

STEERING COLUMN - TILT

1994 Toyota Celica

1994 STEERING
Toyota - Steering Column - Tilt Wheel
Celica

DESCRIPTION & OPERATION

Tilt steering wheels incorporate a mainshaft, attached by a "U" joint to an intermediate steering shaft. These shafts are held in place by upper and lower column tubes. Tubes are pinned together so upper tube can move up or down. Upper tube is locked in place by pawl attached to lever. Steering columns are collapsible.

DISABLING & ACTIVATING AIR BAG SYSTEM

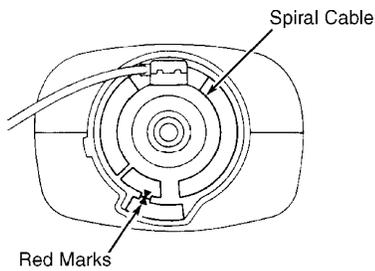
WARNING: All models are equipped with a driver-side air bag; use extreme caution while servicing steering column. Air bag system retains enough voltage to deploy air bag for a short time after disconnecting power. Proceeding too quickly may cause accidental deployment and possible personal injury. Always wait at least 90 seconds after disconnecting battery before starting work.

To disable air bag system, ensure ignition switch is in LOCK position and negative battery terminal is disconnected for at least 90 seconds before attempting any repair. DO NOT apply electrical power to any component on steering column without disconnecting air bag control unit. Information labels are attached to air bag components. Follow all notices on labels. See the AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section.

ADJUSTMENTS

SPIRAL CABLE

Spiral cable MUST be correctly adjusted to ensure proper air bag operation. Ensure front wheels are in a straight-ahead position. Turn spiral cable (located on combination switch) counterclockwise by hand until it becomes hard to turn cable. Turn spiral cable clockwise about 3 turns and ensure Red marks align and are visible through inspection hole. See Fig. 1.



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Fig. 1: Adjusting Air Bag Spiral Cable
Courtesy of Toyota Motor Sales, U.S.A., Inc.

