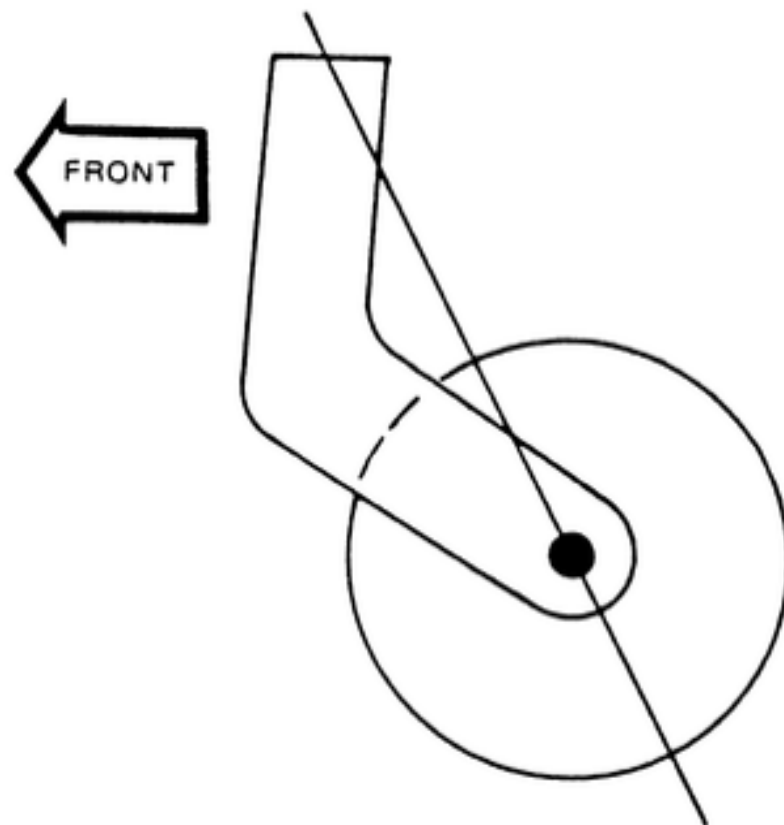


CASTER IS POSITIVE WHEN THE LOAD
(LOWER BALL JOINT) IS AHEAD OR PULLING
THE SPINDLE.



LOAD IS PULLING THE WHEEL.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

The coil springs are integrated into the strut assembly. See the MacPherson Strut removal and installation and overhaul procedures which follow.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

The control arm strut, also called the radius rod or strut rod, serve to locate the lower control arm and prevent fore-and-aft movement. Except for impact damage, the rods rarely fail. The rubber bushings on each end are prone to fatigue and wear, and may need to be replaced after a few years. This part is found on all 960/S90/V90 models.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

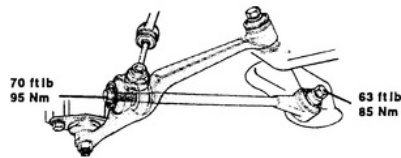
Fuel Delivery: FI | Fuel: GAS

1. Disconnect the negative battery cable.
2. Raise and safely support the vehicle on jackstands.
3. Loosen the rod-to-bracket bolt but don't remove it.
4. Remove the nut at the control arm. This is sometimes easier said than done; the control arm bolt can be very tight.
5. Once the front nut is loosened, the back mount may be removed and the rod placed on a workbench.

To install:

6. If the bushings are to be replaced, press them free of their mounts and install the new ones.
7. Reinstall the rod, attaching the bracket bolt first.
8. Make sure the front bushings seat properly in the control arm and that the front nut draws tight against its washer.
9. Tighten the bracket bolt to 63 ft. lbs. (85 Nm).
10. Tighten the control arm nut to 70 ft. lbs. (95 Nm).
11. Lower the vehicle.
12. Connect the negative battery cable.

Fig. 1: Strut rod — 900 series vehicles



FRONT SUSPENSION TORQUE SPECIFICATIONS

| | English | Metric |
|---------------------------------|--------------|--------|
| V70 nut | 89 ft. lbs. | 120 Nm |
| ut | 63 ft. lbs. | 85 Nm |
| ut | 70 ft. lbs. | 95 Nm |
| ut | 85 ft. lbs. | 115 Nm |
| control arm bolts | 44 ft. lbs. | 60 Nm |
| nd 900 series, and S90/V90 | | |
| ut | 44 ft. lbs. | 60 Nm |
| V70 | | |
| ut | 12 ft. lbs. | 18 Nm |
| arm | | |
| t | 38 ft. lbs. | 44 Nm |
| t | 55 ft. lbs. | 75 Nm |
| nd 900 series, and S90/V90 | | |
| mount | 63 ft. lbs. | 86 Nm |
| V70 | | |
| mount | 48 ft. lbs. | 65 Nm |
| 700 and 900 series, and S90/V90 | 111 ft. lbs. | 150 Nm |
| V70 | 52 ft. lbs. | 70 Nm |
| le | | |
| 700 and 900 series, and S90/V90 | 63 ft. lbs. | 85 Nm |
| V70 | 48 ft. lbs.* | 65 Nm |
| ount | | |
| 700 and 900 series, and S90/V90 | 30 ft. lbs. | 40 Nm |
| V70 | 18 ft. lbs. | 25 Nm |
| | 85 ft. lbs. | 115 Nm |
| nd 900 series, and S90/V90 | 63 ft. lbs. | 85 Nm |
| V70 | 81 ft. lbs. | 110 Nm |
| onal 60 degrees | | |

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3
Fuel Delivery: FI | Fuel: GAS

[850, S70, C70 and V70 Models](#)

The front wheel bearings are not adjustable on front drive vehicles. If the lateral run-out on the hub with the disc removed exceeds 0.0007 inch (0.020mm), the hub must be replaced.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

850, S70, C70 and V70 Models

1. Raise and safely support vehicle.
2. Remove the wheel.
3. Disconnect the ABS sensor from the axle shaft, but do not detach the sensor connector. Hang the sensor out of the way.
4. Remove the caliper, carrier and rotor. Hang the caliper safely out of the way.
5. Remove the halfshaft.
6. Separate the ball joint from the control arm.
7. Disconnect the sway bar link.
8. Remove the four bolts retaining the hub.
9. Remove the hub.

