

# SUSPENSION - REAR

## 1988 Toyota Celica

REAR SUSPENSION  
Toyota IRS

### DESCRIPTION

The Toyota Independent Rear Suspension (IRS) system utilizes MacPherson struts, which fasten to axle carrier and wheel housing. Camry, Celica, FWD Corolla models use a one piece axle carrier, mounted to an axle hub containing the axle bearings. On 2WD models, the axle hub is attached to the axle carrier with 4 bolts.

Tercel Sedan and Liftback models use a 2-piece axle carrier, mounted to an axle hub containing the axle bearings. Hub is supported by axle shaft, which is mounted to the axle carrier with 4 bolts.

Models may be equipped with either drum or disc brakes. Connected to each axle carrier are 2 suspension arms, a strut rod and a stabilizer bar. See Figs. 1-3. Toe-in is adjusted by turning the adjusting cams, which are located in the rear suspension arms. See WHEEL ALIGNMENT section.

### ADJUSTMENTS & INSPECTION

#### WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES in WHEEL ALIGNMENT section.

#### WHEEL BEARING

NOTE: To adjust axle shaft nut on 2WD Camry, 2WD Celica and FWD Corolla, axle hub MUST be removed from axle carrier.

##### 2WD Models

1) On Camry, Celica and FWD Corolla, adjust bearing by tightening axle shaft nut to 90 ft. lbs. (123 N.m). Stake nut in place.

2) On Tercel models, tighten hub nut to 22 ft. lbs. (30 N.m), and turn hub several times. Loosen nut until it can be turned by hand, using ONLY a socket without a handle. Tighten axle shaft nut until preload is 1.1-19.2 lbs. (4.9-58.8 N). Adjust nut until correct preload is obtained. Install lock nut and cotter pin.

NOTE: When rotating hub, there should be absolutely no brake drag.

##### 4WD Models

With parking brake engaged, tighten lock nut to 137 ft. lbs. (186 N.m). Install lock nut cap. Install new cotter pin. Check bearing axial play. If play is greater than .002" (.05 mm), replace bearing.

