

## FORD

### All Models

### DESCRIPTION

All models use steering columns with shift control rod within column tube. Directional signal switch and lever, hazard warning control knob and ignition switch are mounted on columns. Columns are equipped with anti-theft locking device and automatic transmission models have the transmission linkage in the column. Two types of columns are available, a standard column and a tilt column which features 5 positions.

### REMOVAL & INSTALLATION

#### "F" MODELS & BRONCO

**Removal** – 1) Set parking brake and disconnect negative battery cable. Remove steering wheel. See *Steering Wheels and Column Switches in this Section*. Remove bolt and nut attaching intermediate shaft to steering column. Disconnect shift linkage rods from column.

2) Remove steering floor opening cover plate screws. Remove shroud by loosening screw at bottom, placing shift lever in first gear on manual transmissions, or "1" position on automatic transmissions, and spreading shroud open and pulling it up and away from instrument panel and column.

3) Remove automatic transmission indicator actuation cable. Remove instrument panel column opening cover. Remove column support bracket-to-pedal support bracket bolts. Disconnect turn signal-hazard flasher warning switch and ignition switch wiring harnesses. Remove column from vehicle. Remove support bracket from column.

**Installation** – 1) Attach column support bracket, making sure all switch wiring is on outside left of column. Hand start the floor opening cover plate clamp bolt and press plate until clamp butts on column outer tube. Place column in vehicle through opening in floor.

2) Connect turn signal, hazard flasher and ignition switch wiring harnesses. Raise column to pedal support bracket and hand start the bolts. Tighten floor plate cover bolts, support bracket bolts and cover plate clamp bolt. Install and adjust automatic transmission shift indicator cable. Install steering column instrument panel opening cover.

3) Mount shroud by placing manual transmission in first gear, automatic transmission in "1", and spreading shroud around steering column and through opening in instrument panel. Post on interior will index shroud when properly installed. Tighten screw at bottom of shroud. Attach shift linkage rods to column. Fasten intermediate shaft to steering column.

#### "E" MODELS

**Removal** – 1) Set parking brake and disconnect negative battery cable. Remove nuts attaching flexible coupling to steering shaft flange. Remove shift linkage rods from column. Remove steering wheel. See *Steering Wheels and Column Switches in this Section*. Remove steering column floor opening cover plate screws.

2) Remove shroud by pulling shroud tabs out of clip at bottom of column. Remove instrument panel column opening cover. Remove bolts attaching column bracket to pedal support bracket. Disconnect turn signal, hazard warning and ignition switch wiring harnesses. Remove steering column.

**Installation** – 1) Place column in vehicle. Connect turn signal, hazard warning and ignition switch wiring harnesses. Inserting the steering shaft flange through the floor opening so that flange engages the flexible coupling, raise the steering column up to the pedal support bracket and loosely install the support bolts.

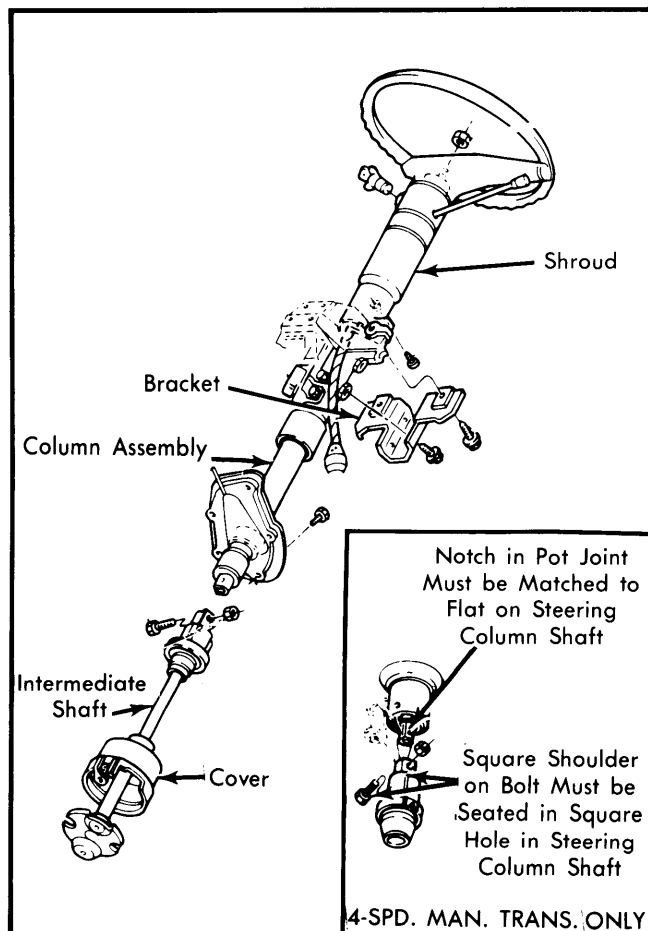
2) Loosely install the flexible coupling-to-flange fasteners, and the floor plate fasteners. Install steering wheel. Align steering column and flexible coupling. See *Steering Column Alignment in this Story*. Attach shift linkage rods. Tighten all fasteners. Connect battery.

