

STEERING

GENERAL DESCRIPTION

The hydraulic operation of the power steering gear unit used on 1955 Cadillac cars is identical to that used on the 1954 series cars. Minor refinements in the pump reservoir and hydraulic hoses do not effect service procedure.

A two piece steering shaft, Fig. 7-1, with a flexible coupling above the valve body is used on all 1955 series cars. The flexible coupling, Fig. 7-2, acts as a shock absorber between the steering linkage and the steering wheel. The transmission of steering gear noises to the steering wheel is virtually eliminated.

The upper steering shaft is supported in the steering jacket by an upper and lower bearing. The shaft is held up in position by a spring located between the upper bearing in the directional signal housing and the steering wheel.

Due to the flexibility of the new design, it is no longer necessary to insert shims between the gear housing and frame for alignment purposes. The flexible coupling will compensate for any slight misalignment that may be present due to production variables between the steering tube mounting point on the instrument panel, steering gear housing, and the frame side bar.

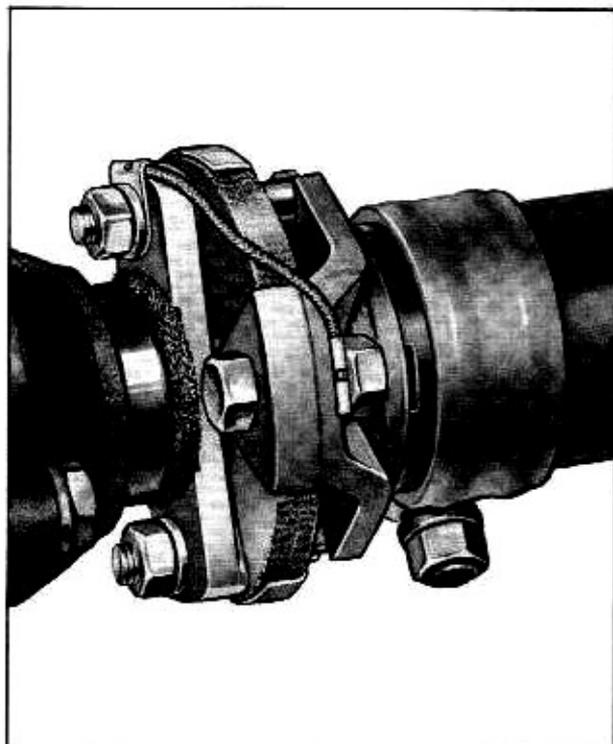


Fig. 7-2 Flexible Steering Coupling (Assembled)

