

STANDARD STEERING COLUMN

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GENERAL INFORMATION

The steering column under head-on collision conditions is designed to telescope at a controlled rate. The telescoping action reduces the likelihood of the steering wheel being driven rearward toward the driver. If the driver is thrown forward into the wheel, the column can telescope further at the same controlled rate, thereby reducing force of the impact.

The column assembly (Fig. 1 or 2) has four principal components:

1. A column jacket with a mesh section designed to shorten in "accordion" fashion.
2. A two-piece telescoping transmission gearshift tube interconnected by plastic inserts and shear pins.
3. A two-piece telescoping steering shaft with upper and lower sections connected by plastic friction collars and shear pins.
4. A mounting bracket connecting steering column to the instrument panel, which allows the column to

slide forward but blocks its rearward movement toward the driver.

The center section of the column jacket has diamond-shaped perforations and is formed with accordion pleats. These pleats allow it to compress like a bellows from impact forces.

The gearshift tube is made up of two sections designed to telescope together. These sections are interconnected and held together by injections of plastic that form the interconnecting inserts and shear pins. Under impact, the pins shear first, followed by a gradual paring away of the inserts by the knife-like edge in the adjoining tube section.

The steering shaft is a two-piece assembly. The upper piece is solid and has a double-flatted lower section. The lower piece is hollow and formed to fit over the double-flatted section of the upper piece. The purpose of the flatted section is to provide con-

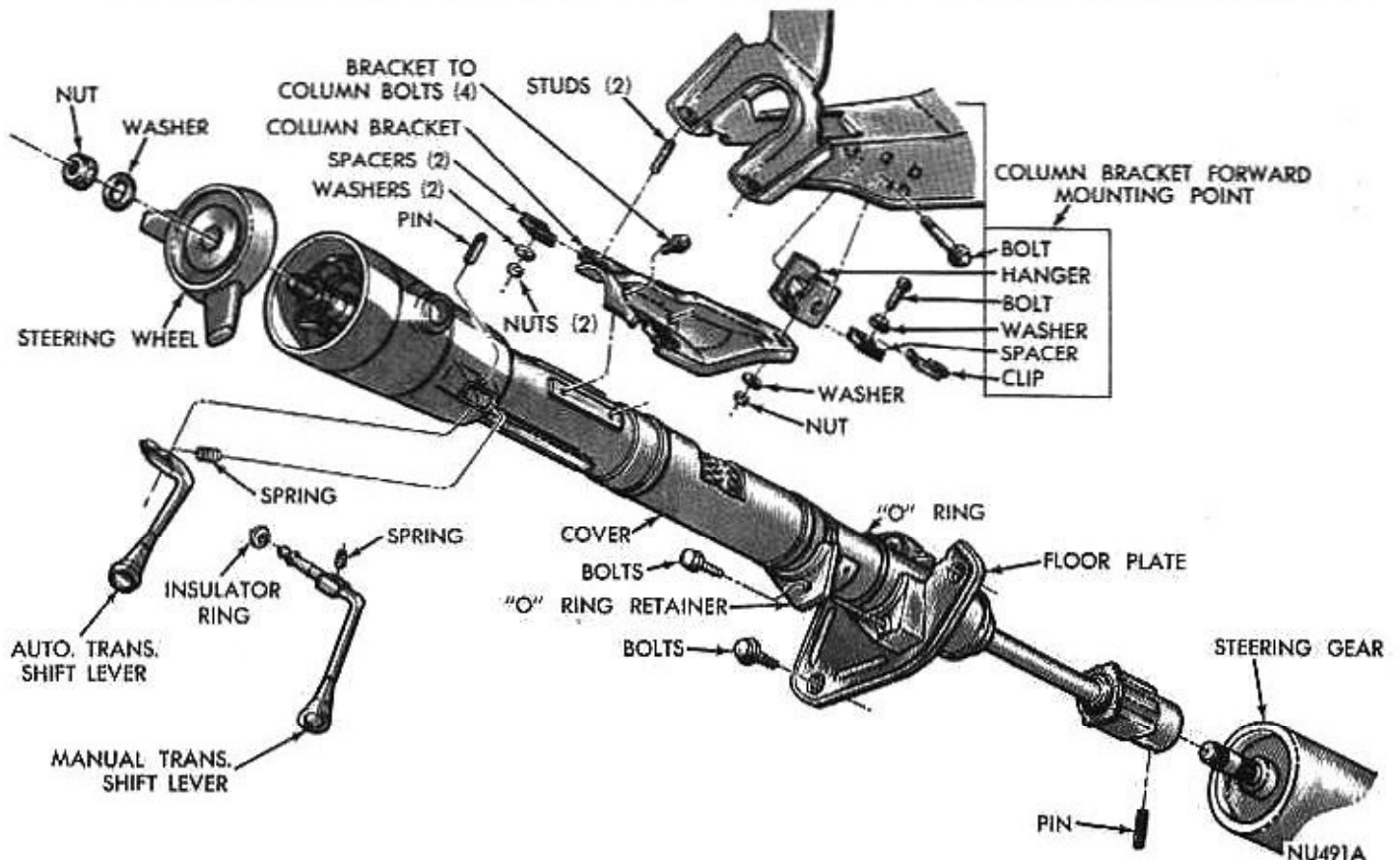


Fig. 1—Column Installation (Fury)

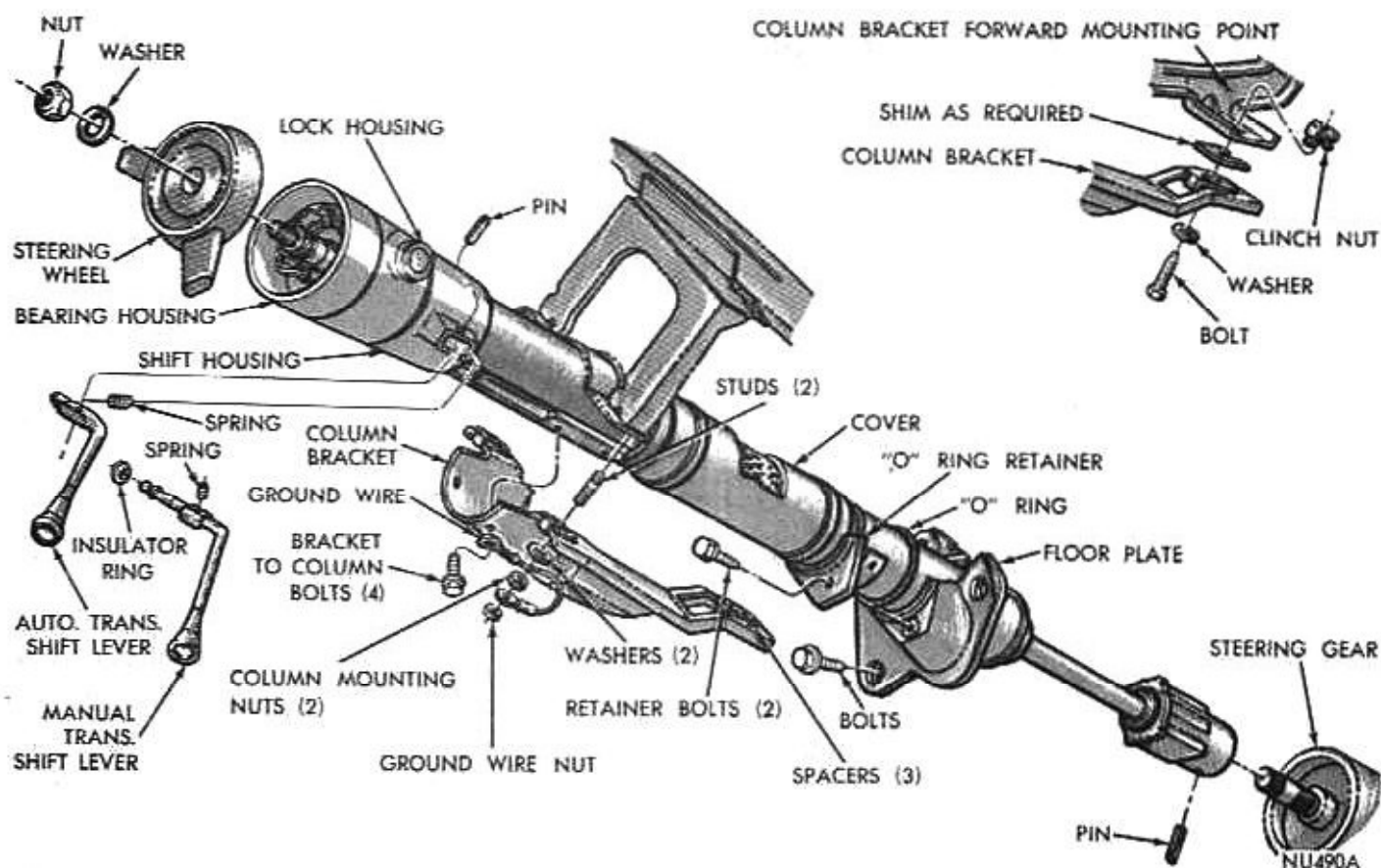


Fig. 2—Column Installation (Valiant Belvedere/Satellite)

