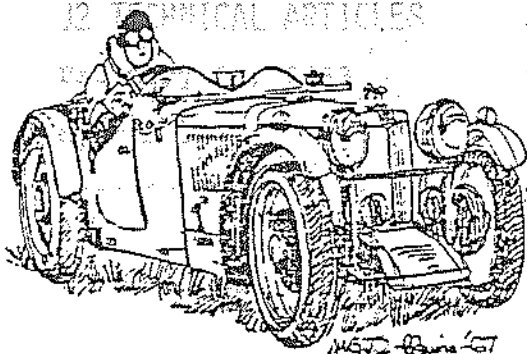


J2 TECHNICAL ARTICLES



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From Octagon Heaven

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NOTES ON THE J2 GEARBOX

Let me begin by stating that I am not an expert at rebuilding transmissions. The material that follows is based solely upon my experiences in rebuilding my own J2 gearbox. Before starting the task, one should ask himself if this job is really necessary. So if your transmission is working fine, you may be better off to forget the whole project. The procedure is outlined quite well in Blower's manual. The following is intended to elaborate on his procedure with some of my own comments.

- Barry Swackhamer -

DISASSEMBLY

1) Remove the tapered pin holding the clutch pedal and pull the pedal from the shaft. Slip the clutch withdrawl bearing carrier from the fork and front end cover. Undo the right bushing lockline bolt and slide the clutch operating shaft to the right pushing out the bushing. Remove the bushing from the shaft and withdraw the shaft from the clutch housing.

2) Remove the layshaft locking bolt, large nut holding the reverse shaft and the 7 nuts around the periphery of the gearbox rear cover. Access to the upper right-hand nut may be improved by first removing the speedo/tach cable union and speedo driven gear. Do not loosen the 2 nuts next to the mainshaft. Contrary to Blower, Barry finds no reason why the universal joint flange should not be removed at this time. Break the joint and withdraw the rear cover. If necessary a few taps with a soft faced hammer on the lugs should release it. The layshaft and selector shafts will remain in the box.

3) Undo the 2 nuts and one blind bolt holding the rear bearing plate and remove it. Press the rear bearing and mainshaft out of the rear cover, remove the speedo driving gear from the mainshaft and press off the rear bearing.

4) Remove the gear interlocking plate. Depress the spring loaded plunger and remove the reverse selector lever forward. Take out the reverse gear, distance piece, selector fork and shaft.

Note: It may help to refer back to technical article Number 144 to help to to the pictures. to the pictures.

Before taping the layshaft home into gear and slip in the layshaft. Before taping the layshaft home into the clutch housing, make sure the hole at the rear of the shaft will line up with the locking bolt hole in the rear cover. To assis in lining the holes, Barry found it useful to temporarily refit the cover and lockbolt.

Note: To quote Blower, "When the layshaft gears are in position and a straight edge laid across the face of the gearbox, the clearance between the straight edge and the first-speed layshaft gear should be .005 inch (minumum). The layshaft (read cluster gear) must be free to move endways; it is positioned by the meshing of the double-helical constant mesh gears." Barry says, in other words, make sure there is sufficient end clearence so the cluster gear will not bind against the end covers. If some adjustment is needed, the means to do it appears to be by altering the thickness in the shim fitted in the first motion shaft. The parts list provides a list of a number of shim thicknesses.

6) Install the spigot bearing and distance washers in the end on the 1st motion shaft. Next replace the spring and plunger for the reverse selector as necessary, depress and swing the selector forward. Reassembl the 3rd/4th speed change rod, selector fork, ball and spring as necessary and put the fork in the forward position. To install the 3rd/4th gear and selector fork/rod requires a bit of shuffling inside the housing. Bégin by putting the selector fork/rod in the housing, but not into the register hole, then fitting the gear into the selector fork. Next lift up the sliding 3rd gear on the cluster gear, carefully mate the constant mesh gears and then lower this assembly so that 4th gear engages the back of the first motion shaft. Tap the rod into the right-hand register hole. Leave the selector in the forward position.

5) The procedure for the 1st/2nd gear is similar to 3rd/4th gear, but here is no constant mesh gear to deal with. Remember to install the distance pieces on the rod, the longer on the front. A little grease will help prevent sliding.

5A) After the gears are in place, temporarily insert the mainshaft to line up the splines.

4) Reassemble the reserve gear making sure the ball of the selector lever fits into the socket of the fork. Return the selector into neutral, releasing the plunger.

3) Don't forget to replace the sealing washer before pressing the bearing into the rear cover.

2) If all the previous steps have been done properly, refitting the rear cover should present no problem, though some tapping with a soft faced hammer may be necessary. Return the selectors to neutral and test your work by engaging each gear and rotating. Replace the gear interlock plate.

1) Straight forward.

The above description is not necessarily complete, However, with a little thought, care and some mechanical practices, no difficulty in rebuilding the J2 gearbox should be encountered.

--Barry Swackhamer