

**1999-2000 STEERING****Steering Columns - Tilt Wheel - Trucks & Vans****DESCRIPTION & OPERATION**

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

**WARNING:** To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS . Deactivate air bag system before performing any repairs. See DISABLING & ACTIVATING AIR BAG SYSTEM .

**SERVICE PRECAUTIONS**

Observe the following precautions when servicing SRS:

- Disable SRS before servicing any SRS or steering column component. Failure to do this could result in accidental air bag deployment and possible personal injury. See DISABLING & ACTIVATING AIR BAG SYSTEM .
- Remove air bag sensor assembly/center air bag sensor and front air bag sensors if repairing the vehicle requires impacting (shocking) the vehicle.
- Replace dropped, cracked, dented or otherwise damaged components.
- DO NOT expose front air bag sensors, air bag sensor assembly/center air bag sensor or steering wheel pad (air bag module) directly to heat or flame.
- Information labels are attached to air bag components. Follow all notices on labels.
- After work on SRS is completed, check air bag warning light to ensure system is functioning properly. See appropriate AIR BAG RESTRAINT SYSTEMS article in ACCESSORIES & EQUIPMENT.
- Always wear safety glasses when servicing or handling an air bag.
- When placing a live air bag on a bench or other surface, always face air bag and trim cover upward, away from surface. This will reduce motion of module if it is accidentally deployed.
- Carry a live air bag module with trim cover (air bag) pointed away from your body to minimize injury in case of accidental deployment.
- If SRS is not fully functional for any reason, vehicle should not be driven until system is repaired and becomes operational. DO NOT remove bulbs, modules, sensors or other components or in any way disable system from operating normally. If SRS is not functional, park vehicle until it is repaired and functions properly.

**DISABLING & ACTIVATING AIR BAG SYSTEM**

**WARNING:** Back-up power supply maintains SRS voltage for about 90 seconds after

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**battery is disconnected. After disabling SRS, wait at least 90 seconds before servicing SRS to prevent accidental air bag deployment and possible personal injury.**

### DISABLING SYSTEM

Turn ignition switch to LOCK position. Disconnect and shield negative battery cable. Wait at least 90 seconds before working on system. Remove steering wheel pad (air bag module). See **STEERING WHEEL & AIR BAG** under REMOVAL & INSTALLATION.

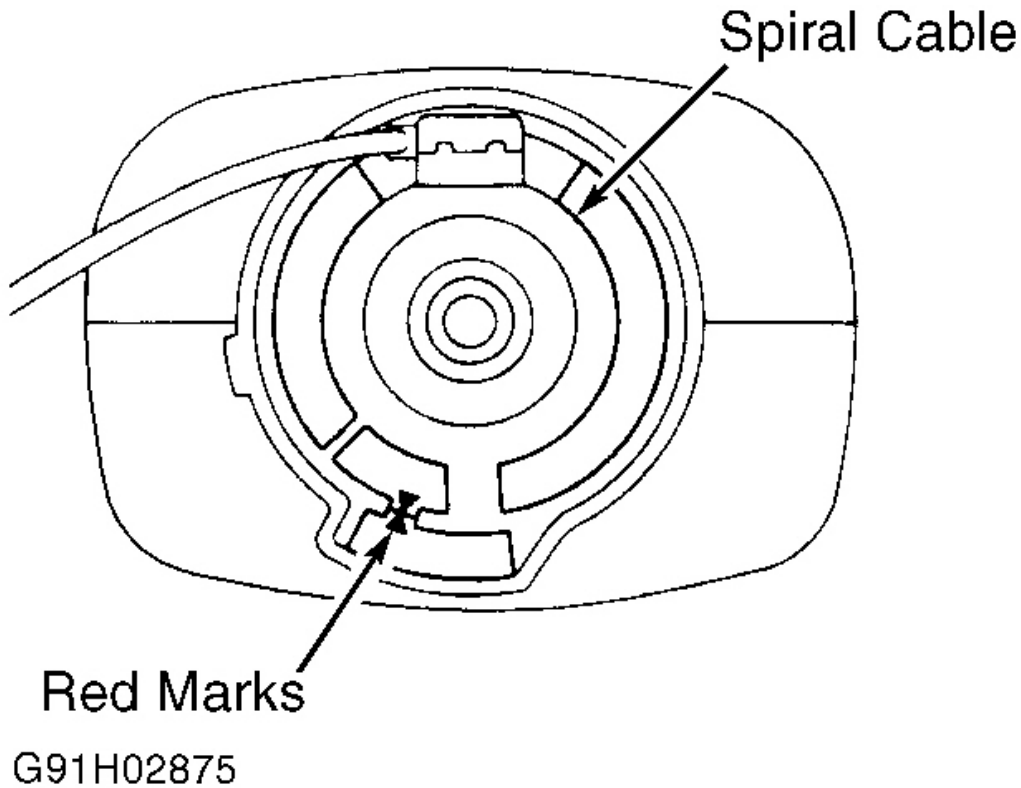
### ACTIVATING SYSTEM

Install steering wheel pad. Reconnect negative battery cable. Perform system operation check. See appropriate AIR BAG RESTRAINT SYSTEMS article in ACCESSORIES & EQUIPMENT.

## ADJUSTMENTS

### SPIRAL CABLE

Spiral cable must be correctly adjusted to ensure proper air bag operation. Ensure front wheels are in straight-ahead position. Turn spiral cable counterclockwise by hand until it becomes difficult to turn. Turn spiral cable clockwise 2 1/2 turns for Land Cruiser, Tacoma, Tundra and 4Runner. Turn spiral cable clockwise 3 turns for 4Runner and Sienna. Ensure marks align and are visible through inspection hole. See **Fig. 1** .



**Fig. 1: Adjusting Air Bag Spiral Cable (Sienna Shown; Other Models Are Similar)**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

## REMOVAL & INSTALLATION

### STEERING WHEEL & HORN PAD

**NOTE:** If air bag connector is disconnected with ignition switch at ON or ACC, DTCs will be recorded.

#### Removal & Installation

1. Disconnect negative battery cable. Ensure wheels are in straight-ahead position. Remove screw securing horn pad, and remove horn pad. Disconnect electrical connector(s). Remove lock nut and washer.
2. Mark steering shaft and steering wheel for installation reference. Install steering wheel puller and remove steering wheel from shaft. To install, reverse removal procedure. Tighten steering wheel nut to specification. See [TORQUE SPECIFICATIONS](#).

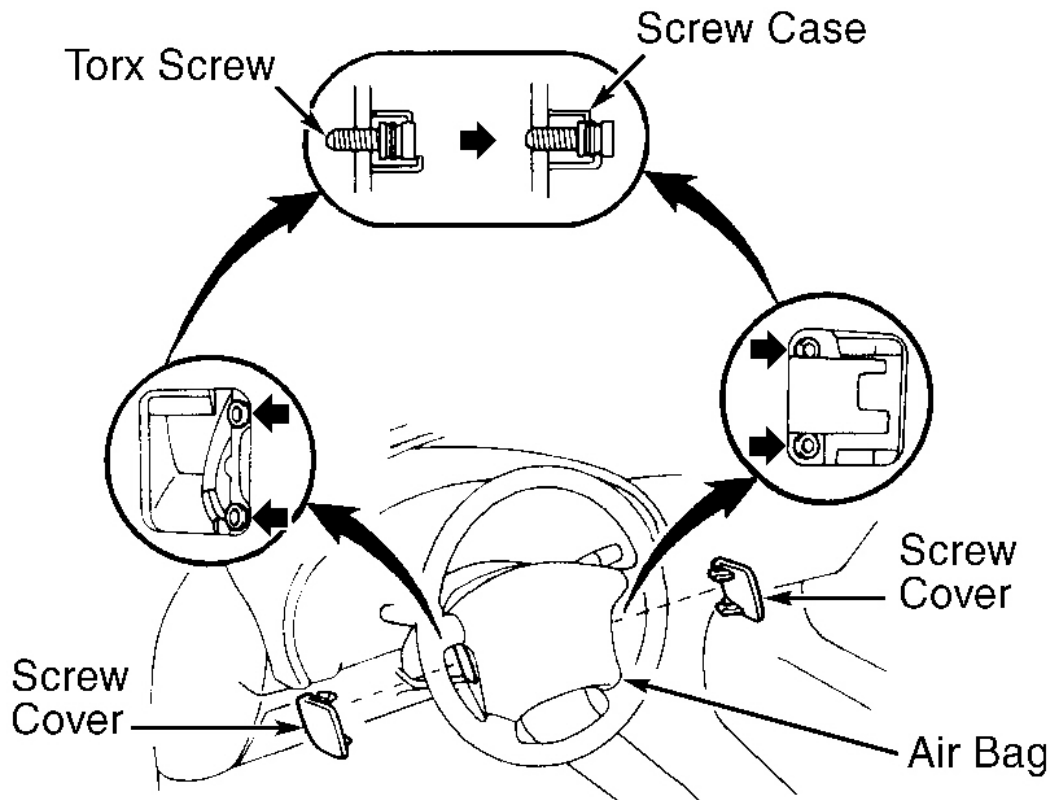
**STEERING WHEEL & AIR BAG**

**NOTE:** See **DISABLING & ACTIVATING AIR BAG SYSTEM** .

**Removal & Installation**

1. Ensure wheels are in straight-ahead position. Disconnect negative battery cable. 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** . Pull steering wheel pad assembly from steering wheel, and disconnect electrical connector.
2. Remove steering wheel pad assembly (air bag) from steering wheel. Place steering wheel pad assembly (air bag) on flat surface with pad assembly facing upward.

