

SECTION 3D

REAR SUSPENSION

CAUTION: This vehicle is equipped with a Supplemental Inflatable Restraint System (SIR). Refer to **CAUTIONS** in Section 9J under "ON-VEHICLE SERVICE" and the SIR Component and Wiring location view in Section 9J before performing service on or around SIR components or wiring. Failure to follow **CAUTIONS** could result in possible air bag deployment, personal injury or otherwise unneeded SIR repairs.

NOTICE: Always use the correct fastener in the proper location. When you replace a fastener, use **ONLY** the exact part number for that application. General Motors will call out those fasteners that require a replacement after removal. General Motors will also call out the fasteners that require thread lockers or thread sealant. **UNLESS OTHERWISE SPECIFIED**, do not use supplemental coatings (paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and joint clamping force, and may damage the fastener. When you install fasteners, use the correct sequence and tightening specifications. Following these instructions can help you avoid damage to parts and systems.

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GENERAL DESCRIPTION

The rear suspension is a rigid axle, coil spring type system, which consists of coil springs, rear axle, shock absorbers, rear suspension upper control arm, and trailing arms (Figure 1).

The trailing arm is connected to the axle and body by bushings that allow the axle to move up and down with bushings at supporting points.

The rear suspension upper control arm is attached to the body and the axle (differential carrier) by bushings and a ball stud, preventing axle movement in a lateral direction. It also prevents the axle from rotating, which would occur when the brake is applied and when the vehicle accelerates.

Rear shock absorbers are attached between the body and axle to dampen road shock and vibration.

DIAGNOSIS

For diagnosis of the rear suspension system, refer to SECTION 3.

REAR SUSPENSION INSPECTION

Ride Complaints

If complaints of a hard ride are encountered, the first items to investigate are tire pressure, trim height, and strut condition; refer to SECTION 3. If these are correct, the amount of friction in the rear suspension should be checked.

Excessive Friction Check

1. Measure the distance from the floor to the center of the rear bumper.
2. With the aid of another technician, lift up on rear bumper and raise vehicle as high as possible. Slowly release the bumper and allow vehicle to assume normal trim height.
3. Measure the distance from the floor to the center of bumper. The difference between the two measurements should be less than 12.7 mm (0.5-inch). If the difference exceeds this limit, inspect the suspension arms, struts, and ball studs for damage or wear.

NOTICE: Never attempt to heat, quench, or straighten any suspension part. Replace it with a new part, or damage to the vehicle may result.

ON-VEHICLE SERVICE

SHOCK ABSORBER

Figures 2 through 5

The shock absorber is nonadjustable, nonrefillable, and cannot be disassembled. The only service the shock absorber require is replacement when damaged, leaking fluid, or when loss of resiliency has occurred.

