SUSPENSION - REAR

1993 Toyota Celica

1993 SUSPENSION
Toyota Rear

Celica

DESCRIPTION & OPERATION

On Celica FWD, suspension uses MacPherson struts, fastened to rear axle carrier and wheelwell. Wheel bearings are mounted in axle hub, bolted to rear axle carrier. See Fig. 1.

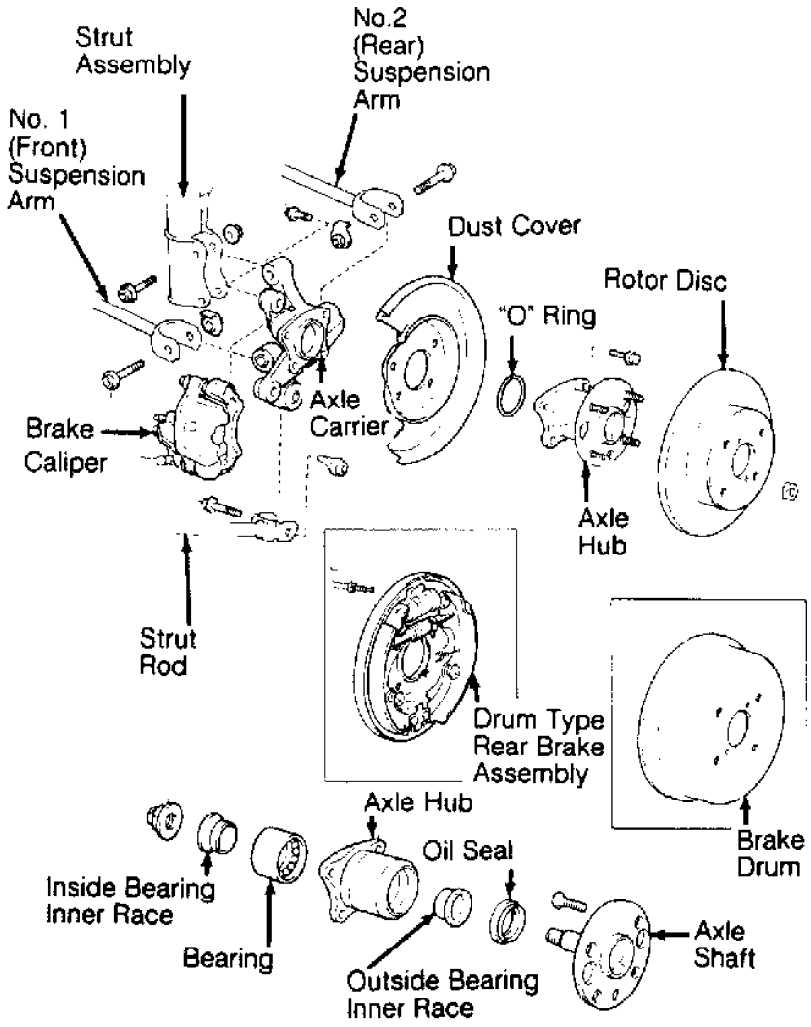

Fig. 1: Exploded View Of Typical FWD Rear Axle Components
Courtesy of Toyota Motor Sales, U.S.A., Inc.

On Celica All-Trac models, suspension uses MacPherson struts, fastened to rear axle carrier and wheelwell. Wheel bearings are

mounted in axle carrier.

ADJUSTMENTS & INSPECTION

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

NOTE: See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

WHEEL BEARING INSPECTION

Raise and support vehicle. Remove tire assembly. Place dial indicator against axle shaft. Move axle shaft in and out and note axial reading. Replace bearings if axial play exceeds .002" (.05 mm). On Celica, check axle hub runout using a dial indicator. Replace bearings if runout exceeds .0028" (.07 mm).

WHEEL BEARING ADJUSTMENT

Bearings must be replaced if axle shaft nut is tightened to specification and axial play exceeds .002" (.05 mm). No adjustment is available.

NOTE: Ensure no brake drag exists when adjusting wheel bearings.