**WARNING:** Pad assembly must face up on level surface. If assembly is stored face down, accidental air bag deployment could propel assembly and cause serious bodily injury.



**Fig. 2: Removing Steering Wheel Pad (Typical)**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. Remove lock nut and washer. Mark steering shaft and steering wheel for installation reference. Install steering wheel puller, and remove steering wheel from shaft.
4. Prior to installation, ensure spiral cable (located on combination switch) is properly aligned. See **SPIRAL CABLE** under ADJUSTMENTS. To complete installation, reverse removal procedure. Tighten steering wheel nut to specification. See **TORQUE SPECIFICATIONS** .

**COMBINATION SWITCH****Removal & Installation**

1. Disconnect negative battery cable. Remove steering wheel. See **STEERING WHEEL & HORN PAD** or **STEERING WHEEL & AIR BAG** . Remove instrument cluster lower finish panel. Remove upper and lower steering column covers.
2. Disconnect combination switch electrical connectors and air bag connector. Remove combination switch mounting screws, and remove combination switch. To install, reverse removal procedure. Tighten steering wheel nut to specification. See **TORQUE SPECIFICATIONS** .

**IGNITION SWITCH & LOCK CYLINDER****Removal & Installation**

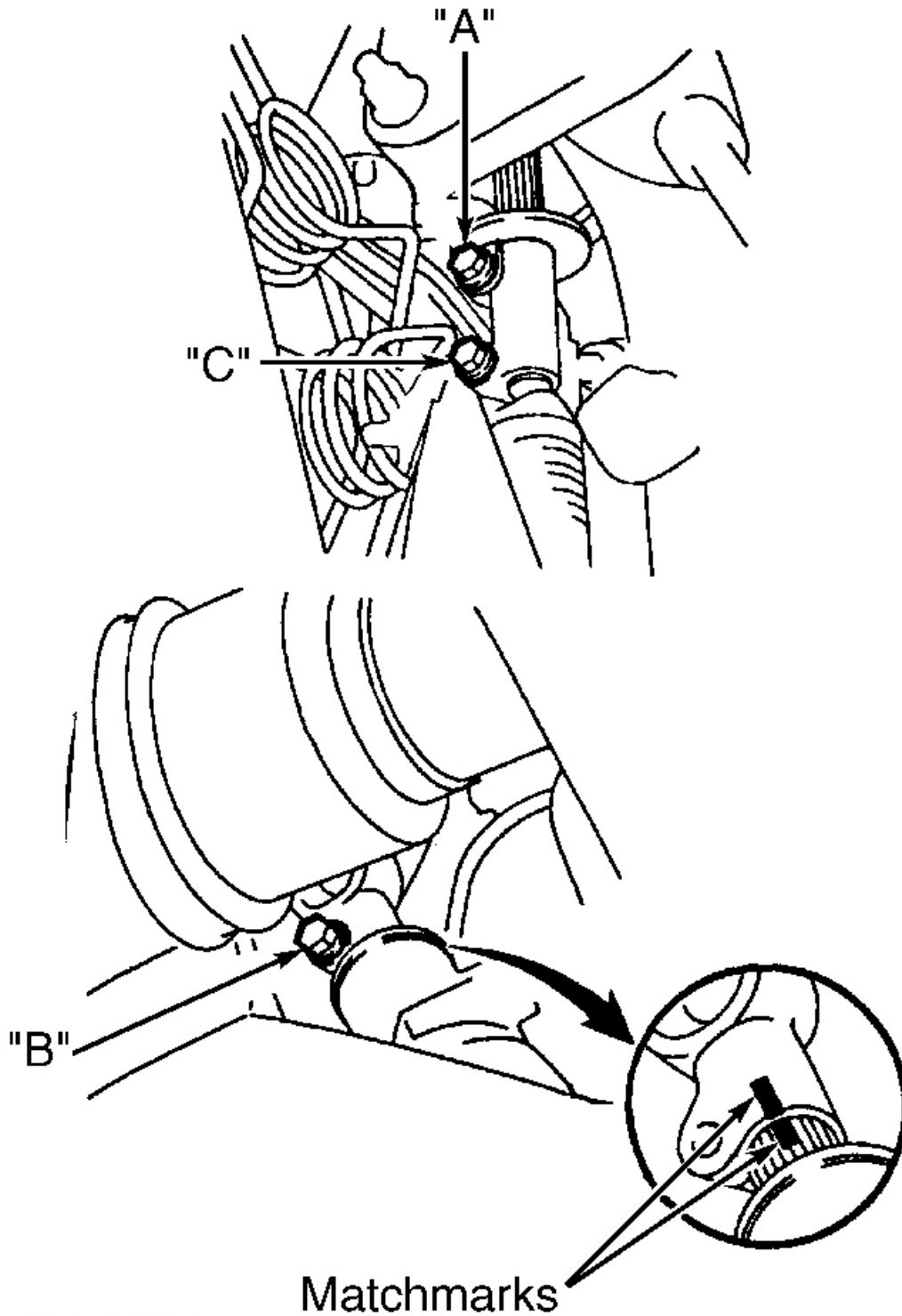
1. Disconnect negative battery cable. Remove steering wheel, upper and lower steering column covers and combination switch (if necessary).
2. Place ignition key at ACC position. Using screwdriver, push down stop pin of cylinder, and pull out lock cylinder. Remove 2 screws and ignition switch.
3. To install, reverse removal procedure. Install combination switch, upper and lower steering column covers and steering wheel. Tighten steering wheel nut to specification. See **TORQUE SPECIFICATIONS** .

**STEERING COLUMN****Removal & Installation (Land Cruiser)**

1. Disconnect negative battery cable. Remove steering wheel. See **STEERING WHEEL & HORN PAD** or **STEERING WHEEL & AIR BAG** . Remove steering column upper and lower covers. See **Fig. 4** . Remove combination switch with spiral cable.
2. Remove scuff plate and cowl trim. Remove cluster finish panel. Remove lower No. 1 panel and left-side lower panel. Remove No. 2 heater- to- register duct from under steering column.
3. Mark intermediate shaft and control valve shaft for installation reference. Loosen bolt "A", and remove bolts "B" and "C". See **Fig. 3** . Disconnect No. 2 intermediate shaft assembly. Remove No. 2 intermediate shaft assembly. Remove hole cover.

