

1997 Ford Pickup F150

STEERING COLUMN 1996-97 STEERING Ford Motor Co. - Steering Column - Except Stripped Chassis

STEERING COLUMN

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DESCRIPTION

All steering columns are energy-absorbing and collapse upon frontal impact.

Vehicles are equipped with tilt steering wheels and air bags. A multifunction switch operates wiper/washer, turn signal/hazard and horn/dimmer. Multifunction and ignition switches are mounted on steering column.

WARNING: On models with Supplemental Restraint System (SRS), observe following precautions. Before any repairs are performed, disconnect and shield negative battery cable. Disconnect SRS connector at control unit. Use caution when working around steering column (air bag could deploy).

AIR BAG SERVICE PRECAUTIONS

Observe following precautions when working with air bag systems.

- Disable air bag system before servicing any air bag system or steering column components. Failure to do so may result in accidental air bag deployment and cause personal injury. See **DISABLING AIR BAG SYSTEM**.
- Back-up power supply will hold a deployment charge for approximately one minute (10 minutes for Villager) after positive battery cable is disconnected. Servicing SRS before deployment charge is depleted may cause accidental air bag deployment and possible personal injury.
- Because of critical system operating requirements, **DO NOT** service sensors, clockspring, monitor, or air bag module. Corrections are made by replacement only.
- Always wear safety glasses whenever servicing an air bag equipped vehicle or handling an air bag.
- When carrying a live air bag module, ensure air bag module and trim cover are pointed away from your body. This minimizes chance of injury in the event of an accidental deployment.
- When placing a live air bag module on a bench or other surface, always face air bag module and trim cover up, away from surface. This will reduce motion of module if it is accidentally deployed.
- After deployment, air bag surface may contain deposits of sodium hydroxide, which may irritate skin. Sodium hydroxide is a product of gas generant combustion. Always wear gloves and safety glasses when handling a deployed air bag. Wash your hands using mild soap and water. Follow correct disposal procedures.
- If a part is replaced and new part does not correct condition, reinstall original part and perform diagnostic procedure again.
- Never probe connectors on air bag module. Doing so may cause air bag deployment and personal injury.
- The instruction to **DISCONNECT** always refers to a connector. **DO NOT** disconnect a component from vehicle when instructed to **DISCONNECT**.
- After repairs, ensure AIR BAG warning light does not indicate any other faults.

DISABLING AIR BAG SYSTEM

WARNING: Back-up power supply will hold a deployment charge for approximately one minute after battery positive cable is disconnected. Servicing SRS before deployment charge is depleted may cause accidental air bag deployment and possible personal injury.

NOTE: Use following disabling procedure for component replacement purposes only. If vehicle was involved in a collision and air bag did not deploy, or SRS is not functioning properly and vehicle needs to be driven, complete system deactivation is required.

Disconnect negative and then positive battery cables. Shield both cables. Air bag system contains a back-up power supply built into the air bag diagnostic monitor. Wait a minimum of one minute before servicing any air bag system components. System is now disabled.

REMOVAL & INSTALLATION

CAUTION: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See appropriate **COMPUTER RELEARN PROCEDURES** article in the **GENERAL INFORMATION** section before disconnecting battery.

- COMPUTER RELEARN PROCEDURES - 1996
- COMPUTER RELEARN PROCEDURES - 1997

STEERING WHEEL & AIR BAG

Removal & Installation

1. Set front wheels in straight-ahead position. Disconnect and shield negative battery cable then disconnect positive cable. Wait at least one minute to deplete charge in air bag back-up power supply. Remove air bag module-to-steering wheel retaining fasteners. Remove air bag from steering wheel, and disconnect air bag module electrical connector.
2. Disconnect horn switch and speed control (if equipped) electrical connectors. Mark steering wheel-to-steering shaft position for installation reference. Remove bolt and use Steering Wheel Remover (T67L-3600-A) to remove steering wheel.
3. To install, reverse removal procedure. Ensure all wiring is routed properly. Tighten steering wheel retaining bolt and air bag retaining nuts to specification. See TORQUE SPECIFICATIONS .