REMOVAL & INSTALLATION

AXLE HUB, CARRIER & SHAFT

Removal (FWD)

1) Raise and support vehicle. Remove rear wheels. On models with ABS, remove rear speed sensor. On drum brake models, disconnect brake line (tube) at wheel cylinder. Plug line openings. Remove brake drum. See Fig. 1.

2) On disc brake models, remove caliper and hang aside. Remove rotor. On all applications, remove axle hub-to-axle carrier bolts, axle hub and "O" ring.

CAUTION: Be careful not to damage ABS sensor rotor.

3) Remove nuts and bolts holding axle carrier to strut assembly and suspension arms. Note position of nuts on suspension arms and strut rods for installation reference. Remove axle carrier.

Installation (FWD)

To install, reverse removal procedure using new "O" ring. Tighten all fasteners to specification. See TORQUE SPECIFICATIONS table at the end of this article. Check rear wheel alignment. Bleed brake system.

NOTE: Tighten axle carrier-to-strut assembly and suspension arms bolts to specification with vehicle at normal operating height. Bounce vehicle several times to stabilize suspension.

Removal (All-Trac)

1) Raise and support vehicle. Remove wheels. Remove cotter pin and lock nut cap. With parking brake applied, remove lock nut from axle shaft.

2) Disconnect parking brake cable. On ABS-equipped models, remove rear speed sensor. Remove brake caliper, and secure aside. Mark axle hub-to-rotor location for reassembly reference. Remove rotor.

Disconnect strut assembly-to-axle carrier bolts. Remove strut assembly from axle carrier. Disconnect suspension arms from axle carrier. Remove axle carrier.

NOTE: Cover axle shaft boot with cloth to protect boot from damage.

Installation (All-Trac)

To install, reverse removal procedure. Tighten all fasteners to specification. See TORQUE SPECIFICATIONS table at the end of this article. Check rear wheel alignment. Proceed to appropriate WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

NOTE: Tighten axle carrier-to-strut assembly and suspension arms bolts to specification with vehicle at normal operating height. Bounce vehicle several times to stabilize suspension.

STRUT ASSEMBLY

Removal

1) Raise and support vehicle. On vehicles with ABS, disconnect speed sensor wire from strut. Remove clip and brake line at strut. On vehicles equipped with disc brakes, remove brake caliper and secure aside.

2) Disconnect stabilizer bar link (if equipped) from strut. Support axle carrier with jack.

NOTE: If disassembling strut assembly, loosen but DO NOT remove strut assembly shaft nut before removing strut assembly.

3) Remove strut assembly-to-axle carrier bolts. Remove strut assembly-to-body retaining nuts. Remove strut assembly.

Inspection

While pushing strut piston rod, ensure pull throughout stroke is even and abnormal resistance and noise do not exist. Push piston rod in fully and release. Ensure piston returns at a constant speed throughout travel. If shock is defective, replace as an assembly.

CAUTION: To prevent personal injury, discharge gas from old shock absorber prior to its disposal. Drill a hole .079-.118" (2-3 mm) in diameter above lower mounting bracket on cylinder.

Installation

To install, reverse removal procedure. Tighten fasteners to specification. See TORQUE SPECIFICATIONS table at the end of this article. Bleed brake system (if necessary).

SUSPENSION ARMS

Removal

Raise and support vehicle. On vehicles with ABS, disconnect speed sensor wire clamp from suspension arms. Remove strut rod. Remove fuel tank protector. Support suspension member. Place match marks on cam plate, No. 2 (rear) suspension arm, and body for reassembly reference. Remove remaining suspension arm retaining bolts. Remove suspension arms.

NOTE: Note direction of suspension arm installation for reassembly reference.

Installation

1) To install, reverse removal procedure. Ensure components

are installed in original location.

2) Temporarily install all bolts, but DO NOT tighten. Install wheels and lower vehicle. Bounce vehicle to stabilize suspension.