tinued steering action even though completely telescoped. Plastic is injected through two small holes in the hollow piece into a pair of annular grooves on the solid portion of the shaft. The four small holes filled with plastic form the shear pins. Upon impact, the shear pins break off and the shaft gradually telescopes against a resistance provided by the plastic collars in the annular grooves.

The mounting bracket is designed to restrain the column from being shifted toward the driver during impact. It incorporates three "break-away capsules" that allow the mounting bracket to slip off the attaching points, permitting the steering column to compress or yield in a forward direction under a severe impact from the driver side.

When the column is installed in a car it is no more susceptible to damage through ordinary usage than previous columns; however, when it is removed, special care must be taken in handling this assembly. When the column is removed from the car such actions as a sharp blow on the end of the steering shaft

or shift levers, leaning on the column assembly, or dropping of the assembly could shear or loosen the plastic shear joints that maintain column rigidity. It is, therefore, suggested that the removal and installation, and the disassembly and reassembly procedures be carefully followed when servicing this assembly.

IMPORTANT: Bumping, jolting and hammering on the steering shaft and gearshift tube must be avoided during all servicing operations. If the shear pins are broken, the controlled rate of the impact-absorbing features will be destroyed making these parts unfit for further use. The Special Tools required and their usage are covered in the following service procedures.

The Barracuda column (Fig. 3) has a telescoping steering shaft, but all other components are conventional. A corrugated cylinder is added between steering wheel and steering column for energy absorption on impact.

SERVICE PROCEDURES

COLUMN REMOVAL (Figs. 1, 2 or 3)

(1) Disconnect negative (ground) cable from battery.

(2) Disconnect linkage from lower end of steering column.

(3) Remove steering shaft lower coupling to worm-shaft roll pin.

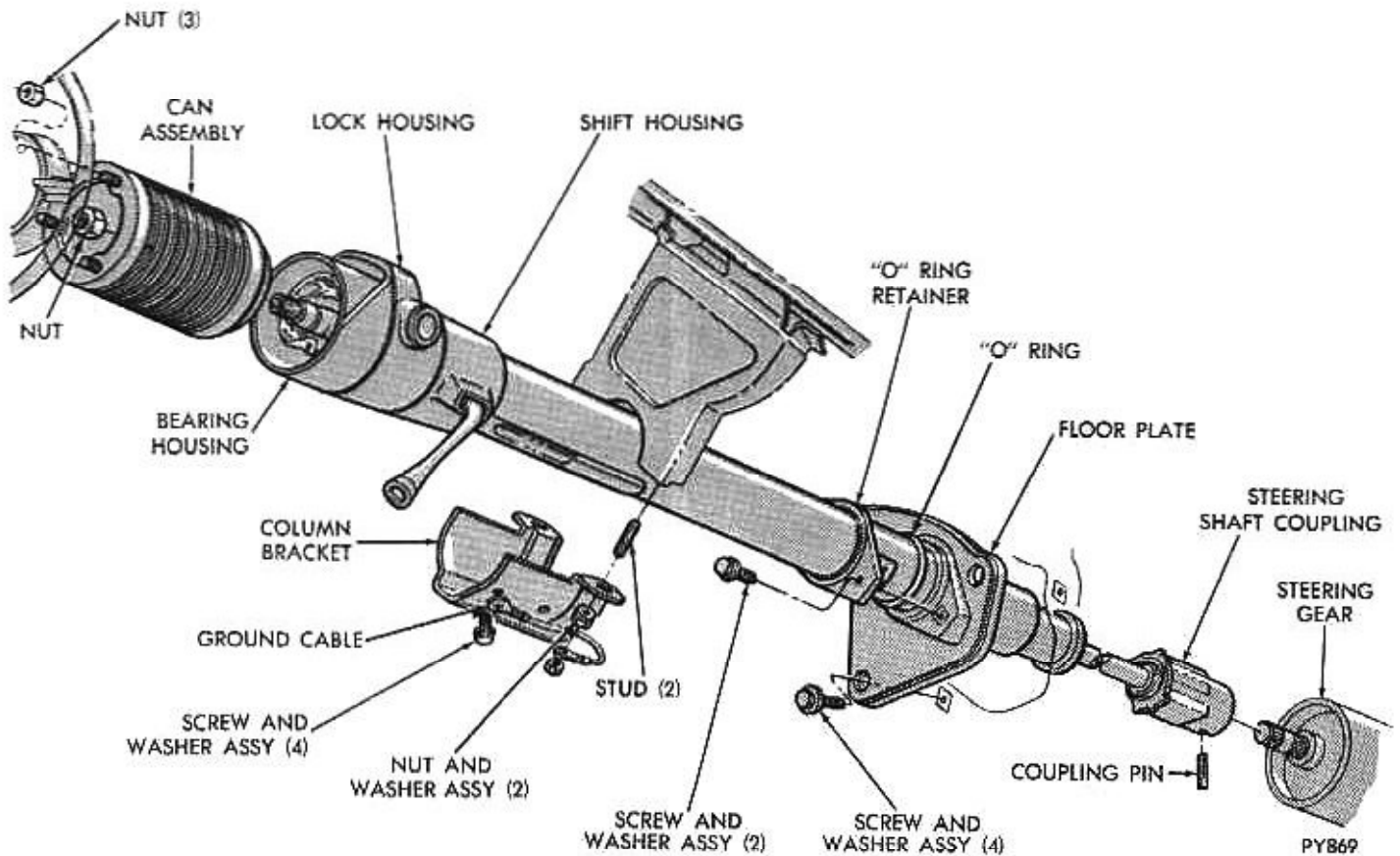


Fig. 3—Column Installation (Barracuda)

(4) Disconnect wiring connectors at steering column jacket.

(5) Remove horn hing ornament assembly.

(6) Disconnect wire at horn switch. Remove three screws attaching horn ring and switch to steering wheel, then remove horn ring and switch.

(7) Fury or Belvedere models: remove steering wheel retaining nut and washer. Remove steering wheel with Tool C-3428A. **Do not bump or hammer on steering shaft to remove wheel.**

Barracuda models: remove three nuts fastening steering wheel to corrugated cylinder, remove nut and washer from steering shaft and install Tool C-3428A to pull cylinder from shaft splines.

(8) Remove turn signal lever (Fig. 4).

(9) Remove floor plate to floor pan attaching screws. Remove finish plate from under instrument panel to expose steering column bracket.

Fury: disconnect automatic shift indicator pointer from shift tube bracket.

(10) Remove nuts or bolts attaching steering column bracket to instrument panel support. If so equipped, save shim pack from between bracket forward leg and support for reuse during installation.

(11) Carefully pry lower coupling from steering gear wormshaft, then remove column assembly out

through passenger compartment being careful not to damage paint or trim.

COLUMN DISASSEMBLY

(1) Remove four bolts attaching bracket assembly to column jacket.