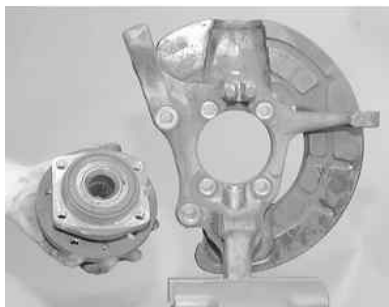
To install:

10. Clean the axle shaft and hub mating surfaces.
11. Clean the ABS sensor with a soft brush.
12. Install the new hub and tighten the bolts alternately to 33 ft. lbs. (45 Nm) plus an additional 60 degrees.
13. Insert the axle shaft into the hub and fit the splines.
14. Tighten the new axle shaft nut by hand.
15. Connect the ball joint to the control arm using new nuts.
16. Connect the sway bar link.
17. Install the brake rotor, carrier and caliper.
18. Tighten the axle nut to 89 ft. lbs. (120 Nm), plus an additional 60 degrees, using tool 5461 or equivalent to counterhold. Lock the axle shaft nut using a chisel to tap the flange into the groove.
19. Clean the ABS sensor and its seat with a soft brush. Tighten the sensor to 84 inch lbs. (10 Nm).
20. Install the wheels.
21. Lower the vehicle.

Fig. 1: Remove the four hub retaining bolts — although shown removed from the spindle, this can be done on the car



Fig. 2: Separate the hub from the spindle after the retaining bolts are removed



1992 Volvo 940

Submodel: | **Engine Type:** L4 | **Liters:** 2.3

Fuel Delivery: FI | **Fuel:** GAS



The front suspension is the MacPherson type, which means that the wheels are independently sprung. The spring is located around the strut assembly, the lower end of which is affixed to the wheel spindle. The strut assembly is retained by a threaded screw in an upper mount, which is fixed to the wheel housing, and by its seating at the bottom. The upper end of the spring is fixed to the wheel arch and rests on the upper mount, through the upper mount seat. The seating for the lower end of the spring is a welded perch on the bottom of the strut tube.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3
Fuel Delivery: FI | Fuel: GAS

[Except 850, C70, S70 and V70.](#)

The front wheel bearings are not adjustable on the rear drive vehicles. If the lateral run-out on the hub with the disc removed exceeds 0.0012 inch (0.030mm), the hub must be replaced.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3
Fuel Delivery: FI | Fuel: GAS

To check wheel bearing play, raise the vehicle and support it safely. Rock the wheel at 12 and 6 o'clock position. If there is movement, the wheel bearing should be serviced.

To check wheel bearing noise, raise the wheel off the ground, then spin the wheel by hand and let it rotate freely after spinning. Check for wheel bearing noise. If the wheel bearing remains noisy after proper adjustment, replace the wheel bearing.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

Except 850, C70, S70 and V70.

1. Raise and support the vehicle safely.
2. Remove the wheel(s).
3. Remove the brake caliper. Hang the caliper out of the way with a piece of stiff wire. Do not let the caliper hang by the brake hose.
4. Pry off the grease cap.
5. Remove the cotter pin and castle nut.
6. Remove the hub and brake disc assembly. Use a bearing puller to remove the inner bearing if it stays on the spindle.

NOTE: If the vehicle is equipped with separate brake disc and hub, the guide pin and brake disc must be removed from the hub prior to bearing replacement.

7. Use a brass drift and carefully tap out the grease seal and inner bearing race.
8. Remove the outer bearing race, using a suitable handle and drift.

To install:

9. Press in a new inner bearing race, using a suitable handle and drift.
10. Press in a new outer bearing race, using a suitable handle and drift.
11. Pack the wheel bearing between the cage and inner race with as much grease as possible. Also smear grease on the outer side of the bearing and bearing races inside the hub. Fill the space in the hub with grease to a diameter of the smallest ball races.
12. On hubs with integrated brake disc, position the inner bearing seal in the hub and press the seal in so the edge lies in the same plane as the hub.
13. On hub with separate hub and brake disc:
 - A. Press the sealing ring onto the spindle, making sure that the seal ring is square. The sealing ring lip should face outwards.
 - B. Install the inner bearing in the hub. Press in the sealing washer.
14. Install the hub, outer race and castle nut.

NOTE: On vehicles with separate hub and brake disc, install the brake disc and guide pin.
15. To adjust the bearing pre-load:
 - A. Spin the hub and simultaneously tighten the center nut to 42 ft. lbs. (57 Nm).
 - B. Loosen the nut $1\frac{1}{2}$ turn, then tighten the nut by hand, approximately 12 inch lbs. (1.4 Nm).
 - C. Install the cotter pin. If the pin hole in the spindle does not align with the pin hole in the nut, unscrew the nut slightly to the nearest pin hole.
 - D. Install the protective cap.
16. Install the brake caliper.
17. Install the wheel.
18. Lower the vehicle.

