

SECTION C

STEERING COLUMN ASSEMBLIES

ALL SERIES

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DIVISION I SPECIFICATIONS AND ADJUSTMENTS

90-22 SPECIFICATIONS

Part	Location	Torque Lbs. Ft.
Nut	Steering Wheel Hub	20-35
Screws (4)	Mounting Bracket to Steering Column	10-15
Nuts (2)	Flexible Coupling Halves	15-25
Bolt	Flexible Coupling Upper Half	20-35
Bolts or Nuts (3)	Mounting Bracket to Instrument Panel	10-15

DIVISION II

DESCRIPTION AND OPERATION

90-23 DESCRIPTION

The Energy Absorbing Steering Column assembly is used on all series cars. This column is designed to compress under impact. When an automobile is being

driven, the forward movement of the automobile and the forward movement of the driver both constitute a form of energy or force. When an automobile is involved in a frontal collision, the primary force (forward movement of the car) is suddenly halted, while the secondary force (the driver) continues its forward direction. A severe collision generally involves these two forces - the

primary and the secondary forces. The secondary impact occurs when the driver is thrust forward onto the steering wheel and column.

The Energy Absorbing Column is designed to absorb these primary and secondary forces to the extent that the severity of the secondary impact is reduced. During a collision the steering column

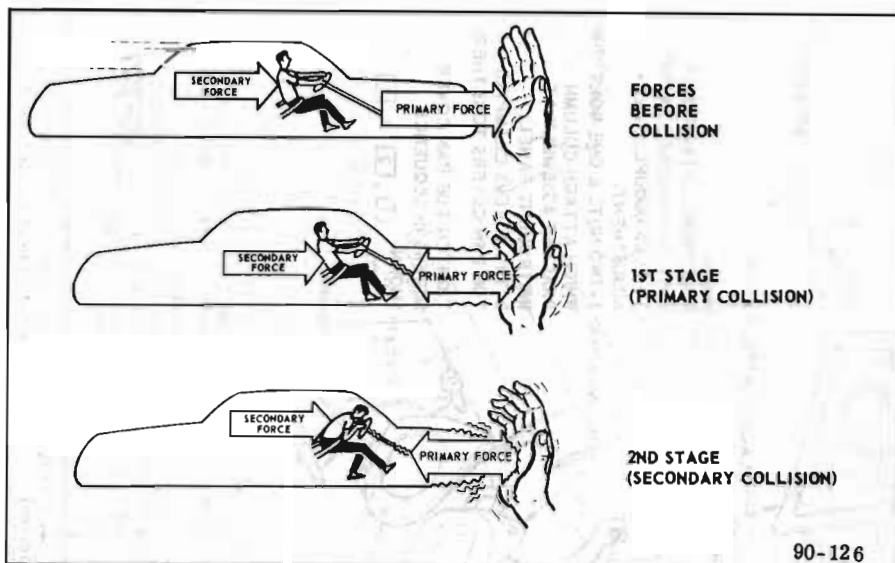


Figure 90-76—Reaction of Forces in Two Stages of a Collision

compresses and thereby reduces its tendency to move rearward into the driver's compartment. A split second later when the driver is thrown forward (the secondary impact) his energy is also partially absorbed by the compression characteristics of the column.

The Energy Absorbing Column assembly may be easily disassembled and reassembled. The serviceman should be aware that it is important that only the specified screws, bolts and nuts be used as designated during reassembly, and that they are tightened to their specified torque. This precaution will insure the energy absorbing action of the assembly. Particular care should be exercised to avoid using over-length bolts as they may prevent a portion of the assembly from compressing under impact. Equally as important is correct torquing of all bolts and nuts. In particular care should be taken to assure that the bolts or nuts securing the column mounting bracket to the instrument panel are torqued to the proper specification in order that the bracket will break away under impact.

When the Energy Absorbing Col-

umn is installed in a car it is no more susceptible to damage through usage than an ordinary column; however, when the column is removed, special care must be taken in handling this assembly. Only the specified wheel puller should be used. When the column is removed from the car, such actions as a sharp blow on the end of the steering shaft or shift levers, laying things across or on top of the column assembly, leaning on the column assembly, or dropping of the assembly could shear or loosen the plastic fasteners that maintain column rigidity or possibly bend the assembly causing a binding condition. It is therefore important that the removal and installation, and the disassembly and reassembly procedures be strictly followed when servicing this assembly.

DIVISION III SERVICE PROCEDURES

90-24 REMOVAL AND INSTALLATION OF STEERING COLUMN ASSEMBLY

a. Removal

NOTE: When the steering column is removed from the car the column is extremely susceptible to damage. Dropping

of the mast jacket on its end or leaning on mast jacket could collapse the steering shaft, bend the mast jacket or otherwise loosen the plastic injections that maintain column rigidity.

1. Remove 2 nuts securing halves of flexible coupling together (see Figure 90-77).
2. On column shift cars disconnect shift linkage(s) from shift lever(s) on lower end of steering column assembly.
3. On three speed manual transmission equipped cars remove clip or pin securing clutch release rod to clutch pedal and disengage rod from pedal.
4. On 43000 and 44000 Series cars pull back on black plastic cover (see Figure 90-78) at base of steering column assembly until fasteners pop out. Discard fasteners. Remove screws securing toe pan cover to floor, loosen screws securing halves of toe pan together and slide toe pan rearward. On automatic transmission equipped cars also position shift lever to low, unsnap steering column cover from upper portion of column and remove shift indicator.
5. On 45000, 46000 and 48000 Series cars fold back floor carpet, remove screws securing toe pan cover to floor (see Figure 90-80). On automatic transmission equipped cars also position the shift lever to low and disconnect link lever from support.



