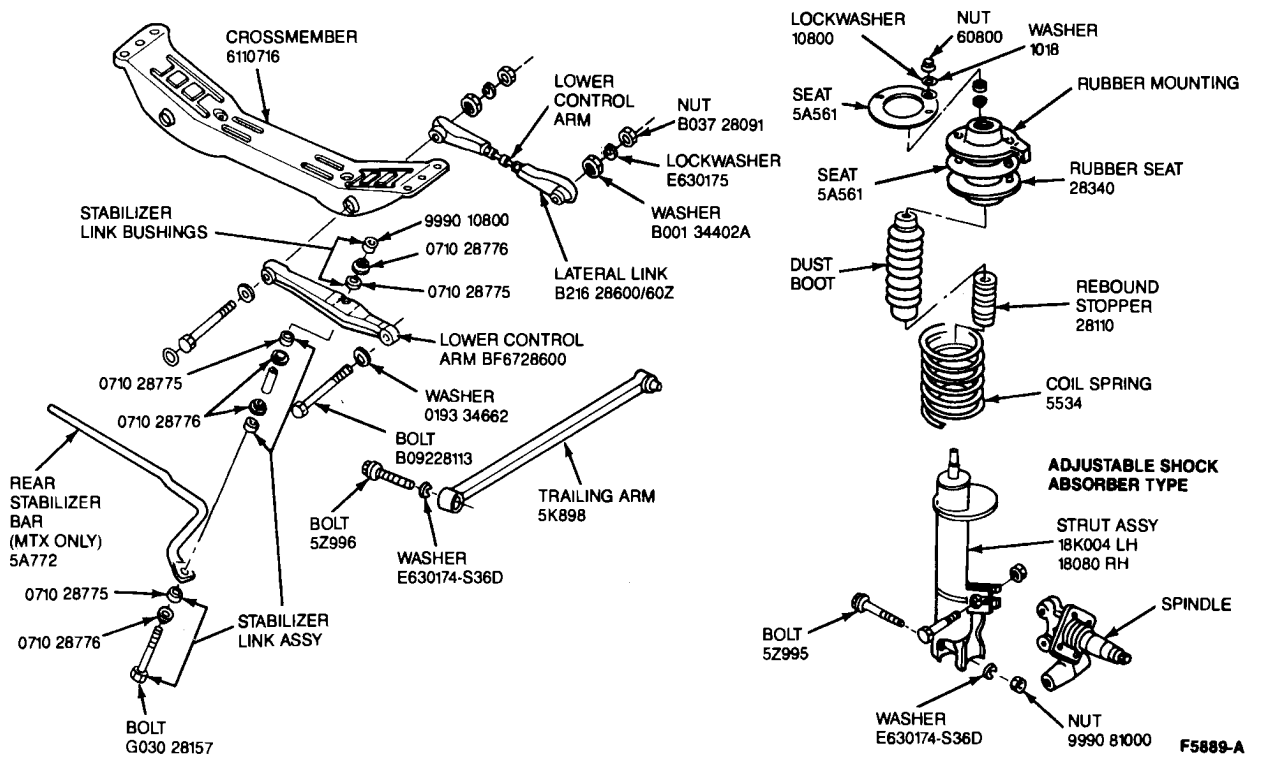
SECTION 04-02 Suspension and Wheel Ends—Rear

VEHICLE APPLICATION

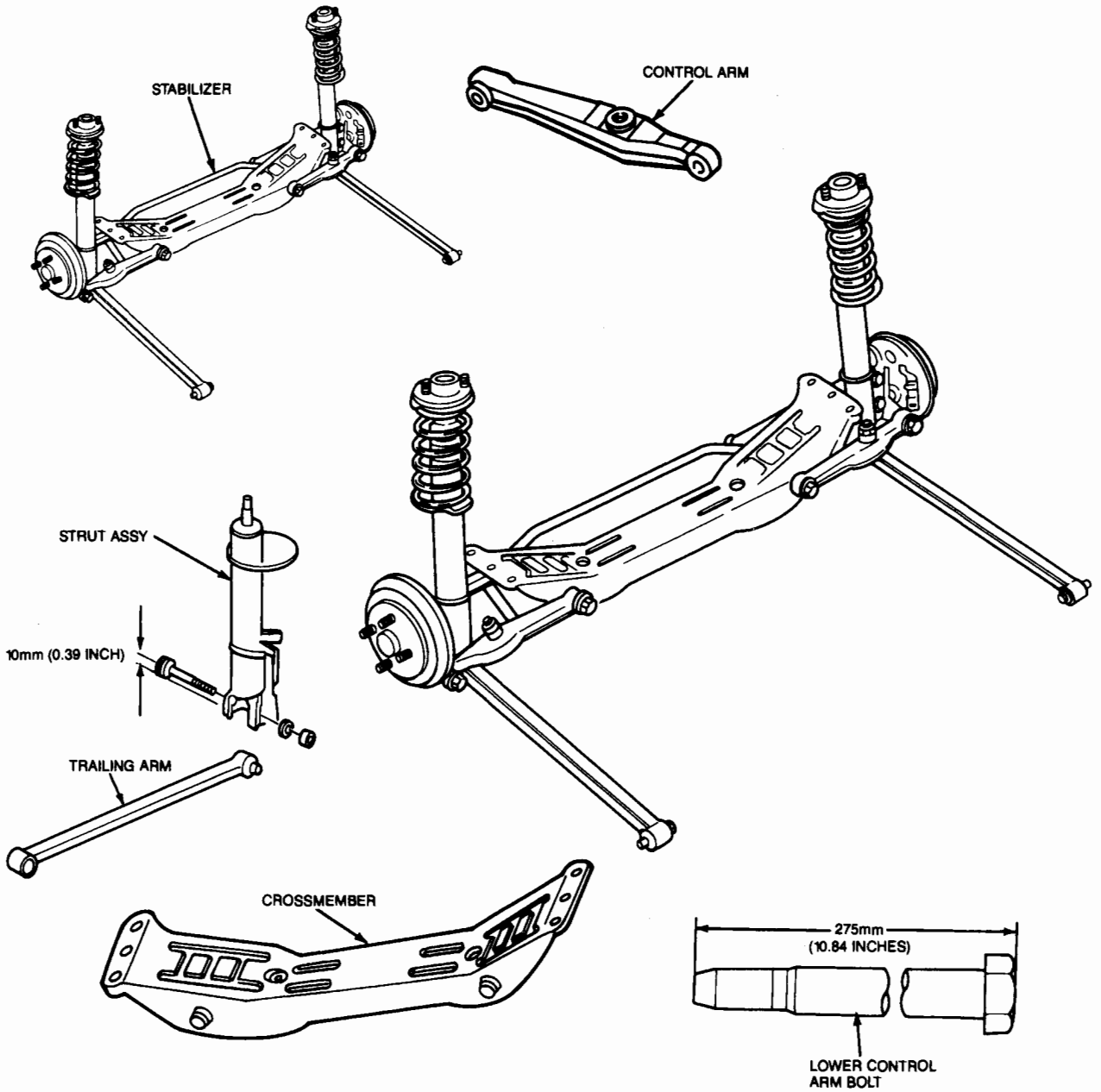
Capri.

DESCRIPTION

The rear suspension is fully independent utilizing rear MacPherson struts at each wheel. Rear strut towers locate the springs and strut. A forged rear spindle bolts to the strut double lower control arms and a single trailing arm locate the rear suspension.



DESCRIPTION (Continued)



Both the control arm and the trailing arm have rubber bushings at each end. The control arms are attached to the rear crossmember and also to the spindle with a common bolt at each end. The trailing arm bolts to the strut and a bracket on the floorpan.

