

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

The ignition lock cylinder/switch is an integral unit. The lock cylinder turns inside the switch assembly, and makes contact with terminals inside the switch, determining which circuit to energize. Replacement of the separate components is not possible; they are replaced as an assembly.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

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[240 Series](#)

The ignition lock cylinder is mounted on the steering column and incorporates a steering wheel lock to deter vehicle theft. Removal of the lock assembly requires the removal of the steering column assembly.

1. Disconnect the negative battery cable AND TAPE the cable end.
 2. Remove the air bag assembly.
 3. Remove the steering wheel.
 4. Remove the contact reel.
 5. Pull up the cover from the lower steering shaft joint, if required.
 6. Loosen the upper bolts in the upper and lower joints.
 7. Pull down the lower steering shaft so that the upper joint is freed from the upper steering shaft.
 8. Remove the upper and lower steering column covers.
 9. Disconnect the connector for the wiper control.
 10. Remove the retaining bolts for the wiper and indicator controls holder.
 11. Lift the holder over the steering shaft and remove. Note the position of the indicator switch lead and remove.
 12. Remove the connector from the starter switch, if required.
 13. Remove the steering column's lower retaining bracket, seal in the firewall and defroster hose from the heater unit.
 14. Tap the shearing bolts so that the bolts and plastic washers slide out of their slots in member.
 15. Carefully remove the steering column with steering lock. Avoid getting the steering column caught while passing through the firewall.
 16. Mount the steering column in a vise.
 17. Break off the washers from the rear end edge of the shearing bolts, then using a pair of channel locks, remove the shearing bolts.
 18. Press the ignition lock assembly from the steering column, using a suitable drift and counterhold tool (5295 or equivalent).
 19. Install the key in the lock and turn.
To install:
 20. Install the key in the lock and turn.
 21. Press the new ignition lock assembly onto the steering column, using a suitable drift and counterhold tool (5295 or equivalent). The lock assembly, when installed, should be positioned as follows: Measure the distance from the top of the lock assembly to the end of the steering column, above splined area. The distance should be 5.98 inches (152mm).
 22. Remove the key from the lock.
 23. Turn the steering shaft and check that the lock barrel locks it.
 24. Before installing the steering column, check that the upper steering shaft's collapsible coupling is intact. Its upper end (A) should not be able to move axially in relation to its lower end (B). Also, check the total length; it should be 27.38–28.18 inches (69.5–71.5cm). If the measurement is incorrect, replace the complete steering column.
 25. Install the plastic guides in the column support. Turn the guides so that the washers face downwards.
 26. Install the steering column into position, but do not tighten the shearing bolts completely.
 27. Pull the steering column towards the rear as far as possible; tighten the bolts further, but do not shear them yet.
 28. Install the rubber grommets.
 29. Install the lower retaining bracket and tighten the bolts lightly.
 30. Coat the firewall rubber seals with petroleum jelly.
 31. Install the seal on the steering column (cone turned inward) from the engine compartment side.
 32. Tighten the upper bolts, but do not shear them yet.
 33. Tighten the lower retaining bolts to 11–17 ft. lbs. (15–25 Nm).
 34. Attach the defroster hose and reconnect the ignition lock connector.
 35. Attach the universal joint to the upper steering column shafts. First tighten the upper bolt, then the lower.
 36. Install the locking pins.
 37. Checking and adjusting steering shaft:
 - A. When checking, the distance (A) between the upper steering shaft joint and shoulder on the lower steering shaft should be 0.39–0.75 inch (10–19mm).
 - B. If incorrect, loosen the upper bolted at (B) the lower joint. Loosen the lower bolt (C) of the upper shaft universal joint. Adjust the distance (A), by moving the shaft up or down. Tighten the bolts (B and C) to 14–20 ft. lbs. (18–28 Nm).
- NOTE: Make sure the position of the upper steering shaft does not change, as this can affect the distance between the steering wheel and the steering column cover.**
38. Install the holder for the combination switch control and connect the leads.
 39. Connect the ground lead to one of the retaining bolts.
 40. Install the upper and lower steering column covers.
 41. Set contact reel to zero position: If contact reel must be zero, turn the reel to the far right end and then back 3 revolution to the left. Lock the contact reel with the screw in the plastic strip.
 42. Ensure the front wheels are perfectly in straight-ahead position.
 43. Install the contact reel bracket and contact reel.
 44. Reconnect and properly position the lead.
WARNING
Do not turn the steering, as this will cause the pin to snap, requiring replacement of the contact reel.
 45. Install the steering wheel. Set the steering wheel so that the contact reel pin is in the center of the steering wheel hole.
 46. Install the steering wheel nut finger-tight.
 47. Remove the screw in the contact reel plastic strip and install in its parking hole in steering wheel.
 48. Tighten the steering wheel nut to 42 ft. lbs. (60 Nm).
CAUTION
When connecting the battery, make sure that no one is in the vehicle in case of an SRS malfunction causing accidental air bag deployment.
 49. Connect the negative battery cable.
 50. Check the SRS lamp operation and that no fault codes have been registered.

