GROUP 19

STEERING GEAR (PUMPS, STEERING GEAR ARM, IDLER ARM) (CHRYSLER RC-1, RC-2)

MANUAL STEERING GEAR

The 1961 manual steering (Fig. 1) incorporates a flexible coupling (Fig. 2) which consists of a rubber-fabric disc assembled between two hubs installed between the steering gear worm shaft and the steering tube which provides alignment of the steering gear to the frame side rail and the vehicle body. The steering gear chuck has a stub worm shaft which extends up a short distance above the gear housing. The flexible coupling attaches to the worm shaft by a serrated connection and clamp bolt. The worm shaft has a master serration that matches with the master serration in the lower hub of the flexible coupling. The upper hub of the flexible coupling is integral with the steering tube. The jacket tube is held in alignment in the vehicle body by the lower jacket clamp assembly which attaches to the brake bracket and the instrument panel clamp. The face of the steering gear housing is machined flat to position the gear flush to the frame.

NOTE: With an automatic transmission, a 1¼" x 7/16" x ⅛" washer is added to the housing to frame side rail bolt to compensate for the omission of the clutch torque rod mounting bracket.

Service procedures for the 1961 manual steering gear assembly are essentially the same as outlined in the 1960 Service Manual with the exception of the removal and installation of the worm shaft oil seal. This procedure will be covered in this Supplement.

STEERING GEAR REMOVAL

(1) Disconnect the battery cable at battery negative terminal.

(2) Remove the steering arm nut and washer and remove the steering arm from the steering gear cross shaft with puller Tool C-3646.

(3) Remove the bolt and washer attaching the lower coupling to the steering gear worm shaft.

(4) Remove the three nuts, washers and bolts attaching the steering gear to the frame side rail and slide the steering gear assembly toward the front of the car to disengage the column tube flexible coupling from the steering gear worm shaft.

(5) Remove the gear through the engine compartment.

STEERING GEAR INSTALLATION

(1) Inspect the steering gear for center by rotating the worm shaft from one end of its travel to the other while counting the number of turns. Turn the worm shaft back one half of the full number of turns. This is the exact center of travel.

(2) Locate the master spline in the outer row of serrations on the worm shaft. Mark the master spline.

(3) Enter the steering gear into the engine compartment.