3D-2 REAR SUSPENSION

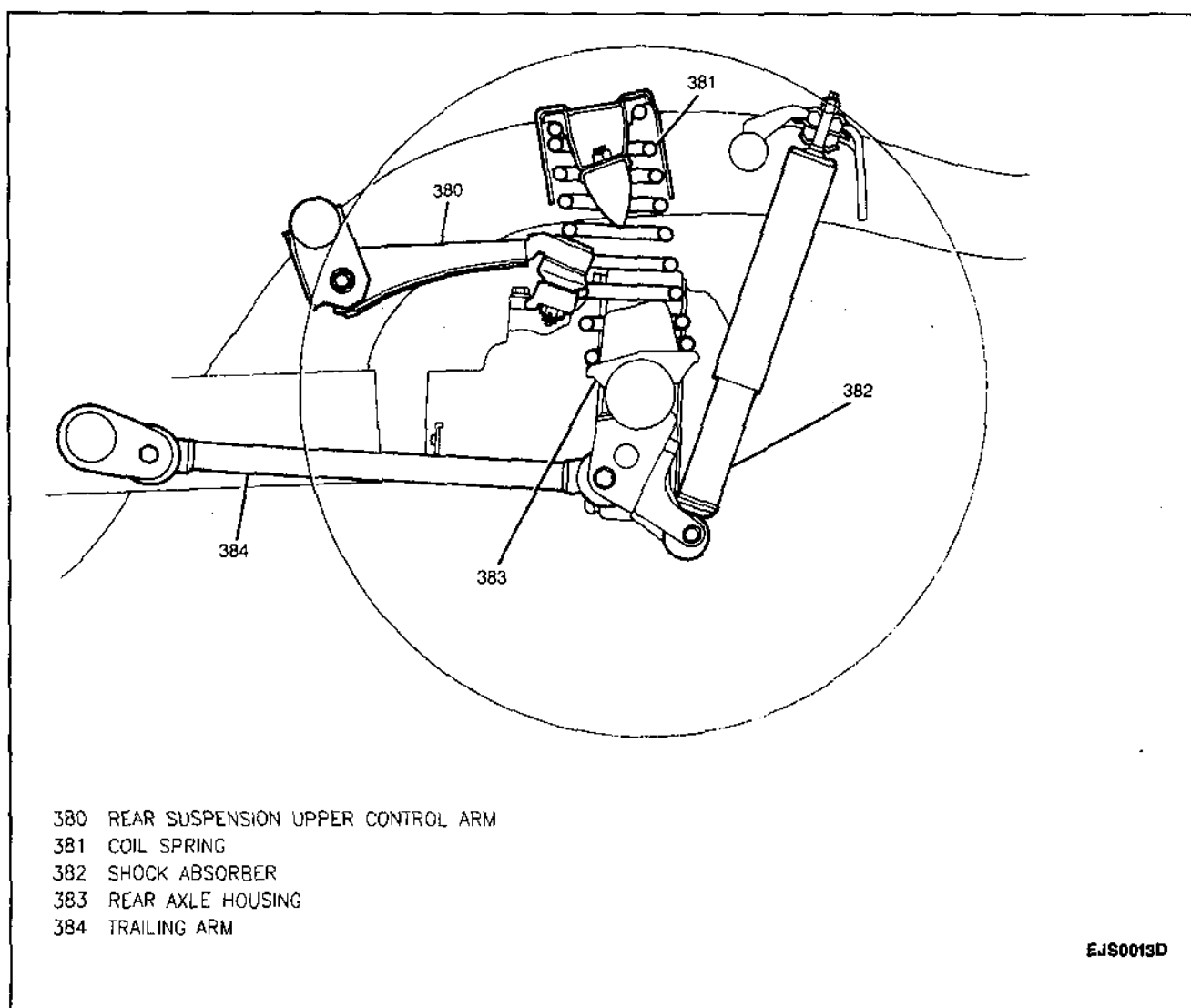


Figure 1—Rear Suspension System



Remove or Disconnect

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Support rear axle housing by using floor jack to prevent it from lowering (Figure 3).
3. Shock absorber locknut and upper retaining nut (Figure 4).
4. Shock absorber lower mounting nut and bolt.
5. Shock absorber from vehicle.



Install or Connect

1. Shock absorber to vehicle; secure with lower bolt and nut. Bolt head should face body. Do not tighten at this time (Figure 5).
2. Shock absorber upper retaining nut and lockout.



Tighten

- Shock absorber upper retaining nut to 29 N.m (21 lb. ft.).
 - Shock absorber locknut to 29 N.m (21 lb. ft.).
 - Shock absorber lower bolt and nut to 85 N.m (63 lb. ft.).
3. Remove floor jack from axle housing.
 4. Lower vehicle.

COIL SPRING

Figures 3, 5 and 6



Remove or Disconnect

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Wheel and tire. Refer to SECTION 3E.
3. Support rear axle housing with floor jack (Figure 3).
4. Shock absorber lower mounting bolt and nut.

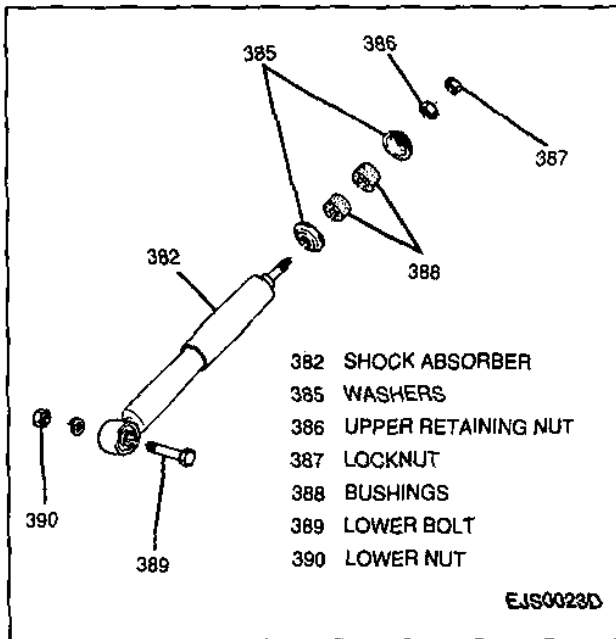


Figure 2—Shock Absorber

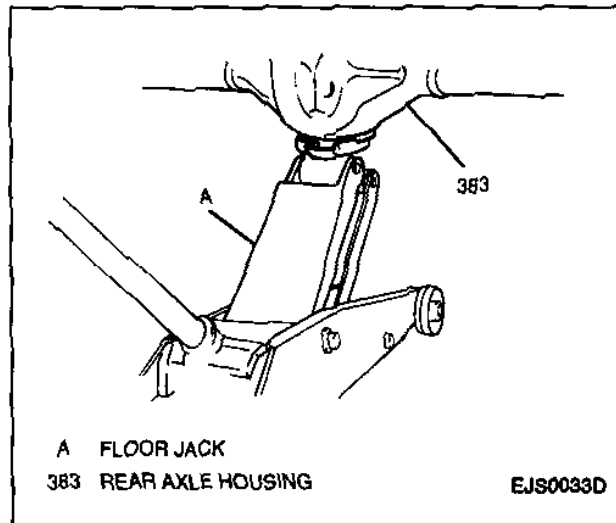


Figure 3—Rear Axle Housing Support

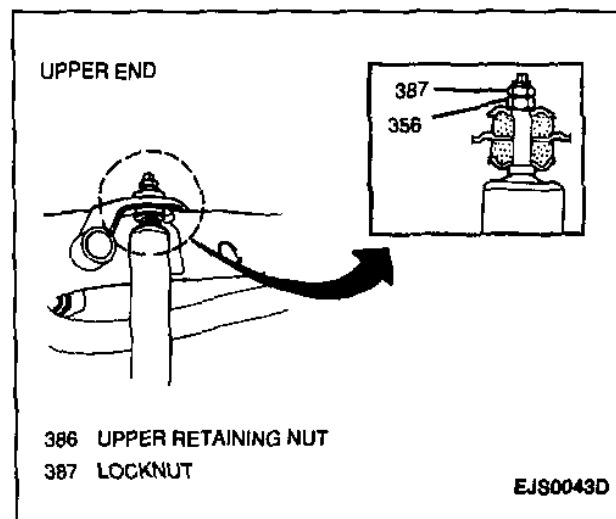


Figure 4—Shock Absorber (Upper End)