Figure 90-77—Flexible Coupling Installation

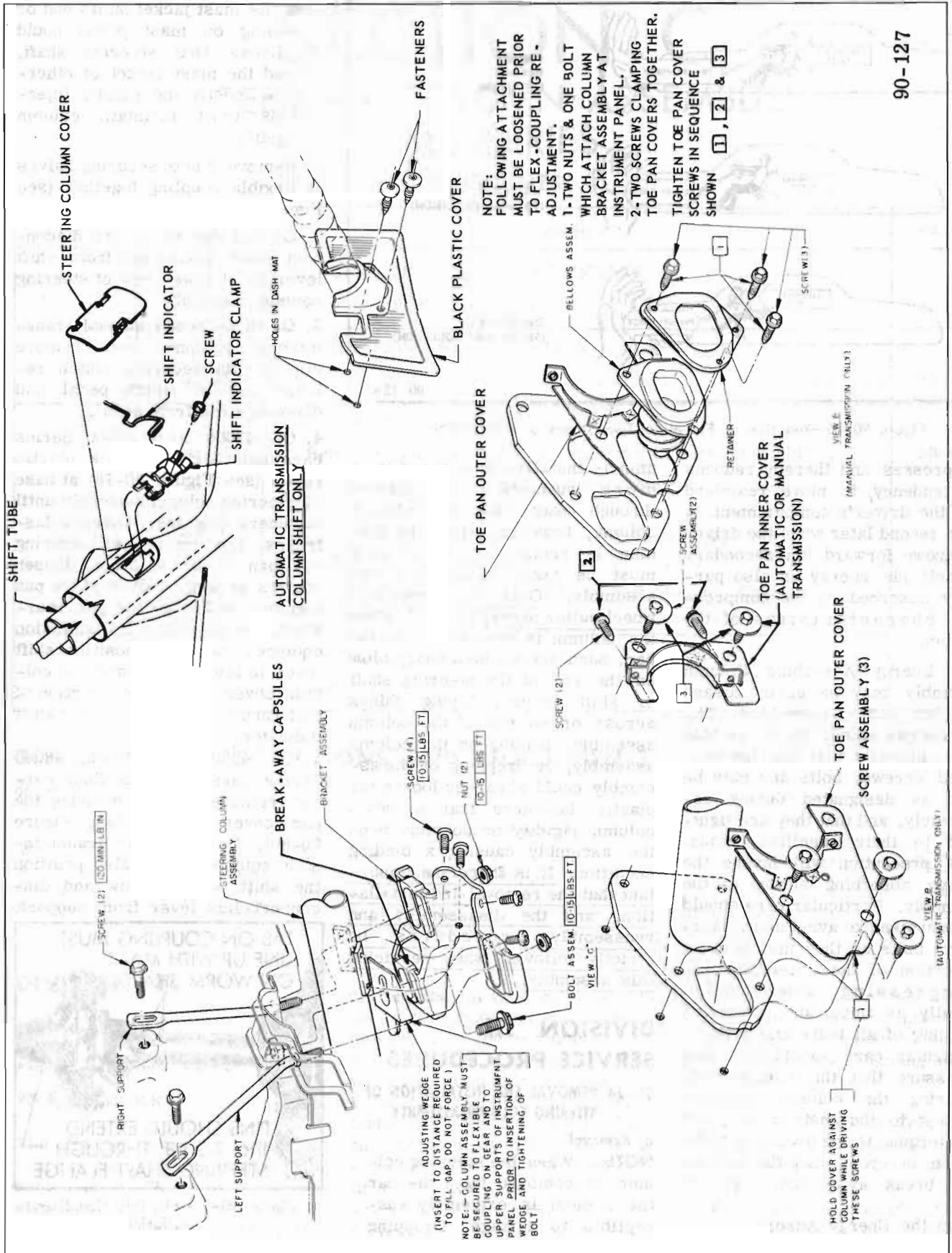




Figure 90-80—Steering Column Installation (45000, 46000 and 48000 Series)



6. On 49000 Series cars remove toe pan inner and outer covers (see Figure 90-81).

7. Disconnect all electrical wires and harnesses from steering column assembly.

8. On 43000 and 44000 Series tilt columns and on all 49000 Series cars remove screw securing brace to center of steering column assembly.

9. Remove 3 bolts and/or nuts securing bracket to instrument panel and carefully withdraw column.

NOTE: Tape the wedges (and shims, if provided) located between instrument panel and bracket in order to facilitate installation (see Figures 90-78, 90-80, and 90-81).

b. Installation

NOTE: It is important that the specified length bolts or screws be used when reinstalling the column. If screws or bolts which are too long are used, the breakaway action of the column could be restricted.

NOTE: On 45000, 46000 and 48000 Series cars be sure the two halves of the column mounting bracket are bolted to the column so that the center-line distance between the 2 front bolt holes of the bracket is 3-19/32 inches.

1. Install column under instrument panel and position flexible coupling halves together. With shims, (if provided) in location over the bracket mounting holes, position bracket into the instrument panel mounting studs and thread nuts loosely onto two studs closest driver. Torque flexible coupling nuts to 20-35 lb. ft.

NOTE: If shims have been provided at the instrument panel studs, make certain they are reinstalled and that all

studs have the same thickness of shims. On 45000, 46000 and 48000 Series, it is necessary to first feed the left ear of the column bracket into the instrument panel opening (see Figure 90-80), then rock the bracket into position. On 49000 series cars, be sure speed nut used to hold the wedge (and shim, if provided) onto rearmost instrument panel mounting stud (see Figure 90-81) does not restrict full adjustment of wedge.

2. Adjust the position of the column laterally in order to provide the adjustment of flexible coupling shown in Figure 90-77, and maintain adjustment by torquing two instrument panel mounting stud nuts nearest driver to 10-15 lb. ft.

NOTE: Make certain that wedge at third (rearmost) mounting stud remains loose when two forward stud nuts are tightened.

3. Position wedge at third (rearmost) mounting stud to fit snugly (do not force) and torque bolt (or nut) 10-15 lb. ft.

NOTE: It is important to re-install wedge (and shims, if necessary) so as to provide the proper thickness or adjustment at each mounting stud. Proper locating of shims and wedges eliminates the possibility of break-away capsule breakage, bending of the steering column, or misalignment of the column when the bolts and/or nuts are tightened.

4. On 43000, 44000, and 49000 Series cars reattach brace to center portion of jacket.

5. Reassemble inner and outer toe pan covers in position about lower end of steering column. On 45000, 46000, 48000 and 49000 Series cars, the two halves of the toe pan covers must be secured

and tightened prior to being secured to the toe pan. Place body sealer along seam of toe pan covers as shown in Figures 90-80 and 90-81. On 43000 and 44000 Series, the tightening sequence shown in Figure 90-78 must be followed.

NOTE: On 43000 and 44000 Series cars care should be taken to avoid trapping of the toe pan seal between the toe pan covers and the jacket. It is suggested that the seal be lubricated with silicone to facilitate positioning of the seal.

NOTE: Do not force column out of its natural alignment with flexible coupling in order to align toe pan cover with screw holes in toe pan. If necessary, widen holes in toe pan cover.

6. On columns used with 3 speed manual transmissions install the back-up light switch so that mounting slots are centered. Adjust as required to assure that lights are on when shift lever is in reverse and off in any other position.

7. On cars equipped with automatic transmissions adjust the neutral-start and back-up light switch by positioning shift lever in drive and adjust switch so that alignment holes of switch are aligned.

NOTE: A 3/32" drill or rod may be used to align the two holes.

90-25 REMOVAL AND INSTALLATION OF HORN ACTUATOR AND STEERING WHEEL

a. Removal of Horn Actuator Cap or Bar

1. Unplug curved connector from switch on lower end of steering column.

2. On 43000 and 44000 Series cars with standard steering wheel

pry off cap, remove 3 Phillips head screws and take off bushing spacer, receiver cup and Belleville spring (see Figure 90-82).

3. On all other series cars remove screws from underside of steering wheel that secure horn actuator bar, partially lift off bar, pull lead connector from canceling cam, then fully lift off bar. See Figures 90-83 and 90-84.

b. Installation of Horn Actuator

Cap or Bar

Install Reverse of Removal.

c. Removal of Steering Wheel

1. Remove horn actuator cap or bar (ref. subparagraph a).

2. Loosen steering wheel retaining nut several turns. Do not remove nut.

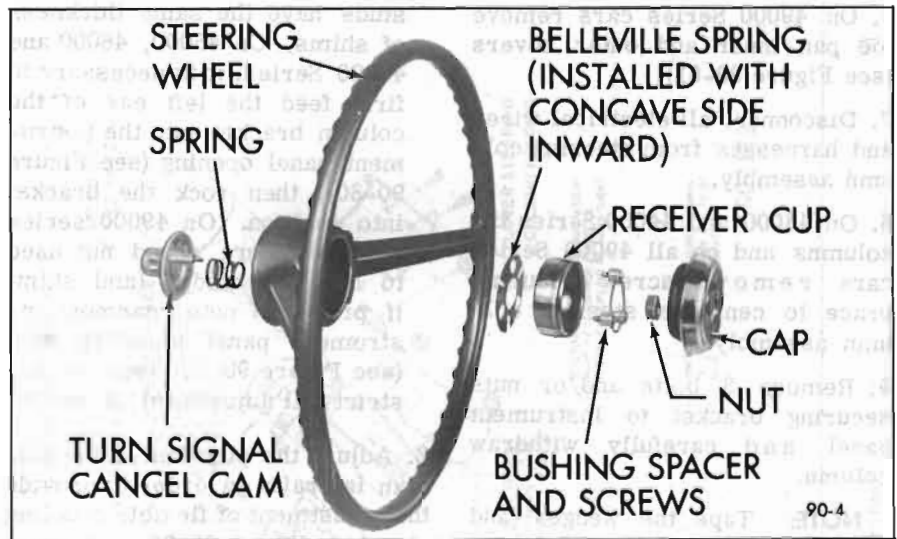


Figure 90-82—Horn Actuator Cap Installation (43000-44000 Series)

