

## TOYOTA CELICA & COROLLA

Celica  
Corolla

### REMOVAL & INSTALLATION

#### STRUT ASSEMBLY

#### DESCRIPTION

Independent strut type suspension consisting of vertically mounted strut assemblies, lower control arms, strut rods and a stabilizer bar. Individual strut assembly is mounted at top to inner fender by a thrust bearing and at bottom to lower control arm by means of a ball joint. Strut assembly consists of a shock absorber built into strut outer tube, a coil spring mounted on outside of strut tube and a steering knuckle integral with bottom of strut tube. A strut rod is mounted between lower control arm and frame. A stabilizer bar is mounted to front frame members and connected at ends to lower control arms. The suspension crossmember that serves as support for all suspension components is removable.

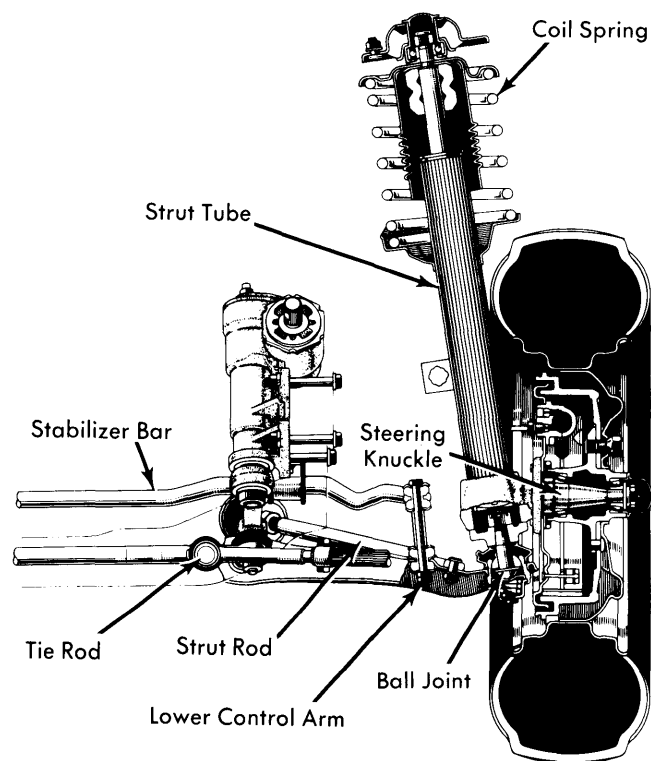


Fig. 1 Typical Front Suspension Assembly for Celica and Corolla

#### ADJUSTMENT

##### WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See *Wheel Alignment Specifications & Procedures* in **WHEEL ALIGNMENT** Section.

##### WHEEL BEARING ADJUSTMENT

See *Wheel Bearing Adjustment* in **WHEEL ALIGNMENT** Section.

##### BALL JOINT CHECKING

See *Ball Joint Checking* in **WHEEL ALIGNMENT** Section.

**Removal** — Raise vehicle and place jack stands under body. Remove wheel and tire. Disconnect brake flex line from bracket on strut tube by removing retaining clip. Remove three upper mounting nuts from strut assembly, accessible from inside engine compartment. Remove bolts securing steering arm to strut lower mount. Pull down on control arm and remove strut assembly complete with brake system components.

**Disassembly, Corolla, Celica** — 1) Bolt a holding fixture to bottom of strut tube and clamp assembly into vise. Compress coil spring. Remove dust cover from center of bearing support and remove nut from center of support. Remove support, upper spring seat, rubber bumper and coil spring.

2) Remove brake disc and backing plate from steering knuckle. See *appropriate article* in **BRAKE SYSTEMS** Section. Remove cap from upper portion of strut tube and straighten crimped edges of strut tube with a punch.

3) Remove ring nut from inside strut tube. Remove gasket and pull out piston rod and guide. Take out cylinder and drain fluid. Using a punch, drive base valve from bottom of cylinder. Pry base from case. Secure upper portion of piston rod in a vise and remove nut from bottom end. Remove valve assembly.

