

2010 SUSPENSION

Rear Suspension - Equinox & Terrain

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	Specification	
	Metric	English
Lower Control Arm Bolt	160 N.m	118 lb ft
Lower Control Arm to Support Assembly Bolt	125 N.m	92 lb ft
Lower Shock Absorber Bolt	110 N.m	81 lb ft
Park Brake Routing Bolt	12 N.m	106 lb in
Rear Brake Hose Bracket Nut/Bolt	12 N.m	106 lb in
Spring Jounce Bumper	58 N.m	43 lb ft
Stabilizer Link to Lower Control Arm Nut	15 N.m	11 lb ft
Stabilizer Link to Stabilizer Shaft Nut	65 N.m + 40 Degrees	48 lb ft + 40 Degrees
Stabilizer Shaft Clamp Bolt	70 N.m	52 lb ft
Support to Body Bolt	170 N.m	125 lb ft
Toe Link Bolt	160 N.m	118 lb ft
Toe Link to Knuckle Bolt	160 N.m	118 lb ft
Toe Link to Support Bolt	160 N.m	118 lb ft
Trailing Arm Bolt	110 N.m	81 lb ft
Trailing Arm Bracket to Body Bolt	110 N.m	81 lb ft
Trailing Arm Bracket to Knuckle Bolt	110 N.m	81 lb ft
Trailing Arm Bushing Bolt	160 N.m	118 lb ft
Upper Control Arm to Knuckle Bolt	160 N.m	118 lb ft
Upper Control Arm to Support Bolt	164 N.m	121 lb ft
Upper Shock Bolt	110 N.m	81 lb ft
Wheel Bearing/Hub Bolt	70 N.m	52 lb ft
Wheel Drive Shaft Nut - AWD	205 N.m	151 lb ft

ADHESIVES, FLUIDS, LUBRICANTS, AND SEALERS

Application	Type of Material	GM Part Number	
		US	Canada
Front and Rear Wheel Bearing/Hub Mounting Bolts	Thread Locker©	89021297	10953488

REPAIR INSTRUCTIONS

REAR WHEEL BEARING AND HUB REPLACEMENT

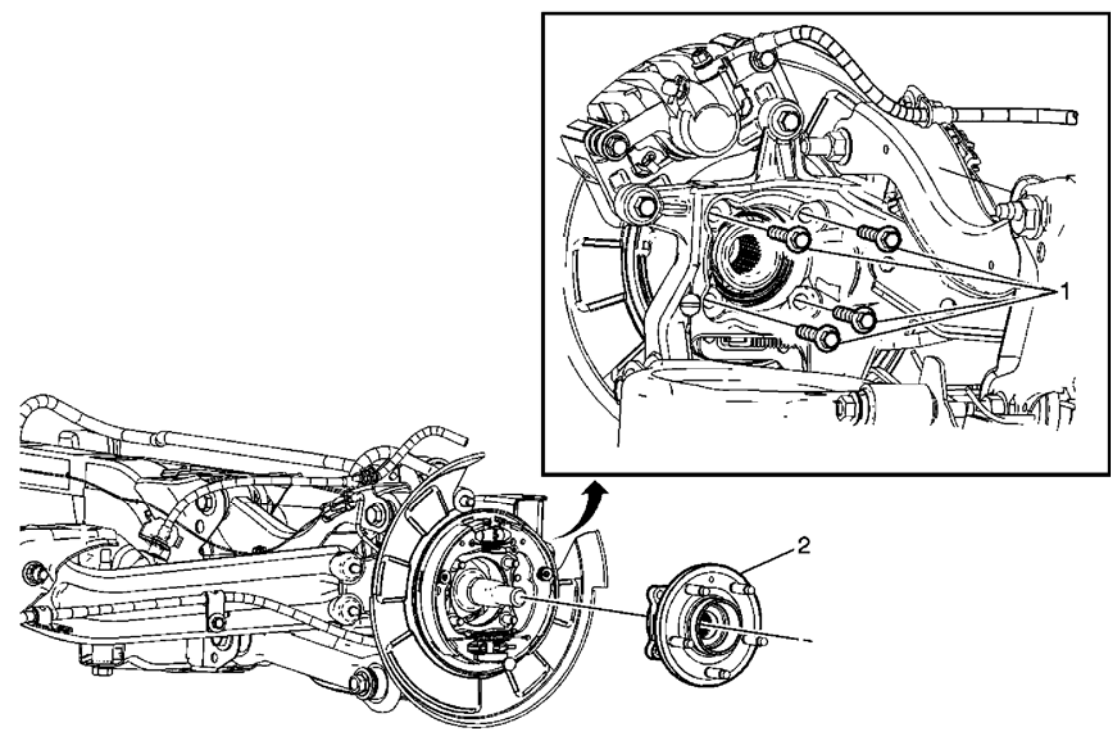


Fig. 1: Rear Wheel Bearing & Hub
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the tire and wheel. Refer to <u>Tire and Wheel Removal and Installation</u> . 3. Remove the brake caliper bracket. Refer to <u>Rear Brake Caliper Bracket Replacement</u> . 4. Remove the brake rotor. Refer to <u>Rear Brake Rotor Replacement</u> . 5. Remove the wheel drive shaft retaining nut, if equipped. Refer to <u>Rear Wheel Drive Shaft Replacement</u>	
1	Rear Wheel Bearing/Hub Bolt (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> . Procedure 1. Use the proper cleaner to the thread of the bolts 2. Apply thread locker to the wheel bearing/hub bolts. Refer to <u>Adhesives, Fluids,</u>

	<u>Lubricants, and Sealers</u> . Tip: Allow the threadlocker to set for 10 minutes before using. Tighten: 70 N.m (52 lb ft)
2	Wheel Bearing/Hub Procedure 1. Disconnect the electrical connector for the wheel speed sensor. 2. If replacing the wheel bearing, transfer the wheel speed sensor. Refer to <u>Rear Wheel Speed Sensor Replacement</u> .

KNUCKLE REPLACEMENT

Special Tools

J 37043 Park Brake Cable Release Tool

Removal Procedure

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

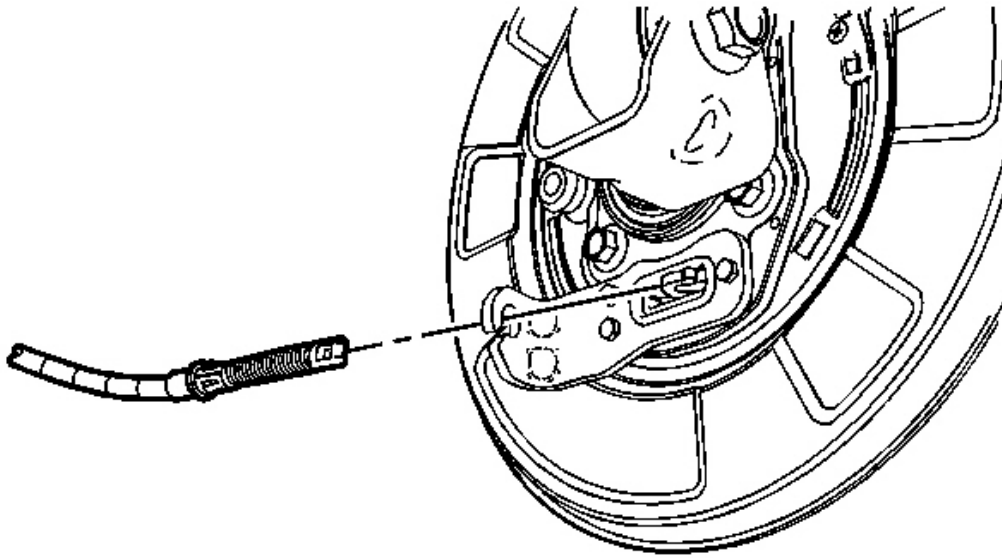


Fig. 2: Identifying Rear Park Brake Cable & Park Brake Actuator
Courtesy of GENERAL MOTORS CORP.

3. Disconnect the rear park brake cable from the park brake actuator.
4. Using the J 37043 , remove the park brake cable from the mounting bracket

CAUTION: Support the brake caliper with heavy mechanic wire, or equivalent, whenever it is separated from its mount and the hydraulic flexible brake hose is still connected. Failure to support the caliper in this manner will cause the flexible brake hose to bear the weight of the caliper, which may cause damage to the brake hose and in turn may cause a brake fluid leak.

5. Remove the brake caliper and bracket as an assembly and support it with heavy mechanics wire or equivalent. Refer to **Rear Brake Caliper Bracket Replacement** .
6. Remove the wheel bearing/hub assembly. Refer to **Rear Wheel Bearing and Hub Replacement**.

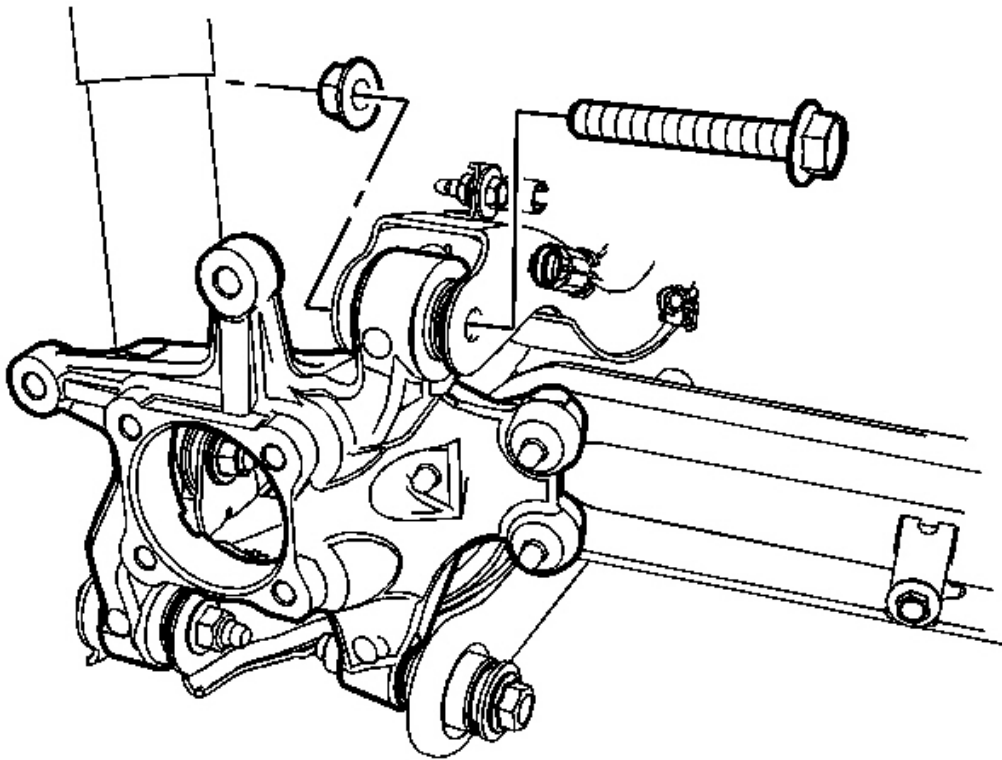


Fig. 3: View Of Upper Control Arm-To-Knuckle Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

7. Remove the upper control arm to knuckle bolt and nut.

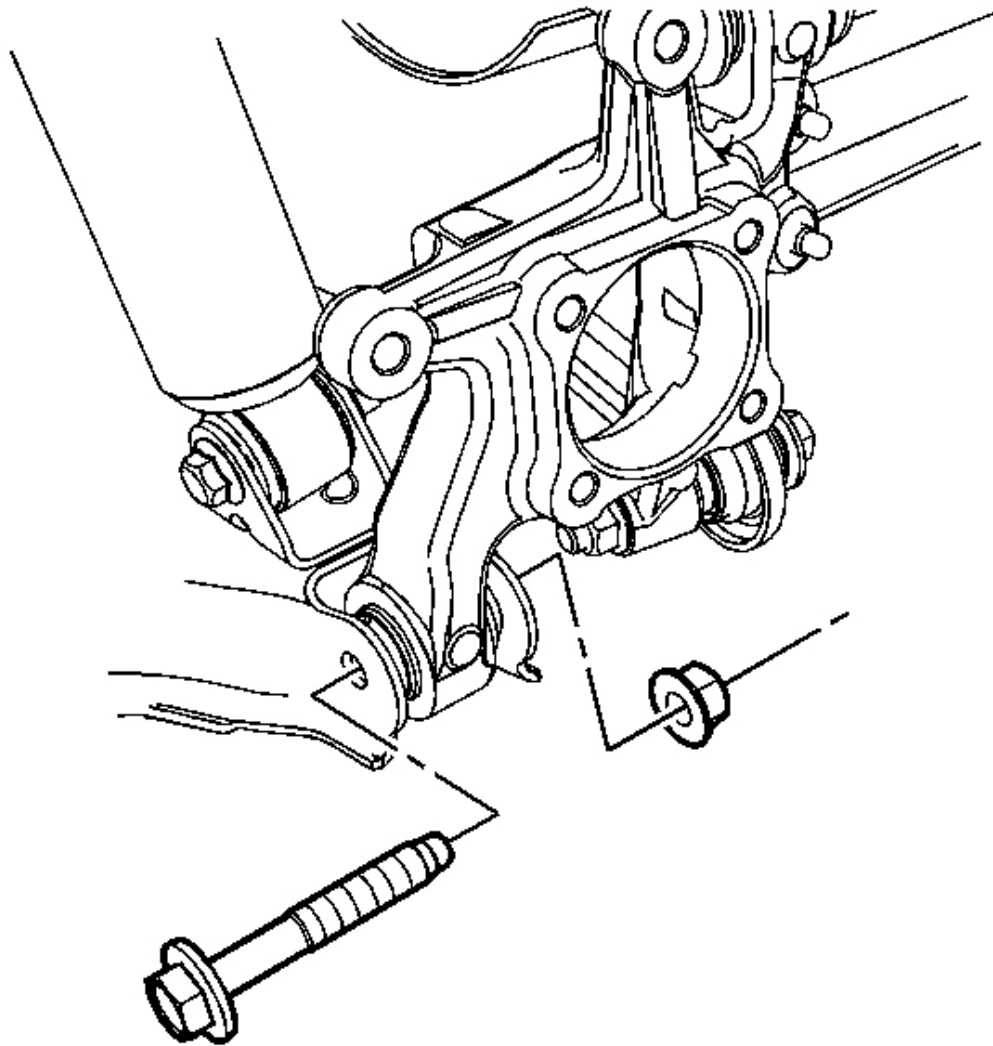


Fig. 4: View Of Lower Control Arm-To-Knuckle Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

8. Remove the lower control arm to knuckle bolt and nut.

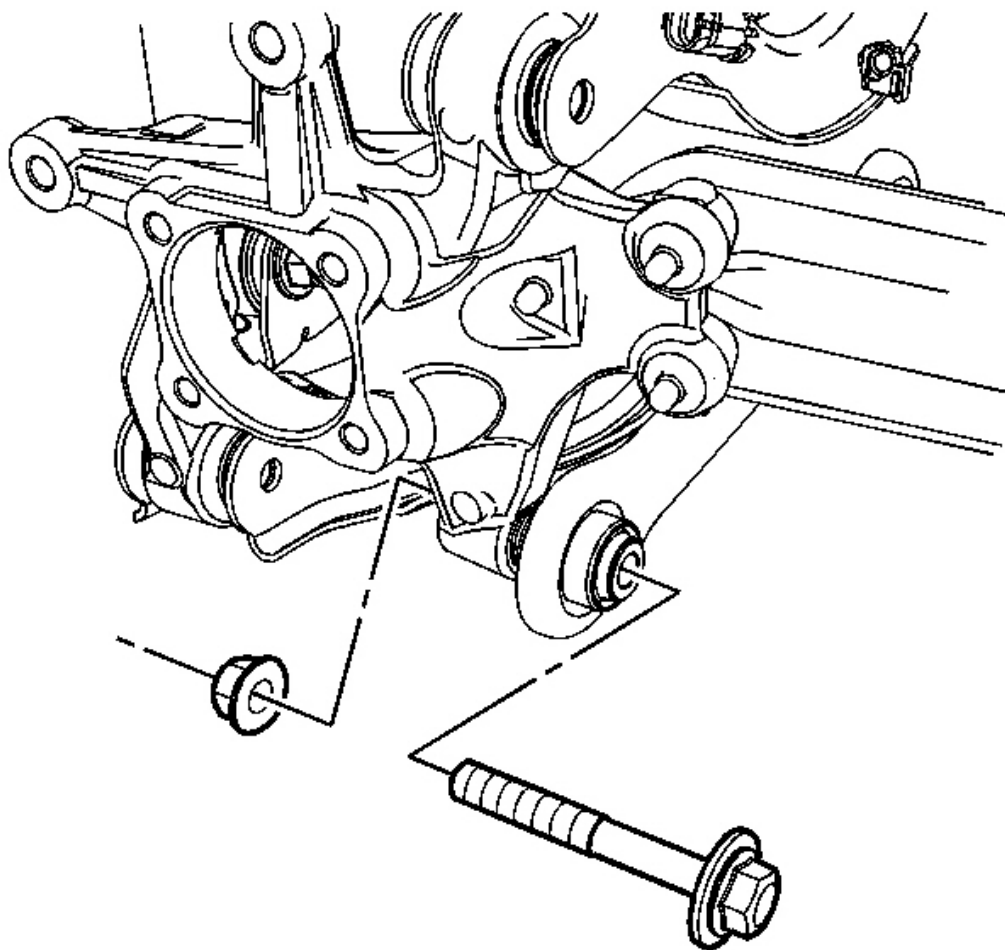


Fig. 5: View Of Toe Link-To-Knuckle Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

9. Remove the toe link to knuckle bolt and nut.

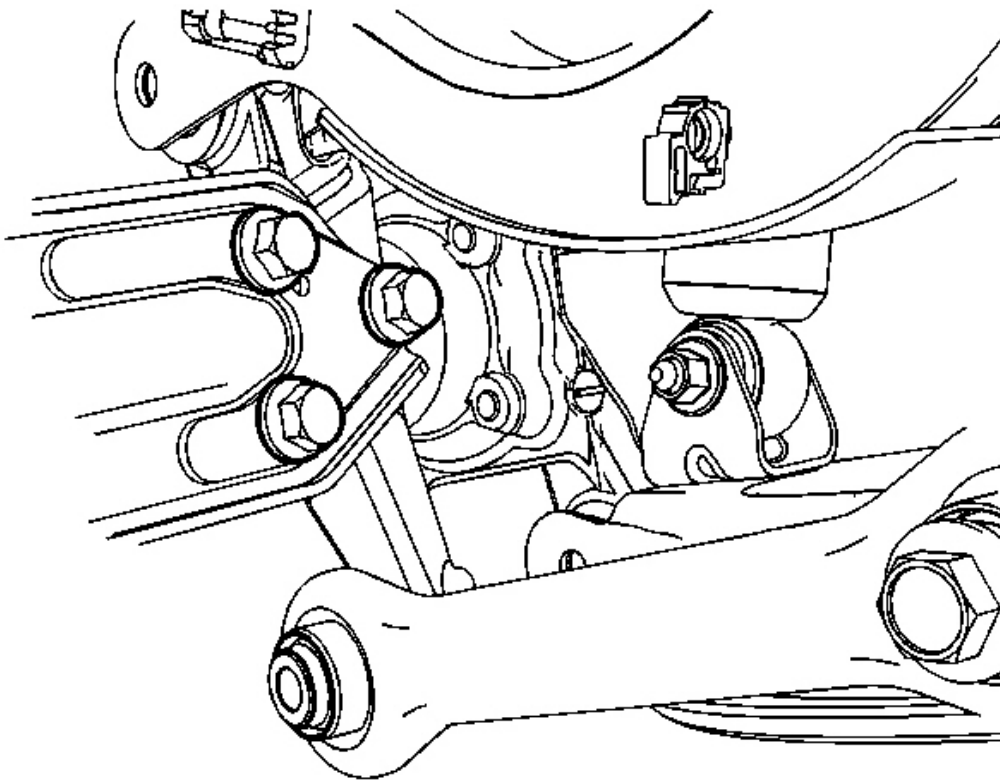


Fig. 6: View Of Trailing Arm-To-Knuckle Bolts
Courtesy of GENERAL MOTORS CORP.

10. Remove the 3 trailing arm to knuckle bolts.
11. Remove the knuckle from the vehicle.

Installation Procedure

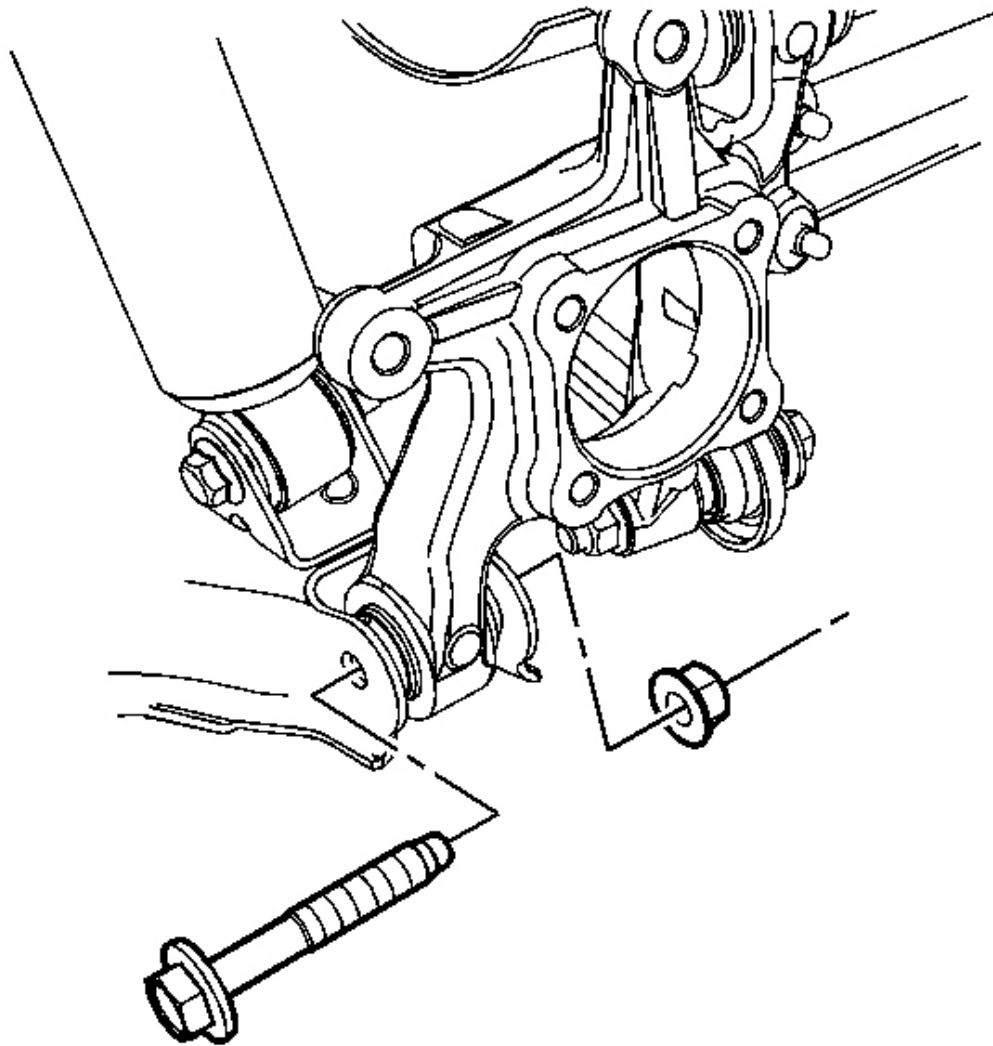


Fig. 7: View Of Lower Control Arm-To-Knuckle Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

1. Install the knuckle to the lower control arm. Loosely install the bolt and nut.

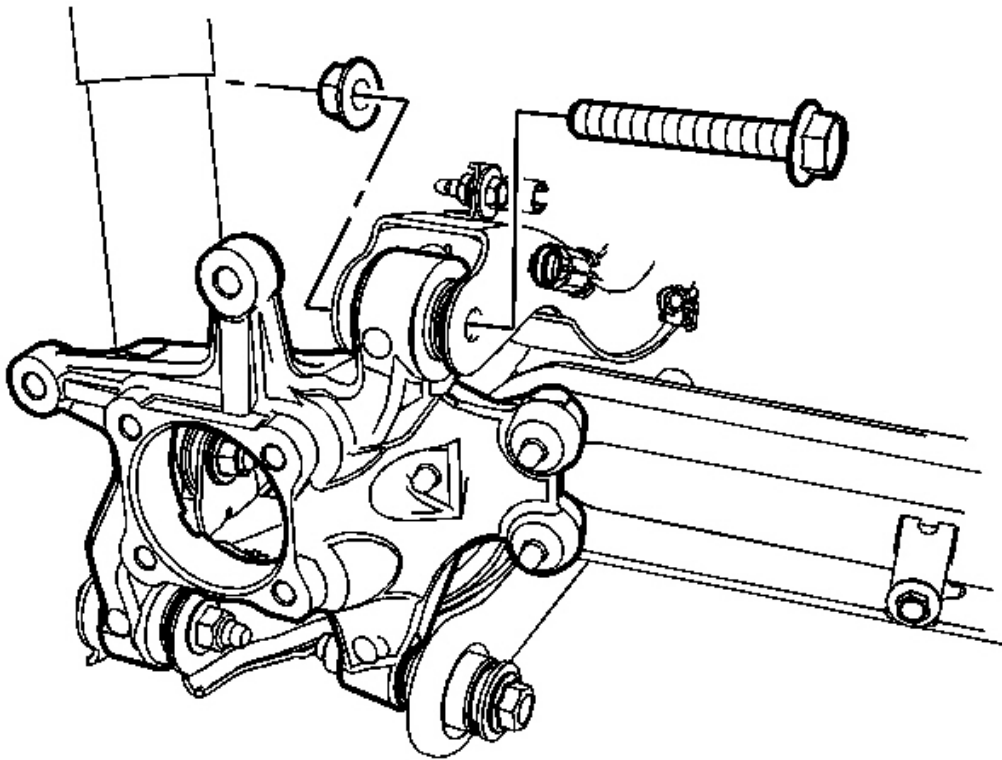


Fig. 8: View Of Upper Control Arm-To-Knuckle Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

