

# DRIVE AXLE - REAR (CV JOINT)

1988 Toyota Celica

1988 RWD AXLE SHAFTS & CV JOINTS  
TOYOTA

Camry All-Trac, Celica All-Trac, Cressida, MR2, Supra

## DRIVE AXLE SHAFTS

Removal (Camry & Celica All-Trac)

1) Raise and support vehicle. Remove rear wheels. From center of disc brake hub, remove cotter pin and lock nut. On Celica All-Trac, disconnect the left side strut rod from the lower suspension arm. See Fig. 1.

2) On Camry and Celica models, place matchmarks on the inboard axle shaft flange and the differential flange. Remove the 4 nuts securing drive axle shaft to differential flange, and disconnect axle from differential. Slide axle shaft out of wheel hub and remove from vehicle.

Inspection

Ensure there is no play in inboard and outboard joints. Inboard joint should slide smoothly in the thrust direction. The inboard joint should not have excessive play in the radial direction. Check for torn or damaged boots.

Disassembly

1) Remove inboard joint boot clamps and slide boot off of inboard joint tulip. Paint matchmarks on inboard joint tulip and axle shaft. Remove inboard tulip from axle shaft.

2) Remove snap ring from tripod spider. Paint matching marks on tripod spider and axle shaft. Drive tripod spider off of axle using hammer and brass drift.

3) Remove inboard boot. Remove outboard boot clamps and slide boot off of joint.

NOTE: Toyota does not recommend overhaul of outboard CV joint assembly.

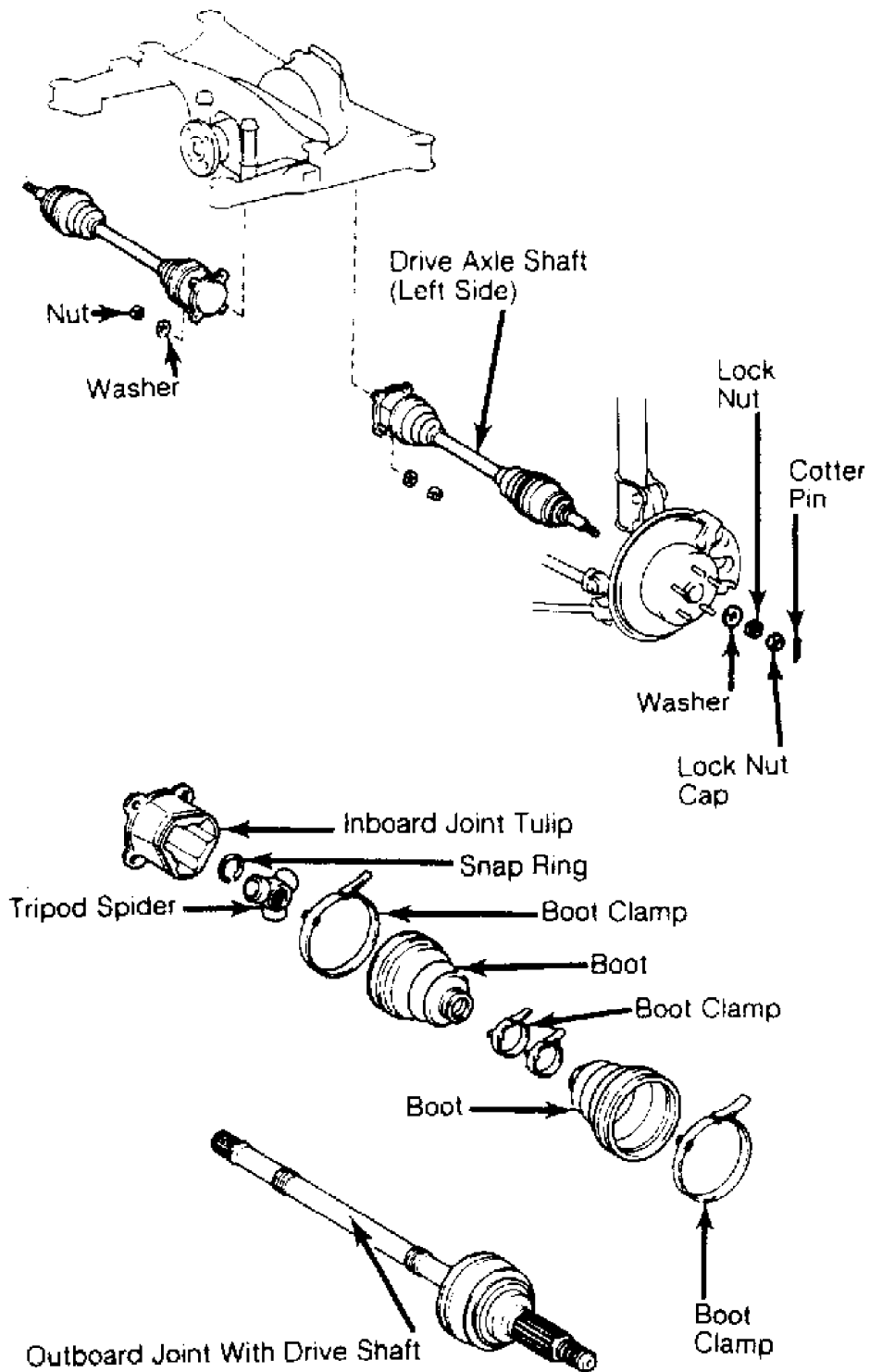


Fig. 1: Exploded View of Camry & Celica All-Trac Rear Axle Shaft  
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

Reassembly

- 1) Wrap vinyl tape around axle shaft splines. Temporarily

install new boots and clamps. Inboard and outboard boots are not the same design. See Fig. 2.

2) Aligning matching marks made at disassembly, install tripod spider onto axle shaft. Install snap ring.

