

SUSPENSION - FRONT

1995 Volvo 850

1995-96 SUSPENSION
Front - FWD

850

DESCRIPTION

Vehicle front suspension consists of standard control arm, ball joint and strut shock absorber. Components are attached to a sub-frame assembly.

ADJUSTMENTS & INSPECTION

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

NOTE: See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT section.

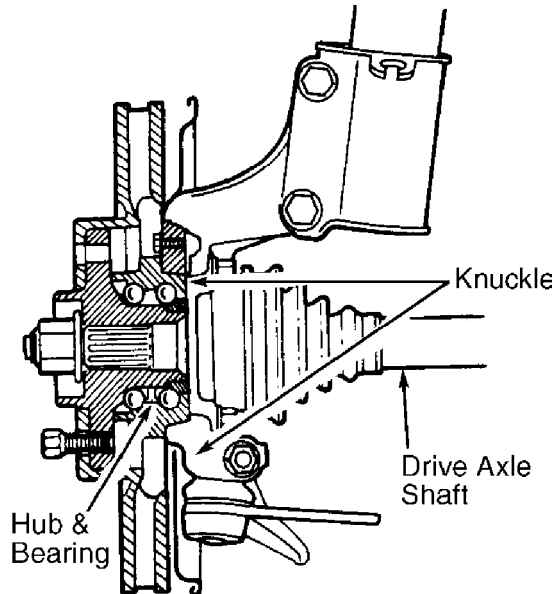
WHEEL BEARING

NOTE: Front wheel bearing is integral with hub. No adjustment is necessary.

REMOVAL & INSTALLATION

HUB & KNUCKLE ASSEMBLY

Information is not available from manufacturer. See Fig. 1.



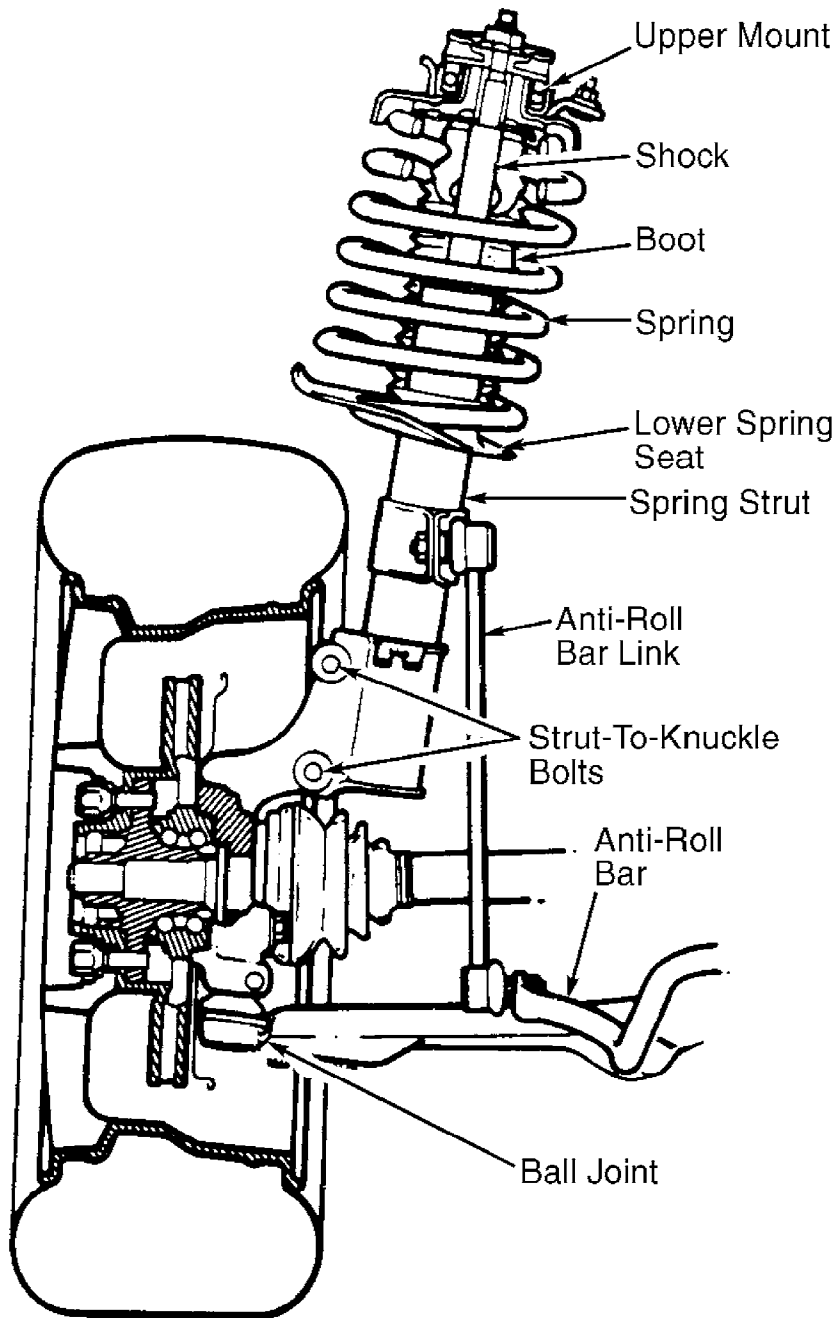
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Fig. 1: Cutaway View Of Hub & Knuckle Assembly
Courtesy of Volvo Cars of North America.