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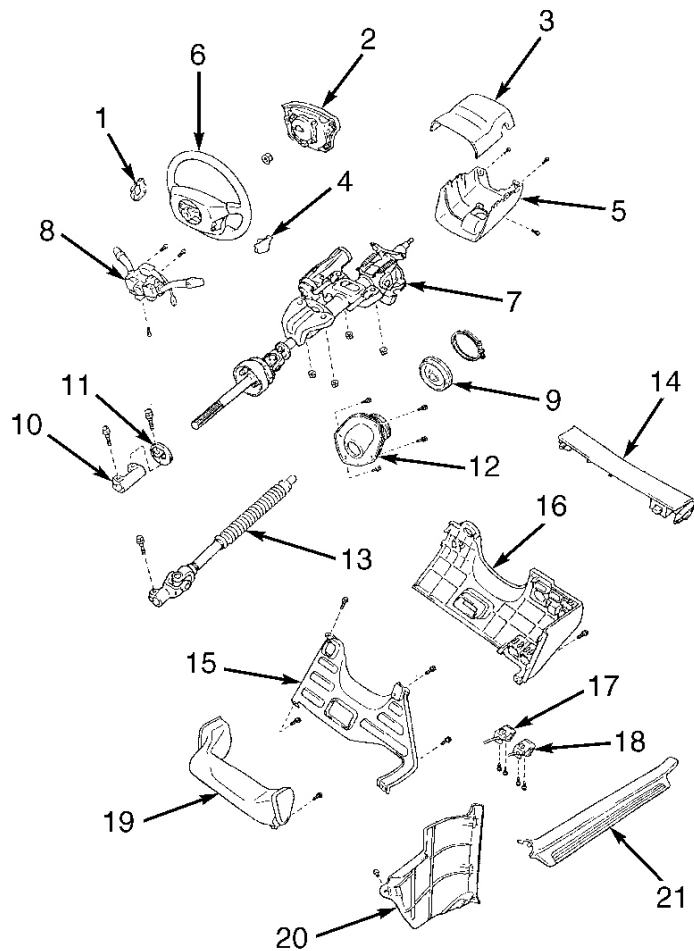
### **Fig. 3: Locating No. 2 Intermediate Shaft Assembly Bolts**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. Remove steering column assembly. Remove hose clamp. Remove No. 2 hole cover.
5. To install, install No. 2 hole cover. Install clamp. Install thrust stopper and sliding yoke to steering column assembly. Install and temporarily tighten bolt "A". Install steering column assembly with 4 nuts. Tighten to specification. See **TORQUE SPECIFICATIONS** . Tighten clamp and connect connectors.
6. Install hole cover. Align match marks on No. 2 intermediate shaft and control valve shaft. Install bolts "A", "B" and "C". Tighten bolts to specification. See **TORQUE SPECIFICATIONS** To install remaining components, reverse removal procedure. Tighten bolts and nuts to specification. See **TORQUE SPECIFICATIONS** .

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- |   |                                       |
|---|---------------------------------------|
| 1. Steering Wheel Lower No. 2 Cover       | 11. Thrust Stopper                    |
| 2. Steering Wheel Pad                     | 12. Hole Cover                        |
| 3. Column Upper Cover                     | 13. No. 2 Intermediate Shaft Assembly |
| 4. Steering Wheel Lower No. 3 Cover       | 14. Cluster Finish Panel              |
| 5. Column Lower Cover                     | 15. Lower Left Panel                  |
| 6. Steering Wheel                         | 16. Lower No. 1 Panel                 |
| 7. Steering Column Assembly               | 17. Hood Lock Release Lever           |
| 8. Combination Switch (With Spiral Cable) | 18. Fuel Lid Release Lever            |
| 9. No. 2 Hole Cover                       | 19. No. 2 Heater-To-Register Duct     |
| 10. Sliding Yoke                          | 20. Cowl Trim                         |
|   | 21. Scuff Plate                       |

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**Fig. 4: Removing Steering Column (Land Cruiser Shown; Other Models Are Similar)**  
**Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.**

**Removal & Installation (RAV4)**



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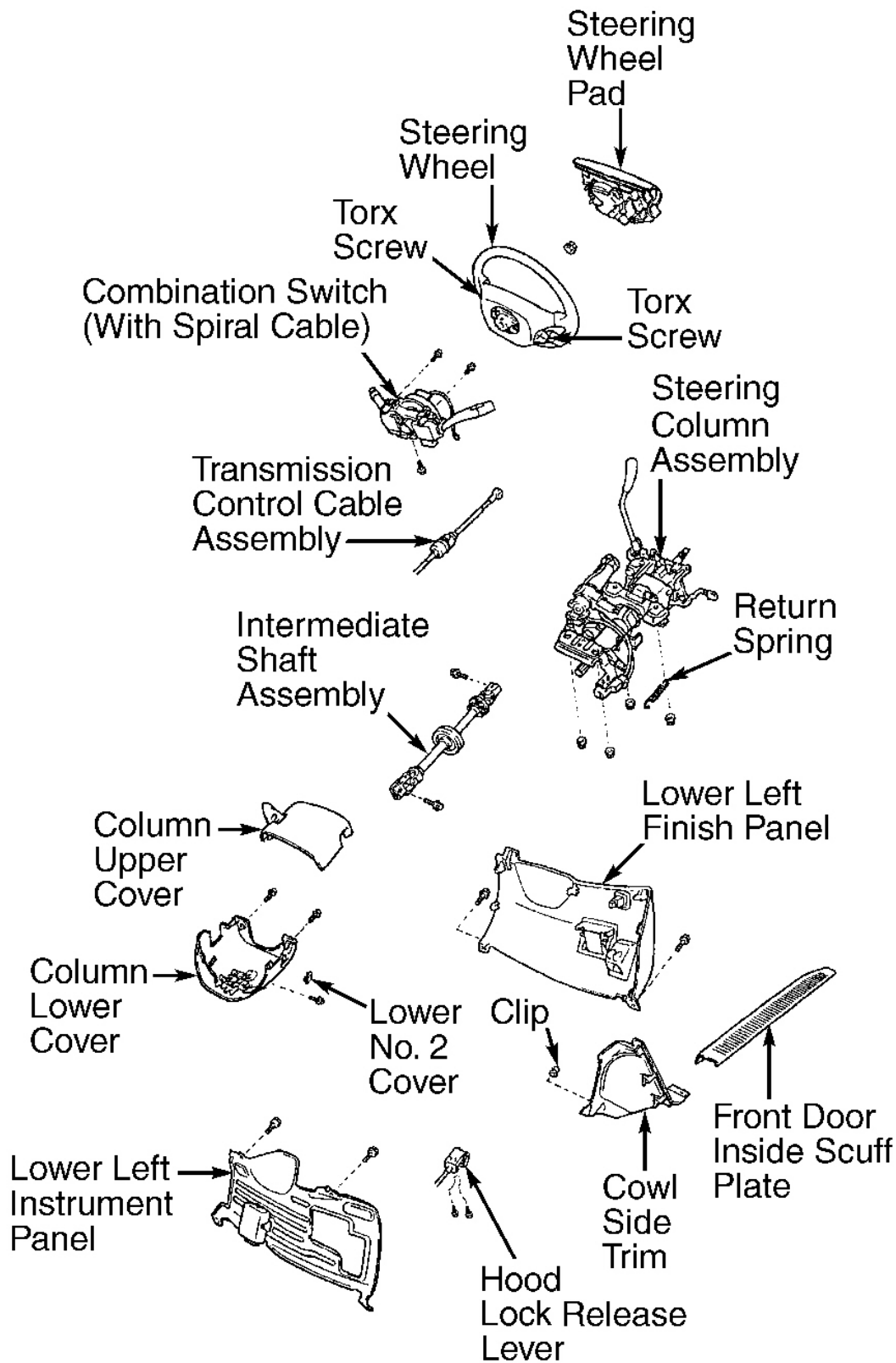
1. Disconnect negative battery cable. Remove steering wheel. See **STEERING WHEEL & AIR BAG** . Remove upper and lower column covers. See **Fig. 4** . Remove lower left-side instrument finish panel and panel insert from under steering column. Remove combination switch with spiral cable. Remove No. 2 heater-to-register duct.
2. Mark shaft assembly and control valve for installation reference. Remove bolts, and disconnect No. 2 intermediate shaft assembly. Remove steering column assembly. Disconnect steering column harness connectors.
3. Remove No. 2 intermediate shaft assembly. Remove column hole cover. To install, reverse removal procedure. Tighten bolts and nuts to specification. See **TORQUE SPECIFICATIONS** .

#### Removal & Installation (Sienna)

1. Disconnect negative battery cable. Remove steering wheel. See **STEERING WHEEL & HORN PAD** or **STEERING WHEEL & AIR BAG** . Remove front door inside scuff plate. Remove lower left-side finish panel and left-side lower instrument panel. Remove upper and lower column covers. See **Fig. 5** .

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**Fig. 5: Exploded View Of Steering Column (Sienna)**  
**Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.**

2. Remove combination switch with spiral cable. Reference mark intermediate shaft and control valve shaft. Disconnect intermediate shaft assembly. Disconnect transmission control cable assembly. Remove intermediate shaft assembly. Remove steering column assembly.
3. To install, reverse removal procedure. Tighten bolts and nuts to specification. See **TORQUE SPECIFICATIONS** .

