

SECTION 4

STEERING

CONTENTS OF THIS SECTION

	<i>Page</i>
Corvair Passenger Car—500, 600, 700, and 900 Series	4-1
Corvair 95 and Greenbrier—1200 Series	4-5
Specifications	4-6

CORVAIR PASSENGER CAR 500, 600, 700 AND 900 SERIES

INDEX

	<i>Page</i>		<i>Page</i>
General Description	4-1	Installation	4-2
Maintenance and Adjustments	4-1	Steering Wheel (Simulated Wood)	4-3
Steering Gear Adjustment	4-1	Removal	4-3
Lubrication	4-2	Installation	4-3
Service Operations	4-2	Upper Mast Jacket Bearing Replacement	4-3
Steering Gear	4-2	Steering Arms	4-3
Removal	4-2	Removal	4-3
Overhaul	4-2	Installation	4-3
Installation	4-2	Steering Linkage—Idler Arm	4-4
Worm Bearing Cup	4-2	Removal	4-4
Removal	4-2	Installation	4-4

GENERAL DESCRIPTION

The steering system for 1964 remains the same as the proven 1961 design with modifications. The 1964 steering system incorporates the extended lubrication interval by using new tie rod sockets and idler arm seals and washers. Also a one piece steering shaft with

a smaller diameter is used. The service procedures which have been affected are outlined in this section. Those procedures not covered in this section may be assumed to be serviced as outlined in the 1961 Corvair Shop Manual.

MAINTENANCE AND ADJUSTMENTS

STEERING GEAR ADJUSTMENT

The adjustment of the steering gear was formerly checked by rotating the wormshaft with an inch-pound calibrated torque wrench placed on the steering wheel retaining nut. In order to eliminate the necessity of removing the horn button, and to make this procedure consistent with that used on the rest of the Chevrolet vehicles, the adjustment is now checked with a pull scale (J-5178) as shown in Figure 1.

Before attempting steering gear adjustments to correct such conditions as shimmy, loose or hard steering, etc., make a careful check of front end alignment, shock absorbers, wheel balance and tire pressure for possible causes.

Correct adjustment of the steering gear is very important. Only two adjustments are possible but they

must be made in the following manner, step by step, in the order given.

1. Pull pitman arm as outlined on Page 4-2, Operation 1 of 1961 Corvair Shop Manual.
2. Loosen lash adjuster screw lock nut and turn screw out of gear case enough to remove sector high point loading (about 2½ to 3½ turns).
3. Check effort required to keep steering wheel in motion, using Tool J-5178 as shown in Figure 1. The desired amount is 7/16-9/16 lbs. If adjustment is necessary, loosen worm bearing adjuster lock nut and turn adjuster in appropriate direction to increase or decrease worm bearing load. Lock nut should be snugged up after each adjustment and before scale is read. Fully tighten lock nut when desired worm bearing adjustment is reached and recheck scale reading.



Fig. 1—Checking Steering Adjustment

4. With worm bearings correctly adjusted, turn lash adjuster screw into gear case until a scale reading of $1\frac{1}{4}$ - $1\frac{1}{2}$ lbs. is obtained when steering wheel is rotated through an area $\frac{1}{4}$ of a turn on each side of straight ahead steering wheel position. Locate straight ahead position by turning the steering wheel gently from one stop to the other counting the total number of turns; then turn wheel back half to center position. Wheel spokes should be horizontal. Approach end of travel with care; striking end of travel with force can severely damage gear. When desired adjustment is obtained, tighten lash adjuster lock nut and recheck.

NOTE: During adjustment, always turn lash adjuster screw in clockwise direction.

Install pitman arm on shaft after making sure steering wheel and front wheels are in straight ahead position.

LUBRICATION

A new design is available for extended lubrication. Refer to Lubrication, Section 2, for lube points and intervals.

SERVICE OPERATIONS

STEERING GEAR

Removal

1. Remove steering wheel as outlined in the 1961 Corvair Shop Manual.
2. Raise car on suitable hoist or jackstand and disconnect pitman arm from pitman shaft, using tool J-6627.
3. Remove left horn.
4. Support the gear and remove the three bolts and washers attaching the steering gear to the frame side member.
5. Slide gear assembly forward, rotate counterclockwise and pull down, removing it from the vehicle.