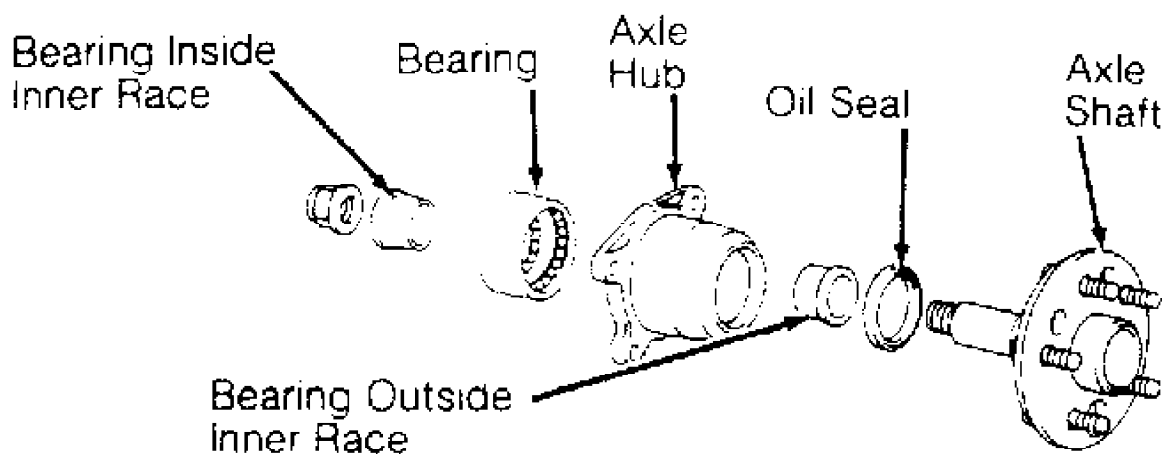
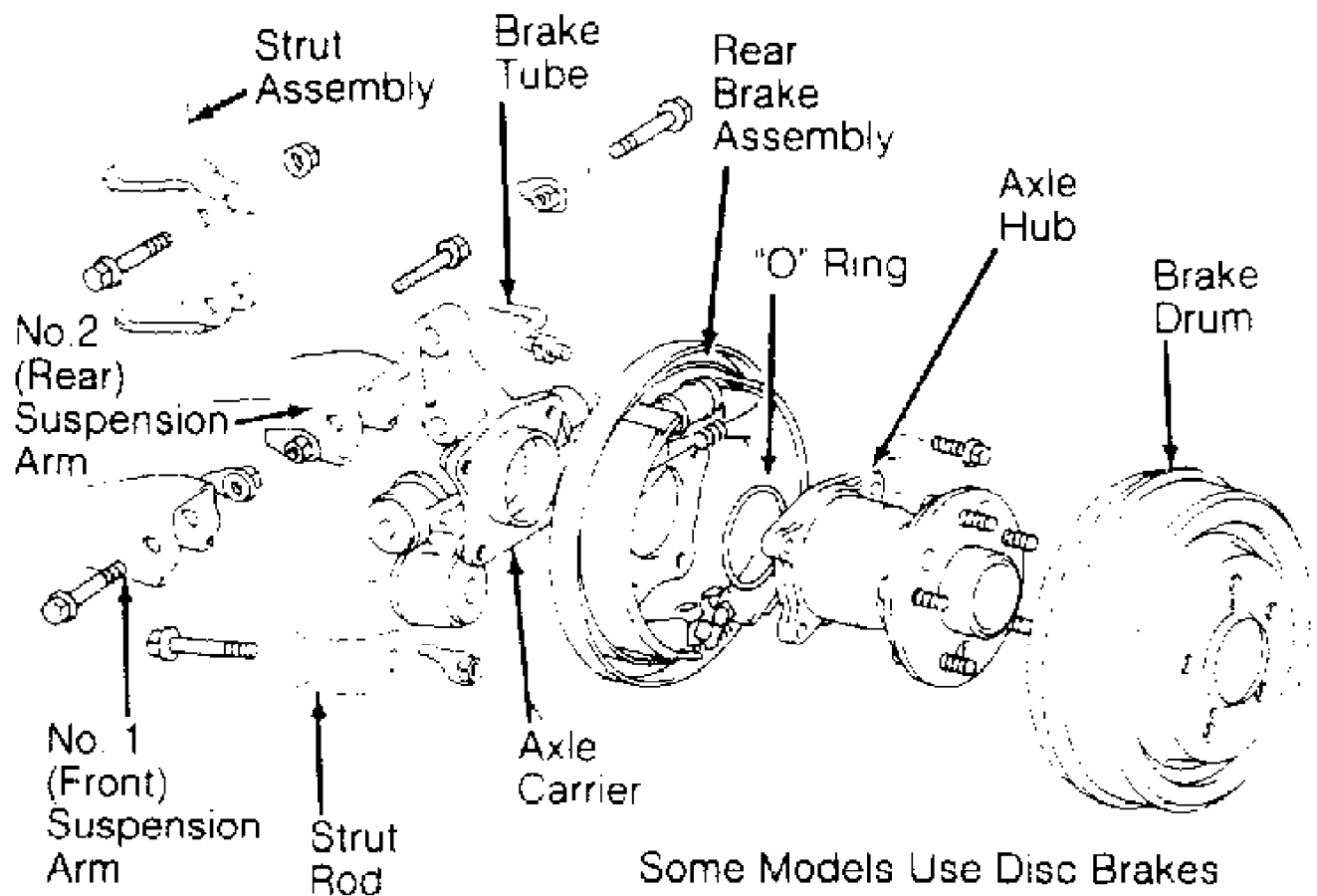


Fig. 1: Typical 2WD Rear Axle Components (Except Tercel)  
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