REMOVAL & INSTALLATION

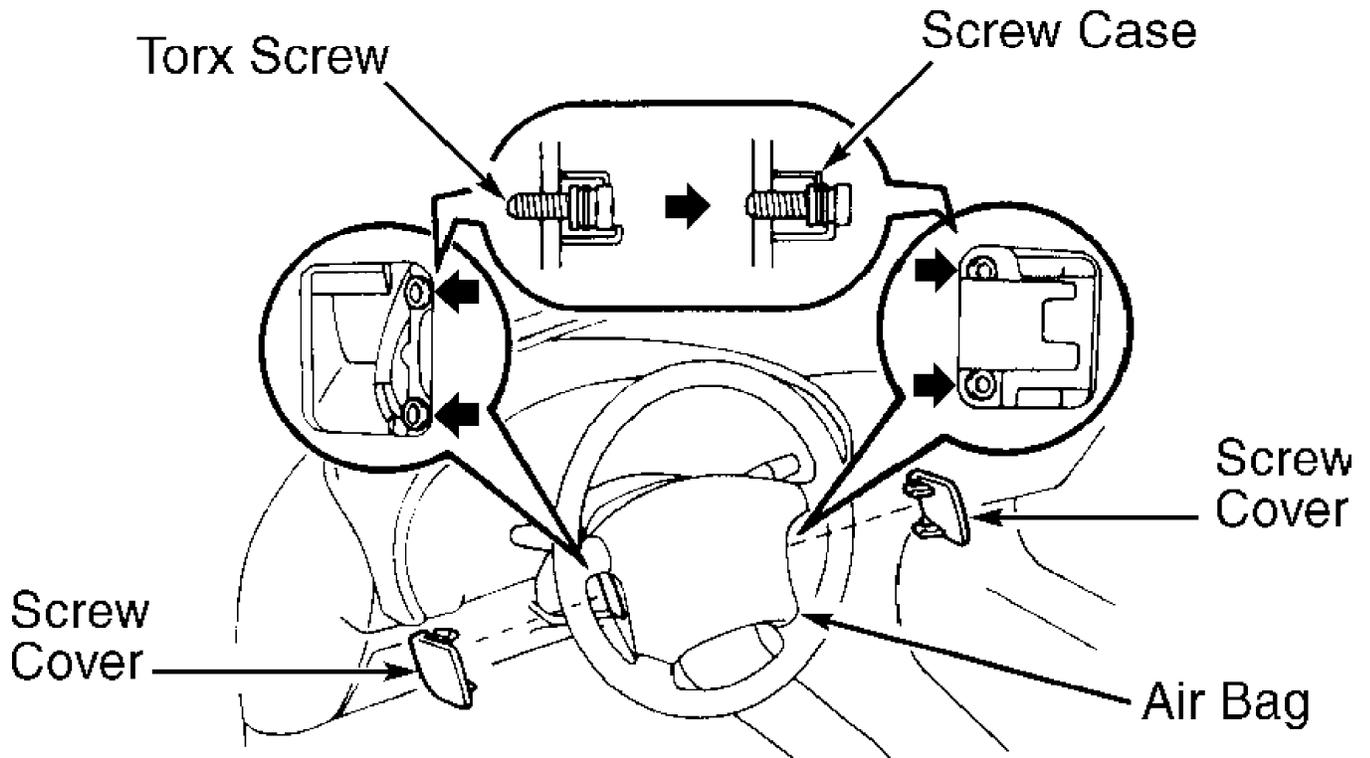
STEERING WHEEL & AIR BAG

NOTE: See DISABLING & ACTIVATING AIR BAG SYSTEM.

Removal

1) Ensure front wheels are in a straight-ahead position. Turn ignition off. Disconnect and shield negative battery cable.

2) Remove screw covers, screws and lower instrument cluster trim panel(s). Loosen steering wheel pad Torx screws until groove along screw circumference catches on screw case. See Fig. 2.



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Fig. 2: Removing Steering Wheel Pad
Courtesy of Toyota Motor Sales, U.S.A., Inc.

3) Pull steering wheel pad from steering wheel and disconnect air bag. Remove steering wheel pad assembly. Place steering wheel pad assembly on a flat surface with pad cover facing upward.

WARNING: Place steering wheel pad assembly on workbench. Pad surface MUST face up. If assembly is stored face down, accidental air bag deployment could propel assembly and cause serious bodily injury.

4) Place a mark on steering wheel and mainshaft for installation reference. Remove steering wheel nut. Using steering wheel puller, remove steering wheel.

Installation

1) To install, reverse removal procedure. Before installing steering wheel, ensure spiral cable is properly aligned. See SPIRAL CABLE under ADJUSTMENTS. Tighten steering wheel nut and Torx screws to specification. See TORQUE SPECIFICATIONS.

2) After steering wheel and steering wheel pad are installed, ensure proper operation of air bag system by turning ignition switch to ACC or ON position. AIR BAG warning light should come on and go out after about 6 seconds.

3) If AIR BAG warning light stays on for more than 6 seconds, air bag system is malfunctioning and needs repair. If AIR BAG warning light comes on with ignition off, a short circuit may be present in AIR BAG warning light circuit.

COMBINATION SWITCH

Removal & Installation

1) Remove steering wheel. See STEERING WHEEL & AIR BAG under REMOVAL & INSTALLATION. Remove instrument panel lower finish panel. Remove upper and lower steering column covers. Locate and disconnect combination switch and spiral cable electrical connector(s).

2) On models equipped with cruise control switches on steering wheel, disconnect cruise control electrical connector(s) from slip ring. Remove slip ring from combination switch.

3) On all models, remove wire ties securing combination switch wiring harness to column. Remove screws securing combination switch and spiral cable to steering column. Remove combination switch with spiral cable. To install, reverse removal procedure. Tighten steering wheel nut to specification. See TORQUE SPECIFICATIONS.

IGNITION SWITCH & LOCK CYLINDER

Removal

1) Remove steering wheel and combination switch (if necessary). See STEERING WHEEL & AIR BAG and COMBINATION SWITCH under REMOVAL & INSTALLATION. Disconnect ignition switch harness connectors. If shear bolt studs are accessible, use a hacksaw to cut a slot into exposed studs.

2) Remove studs using a screwdriver. If shear bolt studs are recessed or hard to reach with a hacksaw, use a center punch on studs. Using drill bit and screw extractor, remove studs. Place key in ACC position and remove ignition switch and lock cylinder.