(2) Remove two screws and lift off wiring trough.

(3) Attach Column Holding Fixture C-4132 to column jacket and clamp the assembly in a vise.

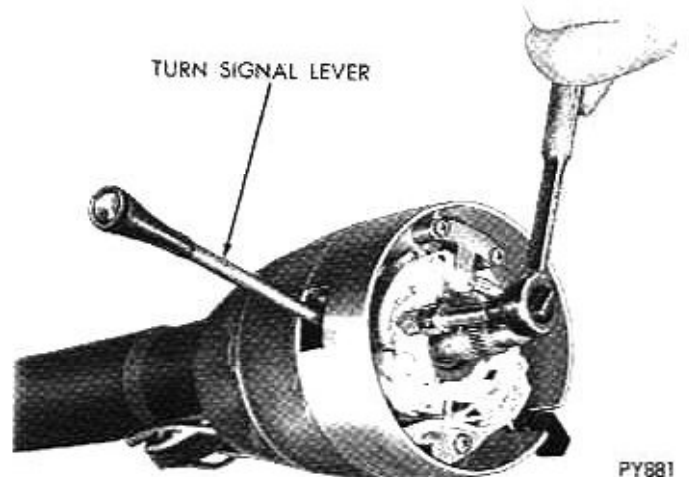


Fig. 4—Turn Signal Lever

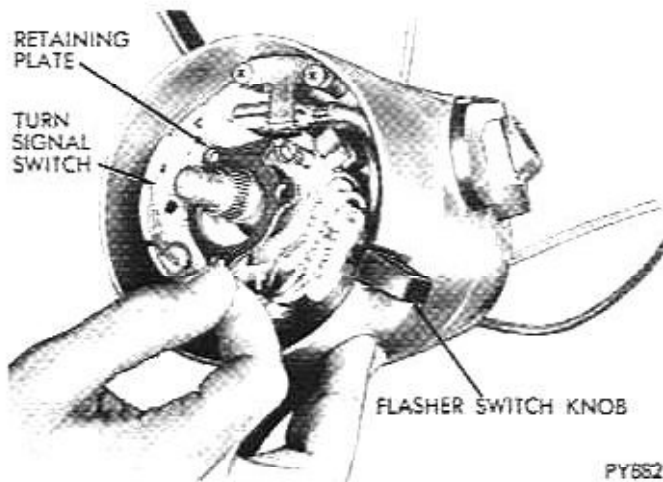


Fig. 5—Retainer and Turn Signal Switch

(4) Drive out gearshift lever pivot pin, then remove lever and spring from housing.

(5) Remove turn signal switch and upper bearing retainer screws. Remove retainer and lift switch upward out of the way (Fig. 5).

(6) Remove two retaining screws and lift the ignition key lamp assembly out of the way (Fig. 6).

(7) Remove snap ring from upper end of steering shaft (Fig. 7).

Steering Shaft

(1) Remove three screws which hold bearing housing to lock housing.

CAUTION: These screws must be removed before steering shaft removal.

(2) Install steering shaft remover C-4044 and press shaft out of bearing and remove bearing housing from shaft (Fig. 8).

(3) Remove bearing lower snap ring from shaft.

(4) Pry sleeve off steering shaft lock plate hub to expose pin.

(5) Install Tool C-4113 on steering shaft lock plate

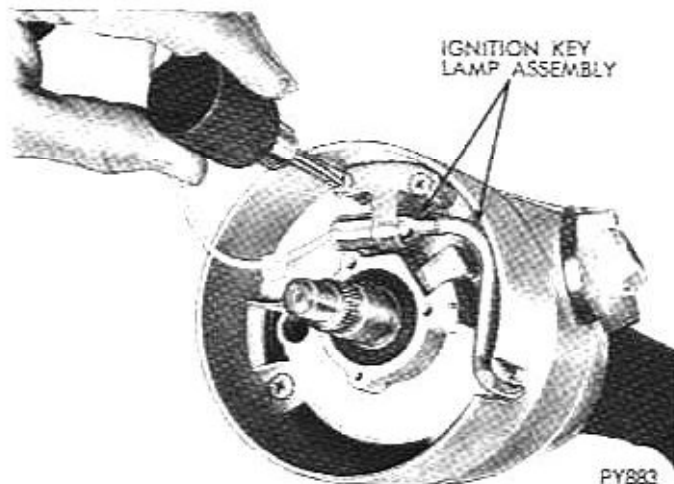


Fig. 6—Ignition Key Lamp

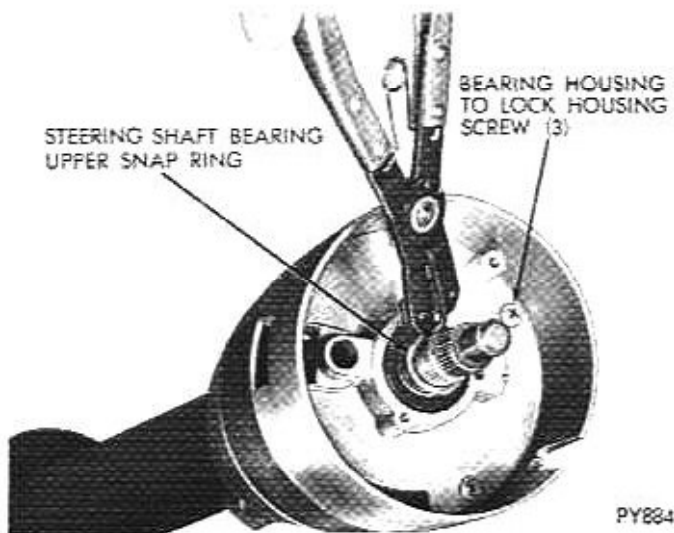


Fig. 7—Steering Shaft Bearing Upper Snap Ring

hub to press pin out of shaft, **DO NOT HAMMER** (Fig. 9).

(6) Remove tool and lock plate from shaft.

(7) Remove shaft through lower end of column.

Lock Housing

(1) If equipped with shift indicator quadrant, remove pointer attached to shift housing with one screw.

(2) Remove two screws and lift out buzzer switch (Fig. 10).

(3) Remove two retaining screws and the lock lever guide plate which will expose the lock cylinder release hole (Fig. 11).

(4) **Place cylinder in "lock" position and remove key.** Insert a small diameter screwdriver or similar tool into lock cylinder release hole and push in to release spring loaded lock retainer. At same time pull lock cylinder out of housing bore (Fig. 12).

