

SECTION 9

STEERING

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GENERAL DESCRIPTION

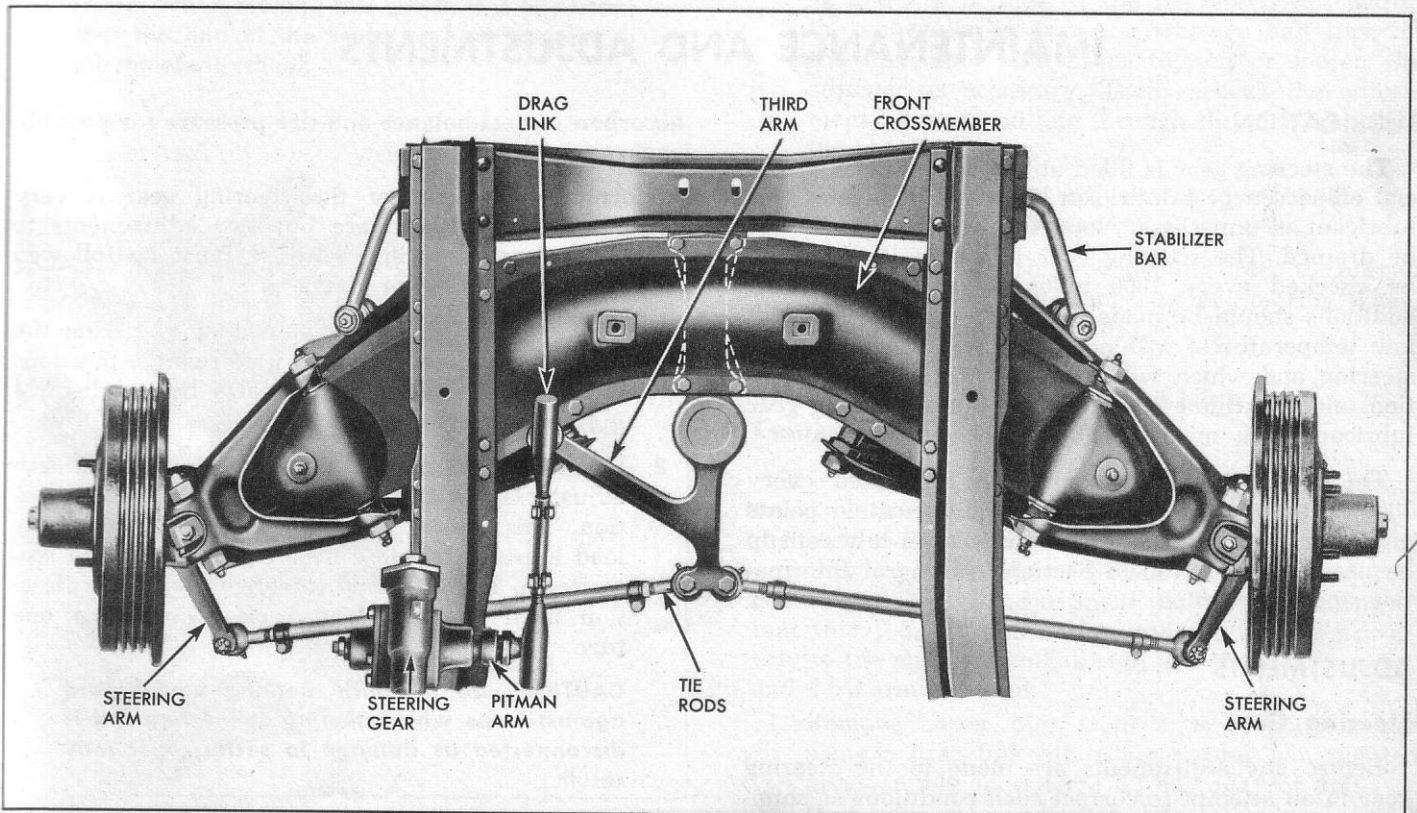


Fig. 1—Corvette Steering Linkage

Construction and design of the Corvette steering system (fig. 1) is essentially like that used formerly in Chevrolet passenger cars except that the third arm assembly and its mounting bracket are completely redesigned.

The steering gear mounts on the outboard side of the frame left sidemember and its pitman shaft is suspended vertically on the inboard side of the frame. Motion of the pitman shaft, which is fore and aft, is transmitted to the "third arm" by a short drag link. The "third arm," or steering idler assembly, is bolted to the underside of the front suspension crossmember at its center. Two equal length tie rods connect to the rear of the steering idler or "third arm" assembly to the steering arms which are bolted to the brake backing plates with the steering knuckles.

The Corvette steering gear (fig. 4) is of the sector-roller type. The principal parts of the unit are the steering worm sector roller and sector shaft. The worm, which is hour glass shaped, is pressed onto the steering mainshaft, and is supported by bearings at each end of the steering gear housing. Like other steering gears the front worm bearing cap is adjustable to provide wormshaft preload.

Needle bearings support the sector shaft (fig. 2) which is mounted at right angles to the wormshaft, in the housing. The sector roller is mounted on a double row ball bearing and a bolt running through this bearing attaches the roller to the sector shaft. As

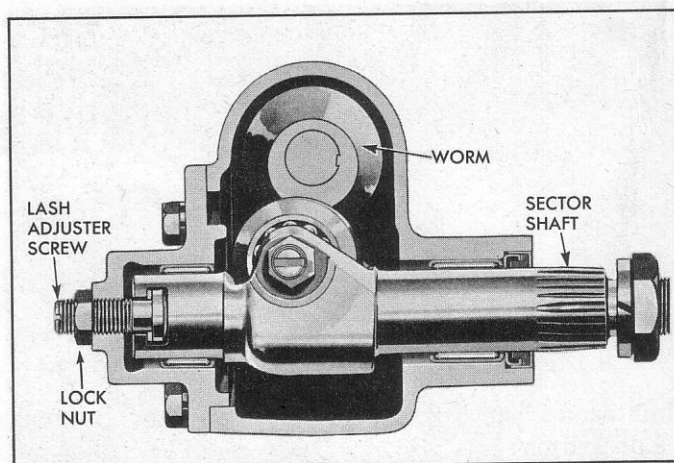


Fig. 2—Sector Gear Lash Adjustment

a result, the sector roller is free to rotate as the wormshaft is turned.

Since the worm is concave, the roller is forced to pivot as the wormshaft is turned. The roller, since it is bolted to the sector shaft, causes the sector shaft to turn, thus rotating the pitman arm either fore or aft. The pitman arm is splined to the inboard end of the sector shaft and retained by a lockwasher and nut. A lash adjuster screw is used to adjust the contact between the roller and the worm gear faces.

The Corvette steering gear ratio is 16-to-1 and the overall steering ratio is 21.1-to-1.

MAINTENANCE AND ADJUSTMENTS

LUBRICATION

The steering gear is filled at the factory with a special all-season gear lubricant. Seasonal change of this lubricant is unnecessary and the housing should not be drained. The steering gear lubricant level should be checked every 1000 miles. Whenever required, additions should be made using a lubricant which, at low temperatures, will not "channel" or cause hard steering and which will provide satisfactory lubrication under extreme summer conditions. Steering gear lubricants are marketed by many oil companies.

The steering linkage should be lubricated every 1000 miles, with chassis lubricant. Lubrication points and additional information on the chassis lubricant to be used can be found in Section 0—General Information and Lubrication.