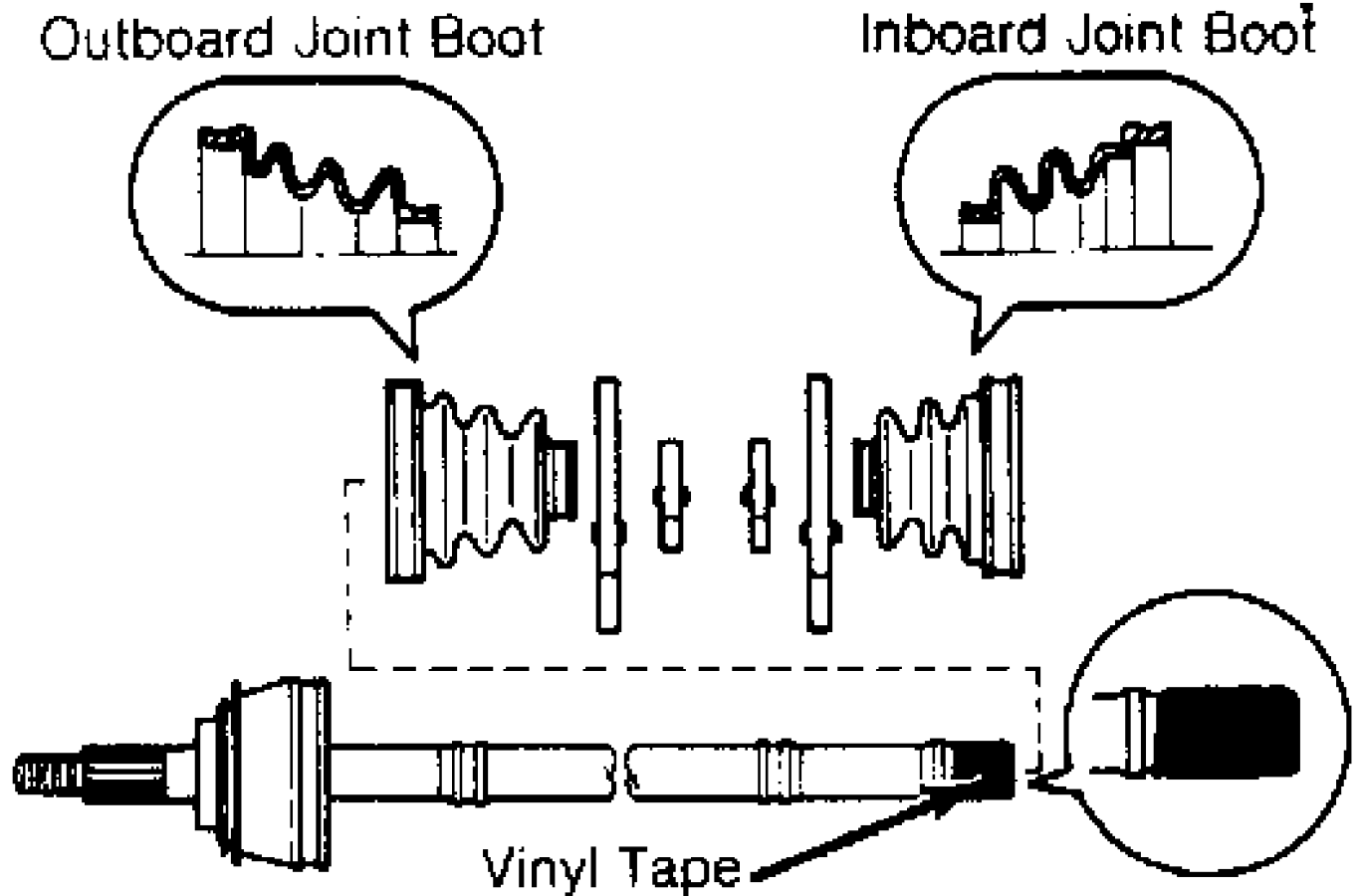
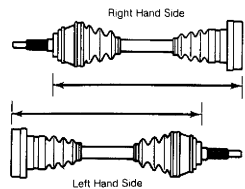


Fig. 2: Camry & Celica All-Trac Boot Identification.  
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

3) Pack inboard joint tulip with CV joint grease supplied in overhaul kit. Slide tulip over onto axle shaft. Install inboard boot, but do not tighten clamps yet.

4) Pack outboard joint with CV joint grease supplied in overhaul kit. Slide boot over joint, but do not tighten clamps. Ensure boots are not stretched or compressed with shaft at standard length. See Fig. 3. Tighten boot clamps.



Length  
 Camry All-Trac: 21.96" (557.7 mm)  
 Celica All-Trac: 21.39" (550.5 mm)

Fig. 3: Camry & Celica All-Trac Rear Axle Shaft Standard Length  
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

Installation

To install rear drive axle shaft, reverse removal procedure. Tighten inboard axle shaft flange nuts to 51 ft. lbs. (69 N.m). Tighten hub castle nut to 137 ft. lbs. (186 N.m). On left side of Celica All-Trac, tighten strut rod-to-lower suspension arm bolt to 83 ft. lbs. (113 N.m).

Removal (Cressida)

1) Raise and support vehicle. Place mating marks on the axle shaft flanges where they meet the differential and outboard axle shaft flanges.

2) Remove axle shaft flange retaining nuts. Remove axle shaft from vehicle.

Disassembly

1) Remove boot clamps for inboard and outboard boots. Slide boots to center of drive axle shaft.

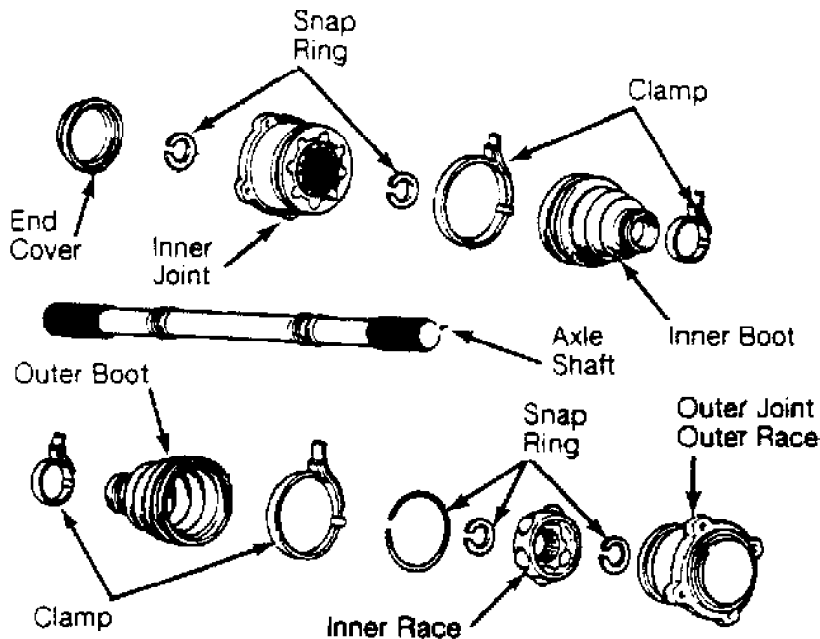
2) On outboard side of axle shaft, remove snap ring. See Fig. 4. Place mating marks (DO NOT use punch) on outboard joint outer race and axle shaft. See Fig. 5. Slide outer race from axle shaft. Replace outer race if worn or damaged.

3) Remove outboard joint balls from cage by tapping them lightly with plastic hammer. Remove snap ring. Paint mating marks on outboard joint inner race and axle shaft, and press inner race from axle shaft. Remove remaining snap ring and boots.

4) Pry end cover from inboard joint. Paint match marks on inner joint components and axle shaft. Remove snap ring and press inboard joint assembly from axle shaft.