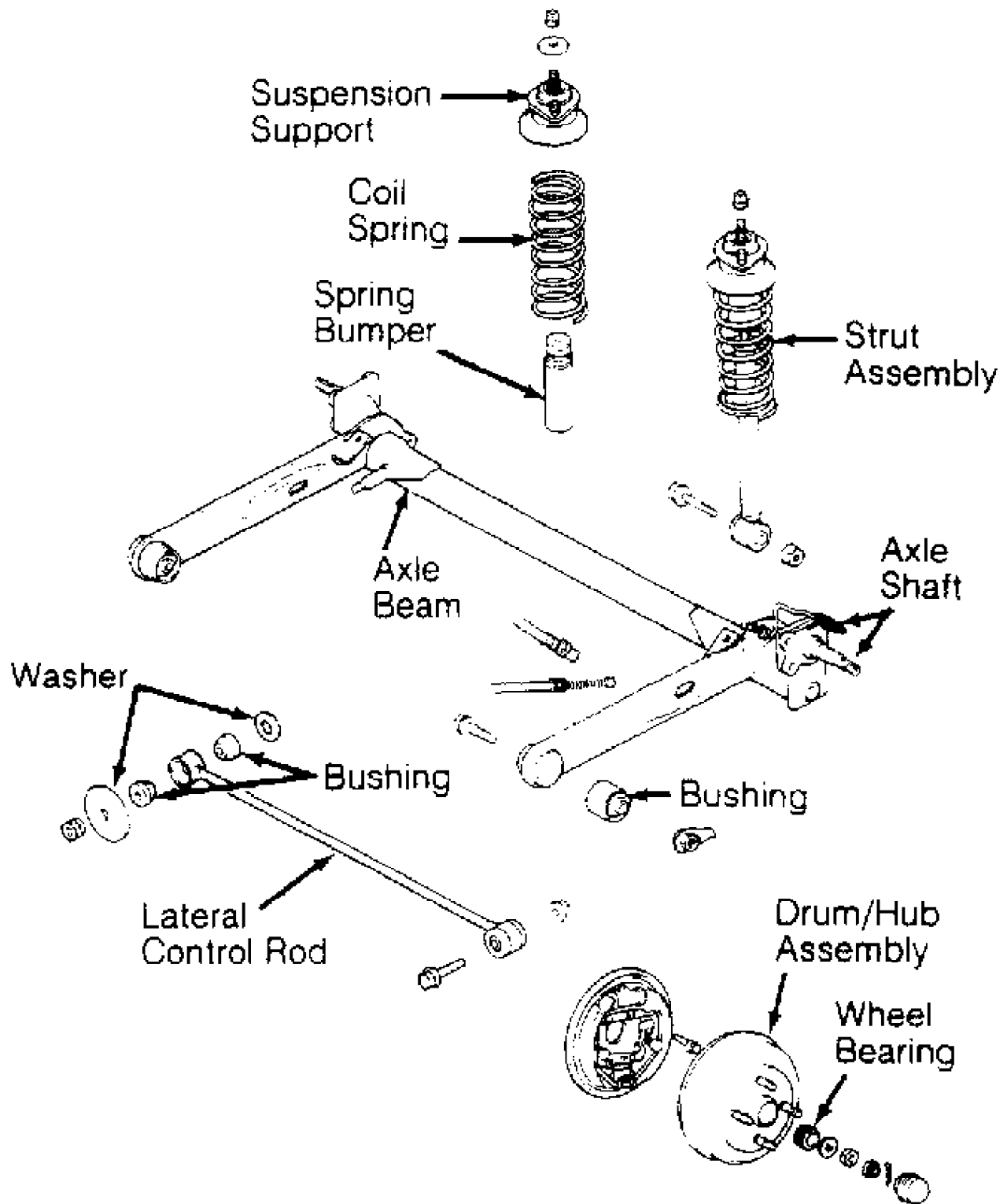


Fig. 2: Tercel Rear Axle Components  
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

