

## INTERNATIONAL HARVESTER

## DESCRIPTION

There are two types of columns used, tilt and non-tilt. Both types have absorbing safety features and column locking devices.

## REMOVAL &amp; INSTALLATION

## SCOUT II, TERRA &amp; TRAVELER

**Removal** — 1) Remove bolt and lock washer securing universal joint to steering shaft. Remove six clamp bolts securing column to dash panel. Remove clamp brackets. Note location of two bolts and nuts.

2) Remove bolts securing steering column to brake mounting bracket. Disconnect electrical wiring. Carefully withdraw steering column assembly from chassis. Remove rubber boot from column.

**Installation** — 1) Slide rubber boot over steering shaft clamp and onto jacket tube. Carefully position steering column assembly in chassis. Connect electrical wiring. With steering wheel and front wheels in straight-ahead position, insert steering shaft splines into universal joint. Install bolt and lock washer and tighten.

2) Secure upper end of column to brake pedal mounting bracket, tightening bolts finger tight. Position rubber boot and secure column lower end to dash panel with upper and lower clamps. Install four capscrews finger tight, securing clamp brackets to dash panel. Install two bolts, nuts and lock washers securing upper and lower clamp brackets. Tighten bolts.

3) Tighten two upper column mounting bolts to brake pedal mounting bracket. Tighten four capscrews at lower column in following sequence: bottom two first, top two last. Check that there is no binding throughout steering gear range of travel.

## OVERHAUL

## SCOUT II, TERRA &amp; TRAVELER WITHOUT TILT WHEEL

**Disassembly** — 1) Twist horn button counterclockwise and remove. Disconnect horn wire, remove screws and horn contacting ring. Remove steering wheel nut and washer. Pull off steering wheel using suitable tool (SE-1821).

2) Remove horn contact spring. Fabricate a suitable tool as shown in illustration (see Fig. 1) to depress lock plate. Install tool as shown in illustration (see Fig. 2) and depress lock plate as far as possible.

3) Using a small blade screwdriver, pry lock plate snap ring out of groove in shaft. Remove tool, snap ring and lock plate. Steering shaft should slide out bottom of steering column.

4) Remove directional signal cancelling cam, upper bearing preload spring and thrust washer. Remove directional signal lever screw and remove lever. Push hazard warning switch in and unscrew knob.

5) Remove three directional switch screws. Pull connector out of bracket on column tube. Wrap a piece of tape around upper portion of connector and wires. This will prevent snagging when switch is removed. Pull switch straight out with wire protector.

**NOTE** — The lock cylinder may be removed in any position ("ACC" to "RUN"), however manufacturer recommends that it be removed in "LOCK" position.

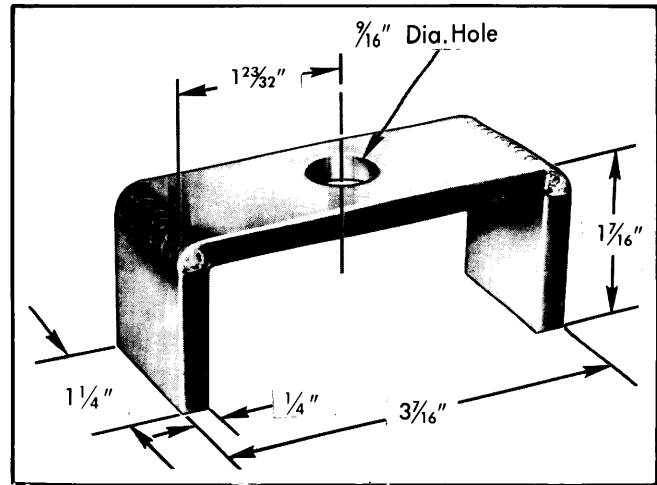


Fig. 1 Lock Plate Depressor Tool

6) Insert a thin tool, such as a machinist's scale or a small knife blade, into the right hand slot next to the switch mounting screw. Depress latch with tool and release lock. Remove lock from steering column.

7) Place ignition switch in "LOCK" position. Pull remote control rod up to stop then push downward one detent. This is the "LOCK" position. Remove two attaching screws from switch and remove switch. Disconnect switch remote control rod from rack.

