring seal.
13. Replace the seal if the following conditions exist:
    - Nicks
    - Cuts
    - Dry or brittle
    - Compression set

Installation Procedure

1. Clean all corrosion or contaminates from the steering knuckle bore and the hub and bearing assembly.
2. Lubricate the steering knuckle bore with wheel bearing grease or the equivalent.

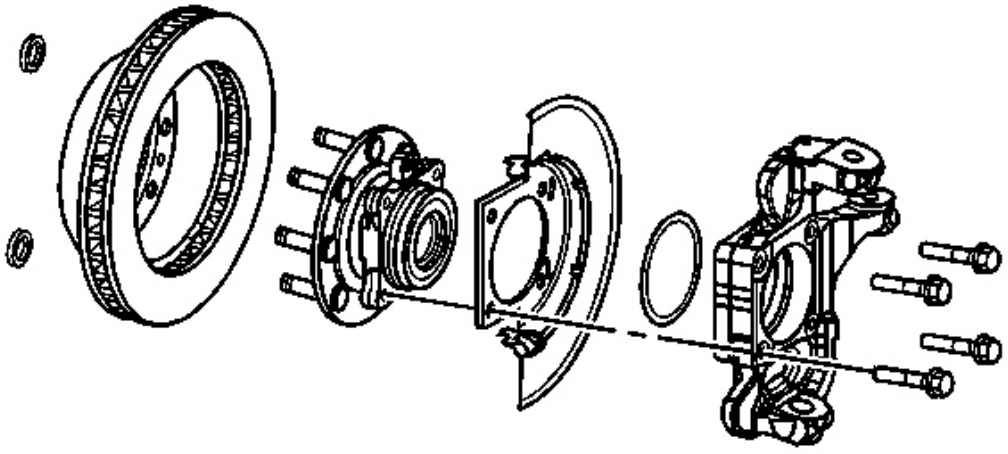


Fig. 23: O-Ring & Steering Knuckle
Courtesy of GENERAL MOTORS CORP.

3. Install the O-ring to the steering knuckle.

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Install the wheel speed sensor to the wheel hub and bearing.

Tighten: Tighten the sensor mounting bolt to 18 N.m (13 lb ft).

5. Install the wheel hub and bearing and splash shield to the vehicle.
6. Install the wheel hub and bearing mounting bolts.

   Tighten: Tighten the wheel hub to knuckle bolts to 180 N.m (133 lb ft).

7. Install the nut and washer retaining the wheel drive shaft assembly to the wheel hub and bearing.

   Tighten: Tighten the nut to 235 N.m (173 lb ft).

8. Connect the electrical connection for the wheel speed sensor.
9. Install the wheel speed sensor and brake hose mounting bracket bolt to the steering knuckle.

   Tighten: Tighten the bolt to 12 N.m (106 lb in).

10. Install the rotor. Refer to **Brake Rotor Replacement - Front** in Disc Brakes.
11. Install the tire and wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.
12. Lower the vehicle.

TORSION BAR REPLACEMENT

Tools Required

J 36202 Torsion Bar Unloading/Loading Tool. See **Special Tools and Equipment** .

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.

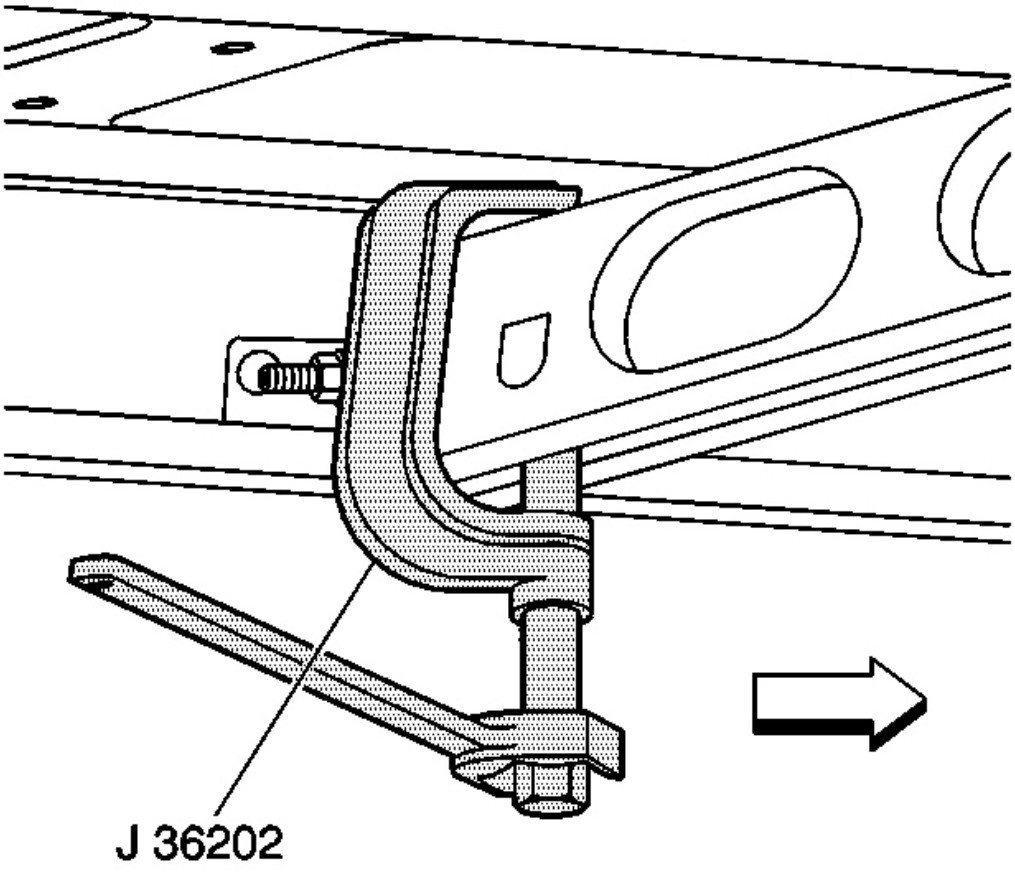


Fig. 24: Installing J 36202 To Adjustment Arm & Crossmember
Courtesy of GENERAL MOTORS CORP.

