FORD MOTOR CO. TILT COLUMN

All Models (Exc. Escort & Lynx)

DESCRIPTION

All models use modular type tilt columns. The column tube terminates just below the attachment to the brake pedal support bracket. Energy absorption is accomplished by the lower column mounting bracket. On automatic transmission models, the shift system is attached externally to the column by a "C" clip at the upper end and by 2 nuts and bolts at the lower mounting bracket.

ADJUSTMENT

SHIFT CANE SPACER CLIP GAP

1) Place selector lever in "Park" position with lever fully engaged against "Park" detent. Rotate lock cylinder to "Lock" position and remove key. Disconnect negative battery cable.

2) Remove instrument panel and steering column trim shrouds. Apply 3-5 lb. load to shift lever in downward direction, forcing lever against "Park" detent stop. Measure clearance between shift cane stop and lock actuator with feeler gauge.

3) If clearance is less than .016", spacer clip is okay. Reinstall trim shrouds and reconnect battery cable. If clearance is more than .016", or if there is no clearance, replace spacer clip as follows:

4) Wedge small screwdriver between spacer clip and shift tube and pry down on clip to remove. Use a new spacer clip which is the next smaller size down than the total feeler gauge thickness.

5) Place ignition in run position. Install spacer clip onto shift tube over shift tube stop. Clip must be positioned so tab is located between stop and actuator.

6) Rotate ignition to "Lock" position, then run position, and back to "Lock" position. No binding should exist of the switch and cylinder system.

7) If binding occurs, check for actuator boss hitting spacer. If binding persists, remove spacer clip and check for proper sizing. Replace if necessary.

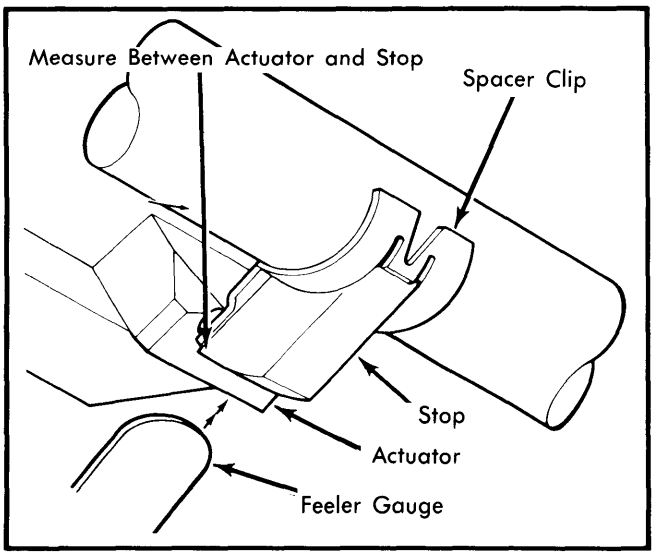

Fig. 1 Checking Spacer Clip Gap

8) Reinstall instrument panel and column trim shrouds. Reconnect battery cable.

REMOVAL & INSTALLATION

STEERING COLUMN

Removal – 1) Disconnect negative battery cable. On Ford, Mercury, Lincoln and Mark VI models, remove column steering shaft-to lower steering shaft assembly bolt. Disengage "U" joint stub shaft from column shaft by collapsing intermediate shaft assembly.

2) On all other models, remove 2 nuts attaching flexible coupling to flange on steering input shaft. Disengage safety strap and bolt assembly from flexible coupling.

3) On automatic transmission models, disconnect transmission shift rod at selector lever. Using tool (T67P-7341-A), remove and replace shift linkage grommet. Remove steering wheel.

4) On all models, remove column trim shrouds, steering column cover and hood release mechanism, if equipped. Disconnect all electrical connections to column switches. Remove screws attaching dust boot to dash panel.

5) Loosen nuts attaching column to brake pedal support. On automatic transmission models, lower column and reach behind column and instrument panel and lift shift indicator cable off cleat on indicator lever. Remove indicator cable clamp from column tube.