2. Install the knuckle to the upper control arm. Loosely install the bolt and nut.

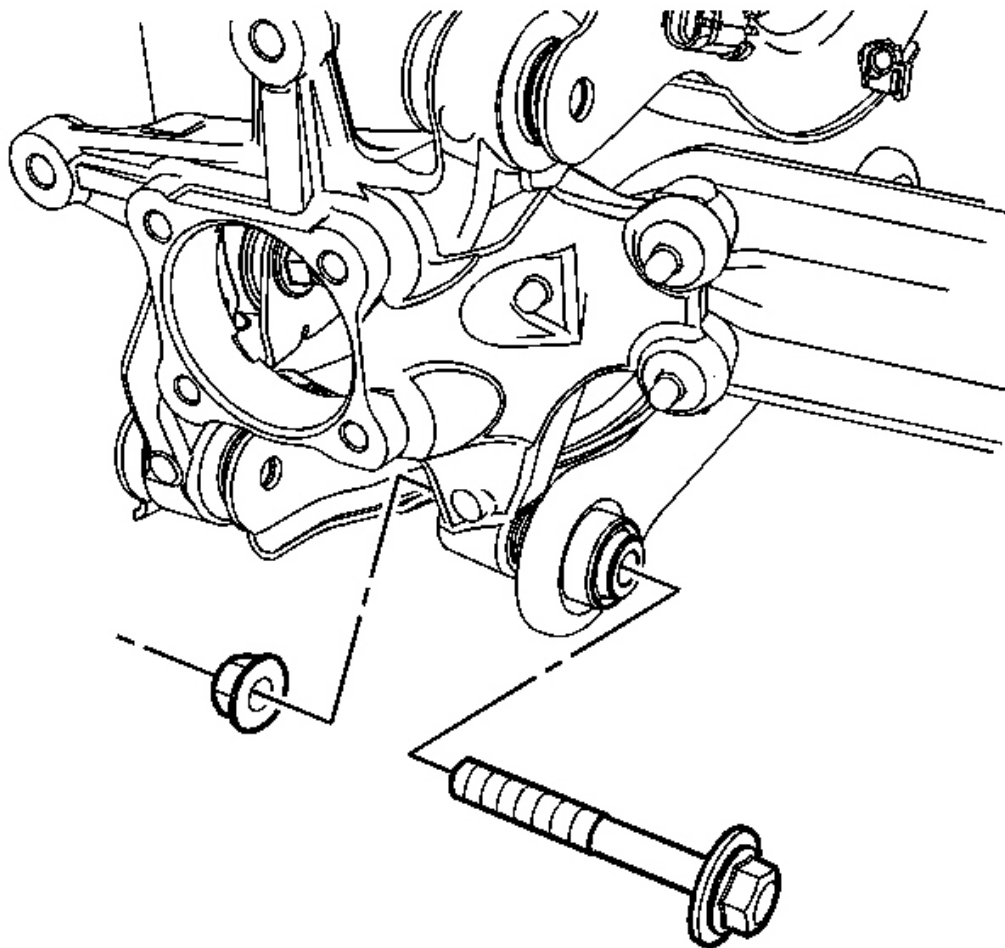


Fig. 9: View Of Toe Link-To-Knuckle Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

3. Install the knuckle to the toe link. Loosely install the bolt and nut.

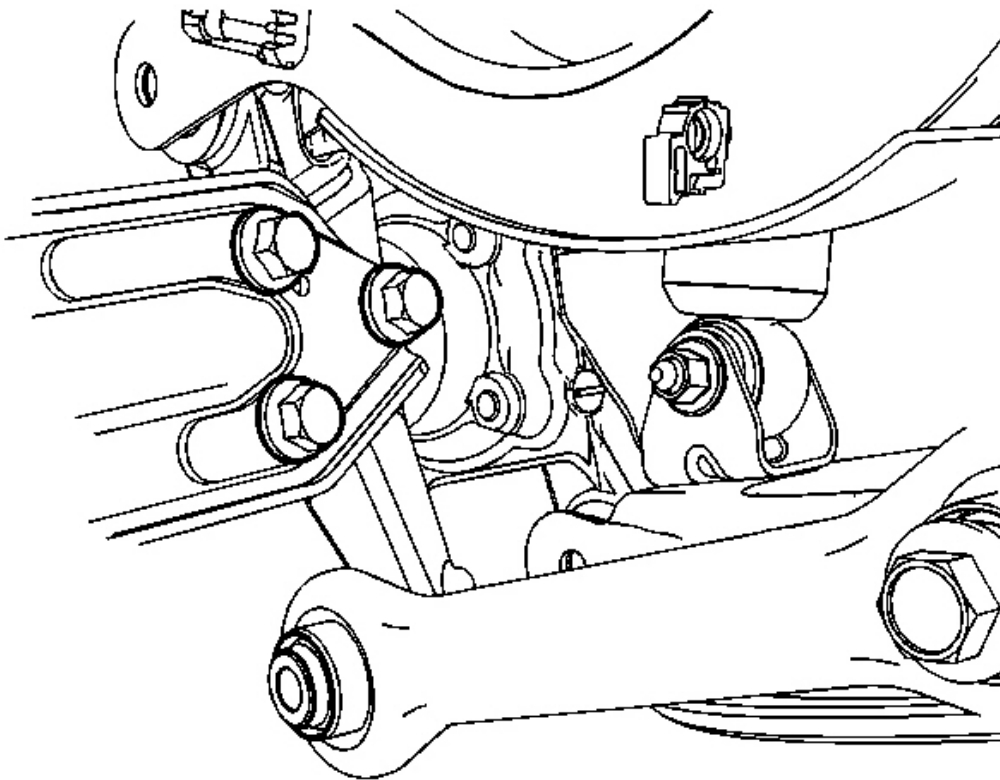


Fig. 10: View Of Trailing Arm-To-Knuckle Bolts
Courtesy of GENERAL MOTORS CORP.

4. Install the 3 trailing arm to knuckle bolts. Loosely install the bolt and nut.

CAUTION: Refer to Fastener Caution .

5. Tighten the bolts and nuts in the following sequence:
 - Tighten the knuckle to lower control arm bolt and nut to 160 N.m (118 lb ft).
 - Tighten the knuckle to upper control arm bolt and nut to 160 N.m (118 lb ft).
 - Tighten the knuckle to toe link bolt and nut to 160 N.m (118 lb ft).
 - Tighten the 3 trailing arm to knuckle bolts to 110 N.m (81 lb ft).
6. Install the wheel bearing/hub assembly. Refer to **Rear Wheel Bearing and Hub Replacement**.

CAUTION: Support the brake caliper with heavy mechanic wire, or equivalent,

whenever it is separated from its mount and the hydraulic flexible brake hose is still connected. Failure to support the caliper in this manner will cause the flexible brake hose to bear the weight of the caliper, which may cause damage to the brake hose and in turn may cause a brake fluid leak.

7. Remove the supporting wire and position the brake caliper and bracket assemblies back onto the knuckles. Refer to **Rear Brake Caliper Bracket Replacement** .

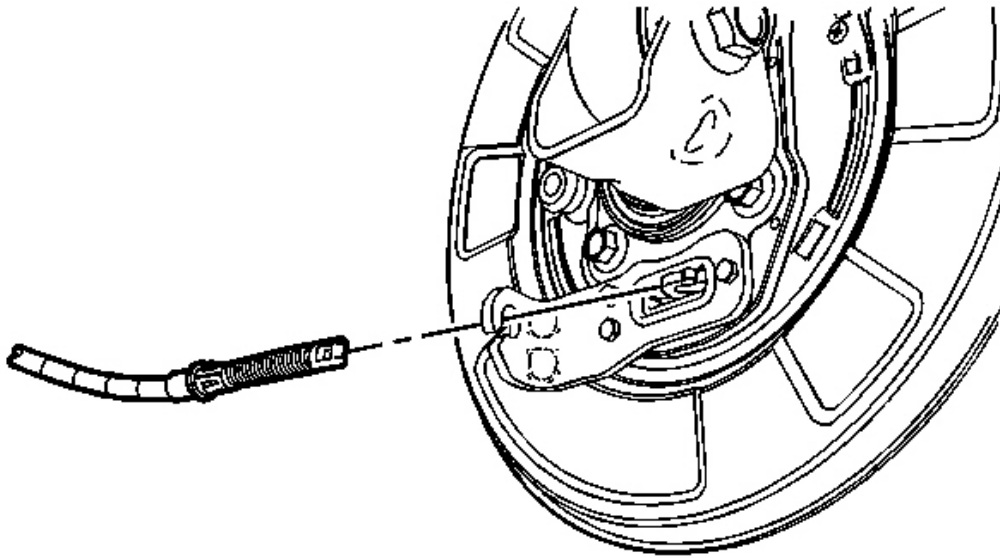


Fig. 11: Identifying Rear Park Brake Cable & Park Brake Actuator
Courtesy of GENERAL MOTORS CORP.

8. Connect the rear park brake cable through the mounting bracket and onto the park brake actuator.
9. Install the tire and wheel. Refer to **Tire and Wheel Removal and Installation** .
10. Lower the vehicle.
11. Perform a vehicle wheel alignment. Refer to **Wheel Alignment Measurement** .

REAR AXLE UPPER CONTROL ARM REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .

3. Disconnect the antilock brake system (ABS) brake wiring harness from the upper control arm.
4. Remove the rear brake hose routing nut and bolt.

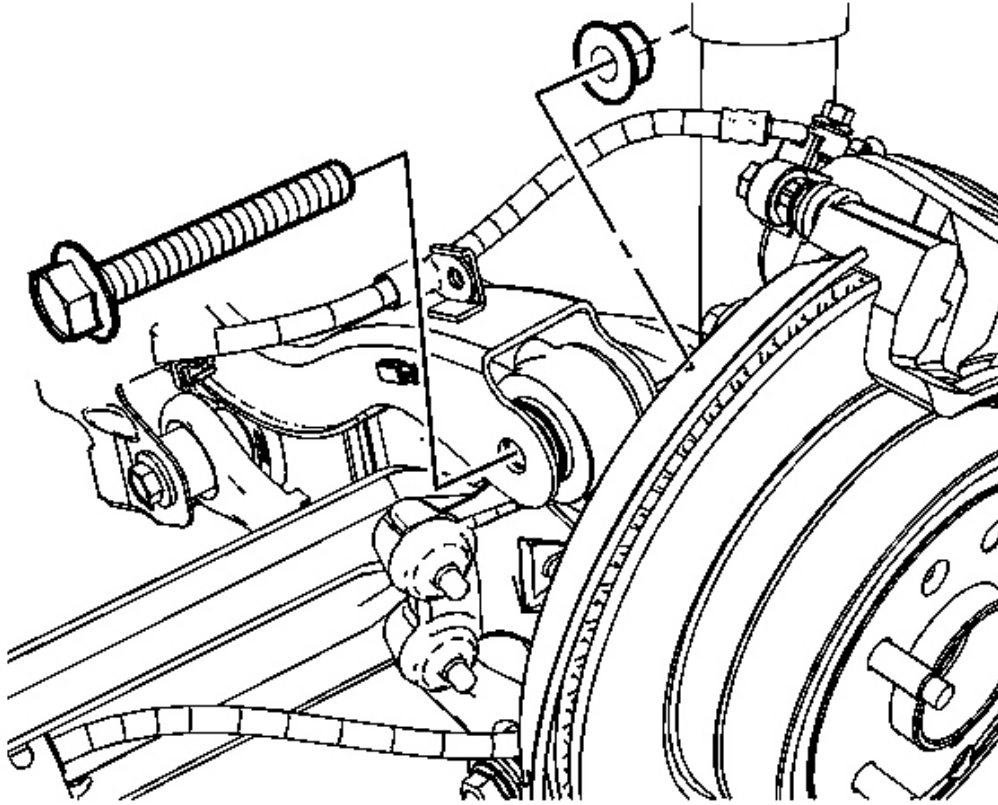


Fig. 12: Identifying Upper Control Arm-To-Knuckle Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

5. Remove the upper control arm to knuckle nut and bolt.

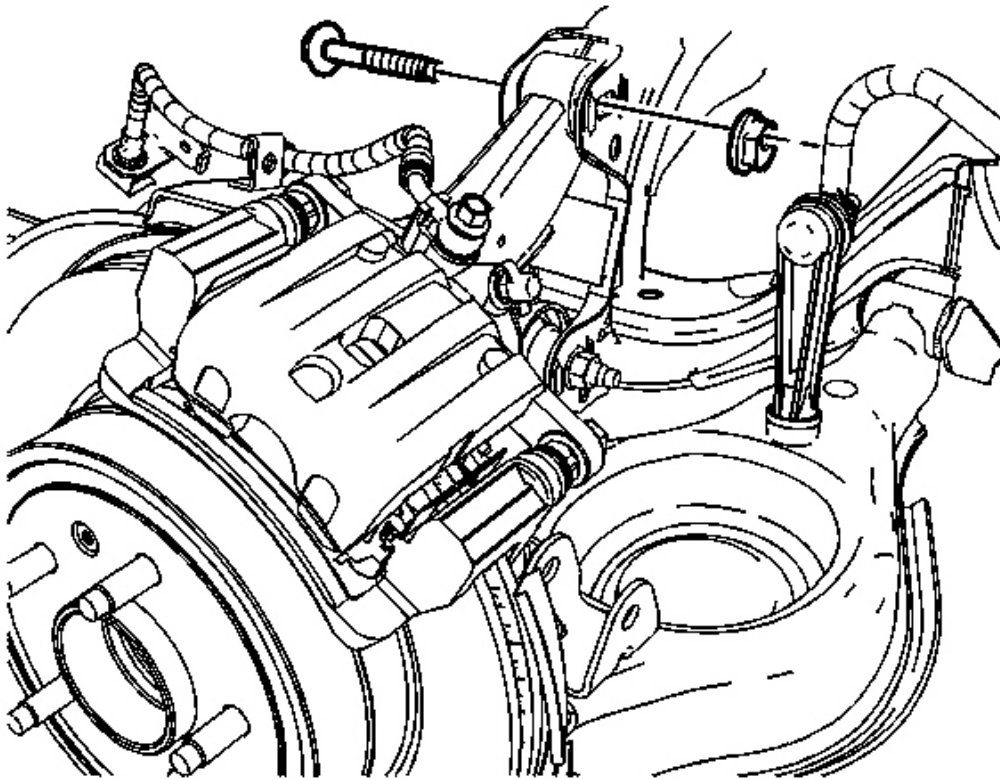


Fig. 13: Identifying Upper Control-To-Support Cam Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

6. Remove the upper control to support cam nut and bolt.
7. Remove the upper control arm.

Installation Procedure

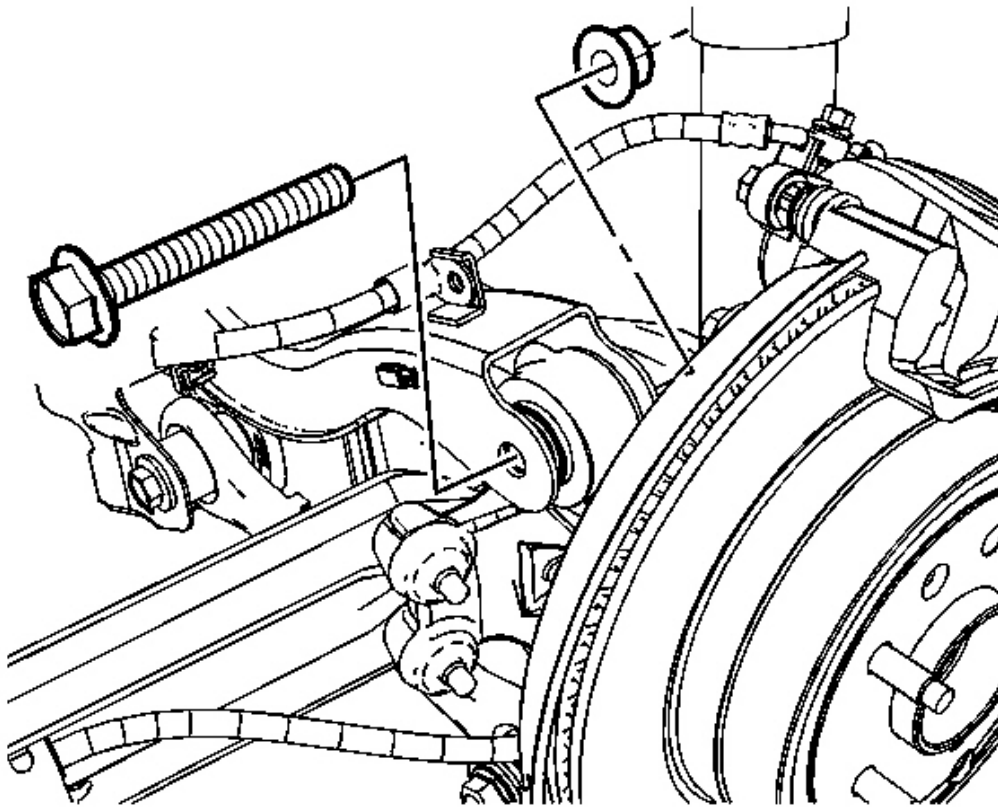


Fig. 14: Identifying Upper Control Arm-To-Knuckle Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

1. Install the upper control arm to the knuckle.
2. Loosely install the upper control arm to knuckle nut and bolt.

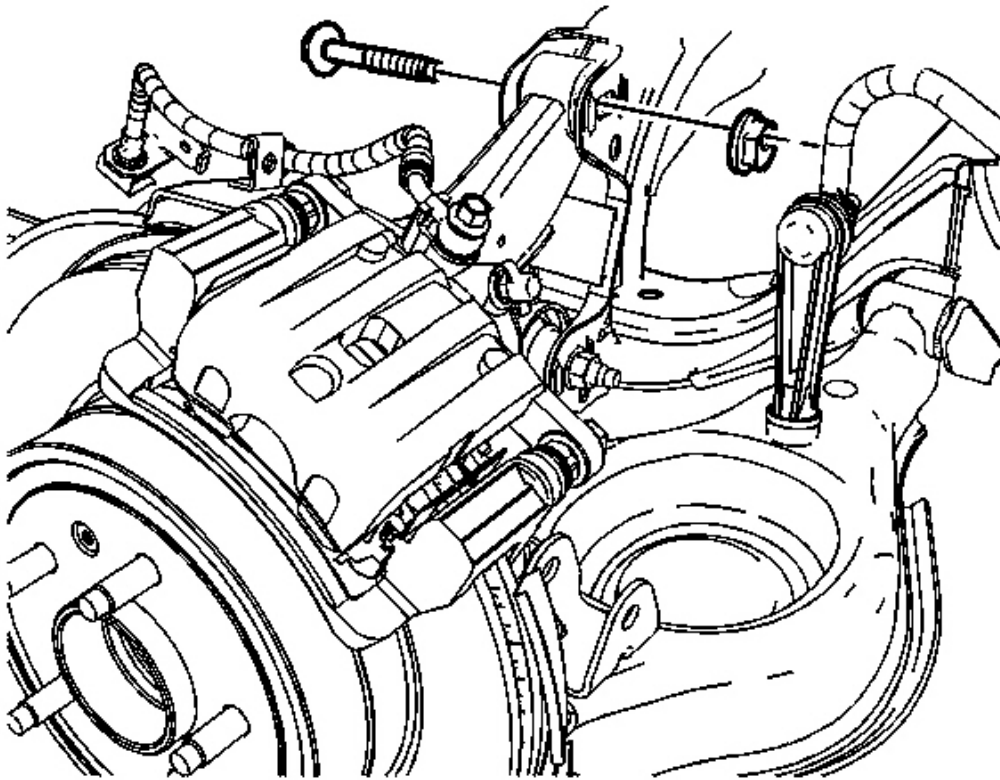


Fig. 15: Identifying Upper Control-To-Support Cam Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

3. Install the upper control to support bolt and cam nut.

CAUTION: Refer to Fastener Caution .

4. Tighten the upper control arm to knuckle nut and bolt to 160 N.m (118 lb ft).
5. Tighten the upper control arm to support bolt to 164 N.m (121 lb ft).
6. Install the rear brake hose routing nut and bolt and tighten to 12 N.m (106 lb in).
7. Connect the ABS brake wiring harness to the upper control arm.
8. Install the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
9. Lower the vehicle.
10. Check the rear alignment. Refer to **Wheel Alignment Measurement** .

REAR AXLE LOWER CONTROL ARM REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
3. Remove the stabilizer shaft link. Refer to **Stabilizer Shaft Link Replacement**.
4. Position a jackstand underneath the lower control arm.
5. Raise the jackstand slightly to compress the coil spring.

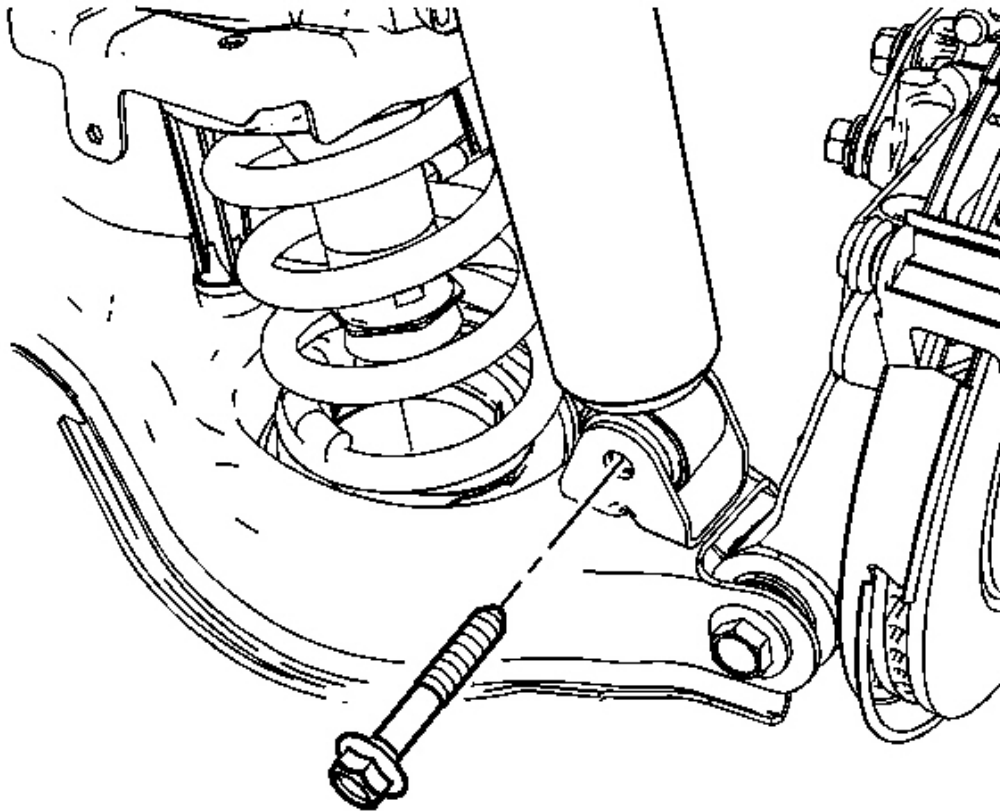


Fig. 16: Identifying Lower Shock Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

6. Remove the lower shock bolt and nut.

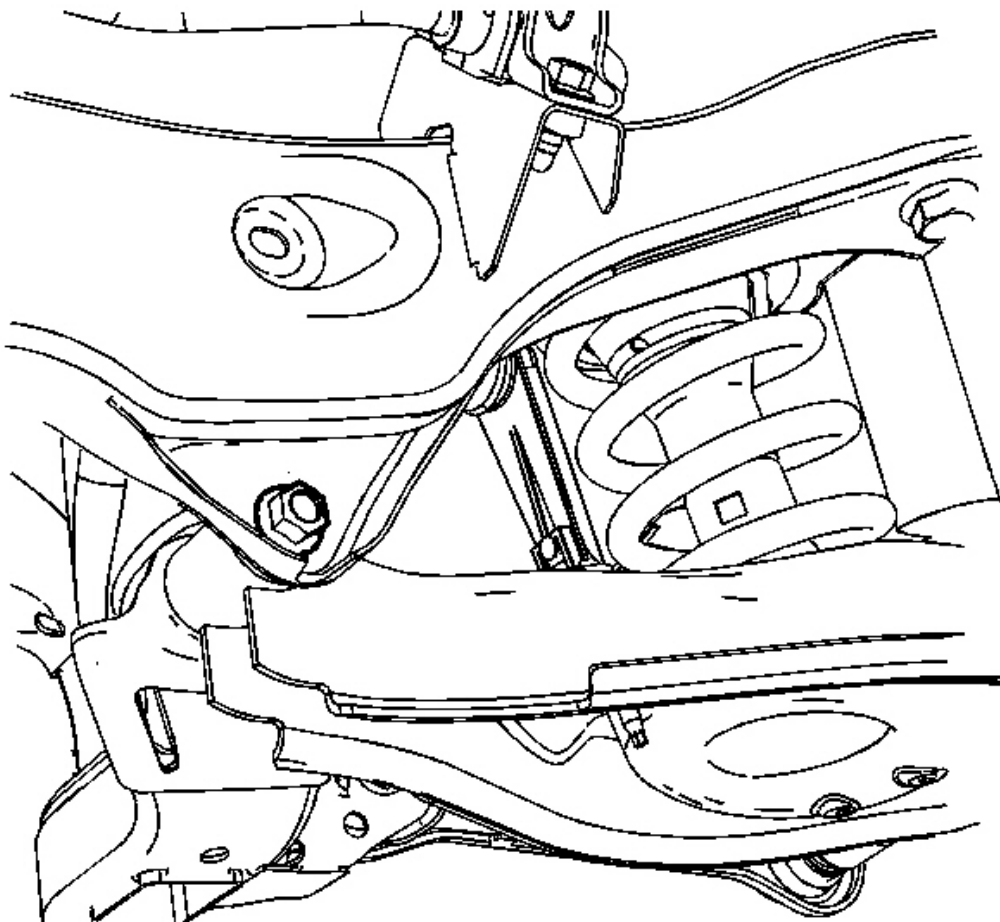


Fig. 17: Locating Lower Control Arm-To-Support Frame Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

7. Loosen the lower control arm to support frame nut and bolt.

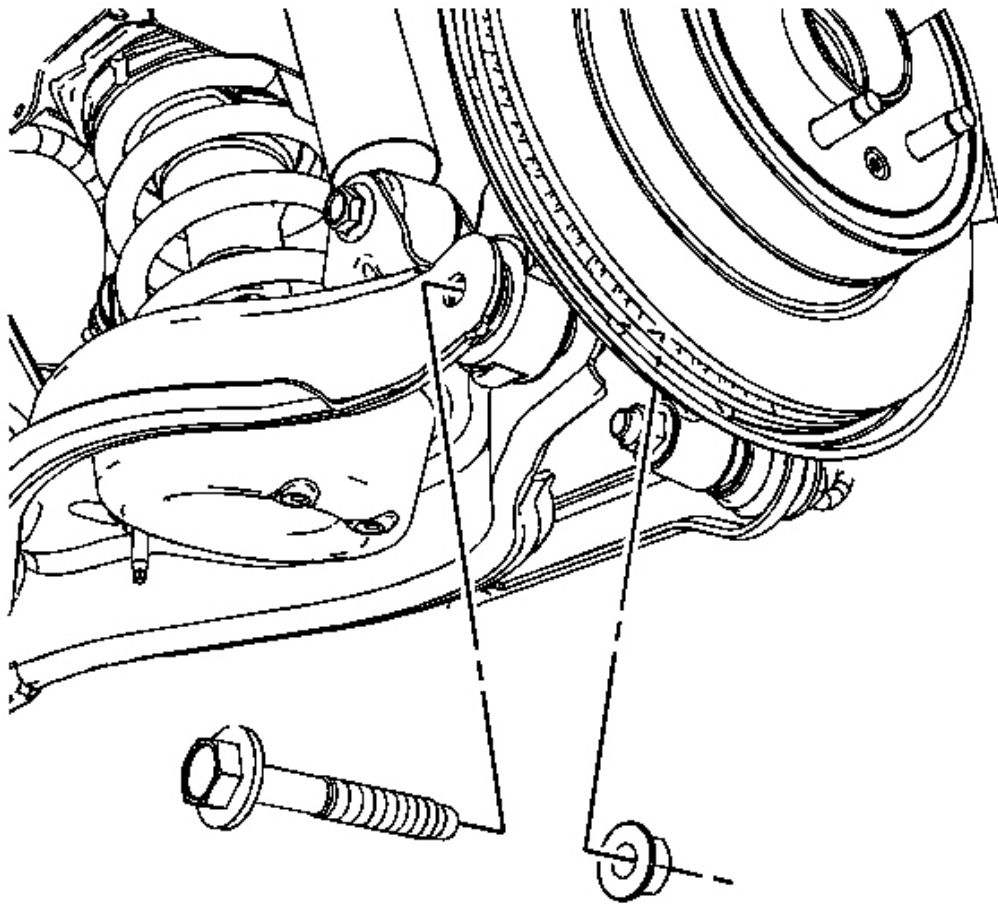


Fig. 18: View Of Lower Control Arm-To-Knuckle Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

8. Remove the lower control arm to knuckle nut and bolt.
9. Slowly lower the control arm in order to unload the coil spring.
10. Remove the coil spring.
11. Remove the jackstand.