Fig. 1: Removing the inner ring using puller 2722 or equivalent

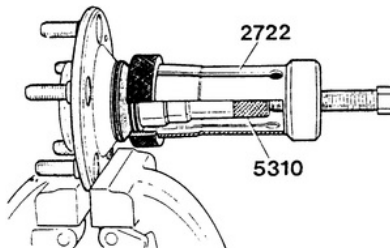


Fig. 2: Removing the outer bearing race from the hub using drift 2725 or equivalent

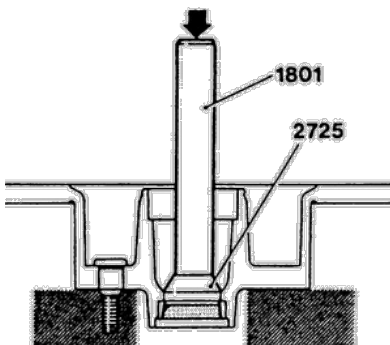
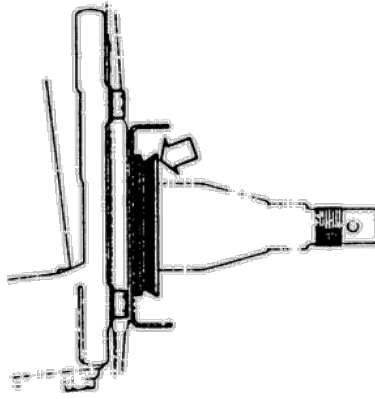


Fig. 3: Press the sealing ring onto the spindle before installing the hub assembly



1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

1. Raise the vehicle and support it safely.
2. Remove the wheel(s).
3. Remove the caliper, and support it out of the way using a piece of wire.
4. Remove the brake rotor.
5. Remove the axle nut (if applicable).
6. Remove any harnesses, lines, etc. that facilitate removal of the spindle.
7. Disconnect the tie rod end from the spindle.
8. Disconnect the lower ball joint from the bottom of the spindle.
9. Disconnect the strut tube from the top of the spindle.
10. Remove the spindle from the vehicle.

To install:

NOTE: If replacing the spindle with a new one, make sure to transfer the backing plate, hub or any part not attached to the new spindle assembly.

11. Install the spindle on the vehicle.
12. Connect the strut tube to the spindle and tighten to specification.
13. Connect the lower ball joint to the spindle and tighten to specification.
14. Connect the tie rod end to the spindle and tighten to specification.
15. Reconnect any harnesses, lines, etc. removed.
16. Install the axle nut and tighten to specification.
17. Install the brake rotor.
18. Install the brake caliper.
19. Install the wheel(s).
20. Lower the vehicle.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

Check the ball joint axial play. Maximum axial play permitted is 0.12 inch (3mm). Check the radial play. Maximum radial play permitted is 0.02 inch (0.5mm).

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

240 Series

1. Raise the vehicle and support it safely.
2. Mark the position of the wheel stud nearest to the valve. Wheel is marked to facilitate installation and to avoid the need for rebalancing.
3. Remove the wheel and tire assembly.
4. Remove the ball joint nut from the knuckle.
5. Remove the 4 bolts which retains the ball joint and remove the ball joint from the control arm.
6. Remove the ball joint retaining nut and press the ball joint out of attachment.

To install:

NOTE: Ball joints are different for right and left sides. It is therefore important that the correct ball joint is installed on the correct side.

7. Press the ball joint to the attachment, and install the ball joint on the control arm and tighten the bolts to 44 ft. lbs. (60 Nm).
8. Install the ball joint to the knuckle and tighten to 85 ft. lbs. (115 Nm).
9. Install the wheel on the hub assembly, while aligning the marking made earlier. Alternately tighten the nuts to specifications.
10. Lower the vehicle.

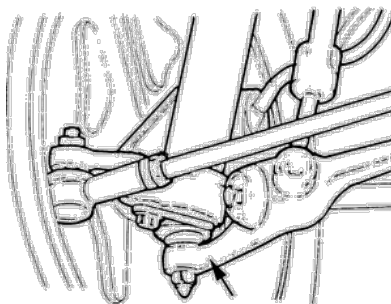
700, 900, S90 and V90 Series

1. Raise the vehicle and support it safely.
2. Mark the position of the wheel stud nearest to the valve. Wheel is marked to facilitate installation and to avoid the need for rebalancing.
3. Remove the wheel and tire assembly.
4. Remove the bolt which holds the anti-roll bar link to the control arm.
5. Remove the cotter pin, nut and washer for the ball joint stud.
6. Pull the control arm from the ball joint using a suitable puller (5259 or equivalent).
7. Remove the bolts holding the ball joint to the spring strut.
8. Press the control arm downwards and remove the ball joint.

To install:

9. Install the new ball joint.
10. Use new bolts and apply sealing fluid to the threads. Check that the bolt heads sit flat on the ball joint. Tighten the bolts to 22 ft. lbs. (30 Nm) PLUS angle tighten 90 degrees.
11. Install the control arm to ball joint.
12. Install the washer and nut.
13. Tighten ball joint stud (nut) to 44 ft. lbs. (60 Nm).
14. Install the cotter pin.
15. Install the anti-roll bar.
16. Install the wheel.
17. Lower the vehicle.

Fig. 1: Ball joint assembly — 900 series vehicles



850, C70, S70 and V70 Series

1. Raise and safely support the vehicle.
2. Remove the wheel.
3. Remove the three nuts holding the ball joint to the lower control arm.
4. Remove the clamping bolt and nut from the steering knuckle where the ball joint is mounted.
5. Spread the ball joint apart and remove it from the hub housing.

To install:

6. Clean the control arm and steering knuckle where the new ball joint is fitted.
7. Install the new ball joint with the clamping bolt and nut. Tighten the bolt to 37 ft. lbs. (50 Nm).
8. Connect the ball joint to the lower control arm and fasten it with new nuts. Apply rustproofing compound to the nuts. Starting from inside, working outward, tighten the nuts to 13 ft. lbs. (18 Nm) and then angle tighten 120°.
9. Install the wheel.

10. Lower the car.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

NOTE: On all models, fully install the control arm, bounce the suspension several times, and THEN tighten the control arm-to-crossmember mounting nuts or bolts.