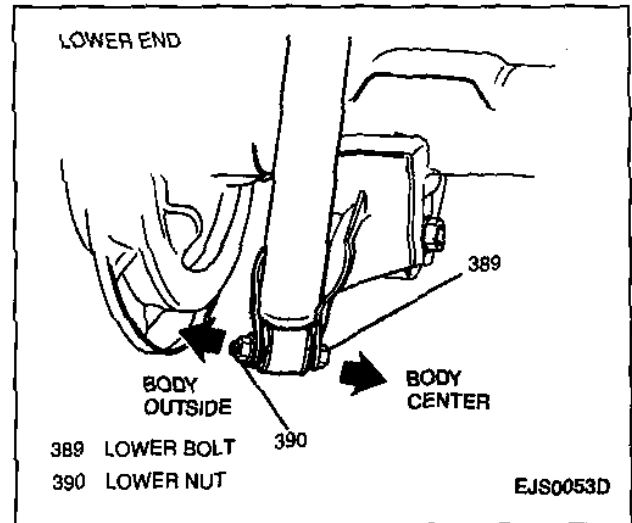


Figure 5—Shock Absorber (Lower End)

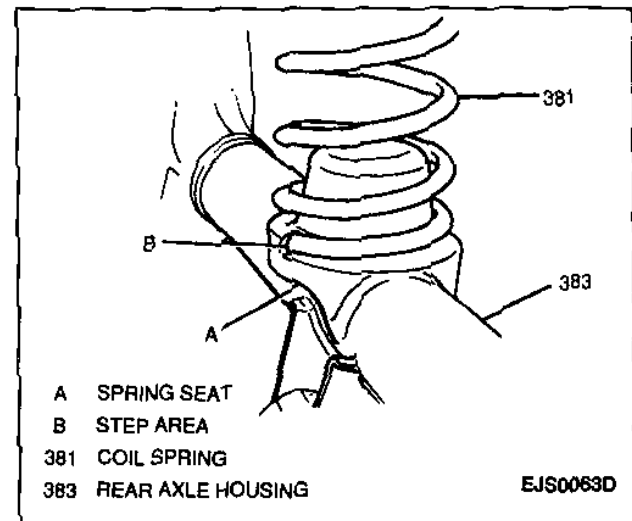


Figure 6—Coil Spring Mounting

5. Coil spring, by lowering rear axle housing support jack enough to allow removal of the spring.

Install or Connect

1. Coil spring to vehicle, making sure it is properly seated at the axle and at the body (Figure 6).
2. Raise floor jack to compress spring.
3. Shock absorber lower mounting bolt and nut. Bolt head should face body (Figure 5).

Tighten

- Shock absorber lower bolt and nut to 85 N.m (63 lb. ft.).
4. Remove floor jack from axle housing.
 5. Wheel and tire. Refer to SECTION 3E.
 6. Lower vehicle.

3D-4 REAR SUSPENSION

TRAILING ARM

Figures 3, 7, 8, and 9

Remove or Disconnect

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Wheel and tire. Refer to SECTION 3E.
3. Parking brake cable hanger from trailing arm by removing nut and bolt (Figure 7).
4. Support rear axle housing by using floor jack (Figure 3).
5. Trailing arm rear nut, bolt and washer.
6. Trailing arm front nut, bolt and washer and trailing arm from vehicle.