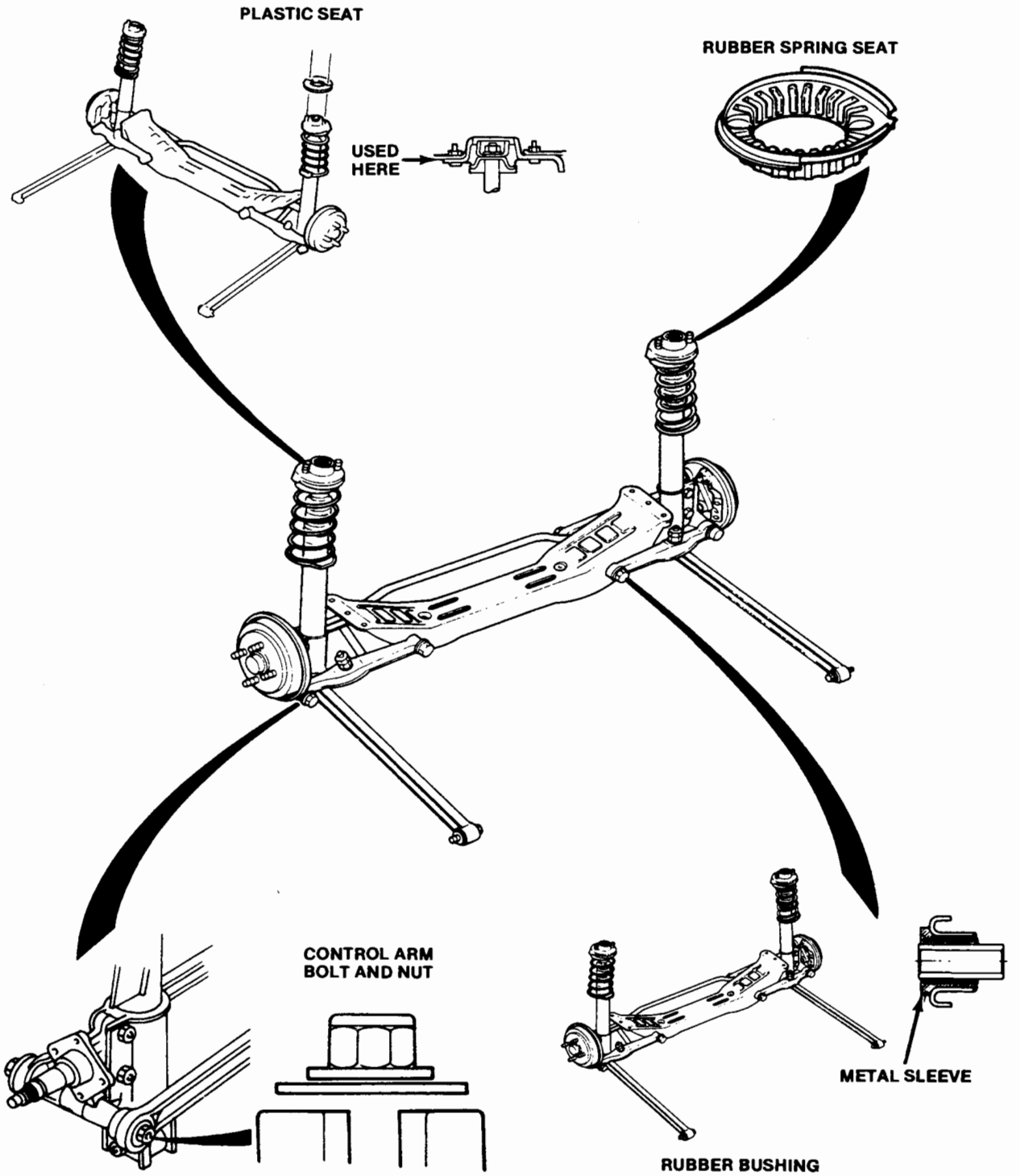
NOTE: Never attempt to heat, quench, or straighten any rear suspension part. Replace with a new part.

The rear wheels and brake rotors are supported on opposed tapered roller bearings. The bearing inner race rides on a spindle bolted to the rear strut and suspension control arms. The outer bearing races are press-fit into the hub. A staked nut and washer are installed to hold the bearings and hub in position on the spindle.

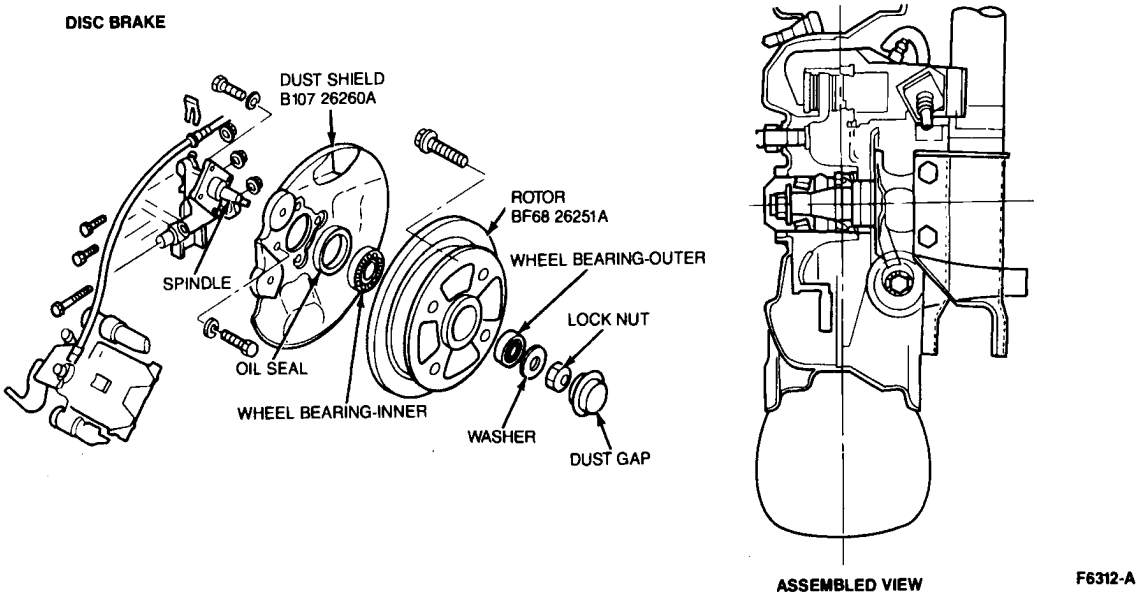
The attaching nut is also used to set bearing preload. If the nut is loosened to adjust preload or to remove the brake rotor it must be replaced with a new nut.

DESCRIPTION (Continued)

The bearings and bearing races are serviceable separate from the rotor / hub assembly. The bearing hub is available only as part of the brake rotor.



DESCRIPTION (Continued)



DIAGNOSIS AND TESTING

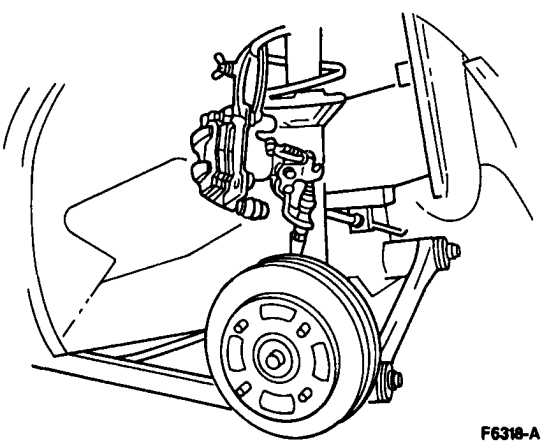
Refer to Section 04-00.