2. Install the **J 36202** to the adjustment arm and the crossmember. See **Special Tools and Equipment** .
3. Increase the tension on the adjustment arm until the load is removed from the adjustment bolt and the adjuster nut.
4. Remove the adjustment bolt and the adjuster nut.

IMPORTANT: Mark the adjustment bolt and count the number of times that is required to remove the adjustment bolt.

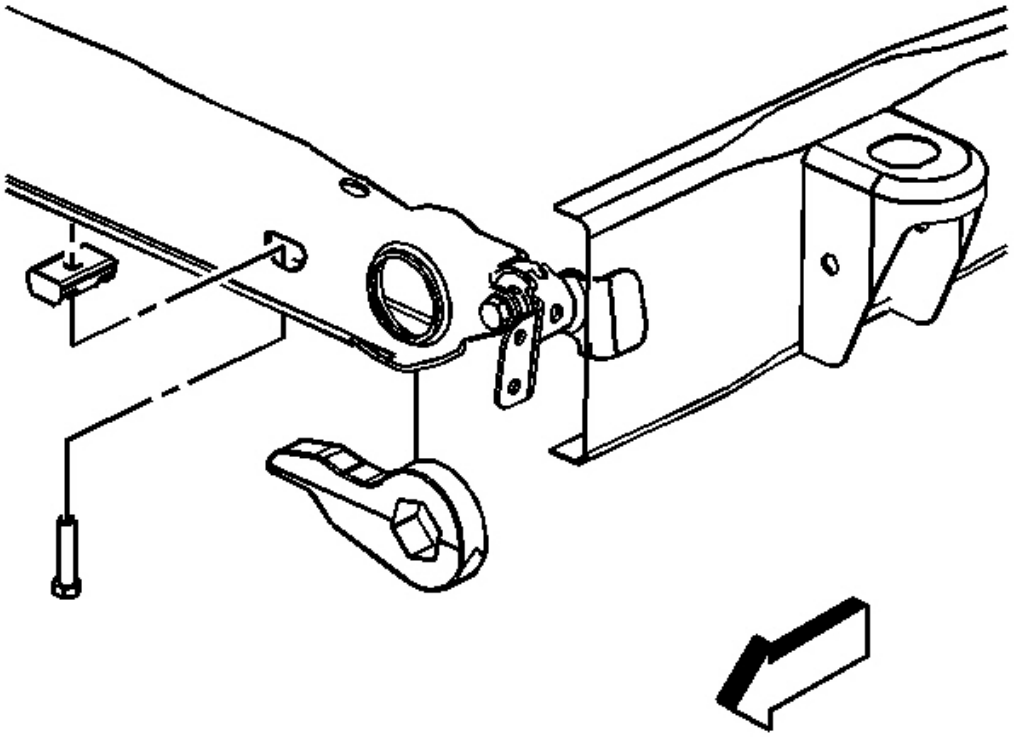


Fig. 25: Adjustment Bolt & Adjuster Nut
Courtesy of GENERAL MOTORS CORP.

5. Remove the **J 36202** , allowing the torsion bar to unload. See **Special Tools and Equipment** .
6. Remove the adjustment arm by sliding the torsion bar forward until the torsion bar clears the adjustment arm. Use your hand to support the adjustment arm as the adjustment arm releases from the torsion bar.

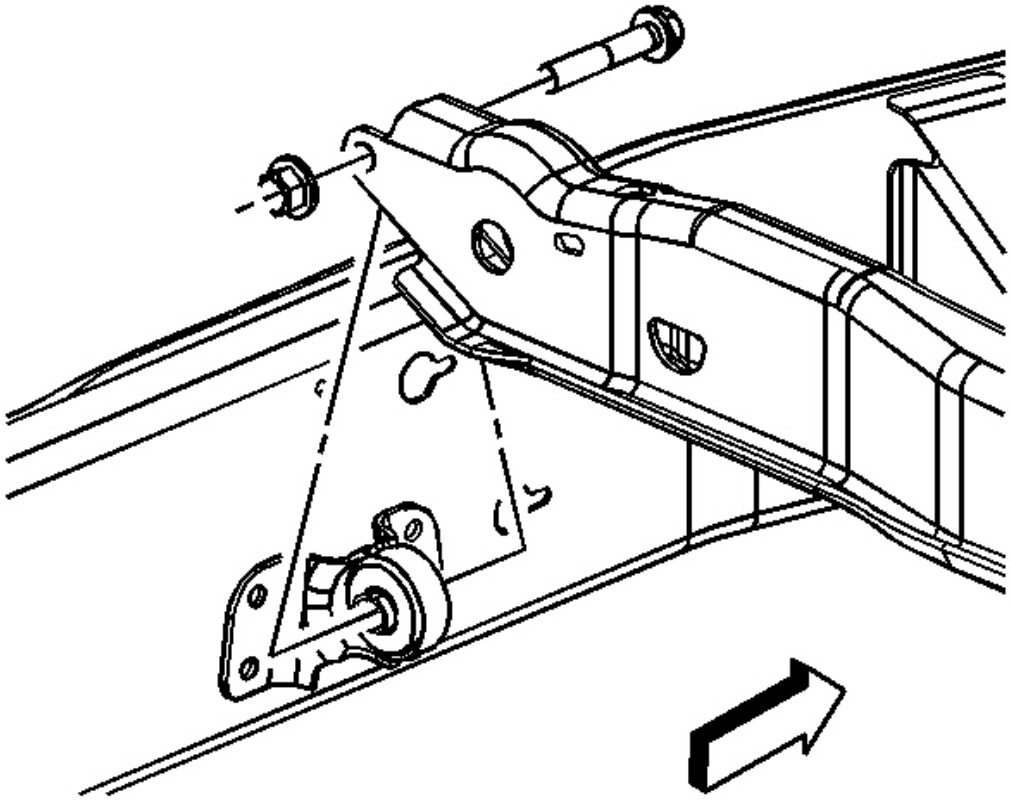


Fig. 26: Torsion Bar Crossmember
Courtesy of GENERAL MOTORS CORP.