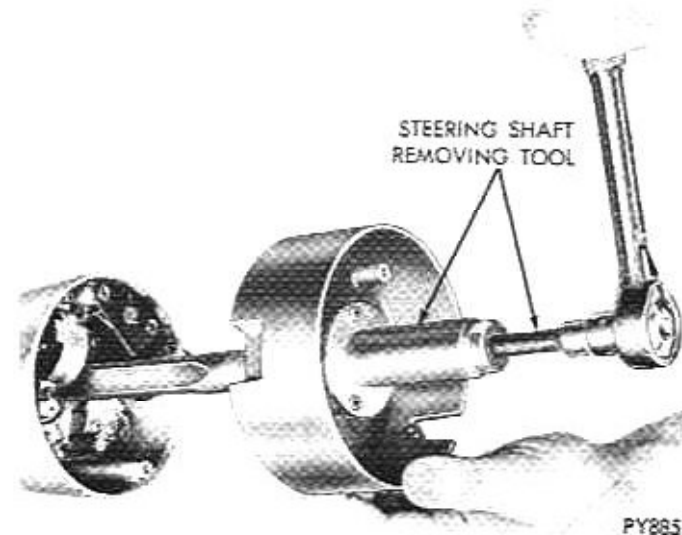


Fig. 8—Pressing Shaft Out of Bearing

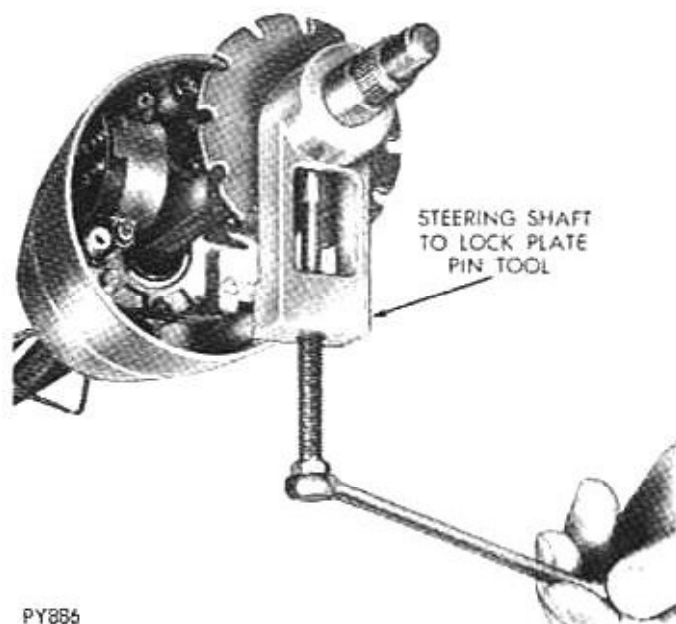


Fig. 9—Lock Plate Pin—Removal or Installation

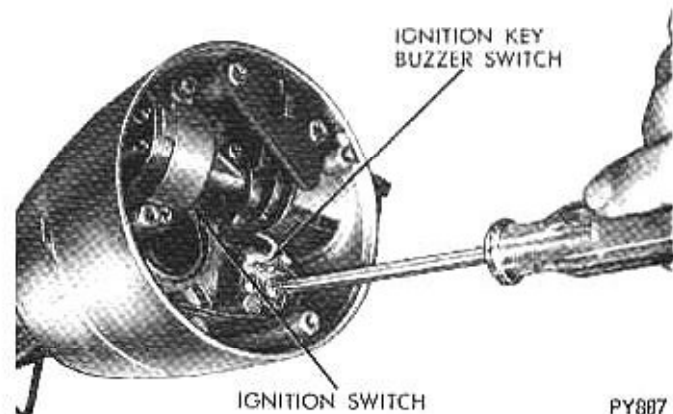


Fig. 10—Ignition Key Buzzer Switch

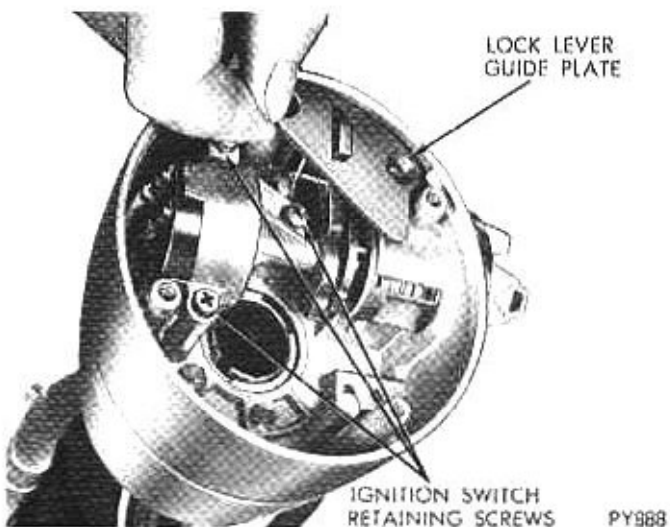


Fig. 11—Lock Lever Guide Plate

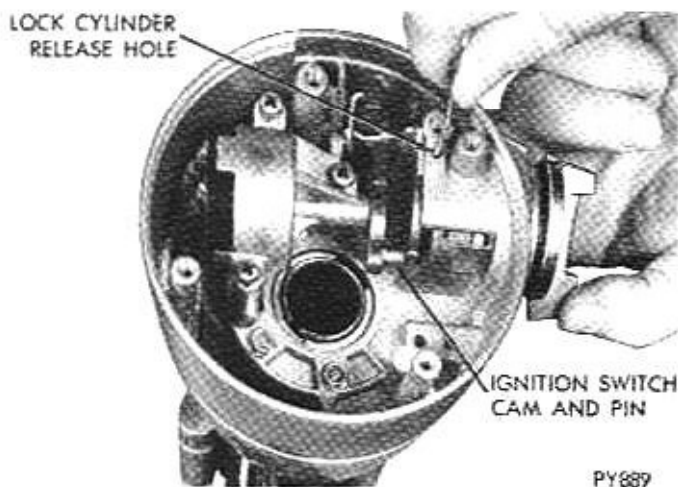


Fig. 12—Removing Lock Cylinder

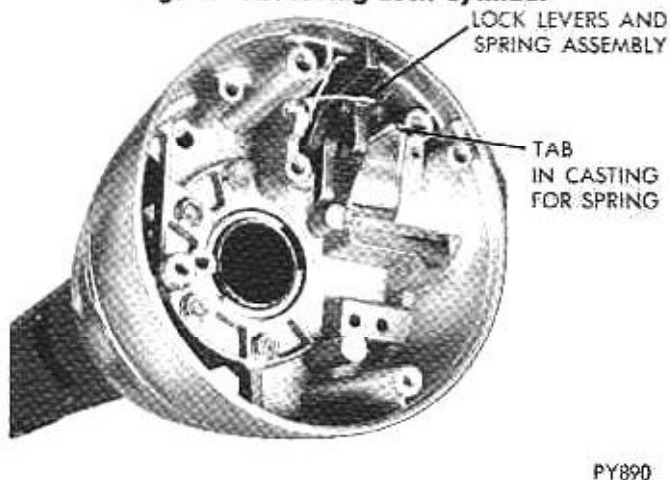


Fig. 13—Lock Levers and Spring Assembly Installed in Housing

- (5) Remove the three retaining screws and the ignition switch assembly (Fig. 12).
- (6) Grasp lock lever and spring assembly and pull straight out of housing (Fig. 13).
- (7) Remove four lock housing to column jacket hex

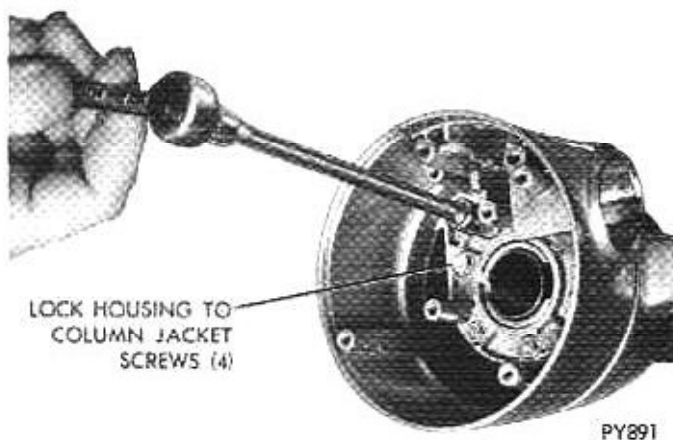
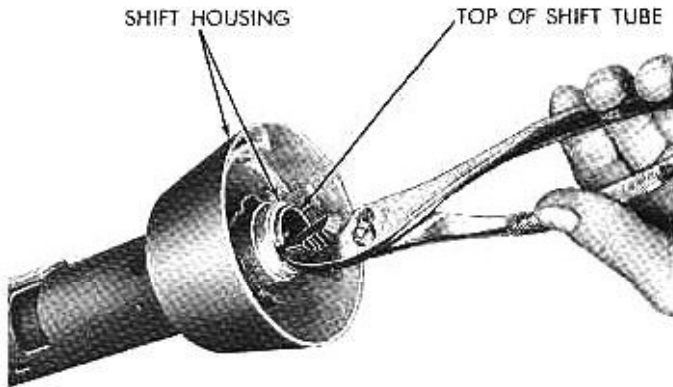


Fig. 14—Lock Housing to Column Jacket, Retaining Screws



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Fig. 15—Bending Shift Tube Tabs

head retaining screws and remove housing from jacket (Fig. 14).