### OVERHAUL

#### STANDARD COLUMN

**Disassembly (All Models)** – 1) Remove steering wheel and column. Remove turn signal lever. On 3 speed and automatic transmissions, drive out shift lever pivot pin and remove lever.

2) Remove turn signal-hazard switch retaining screws and partially withdraw switch from upper flange. Remove snap ring



**Fig. 1 Steering Column Installation ("F" Models and Bronco)**

# Steering Columns

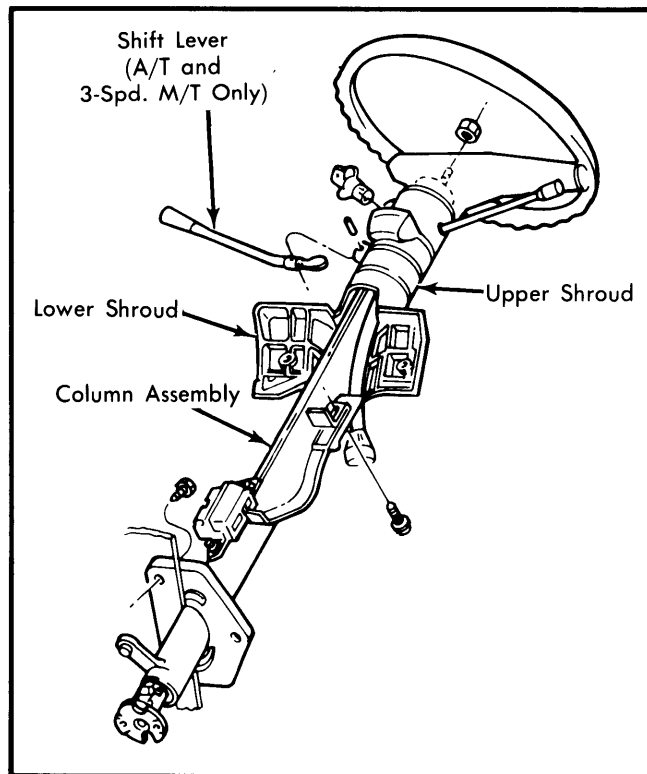
## FORD (Cont.)

from upper steering shaft. On "F" and Bronco models, remove lower bearing retainer.

3) Using a light hammer, gently drive the steering shaft out the bottom of the steering column. Clip the ignition switch in the "LOCK" position and remove ignition switch and actuation rod.

4) Remove shift indicator on automatic transmission models. Loosen the upper flange retaining nuts until 1 or 2 threads remain engaged, then pinch the nuts toward each other and pull flange off outer tube.

5) Remove shift tube retaining screw from bottom of shift socket on automatic transmission models. Remove shift socket on 3 speed manual and automatic transmissions, or remove flange extension from outer tube on manual 4 speed transmission.



**Fig. 2 Steering Column Installation ("E" Models)**

6) On "E" models, remove lower bearing retainer on automatic transmission models. Remove shift tube assembly from column bottom on "F" and Bronco models with 3 speed manual or automatic transmission. Remove shift tube assembly from top of column on "E" models with 3 speed manual or automatic transmissions.

7) On "E" models with 3 speed manual transmission withdraw lower shift arms spacer from column outer tube. Remove lamp from flange on automatics and separate turn signal-hazard flasher warning switch from flange.

8) On all models, remove bearing and tire from upper flange by gently tapping opposite side of flange with a light hammer. Disassemble the flange and locking mechanism as described in this story. On "E" models, remove floor opening cover plate from outer tube.

**Reassembly ("F" Models & Bronco) – 1)** Place bushing in socket retainer in outer tube on 3 speed manual transmissions, and place bushing on upper hub and wave washer on lower hub of shift socket. On automatic transmissions, install shift socket on outer tube. On 4 speed manual transmissions, install flange extension on outer tube.