ADJUSTMENTS

Steering Gear

Before any adjustments are made to the steering gear in an attempt to correct such conditions as shimmy, loose or hard steering and road shocks, a careful check should be made of front end alignment, shock

absorbers, wheel balance and tire pressure for possible causes.

Correct adjustment of the steering gear is very important. While there are but two adjustments to be made, the following procedure must be followed step-by-step in the order given.

1. Disconnect the steering connecting rod from the pitman arm, taking care to note relative positions of steering connecting rod parts before disturbing them (fig. 5).
2. Loosen the lock nut (fig. 2) and turn the lash adjuster a few turns in a counterclockwise direction. This removes from the worm bearings the load imposed by close meshing of worm and sector teeth. Turn steering wheel gently in one direction until stopped, then back away about one turn.

CAUTION: Do not turn steering wheel hard against stops when steering connecting rod is disconnected as damage to sector roller may result.

3. Using J-544-A Steering Gear Checking Scale, measure the pull at the rim of the wheel which

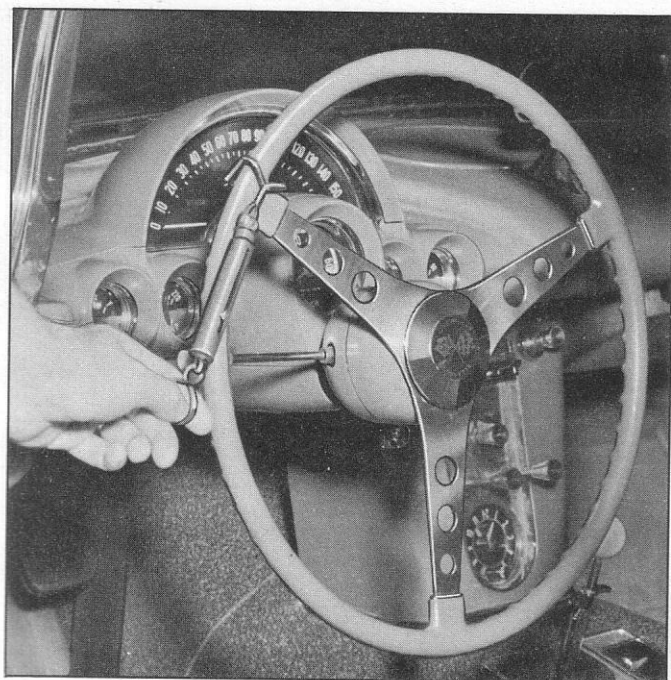


Fig. 3—Checking Load on Steering Gear

is required to keep the wheel in motion. This should be between $\frac{3}{8}$ and $\frac{5}{8}$ pounds (fig. 3).

If the pull necessary to move the wheel does not lie between these limits, adjustment of worm bearings is necessary

NOTE: When making this check, it is important that the line of the scale be kept tangent to the rim of the wheel.

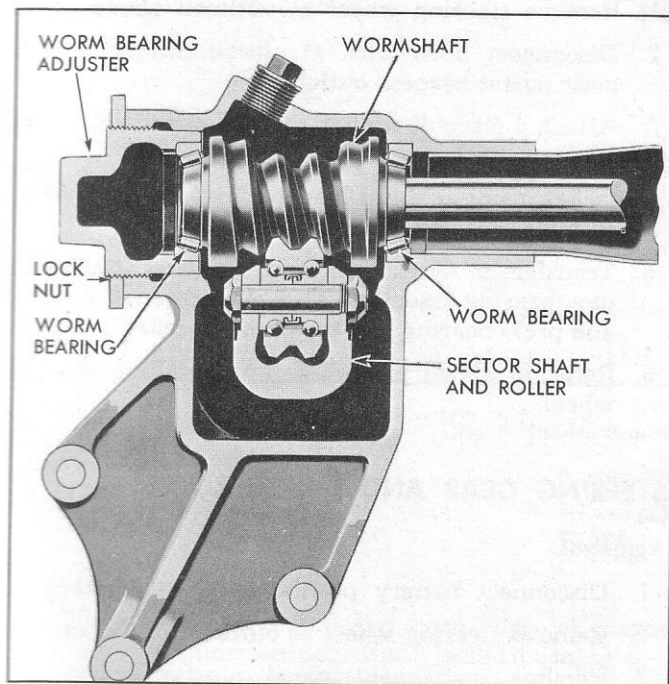


Fig. 4—Corvette Steering Gear

4. To adjust the worm bearing, loosen lock nut (fig. 4) and turn worm bearing adjusting cup until there is no perceptible end play in worm. Check pull at wheel rim as outlined above, readjusting if necessary, to obtain proper pull. Tighten lock nut and recheck pull as it must lie between the limits specified after the lock nut is tightened. If the gear feels "lumpy" after adjustment of worm bearings, there is probably damage in the bearings due to severe impact or to improper adjustment and the assembly must be disassembled for replacement of damaged parts. Instructions for disassembly follow under the heading "Service Operations."
5. After proper adjustment of worm is obtained, and all mounting bolts tightened to 30-35 ft. lbs. torque, adjust lash adjuster (fig. 2). First turn the steering wheel gently from one stop all the way to the other, carefully counting the total number of turns. Then turn wheel back exactly halfway, to center position. Remove the steering wheel horn button and note position of mark on end of worm shaft. This mark should be at the top of the shaft. Mark wheel at top or bottom center with a piece of tape. Turn lash adjuster (fig. 2) clockwise to take out all lash in gear teeth, and tighten lock nut to 10-15 ft. lbs. torque. Turn steering wheel off the high spot, then check pull at wheel rim with checking scale as before, taking the highest reading of checking scale as the wheel is turned through center position. This should be between $\frac{7}{8}$ and $1\frac{1}{8}$ pounds. If the reading is not within the above limits, turn the wheel a half turn off the high spot and either tighten or loosen the adjuster as necessary. Then recheck the adjustment by again pulling through the high spot with the checking scale.

CAUTION: The final adjustment must be between $\frac{7}{8}$ and $1\frac{1}{8}$ pounds.

6. Reassemble steering connecting rod to pitman arm and adjust as outlined under Steering Wheel Alignment and High Point Centering.

Steering Wheel Alignment and High Point Centering

The steering connecting rod is adjustable for length to enable maintaining high point of steering gear adjustment with front wheels in the straight ahead position. Figure 5 shows details of connecting rod. Before making this adjustment, however, it is important that the ball and socket ends be adjusted properly to the pitman arm ball stud and the steering idler and third arm ball stud.

1. Remove cotter pins from ends of sockets and using a drag link bit in screw plug slot, tighten plugs snugly to remove all end play of ball.
2. Back off screw plugs $\frac{1}{4}$ to $\frac{1}{2}$ turn plus amount necessary to insert cotter pin and lock adjustment.