#### **Removal & Installation (Tacoma)**

1. Disconnect negative battery cable. Remove steering wheel. See **STEERING WHEEL & HORN PAD** or **STEERING WHEEL & AIR BAG** . Remove upper and lower column covers. See **Fig. 4** . Remove left-side lower finish panel. Remove No. 2 heater-to-register duct from under steering column.
2. Remove combination switch with spiral cable. Disconnect junction block No. 1. Disconnect transmission control cable assembly from column shift lever assembly.
3. On 2WD models, mark intermediate No. 2 shaft and control shaft for installation reference. Disconnect intermediate No. 2 shaft, and then remove. Remove column hole cover. Remove steering column assembly. Remove sliding yoke.
4. On 4WD models, mark intermediate No. 2 shaft and control shaft for installation reference. Disconnect intermediate No. 2 shaft, and then remove. Remove column hole cover and column hole cover No. 2 set bolt. Remove steering column assembly. Mark "U" joint No. 2 and main shaft for installation reference. Remove "U" joint No. 2 and column hole cover No. 2.
5. To install, reverse removal procedure. Tighten bolts and nuts to specification. See **TORQUE SPECIFICATIONS** .

#### **Removal (Tundra)**

1. Disconnect and shield negative battery cable. Remove steering wheel. See **STEERING WHEEL & AIR BAG** .
2. Remove 3 screws and upper and lower steering column covers. Disconnect electrical connectors and air bag connector. Remove 3 screws and air bag spiral and combination switch with spiral cable.
3. Remove instrument lower finish panel. Remove 2 screws, and disconnect hood release lever from panel. Remove 4 bolts and instrument panel lower finish panel.
4. Remove No. 2 heater-to-register duct and brake pedal return spring.
5. Place match marks on No. 2 "U" joint and No. 2 intermediate shaft assembly. Remove bolt "A". Place match marks on No. 2 intermediate shaft assembly and control valve shaft. Remove bolt "B". Remove No. 2 intermediate shaft assembly. Remove 3 bolts and column hole cover No. 2.
6. On models equipped with A/T, disconnect cable assembly from column shift lever assembly. Disconnect connectors. Remove 4 steering column set nuts. Pull out steering column assembly with No. 2 "U" joint assembly.
7. Place match marks on steering column assembly and No. 2 "U" joint assembly. Remove bolt and column hole cover No. 2. Disconnect No. 2 "U" joint assembly.

#### **Installation**

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1. Insert column hole cover No. 2. Align match marks on column assembly and No. 2 "U" joint assembly. Install bolt to connect No. 2 "U" joint assembly.
2. Install column assembly with No. 2 "U" joint assembly. Install 4 steering column set nuts. Connect connectors. On models equipped with A/T, connect transmission control cable assembly to shift lever assembly.
3. Align match marks on No. 2 "U" joint assembly and No. 2 intermediate shaft assembly. Align match marks on control valve shaft and No. 2 intermediate shaft assembly. Install "A" and "B" bolts.
4. Install brake pedal return spring and No. 2 heater to register duct. Install lower finish panel with 4 bolts. Connect hood lock release lever with 2 screws. Install spiral cable. See **SPIRAL CABLE** under ADJUSTMENTS. Install combination switch with 3 screws. Connect air bag and connectors.
5. Install lower and upper column covers with 3 screws. Ensure tires are in straight-ahead position. Turn cable counterclockwise until there is resistance. Rotate cable clockwise 2.5 turns to align mark.
6. To install steering wheel, align match marks on wheel and main shaft. Install wheel set nut. Connect connector. Install steering wheel pad. Connect air bag connector. Install wheel pad when Torx screw is set in screw case. Using a Torx socket wrench, torque 2 screws to 78 INCH lbs. (8.8 N.m). Install 2 steering wheel lower No. 2 covers. Check steering wheel center point.
7. Tighten all bolts to specifications. See **TORQUE SPECIFICATIONS** . Ensure spiral cable is properly installed and adjusted. See **SPIRAL CABLE** under ADJUSTMENTS.

#### Removal & Installation (4Runner)

1. Disconnect negative battery cable. Remove steering wheel. See **STEERING WHEEL & AIR BAG** . Remove upper and lower column covers. See **Fig. 4** . Remove left-side lower finish panel. Remove starter switch bezel. Remove No. 2 heater to register duct from under steering column.
2. Remove combination switch with spiral cable. Remove spiral cable. Remove brake pedal return spring. Mark intermediate shaft No. 2, "U" joints No. 2 and control valve for installation reference. Remove intermediate shaft No. 2 and bolts. Remove column hole cover and column hole cover No. 2 set bolt.
3. Remove steering column assembly with "U" joint No. 2. Disconnect "U" joint No. 2. To install, reverse removal procedure. Tighten bolts and nuts to specification. See **TORQUE SPECIFICATIONS** .

## OVERHAUL

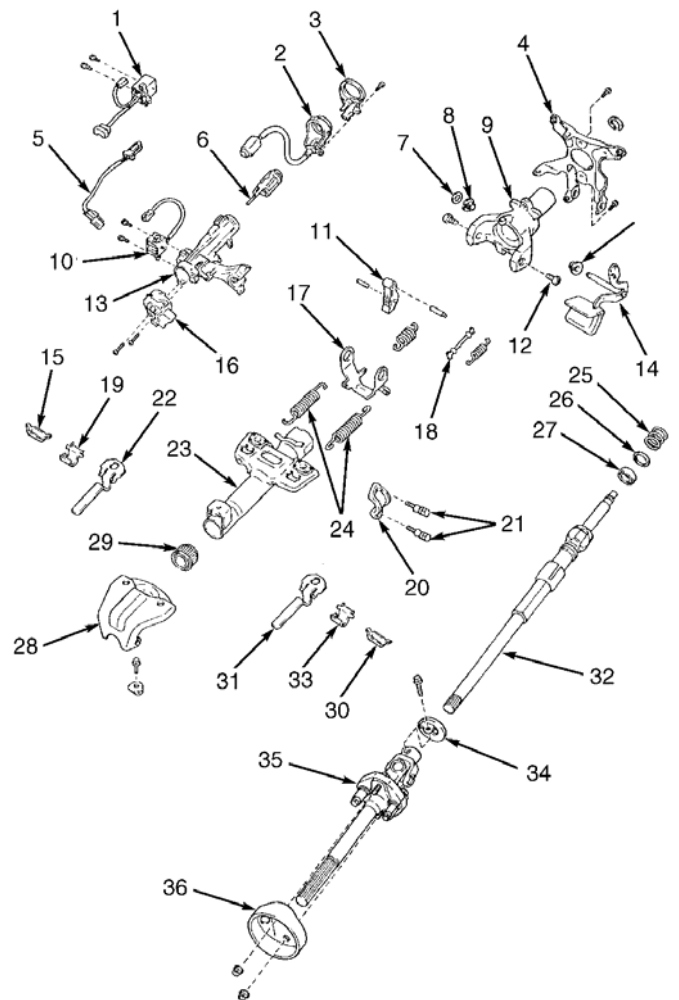
### STEERING COLUMN

#### Disassembly (Land Cruiser)

1. Remove No. 2 lower cover. Mark shaft assembly and main shaft assembly for reassembly reference. Remove intermediate shaft assembly. See **Fig. 6** . Remove transponder key coil with key cylinder lamp assembly. Remove key cylinder lamp assembly.

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- |                               |                                 |
|-------------------------------|---------------------------------|
| 1. Transponder Key Amplifier  | 19. Energy Absorbing Guide      |
| 2. Key Cylinder Lamp Assembly | 20. Tilt Steering No. 2 Shaft   |
| 3. Transponder Key Coil       | 21. Column Upper Clamp          |
| 4. Turn Signal Bracket        | 22. Energy Absorbing Guide      |
| 5. Key Unlock Warning Switch  | 23. Column Tube                 |
| 6. Key Cylinder               | 24. Tension Spring              |
| 7. Tilt Steering Bolt         | 25. Compression Spring          |
| 8. Bushing                    | 26. Bearing Thrust Collar       |
| 9. Column Upper Tube          | 27. Bearing                     |
| 10. Key Interlock Solenoid    | 28. Column Tube Support         |
| 11. Tilt Steering Panel       | 29. Bushing                     |
| 12. Tilt Steering Bolt        | 30. Energy Absorbing Clip       |
| 13. Column Upper Bracket      | 31. Energy Absorbing Plate      |
| 14. Tilt Lever                | 32. Main Shaft Assembly         |
| 15. Energy Absorbing Guide    | 33. Energy Absorbing Guide      |
| 16. Ignition Switch           | 34. Thrust Stopper              |
| 17. Tilt Lever Retainer       | 35. Intermediate Shaft Assembly |
| 18. Tilt Lever Link           | 36. No. 2 Lower Cover           |

