

SECTION 3C

FRONT SUSPENSION

NOTICE: When fasteners are removed, always reinstall them at the same location from which they were removed. If a fastener needs to be replaced, use the correct part number fastener for that application. If the correct part number fastener is not available, a fastener of equal size and strength (or stronger) may be used. Fasteners that are not reused, and those requiring thread locking compound will be called out. The correct torque value must be used when installing fasteners that require it. If the above conditions are not followed, parts or system damage could result.

CONTENTS

General Description	3C-1	Lower Control Arm Assembly	3C-8
Diagnosis	Refer to Section 3	Lower Control Arm Bushing Assembly	3C-9
On-Vehicle Service	3C-3	Shock Absorber and Spring Assembly	3C-11
Control Arm Ball Stud Assembly		Stabilizer Shaft	3C-15
Inspection	3C-3	Stabilizer Shaft Link Assembly	3C-16
Lower Control Arm Ball Stud Assembly	3C-3	Steering Knuckle Assembly	3C-16
Upper Control Arm Ball Stud Assembly	3C-4	Upper Control Arm Assembly	3C-17
Control Arm Ball Stud Assembly		Upper Control Arm Bushing Assembly	3C-18
Replacement	3C-4	Wheel Bearing Assembly	3C-19
Lower Control Arm Ball Stud Assembly	3C-4	Crossmember Assembly	3C-19
Upper Control Arm Ball Stud Assembly	3C-5	Specifications	3C-21
Wheel Hub Assembly	3C-6	Fastener Tightening Specifications	3C-21
Front Wheel Bolt	3C-7	Special Tools	3C-22

GENERAL DESCRIPTION

Figures 1 and 2

The short/long arm (SLA) front suspension assembly is designed to allow each wheel assembly to compensate for changes in the road surface level without appreciably affecting the opposite wheel assembly. Each wheel assembly is independently connected to the frame assembly by a steering knuckle assembly (6) and wheel hub assembly (44), shock absorber assembly (24) and spring assembly (23), upper and lower ball stud assemblies (2 and 10) and upper and lower control arm assemblies (1 and 17). The steering knuckle and hub assemblies (6 and 44) move in a prescribed three-dimensional arc. The front wheel assemblies are held in proper relationship to each other by two front tie rod axle assemblies. The front tie rod axle assemblies are connected to steering arms on the knuckles and to the steering gear assembly.

Spring assemblies (23) are mounted on the lower control arm assemblies (17). Ride control is provided by direct acting shock absorber assemblies (24). The upper portion of the shock absorber assembly is connected to the front upper shock absorber mount assembly (45). The upper mount assembly (45) extends through the upper control arm support (46) and the center wheelhouse assembly and attaches with two shock absorber upper mount bolts/screws (26) and two shock absorber upper mount nuts (25).

Side roll of the front suspension assembly is controlled by a stabilizer shaft (11). The stabilizer shaft is mounted to stabilizer shaft insulators (16) that are held to frame side rails by stabilizer shaft bracket assemblies. The ends of the stabilizer shaft (11) are connected to the lower control arm assemblies (17) by stabilizer shaft link assemblies (12) and are isolated by complaint bushings.

The inner ends of the lower control arm assembly (17) have pressed-in bushings. Bolts (passing through the bushings) attach the lower control arm assembly (17) to the crossmember assembly (20).

The upper control arm assembly (1) is attached to the steering knuckle assembly (6) with a nut (4) and cotter pin (3) and is bolted to the shock absorber assembly (24) through an upper control arm support (46) which attaches to the body.

The lower ball stud assembly (10) is a press fit in the lower control arm assembly (17) and is attached to the steering knuckle assembly (6) with a nut (8) and cotter pin (9).

Rubber grease seals are provided at ball socket assemblies to keep dirt and moisture from entering the stud assembly and damaging bearing surfaces.

The upper ball stud assembly (2) is riveted to the upper control arm assembly (1) and is attached to the steering knuckle assembly (6) with a nut (4) and cotter pin (3).

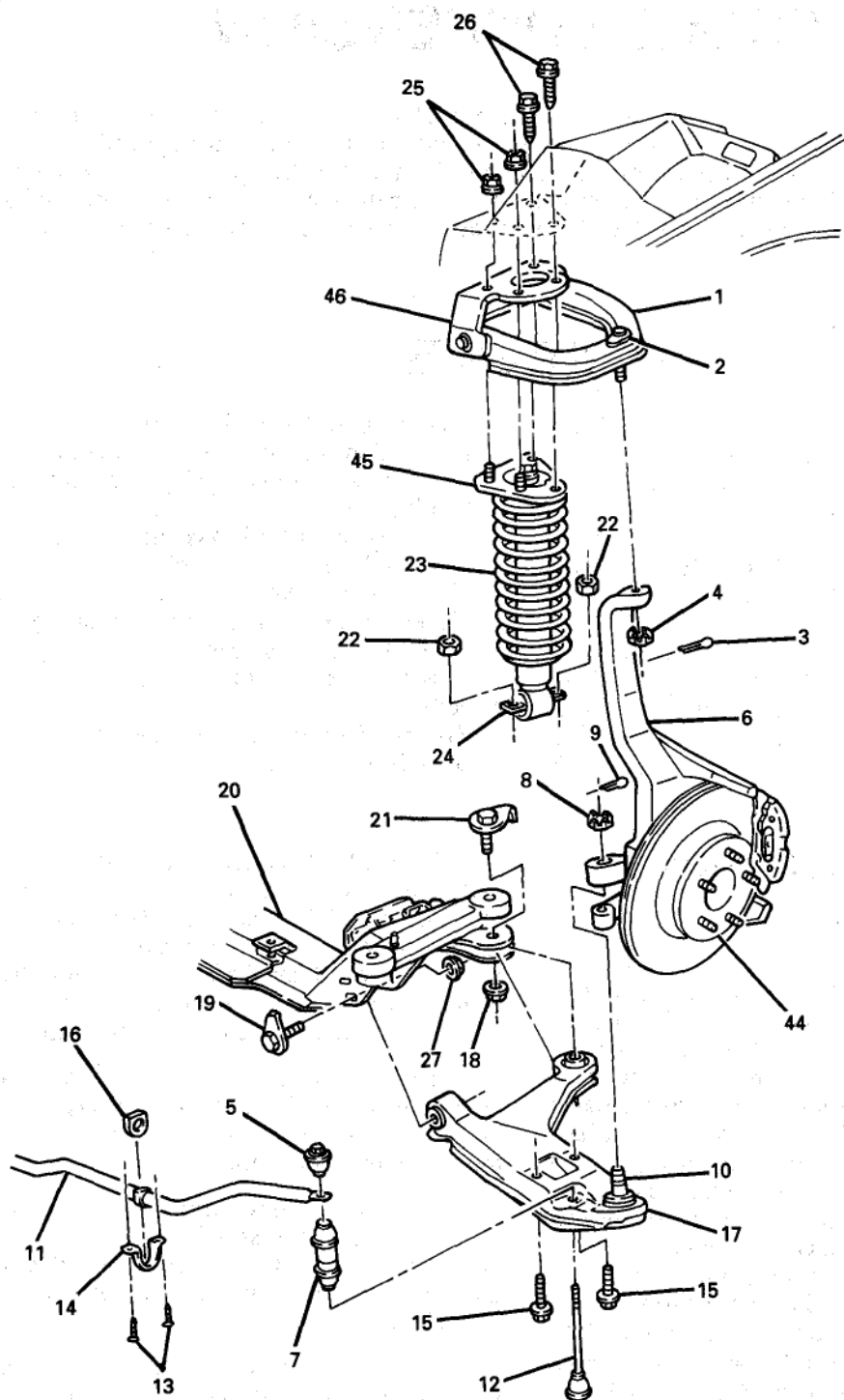
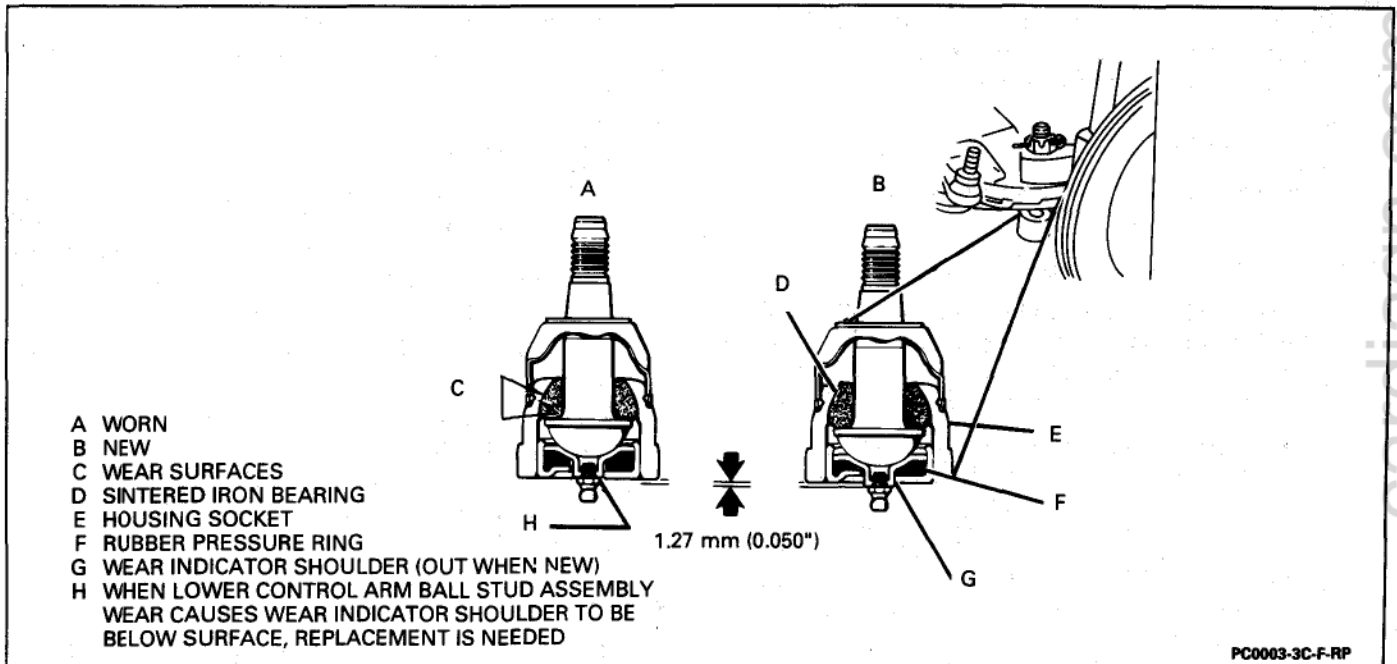


Figure 1 – Front Suspension Components

- | | |
|--|--|
| 1 ARM ASSEMBLY, FRONT UPPER CONTROL | 16 INSULATOR, FRONT STABILIZER SHAFT |
| 2 STUD ASSEMBLY, FRONT UPPER CONTROL ARM BALL | 17 ARM ASSEMBLY, FRONT LOWER CONTROL |
| 3 PIN, FRONT UPPER CONTROL ARM COTTER | 18 NUT, FRONT LOWER CONTROL ARM, 115 N·m (85 LB. FT.) |
| 4 NUT, FRONT UPPER CONTROL ARM, 53 N·m (39 LB. FT.) | 19 BOLT/SCREW, FRONT LOWER CONTROL ARM |
| 5 NUT, FRONT STABILIZER SHAFT LINK ASSEMBLY, 23 N·m (17 LB. FT.) | 20 CROSSMEMBER ASSEMBLY, FRONT |
| 6 KNUCKLE AND HUB ASSEMBLY, STEERING | 21 BOLT/SCREW, FRONT LOWER CONTROL ARM |
| 7 SLEEVE, FRONT STABILIZER SHAFT LINK ASSEMBLY | 22 NUT, FRONT SHOCK ABSORBER LOWER BRACKET, 65 N·m (48 LB. FT.) |
| 8 NUT, FRONT LOWER CONTROL ARM, 110 N·m (81 LB. FT.) | 23 SPRING ASSEMBLY, FRONT |
| 9 PIN, FRONT LOWER CONTROL ARM COTTER | 24 ABSORBER ASSEMBLY, FRONT SHOCK |
| 10 STUD ASSEMBLY, FRONT LOWER CONTROL ARM BALL | 25 NUT, FRONT SHOCK ABSORBER UPPER MOUNT, 43 N·m (32 LB. FT.) |
| 11 STABILIZER SHAFT, FRONT | 26 BOLT/SCREW, FRONT SHOCK ABSORBER UPPER MOUNT, 50 N·m (37 LB. FT.) |
| 12 LINK ASSEMBLY, FRONT STABILIZER SHAFT, 23 N·m (17 LB. FT.) | 27 NUT, FRONT LOWER CONTROL ARM, 95 N·m (70 LB. FT.) |
| 13 BOLT/SCREW, FRONT STABILIZER SHAFT INSULATOR CLAMP, 55 N·m (41 LB. FT.) | 44 HUB ASSEMBLY, FRONT WHEEL |
| 14 CLAMP, FRONT STABILIZER SHAFT INSULATOR | 45 MOUNT ASSEMBLY, FRONT UPPER SHOCK ABSORBER |
| 15 BOLT/SCREW, FRONT SHOCK ABSORBER, 65 N·m (48 LB. FT.) | 46 SUPPORT, FRONT UPPER CONTROL ARM |

RC0011-3C-F-RP

Figure 2 – Front Suspension Components – Legend



PC0003-3C-F-RP

Figure 3 – Lower Control Arm Ball Stud Assembly Wear Indicator

ON-VEHICLE SERVICE

CONTROL ARM BALL STUD ASSEMBLY INSPECTION

Figures 3 and 4



Inspect

- Ball stud assembly seals should be carefully inspected for cuts and tears. Whenever cuts or tears are found, ball stud assembly must be replaced.
- Ball studs for wear.

