

## Intermittent Overdrive Operation

On the TT down the south coast last year, the overdrive on my car started to play up. It would not engage immediately, sometimes it only took a minute or two, sometimes a number of kilometres, sometimes not at all. Once it did engage it would always drop out correctly.

I do not remember the Register member who put me on to the possible cause but I think it is worth sharing.

Normally, when the overdrive is selected, the main closing coil is activated, this pulls up the plunger and operates the overdrive. This takes a fair bit of current (15 amp) and the solenoid would burn out if it had to carry this load on a continuous basis. To overcome this, they build in a holding coil that requires a lot less current (1 amp). This holding coil is activated and the closing coil deactivated once the solenoid plunger fully engages.

Investigation on returning home showed that the rubber buffer that stops the downward travel of the overdrive operating solenoid plunger was missing. These rubber stops live in an oily environment (at least they do in my TR...and I suggest yours) and deteriorate over time. The result of a missing stop is that the solenoid plunger moves out of the housing (closing coil) further than normal when the solenoid is deactivated.

When the solenoid is re-engaged, it is not able to pull up the plunger as too much of it is outside the coil. Driving down the road with the resulting bumps, the plunger would eventually jump up a little and the coil would then pull it in and the overdrive would operate.

Not all OD units utilise a rubber stop. Some are fitted with an adjusting screw. I think this applied to the early units only and they changed during production, maybe when they went to the larger pistons.

The fix is simple but awkward. There are three options. Fit a new part, not available, Tap a thread in the boss that holds the stop and fit an adjusting screw and lock nut but this requires removal of the transmission tunnel. It is my preferred option. The last option is the easiest. From under the car, fit a suitable screw through the hole that held the original rubber stop (the one you would tap a thread in for the second option) with a lock nut on either side. Adjust the screw to give the required clearance, 1/16" with the solenoid relaxed. The lower surface of the casting that held the stop is bevelled but the mod will still work well.

I thought that mine was an isolated problem but since then I have been involved with three other overdrive problems of the same nature. In one case the coil burnt out. Remember the closing coil is not deactivated until the plunger is fully engaged and if you are driving around with the OD switch on but the plunger not fully engaged, then the full closing current is flowing through the coil with all the resulting heat build up.