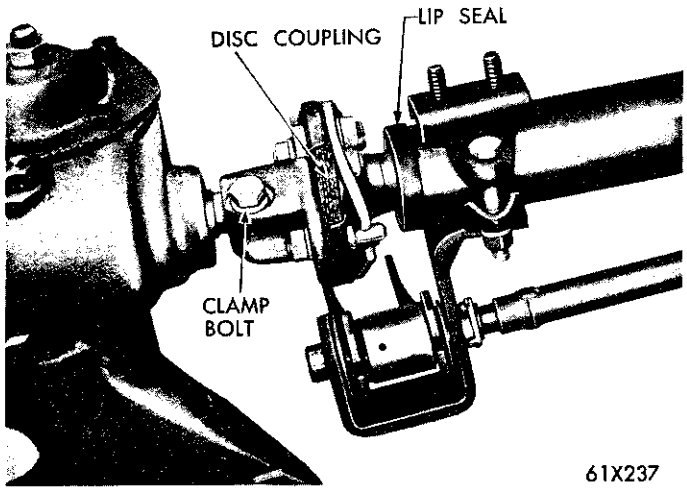

Fig. 2—Steering Gear and Flexible Coupling

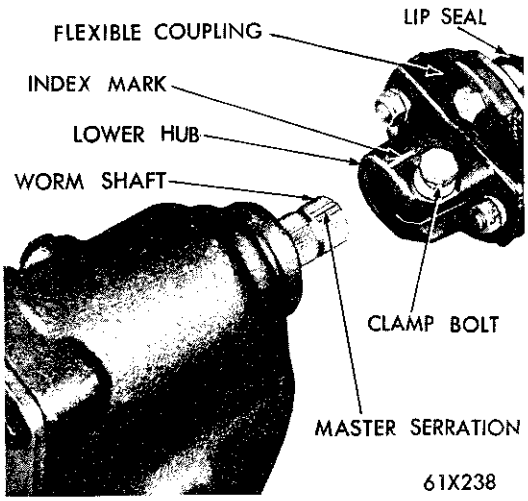

Fig. 3—Aligning Steering Gear with Flexible Coupling

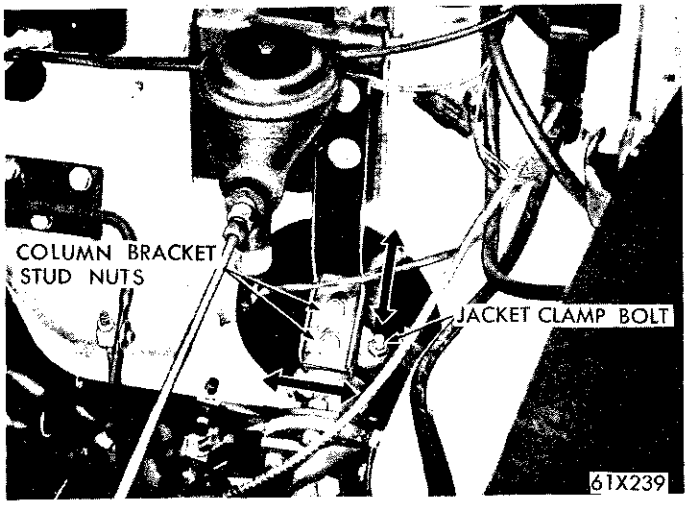

Fig. 4—Steering Gear Alignment

(4) Align the index mark on the outside of the flexible coupling hub with the master spline on the steering worm shaft (Fig. 3).

(5) Slide the coupling on the worm shaft and install the gear housing to frame side rail attaching bolts and nuts.

(6) Tighten bolts evenly to 50 foot-pounds torque.

(7) Position the flexible coupling bolt hole in line with the groove on the worm shaft and install the bolt and lockwasher.

(8) Tighten the bolt 30 to 35 foot-pounds torque.

NOTE: The horn ground is attached to the underside of the coupling by two bolts to complete the circuit.

STEERING GEAR ALIGNMENT (Fig. 4)

Inspect the steering gear shaft for alignment in the steering column seal as follows:

(1) Loosen the steering column clamp bolts at the instrument panel.

(2) Loosen the lower column clamp bolt and the support bracket at both the dash panel and at the column clamp.

NOTE: A rubber lip type seal is positioned between the upper hub of the flexible coupling and the jacket tube. The outer groove of seal must be firmly installed on jacket tube and the two nylon rings (Fig. 5) and lip of the seal must be well lubricated with a wheel bearing grease.

(3) Hold the steering column so it is centered plus or minus ⅛ inch on the tube while aligning the column support bracket to the dash panel and lower column clamp.

(4) When column is properly located, tighten the support bracket stud nuts at the dash panel and at the column clamp to 100 inch-pounds torque.

(5) Tighten the steering column to instrument panel clamp bolts to 15 foot-pounds torque.

(6) Tighten the lower steering column clamp bolt nut to 200 inch-pounds torque.

(7) Reinstall the steering gear arm, washer and nut. Tighten to 125 foot-pounds torque.

WORM SHAFT OIL SEAL REPLACEMENT

The steering gear assembly should be removed from the vehicle in order to replace the oil seal.

Perform operations 1 through 6 under Manual Steering Gear Removal and proceed as follows:

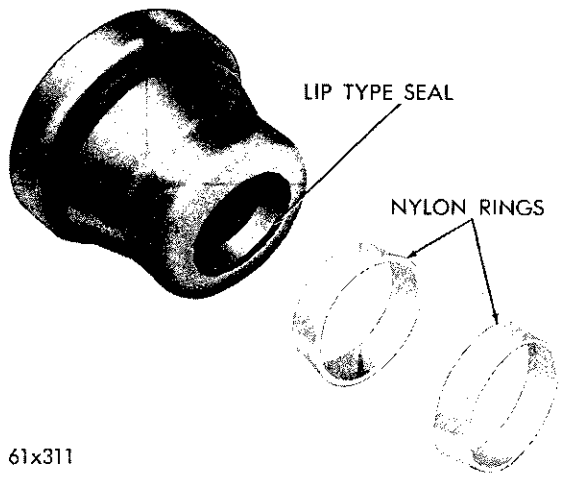

Fig. 5—Nylon Rings and Lip Type Seal (Exploded View)