3. Attach Wheel Puller J-3274 to steering wheel and pull wheel up to nut (see Figure 90-85).

CAUTION: Do not rap on end of puller in order to free wheel from shaft as this would very

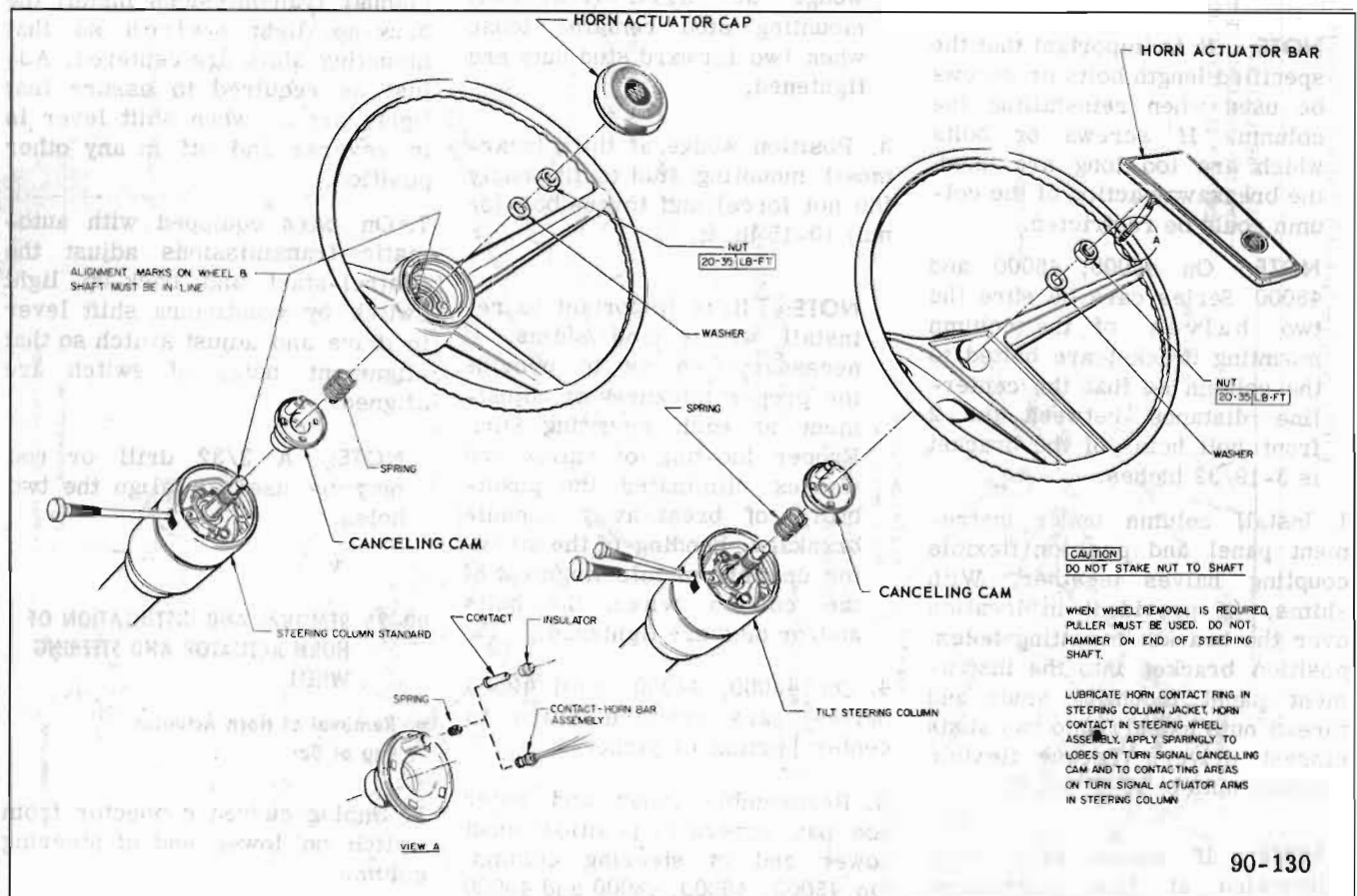
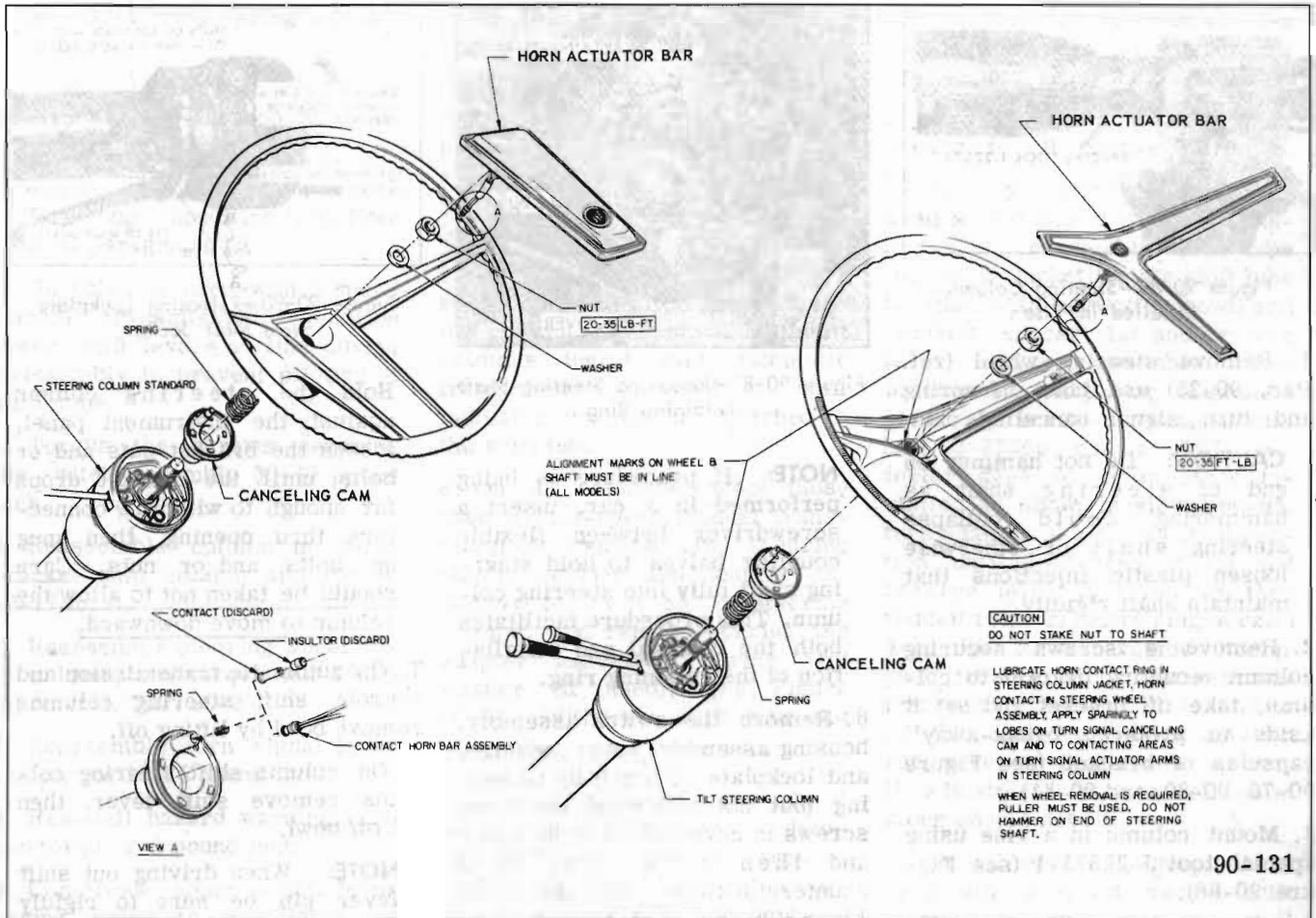


