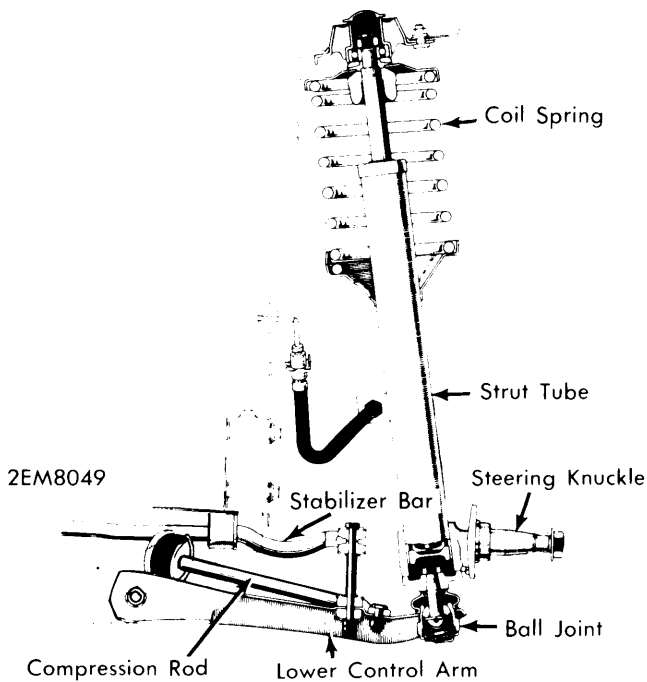


TOYOTA CELICA & COROLLA

Celica
Corolla

DESCRIPTION

Independent strut type suspension consisting of vertically mounted strut assemblies, lower control arms, compression rods and a stabilizer bar. Individual strut assembly is mounted at top to inner fender panel by means of 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 is mounted on outside of strut tube and a steering knuckle is integral with bottom of strut tube. A compression rod is mounted between lower control arm and frame member. A stabilizer bar is mounted to front frame members and connected at ends to lower control arms. Suspension crossmember that serves as support for all suspension components is removable.



CELICA & COROLLA FRONT SUSPENSION

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.

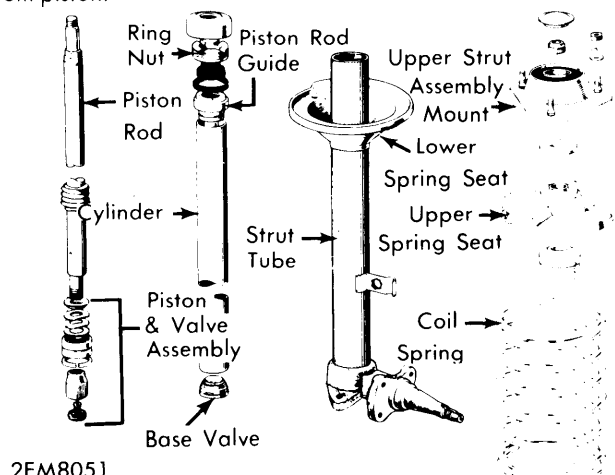
REMOVAL & INSTALLATION

STRUT ASSEMBLY

Removal — Raise vehicle and place safety 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) — Bolt a suitable holding fixture (09720-12011), to bottom of strut tube and clamp in a vise. Compress coil spring using a suitable spring compressor (09727-10010). 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. Remove brake drum and backing plate from steering knuckle. **NOTE** — See *appropriate story* in **BRAKE SYSTEMS** Section for removal. Remove cap from upper portion of strut tube and straighten crimped edges of strut tube with a punch. Remove ring nut from inside strut tube with a suitable wrench (09728-12020). Remove gasket from inside strut tube and pull out piston rod and guide. Pull out cylinder from inside strut tube and drain fluid from cylinder. Using a punch of suitable length (17.72"), drive base valve from bottom of cylinder. Pry base valve from valve case with a screwdriver. Secure upper portion of piston rod in a vise and remove nut from bottom end. Remove piston, valve, valve springs, valve stopper and piston ring from piston.

Disassembly (Celica) — Bolt a suitable holding fixture (09741-14010), to bottom of strut tube and clamp in a vise. Compress coil spring using a suitable spring compressor (09727-14010). Remove dust cover from center of bearing support. Hold upper spring seat with a suitable wrench (09729-14010), and remove nut from center of support. Remove support, coil spring and dust cover. Remove brake drum and backing plate from steering knuckle. **NOTE** — See *appropriate story* in **BRAKE SYSTEMS** Section for removal. Remove ring nut from inside strut tube using a suitable wrench (09728-14010). Remove gasket from inside strut tube and pull up on piston rod to remove rod and rod guide. Remove cylinder from inside strut tube and drain fluid. Using a punch of suitable length (18"), drive base valve from bottom of cylinder. Pry base valve from valve case with a screwdriver. Clamp flat part of piston rod in a vise and remove piston nut, valve, spring, piston and cylinder valve. Remove piston ring from piston.

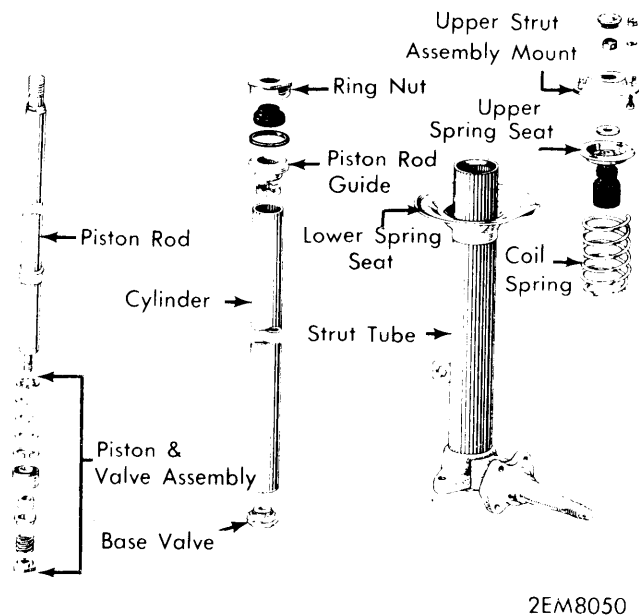


COROLLA STRUT ASSEMBLY COMPONENTS

Front Suspension

TOYOTA CELICA & COROLLA (Cont.)