STEERING WHEEL & HORN PAD

Removal & Installation

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1. Set front wheels in straight-ahead position. Disconnect negative battery cable. Grasp sides of horn pad and pull upward to unclip retainers. Disconnect horn switch electrical connector, and remove horn pad.
2. Mark steering wheel-to-steering shaft position for installation reference. Remove steering wheel retaining bolt. Using Steering Wheel Remover (T67L-3600-A), remove steering wheel.
3. To install, reverse removal procedure. Tighten steering wheel retaining bolt and horn pad retaining screws (if equipped) to specification. See **TORQUE SPECIFICATIONS** .

MULTIFUNCTION SWITCH

Removal & Installation

Disconnect negative battery cable. Remove upper and lower steering column shrouds. Remove 2 multifunction switch retaining screws. Disconnect multifunction switch electrical connector, and remove multifunction switch from steering column. To install, reverse removal procedure.

LOCK CYLINDER

Removal (With Key)

1. Disconnect negative battery cable. Ensure gear selector is in Park (A/T models). On Pickup, remove steering wheel and steering column shrouds. Disconnect key warning switch electrical connector.
2. Using key, turn lock cylinder to RUN position. Using a 1/8" (3.17 mm) diameter pin or punch, depress retaining pin located in lock cylinder housing, and pull out lock cylinder. See **Fig. 1** .

Installation

1. Turn lock cylinder to RUN position. Depress retaining pin. Insert lock cylinder into housing. Ensure tab on end of lock cylinder aligns with slot in ignition drive gear and lock cylinder is fully engaged in housing.
2. Using key, turn lock cylinder to OFF position. To complete installation, reverse removal procedure. Check lock cylinder and ignition switch functions. Ensure column locks when switch is in LOCK position.

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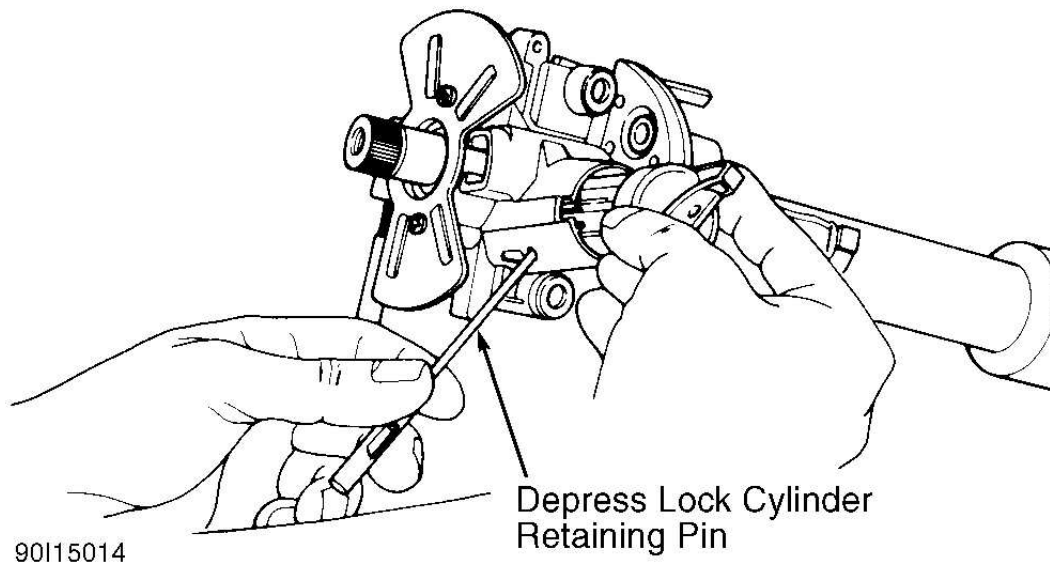


Fig. 1: Removing Ignition Lock Cylinder
Courtesy of FORD MOTOR CO.