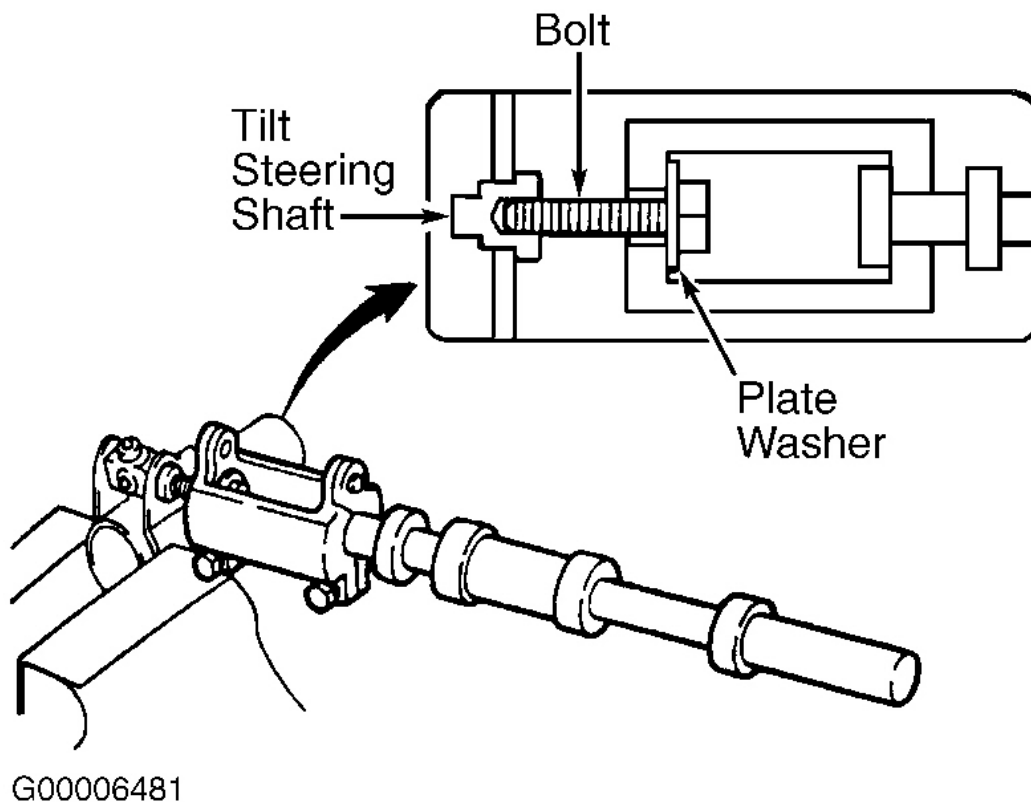
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**Fig. 6: Identifying Steering Column Components (Land Cruiser)**  
**Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.**

2. On telescopic models, remove connector bracket and steering column protector No. 1. Remove turn

signal bracket. Using hexagon wrench, remove support stopper bolt, spring and stopper No. 1. Remove 2 tilt steering bolts and power tilt motor. Remove 2 "E" rings. Remove 2 support stopper bolt bushings from power tilt motor.

3. On models without telescopic steering, using 1/8-5/32" (3-4 mm) drill, drill out tapered head column bracket bolts. Use screw extractor to remove bolts. Remove column upper bracket and column upper clamp.
4. On telescopic models, place plate washer and 6 mm X 50 mm bolt in tilt steering shaft, and use slide hammer to remove 2 steering shafts. See **Fig. 7** . Remove adjusting nut No. 1. Remove 2 support stopper bolt bushings from adjusting nut No. 1.



**Fig. 7: Removing Adjusting Nut No. 1 & Steering Shaft**  
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. On vehicles without telescopic steering, remove tube attachment from tube support. Remove column tube support.
6. On telescopic models, remove 2 bolts and power telescopic motor. Remove telescopic steering column cable. Remove column tube stopper. Using center punch, mark center of 2 tapered head bolts. Using 1/8-5/32" (3-4 mm) drill, drill tapered head column bracket bolts. Using screw extractor, remove bolts. Remove 2 telescopic lever lock bolts. Remove 2 telescopic steering wedge lock springs, 2 steering lock

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wedges, column upper bracket and column upper clamp. Remove column tube support.

7. On all models, remove energy absorbing clip. Remove energy absorbing plates and guides. On vehicles without telescopic steering, and remove 4 tension springs.
8. On vehicles without telescopic steering, remove spring nut and tilt lever. Remove 2 bushings from column upper tube. Remove tilt lever link.
9. On models without telescopic steering, remove column upper tube with main shaft assembly. Remove tilt lever retainer. Remove main shaft assembly. Remove turn signal bracket. Remove tilt steering pawl. Remove bushing.
10. On models with telescopic steering, remove telescopic steering slider support. Remove telescopic steering bushing and slider. Remove steering column bracket spacer. Remove nut, 4 energy absorber cushions, 2 bearings and telescopic steering screw.
11. On vehicles without telescopic steering, remove snap ring. Using hexagon wrench, remove 2 tilt steering bolts and column upper tube sub-assembly. Remove column upper tube assembly from column tube. Remove 2 support stopper bolt bushing from column upper tube assembly. Remove 3 bushings from column tube.
12. On vehicles with telescopic steering, compress compression spring. Using snap ring expander, remove snap ring. Remove shaft assembly from column upper tube. Remove compression spring and bearing thrust collar from shaft assembly.

#### Inspection

Check that steering lock mechanism operates properly. Check bearing rotation condition of main shaft assembly and check for abnormal noise. Repair or replace components as necessary.

#### Reassembly

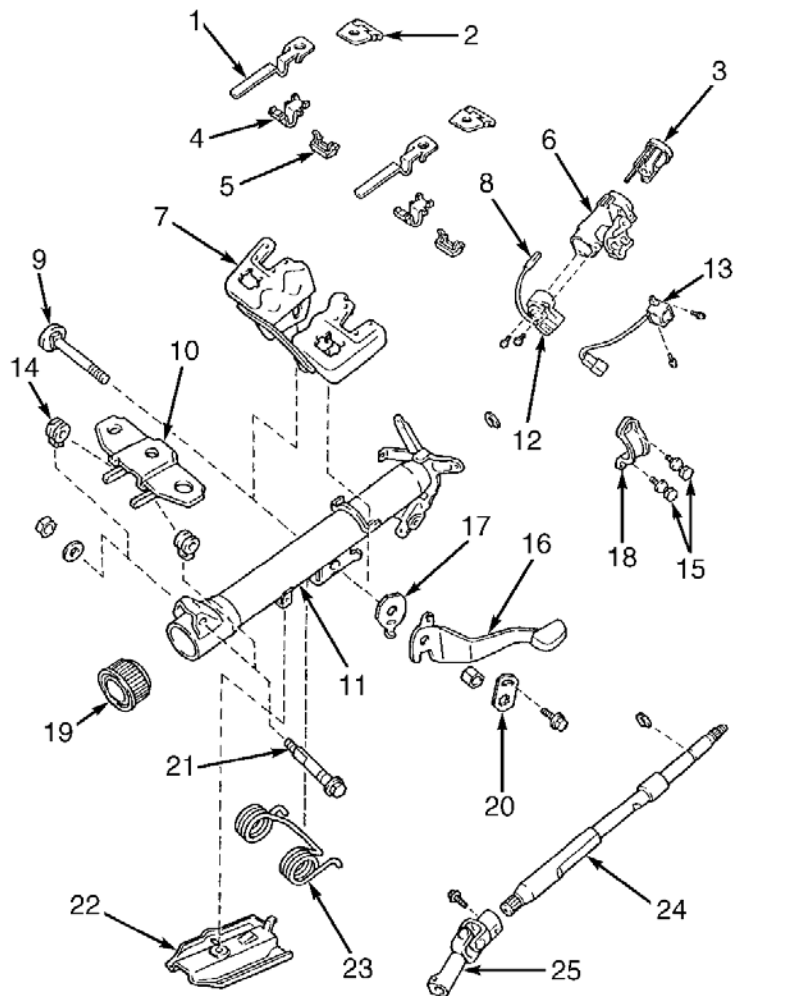
To reassemble, reverse disassembly procedure. Align bushing tab with hole of column tube. Apply molybdenum disulfide lithium base grease to tilt lever assembly, lock bolt, main shaft and steering column bolt pivot points. Tighten bolts and nuts to specification. See **TORQUE SPECIFICATIONS**.

