

Replacing A TR8 Gearbox by Bob Thomas

In the spring of 2019, I first noticed a growling sound coming from the gearbox of my TR8 when it was in neutral, with the engine running and the clutch engaged (pedal up). I ruled out the throwout bearing because, unlike a TR6 that I previously owned, there was no noise when the clutch was disengaged (pedal down). A worn input shaft bearing was the suspected cause and as the growling got louder over the summer, I started looking for a replacement gearbox.

Various versions of the Rover LT77 5 speed gearbox were used in British Leyland vehicles of that era including Rover, Land Rover, and Triumph. Although the Triumph TR7 and TR8 have different differential gear ratios, they do share the same gearbox ratios and internals, (with the exception of the plastic speedometer gears), which made finding a replacement much easier.

By the fall of 2019, I had managed to pick up a TR8 gearbox to rebuild that came with some parts including new seals, gaskets, and the internal oil pump. I also found a TR7 gearbox through Paul MacDonald to supply shafts or gears if needed. A retired Land Rover mechanic working for Rob Staruch did the rebuild in April 2020 and he found the gears, bearings, and synchros were in good shape, so only the parts that came with it were required.

By August it was apparent that the border was going to be closed for some time, so instead of my usual pickup at UPS in Ogdensburg, New York, I had Woody at The Wedge Shop in Massachusetts ship my parts order directly to my house in North Augusta. Four days later, a Borg and Beck Clutch Kit and a lightened flywheel (22 lbs vs 32 lbs for a stock flywheel), arrived at my door, and I was ready to roll. Or so I thought.

With the car up on my 4 post lift, the gearbox oil was drained (Picture 1 shows more metal pickup on the magnet than normal).



Picture 1. Excess metal on drain plug magnet.

Next, the interior console trim and gear shift were removed (Picture 2).



Picture 2. Gear shift removed.

Now it was time to drop the exhaust and that's when the trouble started. A DPO (dreaded previous owner) or DPM (dreaded previous mechanic) had over tightened a clamp at one of the header extension/intermediate pipe joints creating a deep ridge (Picture 3) so they wouldn't budge, even with heat from a propane torch.



Picture 3. Result of an over-tightened clamp.

The good news was that my neighbour is a mobile mechanic. The bad news was that it took 2 weeks before he had time to come over with his oxy-acetylene torch. Eventually with the pipes red hot, and a lot of pounding, the slip joint released and the pipes came apart (Picture 4).



Picture 4. Exhaust finally apart.

Removing the headers from the engine was surprisingly easy when all 16 bolts came out without any problems.

At this point, David Huddleson pitched in with his mechanical skills and considerable TR8 knowledge. In short order the drive shaft, starter, and clutch slave cylinder were removed, the bell housing bolts taken out, and the transmission jack moved into position. With the 4 post lift's sliding jack supporting the engine, and the gearbox support bracket removed, the gearbox slid back with very little persuasion. At this point, the shifter extension was removed so that the gearbox could be rotated 90 degrees to clear the headers, which although dropped down, can't be completely removed without lifting the engine.

An inspection of the removed gearbox revealed excessive play in the input shaft, a worn throwout bearing and quite a bit of oil around the inside of the bell housing (seen in Picture 5).



Picture 5. Oil inside bell housing.

Fortunately the rear main seal was dry, but there appears to be no oil pan seal, just a thick bead of sealant that has some gaps (Picture 6).



Picture 6. Sealant (no gasket) on oil pan.

A TR8 engine has to be lifted so the oil pan can clear the power steering rack in order to install an oil pan seal. It seems someone took a shortcut in the past and only used a bead of sealant between the pan and engine block that has hardened over time, allowing pieces to split off and oil to leak into the bell housing.

Over the next week, the bell housing was cleaned and fitted with a new throw out bearing, clutch fork, and fork pivot. I learned that the "grease trick" for removing a pilot bushing does work, providing the wooden dowel is the same size as the bushing opening (Pictures 7 and 8).



Pictures 7 and 8. Using grease to remove pilot bushing.

After a new pilot bushing, lightened flywheel, clutch disc, and pressure plate were installed, the car was ready to receive the rebuilt gearbox (Pictures 9, 10, and 11).



Pictures 9, 10, and 11. Final assembly.

Obviously a masochist, David returned to oversee the gearbox installation, and when positioned, it slid into place on the first try. As our repair manuals say,

"for refitting, reverse instructions", which we did, and a few days later the car was ready for a test drive.

Other than a scare from the new header gaskets smoking as the coating burned off at start up, the test drive went well. The "growling noise" is gone and acceleration is definitely quicker with the lightened flywheel. The shifting action is a bit stiffer, but hopefully that will get better with more use. Not wanting to contaminate the new clutch and flywheel with engine oil, I parked my TR8 for the winter even though it was still early in October. My first job next spring will be to remove the oil pan and install a proper gasket.

While having equipment like a lift and transmission jack made this project easier, the most important resource we have as Triumph owners is the collective experience and knowledge of our club members. I relied heavily on David Huddleson and appreciate everything he did for me. Hopefully, in the future, I can pass on what I learned and help someone else. For anyone considering a big project, my advice is to break it down into steps, honestly assess your skills so you know what to have the professionals do, and tap into the vast pool of knowledge within our club and on the internet.