

# SUSPENSION - FRONT

1993 Toyota Celica

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Toyota Front

Celica

## DESCRIPTION

Vehicles are equipped with front wheel drive and independent MacPherson strut front suspension. Suspension consists of vertically mounted strut assemblies, control arms and stabilizer bar.

Struts are mounted between inner fender and steering knuckle. Tie rod ends connect rack and pinion steering to steering knuckle. Ball joint connects steering knuckle to lower control arm which attaches to frame crossmember. On Celica, stabilizer bar attaches to lower control arms and 2 points on crossmember.

## ADJUSTMENTS & INSPECTION

### WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

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

### WHEEL BEARING

Wheel bearings are not adjustable. Whenever bearings are removed, replace with NEW bearings, races and oil seals.

### BALL JOINT CHECKING

1) Raise vehicle, and place a wooden block with a height of 7.09-7.87" (180.0-200.0 mm) under either front tire. Lower floor jack until about half vehicle load is on front struts. Place safety stands under vehicle.

2) Place front wheels in straight-ahead position, and block them. Use a rod to move control arm up and down. Check for vertical ball joint play. If ball joint is damaged or any vertical play is found, replace ball joint. See LOWER CONTROL ARM & BALL JOINT under REMOVAL & INSTALLATION.

## REMOVAL & INSTALLATION

### WHEEL BEARING

Removal

1) Raise and support vehicle. Remove front wheels. Remove cotter pin, bearing lock nut cap and bearing lock nut (apply brakes when removing lock nut). Remove brake caliper. DO NOT disconnect brakeline. Secure caliper aside.

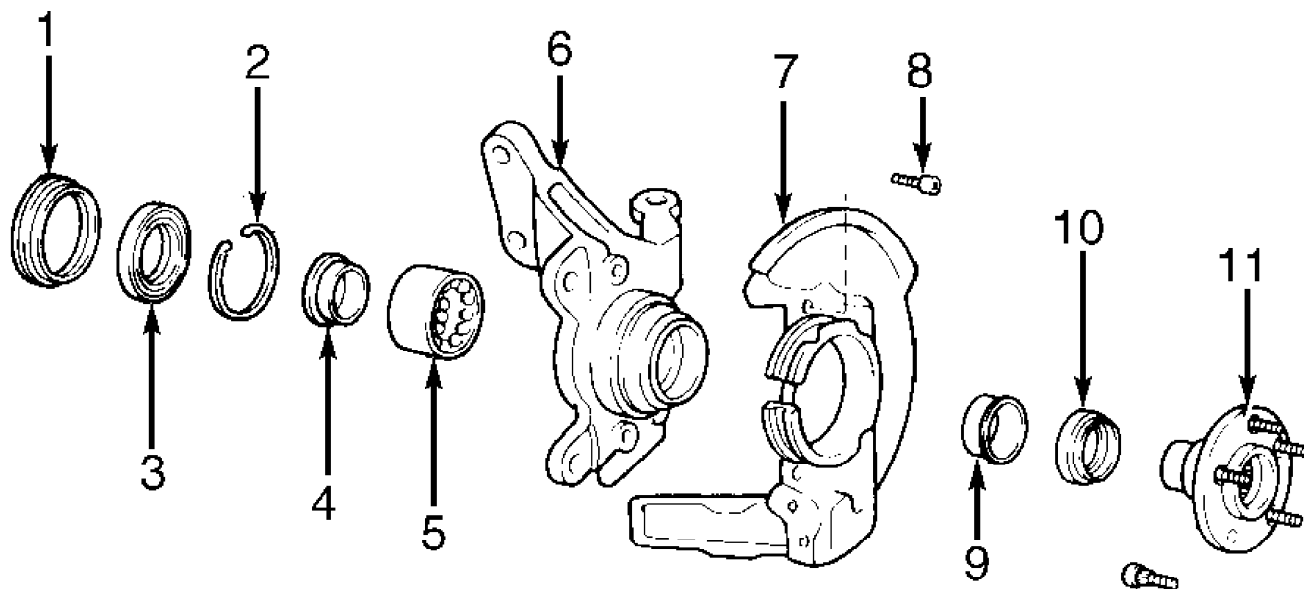
2) Remove disc brake rotor. Remove ABS speed sensor (if equipped). Loosen, but DO NOT remove, shock absorber lower mounting bolts. Remove cotter pin and castle nut from tie rod end. Using Puller (09628-62011), remove tie rod end from steering knuckle.