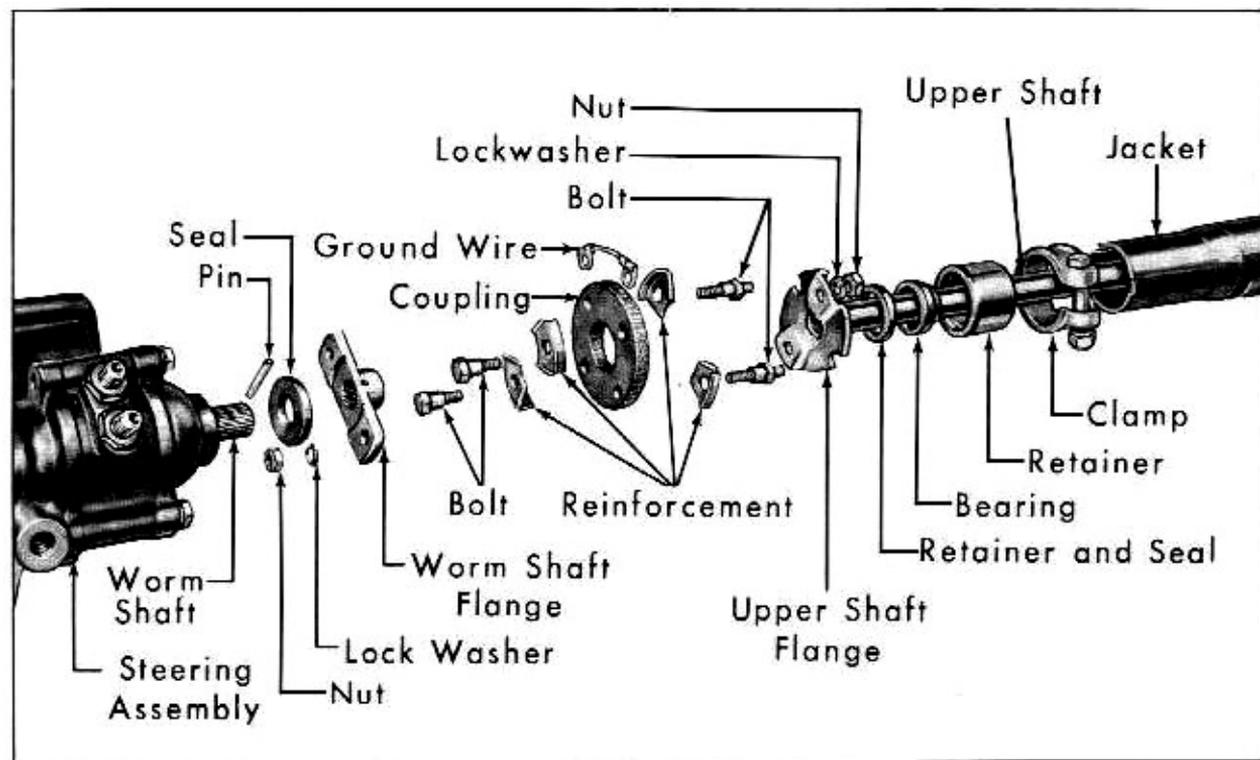


Fig. 7-1 Flexible Steering Coupling (Exploded)

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The steering drag link has been modified to improve directional stability and obtain faster steering response. This has been accomplished by eliminating the inside spring at the pitman arm end of the drag link. Lost motion of the pitman arm, before steering effort is transmitted to the

wheels, has been reduced by this arrangement.

Servicemen should refer to the 1954 Shop Manual for information pertaining to service operations on the 1955 Cadillac Power Steering gear assemblies as only those operations affected by design changes are included in this section.

SERVICE INFORMATION

(1) Steering Gear Adjustments

a. Off-Center Preload Check

1. Disconnect drag link at pitman arm.
2. Check for coupling distortion and correct as outlined in Note 6.
3. Back off power rack and pitman shaft adjusting screws at least 1/2 turn.
4. Using Spring Scale, Tool No. J-544-A, check the "off-center" pull through at the rim of the steering wheel. This should be between 3/8 and 3/4 lbs.

NOTE: If off-center pull is still greater or less than specified it will be necessary to remove the gear from the car to check thrust bearing lock nut torque. See Note 5. Also check for binding or rough bearings in upper and lower thrust bearing retainers. Do not attempt to compensate for any variance from off-center pull specifications by adjusting the pitman shaft end play screw or the power rack screw.

b. Pitman Shaft End Play Adjustment

1. Refer to Section 7, Note 3b, of the 1954 Shop Manual.

c. Power Rack Guide Adjustment

1. Refer to Section 7, Note 3c, of the 1954 Shop Manual.

(2) Bleeding Hydraulic System

1. Raise front end of car.
2. Remove tank cover hold-down screw and remove tank cover and gasket.
3. Fill oil tank to proper level and turn steering wheel from left to right to expel air from all internal circuits. Do not force wheel against stops.
4. Start engine and run at 1500 R.P.M. for two minutes.

5. With engine idling, turn wheels from left to right, recheck fluid level and fill as required. (1/2" below top edge, at oil level mark.)

