MGBGTV8 - renewing the oil seal in the overdrive output shaft

Jim Livingstone had some overdrive issues recently and traced them to a low oil level in the gearbox caused by a leakage. The procedure to change the various seals is relatively straightforward but he found the information available in the official Manuals is sparse to non-existent. He thought fellow V8 owners might appreciate the information he gathered from his research into the subject.

Introduction

My MGV8's overdrive started cycling in and out of engagement late last year (2024) but as winter was approaching, I decided to postpone a detailed investigation until the warmer weather returned. In the interim period I read the various V8NOTES on the possible causes. The general consensus appeared to be that the most common causes were electrically related. However, though the recorded mileage was only 67,000, the car was now over 50 years old and it would be wise to address any age-related issues while the oil was drained. The official workshop manuals are very light on specific details and I suspected a detailed description of equipment and process might assist fellow owners planning such a procedure in future.

Preparation

Prioritising the electrical checks, I tested the overdrive for possible faults.

Test description	Result
Check column selector switch electrical operation	Checks OK
Check harness connection at bulkhead	Checks OK
Check inhibitor switch electrical operation	Checks OK
Check solenoid electrical connections	Checks OK
Check solenoid electrical harness	Checks OK
Check solenoid mechanical operation	Heard operating OK
Check gearbox oil level	Low. 0.5 litres EP90 added. Now operates OK

The apparent conclusion was that an oil leak was responsible. Less obvious was how such a relatively small drop in volume could be responsible for such a dramatic effect on operation (the total oil capacity of the gearbox and overdrive is 3.4 litres and the oil pump which operates the brake bands draws from a sump in the base of the unit).

A visual inspection of the transmission unit revealed oil leaks were particularly evident around the output shaft and the sump cover. My plan, therefore, was to replace the oil seal on the output shaft and the gaskets in the sump and solenoid together with any O rings and hardware.

Facilities

As much of the work would be conducted under the car it was obviously going to be more convenient and comfortable if a pit or car lift was available. However, like most of us I do not have ready access to such facilities and if we are to conduct such repairs ourselves we must make do with the facilities available. Personally, I have car ramps which with raisable wheel pans give a reasonable amount of clearance under the car and these were used for the procedure which follows – see the photo alongside. It should be noted that access from the nearside is restricted by the exhaust system which on the V8 can be quite obstructive.

Parts and Materials

- Oil seal NKC39
- Solenoid valve seal kit 37H1934K
- Sump filter and gasket kit 37H1942
- $^{3}/_{8}$"UNF self-locking nuts GHF223 x 4
- $^{3}/_{16}$"shakeproof washers WF702101 x 10
- EP90 oil 3.4 litres

Tools and Equipment

- $1\,^{1}/_{8}$"socket for flange nut and a substantial wrench
- Restraining tool for flange – equivalent to MG tool 18G 34A (see Appendix for details)
- Oil pan capable of holding 5 litres of fluid

Procedure

Some preliminary work was required to determine the dimensions of the flange and the spanner size of the shaft nut. This should not be required if the dimensions quoted in the Appendix are used.

Caution As you will need to work under the car ensure that it is secure in its raised position. This is especially important when removing the nut on the drive flange as considerable force is required

Renew the rear oil seal

1. Drain the Gearbox.
2. Block one rear wheel and jack up the other to allow rotation of the propshaft.
3. Paint alignment marks on the gearbox and propshaft flanges to ensure reassembly in their original position (**Figure 2**).

Figure 2 - Paint alignment marks on the gearbox and propshaft flanges to ensure reassembly in their original position

Figure 3 - Mark the relative position of nut and shaft with a centre punch to aid reassembly

4. Undo the 4 x 3/8" UNF self-locking nuts securing the flanges, compress the propshaft and secure it in the roof of the transmission tunnel by placing a block of wood under the shaft at the rear (where the tunnel is enclosed).
5. Mark the relative position of nut and shaft with a centre punch to aid reassembly (**Figure 3**). No torque figure is specified for this nut in the Data section in the Workshop Manual.
6. Attach the restraining tool to the gearbox flange using two of the original bolts, spacers/washers and free running 3/8" UNF nuts (**Figure 4**).
   The flange bolts have D shaped heads and are partially captive in the flange. Those not required to secure the restraining tool can be removed via a machined recess at approximately 10 o'clock in the rear of the overdrive casing.

Figure 4 - Attach the restraining tool to the gearbox flange using two of the original bolts, spacers/washers and free running 3/8" UNF nuts

7. Add some packing to prevent damage to the transmission tunnel, attach the $1\frac{1}{8}$"socket and wrench and remove the nut. This was extremely tight and the operation will benefit from the longest wrench that can be accommodated in the space available.
8. Remove the restraining tool.
9. Remove the washer and mark up the flange adjacent to the mark already made on the shaft.
10. Remove the flange. Use a puller if tight.

11. Extract the seal. If a dedicated seal extractor is not available, pack behind the seal with grease to prevent swarf ingress, drill holes for self-tapping screws and lever out the seal.
12. Clean out the grease, lightly coat the new seal and drive in squarely until it is flush with the casing.
13. Refit the flange in its original position, fit the washer and nut.
14. Refit two bolts, the restraining tool and tighten the nut until the marks made on disassembly are aligned. The torque measured was in excess of 150 Nm.
15. Remove the tool and reassemble the propshaft using new self-locking nuts.
16. Lower the jacked rear wheel.