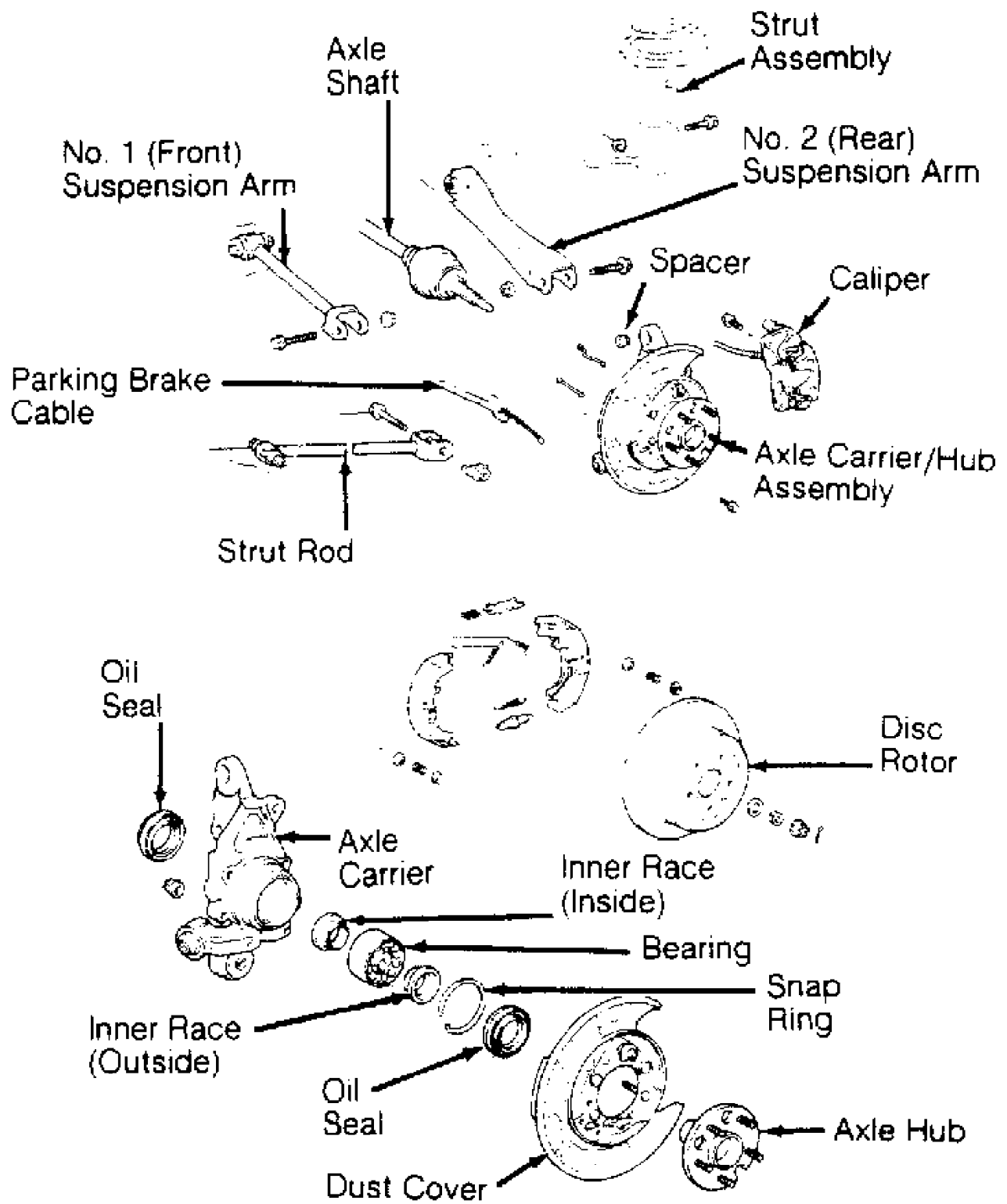


Fig. 3: Camry 4WD & Celica 4WD Rear Axle Components  
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

## REMOVAL & INSTALLATION

## WHEEL BEARINGS

### Removal (2WD)

1) On Tercel Sedan and Liftback models, remove dust cap, cotter pin, locknut and washer. Remove brake drum/hub assembly. DO NOT allow outer wheel bearing to fall out. Remove outer bearing. Use screwdriver to remove oil seal and inside bearing. Using a brass bar and hammer to remove bearing races.

2) For Camry, Celica and FWD Corolla, see AXLE HUB, CARRIER & SHAFT removal. Use a hammer and a chisel to loosen staked part of axle nut and remove axle nut. Using Puller (09950-20017), remove axle shaft from axle hub. Using puller, remove outside bearing inner race from axle shaft. Remove oil seal. Press bearing out of hub.

### Installation

1) On Camry, Celica and FWD Corolla, press new bearing into hub. Install bearing inner races.

2) Drive oil seal into axle hub. Using Adapter (09636-20010), press inner race with axle hub onto axle shaft. Tighten axle nut to 90 ft. lbs. (123 N.m) and stake axle nut.

3) On Tercel models, use Driver (09608-16011) and Adapter (09608-20012) to drive new outer race into hub. Pack grease into new bearings, grease cap and center of hub. Place new inner bearing into hub. Using Seal Driver (09608-20012), drive new seal into hub. Apply multipurpose grease to axle seal.

### Removal (4WD)

1) Remove rear axle hub and carrier. See AXLE HUB, CARRIER & SHAFT in this article. Using puller, remove hub assembly from bearing carrier. Using puller, remove bearing inner race from hub assembly. Remove dust cover.

2) Remove inner and outer seals from carrier. Remove bearing snap ring. Press bearing from axle carrier.

### Installation

Press new bearing into axle carrier. Install snap ring. Install new outer seal. Apply multipurpose grease to seal lip. Install dust cover. Press hub assembly into axle carrier. Install new inner seal. Apply multipurpose grease to seal lip.