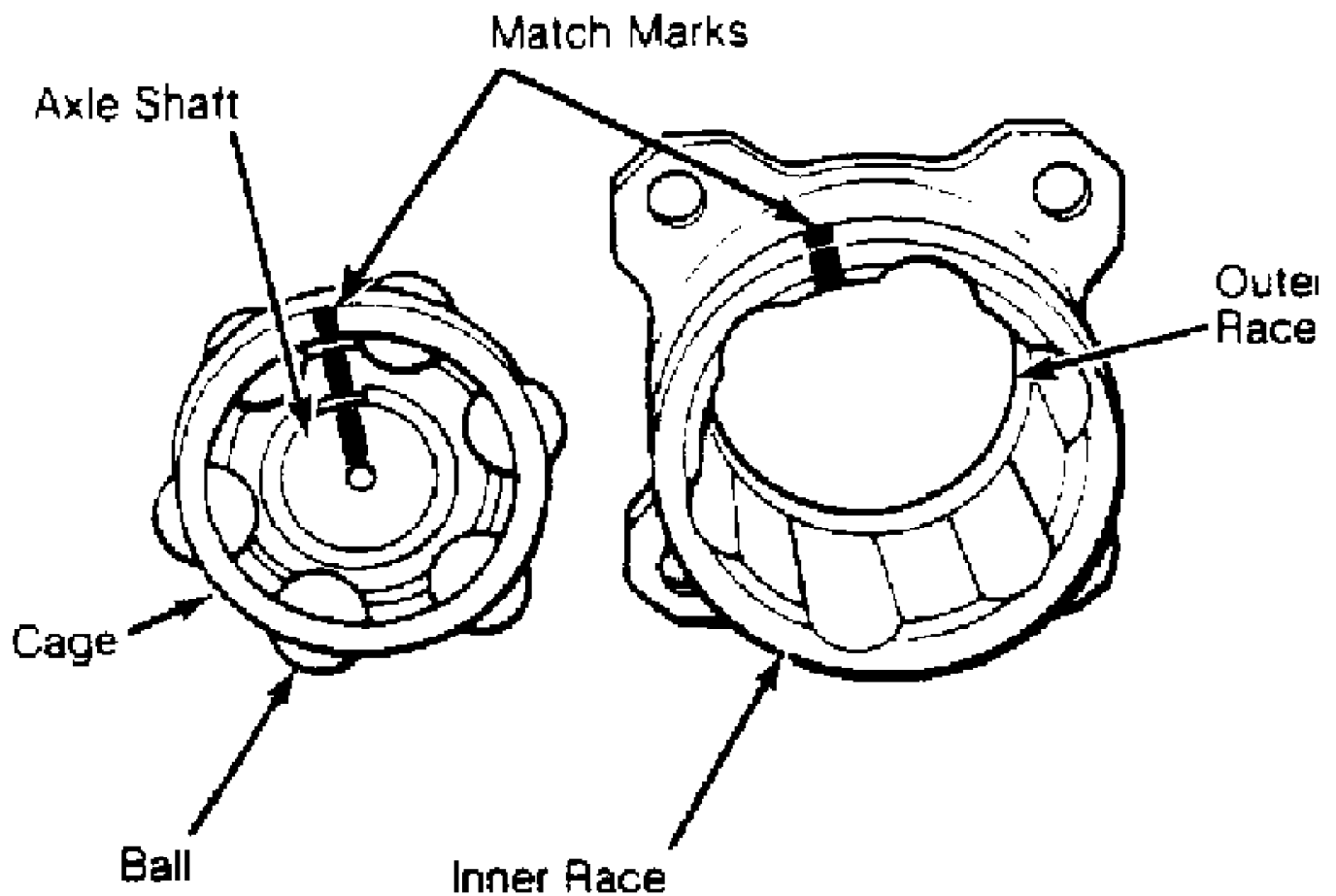
5) Clean all parts. Check parts for cracks, wear or damage. Replace as necessary.

NOTE: Toyota does not recommend overhaul of inboard joint on Cressida drive axle shaft. Replace as an assembly.



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Fig. 4: Exploded View of Cressida Rear Drive Axle Shaft  
Courtesy of Toyota Motor Sales, U.S.A., Inc.



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Fig. 5: Placing Match Marks on Outer CV Joint  
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

Reassembly

1) Wrap shaft splines with vinyl tape to prevent boot damage. Assemble new clamps on boots so that straps will bend opposite to direction of rotation. Without tightening boot clamps, install boots and clamps on shaft.

2) On outboard side of axle shaft, install new inner race snap ring. Place cage of outer joint onto shaft with LARGER diameter facing outward (toward wheels).

3) Align mating marks and press inner race onto drive shaft. Install new outer snap ring. Coat inner race, cage and balls with grease supplied in boot kit. Assemble cage and balls over inner race, and lightly tap balls into place with a plastic hammer.

4) On inboard joint, align mating marks on inner joint and shaft. Install new inner snap ring. Pressing on inner race only, press inboard joint onto axle shaft. Install new outer snap ring.

5) Using grease supplied in boot kit, lubricate inboard joint. Apply sealant around inner edge of end cover and install end cover on joint by tapping around edge.

6) On outboard joint, apply 2 ozs. (60 g) of supplied grease to both outer race and to boot. Install axle shaft into outer race. Install large snap ring in outer race.

7) On inboard joint, apply 2 ozs. (60 g) of supplied grease to both outer race and to boot of inner joint. Slide boots over inboard and outboard joints. Clamp boots in position so assembled

length of drive axle is 17.341-17.459" (440.50-443.50 mm), measured from outside edges of both flanges.

8) Lock clamps with lock positioned between flange bolt holes. Turn both joints and stretch boot to ensure that it does not deform.

#### Installation

Align mating marks made at removal, and install drive axle shafts. Install drive shaft with narrow distance between boot band and flange at differential side. Tighten flange nuts to 51 ft. lbs. (69 N. m).

#### Removal (MR2)

1) Raise and support vehicle. Remove rear wheels. Remove cotter pin and lock nut cap from center of hub. Set parking brake and remove hub nut.

2) Remove 2 ball joint retaining nuts and separate lower arm from axle hub carrier. Remove cotter pin and castle nut, and separate tie rod end from axle hub carrier.

3) On non-supercharged models, remove 6 nuts retains axle flange to side gear shaft. On supercharged models, place mating marks on axle and side gear flanges. Remove 6 Allen head bolts.

**CAUTION:** To prevent inboard joint from coming apart, do not compress boots when removing drive axle shaft.

4) On both models, move the hub carrier toward the outside of the body and separate drive axle shaft from side gear shaft. DO NOT compress inboard boot.

5) Cover inboard joint to prevent dirt from entering bearing. Tap outboard end of drive axle shaft out of hub carrier. Remove drive axle shaft from vehicle.

6) If side gear shafts or differential oil seals are being removed, push side gear shaft completely into differential. Note distance between side gear shaft and transaxle case.

7) Remove side gears using a slide hammer attached to side gear flange. Pry out oil seals.

#### Disassembly & Reassembly

Overhaul of MR2 drive axle shafts is similar to Corolla. See FWD AXLE SHAFTS & CV JOINTS article in this section.

**CAUTION:** When installing side gear shaft, always replace circlip that retains side gear shaft to differential. Do not compress inboard joint during installation.

#### Installation

1) Install oil seals and side gear shafts (if removed). Lubricate oil seal lips. Ensure distance between side gear shaft and transaxle housing is same as when removed. Normal side gear shaft end play is .0-.20" (2-3 mm).

2) On supercharged models, pack a small amount of CV joint grease into the center of the side gear shaft flange. Install new gasket onto flange.

3) On all models, install outboard side of axle shaft to hub carrier. On inboard joint, align dowel pin holes (non-supercharged) or matching marks (supercharged) of drive axle flange and side gear flange. Install retaining nuts or bolts finger tight.

4) Connect suspension components to axle hub carrier. Tighten inboard axle flange nuts or bolts. Tighten hub nut to specifications. Continue installation in reverse of removal procedure.