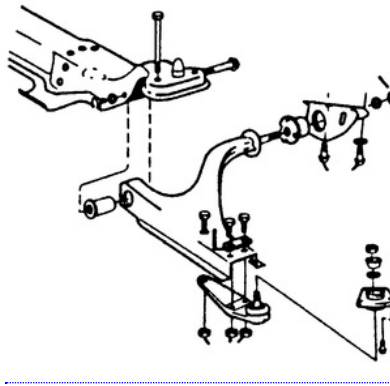
240 Series

1. Raise the vehicle and support it safely.
2. Remove the wheel(s).
3. Disconnect the stabilizer (sway bar) link at the control arm.
4. Remove the control arm from the ball joint. Refer to the Lower Ball Joint removal and installation procedure.
5. Remove the control arm rear attachment plate.
6. Remove the control arm front retaining bolt.
7. Remove the control arm.

To install:

8. If bushings are to be replaced, note that the right and left bushings are not interchangeable. The right side bushing should be turned so that the small slots point horizontally when installed.
9. Install the bracket onto the control arm. The nut should be tightened only enough to hold securely. The washer should be able to be turned with your fingers after the nut is on.
10. Attach the control arm. Install the front retaining bolt and nut; tighten the nut only a few turns onto the bolt.
11. Guide the stabilizer link into position. Attach it loosely with its nut and bolt.
12. Install the ball joint and its mount. Tighten the 3 mounting bolts to specification.
13. Install the rear bracket to the vehicle. Tighten the three bolts to 25–35 ft. lbs. (34–48 Nm).
14. Tighten the stabilizer link.
15. Install the wheel(s).
16. Lower the vehicle.
17. Jounce the front of the vehicle up and down. This "normalizes" the front suspension and allows the control arm to seek its final position.
18. Tighten the rear mount nut to 38–44 ft. lbs. (52–60 Nm).
19. Tighten the front mount to 55 ft. lbs. (75 Nm).

Fig. 2: Lower control arm — 240 series vehicles



700, 900, S90 and V90 Series

1. Raise the vehicle and support it safely.
2. Remove the wheel(s).
3. Remove the cotter pin from the ball joint and remove the ball joint nut.
4. Disconnect the stabilizer (sway bar) link at the control arm.
5. Disconnect the strut bolt and remove the front bushing.
6. Use a ball joint puller and separate the ball joint from the control arm. Make sure the puller is properly located and that the rubber boot is not damaged during removal.
7. Unbolt the control arm at the crossmember and remove the arm.
8. If the bushings are to be replaced, use a press and support the arm from below. The new bushings should always be pressed in from the front side of the arm.

To install:

9. Fit the control arm over the end of the strut rod.
10. Install the arm in the crossmember but do not fully tighten the nut.
11. Install the ball joint in the control arm.
12. Tighten the nut to 44 ft. lbs. (60 Nm), then install a new cotter pin.
13. Install the bushing, washer and bolt for the strut rod. Tighten the bolt to 70 ft. lbs. (95 Nm).
14. Attach the stabilizer link to the control arm and tighten it to 63 ft. lbs. (86 Nm).
15. Install the wheel(s).
16. Lower the vehicle. Jounce the front of the vehicle up and down. This "normalizes" the front suspension and allows the control arm to seek its final position.
17. Tighten the control arm-to-crossmember bolt to 63 ft. lbs. (86 Nm).

850, C70, S70 and V70 Series

1. Raise and safely support vehicle.
2. Remove the through-bolt securing the ball joint to the spindle.

3. Remove the ball joint from the spindle, an appropriate puller may be necessary.
4. Remove the bolts and nuts holding the lower control arm to the frame.
5. Remove the lower control arm.

To install:

6. Clean the ball joint and subframe where the lower control arm mates.
7. Install the lower control arm in the frame and attach with new bolts and nuts. Tighten the lower control arm subframe bolts to 48 ft. lbs. (65 Nm) and then angle tighten 120°.
8. Apply rustproofing compound to the lower control arm nuts.
9. Connect the ball joint to the spindle and tighten the bolt to 13 ft. lbs. (18 Nm).
10. Lower the vehicle.

Fig. 3: You must use two wrenches or ratchets to remove the ball joint through-bolt



Fig. 4: Once the bolt is removed, the ball joint is pulled downward from the spindle; however, a puller may be necessary



Fig. 5: This groove is where the through-bolt passes and retains the ball joint to the spindle

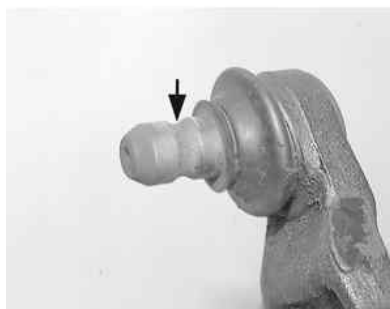


Fig. 6: Remove the control arm-to-subframe bolts and nuts



Fig. 7: Threading the nut onto the bolt reduces the chance of losing them or getting the bolts mixed up



Fig. 8: Pull the control arm from the subframe to remove it



1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

240 Series

1. Raise the vehicle and support it safely.
2. Mark the position of the wheel stud nearest to the valve. This is done to facilitate installation and to avoid the need for rebalancing.
3. Disconnect the stabilizer (sway bar) link at the control arm.
4. Remove the lower control arm.
5. Remove the rear bracket from the control arm.
6. Drive out the old bushings.

To install:

7. When replacing the bushings, note that the right and left bushings are not interchangeable. The right side bushing should be turned so that the small slots point horizontally when installed.
8. Install the new bushings onto the control arm.
9. Install the bracket onto the control arm. The nut should be tightened only enough to hold securely. The washer should be able to be turned with your fingers after the nut is on.
10. Install the control arm.
11. Install the stabilizer (sway bar) link at the control arm.
12. Install the wheel.
13. Lower the vehicle.

700, 900, S90 and V90 Models

The control arm assembly on these models is connected to the spindle through a ball joint and has one connection to the crossmember.