2) Place wave washer in flange hub on automatics. Install assembled flange onto outer tube by pinching nuts toward each other and pressing flange in place. Retaining bolt "T" head will engage cutouts in outer tube as nuts are tightened.

3) Insert assembled shift tube assembly through lower column opening. Install shift tube retaining screw through bottom of shift socket on automatics. Install steering shaft clip below knurl for upper bearing.

4) Check assembled shaft length. It should be 35.6". Adjust by gently tapping in the appropriate direction. Load shaft up through bottom of column taking care not to collapse steering shaft.

5) Place upper bearing tire onto bearing and press onto knurl on steering shaft until snap ring groove is visible above bearing. Install snap ring. Install turn signal-hazard warning switch.

6) Install lower bearing retainer making sure the centerline of the coupling shaft attachment hole extends  $\frac{3}{8}$ " below the lower face of the retainer. Minor adjustments can be made by gently tapping the shaft in the appropriate direction.

7) Install ignition switch actuation rod. Mount ignition switch and hand start retaining nuts with the lock cylinder in lock position. Tighten retaining nuts and remove clip. Install shift lever. Install turn signal switch lever.

**Reassembly ("E" Models) – 1)** On 3 speed manual transmission models, place bushing in socket retainer in outer tube. Place bushing on upper hub and wave washer on lower hub of shift socket. Insert lower shift arms and spacer in outer tube.

2) Insert shift tube assembly from top of column on 3 speed models, or from bottom on automatic transmission models. Install shift socket onto shift tube in outer tube, or flange extension onto outer tube and tighten.

3) Install shift tube retaining screw in bottom of shift socket on automatic models. Place turn signal-hazard warning switch wiring harness through flange. Press lamp and wire into flange on automatics.

4) Feed turn signal harness through shift socket by pinching the flange casting retaining nuts toward each other. Install upper flange. Install ignition switch actuation rod and ignition switch, and hand tighten nuts.

5) With ignition switch mounting nuts loose, clip the switch through the opening in the side of the switch casting. Center the switch on the actuation rod. Tighten retaining nuts and remove clip.

6) Install steering shaft from bottom of column. Install lower bearing retainer. Install upper shaft bearing and tire. Install snap ring on shaft above upper bearing. Install turn signal-hazard warning switch.

## FORD (Cont.)

7) Install shift indicator on automatic models. Install shift lever and turn signal lever. Install steering wheel and column in vehicle.

### TILT COLUMN

**Disassembly** - 1) Remove steering wheel. Remove column from vehicle. Remove turn signal lever. Drive out pivot pin and remove shift lever on automatic transmission models. Remove steering shaft lower flange and retaining clamp.

2) Remove lower bearing retainer. On automatic transmission models, remove shift tube retaining screw from bottom of shift socket and withdraw shift tube from bottom of column.

3) Remove lock drive gear. Remove turn signal switch screws, wiring harness to column clips and switch and wiring harness from column.

4) Remove cover casting screws. Lift cover casting up and over the steering shaft and remove casting from column. Unhook upper actuator from lower actuator and remove.

5) Remove and discard screws attaching lower flange to outer tube. Loosen ignition switch retaining screws and remove ignition rod from switch end.

6) Withdraw tilt mechanism, steering shaft and ignition actuation rod from steering column upper end. Remove shift socket from automatic transmission models.

7) Remove screws retaining flange extension on 4 speed manual transmission models, or PRND21 ring on automatics. Remove extension or ring. Remove key release lever mechanism from tilt mechanism on 4 speed manual transmission models.

**Reassembly** - 1) Attach PRND21 ring to tilt mechanism on automatics, or flange extension to tilt mechanism on manual 4 speed models. Attach key release lever mechanism to tilt mechanism on 4 speed manual transmission models.

2) Install shift socket on automatic models. Install tilt mechanism, feeding the steering shaft down the center of the column and the ignition switch actuation rod through the shift socket/flange extension along the top of the column outer tube.

**NOTE** - Care must be taken not to change the length of the steering shaft on "F" and Bronco models because of the telescoping feature.

3) Install flange retainer assemblies using new hex screws. Install lower bearing retainer. Attach ignition switch loosely to the outer tube.