7. Remove the torsion bar crossmember nuts and the bolts.
8. Remove the torsion bar crossmember.

IMPORTANT: Note the position of the torsion bars as the left and right bars are different.

IMPORTANT: Note the position of the torsion bar adjusters, as the left adjuster and the right adjuster are different.

9. Remove the torsion bars.

Installation Procedure

1. Install the torsion bars.

2. Install the torsion bar crossmember.

NOTE: Refer to Fastener Notice in Cautions and Notices.

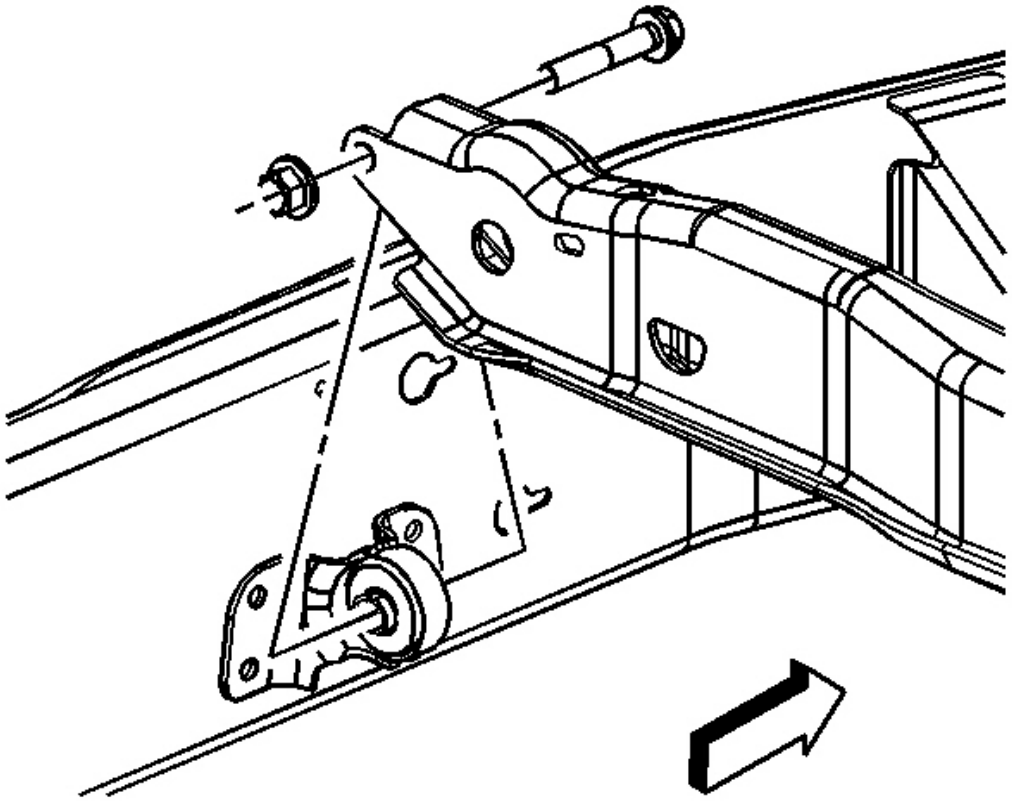


Fig. 27: Torsion Bar Crossmember
Courtesy of GENERAL MOTORS CORP.

3. Install the torsion bar crossmember bolts and the nuts.

Tighten: Tighten the nuts to 110 N.m (81 lb ft).

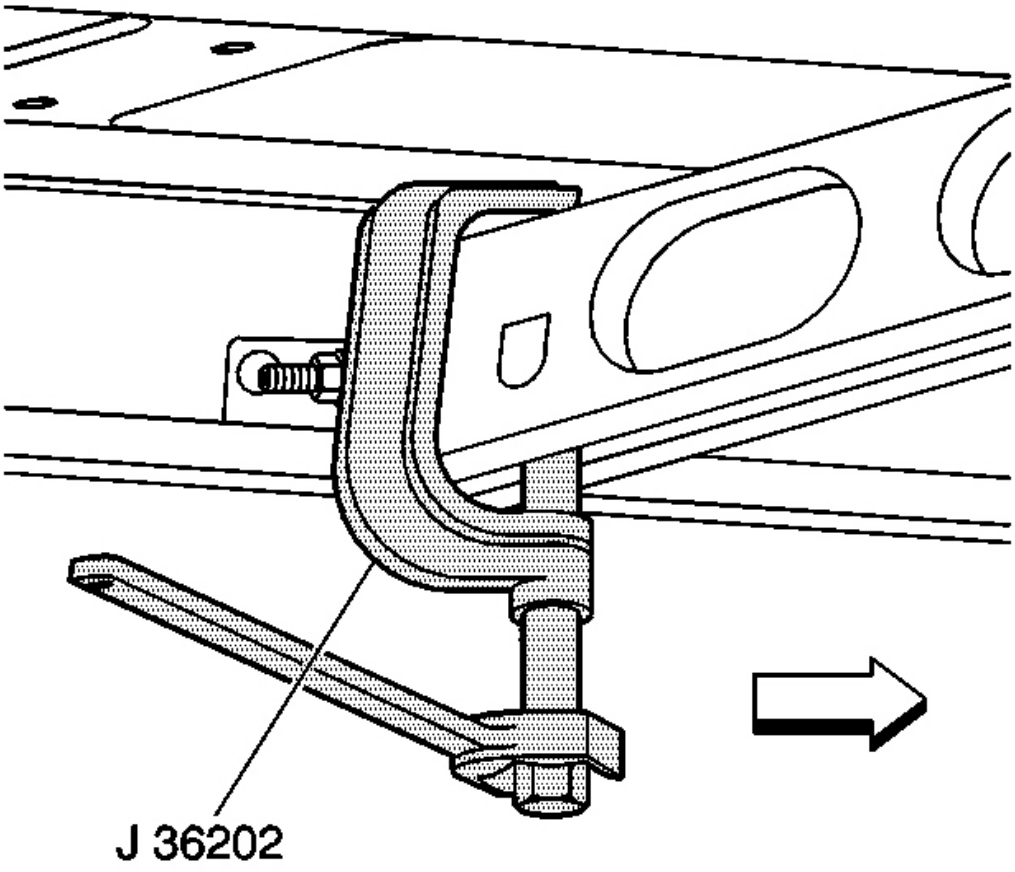


Fig. 28: Installing J 36202 To Adjustment Arm & Crossmember
Courtesy of GENERAL MOTORS CORP.