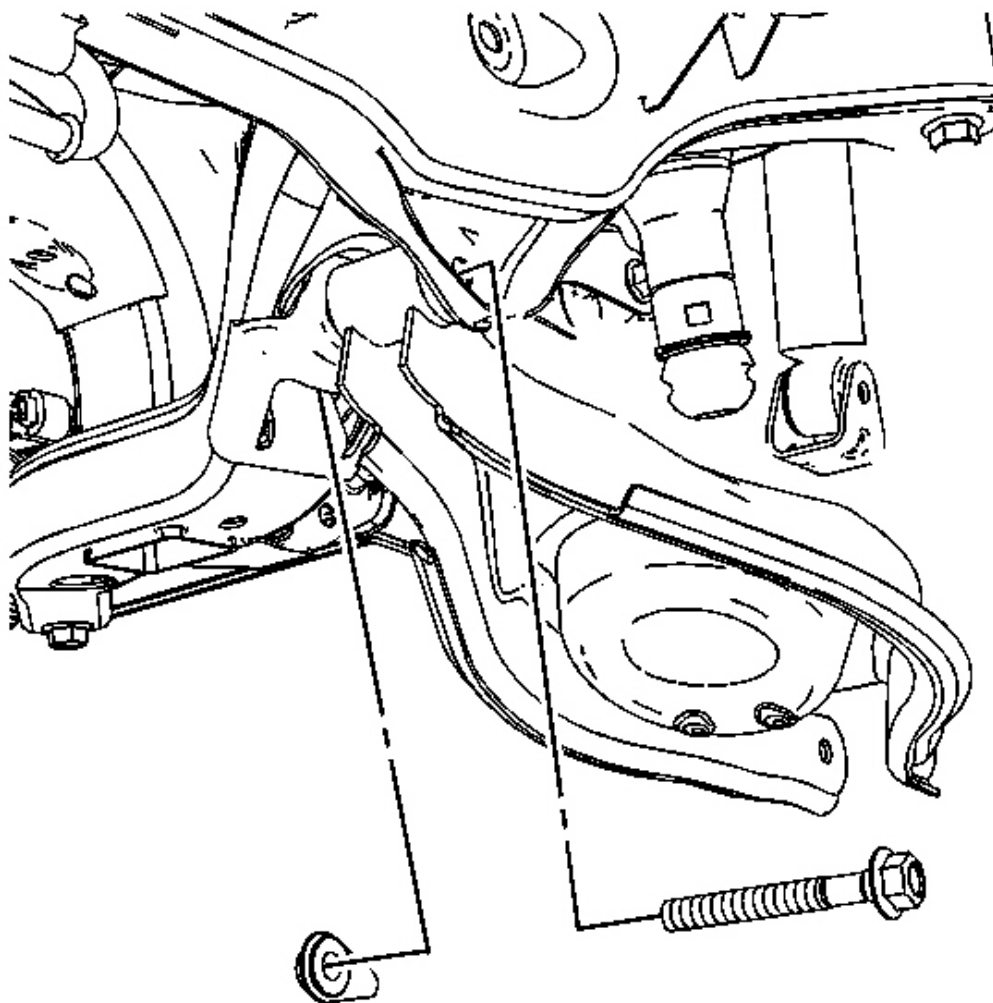


Fig. 19: Identifying Lower Control Arm-To-Support Frame Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

12. Remove the lower control arm to support frame nut and bolt.
13. Remove the lower control arm.

Installation Procedure

1. Inspect the coil spring upper and lower insulators, if damage exists replace the insulators. Refer to **Rear Spring Insulator Replacement**.

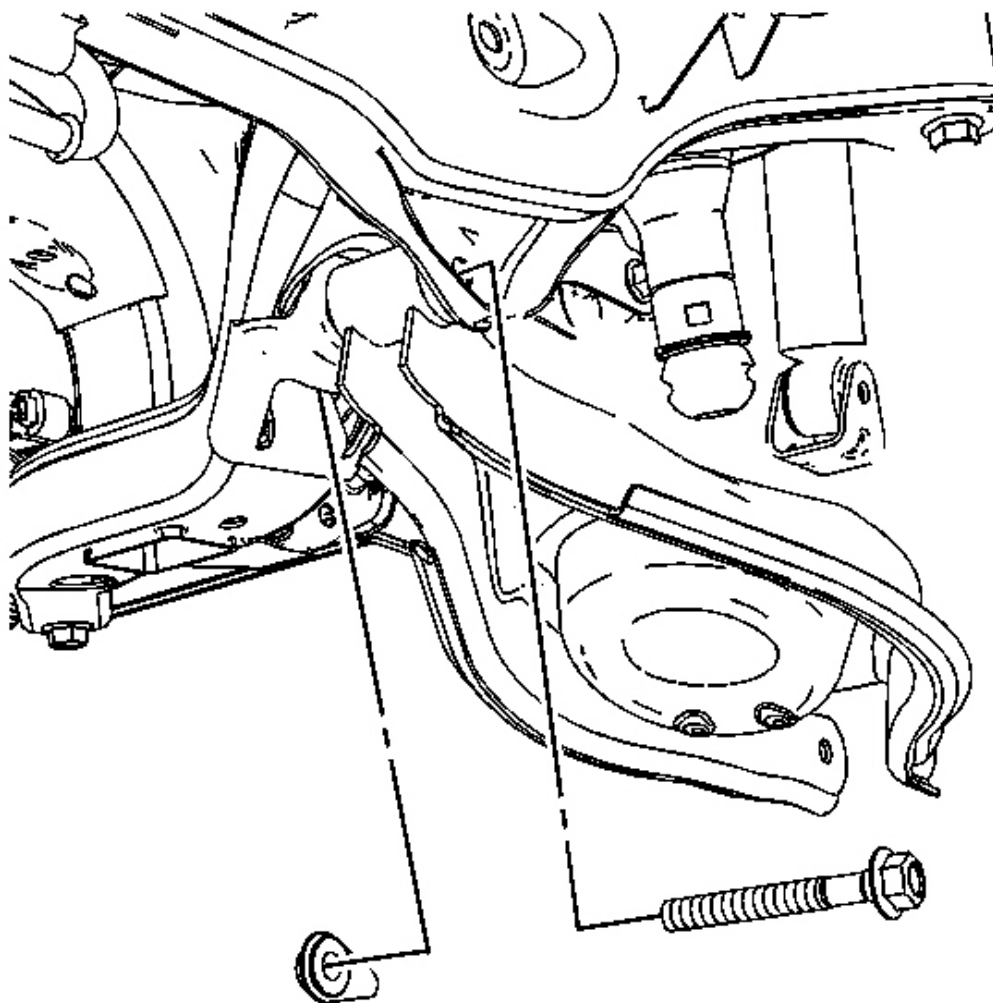


Fig. 20: Identifying Lower Control Arm-To-Support Frame Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

2. Position the lower control arm to the support frame and loosely install the nut and bolt.
3. Position the jackstand under the lower control arm.
4. Position the spring with the rubber insulators into the vehicle.
5. Raise the jackstand to compress the spring.

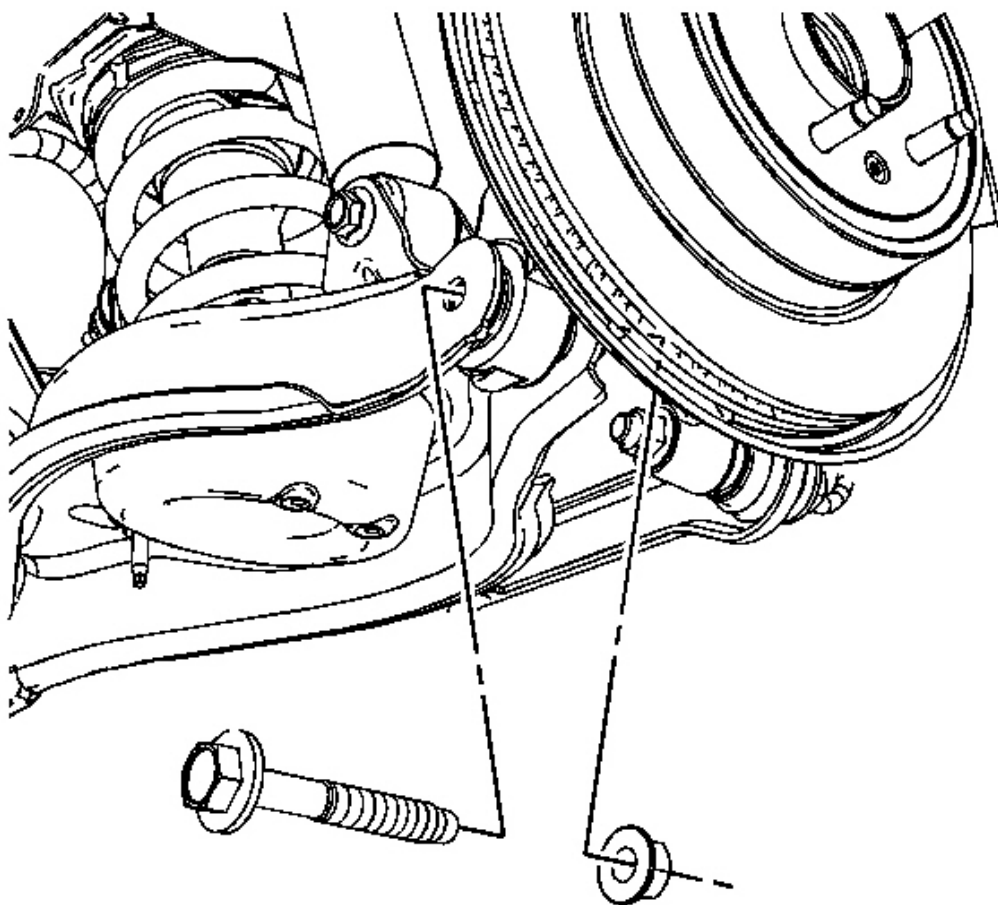


Fig. 21: View Of Lower Control Arm-To-Knuckle Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

6. Position the lower control arm to the knuckle and install the nut and bolt and tighten to 160 N.m (118 lb ft).

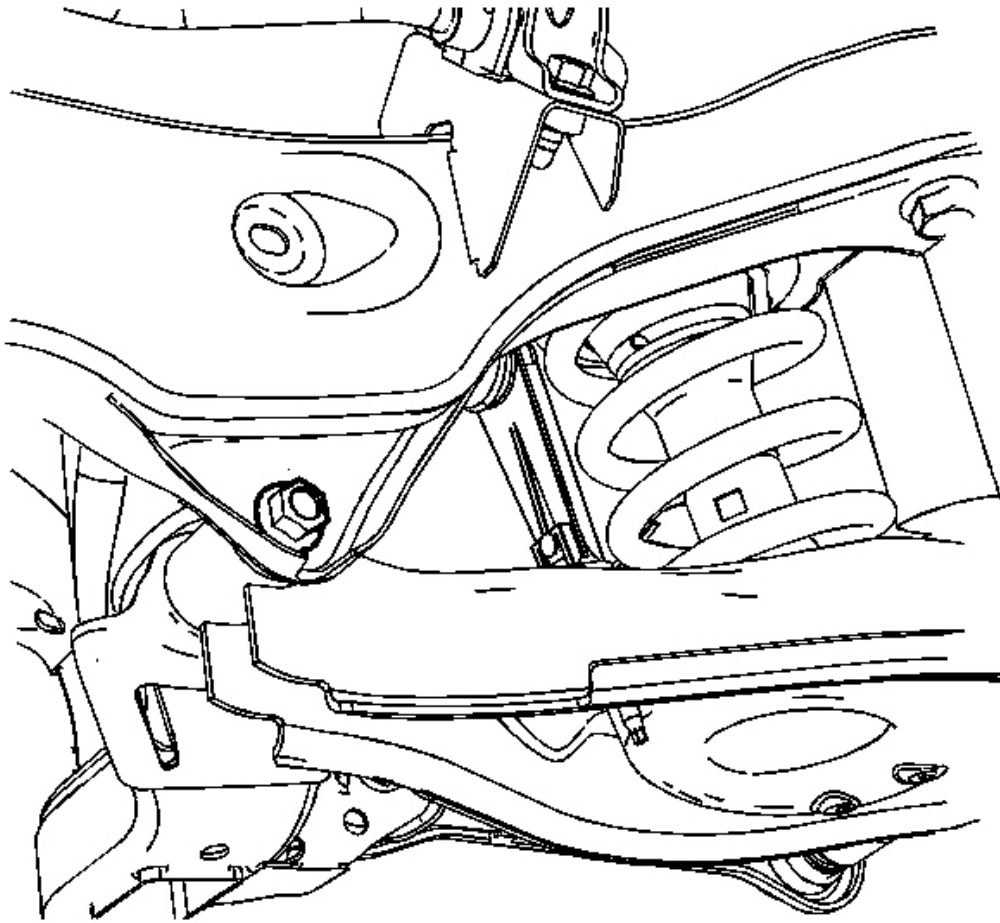


Fig. 22: Locating Lower Control Arm-To-Support Frame Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

7. Tighten the lower control arm to support nut and bolt to 110 N.m (81 lb ft).

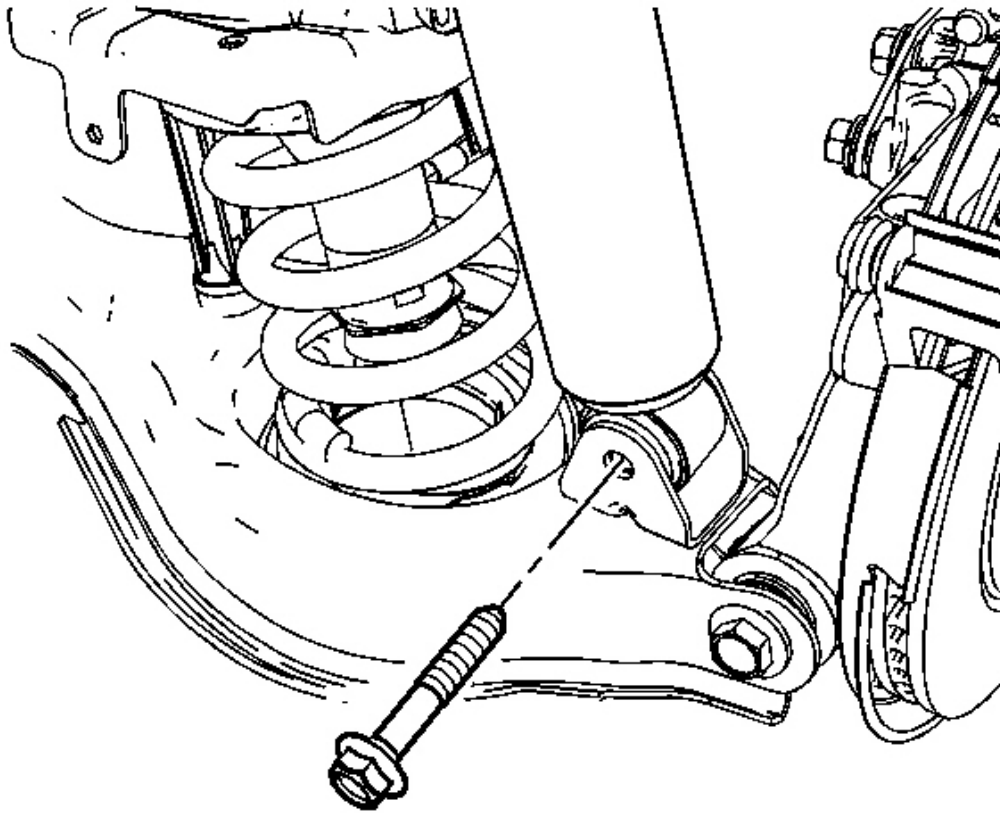


Fig. 23: Identifying Lower Shock Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

8. Install the shock to the lower control arm nut and bolt and tighten to 110 N.m (81 lb ft).
9. Remove the jackstand from under the vehicle.
10. Install the stabilizer shaft link. Refer to **Stabilizer Shaft Link Replacement**.
11. Install the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation**.
12. Lower the vehicle.
13. Check the rear alignment. Refer to **Wheel Alignment Measurement**.

STABILIZER SHAFT REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle**.
2. Lower the rear suspension support. Refer to **Rear Support Replacement (AWD)** or **Rear Support**

Replacement (FWD) .

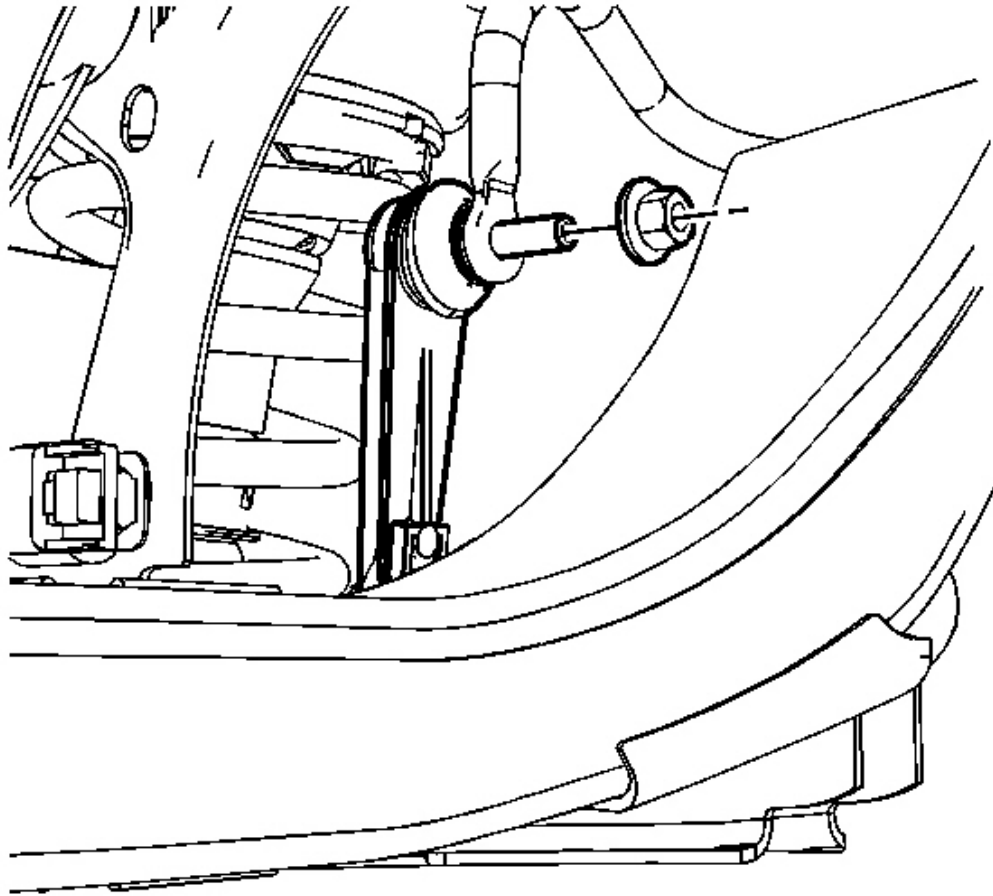


Fig. 24: View Of Stabilizer Link-To-Stabilizer Shaft Nut
Courtesy of GENERAL MOTORS CORP.

NOTE: Hold the ball shaft secure with a TORX® bit, when removing the nut.

3. Remove the stabilizer link to stabilizer shaft nut.

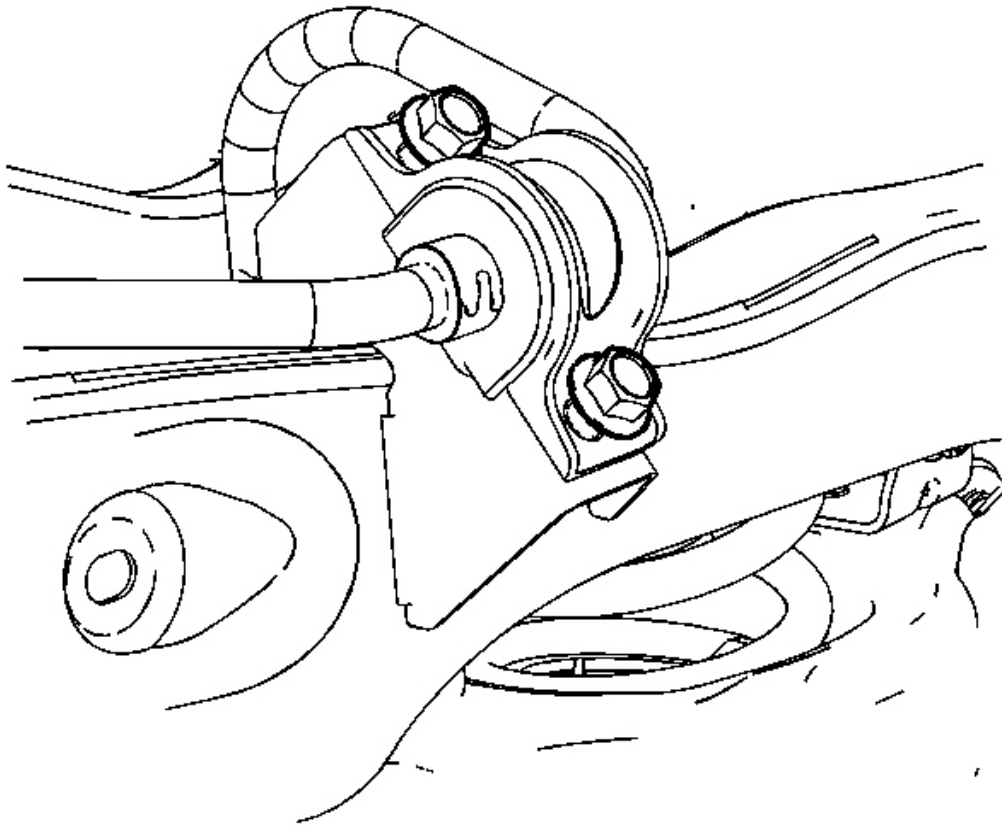


Fig. 25: View Of Stabilizer Bar Clamp & Bolts
Courtesy of GENERAL MOTORS CORP.

4. Remove the stabilizer shaft clamp bolts.
5. Remove the stabilizer shaft clamps and bushings from the stabilizer shaft.
6. Disengage the stabilizer shaft from the stabilizer link ball studs, while removing the stabilizer shaft from the vehicle.

Installation Procedure

1. Position the stabilizer shaft in the vehicle, while positioning the links to the stabilizer bar.
2. Install the stabilizer shaft clamps and bushings to the stabilizer shaft.