3) Ensure reference marks are aligned on cam plate, No. 2 (rear) suspension arm and body. Tighten bolts to specification with vehicle resting on suspension. See TORQUE SPECIFICATIONS table at the end of this article. Check rear wheel alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

STABILIZER BAR

Removal

Raise and support vehicle. Remove wheels. On Celica, use a jack and a wooden block to support fuel tank. Remove tank band bolts from body. Slightly lower fuel tank. Disconnect stabilizer bar from stabilizer bar link. Remove stabilizer bar mount brackets from body. Remove stabilizer bar.

Installation

To install, reverse removal procedure. Tighten bolts to specification. See TORQUE SPECIFICATIONS table at the end of this article.

WHEEL BEARINGS

Removal (FWD)

1) Raise and support vehicle. Remove rear wheels. Remove axle hub-to-axle carrier bolts, axle hub and "O" ring.

2) Using hammer and chisel, loosen staked part of axle shaft nut. Remove axle nut. Using Puller (09950-20017), remove axle shaft from axle hub. Remove inner bearing inner race. Using puller, remove outer bearing inner race from axle shaft. Remove oil seal. Press bearing from axle hub.

Installation (FWD)

1) Coat outside of new bearing with grease. Press new bearing into axle hub. Install outer bearing inner race.

2) Coat oil seal lip with grease. Drive oil seal into axle hub. Install inner bearing inner race. Using Adapter (09636-20010), press inner races onto axle shaft. Tighten axle shaft nut to specification. To install remaining components, reverse removal procedure. Tighten all bolts to specification. See TORQUE SPECIFICATIONS table at the end of this article.

NOTE: Stake axle shaft nut after tightening to specification.

Removal (All-Trac)

1) Remove rear axle hub and carrier. See AXLE HUB, CARRIER & SHAFT under REMOVAL & INSTALLATION.

2) Using Puller (09950-20017), press axle hub from axle carrier. Using puller, remove outer bearing inner race from axle hub. Remove dust cover. See Fig. 2.