3) Remove nuts and bolt attaching lower ball joint to lower control arm. Using Puller (09950-20017), disconnect steering knuckle from axle shaft. See Fig. 1. Remove steering knuckle and axle hub as an assembly. Place steering knuckle in a vise. Remove dust deflector.

4) Using Puller (09628-62011), remove lower ball joint (if necessary) from steering knuckle. Remove inner oil seal and snap ring from steering knuckle. Remove dust cover retaining bolts. Using Puller (09950-20017), remove axle hub. Remove dust cover. Remove hub bearing inner race.

5) Using Puller (09950-20017), remove hub bearing outer race from axle hub. Remove outer oil seal from steering knuckle. Reinstall outer race on hub bearing. Using Driver (09605-60010), press hub bearing from steering knuckle.

NOTE: Always replace bearings and races as an assembly.



1. Dust Deflector

2. Snap Ring

3. Inner Oil Seal

4. Hub Bearing Inner Race

5. Hub Bearing

6. Steering Knuckle

7. Dust Cover

8. Dust Cover Mounting Bolt

9. Hub Bearing Outer Race

10. Outer Oil Seal

11. Axle Hub

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Fig. 1: Identifying Hub Components  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

#### Installation

1) Using an arbor press and Seal Driver (09608-32010), press NEW bearing into steering knuckle. Install hub bearing outer race on hub bearing. Using seal driver and Bushing Driver (09710-14012), drive NEW outer oil seal into steering knuckle.

2) Install dust cover. Apply multipurpose grease to oil seal lip and bearing. Install hub bearing inside race on hub bearing. Using Bearing Driver (09310-35010), press hub into steering knuckle. Install snap ring into steering knuckle.

3) Using seal driver and Bushing Driver (09710-14012), install NEW inner oil seal flush with end surface of steering knuckle. Install lower ball joint (if removed). Position NEW dust deflector in

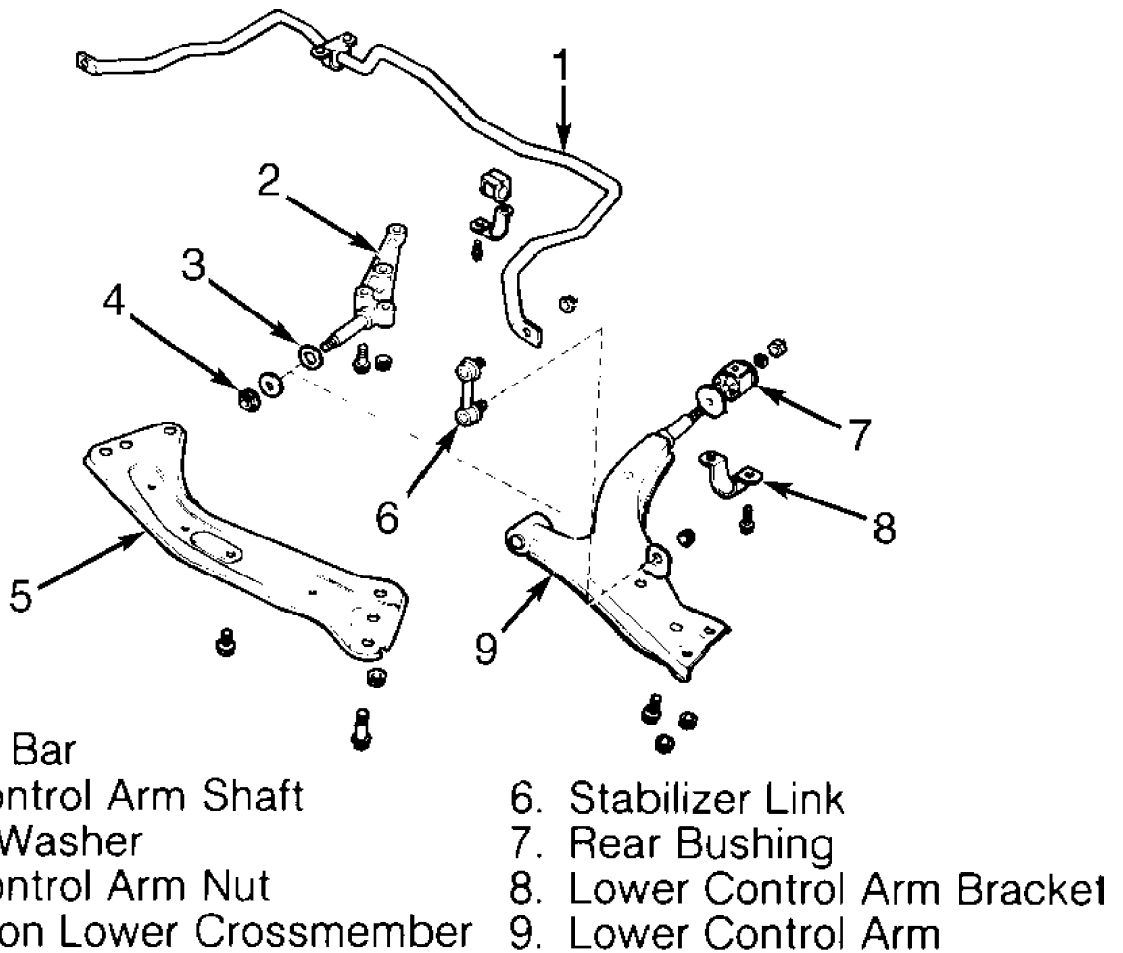
steering knuckle so hole in dust deflector (for ABS speed sensor) is aligned with hole in steering knuckle.

