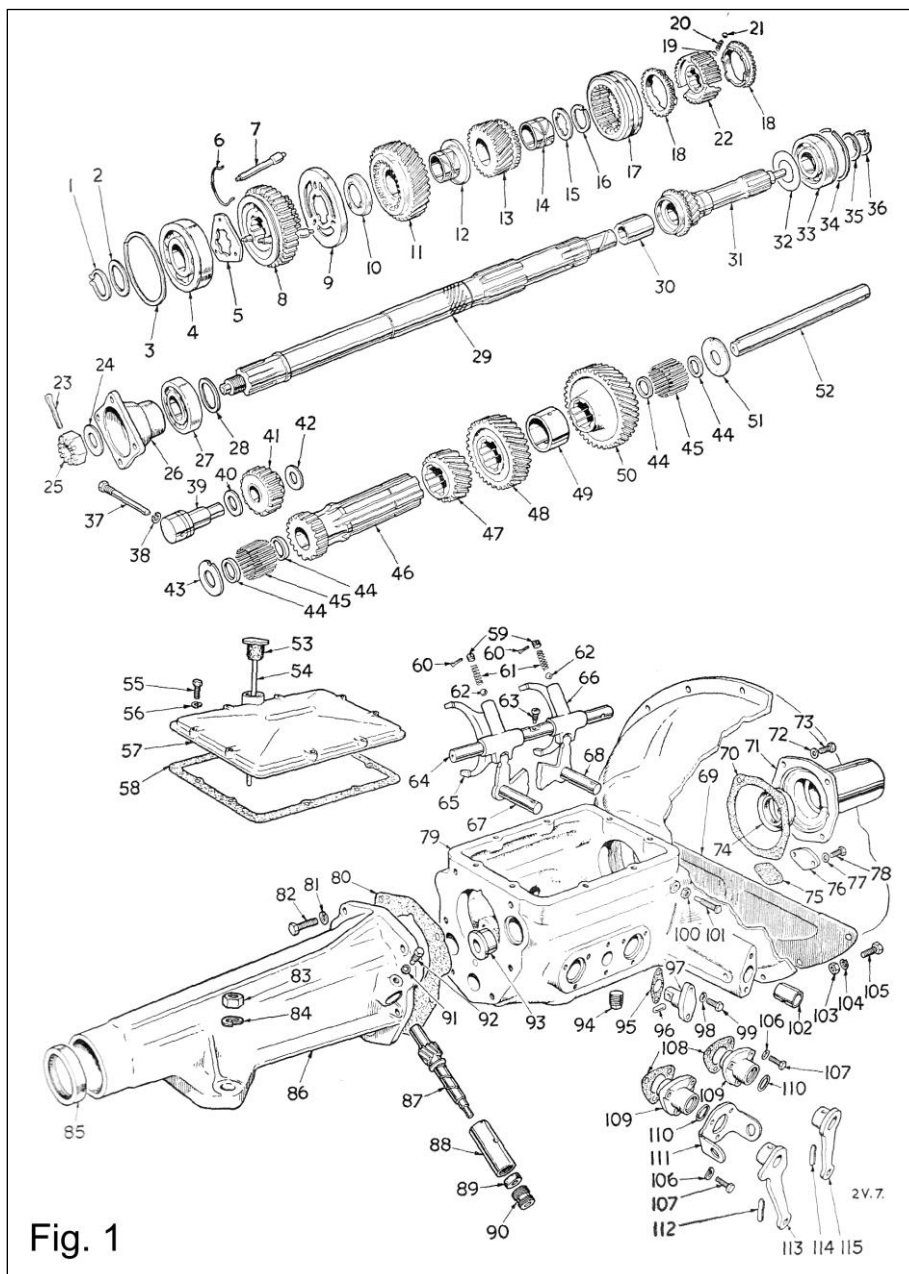


Service instruction manual and more

The overhaul of the 2000 gearbox is well described in the Standard Vanguard Service Instruction Manual, a copy of which can be found in the club archive or on "Ossips Triumph Roadster Seite", both accessible through the internet. Nevertheless when overhauling my spare 2000 box I found some points that, in my opinion, had not been given sufficient attention in the manual. There is also a problem with some tools required for the job, because I have not found a supplier for these specific tools. With reference to the Service instructions I will try to throw some light upon these further points, which hopefully may be of additional help when following the instructions of the manual.

