Overhauling 4-Speed Transmission

Detailed Suggestions to Service Men Based on a Complete Disassembly and Reassembly of Three Popular Units, Done Personally

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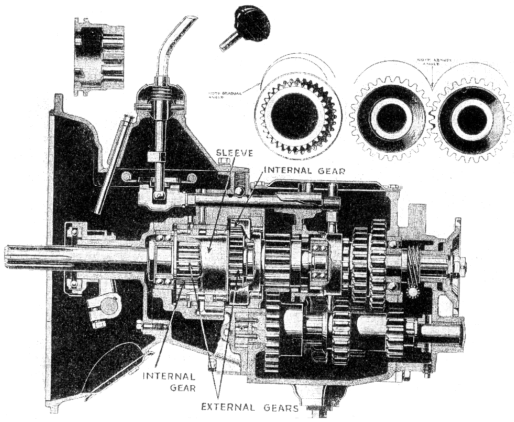

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Remove the transmission assembly from the car in the regular way. After it is out, place it on the bench and remove the gear shift cover assembly and the bottom drain plug and flush out. When removing the cover assembly, lift out the interlock springs and balls. Remove transmission cover plate located just back of the gearshift cover assembly.

With the fingers, lift out the three shifting shaft pins, which hold the shifting-forks to the shafts. Two of these are alike; they go into the 1st, 2nd, and reverse forks and the odd one goes into the 3rd and 4th speed fork.

Now draw out the shifter shafts towards the front of case. The transmission case is made up of two halves, front and rear, and can be separated at the approximate center. This is the next operation to perform. To divide the case, remove the seven cap screws around the body of case and pull the two halves apart, being careful not to damage the gasket.

As the two halves are separated, the oil pump that is attached to the end of the countershaft will spring apart and should be carefully cleaned and put away for reassembly.

To disassemble the parts of the front half, start by removing the front transmission cap located inside the bell housing, by removing the cap screws and drawing over main shaft. Be careful of the gasket.

Turn up lip on locking washer, holding large lock nut in place on the shaft and remove the nut. THIS NUT HAS A LEFT HAND THREAD.

Lightly drive out the main shaft toward the rear. This will remove the sleeve gear with the main shaft.

To remove the sleeve gear from main shaft, draw the sleeve forward. Note that there are two rows of 16 little rollers within the sleeve, which will drop out as the sleeve is removed. These should be examined before putting aside to see that they are not chipped. Remove the cup gear by sliding forward over shaft. Remove and inspect cup gear roller bearing.

On the rear end of the main shaft is a small pilot bearing pressed on to the shaft. This should be left on the shaft but should be cleaned and examined. This finishes the disassembly of the forward half.

After removing the companion flange at the rear end of the rear half of the transmission, remove the cover plate. Remove the speedometer drive by pulling out the lock on the shaft and drawing off speedometer gear. Slide out the rear ball bearing on the rear main shaft.

Remove the countershaft shifter fork by pulling toward the front.

Remove the third and fourth sliding gear (six teeth and twelve splines) toward the front.

Remove rear main drive shaft toward the front. The main countershaft can now be lifted out as an assembly and disassembled at will. As in other units, the reassembly is a reversal of the sequence of operations.

Reassembly

It is very vital that everything be absolutely clean when put together. All parts of this transmission are interchangeable and do not have to be fitted.

Be sure to slide the cup gear on the front main shaft first and then the sleeve. It is necessary that all the 32 little rollers be in place around the shaft when assembled. They should fill the space between the shaft and sleeve in two rows and bear against each other. A good way to get them in place is to put them around the shaft and wrap a piece of string tightly around them and then slide the sleeve over the rollers, being sure to see that the string is removed.

To place the two halves together, see that the pilot bearing on the end of the front main shaft enters its bearing space freely. The main thing to watch is the oil pump. This should first be put together on the rear half, assembling the driven portion into the countershaft and as the two

halves of the case are slid together, with the fingers, guide the free portion of the pump into its recess in the front half of the case.

For lubrication, use the same type of oil as used in the engine; when the engine oil is changed to light or medium, do the same in the transmission.

The gear shift handle should always rest in the center position when in neutral so that without moving it sideways, the shift can be made into third or fourth with perfect ease. If it is necessary to feel around with the handle to get into one or the other, adjustment should be made by loosening the lock nut on the side of gear shift cover and moving the stud in or out to get the desired position.

As this case carries light oil, care must be taken to assemble it oil tight, so all gaskets must be in good condition.

Precaution

There is no run of troubles with these transmissions except in cases where the wrong type of lubricant was used. It is imperative that MEDIUM MOTOR OIL is used and not 600W. An S.A.E. viscosity No. 60 is the best lubricant. Other little troubles that may occur will differ with different cars and can be easily traced by the mechanic.

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