4) Using Seal Driver (09608-35014), install dust deflector. To complete installation, reverse removal procedure. Tighten all nuts and bolts to specification. See TORQUE SPECIFICATIONS. Check front end alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

## LOWER CONTROL ARM & BALL JOINT

### Removal

1) Raise and support vehicle. Remove front wheels. Disconnect lower control arm from steering knuckle. Disconnect stabilizer link from lower control arm. See Fig. 2. Remove lower control arm front setting nut and washer.



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Fig. 2: Identifying Lower Control Arm Components  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

NOTE: On A/T models, remove left lower control arm with lower control arm shaft as an assembly. Remove suspension lower crossmember before removing lower control arm and shaft assembly.

2) On M/T models, remove left lower control arm and lower arm

damper plate. Remove lower control arm rear bracket bolts. Remove right lower control arm. Remove suspension lower crossmember and lower control arm shaft (if necessary).

3) On A/T models, remove suspension lower crossmember. Remove lower arm damper plate bolts and damper plate. Remove lower control arm with lower control arm shaft as an assembly.

4) On all models, remove ball joint cotter pin and nut to remove ball joint from steering knuckle. Using Remover (09628-62011), remove ball joint from steering knuckle.

#### Installation

1) Install ball joint to steering knuckle, and tighten to specification. See TORQUE SPECIFICATIONS. Install NEW cotter pin. To complete installation, reverse removal procedure. Install left lower control arm. Ensure tapered side of lower control arm faces body side.

2) Install, but DO NOT tighten, nut attaching lower control arm to lower control arm shaft and lower control arm bracket bolts. Install lower arm damper plate. Connect lower control arm to steering knuckle. Connect stabilizer link to control arm.

3) Install wheels, and lower vehicle. Bounce vehicle up and down to stabilize suspension. Tighten lower control arm nuts/bolts to specification. Check front end alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

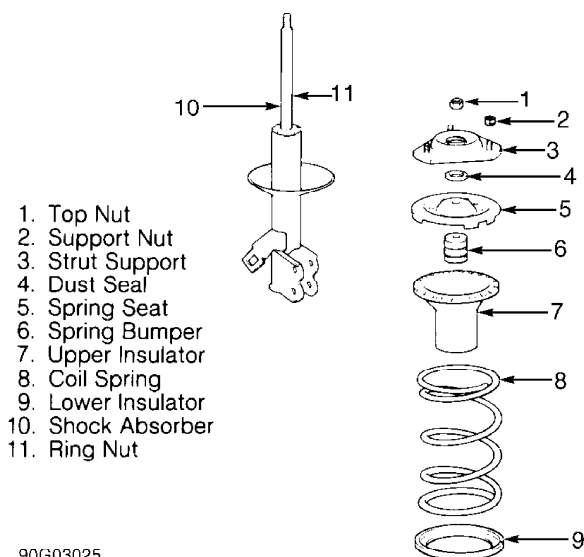
## LOWER CONTROL ARM BUSHING

#### Removal & Installation

Install lower control arm in a vise. Remove nut, washer and bushing from control arm. Install NEW bushing, washer and nut. Install washer with tapered side facing lower control arm. Install nut and tighten to specification. See TORQUE SPECIFICATIONS.