4. While supporting the adjustment arm, slide the torsion bar rearward until the torsion bar fully engages the adjustment arm.
5. Install the **J 36202** to the adjustment arm and the crossmember. See **Special Tools and Equipment** .
6. Increase the tension on the adjustment arm in order to load the torsion bar.

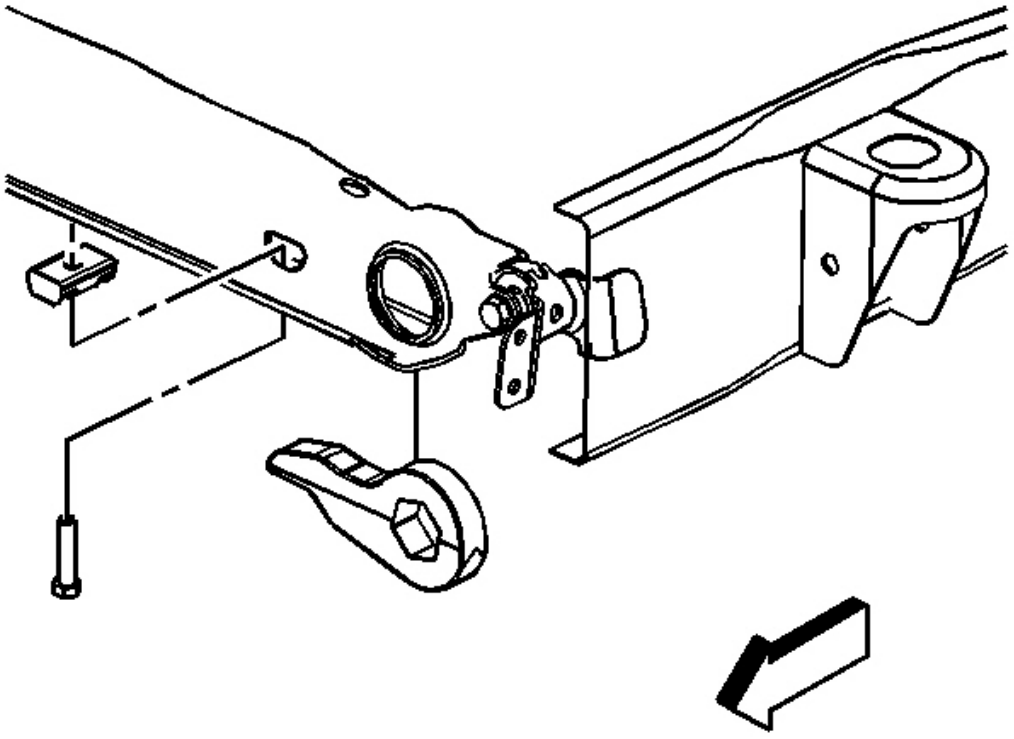


Fig. 29: Adjustment Bolt & Adjuster Nut
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Install the adjustment bolt the same amount of turns that were required to remove the bolt during removal.

7. Install the adjustment bolt and the adjuster nut.
8. Remove the **J 36202** releasing the tension on the torsion bar until the load is taken up by the adjustment bolt. See **Special Tools and Equipment** .
9. Lower the vehicle.
10. Measure the Z height. Refer to **Trim Height Inspection Procedure** in Suspension General Diagnosis.

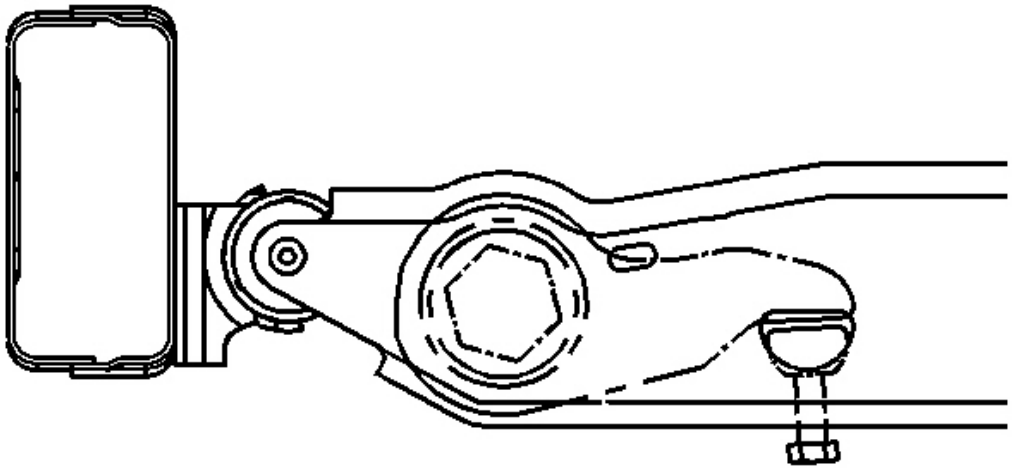


Fig. 30: Turning Adjustment Bolt Clockwise Or Counterclockwise
Courtesy of GENERAL MOTORS CORP.

11. Turn the adjustment bolt clockwise to increase the Z height and counterclockwise to decrease the Z height.

SHOCK ABSORBER REPLACEMENT

NOTE: The front shock absorbers of the vehicle are multifunctional. In addition to contributing to a smooth ride they also provide the only stop to the front suspension when fully extended. Therefore, when servicing the shock absorber, service replacement shock absorbers must be equivalent to original shock absorbers in both extended length and strength. Use of shocks not complying to original equipment or strength could result in suspension over-travel or shock breakage. Suspension over-travel may result in suspension component breakage.