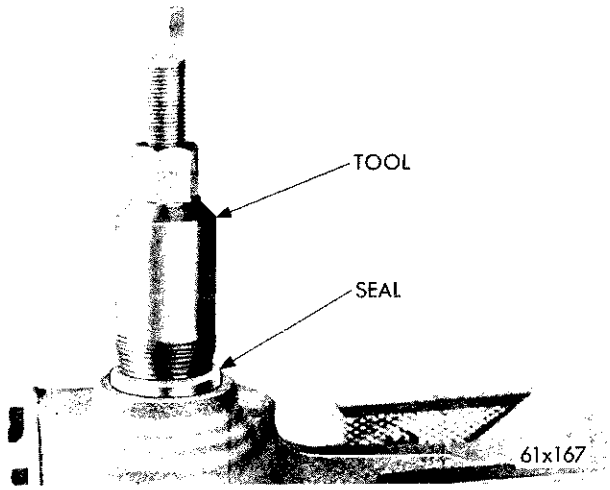

Fig. 6—Removing Worm Shaft Oil Seal

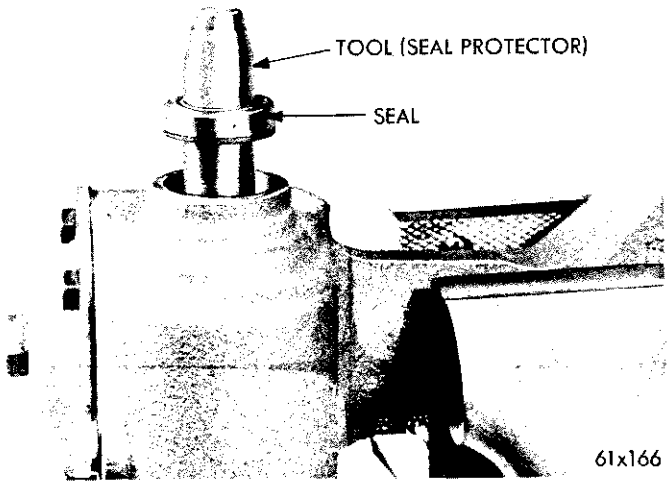

Fig. 7—Installing Oil Seal Protector

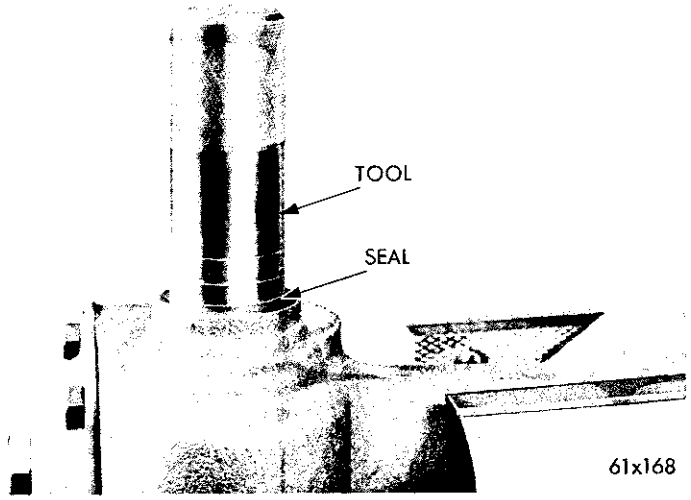

Fig. 8—Installing Worm Shaft Oil Seal

(1) Thread Tool C-3819 far enough into the oil seal to engage the metal portion of the seal (Fig. 6). Turning the tool center screw while holding the tool body will withdraw the seal assembly from the housing bore.

(2) Place oil seal protector of Tool C-3821 over splines of steering worm shaft and slide oil seal over the protector with lip of seal toward housing (Fig. 7).

(3) Drive oil seal into housing bore with Tool C-3821 (Fig. 8).

(4) Install and align steering gear as outlined under "Steering Gear Installation and Alignment."

STEERING COLUMN

STEERING JACKET TUBE BEARING REPLACEMENT (Fig. 9)

Steering Column Removal

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

(2) Remove the two screws from the underside of the steering wheel and remove the horn ring, retainer and attaching screws.

(3) Disconnect the horn wire at horn switch; remove the horn switch screws and bushings and horn switch.

(4) Loosen the steering wheel nut several turns, install puller Tool C-3428 and remove steering wheel nut and wheel.

(5) Disconnect the directional signal wires at connectors.

(6) Remove the directional indicator switch (held to jacket tube by two screws).

(7) Remove the two screws attaching the steering jacket tube clamp at the instrument panel and remove the clamp.

(8) Move the trim cap up on steering jacket tube and raise the floor carpet to expose the floor panel.

(9) Remove the screws attaching the dust pad to the floor panel and slide dust pad up on jacket tube.

(10) Remove the two nuts holding the lower jacket tube clamp to the steering column jacket bracket.