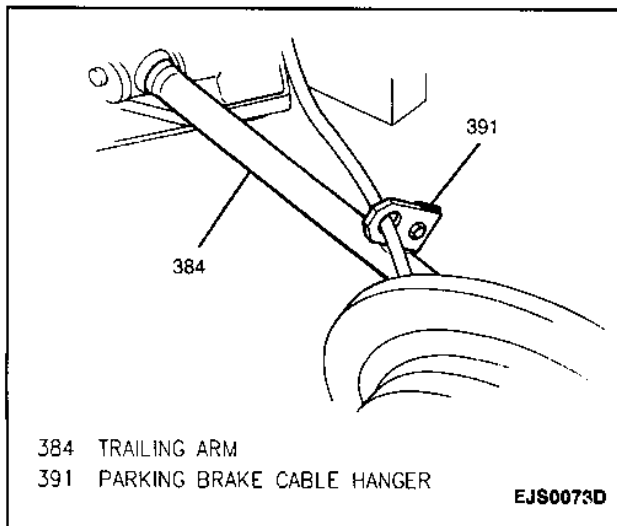


Figure 7—Parking Brake Cable Hanger

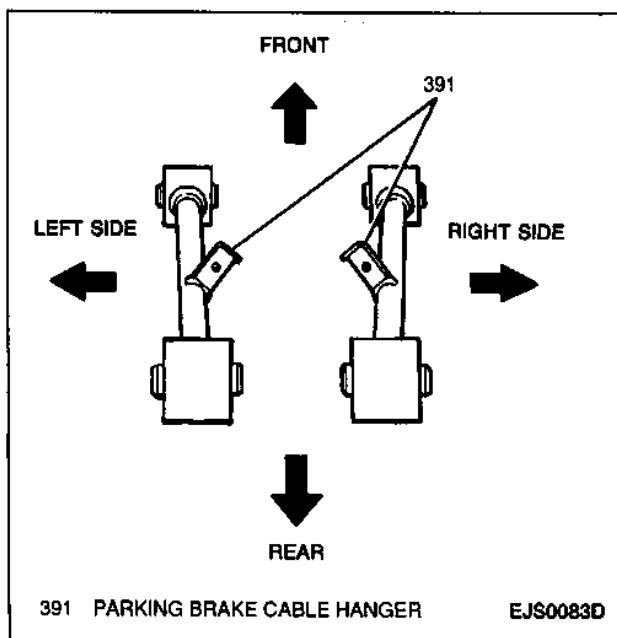


Figure 8—Right and Left Trailing Arms

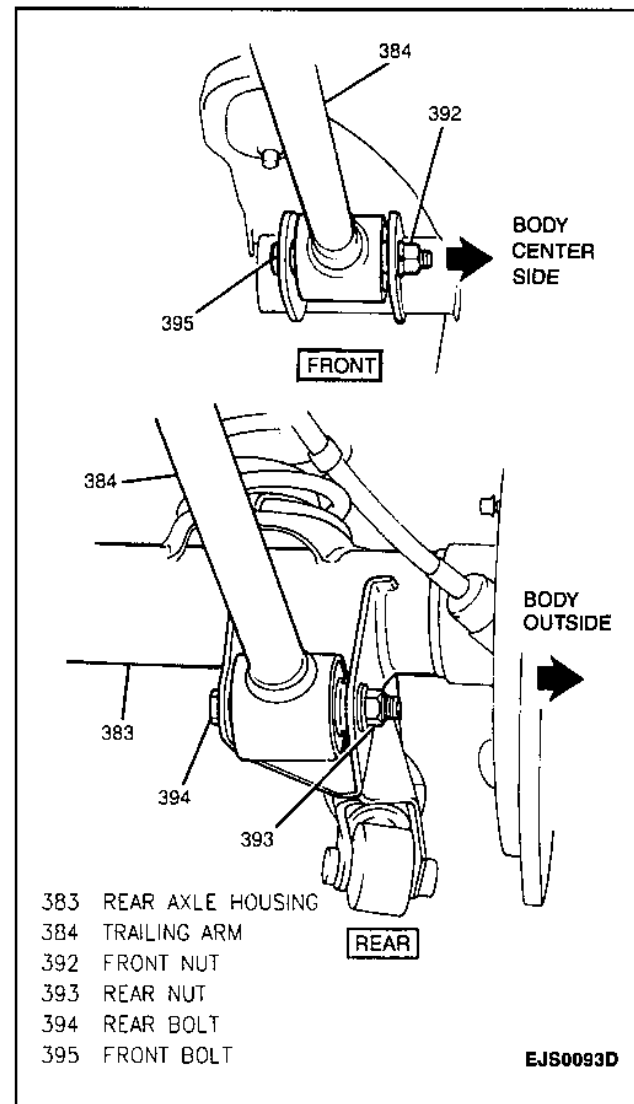


Figure 9—Trailing Arm Installation

Install or Connect

Inspect

- If both trailing arms were removed, inspect rods to distinguish between right and left rod prior to installation (Figure 8).

1. Trailing arm to vehicle body and rear axle housing; secure trailing arm with front and rear nuts, bolts and washers (Figure 9).

Tighten

- Trailing arm front and rear nuts and bolts to 90 N·m (66 lb. ft.).
2. Remove floor jack from rear axle housing.
 3. Parking brake cable hanger to trailing arm; secure with nut and bolt.



Tighten

- Parking brake cable nut and bolt to 10 N.m (89 lb. in.)
- 4. Wheel and tire. Refer to SECTION 3E.
- 5. Lower vehicle.

TRAILING ARM BUSHINGS

Figures 10, 11 and 12



Remove or Disconnect

Tools Required:

- J 29792 Front Control Arm Bushing Service Set
- J 28685 Rear Suspension Bushing Service Set

1. Raise and suitably support vehicle. Refer to SECTION 3E.
2. Trailing arm from vehicle. Refer to "Trailing Arm" earlier in this section.
3. Mount trailing arm into a press with a J 29792-1, a J 29792-3 and a J 28685-2 (Figure 10).
4. Press bushing out until it bottoms into the J 28685-2.
5. Release pressure from press. Remove the J 28685-2 and install a J 28685-1. Press the remainder of the bushing out of the trailing arm (Figure 11).



Install or Connect

Tools Required:

- J 29792 Front Control Arm Bushing Service Set
- J 9519-9 Bearing Remover

1. Mount trailing arm into press with a J 29792-1, a J 29792-3 and a J 9519-9.
2. New bushing into trailing arm using press (Figure 12).
3. Trailing arm to vehicle. Refer to "Trailing Arm" earlier in this section.
4. Lower vehicle.

REAR SUSPENSION UPPER CONTROL ARM

Figures 3 and 13 through 19



Remove or Disconnect

Tool Required:

- J 22888 Universal Puller

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Wheel and tire. Refer to SECTION 3E.
3. Support rear axle housing with a floor jack (Figure 3).
4. Two bolts securing Load Sensing Proportioning Valve (LSPV) spring bracket to upper control arm (if equipped) (Figure 13).

