

SECTION 6D

MANUAL TRANSMISSIONS

The 1964 manual transmission service procedures are basically the same as 1961 except for the following changes:

ASSEMBLY AND ADJUSTMENT OF MANUAL TRANSMISSION SHIFT LINKAGE

If transmission shift difficulties are experienced, such as those that might be caused by linkage bind or the operator's gearshift control lever being mispositioned, the linkage should be inspected and readjusted as necessary. Whenever the transmission linkage has been disassembled for any reason, adjustment of the linkage should be checked on reassembly.

Perform transmission shift linkage adjustment to obtain proper positioning of the operator's gearshift control lever, as follows:

1. Move the vehicle front seat to its full-forward position.
2. Shift the transmission into the gear range used for checking control lever positioning. See illustration.
3. To remove any lash from the system, push rearward lightly on the long shifter tube located in the tunnel.

4. Using a scale, check positioning of the gearshift control lever relative to front edge of seat or centerline of lever housing (refer to illustration for proper dimension).
5. If linkage readjustment is required, loosen the coupling clamp on the rear of the shifter tube and readjust rod length to obtain the correct control lever setting.
6. Retighten coupling clamp and test-shift transmission in all gear ranges.

NEW MANUAL TRANSMISSION CONTROL SYSTEM

A new transmission control system, which is simpler and more protected than the old system, is released for Corvair 95 models equipped with either the standard 3-speed or optional 4-speed transmission.

In the new system, the gearshift lever utilizes a housing-enclosed ball-type fulcrum which passes directly through the floor panel rather than through the seat riser. From the gearshift lever, the completely-shielded transmission control rod is routed directly through the fuel tank via a tube. The transmission control rod then attaches to the transmission shifter shaft at the rear of the vehicle.