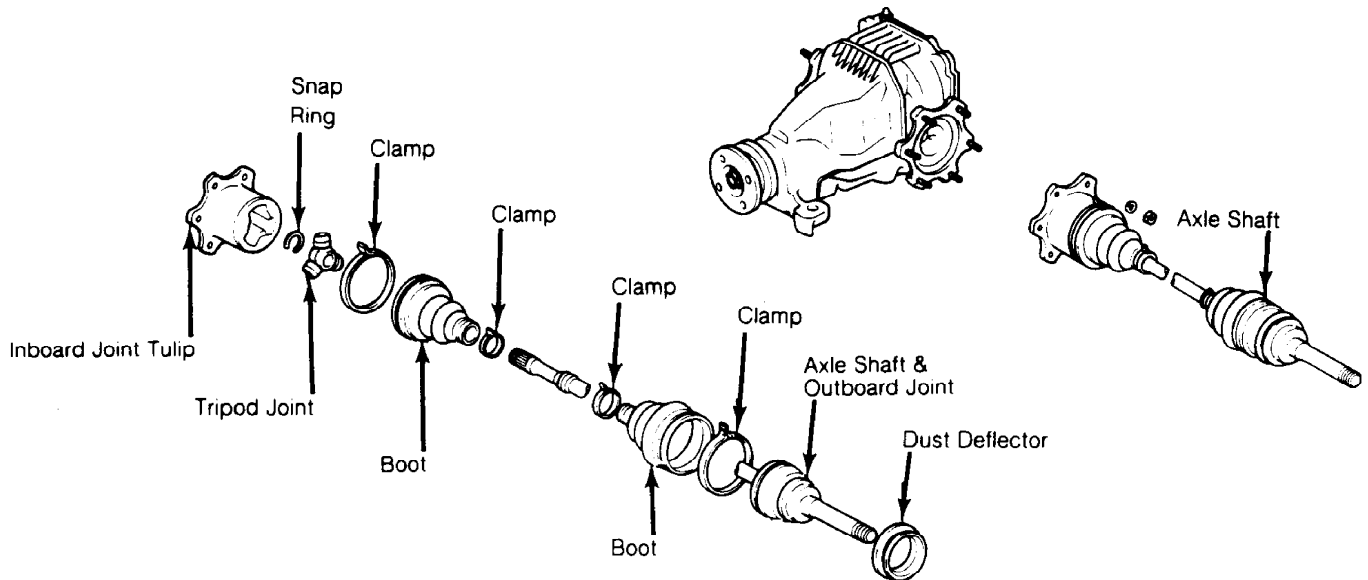
#### Removal (Supra)

- 1) Raise and support vehicle. Remove rear wheels.
- 2) Using jack, raise the lower suspension arm until it is horizontal. Paint matching marks on inboard drive axle flange and side gear flange. Remove 6 flange retaining nuts. See Fig. 6.
- 3) On outboard end of drive axle shaft, remove cotter pin, lock nut cap and hub nut. Tap axle shaft out of hub carrier, and remove drive axle shaft from vehicle.

#### Disassembly

- 1) Check for play in CV joints. Ensure CV joints slide smoothly in thrust direction. Remove inboard joint boot clamps and slide boot back. Using paint, mark inboard joint tulip and tripod. DO NOT use a punch to mark parts.
- 2) Remove inboard joint tulip. Remove snap ring. Using scribe, place matching marks on axle shaft and tripod joint. Using brass bar and hammer, drive tripod joint off of axle shaft.
- 3) Remove inboard boot. Remove outboard joint boot clamps. Remove dust deflector.

NOTE: Toyota does not recommend overhaul of outboard joint.



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Fig. 6: Exploded View of Supra Rear Drive Axle Shaft  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

#### Reassembly

- 1) Install dust deflector. Wrap shaft splines with tape. Temporarily install outboard and inboard joint boots. Aligning marks made during disassembly, install tripod joint on shaft with beveled side of tripod splines facing toward outboard joint.
- 2) Install snap ring on tripod joint side of axle shaft. Apply CV joint grease to outboard joint and boot. Install outboard boot, but do not tighten clamps.
- 3) Pack inboard joint tulip with grease. Aligning marks made during disassembly, place inboard tulip onto tripod spider. Install boot, but do not tighten clamps.
- 4) Set axle shaft to standard length of 21.724-21.824" (551.80-554.80 mm). Measure length from differential side of inboard flange to shoulder of outboard joint that seats against the hub bearing. Boots should not be compressed or expanded. Tighten boot clamps.

### Installation

Grease splines of outboard joint. With lower suspension arm horizontal, install axle splines into hub carrier. Continue installation in reverse of removal procedure. Tighten hub nut and axle flange nuts to specification.

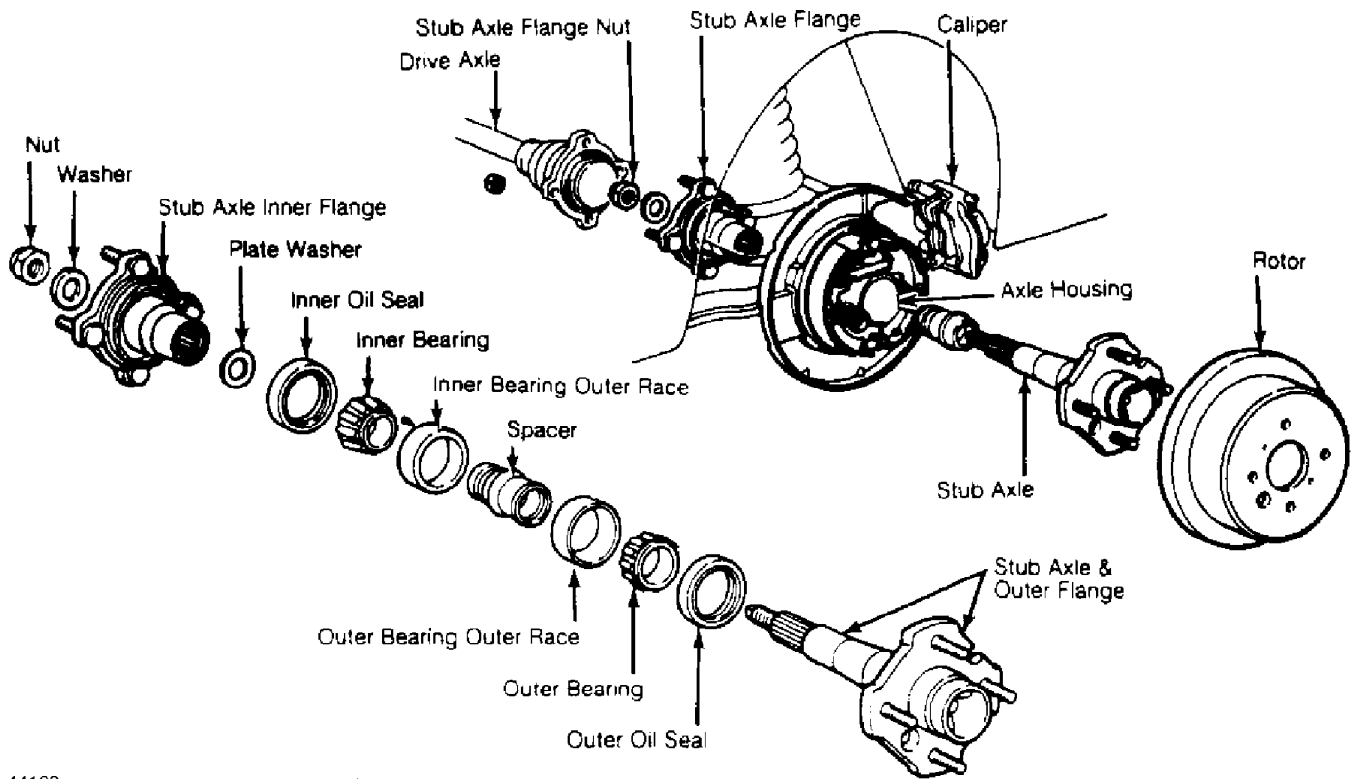
## STUB AXLE SHAFTS & BEARINGS

### Removal (Cressida)

1) Raise vehicle. Remove rear wheel. After placing matching marks on flanges, disconnect outer CV joint from stub axle inner flange.

2) Remove caliper and support out of way, being careful of brake line. Release parking brake fully and remove rotor.

