

2003-04 SUSPENSION

Rear - H2

DESCRIPTION & OPERATION

All vehicles use a 5-link rear suspension consisting of the following components:

- Upper And Lower Control Arms
- Stabilizer Shaft
- Shock Absorbers
- Track Bar
- Coil Springs
- Air Springs

The ride control is provided by 2 identical direct dual-action shock absorbers that are angle-mounted between the frame and the brackets, which are attached to the axle tubes.

To compensate for vehicle weight, the coil springs are different for the left and right sides. Do not interchange.

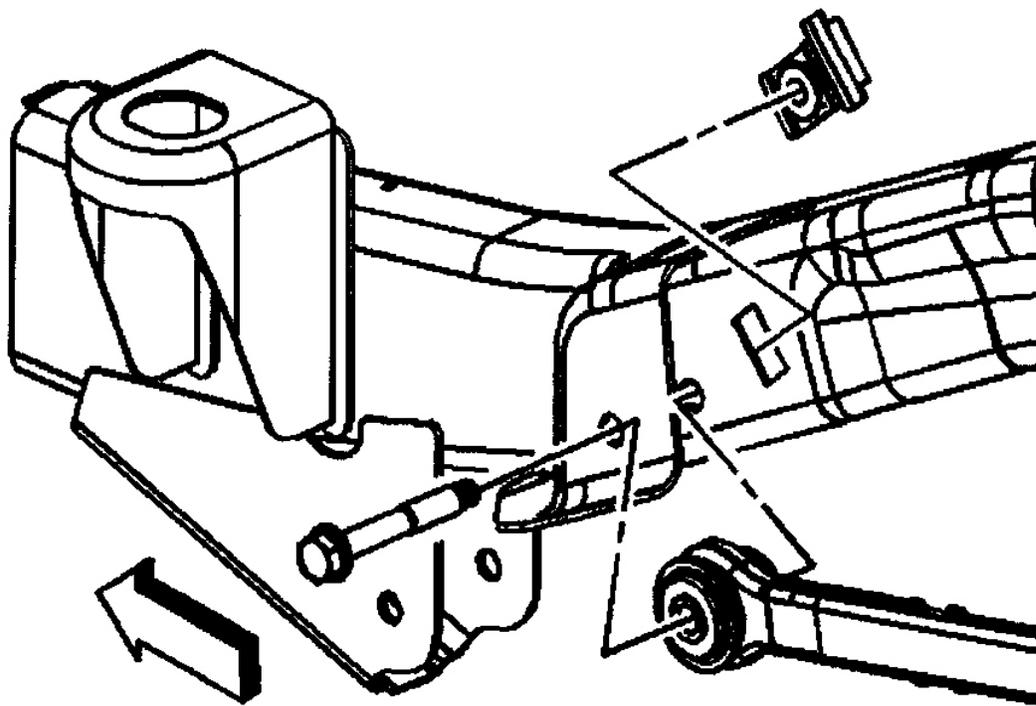
Coil spring or air spring suspensions are available. For more information on air spring components, refer to Suspension.

REPAIR INSTRUCTIONS

REAR AXLE UPPER CONTROL ARM REPLACEMENT

Removal

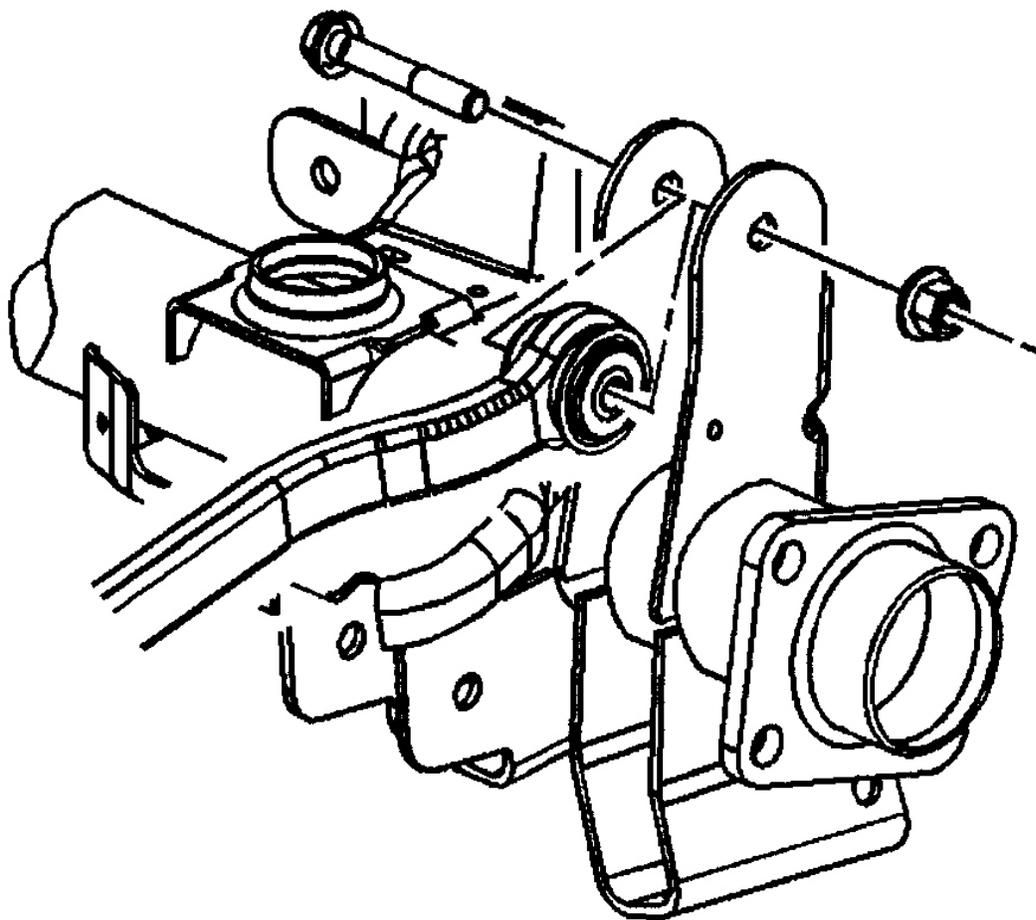
1. Raise and support the vehicle.
2. Disconnect the air suspension level sensor (if equipped). Refer to Air Suspension.
3. Support the rear axle at the ride height.
4. Remove the upper control arm retaining nut and bolt from the frame bracket. See **Fig. 1** .