1. Raise and safely support the vehicle securely on jackstands.
2. Mark the position of the wheel stud nearest to the valve. Wheel is marked to facilitate installation and to avoid the need for rebalancing.
3. Remove the lower control arm.
4. Press out the bushing with a suitable drift.

To install:

5. Press in the new bushing with a suitable drift. Use disc 5240 or equivalent as a support. The disc recess should face upwards.

NOTE: Press the bushing in from the front side of the control arm.

6. Install the control arm.
7. Install the wheel.
8. Lower the vehicle.

850, C70, S70 and V70 Series

1. Raise and safely support the vehicle.
2. Remove the wheel(s).
3. Remove the control arm.
4. Clean the bushing outer sleeves.
5. Press out the bushings using tool 5481 and 5482 or equivalent.

To install:

6. Press in the bushings using tool 5481 and 5482 or equivalent.
7. Install the control arm.
8. Install the wheel(s).
9. Lower the vehicle.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

CAUTION

A coil spring compressor is required to remove the spring. Improper removal procedures may cause serious injury.

240, 700, 900, S90 and V90 Series

1. Remove the strut from the vehicle.
2. To remove the spring:
 - A. Attach spring compressor tool 5040 or equivalent to the spring. The two parts of the tool should be opposite each other and have three coils between the claws.
 - B. Compress each side alternately until the strut is loose inside the spring.
 - C. Hold the strut shaft with tool 5037 or equivalent and remove the nut with tool 5036 or equivalent and lift off the upper mount, spring retainer, spring and rubber bumper.

NOTE: On vehicles equipped with gas pressure struts, the bumper has been replaced by a rubber bellow and disc.

3. To remove the strut, unscrew the retaining nut and pull the shock insert out of the casing, using tool 5039 or equivalent for standard struts, or tool 5173 or equivalent for gas struts.

To install:

4. Insert the strut insert into the housing and tighten the retaining nut to 111 ft. lbs. (150 Nm).
5. Install the bumper or bellows and disc on the strut, making sure that the top of the bumper is lower than the top of the strut shaft
6. Install the spring so the compressor tool bolt holes face upwards.
7. Install the upper mount, washer and nut but do not tighten fully.
8. Remove the compressor loosening the bolts alternately and make sure that the ends of the spring fit correctly into the upper and lower plates.
9. Install the strut in the vehicle.

850, C70, S70 and V70 Series

1. Remove the strut from the vehicle.
2. Mount the spring and strut assembly in a vise and secure it.
3. Install spring compressing tool 5407 or equivalent and alternately compress the spring.
4. Remove the bolt and washer from the strut attachment using socket 5467 and counterhold 5468 or equivalents.
5. Remove the strut nut using socket 5469 and counterhold 5468 or equivalents.
6. Remove the bearing dustcap and remove the bearing locknut.
7. Remove the spring seat and bearing, rubber stopper, boot, and check them for damage.
8. Remove the compressed spring from the strut.

To install:

9. Compress the spring to about 12 in. (30.5cm) in length.
10. Install the rubber stopper.
11. Install the washer.
12. Install the compressed spring.
13. Install the spring seat and bearing.

NOTE: Make sure that the spring ends are properly seated.

14. Install the spring attachment, washer, and nut and tighten it to 52 ft. lbs. (70 Nm) using socket 5467 and counterhold 5468, or their equivalents.
15. Slowly and alternately remove the spring compressor.
16. Install the strut in the vehicle.

Fig. 1: Install the strut spring compressor tool onto the spring

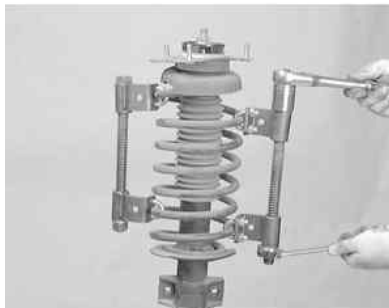


Fig. 2: A tool set, such as this one from Lisle®, is available to aid in the removal of the strut bearing



Fig. 3: One tool fits over the nut, and the other is used to hold the shaft while the retaining nut is removed



Fig. 4: Remove the nut . . .



Fig. 5: . . . followed by the bearing dust cap



Fig. 6: Use the shaft tool to aid in the removal of the bearing locknut



Fig. 7: Remove the bearing and upper spring seat . . .



Fig. 8: . . . then remove the compressed spring

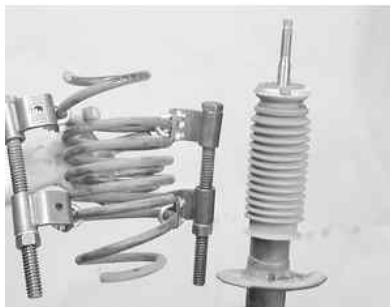


Fig. 9: Don't forget to remove the strut boot if replacing the strut



Fig. 10: Disassembled strut components include a strut tube (1), retaining nut (2), bearing dust cap (3) and locknut (4), bearing and upper spring seat (5), boot (6) and compressed spring (7)



1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

240, 700, 900, S90 and V90 Series

1. Raise and safely support vehicle.
2. Remove the wheel.
3. Disconnect the tie rod end.
4. Place a floor jack under the control arm.
5. Disconnect the sway bar link.
6. Unbolt the brake lines from the bracket and detach them from the clips.
7. Remove the cover over the strut nut.
8. Disconnect the coil wire and place it out of the way.
9. Hold the strut shaft with tool 5037 or equivalent and loosen the nut a few turns with tool 5036 or equivalent.
10. Mark the position of the upper mount in the housing, then remove the nuts and washers.
11. Carefully lower the jack and pull the strut and spring out of the housing.