LOWER CONTROL ARM, BUSHINGS & BALL JOINT

Removal

Remove 3 ball joint nuts in control arm. Remove 2 bolts attaching control arm to sub-frame. Remove control arm. Remove plastic cover from control arm. Clean rust from bushing outer sleeve. For reassembly reference, mark position of outer sleeves in relation to control arm. Press out bushings. See Fig. 2.



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Fig. 2: Cutaway View Of Front Suspension Components
Courtesy of Volvo Cars of North America.

Installation

1) Press in new bushings, noting reference mark made during

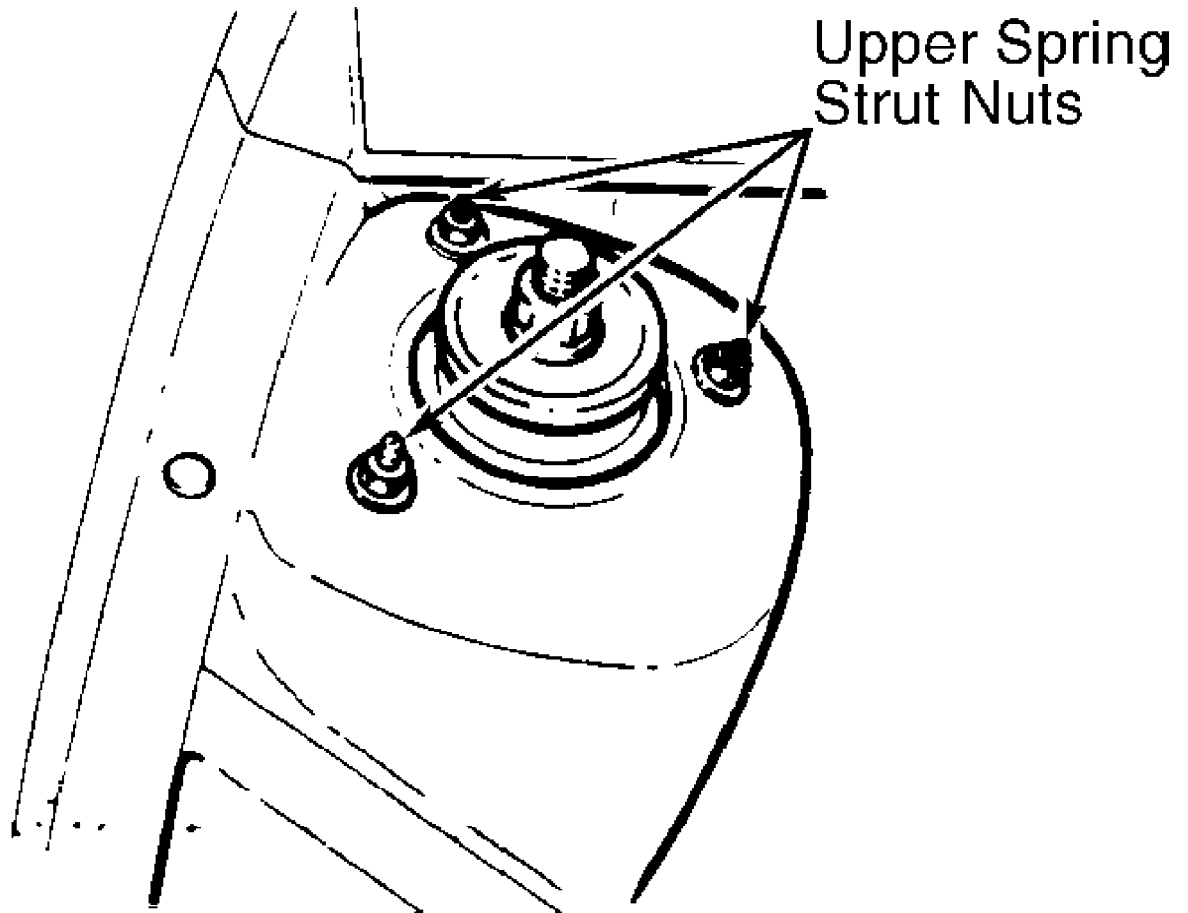
removal. Install Gauge (5483) on control arm and check position of bushings in relation to ball joint mounting area.