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Fig. 1: Removing Upper Control Arm Retaining Nut & Bolt From Frame Bracket
Courtesy of GENERAL MOTORS CORP.

5. Remove the upper control arm retaining nut and bolt from the axle bracket. See **Fig. 2** .



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Fig. 2: Removing Upper Control Arm Retaining Nut & Bolt From Axle Bracket
Courtesy of GENERAL MOTORS CORP.

6. Remove the upper control arm.

Installation

1. Install the upper control arm.
2. Install the upper control arm retaining bolt and nut to the axle bracket. See **Fig. 2** .
3. Install the upper control arm retaining bolt to the frame bracket. See **Fig. 1** .
- 4.

NOTE: Do not tighten the nuts unless the suspension is at the curb height position.

Install the upper control arm to axle bolt and nut. Tighten the nut to 155 N.m (114 lb ft).

5.

NOTE: Do not tighten the bolts unless the suspension is at the curb height position.

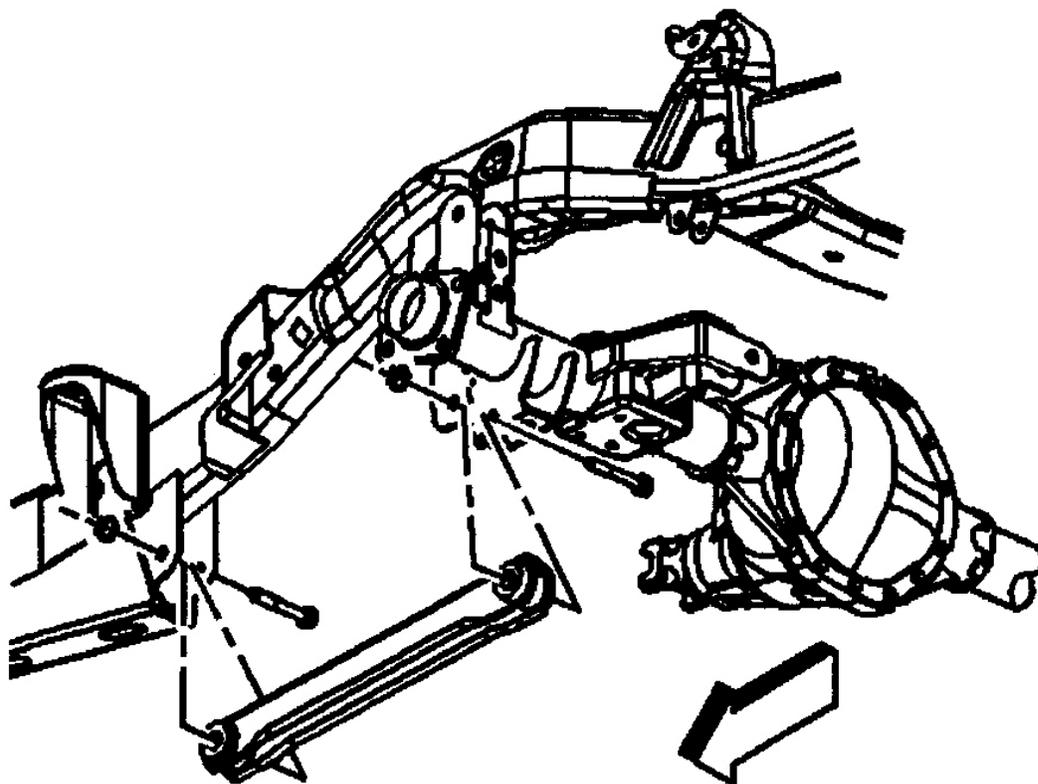
Install the upper control arm to frame bolt. Tighten the bolt to 155 N.m (114 lb ft).

6. Connect the air suspension level sensor (if equipped). Refer to Suspension.
7. Remove rear axle support.
8. Lower the vehicle.