Overhaul

After gear is overhauled, lubricated and assembled, it is suggested that it be installed in the vehicle and adjusted instead of adjusted on the work bench. See 1961 Corvair Shop Manual for overhaul and installation instructions; adjust as outlined in 1961 Shop Manual and this section, under Maintenance and Adjustments.

Installation

1. Feed the gear and shaft assembly into the mast jacket from under the front of the car.

CAUTION: Be sure not to damage the upper mast jacket bearing when installing shaft through bearing.

2. Install the steering gear to frame attaching bolts and washers and tighten.
3. Position pitman arm on pitman shaft and install lock washer and nut. Torque pitman shaft nut to 80-105 ft. lbs.
4. Install left horn.
5. Install steering wheel as outlined in the 1961 Corvair Shop Manual making sure upper mast jacket bearing spacer is in place (Fig. 3). Torque steering wheel nut 25 to 35 ft. lbs.

Worm Bearing Cup

The worm bearing cup in the steering gear housing may be serviced as follows:

Removal

1. With gear dismantled as outlined in 1961 Corvair Shop Manual and seal removed, cup may be tapped out of housing with a punch and hammer.
2. Use care to avoid damaging housing. Support it on a wood block while driving out old cup.

Installation

1. With all foreign material out of cup bore in housing, position new cup over bore. Place old cup on top of new and press new cup in with arbor press.
2. Install new seal as outlined on Page 4-7 of 1961 Corvair Shop Manual. Figure 4-1 in the 1961 Manual shows installed position of seal and cup.

STEERING WHEEL (Simulated Wood (Fig. 2))

Removal

1. Disconnect horn wire at chassis wiring harness.
2. Remove horn cap by pulling up.
3. Remove steering wheel attaching nut and washer.
4. Remove three contact assembly attaching screws and remove contact assembly.
5. Remove remaining six screws from steering wheel and remove wheel from hub assembly.
6. Using tool J-2927 install centering adapter on steering shaft, thread puller anchor screws into threaded holes provided in hub assembly. Turn center bolt of tool clockwise to remove hub assembly.

Installation

1. Replace all components in the reverse order of removal.

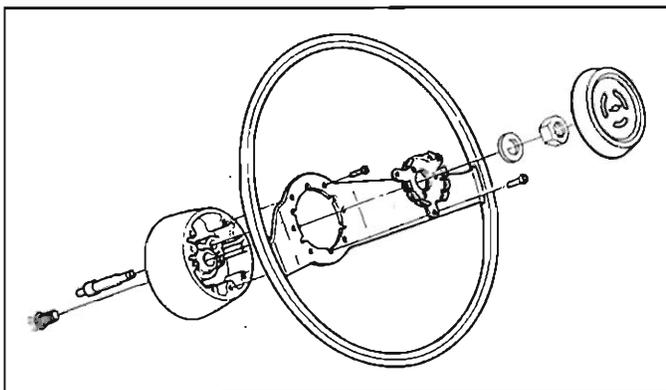


Fig 2.—Simulated Wood Steering Wheel and Attaching Parts

NOTE: Align mark on steering wheel hub assembly with mark on steering shaft when assembling.

UPPER MAST JACKET BEARING REPLACEMENT

With the steering wheel removed the upper mast jacket bearing and spacer may be pried out and a new assembly tapped into place. (Figure 3).

STEERING ARMS

If, through collision or other damage, it becomes necessary to remove and replace either steering arm, proceed as follows:

Removal

1. Remove tie rod from steering arm as outlined under *Steering Linkage—Tie Rod—Removal, Operations 1 and 2, Page 4-11 of 1961 Corvair Shop Manual.*
2. Remove front wheel, hub and brake drum as a unit by removing hub cap and dust cap, cotter pin from spindle nut and the spindle nut. Pull assembly toward outside of vehicle. If removal is difficult, it may be necessary to back off brake adjustment to increase brake shoe-to-drum clearance; see *Hydraulic Brake Adjustment, Page 5-6, 1961 Corvair Shop Manual.*
3. With wheel and drum assembly removed, steering arm retaining bolt heads are accessible and removal of steering arm from vehicle may be accomplished by removing retaining nuts.