Removal (Without Key)

1. Use this procedure to remove ignition lock cylinder if key is missing or cylinder lock is frozen. Disconnect battery negative cable. Remove steering wheel. See **STEERING WHEEL & AIR BAG** under REMOVAL & INSTALLATION or **STEERING WHEEL & HORN PAD** . Remove upper and lower steering column shrouds. Disconnect key warning switch electrical connector. Use a 1/8" (3.17 mm) drill bit to drill out retaining pin. **DO NOT** drill deeper than 1/2" (12.7 mm).
2. Place a chisel at base of lock cylinder cap. Using hammer, strike chisel with sharp blows to break cap away from lock cylinder. On all models, use 3/8" (9.52 mm) drill bit to drill out center of lock cylinder key slot. Drill down approximately 1 3/4" (44 mm) until lock cylinder breaks away from base of lock cylinder.
3. Remove metal shavings from lock cylinder housing. Remove bearing retainer, bearing and ignition drive gear from lock cylinder. Thoroughly clean all metal shavings and other foreign materials from housing. Carefully inspect housing for damage. If damage is apparent, replace housing.

Installation

1. Install ignition drive gear, bearing and bearing retainer. Lubricate cylinder cavity with lock cylinder lubricant. Turn ignition switch to RUN position. Depress retaining pin, and insert NEW lock cylinder into housing.
2. Ensure tab on end of lock cylinder aligns with slot in ignition drive gear. Using key, turn lock cylinder to OFF position to engage cylinder retaining pin into cylinder housing hole. To complete installation, reverse removal procedure. Check lock cylinder functions. Ensure column locks when switch is in LOCK

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position.

IGNITION SWITCH

Removal

Disconnect negative battery cable. Using key, turn ignition lock to RUN position. Remove 2 ignition switch retaining screws. Disconnect ignition switch electrical connector, and remove ignition switch from steering column.

Installation

Ensure ignition lock is in RUN position. Slot in actuator housing should be aligned with mark on steering column casting. Align pin on ignition switch with slot in actuator housing. Connect ignition switch electrical connector, and tighten retaining screws to specification. See **TORQUE SPECIFICATIONS** . To complete installation, reverse removal procedure.

STEERING COLUMN

Removal

1. Set front wheels in straight-ahead position. Disable air bag (if equipped). See **DISABLING AIR BAG SYSTEM** . Remove steering wheel. See **STEERING WHEEL & AIR BAG** under REMOVAL & INSTALLATION or **STEERING WHEEL & HORN PAD** . Remove right and left instrument panel lower moldings. Remove instrument panel lower trim cover.
2. Remove screws from lower steering column shroud. Remove lower steering column shroud by pulling shroud down and toward rear of vehicle. Disconnect air bag clockspring contact assembly electrical connectors (if equipped). Place tape across contact assembly stator and rotor to prevent accidental rotation (if equipped). Remove upper steering column shroud from column. Remove clockspring contact assembly retaining screws, and remove contact assembly from steering column (if equipped).
3. Unscrew and remove tilt lever from column. Using key, turn lock cylinder to RUN position. Place a 1/8" (3.17 mm) diameter pin in hole located in outer edge of lock cylinder housing. Depress retaining pin, and pull out lock cylinder. Remove 6 instrument panel lower reinforcement brace bolts, and remove reinforcement brace.
4. Remove PRND21 cable retaining screw, and disconnect cable from actuator housing. Disconnect PRND21 cable loop from shift tube hook. Remove 2 screws attaching multifunction switch to steering column. Disconnect multifunction switch electrical connector, and remove switch.
5. Remove pinch bolt from intermediate shaft "U" joint. Disconnect shift cable from selector lever pivot. Push in tab on shift cable, and slide cable off shaft cable bracket. Disconnect ignition switch electrical connector. Support steering column assembly, and remove 4 steering column-to-support bracket retaining nuts. Carefully remove column from vehicle.