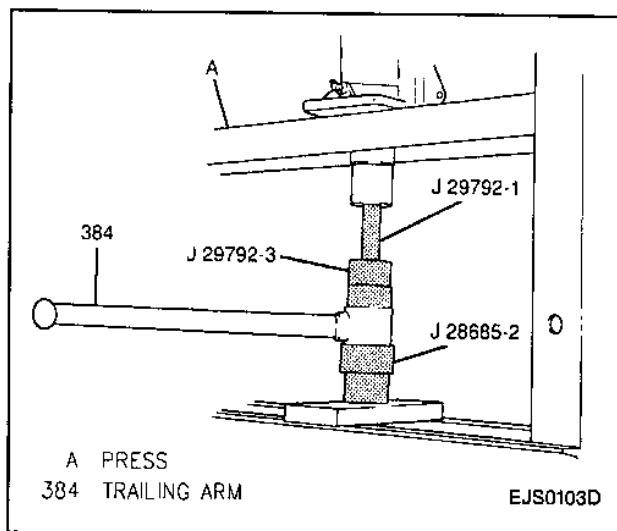


Figure 10—Removing Trailing Arm Bushing—1 of 2

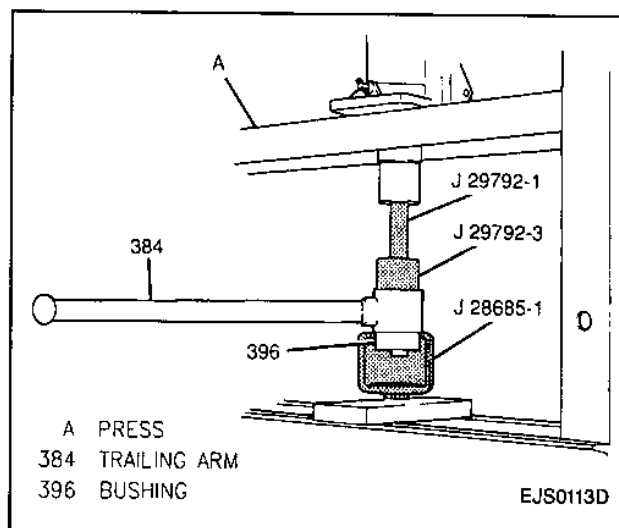


Figure 11—Removing Trailing Arm Bushing—2 of 2

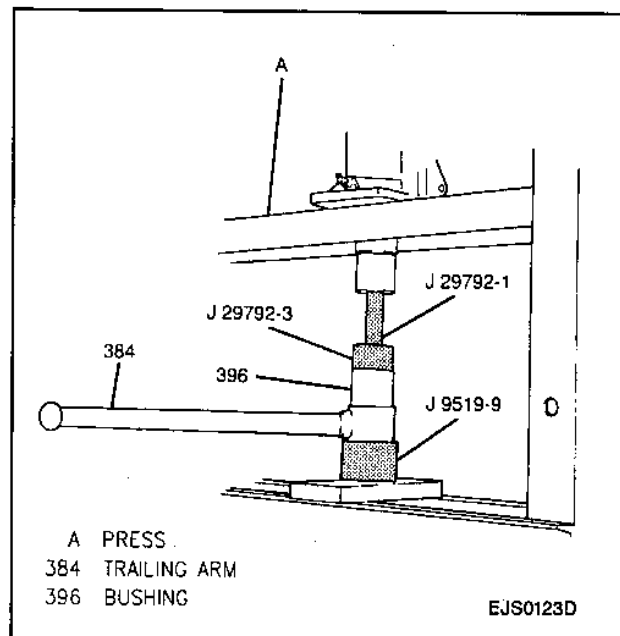


Figure 12—Installing Trailing Arm Bushing

3D-6 REAR SUSPENSION

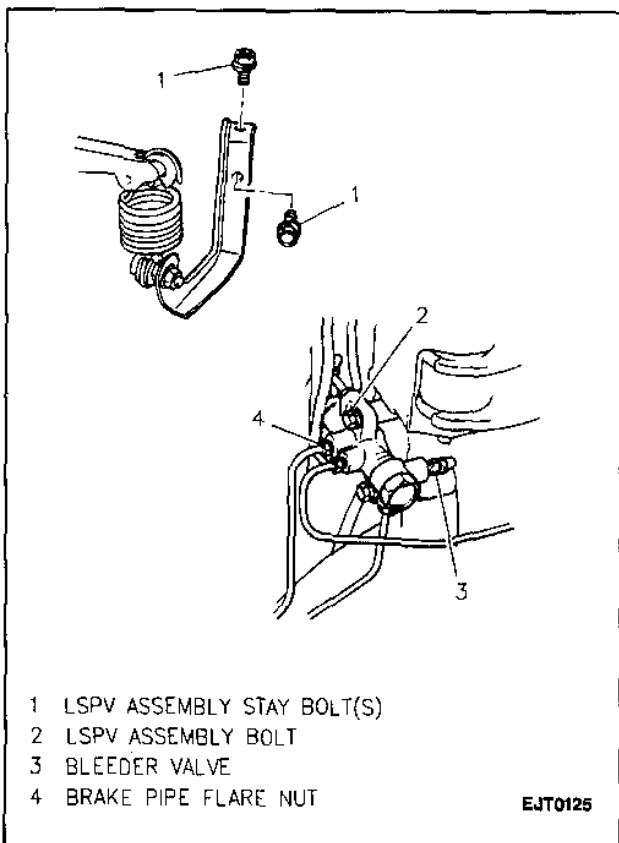


Figure 13—Load Sensing Proportioning Valve (LSPV) Spring Bracket

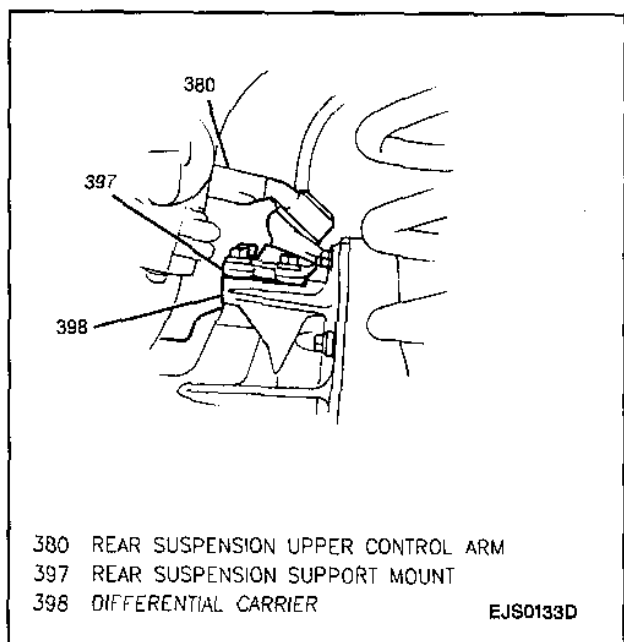


Figure 14—Rear Suspension Support Mount

5. Four bolts and rear suspension support mount from differential carrier (Figure 14).
6. Upper control arm through bolts and nuts; remove rear suspension upper control arm from body (Figure 15).
7. Cotter pin from ball stud (Figure 16).