6. Lower front end of car, turn wheels from left to right, and inspect gear, pump, hoses, and connections for leaks.

7. Stop engine, recheck oil level and install oil tank gasket and cover.

(3) Removal and Installation of Steering Linkage

Follow procedure outlined in 1954 Shop Manual. There is, however, no inside spring on the left side of the drag link on the 1955 series. After assembly, adjust left end plug in drag link by turning down tight and backing off 1/4 to 1/2 turn (1/2 turn preferred). See Fig. 7-3.

(4) Removal of Steering Gear Assembly

1. Disconnect hydraulic hoses from valve body on gear housing. Cap ends of hoses to prevent loss of oil.
2. Remove return port (large) fitting from the valve body.
3. Raise front end of car and place stands near outer ends of lower suspension arms.
4. Disconnect pitman arm from drag link.
5. Remove lower flange to coupling screws.

NOTE: Scribe marks on coupling and flange to assure correct positioning of steering wheel at assembly.

6. Remove gear housing to frame side bar screws and remove gear housing.

(5) Disassembly and Assembly of Steering Gear

1. Remove coupling flange to steering shaft dowel pin, supporting flange from below to prevent shock damage to thrust bearings, Fig. 7-4.

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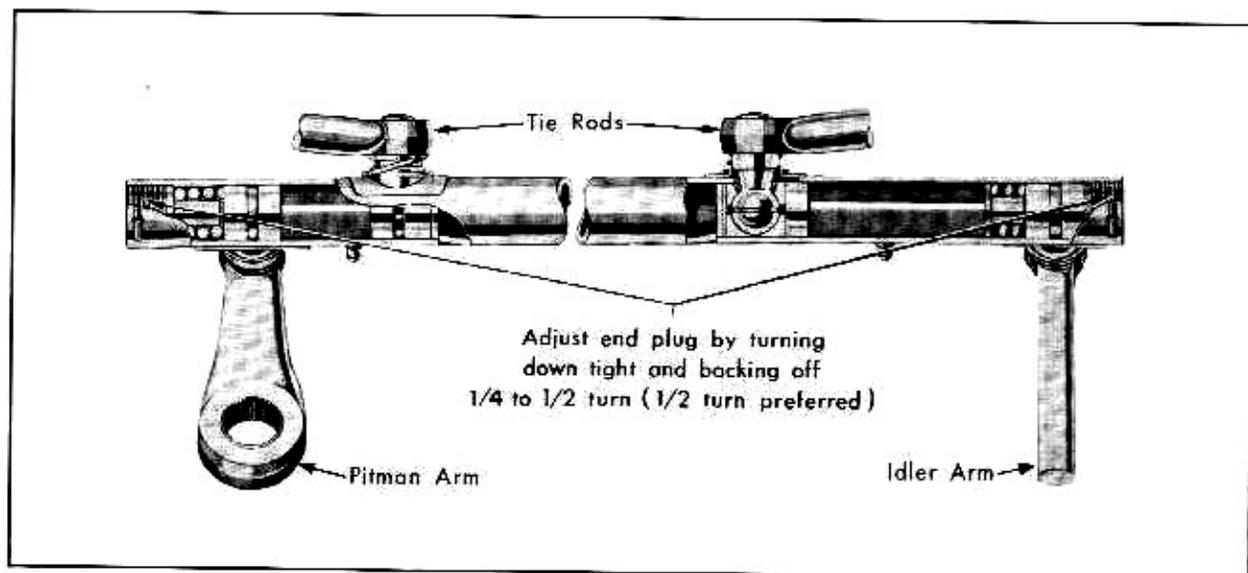


Fig. 7-3 Steering Drag Link

2. Remove flange from splined shaft.
3. Remove felt washer.
4. Proceed as outlined in Notes 22 and 23, Section 7, of the 1954 Shop Manual.

NOTE: Use the flange and a suitable lever to hold the shaft stationary when making the thrust bearing nut adjustment (30 ft.-lbs., back off 1/4 turn) during assembly.

