

ALL MODE TRANSCEIVER

The accessory circuits, with the exception of the actual thermal sensor, are built on one single sided PCB, which is mounted on the rear panel of the Omega case behind the repositioned QRP PA. The board is split into two — the current transformer circuit and the remainder of the detection and metering circuit. A brass or tinplate screen separates the two halves on the top the PCB.

The PCB assembly is not particularly difficult. Please note however, that in the April part of Omega, the CAL SWR control is referred to on p56 as VR1 when it should be RV1.

1. Insert and solder the 1mm PCB connection pins at the points shown with larger black circles on the overlay. Note that the centre conductor connections from the current transformer primary are made direct to the PCB holes and not via pins.

2. Insert and solder all the components in the metering section of the board. Note that both C10 and C6 are mounted on the track side of the board and are soldered, with short leads, directly between the IC pin and earth (pin 4).

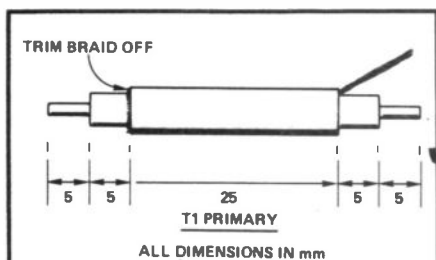
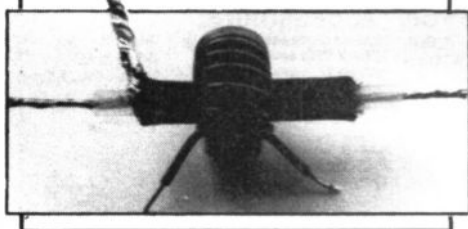


Fig. 1 Detail of the T1 primary.



PROJECT



Part 12

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continue with the
construction, alignment
and mounting of the
accessory PCB.*

3. Next insert and solder all the components except T1, in the RF section. TC1 should be inserted with the 'shoulder' end at earth potential to avoid the 'screwdriver effect' when adjusting.

4. Cut a 45mm length of 1/4" coaxial cable and trim as shown in Fig. 1. Pigtail the braid remaining at one end. The secondary of T1 is wound using 40cm length of 0.56mm dia. enamelled copper wire for 15 turns. Trim the ends to 10mm and slide over the coaxial cable. Insert the ends of the secondary in the appropriate holes and then solder the coaxial cable ends into place, followed by the secondary windings.

5. Solder the centre screen into place.

Alignment

Some of the functions can be tested before wiring the whole unit into place; although some further minor adjustments will be required afterwards, to take out the resistance of the logic switch meter changeover circuit. This can be avoided if the meter connections to the unit are made via the appropriate terminals on the logic boards (see Omega parts in Nov '83 and April '85 issues) and all adjustments made in transmit mode. The following steps assume that the above connection is made and that the front panel meter is replaced with the scale shown in Fig. 2.

1. Adjust all presets to mid-travel. Connect an earth and a source of +12V to the PCB. Put a flying lead from the meter's +ve terminal (pin M on the logic switch) to pin N on the accessory PCB. The -ve terminal of the meter (pin R on the logic switch) should be connected to earth.

2. Apply power and adjust VR5 so that the meter reading is the same as the power supply voltage being used.

3. Change the meter connections so that the meter +ve terminal is to pin G and the -ve terminal to earth. Set VR4 so that the meter reads FSD.

4. Temporarily connect up the temperature sensor across pins H and J (it has no polarity) and an LED (cathode to pin K, anode to +12V). *Very carefully* hold your soldering iron bit near to the sensor tab *but do not touch it*. After a while, the LED should illuminate and the resistance of the collector of Q3, measured with respect to earth, should decrease — thus showing that the sensor is working.

The next stage requires that the accessory board be mounted on the