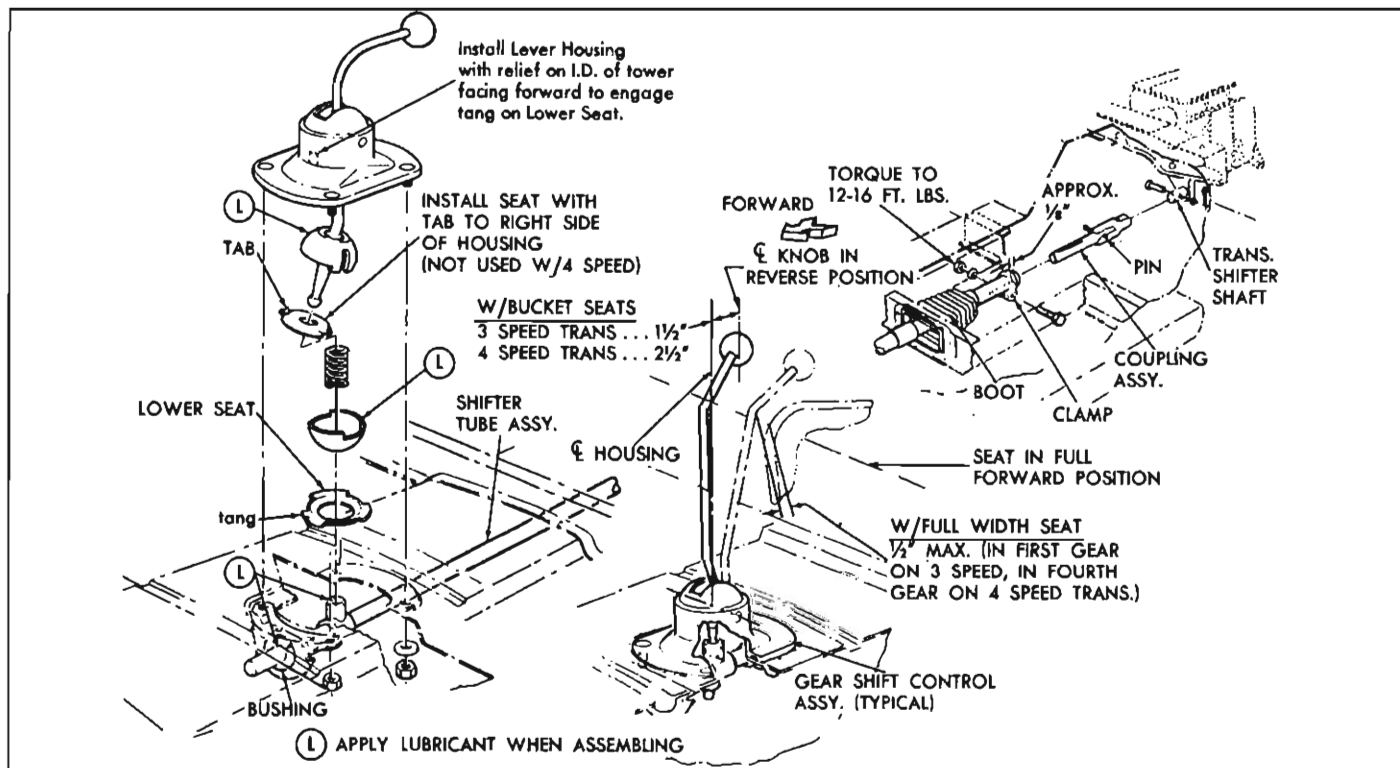


Fig. 6D-1—Passenger Gearshift Lever and Linkage—Exploded

CORVAIR 95 MANUAL TRANSMISSION SHIFT LINKAGE ADJUSTMENT (Fig. 6D-2)

1. Attach clamp onto rod assembly (7) loosely.
2. Slip rod end (9) through support assembly and into rod assembly.
3. Insert 1 7/8 inch gage block between pocket of rod end and rear inner surface of support assembly.
4. Rotate transmission selector shaft to left of vehicle (clockwise when viewed from front) and pull out until gear is engaged (3rd in 3-speed and 4th in 4-speed).
5. Tighten clamp and then remove gage block.