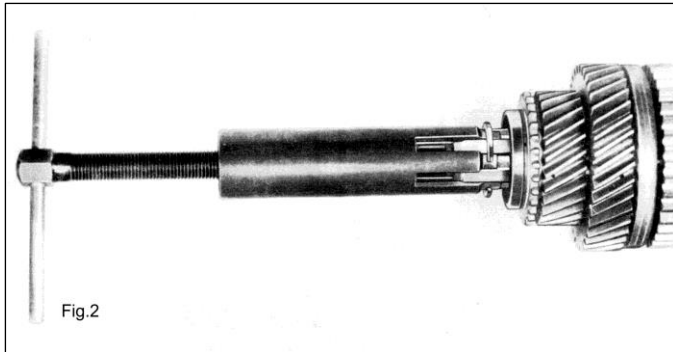
The 2000 gear box is a good design and it is very well manufactured. Therefore, when taken care of, you can enjoy many miles of undisturbed driving pleasure. All forward gears are synchronised, which at the time was quite a new feature. Most of the components were also used in the later TR 2-4 gearboxes when Triumph switched to four forward gears. Below is an exploded view of the gearbox internals (this box is a later Phase III Standard Vanguard box but differs only in respect of a modified front end cover 71 and gear change levers 111, 113, 115).



Disassembly is a straightforward job (the only difficulty I encountered was the removal of circlip 16 because initially I didn't have the right tool). The gearbox extension 86 and the bearings 4 and 33 could all be taken from the gearbox housing without the need of pullers. Some special tools are necessary and these tools or alternatives therefore will be described now.

The tools you need

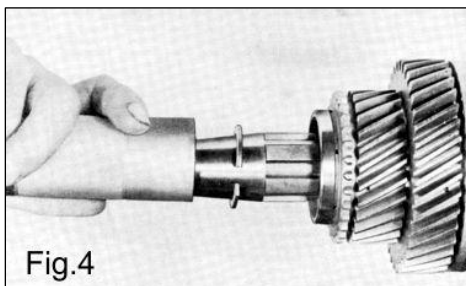
For extracting the main-shaft circlip (no 16 in the drawing) a special tool, as shown in Fig. 2, was designed to do the job.



The advantage of this original tool is that the circlip is expanded on supporting fingers so that it might slide with little clearance over the splines and stress on the circlip is limited. As a consequence the circlip can, in principle, be reused. However, such a tool is no longer available (and I also think its price would be prohibitive...) and therefore an alternative had to be found for extracting the circlip.

The circlip is situated in the second gear synchromesh cone-cavity and therefore a bit difficult to access. However I found that pliers with inclined ends sold for circlips of the same sort in modern cars do a great job here and are easily found on EBay (Fig. 3). Since with these pliers it is easy to over expand the circlip better discard the old one and use a new circlip when assembling the gearbox.

For putting the circlip back on the main shaft a further tool (Fig. 4) is described in the Service instruction Manual with a cone for expanding the circlip.