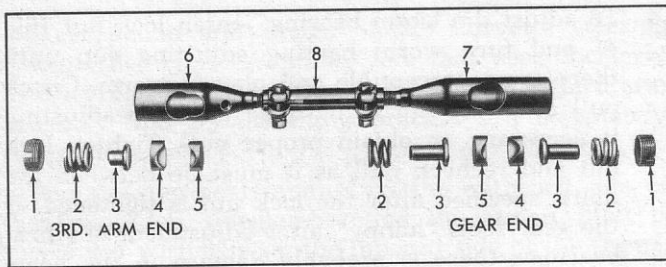


Fig. 5—Steering Connecting Rod Assembly Layout

- | | | |
|----------------|--------------|---------------------|
| 1. Screw Plug | 4. Ball Seat | 7. Rear Rod |
| 2. Spring | 5. Ball Seat | 8. Adjusting Sleeve |
| 3. Safety Plug | 6. Front Rod | |

- Remove the horn button and turn the steering wheel to the straight ahead position. The mark on the steering shaft beneath the horn button should be exactly at the 12 o'clock position. This is the only high point reference mark on Corvettes.
- With the steering gear centered, check that the third arm and its mounting bracket are on the same centerline with a straight edge. If the drag link length is correct, a straight edge centered lengthwise between the four mounting bracket bolts will fall directly between the two tie rod balls at their attachment to the rear of the third arm (fig. 6). If not, loosen the two drag link clamps and adjust its length to obtain this center-

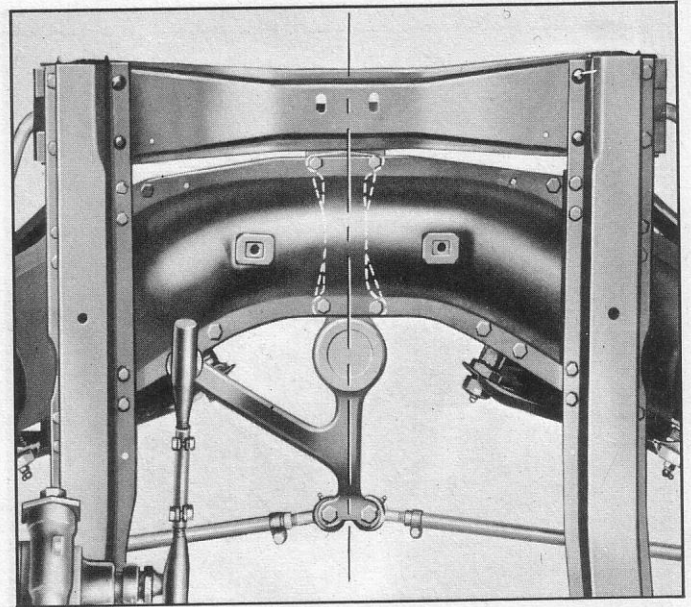


Fig. 6—Checking Third Arm Alignment to Determine Drag Link Adjustment

ing, then retighten clamps to 8-12 ft. lbs. torque.

Toe-in Adjustment

A procedure for adjusting the steering linkage for proper toe-in setting is described in Section 3.

SERVICE OPERATIONS

STEERING WHEEL

Removal (fig. 7, view A)

- Disconnect battery positive cable at battery.
- Pry out horn button.
- Remove three screws attaching receiver cup and contact assembly to steering wheel.

CAUTION: Do not lose the contact pick up plunger and spring recessed into the steering wheel hub.

- Remove steering wheel nut and washer from steering shaft.
- Mark the location of the steering shaft high point mark on hub of steering wheel and, using Tool J-2927, remove steering wheel as shown on Page 4-5 of the 1961 Passenger Car Shop Manual.

Installation

- Replace all components in the reverse order of removal. Make sure that the mark on the steering shaft lines up with the mark made on the steering wheel during removal. Torque steering wheel retaining nut to 35-40 ft. lbs. and stake nut.

MAST JACKET UPPER BEARING—REPLACEMENT

- Remove steering wheel as outlined above.
- Disconnect horn wire at plastic connector near mast jacket harness outlet.
- Attach a piece of wire to the end of the horn wire.
- Pry upper bearing and horn wire from mast jacket, using a sharp-bladed screwdriver or other suitable tool (fig. 8).
- Transfer tie wire to end of horn wire attached to new bearing assembly. Pull wire through opening and press bearing into top of mast jacket.
- Refer to above procedure for installing steering wheel.

STEERING GEAR AND MAST JACKET

Removal

- Disconnect battery positive cable at battery.
- Remove steering wheel as outlined in this section.
- Remove instrument panel cluster lower trim cover to gain access to turn signal housing retainer screw (fig. 7).