6) On all models, remove 4 nuts holding column to brake pedal support and lower column to clear mounting bolts. Pull column out so "U" joint assembly passes through clearance hole in dash panel.

Installation – 1) Insert column through opening in dash panel. Align bolt holes in brake pedal support and mounting bracket and install bolts. Install nuts loosely on automatic transmission models. Tighten nuts on all others.

2) On automatic transmission models, loosely install shift indicator cable clamp to column outer tube. Reach behind column and attach indicator cable to shift lever by slipping cable loop over lever cleat. Tighten nuts attaching column to brake pedal support.

3) Move shift lever into "D" position against drive stop on insert plate. Rotate indicator bracket, located midway on column tube, clockwise or counterclockwise until pointer aligns with "D" mark. Tighten nut on bracket.

4) Connect electrical connections to column switches. On Ford, Mercury, Lincoln and Mark VI models, slide lower steering shaft assembly into column shaft and tighten nut. Pry lower shaft fore or aft to achieve an 1/8" coupling insulator flatness. Stone shield must be removed for access to coupling insulator.

5) On all other models, engage safety strap and bolt assembly to flange on input shaft. Install nut attaching column lower shaft and "U" joint assembly to flange on input shaft and tighten. Position safety strap so no metal-to-metal contact exists after tightening nut. Pry steering shaft up or down to achieve an 1/8" coupling insulator flatness.

6) On automatic transmission models, connect shift rod to shift lever on lower end of column. Raise vehicle and loosen adjust-

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ment nut on transmission shift rod. Rotate transmission lever toward front of vehicle until it stops, then move back 2 detents. Shift pointer should be in "D" position. Suspend weight on shift lever to assure lever is firmly against Drive detent. Tighten adjustment nut on shift rod. Lower vehicle.

7) On all models, engage dust boot to dash panel opening and tighten screws. Attach trim shrouds. Install hood release mechanism and lower column cover. Install steering wheel. Connect negative battery cable and check steering column operation.

DISASSEMBLY & REASSEMBLY

CAUTION – *Components and fasteners used in steering column design are important in that they can affect vehicle safety and the performance of vital systems if not serviced properly. All replacement parts must be of same part number or equivalent quality. DO NOT use a part of lesser quality or substitute design. Torque all fasteners as specified during reassembly.*

UPPER SHAFT BEARING

Disassembly – 1) Remove steering wheel. Remove upper extension shroud below steering wheel. Remove 2 trim shroud halves. Remove conical coil spring and upper bearing plate. Remove "C" clip from shaft which retains upper bearing.

2) Move tilt casting to upper position. Using tool (T67P-3D739-B), remove pivot pins. Lift off tilt casting, which contains 2 bearings, tilt release lever and lock lever, from column. Remove tilt spring.