Figure 90-83—Steering Wheel Installation (43000-44000 Series)



90-131

Figure 90-84—Steering Wheel Installation (45000, 46000, 48000 and 49000 Series)

likely loosen plastic injections that maintain steering shaft rigidity. Striking of underside of steering wheel to jar it loose must also never be done. The only recommendation for freeing frozen steering wheels is to use a penetrating lubricant.

d. Installation of Steering Wheel

1. Install reverse of removal and align location mark on end of steering shaft with mark on hub of steering wheel.

2. Torque steering wheel nut 20-35 lb. ft.

90-26 DISASSEMBLY AND REASSEMBLY OF STANDARD (NON-TILT) STEERING COLUMN ASSEMBLIES

a. Disassembly of Upper Half of Steering Column (Column Removed from Car)

NOTE: It is presumed during the following procedure that the column is removed from the car, however, it is possible to disassemble the upper half of the column down to the shift bowl while the column is still in the car.

NOTE: It is important that the specified exact length bolts or screws be used when reassembling the column. If screws or

bolts are used which are too long, the breakaway action of the column could be obstructed.

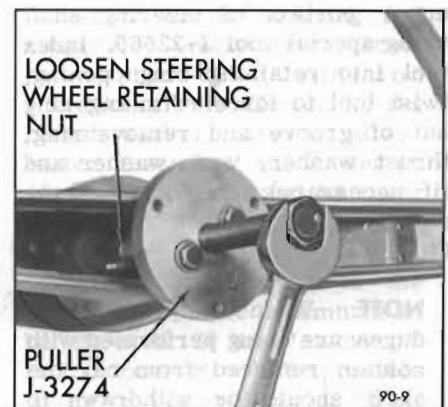


Figure 90-85—Removing Steering Wheel



Figure 90-86—Steering Column Installed in Vise

1. Remove steering wheel (ref. Par. 90-25) and take off spring and turn signal canceling cam.

CAUTION: Do not hammer on end of steering shaft as hammering could collapse steering shaft or otherwise loosen plastic injections that maintain shaft rigidity.

2. Remove 4 screws securing column mounting bracket to column, take off bracket and set it aside to protect "break-away" capsules of bracket (see Figure 90-78, 90-80, and 90-81).

3. Mount column in a vise using special tool J-22573-1 (see Figure 90-86).

CAUTION: The mesh section (the area enclosed by black plastic cover) of the steering column assembly should never be clamped in a vise.

4. Remove turn signal lever and hazard warning knob.

5. Remove retaining ring from upper portion of steering shaft using special tool J-22569. Index tool into retaining ring opening, twist tool to force retaining ring out of groove and remove ring, thrust washer, wave washer and (if necessary) steering shaft assembly (see Figures 90-87 and 90-88).

NOTE: When subject procedures are being performed with column removed from car the shaft should be withdrawn to avoid possibility of shaft falling out.

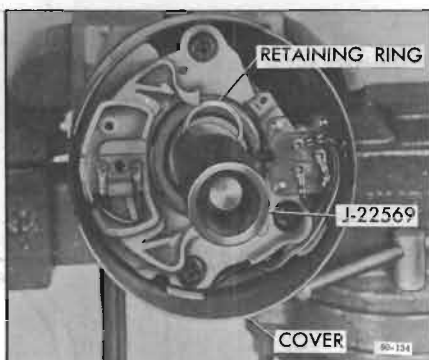


Figure 90-87—Removing Steering Shaft Retaining Ring

NOTE: If procedure is being performed in a car, insert a screwdriver between flexible coupling halves to hold steering shaft fully into steering column. This procedure facilitates both the removal and installation of the retaining ring.

6. Remove the switch assembly, housing assembly, cover, springs, and lockplate as a unit by loosening (but not removing) the three screws in cover. Push in on cover and then rotate cover in a counterclockwise direction (see Figure 90-90). Lift off unit as an assembly (see Figure 90-91).

NOTE: If subject procedures are being performed with column installed in a car, the curved connector attached to the switch assembly electrical harness can be freed from between the mounting bracket and the steering column as follows:

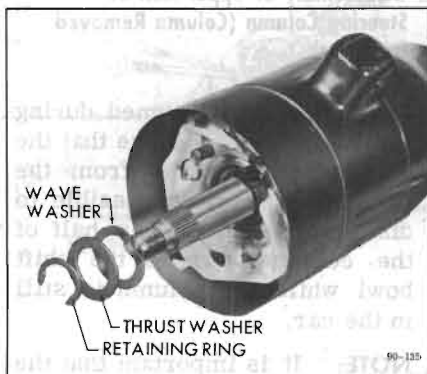


Figure 90-88—Partial Disassembly of Upper Half of Steering Column

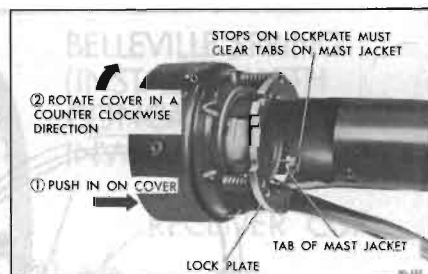


Figure 90-90—Releasing Lockplate from Mast Jacket

Hold the steering column against the instrument panel, loosen the bracket nuts and/or bolts until the bracket drops far enough to withdraw connectors thru opening, then snug up bolts and/or nuts. Care should be taken not to allow the column to move downward.

7. On automatic transmission and console shift steering columns remove bowl by lifting off.

8. On column shift steering columns remove shift lever, then lift off bowl.

NOTE: When driving out shift lever pin be sure to rigidly support bowl to avoid undue stress to shift tube and bowl.

b. Reassembly of Upper Half of Steering Column

1. Reassemble reverse of removal and note the following special procedures.

NOTE: If shift lever spring is replaced press fit spring



Figure 90-91—Removing Switch, Housing Cover, Springs and Lockplate as a Unit

into bowl until spring bottoms in bowl.

2. Apply a thin coat of lithium grease to all friction surfaces.

NOTE: If bearing housing assembly was replaced, check "stack-up" condition (ref. Note in subparagraph "d").

3. On columns used with 3 speed manual transmission, position lower shift levers in line during reassembly to prevent piloting of shift tube.

4. Torque the screws securing the switch assembly 30-40 pound inch.

5. Reassemble column mounting bracket onto column and torque 12-17 lb. ft.

6. Reassemble steering wheel on-to column and torque nut 20-35 lb. ft. (ref. Par. 90-25).

7. Reassemble turn signal lever and torque 15-25 pound inch.

8. Reinstall hazard warning knob and torque 2-5 pound inch.

9. Compress upper shift lever spring prior to installation of shift lever.

c. Disassembly of Lower Half of Steering Column (Column Removed from Car)

1. Remove 4 screws securing column mounting bracket, take off bracket and mount column in a vise using special tool mounts J-22573-1 (see Figure 90-86).

NOTE: Set bracket aside to protect "break-away" capsules of bracket (see Figures 90-78, 90-80, 90-81).

2. Remove steering wheel (ref. Par. 90-25), take off retaining ring (see Figure 90-87), thrust washer and wave washer (see Figure 90-88) and withdraw steering shaft out of column.

3. On only 43000 and 44000 Series columns disassemble retainer ring, thrust washer, sleeve and adjuster assembly and spring

from lower portion of steering shaft (see Figure 90-92).

4. On only 45000, 46000, 48000 and 49000 Series cars disassemble inner washer, "C" ring spacer(s), outer washer and wave washer from lower portion of steering shaft (see Figure 90-93).