For checking the through-center and off-center pull, a holding bar, Fig. 7-5, must be attached to the coupling flange.

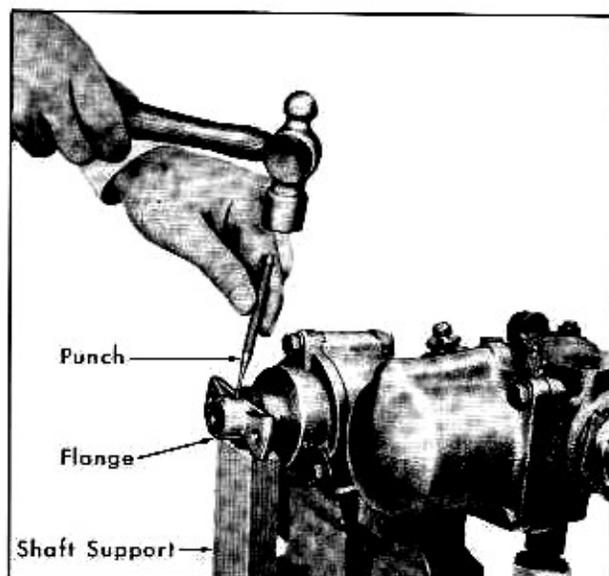


Fig. 7-4 Removing Dowel Pin

Hook the Spring Scale, Tool No. J-544-A, in the end hole and measure the pull through an arc not exceeding 3" as the bar reaches a vertical position, Fig. 7-6.

(6) Installation of Steering Gear Assembly

1. Place steering gear in position on frame side bar, guiding the lower flange onto the coupling, and install gear to frame screws.

NOTE: Make certain that scribe marks on coupling and upper steering tube flange are aligned.

2. Install lower flange to coupling nuts.

NOTE: After installing the gear, check the flexible coupling for distortion. The coupling must rest in a flat plane with no visible bend or twist. If it is distorted, remove the lower steering column cover and lower clamp to jacket screw. Then, loosen the steering jacket clamp screws at the instrument panel, and slide the

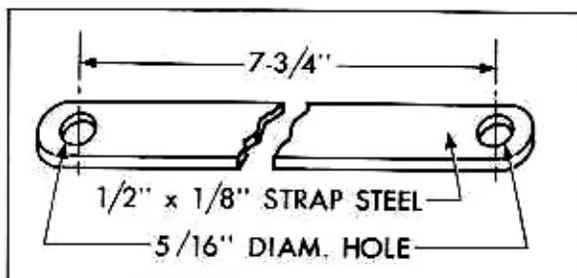


Fig. 7-5 Coupling Flange Holding Bar

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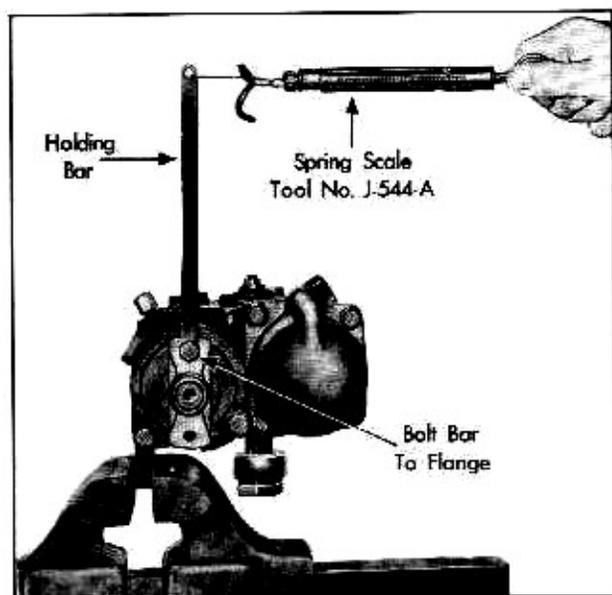


Fig. 7-6 Measuring Pull Through Center

complete steering jacket assembly up or down as required. Redrill lower clamp and jacket if necessary to reinstall screw.