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.

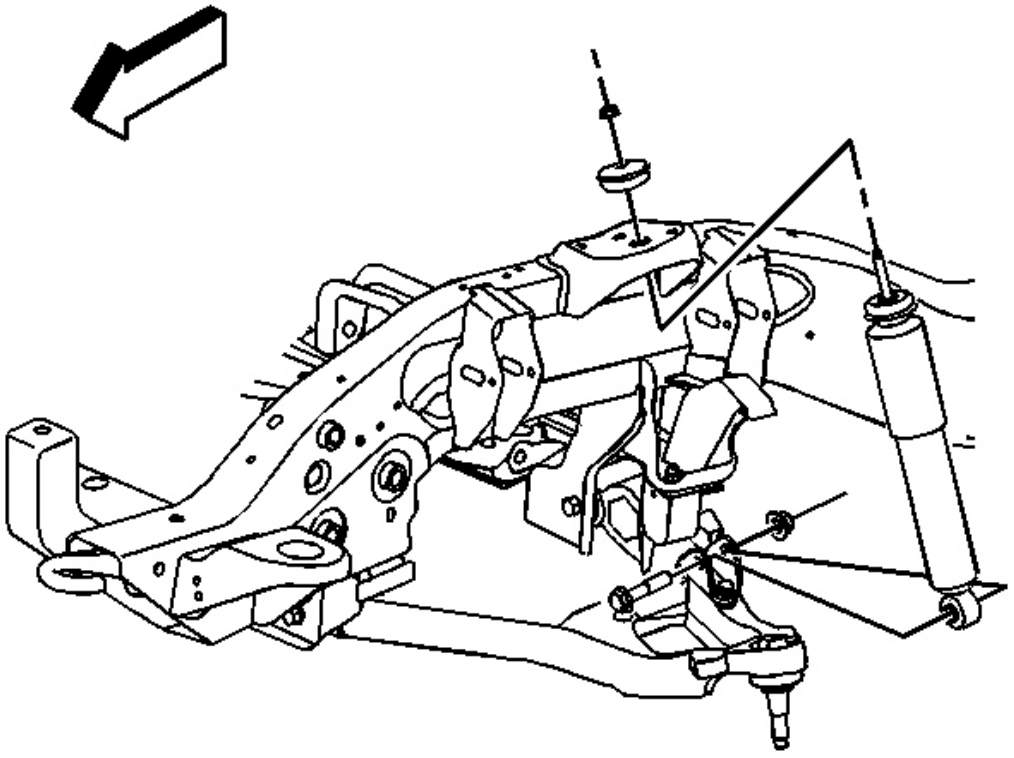


Fig. 31: Shock Absorber & Tennon End
Courtesy of GENERAL MOTORS CORP.

2. Hold the tennon end with a wrench while removing the nut.
3. Remove the nut.

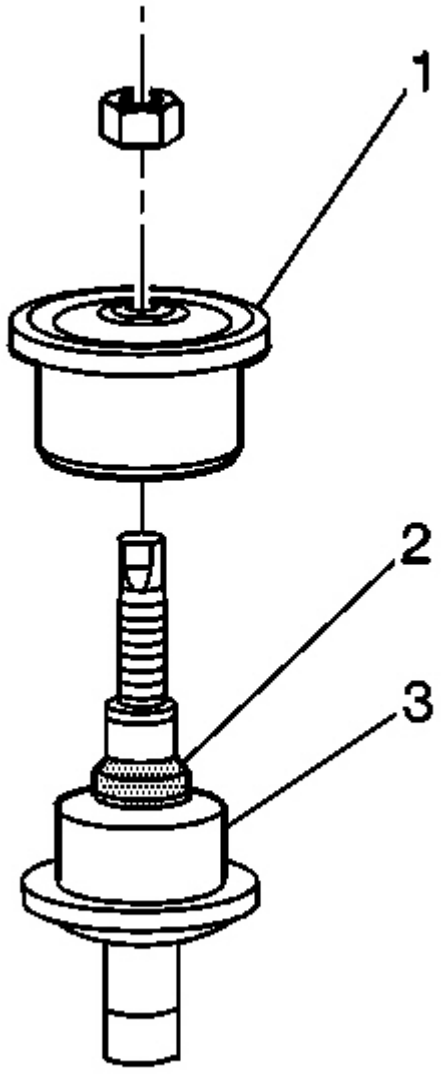


Fig. 32: Identifying Upper Insulator
Courtesy of GENERAL MOTORS CORP.