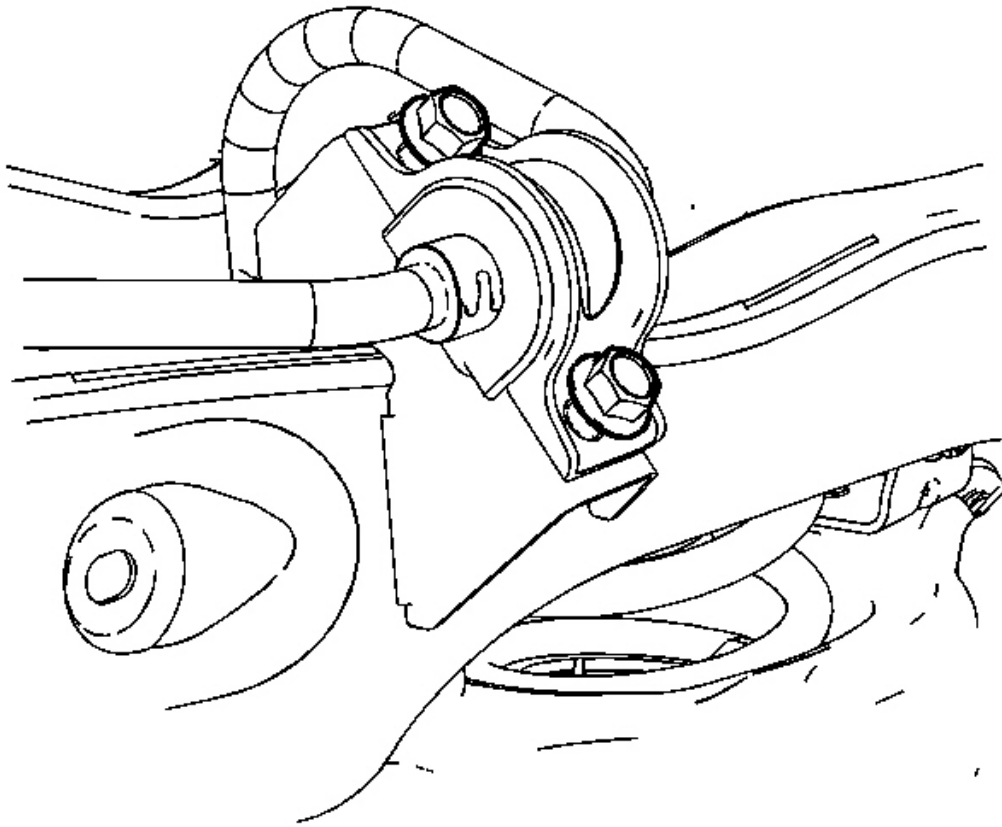


Fig. 26: View Of Stabilizer Bar Clamp & Bolts
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

3. Install the stabilizer shaft clamp bolts and tighten to 70 N.m (52 lb ft).

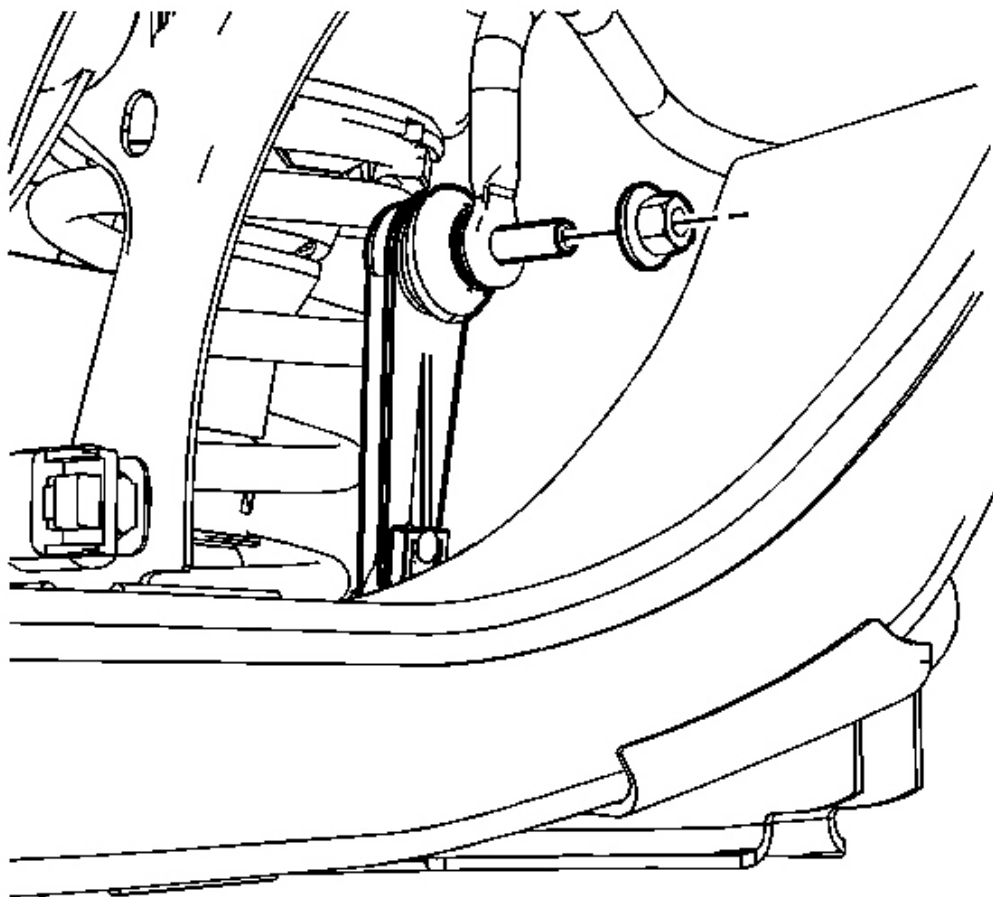


Fig. 27: View Of Stabilizer Link-To-Stabilizer Shaft Nut
Courtesy of GENERAL MOTORS CORP.

NOTE: Hold the ball shaft secure with a TORX® bit, when installing the nut.

4. Install the stabilizer link to stabilizer shaft nut and tighten to 50 N.m (37 lb ft).
5. Lower the vehicle.

STABILIZER SHAFT INSULATOR REPLACEMENT

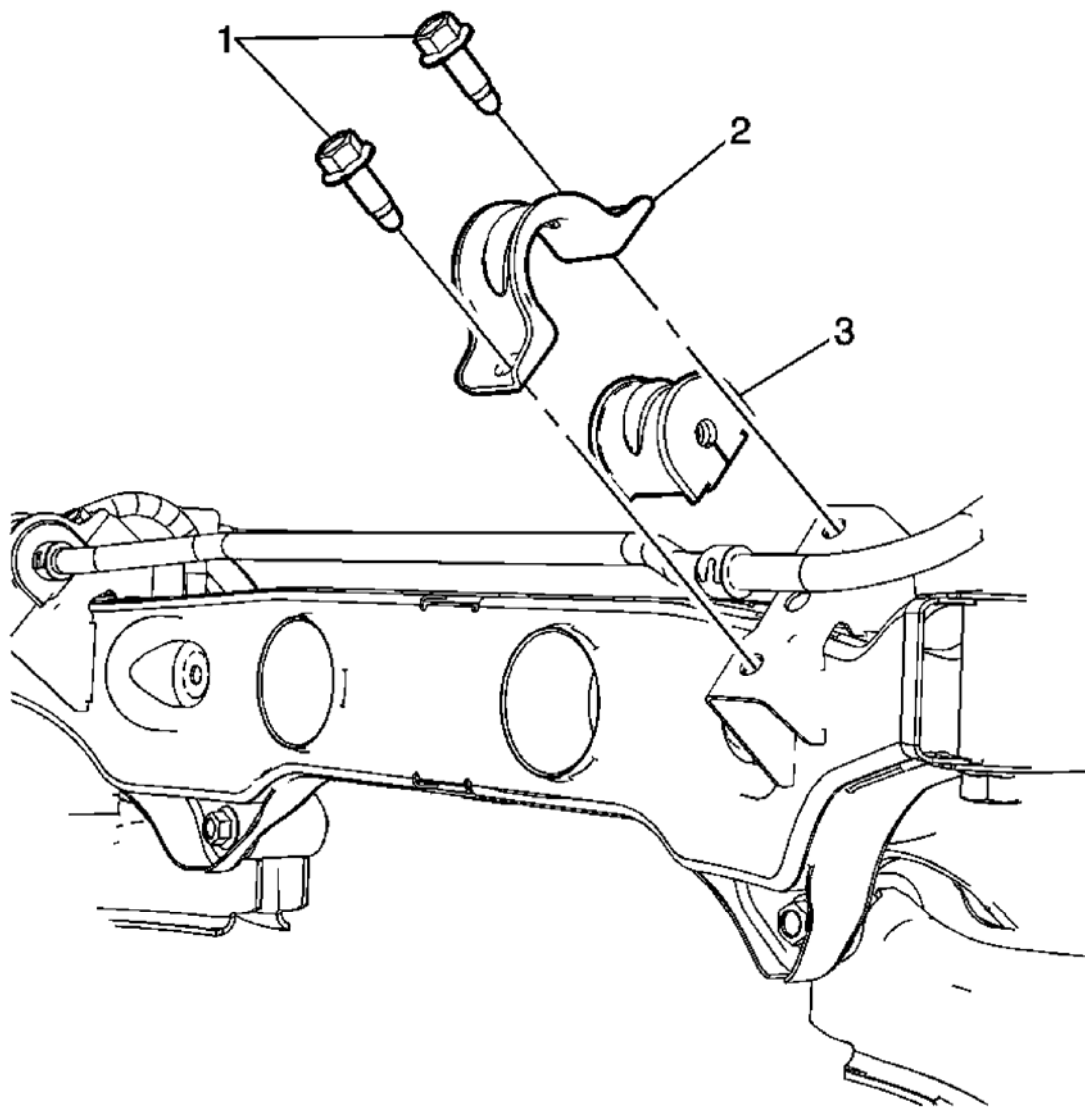


Fig. 28: Stabilizer Shaft Insulator
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedure: Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
1	Stabilizer Shaft Insulator Bolt (Qty: 4) CAUTION: Refer to <u>Fastener Caution</u> . Procedure: Lower the rear suspension support. Refer to <u>Rear Support Replacement (AWD)</u> or <u>Rear</u>

Support Replacement (FWD) .

Tip: Lower the rear suspension support enough to remove the stabilizer shaft clamp bolt.

Tighten: 70 N.m (52 lb ft)

2	Stabilizer Shaft Insulator Clamp (Qty: 2)
3	Stabilizer Shaft Insulator (Qty: 2)

STABILIZER SHAFT LINK REPLACEMENT**Removal Procedure**

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .

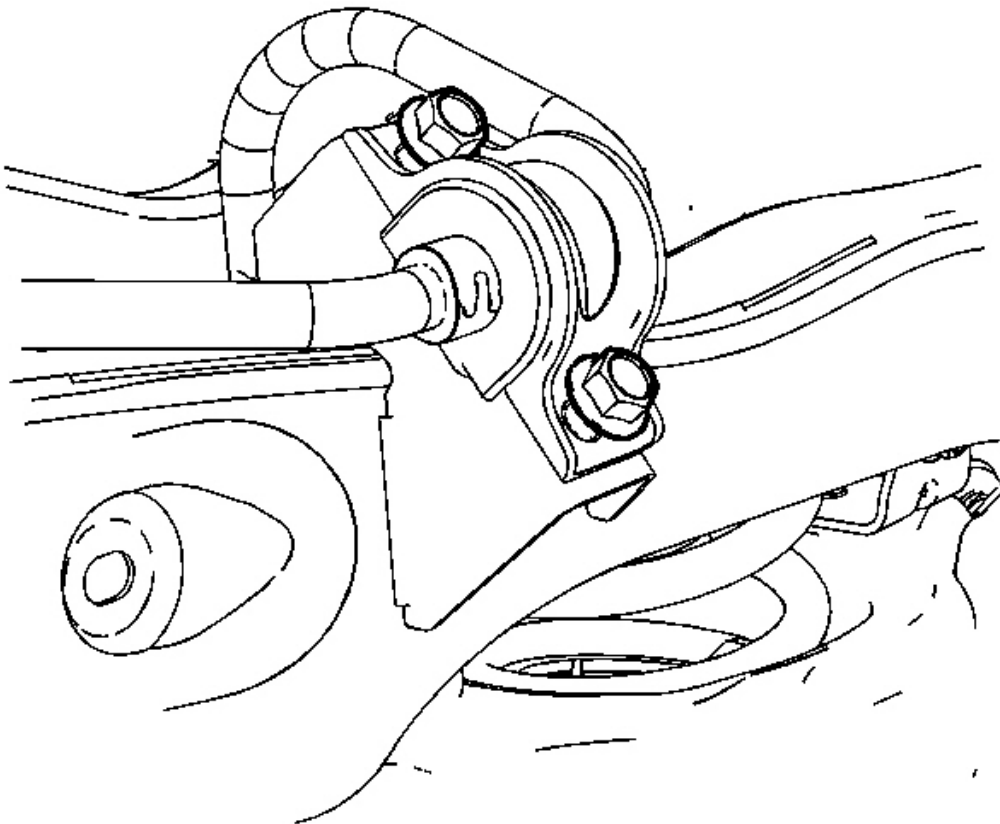


Fig. 29: View Of Stabilizer Bar Clamp & Bolts
Courtesy of GENERAL MOTORS CORP.

3. Loosen the stabilizer shaft clamp bolts.

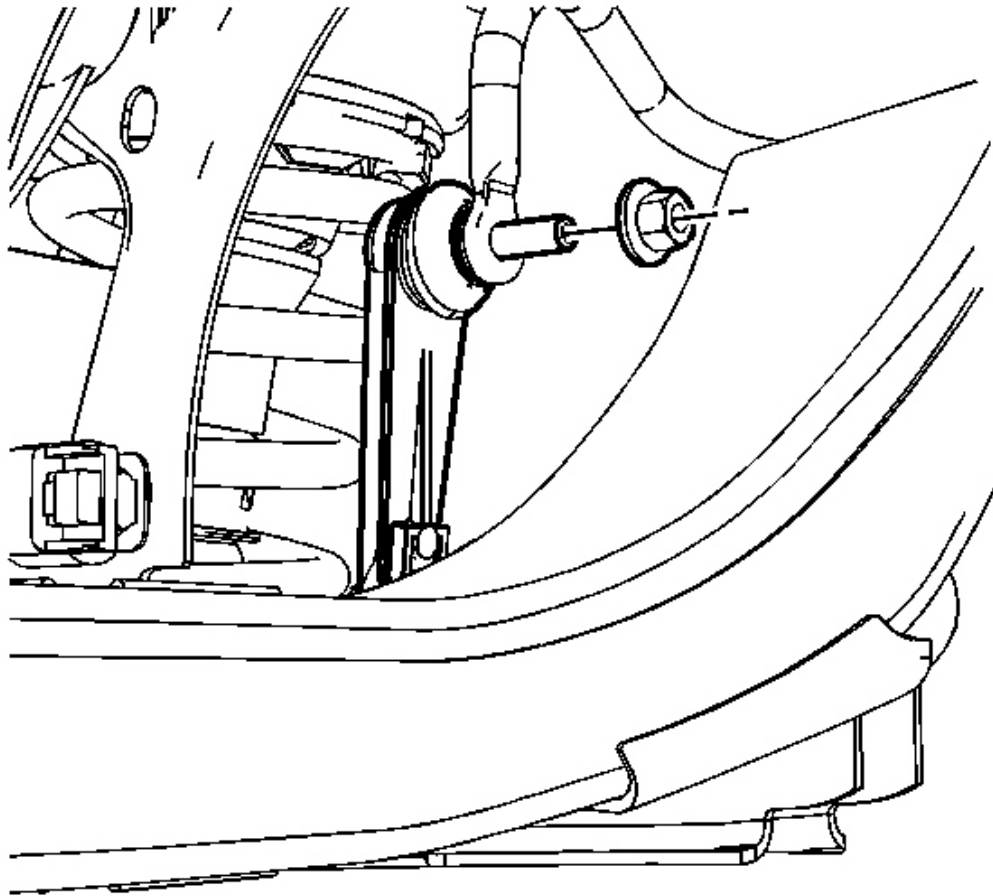


Fig. 30: View Of Stabilizer Link-To-Stabilizer Shaft Nut
Courtesy of GENERAL MOTORS CORP.

NOTE: Use a 90 degree bend TORX® bit to hold the ball stud when loosening or tightening the nut.

4. Remove the stabilizer link to stabilizer shaft nut.

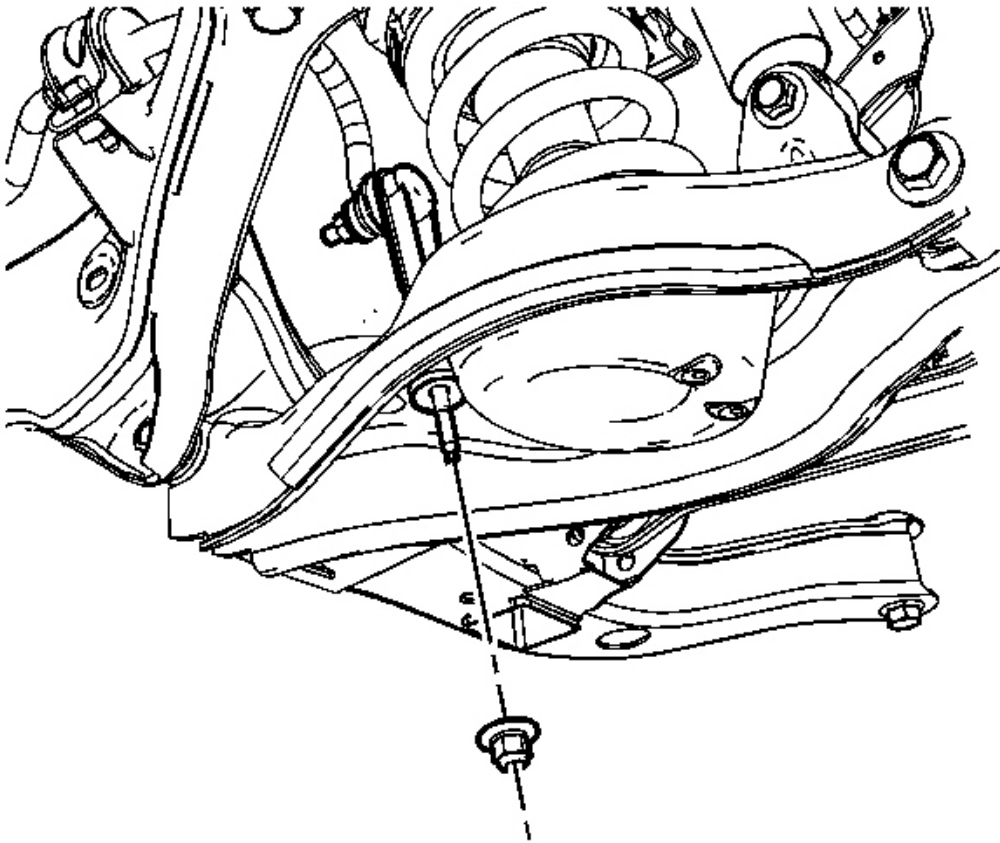


Fig. 31: View Of Stabilizer Link-To-Lower Control Arm Nut
Courtesy of GENERAL MOTORS CORP.

NOTE: When disconnecting the stabilizer link, hold the link with a wrench to prevent turning.

5. Remove the stabilizer link to lower control arm nut.
6. Remove the stabilizer link from the vehicle.

Installation Procedure

1. Position the stabilizer link through the lower control arm.

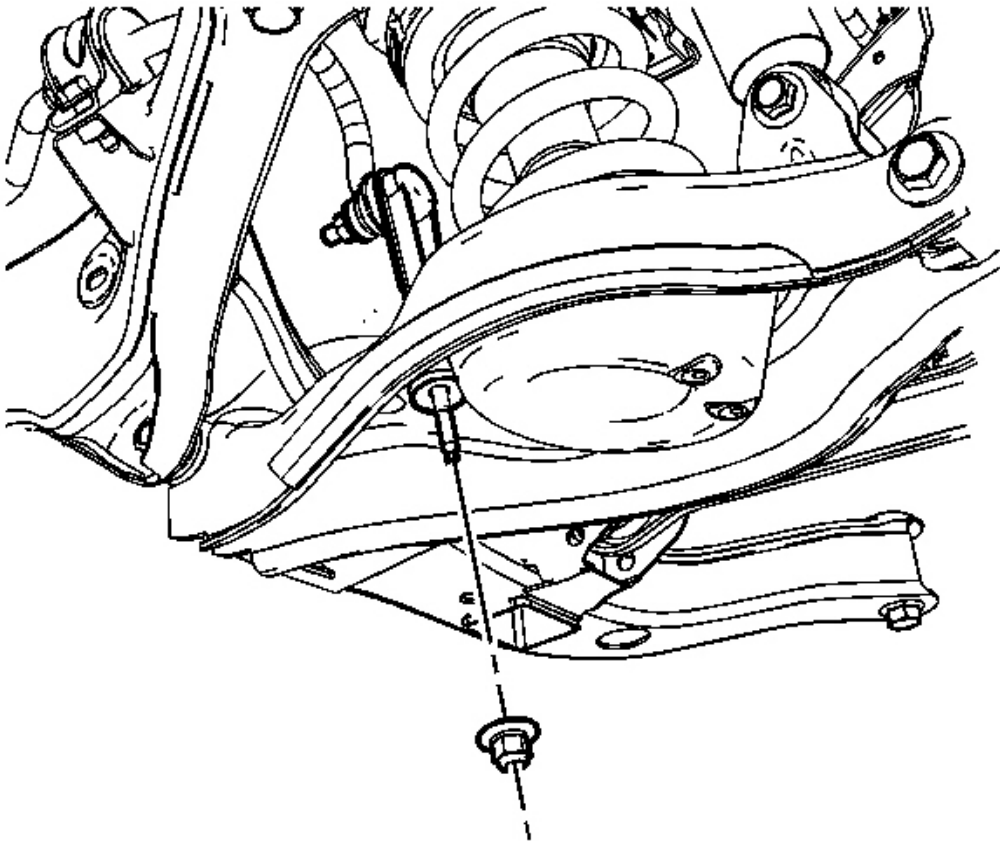


Fig. 32: View Of Stabilizer Link-To-Lower Control Arm Nut
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

NOTE: When connecting the stabilizer link, hold the link with a wrench to prevent turning.

2. Install the stabilizer link to lower control arm nut and tighten to 15 N.m (11 lb ft).

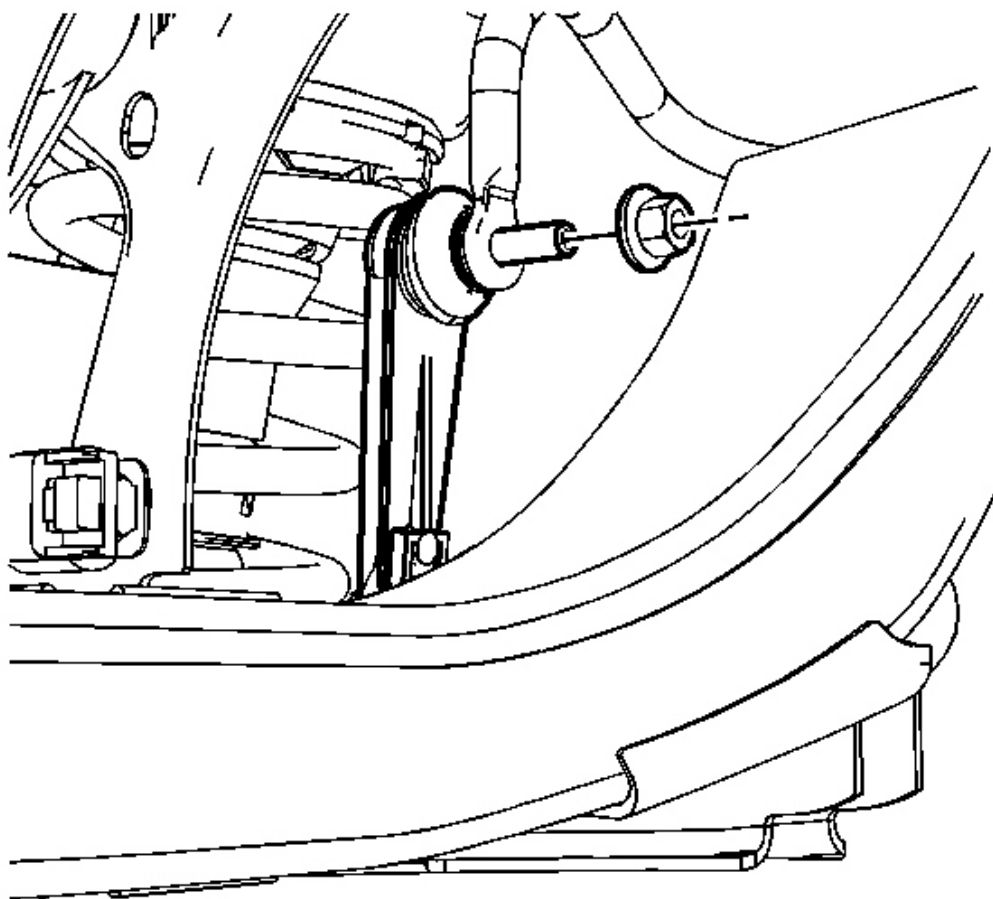


Fig. 33: View Of Stabilizer Link-To-Stabilizer Shaft Nut
Courtesy of GENERAL MOTORS CORP.

NOTE: Use a 90 degree bend TORX® bit to hold the ball stud when tightening the nut.

3. Install the stabilizer link to stabilizer shaft nut and tighten to 50 N.m (37 lb ft).

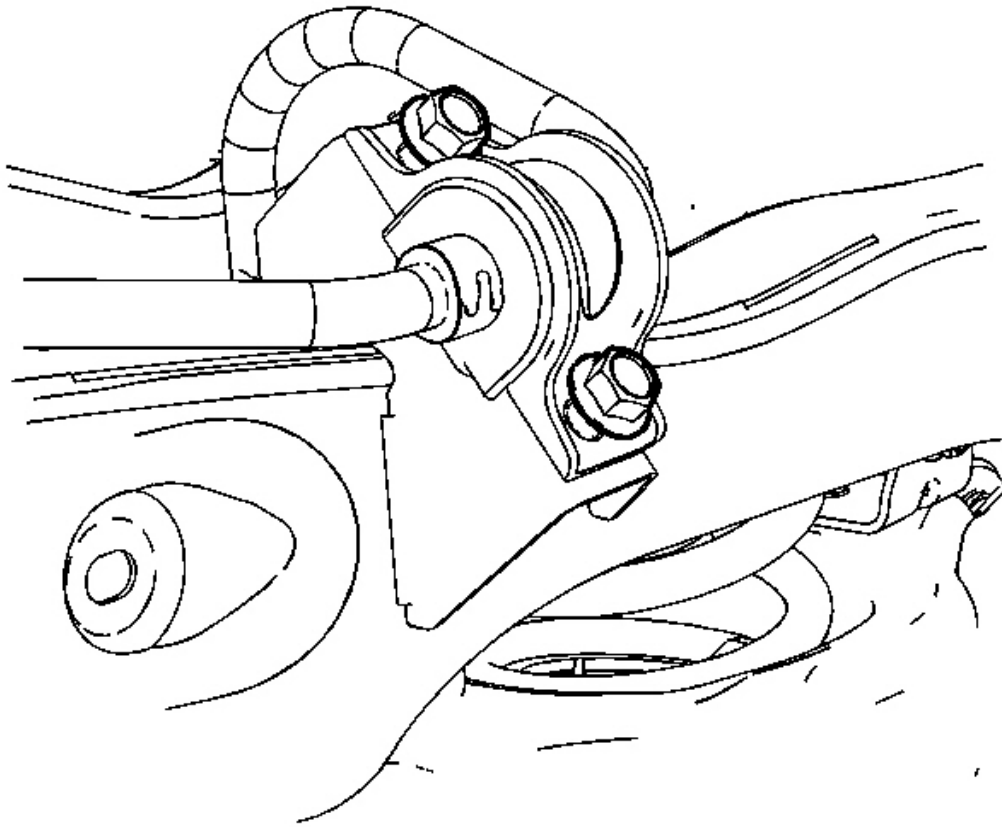


Fig. 34: View Of Stabilizer Bar Clamp & Bolts
Courtesy of GENERAL MOTORS CORP.

4. Tighten the loose stabilizer shaft clamp bolts to 70 N.m (52 lb ft).
5. Install the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
6. Lower the vehicle.

STRUT AND SHOCK ABSORBER INSPECTION (SHOCK ABSORBER)

NOTE: The shock absorber 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 lower shock absorber tube is normal. **DO NOT** replace the shock absorber for this condition.