Lower Control Arm Ball Stud Assembly

Figure 3

The lower control arm ball stud assembly has a visual wear indicator. Checking the condition of the lower control arm ball stud assembly is a simple procedure but must be followed accurately to prevent unnecessary replacement.



Inspect

1. Vehicle must be supported by wheel assemblies so weight of vehicle will properly load ball stud assemblies.

2. Ball stud assembly is inspected for wear by visual observation alone. Wear is indicated by position of 12.7 mm (0.50 inch) diameter nipple into which front suspension lubricant fitting is threaded. This round nipple projects 1.27 mm (0.050 inch) beyond surface of ball stud assembly cover when new. Normal wear will result in surface of this nipple retreating very slowly inward.
3. Wipe front suspension lubricant fitting and nipple free of dirt and grease. Observe or scrape screwdriver or fingernail across cover. If round nipple is flush or inside cover surface, replace ball stud assembly.

Upper Control Arm Ball Stud Assembly

Figure 4

Inspect

1. Raise vehicle and position floor stands under both lower control arm assemblies as near as possible to each ball stud assembly. Refer to SECTION 0A.

Important

- Vehicle must be stable and should not rock on floor stands.
2. Position dial indicator against wheel rim.
 3. Grasp wheel assembly and push in on bottom of tire while pulling out at top. Read gage, then reverse push-pull procedure. Horizontal deflection on dial indicator should not exceed 3.18 mm (0.125 inch).
 - If dial indicator reading exceeds 3.18 mm (0.125 inch), replace ball stud assembly.
 4. Anytime ball stud assembly is disconnected from steering knuckle assembly, check for looseness or if ball stud assembly can be twisted in its socket with your fingers. If either of these conditions exist, replace ball stud assembly.
 5. Lower vehicle.

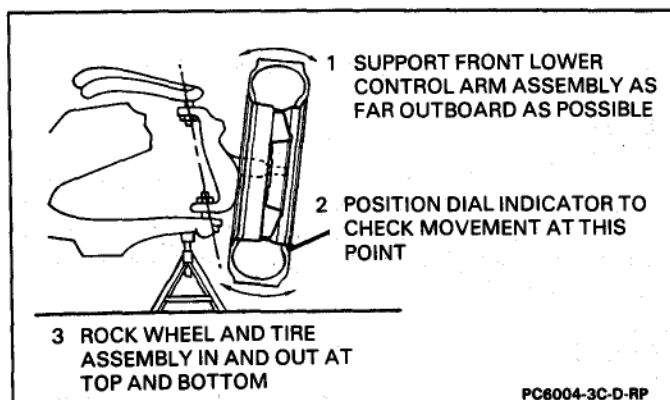


Figure 4 – Checking Upper Control Arm Ball Stud Assembly

CONTROL ARM BALL STUD ASSEMBLY REPLACEMENT

Lower Control Arm Ball Stud Assembly

Figures 5 through 10

Tools Required:

- J 39549 Ball Joint/Tie Rod Separator
- J 9519-7 Ball Joint Remover
- J 9519-9 Ball Joint Installer
- J 9519-18 Ball Joint Pressing Screw
- J 9519-23 Ball Joint C-Clamp

Remove or Disconnect

1. Raise and suitably support vehicle with floor stands under frame assembly. Refer to SECTION 0A.
2. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
3. Tire and wheel assembly. Refer to SECTION 3E.
4. Place floor jack under lower control arm assembly (17).

Important

- Floor jack must remain under shock absorber assembly mounting location on lower control arm assembly (17) during removal and installation to hold spring assembly and lower control arm assembly in position.
5. Separate ball stud assembly from steering knuckle assembly, using J 39549.
 6. Lower control arm cotter pin and loosen lower control arm nut.
 7. Press ball stud assembly out of lower control arm assembly (17), using J 9519-7, J 9519-18 and J 9519-23.

Install or Connect

NOTICE: See "Notice" on page 3C-1 of this section.

1. Position ball stud assembly into lower control arm assembly (17) and press in, using J 9519-9, J 9519-18 and J 9519-23, until it bottoms on lower control arm assembly (17). Ball stud assembly must firmly press into lower control arm assembly (17). If it does not, replace lower control arm assembly (17).
2. Ball stud assembly to steering knuckle assembly.
3. Hand start lower control arm nut.

Important

- Tighten nut enough to align nut slot with stud hole. Never loosen nut in order to align slot with hole.

Tighten

- Nut to 110 N•m (81 lb. ft.).

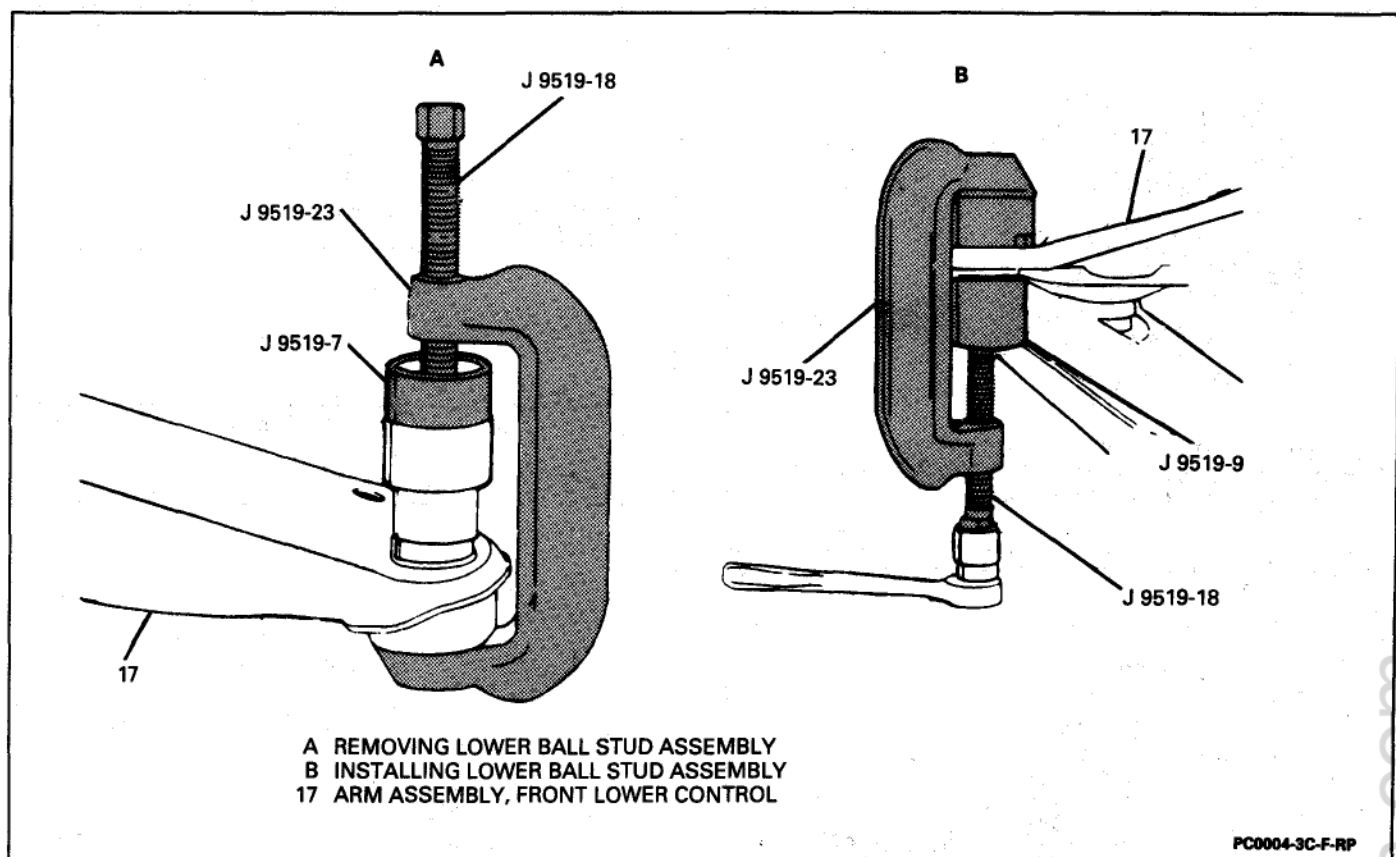


Figure 5 – Removing and Installing Lower Control Arm Ball Stud Assembly

4. Lower control arm cotter pin.
5. Remove floor jack from under shock absorber assembly mounting location on lower control arm assembly (17).
6. Tire and wheel assembly. Refer to SECTION 3E.
7. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
8. Check wheel assembly alignment. Refer to SECTION 3A.
9. Lower vehicle.

Upper Control Arm Ball Stud Assembly

Figures 6 through 10

Remove or Disconnect

Tool Required:

J 39549 Ball Joint/Tie Rod Separator

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
3. Tire and wheel assembly. Refer to SECTION 3E.
4. Place floor jack under shock absorber assembly mounting location on lower control arm assembly (17).

Important

- Floor jack must remain under the shock absorber assembly mounting location on lower control arm assembly (17) during removal and installation to hold the spring assembly and lower control arm assembly in position.

5. Loosen ball stud assembly (2) from steering knuckle assembly (6).
6. Cotter pin (3) and nut (4).
7. Support steering knuckle assembly (6) with floor stands.
8. Separate ball stud assembly (2) from upper control arm assembly (1), using J 39549.
9. With upper control arm assembly (1) in raised position, drill out four rivets approximately 6 mm (0.25 inch) deep, using 1/8-inch drill bit. Refer to Figure 7.
10. Drill off rivet heads, using 1/2-inch drill bit. Refer to Figure 8.
11. Punch out rivets, using small punch, and remove ball stud assembly (2). Refer to Figure 9.

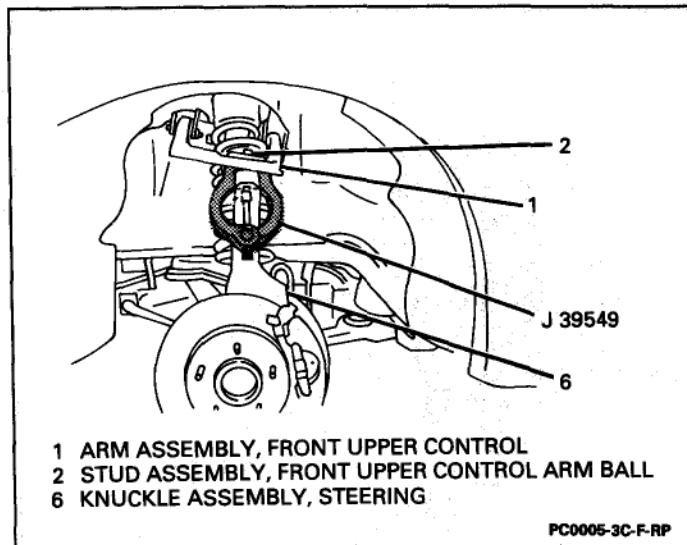


Figure 6 – Separating Upper Control Arm Ball Stud Assembly

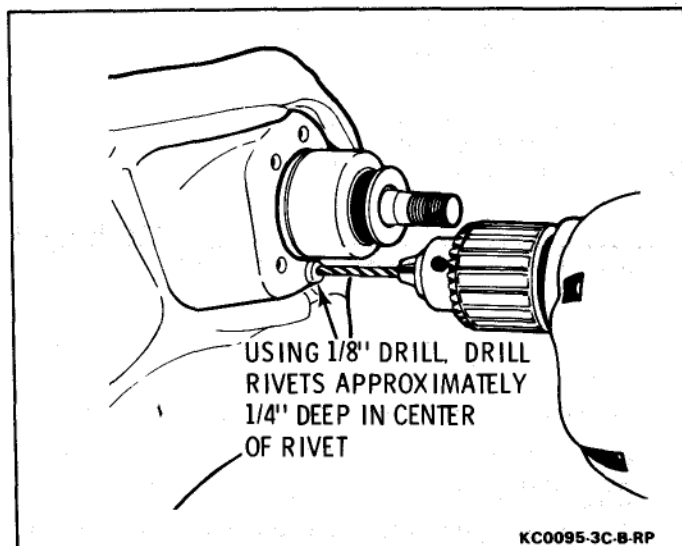


Figure 7 – Drilling Upper Control Arm Ball Stud Assembly Rivet

Install or Connect

NOTICE: See "Notice" on page 3C-1 of this section.

1. Position new ball stud assembly (2) and install four service kit bolts/screws (28) and nuts (29). Use specifications in ball stud assembly kit.
2. Remove temporary support from steering knuckle assembly (6), then connect ball stud assembly (2) to steering knuckle assembly (6).
3. Hand start nut (4).

Important

- Tighten nut enough to align slot with stud hole. Never loosen nut in order to align slot with hole.

Tighten

- Nut (4) to 53 N•m (39 lb. ft.).