[Except 240 Series](#)

WARNING

Before working the steering system, read the SRS service precautions in Section 6.

1. Place the front wheels in straight-ahead position.
2. Disconnect the negative battery cable AND TAPE the cable end.
3. Remove the air bag assembly.
4. Remove the steering wheel.
5. Remove the contact reel assembly.
6. Remove the combination switch.
7. Remove the steering column rake adjustment lever using a 0.12 in. (3mm) hex wrench.
8. Remove the parking plate around the steering tube (4 screws).
9. Disconnect the ignition lock connector.
10. Turn the ignition switch to position I.
11. Take a 0.079 inch (2mm) drift and press down the tumblers in the cylinder.
12. Remove the lock assembly.

To install:

13. Install the steering lock assembly.
14. Turn the ignition switch to position I and press down the tumblers with a suitable drift
15. Install the lock assembly.
16. Install the combination switch assembly.
17. Install the contact reel.
18. Install the steering wheel.
19. Install the air bag assembly.

CAUTION

When connecting the battery, make sure that no one is in the vehicle in case of an SRS malfunction causing accidental air bag deployment.

20. Reconnect the negative battery cable.
21. Check the vehicle operation and SRS system for fault codes.

Fig. 1: Removing the upper and lower steering column covers

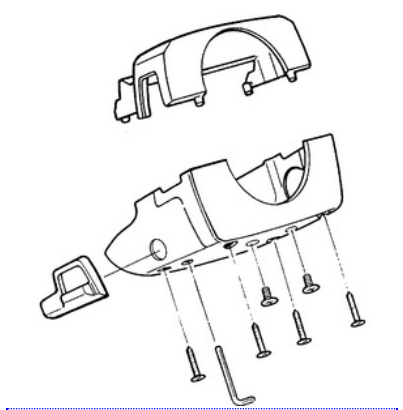
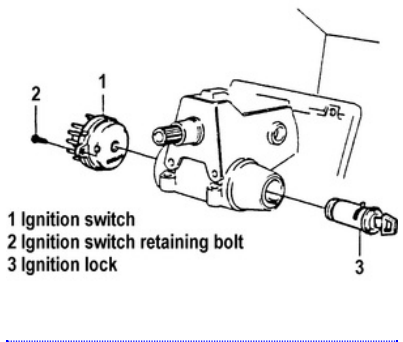


Fig. 2: Ignition lock cylinder and switch removal



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This procedure applies only to 240 series vehicles with manual rack and pinion assemblies. All other models of the 240 series, as well as all other vehicles covered by this manual, have a power rack and pinion; for those vehicles, refer to the procedure later in this section.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

1. Disconnect the negative battery cable.
2. Remove the lockbolt and nut from the column flange.
3. Bend apart the flange slightly with a screwdriver.
4. Raise and support the vehicle safely.
5. Remove the front wheels.
6. Disconnect the tie rod ends, using a ball joint puller.
7. Remove the splash guard.
8. Disconnect the steering gear from the front axle member (beam).
9. Disconnect the steering gear at the steering shaft flange.
10. Remove the steering gear. Save the dowel pins.