3) Loosen staked portion of inner stub axle flange nut. Remove inner flange nut and washer. Remove inner flange and plate washer from stub axle shaft using Puller (09557-22022). See Fig. 8.



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Fig. 7: Stub Axle Assembly (Cressida)  
Courtesy of Toyota Motor Sales U.S.A., Inc.

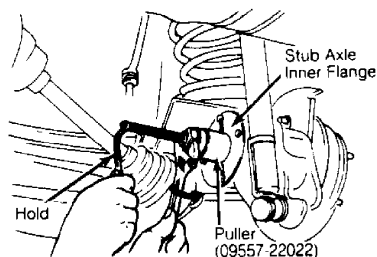


Fig. 8: Removing Stub Axle Inner Flange (Cressida)  
Courtesy of Toyota Motor Sales U.S.A., Inc.

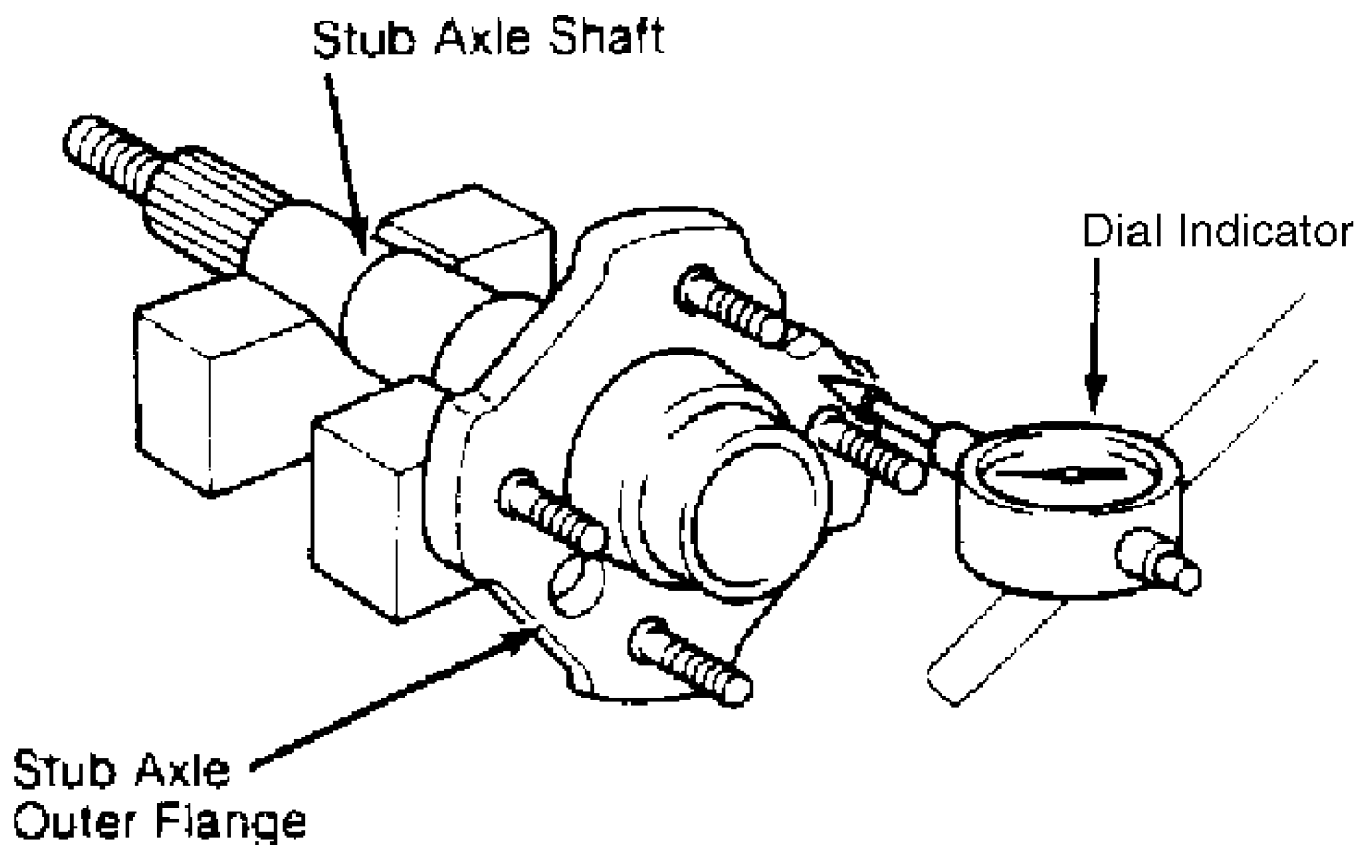


4) Using a slide hammer attached to stub axle flange, remove stub axle with seal and outer bearing. Pry inner seal from housing and take out inner bearing. Drive stub axle bearing outer races from housing with brass drift. Press outer bearing off of stub axle shaft and remove seal.

#### Inspection

1) Inspect stub axle shaft and outer flange for damage or wear. Replace stub axle if runout at flange exceeds .004" (.10 mm). See Fig. 9.

2) Clean and dry bearings and races. Inspect for pits, scoring or heat damage. Bearing and outer race must be replaced as set if either is damaged.



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Fig. 9: Checking Stub Axle Flange Runout  
Courtesy of Toyota Motor Sales U.S.A., Inc.

NOTE: During installation, the following parts should be replaced:  
collapsible spacer and axle flange nut.