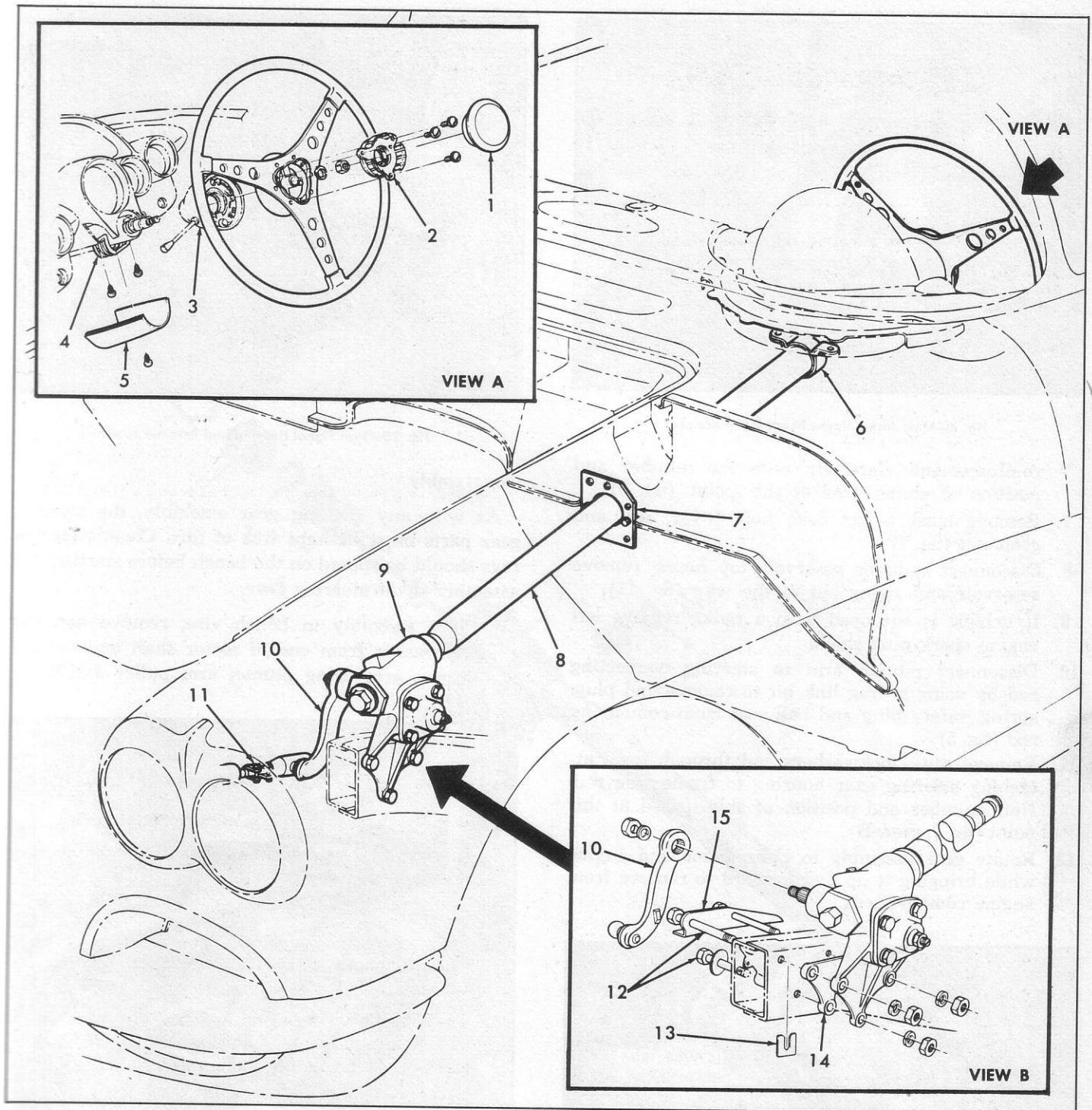


Fig. 7—Steering Gear, Mast Jacket, and Steering Wheel

- | | | |
|----------------------------------|---|-----------------------------|
| 1. Horn Button | 6. Mast Jacket Clamp and Saddle Bracket | 11. Steering Connection Rod |
| 2. Horn Contact and Cup Assembly | 7. Dash Hole Cover and Seal | 12. Gear Retaining Bolts |
| 3. Turn Signal Housing Assembly | 8. Mast Jacket | 13. Shim |
| 4. Trim Cover Support | 9. Steering Gear | 14. Spacer |
| 5. Instrument Cluster Trim Cover | 10. Pitman Arm | 15. Pitman Arm Stop |
4. Disconnect turn signal and horn wires at plastic connector junction near mast jacket harness outlet. Remove harness outlet cover plate.
5. Loosen turn signal housing retainer screw and
- remove housing and wiring from mast jacket (fig. 10).
6. Remove the two screws retaining mast jacket clamp and saddle bracket to instrument cluster

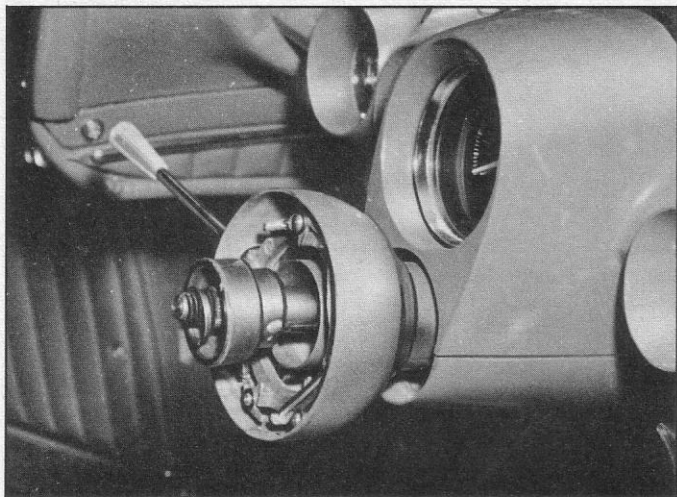


Fig. 8—Mast Jacket Upper Bearing Replacement

reinforcement. Carefully note the number and position of shims used at this point (fig. 9).

7. Remove mast jacket dash hole cover, seal and grommet (fig. 7).
8. Disconnect radiator reservoir top hoses, remove reservoir and swing out of the way (fig. 11).
9. If vehicle is equipped with a radio, remove left engine spark plug shield.
10. Disconnect pitman arm to steering connecting rod by using a drag link bit to remove end plug, spring, safety plug and ball seat from connecting rod (fig. 5).
11. Remove nuts, lockwashers and through bolts attaching steering gear housing to frame side rail. Note number and position of shims used at this point (fig. 7, view B).
12. Rotate gear assembly to clear frame and engine while bringing it up and forward to remove from engine compartment.

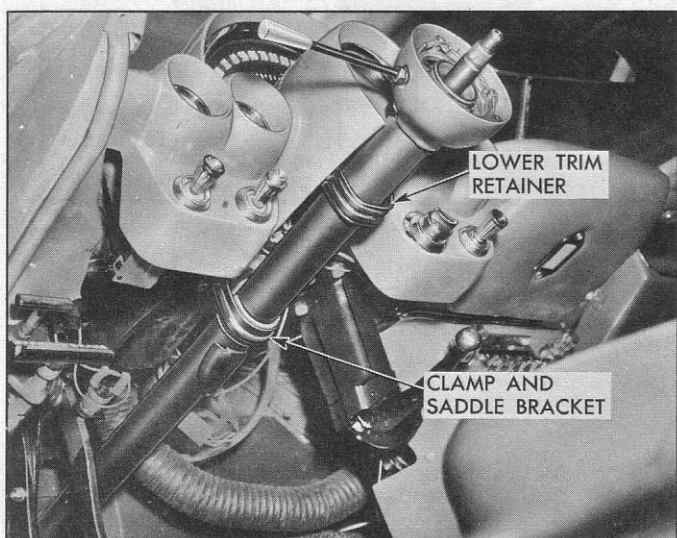


Fig. 9—Mast Jacket Assembly

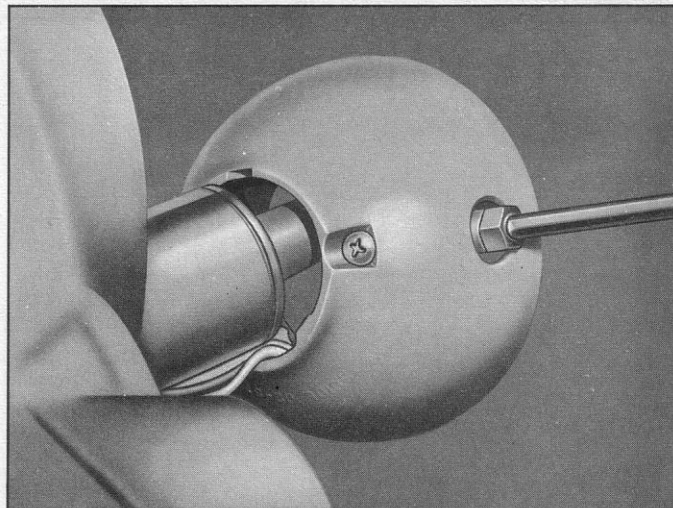


Fig. 10—Turn Signal Housing and Retainer Screw

Disassembly

As with any steering gear assembly, the steering gear parts must be kept free of dirt. Clean paper or rags should be spread on the bench before starting disassembly of the steering gear.

1. Place assembly in bench vise, remove nut and lockwasher from end of sector shaft and remove pitman arm using pitman arm puller J-1025.