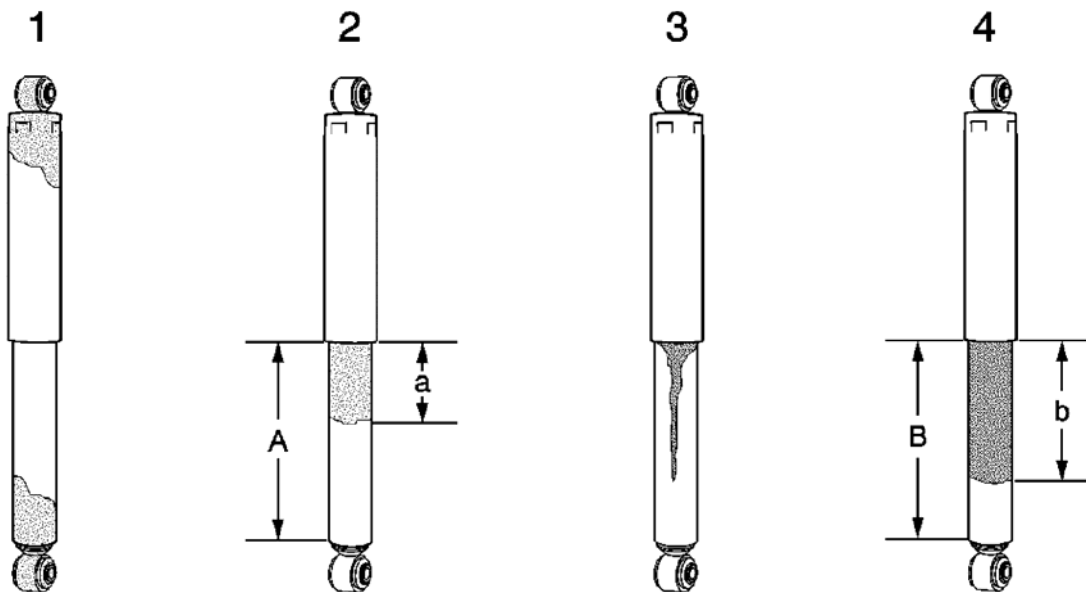


Fig. 35: Identifying Shock Absorber Conditions
Courtesy of GENERAL MOTORS CORP.

Condition 1

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

Condition 2

Light film/residue on approximately 1/3 (a) or less of the lower shock tube (A) and originating from the shaft seal, is a NORMAL condition. DO NOT replace the shock absorber.

Condition 3

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

Condition 4

An extreme wet film of oil covering more than 1/3 (b) of the lower shock tube and originating from the shaft seal (B), is an ABNORMAL condition. Replace the shock absorber. Refer to **Shock Absorber Replacement**.

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 shock absorber 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 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 shock absorber. Refer to **Shock Absorber 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 shock absorber. If the shock absorber does not exceed 2 cycles, NO repair is necessary.

SHOCK ABSORBER REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
3. Using the proper jackstand, support the lower control arm or the knuckle.

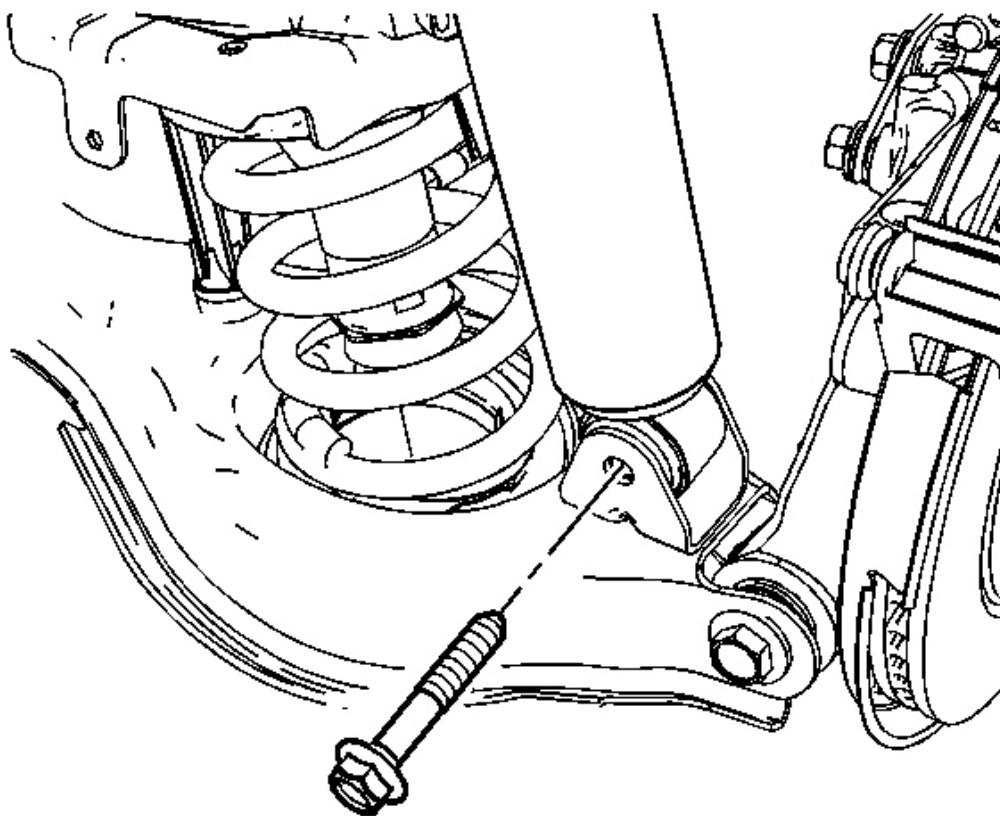


Fig. 36: Identifying Lower Shock Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

4. Remove the lower shock bolt.
5. Remove the rear wheel house from the vehicle. Refer to **Rear Wheelhouse Panel Liner Replacement (Equinox)** or **Rear Wheelhouse Panel Liner Replacement (Terrain)** .

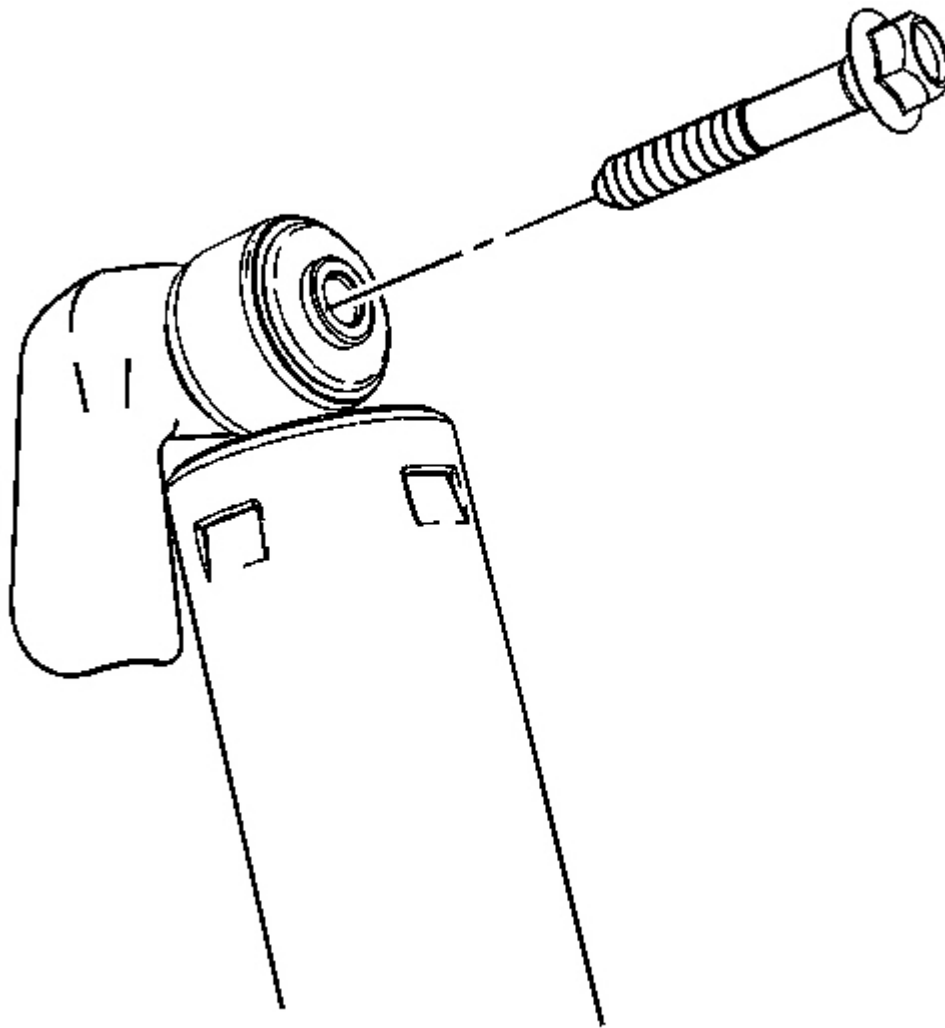


Fig. 37: Identifying Upper Shock Bolt
Courtesy of GENERAL MOTORS CORP.

6. Remove the upper shock bolt.
7. Remove the shock from the vehicle.

Installation Procedure

1. Position the shock to the vehicle.

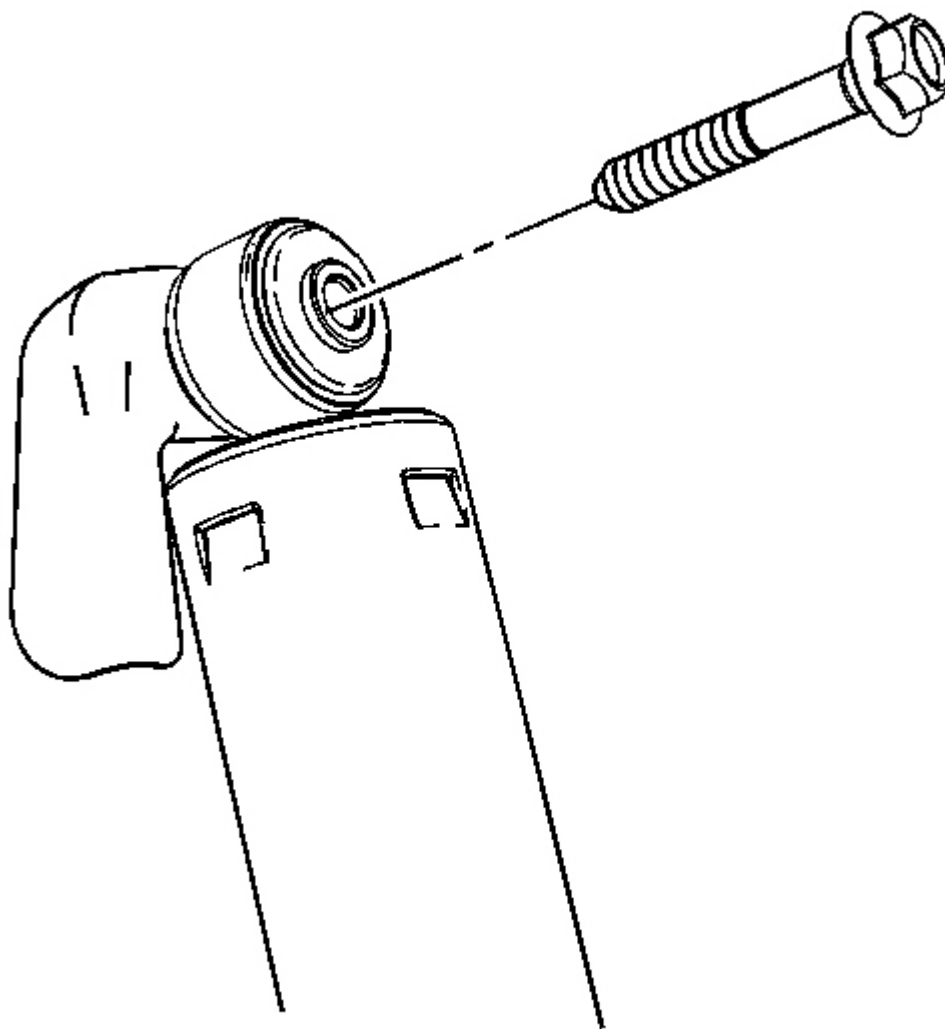


Fig. 38: Identifying Upper Shock Bolt
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

2. Install the upper shock bolt and tighten to 110 N.m (81 lb ft).

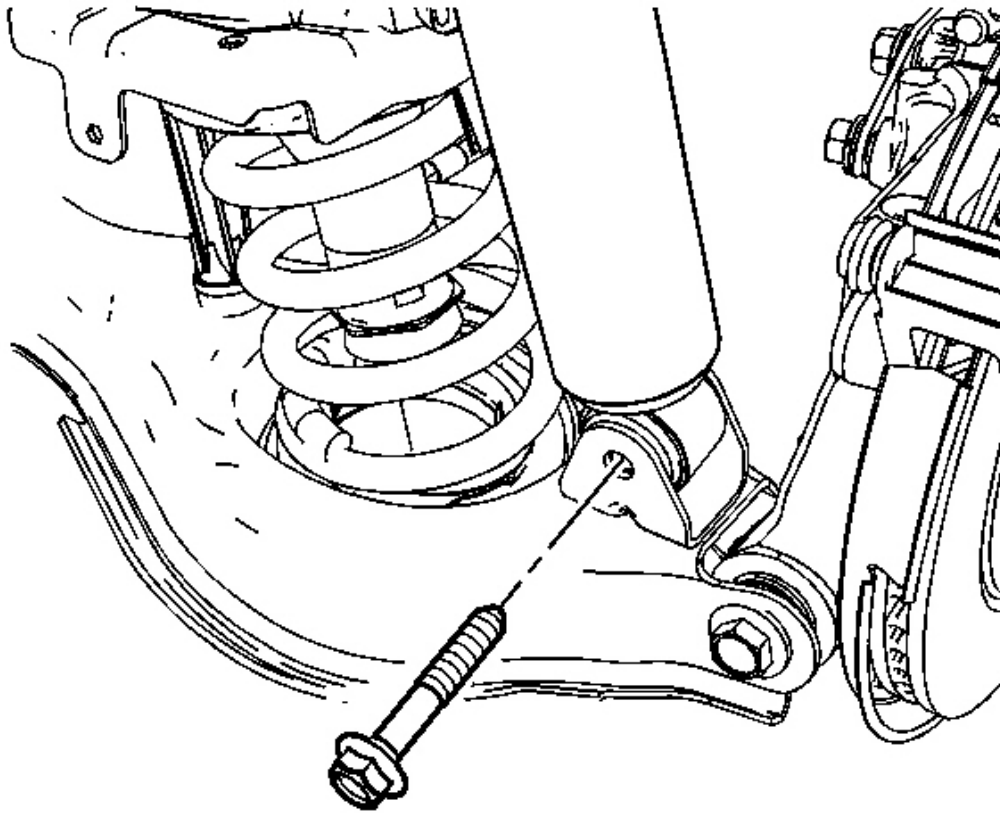


Fig. 39: Identifying Lower Shock Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

3. Install the lower shock bolt and tighten to 110 N.m (81 lb ft).
4. Remove the jack stand from the lower control arm or the knuckle.
5. Install the rear wheel house in the vehicle. Refer to **Rear Wheelhouse Panel Liner Replacement (Equinox)** or **Rear Wheelhouse Panel Liner Replacement (Terrain)** .
6. Install the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
7. Lower the vehicle.

SHOCK ABSORBER DISPOSAL

WARNING: 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.

WARNING: 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.

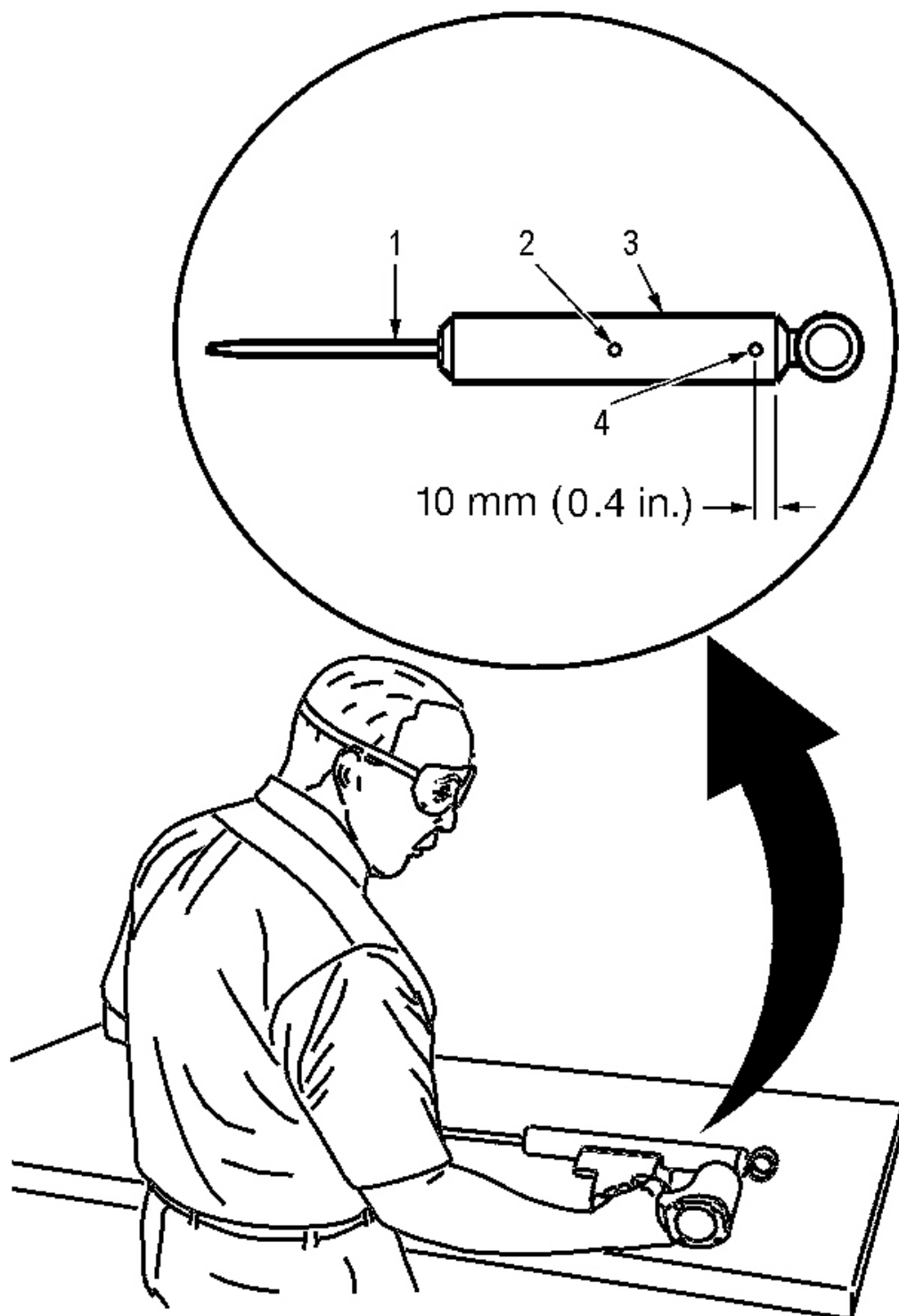


Fig. 40: Drilling Hole In Shock Absorber
Courtesy of GENERAL MOTORS CORP.

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

COIL SPRING REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
3. Remove the stabilizer shaft link. Refer to **Stabilizer Shaft Link Replacement**.
4. Position a jackstand underneath the lower control arm.
5. Raise the jackstand slightly to compress the coil spring.

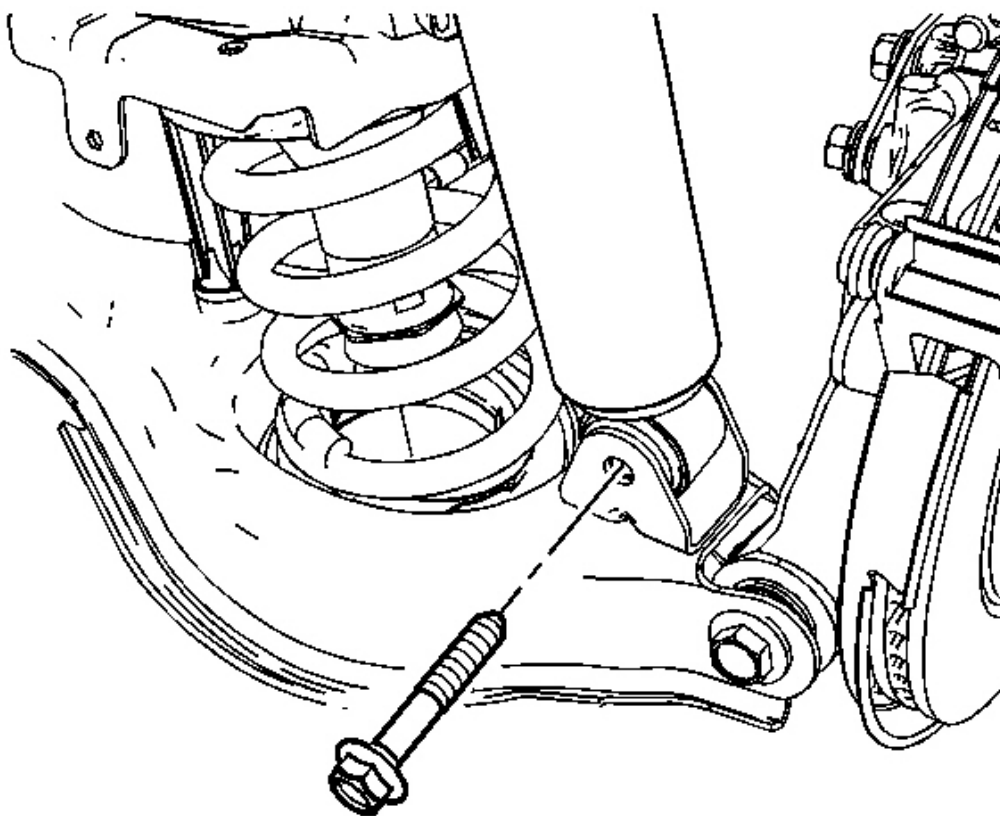


Fig. 41: Identifying Lower Shock Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

6. Remove the lower shock bolt and nut.

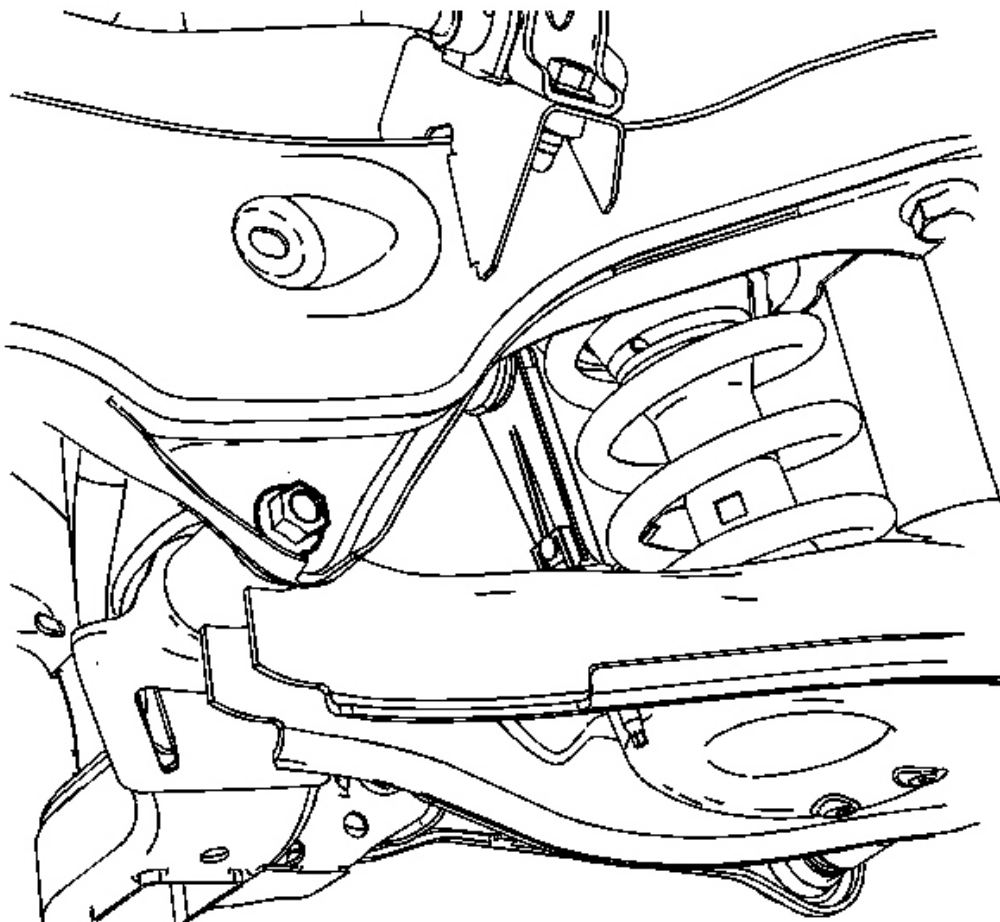


Fig. 42: Locating Lower Control Arm-To-Support Frame Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

7. Loosen the lower control arm to support frame nut and bolt.

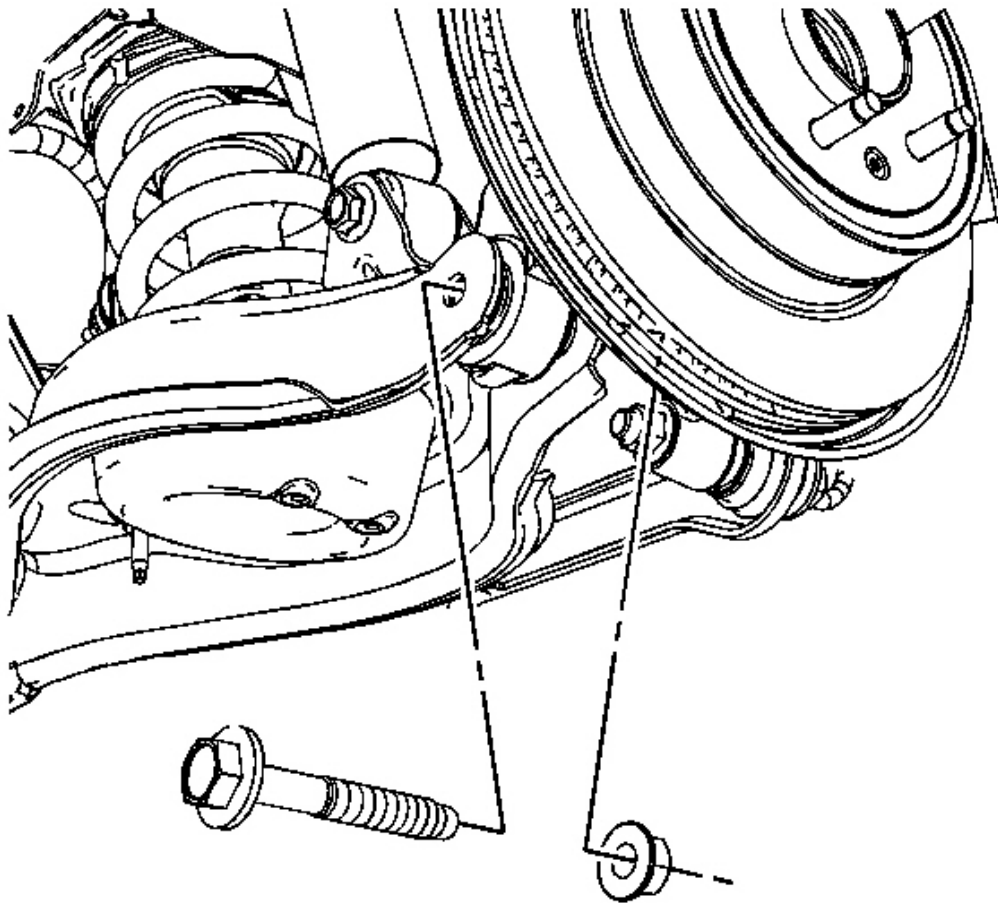


Fig. 43: View Of Lower Control Arm-To-Knuckle Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

8. Remove the lower control arm to knuckle nut and bolt.
9. Slowly lower the control arm in order to unload the coil spring.