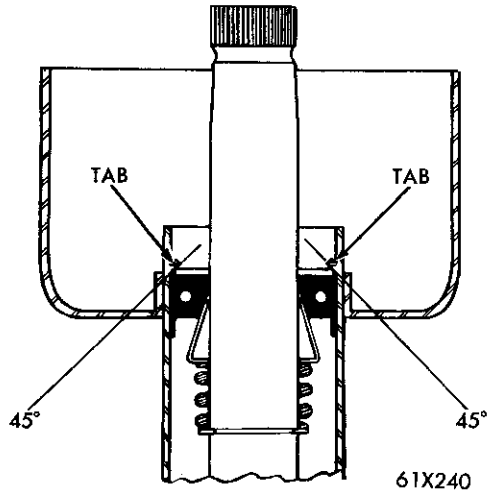

Fig. 9—Steering Jacket Tube Bearing Installation

(11) Remove clamp bolt from the steering column shaft lower coupling.

(12) Carefully lift the steering column toward the dash, tapping the lower coupling lightly with a mallet until it is free of the worm shaft splines.

(13) Slide the steering gear jacket tube assembly rearward and remove the complete assembly through the driver's compartment.

Disassembly

(1) Remove the screw and directional wires cover at jacket tube directional switch housing.

(2) Remove the snap ring and washer from upper end of steering column shaft, then withdraw the steering column shaft from the jacket tube.

(3) Remove the tapered spacer, spring and snap ring from the upper end of the steering column shaft, and the turn indicator cancelling dog, and slide the jacket rubber seal and nylon rings off the column shaft.

(4) Remove the jacket tube housing by carefully straightening the three retaining tabs and tapping the bearing out of the jacket tube.

Assembly

(1) Inspect all parts for wear and check the rubber seal for deterioration. Replace bearing if there has been any indication of binding before removal of column tube.

(2) Pack the new upper bearing with short fiber grease and with the radius end of the bearing (inside diameter) facing downward, press the bearing squarely into the jacket tube until it stops against the bearing supporting lugs in the jacket tube, using a socket of the proper size, or a similar tool that will exert pressure on the outer race only.

(3) Place the large washer against the top side of the bearing outer race. Bend the three bearing retaining tabs down to an angle of 45 degrees (Fig. 8). Do not exceed the 45 degrees since this may cause internal damage to the bearing.

(4) Slide the jacket tube rubber seal and nylon rings on the steering column shaft.

(5) Install the direction indicator cancelling dog on column tube.

(6) Install the jacket bearing snap ring in the steering column shaft lower groove; install a new snap ring if old ring will not fully seat in the groove.

(7) Install spring and tapered spacer (tapered end up).

(8) Carefully install the steering column shaft assembly into the column jacket tube.

(9) Support the column tube lower hub on a block of wood, place the upper snap ring on the steering column shaft, pull down on the jacket tube to compress the bearing spacer spring sufficiently to expose the upper groove in the steering gear shaft and install the upper snap ring. **Make sure** snap ring seats fully in shaft groove.

(10) Apply wheel bearing lubricant to the nylon rings and lip of the jacket tube seal and position the seal cup and nylon rings on the jacket tube large diameter of the nylon rings butt and are retained by the recess caused by the seal lip (Fig. 5).

(11) Position the directional switch and install the switch attaching screws. **Be sure** the column jacket does not restrict the switch movement.

(12) Install the directional switch wires and horn wires at the connectors.

Installation

(1) Enter the jacket tube and steering column shaft assembly through dash panel from driver's side and index the lower coupling of steering gear shaft with steering gear worm shaft.

(2) Index the master groove of the steering gear worm shaft with filed notch on lower coupling. Tap the coupling down over the worm shaft splines.

(3) Install and tighten the coupling clamp bolt securely.

(4) Align the jacket tube at the instrument panel and install the jacket tube clamp and attaching screws. Tighten screws finger tight.

(5) Install the two nuts attaching the lower jacket tube clamp to the steering column jacket bracket. **Be sure** jacket tube clamp bolt is securely tightened.

(6) Slide the dust pad down into position on the dash panel and install the attaching screws.

(7) Position the floor carpet under the dust pad and position the trim cap.

(8) Install the steering wheel.

(9) Install the steering wheel nut. Tighten to 40 foot-pounds torque.

(10) Install the horn switch bushings and screws. Attach the horn wire at the horn switch terminal.

(11) Install the horn ring, retainer and attaching screws.

(12) Inspect the steering gear shaft for alignment in the steering column seal and steering jacket alignment as outlined under "Steering Gear Alignment."

(13) Measure the **up** or **down** deflection of the flexible disc as follows: If the deflection exceeds 1/16 inch, the column jacket should be moved up or down to where the deflection of the disc is less than 1/16 inch with the column jacket tube clamped in place.

POWER STEERING GEAR (CONSTANT CONTROL)

Service procedures for the 1961 Power Steering Gear are the same as outlined in the 1960 Chrysler and Imperial Service Manual.