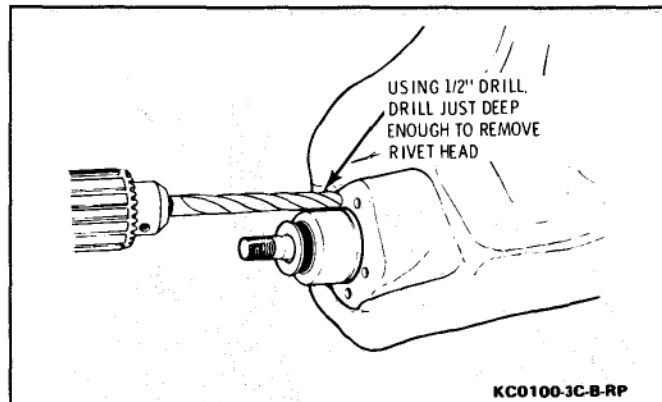


Figure 8 – Drilling Upper Control Arm Ball Stud Assembly Rivet Heads

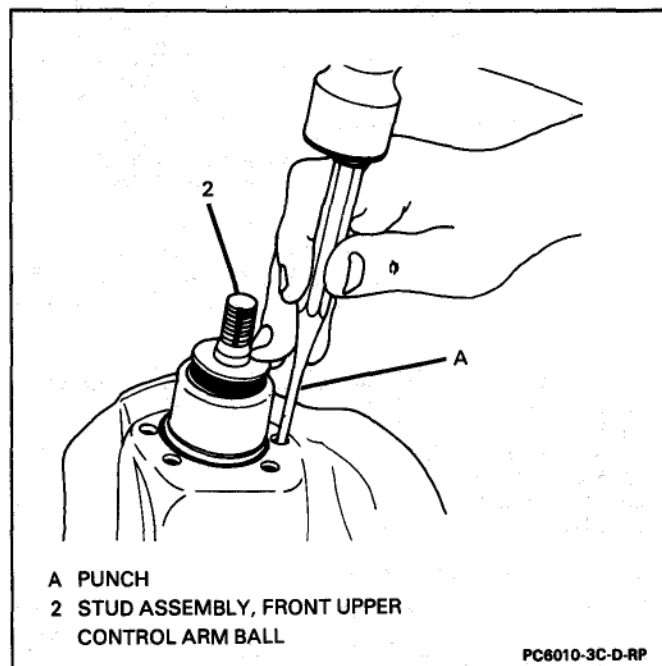


Figure 9 – Removing Upper Control Arm Ball Stud Assembly

4. Cotter pin (3).
5. Remove floor jack from under spring seat.
6. Tire and wheel assembly. Refer to SECTION 3E.
7. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
8. Lower vehicle.

WHEEL HUB ASSEMBLY

Figure 11

Remove or Disconnect

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
3. Tire and wheel assembly. Refer to SECTION 3E.
4. Brake caliper assembly. Refer to SECTION 5B1.
5. Brake rotor assembly. Refer to SECTION 5B1.

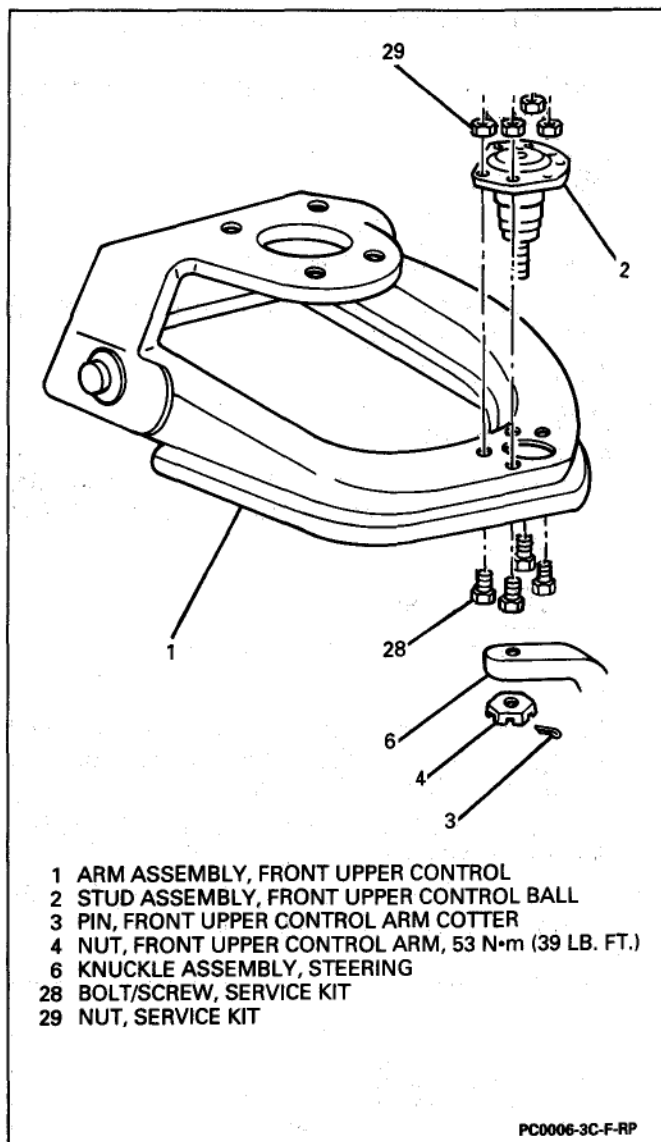


Figure 10 - Upper Control Arm Ball Stud Assembly Attachment

6. Wheel speed sensor electrical connector and move aside. Refer to SECTION 5E1.
7. Bolts/screws (42) from hub assembly (44).
8. Pull hub assembly (44) from spindle.

➡➡ Install or Connect

1. Position hub assembly (44) to spindle.
2. Bolts/screws (42).

⚙ Tighten

- Bolts/screws (42) to 86 N•m (63 lb. ft.).

! Important

- Make sure wheel speed sensor electrical connector is reconnected to wheel speed sensor wire bracket (43) and wheel speed sensor or wires could be damaged.

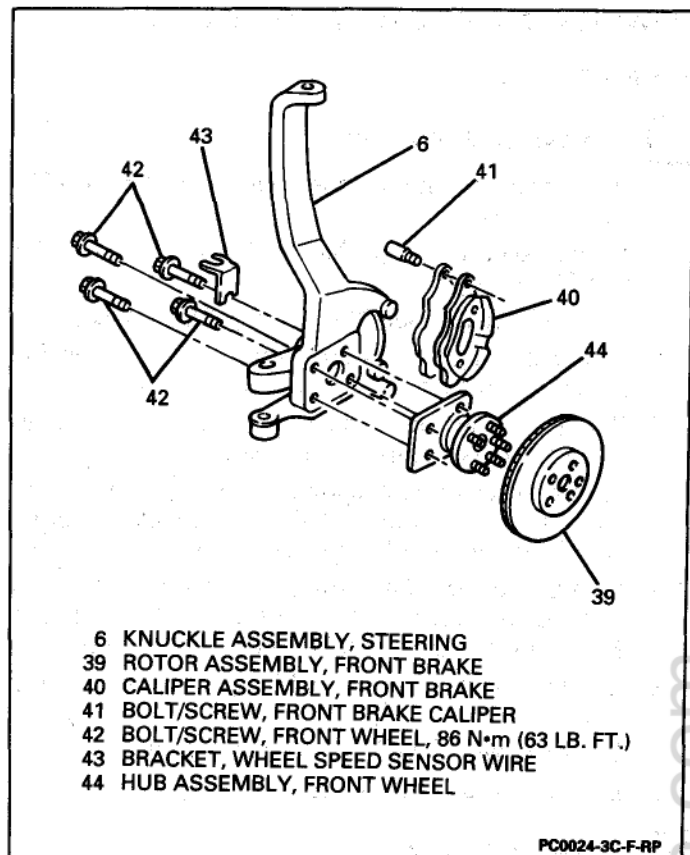


Figure 11 - Front Wheel Hub Assembly

3. Wheel speed sensor electrical connector. Refer to SECTION 5E1.
4. Brake rotor assembly. Refer to SECTION 5B1.
5. Brake caliper assembly. Refer to SECTION 5B1.
6. Tire and wheel assembly. Refer to SECTION 3E.
7. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
8. Lower vehicle.

FRONT WHEEL BOLT

Wheel Hub Assembly Removed

Tool Required:

J 6627-A Wheel Stud Remover

➡➡ Remove or Disconnect

NOTICE: Do not damage wheel assembly mounting surface on hub assembly flange. Brake assembly disc must be supported before pressing wheel assembly bolt in or out.

- Hub assembly or disc bolts, using J 6627-A.

➡➡ Install or Connect

NOTICE: See "Notice" on page 3C-1 of this section.

- New serrated bolt into hole in hub assembly. Tap lightly with hammer to start bolt serration in hole, making sure that bolt is square with hub flange.

LOWER CONTROL ARM ASSEMBLY

Figure 12

↔ Remove or Disconnect

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
3. Tire and wheel assembly. Refer to SECTION 3E.
4. Power steering gear assembly from steering knuckle assembly. Refer to SECTION 3B.
5. Stabilizer shaft link assembly. Refer to "Stabilizer Shaft Link Assembly" in this section.
6. Shock absorber and spring assembly from lower control arm assembly. Refer to "Shock Absorber and Spring Assembly" in this section.
7. Separate lower control arm ball stud assembly from steering knuckle assembly. Refer to "Control Arm Ball Stud Assembly Replacement" in this section.
8. Lower control arm assembly (17) from steering knuckle assembly (6).
9. Bolts/screws (19 and 21) and nuts (27 and 18).
10. Lower control arm assembly (17).

→→ Install or Connect

NOTICE: See "Notice" on page 3C-1 of this section.

1. Position lower control arm assembly (17) to cross-member assembly (20).
2. Hand tighten bolts/screws (19 and 21) and nuts (18 and 27).

⌚ Tighten

- Nuts (18) to 115 N•m (85 lb. ft.).
- Nuts (27) to 95 N•m (70 lb. ft.).

3. Position lower control arm assembly (17) to steering knuckle assembly (6).
4. Hand start nut (8).

! Important

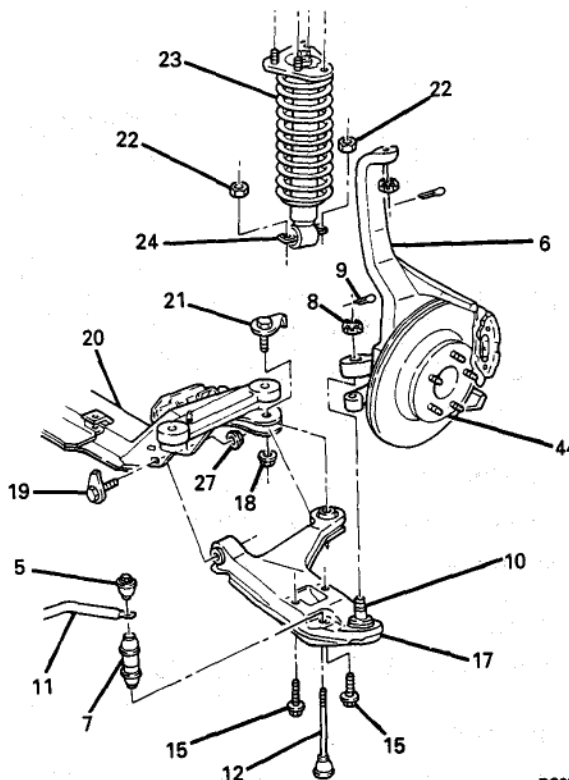
- Tighten nut enough to align slot with stud hole. Never loosen nut in order to align slot with hole.

⌚ Tighten

- Nut (8) to 110 N•m (81 lb. ft.).

5. Cotter pin (9).
6. Lower control arm assembly to shock absorber and spring assembly. Refer to "Shock Absorber and Spring Assembly" in this section.
7. Stabilizer shaft link assembly. Refer to "Stabilizer Shaft Link Assembly" in this section.
8. Power steering gear assembly to steering knuckle assembly. Refer to SECTION 3B.

- 5 NUT, FRONT STABILIZER SHAFT LINK ASSEMBLY, 23 N•m (17 LB. FT.)
- 6 KNUCKLE ASSEMBLY, STEERING
- 7 SLEEVE, FRONT STABILIZER SHAFT LINK ASSEMBLY
- 8 NUT, FRONT LOWER CONTROL ARM, 110 N•m (81 LB. FT.)
- 9 COTTER PIN, FRONT LOWER CONTROL ARM
- 10 BALL STUD ASSEMBLY, FRONT LOWER CONTROL ARM
- 11 STABILIZER SHAFT, FRONT
- 12 LINK ASSEMBLY, FRONT STABILIZER SHAFT
- 15 BOLT/SCREW, FRONT SHOCK ABSORBER, 65 N•m (48 LB. FT.)
- 17 ARM ASSEMBLY, FRONT LOWER CONTROL
- 18 NUT, FRONT LOWER CONTROL ARM, 115 N•m (85 LB. FT.)
- 19 BOLT/SCREW, FRONT LOWER CONTROL ARM
- 20 CROSSMEMBER ASSEMBLY, FRONT
- 21 BOLT/SCREW, FRONT LOWER CONTROL ARM
- 22 NUT, FRONT SHOCK ABSORBER LOWER BRACKET, 65 N•m (48 LB. FT.)
- 23 SPRING ASSEMBLY, FRONT
- 24 ABSORBER ASSEMBLY, FRONT SHOCK
- 27 NUT, FRONT LOWER CONTROL ARM, 95 N•m (70 LB. FT.)
- 44 HUB ASSEMBLY, FRONT WHEEL



RC0010-3C-F-RP

Figure 12 – Lower Control Arm Assembly

9. Tire and wheel assembly. Refer to SECTION 3E.
10. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
11. Lower vehicle.
12. Align wheel assembly. Refer to SECTION 3A.

LOWER CONTROL ARM BUSHING ASSEMBLY

The lower control arm bushing assembly can be serviced separately from the lower control arm assembly.

