

AXLE SHAFTS - FRONT

Article Text

1987 Volkswagen Quantum/Quantum Syncro
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Sunday, March 19, 2000 01:02AM

ARTICLE BEGINNING

1987 Drive Axles
VOLKSWAGEN FWD AXLE SHAFTS

DESCRIPTION

Axle shafts transfer power from transaxle to driving wheels. All axle shafts consist of a shaft and flexible Constant Velocity (CV) joint at each end. Inner CV joint is splined or bolted to transaxle. Outer CV joint is splined to hub assembly and secured by axle shaft nut.

The inner and outer CV joints are enclosed by a CV joint boot. The boot maintains lubrication in the joint and prevents contamination from entering the joint. Boots must be replaced when signs of leakage or cracks are present. The inner CV joint can be repaired without replacing assembly. The outer CV joint must be replaced as an assembly.

There are 3 different types of axle shaft CV joints. The Double Offset Joint (DOJ). The Birfield Joint (BJ) and the Tripod Joint (TJ) (sometimes referred to as tripot). The inner CV joint is bolted to differential case drive flanges.

TROUBLE SHOOTING

TROUBLE SHOOTING CHART

AA	
Condition	Possible Cause
Grease Leaks	CV boot torn or cracked
Clicking Noise	
on Cornering	Damaged outer CV
Clunk Noise	
on Acceleration	Damaged inner CV
Vibration or Shudder	
on Acceleration	Sticking, damaged or worn CV
	Misalignment or spring height
AA	

REMOVAL, DISASSEMBLY, REASSEMBLY & INSTALLATION

AXLE SHAFTS

CAUTION: Vehicle weight must not be allowed to rest on wheel bearings and hub, WITHOUT axle shaft installed and axle shaft nut tightened to specification.

Removal

1) Remove hub cap. Loosen axle shaft nut. Raise and support vehicle. Remove axle nut and wheel. Remove Allen bolts connecting inner CV joint to transmission case flange. See Fig. 1.

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2) Mark position of both ball joint flanges on control arms. Remove ball joint from control arm and pull pivot mounting outward while removing axle shaft. Press axle shaft out of hub with puller and guide past transaxle.

NOTE: Axle shafts should be disassembled ONLY to replace defective rubber boots. If boots are replaced, check all components for wear or damage and replace assembly if necessary.

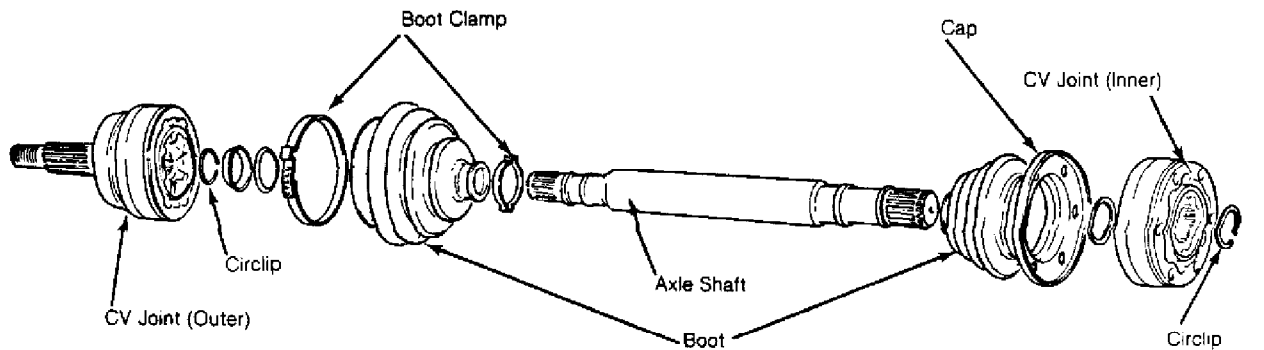


Fig. 1: Exploded View of Typical Volkswagen Axle Shaft Assembly

Disassembly

1) On inner CV joint, remove circlip from axle shaft and drive protective cap from CV joint. Place axle shaft in Holder (VW402) and press CV joint from shaft with Adapter (VW408a), supporting hub to prevent damage.

2) Pivot hub and cage assembly out of inner joint. Push out and remove balls. Align ball hub grooves with cage and remove hub. See Fig. 2.

NOTE: Inner CV joint and ball hub are matched sets. DO NOT interchange with outer joint. CV joint balls cannot be interchanged between CV joints.