#### Disassembly (RAV4)

1. Mark sliding yoke and main shaft. Remove sliding yoke. See **Fig. 8**. Using 1/8-5/32" (3-4 mm) drill, drill tapered head column bracket bolts. Using screw extractor, remove bracket bolts. Remove column upper bracket and column upper clamp. Remove tube attachment from column tube support. Remove column tube support.
2. Remove energy absorbing clip. Remove energy absorbing plate, energy absorbing guide and break-away capsule. Turn lock nut clockwise, and then remove it. Remove No. 1 tilt lever lock bolt, tilt lever assembly and tilt sub lever. Remove break-away bracket.
3. Using snap ring pliers, remove snap ring from column shaft assembly. Using extension bar and hammer, top out shaft assembly. Using screwdriver, tap out bushing. Using snap ring pliers, remove snap ring from shaft assembly.

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- |                                  |                                  |
|----------------------------------|----------------------------------|
| 1. Energy Absorbing Plate        | 14. No. 1 Support Collar         |
| 2. Breakaway Capsule             | 15. Tapered Head Bolt            |
| 3. Key Cylinder                  | 16. Tilt Lever Assembly          |
| 4. Energy Absorbing Guide        | 17. Tilt Sub Lever               |
| 5. Energy Absorbing Clip         | 18. Column Upper Clamp           |
| 6. Column Upper Bracket          | 19. Lower Bushing                |
| 7. Breakaway Bracket             | 20. Tilt Support No. 1 Reinforce |
| 8. Key Unlock Warning Switch     | 21. Pawl Set Bolt                |
| 9. No. 1 Tilt Lever Lock Bolt    | 22. Steering Column Protector    |
| 10. Tilt Steering Support        | 23. Torsion Spring               |
| 11. Column Tube                  | 24. Main Shaft Assembly          |
| 12. Ignition Switch              | 25. Sliding Yoke                 |
| 13. Key Interlock Solenoid (A/T) |                                  |

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**Fig. 8: Identifying Steering Column Components (RAV4)**  
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Check that lock mechanism operates properly. Check bearing rotation condition and check for abnormal noise. Repair or replace components as necessary.

#### Reassembly

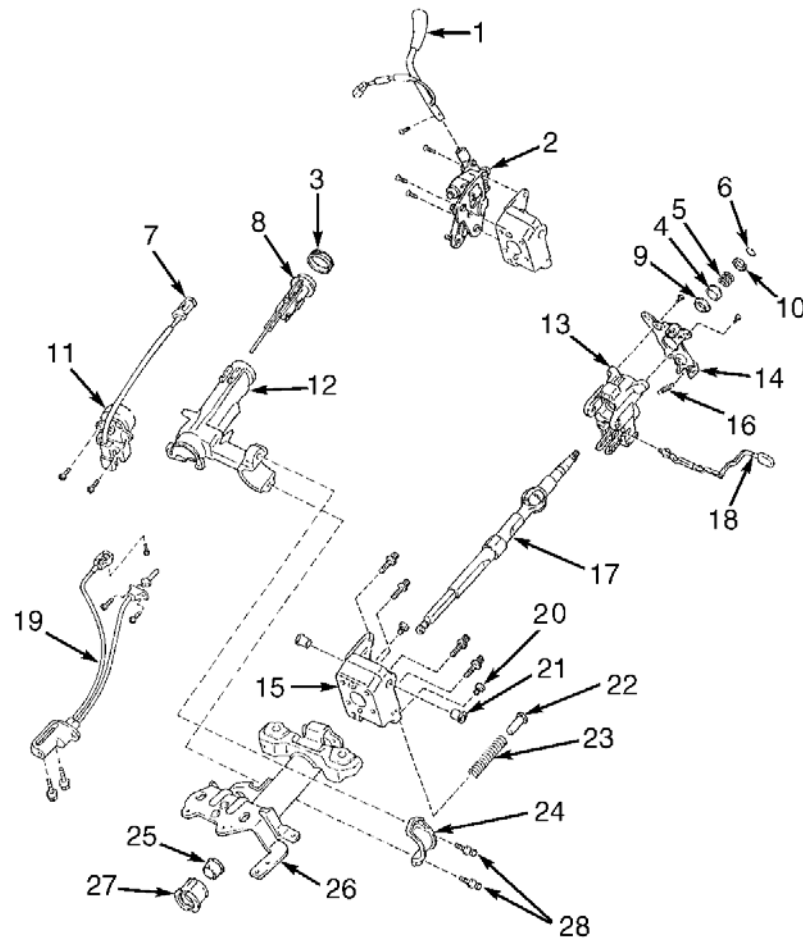
To reassemble, reverse disassembly procedure using NEW thrust collar. Align bushing tab with hole of column tube. Apply molybdenum disulfide lithium base grease to tilt lever assembly, main shaft, column bushing, thrust collar, bearing and steering column bolt pivot points. Tighten bolts and nuts to specification. See **TORQUE SPECIFICATIONS** .

#### Disassembly (Sienna)

1. Remove ignition key cylinder illumination. See **Fig. 9** . Using 1/8-5/32" (3-4 mm) drill, drill tapered head column bracket bolts. Using screw extractor, remove bracket bolts. Remove column upper bracket and column upper clamp. Remove shift lever.

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- |                                       |                                     |
|---------------------------------------|-------------------------------------|
| 1. Shift Lever                        | 15. Steering Column Housing Support |
| 2. Shift Lever Housing                | 16. Release Lever Spring            |
| 3. Ignition Key Cylinder Illumination | 17. Main Shaft Assembly             |
| 4. Upper Bearing Inner Race Seat      | 18. Tilt Lever                      |
| 5. Compression Spring                 | 19. Park Lock Cable                 |
| 6. Retaining Ring                     | 20. Tilt No. 1 Stopper              |
| 7. Key Unlock Warning Switch          | 21. Pivot Pin                       |
| 8. Key Cylinder                       | 22. Spring Guide                    |
| 9. Inner Race                         | 23. Tilt Spring                     |
| 10. Spring Retainer                   | 24. Column Upper Clamp              |
| 11. Ignition Switch                   | 25. Lower Shaft Adapter             |
| 12. Column Upper Bracket              | 26. Column Tube Assembly            |
| 13. Steering Column Housing           | 27. Lower Shaft Bushing             |
| 14. Turn Signal Bracket               | 28. Tapered Head Bolt               |

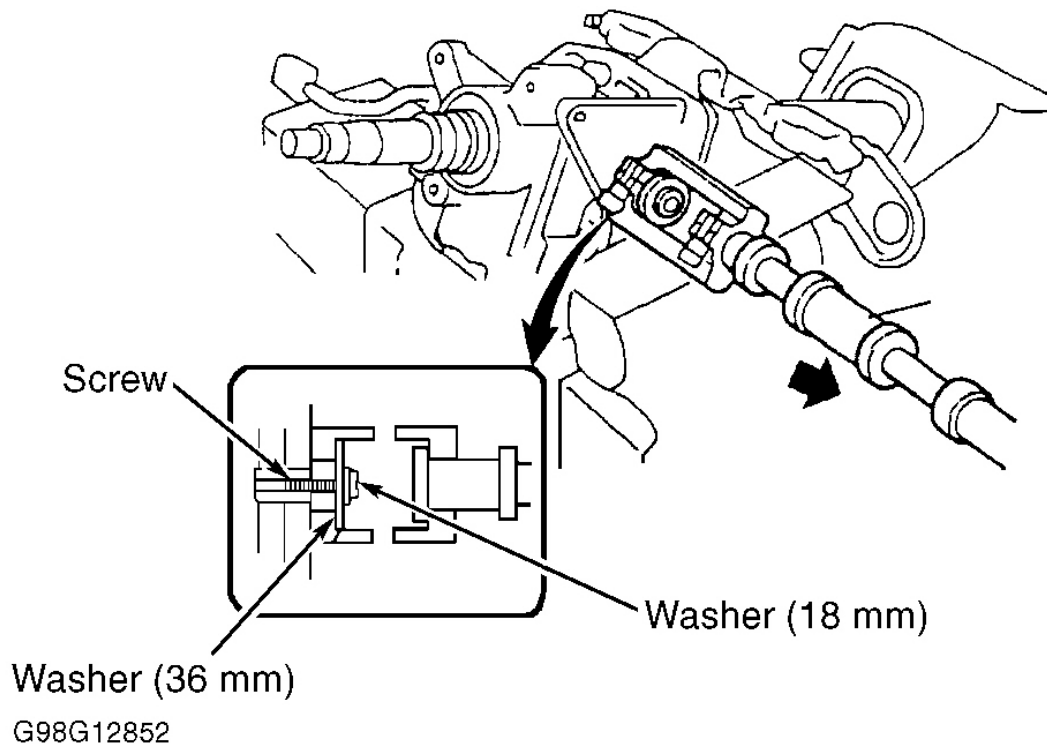
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**Fig. 9: Identifying Steering Column Components (Sienna)**  
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Remove shift lever housing. Remove park lock cable. Remove release lever spring. Remove turn signal

bracket.