Front Bushing

Figures 12 and 13

Tools Required:

- J 21474-3 Lower Control Arm Bushing Screw Assembly
- J 21474-4 Lower Control Arm Bushing Nut Assembly
- J 21474-5 Control Arm Bushing Receiver
- J 21474-6 Control Arm Bushing Receiver
- J 39875 Half Moon Spacer
- J 39876 Lower Control Arm Bushing Receiver

Disassemble

1. Lower control arm assembly. Refer to "Lower Control Arm Assembly" in this section.
2. Remove lower control arm front bushing from lower control arm assembly (17).
 - A. Place J 21474-3 through large end of J 21474-6.
 - B. Thread J 21474-3 through front bushing and push it through open end of J 39876.
 - C. Place thrust washer onto J 21474-3 with seam facing toward front bushing.
 - D. Install J 39875 around outside of bushing to avoid metal distortion during removal.
 - E. After making sure all tools are properly lined up with front bushing and control arm, install J 21474-4 and tighten until bushing is pushed all the way out (popping noise may be heard while removing).

Assemble

NOTICE: See "Notice" on page 3C-1 of this section.

1. Lower control arm front bushing.
 - A. Thread J 21474-3 through J 21474-5.
 - B. Install J 21474-3 through new front bushing and into lower control arm.
 - C. Thread J 21474-3 and accessories into lower control arm - front.
 - D. Install J 39876 onto J 21474-3 with open end of J 39876 facing toward control arm.
 - E. Install J 39875 around outside bushing to avoid metal distortion during installation.

- F. Place thrust washer onto threaded end of J 21474-3 with seam facing toward control arm.

- G. After making sure all tools are properly lined up with control arm and bushing, install J 21474-4 onto J 21474-3. Tighten J 21474-4 and J 21474-3 until bushing becomes flush with control arm.

2. Lower control arm assembly. Refer to "Lower Control Arm Assembly" in this section.

Rear Bushing

Figures 12 and 14

Tools Required:

- J 21474-3 Lower Control Arm Bushing Screw Assembly
- J 21474-4 Lower Control Arm Bushing Nut Assembly
- J 21474-5 Control Arm Bushing Receiver
- J 39874 Lower Control Arm Bushing Receiver
- J 39931 Lower Control Arm Bushing Receiver

Disassemble

1. Lower control arm assembly. Refer to "Lower Control Arm Assembly" in this section.
2. Remove lower control arm rear bushing from lower control arm assembly (17).
 - A. Install J 39874 onto J 21474-3 with sealed end of J 39874 facing head of screw.
 - B. Run J 21474-3 through control arm bushing, control arm, and into small end of J 39931.
 - C. Install thrust washer onto J 21474-3 with seam facing toward control arm.
 - D. Install J 21474-4 onto J 21474-3, making sure all parts are lined up with control arm bushing.
 - E. Tighten assembly until control arm bushing is able to be removed (popping noise may be heard while removing).

Assemble

NOTICE: See "Notice" on page 3C-1 of this section.

1. Lower control arm rear bushing.
 - A. With lower control arm securely tightened in vise, place J 21474-3 through small end of J 39931.
 - B. Install J 21474-3 through new rear bushing and then through closed end of lower control arm - rear.
 - C. Place small end of J 21474-5 onto J 21474-3.
 - D. Install thrust washer onto J 21474-3 with seam of washer facing toward control arm.
 - E. Making sure all tools are lined up with bushing and control arm and that window is facing straight up and visible on J 39931, install J 21474-4 onto J 21474-3 and tighten until rubber protrusion on J 39931 side bottoms out against J 39931.

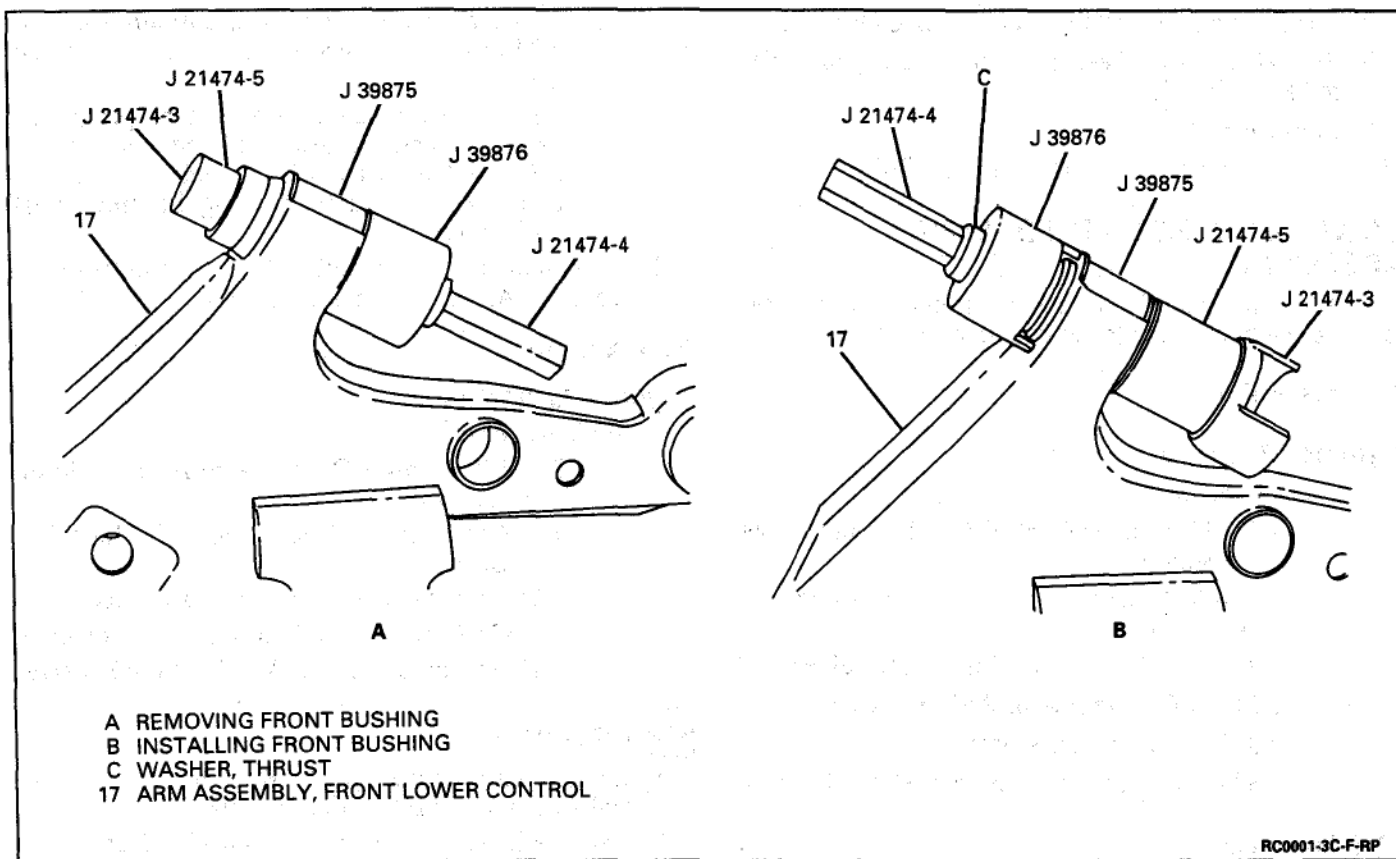


Figure 13 – Removing and Installing Lower Control Arm Front Bushing Assembly

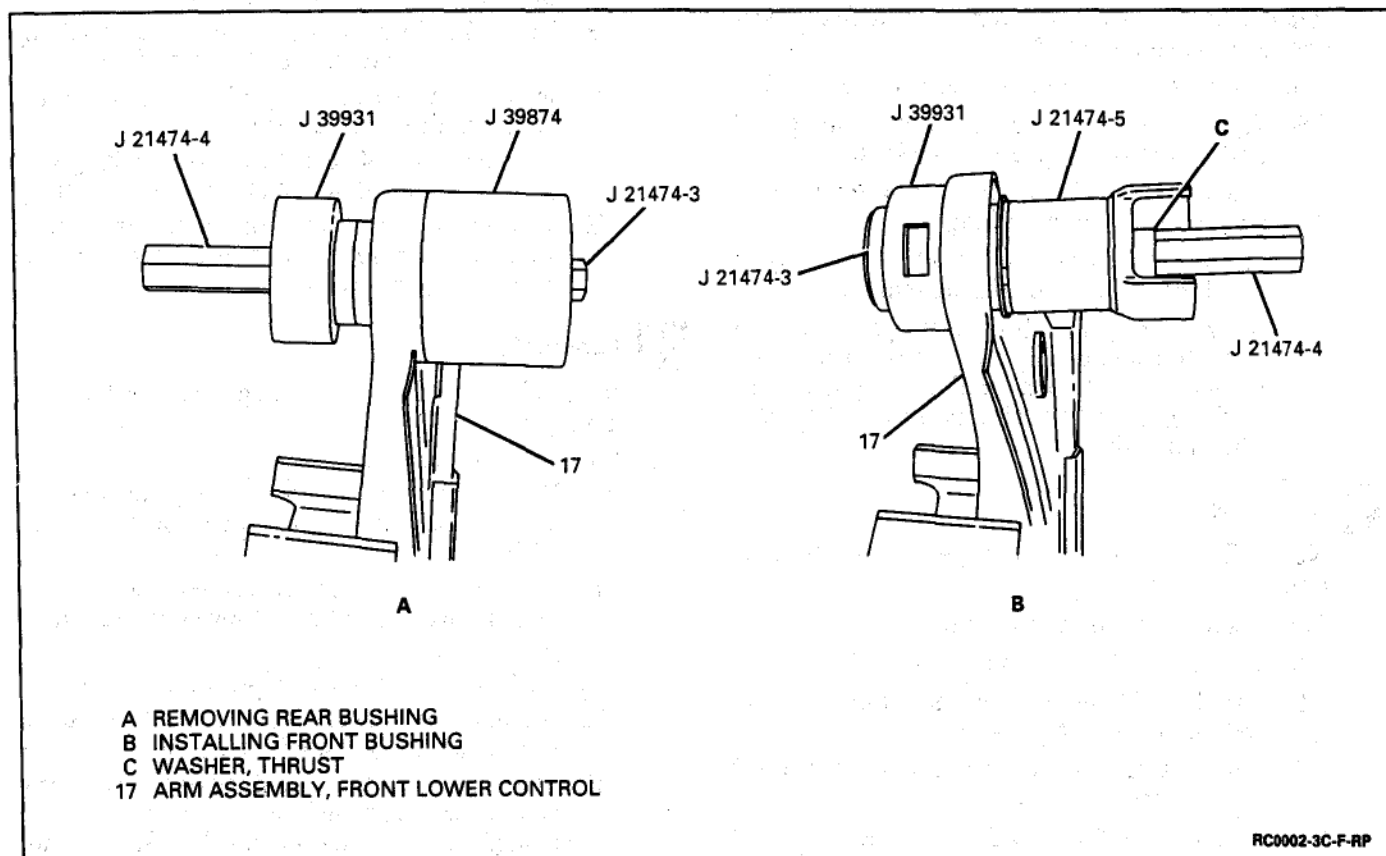


Figure 14 – Removing and Installing Lower Control Arm Rear Bushing Assembly

2. Lower control arm assembly. Refer to "Lower Control Arm Assembly" in this section.

SHOCK ABSORBER AND SPRING ASSEMBLY

Figures 15 through 23

Tools Required:

- J 34013-B Strut Spring Compressor
- J 34013-114 Modular Shock Assembly Compressor Adapter
- J 34013-88 Strut Compressor Adapter
- J 39642 Modular Shock Nut Removal Set, 15 mm (0.60 inch)
- J 34013-115 Modular Shock Assembly Alignment Rod

Remove or Disconnect

1. Brake master cylinder nuts (driver-side only). Refer to SECTION 5A.
2. Move brake master cylinder assembly aside (driver-side only). Refer to SECTION 5A.
3. Bolts/screws (26) and nuts (25).
4. Raise and suitably support vehicle. Refer to SECTION 0A.
5. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
6. Tire and wheel assembly. Refer to SECTION 3E.
7. Stabilizer shaft link assembly. Refer to "Stabilizer Shaft Link Assembly" in this section.
8. Nuts (22).
9. Bolts/screws (15).
10. Separate lower ball stud assembly from steering knuckle assembly. Refer to "Control Arm Ball Stud Assembly Replacement" in this section.

Important

- Be sure to mark with chalk or paint (do not scribe) the lower mount location relative to the upper mount location before removing the shock absorber assembly or the assembly cannot be reinstalled.

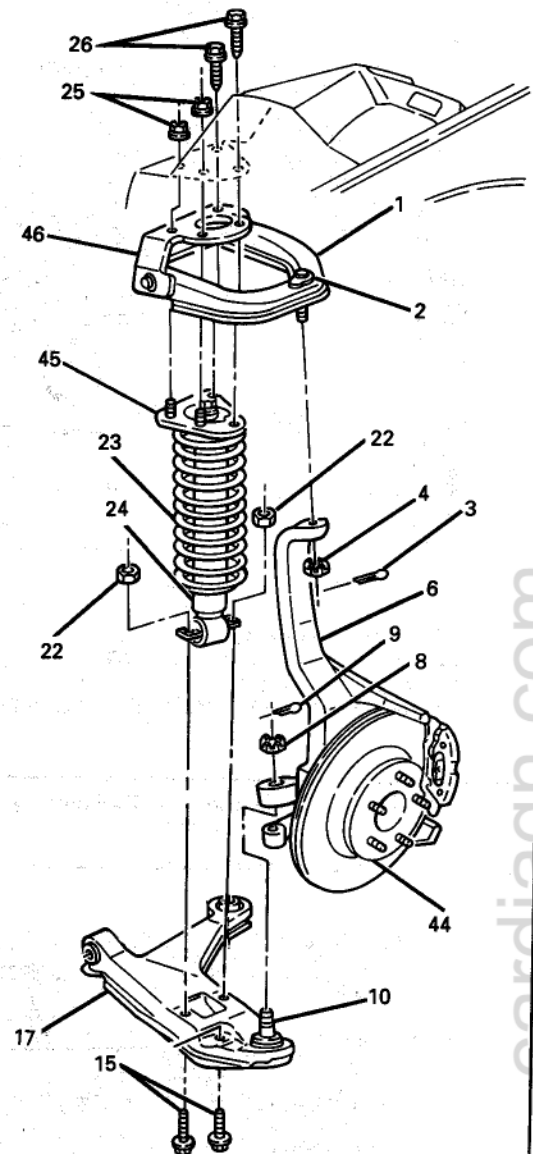
11. Shock absorber and spring assembly (24 and 23).