To install:

11. Install rubber spacers and plates for the steering gear attachment points.
12. Position the steering gear and guide the pinion shaft into the steering shaft The recess on the pinion shaft should be aligned towards the lockbolt opening in the shaft
13. Attach the steering gear to the front axle member.
14. Check that the U-bolts are aligned in the plate slots. Install flat washers and nuts. Tighten the nuts to 10–18 ft. lbs. (14–25 Nm).
15. Install the splash guard.
16. Connect the steering rods to the steering arms. Tighten the nuts to 44 ft. lbs. (60 Nm).
17. Install the front wheels.
18. Lower the vehicle.
19. Install the lockbolt for the steering shaft flange. Tighten the bolt to 18 ft. lbs. (25 Nm).
20. Have the alignment checked and reset if needed.
21. Connect the negative battery cable.

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

[240 Series and Coupe](#)

CAUTION

On vehicles with air bags, the front wheels must be pointing straight ahead with the steering wheel locked. If this is not done, the contact reel of the air bag system will reach its end position and deploy the air bag.

1. Disconnect the negative battery cable. Disarm the air bag system, if equipped.
2. Raise and support the vehicle safely on jackstands.
3. Remove the front wheels
4. From under the vehicle, remove the splashguard.
5. With the wheels pointed straight ahead, measure the length from one tie rod end to the steering rack housing.
6. Remove the steering column U-joint by scribing an alignment mark on the shaft.
7. Remove the cotter pin and loosen the nut and bolt securing the joint to the column shaft.
8. Separate the joint and steering shaft.
9. Remove the tie rod ends.
10. With a drip pan placed below the hoses to the steering rack, tag then remove the hoses. Discard the copper sealing washers.
11. Remove the sway bar if equipped.
12. Remove the two steering rack fixing bolts and nuts.
13. Lower the steering rack down from the vehicle frame and out.

To install:

14. Position the steering rack in the vehicle and secure the rack with the fixing nuts and bolts. Tighten the nuts and bolts to 32 ft. lbs. (44 Nm).
15. Install the sway bar if removed.
16. Install the hoses to the rack using new sealing washers. Tighten the hose bolts to 30 ft. lbs. (42 Nm).
17. Install the tie rod ends.
18. Connect the steering shaft and U-joint by aligning the scribe mark on the steering shaft with the mark on the U-joint. Tighten the retainer nut and bolt to 15 ft. lbs. (20 Nm). Install a new cotter pin.
19. Install the splashguard.
20. Fill the steering reservoir and bleed the system.
21. Lower the vehicle.

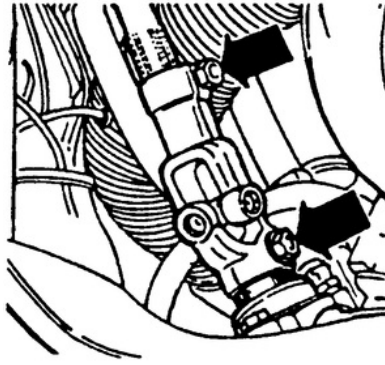
[700 Series, 900 Series and S90/V90](#)

1. Disconnect the negative battery cable.
2. Raise and support the vehicle safely.
3. Remove the splash guard and the small jacking panel on the front crossmember.
4. Disconnect the lower steering shaft from the steering gear.
5. At the lower universal joint, remove the snaprings and loosen the upper clamp bolt.
6. Remove the lower clamp bolt and slide the joint up on the shaft
7. Use a ball joint separator and disconnect the tie rods at the outer ends.
8. Disconnect the fluid lines from the steering gear. Catch the spilled fluid in a pan and install plugs in the lines.
9. Remove the sway bar mounting brackets from the side members and move them out of the way.
10. Remove the steering gear retaining bolts and lower the assembly out of the vehicle.