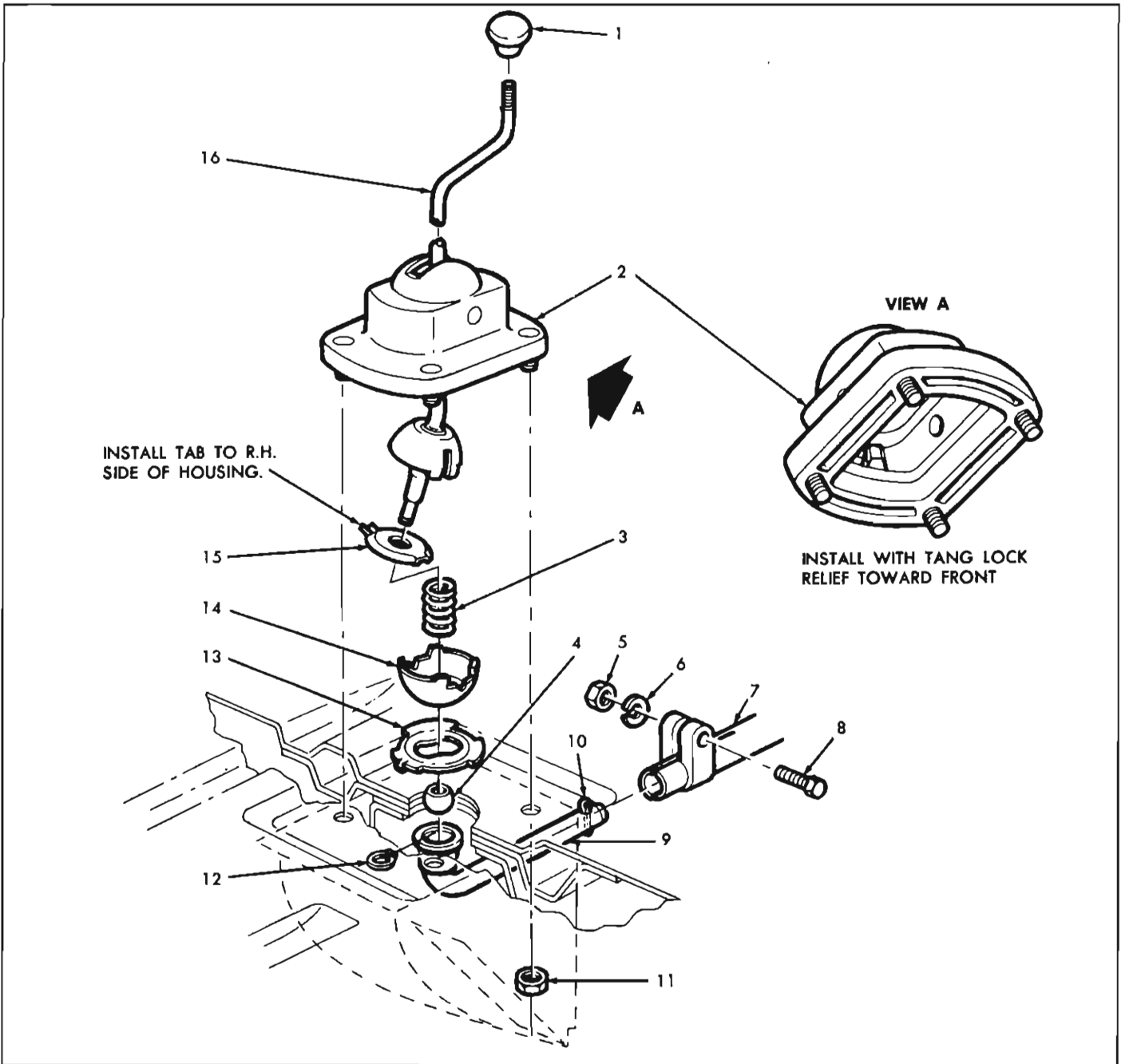


Fig. 6D-2—L.D.F.C. Gearshift Lever and Linkage—Exploded

- | | | |
|------------|-----------------|----------------------------------|
| 1. Knob | 7. Rod Assembly | 12. Snap Ring |
| 2. Housing | 8. Bolt | 13. Seat |
| 3. Spring | 9. Rod End | 14. Cup |
| 4. Ball | 10. Pin | 15. Seat (Not used with 4-speed) |
| 5. Nut | 11. Nut | 16. Lever Assembly |
| 6. Washer | | |

THREE-SPEED TRANSMISSION

Several changes listed below were made to provide quieter operation, increased torque capacity and revised gear ratios.

500, 600, 700 and 900 Series

The diameter of the transmission **input shaft** has been increased $\frac{1}{16}$ of an inch. The size of the spline at the transmission end of the shaft is also increased. This increased shaft size resulted in an increase in the bore size of the **mainshaft** and a change in the spline size of the **clutch gear**.

All gears are wider and have a greater helix angle. This change made it necessary to redesign the second and third speed clutch drum, mainshaft, thrust washers and case. Although, the parts are not interchange-

able with past years, the service procedures remain the same. A new countergear bearing thrust washer is used at each end of the countergear between the countergear thrust washers and the needle bearings.

The new gear ratios are: 3.22:1 first, 1.84:1 second, 1.00:1 third and 3.22:1 reverse.

1200 Series

Outside of the larger input shaft described above, the L.D.F.C. models remain the same. Although, a new noninterchangeable clutch gear assembly, transmission mainshaft and input shaft retainer ring are used, the service procedures remain the same. The gear ratios are unchanged, 3.50:1 first, 1.99:1 second, 1.00:1 third and 3.97:1 reverse.

FOUR-SPEED TRANSMISSION

Several changes listed below were made to increase torque capacity, revise gear ratios; improve operation and reliability.

500, 600, 700 and 900 Series Torque Capacity Increase

The diameter of the **input shaft** has been increased resulting in changes to the **mainshaft** and **clutch gear** as described above under Corvair 3-speed transmissions.