Disassemble

1. Install J 34013-114 to J 34013-B. Use wing nuts to secure tool to mounting holes C-H (lower left corner) and P (upper right corner) for driver-side shock absorber assembly and to secure tool to mounting holes A-X-P (upper left corner) and C-H (lower right corner) for passenger-side shock absorber assembly.

Important

- Be sure J 34013-114 and J 34013-88 are aligned so they can open and close together.



- 1 ARM ASSEMBLY, FRONT UPPER CONTROL
- 2 STUD ASSEMBLY, FRONT UPPER CONTROL ARM BALL
- 3 PIN, FRONT UPPER CONTROL ARM COTTER
- 4 NUT, FRONT UPPER CONTROL ARM, 53 N•m (39 LB. FT.)
- 6 KNUCKLE ASSEMBLY, STEERING
- 8 NUT, FRONT LOWER CONTROL ARM, 110 N•m (81 LB. FT.)
- 9 PIN, FRONT LOWER CONTROL ARM COTTER
- 10 STUD ASSEMBLY, FRONT LOWER CONTROL ARM BALL
- 15 BOLT/SCREW, FRONT SHOCK ABSORBER, 65 N•m (48 LB. FT.)
- 17 ARM ASSEMBLY, FRONT LOWER CONTROL
- 22 NUT, FRONT SHOCK ABSORBER LOWER BRACKET, 65 N•m (48 LB. FT.)
- 23 SPRING ASSEMBLY, FRONT
- 24 ABSORBER ASSEMBLY, FRONT SHOCK
- 25 NUT, FRONT SHOCK ABSORBER UPPER MOUNT, 43 N•m (32 LB. FT.)
- 26 BOLT/SCREW, FRONT SHOCK ABSORBER UPPER MOUNT, 50 N•m (37 LB. FT.)
- 44 HUB ASSEMBLY, FRONT WHEEL
- 45 MOUNT ASSEMBLY, FRONT UPPER SHOCK ABSORBER
- 46 SUPPORT, FRONT UPPER CONTROL ARM

PC0008-3C-F-RP

Figure 15 – Shock Absorber and Spring Assembly

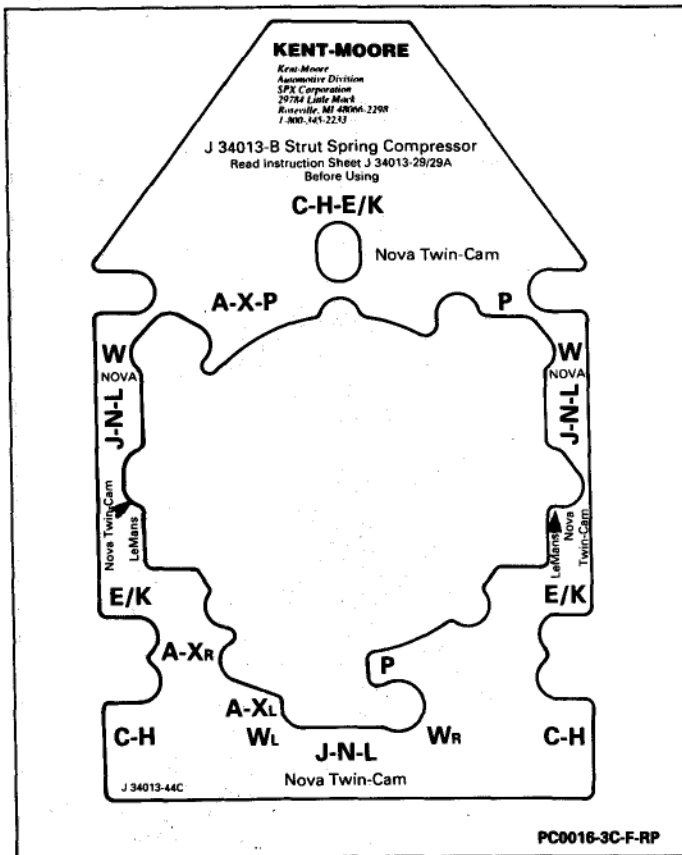


Figure 16 – Modular Shock Assembly Compressor Mounting Hole Location

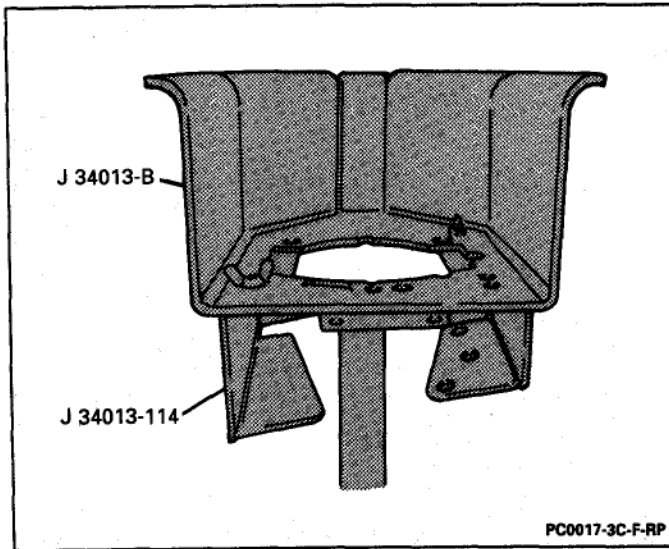


Figure 17 – Modular Shock Assembly Compressor Adapter – Driver-Side Position

If the tools are not aligned properly, they will not open.

2. Install J 34013-114 and J 34013-88.

Important

- Be sure the top of the shock absorber assembly is flat against J 34013-114. The shock absorber assembly will not be aligned correctly if it does not lay flat against the tool.
3. Shock absorber assembly to top of J 34013-114.

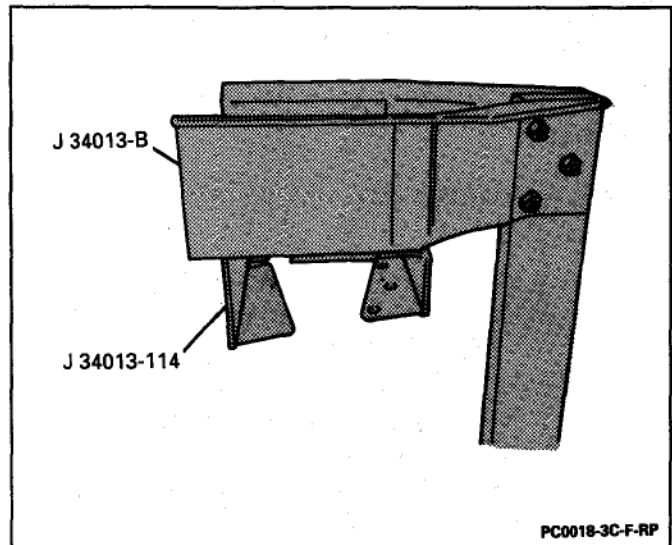


Figure 18 – Modular Shock Assembly Compressor Adapter – Passenger-Side Position

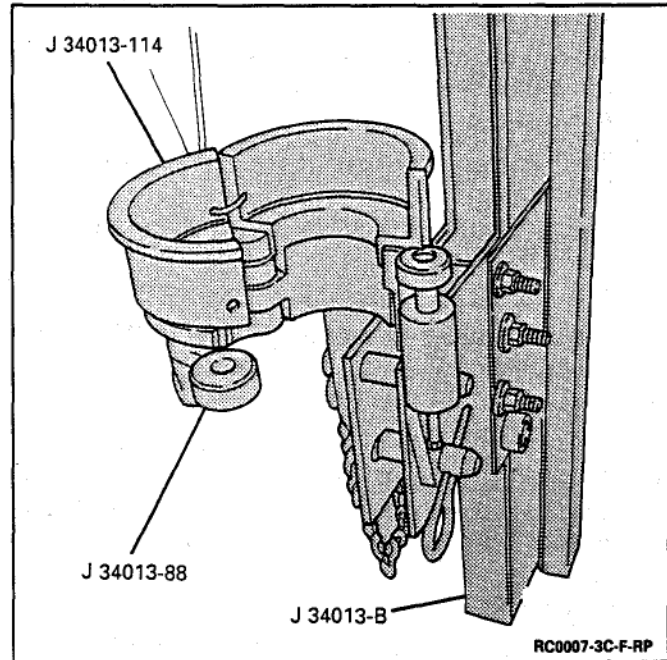


Figure 19 – Installing Strut Compressor Adapter to Strut Spring Compressor

4. Install shock absorber assembly into J 34013-114 and J 34013-88.
5. Close J 34013-114 and J 34013-88 and install locking pin.

Important

- Be sure the mounting ears of the shock absorber assembly are facing downward toward the rear of J 34013-B or the shock absorber assembly will not align properly.
6. Turn screw on J 34013-B counterclockwise to raise shock absorber assembly up to J 34013-114. Be sure studs go through guide holes in J 34013-114 and the top of the shock absorber assembly is flat against the tool.

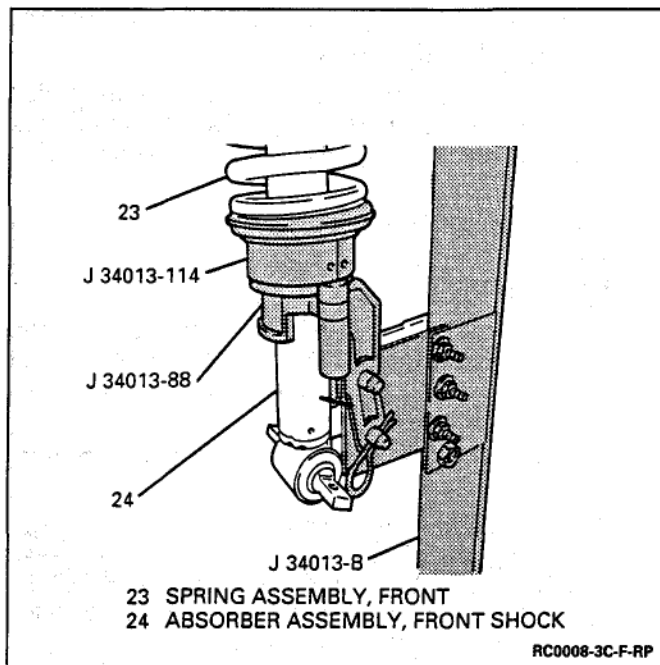


Figure 20 – Installing Shock Absorber Assembly to Strut Spring Compressor

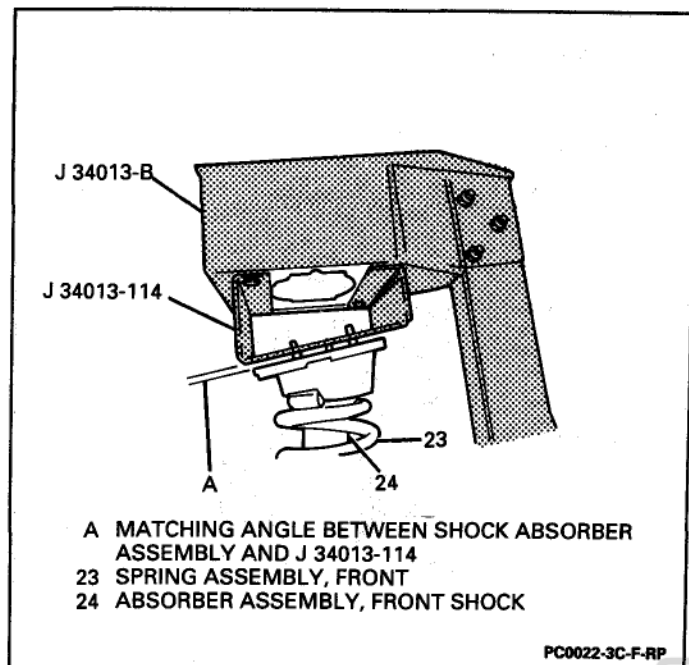


Figure 22 – Passenger-Side Shock Absorber Assembly Installation

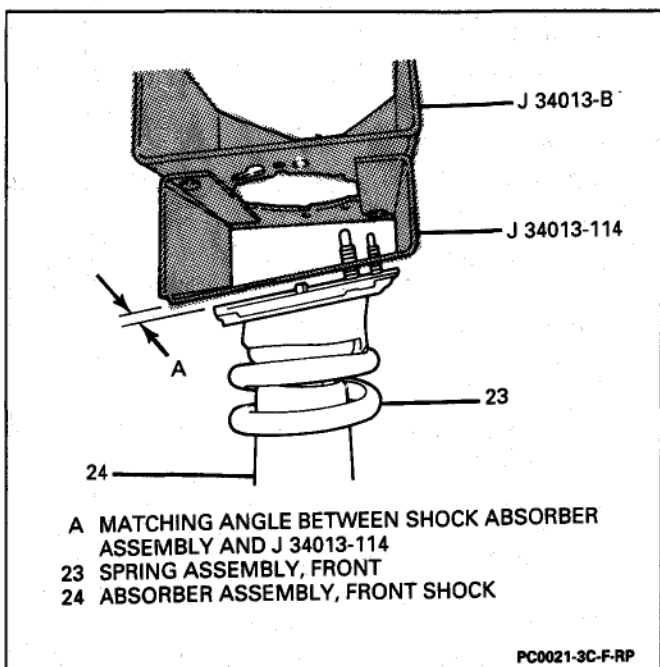


Figure 21 – Driver-Side Shock Absorber Assembly Installation

CAUTION: Do not over compress front spring assembly. Severe overloading may cause tool failure which could result in bodily injury.