Assembly (Corolla) – Thoroughly clean and inspect all components for wear or damage. Piston rod diameter should be no less than 0.783" and piston diameter should be no less than 1.183". Inside diameter of cylinder should be no more than 1.193". Place piston rod upper portion in a vise and install valve stopper, two valve springs, valve, piston (ring installed) and new piston nut. Tighten nut to specification and stake around edge of threads to prevent working loose. Install valve in nut and using a suitable wrench (09720-12011 No. 9), tighten to stop and back off 1 1/2 turns. Stake two portions of threads between valve and nut to prevent working loose. Insert base valve into case and drive into base of cylinder with a hammer. Install piston rod into cylinder and insert cylinder into strut tube. Fill tube with 16.78 - 17.39 cu. in. (275-285cc), of automatic transmission fluid type A. Install piston rod guide in strut tube with new gasket. Place a light coat of grease on seal in ring nut and install seal guide (09720-12010 No. 9) on piston rod. Install ring nut in strut tube and tighten to specification. Bend over edge of strut tube into grooves in ring nut with a punch and install cap. To install coil spring and components reverse removal procedure. Tighten piston rod nut to specification. Install dust cover in center of support.



CELICA STRUT ASSEMBLY COMPONENTS

Assembly (Celica) – Thoroughly clean and inspect all components for wear or damage. Piston rod diameter should be no less than .865" and piston diameter should be no less than 1.252". Inside diameter of cylinder should be no more than 1.269". Replace seal in ring nut by prying out with a screwdriver and pressing in new seal using a suitable mandrel (09742-14010). Place upper portion of piston rod in a vise and install components in reverse of removal procedure.

Tighten new nut. Stake in center of piston nut to prevent working loose and install ring on piston. Press valve into case and drive into base of cylinder with a hammer. Install piston rod into cylinder and insert cylinder into strut tube. Fill strut tube with correct amount of suitable shock absorber fluid (Castle Auto Fluid Special). Correct amount for Celica is 19.22 cu. in. (315 cc). Install piston rod guide and gasket into strut tube. Coat ring nut seal with grease and install in strut tube. Using a suitable wrench (09728-14010), tighten ring nut. **NOTE** – Raise piston rod 3 to 3 1/2" from edge of strut tube before tightening fully. Install coil spring and components in reverse of removal order and tighten nut.

Installation (Both Models) – To install reverse removal procedure. Tighten all bolts and nuts to specifications. Bleed brake system.

CONTROL ARM & BALL JOINT

Removal – Raise vehicle and place safety 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 suitable puller (09611-20012), separate tie-rod from steering arm. Remove control arm pivot bolt and nut and remove control arm from vehicle.

Disassembly – Remove nut from ball joint stud and using a suitable puller (09628-12020), 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 suitable mandrel (09726-12021 Celica or 09726-12020 Corolla) press bushing out of control arm in a forward direction.

Assembly – Using same mandrels as used for removal, 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 a suitable grease. **CAUTION** – Do not use multipurpose or chassis grease. Install steering arm on ball joint and tighten nut to specification. Install new cotter pin.

Installation – To install control arm, reverse removal procedure and tighten all bolts and nuts to specifications except control arm pivot bolt. Tighten control arm pivot bolt to specification when weight of vehicle is on front wheels.

STABILIZER BAR

Removal – Disconnect stabilizer bar from both control arms. Remove engine protective cover. Remove bolts securing mounting brackets to chassis and remove stabilizer bar.

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

COMPRESSION ROD

Removal – Raise vehicle and place safety stands under vehicle. Remove nut from front of strut bar and remove washer, retainer and rubber grommet. Remove bolts connecting compression rod to control arm and remove rod from vehicle.

Installation – Install first nut on rod so leading edge is 2.4" (62 mm) for Corolla or 3.2" (82 mm) for Celica from edge of threaded portion. Place in vehicle and tighten nuts and bolts.

Front Suspension

TOYOTA CELICA & COROLLA (Cont.)

SUSPENSION CROSSMEMBER

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) |
|--------------------------------------|----------------|
| Piston Nut | |
| Corolla | 40 (5.5) |
| Celica | 18 (2.5) |
| Ring Nut | 93 (12.9) |
| Upper Mounting Support-to- | |
| Piston Rod Nut | 35 (4.8) |
| Upper Mounting Support-to- | |
| Fender Panel | 18 (2.5) |
| Strut Assembly-to-Steering Arm | 58 (8.0) |
| Ball Joint Stud Nut | 42 (5.8) |
| Tie Rod End Stud Nut | 42 (5.8) |
| Stabilizer Bar-to-Control | |
| Arm Nut | 13 (1.8) |
| Stabilizer Bar-to-Control | |
| Arm Lock Nut | 10 (1.4) |
| Compression Rod-to-Lower Arm | 35 (4.8) |
| Compression Rod Bracket-to- | |
| Chassis | 12 (1.7) |
| Control Arm-to-Suspension | |
| Crossmember | 58 (8.0) |
| Compression Rod-to-Bracket | 67 (9.3) |