Front Suspension

VOLVO

DESCRIPTION

MacPherson strut type suspension is used. Suspension consists of a vertically mounted strut assembly. Strut assembly is mounted to chassis frame at top. Lower end of strut assembly is mounted to a ball joint which is bolted to lower control arm.

Steering knuckle is an integral part of strut assembly. Strut assembly consists of a shock absorber built into strut tube. The coil spring surrounds the outside of strut tube, and the spindle is integral with bottom of strut assemble. A stabilizer bar connects the control arms through rubber mounted links.

ADJUSTMENT

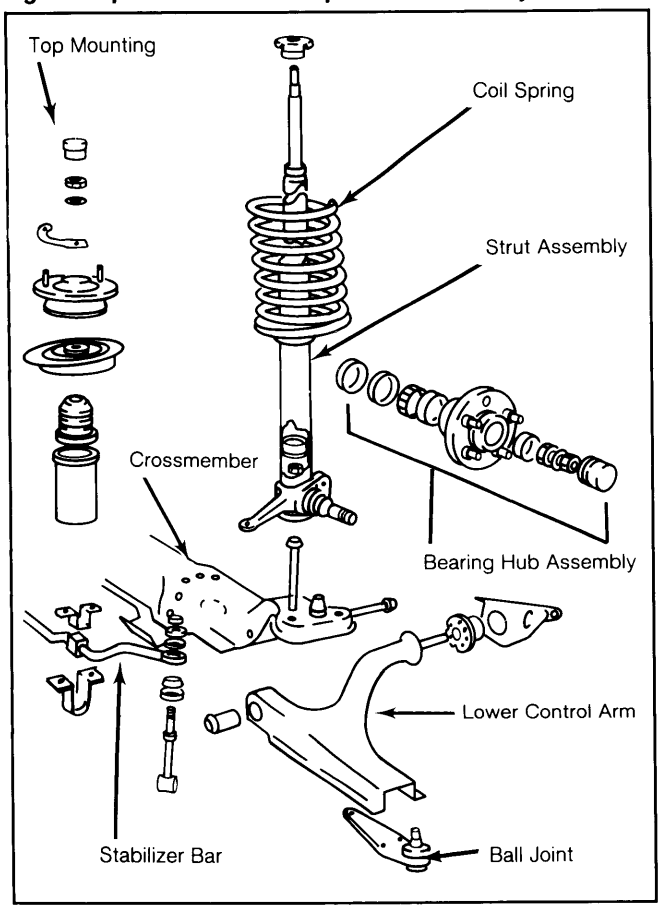
WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See Wheel Alignment Specifications & Procedures in WHEEL ALIGNMENT section.

WHEEL BEARING

While rotating hub, tighten hub nut to 42 ft. lbs. (57 N.m). Loosen nut 1/2 turn, then tighten by hand (no tools). Check for hub rotating freely with no end play. If necessary to align cotter pin holes, loosen nut and install new cotter pin (recheck end play).

Fig. 1: Exploded View of Suspension Assembly



BALL JOINT CHECKING

Maximum permitted axial play for lower ball joint is .12" (3 mm). Check ball joint by prying back and forth with a bar. If specifications are exceeded, replace ball joint.

REMOVAL & INSTALLATION

WHEEL BEARING

Removal

1) Raise vehicle and support with safety stands. Remove wheel assembly. Remove dust cap. Remove cotter pin and loosen hub nut.

2) Remove caliper retaining bolts. Remove caliper and support out of the way. Remove hub nut, washer, outer bearing and hub. Remove seal and inner bearing from hub.

Installation

To install, reverse removal procedures.

BALL JOINT

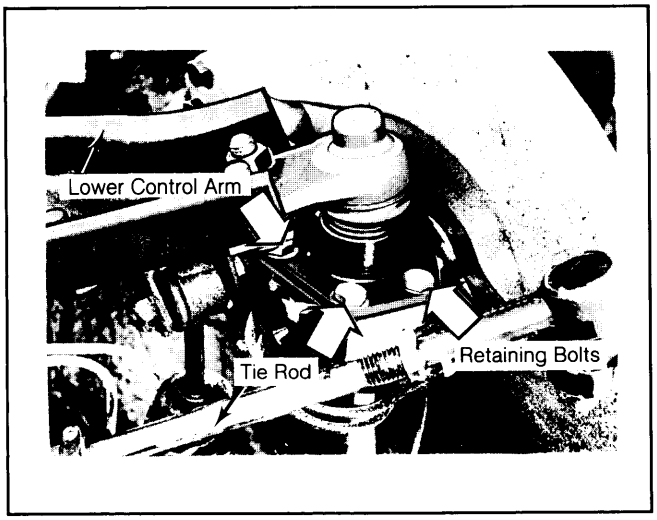
Removal

Raise vehicle and support with safety stands. Loosen shock absorber nut. Remove bolts retaining ball joint and short arm to control arm. Remove ball joint from control arm. Remove ball joint nut and separate from strut.

Installation

Position new ball joint and short arm to control arm and tighten nuts. Install ball joint to strut assembly. Tighten shock absorber retaining nut.

Fig. 2: Location of Ball Joint Retaining Bolts



CONTROL ARM

Removal

1) Raise vehicle and support with safety stands. Remove wheel assembly. Disconnect stabilizer bar-to-link assembly. Disconnect ball joint from control arm. Remove front retaining bolt from control arm.