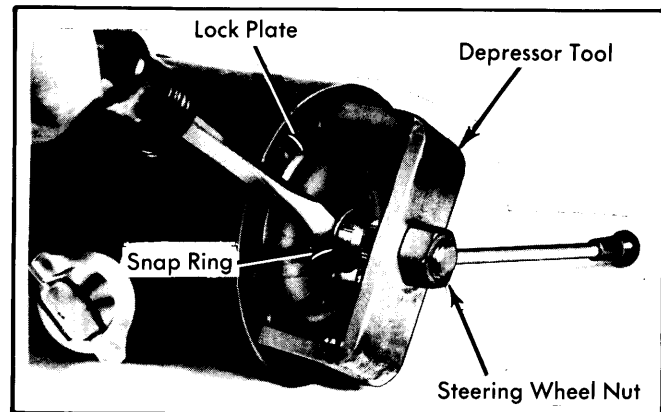


Fig. 2 Removing Snap Ring Using Lock Plate Depressor Tool

8) Remove four screws securing directional signal switch housing to column tube. Remove directional signal switch housing and shroud from column tube. Remove screws and separate directional signal housing from shroud.

9) Remove washer, spring, lock lever and rack, and lock bolt from directional signal housing. Using a drift punch, drive sector out through lock cylinder opening.

10) Pull steering shaft out of column. Remove spacer from shaft. Using a screwdriver, drive lower bearing adapter out of column tube. Carefully drive or press lower bearing out of adapter.

**Reassembly** — 1) Apply a thin coat of lithium soap base grease to all friction components before reassembly. Drive or

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press new bearing into adapter. Insert sector through lock cylinder hole in directional signal switch housing. Place on sector shaft so that tang end faces toward cylinder hole. Press sector on shaft.

2) Install rack and lock bolt in housing from bottom making sure teeth are up toward steering wheel. Make sure the rack and sector are correctly positioned. The first tooth of sector must engage the first rack groove.

3) Install lower bearing with adapter in column tube. Install spacer on steering shaft. Make sure chamfered side of spacer faces toward bearing.

**NOTE** — If steering shaft clamp was removed, make sure clamp is positioned on shaft, so that when shaft is turned there will be no binding within column.

4) Install steering shaft in column tube. Install lock lever, spring and washer in directional signal housing. Install shroud on directional signal housing. Install and tighten three retaining screws.

5) Install directional signal switch housing on column tube. Install and tighten four retaining screws. Hook ignition switch remote control rod in lower end of rack.

6) Place ignition switch on column tube. Install and tighten two retaining screws. Pull ignition switch remote control rod toward steering wheel end of column as far as possible then move down one detent.

7) Place lock cylinder in "LOCK" position. Install cylinder in directional signal switch housing. Cylinder will snap into position.

