

SUSPENSION - FRONT

1994 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. 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 enough to place a wooden block with a height of 7.1-7.9" (180-200 mm) under each front tire. Lower jack until about half vehicle load is on front struts. Position safety stands under vehicle.

2) Set front wheels to straight-ahead position, and block them. Pry control arm up and down. Inspect for vertical play in ball joint. If ball joint is damaged or any vertical play exists, 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, leaving brakeline connected. Secure caliper aside.

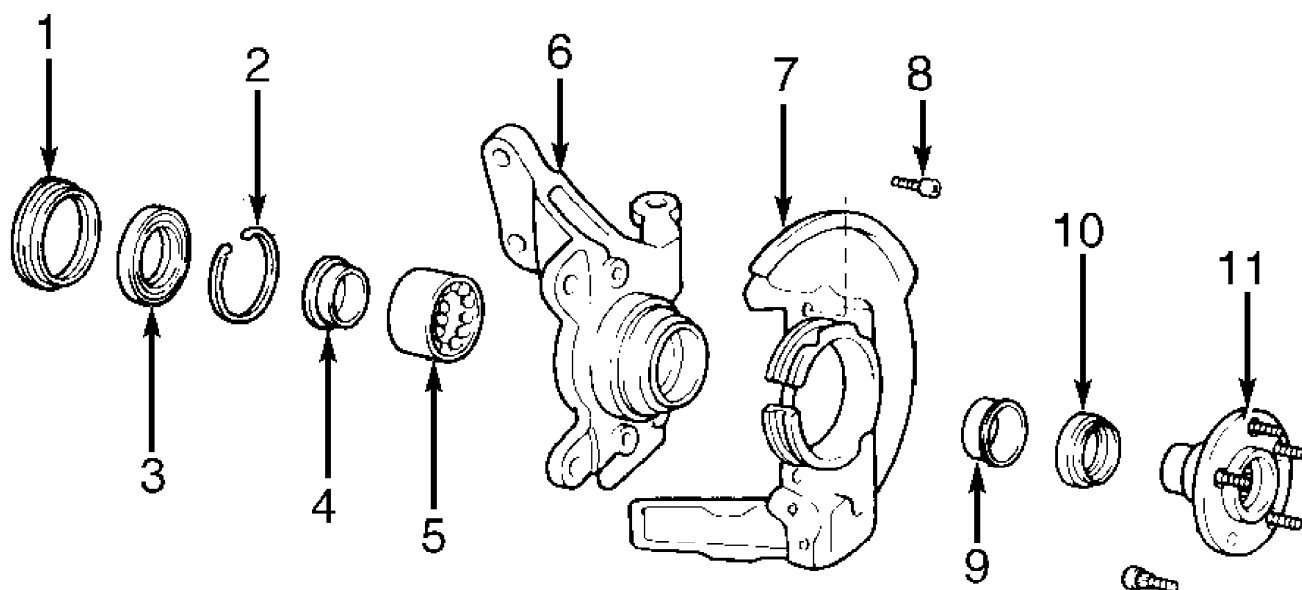
2) Remove disc brake rotor. Remove ABS speed sensor (if equipped). Loosen, but DO NOT remove, shock absorber lower mounting bolts. Remove cotter pin and castle nut from tie rod end. Using Puller (09628-62011), separate remove tie rod end from steering knuckle.

3) Remove nuts and bolt attaching lower ball joint to lower control arm. Using Puller (09950-20017), separate steering knuckle and axle shaft. See Fig. 1. Remove steering knuckle and axle hub as an assembly. Mount 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 onto 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

93B02537

Fig. 1: Hub Components ID
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 onto 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 onto 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