5. Remove neutral-start or back-up light switch from steering column. Also on column shift columns used with automatic transmissions remove all shift indicator components attached to the shift tube.

6. On all columns except those used with 3-speed manual transmissions remove clip securing plastic bearing and adapter assembly to lower end of steering column, and remove bearing and adapter assembly, spring and washer (if used). See Figure 90-93. Withdraw shift tube out of column.

7. On only columns used with 3 speed manual transmissions drive out shift lever pin and remove shift lever. On lower end of column remove screws securing reinforcement ring (or alignment plate) and disassemble reinforcement ring (or alignment plate), bearing and adapter assembly, 1st and reverse lever, and spacer. See Figure 90-92. Withdraw shift tube out of column.

NOTE: If it is necessary to replace the bowl lower bearing, it is necessary to disassemble both the upper and lower halves of the steering column. The bearing may easily be pushed out of the mast jacket by use of a suitable rod. Use installer J-22572 (see Figure 90-94) when inserting new bearing. The bearing keys into the mast jacket.

d. Reassembly of Lower Half of Steering Column

1. Reassemble reverse of removal procedures and note the

following special procedures. See Figures 90-92, and 90-93, for reassembly sequence.

2. Apply a thin coat of lithium grease to all friction surfaces.

3. On only column shift columns used with 3 speed manual transmissions reassemble shift tube into mast jacket (rotate shift tube to align with keyway in bowl) and reinstall spacer, 1st and reverse lever, adapter assembly, reinforcement ring (or alignment plate) and screws. Using special tool J-22568 and a .003 inch feeler gage or shim stock installed as shown in Figure 90-95, turn adapter in a clockwise direction until looseness of 1st and reverse lever is taken up, then tighten reinforcement ring screws 8-12 lb. ft. and remove feeler gage or shim stock. Recheck adjustment by trying to slide a piece of .005 inch shim stock between 1st reverse lever and spacer. If adjustment is correct, shim stock should not fit.

4. On all columns except those used with 3 speed column shift manual transmissions reinstall shift tube into mast jacket (rotate shift tube to align with keyway in bowl) and reassembly washer (if used), spring, bearing and adapter assembly and secure in position with wire clip.

NOTE: If the steering shaft assembly, the bearing housing assembly or the bearing and adapter assembly are replaced, the "stack-up" condition ("stack-up" is affected by the thrust washer, sleeve and adjuster assembly, and spring on 43-44000 Series, and by inner and outer washers, "C" ring spacer(s) and wave washer on 45-46-48000 Series) on the lower end of the column must be checked. If the "stack-up" is too loose it will be possible to move (as applicable) thrust washer or inner washer inward. Also the steering shaft will

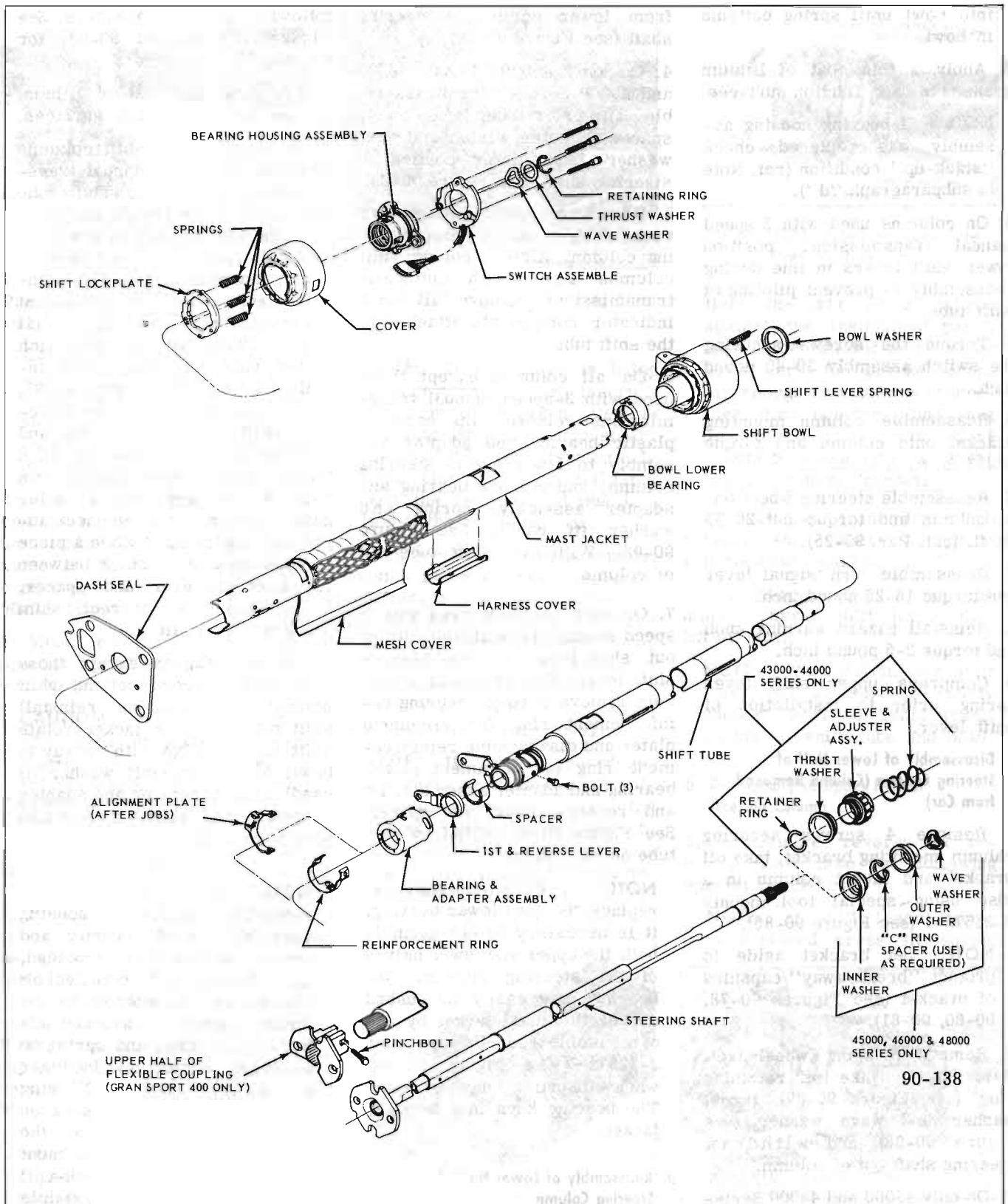
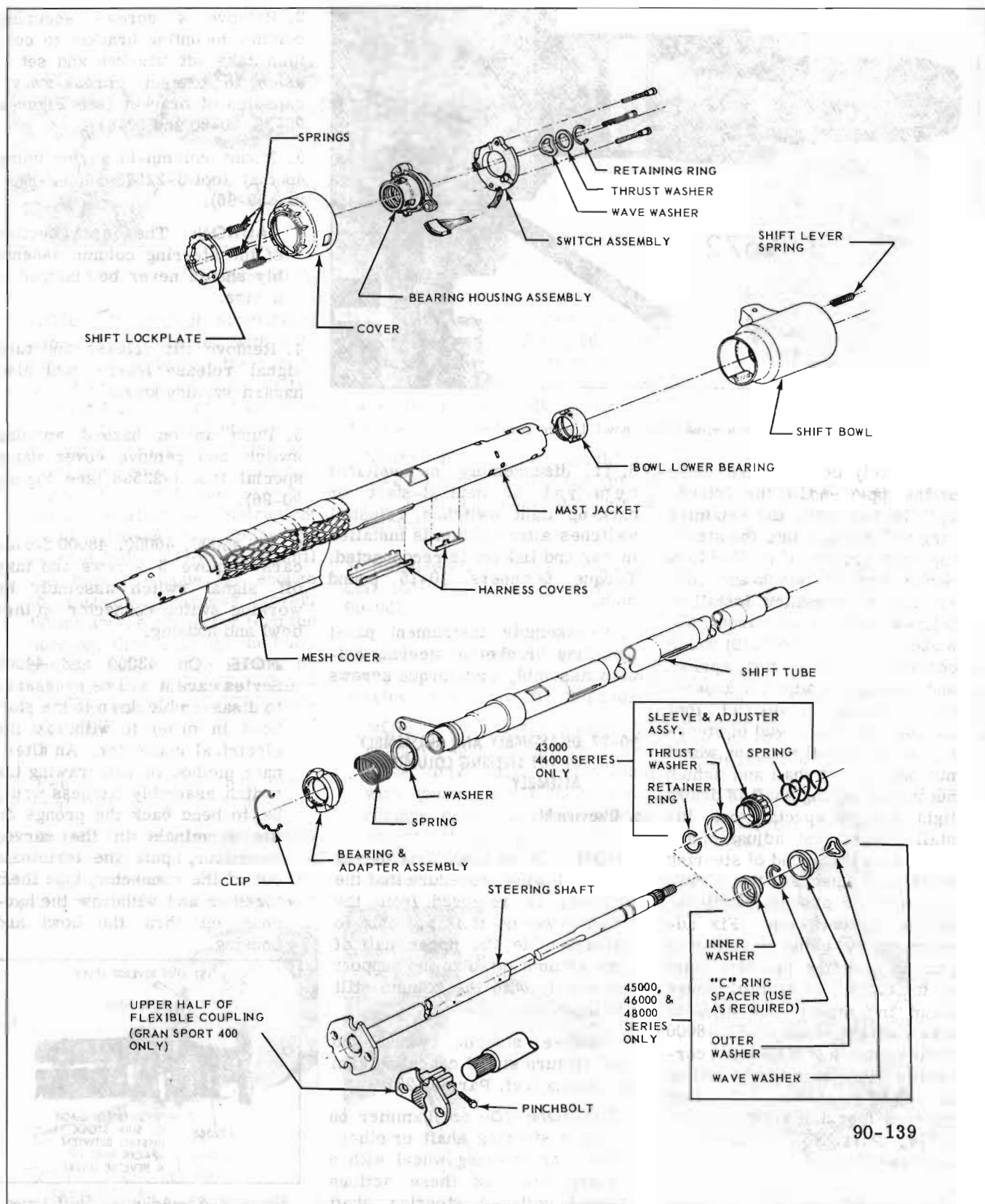