To install:

11. When reinstalling, position the rack in position and install the retaining bolts. Tighten them to 32 ft. lbs. (44 Nm).
12. Install the sway bar mounting brackets.
13. Use new copper washers and connect the fluid lines to the assembly.
14. Connect the tie rods and tighten their nuts to 44 ft. lbs. (60 Nm).
15. Slide the lower universal joint down the shaft and into position.
16. Tighten the lower clamp bolt first, then the upper. Both bolts are tightened to 15 ft. lbs. (20 Nm).
17. Install the snaprings.
18. Reinstall the jacking plate and the splash guard.
19. Fill the reservoir with the appropriate type of Automatic Transmission Fluid (ATF). For further information, refer to Section 1.
20. Start the engine and smoothly turn the steering wheel from lock to lock 3 or 4 times.
21. Bleed the system and recheck the fluid level in the reservoir.
22. Lower the vehicle.

Fig. 1: Unfasten the two attaching nuts/bolts to remove the lower shaft from the steering gear



850, C70, S70 and V70 Series

CAUTION

On vehicles with air bags, the front wheels must be pointing straight ahead with the steering wheel locked. If this is not done, the contact reel of the air bag system will reach its end position and deploy the air bag.

NOTE: The front subframe must be lowered. The bolts cannot be used again once loosened: new subframe bolts are required.

1. Disconnect the negative battery cable. Disarm the air bag system, if equipped.
2. Install support rail 5033, bracket 5006 and lifting hook, or their equivalents, over the engine.
3. Lift the engine up slightly so that there is no pressure on the engine mounts.
4. Raise and safely support the vehicle.
5. Remove the front wheels.
6. Disconnect the tie rod ends.
7. Remove the splash guard from below the engine.
8. Disconnect the power steering fluid lines brackets and clamps from the front and rear of the subframe.
9. Remove the five nuts holding the steering rack to the subframe.
10. Position a jack below the rear part of the subframe and remove the following:
 - 4 bolts holding the subframe to the body on both sides
 - 2 bolts and washers holding the bracket to the subframe
11. Loosen the front subframe bolts so the frame lowers 0.59–0.79 in. (15–20mm).
12. Lower the subframe using the jack, and place a spacer between the frame and the body at the rear edge so the frame will not pop up.
13. Position a catch pan under the steering rack and disconnect the power steering lines from the rack.
14. Remove the steering column joint bolt and press it up from the steering rack.
15. Remove the bolt holding the rack to the engine mount.
16. Remove rack from the right side.

To install:

17. Transfer the thermal protection plate and center attachment mount, but do not tighten the mounting bolts.
18. Install the protective plugs in the line connection holes.
19. Install the tie rod ends.
20. Install the steering rack from the right side and let it rest on the rear engine mount.
21. Raise the rack up on the right side so that it is straight in relation to the frame and tighten the engine mount bolt to 37 ft. lbs. (50 Nm).
22. Connect the fluid lines and brackets loosely using new O-rings on the lines.
23. Align the fluid lines in the bracket and tighten them in the steering rack.
24. Fit the steering rack onto the steering shaft joint and tighten the bolt to 15 ft. lbs. (20 Nm).
25. Install the bolt lock clip.
26. Lift the rear of the subframe up using a jack and line up the steering rack mount bolts in the frame.
27. Install new subframe bolts loosely.
28. Move the jack to the front and replace the bolts with new ones, but do not tighten.
29. Tighten the bolts on the left side of the subframe to 77 ft. lbs. (105 Nm) plus an additional 120 degrees.
30. Tighten the right side bolts the same way.
31. Finally, tighten the bracket bolts on both sides to 37 ft. lbs. (50 Nm).
32. Install new nuts on the steering rack and tighten them to 37 ft. lbs. (50 Nm).
33. Tighten the steering rack center bolt to 59 ft. lbs. (80 Nm).
34. Install the front and rear steering fluid line brackets and tighten them.
35. Install the engine splashguard below the engine.
36. Install the wheels.
37. Fill the power steering fluid reservoir with fluid.
38. Connect the negative battery cable.
39. Start the vehicle and bleed the steering system.
40. Check the fluid level once again.
41. Lower the vehicle and check the toe-in.