Installation

To install, reverse removal procedure. Install NEW shear bolts. Tighten shear bolts finger tight. Ensure proper operation of ignition switch and lock cylinder. Tighten shear bolts until heads break off. Install combination switch, upper and lower steering column covers and steering wheel (if removed). Tighten steering wheel nut and Torx screws to specification. See TORQUE SPECIFICATIONS.

STEERING COLUMN

Removal & Installation

1) Disconnect and shield negative battery cable. Wait for at least 90 seconds before starting work to prevent air bag deployment. Remove steering wheel pad. Mark steering shaft and steering wheel for installation reference. Remove steering wheel.

2) Remove instrument cluster lower trim panel. Remove air duct from under steering column (if equipped). Remove steering column upper and lower covers. Remove combination switch with spiral cable.

3) Mark "U" joint and shaft for installation reference. Remove bolt(s) and disconnect "U" joint from bottom of steering column shaft. Remove steering column bolts and steering column. To install, reverse removal procedure. Tighten bolts and nuts to specification. See TORQUE SPECIFICATIONS.

OVERHAUL

STEERING COLUMN

Disassembly

1) Remove ignition key light. Remove sliding yoke bolt. Turn thrust stopper (if equipped) and place mating marks on sliding yoke and mainshaft. Remove yoke and thrust stopper. Remove lower column cover. See Fig. 6.

2) Drill out shear bolt studs. Using a screw extractor, remove column bracket bolts. Remove bracket and column upper clamp. Remove wiring harness clamp and column protector. Remove compression spring and bushings. Remove 3 tension springs. Remove steering damper (if equipped) and turn signal bracket.

3) Remove right tilt lever retainer. Remove left tilt lever retainer bolts, nuts, "E" ring and spacer. Remove tilt lever retainer and collar. Remove right tilt pawl, stopper and tilt lever. Remove left pawl, stopper, sub-lever, lever assembly and lock shaft. Using hex wrench, remove memory bolt and nut (if equipped).

4) Install nut (10 mm x 1.25 mm), washer (36-mm outside diameter), and bolt (10 mm x 1.25 mm x 50 mm) to upper column tube tilt steering bolt. Using a slide hammer, remove steering column tube tilt bolts. Remove upper column tube from lower column tube. See Fig. 3. Remove collar and bushing stopper from mainshaft (if equipped).

5) Using a press, compress spring on mainshaft. Remove snap ring. Remove mainshaft from column tube. Remove spring, thrust collar and bearing.

Inspection

Ensure lock mechanism operates properly. Check mainshaft upper bearing for rotating smoothness. Check steering shafts for bending, damaged splines or damaged "U" joints. Check column tube for bending or other damage. Repair or replace components as necessary.