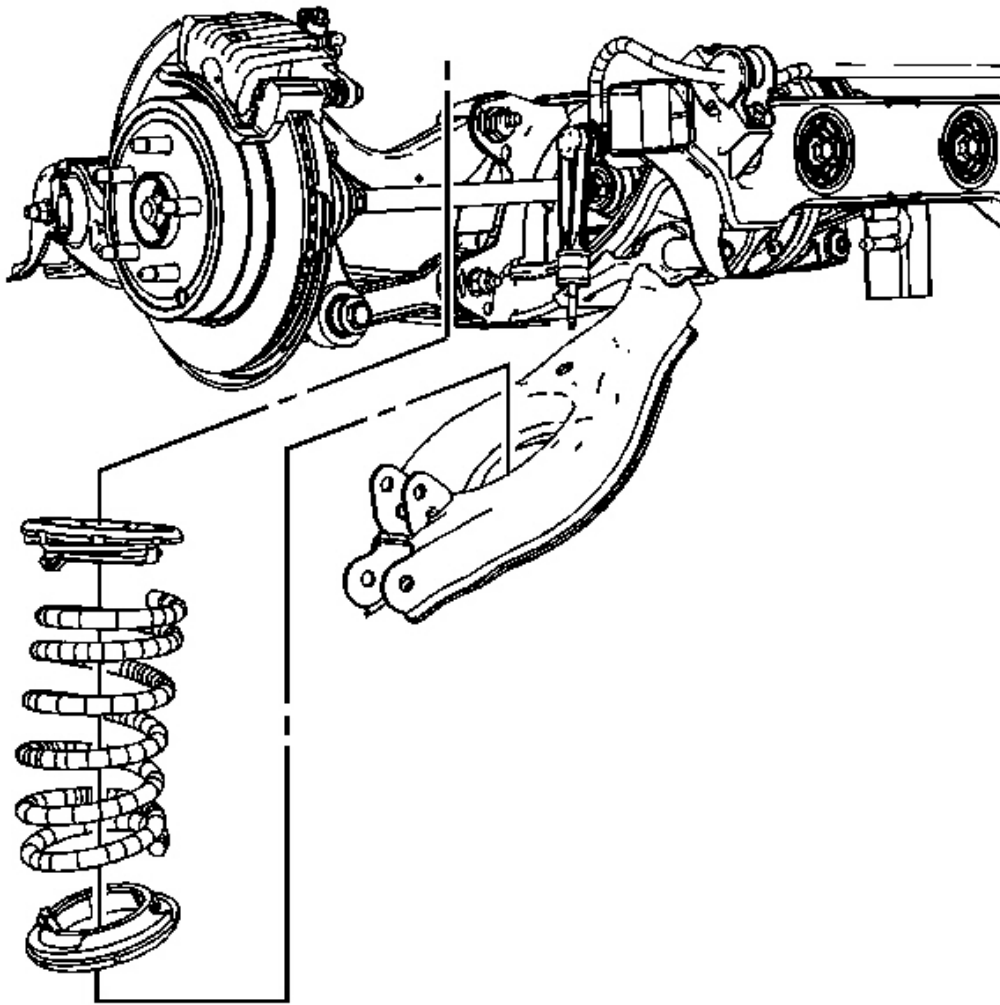


Fig. 44: View Of Coil Spring & Insulators
Courtesy of GENERAL MOTORS CORP.

10. Remove the coil spring and insulators.

Installation Procedure

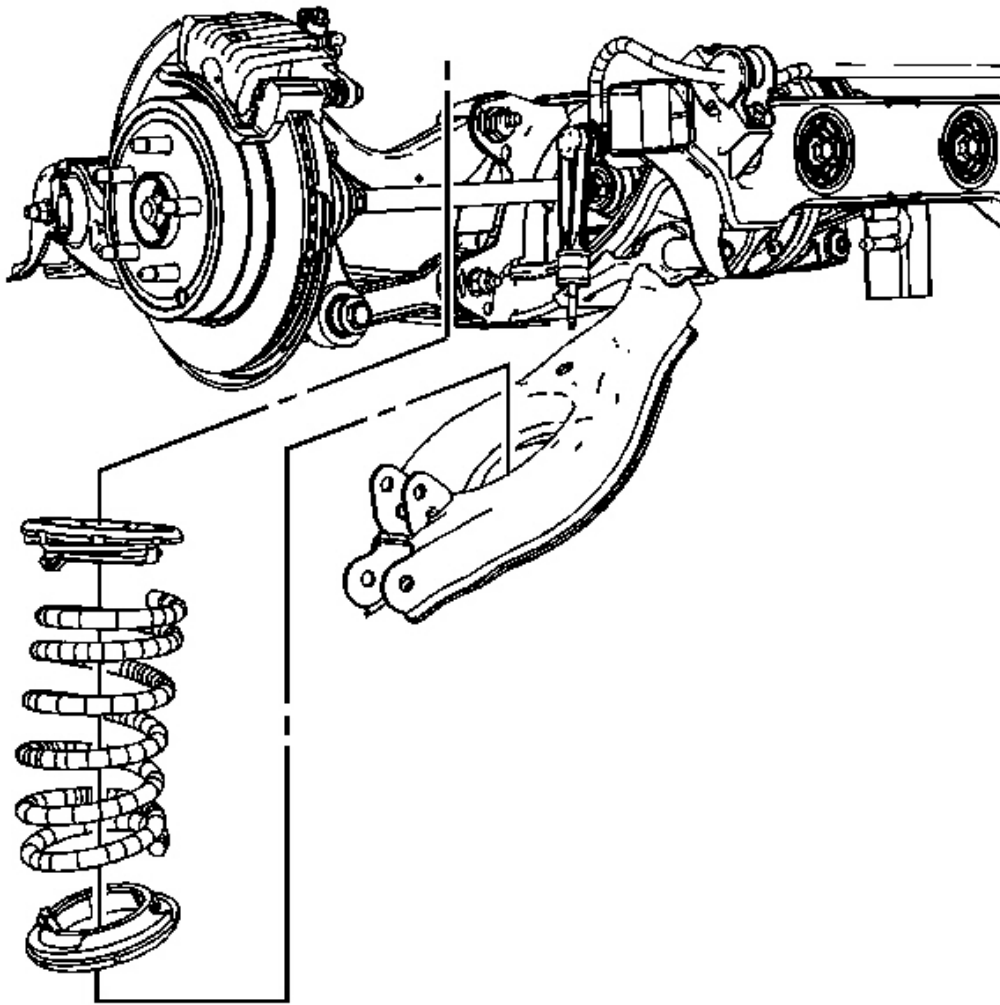


Fig. 45: View Of Coil Spring & Insulators
Courtesy of GENERAL MOTORS CORP.

1. Inspect the coil spring upper and lower insulators, if damage exists replace the insulators.

If no damage exists, transfer the existing components. Refer to **Rear Spring Insulator Replacement**.

2. Position the spring with the rubber insulators into the vehicle.
3. Raise the jackstand to compress the spring.

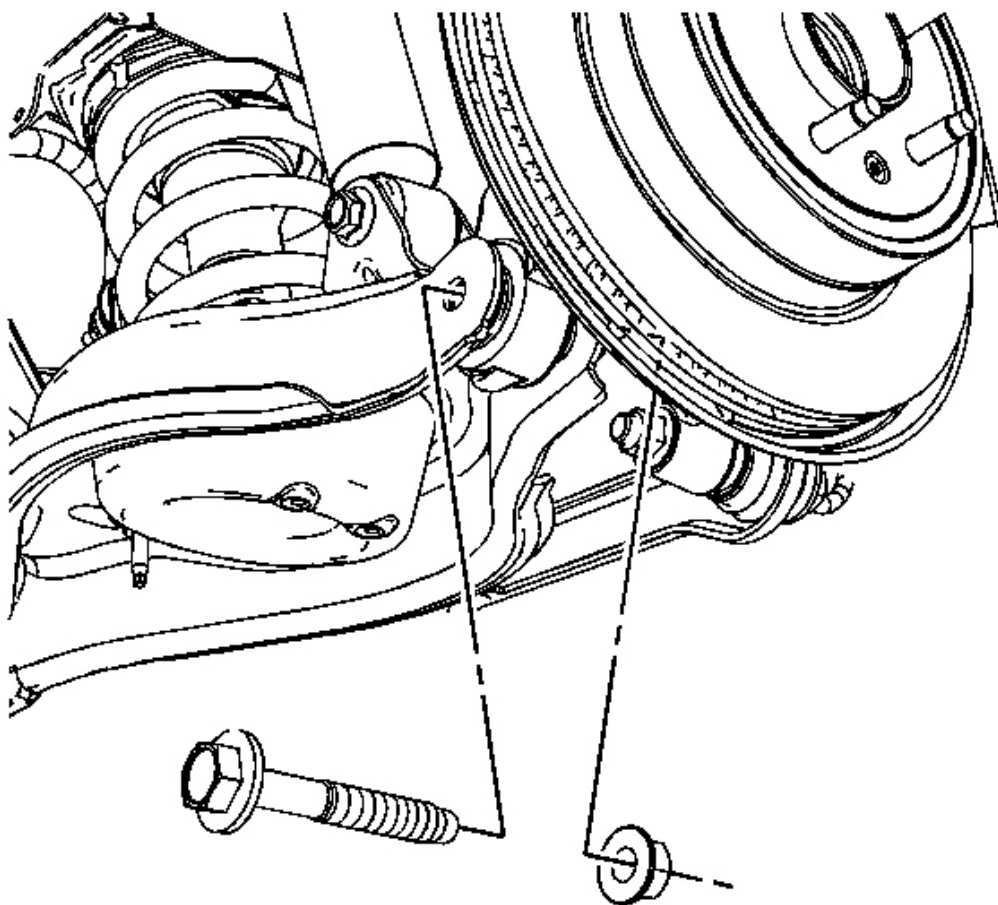


Fig. 46: View Of Lower Control Arm-To-Knuckle Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

4. Position the lower control arm to the knuckle and install the nut and bolt and tighten the bolt/nut to 160 N.m (118 lb ft).

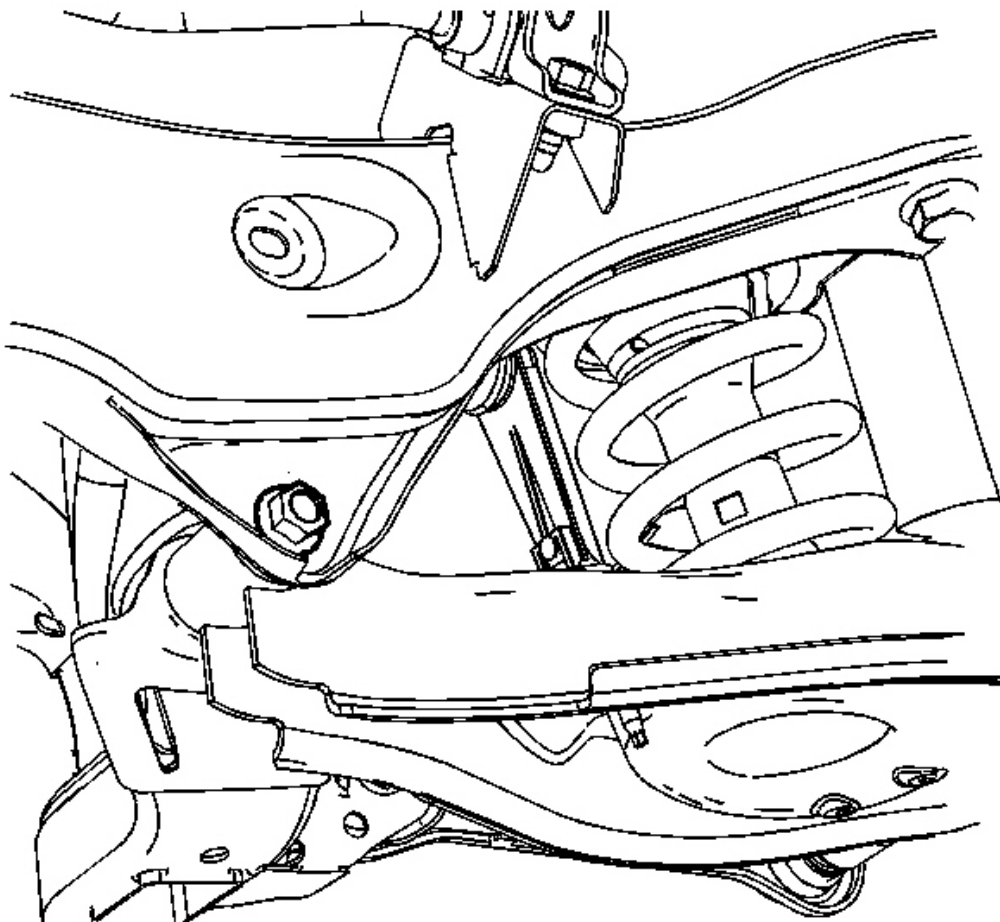


Fig. 47: Locating Lower Control Arm-To-Support Frame Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

5. Tighten the lower control arm to support nut and bolt to 110 N.m (81 lb ft).

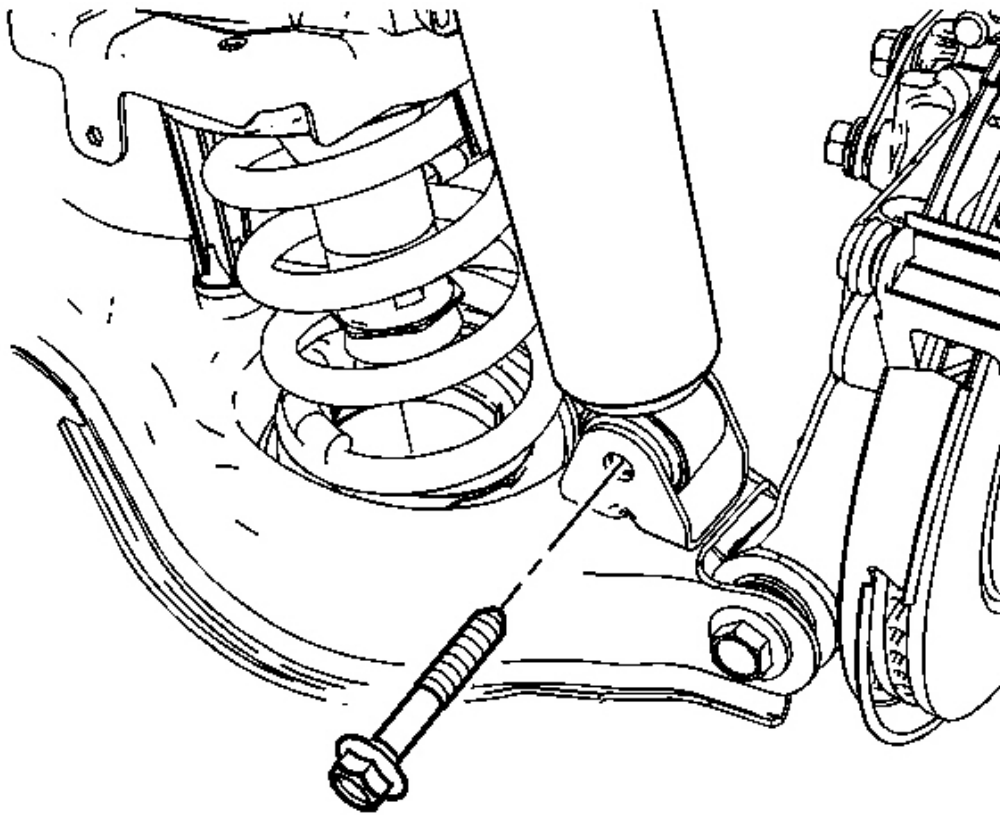


Fig. 48: Identifying Lower Shock Bolt & Nut
Courtesy of GENERAL MOTORS CORP.

6. Install the shock to the lower control arm nut and bolt and tighten to 110 N.m (81 lb ft).
7. Remove the jackstand from under the vehicle.
8. Install the stabilizer shaft link. Refer to **Stabilizer Shaft Link Replacement**.
9. Install the rear tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation**.
10. Lower the vehicle.

REAR SPRING INSULATOR REPLACEMENT

Removal Procedure

1. Remove the coil spring. Refer to **Coil Spring Replacement**.

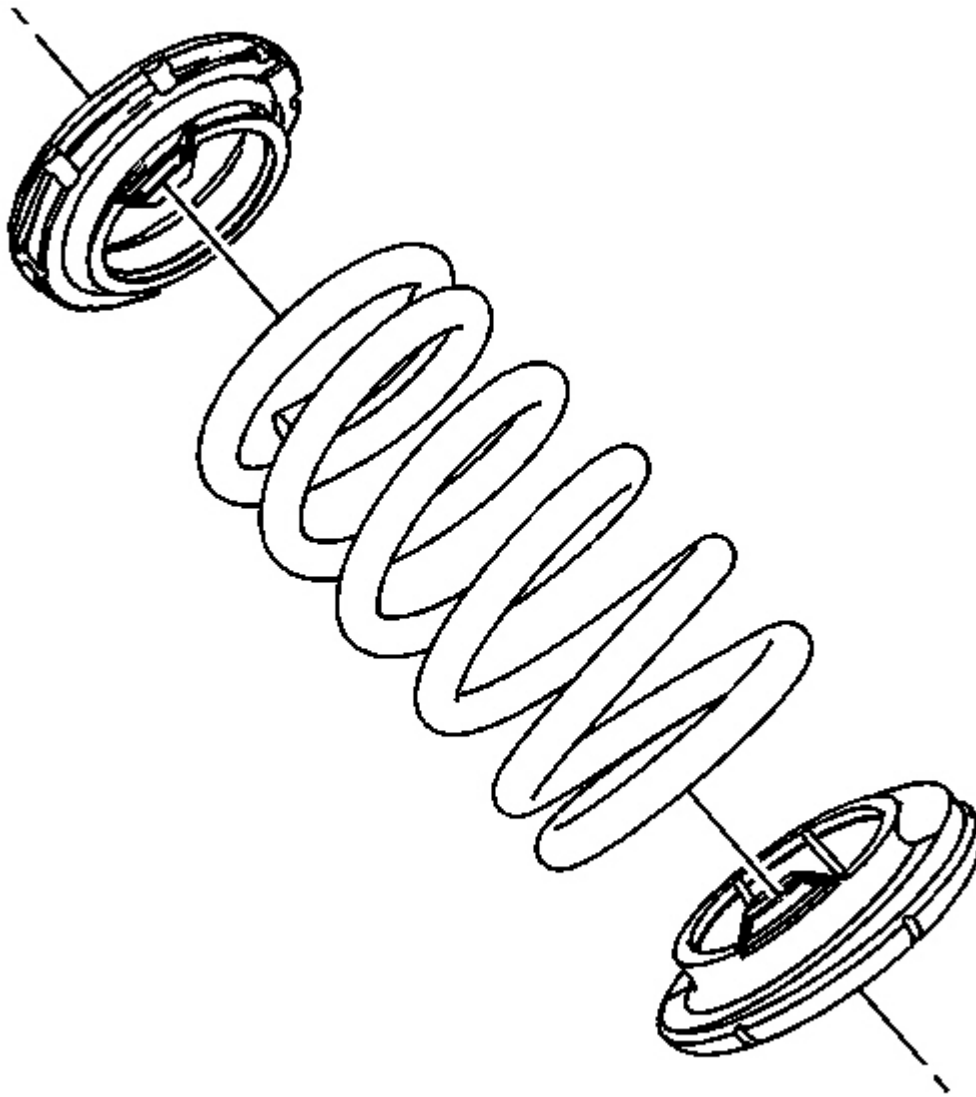


Fig. 49: View Of Coil Spring Rubber Insulators
Courtesy of GENERAL MOTORS CORP.

2. Remove the upper and lower rubber insulators from the coil spring.

Installation Procedure

- IMPORTANT:**
- Spray silicon lubricant on the insulators to aid in installation.

- Make sure that part number identification tape located on the coil spring is oriented outboard of the vehicle and at the top of the spring.
- Make sure to fully seat the top and bottom coil spring insulators to the spring.

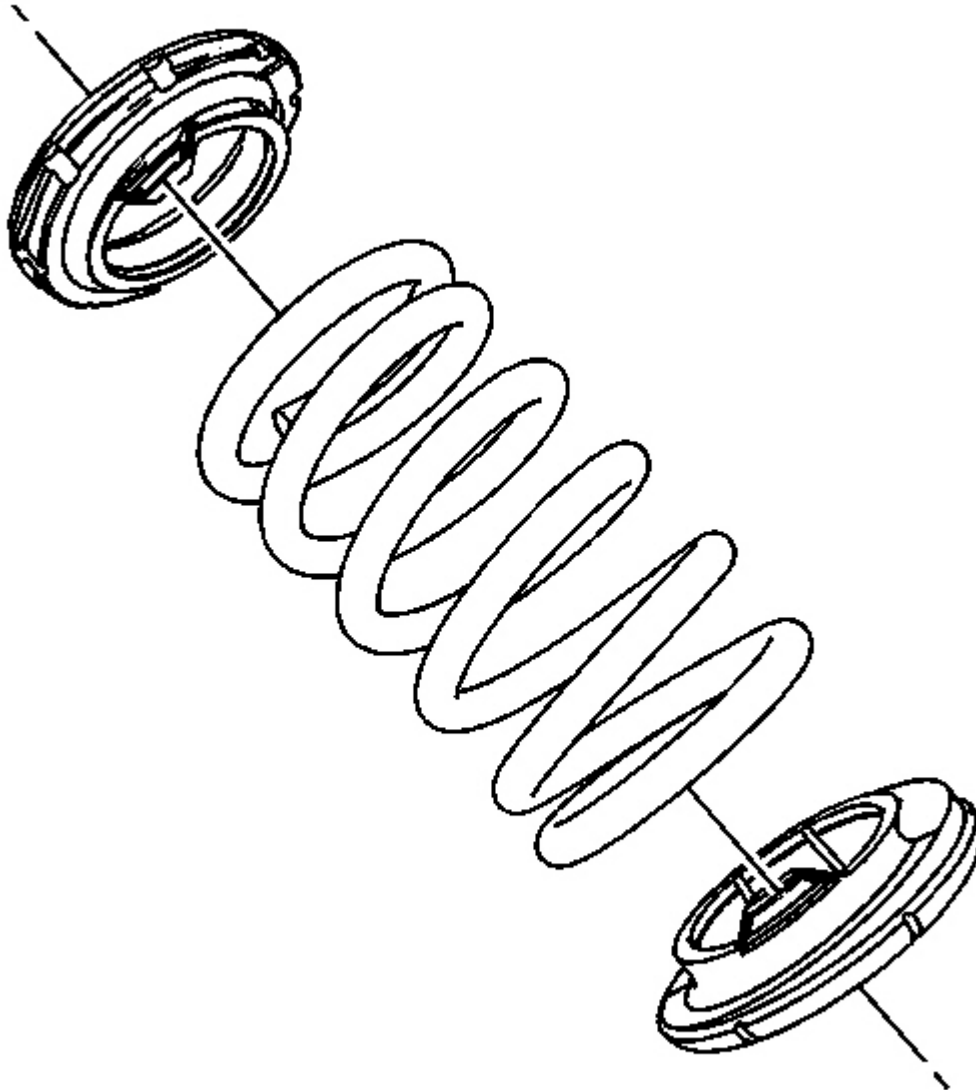


Fig. 50: View Of Coil Spring Rubber Insulators
Courtesy of GENERAL MOTORS CORP.

1. Install the upper and lower rubber insulators to the coil spring.
2. Install the coil spring. Refer to **Coil Spring Replacement**.

TRAILING ARM REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the tire and wheel. Refer to **Tire and Wheel Removal and Installation** .
3. Remove the park brake cable bolt from the trailing arm and from the frame. Refer to **Parking Brake Rear Cable Replacement (Left)** or **Parking Brake Rear Cable Replacement (Right)** .
4. Remove the trailing arm bracket to body bolts. Refer to **Trailing Arm Bracket Replacement**.