REAR AXLE UPPER CONTROL ARM REPLACEMENT

Removal

1. Raise and support the vehicle.
2. Support the rear axle at curb height.
3. Remove the lower control arm retaining nuts. See **Fig. 3**.
4. Remove the lower control arm retaining bolt.



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Fig. 3: Removing Lower Control Arm Retaining Nuts & Bolts
Courtesy of GENERAL MOTORS CORP.

5. Remove the lower control arm.

Installation

1. Install the lower control arm.
- 2.

NOTE: Do not tighten the bolts unless the suspension is at the curb height position.

Install the lower control arm to axle bolt and nut. See **Fig. 3** . Tighten bolt to 200 N.m (148 lb ft).

- 3.

NOTE: Do not tighten the bolts unless the suspension is at the curb height position.

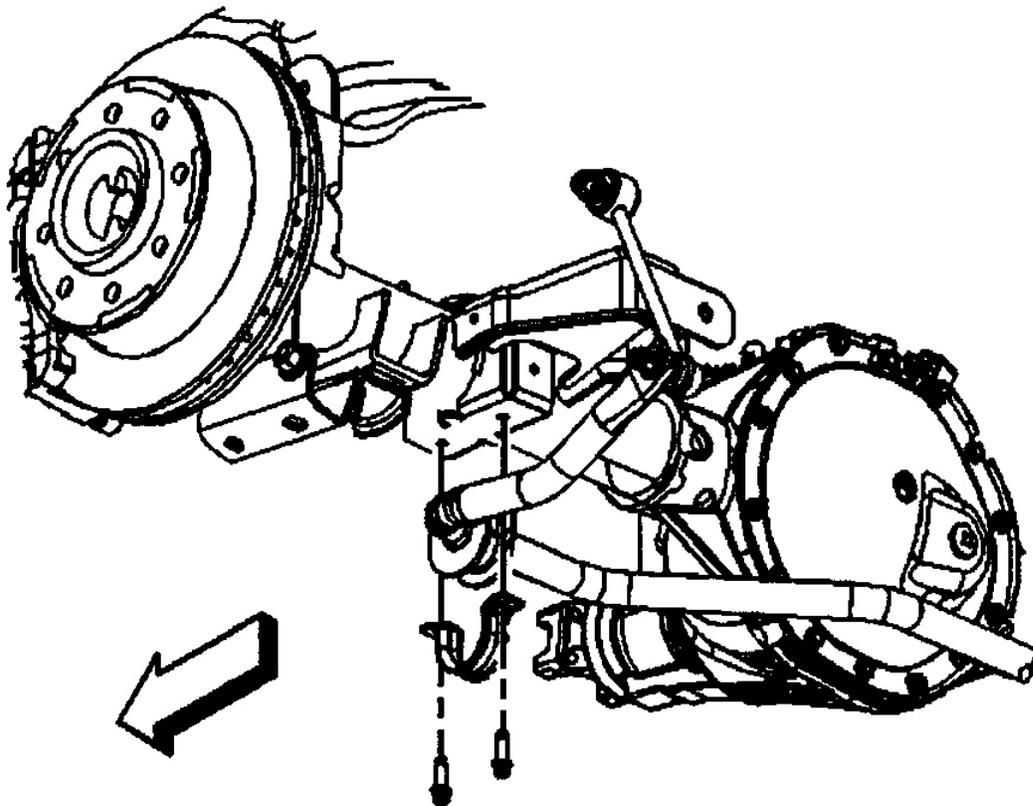
Install the lower control arm to frame bolt and nut. Tighten bolt to 155 N.m (114 lb ft).

4. Remove the rear axle support.
5. Lower the vehicle.

STABILIZER SHAFT REPLACEMENT

Removal

1. Raise and support the vehicle.
2. Support the rear axle at curb height.
3. Remove the stabilizer shaft link nut from the ball stud. See **Fig. 4** .



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Fig. 4: Identifying Rear Stabilizer Shaft Components
Courtesy of GENERAL MOTORS CORP.

4. Remove the stabilizer shaft insulator bracket mounting bolts. See **Fig. 4**
5. Remove the stabilizer shaft.
6. Remove the stabilizer shaft insulators brackets.