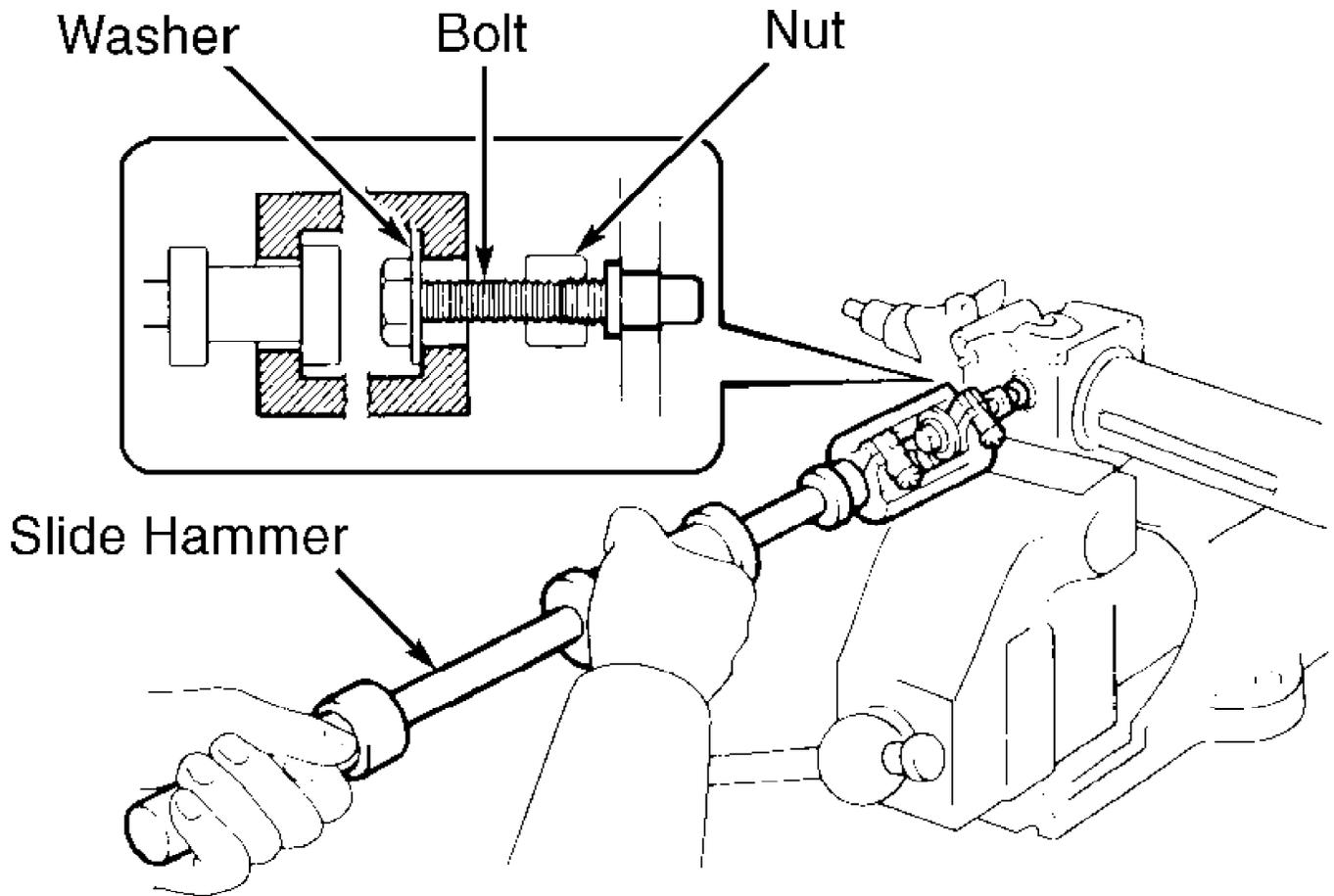
Reassembly

1) To reassemble, reverse disassembly procedure. Apply molybdenum disulfide lithium base grease to tilt lever assembly, lock bolt, mainshaft and steering bolt pivot points. Install steering column tube tilt bolts.

2) If upper column tube mark is "1", install hollow tipped thread bolt. If upper column tube mark is "2", install plain thread bolt. See Fig. 4. With tilt pawl and ratchet engaged, install 2 pawl stoppers. Ensure alignment marks on tilt pawl and stopper align when stopper is rotated to pawl side. See Fig. 5. If alignment marks do not align, select a different size pawl stopper. See TILT PAWL STOPPER SELECTION table.

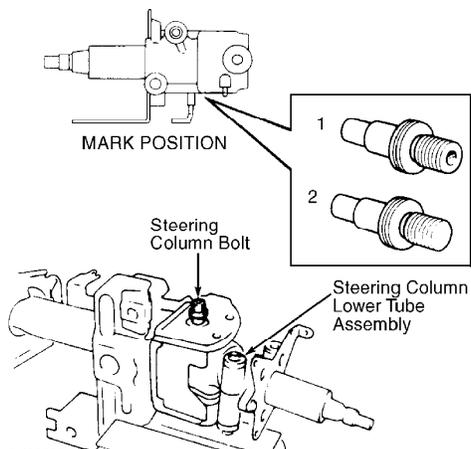
TILT PAWL STOPPER SELECTION

Mark	Mark	In. (mm)
Tilt Lever	Tilt Sub	
Side	Lever Side	
1	A	.499-.502 (12.68-12.74)
2	B	.497-.499 (12.61-12.67)
3	C	.494-.496 (12.54-12.60)
4	D	.491-.493 (12.47-12.53)
5	E	.488-.491 (12.40-12.46)
6	F	.485-.488 (12.33-12.39)
7	G	.483-.485 (12.26-12.32)