## AXLE HUB, CARRIER & SHAFT

### Removal (2WD)

1) Raise and support vehicle. Remove rear wheel. On drum brakes, disconnect brake tube at wheel cylinder. Plug tube openings. On disc brakes, remove caliper and hang aside with wire. Remove brake drum or disc rotor. Using a dial indicator, check bearing play in axial direction. It should be less than .002" (.05 mm).

2) On Tercel Sedan and Liftback models, remove grease cap, cotter pin, nut lock and axle nut. Remove thrust washer, outer bearing and brake drum/hub assembly. On Camry, Celica and FWD Corolla, remove 4 bolts retaining axle hub to axle carrier. Remove hub. On Tercel Sedan and Liftback models, remove 4 bolts retaining axle shaft to axle carrier.

3) On Camry, Celica and FWD Corolla, remove "O" ring. On all models, remove nuts and bolts holding axle carrier to strut rod, shock absorber, and front and rear suspension arms. Note position of nuts on suspension arms and strut rods. Remove axle carrier.

### Installation

Reverse removal procedure to install. For Camry, Celica and FWD Corolla, install new "O" ring to axle carrier. Adjust wheel

bearings. See ADJUSTMENTS in this article. On Tercel models, install cotter pin and grease cap. Perform final tightening of suspension components with weight of vehicle on suspension. Check rear wheel alignment. See WHEEL ALIGNMENT section.

#### Removal (4WD)

1) Raise and support vehicle on safety stands. Remove wheel assembly. Remove cotter pin and lock nut cap. With parking brake applied, remove lock nut. Remove brake caliper and wire aside. Mark axle hub/disc rotor for installation reference.

2) Remove parking brake assembly. Remove parking brake cable. Remove strut-to-axle carrier bolts. Remove strut rod from axle carrier. Disconnect No. 1 and No. 2 suspension arms from axle carrier. Remove axle carrier/hub assembly from vehicle.

#### Installation

To install, reverse removal procedure. Perform final tightening of axle carrier mounting bolts, No. 1 and No. 2 suspension arms and strut rod with full weight of vehicle on suspension. See Fig. 4.

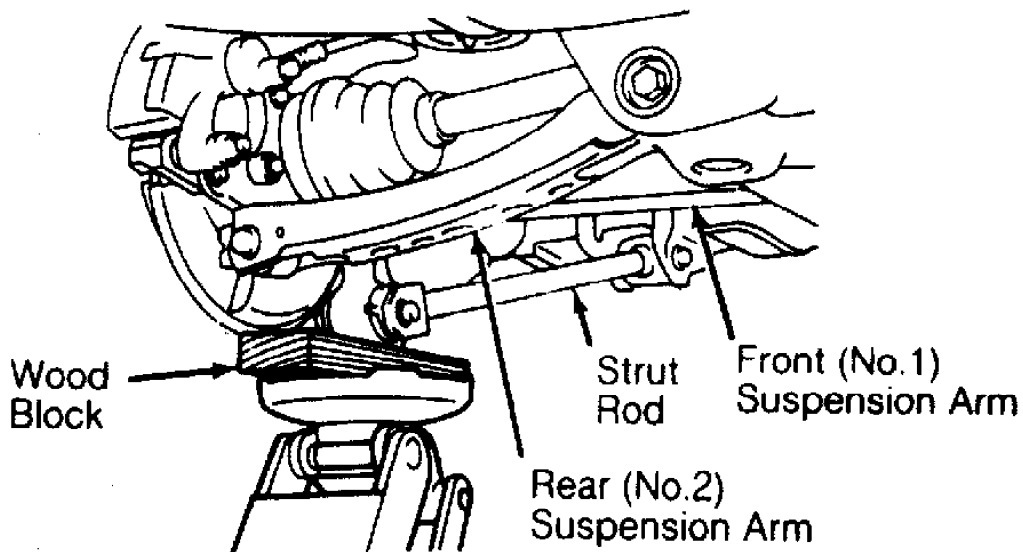


Fig. 4: Tightening 4WD Suspension Components  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

## SHOCK ABSORBER & COIL SPRING

#### Removal

1) Raise and support vehicle. Remove wheel assembly. Disconnect, brake tube or hose at wheel cylinder and at junction on shock absorber (except Tercel). Plug openings. On Camry and Celica, remove stabilizer-to-strut assembly nuts.