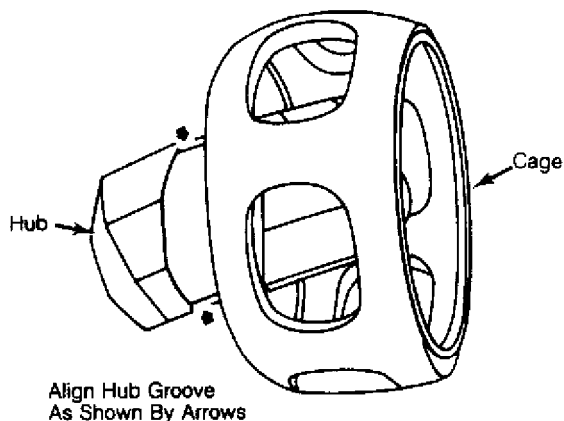


Fig. 2: Removing Volkswagen Inner CV Joint Ball Hub

3) Remove and discard inner boot clamp and boot. On outer CV

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joint, spread circlip inside ball hub and drive CV joint off axle shaft with brass drift by tapping on hub. Mark position of ball hub and outer joint. Tilt cage and remove each ball.

4) Align cage perpendicular to joint. Align 2 large openings of cage with raised portions of joint and remove cage and hub. Position one retainer of hub in large opening and remove hub by tilting outward. Remove and discard outer boot and clamp.

Reassembly

1) To reassemble CV joints, reverse disassembly procedure and note the following: lubricate joints with 3 ozs. of molybdenum disulphide grease. After inserting balls into inner CV joint hub and cage, insert hub and cage into joint in a perpendicular position.

2) Chamfer of ball hub splines must face larger diameter of joint. Rotate ball and cage into position and ensure CV joint wide ball groove and narrow hub groove are on same side of joint. See Fig. 3. Joint is correctly assembled if hub can move over shaft splines by hand.

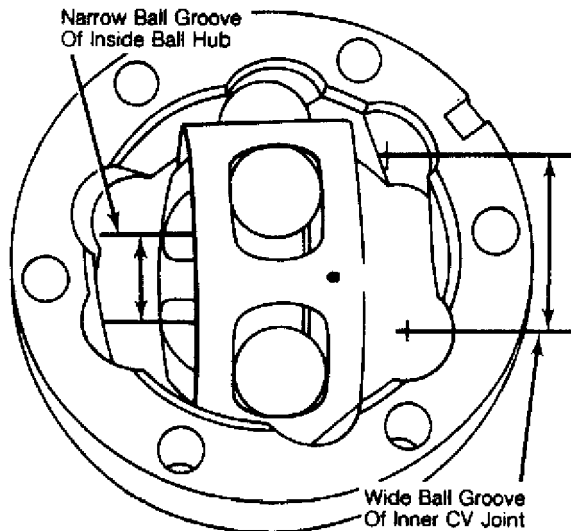


Fig. 3: Installing Volkswagen Ball Hub & Cage

3) Outer CV joint alignment marks must match after reassembly. Replace dust boots and clamps. Install CV joints onto axle shaft with inside ball hub chamfer facing shaft.

4) Outer CV joint must be assembled with dished washer concave side facing thrust washer and convex side of thrust washer facing CV joint. See Fig. 4.

5) Inner CV joint must be assembled with dished washer concave side facing CV joint when installed on shaft. Install boot clamps with open end facing opposite direction of normal rotation. Always use new circlips to retain CV joints on shafts.

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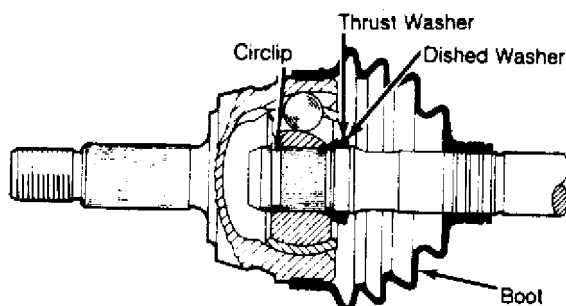


Fig. 4: Installation of Volkswagen Dished & Thrust Washers

Installation

1) To install, reverse removal procedure and note the following: install a new side retainer ring. Check seals at both ends of axle shaft and replace prior to installation if necessary. Lubricate transaxle seal lip with transaxle oil.

NOTE: Always install new cotter pin, washer and suspension nuts.

2) Install axle shaft into transaxle case. On all models with snap ring retained axle shafts, try to pull axle shaft out of differential by hand to ensure proper engagement of snap ring. Install axle shafts into wheel hub. Align suspension marks made at removal and tighten nuts. On Audi Coupe models, apply (D6) locking compound to splines.

3) Check camber setting and adjust if necessary. Stake axle shaft nut in place with a punch or install new cotter pin after tightening. Bleed brake system and replace transaxle fluid, if required.

TORQUE SPECIFICATIONS

TIGHTENING SPECIFICATIONS TABLE

AA

Application	Ft. Lbs. (N.m)
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Volkswagen

Axle Shaft Nut	203 (280)
Ball Joint Nut	47 (64)
Brake Caliper Bolts	83 (115)
CV Joint Bolt	32 (43)
Stabilizer Bar Bolts	18 (21)

AA

END OF ARTICLE