2) Remove bracket attaching rear of control arm to chassis. Remove control arm from vehicle. If control arm bushing is being replaced, press out using adapter sleeve (9995085) and driver (999509).

VOLVO (Cont.)

Installation

1) Inspect all components for wear or damage. Use adapter sleeve (9995085) and driver (5555084) to install new bushings, (if necessary). If bushing in bracket is to be replaced, ensure that small slots on new bushing will point in a horizontal position when bracket is installed on vehicle.

2) Install bracket, with control arm to chassis, do not tighten bolts. Install front retaining bolt for control arm, do not tighten. Install ball joint to control arm and tighten bolts.

3) Position a floor jack under control arm and raise so coil spring is compressed. Connect stabilizer bar to link. Tighten control arm retaining nuts and bolts. Install wheel assembly.

NOTE: Tighten rear bushing nut with vehicle weight resting on wheels.

SHOCK ABSORBER

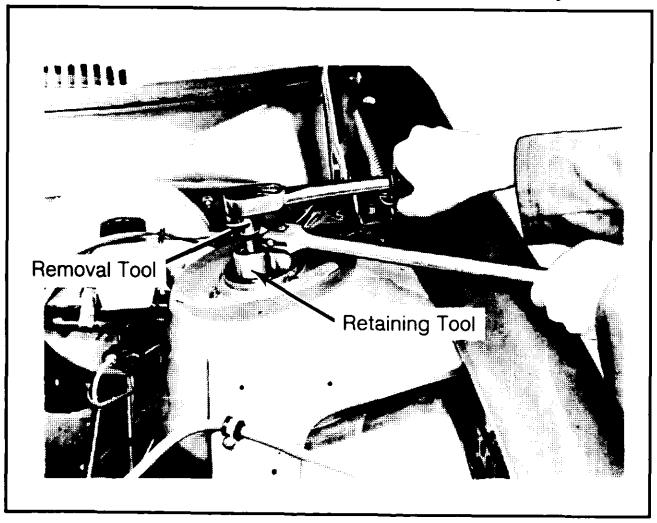
Removal

1) Raise vehicle and support with safety stands. Remove wheel assembly. Position floor jack under control arm and raise slightly to provide support.

2) Using a spring compressor, compress coil spring being sure to engage 5 coils with tool. Disconnect steering rod from steering arm and stabilizer bar from link at control arm.

3) Remove bolt retaining brake line bracket. Remove cover on upper end of strut and spring assembly. Remove center nut using tool as indicated in *Fig. 3*.

Fig. 3: Removing Center Nut From Strut Assembly



4) Lower floor jack supporting control arm while supporting strut assembly so brake lines and hoses are not damaged. Hook special tool (9995045) to strut assembly and stabilizer to support unit during remaining removal procedures.

5) Remove spring seat and rubber bumper. Remove coil spring with spring compressor attached. Remove shock absorber retaining nut while holding strut outer casing at the weld. Pull shock absorber from casing.

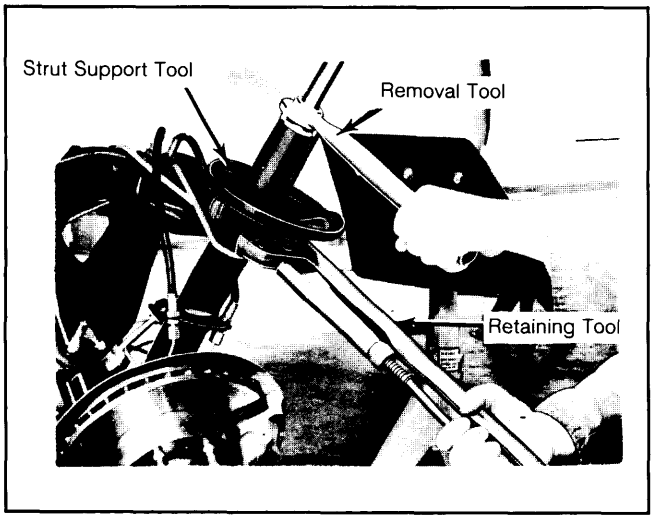
Installation

1) Install new shock absorber and retaining nut while holding strut outer casing at the weld. Pull shock absorber spindle to fully extended position.

2) Install coil spring onto strut assembly making sure spring end is properly aligned on strut bracket.

3) Install rubber bumper and install spring seat on coil spring. Guide strut assembly into upper mount and shock absorber spindle through upper mount. Connect stabilizer bar to stabilizer link.

Fig. 4: Removing Shock Absorber Nut From Shaft



4) Position floor jack under control arm and raise slightly. Install and tighten washer and nut to shock absorber spindle while using proper retaining tool.

5) Install cover and connect brake line bracket to chassis. Connect steering arm to steering rod. Remove coil spring compressor tool slowly. Install wheel assembly.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Ball Joint-to-Control Arm	85 (116)
Ball Joint Assembly-to-Strut	17 (23)
Ball Joint-to-Bracket	43 (58)
Control Arm Bracket-to-Frame	24 (39)
Control Arm Retaining Bolts	
Front	54 (73)
Rear	40 (54)