

ORDNANCE MAINTENANCE -- POWER TRAINS AND INTERCHANGES: MILITARY/ CIVILIAN TRUCKS 1941 TO 1971 (DODGE)

changeable). A more difficult solution is to space the 8-3/4 cover out approximately 1/4 by using a fabricated ring and gaskets, or least desirable, a pile of gaskets (be prepared for leaks).

3) **Recess.** Removing and installing the third member are much easier if small recesses are ground in the top and bottom of the stud ring to clear the ring gear, as shown in figure 6-1. The location and amount can easily be determined by placing a late gasket over the studs in the correct orientation (these gaskets have the recess) and grinding away.

4) **Input flange.** All of the flanges are interchangeable. Simply change to the one that is required for the drive shaft involved.

5) **Differential side gears.** The differential side gears must match the axle shafts involved. When mounting a 9-5/8 third member in a 1/2-ton WC series truck rear axle housing, 3/4-ton axle shafts may be used, being careful to check for pinion shaft block interference (see paragraph 4.1 (c)). When mounting a 9-5/8 third member in a 1/2-ton truck front axle housing, the side gears should be changed to those from a 1/2-ton 8-3/4 unit to match the front axle shaft splines (the front shafts do not have any interchanges), or the axle shafts cut and the ends changed to 1-3/8 - 16 splines (3/4-ton truck).

6) **Gaskets.** If the housing is unmodified (see paragraph 6-1(c)), use three gaskets. If the housing has been modified with a 1/16 thick ring, use only one gasket.

d) **9-5/8 third members in 9-5/8 housings.** Almost all of these third members are directly interchangeable among the various trucks using them. However, some EU (Route Van) third members are made for large-diameter axle shafts, for example, so check carefully to determine compatibility.

e) Drive gears (ring and pinion).

1) **8-3/4 third members.** All of the drive gear sets in table 5-1 are interchangeable. However, items 1 - 4 use one differential case, and items 5 - 12 use another case. The proper case, therefore, must be used with each gear set.

2) **9-5/8 third members.** All of the drive gear sets in table 5-1 are interchangeable.

THIRD MEMBERS

5.4 DETAILED STEPS

To assist the reader with making interchanges as described in paragraph 5.3, a set of step-by-step instructions will be given for one of the more popular substitutions -- a 9-5/8 third member in a 1/2-ton WC truck 8-3/4 housing (5.3 c)). The suggestions given for each step offer the more feasible of the many alternatives available; however, with proper care, other items may be substituted. As an example, the instructions below call for a 3/4-ton or 1-1/2-ton truck axle housing cover, but the 1/2-ton truck unit may also be used as described in paragraph 5.3 c) 2).

Assumptions are that 3/4-ton truck rear axles will be used because the modifications are being made to increase drive train strength, and that 1/2-ton truck front axles will be cut and rewelded with 3/4-ton truck splines (paragraph 5.3 c) 5)). Two reasons for this method are: 1) both third members will be identical such that the front and rear units will interchange (an important consideration if one of them breaks in the field); and 2) for the average shop, it is easier to have the axles professionally cut and rewelded than it is to disassemble the third member and differential case to change side gears and then properly re-set the tooth contact and backlash. Again, if the reader wishes to disassemble the third member to install 1/2-ton truck side gears rather than cut and reweld the axles, that option is certainly available.

The suggested steps are:

1) **Obtain the desired 9-5/8 third members.** They will have side gears with 1-3/8 - 16 splines and will probably have drive gears with a 5.83:1 ratio. Be sure that they are in good condition and operate properly.

2) **Obtain the proper axles.** For the rear, they should be late 3/4-ton truck axles (table 4-1), and for the front, the Rzeppa type (paragraph 3.1 b)) with the ends changed to 1-3/8 - 16 splines.

3) **Obtain 7/16 mounting studs** by having them made as described in paragraph 5.3 c) 1). Also obtain 7/16 nuts and split lockwashers.

4) **Obtain two late WC truck bolt-on covers** as described in paragraph 5.3 c) 2).