Gear Ratios and Gears

The new gear ratios are: 3.20:1 first, 2.18:1 second, 1.44:1 third, 1.00:1 fourth and 3.65:1 reverse.

First speed gear has 29 teeth instead of the former 31. **Second speed gear** has 26 teeth in place of the former 28. The **countergear** is revised to mesh with the new first and second speed gears and has 16 teeth for first gear instead of the former 15. Because of this larger first gear on the countergear it was necessary to use a larger relocated **reverse idler gear**. The number of teeth has increased from 14 to 17. A new case is used to accommodate this relocated idler gear.

Improved Operation

To improve shift feel the new mainshaft will incorporate a shoulder to take thrust from the second speed gear. Service is affected by the **elimination** of the needle thrust bearing between second and third speed gear.

NOTE: Because of the new mainshaft shoulder, second speed gear must now be removed and installed from the rear (axle end) of the mainshaft instead of from the front (clutch gear end) as in the past.

DISASSEMBLY OF MAINSHAFT

1. Place clutch gear downward against table top and carefully lift mainshaft out of clutch gear to prevent disturbing clutch gear roller bearings.
2. Remove special snap ring from front of mainshaft, then slide 3-4 synchronizer unit with blocker rings and third speed gear from mainshaft.
3. Remove rear bearing selective snap ring, then remove rear bearing and retainer as an assembly.
4. Remove first speed gear thrust washer, first speed gear, and a 1-2 blocker ring.
5. Press mainshaft out of 1-2 synchronizer unit and first speed gear sleeve. Remove other 1-2 blocker ring and second speed gear. This completes disassembly of mainshaft.

ASSEMBLY OF MAINSHAFT

1. Install second speed gear with clutching teeth toward 1-2 synchronizer (rear), then place a 1-2 blocker ring on second speed gear.
2. Install 1-2 synchronizer hub onto mainshaft with shift fork groove of hub toward second gear, being sure to engage blocker ring notches with keys in synchronizer unit. Place first gear sleeve on mainshaft. Press first gear sleeve, synchronizer hub, and second speed gear onto mainshaft until they bottom, using J-5590 or other suitable tool.
3. Install blocker ring in rear of 1-2 synchronizer, being sure that notches in blocker ring engage keys in synchronizer unit. It should be noted that blocker rings used in the 1-2 synchronizer have slightly longer hubs than those used in the 3-4 synchronizer. Then slide first speed gear and its thrust washer onto mainshaft.

4. Install assembled rear bearing retainer and rear bearing onto mainshaft and secure with selective fit snap ring. With the proper snap ring installed (three thicknesses available), maximum end play between rear face of rear bearing and snap ring will be .005".
5. Invert mainshaft and install third speed gear, clutching teeth upward, onto mainshaft and seat it against the mainshaft shoulder.
6. Place 3-4 blocker ring on cone surface of third speed gear, then slide 3-4 synchronizer unit onto blocker ring. Be sure notches in blocker ring engage clutch keys in synchronizer unit. Install second blocker ring onto 3-4 synchronizer unit.
7. Install special snap ring to front of mainshaft.
8. If clutch gear roller bearings have become displaced, load 34 needle bearings into innermost diameter and 38 needle bearings into outermost diameter, using a generous amount of petroleum jelly to prevent roller bearings from becoming displaced.
9. Carefully slide clutch gear onto mainshaft. It is good practice to place the clutch gear on a bench with its pilot bore upward and insert the mainshaft into the clutch gear. This prevents accidentally dislodging the clutch gear roller bearings. This completes assembly of the mainshaft.

Improved Reliability

The reverse idler lever has been redesigned to eliminate the pressed in pins there by eliminating any possibility of them working loose.

1200 SERIES

The L.D.F.C. 4-speed transmission will incorporate the changes described above except there will not be any change in gear ratios, 3.65:1 first, 2.35:1 second, 1.44:1 third, 1.00:1 fourth and 3.66:1 reverse. However, they are non-interchangeable with past models because cone angles on blocker rings and gears have been changed.