1992 Volvo 940

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Fuel Delivery: FI | Fuel: GAS

1. Fill the reservoir with the proper type of fluid.
2. Raise and support the vehicle safely.
3. Place the transmission in **N** and apply the parking brake.
4. Start the engine and fill the reservoir as the level drops.
5. When the reservoir level has stopped dropping, slowly turn the steering wheel from lock to lock several times. Fill the reservoir if necessary.
6. Continue to turn the steering wheel slowly until the fluid in the reservoir is free of air bubbles.
7. Stop the engine and observe the oil level in the reservoir. If the oil level rises more than $\frac{1}{4}$ in. (6mm) past the level mark, air still remains in the system. Continue bleeding until the level rise is correct.
8. Lower the vehicle.

FRONT SUSPENSION TORQUE SPECIFICATIONS		
Component	English	Metric
Axis nut		
85GCT9/5T9V70	89 ft. lbs.	120 Nm
Control arm axial		
Bracket bolt	63 ft. lbs.	85 Nm
Control arm nut	70 ft. lbs.	95 Nm
Lower ball joint		
240 Series		
Rebuilding nut	85 ft. lbs.	115 Nm
Ball joint-to-control arm bolts	44 ft. lbs.	60 Nm
Cooper, 700 and 900 series, and S90V90		
Rebuilding nut	44 ft. lbs.	60 Nm
85GCT9/5T9V70		
Rebuilding nut	12 ft. lbs.	16 Nm
Lower control arms		
240 Series		
Front mount	38 ft. lbs.	44 Nm
Rear mount	55 ft. lbs.	75 Nm
Cooper, 700 and 900 series, and S90V90		
Subframe mount	63 ft. lbs.	86 Nm
85GCT9/5T9V70		
Subframe mount	48 ft. lbs.	65 Nm
Strut nut		
Cooper, 240, 700 and 900 series, and S90V90	111 ft. lbs.	150 Nm
85GCT9/5T9V70	52 ft. lbs.	70 Nm
Strut-to-knuckle		
Cooper, 240, 700 and 900 series, and S90V90	63 ft. lbs.	85 Nm
85GCT9/5T9V70	48 ft. lbs.*	65 Nm†
Upper wheel mount†		
Cooper, 240, 700 and 900 series, and S90V90	30 ft. lbs.	40 Nm
85GCT9/5T9V70	18 ft. lbs.	25 Nm
Wheels		
240 Series	85 ft. lbs.	115 Nm
Cooper, 700 and 900 series, and S90V90	83 ft. lbs.	85 Nm
85GCT9/5T9V70	81 ft. lbs.	110 Nm
* Plus an additional 60 degrees.		