7. Compress front spring assembly approximately 13 mm (0.50 inch) or three or four complete turns of the screw on J 34013-114.
8. Insert J 39642-1 on shock absorber nut, then insert J 39642-2 through J 39642-1 to hold shock absorber rod in place.

9. Remove shock absorber nut with J 39642-1 while holding shock absorber assembly rod from rotating with J 39642-2.
10. Discard shock absorber nut.
11. Turn J 34013-B clockwise to fully relieve spring assembly pressure.



Assemble

1. Install J 34013-114 to J 34013-B. Use wing nuts to secure J 34013-114 to J 34013-B mounting holes C-H (lower left corner) and P (upper right corner) for driver-side shock absorber assembly and to secure J 34013-114 to J 34013-B mounting holes A-X-P (upper left corner) and C-H (lower right corner) for passenger-side shock absorber assembly (Figures 17 and 18).
2. Install J 34013-114 and J 34013-88.
3. Install shock absorber assembly to J 34013-114 and J 34013-88.



Important

- Be sure the mounting ears of the shock absorber assembly are facing downward, toward the rear of J 34013-B or the shock absorber assembly will not align properly.
 - Be sure to mark with chalk or paint (do not scribe) the lower mount location relative to the upper mount location before removing the shock absorber assembly or the assembly cannot be reinstalled.
4. Close J 34013-114 and J 34013-88 and engage locking pin.
 5. Make sure upper and lower spring seats are positioned correctly.

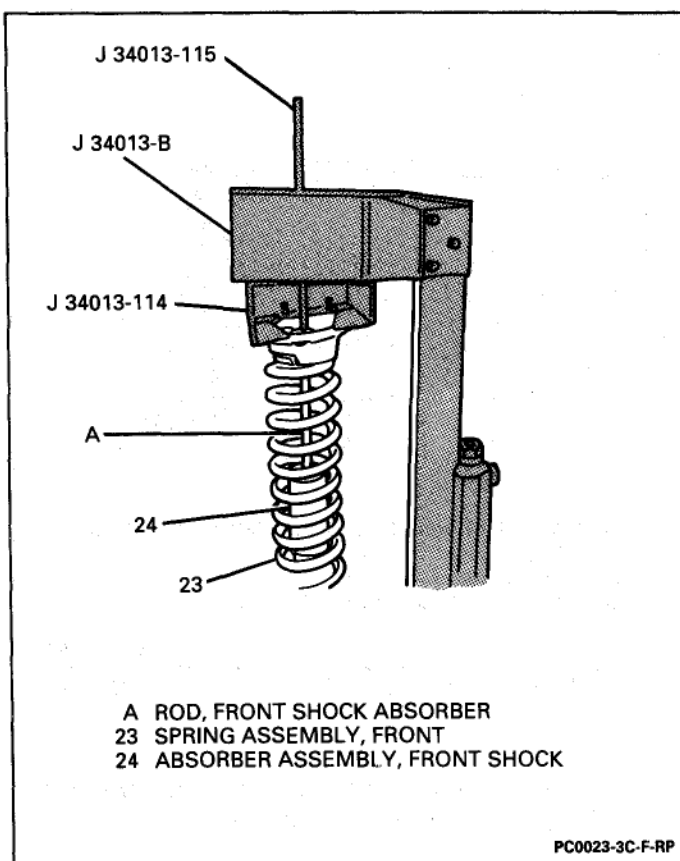


Figure 23 - Inserting Modular Shock Assembly Alignment Rod

6. Shock absorber assembly to top of J 34013-114.

! Important

- Be sure the top of the shock absorber assembly is flat against J 34013-114. The shock absorber assembly will not be aligned properly if it does not lay flat against the tool.

7. Turn screw on J 34013-B counterclockwise to raise shock absorber assembly up to J 34013-114 without compressing spring assembly. Be sure studs on shock absorber assembly go through guide holes in J 34013-114.

! Important

- Only turn the screw until the shock absorber assembly is held in J 34013-B by itself. Do not load the spring assembly.

8. Place J 34013-115 down through top of J 34013-B through top of shock absorber assembly and onto shock absorber rod.

! Important

- Make sure J 34013-115 is straight with the shock absorber assembly. If J 34013-115 is angled, repeat steps 1 through 5 until tool is straight.

CAUTION: Do not over compress spring assembly. Severe overloading

may result in tool failure which could result in bodily injury.

9. Turn operating screw clockwise to compress spring assembly until threaded portion of the shock absorber rod is through the top of the shock absorber assembly.
10. Remove J 34013-115.

! Important

- When installing front shock absorber nut, always replace it with a new one. Never install the same nut that has been removed.

11. Insert new shock absorber nut on shock absorber rod.

NOTICE: Do not turn the shock absorber rod when tightening the shock absorber nut or the shock absorber assembly could be damaged. Keep the shock absorber rod in a stationary position when tightening the shock absorber nut.

12. Place J 39642-1 on shock absorber nut.
13. Insert J 39642-2 through J 39642-1 and tighten shock absorber nut.
14. Tighten shock absorber nut while holding onto J 39642-2.
15. Remove shock absorber assembly from J 34013-B.

⇄ Install or Connect

NOTICE: See "Notice" on page 3C-1 of this section.

1. Position shock absorber and spring assembly (24 and 23) to lower control arm assembly (17).
2. Bolts/screws (15) and nuts (22).

Tighten

- Bolts/screws (15) and nuts (22) to 65 N•m (48 lb. ft.).

3. Lower ball stud assembly to steering knuckle assembly. Refer to "Control Arm Ball Stud Assembly Replacement" in this section.
4. Stabilizer shaft link assembly. Refer to "Stabilizer Shaft Link Assembly" in this section.
5. Tire and wheel assembly. Refer to SECTION 3E.
6. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
7. Lower vehicle.
8. Hand tighten bolts/screws (26) and nuts (25).

Tighten

- Bolts/screws (26) to 50 N•m (37 lb. ft.).
- Nuts (25) to 43 N•m (32 lb. ft.).

9. Position brake master cylinder assembly (driver-side only). Refer to SECTION 5A.
10. Brake master cylinder nuts (driver-side only). Refer to SECTION 5A.

STABILIZER SHAFT

Figure 24

Remove or Disconnect

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Stabilizer shaft link assembly. Refer to "Stabilizer Shaft Link Assembly" in this section.
3. Bolts/screws (13).
4. Clamps (14).
5. Stabilizer shaft (11).
6. Insulators (16).
7. Bolts/screws (30).
8. Bracket assemblies (31).

Install or Connect

NOTICE: See "Notice" on page 3C-1 of this section.

1. Position bracket assemblies (31) to side rail.
2. Hand start bolts/screws (30).

Tighten

- Bolts/screws (30) to 55 N•m (41 lb. ft.).
3. Place insulators (16) over stabilizer shaft (11).

Important

- The slit of the insulator must face the front of the vehicle.
4. Position clamps (14) over insulators (16) and stabilizer shaft (11).
 5. Bolts/screws (13).

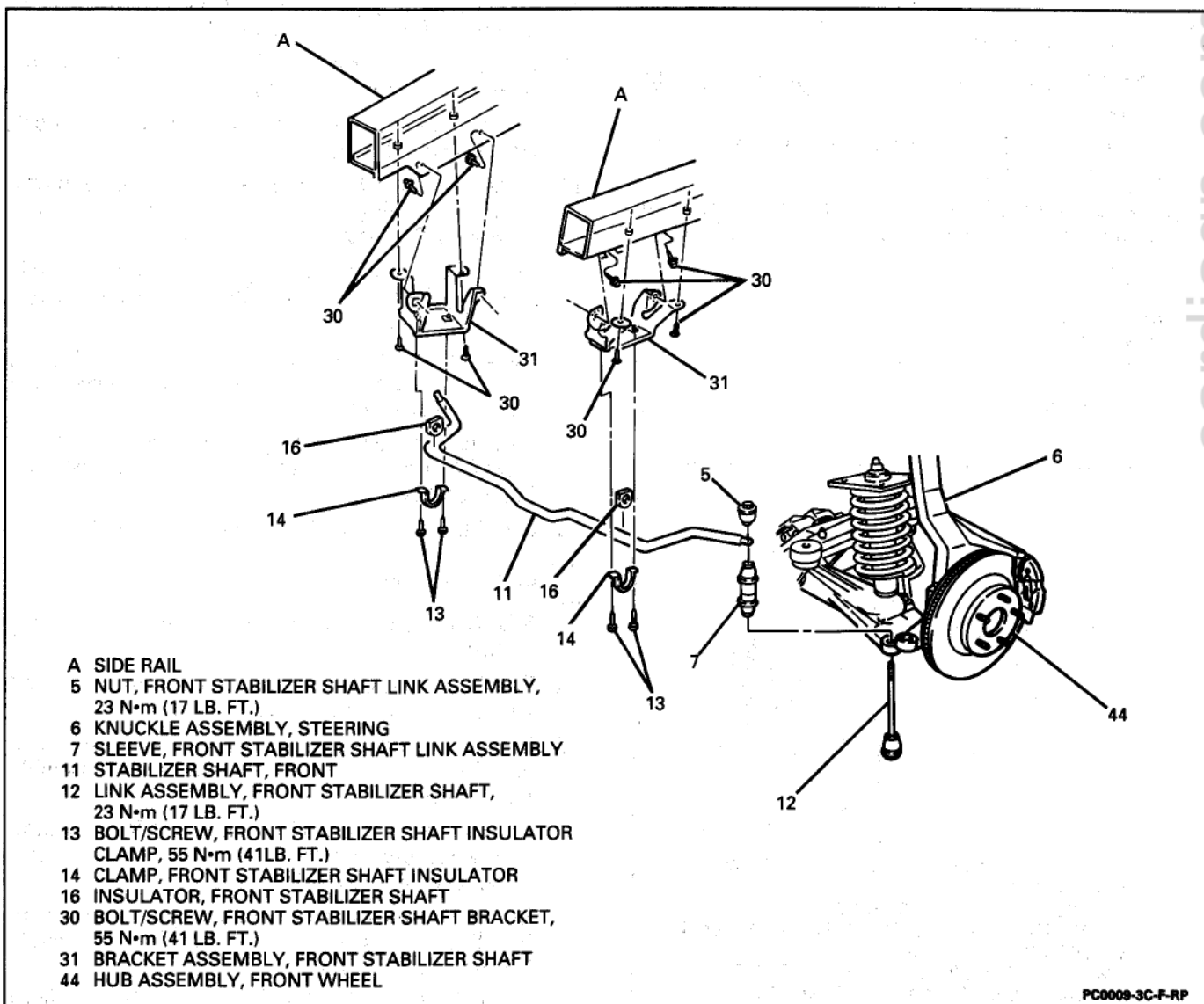


Figure 24 - Stabilizer Shaft

**Tighten**

- Bolts/screws (13) to 55 N•m (41 lb. ft.).
6. Stabilizer shaft link assembly. Refer to "Stabilizer Shaft Link Assembly" in this section.
 7. Lower vehicle.

STABILIZER SHAFT LINK ASSEMBLY**Figure 25**
Remove or Disconnect

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Nut (5).
3. Link assembly (12).
4. Sleeve (7).

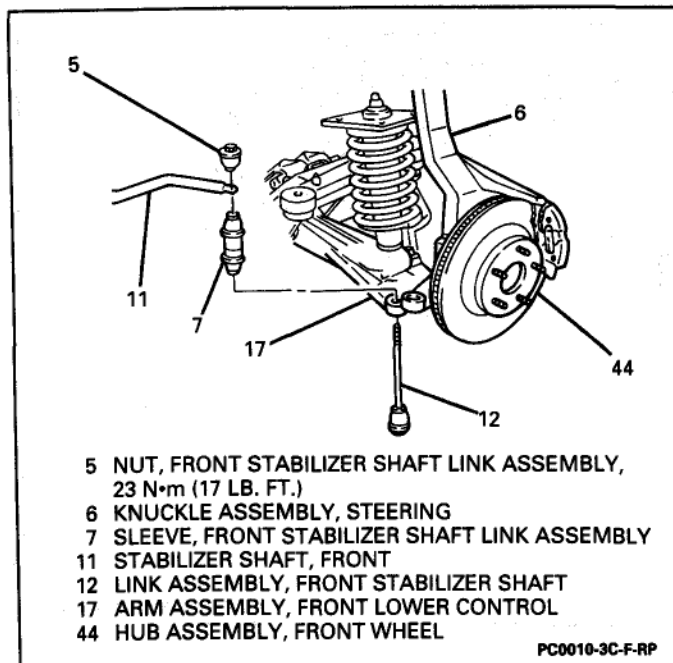
Install or Connect

NOTICE: See "Notice" on page 3C-1 of this section.

1. Sleeve (7) between lower control arm assembly (17) and stabilizer shaft (11).
2. Link assembly (12) through lower control arm assembly (17), sleeve (7) and stabilizer shaft (11).
3. Nut (5).

**Tighten**

- Nut (5) to 23 N•m (17 lb. ft.).
4. Lower vehicle.