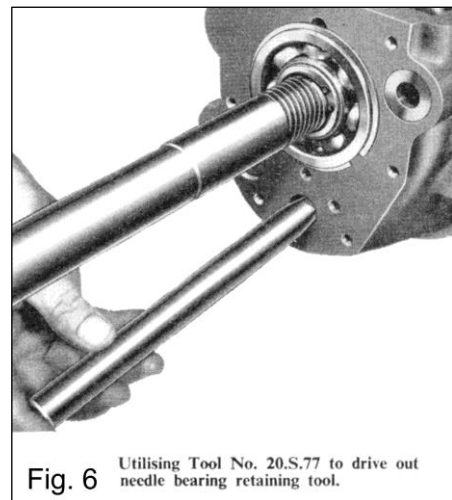
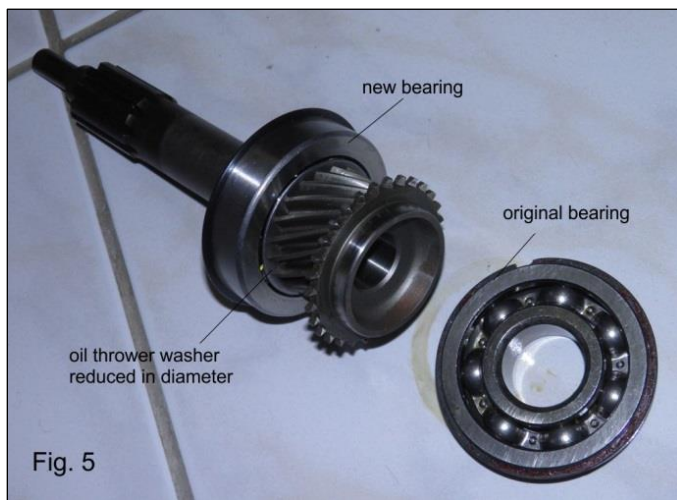
Those who own a lathe can make such cone themselves but I found that the Fig. 3 pliers, when used with some care do the job equally well. Since the circlip has to be put on the forward end of the splined shaft and is then pushed to its locking position, initial access is better so the risk of over-expanding the circlip is less than for the extracting procedure.

For supporting the needle rollers 45 in the countershaft tube 46, both during disassembly and assembly, a needle supporting tube is needed. Such a tube can be made from aluminium or other material. Simplest is to make it from aluminium tube material which is readily available in 20mm diameter. The supporting tube should be 165mm long. A tube should be used because of the cooperation with a conically pointed bar for driving out the needle supporting tube. Before insertion of the countershaft supporting rod 52, this conically pointed 20mm bar of about 200mm length is needed for centring the countershaft needle bearings and pushing -out of the needle roller supporting tube. Such a bar can be made from 20mm bar material also readily available (see also Fig. 6)

Other special tools for pressing bearings off or on their shafts are described in the Service Instruction Manual but in many cases it is better to use an alternative. For example bearings 4 and 33 can more easily be taken off their shafts by means of a hydraulic press and it is better to find a workshop to do the simple job of pressing-off the old bearings and pressing-on the new bearings for you. Nowadays you can also buy such a press for relatively little money but for overhauling a single gearbox better go to a workshop because you will also need tools to support the parts in the correct manner so as to avoid damage.

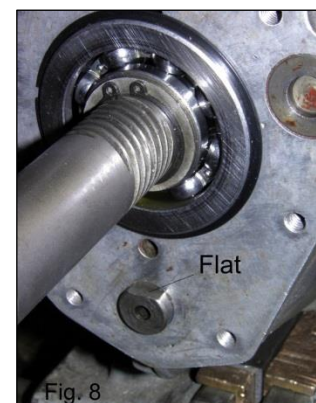
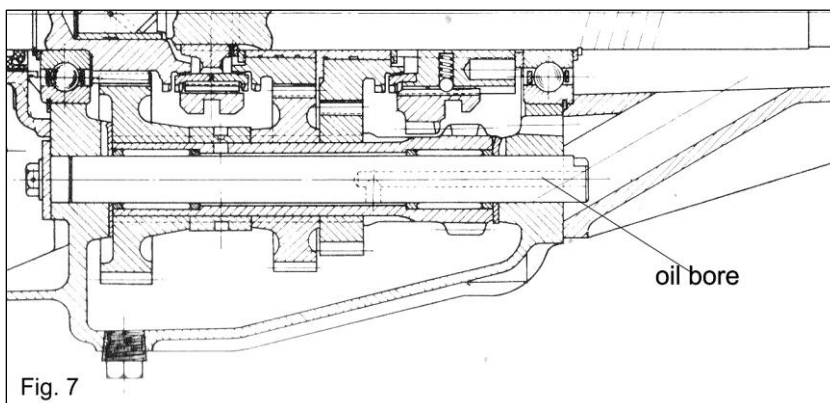
Some points to be considered during assembly