REMOVAL AND INSTALLATION

Brake Rotor/Bearing Hub Assembly

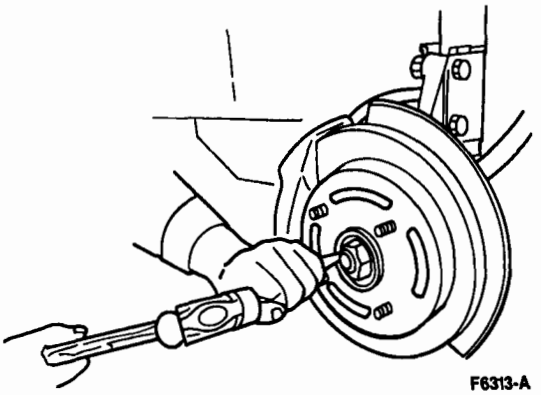
Removal

1. Make sure parking brake is fully released.
2. Raise vehicle and install safety stands. Refer to Section 00-02.
3. Remove the wheel and tire assembly.
4. Remove two guide pin bolts from caliper and lift caliper clear of disc with inner cable and flexible hose attached. Tie caliper to strut spring.
5. Remove the grease cap.



REMOVAL AND INSTALLATION (Continued)

6. Carefully raise the staked portion of the locknut using a small cape chisel.



F6313-A

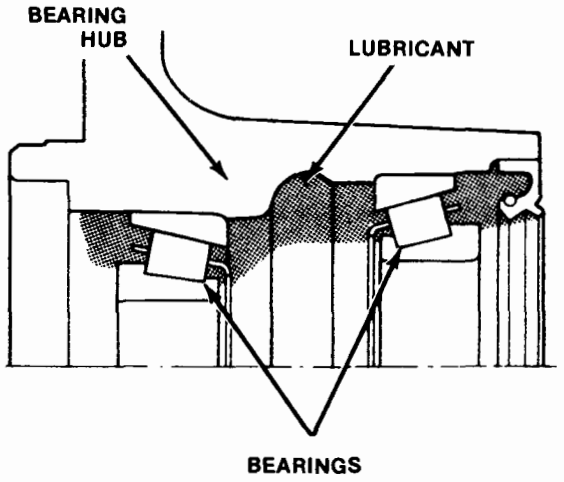
7. Remove and discard the locknut.

   NOTE: The locknuts are threaded left and right. The LH threaded locknut is located on the RH side of the vehicle. Turn this locknut clockwise to loosen. The RH threaded locknut is turned counterclockwise to loosen.

8. Remove washer and outer bearing from the bearing hub.
9. Remove the brake rotor / bearing hub assembly.

Installation

1. Make sure the bearings and hub area contain adequate lubricant. If necessary, add Premium Long Life Grease C1AZ-19590-E (ESA-M1C75-B) or equivalent.



F4813-A

2. Position the brake rotor / bearing hub assembly on the spindle.

   CAUTION: Keep the hub centered on the spindle to prevent damage to the grease seal and spindle threads.

3. Install the outer bearing, washer and a new locknut.
4. Adjust the bearing preload as outlined.
5. Install the grease cap.
6. Install the wheel and tire assembly.
7. Remove safety stands and lower vehicle.
8. Tighten wheel lug nuts to 90-120 N·m (67-88 lb-ft)

Grease Seal / Bearings

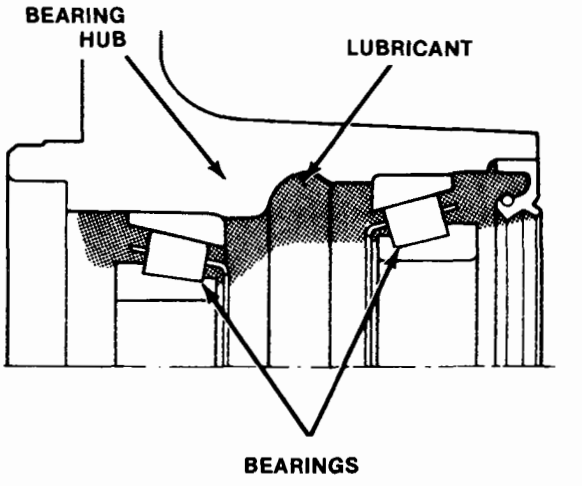
Removal

1. Remove the brake rotor / bearing hub assembly as outlined.
2. Remove the bearing grease seal using a large screwdriver. Discard the seal.
3. Remove the inner bearing from the bearing hub.

   NOTE: If the bearings are to be re-used, they should be tagged so that they can be installed in their original positions.

Installation

1. Pack the bearings and the hub area shown in the illustration with Premium Long Life Grease C1AZ-19590-E (ESA-M1C75-B) or equivalent.

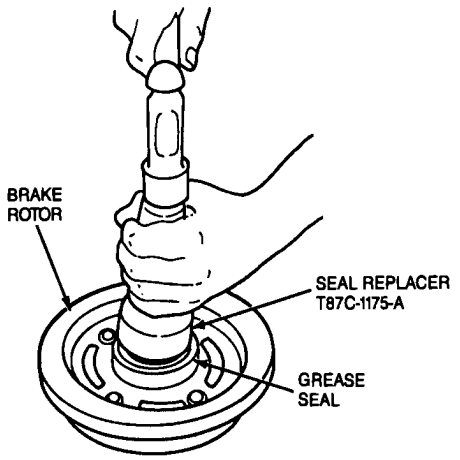


F4813-A

2. Position the inner bearing in the bearing hub.
3. Lubricate the grease seal lip with Premium Long Life Grease C1AZ-19590-E (ESA-M1C75-B) or equivalent. Form the lubricant into a fillet along the seal lip edges.

REMOVAL AND INSTALLATION (Continued)

4. Install a new grease seal using Seal Replacer T87C-1175-A or equivalent.

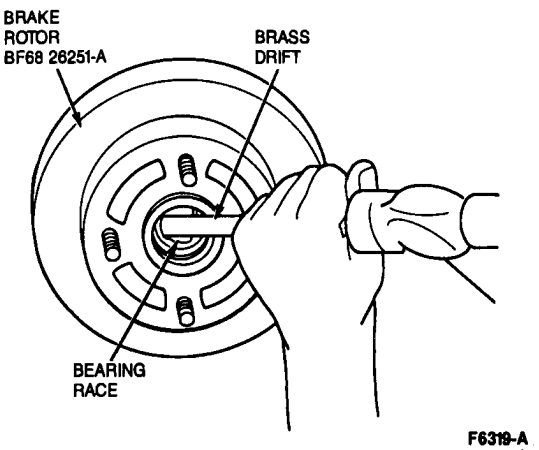


5. Install the rotor / bearing hub assembly as outlined.

Bearing Races

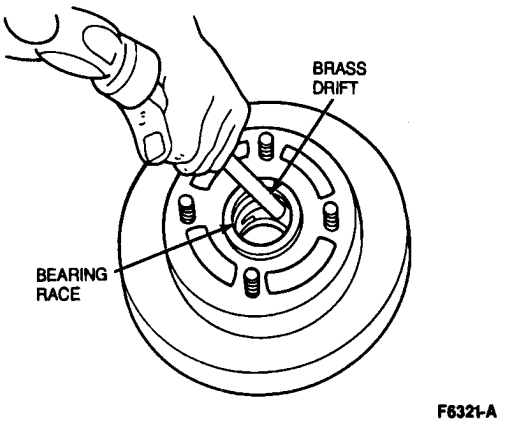
Removal

1. Remove the brake rotor / bearing hub assembly, grease seal and bearings as outlined.
2. Remove the inner and outer bearing races using a brass drift.