3. To remove steering column housing with main shaft, install plate washers (18 and 36-mm outer diameter) and screw (4-mm diameter, .7-mm pitch, 15-mm length). See **Fig. 10**.



**Fig. 10: Removing Steering Column Bolt (Sienna Shown; Tundra Is Similar)**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. Remove steering column housing support. Using screwdriver, remove lower shaft bushing and lower shaft adapter. Using Compression Spring (09612-07010), remove main shaft assembly. Remove retaining ring with screwdriver. Remove spring retainer, compression spring, upper bearing inner race seat and inner race.

### Inspection

Check that lock mechanism operates properly. Check bearing rotation condition and check for abnormal noise. Repair or replace components as necessary.

### Reassembly

To reassemble, reverse disassembly procedure using NEW thrust collar. Align bushing tab with hole of column tube. Apply molybdenum disulfide lithium base grease to tilt lever assembly, main shaft, column bushing, thrust collar, bearing and steering column bolt pivot points. Tighten bolts and nuts to specification. See **TORQUE**

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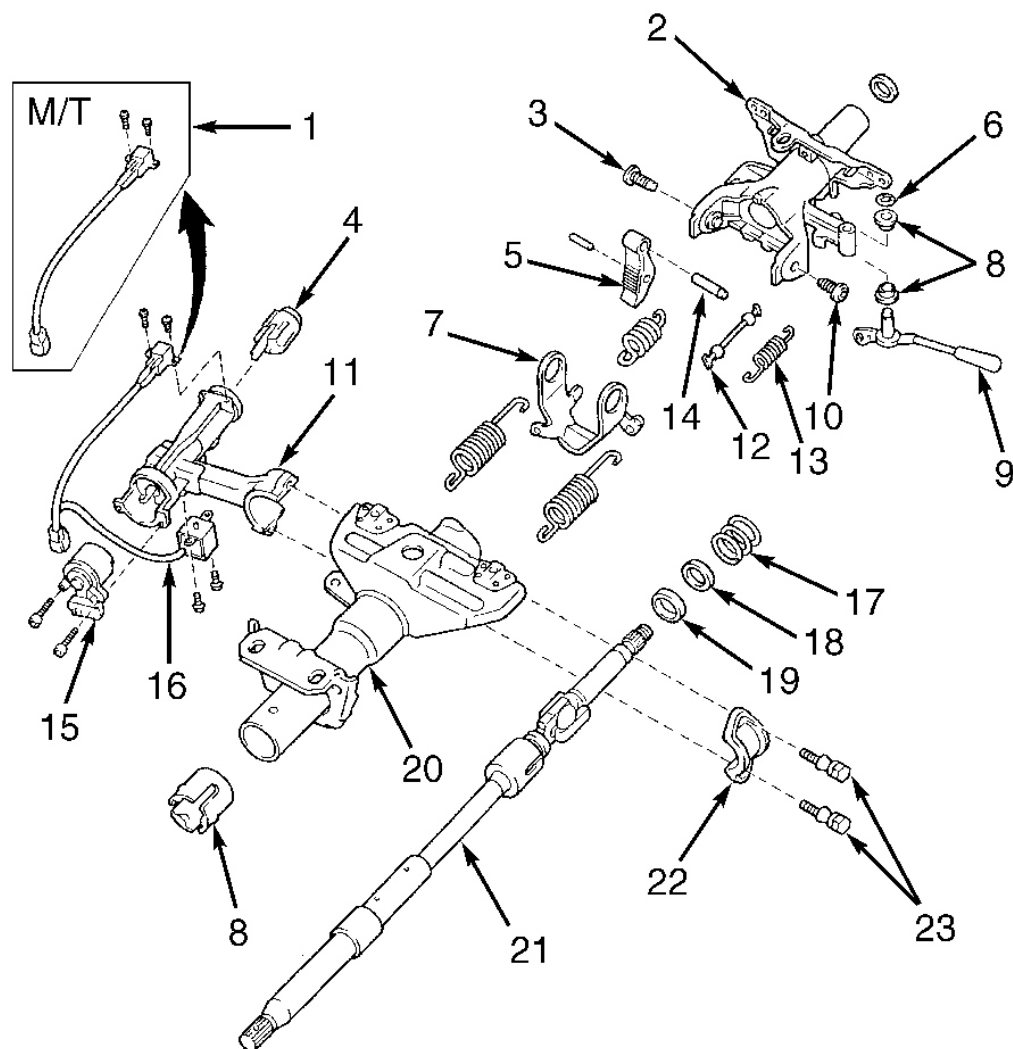
### **SPECIFICATIONS .**

#### **Disassembly (Tacoma & 4Runner)**

1. On 4 Runner, remove screw and transponder key coil with key cylinder lamp assembly. On all models, use screw extractor to remove steering column upper bracket bolts. Remove column upper bracket and column upper clamp. See [Fig. 11](#) and [Fig. 12](#) .
2. On 4 Runner, remove 3 tension springs. On Tacoma remove 4 tension springs. On all models, using screwdriver, remove spring nut. Remove lever and 2 bushings from column upper tube. Remove tilt lever link. On all models except Tacoma (NASTECH), remove column upper tube with main shaft. See [Fig. 12](#) .
3. Using snap ring expander, remove snap ring from shaft. Using plastic hammer, tap out shaft from column tube. Remove compression ring from shaft. Using pinch punch and hammer, tap out tilt steering No. 2 shaft. Remove pawl from column upper tube. Remove pin from pawl. On Tacoma, remove turn signal bracket and column shift lever assembly from column shift.

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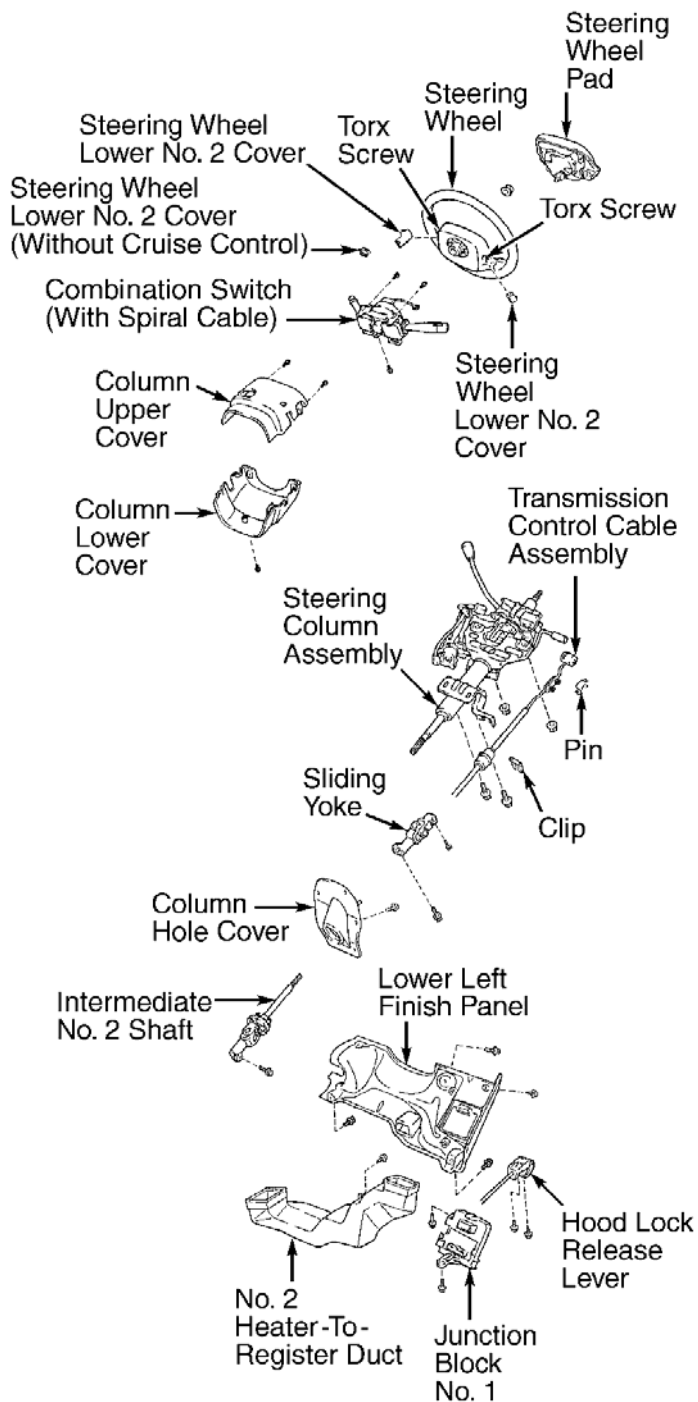
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|------------------------------|-------------------------------|
| 1. Key Unlock Warning Switch | 13. Tension Spring            |
| 2. Column Upper Tube         | 14. Tilt Steering No. 2 Shaft |
| 3. Tilt Steering Bolt        | 15. Ignition Switch           |
| 4. Key Cylinder              | 16. Key Interlock Solenoid    |
| 5. Tilt Steering Pawl        | 17. Compression Spring        |
| 6. Spring Nut                | 18. Bearing Thrust Collar     |
| 7. Tilt Lever Retainer       | 19. Bearing                   |
| 8. Bushing                   | 20. Column Tube               |
| 9. Tilt Lever                | 21. Main Shaft Assembly       |
| 10. Tilt Steering Bolt       | 22. Column Upper Clamp        |
| 11. Column Upper Bracket     | 23. Tapered Head Bolt         |
| 12. Tilt Lever Link          |                               |