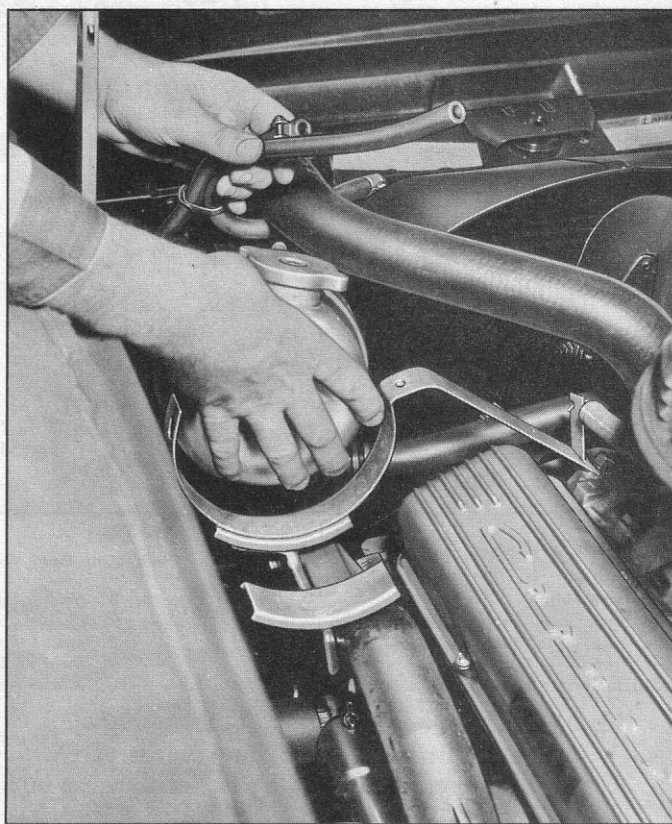


Fig. 11—Radiator Reservoir Removal

2. Loosen the lock nut on the end of the sector shaft (fig. 2), then turn the lash adjuster a few turns counterclockwise. This will remove the load from the bearings caused by the close meshing of the worm and sector teeth.
 3. Loosen the lock nut (fig. 4) on the worm bearing adjuster cup and turn the adjuster cup counterclockwise a few turns.
 4. Place a pan under the assembly to catch the lubricant and remove the bolts attaching the side cover to the housing.
 5. Pull the side cover with the sector and shaft from the housing.
- NOTE:** If sector does not clear the opening in the housing easily, turn the worm shaft by hand until the sector will pass through the opening in the housing.
6. Remove the worm bearing adjuster cup and lower worm bearing.
 7. Draw the worm and shaft assembly from the housing. Lay this assembly flat on the bench so that the worm will not become damaged.

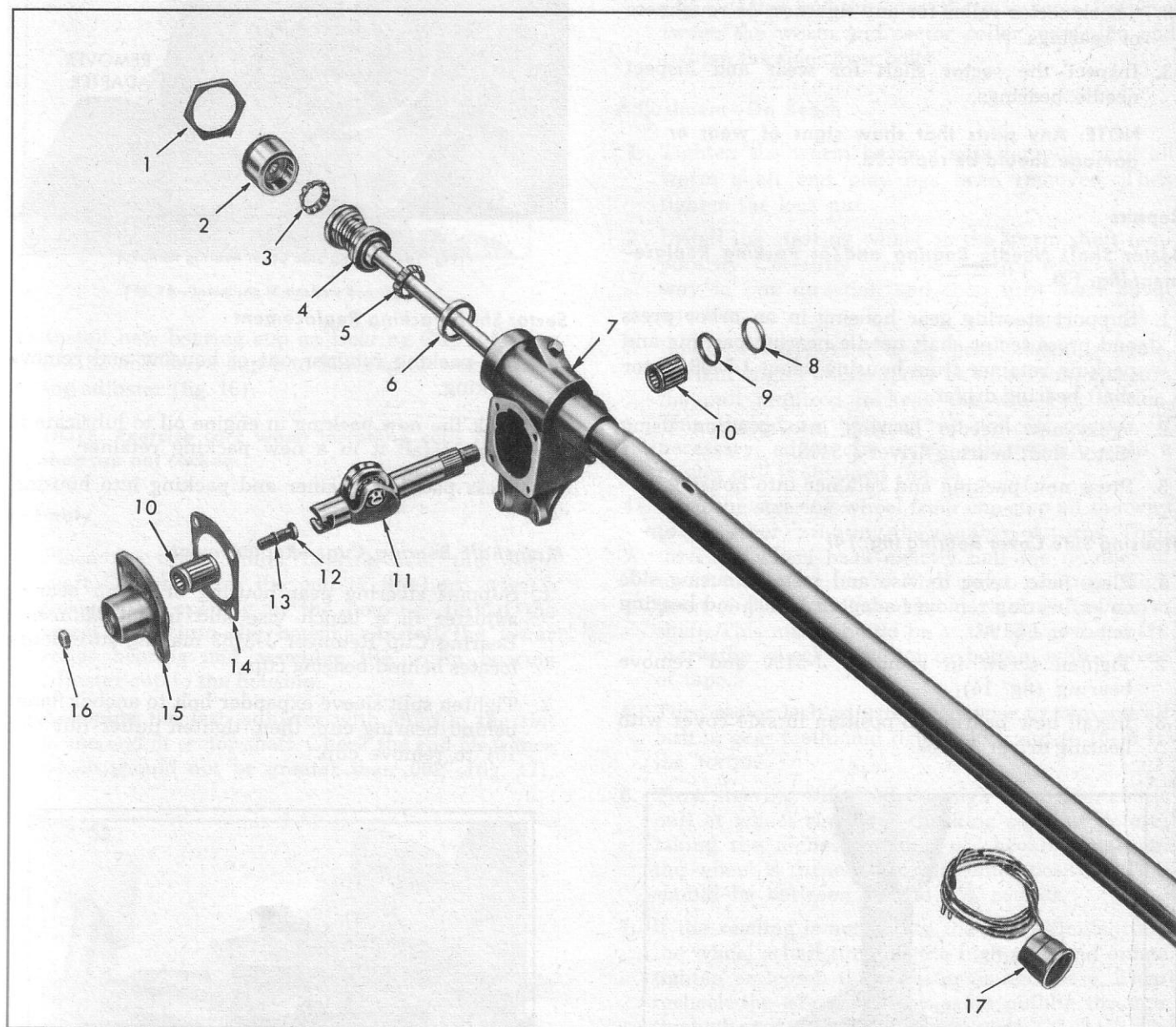


Fig. 12—Layout of Steering Gear Parts

- | | | |
|---|--------------------------------------|----------------------------------|
| 1. Worm Bearing Adjuster Lock Nut | 7. Housing and Mast Jacket Assembly | 13. Lash Adjuster Shim |
| 2. Worm Bearing Adjuster Cup | 8. Sector Shaft Packing Retainer | 14. Housing Side Cover Gasket |
| 3. Lower Worm Shaft Roller Bearing | 9. Sector Shaft Packing | 15. Housing Side Cover |
| 4. Worm Shaft Assembly | 10. Sector Shaft Needle Bearing | 16. Check Nut |
| 5. Upper Worm Shaft Roller Bearing | 11. Sector Shaft and Roller Assembly | 17. Mast Jacket Bearing Assembly |
| 6. Upper Worm Shaft Roller Bearing Race | 12. Lash Adjuster | |

8. Remove the lock nut from the lash adjuster and screw the lash adjuster through the side cover. Slide the lash adjuster out of slot in the end of the sector shaft (Fig. 2).

Inspection

With the steering gear completely disassembled (fig. 12) wash all parts in cleaning solvent. Dry them thoroughly with clean rags.

1. With a magnifying glass inspect the roller bearings, cups, worm and the sector roller.
2. Check sector roller for any tightness or roughness of bearings.
3. Inspect the sector shaft for wear and inspect needle bearings.

NOTE: Any parts that show signs of wear or damage should be replaced.

Repairs

Sector Shaft Needle Bearing and/or Packing Replacement (fig. 13).

1. Support steering gear housing in an arbor press and press sector shaft needle bearing packing and packing retainer from housing using J-5408 sector shaft bearing driver.
2. Press new needle bearing into position using sector shaft bearing driver J-5408.
3. Press new packing and retainer into housing.

Housing Side Cover Bearing (fig. 14)

1. Place side cover in vise and install housing side cover bearing remover adapter J-5409 and bearing remover J-5190.
2. Tighten screw in remover J-5190 and remove bearing (fig. 14).
3. Install new bearing to position in side cover with bearing driver J-5408.