3. Connect pitman arm to drag link. See Note 3 for correct adjustment.

4. Install return port (large) fitting on valve body.

5. Connect hydraulic hoses to valve body.

6. Fill and bleed hydraulic system as outlined in Note 2.

7. Lower front end of car.

(7) Removal of Upper Steering Shaft

1. Remove steering gear assembly as outlined in Note 4.

2. Disconnect battery ground strap.

3. Remove neutral safety switch and horn contact.

4. Remove horn button and spring.

5. Remove steering wheel hub nut.

6. Remove horn ring retainer and horn ring.

7. Remove steering wheel using Special Puller No. J-1859.

8. Remove steering tube jacket tensioner spring and split ring.

9. Loosen lower steering jacket clamp, pry lower bearing retainer out of steering jacket and remove upper steering shaft through bottom of jacket.

(8) Removal and Installation of Upper Steering Shaft Lower Bearing

1. Remove upper steering shaft as outlined in Note 7.

2. Using a soldering iron, remove the upper tip on the horn contact wire and remove the plastic insulator.

3. Pull the wire down through the shaft and out of opening at horn contact bushing.

4. Remove bushing with wire from steering shaft.

5. Slide bearing retainer from shaft and press bearing from retainer.

6. To install, reverse above procedure.

(9) Installation of Upper Steering Shaft

1. Slide upper shaft into steering jacket, inserting lower bearing retainer into steering jacket until retainer flange is tight against bottom of shaft, and temporarily tighten lower clamp.

2. Install split ring and steering shaft tensioner spring over end of steering shaft.

3. Install steering wheel over splines on steering shaft with punch marks lined up.

4. Install horn ring retainer and horn ring in position on steering wheel.

5. Install steering wheel hub nut and tighten to 45-50 ft.-lbs. torque.

6. Stake nut to steering shaft.

7. Install spring and horn button.

8. Loosen lower steering jacket clamp and work lower bearing retainer flange down from end of steering jacket until 3/16" clearance is obtained between the horn ring and directional signal switch carrier.

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NOTE: To obtain desired clearance, insert a screwdriver between the lower bearing retainer and the steering jacket. Twist the screwdriver to move the retainer down.

9. Hold the lower bearing retainer in position while tightening the lower steering jacket clamp, making certain that the lower edge of the clamp is as close as possible to the lower end of the steering jacket.

(10) Removal and Installation of Steering Shaft Upper Bearing

1. Remove neutral safety switch and horn contact from lower steering column.

2. Remove cotter key, dust shield and horse-shoe retainer at lower shift lever on steering jacket and then disengage shift lever from shifter tube.

3. Remove horn button and spring.

4. Remove steering wheel hub nut.

5. Remove horn ring retainer and horn ring.

6. Remove steering wheel using Special Puller, Tool No. J-1859.

7. Remove steering shaft tensioner spring and split ring.

8. Remove directional signal switch.

9. Remove cap screws holding upper bearing retainer to steering jacket.

10. Remove steering column lower cover.

11. Remove Hydra-Matic shift dial pointer.

12. Pull shifter tube up out of steering jacket until shift detent on bearing retainer clears the jacket and then unscrew bearing retainer from shifter tube.

13. Press upper bearing from retainer.

14. To install, reverse above procedure.

(11) Removal and Installation of Steering Column Assembly

NOTE: Removal of the complete steering column assembly, as explained in the following procedure, is necessary only when both the upper and lower bearings must be replaced or if the lower shift lever must be removed.

a. Removal

1. Disconnect battery ground strap.

2. Remove directional signal switch and horn contact from lower steering jacket.

3. Remove brake pedal retaining screw.

4. Raise car.

5. Disconnect the manual control rod from the lower shift lever.

6. Scribe marks on coupling and flange, to assure correct positioning on assembly, then remove coupling to lower flange nuts.