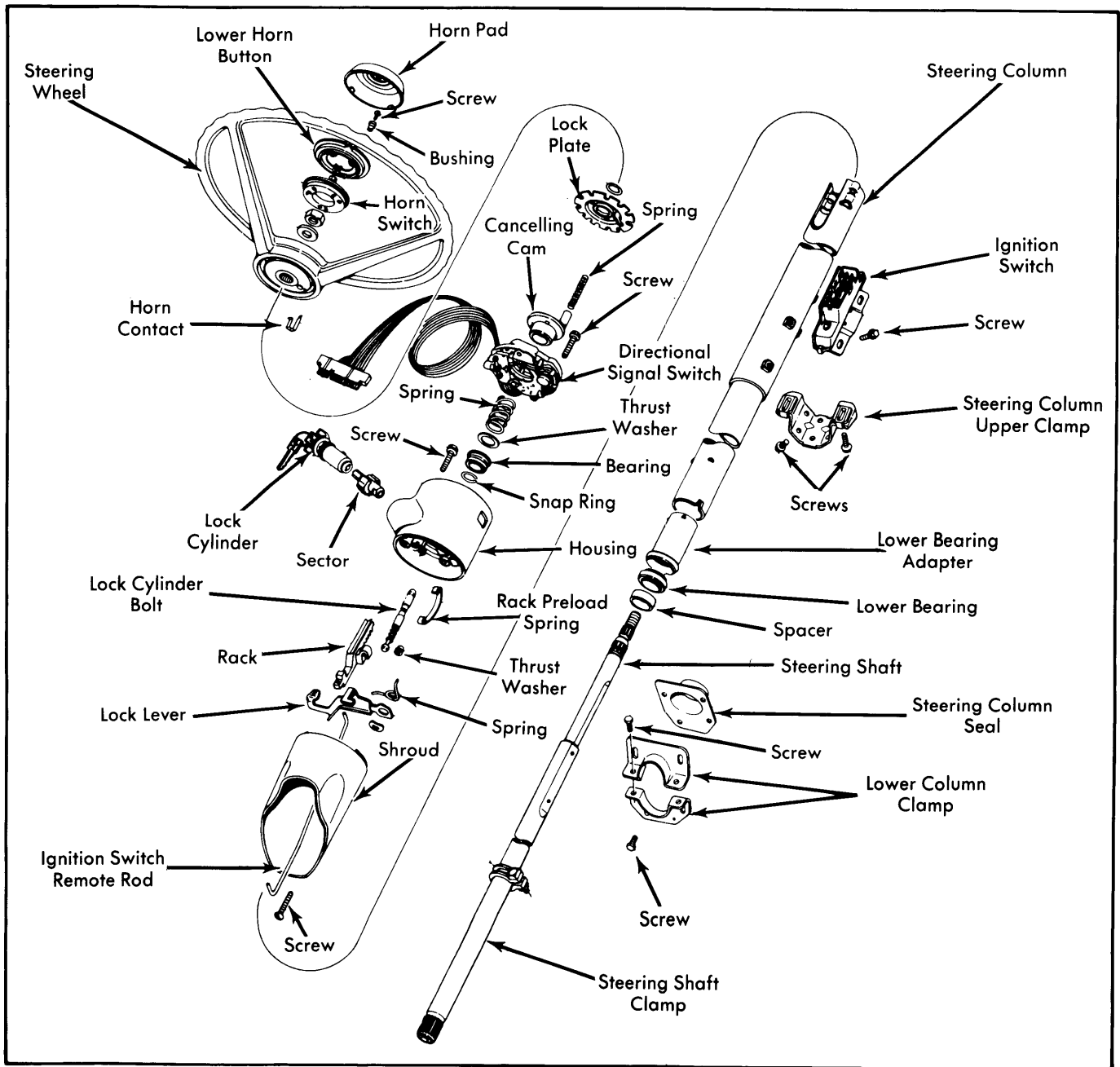
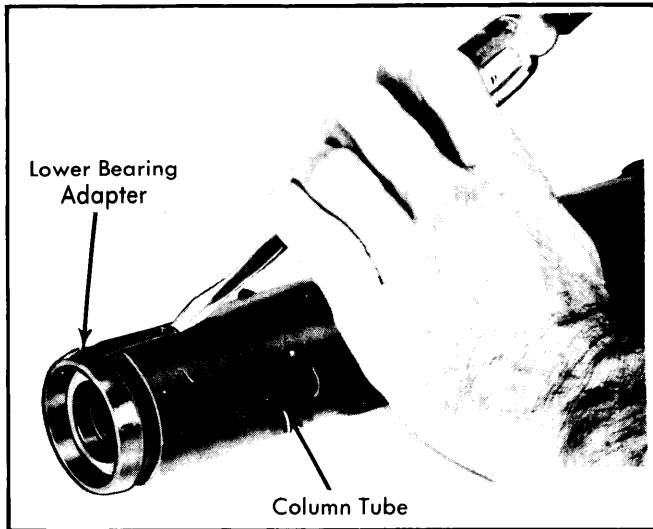


Fig. 3 Exploded View of Non-Tilt Column

# Steering Columns

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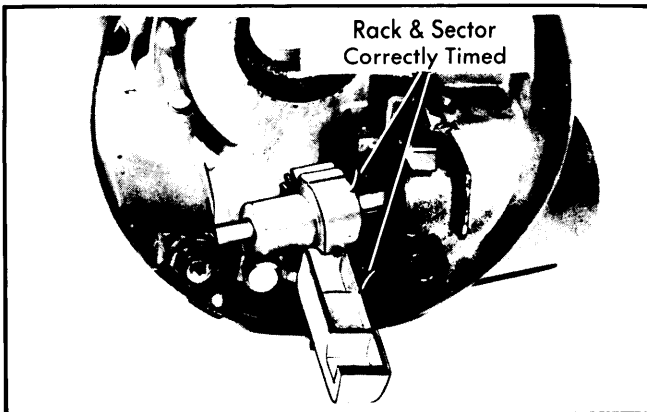


**Fig. 4 Removing Lower Bearing Adapter**

8) Feed directional signal wiring harness down through housing and through bracket on column tube. Place directional signal switch in position. Install and tighten three retaining screws.