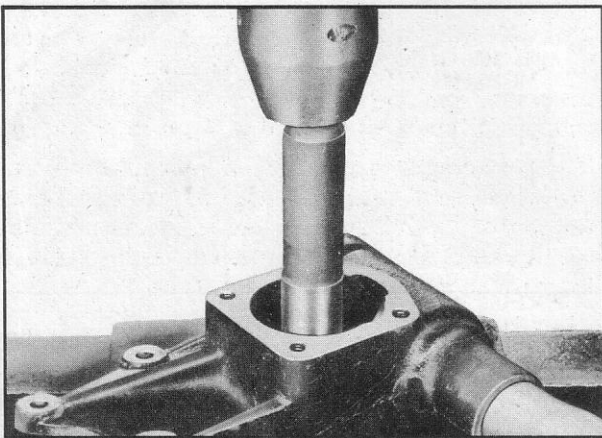


Fig. 13—Replacing Sector Shaft Bearing

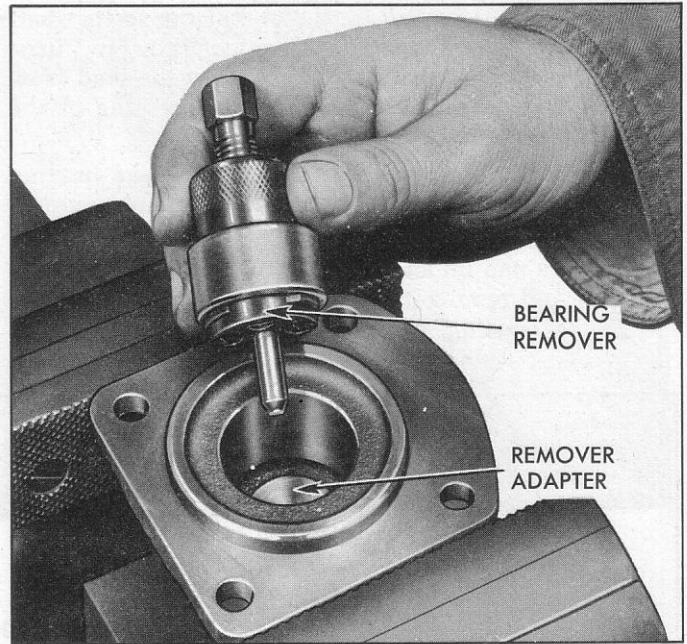


Fig. 14—Housing Side Cover Bearing Removal

Sector Shaft Packing Replacement

1. Pry packing retainer out of housing and remove packing.
2. Soak the new packing in engine oil to lubricate it; then, install it in a new packing retainer.
3. Press packing retainer and packing into housing.

Mainshaft Bearing Cups—Replacement

1. Support steering gear housing or worm bearing adjuster in a bench vise and install Mainshaft Bearing Cup Remover J-3183 making sure flange locates behind bearing cup.
2. Tighten split sleeve expander bolt to anchor flange behind bearing cup; then, tighten puller nut (fig. 15) to remove cup.

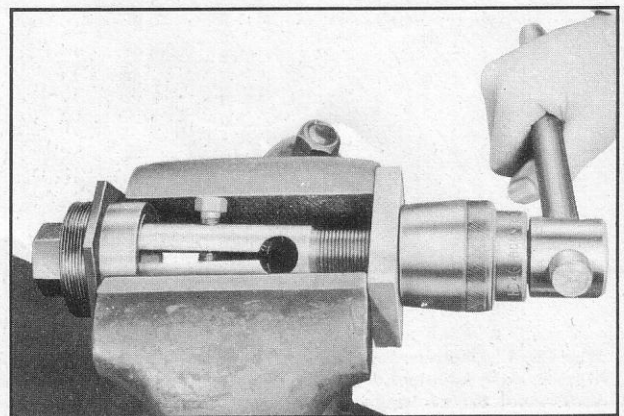


Fig. 15—Removing Mainshaft Bearing Cup



Fig. 16—Installing Mainshaft Bearing Cup

3. Install new bearing cup on Bearing Cup Replacer J-3182 and drive cup into housing or worm bearing adjuster (fig. 16).

NOTE: Exercise care when installing cups that they are not cocked.

Assembly

1. Place the upper roller bearing over the worm shaft. Making sure the end of the horn wire is through its opening in the housing, thread the worm shaft into the housing. Install the lower roller bearing and assemble the worm bearing adjuster cup to the housing.
2. Assemble the lash adjuster with shim in the slot in the end of sector shaft. Check the end clearance which should not be greater than .002" (fig. 17).

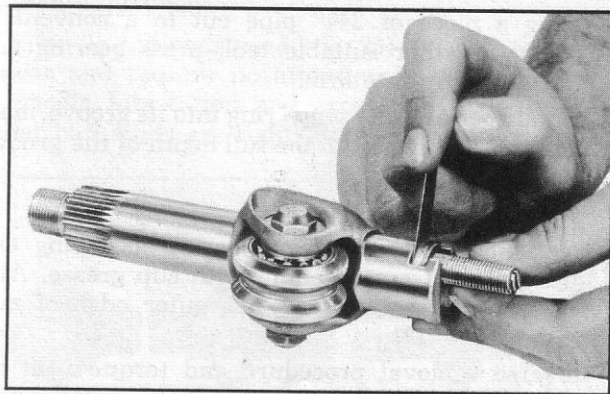


Fig. 17—Checking Sector Shaft Lash Adjuster End Clearance

For the purpose of adjusting this end clearance, a steering gear lash adjuster shim unit Part Number 605142 is available. It contains four shims—.063", .065", .067" and .069" thick.

3. After the lash adjuster end clearance has been adjusted start the sector shaft pilot into the side cover. Then, using a screwdriver through the hole in the cover, turn the lash adjuster in a counter-clockwise direction to pull the sector shaft pilot into the side cover as far as it will go.
4. Place a new gasket on side cover; then push the side cover assembly including sector shaft into place. After making sure there is some lash between the worm and sector roller, assemble and tighten the side cover bolts.

Adjustment—On Bench

1. Tighten the worm bearing adjuster cup until all worm shaft end play has been removed. Then tighten the lock nut.
2. Install the steering wheel on the worm shaft temporarily. Carefully turn the steering wheel all the way in one direction and then turn back about one turn.
3. Using a J-544-A steering gear checking scale, at right angles to one spoke at wheel rim, measure the pull required to keep the wheel in motion. This should be between $\frac{3}{8}$ and $\frac{5}{8}$ pounds. If necessary, adjust the worm adjuster cup until a proper pull is obtained (fig. 3).
4. Turn the steering wheel from one stop all the way to the other, counting the number of turns. Then turn the wheel back exactly half the number of turns to the center or high point position. High point of gear is indicated by mark on end of worm shaft. This mark should be at the top of the shaft. Mark the wheel at the top or bottom with a piece of tape.
5. Turn sector lash adjuster clockwise to take out all lash in gear teeth, and tighten lock nut to 10-15 ft. lbs. torque.
6. Turn steering wheel off the high spot, then check pull at wheel rim with checking scale as before, taking the highest reading of checking scale as the wheel is turned through center position. This should be between $\frac{7}{8}$ and $1\frac{1}{8}$ pounds.
7. If the reading is not within the above limits, turn the wheel a half turn off the high spot and either tighten or loosen the adjuster as necessary. Then recheck the adjustment by again pulling through the high spot with the checking scale.

CAUTION: The final adjustment must be between $\frac{7}{8}$ and $1\frac{1}{8}$ pounds.