Installation

1. Install the inner and outer bearing races using a brass drift.

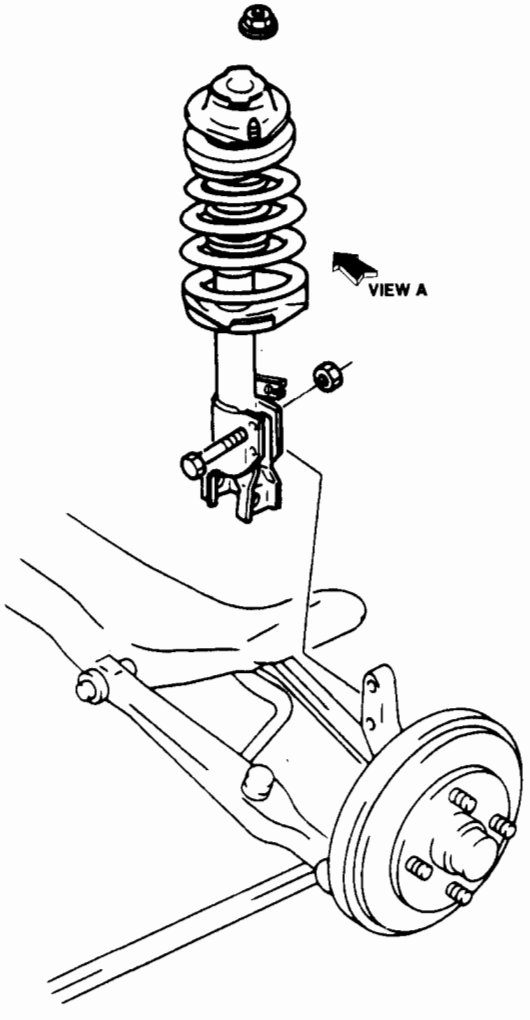


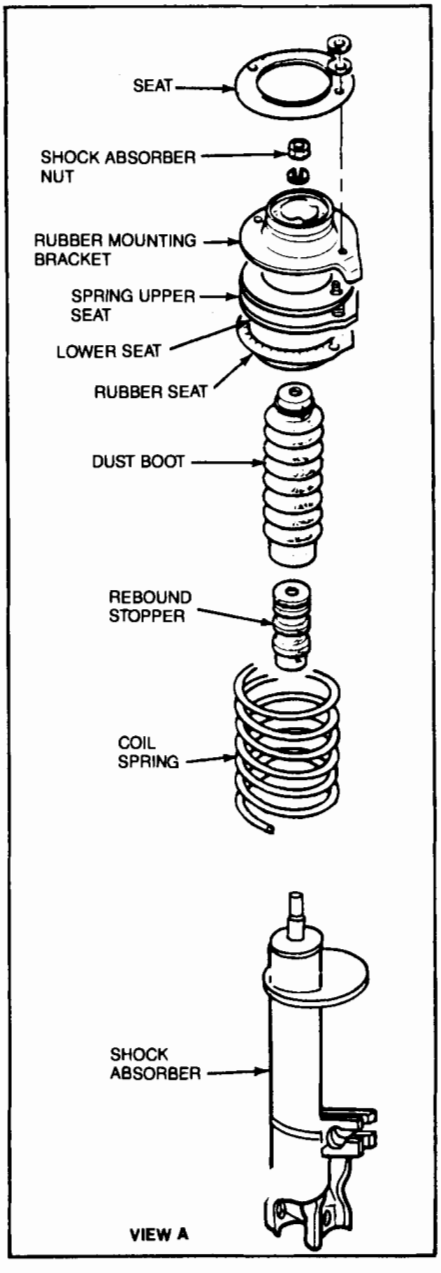
2. Install the inner bearing. Install grease seal using Seal Replacer T87C-1175-A or equivalent.
3. Install brake rotor / bearing hub assembly as outlined.

REMOVAL AND INSTALLATION (Continued)

Strut and Spring, Rear

Rear suspension parts such as control arms, trailing arms and spindles are normally only replaced when the part has been damaged or when the vehicle has been in an accident. If a suspension part has been damaged, be sure to check the underbody dimensions of the vehicle. If the underbody dimensions are not in alignment, the vehicle must be straightened before the suspension components are re-installed.

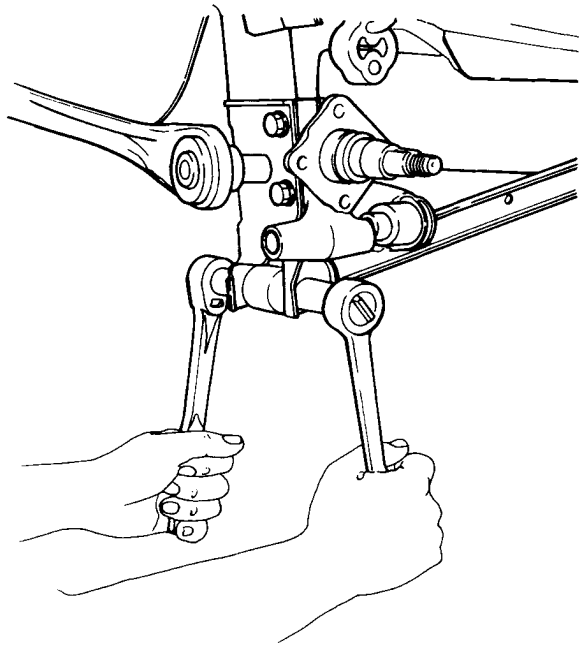




REMOVAL AND INSTALLATION (Continued)

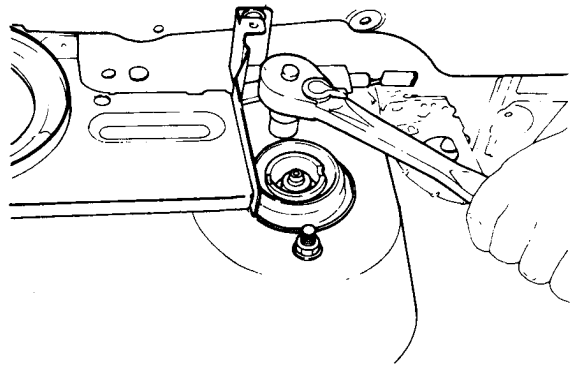
Removal

1. Remove the tire and wheel assembly.
2. Remove the rear disc brake caliper and rotor assembly as outlined.
3. Loosen the trailing arm bolt and the spindle to shock absorber retaining bolts.



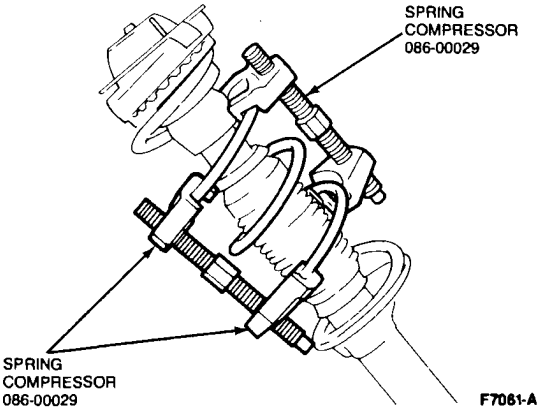
F5490-A

4. Remove the trailing arm retaining bolts and spindle retaining bolts.
5. Paint a white index mark on the strut rubber mounting bracket.
6. Remove the strut retaining nuts from inside the vehicle.



F5472-A

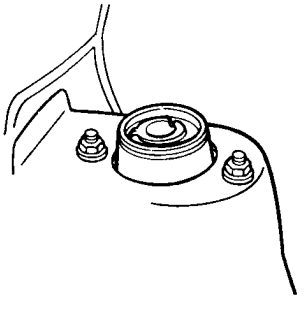
7. Compress the coil spring using Spring Compressor T81P-5310-A, Rotunda Spring Compressor 086-00029 or equivalent.



8. Remove the strut rod nut while the spring is compressed and remove the rubber mounting bracket, spring upper seat, lower seat and the rubber spring seat.
9. Slowly release the coil spring and remove the spring compressor.
10. Remove the coil spring, dust boot and rebound bumpers.