2) If strut assembly is to be disassembled, loosen but DO NOT remove center nut holding suspension support to shock absorber. Support axle hub with floor jack. Remove bolt(s) holding shock absorber to axle carrier. Disconnect shock absorber.

3) Remove nuts holding shock absorber to body. Remove shock absorber. Install a bolt and 2 nuts between the bottom shock absorber mounting flanges to keep the mounting flanges from being crushed. Secure in a vise.

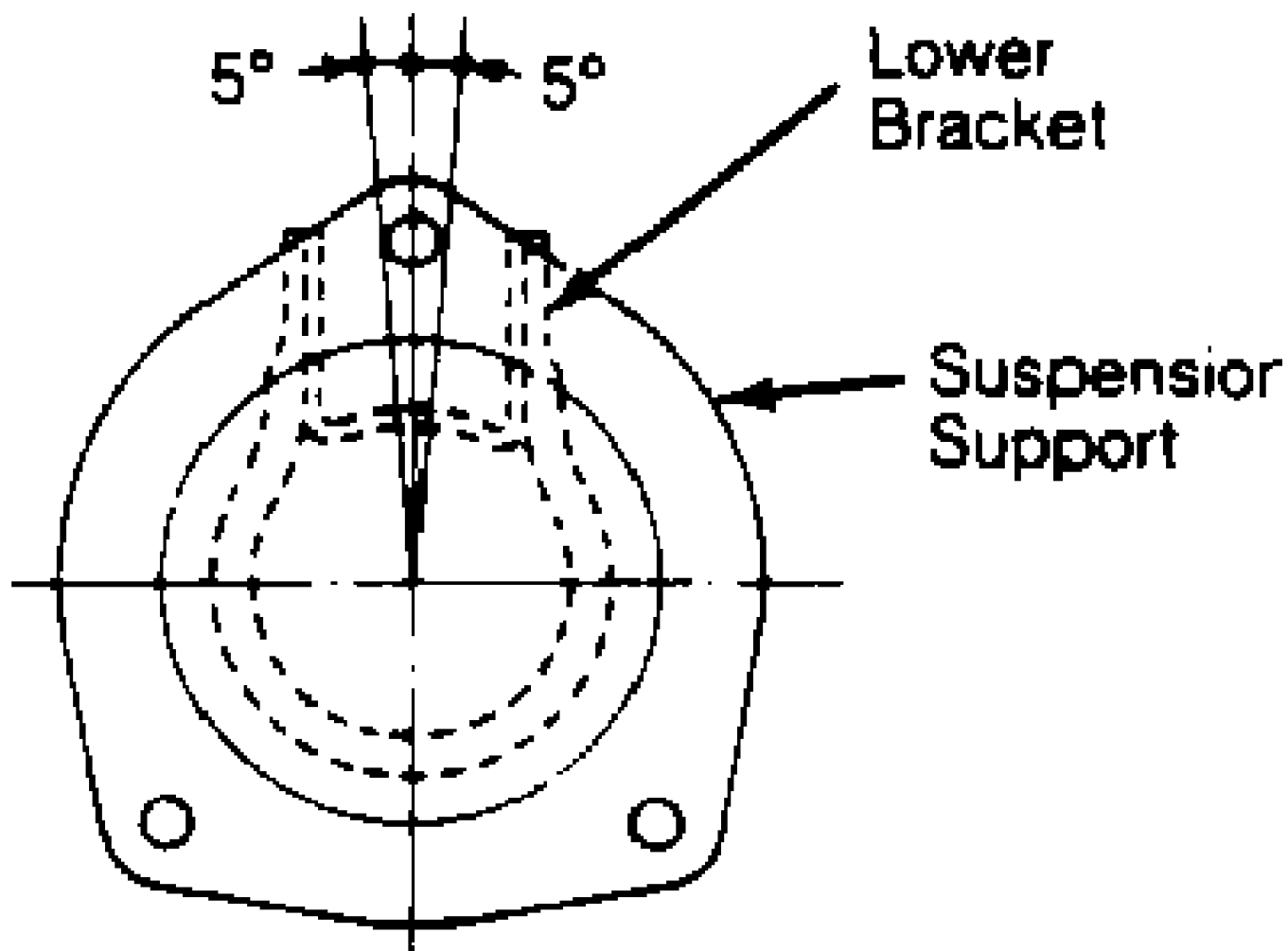
4) Using Spring Compressor (09727-22032), compress coil spring. Remove nut holding suspension support to shock absorber.