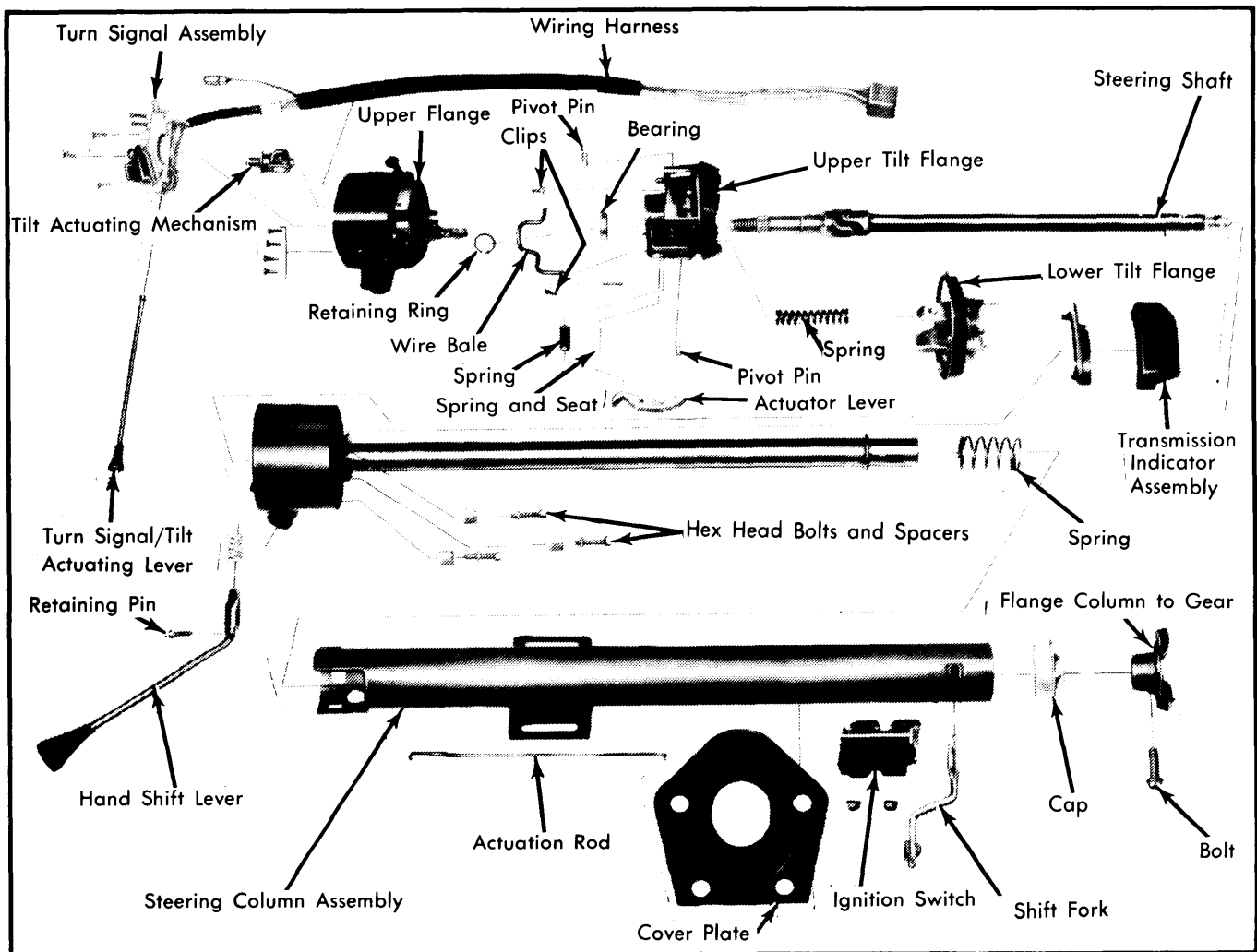


Fig. 3 Exploded View of Tilt Column Assembly

# Steering Columns

## FORD (Cont.)

4) Connect upper and lower actuators. Install cover on column. Install turn signal switch and wiring harness in steering column. Attach wiring harness to steering column clips. Install 2 screws attaching turn signal switch to the flange casting and 1 screw attaching warning buzzer terminal.

5) Install turn signal lever. Install lock drive gear. Install lock cylinder with key in "ON" position. Install the retaining pin flush with cylinder.

6) With ignition switch mounting nuts loose, clip the switch through the opening in the side of the switch casting. Center the switch on the actuation rod. Tighten retaining nuts and remove clip.

7) Install shift lever and pivot pin. Install turn signal lever. Install steering column and steering wheel.