## STRUT ASSEMBLY

NOTE: During following procedures, refer to Fig. 3.



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Fig. 3: Identifying Strut Assembly Components  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

#### Removal

1) On Celica, remove union bolt and washers, and disconnect

brake hose from disc brake caliper. Drain fluid into a container. Remove clip from brake hose, and pull hose from bracket.

CAUTION: When removing strut, cover axle shaft boot using a cloth for protection.

2) Remove nuts and bolts, and separate strut from steering knuckle. Remove dust seal from top of strut. Remove nuts holding top of strut to body. Remove strut from vehicle.

#### Disassembly

Install a bolt and 2 nuts to strut lower bracket to prevent distortion of strut shell when clamped. Clamp bottom of strut in a vise. Using Compressor (09727-30020), compress coil spring. Hold spring seat using Lever (09729-22031) and remove strut rod top nut. Remove components.

#### Inspection

Compress and extend shock rod, and ensure no abnormal resistance or noise exists. Push shock absorber piston rod in fully and release. Ensure piston rod returns at a constant speed throughout travel. If shock is defective, replace as an assembly.

CAUTION: To prevent personal injury, discharge gas in shock absorber. On Celica, use Shock Absorber Wrench (09720-00012) to loosen ring nut 2 or 3 turns before discarding.

#### Reassembly & Installation

1) To install, reverse removal procedure. On Celica, ensure "OUT" mark on spring seat faces toward outside of vehicle. Tighten support nut to specification. See TORQUE SPECIFICATIONS.

2) Install strut to body. Tighten nuts to specification. Install strut to steering knuckle, and tighten bolts. Install dust seal after packing bearing in suspension support with grease. Bleed brakes. On Celica, ensure flexible brake hose pin aligns with caliper hole.

3) Check front end alignment. Proceed to appropriate WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

## STABILIZER BAR

#### Removal & Installation

1) Disconnect stabilizer link from lower control arm and stabilizer bar. See Fig. 2. Disconnect front exhaust pipe from rear exhaust pipe. Disconnect exhaust pipe hanger from body.

2) Remove both stabilizer bar brackets from body. Remove stabilizer bar. Inspect stabilizer link ball joint arms. If movement of arms is not free in all directions, replace stabilizer link. To install, reverse removal procedure. Check wheel alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

## TORQUE SPECIFICATIONS

#### TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Axle Nut .....	166 (226)
Axle Shaft Flange Bolts (All-Trac) .....	48 (65)
Ball Joint-To-Lower Control Arm Nut .....	94 (127)

Ball Joint-To-Steering Knuckle Nut .....	76 (103)
Brake Caliper-To-Knuckle Bolt .....	79 (107)
Brake Hose-To-Caliper Bolt .....	22 (30)
Crossmember Bolts/Nuts .....	112 (152)
Drive Shaft Flange Bolts .....	54 (74)
Exhaust Pipe Hanger Bolts .....	14 (19)
Lower Control Arm Bracket-To-Body Bolt .....	72 (98)
Lower Control Arm Nut	
Front .....	156 (211)
Rear .....	101 (137)
Lower Control Arm Shaft-To-Body Bolt .....	112 (152)
Stabilizer Bar Link Bolt .....	26 (35)
Stabilizer Bracket-To-Body Bolt .....	13 (18)
Steering Knuckle-To-Strut Bolt .....	224 (301)
Strut Assembly-To-Body Nuts .....	59 (80)
Strut Assembly Top Support Nut .....	34 (47)
Tie Rod-To-Knuckle Nut .....	36 (49)
Wheel Lug Nuts .....	76 (103)

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