Installation

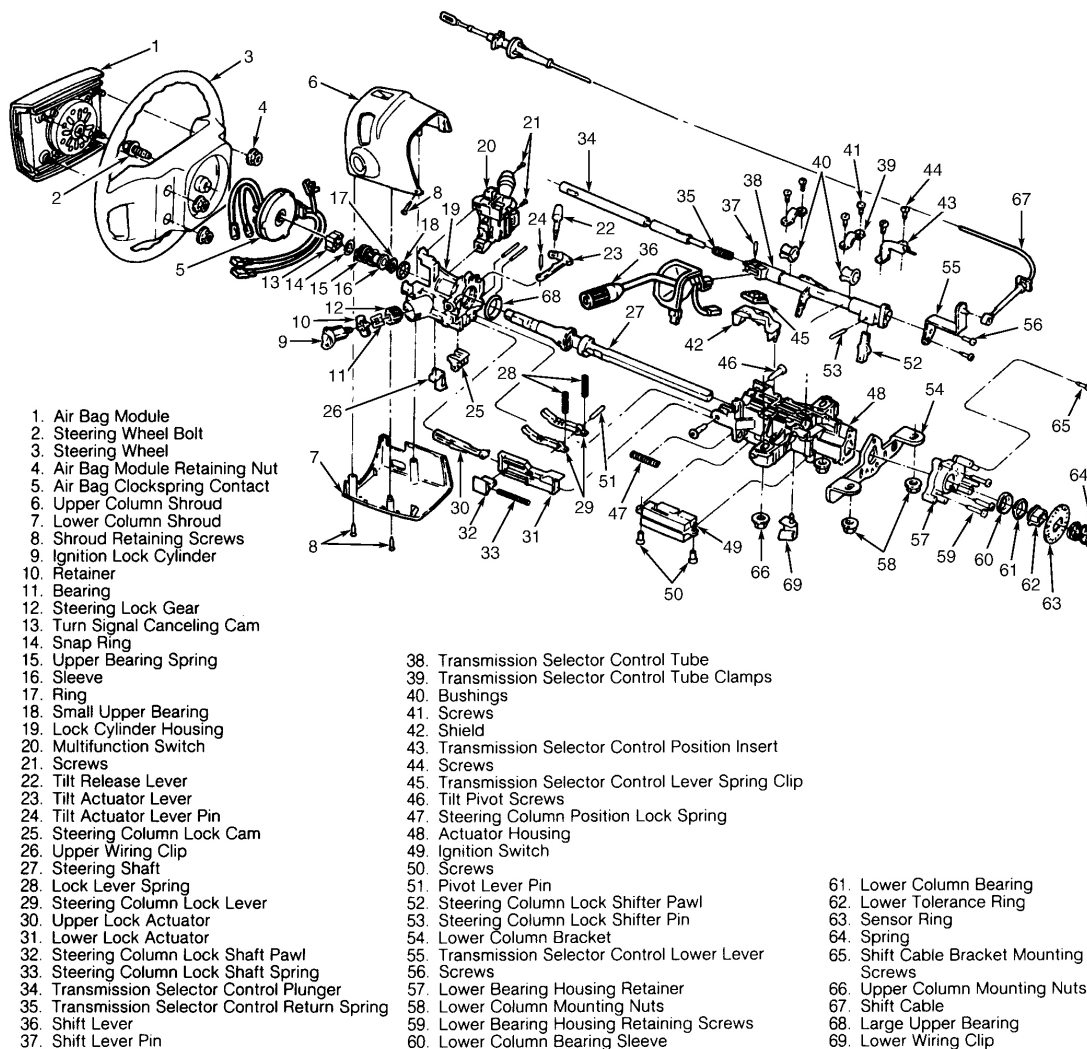
To install, reverse removal procedure. Tighten all nuts and bolts to specifications. See **TORQUE SPECIFICATIONS** .

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OVERHAUL

When overhauling steering columns, refer to exploded view illustrations. See **Fig. 2**.



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Fig. 2: Exploded View Of Steering Column With Air Bag
 Courtesy of FORD MOTOR CO.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

| Application | Ft. Lbs. (N.m) |
|--|----------------|
| Intermediate Shaft-To-Steering Column Shaft Bolt | 30-42 (41-57) |
| Steering Column-To-Support Bracket Nuts | 10-14 (14-19) |

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| | |
|----------------------------------|-----------------|
| Steering Wheel Retaining Bolt | 23-33 (31-45) |
| Ignition Switch Retaining Screws | 47-64 (5.3-7.2) |
| Multifunction Switch Screws | 18-26 (2-3) |
| PRND21 Cable Retaining Screw | 60-96 (7-11) |