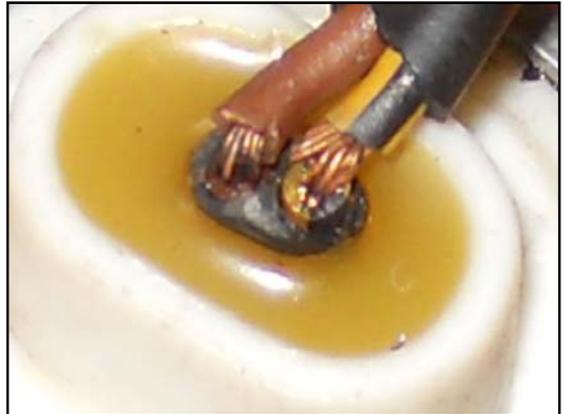


Repairing a Rover SD1 Vitesse LT77 Manual Gearbox Speed Transducer

Star date 06.2011! The Rover SD1 Twin Plenum Vitesse's MOT is due and its rumoured recent MOT rule changes require a working speedometer! Guess what? The one in my car had gone on the blink!

Having already established the signal coming to the speedometer was intermittent, the question was, is it the transducer innard electronics, the local wiring broken or the local multi-plug connectors? Removal of the transducer and checks around all the multi-plug connectors reveal no intermittent connections.



Neither were there any visible broken wires but as seen in the first image, a result of Rover SD1 LT77 Manual Gearbox Speed Transducer cable being exposed to 18 years of excess heat radiated by a close proximity twin after-market stainless steel exhaust pipe (plus any local flexing), the cable insulations have shrunk significantly. This may have allowed one of the soldered joints inside the epoxy filler to become seriously compromised (dry), intermittently affecting 3 major instrumentation functions, Speedometer, Trip Computer and Cruise Control. The original single exhaust pipe's position in the transmission tunnel would be less likely to cause such a problem.

In addition, when correctly assembled the connector end of the transducer cable is neatly tucked under a small clamp which holds the 'loose' end to the body of the gearbox. Thus secured the cable and gearbox all move around in unison with no flexing.

If the cable is not secured after maintenance is performed on, say, gearbox, clutch, transducer, reverse switch or the adjacent exhaust pipes then flexing is inevitable. With an aftermarket twin pipe exhaust system, it's also a very inaccessible location, not easy to secure the cable safely into its clamp.



So, with flexing a distinct possibility, a more common Speed Transducer failure mode is where a wire simply breaks, in which case the fault becomes permanent as opposed to intermittent. Alternatively it's possible that the connections seen in the image were intermittently shorting to each other, but measurements at the speedometer did not indicate that to be the case. There was no a hard 12volt signal that would have come from the yellow/black wire if it were shorting out to the brown wire.



Such 'hard' failures are usually easier to see and/or diagnose, however with the case in hand, the output signal on the brown wire was simply disappearing, randomly. The logical deduction was therefore, the damaged insulation had caused a failed local soldered joint below the epoxy filler.

Either way, the transducer was useless and having experienced and resolved a similar issue on a previously owned VDP Efi transducer, the planned repair was, with luck, a known viable option.

The first thing to do was to snip off the two wires, but not before noting their exact relationship to the body of the transducer as seen in the second image.

With the leads detached it's now possible to dig out the epoxy using a Dremel-type miniature drilling machine with an appropriate router bit.

A razor saw is the ideal tool to neatly cut away part of the plastic housing clearing the area for access to remove all traces of the original insulation and allow plenty of room to tin the wire stubs using a good quality flux prior to re-soldering the leads to the stubs as seen in the next image.

Supporting the transducer vertically and with the bit of sawn off housing back in its original position, the next stage is just fill the cavity with Rapid Araldite and allow it to set, followed by building up a mound with more of the same until the whole kit'n'kaboodle is adequately protected, as seen.

Regular Araldite is unforgiving but may be OK if a mould is created around the area to be filled and left over-night, however the rapid stuff is eminently suitable for curing in just a few minutes. The end result can be clearly seen but be sure the angle of the wiring is the same as originally observed.

To test the transducer before re-assembly to the gearbox it can be hooked into its loom connector using customised extension cables and with ignition switched on, use a compressed air line to spin the gear wheel up to a goodly speed and observe that the speedometer is working OK.

After reassembling the transducer, a test drive should reveal the problem to be fixed, but as with all these types of cheap, innovative repair, disappointments are always a looming possibility. So! No guarantees, unfortunately! On the other hand, original units are rare as hen's teeth! Nuff said!