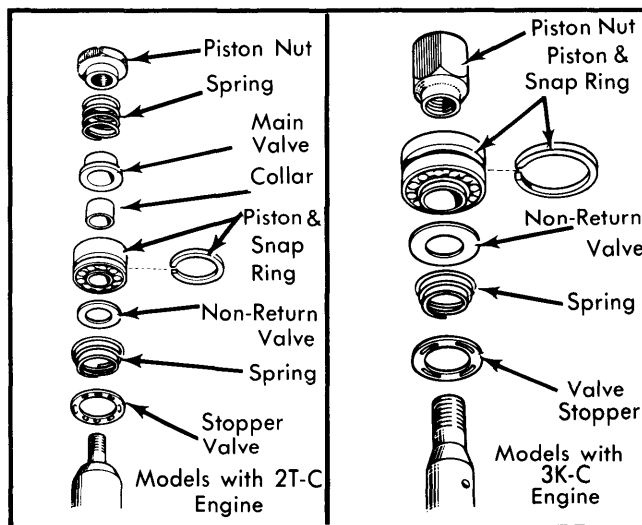


Fig. 2 Piston Valve Assemblies for Corolla Models

**Reassembly, Corolla with 3K-C Engine** — 1) Thoroughly clean and inspect all components for wear or damage. Piston rod should be no less than .783" (19.9 mm) in diameter and piston diameter should be no less than 1.183" (29.9 mm). Inside diameter of cylinder should be no more than 1.193" (30.2 mm).

2) Mount upper portion of piston rod in vise. Insert following parts from bottom end of piston rod:

- Stopper valve
- Spring
- Non-return valve
- Piston
- Piston ring
- Piston nut

3) Tighten piston nut.

4) Use a punch and stake piston nut against piston rod in two places. Avoid any damage to piston rod end.

# Front Suspension

## TOYOTA CELICA & COROLLA (Cont.)

5) Use wrench SST 09720-12012 or equivalent to gradually screw piston valve into piston. When wrench becomes hard to turn, back out piston valve exactly  $1\frac{1}{2}$  turns. This sets damping force. Stake piston nut against piston valve in two places.

6) Press base valve into case, then force assembly into cylinder using a plastic hammer. Insert piston rod into cylinder, then fit cylinder into shell.

7) Fill shock absorber with 9.5 ozs. of fluid. Install rod guide into shell. Put new gasket on rod guide. Install ring nut. Pull piston rod out about  $3\text{-}3\frac{1}{2}$ " before torquing nut.

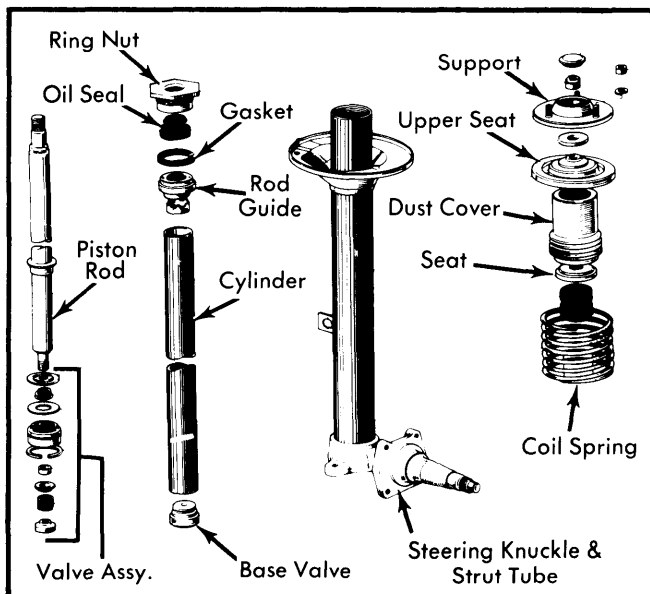


Fig. 3 Exploded View of Corolla Strut Assembly

**Reassembly, Corolla with 2T-C Engine** - 1) Thoroughly clean and inspect all components for wear or damage. Piston rod should be no less than .865" (21.9 mm) in diameter, and piston diameter should be no less than 1.251" (31.80 mm). Inside diameter, measured where piston slides into cylinder, should be no more than 1.269" (32.2 mm).

2) Mount upper portion of piston in vise. Insert following into place:

- Stopper Valve
- Non-return valve
- Piston
- Piston ring
- Collar
- Main Valve
- Compression Spring
- Piston nut

3) Tighten piston nut. Make sure non-return valve is squarely positioned into center of valve stopper before piston nut is tightened. Stake nut in four places.

4) Press base valve into case, then force assembly into caliper using a plastic hammer. Insert piston rod into cylinder, then fit cylinder into shell.

5) Fill shock absorber shell with 10.6 ozs. of fluid. Install rod guide into shell. Put new gasket on rod guide. Install ring nut. Pull piston rod out about  $3\text{-}3\frac{1}{2}$ " before torquing nut.