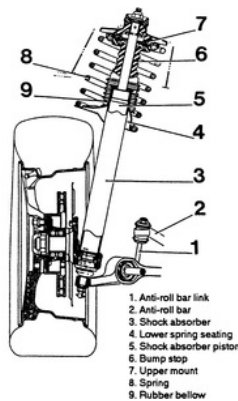
WARNING

Be careful not to damage the fender when removing the strut assembly. Use retaining hook 5045 or equivalent attached to the anti-sway bar to prevent it from falling.

To install:

12. Guide the strut assembly into the body.
13. Install the upper mount according to the earlier marking and tighten to 30 ft. lbs. (40 Nm).
14. Tighten the strut nut to 111 ft. lbs. (150 Nm) using socket 5036 and holder 5037 or equivalents.
15. Press nut cover back on and connect the coil wire.
16. Install the sway bar link and tighten it until the distance between the washers is 1.65 in. (42mm).
17. Install the brake line bracket and clips. Make sure that the brake lines are sitting correctly in the wheelwell.
18. Install the tie rod end.
19. Install the wheel.
20. Lower the vehicle and test.

Fig. 1: Typical MacPherson strut assembly



850, C70, S70 and V70 Series

1. Raise and safely support vehicle.
2. Remove the wheel.
3. Disconnect the sway bar link from the strut.
4. Remove the ABS sensor lead from the strut and brake bracket, but do not disconnect.
5. Install support tool 5466 or equivalent under the control arm.

WARNING

If this tool is not installed, the axle joint may be damaged from excessive downward pressure.

6. Remove the two nuts and bolts holding the strut to the steering knuckle.
7. Remove the upper nuts attaching the strut attachment to the body.
8. Remove the spring and strut assembly.

To install:

9. Install the spring and strut assembly in the spring housing and fasten it using new nuts; tighten them to 18 ft. lbs. (25 Nm).
10. Connect the strut to the steering knuckle using new bolts and nuts.
11. Tighten them to 48 ft. lbs. (65 Nm) and angle tighten 90°.
12. Connect the sway bar to the strut using new nuts.
13. Install the ABS sensor lead to the strut and brake pipe bracket.
14. Remove the support tool.
15. Install the wheel.
16. Lower the vehicle.

Fig. 2: Remove the ABS sensor lead from the strut

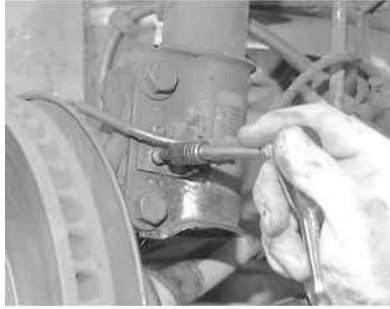


Fig. 3: The strut is attached to the knuckle by two bolts (and nuts)



Fig. 4: Remove the two strut-to-knuckle bolts and nuts



Fig. 5: Threading the nut onto the bolt after removal is an easy way to keep track of them



Fig. 6: Separate the strut from the spindle

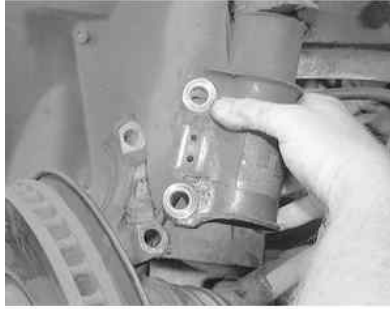
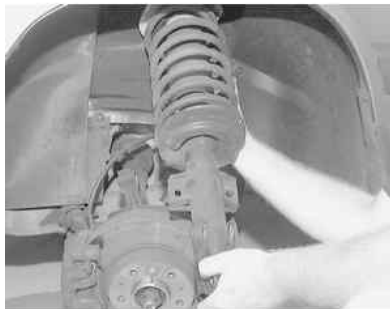


Fig. 7: Remove the three bolts holding the strut to the body, but never remove the large nut in the center while still in the vehicle



Fig. 8: Carefully remove the strut from the vehicle



1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3
Fuel Delivery: FI | Fuel: GAS

The sway bar, variously called the anti-roll bar or stabilizer bar, serves to control the sideways roll of the body during cornering. While the bar itself rarely fails, the links and bushings around it are prone to wear. If the bar is not rigidly mounted to the vehicle, it cannot do its job properly.

Sway bars of different diameters (thickness) can stiffen or soften the roll characteristics of a vehicle. Bushings are easily replaced and well worth the effort in terms of restoring proper cornering manners to your vehicle.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

240 Series

1. Raise the vehicle and support it safely.
2. Remove the wheels.
3. Remove the underside splash guard panel, if equipped.
4. Remove the upper nut securing the anti-roll bar to the struts.
5. Remove the upper link nut on the opposite side.
6. Remove the bolts for the two retaining brackets and remove the bar.
7. If the link bushings are worn, remove the lower link bolts and remove the entire link.
8. Inspect all the bushings for compression or elongation. Replace as required. The two U-shaped bushings from the front brackets are particularly prone to deforming.

To install:

9. Reconnect the lower link to the arms, if removed.
10. Hold the bar in position and install the front brackets with bushings. Make sure the slot in the bushing faces forward.
11. Install the bar to the link on one side of the vehicle but do not tighten more than a few turns.
12. Connect the bar to the link on the opposite side and install the bushings and nut.
13. Tighten each upper link nut until 1.65 inches (42mm) can be measured between the outer surfaces of the upper and lower washers.
14. Reinstall the underside splash panel, if required.
15. Install the wheel.
16. Lower the vehicle.

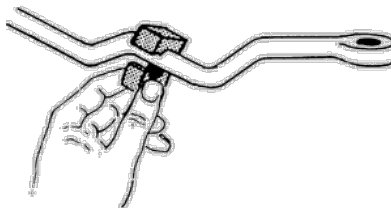
700 Series, 940 and 1992-94 960 Models

1. Raise and safely support vehicle.
2. Remove the wheels.
3. Remove the splashguard from under the engine.
4. Disconnect the anti-sway bar from upper link mounts on both sides.
5. Remove the sway bar clamps on both sides and take the bar off.

