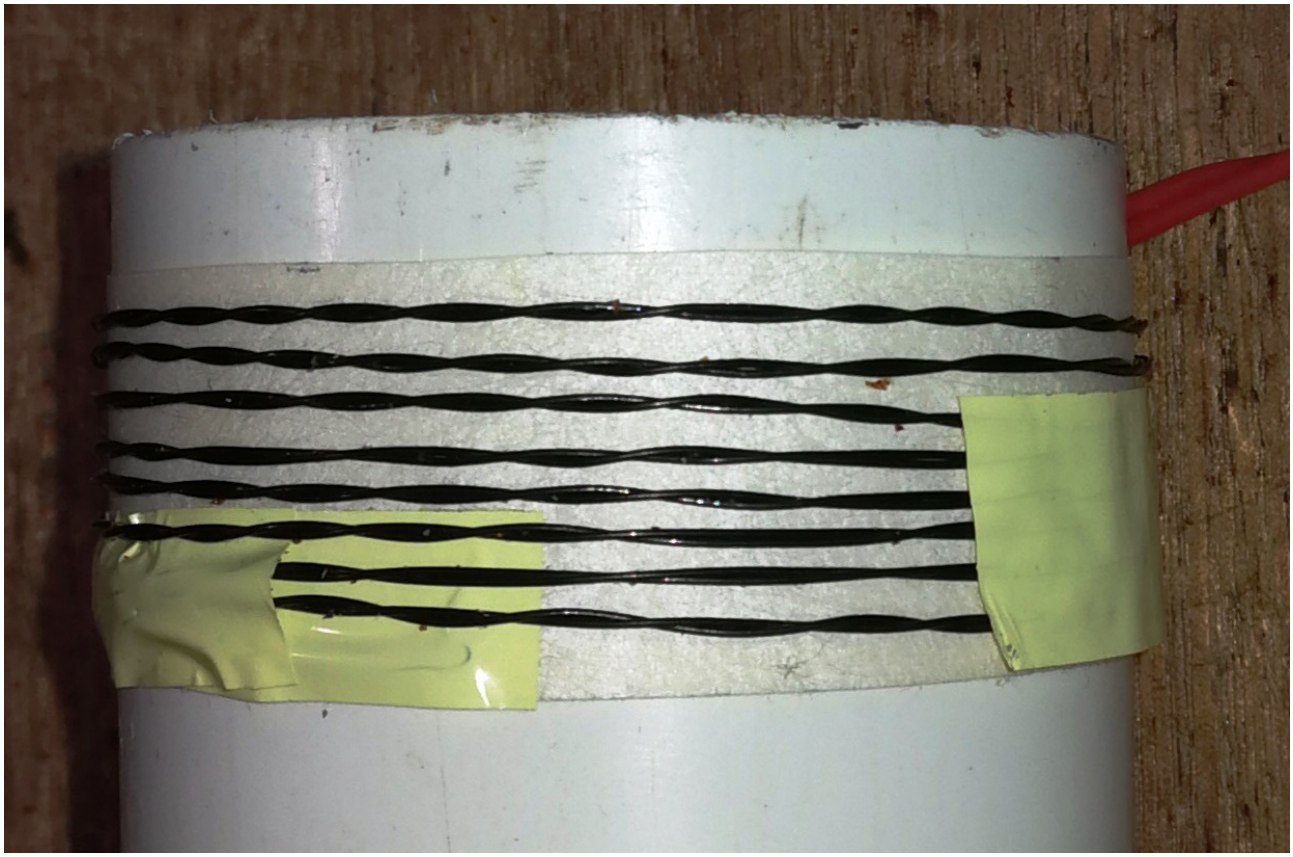
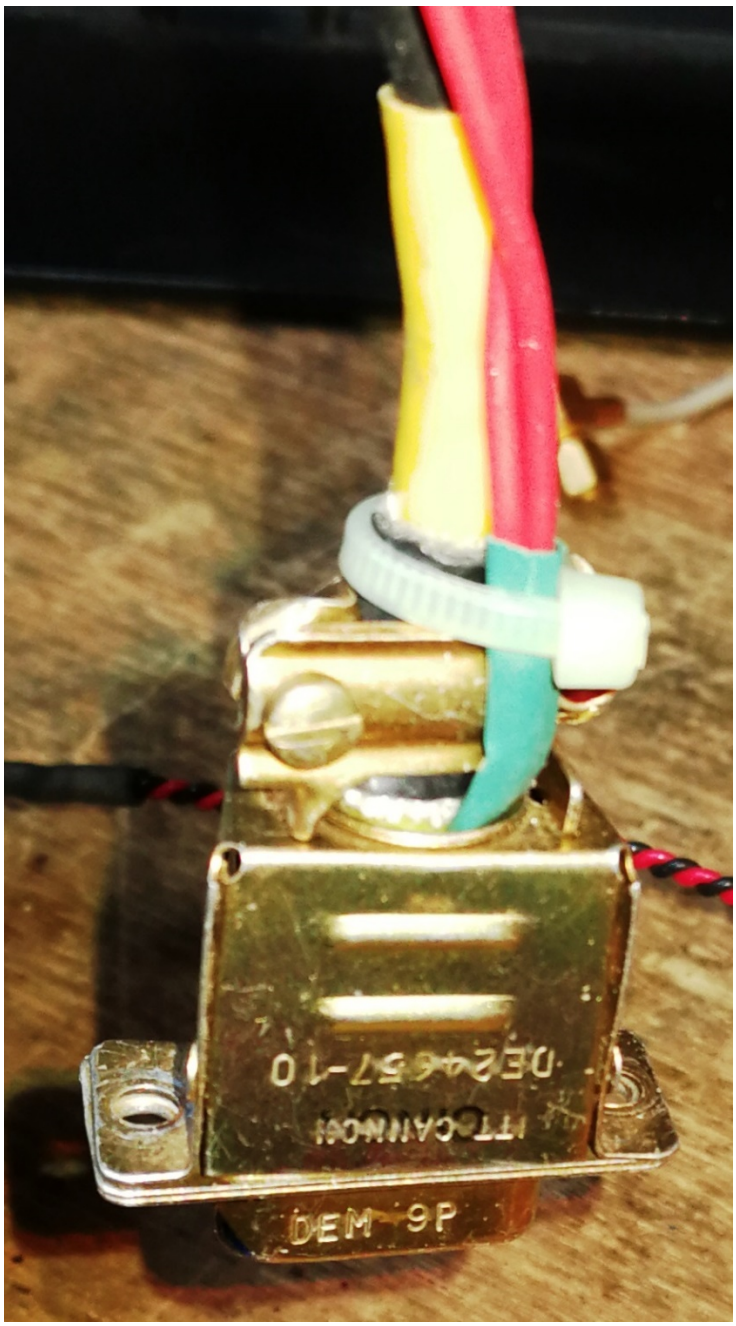
HP5065A - HP 05065-6001 lamp heater repair **14 October 2022**