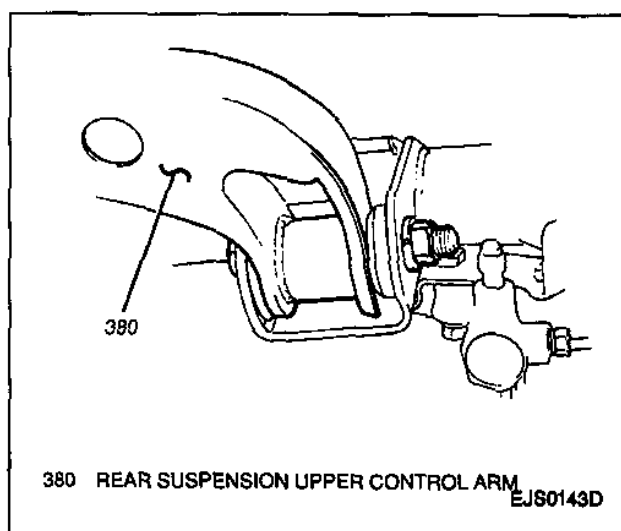


Figure 15—Rear Suspension Upper Control Arm

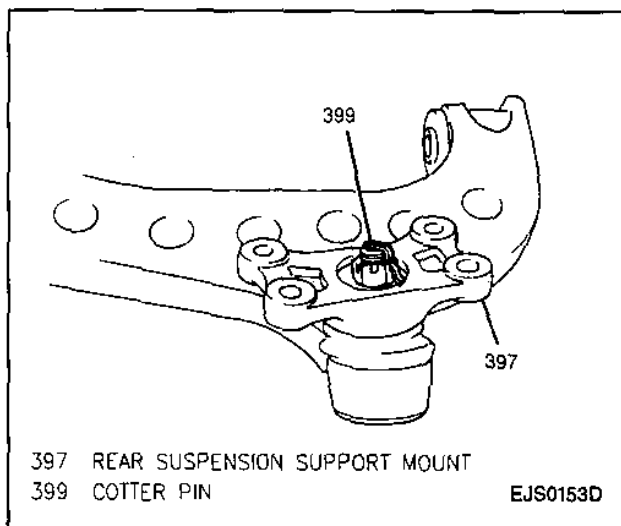


Figure 16—Cotter Pin

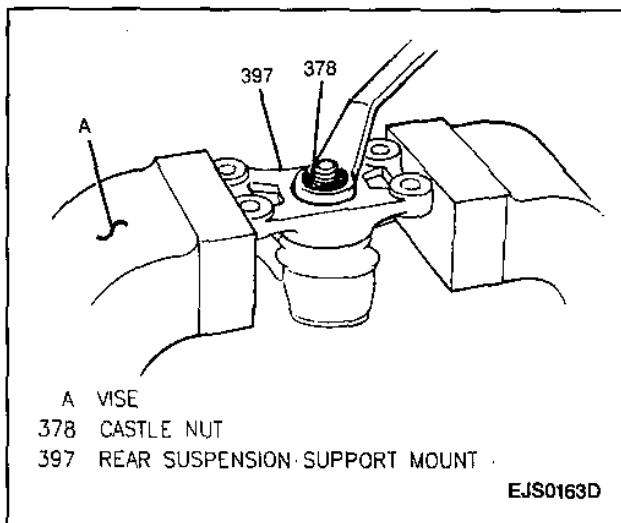


Figure 17—Removing Castle Nut

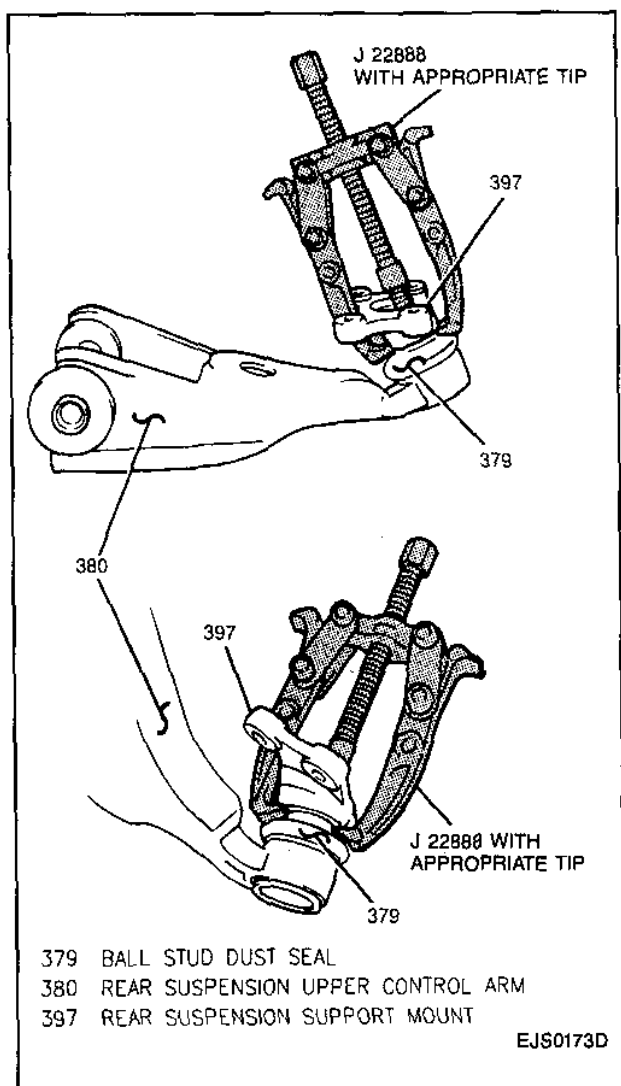


Figure 18—Removing Rear Suspension Support Mount

8. Mount rear suspension support mount in a table vise.
9. Castle nut from rear suspension support mount (Figure 17).
10. Rear suspension support mount from ball stud using a J 22888 with appropriate tips (Figure 18).
11. Dust seal retainer and dust seal from ball stud (Figure 19).

Install or Connect

1. New dust seal and retainer to ball stud.
2. Rear suspension support mount to ball stud; secure with castle nut.

Tighten

- Ball stud castle nut to 58 N.m (43 lb. ft.).
3. New cotter pin to ball stud.
 4. Upper upper control arm to body; secure with through bolts and nuts. Do not tighten fully.
 5. Rear suspension support mount to differential carrier; secure with four bolts.