Have a good look at your new main ball bearings 4 and 33 because they might be of slightly different shape when compared to the original bearings. Namely those sold by most Triumph part sellers have a thicker outer ring and without modification the triangular baulk pin washer 5 and oil thrower washer 32 would risk rubbing against the respective bearing outer ring. The triangular baulk ring 5 should therefore be ground at its back to clear the bearing ring and the oil thrower washer 32 reduced in diameter to run free from the bearing ring.



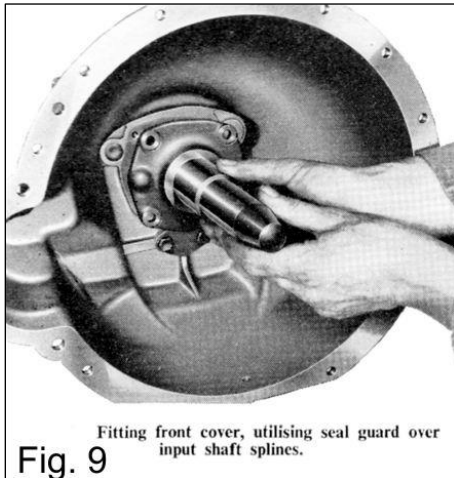
When lowering the countershaft assembly into the housing (keep the axial bearing plates 45 and 51 in position as described in the Service Instruction Manual) it is advised to put a plastic bands around it so that it can be lifted vertically later by just pulling on the bands when inserting the conically pointed bar. Otherwise, when using only the conical end of the tool for aligning the countershaft needle bearings (Fig. 6) there is a risk that a needle may fall out, so better lift the countershaft assembly so that the bearings are in line with the gearbox housing openings before inserting the conical aligning tool bar and, proceeded by insertion the countershaft 52 in a second step.

In Fig 7 it is shown that the countershaft 52 has an oil bore and for positioning of the outlet of the bore in the correct position it is important that the flat at the end of the bar 52 is at the top. Strangely enough this is not very well described in the Service Instruction Manual.

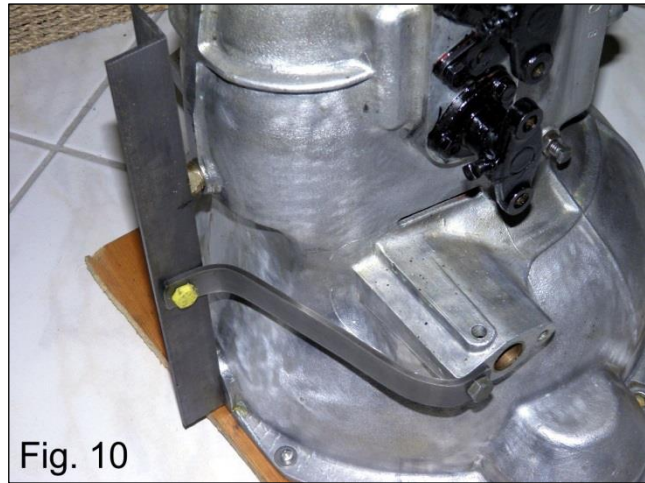


When fitting the front cover 71 with the lip seal 74 some care should be taken not to damage the seal by the splines. In the Service Instruction Manual it is recommended to use a seal guard as show in Fig. 9. The original lip seal is a leather seal and more prone to damage than the modern rubber lip seals. When taking care during