Figure 90-92—Standard (Non Tilt) Steering Column Assembly Used with 3 Speed Manual Transmission (All Series)



90-139

Figure 90-93—Standard (Non-Tilt) Steering Column Assembly Used with Automatic Transmission (All Series)

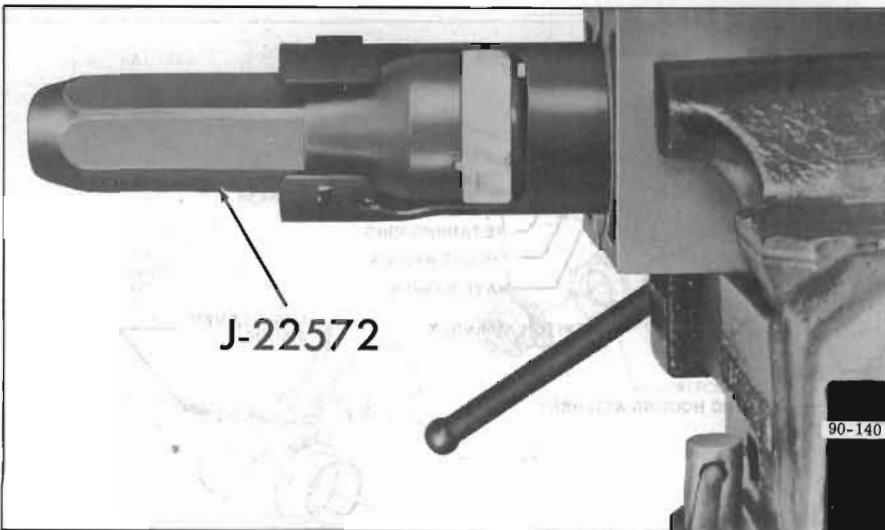


Figure 90-94—Installing Bowl Lower Bearing

most likely be somewhat loose at the upper end. If the "stack-up" is too tight, the retaining ring will not slip into the steering shaft groove. If on 43-44000 Series cars a "stack-up" correction is necessary, install as follows service kit (Group No. 6.524, Part No. 7801219) which contains retaining ring, spring, and sleeve and adjuster assembly: Install special tool J-22686 on upper end of steering shaft, install steering wheel nut onto end of shaft and tighten nut until steering shaft is drawn tight against special tool. Install sleeve and adjuster assembly on lower end of steering shaft and unscrew the sleeve and adjuster assembly until the spring bottoms out. Fix adjustment by using a soldering gun to melt the juncture point of the threads at several places about the sleeve and adjuster assembly. On 45-46-48000 Series cars a "stack-up" correction may be made by adding or subtracting "C" ring spacers (service kit Group No. 6.524, Part No. 7801263) as required.

5. Reassembly steering wheel on to column and torque nut 20-35 lb. ft.

6. If disassembly necessitated removal of neutral-start or back-up light switches, reinstall switches after column is installed in car and linkage is reconnected. Torque fasteners 10-15 pound inch.

7. Reassembly instrument panel mounting bracket to steering column assembly and torque screws 10-15 lb. ft.

90-27 DISASSEMBLY AND REASSEMBLY OF TILT STEERING COLUMN ASSEMBLY

a. Disassembly

NOTE: It is presumed during the following procedure that the column is removed from the car, however, it is possible to disassemble the upper half of the column down to the support assembly with the column still in the car.

1. Remove steering wheel and take off turn signal canceling cam and spring (ref. Par. 90-25).

CAUTION: Do not hammer on end of steering shaft or otherwise jar steering wheel with a sharp blow as these actions could collapse steering shaft or loosen plastic injections that maintain shaft rigidity.

2. Remove 4 screws securing column mounting bracket to column take off bracket and set it aside to protect "break-away" capsules of bracket (see Figures 90-78, 90-80 and 90-81).

3. Mount column in a vise using special tool J-22573-1 (see Figure 90-96).

CAUTION: The mesh section of the steering column assembly should never be clamped in a vise.

4. Remove tilt release and turn signal release levers, and also hazard warning knob.

5. Push in on hazard warning switch and remove cover using special tool J-22598 (see Figure 90-96).

6. On 45000, 46000, 48000 Series cars remove 3 screws and take off signal switch assembly by working switch connector up thru bowl and housing.

NOTE: On 43000 and 44000 Series cars it will be necessary to disassemble down to the shift bowl in order to withdraw the electrical connector. An alternate method of withdrawing the switch assembly harness would be to bend back the prongs on the terminals in the curved connector, pull the terminals out of the connector, tape them together and withdraw the harness up thru the bowl and housing.