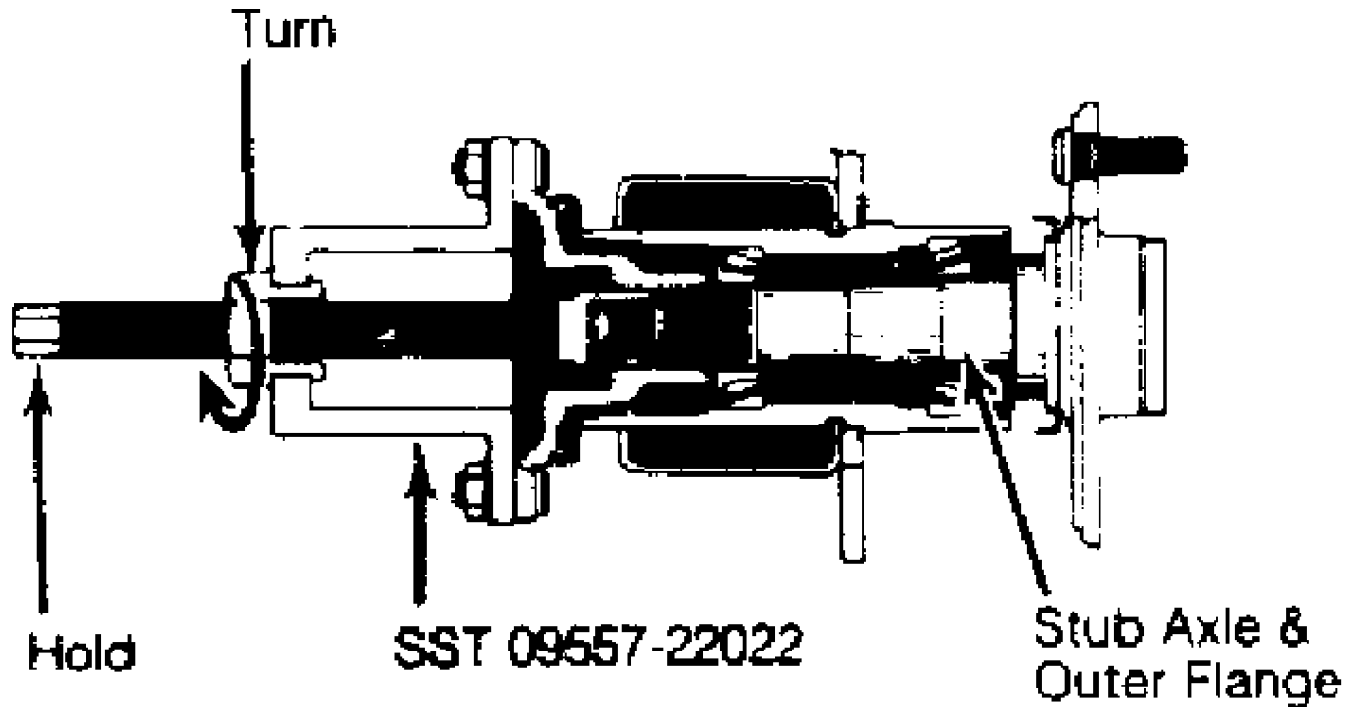
#### Installation

1) Pack bearings with MP grease No. 2. Drive outer race of inner bearing into housing. Place inner bearing in race. Drive new inner seal into housing until it is seated against bearing. Drive outer race of outer bearing into housing.

2) Pack inside of housing, and coat outside of new spacer, with MP grease No. 2. Install NEW collapsible spacer in hub. Place outer bearing in race and drive new outer seal against bearing. Coat

seal lips with No. 2 grease.

3) Install stub axle shaft in bearings. Install inner flange with plate washer in housing after lightly coating flange with grease. Use Puller (09557-22022) to align inner flange and axle shaft tip. Ensure no grease gets on shaft threads. See. Fig. 10.



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Fig. 10: Installing Cressida Stub Axle  
Courtesy of Toyota Motor Sales U.S.A., Inc.

4) Install NEW flange nut with washer. Tighten nut to 29 ft. lbs. (39 N.m). Ensure axle shaft has some end play. Rotate shaft in both directions a few times.

5) Using a torque wrench on the stub axle nut, measure and note the rotating torque (bearing preload) of the shaft. Tighten flange nut to 58 ft. lbs. (78 N.m).

6) Check to see that rotating torque of seals and bearings is 0.9-3.5 INCH lbs. (.10-.40 N.m). Turn flange one revolution per 6 seconds while measuring. If preload is too low, tighten nut 5-10 degrees at a time until specified preload is reached.

CAUTION: Maximum torque on flange nut is 144 ft. lbs. (196 N.m).

7) If maximum rotating torque is exceeded, new outer bearing, oil seal and new collapsible spacer must be installed. Measure rotating torque again. Stake flange nut.

8) Install rotor and check parking brake adjustment. Install caliper. Attach outer CV joint to inner stub axle flange and tighten nuts to specification. Install rear wheel.

## REAR AXLE HUB & CARRIER

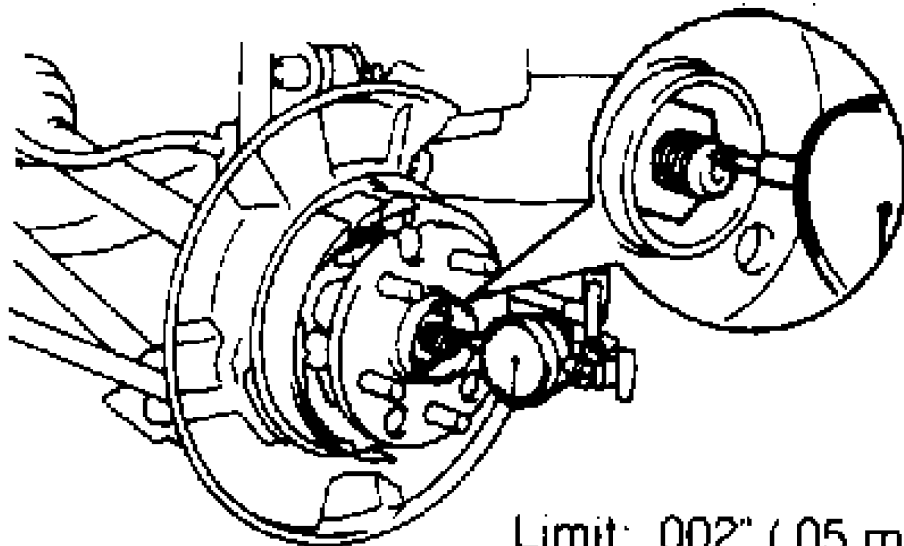
Removal (Camry & Celica All-Trac, MR2)

1) Raise and support vehicle. Remove rear wheel. Disconnect parking brake cable. Remove disc brake caliper without disconnecting

hydraulic line. Place matching marks on rotor and axle hub and remove disc brake rotor. See Fig. 12. See Fig. 13.

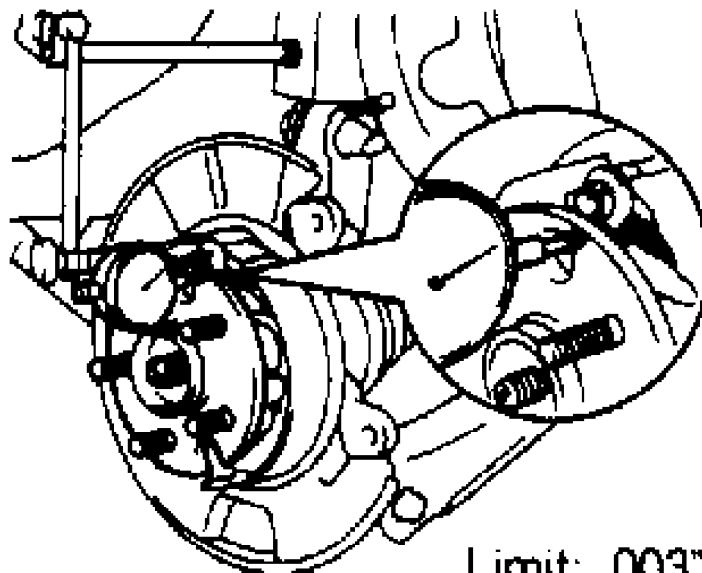
2) Check hub bearing end play and axle hub runout. See Fig. 11. Remove parking brake assembly and cable. Remove cotter pin, lock nut cap and drive axle shaft hub nut.

## BEARING END PLAY



Limit: .002" (.05 mm)

## AXLE HUB RUNOUT



Limit: .003" (.07 mm)

Fig. 11: Checking Toyota Axle Hub & Bearings  
Courtesy of Toyota Motor Sales U.S.A., Inc.

3) After noting the camber setting on adjusting cam, remove the 2 bolts securing the axle carrier to the shock strut. Disconnect strut rod and suspension arms from the axle carrier.

4) Tap drive axle shaft from center of axle hub, and remove axle carrier from vehicle.

Disassembly & Reassembly

1) Remove inner oil seal and dust deflector (MR2 only) from carrier. Press axle hub from carrier. Press bearing inner race off of axle hub. Remove the dust cover from the carrier.

2) Remove retaining snap ring from carrier. Remove outer oil seal from axle carrier. Press bearing from axle carrier. To reassemble axle carrier, reverse disassembly procedure.