POWER STEERING PUMP

The 1961 pump is a larger capacity pump having a larger diameter pump shaft and oil seal, requiring two new service tools, C-3783 Oil Seal Remover and C-3782 Oil Seal Installer. Service procedures are the same as outlined in the 1960 Chrysler and Imperial Service Manual with the following exceptions.

The larger capacity pump is mounted on a flexible swivel type mounting (Fig. 10) which enables torque reaction of the pump, acting through the mounting bracket and adjustment bracket, to move the pump outward and increase the belt tension to the required amount.

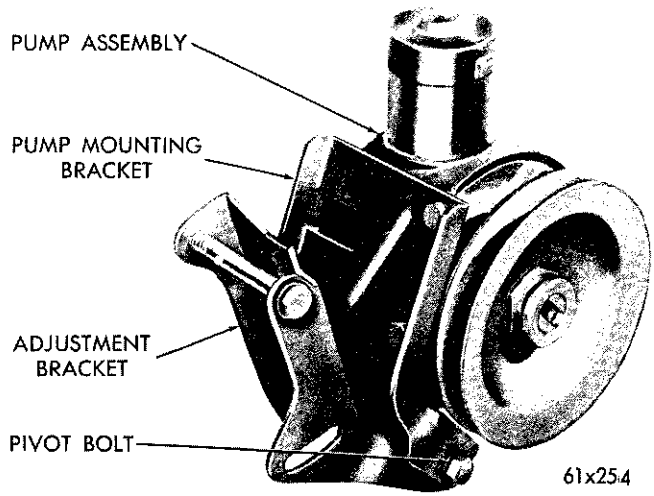

Fig. 10—Power Steering Pump and Reaction Bracket

BELT ADJUSTMENT

(1) Loosen the adjustment bracket to engine mounting bolts (Fig. 11).

(2) Install Tool C-3832 over the edge of the mounting bracket as close as possible to the outer edge of bracket and insert torque wrench drive in square hole of tool (Fig. 12).

(3) Tighten the pump belt until you get a reading of 45 foot-pounds on the torque wrench.

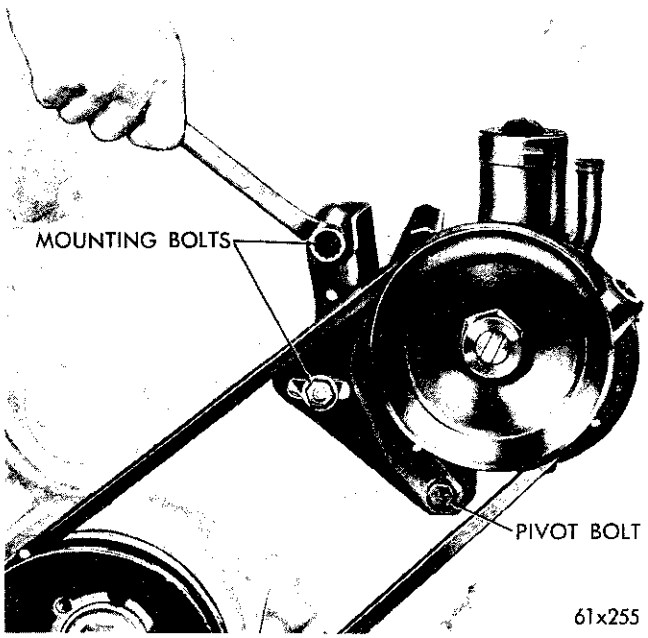

Fig. 11—Loosening Pump Bracket Mounting Screws

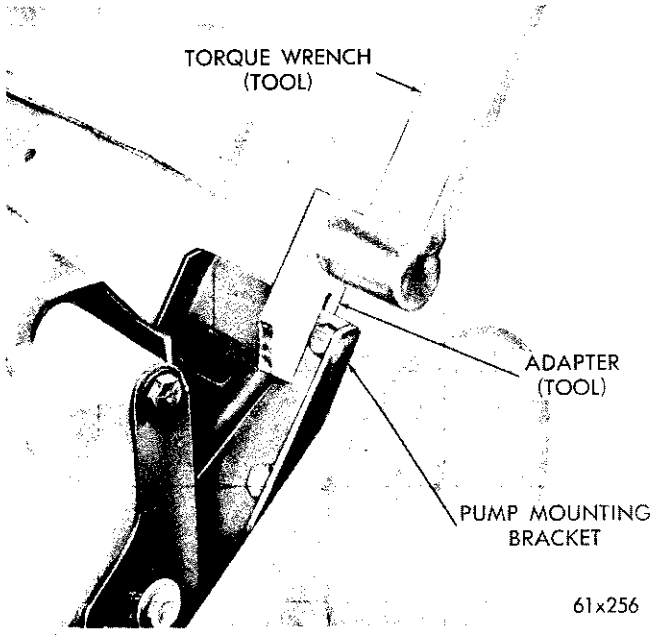

Fig. 12—Pump Belt Adjustment

(4) While holding the tension with torque wrench, tighten the bracket mounting bolt nuts enough to hold the adjustment, then use torque wrench to 30 foot-pounds torque.