Remove suspension support, coil spring, insulator and bumper. DO NOT disassemble shock absorber.

CAUTION: When replacing a shock absorber, relieve high pressure gas by drilling a .079-.118" (2-3 mm) hole .39" (10 mm) above mounting flanges at base of shock absorber.

#### Installation

To install, reverse removal procedure. See Fig. 5. Bleed rear brake system. Check alignment of rear wheels. See WHEEL ALIGNMENT section.



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Fig. 5: Aligning Shock Absorber Suspension Support  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

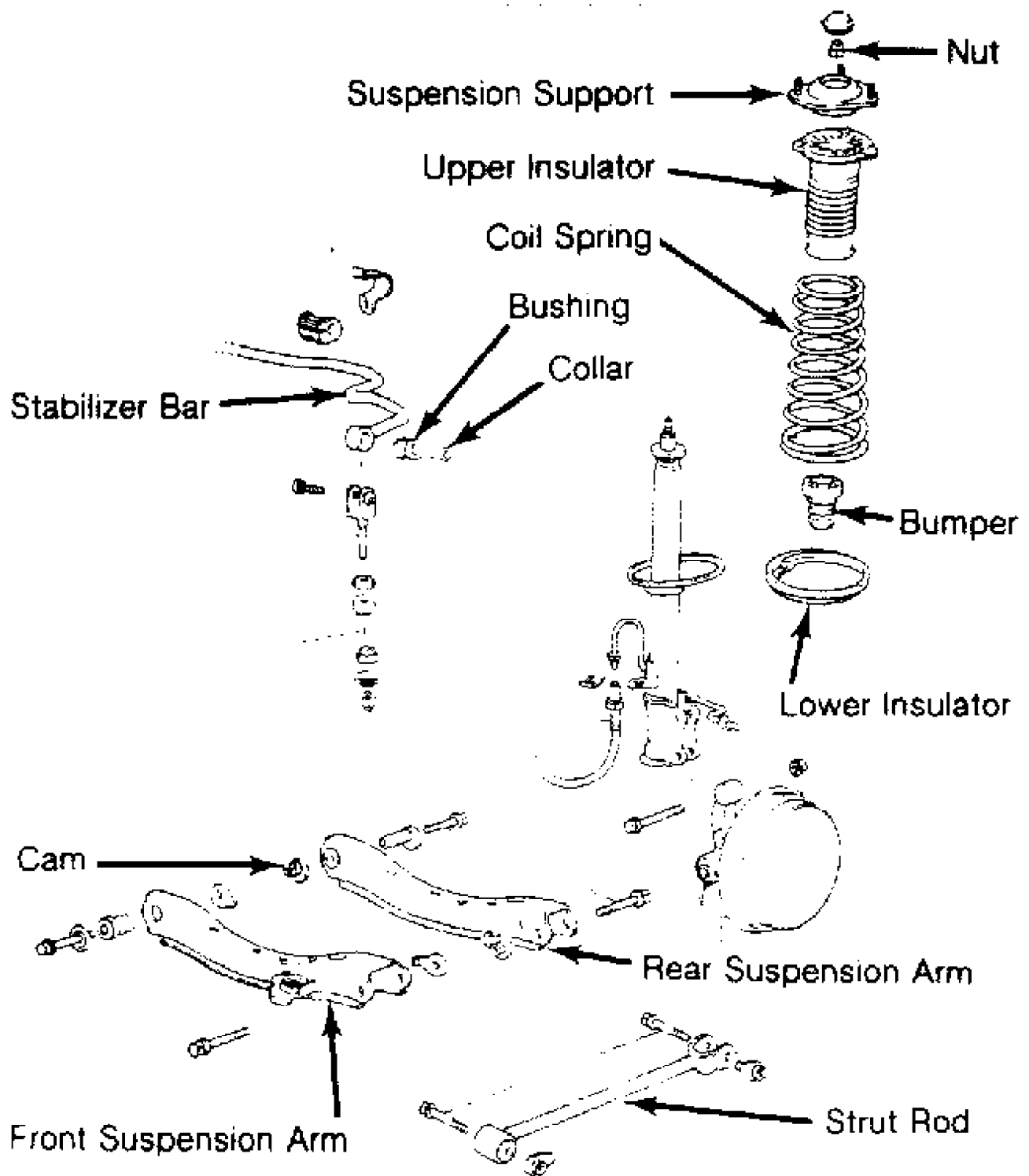


Fig. 6: Typical Rear Suspension Components (Except Tercel)  
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

## SUSPENSION ARMS

Removal



1) Raise vehicle and support vehicle. Remove nut and bolt holding rear (No. 2) suspension arm to axle carrier. Place match marks on cam plate, rear suspension arm, and body for reassembly reference.