Installation

1. Place steering arm in position on vehicle and in-

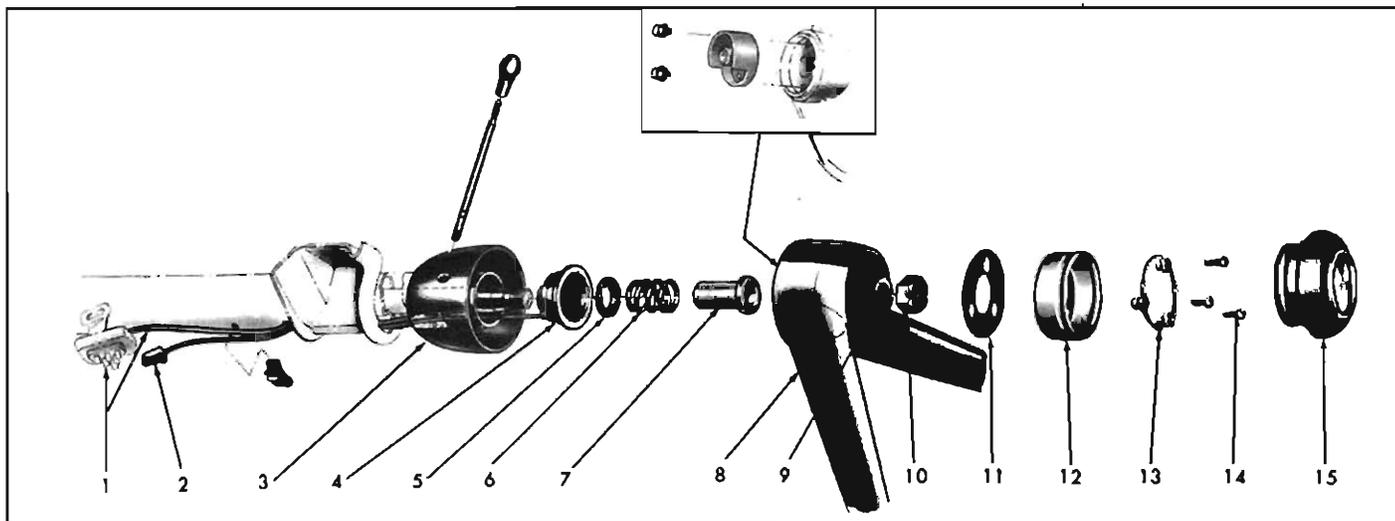


Fig. 3—Exploded View of Upper Mast Jacket and Steering Wheel

- | | | | |
|------------------------------|-------------------|------------------------|------------------------------|
| 1. Directional Signal Switch | 5. Spring Seat | 9. Lock Washer | 13. Bushing Spacer |
| 2. Horn Wire Connector | 6. Spring | 10. Steering Shaft Nut | 14. Screws |
| 3. Direction Signal Housing | 7. Sleeve | 11. Bellville Spring | 15. Horn Button and Retainer |
| 4. Bearing Assembly | 8. Steering Wheel | 12. Receiver Cup | |

stall retaining bolts. Note that longer bolt is installed in forward hole.

2. Install nuts and torque to 40-50 ft. lbs. Use only the special locknut listed for this use in the Chevrolet Parts Catalog.
3. Pack wheel bearings using a high quality wheel bearing lubricant. Install bearings and wheel-hub-brake drum assembly removed previously.
4. Install keyed washer and spindle nut. Proceed as outlined on Page 3-2 of 1961 Corvair Shop Manual under *Front Wheel Bearings—Adjust.*
5. Install tie rod ball stud in steering arm. Be sure that the dust cover is in place on ball stud.
6. Install castellated nut on ball stud, tighten securely and install cotter pin.
7. Following directions given on Pages 3-4 and 3-5 of 1961 Corvair Shop Manual, check cornering wheel relationship and toe-in.

