

AXLE SHAFTS - FRONT

1993 Toyota Celica

1993 DRIVE AXLES
Toyota FWD Axle Shafts

Toyota; Celica

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 CV joint is a plunging tripod joint. The plunging action allows for axle shaft length change as suspension moves up and down.

The inner and outer CV joints are enclosed by a CV joint boot. The boot maintains lubrication in the joint and prevents contamination of CV lubricant. 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.

REMOVAL, DISASSEMBLY, REASSEMBLY & INSTALLATION

NOTE: Manufacturer recommends removing right axle shaft and intermediate shaft as an assembly

Removal

1) Raise and support vehicle. Remove cotter pin, lock nut cap and lock nut. Apply brake and remove lock nut from wheel bearing. Remove engine undercover. Drain transaxle fluid. Remove cotter pin and nut from tie rod end.

2) Using Tie Rod Remover (09628-62011), disconnect tie rod end from steering knuckle.

3) Paint mating marks on axle shaft flange and side gear shaft flange. DO NOT use punch to make mating marks. Apply brakes and loosen, but DO NOT remove, 6 retaining nuts on each inboard axle shaft flange.

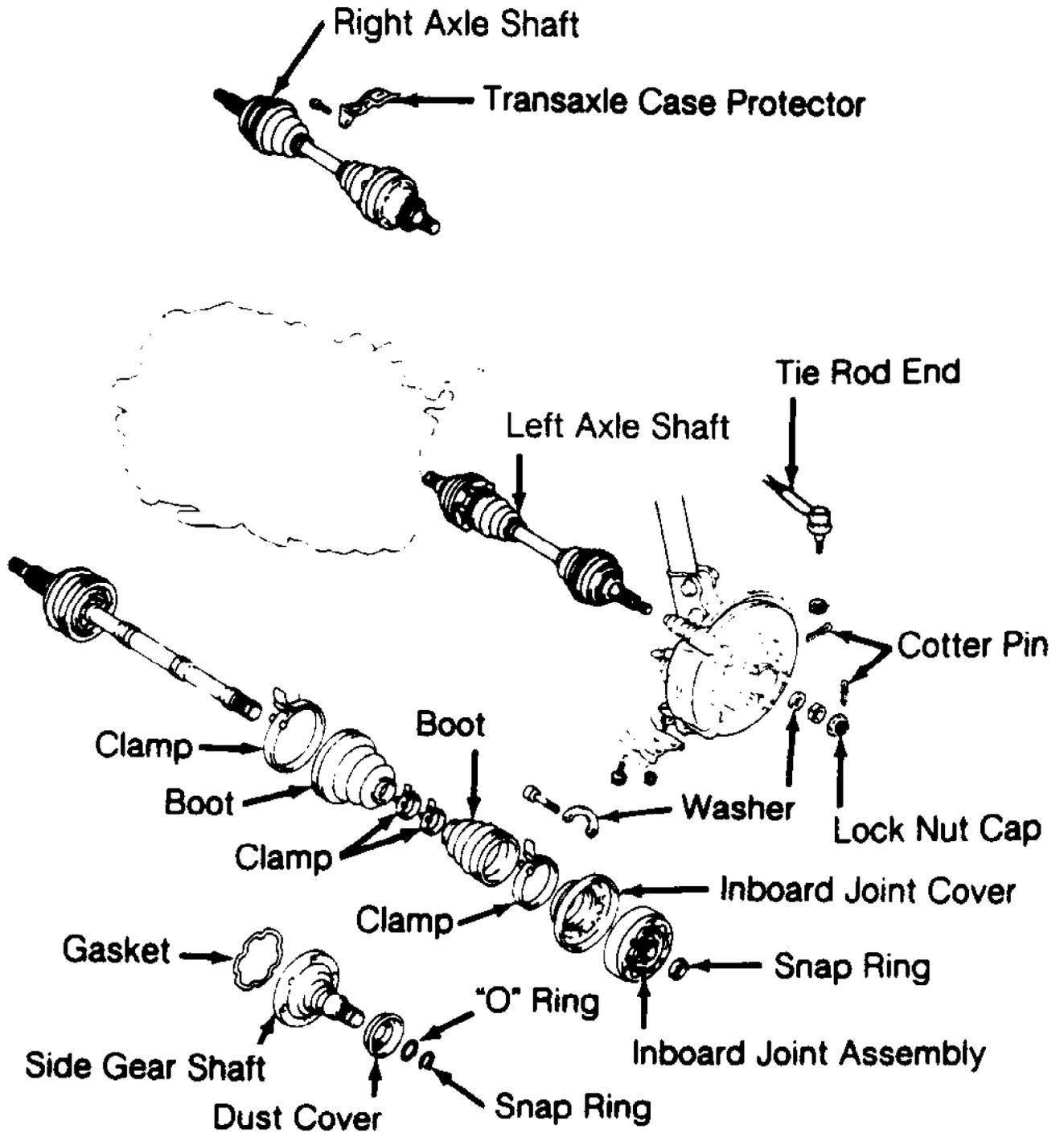
4) Push front axle hub toward outside of vehicle. Use a plastic hammer to separate axle from steering knuckle if necessary. Remove axle shaft from axle hub.