8. Fill the assembly with steering gear lubricant to the level of the filler plug hole and replace filler plug.

STEERING 9-10

9. Install pitman arm, lockwasher and nut and tighten to 100-125 ft. lbs. torque.

Installation

1. Start end of mast jacket through hole in toe pan, lower gear assembly into engine compartment and place in position on frame side rail.
2. Install mast jacket toe board grommet, seal and cover to toe board.
3. Install bolts, pitman arm stop, gear housing spacer, lockwashers and nuts retaining housing to side rail, but do not tighten yet (fig. 7, view B).
4. Install mast jacket to instrument cluster reinforcement clamp and saddle bracket, torquing retaining bolts to 70-85 in. lbs. Make sure shims are replaced to their original position (fig. 9).
5. Replace shims between gear housing spacer and frame side rail. Torque retaining through bolts to 30-35 ft. lbs. (fig. 7).
6. Connect steering connecting rod to pitman arm. Tighten end screw plug snugly to remove all play, then back off $\frac{1}{4}$ to $\frac{1}{2}$ turn plus amount necessary to insert cotter pin (fig. 5).
7. Replace spark plug shield on radio equipped vehicles.
8. Install radiator reservoir and connect top hoses.
9. Install turn signal housing assembly and instrument cluster trim cover.
10. With steering gear on high point, install steering wheel, washer and nut. Torque to 35-40 ft. lbs. and stake nut.
11. Adjust steering connecting rod as outlined above under wheel alignment and high point centering.
12. Replace horn button, contact and cup assembly. Connect battery positive cable.

STEERING LINKAGE (fig. 1)

Third Arm and Idler Assembly

The third arm and steering idler assembly is bolted to the underside of the front suspension crossmember at its center. Two equal length tie rods connect to the rear of the idler arm.

The arm assembly houses a double row ball bearing which is located in the arm by a special lock "snap" ring. A stud runs from inside the arm, through the bearing, and is used to attach the arm assembly to its bracket, which in turn is bolted to the crossmember.

Removal

1. Disconnect the steering connecting rod to idler arm (fig. 5).
2. Disconnect both tie rods at idler arm as shown on Page 4-20 of the 1961 Passenger Car Shop Manual.

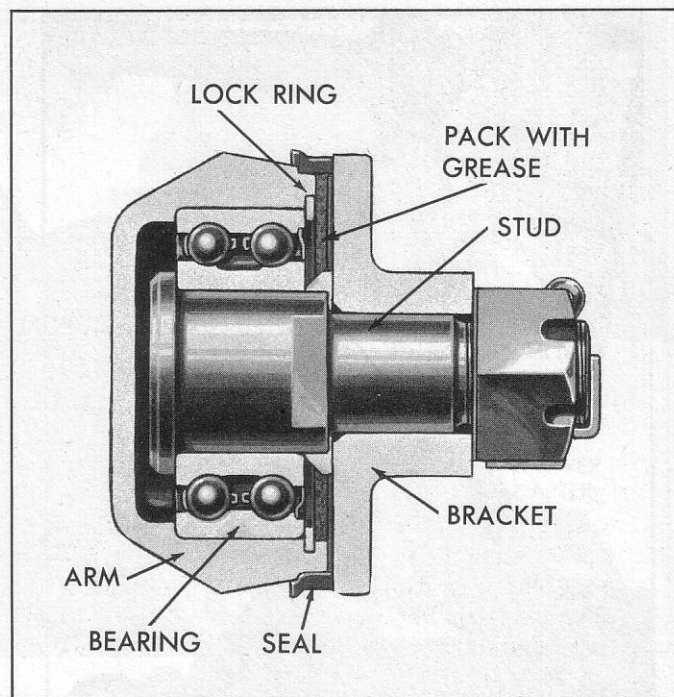


Fig. 18—Cross-Section of Steering Idler and Third Arm

3. Remove cotter pin and nut retaining arm to bracket, and remove arm assembly.

Disassembly (fig. 18)

1. Remove grease and dirt seal.
2. Remove special lock "snap" ring from inside arm opening.
3. Place nut on stud and lock nut securely in a vise.
4. While holding other end of arm, use a hammer and tap around arm opening to remove stud and bearing.

Inspection

Carefully inspect all parts for signs of wear or other damage, replacing any necessary parts. Check bearing for roughness and worn or pitted races.

Assembly

1. Using a piece of $2\frac{3}{8}$ " pipe cut to a convenient length, or other suitable tool, press bearing and stud assembly into arm.
2. Install special lock "snap" ring into its groove, making sure it is seated to the full depth of the groove.

Installation

1. Pack the cavity between bearing lock ring and outer edge of arm opening with cup grease. Also position the seal around this outer edge of arm opening (fig. 18).
2. Reverse removal procedure and torque stud retaining nut to 60-85 ft. lbs. Be sure to install a new cotter pin after torquing nut.

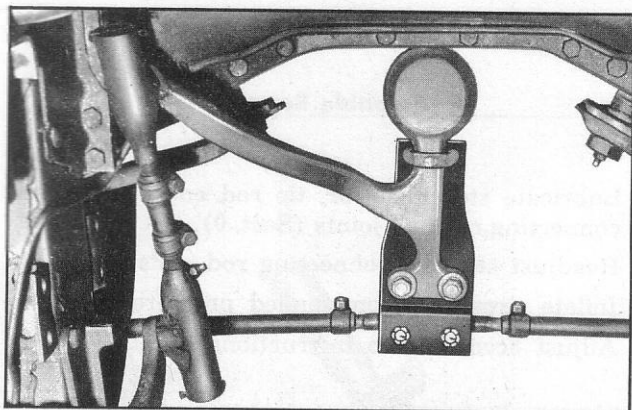


Fig. 19—Fast Steering Adapter (typical)

NOTE: When installing arm assembly to bracket, be sure the two flat surfaces on either side of stud shank are positioned so as to engage the two splined areas of the bracket; otherwise the stud and bearing will not be fully seated into the bracket.

3. Install steering connecting rod to idler arm, screw end plug tight then back off $\frac{1}{4}$ to $\frac{1}{2}$ turn plus amount necessary to insert cotter pin.

Fast Steering Adapter

In 1960 an adapter to the third arm assembly was made available to produce a faster steering ratio (fig. 19). The fast steering adapter changes the "overall" steering ratio from 21.1 to 16.3:1. These revisions affect service procedures only in the matter of part numbers of pieces to be replaced. Refer to the 1961 Passenger Car Shop Manual, Section 4, for Steering Linkage Service Procedures; in addition to Section 14 of this Manual, for toe-in and alignment specifications.

Tie Rod

There are two tie rods used on Corvette models. The tie rods are of three piece construction, consisting of the tie rod and two tie rod end assemblies. The ends are threaded into the rod and locked with clamps. Right and left hand threads are provided to facilitate toe-in adjustment.

The tie rod ends used (fig. 20) are self adjusting for wear and require no attention in service other than periodic lubrication and occasional inspection to see that ball studs are tight. Replacement of tie rod ends

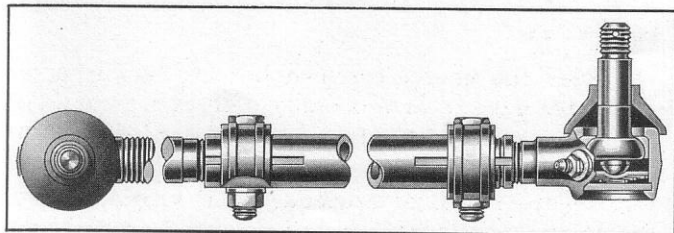


Fig. 20—Tie Rod Assembly

should be made when excessive up and down motion is evident or if any lost motion or end play at ball end of stud exists.