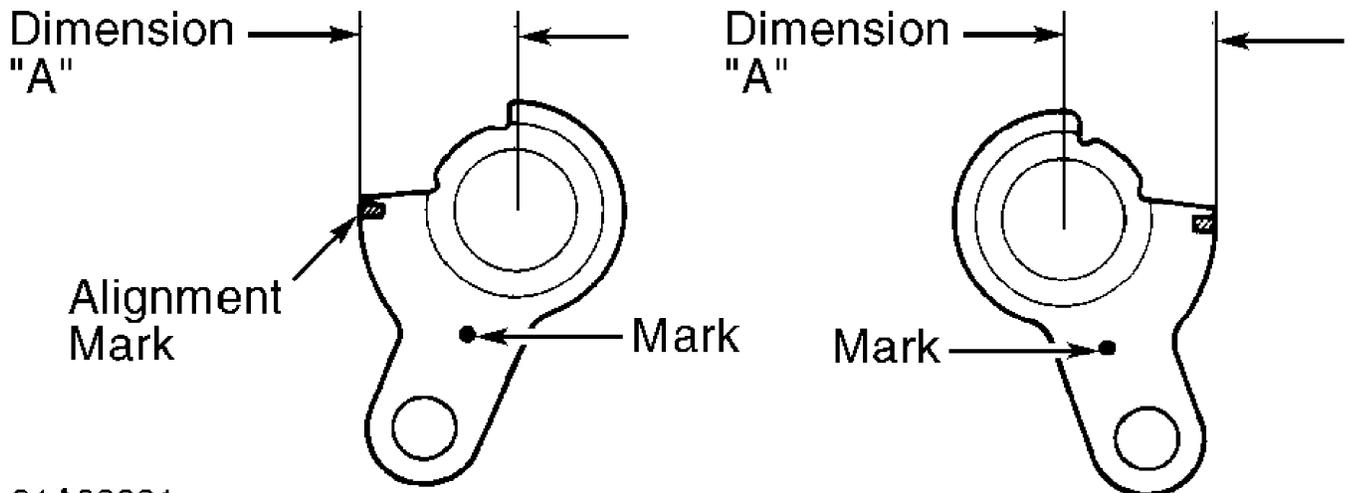
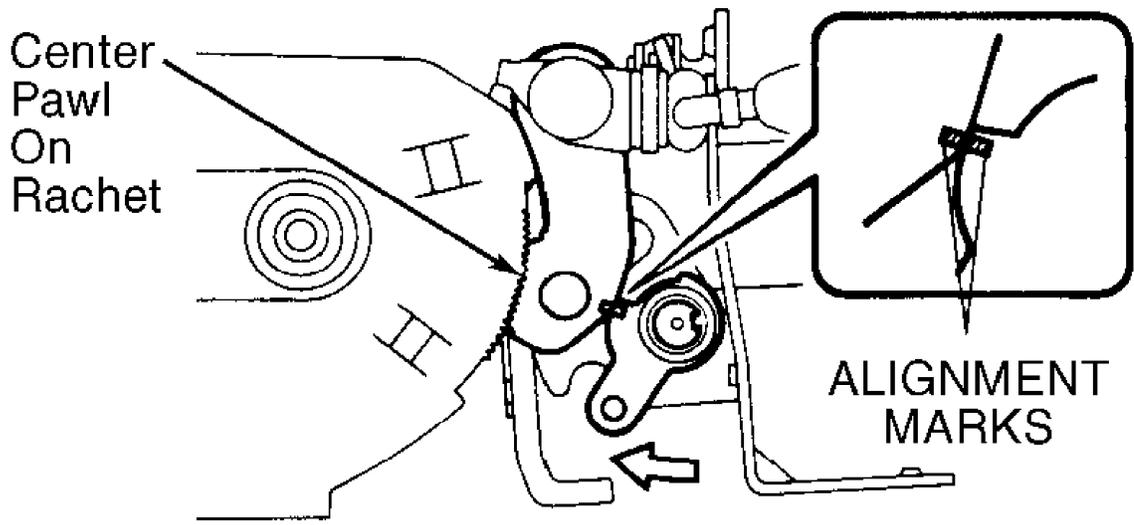
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Fig. 3: Removing Upper Column Tube Tilt Steering Bolts
 Courtesy of Toyota Motor Sales, U.S.A., Inc.