2) Using NEW bolts and nuts, install control arm to sub-frame. Do not tighten bolts and nuts at this time. Using NEW nuts, install ball joints. Tighten nuts to 13 ft. lbs. (18 N.m), then tighten an additional 120 degrees. Tighten inside nut first and work outward. Lower vehicle and bounce a few times. Tighten control arm nuts in sub-frame to 48 ft. lbs. (65 N.m), then tighten an additional 120 degrees.

SPRING, STRUT ATTACHMENT & SHOCK ABSORBER

Removal

1) Remove wheel. Mark anti-roll bar for reassembly reference and remove anti-roll bar from spring strut. Remove ABS sensor wiring from spring strut and brake bracket. Do not disconnect connector. Install Support (5466) under link arm. Support is necessary to avoid excessive joint angle and resulting damage to drive shafts. Remove 3 nuts from shock tower holding spring strut attachment to body. See Fig. 3. Remove 2 bolts holding spring strut to axle shaft. Remove spring strut.



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Fig. 3: Removing 3 Nuts From Shock Tower
Courtesy of Volvo Cars of North America.

2) Clamp spring strut in vise. Compress spring with a spring compressor. Remove bolt and washer from top of spring strut

attachment. Remove shock absorber top attaching bolt. Remove spring seat, rubber bump stop with boot, and spring. Check components for damage.

Installation

1) Compress new spring to approximately 11.8" (300 mm). On shock absorber, install bump stop with boot, washer, compressed spring and spring seat. Ensure ends of spring are installed correctly into spring seats. Install and tighten attaching nut to 52 ft. lbs. (70 N.m). Install spring strut attachment, washer and nut. Tighten nut to 52 ft. lbs. (70 N.m). Remove spring compressor.

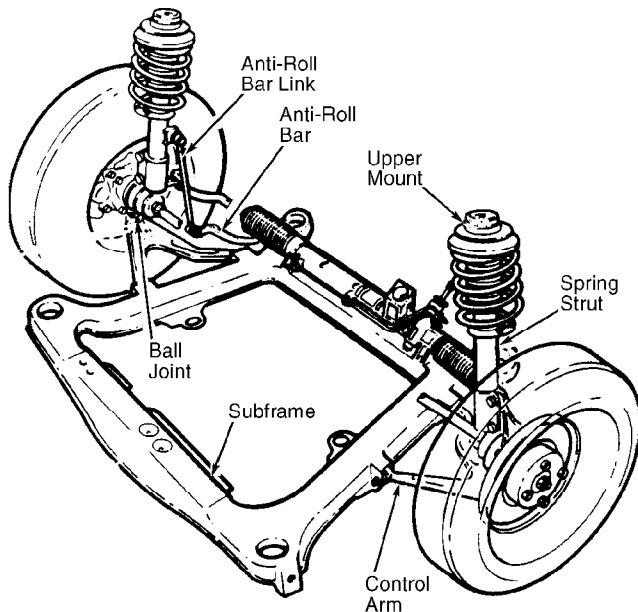
2) Using NEW nuts, install spring strut to shock tower. Tighten nuts to 18 ft. lbs. (25 N.m). Using NEW bolts and nuts, install spring strut on axle shaft. Tighten to 48 ft. lbs. (65 N.m), then tighten an additional 90 degrees. Using NEW nuts, and noting reference marks made during removal, install anti-roll bar link to spring strut. Tighten nuts to 37 ft. lbs. (50 N.m). To install remaining components, reverse removal procedure.