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1999-2000 STEERING Steering Columns - Tilt Wheel - Trucks & Vans

**Fig. 11: Identifying Steering Column Components (4Runner Shown; Toyota Made)**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



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**Fig. 12: Exploded View Of Steering Column & Components (Tacoma shown; NASTECH Made)**

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Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

### Inspection

Check that lock mechanism operates properly. Check bearing rotation condition and check for abnormal noise. Check bearing rotation condition of main shaft assembly and check for abnormal noise. Repair or replace components as necessary.

### Reassembly

To reassemble, reverse disassembly procedure. Align bushing tab with hole of column tube. Apply molybdenum disulfide lithium base grease to tilt lever assembly, lock bolt, main shaft and steering column bolt pivot points. Tighten bolts and nuts to specification. See **TORQUE SPECIFICATIONS** .

### Disassembly (Tundra)

1. Place steering column assembly in vise. Remove clip and key cylinder lamp assembly. Using punch, mark center of 2 tapered-head bolts. Drill out 2 bolts. Remove 2 bolts, using screw extractor. Remove column upper bracket and column upper clamp. On models equipped with A/T, remove shift lever, upper No. 2 steering cover, park lock cable assembly and shift lever housing.
2. On all models, remove release lever spring and turn signal bracket. To remove steering column housing with main shaft on models equipped with tilt steering, install plate washers (18 and 36-mm outer diameter) and screw (4-mm diameter, .7-mm pitch, 15-mm length). See **Fig. 10** . Remove column housing with shaft assembly from column tube assembly. Remove tilt spring and spring guide.
3. On models equipped with A/T, remove 4 Torx bolts, 2 tilt No. 1 stoppers and steering column housing support. On all models, remove bolt and washer and remove column tube support with lower column tube attachment. Remove lower column tube attachment from column tube support.
4. Remove main shaft stopper and assembly. Ensure shaft assembly does not rotate. Using screwdriver, remove retaining ring. Remove spring retainer, compression spring, upper bearing inner race and inner race.

### Inspection

Ensure lock mechanism, key cylinder, ignition switch and key unlock warning switch operate properly. Check column bearing for rotating smoothness. Replace column housing if bearing or housing shows any damage. Check steering shaft for bends, damaged splines or damaged "U" joints. Repair or replace components as necessary.

### Reassembly

1. Install inner race, upper bearing inner race seat, compression spring and spring retainer. Install NEW retaining ring to main shaft assembly. Install retaining ring remover/replacer to main shaft assembly. Using retaining ring remover/replacer, push down retaining ring until ring fits into shaft groove. Install main shaft assembly.
2. Ensure main shaft assembly does not rotate. Install main shaft stopper. Install NEW lower column tube attachment, bolt and washer to column tube support.

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3. On models equipped with A/T, install 2 NEW tilt No. 1 stopper with steering column housing support. Install 4 NEW Torx bolts.
4. On all models, install steering column with main shaft assembly into column tube assembly. Install tilt spring and spring guide. Place steering column assembly in vise. Temporarily install 2 NEW pivot pins. Using a punch and hammer, tap in pivot pins. Using a pin punch, stake 3 places evenly around hole.
5. Install turn signal bracket with 2 NEW Torx screws. Install release lever spring. On models equipped with A/T, install park lock cable assembly, shift lever housing with 3 NEW Torx screws, upper No. 2 steering cover and shift lever with NEW Torx screw.

## TORQUE SPECIFICATIONS

### TORQUE SPECIFICATIONS (LAND CRUISER)

Application	Ft. Lbs. (N.m)
Column Support Tube Nut/Bolt	11 (15)
Intermediate Shaft Bolt	25 (34)
No. 2 Intermediate Shaft Assembly Bolts	25 (34)
No. 2 Lower Cover Nut/Bolt	17 (23)
Steering Column Bracket-To-Instrument Panel Bolt/Nut	18 (24)
Steering Wheel Nut	25 (34)
Thrust Stopper	25 (34)
Tilt Steering Bolts	15 (20)
INCH Lbs. (N.m)	
Hole Cover Nut/Bolt	115 (13)
Steering Wheel Pad Torx Screw	80 (9)

### TORQUE SPECIFICATIONS (RAV4)

Application	Ft. Lbs. (N.m)
Column Support Tube Bolt	15 (20)
No. 2 Intermediate Shaft Bolts	26 (35)
Sliding Yoke Bolt	26 (35)
Steering Column Bracket-To-Instrument Panel Bolt/Nut	19 (25)
Steering Wheel Nut	25 (34)
Tilt Steering Bolt	15 (20)
"U" Joint Bolt (Pinch Bolt)	26 (35)
INCH Lbs. (N.m)	
Hole Cover Clamp Bolt	48 (5)
Steering Wheel Pad Torx Screw	71 (8)

### TORQUE SPECIFICATIONS (TACOMA)

Application	Ft. Lbs. (N.m)
Intermediate No. 2 Shaft Bolts	26 (35)
Sliding Yoke Bolt	26 (35)



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Steering Column Bracket-To-Instrument Panel Bolt/Nut	19 (25)
Steering Wheel Nut	26 (35)
"U" Joint Bolt (Pinch Bolt)	
4WD	26 (35)
<b>INCH Lbs. (N.m)</b>	
Column Hole Cover	71 (8)
Column Shift Lever Assembly-To-Column (NASTECH)	79 (9)
Steering Wheel Pad Torx Screw	79 (9)

**TORQUE SPECIFICATIONS (SIENNA)**

<b>Application</b>	<b>Ft. Lbs. (N.m)</b>
Intermediate Shaft Assembly	26 (35)
Steering Column Assembly Nut	19 (25)
Steering Column Housing Support Bolt	14 (19)
Steering Wheel Nut	25 (34)
<b>INCH Lbs. (N.m)</b>	
Shift Lever & Housing Bolt	106 (12)
Shift Lever Torx Screw	106 (12)
Steering Wheel Pad Torx Screw	79 (9)
Turn Signal Bracket	65 (7)

**TORQUE SPECIFICATIONS (4RUNNER)**

<b>Application</b>	<b>Ft. Lbs. (N.m)</b>
Hole Cover Bolts	59 (80)
No. 2 Intermediate Shaft Bolts	26 (35)
Steering Column Set Nuts	19 (26)
Steering Wheel Nut	25 (34)
Tilt Steering Bolts	15 (20)
"U" Joint Bolt (Pinch Bolt)	26 (35)
<b>INCH Lbs. (N.m)</b>	
Column Hole Cover Bolt	71 (8)
Steering Wheel Pad Torx Screw	79 (9)
Turn Signal Bracket (NASTECH)	27 (3)

**TORQUE SPECIFICATIONS (TUNDRA)**

<b>Application</b>	<b>Ft. Lbs. (N.m)</b>
Intermediate No. 2 Shaft Bolts	26 (35)
Shift Lever Torx Screw	13 (18)
Steering Column Housing Support Torx Bolts	14 (19)
Steering Column Set Nuts	19 (26)
Steering Wheel Nut	26 (35)

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"U" Joint Bolt (Pinch Bolt)	26 (35)
INCH Lbs. (N.m)	
Column Tube Support Bolts	74 (8.4)
Shift Lever Housing Torx Screws	106 (12)
Steering Column Hole Cover No. 2 Bolts	71 (8)
Steering Wheel Pad Torx Screw	79 (9)
Turn Signal Bracket Torx Screws	65 (7.5)