Installation

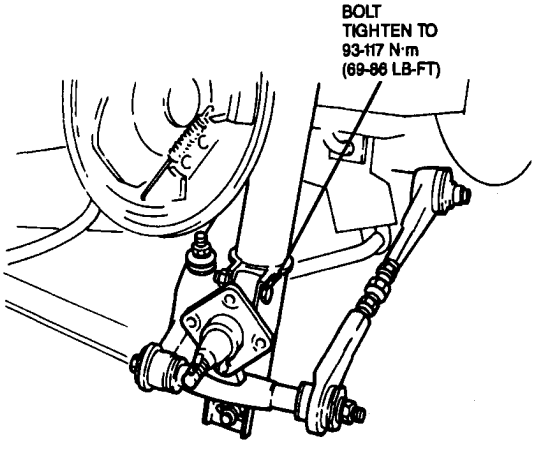
1. Install the rebound bumpers and dust boot on the strut.
2. Compress and install the coil spring on the strut. Lubricate strut rod with Premium Long-Life Grease C1AZ-19590-E (ESA-M1C75-B) or equivalent.
3. Install the rubber seat, spring upper seat with rubber mounting bracket, and strut rod nut on the strut. Tighten to 55-68 N·m (40-50 lb-ft).
4. Release the Spring Compressors, T81P-5310-A, Rotunda 086-00029 or equivalent.
5. Install the strut in the strut tower.



F5893-A

REMOVAL AND INSTALLATION (Continued)

6. Install the spindle to strut mounting bolts. Tighten the bolts to 93-117 N·m (69-86 lb-ft). Final tightening must be done with suspension loaded.



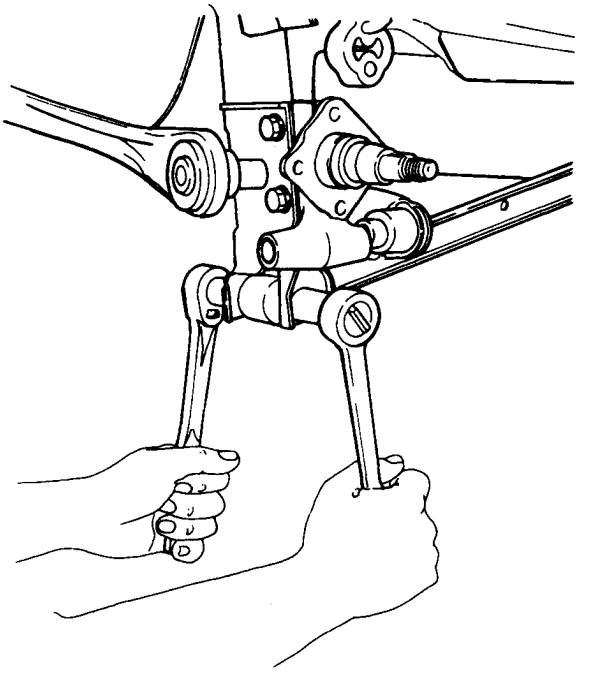
F7009-A

7. Install the rear brake assembly as outlined.
8. Install the tire and wheel assembly.

Spindle

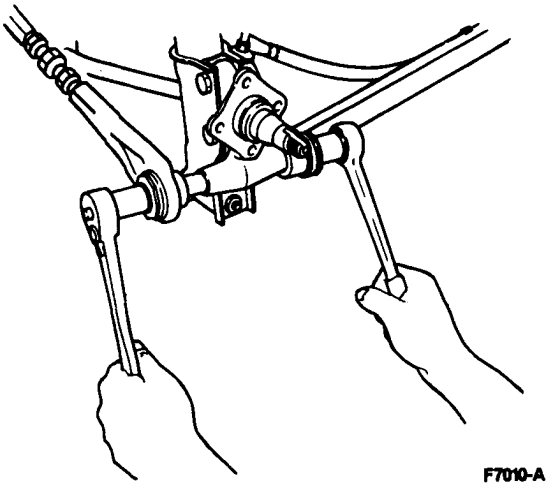
Removal

1. Remove the tire and wheel assembly.
2. Remove the rear disc brake caliper and rotor assembly as outlined.
3. Loosen the spindle to strut retaining bolts.



F5490-A

4. Loosen the outer rear control arm common bolt and nut.

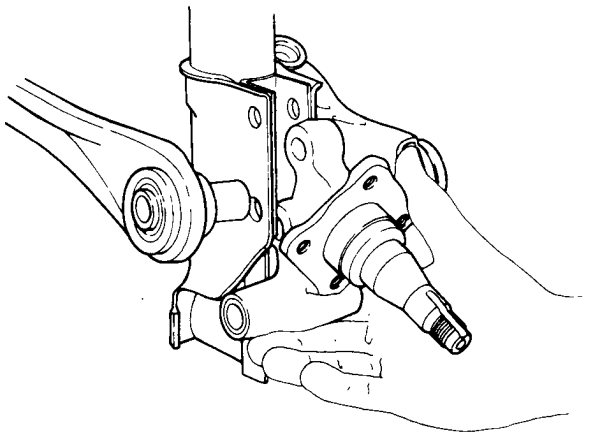


F7010-A

5. Remove the spindle to strut mounting bolts and the common control arm bolt.

REMOVAL AND INSTALLATION (Continued)

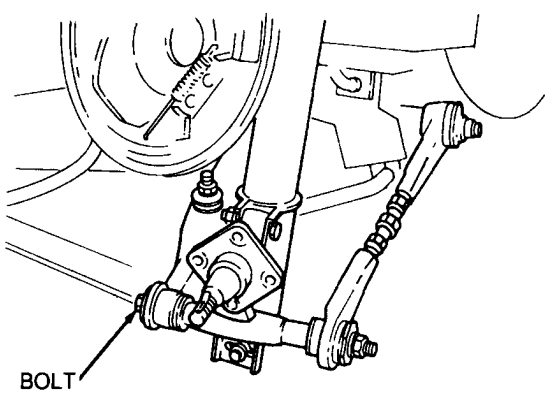
6. Remove the spindle from the strut.



F5480-A

Installation

1. Install the spindle in the strut.
2. Install the strut to spindle retaining bolts.
3. Install the common control arm bolt. Tighten to 60-75 N·m (45-55 lb-ft).



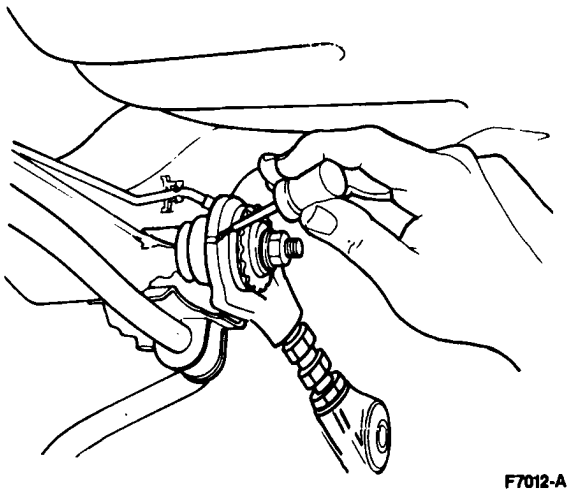
F7011-B

4. Tighten the spindle to strut bolts to 93-117 N·m (69-86 lb-ft). Final tightening must be done with suspension loaded.
5. Install the rear brake assembly as outlined.
6. Install the wheel and tire assembly.