### FLANGE & LOCKING MECHANISM

**Disassembly (All Non-Tilt Models) – 1)** Remove flange retaining bolts. On manual transmission models, remove snap ring and spring from lock release lever assembly. On automatic transmission models, remove shift indicator insert from front of flange. With lock cylinder in "RUN" position, depress retaining pin and remove lock cylinder from flange.

2) On all models, remove lock bearing snap ring and lock bearing. Remove lock drive gear and actuator assembly. Remove lock actuator insert screw and lock actuator through opening in front of flange.

**Reassembly – 1)** Install lock actuator insert in rear of flange and tighten screw. Insert lock actuator assembly through opening in front of flange until it bottoms against insert.

2) Install lock drive gear through lock cylinder opening such that last gear tooth aligns with last tooth on actuator assembly when actuator is fully rearward.

3) Install lock bearing and snap ring. With cylinder in "RUN" position, and retaining pin depressed, insert lock cylinder into flange. On automatic transmission models, attach shift indicator insert to front of flange.

4) On manual transmission models, position spring on lock release lever assembly through hole in front of flange and install snap ring on lock release lever assembly. On all models, install retaining bolts through holes in flange and hand start nuts 1 to 2 threads on rear side.

### ADJUSTMENT

#### STEERING COLUMN ALIGNMENT

**"F" Models & Bronco –** There is no alignment adjustment of the steering column and coupling shaft. Alignment is maintained by the slip-joint coupling shaft attaching the steering column to steering gear. Check the flexible coupling for clearance between the slots on the coupling shaft flange and the flexible coupling safety pins. The pin to flange clearance should be .010".

**NOTE –** If it is determined that the coupling has been driven in a non-flat position for more than 12,000 miles, coupling should be replaced.

**"E" Models – 1)** Remove steering column trim panel. Loosen bolts securing steering column to brake and clutch pedal support. Loosen steering column trim panel. Loosen steering column opening cover plate to dash panel bolts. Loosen lower column clamp.

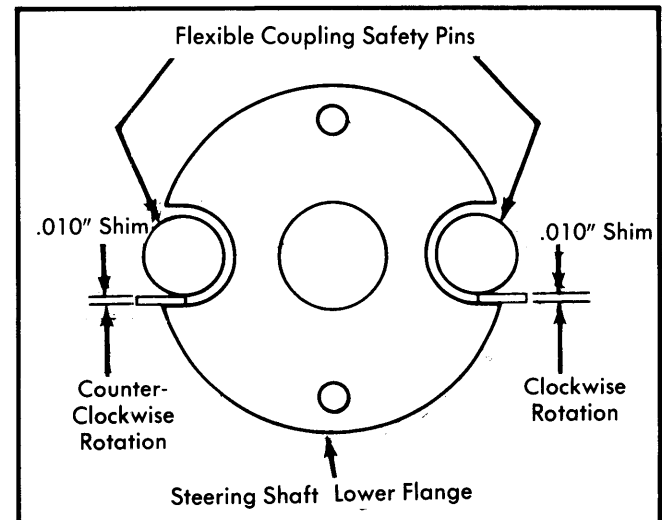
2) Make sure flexible coupling nuts are tight. With front wheels in straight ahead position, pull up on steering column until the flex coupling is in a flat to a 0.1" concaved position, pointing toward steering wheel.

3) Tighten steering column to support bracket bolts. Tighten steering column opening cover bolts. Insert a .010" shim between right flex coupling safety pin and slot. Now turn steering wheel one revolution clockwise.

4) Check to see if shim is tight. If shim cannot be removed, loosen cover plate clamp and plate attaching bolts. Realign column until shim remains loose enough to be removed when rotating steering wheel.

5) Insert a .010" shim between left flex coupling safety pin and slot. Now turn steering wheel one revolution counterclockwise. Check shim tightness and adjust as described in step 4).

6) Tighten column to support bracket bolts. Tighten steering column opening cover, and install trim panel.



**Fig. 4 Aligning Steering Column ("E" Models Only)**

### TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Steering Column Support Bracket .....	13-38
Floor Opening Cover Plate .....	5-15
Cover Plate Clamp Bolt .....	8-18
Intermediate Shaft-to-Steering Column .....	45-59
Application	INCH-Lbs.
Turn Signal/Hazard Warning Switch .....	15-25
Lower Bearing Retainer .....	12-20
Ignition Switch Retaining Nuts .....	40-65