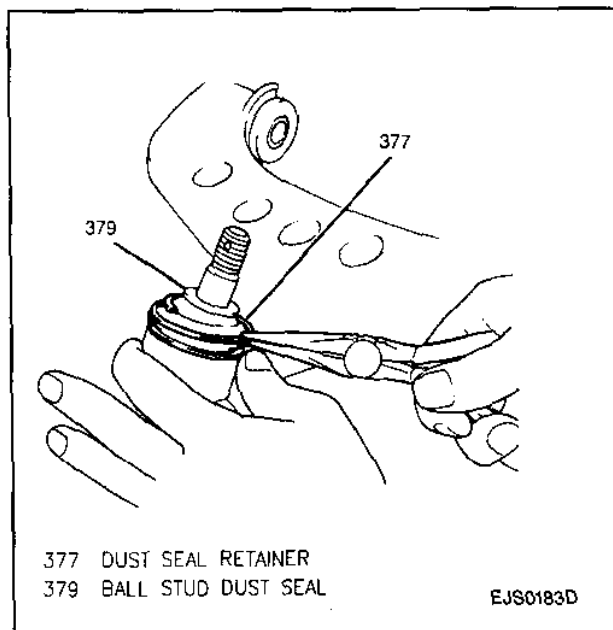


Figure 19—Removing Dust Seal Retainer

Tighten

- Rear suspension support mount bolts to 50 N.m (37 lb. ft.).
 - Rear suspension upper control arm nuts and bolts to 90 N.m (66 lb. ft.).
6. LSPV load sensing spring bracket to upper control arm; securing with two bolts (if equipped) (Figure 13).

Tighten

- Load sensing spring bracket bolts to 18 to 25 N.m (13.5 to 20.0 lb. ft.).
7. Remove floor jack from axle housing.
 8. Wheel and tire. Refer to SECTION 3E.
 9. Lower vehicle.

Rear Suspension Upper Control Arm Bushings

Figures 20 and 21

Remove or Disconnect

Tools Required:

- J 29792 Front Control Arm Bushing Service Set
- J 35561 Front Control Arm Bushing Service Set

1. Rear suspension upper control arm from vehicle. Refer to "Rear Suspension Upper Control Arm" earlier in this section.
2. Mount upper control arm into a press with a J 29792-1 and a J 35561-2 (Figure 20).
3. Bushing from upper control arm using a press.