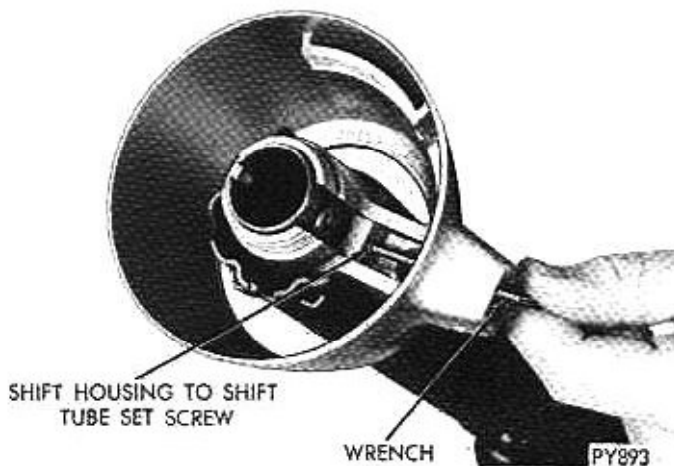
Shift Tube (Figs. 15, 16, 17 & 18)

(1) To remove shift tube from column shift automatic or floor shift models, first straighten the tabs at top of shift tube which are bent outward against shift housing casting. If so equipped, remove shift indicator bracket from shift tube. Remove shift tube support retaining clip from slots at bottom of jacket. Loosen shift tube set screw in shift housing and remove parts from jacket.

(2) To remove shift tube from column shift manual models, remove the three bearing support screws at lower end of jacket and the two adjustable bushing screws from cam slots in jacket. Pull the tube and lever assembly out of jacket lower end (Figs. 19 and 20).

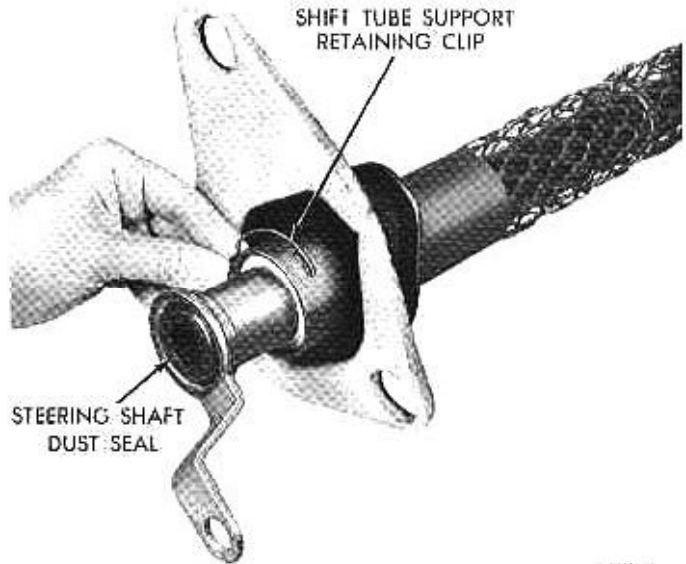
Steering Shaft Coupling (Fig. 21)

- (1) Pry cover tangs out from coupling body and pull seal and cover from body.
- (2) Drive the small short dowel pin at edge of



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Fig. 16—Shift Tube Set Screw



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Fig. 17—Shift Tube Support Retaining Clip

- coupling body, down into coupling and discard.
- (3) Pull body off the shaft and shoe assembly.
- (4) Separate and clean all parts.

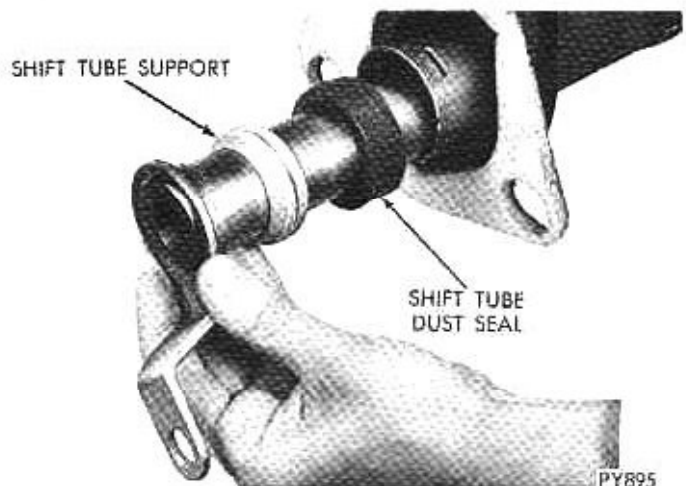
Inspection

After cleaning, inspect all parts for wear or damage. Note condition of shift lever gate and inner end of shift lever. Inspect turn signal switch for distortion, broken or damaged parts. Inspect wiring insulation for worn or bare spots.

Inspect steering shaft bearing for smooth operation, and lubricate with Multi-Purpose Chassis Lubricant or similar lubricant. If bearing has any signs of roughness or wear, it should be replaced.

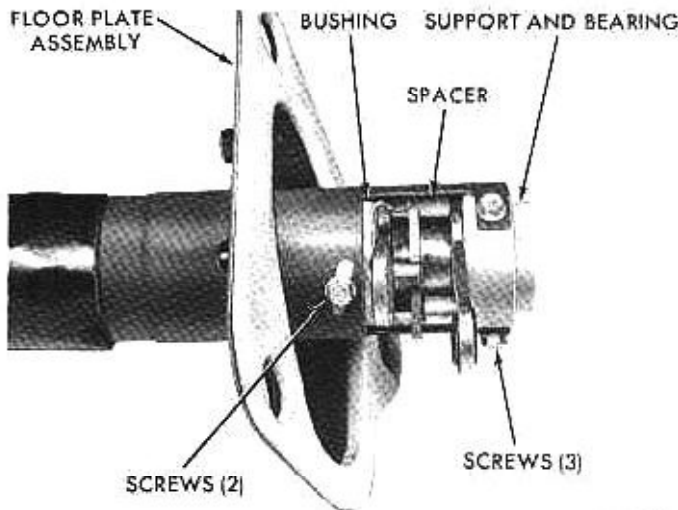
COLUMN ASSEMBLY (Fig. 22 or 23)

The grease recommended for use during reassembly



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Fig. 18—Shift Tube Assembly—removal or installation



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Fig. 19—Shift Tube & Levers Assembled

procedures is Automotive Multi-Purpose Grease NLGI Grade 2 E.P. or Multi-Mileage Lubricant, Part Number 2525035. Apply a thin coating to all friction surfaces.

(1) Install column holding tool C-4132 and clamp column in a vise with both ends of column accessible.

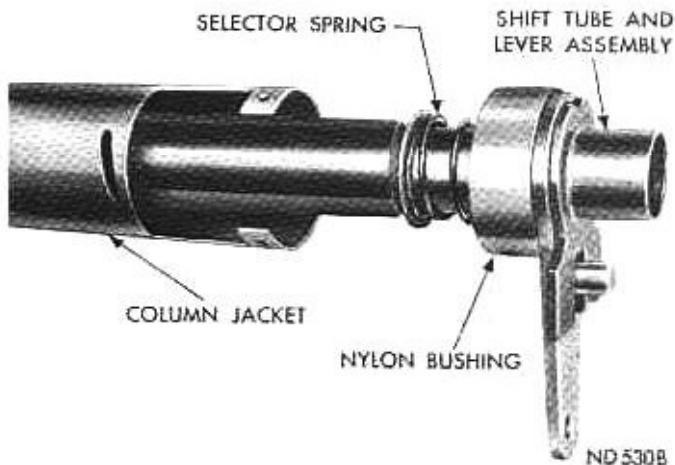
(2) Install the O-ring retainer, O-ring, and floor plate on lower end of column jacket. **This must be done before installing shift tube.**

(3) Coat spring washer with grease and install on lower hub of gearshift housing. Position gearshift housing on the jacket (Fig. 22 or 23).