9) Install hazard switch knob. Pull out on knob to turn switch off. Install directional signal lever and tighten screw. Install thrust washer, upper bearing preload spring and directional signal cancelling cam on steering shaft.

10) Install lock plate and snap ring on steering shaft. Place depressor tool on steering shaft and tighten steering wheel nut. With lock plate depressed as far as possible, insert snap ring in groove. Remove nut and depressor tool.



**Fig. 5 Correctly Timing Rack and Sector**

11) Install horn contact spring. Install steering wheel. Install and tighten retaining nut and washer. Install horn button.

### SCOUT II, TERRA & TRAVELER WITH TILT COLUMN

**Disassembly** - 1) Remove steering wheel and column assembly and mount in vise. Remove turn signal cancelling cam cover. Depress lock plate and pry retaining ring out using a screwdriver. Remove cancelling cam, upper bearing spring and tilt release lever.

2) Push hazard warning plunger in and remove knob. Remove turn signal lever, turn signal switch mounting screws and turn signal switch wire protector. Remove turn signal switch by pulling switch straight out.

3) Remove lock cylinder in "RUN" position. Insert a small screwdriver or knife blade into slot next to switch mounting screw boss, right hand slot. Depress retainer at bottom of slot and remove lock. Remove housing cover.

4) Reinstall tilt release lever and place column in full tilt "UP" position. Remove tilt spring retainer using screwdriver. Insert screwdriver, press in about  $\frac{3}{16}$ " and turn about  $\frac{1}{8}$  turn counterclockwise until ears align with grooves in housing. Remove spring and guide.

5) Place ignition switch in "ACCESSORY" position and remove ignition switch screws and switch. Using suitable tool (SE-2408) remove two pivot pins. Remove bearing housing assembly.

6) Disengage lock shoes by pulling on release lever. Remove bearing housing by pulling upward to extend rack full down and moving housing to left to disengage rack from actuator. Remove actuator rod assembly.

7) Remove steering shaft, upper bearing seat and inner race. Disassemble steering shaft by removing center spheres and anti-lash spring. Remove support housing. Remove tilt lever opening shield from column housing.

8) Remove snap ring, using a small punch, drive shaft from sector. Remove sector and switch actuator rack. Using pin punch and hammer remove tilt release lever pin. Remove lever and release lever spring. To relieve load on release lever, hold shoes inward and wedge block between top of shoes over slots and bearing housing.

9) Using punch and hammer remove lock shoe pin, lock shoes and lock shoe springs.

**NOTE** - Do not remove bearings from housing unless they are being replaced. Do not use old bearings.

**Assembly** - 1) Apply thin coat of suitable grease to all wear surfaces. Install lock shoe springs, lock shoe and shoe pin in bearing housing. Use a .180" in diameter rod for lining up shoes for pin installation.

2) Install spring, release lever and pin in bearing housing. Relieve load on release lever. Install drive shaft in housing. Tap sector onto shaft and replace snap ring. Install rack and spring. Replace shim, if removed. Block tooth on rack to engage block tooth on sector.

3) Install external release lever. Install support housing by aligning "V" in support housing with "V" in notch jacket. Insert screws through support and tighten. Align lower bearing adapter notches in jacket and push in lower end of jacket.

4) Install centering spheres and anti-lash spring in upper steering shaft. Install lower steering shaft from same side of sphere that spring end protrudes. Install steering shaft. Install ignition switch actuator rod through bowl from bottom and insert in support.

5) Extend rack downward from bearing housing. Assemble bearing housing over steering shaft and engage rack over end

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of actuator rod. Hold lock shoes in disengaged position, assemble bearing housing over steering shaft until the pivot pin holes line up with holes in support.

6) Install pivot pins using hand pressure to prevent broaching of support pivot hole. Once started use hammer and punch to tap in. Place housing in full "UP" position and install guide, tilt spring and tilt spring retainer, using screwdriver in retainer opening.

7) Use suitable grease between guide and peg on support, turn retainer clockwise to engage. Install tilt lever opening

shield in housing. Remove tilt release lever and install housing cover. Seat retaining screw at 12 o'clock position first, then install remaining screws and tighten.