4. Remove the upper insulator (1). Do not discard the plastic pilot ring (2).

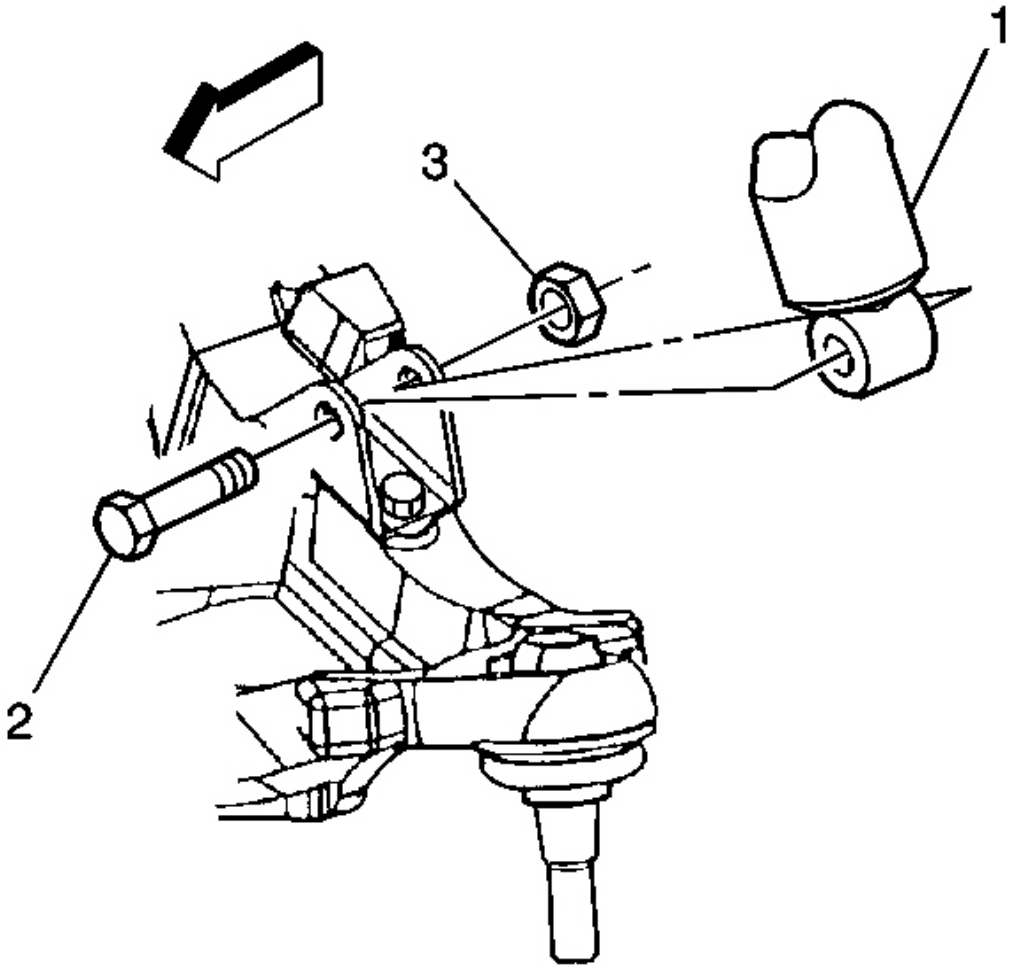


Fig. 33: View Of Shock Absorber
Courtesy of GENERAL MOTORS CORP.

5. Remove the shock absorber mounting bolt (2) and nut (3).
6. Remove the shock absorber.

Installation Procedure

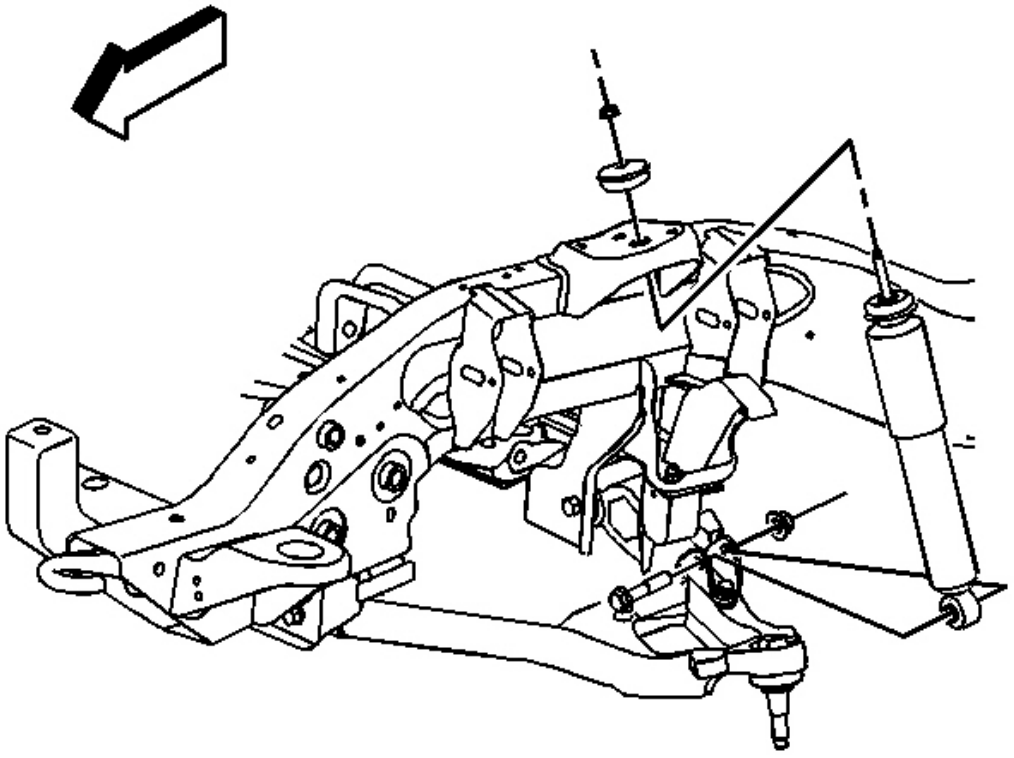


Fig. 34: Shock Absorber & Tennon End
Courtesy of GENERAL MOTORS CORP.