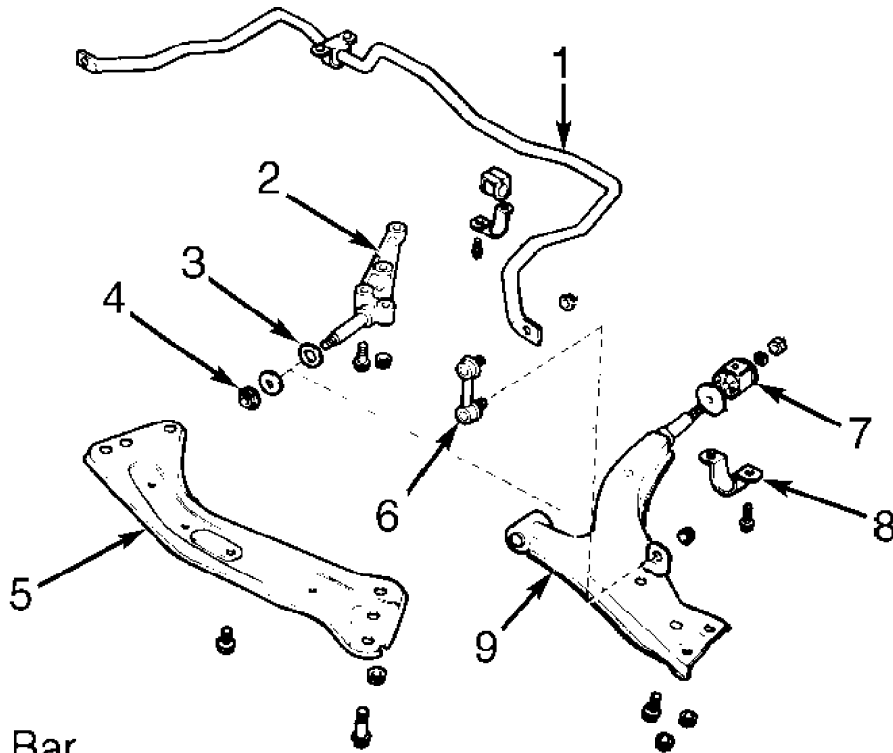
into steering knuckle so hole in dust deflector (for ABS speed sensor) aligns with hole in steering knuckle.

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. Separate 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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|---------------------------------|------------------------------|
| 1. Stabilizer Bar | 6. Stabilizer Link |
| 2. Lower Control Arm Shaft | 7. Rear Bushing |
| 3. Tapered Washer | 8. Lower Control Arm Bracket |
| 4. Lower Control Arm Nut | 9. Lower Control Arm |
| 5. Suspension Lower Crossmember | |

90H03021

Fig. 2: Lower Control Arm Components ID
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 and lower control arm shaft as an assembly.

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

Installation

1) Install ball joint into steering knuckle. Tighten nuts to specification. See TORQUE SPECIFICATIONS. Install NEW cotter pin. To complete installation, reverse removal procedure. Install left lower control arm. Install with tapered side of lower control arm facing body.

2) Loosely install 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. Lower vehicle. Bounce vehicle up and down to stabilize suspension. Tighten lower control arm nuts and bolts to specification. See TORQUE SPECIFICATIONS. Check front end alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

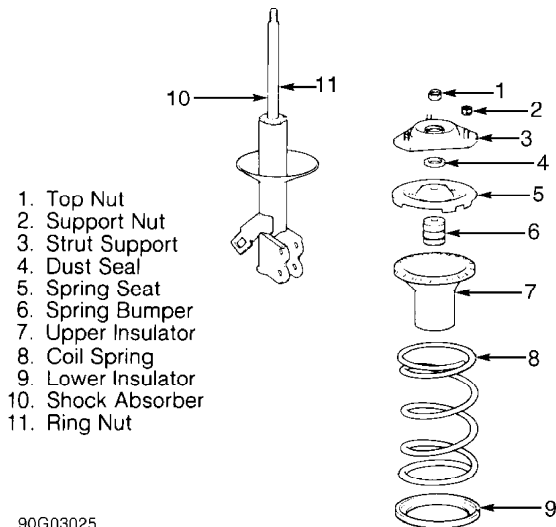
LOWER CONTROL ARM BUSHING

Removal & Installation

Mount 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 and tighten nut to specification. See TORQUE SPECIFICATIONS.

STRUT ASSEMBLY

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



90G03025

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

Removal

1) Disengage brake hose from disc brake caliper. Drain fluid

into a container. Remove clip from brake hose. Pull hose from bracket.

2) On models with ABS, unplug speed sensor wiring connector. On all models, support lower control arm with floor jack.

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

3) 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 into 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 with Lever (09729-22031). Remove strut rod top nut. Remove components.

Inspection

Compress and extend shock rod to check for abnormal resistance or noise. Push shock absorber piston rod in fully and release. Piston rod should return at a constant speed throughout its travel. If shock is defective, replace as an assembly.

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

Reassembly & Installation

1) To install, reverse removal procedure. Install with "OUT" mark on spring seat facing toward outside of vehicle. Tighten support nut to specification. See TORQUE SPECIFICATIONS.

2) Install strut. Tighten nuts to specification. Install strut onto steering knuckle. Tighten bolts. Install dust seal after packing bearing in suspension support with grease. Install dust seal. Bleed brakes. Align brake hose pin with caliper hole.

3) Check front end alignment.

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

STABILIZER BAR

Removal & Installation

1) Separate stabilizer link from lower control arm and stabilizer bar. See Fig. 2. Separate front and rear exhaust pipes. Remove exhaust pipe hanger.

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)