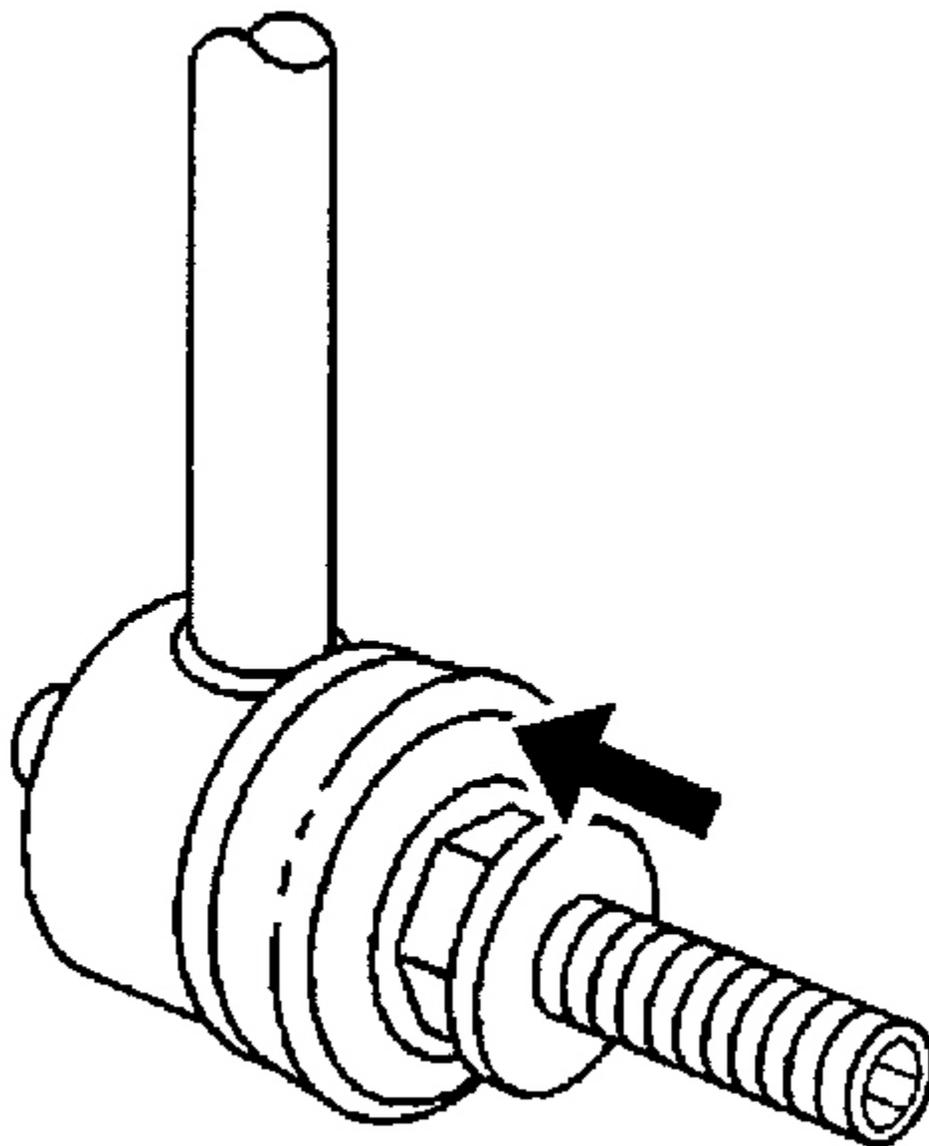
7. Remove the stabilizer shaft insulators.

Installation

1. Install the stabilizer shaft insulators to the stabilizer shaft. See **Fig. 4** .
2. Install the stabilizer shaft.
3. Install the stabilizer shaft insulator brackets to the rear axle.
4. Install the stabilizer shaft bracket mounting bolts.
- 5.

NOTE: **When tightening the lower link nut verify that the inner jam nut bottoms out on the ball stud. See Fig. 5 .**

Install the stabilizer shaft link nut to the ball stud. Tighten the ball stud to stabilizer shaft nut to 72 N.m (53 lb ft). Tighten the insulator bracket bolts to 33 N.m (24 lb ft).



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Fig. 5: Identifying Stabilizer Shaft Link Nut To Ball Stud
Courtesy of GENERAL MOTORS CORP.

6. Remove the rear axle support.

7. Lower the vehicle.

STABILIZER SHAFT INSULATOR REPLACEMENT

Removal

1. Remove the stabilizer shaft insulator bracket mounting bolts. See **Fig. 4** .
2. Raise and support the vehicle.
3. Support the rear axle at curb height.
4. Separate the stabilizer shaft from the axle.
5. Remove the stabilizer shaft insulators brackets.
6. Remove the stabilizer shaft insulators.

Installation

1. Install the stabilizer shaft insulators to the stabilizer shaft. See **Fig. 4** .
2. Install the stabilizer shaft insulator brackets to the rear axle.
3. Install the stabilizer shaft bracket mounting bolts. Tighten the insulator bracket bolts to 33 N.m (24 lb ft).
4. Remove the rear axle support.
5. Lower the vehicle.

STABILIZER SHAFT LINK REPLACEMENT

Removal

1. Raise and support the vehicle.
2. Support the rear axle at curb height.
3. Remove the stabilizer shaft link nut and bolt from the frame bracket. See **Fig. 4** .
4. Remove the stabilizer shaft link nut from the ball stud.
5. Remove the stabilizer shaft link.

Installation

1. Install the stabilizer shaft link.
- 2.

NOTE: When tightening the lower link nut verify that the inner jam nut bottoms out on the ball stud.

Install the stabilizer shaft link nut to the ball stud. See **Fig. 5** .

3. Install the stabilizer shaft link nut and bolt to the frame bracket. See **Fig. 4** . Tighten the link to frame bracket nut to 72 N.m (53 lb ft). Tighten the ball stud to stabilizer shaft nut to 72 N.m (53 lb ft).
4. Remove the rear axle support.