1. Install the shock absorber. Insert the tennon through the hole in the shock bracket on the frame.

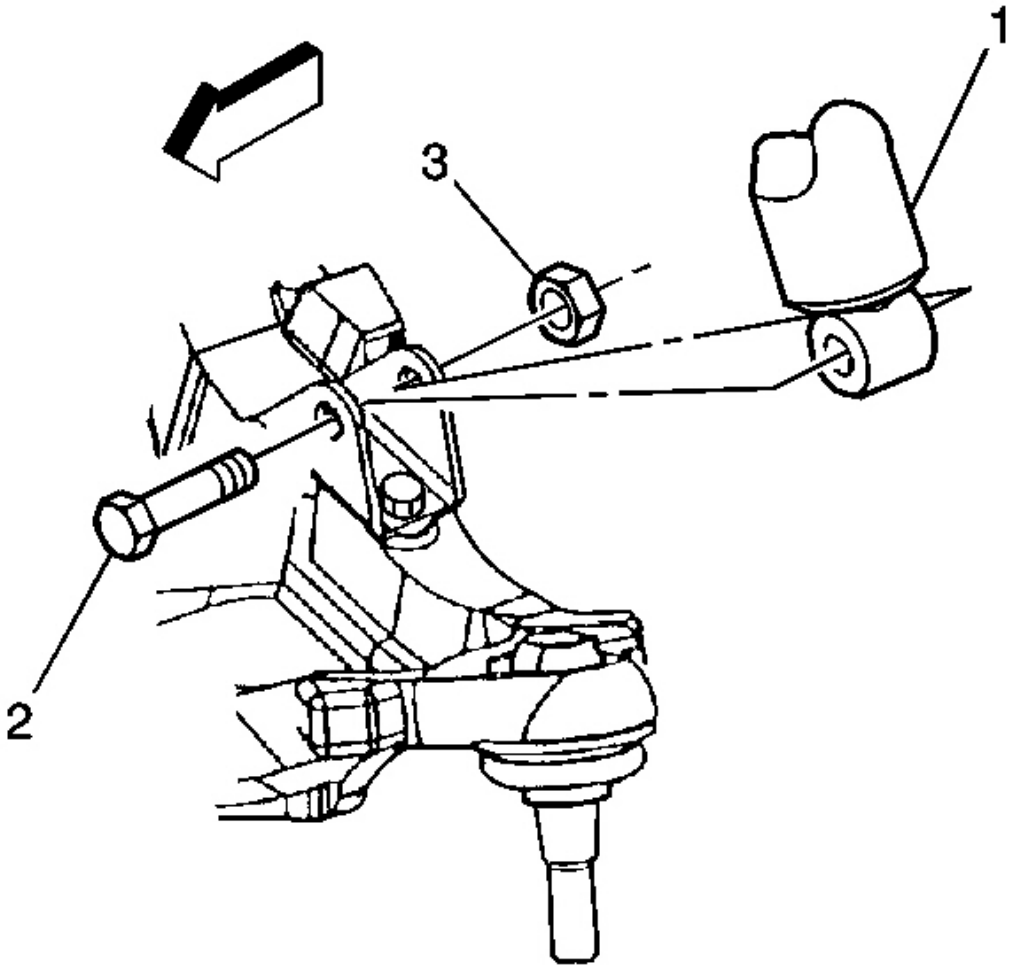


Fig. 35: View Of Shock Absorber
Courtesy of GENERAL MOTORS CORP.

2. Align the shock absorber with the mounting holes in the lower control arm.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the shock absorber bolt (2) and nut (3).

Tighten: Tighten the nut to 80 N.m (59 lb ft).

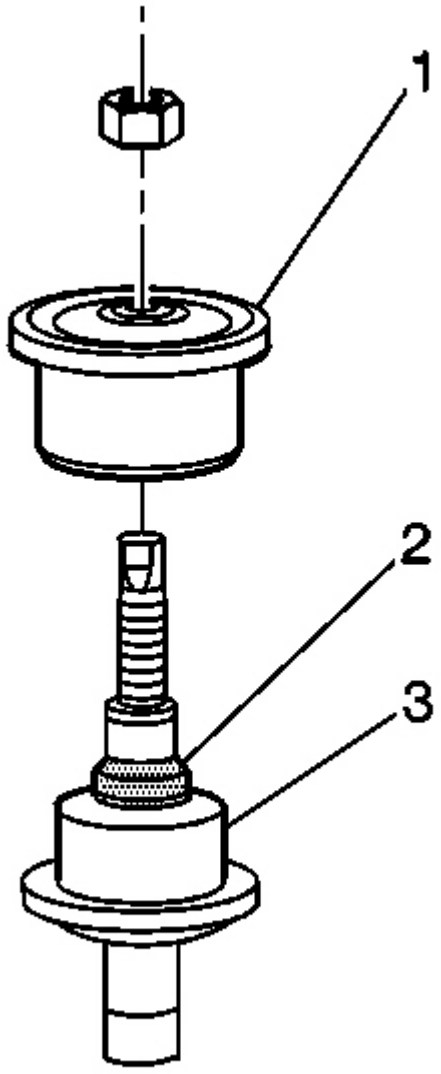


Fig. 36: Identifying Upper Insulator
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The upper insulators are substantially larger that the lower insulators. The upper insulator (1) must be installed above the shock mounting bracket on the frame. The plastic pilot ring (2) will assist the alignment of the insulator.

4. Install the upper insulator to the shock absorber.

5. Install the nut to the tennon end. Do not tighten the nut.
6. Support the lower control arm at curb height.
7. Hold the tennon end with a wrench while torquing the nut.

   Tighten: Tighten the nut to 20 N.m (15 lb ft).

8. Lower the vehicle.

SHOCK ABSORBER DISPOSAL

CAUTION: Gas charged shock absorbers contain high pressure gas. Do not remove the snap ring from inside the top of the tube. If the snap ring is removed, the contents of the shock absorber will come out with extreme force which may result in personal injury.

CAUTION: To prevent personal injury, wear safety glasses when centerpunching and drilling the shock absorber. Use care not to puncture the shock absorber tube with the centerpunch.