Control Arms and Trailing Arm

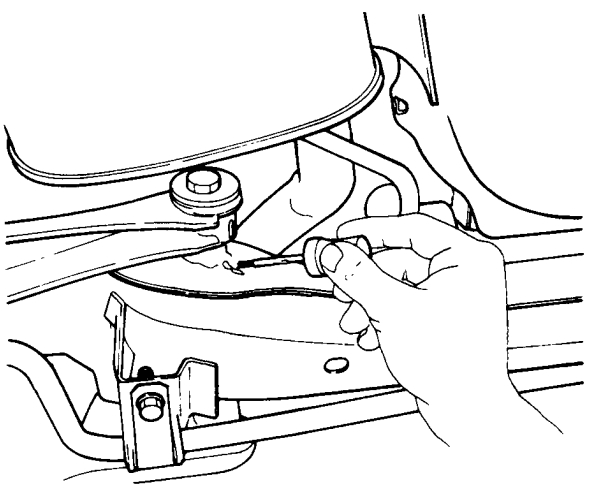
Removal

1. Remove the wheel and tire assembly.
2. Remove rear disc brake caliper and rotor assembly as outlined.
3. Paint an aligning mark on each control arm and control arm bushing.



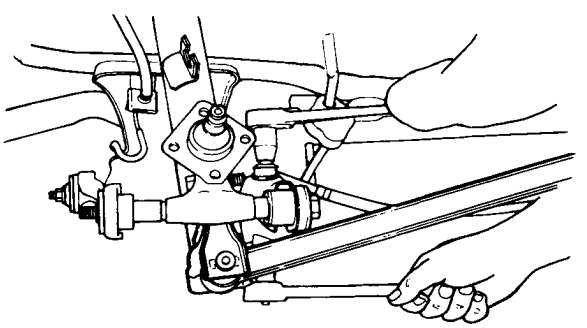
F7012-A

4. Paint an aligning mark on each side of trailing arm and crossmember.



F5483-A

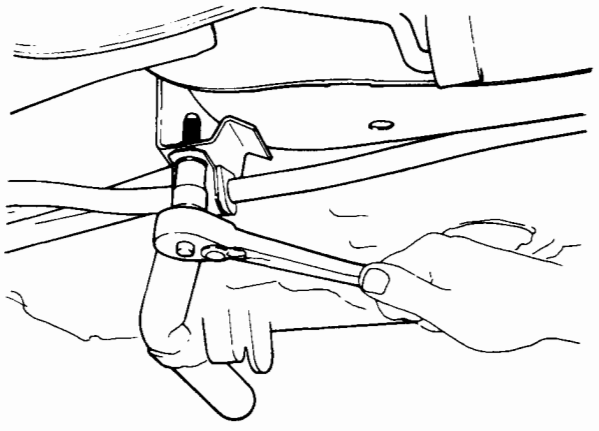
5. Remove the stabilizer link assembly.



F5484-A

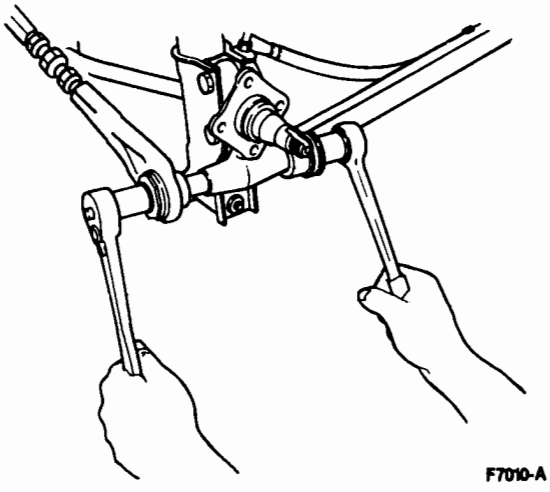
REMOVAL AND INSTALLATION (Continued)

6. Loosen and remove the stabilizer bar, bushings and the stabilizer.

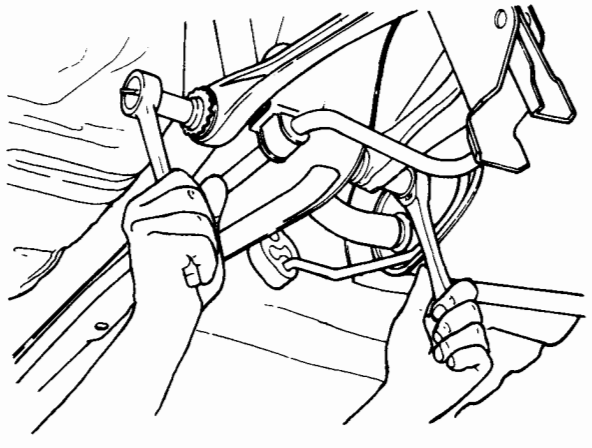


F5485-A

7. Loosen both inner and outer lower control arm bolts.

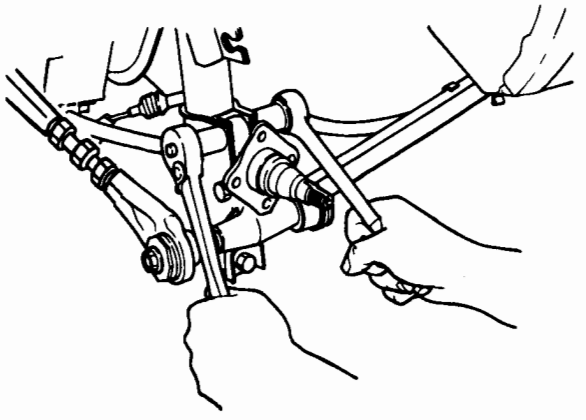


F7010-A



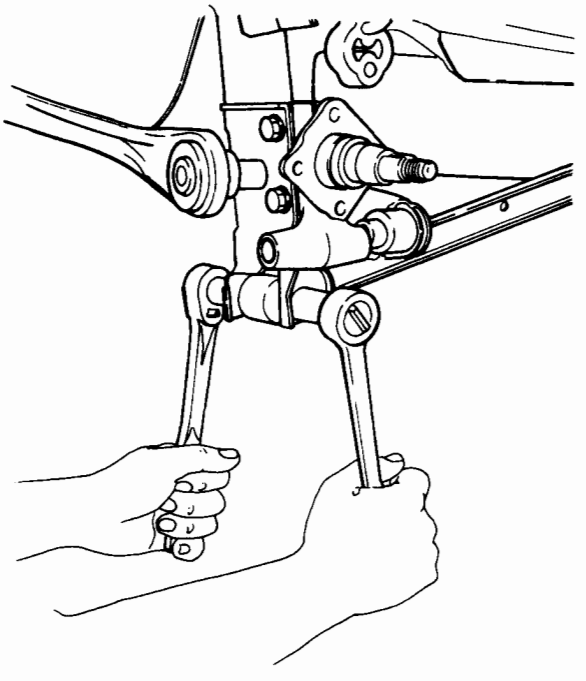
F5487-A

8. Loosen the spindle to strut retaining bolts.



F7013-A

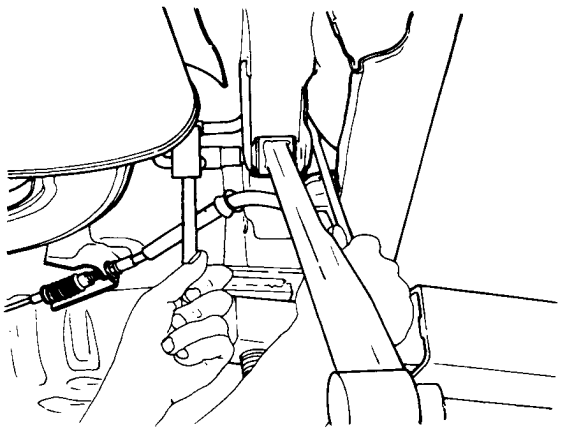
9. Remove the parking brake retaining bolt from the rear trailing assembly.
10. Loosen the trailing arm to strut retaining bolts.