5. Lower the vehicle.

SHOCK ABSORBER REPLACEMENT

Removal

1. Raise and support the vehicle.
2. Support the rear axle.
3. Disconnect the air suspension level sensor (if equipped). Refer to Suspension.
4. Remove the upper shock absorber nut and the bolt.
5. Remove the lower shock absorber nut and the bolt.
6. Remove the shock absorber.

Installation

1. Install the shock absorber.
2. Install the upper shock absorber nut and bolt.
3. Install the lower shock absorber nut and bolt. Tighten the bolts to 105 N.m (77 lb ft).
4. Connect the air suspension level sensor (if equipped). Refer to Air Suspension.
5. Remove the rear axle support.
6. Lower the vehicle.

SHOCK ABSORBER DISPOSAL

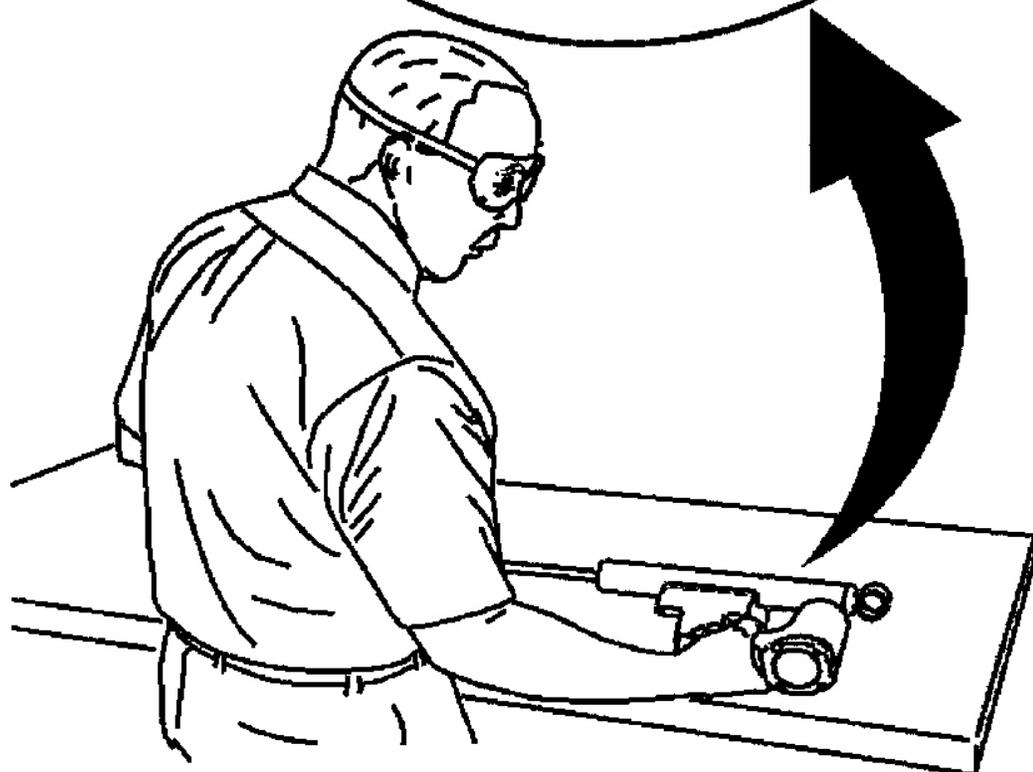
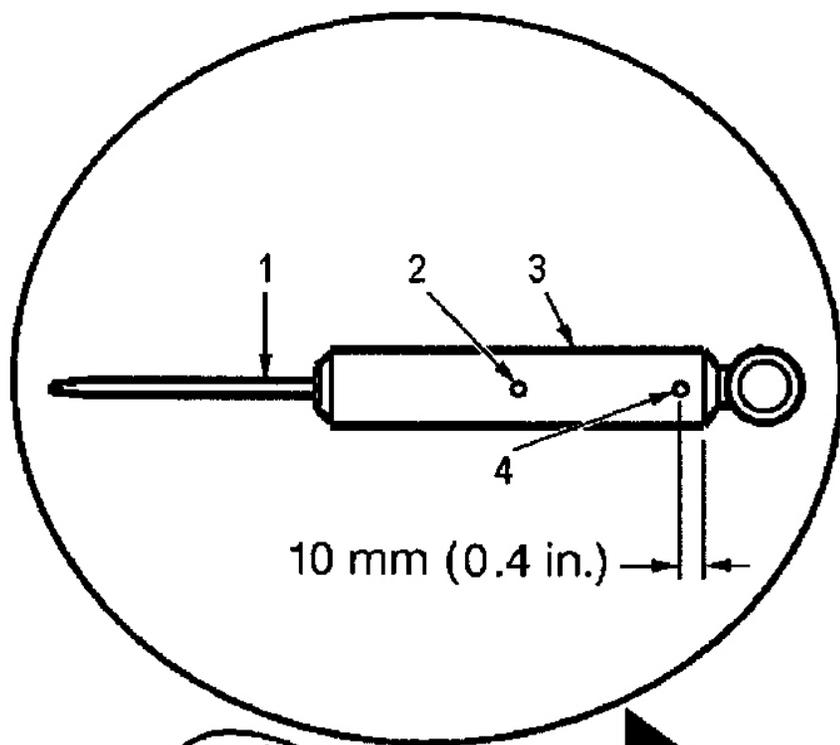
CAUTION: Gas charged shock absorbers contain high pressure gas. Do not remove the snap ring from inside the top of the tube. If the snap ring is removed, the contents of the shock absorber will come out with extreme force which may result in personal injury.