7. Remove brake pedal.

8. Loosen carpet on left front side and pull back from steering column toe plate.

9. Remove seven toe plate to floor board screws.

NOTE: It is not necessary to remove the screw just below the steering jacket which holds the small cover plate and the brake pedal shaft seal to the toe plate.

10. Remove the stop light switch to toe plate screws.

11. Remove steering jacket lower cover and remove the Hydra-Matic shift indicator pointer.

12. Disconnect directional signal switch wires at connector.

13. Remove the small screw at the bottom of the steering - jacket - to - instrument - panel - clamp and remove the two steering column to instrument panel clamp nuts.

14. Remove steering column assembly from car.

b. Installation

1. Position steering gear assembly in car and install steering jacket to instrument panel clamp and install nuts loosely.

2. Install coupling to lower steering flange nuts. Be certain scribe marks are lined up.

3. Position the steering jacket assembly in the clamp so that the hole in the steering jacket is lined up with the hole at the bottom side of the steering clamp and install the clamp to steering jacket screw, then tighten clamp nuts.

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4. Position stop light switch on toe plate and install screws.

5. Position toe plate and insulator on floor board and install screws. Be certain stop light switch arm is in position between the brake arm and the floor board.

6. Install brake pedal, guiding the rod through the upper seal, toe board, and the grommet underneath the floor board. Be certain that upper seal does not restrict the movement of the pedal rod.

7. Install the carpet and connect directional signal switch wire at connector.

8. Connect throttle rod to lower shift lever.

9. Lower car.

10. Be sure that the coupling is in a flat plane. If not, loosen lower steering jacket to bearing retainer clamp screw and adjust the shaft up or down to align flexible coupling.

11. Install brake pedal rod retaining screw.

12. Install horn contact and neutral safety switch.

13. Connect battery ground strap and adjust safety switch.

TORQUE TIGHTNESS

Application	Size	Ft. Lbs.	
		Min.	Max.
Steering gear to frame	7/16-14	40	45
Tie rod pivots to steering arms	1/2 -20	50	55
Tie rod adjuster clamp nuts	5/16-24	20	25
Idler arm threaded bushings	Special	110	115
Pitman arm nut	7/8 -16	100	125
Steering wheel nut	Special	45	50
Idler arm support to frame	3/8-24	30	35
Lower end cover	3/8-16	25	29
Side cover plate	3/8-16	25	29
Valve cover to housing	3/8-16	15	20
Power cylinder to housing	3/8-16	25	29
Pump tank cover	3/8-16	25	29
Pump cover to body	3/8-16	25	29
Flexible coupling nut	Special	20	25
Pitman rack adjuster lock nut	Special	75	125

SPECIFICATIONS

Steering Ratio		
Gear	19.1 to 1	
Overall	21.3 to 1	
Hydraulic Pump Pressure		
Steering wheel against stop	900 to 1000 psi.	
Relief valve opens above	900 psi.	
Tread	62, 60S, 75	86 Comm.
Front	60"	60"
Rear	63.10"	65.12"