1. Make an indentation 10 mm (0.4 in) from the bottom (4) of the tube (3) using a centerpunch.

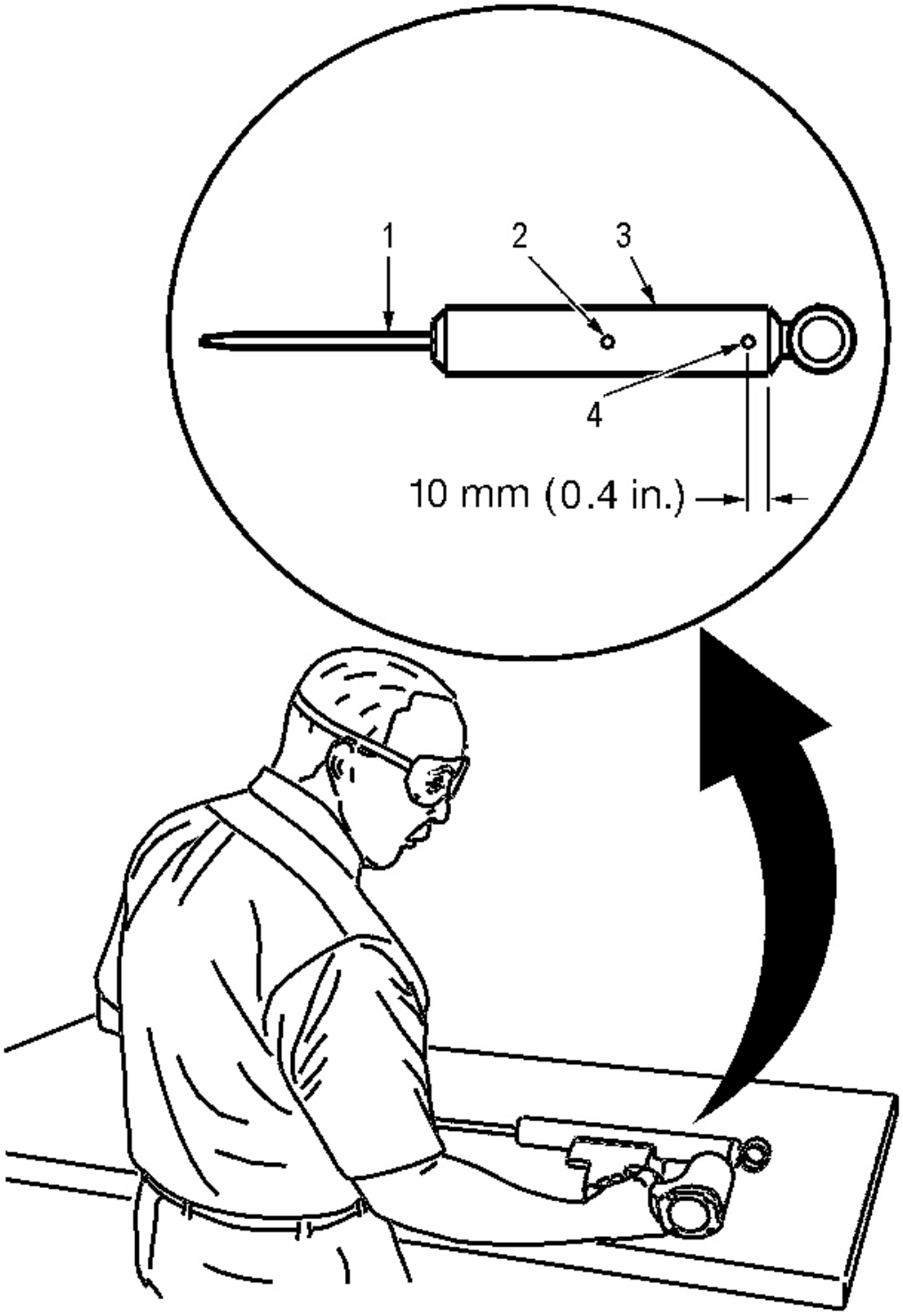

1
2
3
4
10 mm (0.4 in.)

Fig. 37: Making Indentation 10 mm (0.4 in) From Bottom Of Tube
Courtesy of GENERAL MOTORS CORP.

2. Clamp the shock absorber in a vise horizontally with the shock absorber rod (1) completely extended.
3. Drill a hole in the shock absorber at the centerpunch (4) using a 5 mm (3/16 in) drill bit. Gas or a gas/oil mixture will exhaust when the drill bit penetrates the shock absorber. Use shop towels in order to contain the escaping oil.
4. Make an indentation in the middle (2) of the tube (3) with a centerpunch.
5. Drill a second hole in the shock absorber at the centerpunch (2) using a 5 mm (3/16 in) drill bit. Oil will exhaust when the drill bit penetrates the shock absorber. Use shop towels in order to contain the escaping oil.
6. Remove the shock absorber from the vise. Hold the shock absorber over a drain pan horizontally with the holes down. Move the rod (1) in and out of the tube (3) to completely drain the oil from the shock absorber.

DESCRIPTION AND OPERATION

GENERAL DESCRIPTION

All models have a front suspension that consists of the following components:

- Upper and lower control arms
- Stabilizer shaft
- Shock absorbers
- Torsion bars (right and left side)

The stabilizer shaft controls the side roll of the vehicle. This shaft is mounted in rubber insulators that are held to the frame with a bracket. The ends of the stabilizer shaft connect to the lower control arms with insulator assemblies.

The upper ball stud assembly is press fit into the upper control arm. The assembly attaches to the steering knuckle with a prevailing torque nut.

The upper ball studs are not replaceable.

The lower ball stud assembly is pressed into the outer end of the lower control arm. A prevailing torque nut joins the steering knuckle to the lower ball stud.

The upper and the lower control arms have pressed-in bushings. The bolts pass through the bushings and join the arms to the frame.

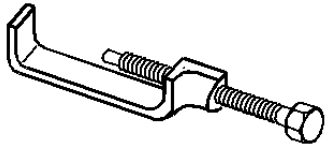
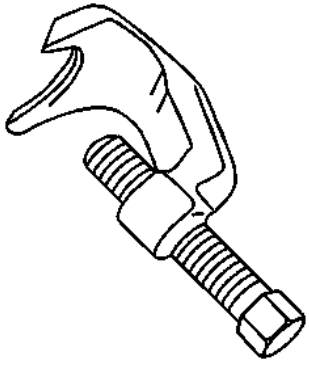
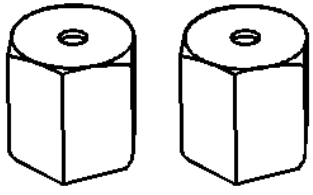
All ball studs have grease fittings.

All front wheel bearings are sealed. These bearings are pre-adjusted and need no lubrication.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Special Tools

Illustration	Tool Number/Description
	J 36202 Torsion Bar Loading/Unloading Tool
	J 43631 Ball Joint Remover
	J 45851 Ball Joint Separator Protector Adaptors