To install:

6. Install new rubber bushings on sway bar and attach to subframe with clamps.
7. Connect sway bar to upper link mounts and tighten the nut until the distance between bushing washers is 1.65 in. (42mm).
8. Install the splashguard under the engine.
9. Install the wheels.
10. Lower the vehicle.

Fig. 1: The bushing opening should face towards the front of the vehicle when installed



1995-98 960/S90/V90 Models

1. Raise and safely support the vehicle.
2. Remove the wheels.
3. Remove the nuts connecting the sway bar to the axle beam.
4. Remove the bolts connecting the sway bar to the support arms.
5. Remove the sway bar.

To install:

6. Attach the sway bar to the axle beam using new nuts. Tighten the nuts to 15 ft. lbs. (20 Nm).
7. Connect the sway bar to the support arms using new bolts. Do not tighten the bolts.
8. Tighten the support arm bolts to 63 ft. lbs. (80 Nm).
9. Install the wheels.
10. Lower the vehicle.

1. Install support rails 5033, bracket 5006 and lifting hook 5115, or suitable equivalents. These make it possible to raise the engine in the vehicle.
2. Raise the engine slightly.
3. Raise and safely support the vehicle.
4. Remove the underengine splashguard.
5. Remove the five nuts holding steering gear to the subframe.
6. Disconnect the power steering line brackets from the subframe at the front and rear edges.
7. Position a suitable jack under the rear crossmember.
8. Remove the bolts holding the subframe brackets to the body on both sides.
9. Remove the two subframe bolts, brackets and washers.
10. Lower the subframe at the rear edge approximately 0.59–0.79 in. (15–20mm). Make sure that the steering gear bolts come away from the frame.
11. Remove the sway bar links and subframe brackets.
12. Remove the sway bar.

To install:

13. Install the sway bar and subframe brackets.
14. Install the sway bar links using new nuts and tighten them to 37 ft. lbs. (50 Nm).
15. Raise the subframe up with the jack and push the steering gear mount bolts into the frame.
16. Install the subframe brackets and new M14 bolts, but do not tighten fully.
17. Move the jack to the front edge of the frame and replace the bolts. Do not tighten fully.
18. First tighten the bolts on the left side on the frame to 77 ft. lbs. (105 Nm) and angle tighten 120°. Then do the same to the right side.
19. Tighten the bracket bolts to 37 ft. lbs. (50 Nm).
20. Install new attaching nuts to the steering gear and tighten them to 37 ft. lbs. (50 Nm).
21. Tighten the power steering line brackets on the front and rear edges of the subframe.
22. Install the underengine splashguard.
23. Lower the vehicle.
24. Remove the support rails, bracket and lifting hook.

Fig. 2: Hold the hex head on the ball end of the link with an appropriate size wrench, or the nut cannot be removed