**Figure 25 – Stabilizer Shaft Link Assembly****STEERING KNUCKLE ASSEMBLY****Figure 26**
Remove or Disconnect

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
3. Tire and wheel assembly. Refer to SECTION 3E.
4. Brake caliper assembly and move aside. Refer to SECTION 5B1.
5. Brake rotor assembly. Refer to SECTION 5.
6. Wheel speed sensor electrical connector and move aside. Refer to SECTION 5E1.
7. Front wheel hub assembly from steering knuckle assembly. Refer to "Wheel Hub Assembly" in this section.
8. Power steering gear assembly from steering knuckle assembly. Refer to SECTION 3B.
9. Stabilizer shaft link assembly. Refer to "Stabilizer Shaft Link Assembly" in this section.
10. Front shock absorber bolts/screws. Refer to "Shock Absorber and Spring Assembly" in this section.
11. Separate lower ball stud assembly from steering knuckle assembly. Refer to "Control Arm Ball Stud Assembly Replacement" in this section.
12. Lower control arm assembly from steering knuckle assembly. Refer to "Lower Control Arm Assembly" in this section.
13. Separate upper ball stud assembly from steering knuckle assembly. Refer to "Control Arm Ball Stud Assembly Replacement" in this section.
14. Steering knuckle assembly from upper control arm assembly. Refer to "Upper Control Arm Assembly" in this section.
15. Steering knuckle and hub assemblies (6 and 44).

Install or Connect

NOTICE: See "Notice" on page 3C-1 of this section.

1. Position steering knuckle and hub assemblies (6 and 44) to upper control arm assembly (1).
2. Upper ball stud assembly to steering knuckle assembly. Refer to "Control Arm Ball Stud Assembly Replacement" in this section.
3. Position steering knuckle assembly to lower control arm assembly. Refer to "Lower Control Arm Assembly" in this section.
4. Lower ball stud assembly to steering knuckle assembly. Refer to "Control Arm Ball Stud Assembly Replacement" in this section.
5. Front shock absorber bolts/screws. Refer to "Shock Absorber and Spring Assembly" in this section.
6. Stabilizer shaft link assembly. Refer to "Stabilizer Shaft Link Assembly" in this section.

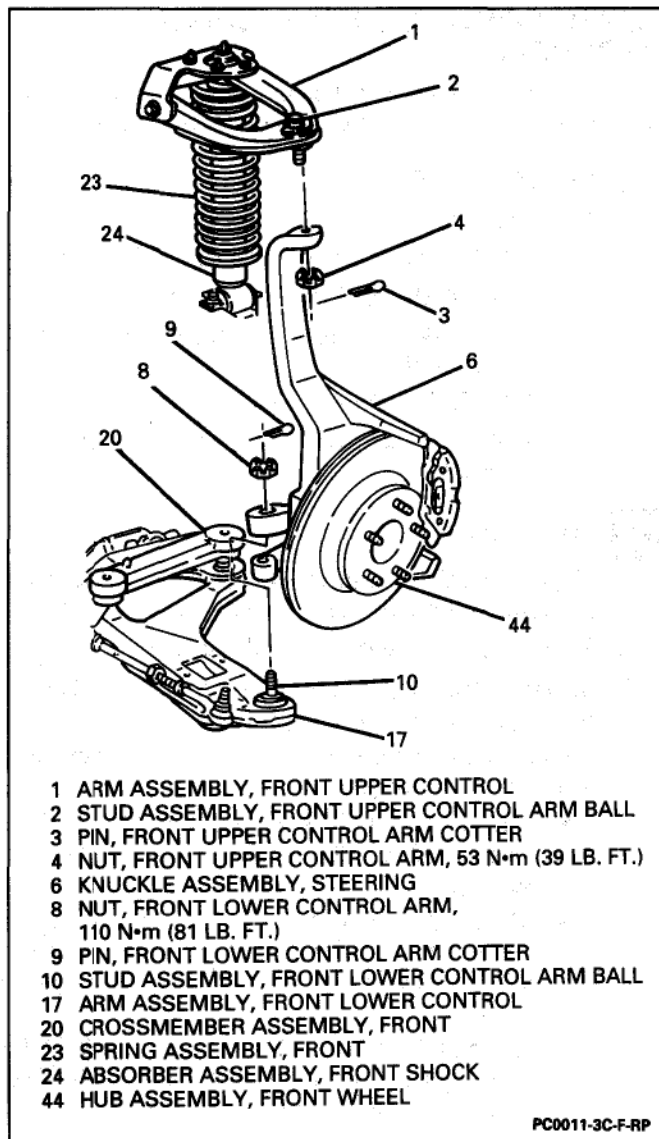


Figure 26 – Steering Knuckle Assembly

7. Power steering gear assembly to steering knuckle assembly. Refer to SECTION 3B.
8. Front wheel hub assembly to steering knuckle assembly. Refer to "Wheel Hub Assembly" in this section.

Important

- Make sure wheel speed sensor electrical connector is reconnected to wheel speed sensor wire bracket and wheel speed sensor or wires could be damaged.
9. Wheel speed sensor electrical connector. Refer to SECTION 5E1.
 10. Brake rotor assembly. Refer to SECTION 5.
 11. Brake caliper assembly. Refer to SECTION 5B1.
 12. Tire and wheel assembly. Refer to SECTION 3E.
 13. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
 14. Lower vehicle.

15. Check wheel assembly toe alignment. Refer to SECTION 3A.

UPPER CONTROL ARM ASSEMBLY

Figure 27

Remove or Disconnect

1. Brake master cylinder nuts (driver-side only). Refer to SECTION 5A.
2. Move brake master cylinder assembly aside (driver-side only). Refer to SECTION 5A.
3. Bolts/screws (26) and nuts (25).
4. Raise and suitably support vehicle. Refer to SECTION 0A.
5. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
6. Tire and wheel assembly. Refer to SECTION 3E.
7. Stabilizer shaft link assembly. Refer to "Stabilizer Shaft Link Assembly" in this section.
8. Front shock absorber bolts/screws. Refer to "Shock Absorber and Spring Assembly" in this section.
9. Separate upper ball stud assembly from steering knuckle assembly. Refer to "Control Arm Ball Stud Assembly Replacement" in this section.
10. Steering knuckle assembly (6) from upper control arm assembly (1).
11. Upper control arm assembly (1) and shock absorber assembly (24) from vehicle.
12. Support steering knuckle assembly (6) with floor stands.
13. Nuts and bolts/screws (37 and 38).
14. Upper control arm assembly (1) from shock absorber assembly. (24)

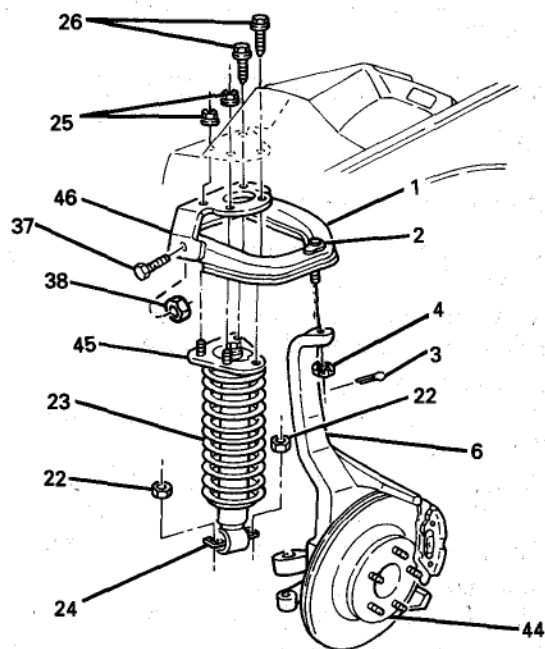
Install or Connect

NOTICE: See "Notice" on page 3C-1 of this section.

1. Position upper control arm assembly (1) to shock absorber assembly (24).
2. Bolts/screws and nuts (37 and 38).

Tighten

- Nuts (38) to 98 N•m (72 lb. ft.).
3. Upper control arm assembly (1) and shock absorber assembly (24) to vehicle.
 4. Position steering knuckle assembly (6) to upper control arm assembly (1).
 5. Upper ball stud assembly to steering knuckle assembly. Refer to "Control Arm Ball Stud Assembly Replacement" in this section.
 6. Remove floor stands from steering knuckle assembly (6).
 7. Front shock absorber bolts/screws. Refer to "Shock Absorber and Spring Assembly" in this section.
 8. Stabilizer shaft link assembly. Refer to "Stabilizer Shaft Link Assembly" in this section.



- 1 ARM ASSEMBLY, FRONT UPPER CONTROL
- 2 STUD ASSEMBLY, FRONT UPPER CONTROL ARM BALL
- 3 PIN, FRONT UPPER CONTROL ARM COTTER
- 4 NUT, FRONT UPPER CONTROL ARM, 53 N•m (39 LB. FT.)
- 6 KNUCKLE ASSEMBLY, STEERING
- 22 NUT, FRONT SHOCK ABSORBER LOWER BRACKET, 65 N•m (48 LB. FT.)
- 23 SPRING ASSEMBLY, FRONT
- 24 ABSORBER ASSEMBLY, FRONT SHOCK
- 25 NUT, FRONT SHOCK ABSORBER UPPER MOUNT, 43 N•m (32 LB. FT.)
- 26 BOLT/SCREW, FRONT SHOCK ABSORBER UPPER MOUNT, 50 N•m (37 LB. FT.)
- 37 BOLT/SCREW, FRONT UPPER CONTROL ARM
- 38 NUT, FRONT UPPER CONTROL ARM, 98 N•m (72 LB. FT.)
- 44 HUB ASSEMBLY, FRONT WHEEL
- 45 MOUNT ASSEMBLY, FRONT UPPER SHOCK ABSORBER
- 46 SUPPORT, FRONT UPPER CONTROL ARM

PC0012-3C-F-RP

Figure 27 - Upper Control Arm Assembly

9. Nuts (25) and bolts/screws (26).

NOTICE: Do not turn the shock absorber assembly when tightening the upper mount nut or the shock absorber assembly could be damaged. Keep the shock absorber assembly in a stationary position when tightening the nut.

**Tighten**

- Nuts (25) to 43 N•m (32 lb. ft.).
 - Bolts/screws (26) to 50 N•m (37 lb. ft.).
10. Tire and wheel assembly. Refer to SECTION 3E.
 11. Special security wheel lock nut, if equipped. Refer to SECTION 3E.
 12. Lower vehicle.
 13. Position brake master cylinder assembly (driver-side only). Refer to SECTION 5A.
 14. Brake master cylinder nuts (driver-side only). Refer to SECTION 5A.

UPPER CONTROL ARM BUSHING ASSEMBLY

The upper control arm bushing assembly can be serviced separately from the upper control arm assembly.

Figures 27 and 28**Tools Required:**

- J 21474-5 Control Arm Bushing Receiver
- J 21474-18 Upper Control Arm Nut Assembly
- J 21474-19 Upper Control Arm Screw Assembly
- J 39872 Half Moon Spacer
- J 39930 Upper Control Arm Bushing Receiver/Installer

**Disassemble**

1. Upper control arm assembly. Refer to "Upper Control Arm Assembly" in this section.
2. Remove bolts/screws (37) and nuts (38).
3. Separate front upper control arm assembly (1) from front upper control arm support (46).
4. Remove upper control arm bushing from upper control arm assembly (1).
 - A. Thread J 21474-19 through J 39930 (three tangs on J 39930 should be against head of screw).
 - B. Thread J 21474-19 through inside of upper control arm bushing (it may be necessary to wiggle J 21474-19 until it slides through bushing).
 - C. Run smaller end of J 21474-5 onto J 21474-19. Then, place thrust washer onto J 21474-19 with seams facing toward J 21474-5.
 - D. Install J 39872 around outside of bushing to avoid metal distortion during removal.
 - E. Make sure both J 39930 and J 21474-5 are properly lined up and install J 21474-18 onto J 21474-19. Tighten J 21474-19 and J 21474-18 until bushing is pushed all the way out (popping noise may be heard when bushing breaks loose from control arm).

**Assemble**

NOTICE: See "Notice" on page 3C-1 of this section.

1. Upper control arm bushings.
 - A. With control arm securely tightened in vise, thread J 21474-19 through J 39930 with tangs facing away from screw head.
 - B. Install new upper control arm bushing onto J 21474-19 with three indentations facing toward three tangs on J 39930.
 - C. Install threaded end of J 21474-19 into upper control arm from outer side of control arm.
 - D. Install J 21474-5 onto J 21474-19 from inside of control arm.

- E. Install thrust washer onto J 21474-19 with seam facing toward control arm bushing.
 - F. Install J 39872 around outside of bushing to avoid metal distortion during removal.
 - G. Install J 21474-18 onto J 21474-19, making sure that three tanged prongs on J 39930 fit into indentations of bushing.
 - H. Tighten assembly until bushing is installed flush with control arm.
2. Install front upper control arm assembly (1) to front upper control arm support (46).
 3. Bolts/screws (37) and nuts (38).