5) Use a pry bar to separate left axle shaft from transaxle. On Celica All-Trac, use a brass drift and hammer to separate right axle shaft from transaxle.

6) To remove side gear shaft, use a slide hammer to pull side gear shaft out of transaxle. Inspect side gear and side gear shaft seal for damage. Replace as necessary.

Disassembly

Ensure no play exists in outboard joint. Inboard joint must slide smoothly in thrust direction and be free from excessive play in radial direction. Remove CV joint boot clamps, and slide boots away from joint. Paint alignment marks on CV joint housings, tripod and shaft(s) for reassembly reference. Disassemble axle shafts using exploded view for guide. See Fig. 1.



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Fig. 1: Exploded View Of Front Axle Shafts (Celica All-Trac)
 Courtesy of Toyota Motor Co., U.S.A., Inc.

Reassembly

1) To reassemble axle shafts, reverse disassembly procedure.
 Tighten inboard CV joint cover bolts as shown. See Fig. 2.

2) Ensure dust boots are not collapsed or stretched. Pack boots with grease supplied in overhaul kit. Set axle shaft to standard length. See AXLE SHAFT LENGTH SPECIFICATIONS table. Install and tighten boot clamps.

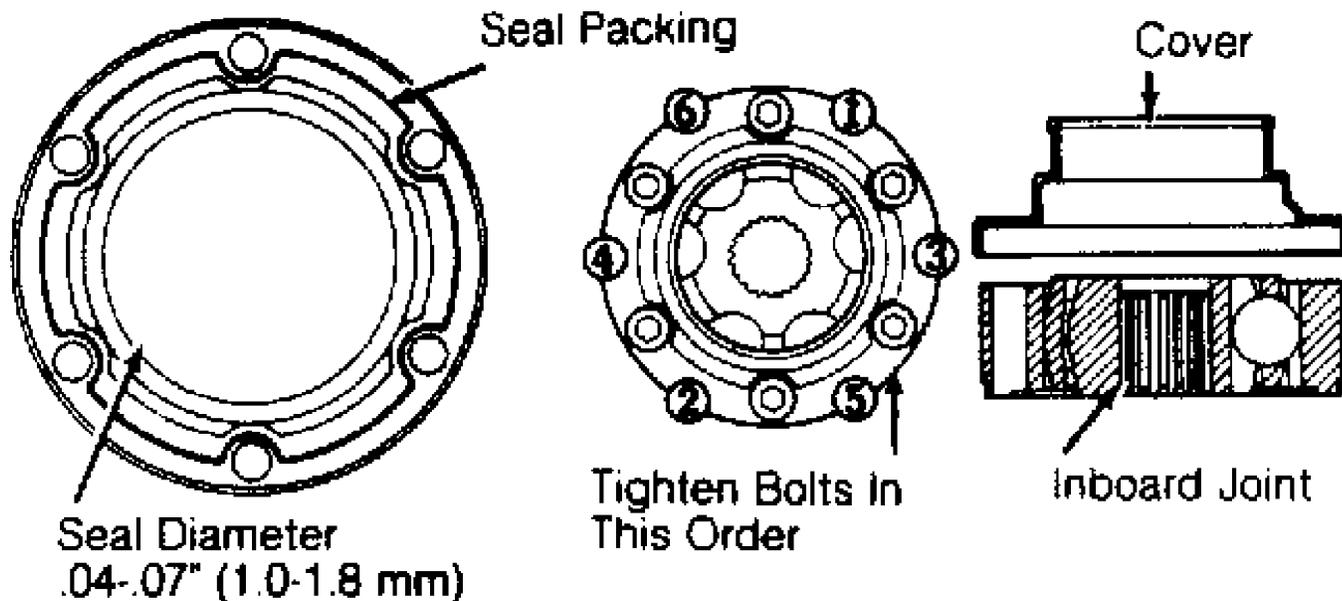


Fig. 2: Tightening Inboard CV Joint Cover Bolts (Celica All-Trac)
 Courtesy of Toyota Motor Co., U.S.A., Inc.