8) Install signal switch wires and connector. Push hazard warning plunger in. Install signal switch. Install hazard warning knob and pull knob out. Install bearing inner race, seat bearing preload spring and turn signal cancelling cam.

9) Depress cancelling cam using suitable tool (SE2620) and install retaining ring. Reinstall tilt release lever and signal switch lever.

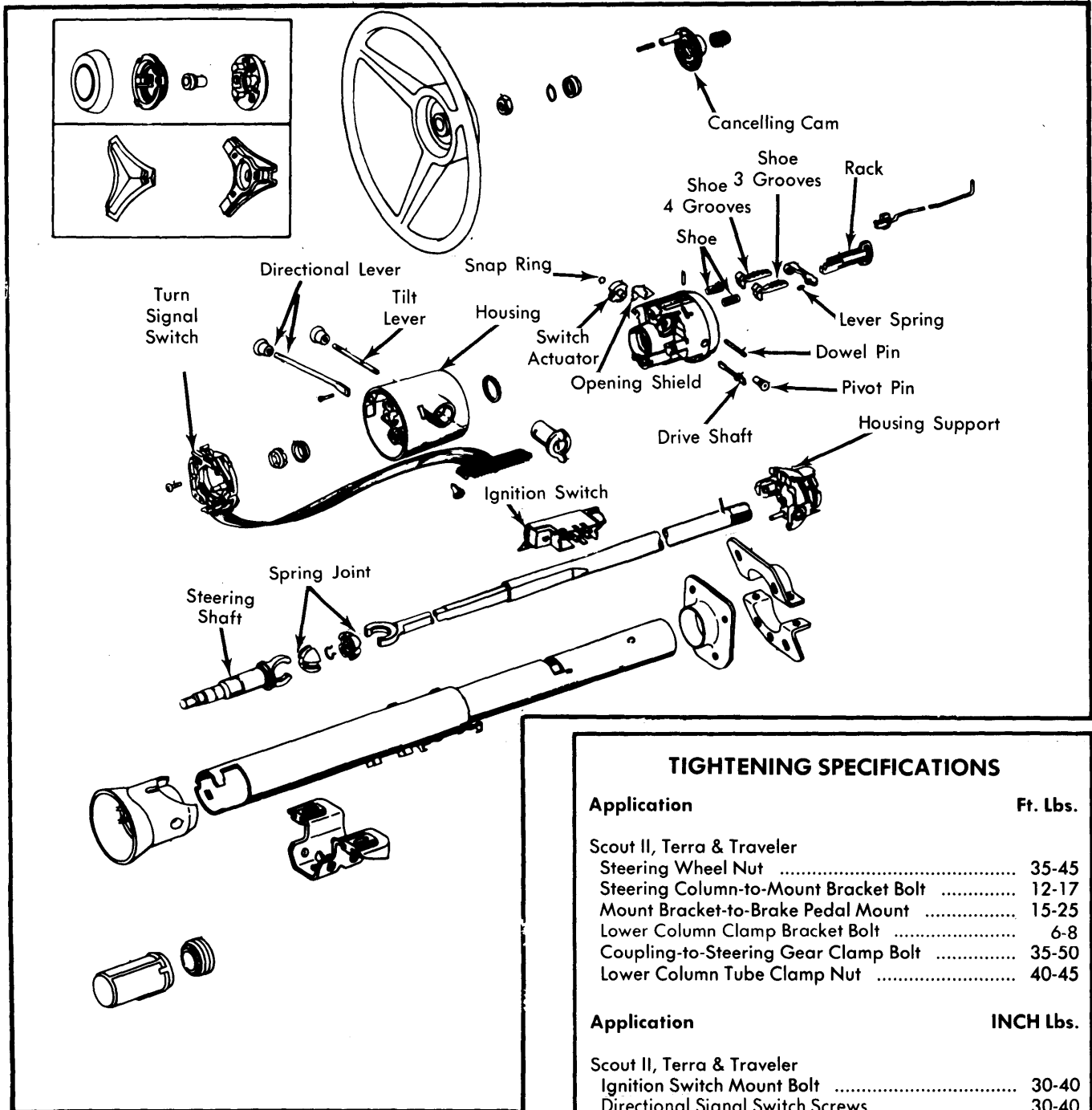


Fig. 6 Exploded View of Tilt Column