1963 STEERING LINKAGE—IDLER ARM

Removal

1. Remove cotter pins from both ends of idler arm and remove nuts.
2. Tap on side of relay rod at idler ball stud while using a heavy hammer or similar tool as a backing. Pull down on relay rod to remove from stud.
3. Tap on side of idler arm bracket at ball stud and pull idler lever and ball stud from bracket.
4. Idler arm bracket can be removed if necessary by removing the two attaching bolts and nuts.

Installation

Reverse above removal procedures and torque idler arm nuts at bracket and at relay rod from 15 to 22 ft. lbs.

CORVAIR 95 AND GREENBRIER 1200 SERIES

INDEX

	<i>Page</i>		<i>Page</i>
General Description.....	4-5	Steering Arms.....	4-5
Maintenance and Adjustments.....	4-5	Removal.....	4-5
Service Operations.....	4-5	Installation.....	4-5
Mast Jacket.....	4-5		

GENERAL DESCRIPTION

The steering system for 1964 remains the same as the proven design used on the 1961 vehicle except for the idler lever support and spacer. There are, however, certain service procedures and adjustments which have

been changed; these are covered in the following pages.

Adjustments and service procedures not covered herein may be assumed to be the same as outlined in the 1961 Shop Manual.

MAINTENANCE AND ADJUSTMENTS

Directions for replacing a steering arm may be found in this section. Checking procedure furnished with front end equipment used must be followed for best results.

SERVICE OPERATIONS

MAST JACKET

The mast jacket is a slide fit at the steering gear end and is held in place by a clamp. The clamp bolt torque is 15-20 ft. lbs.

Steering Arms

If, through collision or other damage, it becomes necessary to remove and replace either steering arm, proceed as follows:

Removal

1. Remove tie rod from steering arm as outlined under *Steering Linkage-Tie Rod Assembly*, Page 4-23 of 1961 Corvair Shop Manual.
2. Remove front wheel, hub and brake drum as a unit by removing hub cap and dust cap, cotter pin from spindle nut and the spindle nut. Pull assembly toward outside of vehicle. If removal is difficult, it may be necessary to back off brake adjustment to increase brake shoe-to-drum clearance: see *Hydraulic Brake Adjustment*, Page 5-15, 1961 Corvair Shop Manual.
3. With wheel and drum assembly removed, steering arm retaining bolt heads are accessible and removal of steering arm from vehicle may be accomplished by removing retaining nuts.

Installation

1. Place steering arm in position on vehicle and install retaining bolts. Note that longer bolt is installed in forward hole.
2. Install nuts and torque to 45-55 ft. lbs. Use only the special locknut listed for this use in the Chevrolet Parts Catalog.
3. Pack wheel bearings using a high quality wheel bearing lubricant. Install bearings and wheel-hub-brake drum assembly removed previously.
4. Install keyed washer and spindle nut. Proceed as outlined on Page 3-29 of 1961 Corvair Shop Manual under *Front Wheel Bearings—Adjust*.
5. Install tie rod ball stud in steering arm. Be sure that the dust cover is in place on ball stud.
6. Install castellated nut on ball stud, tighten securely and install cotter pin.
7. Following directions given on Page 3-4 of 1961 Corvair Shop Manual, check toe-in. Cornering wheel relationship should also be checked. Follow directions furnished with the equipment used.

SPECIFICATIONS

Steering Gear	500, 600, 700, 900	Corvaair 95
Make	Saginaw	Saginaw
Type	Recirculating Ball	Recirculating Ball
Ratio—Gear Only	18:1	20:1
Wormshaft Diameter	5/8"	3/4"
Total Wormshaft Revolutions		
Gear—Linkage Attached	4½	4½
Gear—Linkage Detached	5	5
Lash Adjustment (High Point)—		
Lbs. Pull @ Wheel Rim	1¾ to 1⅞ lbs.	1 to 1½ lbs.
Worm Bearing Pre-Load—Lbs. Pull @ Wheel Rim ..	7/16 to 9/16 lbs.	½ to ¾ lb.