When the belt is properly adjusted and normal pump pressures are developed, the pump mounting bracket will be resting against the rubber stop in the adjustment bracket (Fig. 13).

DIRECTIONAL SWITCH (RY-1)

Removal

(1) Disconnect the cable at the battery negative post.

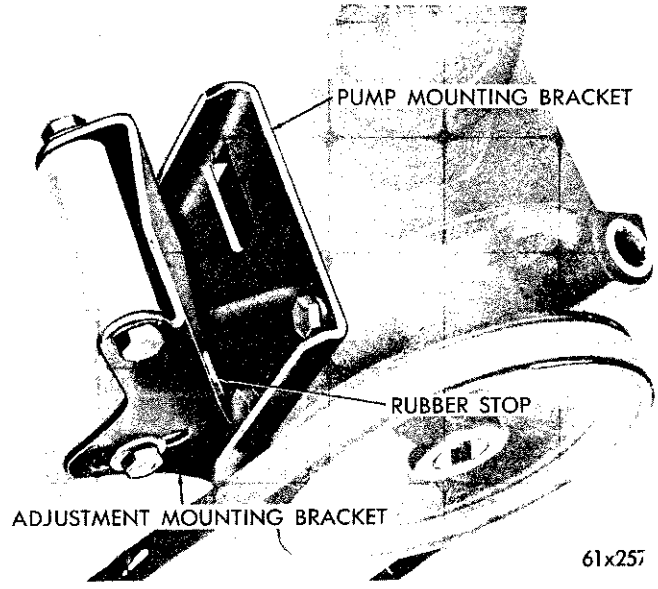

Fig. 13—Pump Bracket and Rubber Stop

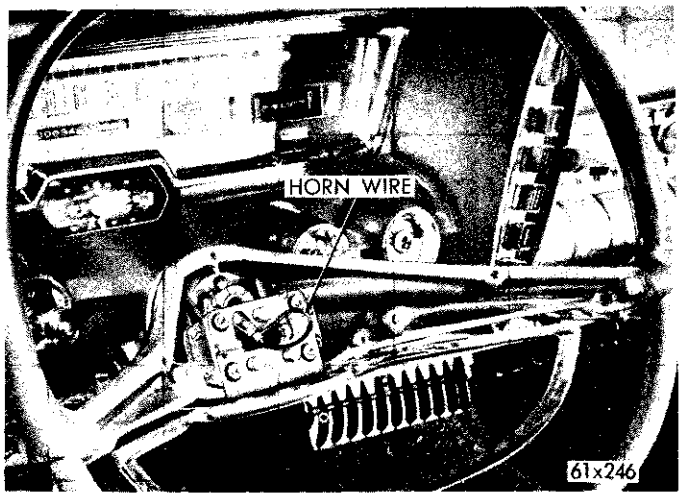

Fig. 14—Horn Switch and Horn Wire

(2) Remove the two screws from the underside of the steering wheel and remove the horn blowing actuator and steering wheel cover.

(3) Disconnect the horn wire at the horn blowing switch.

(4) Remove the four screws and insulators and remove the horn blowing switch (Fig. 14).

(5) Remove the four screws and remove the horn blowing switch (Fig. 15).

(6) Loosen the steering wheel nut several turns and install the Steering Wheel Puller C-3428 (Fig. 16) and remove the steering wheel nut and steering wheel.

(7) Remove the directional switch lever (Fig. 17).

(8) Remove the steering column lower cover.