REAR SUSPENSION TORQUE SPECIFICATIONS		
Component	English	Metric
Axis nut		
180 (SA 800 series	103 ft. lbs.**	140 Nm**
180 (SA 800/500V90 and V70 A80)	103 ft. lbs.**	140 Nm**
85GCT9/5T9V70	93 ft. lbs.*	125 Nm†
C44 spring mounting nut		
Cooper, 240 and 700 series, and 940	35 ft. lbs.	48 Nm
Upper nut	63 ft. lbs.	85 Nm
85GCT9/5T9V70 except A80	37 ft. lbs.	47 Nm
180 (SA 800		
Upper mount	62 ft. lbs.	84 Nm
Lower mount	44 ft. lbs.**	60 Nm**
Leaf spring		
Mounting plate bolts	37 ft. lbs.	50 Nm
Lower control arm		
Cooper, 240, 700series, and 940	63 ft. lbs.	115 Nm
180 (SA 800	81 ft. lbs.**	107 Nm**
180 (SA 800/500V90	59 ft. lbs.	80 Nm
V70 A80)	63 ft. lbs.	85 Nm
Shock mounts		
Cooper, A80/50, 700series, and 940	62 ft. lbs.	84 Nm
180 (SA 800		
Upper mount	62 ft. lbs./330	84 Nm
Lower mount	41 ft. lbs.	55 Nm
180 (SA 800/500V90 and V70 A80)	59 ft. lbs.	80 Nm
85GCT9/5T9V70 except A80		
Upper mount	18 ft. lbs.	25 Nm
Lower mount	59 ft. lbs.	80 Nm
Slack bar mounts		
Cooper, A80, 700series, and 180 (SA 800 series	33 ft. lbs.	45 Nm
180 (SA 800/500V90 and V70 A80	19 ft. lbs.	26 Nm
85GCT9/5T9V70 except A80)		
Passenger side	37 ft. lbs.	50 Nm
Driver's side inner ball	30 ft. lbs.**	40 Nm**
Driver's side rear ball	48 ft. lbs.	66 Nm
Tabling arm		
Mounting bolt	59 ft. lbs.	80 Nm
Bracket bolt	48 ft. lbs.	65 Nm
Upper control arm		
180 (SA 800		
Rear nut	62 ft. lbs.	84 Nm
Front nut	81 ft. lbs.**	107 Nm**
180 (SA 800/500V90 and V70 A80)		
Anti-side	18 ft. lbs.	25 Nm
Mounting bolt	62 ft. lbs.	107 Nm
* Plus an additional 30 degrees.		
** Plus an additional 60 degrees.		
*** Plus an additional 30 degrees.		

1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

240 Series, 700 Series and Coupe

1. Disconnect the negative battery cable.
2. Remove all dirt and grease from around the line connections at the pump.
3. Using a container to catch any fluid that might run out, disconnect the power steering lines and plug them to prevent dirt from entering the system.
4. Remove the tensioner locking screws on both sides of the pump and remove the drive belt.
5. Turn the pump up and remove the three bolts holding the bracket to the engine block.
6. Remove the pump and bracket.
7. If the pump is being replaced with a new one, remove the nut and pulley from the old pump and transfer it to the new one. Separate the bracket and tensioner from the pump and install them loosely on the new pump.

To install:

8. Place the pump in position on the engine and install the retaining bolts and spacer. tighten the bolts to 18 ft. lbs. (25 Nm).
9. Install the drive belt.
10. Adjust the belt tension and then tighten the nuts of the long bolts.
11. Use new copper washers, and reconnect the fluid lines to the pump.
12. Fill the reservoir with Type A or Dexron® III automatic transmission fluid and bleed the system.
13. Connect the negative battery cable.

940, 960, S90 and V90 Series

1. Disconnect the negative battery cable.
2. Loosen the belt tensioner.
3. Remove the mounting bracket and bolt.
4. Disconnect the lines at or near the pump. Depending on the type of pump, it may be necessary to disconnect the rubber hoses from the metal pipes instead of removing the lines at the pump body. Use a catch pan under the vehicle for spillage. Plug the lines and fittings immediately to avoid contamination.
5. Remove the large retaining bolt and remove the drive belt from the pump.
6. Lower the pump slightly and disconnect the filler hose from the pump.
7. Remove the pump from the vehicle.

To install:

8. If the pump is to be replaced with a new one, transfer the pulley, the mounting bracket and the washers to the new pump.
9. Install the mounting bracket on the new pump; make sure the thick washer is between the bracket and the pump body.
10. Install the pulley with the conical face of the washer must be to the outside.
11. Connect the filler hose to the pump.
12. Position the pump and install the retaining bolts loosely.
13. Install the mounting bracket and belt.
14. Adjust the belt tension.
15. Tighten the lower retaining bolts to 18 ft. lbs. (25 Nm).
16. Connect the fluid hoses to the pump. Use new copper washers and/or hose clamps. Tighten the banjo fittings to 31 ft. lbs. (40 Nm).
17. Connect the negative battery cable.
18. Fill the fluid reservoir and start the engine.
19. Bleed the steering system.