Service procedures are similar to those described in Section 4, Page 4-20, of the 1961 Passenger Car Shop Manual. Also refer to Section 14 of this manual for toe-in and alignment specifications.

Tie rod ball stud retaining nut torque should be 30-40 ft. lbs. The adjusting clamp bolt nuts should be torqued to 8-12 ft. lbs.

Steering Connecting Rod (fig. 5)

The steering connecting rod is adjustable for length through a center adjusting sleeve. The ball and socket ends are also adjustable at both the pitman arm and steering idler and third arm ends.

Removal

1. Remove cotter pin from end of connecting rod at pitman arm ball stud attachment.
2. Using a drag link bit, remove end plug from socket and remove spring, safety plug and outer ball seat from connecting rod.
3. Shift steering linkage as required to free pitman arm from connecting rod. Remove inner ball seat, safety plug and spring.
4. Repeat Steps 1 through 3 above for third arm end of connecting rod and remove connecting rod.

Inspection

If connecting rod is suspected of being damaged through vehicle collision or other sources, it should be removed and checked for bends and cracks. The condition of the rod can be determined by comparing it to a new part.

A defective connecting rod should be discarded. Never, under any circumstances, attempt salvage by welding or bending.

Remove accumulated grease and dirt from all parts and inspect for excessive wear.

Installation

1. Reverse removal procedure outlined above referring to Figure 5 of this section to be sure that parts are installed in proper sequence.
2. Tighten end plugs snugly to remove all end play of ball and socket and then back off each plug $\frac{1}{4}$ to $\frac{1}{2}$ turn plus amount necessary to insert cotter pins.
3. Lubricate each ball joint.
4. Check steering wheel alignment and high point centering, adjusting, if necessary, as outlined in this section. Adjusting sleeve clamp bolts should be torqued to 8-12 ft. lbs.

TROUBLES AND REMEDIES

Symptom and Probable Cause	Probable Remedy
Hard Steering	
a. Lack of lubrication	a. Lubricate steering gear, tie rod ends and steering connecting rod ball joints (Sect. 0).
b. Steering connecting rod ends too tight.	b. Readjust steering connecting rod ends (Sect. 9).
c. Underinflated tires.	c. Inflate tires to recommended pressure (Sect. 10).
d. Improper gear adjustment.	d. Adjust according to instructions (Sect. 9).
Loose Steering	
a. Improper gear adjustments.	a. Adjust according to instructions (Sect. 9).
b. Loose connecting rod ball joints.	b. Adjust connecting rod ball joints (Sect. 9).
c. Worn steering knuckle bushings.	c. Replace steering knuckle bushings (Sect. 3).
d. Worn sector shaft bearing.	d. Replace bearing (Sect. 9).

NOTE: Also refer to Section 4, Page 4-22 of the 1961 Passenger Car Shop Manual for additional troubles and remedies.

SPECIFICATIONS

Specifications for steering components may be found in Section 14 of this Manual.

SPECIAL TOOLS

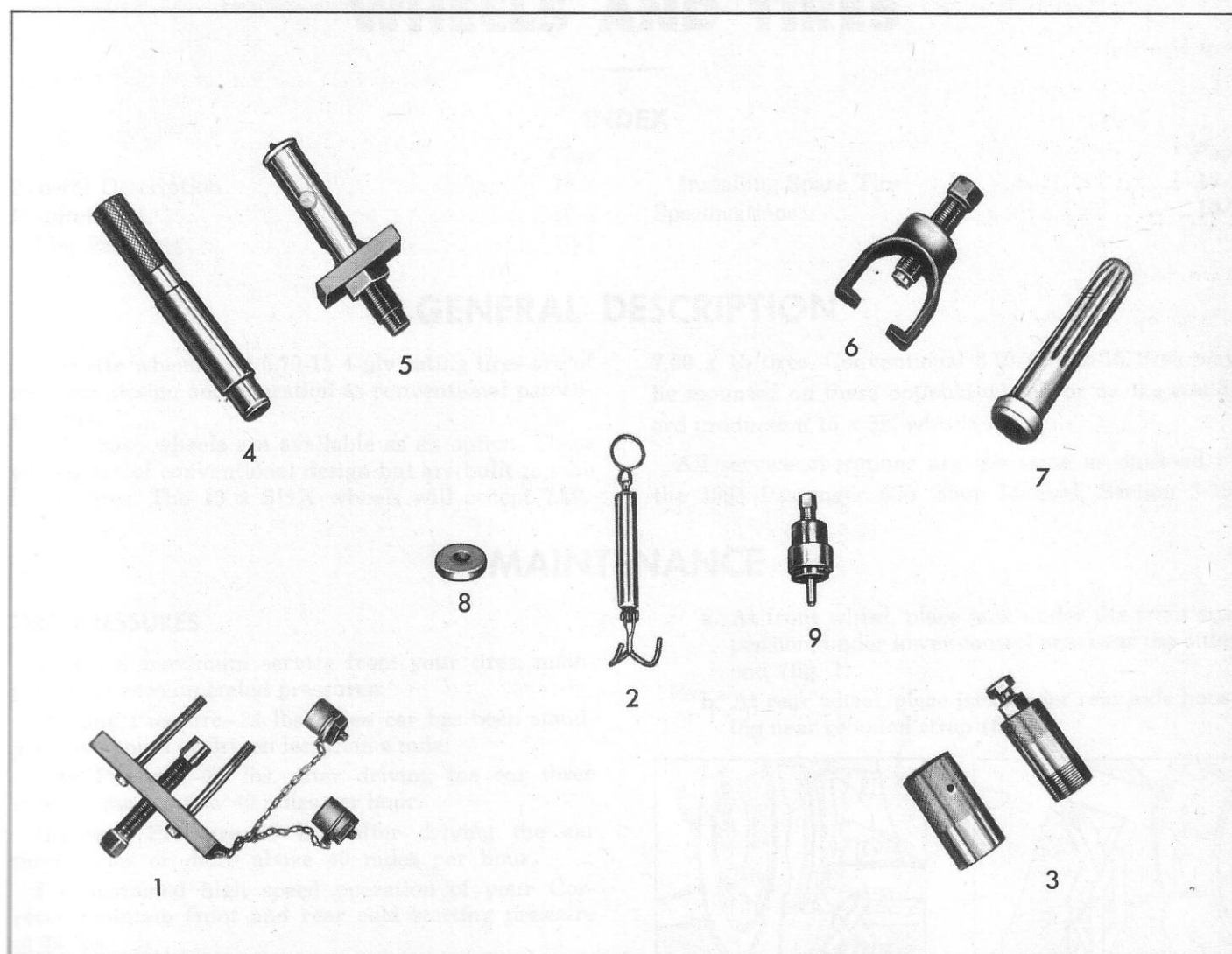


Fig. 21—Steering Gear Special Tools

- | | |
|--|--|
| 1. J-2927—Steering Wheel Puller | 6. J-1025—Pitman Arm Puller |
| 2. J-544-A—Steering Gear Checking Scale | 7. J-3182—Mainshaft Bearing Cup Replacer |
| 3. J-2565—Mast Jacket Bearing Remover and Replacer | 8. J-5409—Side Cover Bearing Remover Adapter |
| 4. J-5408—Sector Shaft Bearing Driver | 9. J-5190—Side Cover Bearing Remover |
| 5. J-3183—Mainshaft Bearing Cup Remover | |

SPECIFICATIONS

Refer to Section 14 for Wheel and Tire Specifications.