2) Loosen arm retaining bolt making sure not to turn cam, so as not to disturb rear wheel alignment. Remove rear suspension arm. Remove nut and bolt retaining front (No. 1) suspension arm to body mounting bracket. Remove front suspension arm. If necessary, remove the stabilizer bar from the front suspension arm.

#### Installation

1) To install, connect but DO NOT tighten front suspension arm to body and axle carrier with nuts and bolts. When installing front suspension arm to body, make sure lip of nut is resting on bracket flange, NOT over it. When connecting front suspension arm to axle carrier, insert lip of nut into hole on suspension arm.

2) On Celica models, front suspension arm is marked "L" and "R" respectively. Ensure arm is installed with slit side of bushing toward rear of vehicle.

3) Install but DO NOT tighten rear suspension arm to body with cam (align cam plate match mark). Install but DO NOT tighten rear suspension arm to axle carrier with nut and bolt. Be sure lip of nut is resting on bracket flange, not over it.

4) On Celica models, ensure rear arm is installed with slit side of bushing toward rear of vehicle, and Yellow paint mark toward outside of vehicle.

5) Remove jack stands and bounce vehicle to stabilize suspension. Tighten bolts with vehicle resting on suspension. Check rear wheel alignment.

## STABILIZER BAR

#### Removal & Installation (Camry & Celica)

1) Raise vehicle and support. Remove wheels. Disconnect tail pipe from exhaust pipe. Using a jack and a wooden block, support fuel tank. Remove 2 tank band bolts from body. Disconnect stabilizer bar from stabilizer bar link.

2) Remove stabilizer bar link from shock absorber. Remove stabilizer bar brackets from body. Remove stabilizer bar from vehicle. Inspect link ball joint for free movement in all directions. Replace if necessary. To install, reverse removal procedure.

#### Removal & Installation (Except Camry & Celica)

Remove nuts, bolts and bushings retaining stabilizer bar to front suspension arm. Remove bolts retaining stabilizer bar to body. Remove stabilizer bar. Remove stabilizer link bolts. Using an arbor press, remove collar from stabilizer end bushing. Remove end bushing by pressing out by hand. To install, reverse removal procedure.

## STRUT ROD

#### Removal & Installation

1) Raise vehicle and place on jack stands. Remove wheel. Remove nuts and bolts holding strut rod to axle carrier and to body. Remove strut rod.

2) To install, connect but DO NOT tighten strut rod to body and to axle carrier. Remove jack stands and bounce vehicle to stabilize suspension. Tighten strut rod bolts to 64 ft. lbs. (87 N.m). Check rear wheel alignment.

NOTE: When connecting strut rod, align lip of nut with groove on bracket (carrier side) and flange of bracket (body side).

## TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Axle Hub-to-Axle Carrier Bolts (2WD) .....	59 (80)
Axle Nut	
Tercel .....	22 (30)
All Other 2WD Models .....	90 (123)
4WD Models .....	137 (186)
Fuel Tank Band (Camry & Celica) .....	29 (39)
Lateral Control Rod (Tercel)	
Body .....	47 (64)
Axle .....	83 (113)
Shock Absorber Shaft Nut .....	36 (49)
Shock Absorber-to-Body Bolts	
Except Corolla .....	23 (31)
Corolla .....	17 (23)
Shock Absorber-to-Axle	
Tercel .....	47 (64)
Shock Absorber-to-Carrier	
Camry .....	166 (226)
Celica .....	119 (162)
Corolla .....	105 (142)
Stabilizer Bar Link Nuts (Camry & Celica) .....	26 (35)
Stabilizer Link-to-Arm (Corolla) .....	11 (15)
Stabilizer Bracket-to-Body .....	14 (19)
Strut Rod Bolts (Camry & Celica) .....	83 (113)
Strut Rod Bolts (Corolla) .....	64 (87)
Suspension Arm Bolts (Corolla) .....	64 (87)
Suspension Arms-to-Axle Carrier	
Camry & Celica .....	34 (181)
Suspension Arms-to-Body	
Camry & Celica .....	83 (113)