850, C70, S70 and V70 Series

1. Disconnect the negative battery cable.
2. Remove the radiator reservoir cap.
3. Open the radiator draincock on the left side under the radiator and drain out about 3.2 qts. (3 liters) of coolant.
4. Disconnect the radiator hose from the thermostat housing.
5. Remove the oil hose holder from the dipstick tube and the air cooler hose from the control module box.
6. Using the proper sized ratchet, release the tension from the drive belt tensioner and remove the belt from the power steering pump.
7. Remove the long bolt and spacer from the plate.
8. Loosen the pressure side hose a quarter turn and the lower plate mount nut a few turns.
9. Remove all of the pump mounting bolts.
10. Lift the pump straight up and disconnect the pressure hose and old O-ring. Collect any fluid that spills.
11. Carefully make a small cut in the end of the return line no longer than the mark on the hose itself.
12. Remove the pump.
13. Raise and safely support the vehicle.
14. Turn the steering wheel from lock to lock and collect the fluid from the lines. Make sure no oil gets into the alternator.
15. Place the old pump in a vise and remove the pulley using an appropriate puller.

To install:

16. Install the pulley on the new pump, using an appropriate pressing tool. Apply a small amount of oil to the shaft to ease the installation.
17. Install the pump and five mounting bolts, tighten them to 18 ft. lbs. (25 Nm).
18. Install the long bolt and cover plate spacer, tighten it to 18 ft. lbs. (25 Nm).
19. Tighten the lower attachment to 18 ft. lbs. (25 Nm).
20. Install the following:
 - o pressure hose with a new O-ring
 - o return hose
 - o hose bracket for power steering hoses to dipstick tube

- radiator hose
- pump drive belt
- coding hose to the control module box.

21. Connect the negative battery cable.
22. Fill the coding system with coolant.
23. Fill the power steering pump reservoir with new fluid.
24. Bleed the steering system.

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The tailgate washer/wiper controls are mounted on the same control stalk as the front wipers. The components are not individually replaceable for the rear system. To replace the switch assembly, follow the directions given for Turn Signal/Windshield Wiper Switch.

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

- Before beginning work which could affect the SRS system, always turn the ignition **OFF**, disconnect the negative battery cable AND TAPE the end of the cable.
- When working around the instrument panel or steering column, take special care to ensure that the SRS wiring are not pinched, chafed or penetrated by bolts/screws, etc. This is most likely to happen when installing the sound insulation, knee bolsters, ignition lock or steering column cover.
- When repairs are made to the front suspension and steering, be aware that the contact reel can only withstand being turned 3 turns in either direction.
- Never service the steering shaft or steering gear without first locking the contact reel and removing the steering wheel.
- When fault tracing the SRS system with the air bag assembly in place, install the special tool 998 8695 or equivalent. This tool has the same resistance as the air bag assembly. The use of this tool prevent accidental air bag inflation and fault code registration during work.

1992 Volvo 940

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

All 1990–98 Volvos are equipped with a servo operated steering system. The steering gear is of the rack and pinion type. A vane-type servo pump is belt-driven from the crankshaft. Wheel deflection is limited by a stop in the steering gear and cannot be adjusted.

In addition, these vehicles are equipped with a Supplemental Restraint System (SRS). The SRS system consists of an inflatable bag located in the center of the steering wheel. The bag is normally folded up, but is instantly inflated in the event of certain types of collision. The SRS provides extra safety, in addition to the seat belts.

WARNING

All work which includes removing or replacing the air bag assembly must be carried out with the battery disconnected and with the ignition turned OFF for the duration of work. This is to ensure that the air bag does not accidentally inflate during service repairs and that no faults codes will register, requiring subsequent cancellation.