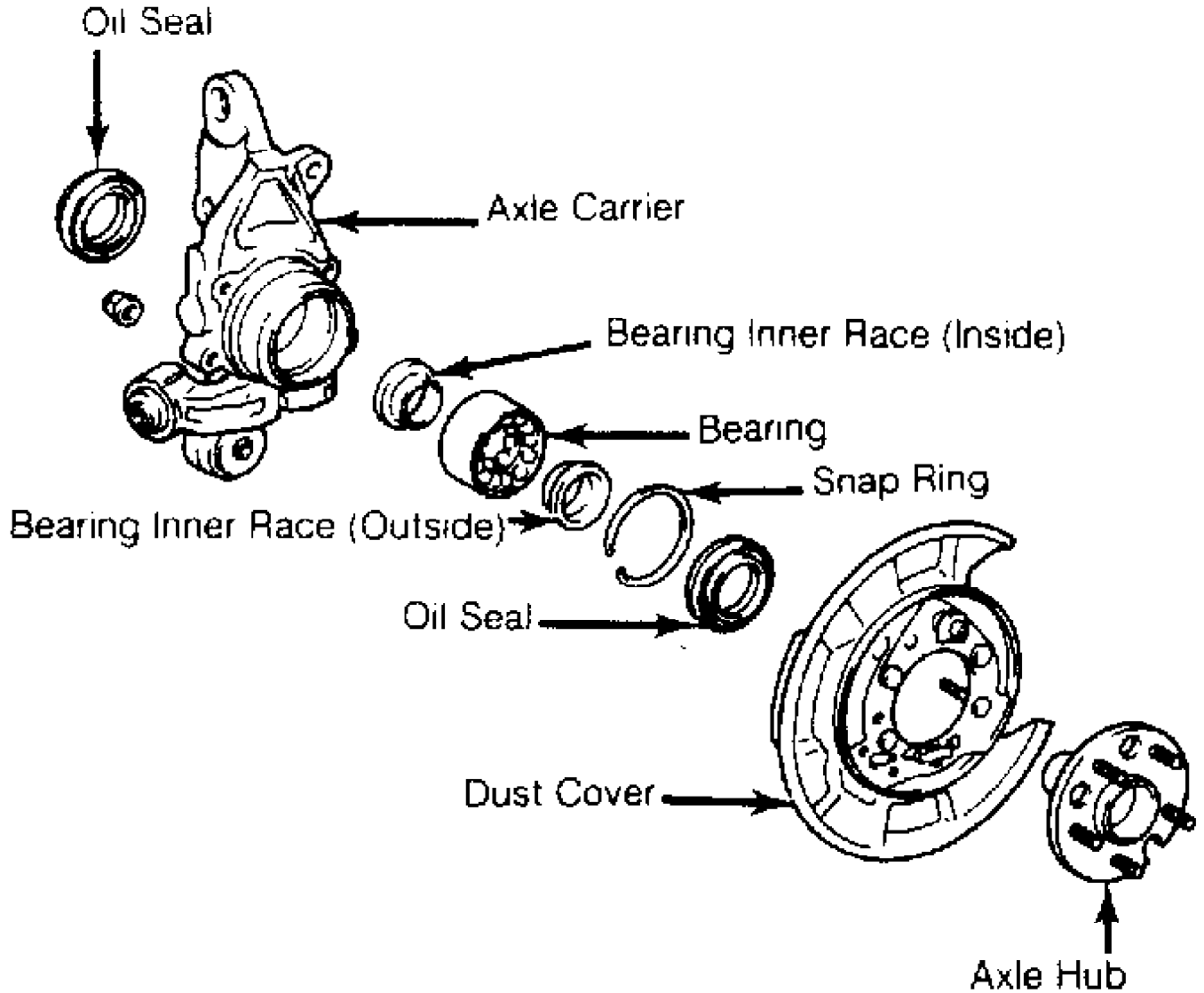


Fig. 12: Exploded View of Camry & Celica All-Trac Axle Carrier  
Courtesy of Toyota Motor Sales U.S.A., Inc.

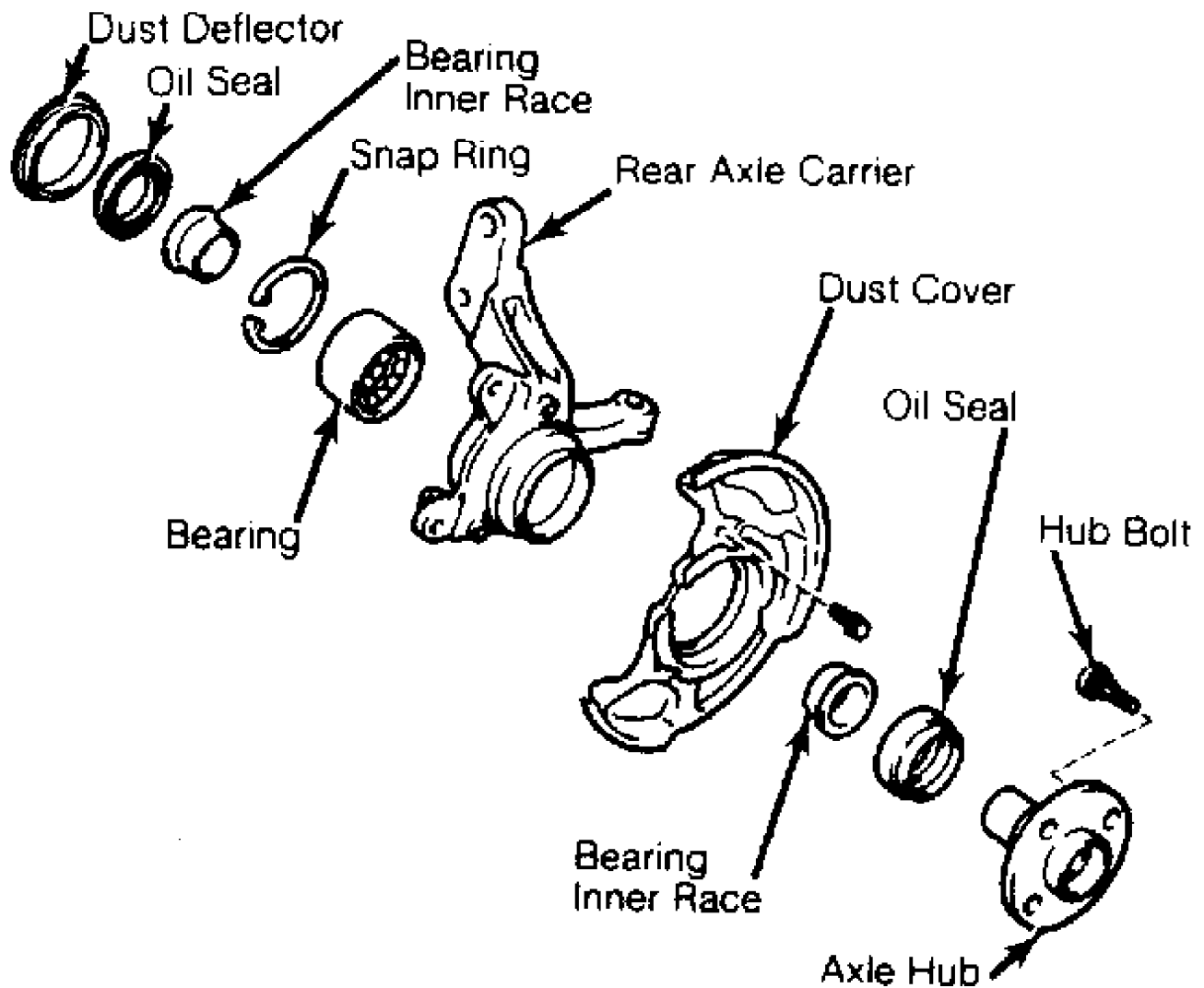


Fig. 13: Exploded View of MR2 Axle Carrier  
 Courtesy of Toyota Motor Sales U.S.A., Inc.