ANTI-ROLL BAR

Removal

1) Install Support Rails (5033), Bracket (5006), and Lifting Hook (5115). Raise engine slightly. Raise and support vehicle. Remove splash guard under engine. Remove 5 nuts holding steering gear to sub-frame. Disconnect hydraulic fluid brackets from sub-frame at front and rear edges.

2) Place jack under rear crossmember. Remove 4 bolts holding sub-frame brackets to body. See Fig. 4. Remove 2 bolts along with brackets and washers. Loosen sub-frame front bolts approximately 1/2". Lower frame at rear edge. Ensure steering gear bolts come away from frame. Remove anti-roll bar from links. Remove anti-roll bar caps. Remove anti-roll bar.



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Fig. 4: Removing Sub-Frame From Body
Courtesy of Volvo Cars of North America.

Installation

1) Install anti-roll bar, caps, and anti-roll bar links.

Using NEW nuts, tighten links to 37 ft. lbs. (50 N.m). Using jack, press sub-frame up at rear edge. Press steering gear mount bolts into frame at same time.

2) Loosely install NEW bolts on sub-frame. Move jack to front edge of frame. Replace, but do not tighten, front bolts in frame. Tighten bolts on left side of frame to 77 ft. lbs. (105 N.m), then tighten an additional 120 degrees. Tighten bolts on right side in same order. Tighten bracket bolts to 37 ft. lbs. (50 N.m).

3) Using NEW nuts, tighten steering gear nuts to 37 ft. lbs. (50 N.m). Reinstall hydraulic fluid brackets on sub-frame at front and rear edges. Install splash guard under engine.

WHEEL BEARING

Removal

1) Raise vehicle and remove wheel. Do not disconnect ABS sensor connector. Remove brake caliper mounting bolts and hang caliper by wire. Tap out drive shaft lock and remove nut. Remove brake disc rotor. Carefully tap end of drive shaft to loosen it from splines.

2) Remove 3 ball joint nuts from lower control arm. Disconnect anti-roll bar link from anti-roll bar. Press drive shaft into its inner position and, using care to avoid damage to boot, remove drive shaft from hub. Remove 4 Torx bolts holding hub to axle shaft. Remove hub.

NOTE: Ensure ABS gear wheel is clean.

Installation

1) Install hub. Tighten Torx bolts alternately to 33 ft. lbs. (45 N.m), then tighten an additional 60 degrees. Install drive shaft in hub, ensuring splines align correctly. Install and tighten NEW drive shaft nut by hand as far as possible.

2) Using NEW nuts, install ball joint on control arm. Tighten inside nut first, then work outward, tightening nuts to 13 ft. lbs. (18 N.m), then an additional 120 degrees. Install anti-roll bar link to bar. Use NEW nut tightened to 37 ft. lbs. (50 N.m).

3) Install brake rotor. Tighten brake rotor guide pin and mounting bolts to 72 INCH lbs. (8 N.m). Tighten drive shaft nut to 89 ft. lbs. (120 N.m), then tighten an additional 60 degrees. To lock drive shaft nut, use a chisel and tap drive shaft nut next to groove. To complete installation, reverse removal procedure.

TORQUE SPECIFICATIONS

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| Application | Ft. Lbs. (N.m) |
|------------------------------------|----------------|
| Anti-Roll Bar Link-To-Spring Strut | 37 (50) |
| Ball Joint Nut | (1) 13 (18) |
| Control Arm-To-Sub-Frame Nut | (1) 48 (65) |
| Drive Shaft Nut | (2) 89 (120) |
| Frame Bolt (Left Side) | (1) 77 (105) |
| Frame Bracket Bolt (Right Side) | 37 (50) |
| Hub Torx Bolt | (2) 33 (45) |
| Spring Seat Nut | 52 (70) |
| Spring Strut Nut | 52 (70) |
| Spring Strut-To-Axle Shaft Nut | (3) 48 (65) |
| Spring Strut-To-Shock Tower Nut | 18 (25) |
| Steering Gear Nut | 37 (50) |

INCH Lbs. (N.m)

Brake Rotor Bolt 72 (8)

- (1) - Tighten an additional 120 degrees.
 - (2) - Tighten an additional 60 degrees.
 - (3) - Tighten an additional 90 degrees.
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