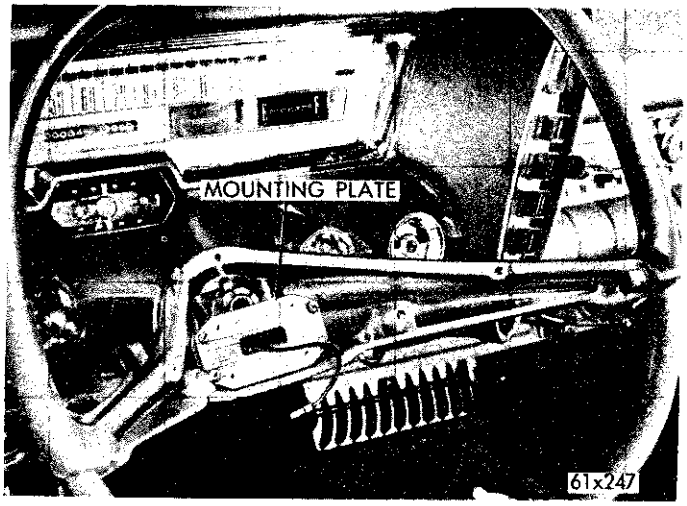

Fig. 15—Horn Blowing Ring Mounting Plate

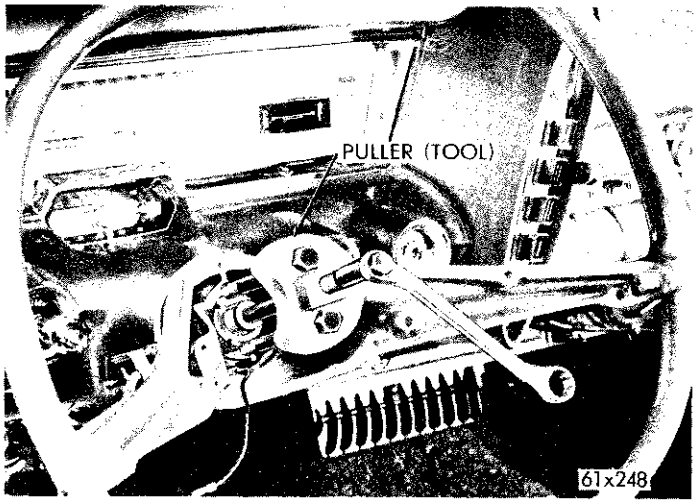

Fig. 16—Removing Steering Wheel

(9) Remove the two screws and disconnect the switch wires at the connection and remove the directional switch and wires (Fig. 18).

Installation

(1) Position the directional switch, install the attaching screws and wire connections.

(2) Install the steering column lower cover.

(3) Install the directional switch lever.

(4) Install the steering wheel and steering wheel nut, tighten the nut to 40 foot-pounds. Test the operation of the cancelling lever.

(5) Install the horn blowing switch mounting plate and the four attaching screws.

(6) Install the horn blowing switch, insulators and attaching screws. Connect the horn wire.

(7) Install the horn blowing actuator, steering wheel cover and attaching screws.

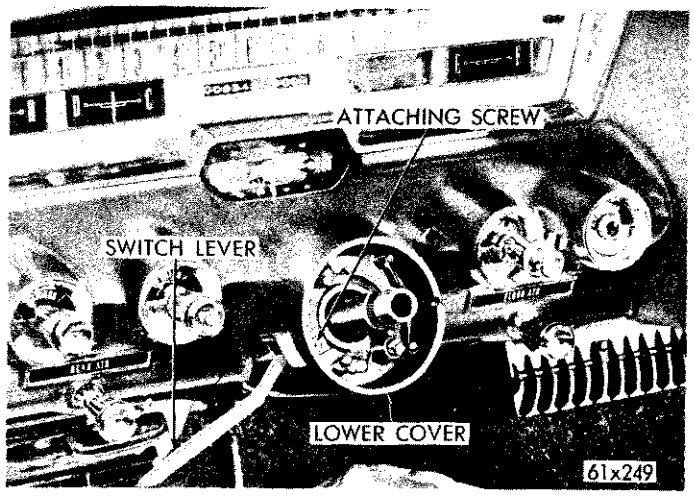

Fig. 17—Directional Switch and Lever—Steering Wheel Removed

(8) Connect the battery cable at the battery negative post.

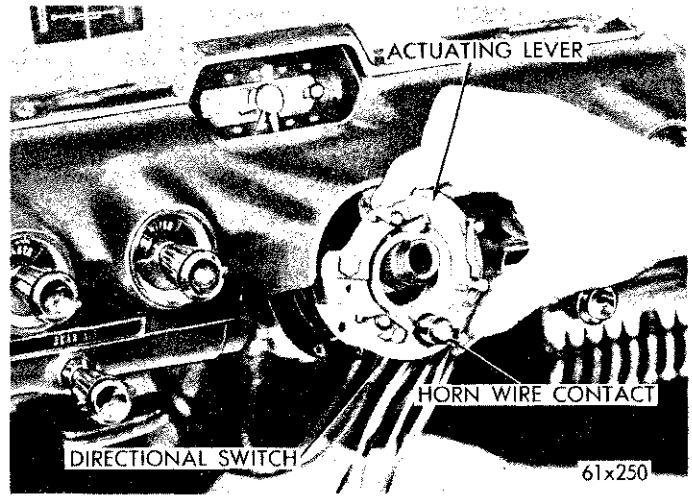

Fig. 18—Removing Directional Switch

SERVICE DIAGNOSIS

Condition	Cause	Remedies
NOISE – Knocking condition at the bracket stop when the engine is running.	a. Rubber stop worn or missing from pump bracket.	a. Replace rubber stop.
	b. Belt not properly adjusted or worn to the extent that belt tension cannot be properly adjusted.	b. Replace and adjust belt tension.
SQUEAL – Encountered under heavy steering load (such as entering a curbside parking space).	a. Belt not properly adjusted or worn to the extent that belt tension cannot be properly adjusted.	a. Adjust the belt tension or install new belt and adjust as necessary.