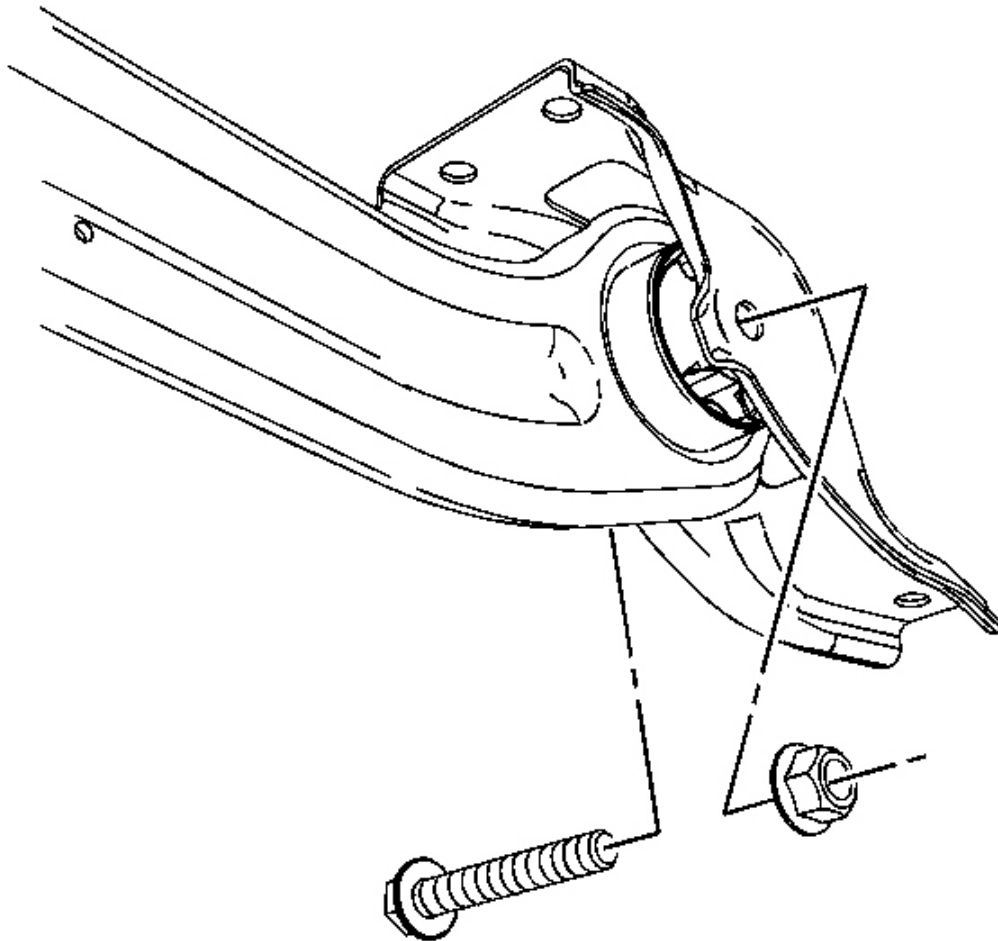


Fig. 51: View Of Trailing Arm Bushing-To-Bracket Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

5. Remove the trailing arm bushing to bracket nut and bolt.

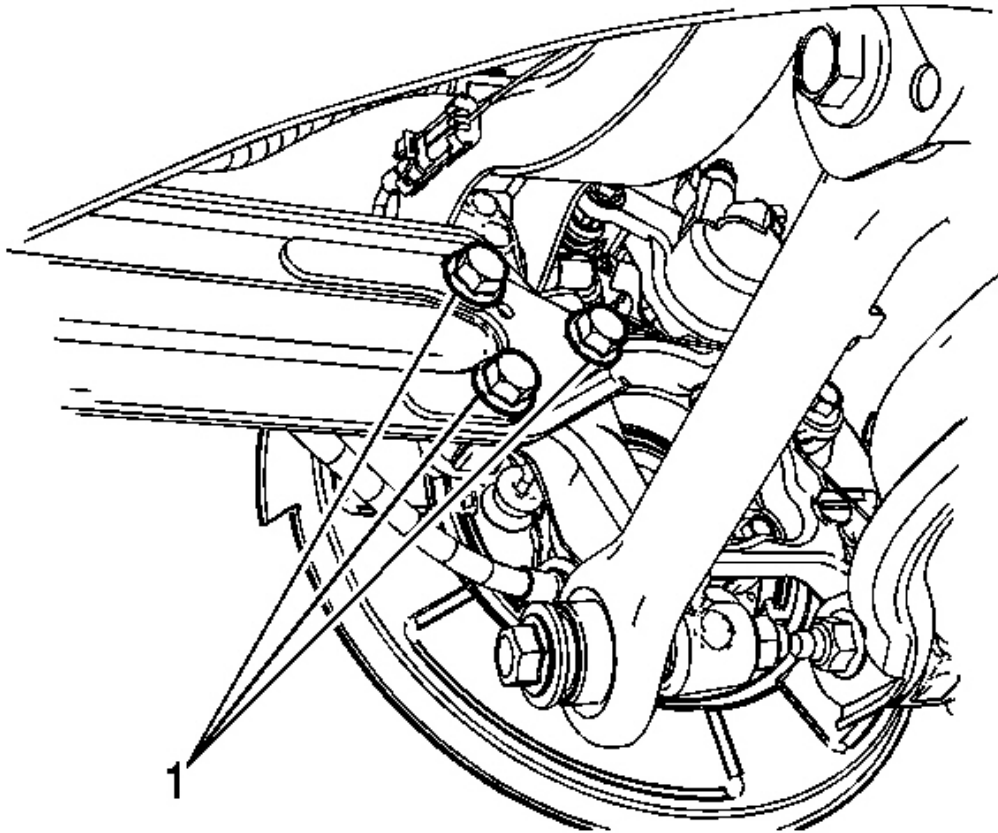


Fig. 52: Identifying Trailing Arm To Knuckle Bolts
Courtesy of GENERAL MOTORS CORP.

6. Remove the trailing arm to knuckle bolts (1).
7. Remove the trailing arm.

Installation Procedure

1. Position the trailing arm to the vehicle.

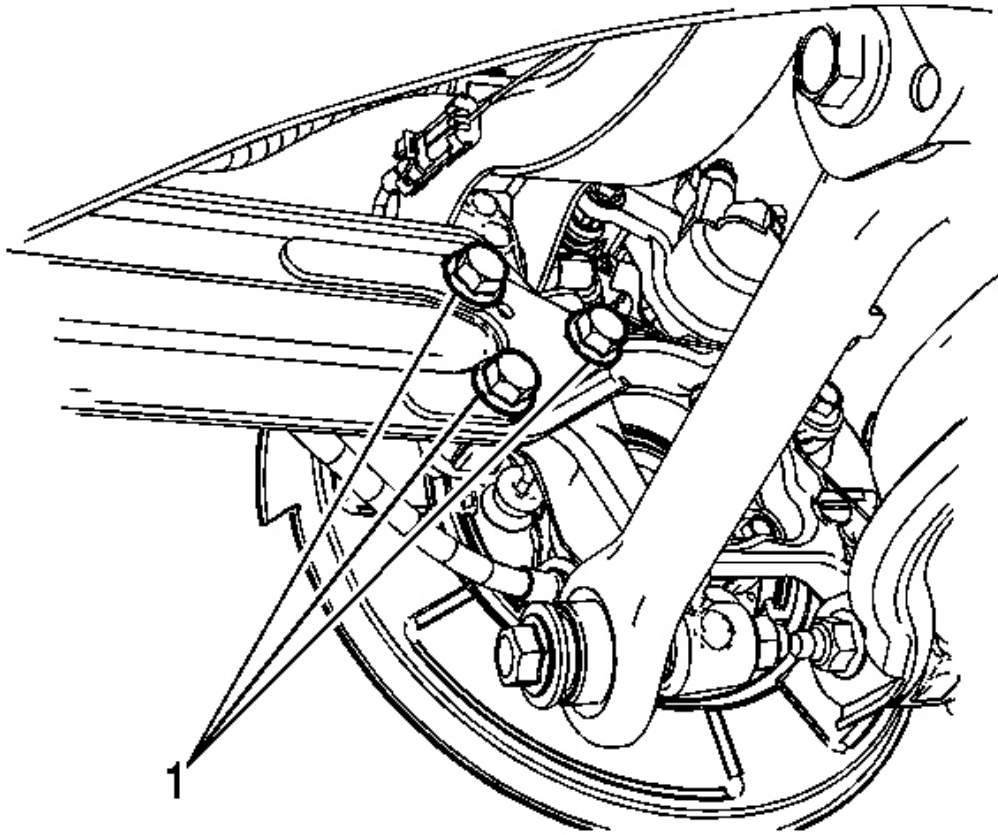


Fig. 53: Identifying Trailing Arm To Knuckle Bolts
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Fastener Caution .

2. Install the trailing arm to knuckle bolts (1) and tighten to 110 N.m (81 lb ft).
3. Position the trailing arm bracket to the trailing arm.

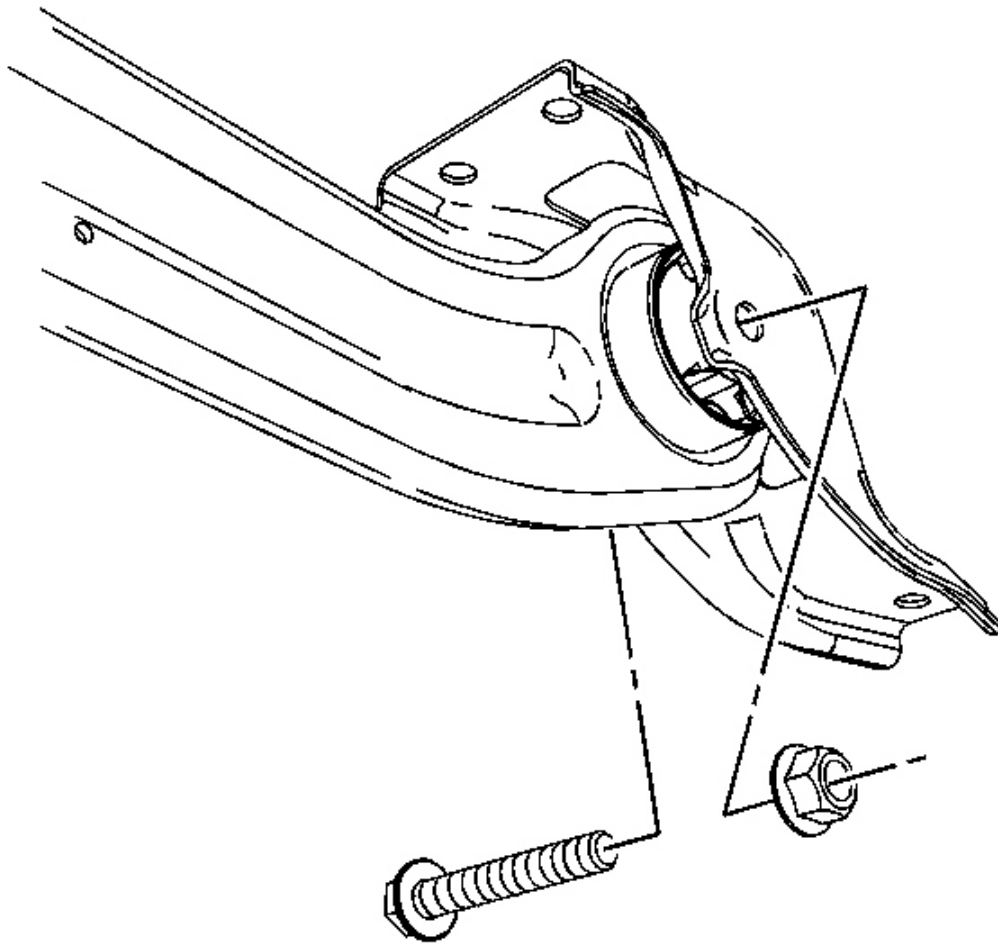


Fig. 54: View Of Trailing Arm Bushing-To-Bracket Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

4. Loosely install the trailing arm bushing to bracket nut and bolt.
5. Install the trail arm bracket. Refer to **Trailing Arm Bracket Replacement**.
6. Tighten the trailing arm bushing to bracket nut and bolt to 160 N.m (118 lb ft).
7. Install the park brake cable bolt to trailing arm and to the frame. Refer to **Parking Brake Rear Cable Replacement (Left)** or **Parking Brake Rear Cable Replacement (Right)** .
8. Install the tire and wheel. Refer to **Tire and Wheel Removal and Installation** .
9. Lower the vehicle.

TRAILING ARM BRACKET REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the park brake cable from the trailing arm and from the frame. Refer to **Parking Brake Rear Cable Replacement (Left)** or **Parking Brake Rear Cable Replacement (Right)** .

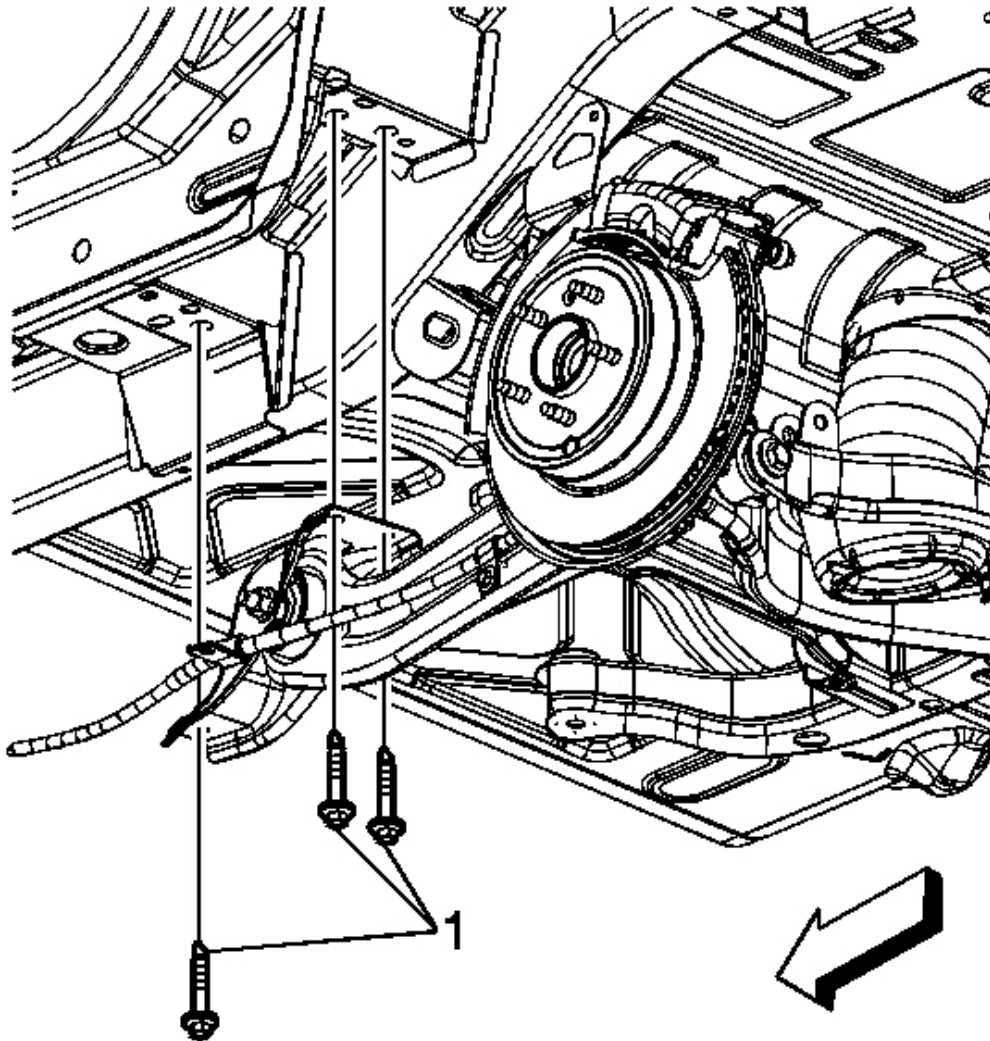


Fig. 55: Identifying Trailing Arm Bracket To Body Bolts
Courtesy of GENERAL MOTORS CORP.

3. Remove the trailing arm bracket to body bolts (1).

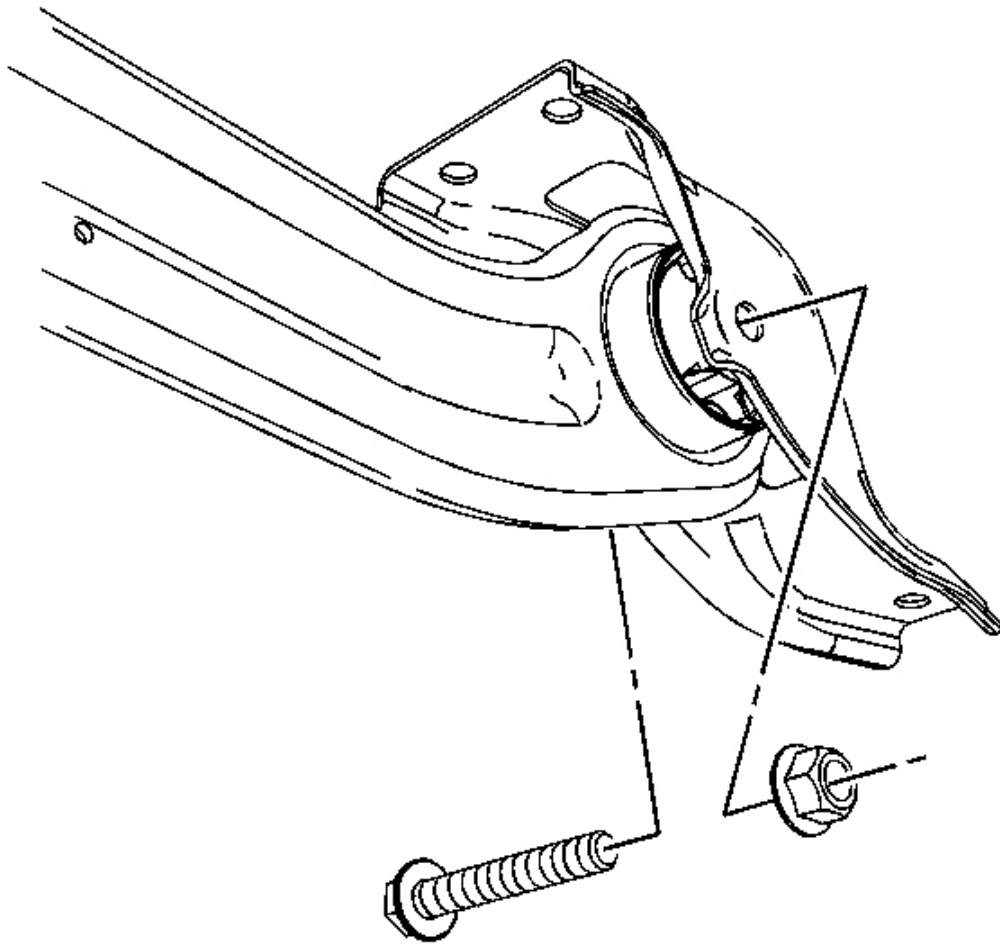


Fig. 56: View Of Trailing Arm Bushing-To-Bracket Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

4. Remove the trailing arm bushing to bracket nut and bolt.
5. Remove the trailing arm bracket.

Installation Procedure

1. Position the trailing arm bracket to the trailing arm.

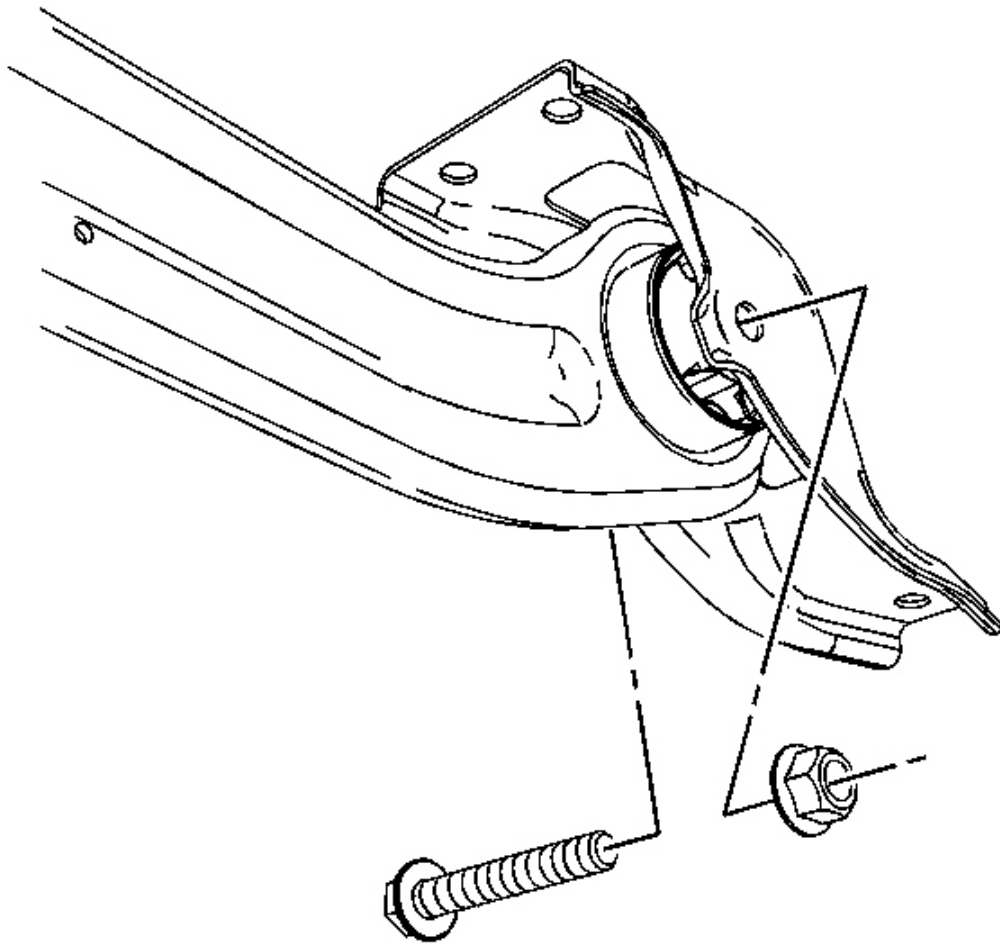


Fig. 57: View Of Trailing Arm Bushing-To-Bracket Nut & Bolt
Courtesy of GENERAL MOTORS CORP.

2. Loosely install the trailing arm bushing to bracket nut and bolt.

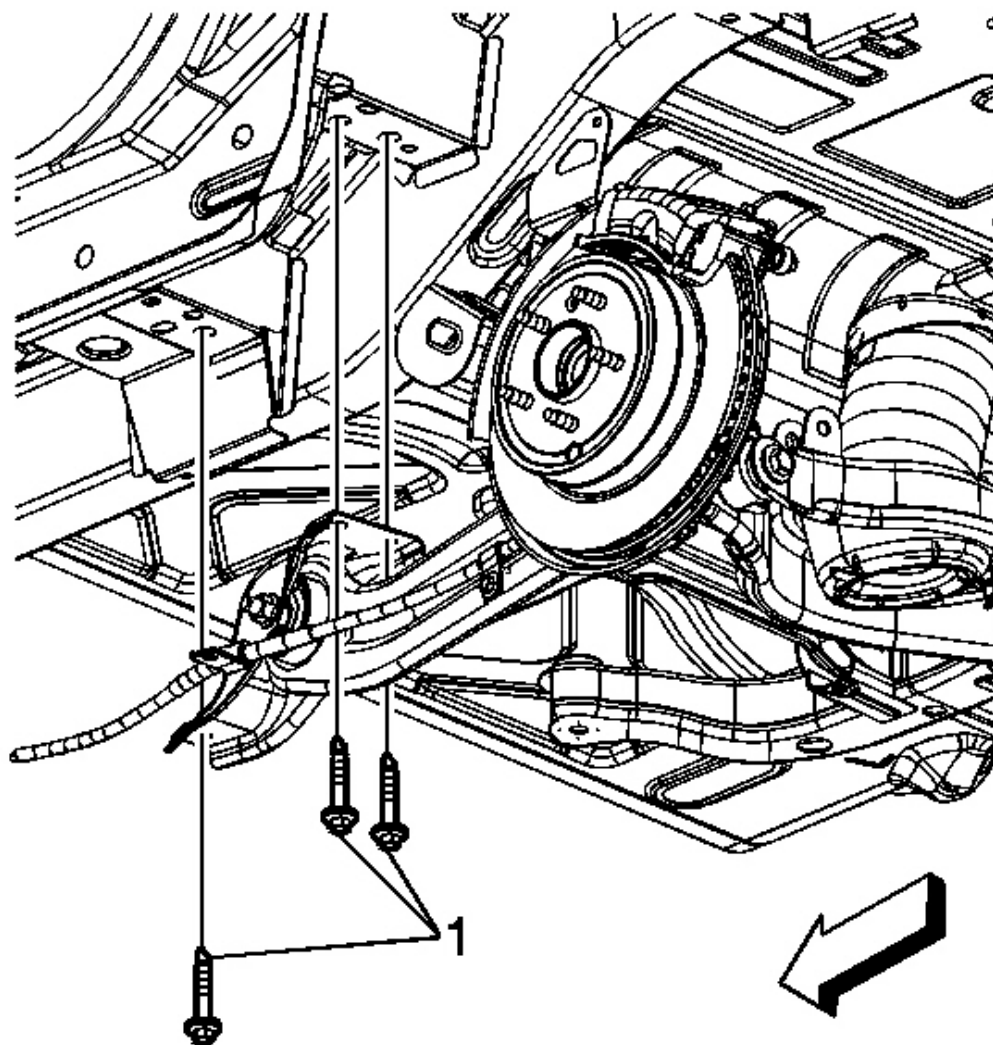


Fig. 58: Identifying Trailing Arm Bracket To Body Bolts
Courtesy of GENERAL MOTORS CORP.

3. Push upward on the trailing arm bracket and loosely install the front bolt (1).

CAUTION: Refer to Fastener Caution .

4. Use a drift to align the remaining trailing arm bracket bolts (1). Tighten the bolts to 110 N.m (81 lb ft).
5. Tighten the trailing arm bushing to bracket nut and bolt to 160 N.m (118 lb ft).

6. Install the park brake cable on the trailing arm and on the frame. Refer to **Parking Brake Rear Cable Replacement (Left)** or **Parking Brake Rear Cable Replacement (Right)** .
7. Remove the support and lower the vehicle.