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SPECIAL TOOLS

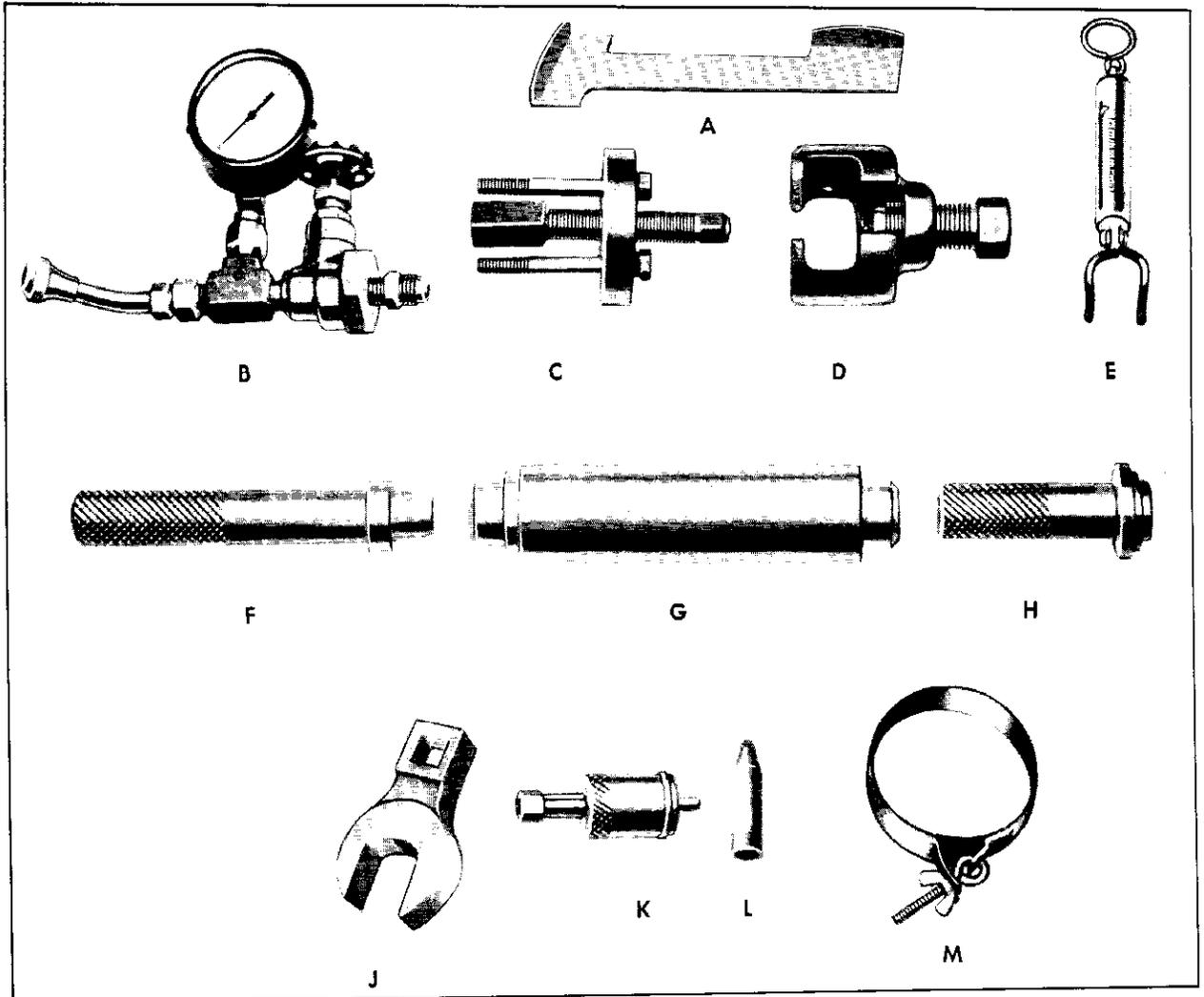
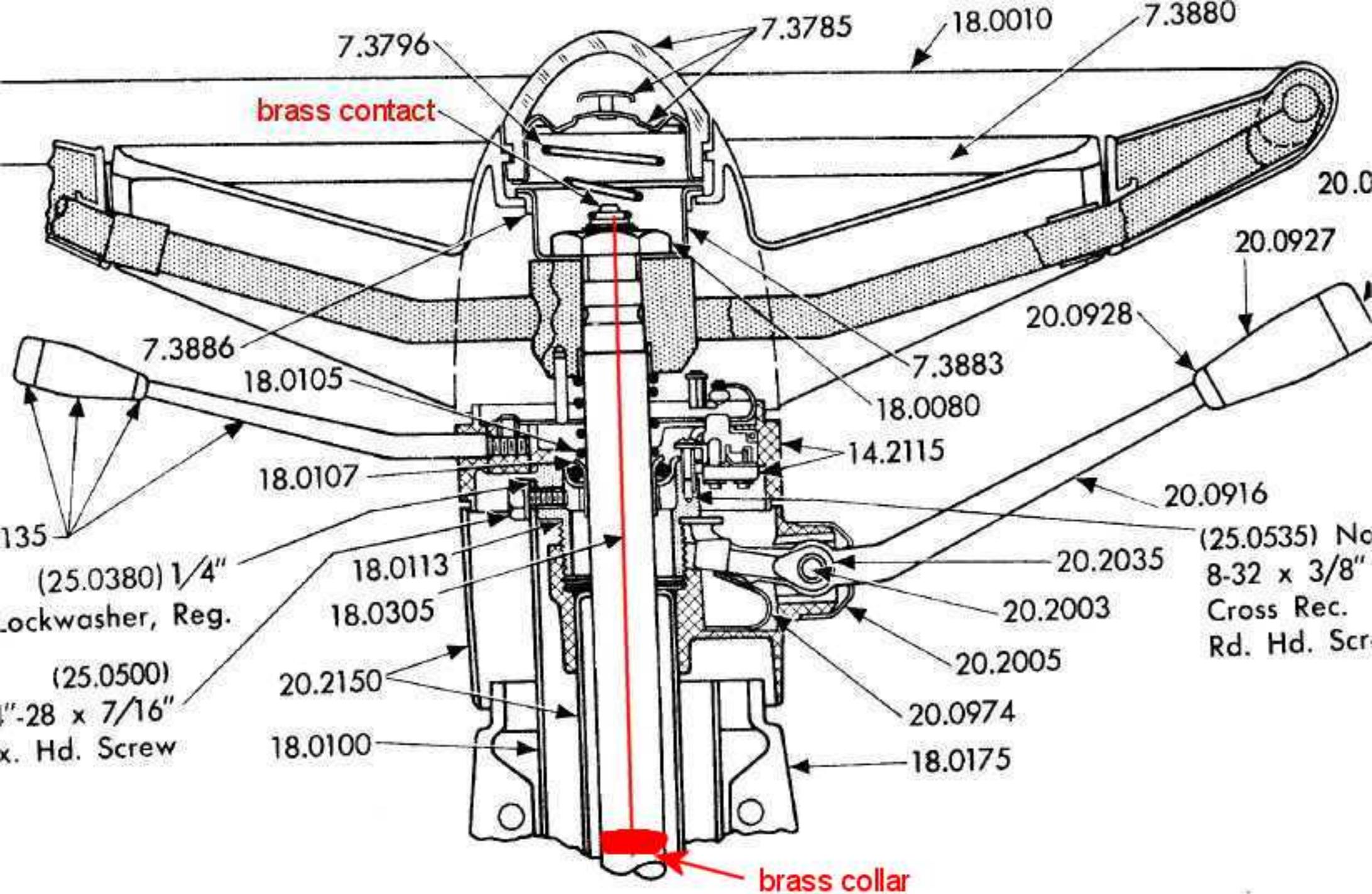


Fig. 7-7 Special Tools

Key	Tool No.	Name
A	J-5648	Power Rack Adjusting Wrench
B	J-5176	Pressure Testing Cage
C	J-1859	Steering Wheel Puller
D	J-2162	Pitman Arm Puller
E	J-544A	4# Spring Scale
F	J-5188	Seal Installer
G	J-5189	Bearing and Seal Installer
H	J-5191	Bearing Installer
J	J-5680	Bearing Adjusting Wrench
K	J-5190	Bearing Puller
L	J-5193	Piston Rod Inserter
M	J-5186	Piston Ring Compressor



STEERING WHEEL, DIRECTIONAL SIGNAL AND SHIFT CONTROL,
 HORN BUTTON AND RING. CROSS SECTIONAL VIEW
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