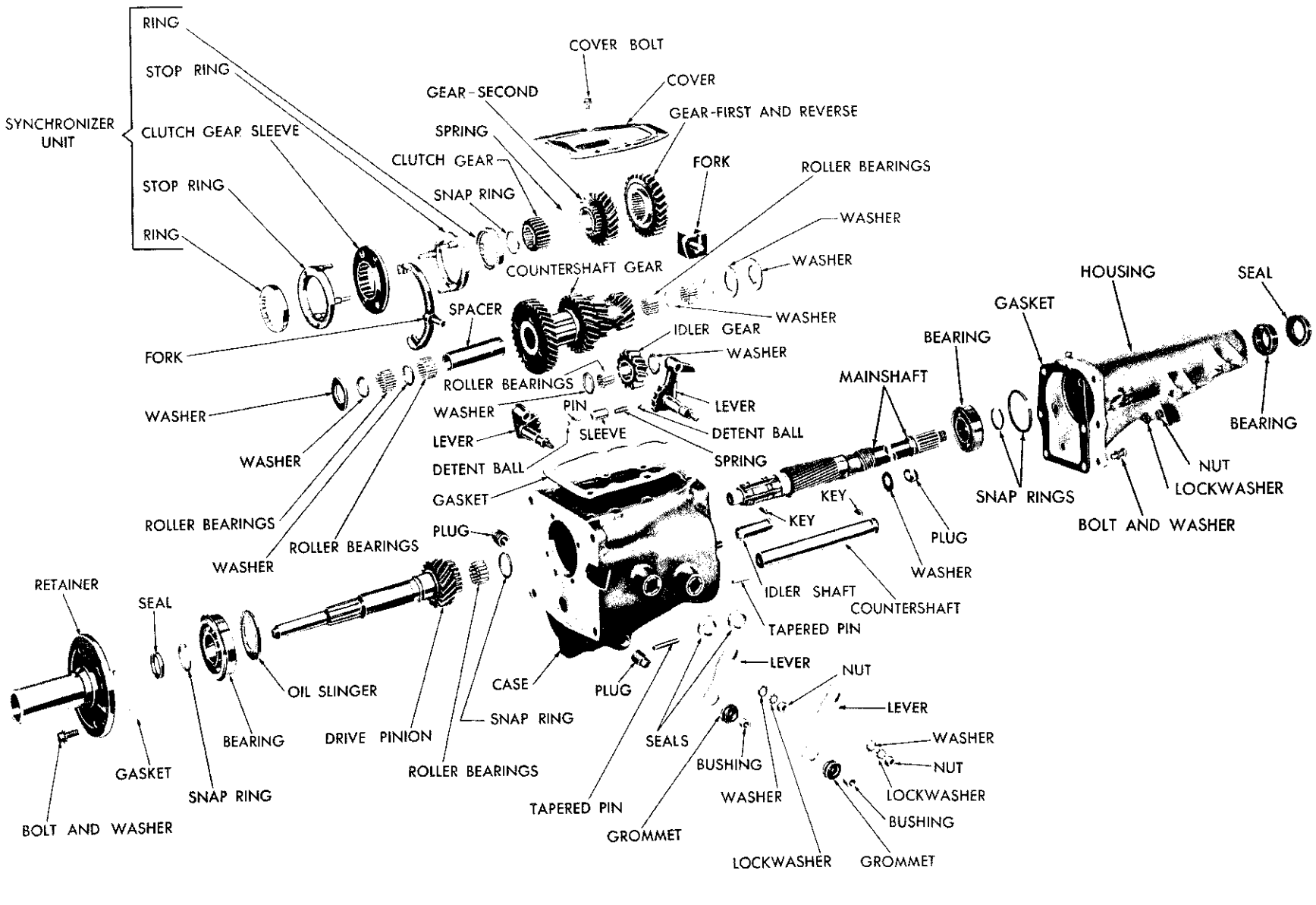

Fig. 1—Heavy Duty Transmission (Exploded View)