1992 Volvo 940

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Fuel Delivery: FI | Fuel: GAS

WARNING

Before working the steering system, read the SRS service precautions in Section 6.

1. Drive the vehicle forward on a level surface so that the wheels are straight.
2. Disconnect the negative battery cable AND TAPE the cable end.
3. Turn the ignition key to position I so that the steering lock is OFF.
4. Remove the air bag assembly, as described in Section 6.
5. Remove the steering wheel mounting bolt.
6. Lock the contact reel: Release the locking screw in the end of the plastic strip from its "parking hole" in the steering wheel. Screw must always remain in plastic strip. Attach the locking screw to the contact reel pin. The contact reel is now locked in the zero position.

WARNING

Do not turn the steering wheel, as this will cause the pin to snap, requiring replacement of the contact reel.

Remove the steering wheel, being careful to pull the lead and plastic strip with the screw through the hole in the middle.

To install:

7. Install the steering wheel.
8. Set the steering wheel so that the contact reel pin is in the center of the steering wheel hole.
9. Install the steering wheel nut finger-tight.
10. Remove the screw in the contact reel plastic strip and install in its parking hole in steering wheel.
11. Tighten the steering wheel nut to 42 ft. lbs. (60 Nm).
12. Install the air bag assembly.

CAUTION

When connecting the battery, make sure that no one is in the vehicle in case of an SRS malfunction causing accidental air bag deployment.

13. Connect the negative battery cable.
14. Check the vehicle operation and SRS system for fault codes.

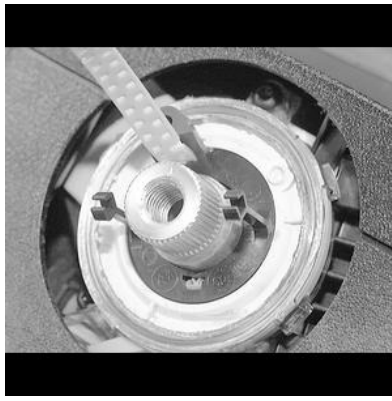
Fig. 1: Remove the steering wheel mounting bolt



Fig. 2: Lock the contact reel down before removing the steering wheel



Fig. 3: View of the contact reel with the wheel removed



1992 Volvo 940

Submodel: | Engine Type: L4 | Liters: 2.3

Fuel Delivery: FI | Fuel: GAS

CAUTION

This procedure requires removal of the steering wheel. If the vehicle is equipped with the SRS (air bag) system, refer to the safety precautions listed earlier in this section. DO NOT remove the wheel until these precautions have been followed.

1. Disconnect the negative battery cable.
2. Turn the steering wheel to the straight ahead position.
3. Remove the center pad from the wheel.
4. Remove the steering wheel retaining bolt. If possible, matchmark the wheel and steering shaft. If the vehicle is equipped with SRS, pull out the locking screw and the long tape label from its station in the steering wheel hub. Use the lock screw (with the tape flag attached) to lock the contact reel through the hole in the steering wheel hub. Do not turn the steering wheel once the bolt is removed; the pin in the contact reel will shear.
5. Remove the steering wheel and the upper and lower steering column casings.
6. To remove the switch, simply remove the retaining screws holding it to the column and unplug the connector.

To install:

NOTE: When reassembling, remember to check the position of all the wires so that nothing is pinched in casings.

7. Install the switch in the column, attach the electrical connectors, and tighten the retaining screws.
8. Reinstall the column casings.
9. Install the steering wheel. Check that the steering wheel position is true to the position of the wheels. If the vehicle is SRS equipped, do not turn the steering wheel until the center bolt is reinstalled and tight; doing so will shear the pin in the contact reel. Remove the locking bolt with its flag and store it in the extra hole on the left side of the wheel.
10. Tighten the steering wheel bolt to 42 ft. lbs. (60 Nm).
11. Reinstall the center pad.
12. Connect the negative battery cable.
13. Start the vehicle and check the SRS system for faults.

Fig. 1: Typical turn signal/windshield wiper switch assembly