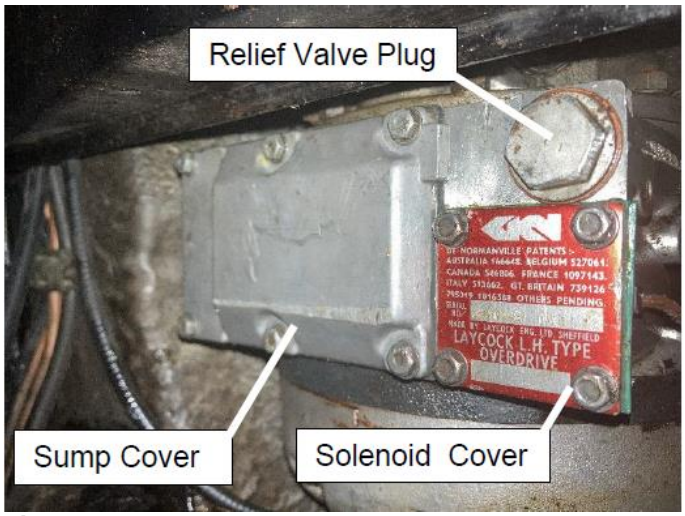

Figure 5

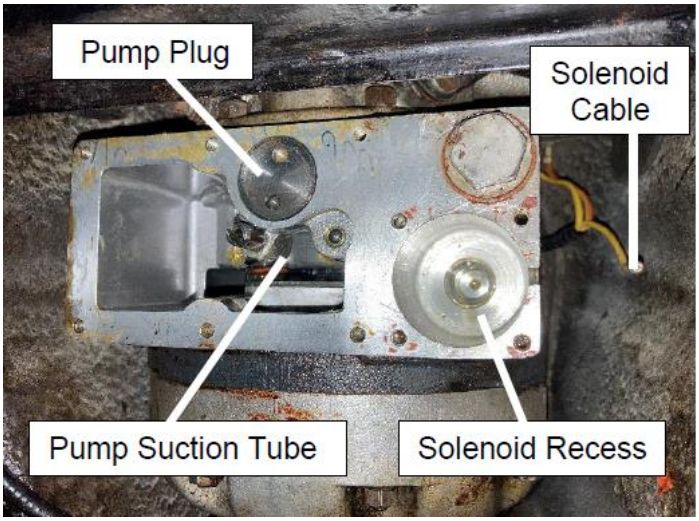

Figure 6

Fit new gaskets and O rings

1. Remove the sump cover and filter screen (6 x 3/16" screws). If sticking there is a jacking point adjacent to the relief valve plug (**Figure 5**).
2. Wash the sump and magnets thoroughly in brake cleaner.
3. Lightly grease the new screen and gasket assembly and fit round the oil suction tube. A small socket will ensure this is fully home.
4. Refit the sump and tighten the 6 hex headed screws using new shakeproof washers.
5. Disconnect the solenoid cable at the bullet connector and remove the cover and gasket (4 x 3/16" screws).
6. Carefully extract the solenoid and place on a clean bench.
7. Check the electrical operation using a 12 Volt power supply.
8. Renew the O rings with the items provided in the kit, reinsert the solenoid with a new gasket fitted to the cover and secure with the 4 hex headed screws and new shakeproof washers.
9. Reconnect the solenoid cable.
10. Remove the relief valve plug and washer.
11. Carefully extract the filter and O rings.
12. Clean the filter in brake cleaner and refit followed by the O rings, washer and plug.
13. I did not dismantle the pump as function was normal when oil level was restored (a special plug spanner is required).
14. Refill the gearbox with 3.4 litres of EP90 oil.
15. Check the operation of the overdrive on an extended run.
16. Check that the oil leaks have been rectified

Appendix

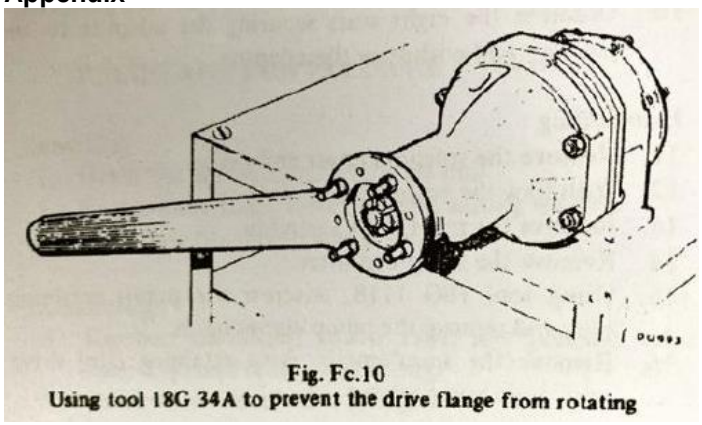

Fig. Fc.10
Using tool 18G 34A to prevent the drive flange from rotating

Restraining tool for drive flange

- Fabricate from a 500mm length of 30mm x 30 mm x 3mm angle or similar.

Basic dimensions of flange (by measurement)

- Bolt holes: 4 x $^{3}/_{8}$" on a $3^{1}/_{8}$" pitch circle
- Inter hole pitch: 2" and $2^{3}/_{8}$" alternating
- Outside diameter of socket: $1^{1}/_{2}$" (Draper $1^{1}/_{8}$" a/f)

Select the 2" hole pitch, draw a card template and transfer onto the angle iron.