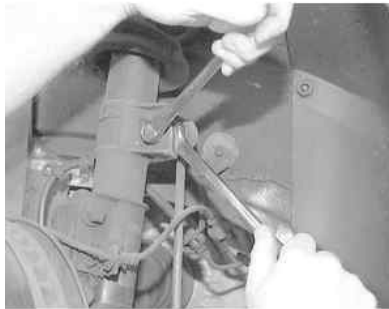


Fig. 3: If replacing the link, use a new nut; the old nut can be discarded

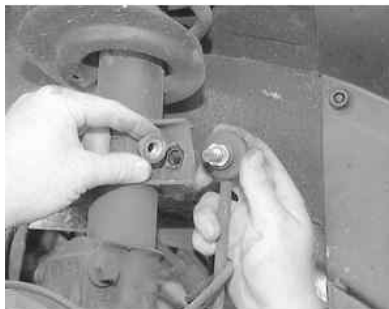


Fig. 4: After both nuts are unfastened, remove the link from the vehicle

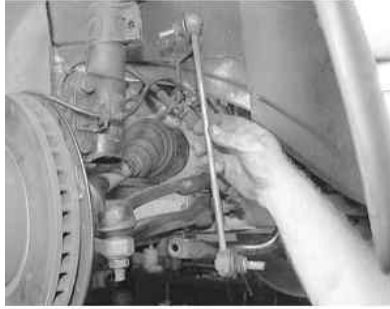
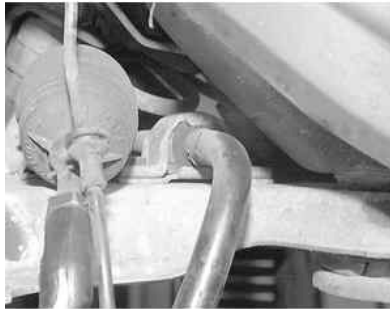
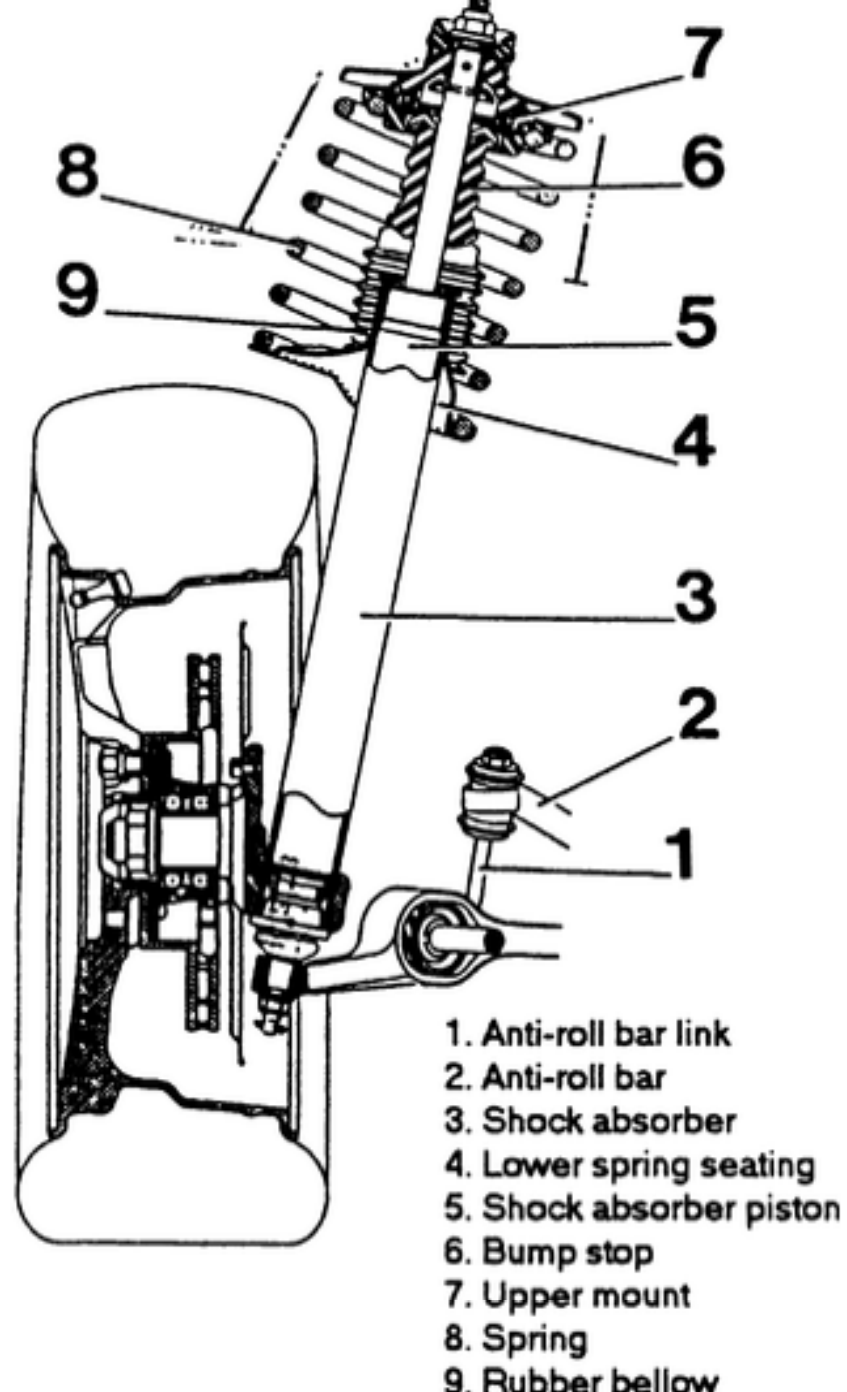


Fig. 5: The sway bar bushings are located on the subframe





1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3
Fuel Delivery: FI | Fuel: GAS

If the tires are worn unevenly, if the vehicle is not stable on the highway or if the handling seems uneven in spirited driving, the wheel alignment should be checked. If an alignment problem is suspected, first check for improper tire inflation and other possible causes. These can be worn suspension or steering components, accident damage or even unmatched tires. If any worn or damaged components are found, they must be replaced before the wheels can be properly aligned. Wheel alignment requires very expensive equipment and involves minute adjustments which must be accurate; it should only be performed by a trained technician. Take your vehicle to a properly equipped shop.

Following is a description of the alignment angles which are adjustable on most vehicles and how they affect vehicle handling. Although these angles can apply to both the front and rear wheels, usually only the front suspension is adjustable.

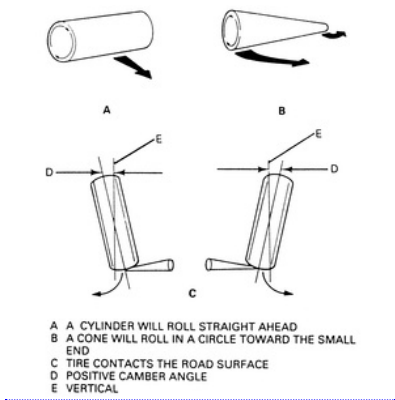
1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

Looking from the front of the vehicle, camber is the inward or outward tilt of the top of wheels. When the tops of the wheels are tilted in, this is negative camber; if they are tilted out, it is positive. In a turn, a slight amount of negative camber helps maximize contact of the tire with the road. However, too much negative camber compromises straight-line stability, increases bump steer and torque steer.

Fig. 1: Camber influences tire contact with the road



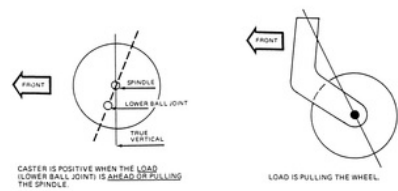
1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

Looking at a vehicle from the side, caster angle describes the steering axis rather than a wheel angle. The steering knuckle is attached to a control arm or strut at the top and a control arm at the bottom. The wheel pivots around the line between these points to steer the vehicle. When the upper point is tilted back, this is described as positive caster. Having a positive caster tends to make the wheels self-centering, increasing directional stability. Excessive positive caster makes the wheels hard to steer, while an uneven caster will cause a pull to one side. Overloading the vehicle or sagging rear springs will affect caster, as will raising the rear of the vehicle. If the rear of the vehicle is lower than normal, the caster becomes more positive.

Fig. 1: Caster affects straight-line stability. Caster wheels used on shopping carts, for example, employ positive caster



1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

Looking down at the wheels from above the vehicle, toe angle is the distance between the front of the wheels, relative to the distance between the back of the wheels. If the wheels are closer at the front, they are said to be toed-in or to have negative toe. A small amount of negative toe enhances directional stability and provides a smoother ride on the highway.

Fig. 1: With toe-in, the distance between the wheels is closer at the front than at the rear