(4) Column Shift Automatics and Floor Shift Models

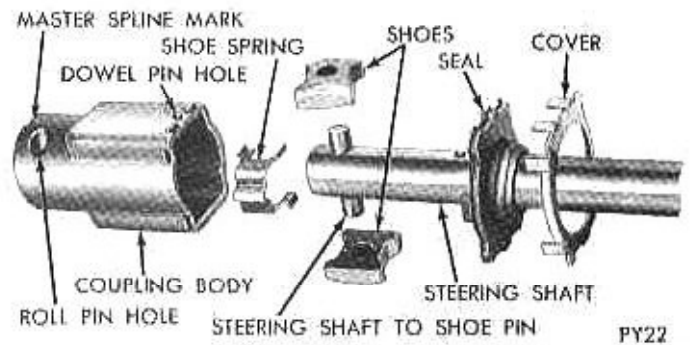
(a) With dust seal and shift tube support installed on shift tube, slide the assembly into jacket. Guide key on upper end of tube into slot in gearshift housing. Hold firmly together and tighten lock screw in shift housing (Fig. 16).

(b) Bend corners of shift tube slot out against shift house casting (Fig. 15).



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Fig. 20—Shift Tube Assembly Removal or Installation



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Fig. 21—Steering Shaft "Pot" Coupling Disassembled

(c) Insert wire retainer in slots in lower end of jacket and into groove in shift tube support (Fig. 17).

(d) **Column Shift Automatics only** Position the shift lever and crossover load spring in the gearshift housing and tap in the pivot pin (Fig. 24).

Install the shift lever gate on the lock housing (Fig. 25). If so equipped, feed gear selector indicator lamp assembly wire through hole behind the indicator quadrant on the lock housing and route wire down through the space between the housing and jacket and insert wire terminal into ignition switch connector. Secure lamp assembly to rear of indicator quadrant with 2 screws (Fig. 26). Secure gear selector indicator lens assembly to front of lock housing gear selector quadrant with 2 screws.

On Fury, place gearshift lever in neutral position and attach indicator operating bracket to shift tube with two new plastic rivets (Fig. 27).

(5) Seat the lock housing on top of the jacket, indexing the key in the housing with the slot in the jacket. Insert all four screws and tighten them alternately in steps to insure proper seating of the housing on the jacket. Tighten to 80 inch-pounds (Fig. 14).

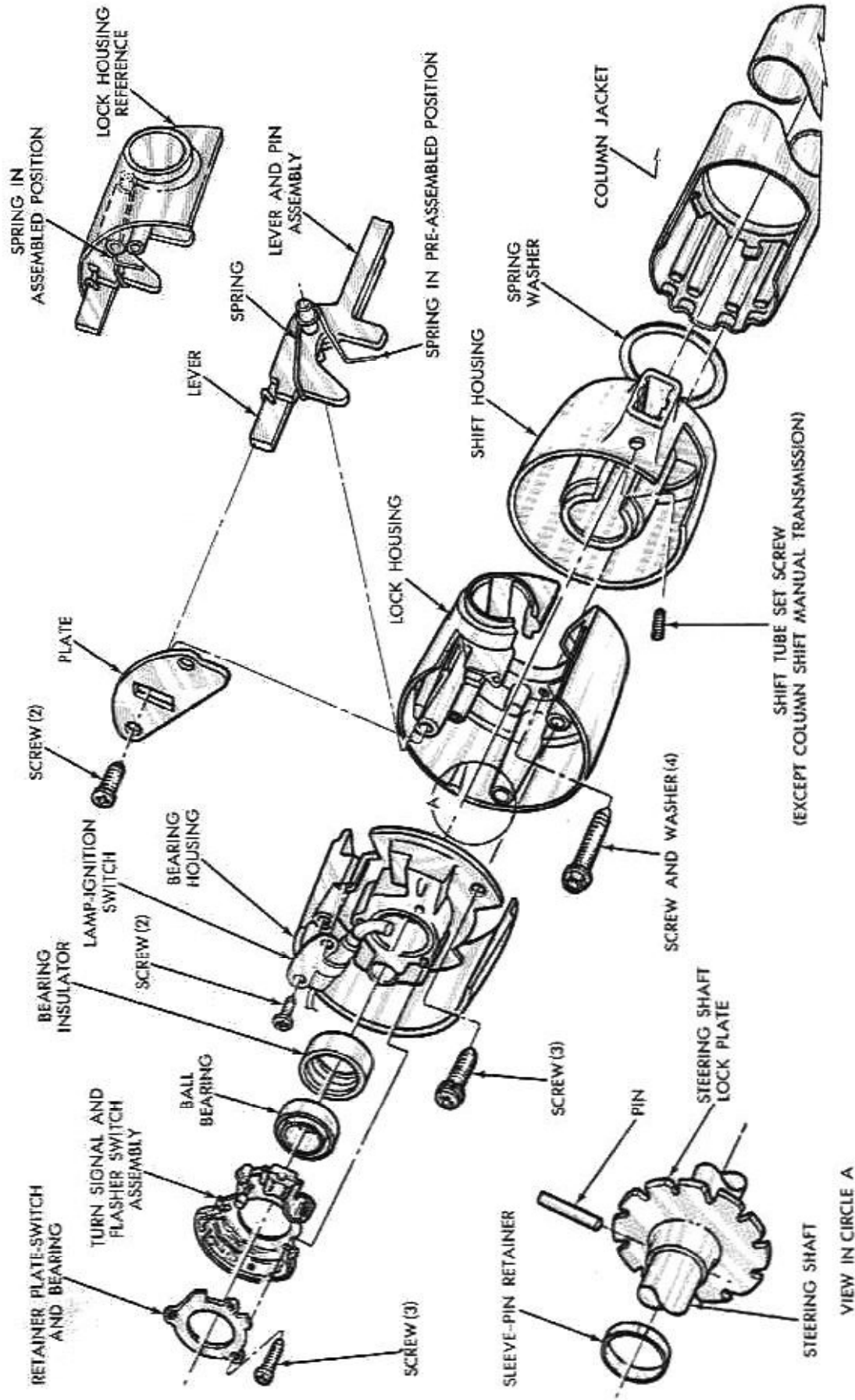
(6) Column Shift Manual Transmission Only

(a) Turn bushing on shift tube (Fig. 20) so the two holes in bushing are aligned with centerline of 2nd and direct shift lever. Slide shift tube and lever assembly through jacket and into gearshift housing. Start the two bushing retaining screws through slots in jacket but do not tighten.

(b) Install spacer (Fig. 19) over crossover blade so it rests against the 2nd and direct shift lever. Install low and reverse lever, then install support and bearing assembly. Install and tighten the three retaining screws to 30 inch-pounds.

(c) Rotate bushing (Fig. 19) with screws so all play at shift levers and spacer is eliminated, but no binding occurs. With bushing in this position tighten the two bushing to jacket screws to 30 inch-pounds.

(d) Place a screwdriver blade between 2nd and direct shift lever and crossover blade, so it will be held in neutral position half-way between the two shift levers (Fig. 28).