Original lamp heater was open-circuit, with pin 5 showing some resistance to ground. The foam insulation between lamp heater aluminium cylinder and housing was cooked, with the innermost annulus charred from the heater. A channel was carefully gouged around the perimeter of the aluminium cylinder with dimensions of about 6mm wide and 23mm deep. Total cylinder depth is 37mm, so cylinder was still 'locked' in position by the cooked foam. The machined groove in the cylinder became visible, but the thermistor was not visible and remained undisturbed. The DB9 cable remained in place and was sufficiently far from the cylinder wall to be a non-issue. A channel width of 6mm still allowed a good safety margin to the magnetic field coil located on the outermost inner surface of the housing (photos showed that I uncovered some of that coil, but the outer foam should be left undisturbed).

The resistance wire used was Pelican Teflon insulated advance wire type P2332ADVFEP.006BK, with a description of 32 AWG Solid (0.008"), Advance, 4.5938 Ohms/ft Nominal; 0.006" Black FEP Insulation; Nominal Finished Diameter 0.020". Total resistance was 54 ohm nominal. After folding and twisting, the wire was wound on to a nomex paper former made on a 60mm OD PVC pipe (DN50 pressure pipe in Australia), with about 8 turns splayed evenly. Each wire end was crimped to some thin silicone insulated wire using a short section of bootlace ferrule, and soldered and protected with some heatshrink. The coil was retained in place with multiple layers of Kapton self-adhesive tape, and then an over-wrap of nomex paper used to make an assembly that was relatively easy to slide into the gouged channel. Neoprene 3mm thick strip was used to retain the assembly in the channel and act as a thermal barrier, without the need for using RTV (and also make easier extraction if ever needed).

The in-situ heater was confirmed ok with a 20Vdc supply, and then the heater wires were terminated to the DB9 in lieu of the existing wires. With the DB9 only connected to the 5065A, the equipment was turned on and a K-type thermocouple stem was inserted into the lamp assembly sensing hole and the temperature confirmed to reach and regulate to about 92degC. The top covers were then reinstalled, and the whole assembly refitted.

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