

AXLE SHAFTS - FRONT

1995 Volvo 850

DRIVE AXLES

Volvo - Axle Shafts - FWD

850

DESCRIPTION & OPERATION

Volvo 850 utilizes a transversely mounted 5-cylinder engine with a specially designed automatic or manual transmission. To eliminate torque steer, vehicle is equipped with equal length outboard drive shafts.

TROUBLE SHOOTING

Refer to TROUBLE SHOOTING - BASIC PROCEDURES article in the GENERAL TROUBLE SHOOTING section.

REMOVAL & INSTALLATION

Removal

1) Raise and support front of vehicle. Remove front wheels. Remove ABS sensor from steering member, but leave electrical connector connected. Loosen brake line bracket and ABS wiring. Unhook bracket and let it hang free. Remove split pin from hub center nut. Hold hub and remove drive shaft center nut.

2) Remove link arm from anti-roll bar. Remove nuts securing suspension arm to ball joint. Remove suspension arm from ball joint. If removing right drive shaft, remove splash guard from under engine. Twist and remove MacPherson strut. Tap on drive shaft end with plastic hammer and remove drive shaft from hub. Clean hub-drive shaft splines of metal glue.

3) On right drive shaft, remove bearing cap from drive shaft support bearing. Using care to avoid damage to drive shaft seal and boot, remove drive shaft from gearbox. On left drive shaft, use Lever (999 5462) to apply leverage between gearbox and inside of drive shaft. Using care to avoid damage to drive shaft seal and boot, remove drive shaft from gearbox.

Disassembly

1) Remove clips from outer boot. Remove outer boot from outer CV joint. Wipe grease from outer CV joint. Clamp drive shaft in vise with gap in circlip at top. Open circlip to free it from groove. Insert an 8 mm diameter drift between circlip lugs. Tap inner race a few times along shaft to hold circlip open. Use a brass drift and tap CV joint off shaft.

NOTE: To avoid damaging cage or outer race, tap inner race only.

2) Remove clips from inboard boot and slide both boots off shaft. Ensure grease inside joints is not contaminated by water or dirt. For reassembly reference, scribe positions of outer race, cage, and inner race in CV joint.

3) For reassembly reference, mark location where balls will first be removed. Tilt inner race and cage and remove balls one at a time, moving in a clockwise direction. Put balls in order so they can be installed in original location. Rotate inner race 90 degrees relative to cage. Remove inner race. Remove circlip from inner race.

4) Remove clips from inner boot. Slide boot off inner

universal joint. On manual transmission vehicles, use a rag and remove grease from inboard universal joint. Mount drive shaft in a vise, with gap in circlip facing upward. Open circlip to free it from groove and insert an 8 mm drift between circlip lugs. Tap inner race a few times along shaft to hold circlip open. Using a brass drift, tap inner universal joint off shaft.

5) On automatic transmission vehicles, mark position of drive shaft relative to joint housing. Pry up tabs on housing and remove spider from housing. On all vehicles, if support bearing requires replacement, place unit in a press and press circlip and support bearing off shaft.

Reassembly

1) Thoroughly clean all CV joint parts. On manual transmission vehicles, clean inner universal joint in place as it cannot be disassembled. On automatic transmission vehicles, spider can be left on end of shaft. On all vehicles, if any part shows signs of cracking or scoring, entire CV joint assembly must be replaced.

NOTE: Slight scoring or pitting in races is acceptable.

2) Press on new support bearing and circlip. Ensure support bearing is installed against the stop. On manual transmission vehicles, install new circlip in inner universal joint. Pack joint with grease. Ensure boot is okay. If boot is not okay, go to next step.

3) For manual transmission vehicles, go to step 4). For automatic transmission vehicles, mark spider in relation to drive shaft mark. Remove circlip. Press spider off shaft. Remove boot from shaft. Install new boot on shaft. Line up spider with mark made previously, ensuring bevelled side of spider goes in first. Ensure drive shaft is kept straight when applying pressure to spider with press. Install new circlip. Lubricate needle bearings on spider using thin lubricating oil. Pack bearing housing with grease.

4) For manual transmission vehicles, mount outboard drive shaft in a vise, ensuring inner race is square inside joint. Tap shaft into joint, ensuring circlip is properly seated in groove. Pack remaining grease into joint, using care not to get any grease on part of boot that makes contact with joint. Clean off all excess grease. Slide boot over joint, ensuring it is correctly positioned on shaft. Install new circlip on boot.

5) For all vehicles, install new circlip in inner race and place race inside cage. Line up scored marks and put first ball in position. Turn inner race and cage. Put balls back in their original position, one at a time.

6) Thoroughly lubricate joint. Apply grease to back of joint through opening for shaft in inner race. If joint has not been dismantled, remove old circlip and replace. Mount shaft in vise and slide new boot onto shaft. Install CV joint on shaft, ensuring inner race is square inside joint. Use a plastic hammer and tap joint onto shaft. Ensure circlip sits correctly in its groove.

7) Apply remaining grease to inner race and cage. Use care to not get any grease on part of boot that comes in contact with joints. Wipe off excess grease with mineral spirits. Slide boot over joints, ensuring they are correctly positioned on shaft. Install new circlip on boot.

Installation

1) For right drive shaft installation, install bearing cap and tighten to 18 ft. lbs. (25 N.m). For left drive shaft installation, ensure ABS sensor wheel on drive shaft is free of dirt. Push drive shaft in so it engages with differential. Ensure drive shaft circlip snaps into place. See Fig. 1. Use care not to damage

gearbox seals or bellows.

