AN758 Construction Hints

Installation of T1 on the AN758 PC board - The teflon wire windings are the primary windings of transformer T1. If swage pins are used (optional) mount them in the two holes on the PC board and solder on the bottom. Insert the insulated wires in their holes and position the split-end of the transformer up against the swage pins and solder. The transformer must be insulated from the PC board using a piece of mylar, teflon, or some similar material. In lieu of swage pins, short pieces of #20 bus wire can be inserted in the two holes on the PC board and soldered. Then bend the ends of the wires over to the split-ends of the transformer and solder. Clip all excess leads.

Installation of T2 on the AN758 PC board - Install T2 (remove the extra short piece of wire supplied and save it) on the PC board. CAUTION: The phase of these remaining leads is critical! They must cross in an "X" fashion, e.g., if the red wire is closest to the output transformer T3 on one side, its other end must be installed diagonally in the hole closest to the input transformer T1 (and vice versa for the other wire). See Figure 1.

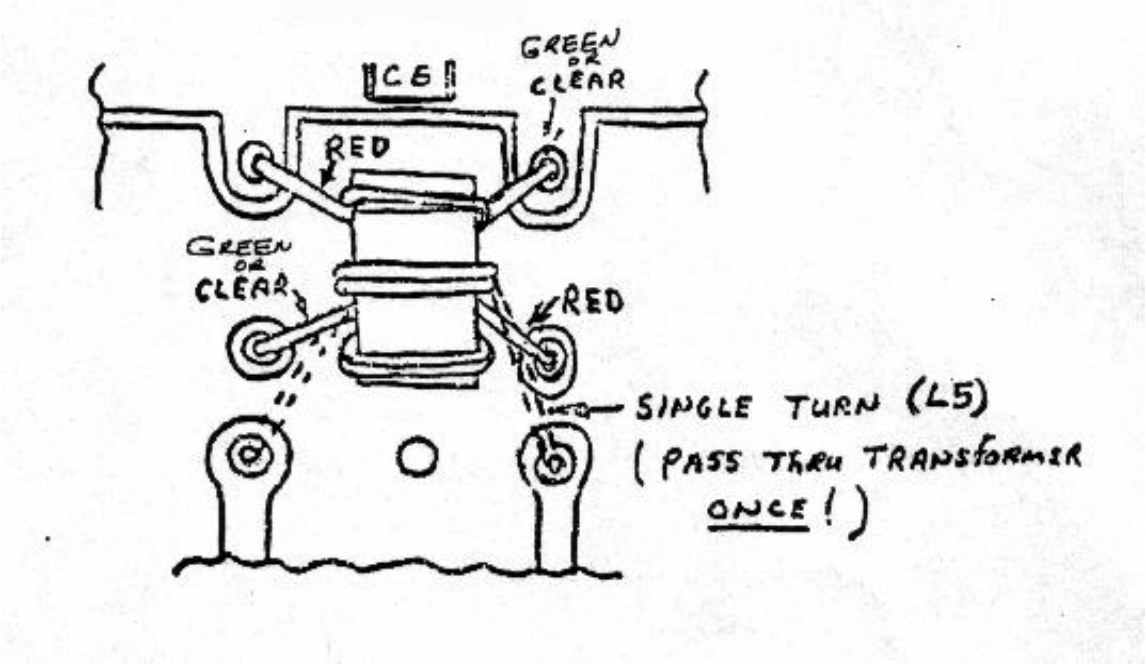

Figure 1

Note: there are six remaining holes and the heavy five turn leads are installed in the four (4) holes closest to the output transformer T3 (make sure the insulation is scraped from the leads before installation!). Solder and clip the excess leads close to the PC board.

Cut the extra short piece of wire to 1 ¾ inch and scrape the insulation 3/8 inch back from each end. Install this wire through T2 and into the remaining holes in the PC board (pass the wire through T2 only once!). Solder and clip the excess leads close to the PC board.

Pass Transistor Obsolescence - The 2N5990 and 2N5991 transistors are now obsolete. These transistors had an unusual pin configuration for which a direct physical replacement is not available. Helge Granberg from Motorola suggested using the 2N6488 transistor as a substitute. However to fit the PC board configuration, the transistor must be mounted upside down as shown in the Figure 2 below.

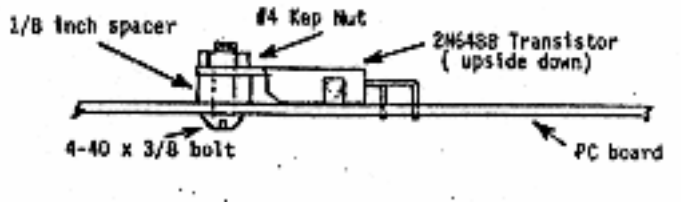

Figure 2

Position the pass transistor Q3 upside down over the screw hole. Bend the leads to fit the hold pattern (Note: the metal side of the transistor facing up away from the PC board). Using the 1/8 inch metal spacer, install the 4-40 x 3/8 inch screw from the bottom up through the spacer and transistor and install a #4 KEP nut and tighten snuggly. Solder the transistor leads from the bottom and clip the excess leads.

Installation of diode, D1 - The temperature sensing diode (or transistor, 2N5190) is mounted on the bottom of the PC board. Position the transistor D1 over the screw hole (use a screw to temporarily hold it in position). Trim the leads back to fit the lands on the PC board. The middle lead can be cut off as it is not used (Note: the metal side of the transistor must be away from the PC board). Solder snuggly against the board.

Suggest that the regulator be checked out before installing the RF transistors. A faulty regulator can blow the transistors instantly!! After the amplifier is complete with the exception of the RF transistors, solder a 15 to 100 ohm resistor from ground to the base pad where one of the RF transistors will be mounted (this is a load for the regulator). Insure that the regulator will provide a regulated base voltage from about 0.5 to 1.0 volts as the variable pot is rotated through its full range. If the regulator works properly, set the bias voltage to minimum. Then remove the load resistor and install the RF transistors.

The idle current for the AN758 is 150 milliamp per transistor or 300 mills per module. A good compromise is to set the bias voltage at 0.62 to 0.65 volts. The transistors should not run hot at idle.

If you have any questions, please call.