

Using the HA1YA ME4T 4 m transverter (70 MHz ↔ 28 MHz) with the Icom IC-756 PRO 3 transceiver

By Tom V. Segalstad, LA4LN



The Icom IC-756 PRO 3 transceiver has provisions for operating with a transverter. When a voltage of 2 - 13.8 V is present on pin 6 in the transceiver's Accessory plug 2 (ACC-2), its transverter function is activated. This means that the transceiver's rear panel transverter phono connector will be opened for input (receive) and output (transmit; -20 dBm = 22 mV). At the same time the antenna indicator, the top left screen indicator, will show the letters "XVERT" with a red left vertical line, see the picture above, circled.

ME4T modification 1 – letting the transceiver sense the transverter

It would be useful if the Icom transceiver automatically switched to its transverter function at the moment the ME4T transverter power switch is set to ON. In order to do so, a red 4 mm power connector terminal was mounted on the rear panel of the transverter, below its RLY connector. An 8 mm drill bit was used to make the hole, to accomplish space for the insulation between the new power connector and the panel. The connector used was ELFA 40-612-14.

Inside the transverter, a red insulated wire was soldered between the switched ON power connector and the new rear panel connector. In this way the new rear panel connector is connected to the operating power when the power switch is set to ON.

A single insulated wire with a banana plug, to be plugged into the new rear panel connector, is soldered to the transceiver's ACC-2 plug pin 6.

Cable connections

Two power cable connections with banana plugs (red and black) were made between the transverter power posts and the power supply. Plug the transverter first and the power supply last – or there is a chance that the red (plus) banana jack may touch something at ground level and make a short for the power supply.

The TX/RX cables between the transverter and the transceiver were made out of one 1 m length of pre-made BNC-BNC high quality 50 ohm impedance jumper cable RG-58C/U, ELFA 46-302-08. The cable was cut in two equal halves, and a phono connector, ELFA 42-258-01, was soldered at each end. The two phono connectors were plugged into a phono connector combining Y adapter, ELFA 42-793-11. The phono connector Y adapter, with the two combined coaxial cables, were plugged into the transverter in/out connector at the transceiver rear panel. The two coaxial cables with their BNC connectors were plugged into the IF-in and IF-out BNC connectors at the transverter rear panel.

A PTT TX/RX relay cable was made using shielded microphone cable and two phono connectors, ELFA 42-258-01. One end of the cable was plugged into the PTT connector at the transverter rear panel. The other end of the cable was plugged to the other TX/RX switched control cables at an external TX/RX relay, operated from ACC-2. Here I used another phono connector Y adapter, ELFA 42-793-11.

The antenna (or a dummy load) was connected to the antenna connector at the rear panel of the transverter.

The first try

The transceiver was set to 28 MHz, the transverter was powered ON, the "XVERT" indicator with a red left vertical line came on the transceiver display, and the receiver noise increased over the 28 MHz noise. A signal generator set at 70 MHz was indeed detected in the receiver. The transmitter was keyed, and produced 25 W of RF power on 70 MHz in the 50 ohm dummy load.

But when turning the transverter power switch OFF, the PTT line was activated, making the 28 MHz receiver silent. When disconnecting the PTT cable from the transverter, the transceiver was OK. While the transverter is OFF, there is a measurable resistance (and a capacitance) across the PTT line, enough to trigger my other equipment hooked up to the PTT line.

ME4T modification 2 – switching the PTT line ON with the power switch ON

I was not going to plug and unplug the PTT cable each time I would be using the transverter. It would be necessary to switch the PTT line ON when switching the transverter ON.

The power switch has two switched connectors, while just one pair of these is used for power switching. The other pair of switched connectors is free. The free pair of connectors on the power switch was used to switch the PTT line ON when switching the power ON.

Note that two wires are connected to the rear of the PTT connector at the transverter rear panel: one short, bare wire comes from the power amplifier module, and a green+grey insulated wire comes from the front panel LED module. It is the latter cable displaying the resistance and capacitance activating my other external TX/RX systems.

These two wires were disconnected from the transverter's rear panel PTT connector. A shielded microphone cable was soldered across the free ON/OFF power connectors of the power switch, and soldered to the transverter's rear panel PTT connector and the two wires formerly connected to the transverter's rear panel PTT connector, respectively. In this way the PTT connection is switched ON when the power switch is switched ON. This cured my last problem!

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LA4LN