Installation

To install, reverse removal procedure. Ensure there is no free play in inboard and outboard joint. To ensure proper engagement of snap ring, attempt to pull axle shaft out of differential by hand. Install axle shafts into wheel hub. Align suspension marks made at removal and tighten nuts.

Removal (Celica FWD)

- 1) Raise and support vehicle. Remove front wheels. Remove cotter pin and lock nut cap. Apply brakes and remove axle shaft/bearing lock nut. Remove lower engine undercover.
- 2) Drain transaxle fluid. Remove brake caliper with hydraulic line attached, and wire aside. Mark front brake disc-to-axle hub position for reassembly reference. Remove brake disc.
- 3) Remove nut and disconnect tie rod end from steering knuckle. Disconnect lower control arm from steering knuckle. Using universal puller, separate axle shaft from steering knuckle. Using a pry bar, remove left axle shaft from transaxle case.
- 4) On 5S-FE engine, remove 2 bolts from center bearing bracket. Remove right axle shaft and intermediate shaft as an assembly. On 4A-FE engine, using a hammer and brass punch, remove right axle shaft from transaxle case.

Disassembly

Ensure no play exists in inboard and outboard joints. Inboard joint must slide smoothly in thrust direction and be free from excessive play in radial direction. Remove CV joint boot clamps, and slide boots away from joint. Paint alignment marks on CV joint housings, tripod and shaft(s) for reassembly reference. Disassemble axle shafts using exploded view for guide. See Fig. 3.

Reassembly

1) To reassemble, reverse disassembly procedure. On 5S-FE engine, right axle shaft dust cover must be located 3.39-3.43" (86-87 mm) from end of shaft (splined end).

2) Clearance between dust cover and bearing should be .04-.08" (1-2 mm). On 4A-FE, locate damper on right axle shaft. See Fig. 4. On A/T models, distance should be 15.15" (384.7 mm). On M/T models, distance should be 16.99" (431.6 mm).

3) Ensure dust boots are not collapsed or stretched. Set axle shaft to standard length. See AXLE SHAFT LENGTH SPECIFICATIONS table. Install and tighten boot clamps.

Installation

To install, reverse removal procedure.

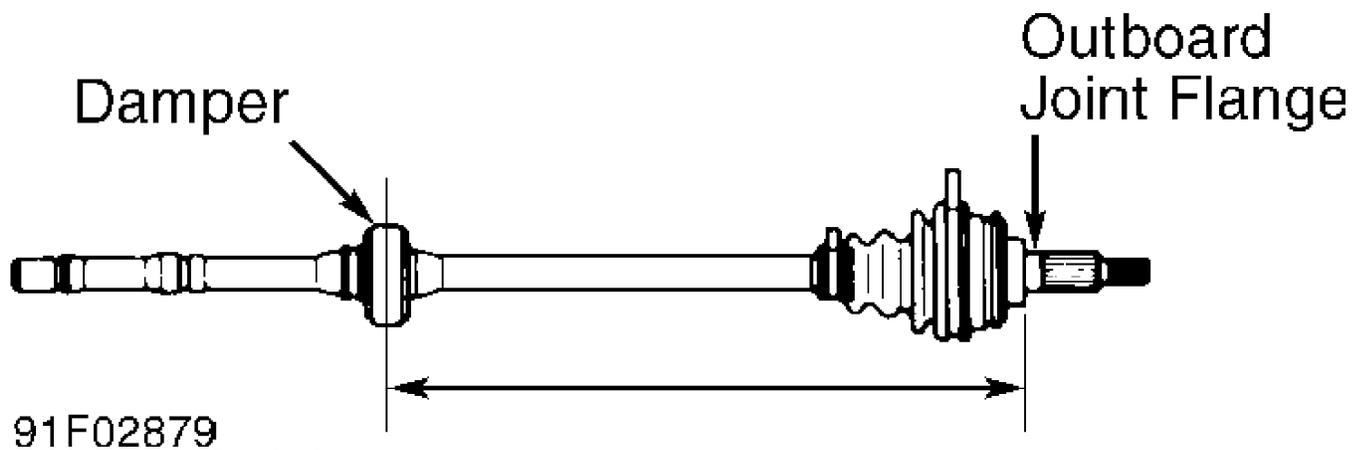


Fig. 4: Locating Axle Shaft Damper
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