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Fig. 22—Steering Column Upper End—Disassembled (Without Quadrant)

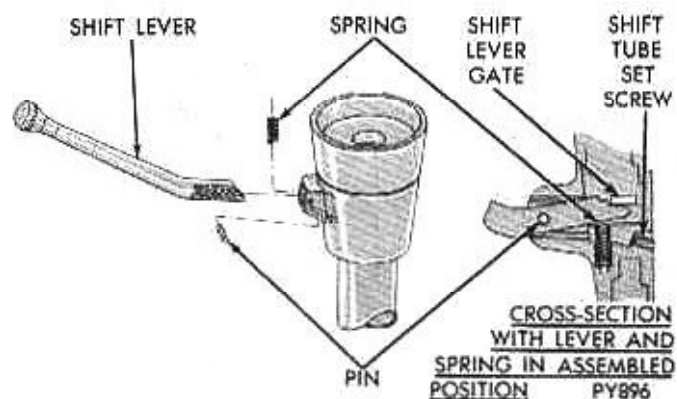


Fig. 24—Install Shift Lever—Automatic

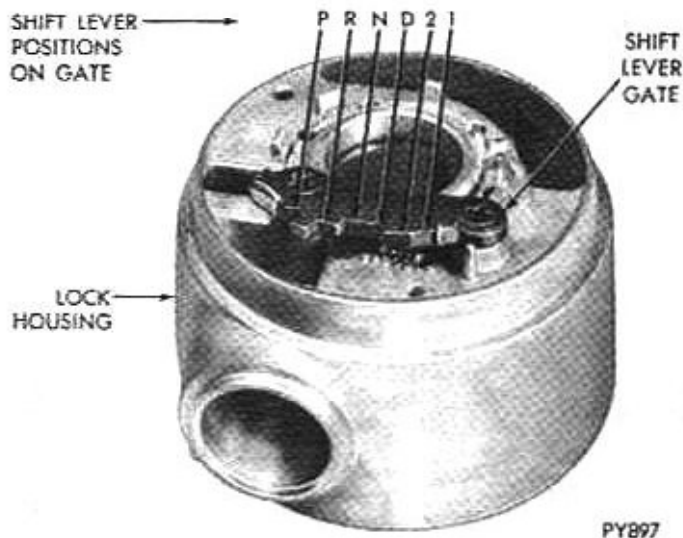


Fig. 25—Lock Housing and Shift Gate

(e) Position gearshift lever and spring in housing so ball end with insulator ring engages hole in shift tube key. Align and install retaining roll pin (Fig. 29).

(7) Grease and assemble the two lock levers, lock lever spring, and pin (Fig. 30).

(8) Install the resulting assembly in the lock housing. Seat the pin firmly into the bottom of the slots. Make sure that the lock lever spring leg is firmly in place in lock casting notch (Fig. 13).

(9) Install the lock lever guide plate and retaining

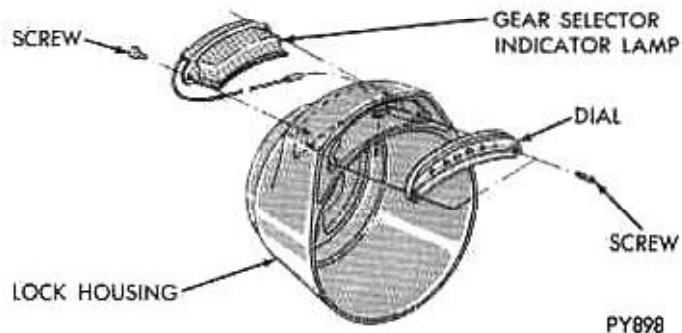


Fig. 26—Gear Selector Indicator Lamp

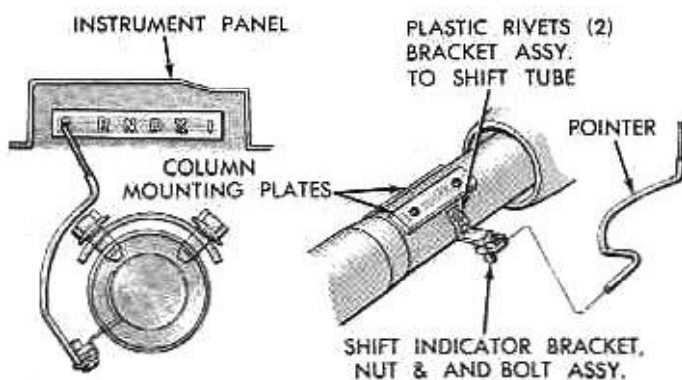


Fig. 27—Gear Selector Indicator Bracket

screws (Fig. 11).

(10) Position ignition switch to center detent (OFF) position. Feed wires down through the space between housing and jacket. Position switch in housing and tighten three mounting screws (Fig. 12).

(11) Feed buzzer switch wires behind wiring post and down through space between housing and jacket. Position switch in housing and tighten two mounting screws (Fig. 10).

(12) With the ignition key cylinder in the LOCK position, and with the key removed, insert the key cylinder into the lock housing. Press the cylinder into place until contact is made with the pin on the ignition switch cam. Insert the key into the lock and rotate the lock until the slot in the cylinder plate lines up with the pin. Press the key cylinder the remaining way into the lock housing, making sure the retainer bar snaps into its slot in the lock housing.

Steering Shaft Coupling Assembly (Fig. 31)

(1) Fill coupling body with grease to approximately 1/2 inch from top.

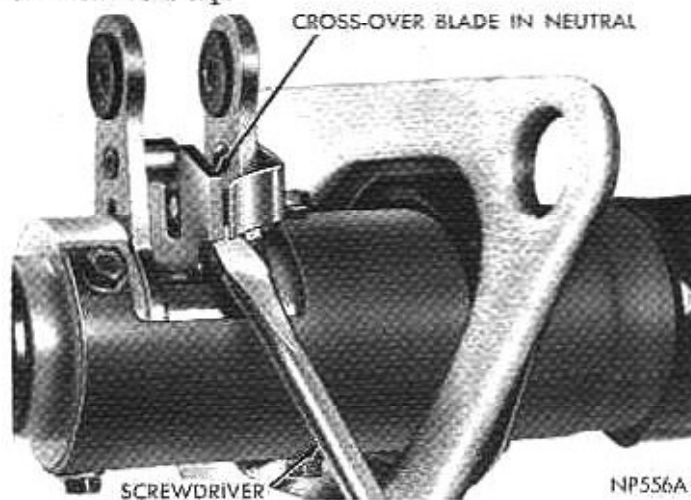


Fig. 28—Holding Cross-Over Blade in Neutral Position

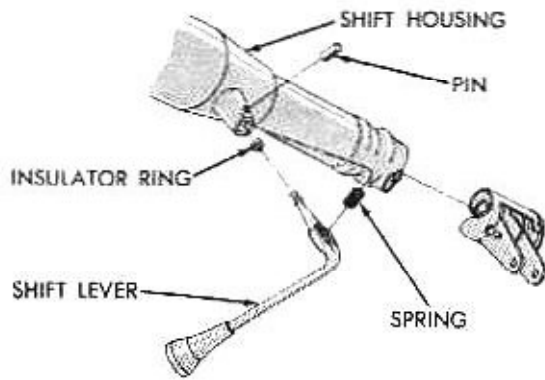


Fig. 29—Install Shift Lever—Manual

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- (2) Place cover and seal on shaft.
- (3) Press shoe pin into steering shaft so that it projects an equal distance on each side of shaft.
- (4) Place spring on side of shaft, straddling the shoe pin.
- (5) Place shoes on pin ends with flat side toward spring engaging tangs.
- (6) Squeeze shoes together, compressing spring, and push assembly into coupling body (Fig. 31) with gage hole in shaft aligned with master spline in coupling.
- (7) Drive in a new dowel pin flush to outer surface of coupling body.
- (8) Position seal and cover on body and crimp cover tangs over the projections on body securely.

Steering Shaft Installation

- (1) Insert the steering shaft assembly into the column and shift tube assembly.
- (2) Install the lock plate on the steering shaft and press the pin into place. **DO NOT HAMMER** use tool C-4113 (Fig. 9). Make sure pin is centered.
- (3) Install steering column shaft lock plate sleeve over shaft lock plate pin and against lock plate.
- (4) Install the bearing lower snap ring on the steering shaft.