F5490-A

REMOVAL AND INSTALLATION (Continued)

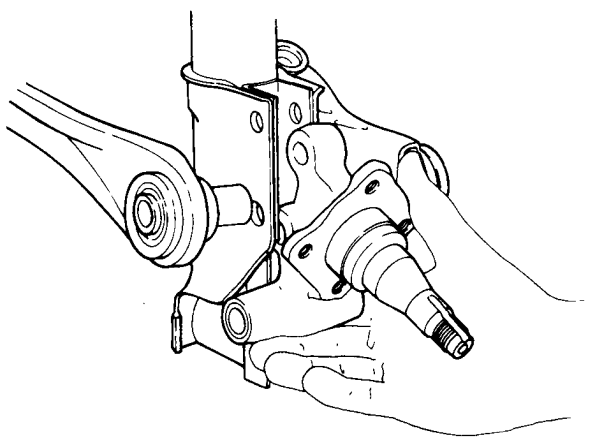
11. When all control arm and trailing arm bolts are loosened, remove all bolts and remove both the control arms and the trailing arm.



F5491-A

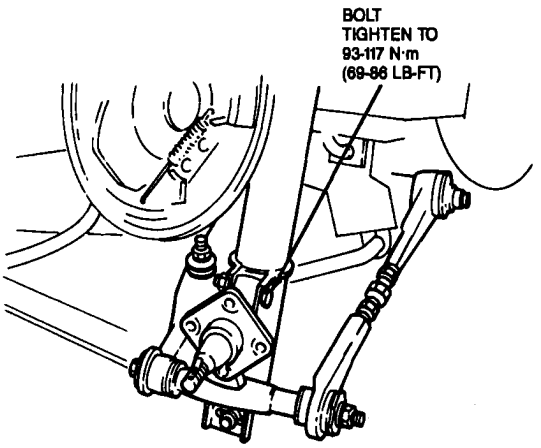
Installation

1. Mount control arm and trailing arm on the rear crossmember and hand tighten the bolts. Ensure LH and RH arms are in correct position.
2. Connect both control arms with the outer control arm bolt but do not install the spindle yet. Raise both control arms so the painted aligning stripes line up and tighten the rear control arm bolts.
3. Install the spindle in the strut.



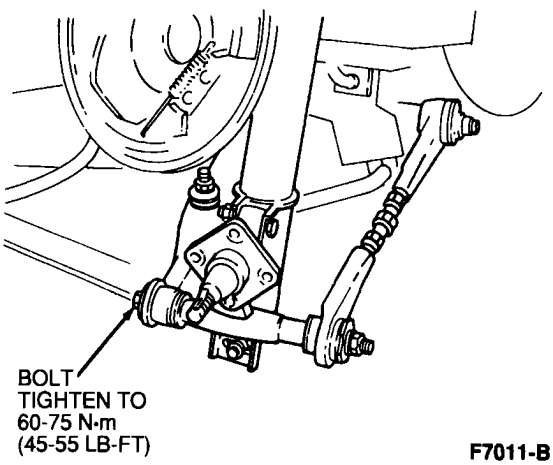
F5480-A

4. Tighten the spindle to strut retaining bolts to 93-117 N·m (69-86 lb-ft).



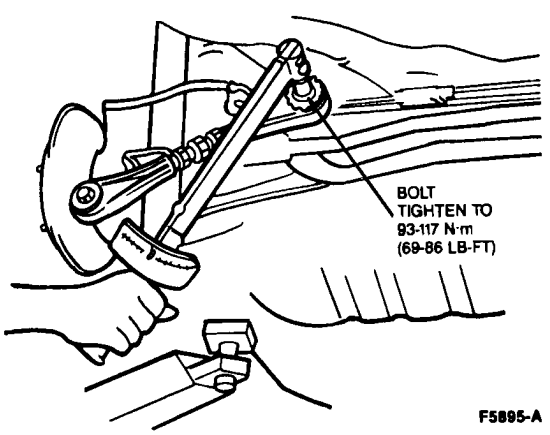
F7009-A

5. Install and tighten the control arm to spindle retaining bolt to 60-75 N·m (45-55 lb-ft).



F7011-B

6. Tighten the inner control arm bolt to 93-117 N·m (69-86 lb-ft).



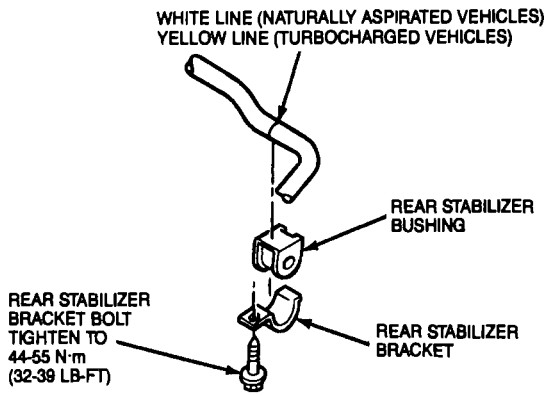
F5895-A

REMOVAL AND INSTALLATION (Continued)

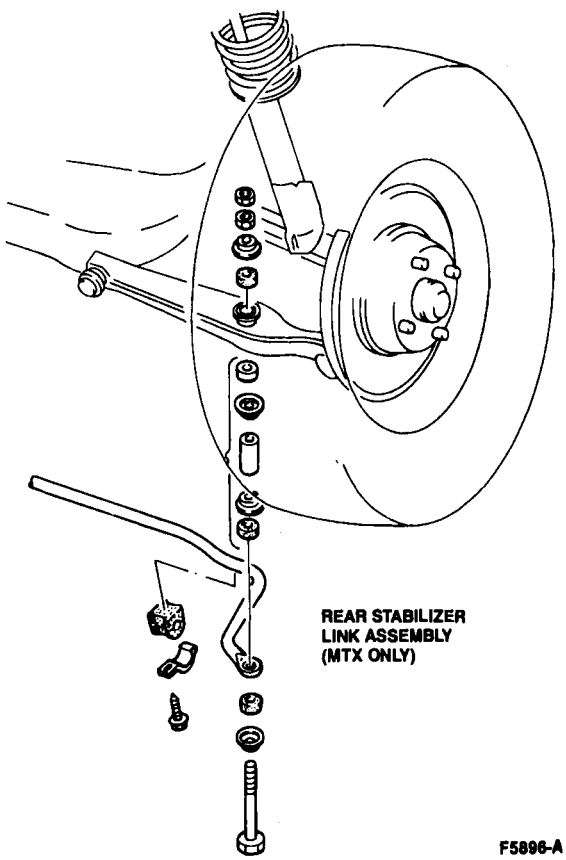
7. Loosely install the rear stabilizer bar in the stabilizer bushing.

   NOTE: Be sure the alignment stripe painted on the stabilizer bar aligns with the bushings.

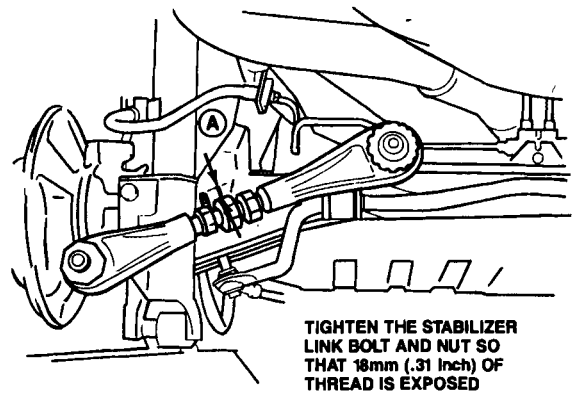
8. Do not fully tighten the bracket bolts yet.



9. Install the stabilizer link assembly.



10. Tighten the stabilizer bushing bracket bolts to 44-55 N·m (32-39 lb-ft).
11. Tighten the stabilizer link bolt until 18mm of thread extends beyond the nut. Final tightening must be done with suspension loaded.