AXLE SHAFT LENGTH SPECIFICATIONS TABLE

Application	Length - In. (mm)
Celica All-Trac (2) Right & Left Sides	15.96 (405.4)
Celica FWD (1) 4A-FE Engine A/T	
Left Side	21.05-21.45 (534.7-544.8)
Right Side	33.50-33.89 (850.8-860.8)
M/T	
Left Side	21.10-21.50 (536.0-546.0)
Right Side	33.77-34.17 (857.8-867.8)
5S-FE Engine	
Left Side	21.80-22.19 (553.7-563.7)
Right Side	33.08-33.47 (840.2-850.1)

(1) - See Fig. 5.
 (2) - See Fig. 6.

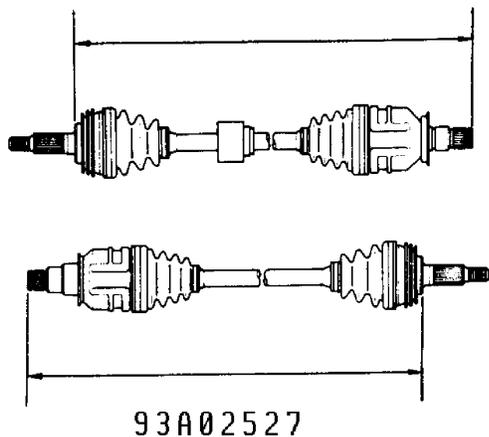
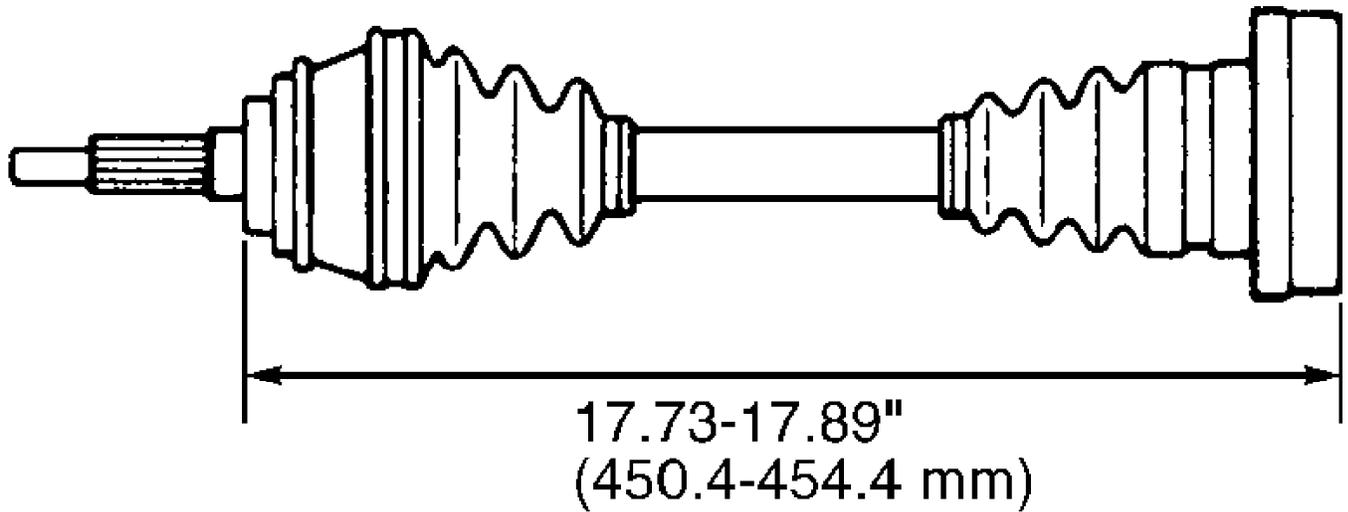


Fig. 5: Measuring Axle Shaft Standard Length (Celica FWD)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.



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Fig. 6: Measuring Axle Shaft Standard Length (Celica All-Trac)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Celica	
Axle Shaft/Bearing Lock Nut	166 (226)
Axle Shaft Inboard Joint Flange Bolts (All-Trac)	48 (65)
Bearing Bracket Bolts (5S-FE Engine)	47 (64)
Brake Caliper Bolts	79 (107)
Lower Control Arm-To-Steering Knuckle Bolts/Nuts	94 (127)
Tie Rod Nuts	36 (49)
Wheel Lug Nuts	76 (103)