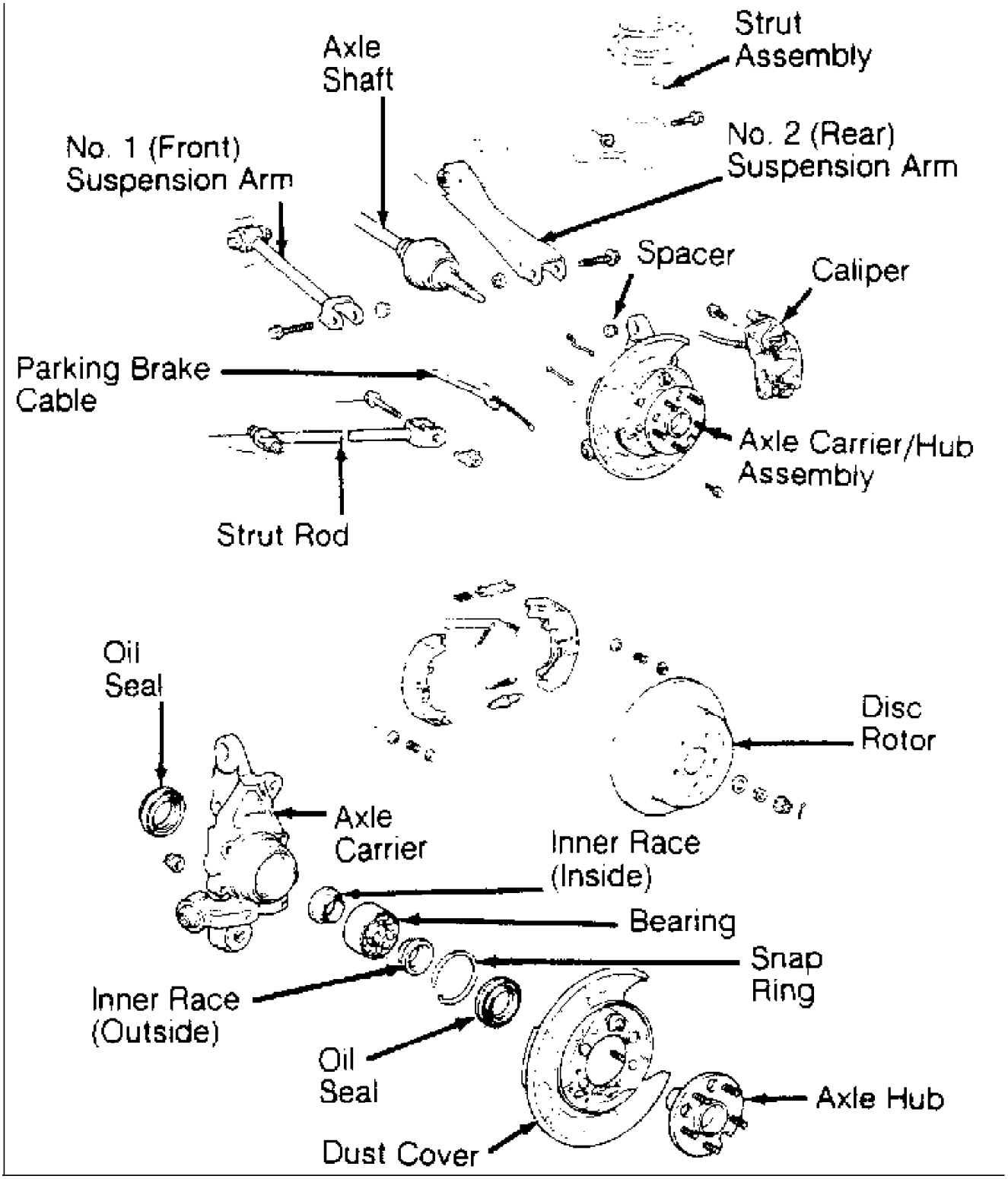

Fig. 2: Exploded View Of Rear Axle Components (All-Trac)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

3) Using Puller (09308-00010), remove inner and outer oil seals from axle carrier. Remove snap ring from axle carrier. Using

press and Bearing Remover (09636-20010), press bearing from axle carrier.

Installation (All-Trac)

1) Using press and Bearing Installer (09309-36010 and 09608-32010), press bearing into axle carrier. Install snap ring.

2) Coat inner and outer oil seals lip with grease. Using Seal Installer (09608-30012 and 09608-32010), install new outer oil seal. Install dust cover. Using bearing installer, press axle hub into axle carrier. Using seal installer, install new inner oil seal.

3) To install remaining components, reverse removal procedure. Tighten all bolts to specification. See TORQUE SPECIFICATIONS table at the end of this article.

STRUT ROD

Removal & Installation

1) Raise and support vehicle. Remove wheels. Remove nuts and bolts holding strut rod to axle carrier and body. Remove strut rod.

2) To install, connect, but DO NOT tighten, strut rod to body and to axle carrier. Temporarily install all bolts, but DO NOT tighten. Lower vehicle. Bounce vehicle to stabilize suspension. Tighten all bolts to specification with vehicle resting on suspension. See TORQUE SPECIFICATIONS table at the end of this article.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
FWD	
Axle Hub-To-Axle Carrier Bolt	59 (80)
Axle Shaft Nut	90 (122)
Stabilizer Bar Link Nut	47 (64)
Stabilizer Bar Mount Bolt	14 (19)
Strut Rod Bolt	83 (113)
Strut-To-Axle Carrier Bolt	188 (255)
Strut-To-Body Nut	29 (39)
Suspension Arm-To-Axle Carrier Bolt	134 (182)
Suspension Arm-To-Body Bolt	
No. 1 (Front) Arm	83 (113)
No. 2 (Rear) Arm	64 (87)
Suspension Arm-To-Body Nut	
No. 2 (Rear) Arm	166 (226)
Wheel Lug Nut	76 (103)
All-Trac	
Axle Shaft Nut	166 (266)
Speed Sensor Bolt	14 (19)
Strut-to-Axle Carrier Bolt	188 (255)
Strut-to-Body Nut	29 (39)
Suspension Arm-to-Axle Carrier Bolt	90 (122)
Suspension Arm-to-Body Bolt	83 (113)
Wheel Lug Nut	76 (103)
	INCH Lbs. (N.m)
Speed Sensor Bolt (FWD)	69 (7.8)