12. Install the rear brake caliper and rotor assembly as outlined.
13. Install the wheel and tire assembly.

ADJUSTMENTS

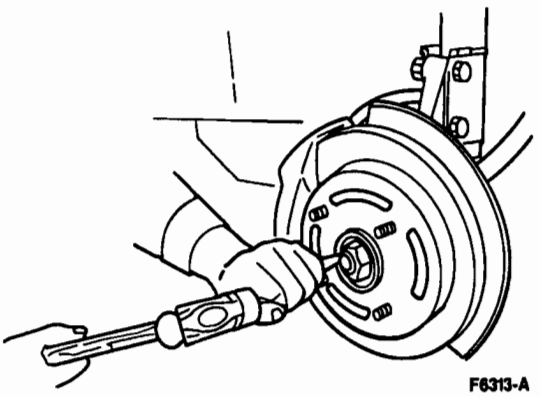
For suspension alignment procedures, refer to Section 04-00.

Bearing Preload

1. Make sure the parking brake is fully released.
2. Raise vehicle and install safety stands. Refer to Section 00-02.
3. Remove wheel and tire assembly.
4. Rotate the brake rotor to make sure there is no brake drag. If the brakes drag, press on inner brake pad to push caliper piston back slightly.
5. Remove the grease cap.

ADJUSTMENTS (Continued)

6. Carefully raise the staked portion of the locknut using a small cape chisel.

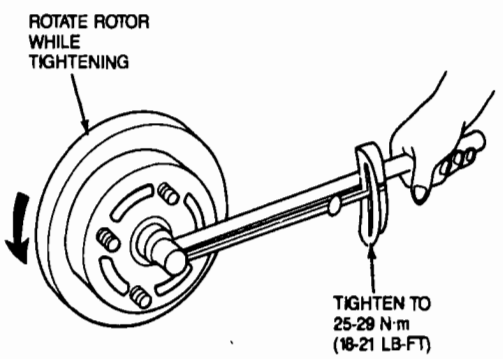


F6313-A

7. Remove and discard the locknut.

   NOTE: The locknuts are threaded left and right. The LH threaded locknut is located on the RH side of the vehicle. Turn this locknut clockwise to loosen. The RH threaded locknut is turned counterclockwise to loosen.

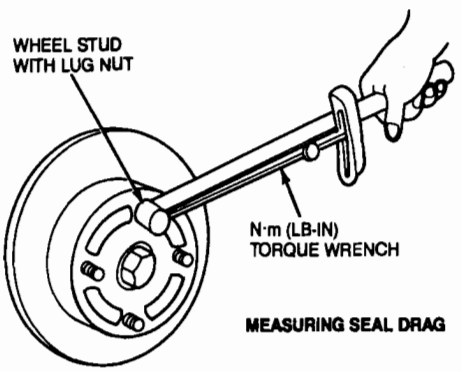
8. Install a new locknut.
9. Seat the bearings by tightening the locknut to 25-29 N·m (18-21 lb-ft). While tightening the locknut rotate the brake rotor.



F6314-A

10. Loosen the locknut slightly until it can be turned by hand.
11. Before bearing preload can be set, the amount of seal drag must be measured and added to the required preload.

    To measure seal drag, place a N·m (lb-in) torque wrench onto a lug nut positioned at 12 o'clock and measure the amount of force required to rotate the brake rotor.



MEASURING SEAL DRAG

F6315-A

Pull the torque wrench and note the reading when rotation starts.

12. To determine the specified preload, add the amount of seal drag to the required preload which is 0.15 to 0.49 N·m (1.3 to 4.3 lb-in).

    For example:

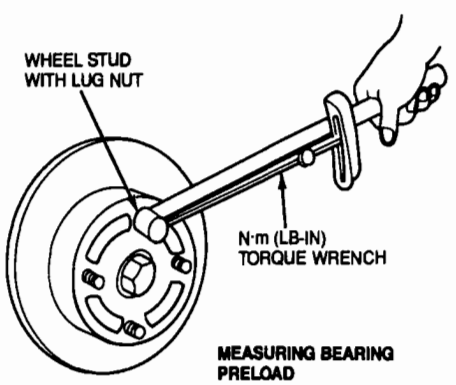
    If seal drag measures 0.25 N·m (2.2 lb-in), this amount must be added to the required preload:

    - 0.15 N·m + 0.25 N·m = 0.40 N·m Minimum
    - (1.3 lb-in + 2.2 lb-in = 3.5 lb-in Minimum)
    - 0.49 N·m + 0.25 N·m = 0.74 N·m Maximum
    - (4.3 lb-in + 2.2 lb-in = 6.5 lb-in Maximum)

    In the above example, when the seal drag is added the specified amount of preload becomes 0.40 to 0.74 N·m (3.5 to 6.5 lb-in).

13. Tighten the wheel bearing locknut a slight amount.
14. Place the N·m (lb-in) torque wrench onto a lug nut positioned at 12 o'clock and measure the amount of pull required to rotate the brake rotor.

    Continue tightening the attaching nut until the specified amount of preload is measured with the torque wrench.

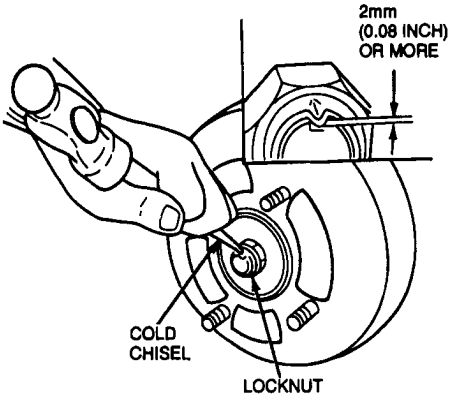


MEASURING BEARING PRELOAD

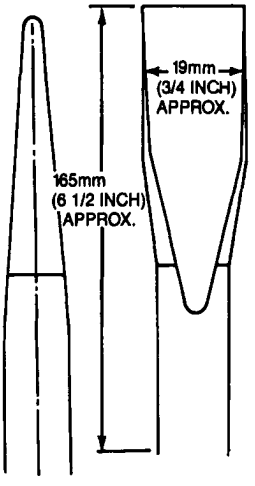
F6316-A

ADJUSTMENTS (Continued)

15. Stake new locknut using a cold chisel with the cutting edge rounded as shown.



NOTE: INSTALL A NEW LOCKNUT



THE STAKING TOOL CAN BE FABRICATED FROM AN EXISTING HARDENED CHISEL. THE CORRECT RADIUS ON THE CHISEL TIP WILL PREVENT IMPROPER STAKING. DO NOT ATTEMPT TO STAKE WITH A SHARP EDGED TOOL.

F6317-A

CAUTION: If the nut splits or cracks after staking, it must be replaced with a new nut.

16. Install the grease cap.
17. Install the wheel and tire assembly.
18. Remove safety stands and lower vehicle.
19. Tighten the wheel lug nuts to 90-120 N·m (67-88 lb-ft).

SPECIFICATIONS

TORQUE SPECIFICATIONS

Description	N·m	Lb-Ft
Spindle to Strut Bolts	93-117	69-86
Control Arm to Spindle	60-75	45-55
Inner Control Arm Bolts	93-117	69-86
Rear Stabilizer Bracket	44-55	32-39

(Continued)

TORQUE SPECIFICATIONS (Cont'd)

Description	N·m	Lb-Ft
Wheel Bearing Locknut	25-29	18-21
Wheel Lug Nuts	90-120	67-88
Strut Rod Nut	55-68	40-50

SPECIAL SERVICE TOOLS

Tool Number	Description
T81P-5310-A	Spring Compressor
T87C-1175-A	Seal Replacer

ROTUNDA EQUIPMENT

Model	Description
086-00029	Spring Compressor