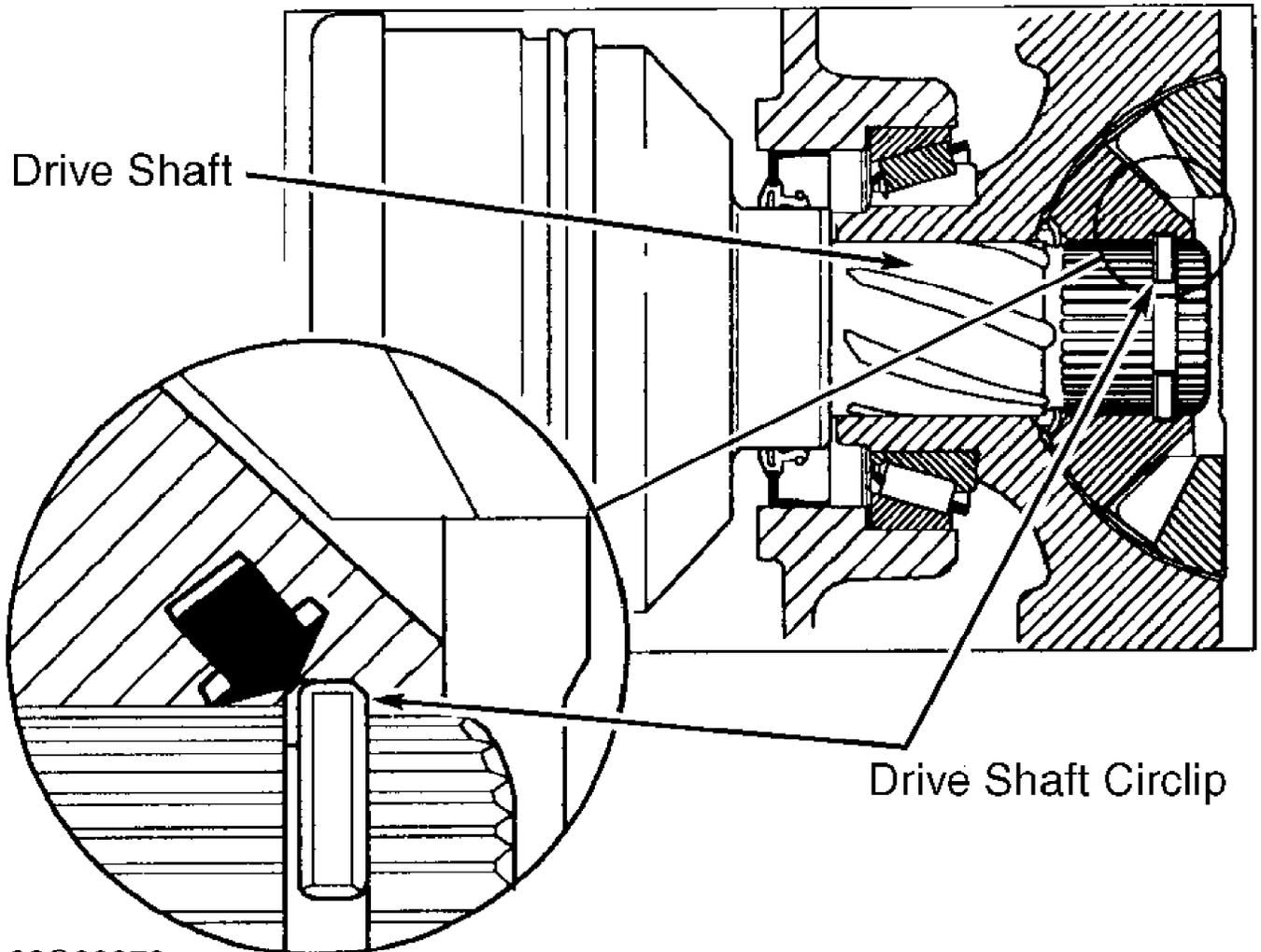


Fig. 1: Installing Left Drive Shaft
Courtesy of Volvo Cars of North America

2) Apply Metal Glue (1161370-0) to drive shaft splines. Use a socket wrench to hold suspension arm down. Twist and remove MacPherson strut and insert drive shaft into hub. Oil new drive shaft center nut threads and flange. Hand tighten new drive shaft center nut. Using new nuts, install suspension arm to ball joint.

NOTE: Ensure ball joint and suspension arm faces are clean and free of grease.

3) Tighten nuts to 13 ft. lbs. (18 N.m), plus an additional 120 degrees. Apply rust proofing to area between ball joint, suspension arm, and nuts. Using new nuts, install suspension arm to anti-roll bar. Tighten nuts to 37 ft. lbs. (50 N.m). Tighten center nut to 80 ft. lbs (120 N.m), plus an additional 120 degrees. Lock drive shaft center nut by using a chisel and tapping nut locking flange into drive shaft slot.

4) Install brake line bracket and ABS cable, ensuring ABS sensor is perfectly clean. Tighten ABS sensor to 7 ft. lbs. (10 N.m). Ensure brake disc and pad surfaces are clean. Lubricate hub center

locating pin in front of pad with Rust Proofing Agent (1161038-3).
Install, but do not tighten, lug nuts. Tighten lug nuts in opposite
pairs to 81 ft. lbs. (110 N.m).

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
ABS Sensor	7 (10)
Bearing Cap	18 (25)
Lug Nuts	81 (110)
Suspension Arm Nuts	(1) 13 (18)
Suspension Arm To Anti-Roll Bar	37 (50)
Suspension Arm To Anti-Roll Bar Center Nut ..	(1) 80 (120)

(1) - Tighten an additional 120 degrees.