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

Disposal Procedures

1. Make an indentation 10 mm (0.4 in) from the bottom (4) of the tube (3) using a centerpunch. See **Fig. 6**.
2. Clamp the shock absorber in a vise horizontally with the shock absorber rod (1) completely extended. See **Fig. 6**.
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. See **Fig. 6**.

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.



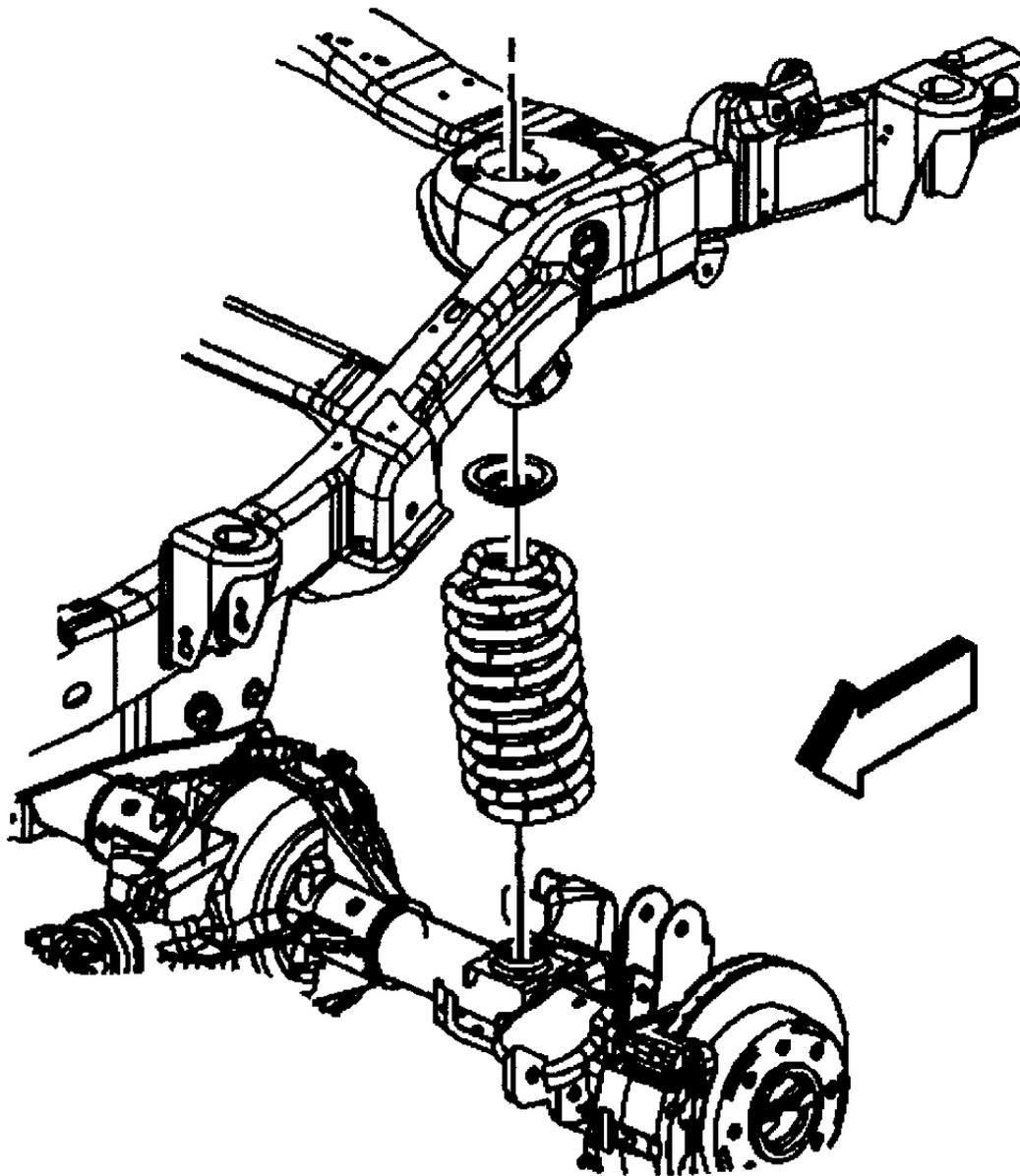
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Fig. 6: Preparing Shock Absorber For Disposal
Courtesy of GENERAL MOTORS CORP.

COIL SPRING REPLACEMENT

Removal

1. Raise and support the vehicle.
2. Support the rear axle.
3. Remove the stabilizer shaft link retaining nut from the frame.
4. Remove the lower shock absorber nut and bolt from the rear axle.
5. Lower the rear axle until the springs are fully unloaded.



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Fig. 7: Removing Rear Coil Spring
Courtesy of GENERAL MOTORS CORP.