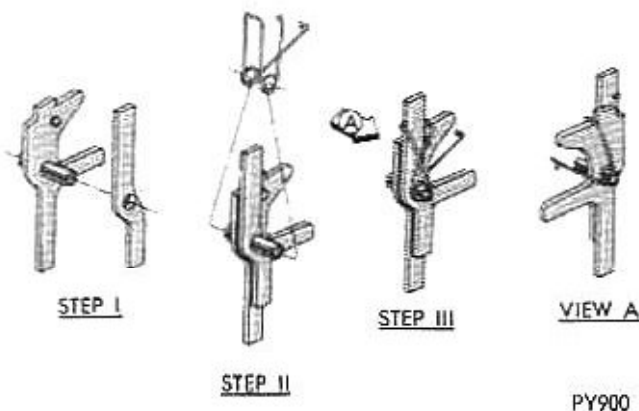


Fig. 30—Lock Levers and Spring—Assembly

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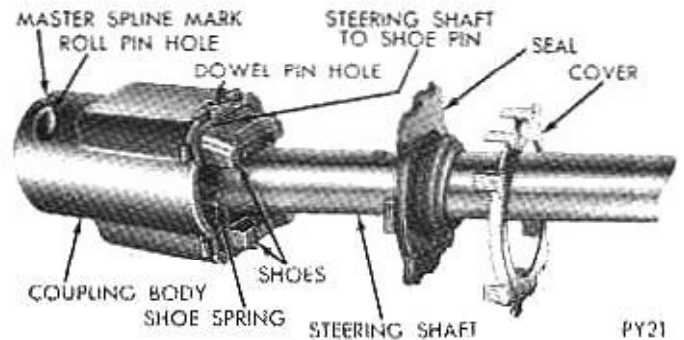


Fig. 31—Assembling Steering Shaft Coupling

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Bearing Housing Assembly (Fig. 22 or 23)

- (1) Place rubber insulator with ground staple, over column upper bearing and install assembly into bearing housing bore. Use a soap solution or rubber lubricant to ease installation.
- (2) Install the turn signal switch in the bearing housing, feeding the wires through the opening in the housing. Feed the ignition key lamp assembly wires through the opening in the housing at this time.
- (3) Install the retaining plate over the switch and tighten 3 screws to 27 in-lbs. (Fig. 5).
- (4) Install the turn signal lever or turn signal/speed control lever on the turn signal switch. If speed control, feed the wires through the opening provided in the bearing housing (Fig. 4).
- (5) Position the bearing housing assembly on the column jacket assembly, feeding the wires through the space between the lower housings and the jacket.
- (6) When installing this housing, the steering shaft must be drawn, not pushed, through the bearing, using the bearing inner race as a reaction member, or damage to the shaft plastic shear pins, lock housing components, or bearing could result. **DO NOT DRIVE THE SHAFT INTO THE BEARING.**

- (1) Install on steering shaft, Tool C-3879, with



Fig. 32—Pulling Shaft Into Bearing

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washer and steering wheel nut (Fig. 32). Turn nut to pull shaft through bearing. Remove tool and install upper snap ring on shaft.

(8) Install and tighten to 35 in.-lbs. the 3 bearing housing to lock housing screws.

(9) Carefully install the ignition key lamp assembly in the bearing housing (2 screws).

(10) On column shift automatic only, position pointer under indicator quadrant and tighten attaching screw to shift housing (Fig. 23) except Fury models.

(11) Install the wiring trough in place over the wires, being careful to not pinch wires between trough and jacket.

COLUMN INSTALLATION (Fig. 1, 2 or 3)

(1) Tool C-4134 must be used to hold the steering shaft in the center of the shift tube while installing and aligning the column in the vehicle.

(This operation is not necessary on Column shift manual transmission columns or tilt columns).

(a) Remove thumbscrew and open tool to straddle shift tube lever and steering shaft (Fig. 33).

(b) Close tool and tighten thumbscrew.

(c) If hole in tool is too large to grip steering shaft, add the split insert to adapt tool to smaller shaft diameter.

(2) Position bracket assembly on steering column (Fig. 1), install ground wire and tighten the four short retaining screws to 120 inch-pounds. Plastic capsules should be pre-assembled in bracket slots, except Barracuda. Insert column assembly through floor pan opening, being careful not to damage paint or trim.

(3) With front wheels in straight ahead position and master splines on wormshaft and coupling aligned, engage coupling with wormshaft and install the roll pin. **CAUTION: Do not apply end loads to steering shaft.**

(4) Hold column assembly with bracket against the

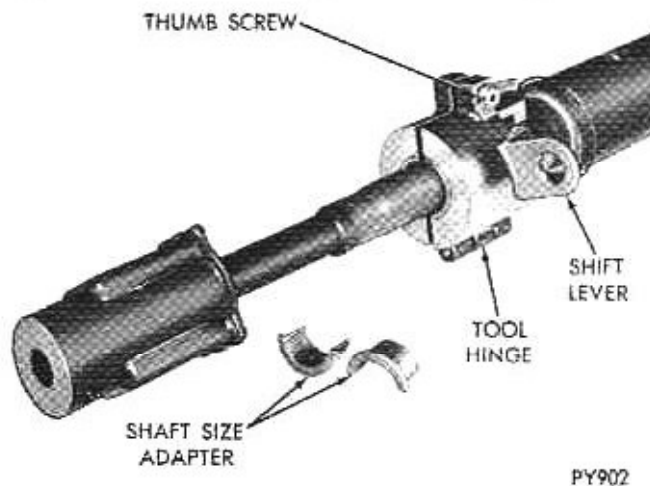


Fig. 33—Shaft Centering Tool

instrument panel support. Install but **do not tighten** the two upper bracket nuts.

(5) **Center steering shaft coupling at midpoint of its travel.** This is accomplished by moving column and bracket assembly fore and aft in the instrument panel support so dimension between top of coupling and center of gauge hole is $13/16$ inch (Fig. 34). Tighten the two upper bracket nuts to 110 inch-pounds. Attach electrical ground wire to one of the rear mounting studs.

(6) Position floor plate over floor pan opening, centering it around the column, then install and tighten retaining bolts. Slide "O" ring down the jacket and into recess in floor plate, position retaining plate over "O" ring and secure with the two bolts. **Do not pry to align plates and attaching bolts or column misalignment will occur.**

(7) Valiant and Belvedere: place shim pack between column bracket forward leg and instrument panel support. **Maximum shim pack thickness error must not exceed .060 inch before tightening the bolt.** Add shims, if necessary, then tighten bolt to 110 inch-pounds.

Steps 8 and 9 apply to Fury only.

(8) Loosen bolt attaching the forward adjustable hanger to the instrument panel support. Attach column bracket forward leg to the hanger and tighten to 110 inch-pounds. **Then tighten the hanger to instrument panel support bolt to 200 inch-pounds.**

(9) Connect gearshift indicator pointer (Fig. 27) to operating bracket on shift tube in its approximate original location. Slowly move gearshift lever from "1" (low) to "P" (park) pausing briefly at each selector position. The indicator pointer must align with each selector position. If necessary, loosen the bolt and re-adjust to align pointer correctly.

(10) Attach finish plate to bottom of instrument panel.

(11) Place steering wheel (or corrugated cylinder on Barracuda) on steering shaft with master splines

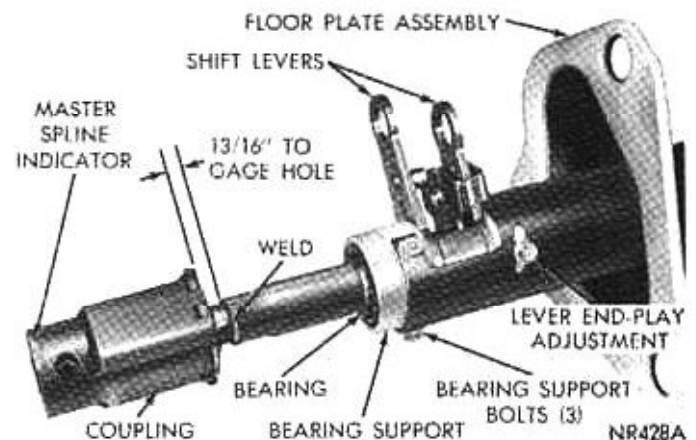


Fig. 34—Shaft Coupling Adjustment

aligned. Install retaining nut and washer, tighten nut to 27 foot-pounds. **Do not drive wheel on shaft, draw wheel down with retaining nut.**

(12) Install horn switch parts previously removed from steering wheel. Connect horn switch wire.

(13) Connect wiring connectors at steering column jacket. Connect battery ground cable, test operation of lights and horns.

(14) Connect and adjust gearshift linkage, refer to "Transmission Group".