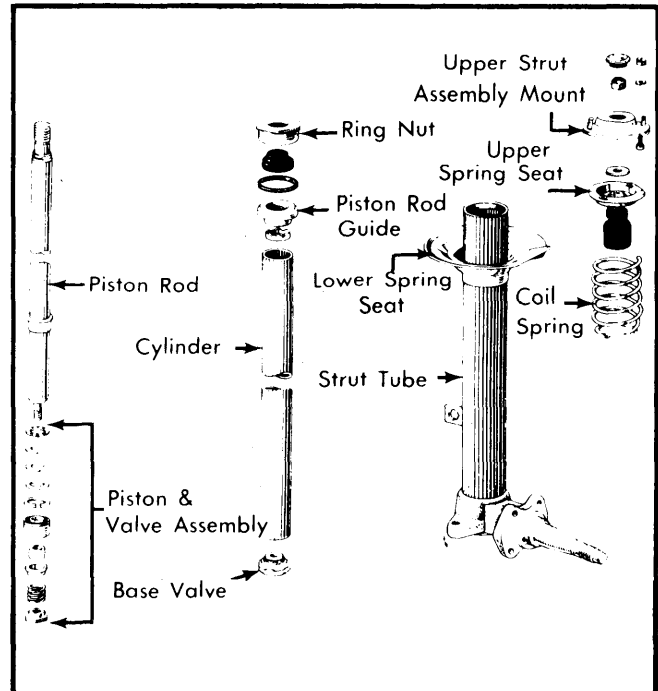


Fig. 4 Exploded View of Celica Strut Assembly

### CONTROL ARM & BALL JOINT

**Removal** - Raise vehicle and place jack stands under body. Remove wheel and tire. Disconnect stabilizer bar and compression rod from control arm. Remove bolts securing strut assembly to steering arm. Remove tie rod end stud nut and using a puller, separate tie rod from steering arm. Remove control arm pivot bolt and nut, then remove control arm from vehicle.

**Reassembly, Celica** - 1) Thoroughly clean and inspect all components for damage and wear. Piston rod diameter should be no less than .865" (22 mm) and piston diameter should be no less than 1.252" (31.7 mm). Inside diameter of cylinder should be no more than 1.269" (32.2 mm). Replace seal in ring nut by prying out with a screwdriver and pressing in with an available mandrel.

2) Place upper portion of piston rod in a vise and install internal components in reverse order of removal procedure. Tighten new nut. Stake center of piston nut and install ring on piston. Press valve into case and drive into base of cylinder. Install piston rod into cylinder and insert cylinder into strut tube.

3) Fill strut tube with approximately 10.7 ozs. of shock absorber fluid. Install piston rod guide and gasket into strut tube. Coat ring nut seal with grease and install into strut tube. Tighten ring nut. **NOTE** - Raise piston rod  $3\text{-}3\frac{1}{2}$ " from edge of strut tube before tightening fully. Install coil spring and components in reverse order of removal.

**Installation** - To install, reverse removal procedure. Tighten all nuts and bolts and bleed brake system.

## TOYOTA CELICA & COROLLA (Cont.)

### SUSPENSION CROSSMEMBER

**Disassembly** — Remove nut from ball joint stud and using a puller, separate steering arm from ball joint. Ball joint is not removable from control arm, if either are defective, both must be replaced. Dust cover on ball joint is replaceable. Using a mandrel, press bushing out of control arm in a forward direction.

**Reassembly** — Using same mandrel used for disassembly, press new bushing into control arm in a forward direction. Install new dust cap on ball joint. Remove plug from bottom of ball joint and install grease fitting. Fill ball joint with grease. Install steering arm on ball joint and tighten nut. Install new cotter pin.

**Installation** — To install control arm, reverse removal procedure and tighten bolts and nuts, except control arm pivot bolt. Tighten control arm pivot bolt when weight of vehicle is on front wheels.

### STABILIZER BAR

**Removal** — Disconnect stabilizer bar from both control arms. Remove engine protective cover, if equipped. Remove bolts securing mounting brackets to chassis and remove stabilizer bar.

**Installation** — To install, reverse removal procedure. Make sure components connecting stabilizer bar to control arms are installed properly.

### STRUT ROD

**Removal** — Raise vehicle and place safety stands under vehicle. Remove nut from front of strut rod and remove washer,

retainer, and rubber grommet. Remove bolts connecting strut rod to control arm and remove rod from vehicle.

**Installation** — Install first nut on rod so leading edge is 3.43" (87.2 mm) for Corolla or 3.22" (82 mm) for Celica from edge of threaded portion. Place in vehicle and tighten hardware.

**Removal** — Disconnect control arms as previously outlined. Place a jack under engine for support and remove nuts securing motor mounts to crossmember. Remove protective cover from under engine. Remove bolts securing crossmember to body and remove crossmember.

**Installation** — To install, reverse removal procedure. Make sure components connecting stabilizer bar to control arms are installed in correct order.

### TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Ball Joint Stud Nut	
Upper .....	35 (4.8)
Lower .....	58 (8.0)
Control Arm Bushings .....	87 (12.0)
Control Arm Pivot Shaft-to-Crossmember .....	38 (5.3)
Lower Arm Ball Joint	
Large Nut .....	71 (9.8)
Small Nuts .....	14 (.19)