3D-8 REAR SUSPENSION

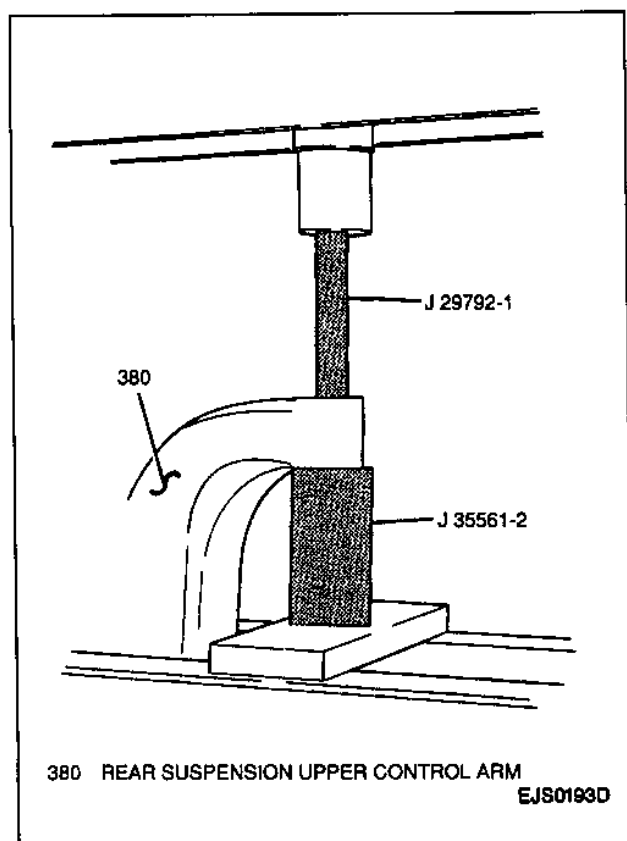


Figure 20—Removing Rear Suspension Upper Control Arm Bushing

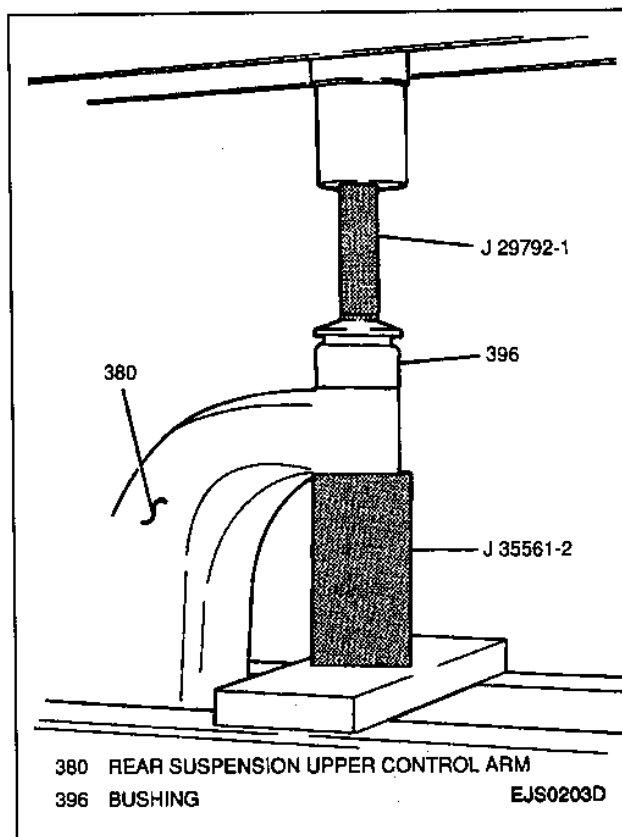


Figure 21—Installing Rear Suspension Upper Control Arm Bushing

Install or Connect

Tools Required:

- J 29792-1 Front Control Arm Bushing Service Set
- J 35561-2 Front Control Arm Bushing Service Set

1. New bushing into upper control arm using a press, a J 29792-1 and a J 35561-2 (Figure 21).
2. Upper control arm to vehicle. Refer to "Rear Suspension Upper Control Arm" earlier in this section.

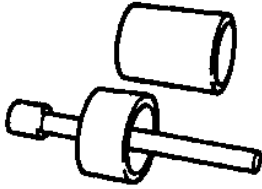
SPECIFICATIONS

FASTENER TORQUES

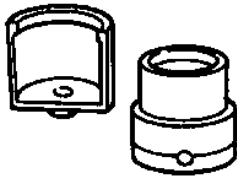
| | |
|---|-------------------------------------|
| Shock Absorber Locknut..... | 29 N.m (21 lb. ft.) |
| Shock Absorber Upper Retaining Nut..... | 29 N.m (21 lb. ft.) |
| Shock Absorber Lower Bolt and Nut..... | 85 N.m (63 lb. ft.) |
| Parking Brake Cable Nut and Bolt..... | 10 N.m (89 lb. in.) |
| Trailing Arm Front and Rear Nuts and Bolts..... | 90 N.m (66 lb. ft.) |
| Rear Suspension Support Mount Bolts..... | 50 N.m (37 lb. ft.) |
| Rear Suspension Upper Control Arm Nuts and Bolts..... | 90 N.m (66 lb. ft.) |
| Ball Stud Castle Nut..... | 58 N.m (43 lb. ft.) |
| Load Sensing Spring Bracket Bolts..... | 18 to 25 N.m (13.5 to 20.0 lb. ft.) |

SPECIAL TOOLS

1
J 29792



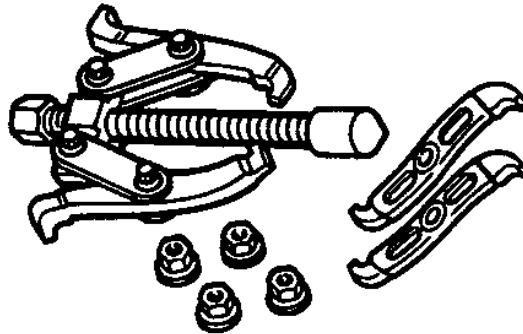
2
J 28685



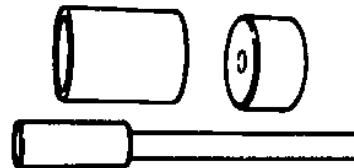
3
J 9519



4
J 22888



5
J 35561



- 1** FRONT CONTROL ARM BUSHING SERVICE SET
- 2** REAR SUSPENSION BUSHING SERVICE SET
- 3** BEARING REMOVER
- 4** UNIVERSAL PULLER
- 5** FRONT CONTROL ARM BUSHING SERVICE SET

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