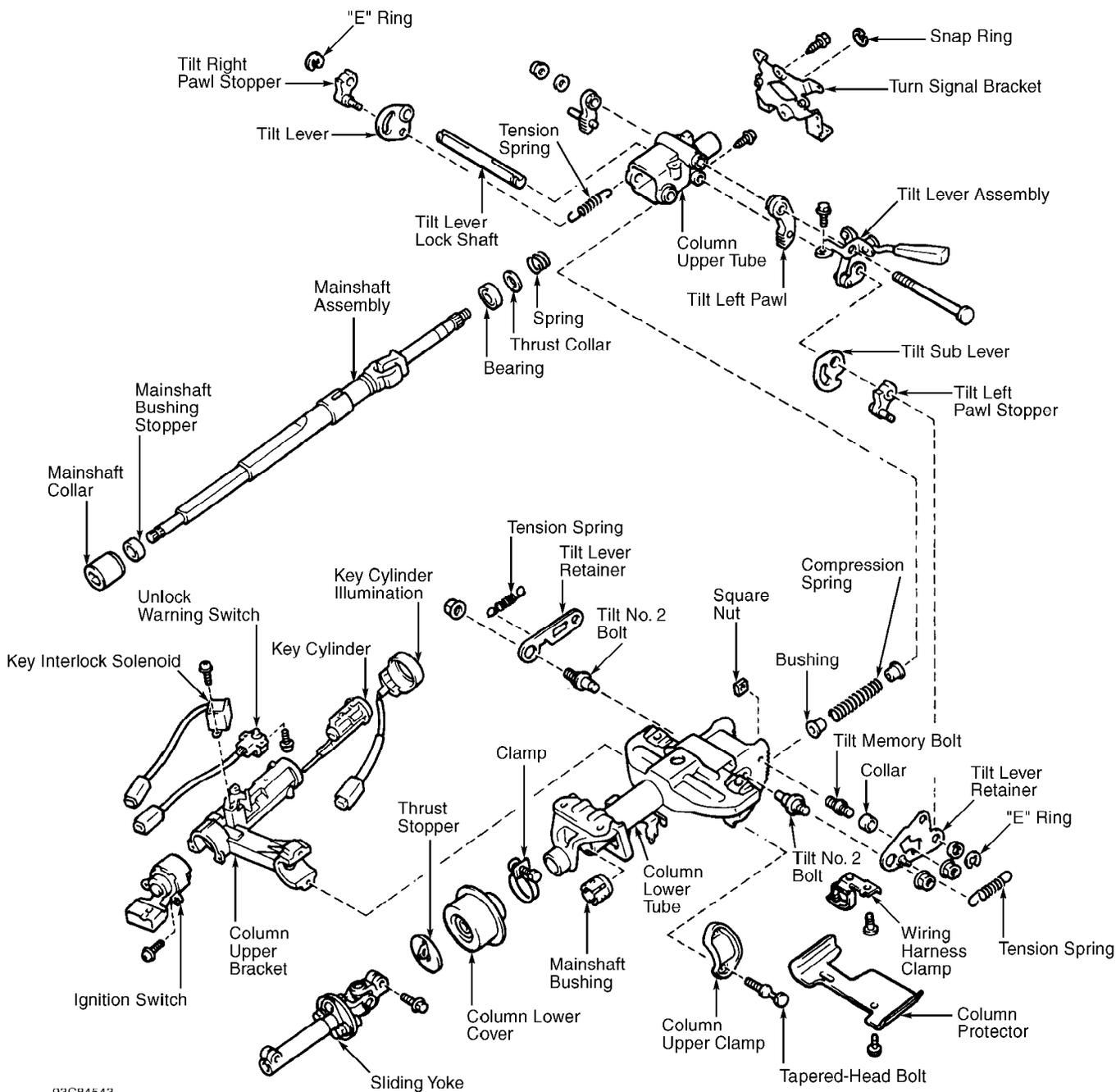
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Fig. 4: Selecting Steering Bolt
 Courtesy of Toyota Motor Sales, U.S.A., Inc.



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Fig. 5: Assembling Tilt Pawl & Stoppers
 Courtesy of Toyota Motor Sales, U.S.A., Inc.



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 Fig. 6: Exploded View Of Steering Column (Typical)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Steering Wheel Nut	25 (34)
Tilt Lever Retainer Nut	11 (15)
"U" Joint Clamp Bolt	26 (35)

INCH Lbs. (N.m)

Compression Spring Torx Screw	69 (7.8)
Steering Wheel Pad Torx Screws	80 (9.0)
Tilt Lever Screw	26 (2.9)
Turn Signal Bracket Bolt	47 (5.4)