6. Remove the coil spring and the insulators.

Installation

NOTE: Note the position of the coil springs, as the left coil spring and the right coil

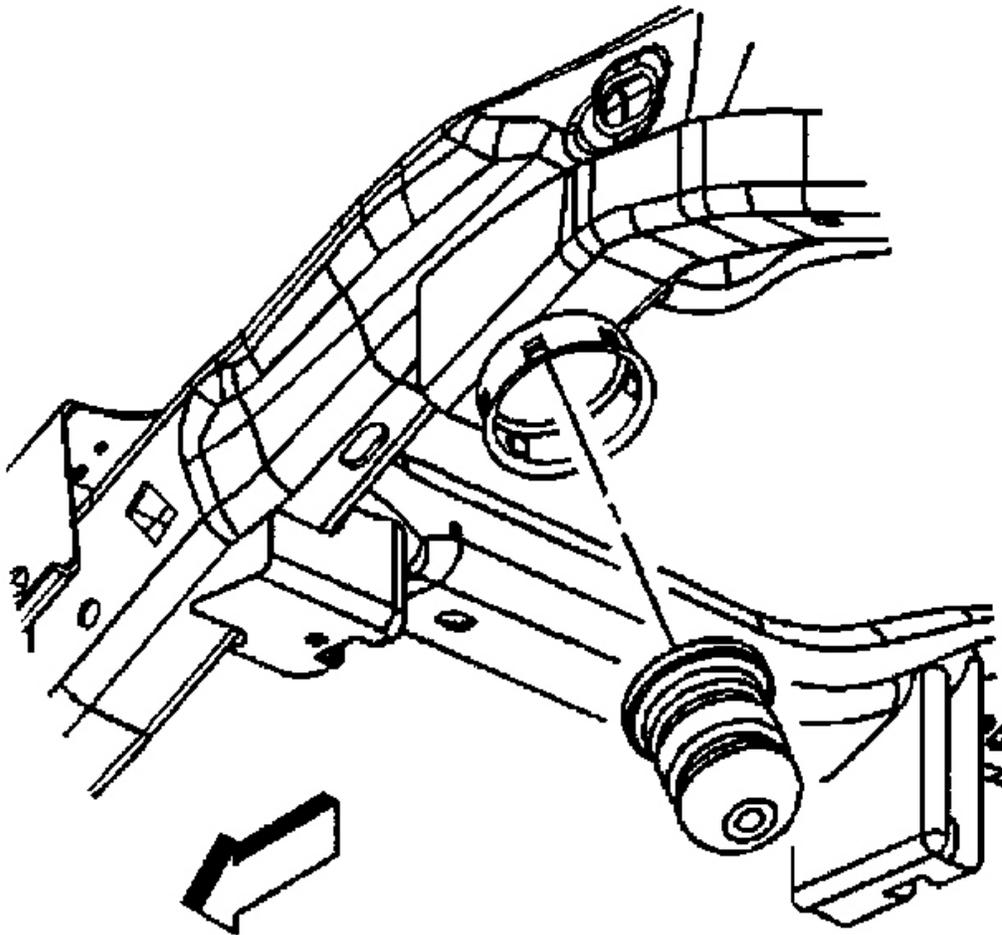
spring are different.

1. Install the coil spring and the insulators.
2. Raise the rear axle.
3. Install the lower shock absorber retaining nut and bolt to the rear axle. Tighten the lower shock absorber retaining nut and bolt to 105 N.m (77 lb ft).
4. Install the stabilizer shaft link to the frame.
5. Install the stabilizer shaft link retaining nut. Tighten the stabilizer shaft link retaining nut to 72 N.m (53 lb ft).
6. Remove the rear axle support.
7. Lower the vehicle.

SPRING BUMPER REPLACEMENT

Removal

1. Raise and support the vehicle.
2. Remove the spring bumper (snap fit).



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Fig. 8: Removing Spring Bumper
Courtesy of GENERAL MOTORS CORP.