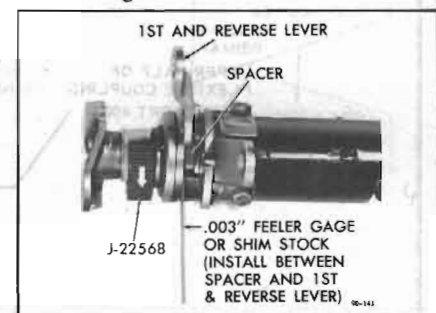


Figure 90-95—Adjusting Shift Lever Lash at Lower End of Steering Column

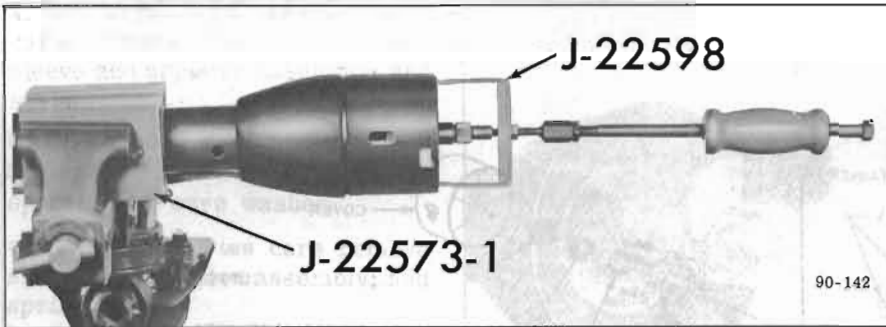


Figure 90-96—Cover Removal

NOTE: If subject procedures are being performed with column installed in car, the curved connector attached to the switch assembly electrical harness can be freed from between the mounting bracket and the instrument panel as follows: Physically hold the steering column against the instrument panel, loosen the mounting bracket bolts and/or nuts until the bracket drops far enough to remove harness cover. Withdraw the connector thru the opening, then snug up the bolts and/or nuts. Care should be taken not to allow the column to drop downward during this procedure.

7. Remove 12 sided nut using special tool socket J-22599.

8. Install tilt release lever and place bearing housing assembly in full up position. Remove tilt spring retainer using screwdriver

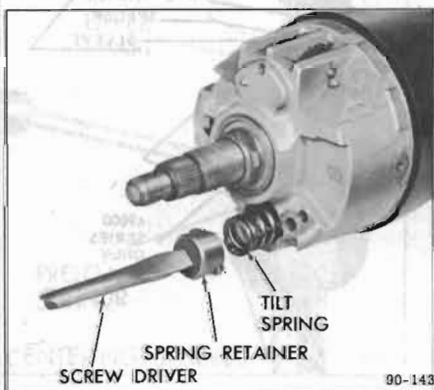


Figure 90-97—Releasing Tilt Spring

(see Figure 90-97). Depress retainer approximately 3/16 inch, rotate retainer 1/8 turn clockwise and allow retainer to move outward. Remove tilt spring and retainer.

WARNING: Care should be taken when releasing tilt spring due to high compression rate of spring.

9. Remove 2 pivot pins using special tool J-21954-1 (see Figure 90-98).

10. Pull up on tilt lever to disengage lockshoes and lift off bearing housing assembly.

NOTE: To service lockshoes, release springs or shoe release, drive lockshoe pin flush with housing face if there is not enough clearance for driving out of release pin. Drive out release pin using special tool J-22635 (see Figures 90-100



Figure 90-98—Removing Pivot Pins



Figure 90-100—Driving Lockshoe Pin Flush with Housing Face

and 90-101). Further disassembly will be obvious upon inspection.

11. Remove upper half of flexible coupling from lower end of steering shaft.

12. From lower end of steering column remove retaining ring and take off following parts (see Figure 90-102) and pull out steering shaft assembly.



Figure 90-101—Driving Out Release Pin

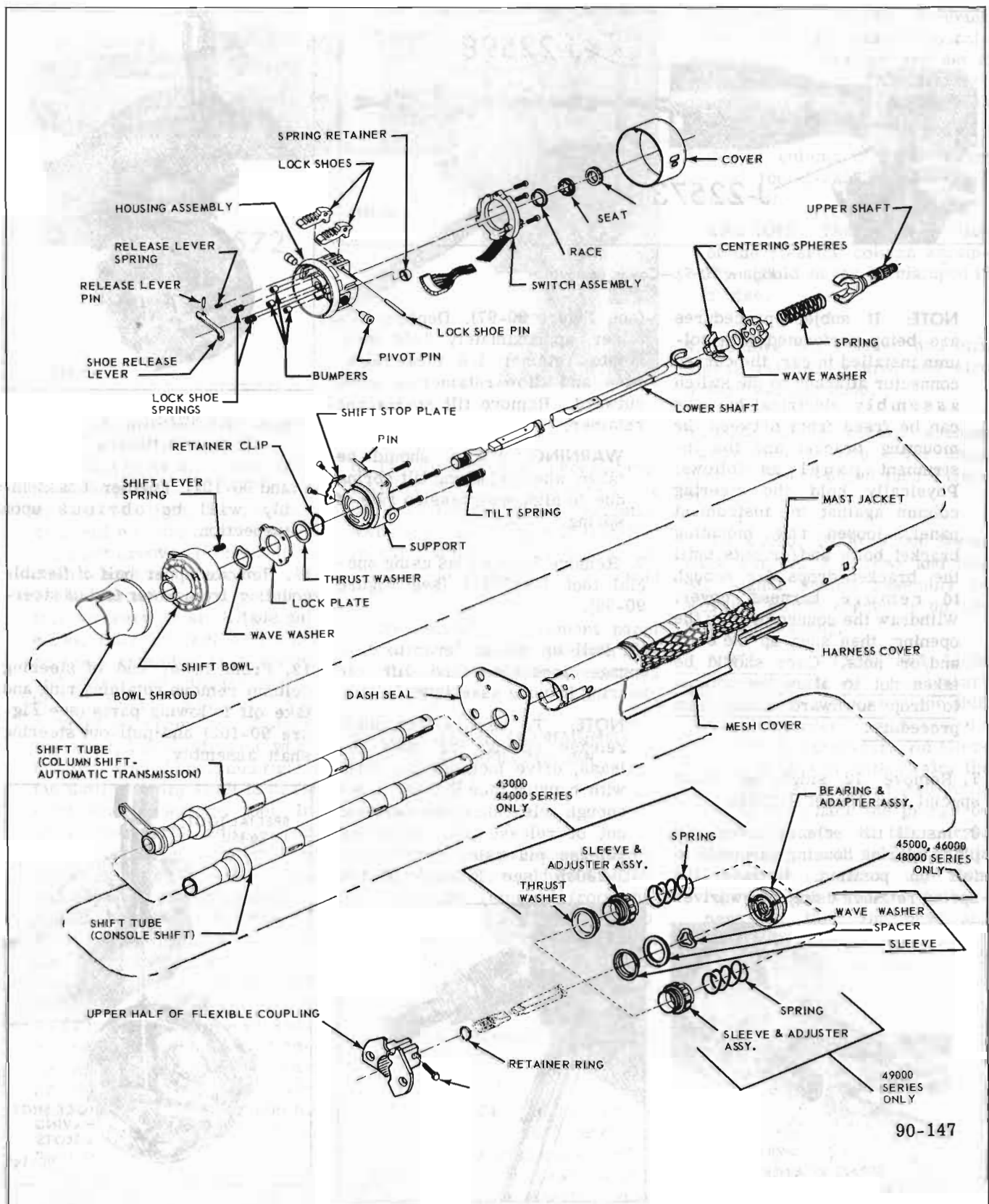


Figure 90-102—Tilt Steering Column Assembly (All Series)

a. On 43000 and 44000 Series cars remove thrust washer, sleeve and adjuster assembly, and spring.

b. On 45000, 46000 and 48000 Series cars remove sleeve, spacer, and wave washer.

c. On 49000 Series cars remove sleeve and adjuster assembly, and spring.

13. Disassemble steering shaft assembly as follows:

a. Turn upper shaft slightly from centerline of lower shaft.

b. Using a narrow blade screwdriver work preload spring out from upper shaft (see Figure 90-103) and remove spring.

c. Turn upper shaft 90° from centerline of lower shaft and lift off upper shaft.

d. Rotate centering spheres and remove spheres and wave washer from lower shaft assembly.