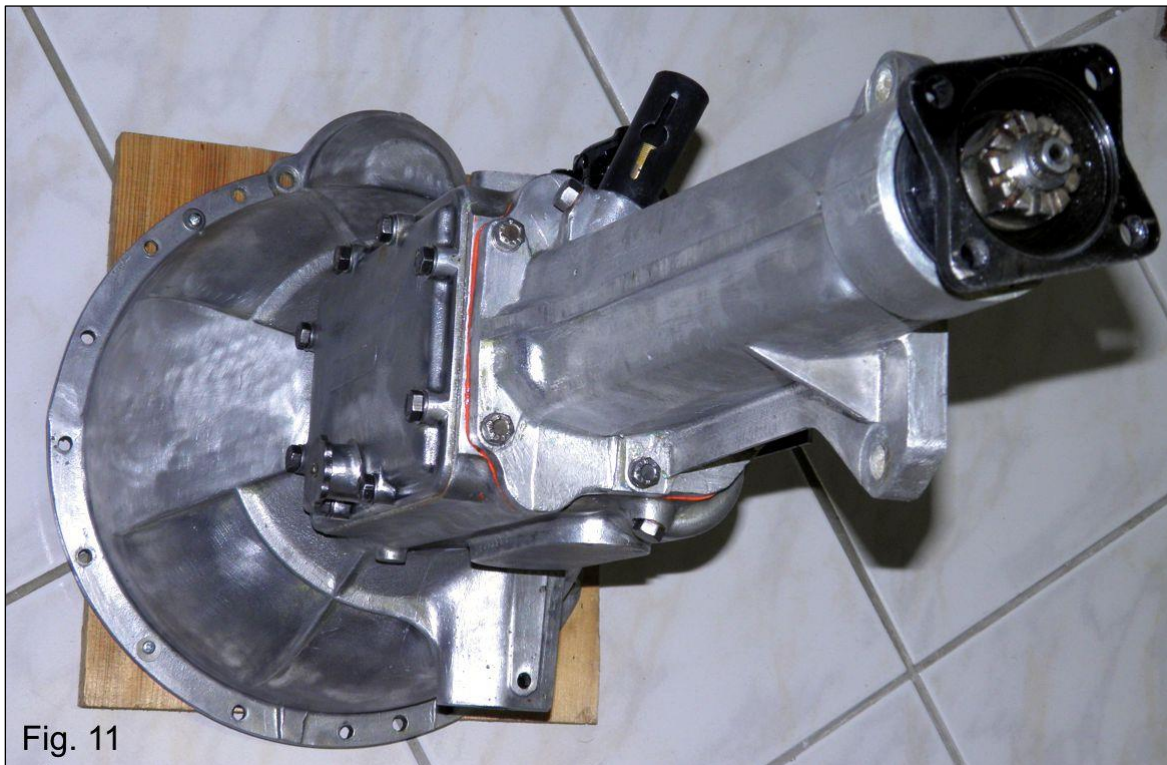
assembly I found that also without using the seal guard it is very well possible to mount the seal without damage.



Fitting front cover, utilising seal guard over input shaft splines.



Manipulating the gearbox internals during assembly is much easier if the gearbox is stably held in a large vice. Fig. 10 shows an angle iron and strip and how these are fixed to the underside of the gearbox. The vice clamps on the angle iron. Fig. 11 shows the gearbox in its finished shape.



Further information

In 1983 and 1984 a number of articles appeared in the Roadster Review about the 2000 gearbox and further valuable tips can be found in these articles. Just go to the Triumph Roadster Club internet site and look under "Gearbox" in the "Technical Index".

I further found in the internet a very good report about the TR2-4 gearbox restoration. Because of the many similarities it is good to have a look there too. At the end of the page cited here the article about the gearbox and overdrive are to be found: http://www.tonydrews.com/Overdrive/overdrive_problem.htm

Better make a copy before this valuable information is no longer available.