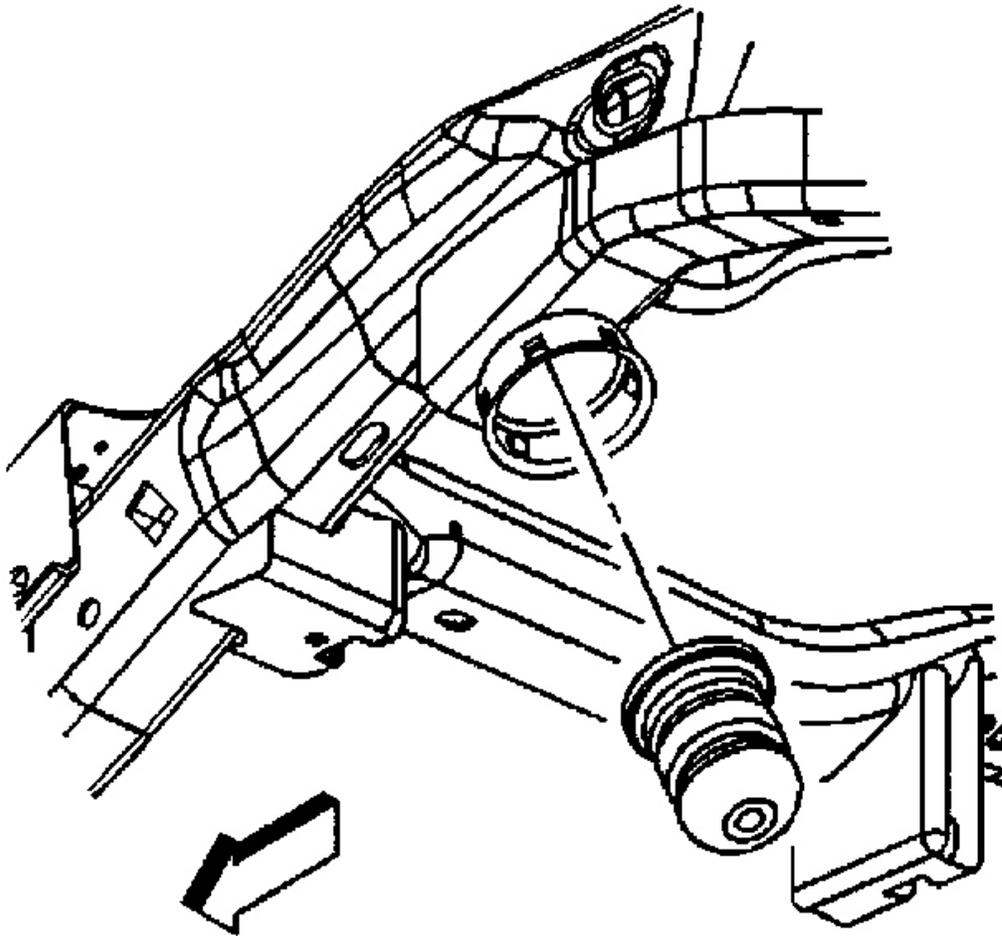
Installation

1. Install the spring bumper (snap fit).
2. Lower the vehicle.

TRACK BAR REPLACEMENT

Removal

1. Raise and support the vehicle.
2. Support the rear axle at curb height.
3. Disconnect the park brake cable from the track bar.
4. Remove the track bar retaining nuts. See **Fig. 9**.



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Fig. 9: Removing Track Bar
Courtesy of GENERAL MOTORS CORP.

5. Remove the track bar retaining bolts.
6. Remove the track bar from the vehicle.

Installation

1. Install the track bar to the vehicle.
2. Install the track bar retaining bolts.
- 3.

NOTE: Do not tighten the bolts unless the suspension is at the curb height position.

Install the track bar retaining nuts. Tighten the bolts to 105 N.m (77 lb ft).

4. Install the park brake cable to the track bar.
5. Remove the rear axle support.
6. Lower the vehicle.

WHEEL STUD REPLACEMENT

Tool Required: J-43631 Ball Joint Remover. See **SPECIAL TOOLS**.

Removal

1. Remove the axle shaft.
2. Remove the wheel stud from the axle flange using the J-43631. See **SPECIAL TOOLS**.
3. Remove the rotor.
4. Remove the axle shaft.
5. Remove the wheel stud from the axle flange using the J-43631.

Installation

1. Install the stud into the axle flange.
2. Install the 4 washers and the lug nut to the stud.
3. Tighten the lug nut in order to draw the stud into the flange until the stud fully seats.
4. Remove the lug nut and the washers.
5. Install the axle shaft . Refer to Axle Shafts.
6. Install the rotor. Refer to **DISC BRAKES** .
7. Install the tire and wheel.
8. Lower the vehicle.

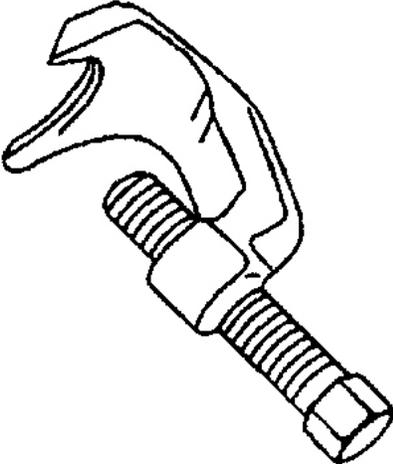
SPECIFICATIONS

Application	Specification	
	Metric	English
Lower Control Arm to Axle Bolt	200 N·m	148 lb ft
Lower Control Arm to Frame Bolt	155 N·m	114 lb ft
Shock Absorber Bolts	105 N·m	77 lb ft
Stabilizer Shaft Insulator Clamp Bolts	33 N·m	24 lb ft
Stabilizer Shaft Link Nuts	72 N·m	53 lb ft
Track Bar Bolt	105 N·m	77 lb ft
Upper Control Arm to Axle Nut	155 N·m	114 lb ft
Upper Control Arm to Frame Bolt	155 N·m	114 lb ft

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Fig. 10: Fastener Tightening Specifications
 Courtesy of GENERAL MOTORS CORP.

SPECIAL TOOLS & EQUIPMENT

Illustration	Tool Number/ Description
	<p>J 43631 Ball Joint Separating Tool</p>

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Fig. 11: Identifying Ball Joint Separator (J-43661)
Courtesy of GENERAL MOTORS CORP.