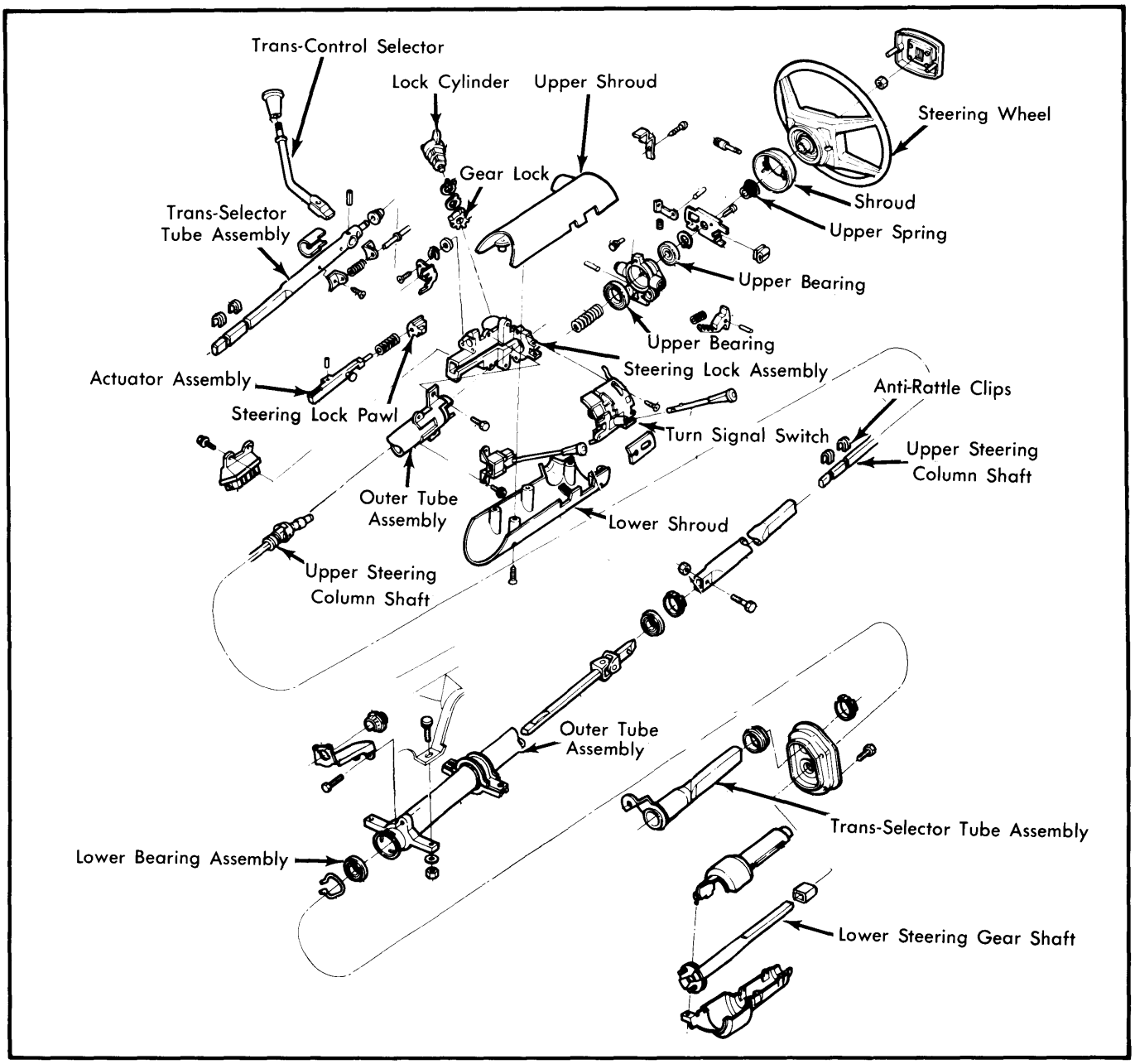

Fig. 2 Exploded View of Ford Motor Co. Tilt Column Assembly

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3) From bottom side, use drift punch to remove upper bearing. Working from top in 2 casting relief areas, remove large lower bearing with drift punch.

Reassembly – 1) Install bearings into tilt casting using care not to press on inner race. Install tilt spring between upper and lower tilt castings, and latch tilt release lever in upper position.

2) Align 2 castings and insert new pivot pins using "C" clamp. Pins must be flush with casting surface. Assemble upper bearing snap ring, retainer plate and conical coil spring, so spring snaps into upper groove in steering shaft.

3) Install shroud and tighten screws. Install upper extension shroud by snapping legs into plastic clip. Install steering wheel and check column operation.

FLEXIBLE COUPLING

Disassembly – Remove lower steering shaft assembly. Drill out 2 rivets attaching flange, insulator assembly and reinforcement to "U" joint and shaft assembly. Separate insulator assembly and reinforcement from "U" joint and shaft assembly.

Reassembly – Attach insulator assembly and reinforcement to "U" joint and shaft assembly with 2 service nuts and bolts. Install lower steering shaft assembly.