15. Remove four screws securing support assembly and take off support assembly (see Figure 90-102).

16. Remove shift tube retaining ring and thrust washer from upper end of steering column.

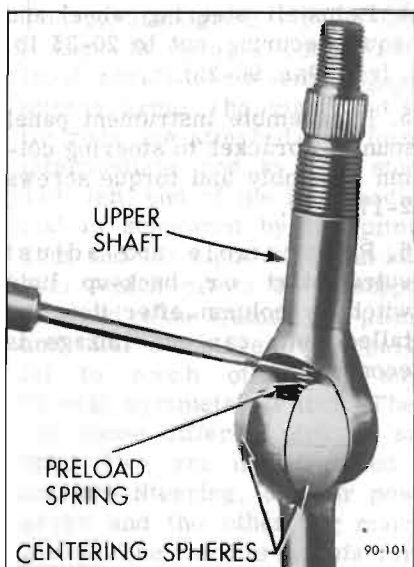


Figure 90-103—Removing Preload Spring

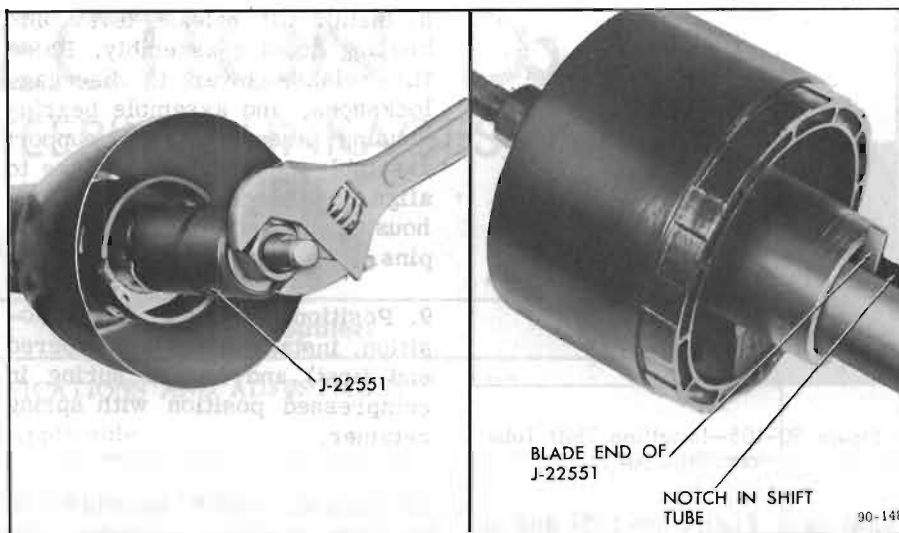


Figure 90-104—Forcing Shift Tube from Bowl

17. From lower end of column assembly pry up on plastic fingers on lower bearing adapter and remove bearing and adapter assembly.

18. Insert the blade end of special tool J-22551 in notch of shift tube which is below the bowl key. Turn nut of J-22551 to pilot sleeve into upper end of shift tube, force the shift tube out of the bowl (see Figure 90-104) and withdraw shift tube from mast jacket.

NOTE: On columns used with automatic transmission equipped cars care should be taken when forcing shift tube out of bowl that the lever on the lower end of the shift tube does not hit the "T" slot in lower end of mast jacket.

NOTE: Special tool J-22551 does not completely push bowl off of shift tube. Shift tube can be separated from bowl by working it out of bowl by hand.

19. Lift off lockplate, wave washer and bowl from mast jacket.

NOTE: Removal of lockplate may be facilitated by sliding it out of the jacket notches, tipping it downward and with-

drawing it thru the opening at the side of the mast jacket.

b. Reassembly

1. Reassemble reverse of removal procedure and note the following special procedures. See Figure 90-102 for reassembly sequence.

NOTE: If shift lever spring is replaced, press fit the replacement spring into the bowl until spring bottoms in bowl.

2. Apply a thin coat of lithium grease to all friction surfaces.

NOTE: If lockshoes were disassembled from bearing housing assembly, reassemble as follows: With tilt lever opening on the left side and lockshoes facing down, install the four-slotted shoe on the right side.

3. Draw switch assembly electrical connector thru bearing housing assembly and bowl.

4. Reassemble bowl onto mast jacket, install wave washer and lockplate into mast jacket and carefully install shift tube up thru lower end of mast jacket.

5. Align keyway in shift tube with key in bowl and use special tool J-22549 to pull shift tube into

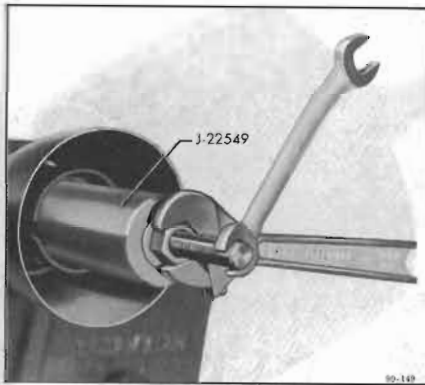


Figure 90-105—Installing Shift Tube into Shift Bowl

bowl (see Figure 90-105) and install thrust washer and retaining ring.

CAUTION: Do not push or tap on end of shift tube.

NOTE: Reassembly of retaining ring may be facilitated by pulling up on bowl to compress wave washer.

6. Install support (see Figure 90-102) and torque screws to 50 pound inch.

7. Install steering shaft assembly taking care that shaft does not tear or push out foam seal cemented to inside of lower end of shift tube.



Figure 90-106—Adjusting Steering Shaft Torque

8. Install tilt release lever onto bearing housing assembly. Raise tilt release lever to disengage lockshoes, and assemble bearing housing assembly onto support assembly positioning it so as to align pivot pin holes. Secure housing in position with pivot pins.

9. Position housing in full up position, install tilt spring (tapered end first) and secure spring in compressed position with spring retainer.

10. Secure switch assembly to bearing housing assembly and tighten screws 30-40 pound inch.

NOTE: Locate short screw in topmost position.

11. Reassemble upper bearing, race, seat and 12 sided nut and tighten nut (see Figure 90-106).

NOTE: If steering shaft assembly, support, bearing and adapter assembly or housing assembly are replaced, the "stack-up" condition ("stack-up" is affected by thrust washer, sleeve and adjuster assembly, spring, spacer, and wave washer) on the lower end of the column assembly must be checked. If the "stack-up" is too loose it will be possible to move the sleeve, or sleeve and adjuster assembly (see Figure 90-102) inward. If the "stack-up" is too tight the retaining ring will not slip into the steering shaft groove. If on 43000, 44000, and 49000 Series cars a "stack-up" correction is necessary, install a service kit (Group No. 6.524, Part No.

7801219) which contains a new sleeve and adjuster assembly, retaining ring, and spring, and adjust sleeve and adjuster assembly until the spring bottoms out. Back off adjustment $1/8$ to $1/4$ turn and fix adjustment by using a soldering gun to melt threads at several points about thread juncture of sleeve and adjuster assembly. On 45000, 46000, and 48000 Series cars a "stack-up" correction may be made by adding or subtracting spacers as required. Procure service kit Group No. 6.524, Part No. 7801262.

12. Retighten 12 sided nut until torque required to rotate steering shaft (column positioned at mid-position) is 1-1 $1/2$ pound inch. See Figure 90-106.

13. Remove tilt release lever and install cover.

NOTE: Be sure hazard warning switch is pushed in to avoid breaking off end of switch with edge of cover.

NOTE: Be sure enough play is left in wires clamped to underside of steering column so that head of column is free to move to full up position.

14. Reinstall steering wheel and torque securing nut to 20-35 lb. ft. (ref. Par. 90-25).

15. Reassemble instrument panel mounting bracket to steering column assembly and torque screws 12-17 lb. ft.

16. Reassemble and adjust neutral-start or back-up light switch to column after it is installed into car and linkage is reconnected.