#### Installation

- 1) To install axle carrier, reverse removal procedure. Tighten the 2 axle carrier-to-strut nuts to 188 ft. lbs. (255 N.m).
- 2) After attaching suspension strut rod and lower suspension arm, do not final tighten bolts and nuts until suspension is at normal riding height. Check rear wheel alignment.

#### Removal (Supra)

- 1) Raise vehicle. Remove rear wheel. Remove caliper and support out of way, without disconnecting brake line. Release parking brake fully and remove rotor. See Fig. 14.
- 2) Check bearing play and axle hub runout. See Fig. 11. Remove drive axle shaft from vehicle. Disconnect lower suspension arms and strut rod from axle carrier. Remove upper arm from body and remove axle carrier assembly from vehicle.

#### Disassembly

- 1) Remove backing plate from axle carrier. Using Pullers

(09950-00020 and 09950-20017), separate upper arm from axle carrier.

2) Remove deflector. See Fig. 14. Remove inner oil seal.

Press axle hub from axle carrier. Remove inner bearing race from axle hub. Remove oil outer seal. Remove snap ring and press bearing outer race from axle carrier.

Reassembly & Installation

1) To reassemble axle carrier, reverse disassembly procedure.

Coat the bearings, races and interior of hub with multipurpose grease.

2) Reverse removal procedure to complete installation. Use

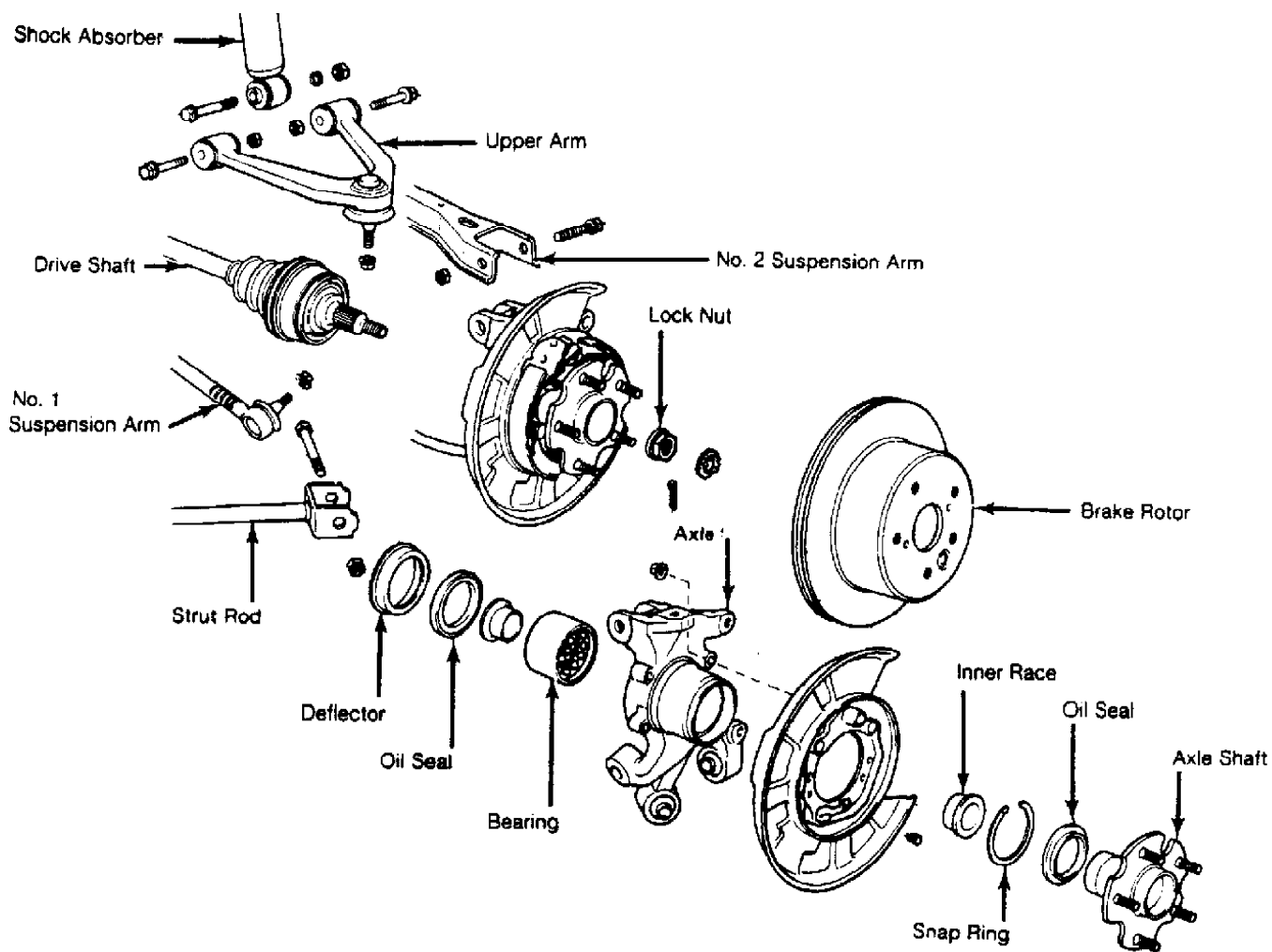
NEW nut on upper control arm ball joint. Do not final tighten strut rod, No. 2 suspension arm and upper control arm nuts until suspension is at normal riding height.

**TIGHTENING SPECIFICATIONS**

TIGHTENING SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Camry & Celica All-Trac	
Axle Carrier-to-Strut Nuts .....	188 (255)
Disc Brake Caliper .....	34 (47)
Drive Axle Shaft Hub Nut .....	137 (186)
Inboard Axle Shaft Flange Nuts .....	51 (69)
Strut Rod-to-Lower Suspension Arm Bolt	
Celica All-Trac .....	83 (113)
Cressida	
Rear Disc Brake Rotor Bolts .....	34 (47)
Rear Drive Axle Shaft Flange Nuts .....	51 (69)
MR2	
Axle Carrier-to-Strut Nuts .....	167 (226)
Disc Brake Caliper .....	43 (59)
Drive Axle Shaft Hub Nut .....	137 (186)
Inboard Joint Flange	
Allen Head Bolts .....	48 (65)
Nuts .....	27 (36)
Lower Suspension Arm-to-Carrier Bolts .....	83 (113)
Rear Suspension Arm Tie Rod Nut .....	36 (49)
Supra	
Disc Brake Caliper .....	34 (47)
Drive Axle Shaft	
Inner Flange Nuts .....	51 (69)
Outer Hub Hub Nut .....	203 (275)
Suspension Arms-to-Axle Carrier	
No. 1 Arm .....	43 (59)
No. 2 Arm (2) .....	121 (164)
Strut Rod (2) .....	121 (164)
Upper Control Arm Ball Joint Nut (1) .....	80 (108)
Upper Control Arm-to-Body Nuts (2) .....	121 (164)

- (1) - Always replace nut. Old nut should not be reused.
- (2) - Tighten fasteners with vehicle suspension at normal riding height.



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Fig. 14: Exploded View of Axle Carrier Assembly (Supra)  
 Courtesy of Toyota Motor Sales U.S.A., Inc.