STEERING COLUMN SHIFT CANE ASSEMBLY

Disassembly – 1) Disconnect negative battery cable and remove steering column. Remove 2 bolts attaching shift cane support bracket-to-steering column collar.

2) Remove "C" clip retainer at upper end of shift cane assembly. Pull assembly down, and out of bearing and washer located in lock cylinder housing and detent plate. Inspect bearing and replace if damaged or worn.

3) Pull plastic trim cover from upper shaft and allow it to hang on selector lever. Remove roll pin connecting selector lever to shift cane upper shaft. Remove selector lever spring and plunger assembly. Replace if worn or damaged.

4) Remove selector lever. Slide shift cane lower support bracket off lower shaft. Replace bushing if worn or damaged. Remove metal spacer clip from shift cane stop.

5) Measure and record the entire length of shift cane. Mark one side of both upper and lower shafts so they can be reassembled in proper position. Separate shafts.

Reassembly – 1) Install lower shift cane support bracket with bushing on lower shaft. Install 2 new anti-rattle clips in grooves on upper shift cane shaft, with both clips installed in same direction. Lubricate lower 6" of shaft with chassis lubricant.

2) Place lower shaft in vise and install upper shaft on lower shaft. Ensure length is same as that recorded during disassembly, and that marks line up on same side.

3) Install selector lever opening cover loosely on shift lever. Insert selector lever through slot in upper shaft and install new roll pin. Install selector lever opening cover on upper shaft.

4) Insert upper end of shift cane into bearing and washer in lock cylinder housing. Install "C" clip retainer. Make sure selector lever mates correctly with detent plate on lock cylinder housing.

5) Align lower support bracket with bolt holes on steering column collar and tighten nuts. Check shift cane for smooth rotational action. Lubricate selector lever, plunger, spring and detent plate with chassis lubricant.

6) Install steering column assembly. Check shift cane spacer clip gap and replace clip if required.

ANTI-RATTLE CLIPS

Removal & Installation – Remove steering column from vehicle. Remove tilt casting. Pull steering shaft assembly out top of outer tube. Scribe mark on upper shaft where both shaft sections form a joint line. Scribe a mark on both shafts on one side for proper reassembly. Separate shafts. Remove and discard insulator clip. To install, reverse removal procedures noting the following: Lower 6" of shaft should be lubricated with chassis grease. Install conical spring on upper shaft until spring snaps into groove.

LOWER SHAFT BEARING

Removal & Installation – Remove steering column. Remove tilt casting in assembly with steering shaft by removing pivot pins. Remove lower bearing retainer ring. Pull lower shaft bearing and sleeve out of outer tube lower end. To install, reverse removal procedure and lubricate sleeve with chassis grease.

IGNITION SWITCH LOCK CYLINDER

Removal & Installation – Remove upper extension shroud from retaining clip. Remove 2 trim shrouds. Remove electrical connector from key warning switch. Place gearshift in "P", and place ignition in run position. Insert an 1/8" wire pin in hole in casting surrounding lock cylinder to remove it. To install, reverse removal procedure and note the following: Ensure lock cylinder is fully seated and aligned in interlocking washer before turning ignition off. Rotate cylinder to all positions and check for proper operation. Check for proper start in "N" and "P" positions.

IGNITION SWITCH LOCK DRIVE GEAR

Removal & Installation – Remove lock cylinder assembly. Remove snap ring, washer and lock drive gear from housing. Note relationship of lock drive gear to position of rack teeth. To install, position drive gear in same position as noted during removal. Last tooth of drive gear should be meshed with last tooth on rack. Install washer and snap ring. Align flats of drive gear with flats of washer by pulling down on column lock actuator. Install lock cylinder.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Steering Wheel Nut	30-40
Column-to-Brake Pedal Support	20-37
Lock Cylinder-to-Bracket	12-21
Lower Support Bracket-to-Column Collar Bolt	14-22
Coupling Flange-to-Steering Gear	20-30
Lower Column Shaft & "U" Joint-to-Flange	20-37
Lower Column Shaft-to-Intermediate Shaft	35-45