**Tighten**

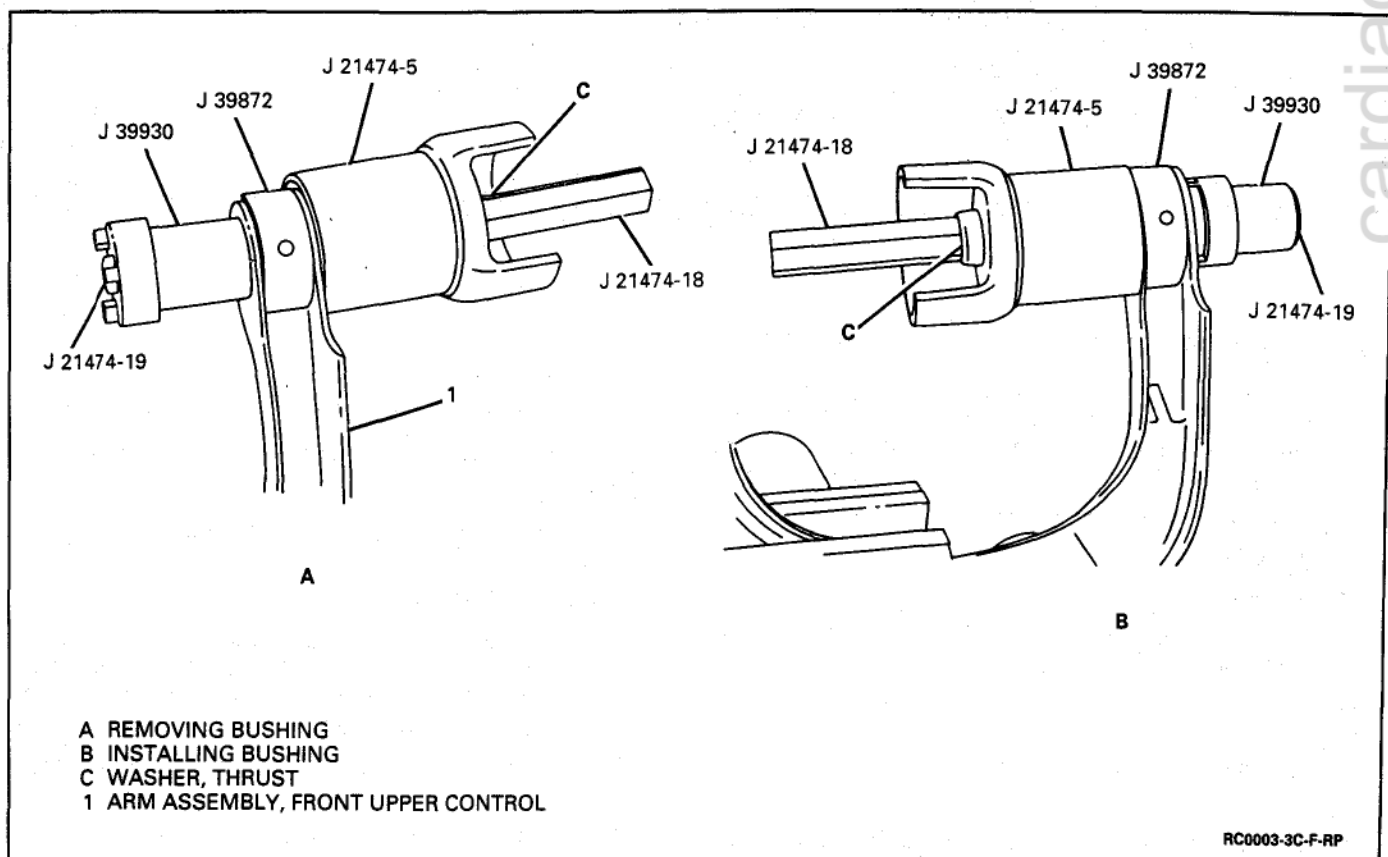
- Nuts (38) to 98 N•m (72 lb. ft.).
4. Upper control arm assembly. Refer to "Upper Control Arm Assembly" in this section.

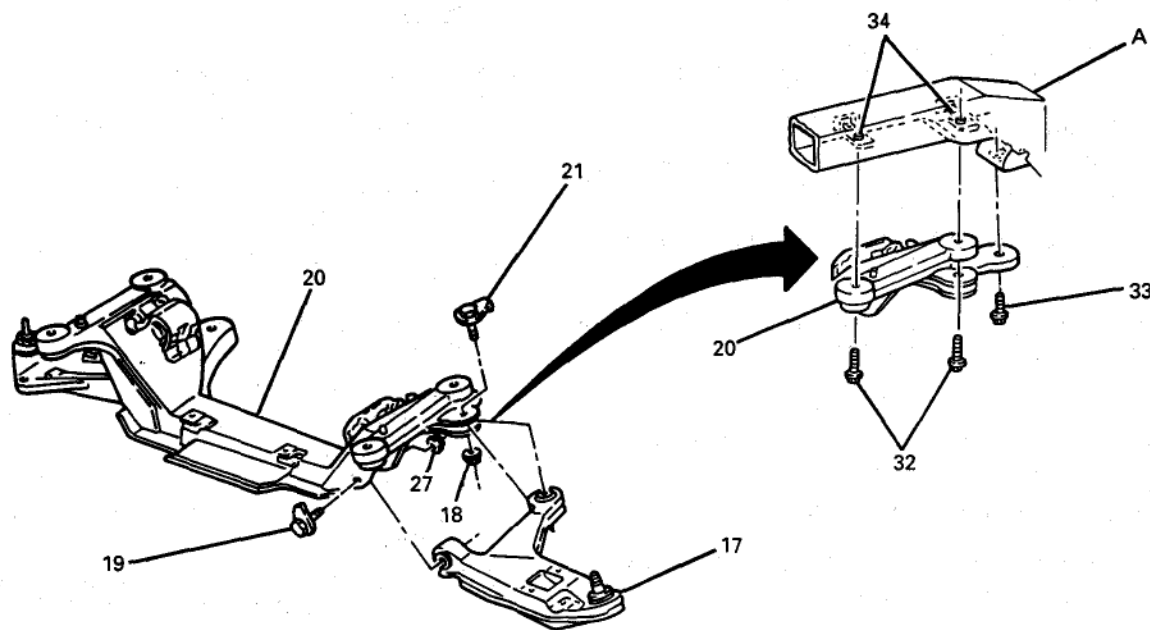
WHEEL BEARING ASSEMBLY

The maintenance-free wheel bearing assembly does not need to be serviced separately from the hub assembly. Refer to "Wheel Hub Assembly" in this section.

CROSSMEMBER ASSEMBLY**Figure 29****Remove or Disconnect**

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Special security wheel lock nuts, if equipped. Refer to SECTION 3E.
3. Front tire and wheel assemblies. Refer to SECTION 3E.
4. Stabilizer shaft link assemblies. Refer to "Stabilizer Shaft Link Assembly" in this section.
5. Front shock absorber bolts/screws. Refer to "Shock Absorber and Spring Assembly" in this section.
6. Separate lower control arm ball stud assemblies from steering knuckle assemblies. Refer to "Control Arm Ball Stud Assembly Replacement" in this section.
7. Front lower control arm bolts/screws and nuts. Refer to "Lower Control Arm Assembly" in this section.
8. Lower control arm assemblies (17) from crossmember assembly (20).
9. Steering gear bolts/screws from crossmember assembly. Refer to SECTION 3B.
10. Engine mount nuts and bolts/screws. Refer to SECTION 6A2A or 6A3A.

**Figure 28 – Removing and Installing Upper Control Arm Bushing Assembly**



- A SIDE RAIL
 17 ARM ASSEMBLY, FRONT LOWER CONTROL
 18 NUT, FRONT LOWER CONTROL ARM,
 115 N•m (85 LB. FT.)
 19 BOLT/SCREW, FRONT LOWER CONTROL ARM,
 195 N•m (144 LB. FT.)
 20 CROSSMEMBER ASSEMBLY, FRONT
 21 BOLT/SCREW, FRONT LOWER CONTROL ARM,
 130 N•m (96 LB. FT.)
 27 NUT, FRONT LOWER CONTROL ARM, 95 N•m
 (70 LB. FT.)
 32 BOLT/SCREW, FRONT CROSSMEMBER, 125 N•m
 (92 LB. FT.)
 33 BOLT/SCREW, FRONT CROSSMEMBER, 100 N•m
 (74 LB. FT.)
 34 NUT, FRONT CROSSMEMBER

RC0012-3C-F-RP

Figure 29 – Front Crossmember Assembly

11. Support front and rear of engine assembly with jack stands.
12. Front brake pipe assembly. Refer to SECTION 5.
13. Wheel speed sensor electrical connector. Refer to SECTION 5E1.
14. Drivetrain and front suspension frame nut plug.
15. Nuts (34).
16. Bolts/screws (32 and 33).
17. Crossmember assembly (20) and reposition power steering gear assembly.

Install or Connect

NOTICE: See “Notice” on page 3C-1 of this section.

1. Position crossmember assembly (20) to side rails.
2. Crossmember assembly to power steering gear assembly. Refer to SECTION 3B.
3. Bolts/screws (32 and 33).



Tighten

- Bolts/screws (32) to 125 N•m (92 lb. ft.).
 - Bolts/screws (33) to 100 N•m (74 lb. ft.).
4. Nuts (34).
 5. Drivetrain and front suspension frame nut plug.



Important

- Make sure wheel speed sensor electrical connector is reconnected to wheel speed sensor wire bracket and wheel speed sensor or wires could be damaged.
6. Wheel speed sensor electrical connector. Refer to SECTION 5E1.
 7. Front brake pipe assembly. Refer to SECTION 5.
 8. Remove jack stands from engine assembly.
 9. Engine mount bolts/screws and nuts. Refer to SECTION 6A2A or 6A3A.

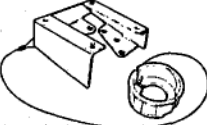
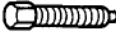
10. Power steering gear bolts/screws. Refer to SECTION 3B.
11. Position lower control arm assemblies (17) to cross-member assembly (20).
12. Front lower control arm bolts/screws and nuts.
13. Lower control arm ball stud assemblies to steering knuckle assemblies. Refer to "Control Arm Ball Stud Assembly Replacement" in this section.
14. Front shock absorber bolts/screws. Refer to "Shock Absorber and Spring Assembly" in this section.
15. Stabilizer shaft link assemblies. Refer to "Stabilizer Shaft Link Assembly" in this section.
16. Tire and wheel assemblies. Refer to SECTION 3E.
17. Special security wheel lock nuts, if equipped. Refer to SECTION 3E.
18. Lower vehicle.
19. Align wheel assemblies. Refer to SECTION 3A.

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Front Crossmember-to-Drivetrain and Front Suspension	
Frame Nut Plug Bolt/Screw	100 N•m (74 lb. ft.)
Front Crossmember-to-Side Rail Bolt/Screw	125 N•m (92 lb. ft.)
Front Lower Control Arm-to-Front Crossmember Assembly Nut (Horizontal)	95 N•m (70 lb. ft.)
Front Lower Control Arm-to-Front Crossmember Assembly Nut (Vertical)	115 N•m (85 lb. ft.)
Front Lower Control Arm-to-Front Lower Control Arm Ball Stud Assembly Nut	110 N•m (81 lb. ft.)
Front Shock Absorber Bolt/Screw	65 N•m (48 lb. ft.)
Front Shock Absorber Lower Bracket Nut	65 N•m (48 lb. ft.)
Front Shock Absorber Upper Mount Bolt/Screw	50 N•m (37 lb. ft.)
Front Shock Absorber Upper Mount Nut	43 N•m (32 lb. ft.)
Front Stabilizer Shaft Bracket Bolt/Screw	55 N•m (41 lb. ft.)
Front Stabilizer Shaft Insulator Clamp Bolt/Screw	55 N•m (41 lb. ft.)
Front Stabilizer Shaft Link Assembly	23 N•m (17 lb. ft.)
Front Stabilizer Shaft Link Assembly Nut	23 N•m (17 lb. ft.)
Front Upper Control Arm-to-Front Upper Control Arm Ball Stud Assembly Nut	53 N•m (39 lb. ft.)
Front Upper Control Arm-to-Front Upper Control Arm Support Nut	98 N•m (72 lb. ft.)
Front Wheel Bolt/Screw	86 N•m (63 lb. ft.)

SPECIAL TOOLS

- | | | | | | |
|----|---|-------------|-----|---|-----------|
| 1. |  | J 24292-B | 10. |  | J 39642 |
| 2. |  | J 34013-B | 11. |  | J 9519-7 |
| 3. |  | J 34013-88 | 12. |  | J 9519-9 |
| 4. |  | J 34013-114 | 13. |  | J 9519-18 |
| 5. |  | J 34013-115 | 14. |  | J 9519-23 |
| 6. |  | J 39549 | 15. |  | J 6627-A |
| 7. |  | J 39876 | 16. |  | J 39872 |
| 8. |  | J 39930 | 17. |  | J 39874 |
| 9. |  | J 39931 | 18. |  | J 39875 |

1. BALL JOINT REMOVER
2. STRUT SPRING COMPRESSOR
3. STRUT COMPRESSOR ADAPTER
4. MODULAR SHOCK ASSEMBLY COMPRESSOR ADAPTER
5. MODULAR SHOCK ASSEMBLY ALIGNMENT ROD
6. BALL JOINT/TIE ROD SEPARATOR
7. LOWER CONTROL ARM BUSHING RECEIVER
8. UPPER CONTROL ARM BUSHING RECEIVER/INSTALLER
9. LOWER CONTROL ARM BUSHING RECEIVER

10. MODULAR SHOCK NUT REMOVAL SET,
15 mm (0.60 INCH)
11. BALL JOINT REMOVER
12. BALL JOINT INSTALLER
13. BALL JOINT PRESSING SCREW
14. BALL JOINT "C" CLAMP
15. WHEEL STUD REMOVER
16. HALF MOON SPACER
17. LOWER CONTROL ARM BUSHING RECEIVER
18. HALF MOON SPACER

19.



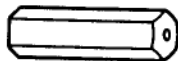
J 21474-3

22.



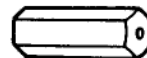
J 21474-6

20.



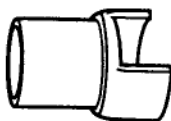
J 21474-4

23.



J 21474-18

21.



J 21474-5

24.



J 21474-19

- 19. LOWER CONTROL ARM BUSHING SCREW ASSEMBLY
- 20. LOWER CONTROL ARM BUSHING NUT ASSEMBLY
- 21. CONTROL ARM BUSHING RECEIVER
- 22. CONTROL ARM BUSHING RECEIVER
- 23. UPPER CONTROL ARM NUT ASSEMBLY
- 24. UPPER CONTROL ARM SCREW ASSEMBLY

RC0006-3C-F-RP

cardiagn.com