ADJUST LINK REPLACEMENT

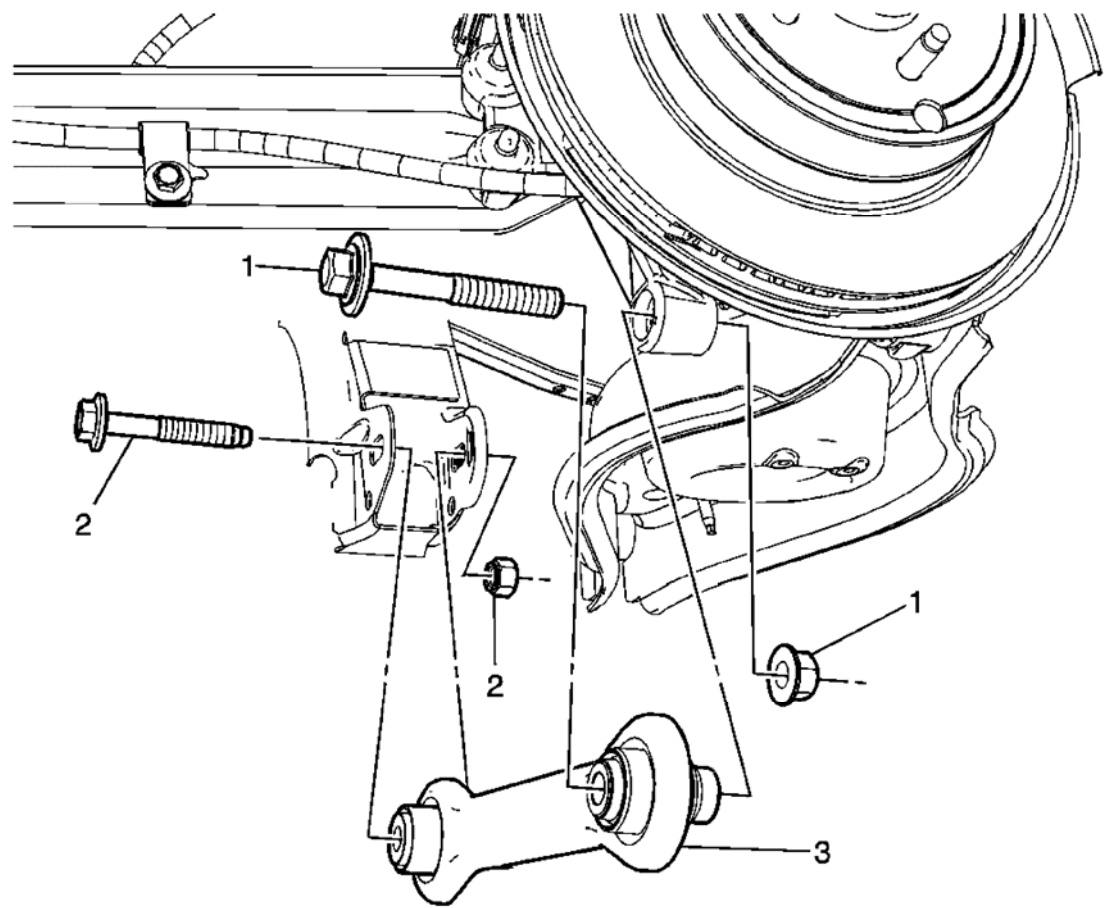


Fig. 59: Adjust Link
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
Preliminary Procedures	
1. Raise the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> .	
2. Remove the rear wheel and tire assembly. Refer to <u>Tire and Wheel Removal and Installation</u> .	
1	Adjustment Link to Knuckle Bolt and Nut CAUTION: Refer to <u>Fastener Caution</u> .

	Tighten: 160 N.m (118 lb ft).
2	Adjustment Link to Support Bolt and Nut Tighten: 160 N.m (118 lb ft).
3	Adjustment Link Procedure: Check rear alignment. Refer to <u>Wheel Alignment Measurement</u> .

JOUNCE BUMPER REPLACEMENT

Removal Procedure

- 1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
- 2. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
- 3. Remove the lower control arm assembly. Refer to **Rear Axle Lower Control Arm Replacement**.

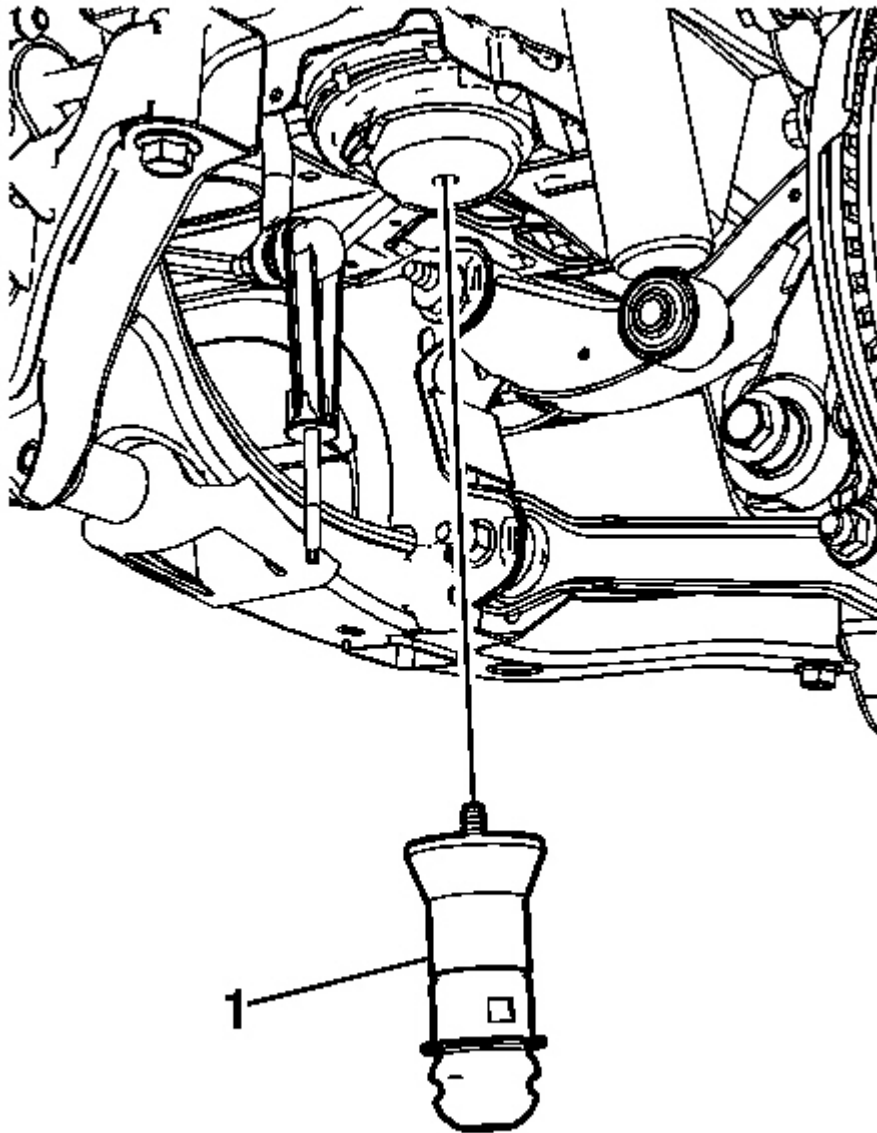


Fig. 60: Identifying Suspension Jounce Bumper
Courtesy of GENERAL MOTORS CORP.

4. Remove the rear suspension jounce bumper (1).

Installation Procedure

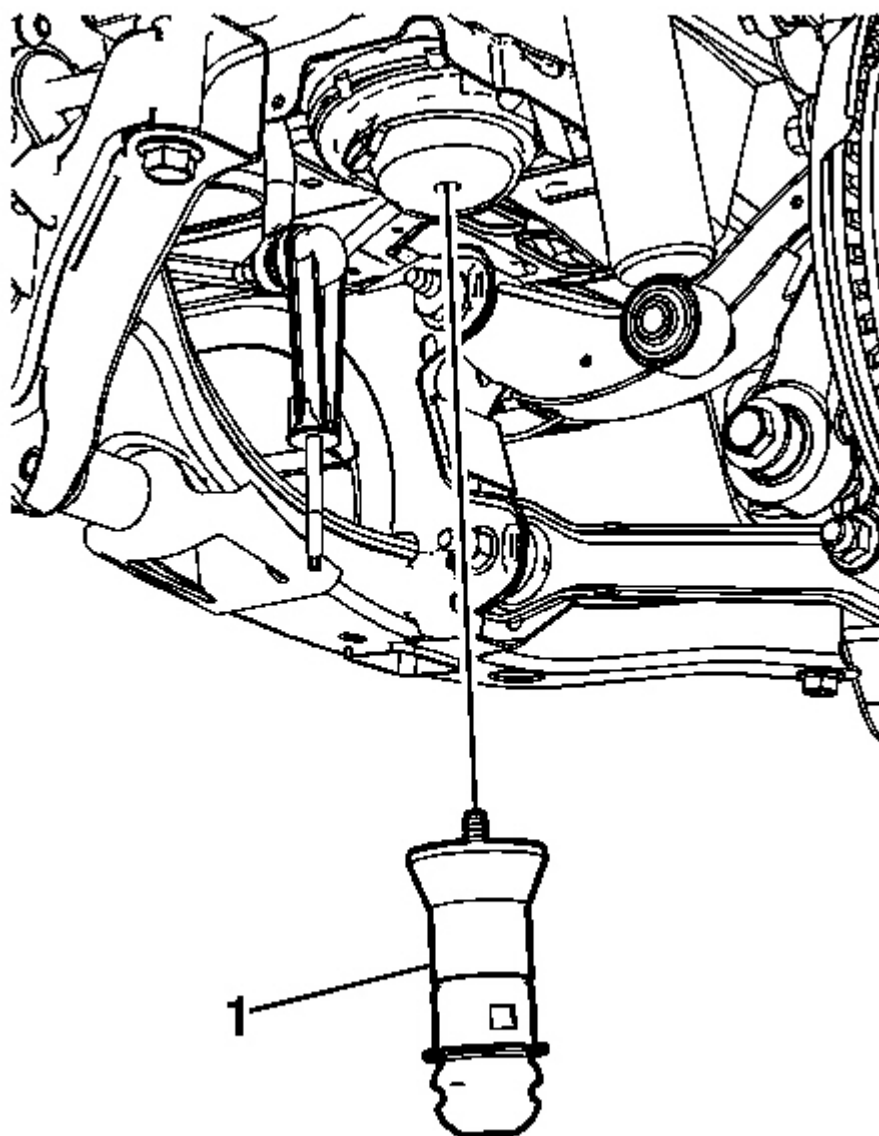


Fig. 61: Identifying Suspension Jounce Bumper
Courtesy of GENERAL MOTORS CORP.

1. Install the rear suspension jounce bumper (1) and tighten until the jounce bumper just makes contact with the mounting bracket.

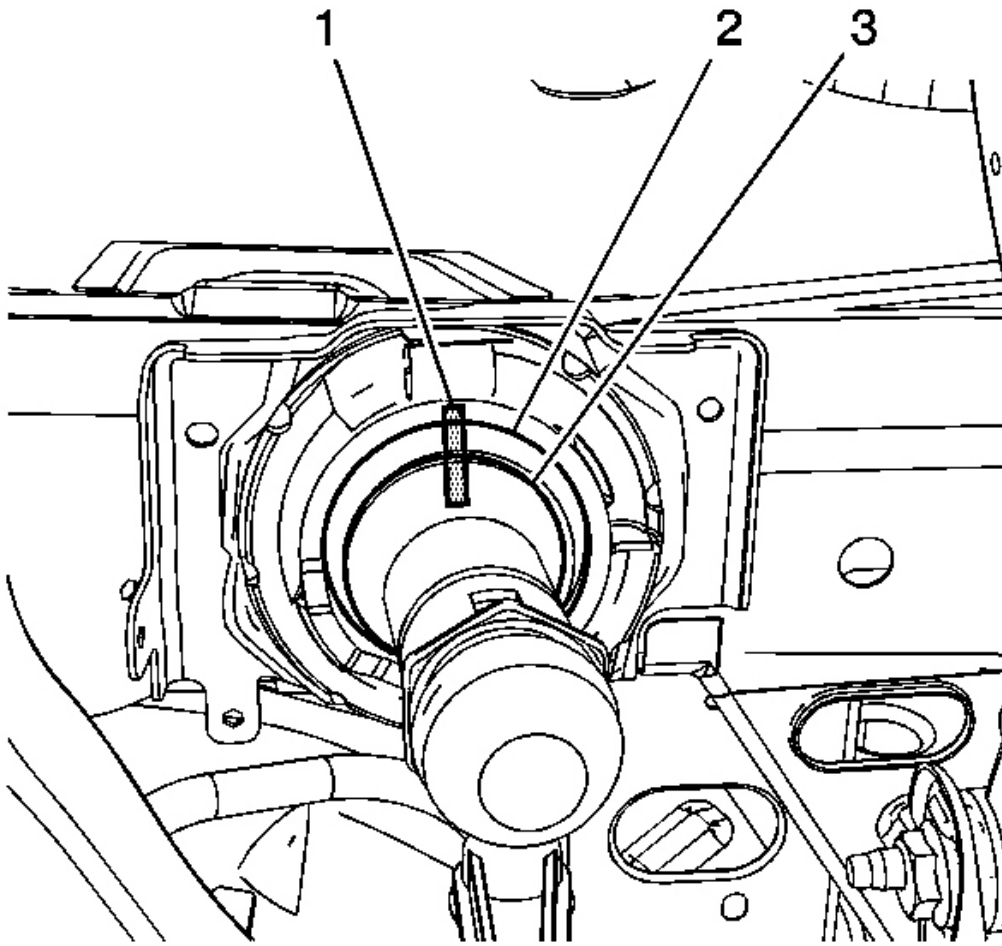


Fig. 62: Identifying Reference Mark At Jounce Bumper To Mounting Bracket
Courtesy of GENERAL MOTORS CORP.

2. Using a grease pencil or equivalent, create a reference mark (1) from the jounce bumper (3) to the mounting bracket (2).
3. Tighten the jounce bumper (3) by rotating it 360° or one full turn.

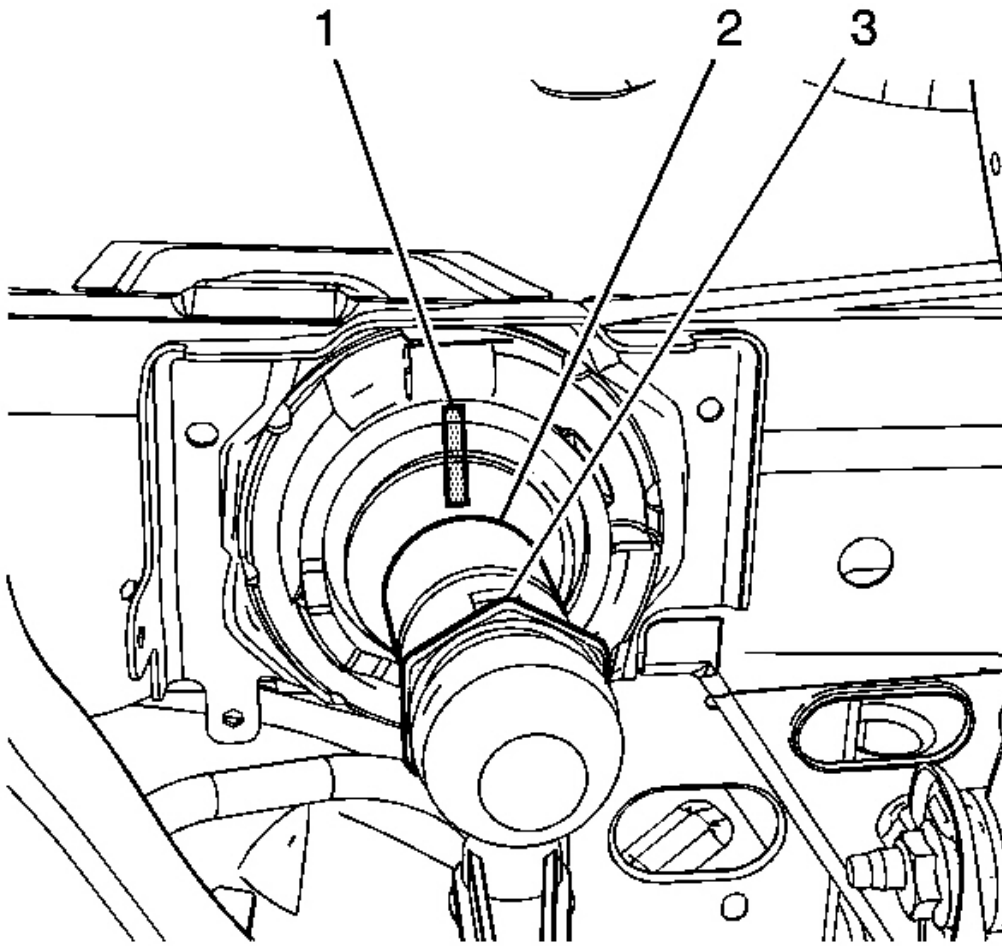


Fig. 63: Rotating Jounce Bumper
Courtesy of GENERAL MOTORS CORP.

4. Using the reference mark (1) as a starting point, rotate the jounce bumper (2) an additional 120° or two points of the hex nut (3) on the jounce bumper.
5. Install the lower control arm assembly. Refer to **Rear Axle Lower Control Arm Replacement**.
6. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation**.
7. Remove the support and lower the vehicle.

WHEEL STUD REPLACEMENT

Tools Required

J 43631 Ball Joint Remover

Removal Procedure

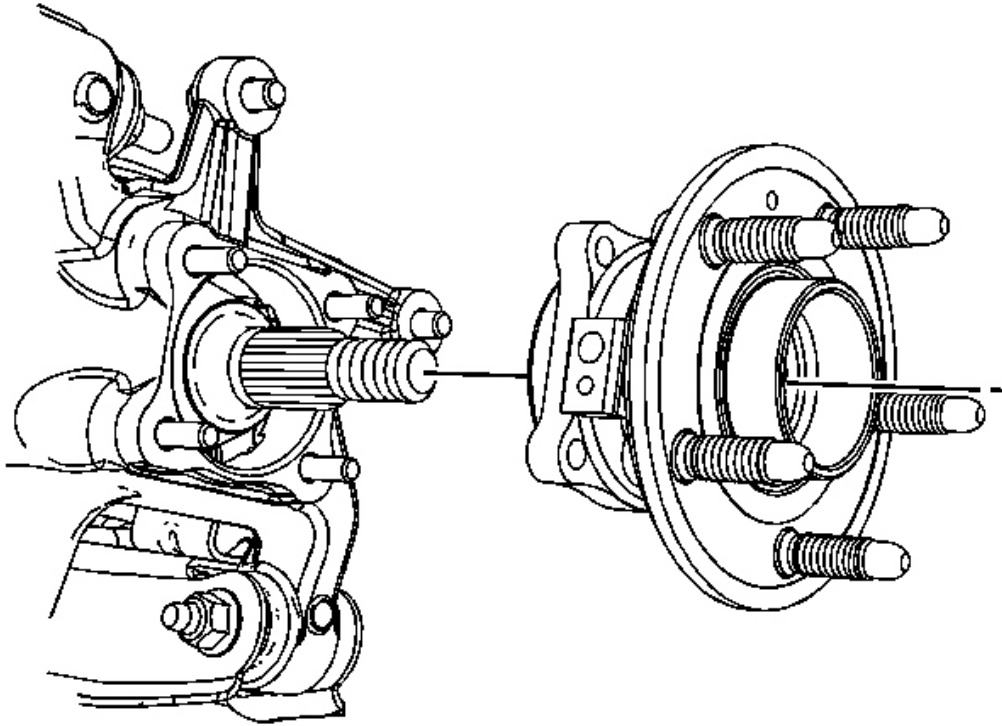


Fig. 64: Identifying Wheel Bearing/Hub
Courtesy of GENERAL MOTORS CORP.

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
3. Remove the wheel bearing/hub replacement. Refer to **Rear Wheel Bearing and Hub Replacement**.

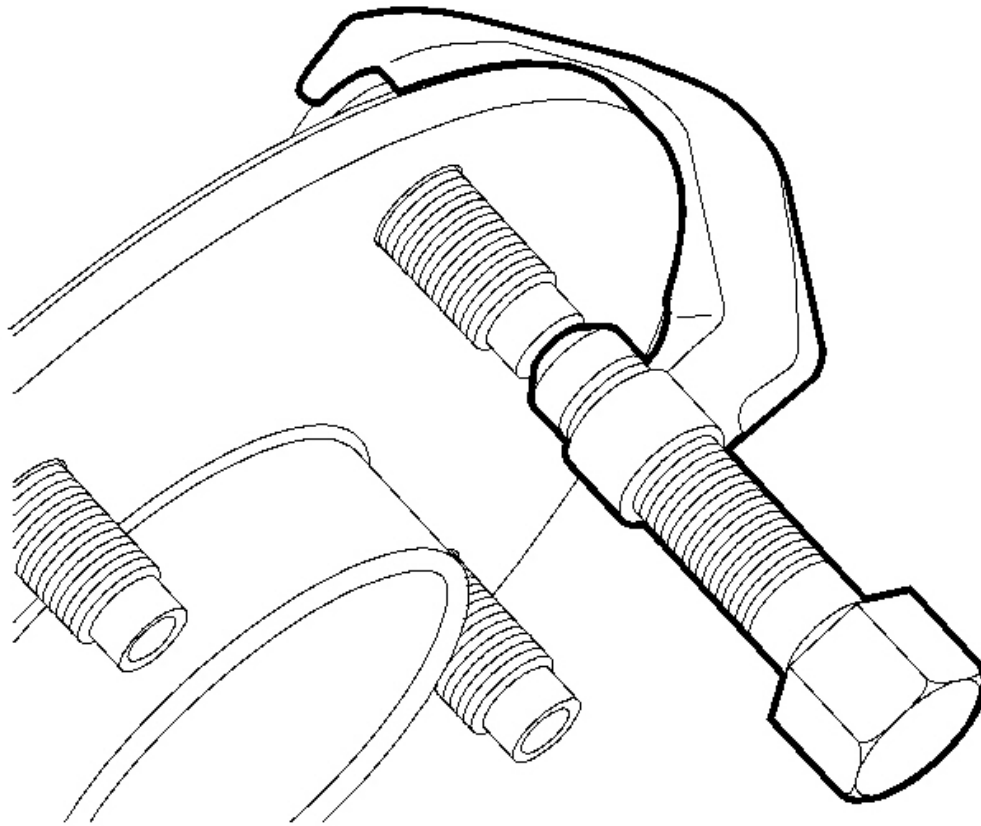


Fig. 65: Pressing Out Wheel Stud
Courtesy of GENERAL MOTORS CORP.

4. Using the **J 43631** , press out the wheel stud from the wheel bearing/hub assembly.

Installation Procedure

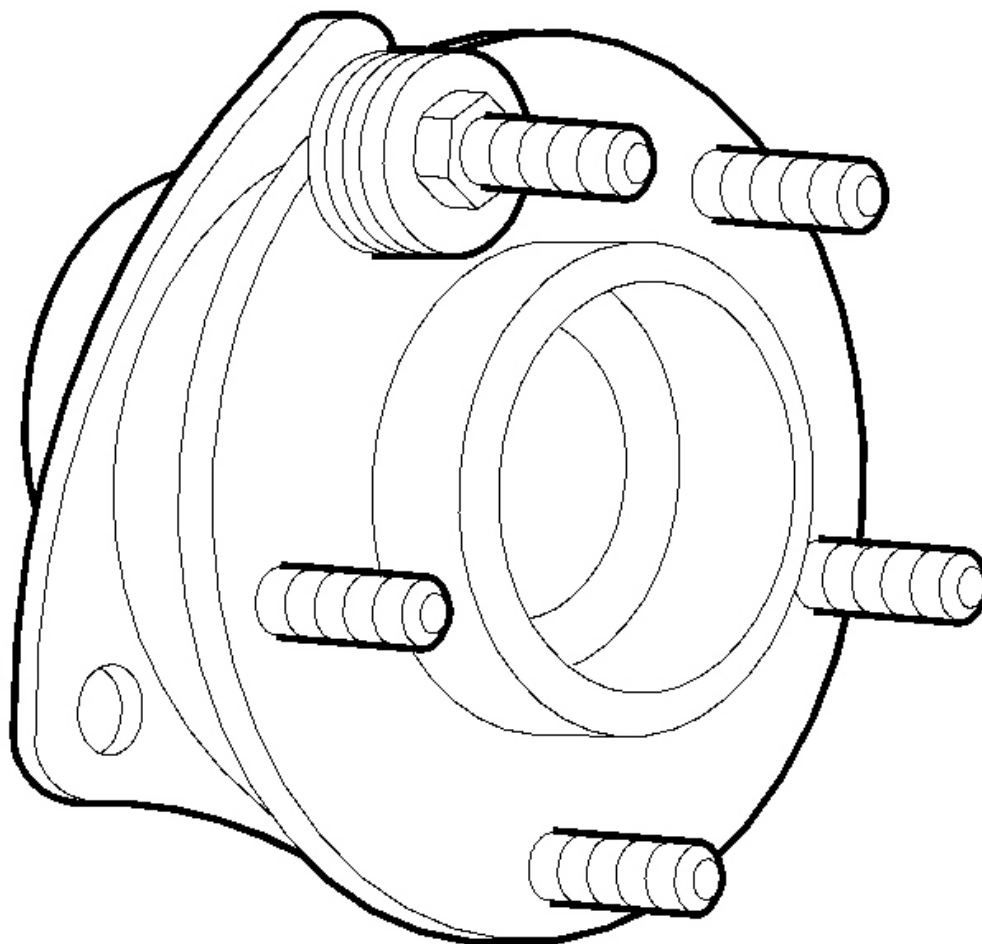


Fig. 66: View Of Flat Washers, Hex Head Nut & Wheel Stud
Courtesy of GENERAL MOTORS CORP.

1. Install the wheel stud to the wheel bearing/hub assembly from the bearing side of the hub flange.
2. Place flat washers over the wheel stud being installed.
3. Install the wheel nut or a hex head nut to the wheel stud.
4. Gradually tighten the nut in order to draw the stud into the hub flange until the head of the wheel stud is fully seated against the hub flange.
5. Remove the nut and flat washers.
6. Install the tire and wheel assembly. Refer to **Tire and Wheel Removal and Installation** .
7. Lower the vehicle.

DESCRIPTION AND OPERATION

GENERAL DESCRIPTION

The rear suspension system on this vehicle is of the independent link type. The rear suspension system performs the following functions:

- Maintains the relationship of the rear axle to the body
- Controls the torque reaction on acceleration and braking

The rear coil springs are retained between the spring seat in the lower control arm. Rubber insulators isolate the coil spring at both top and bottom.

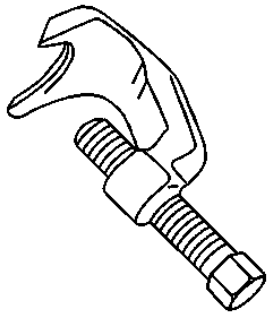
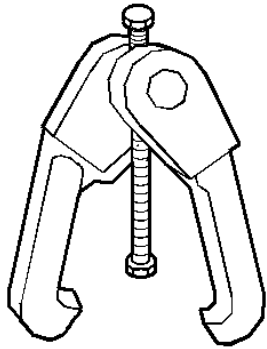
The suspension system consists of the following components:

- Support assembly
- Coil springs
- Stabilizer shaft, insulators, and stabilizer links
- Toe link
- Upper control arm
- Lower control arm
- Trailing arm
- Knuckles
- Wheel bearing/hub
- Shock absorbers

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration	Tool Number/ Description
	J 37043 Park Brake Cable Release Tool



J 43631
Ball Joint Remover