CODAR AT5 TRANSMITTER MODIFICATIONS

The Codar AT5 AM/CW transmitter covers the 160 and 75/80m bands with an input power of up to 12W. Some cosmetic changes were made over the years that the AT5 was in production, notably the size of the ventilation grille in the top of the cabinet, and the style and colour of the knobs. The only factory modification that I can trace is the fitting of an additional switch section to short some of the PA tank coil on the 80m band. This additional section was actuated from the 160/80m band switch slider on the front panel.

Unofficial modifications were done by many amateurs to improve the power output on 80m by shorting half of the PA tank coil. This works well and can be done by mounting a miniature toggle switch beneath the PA coil with the toggle arm protruding out of the back between the chassis and the bottom of the upper part of the cabinet. Those with the means can devise switching arrangements operated by the original slider switch. This is a much neater arrangement but requires some mechanical ingenuity, and facilities not possessed by the average amateur. I have found that the efficiency of the AT5 can be improved slightly on 160m by reducing the PA coil from 45uH down to approximately 35uH. This gives better results into 50 ohms than the original arrangement, which I think was intended for matching into the lower impedances exhibited by mobile whips on 160m. I use slightly over half of the remaining160m coil on 80m. When tapping down the original coil I assumed that the inductance was roughly proportional to the length. For those intending to copy the AT5, the CODARQOIL T422S used for L4 is 64 turns, 2 inches long, with a diameter of 1 inch.

Improved matching into 50 ohms on 160m also requires a fixed capacitor across the loading capacitor, C14. Many amateurs who use only 160m have added 1000pF, but I have found 560pF to be a better compromise if 80m operation is also desired.

Some early AT5s had oscillator starting problems, and the value of the grid resistor, R1, was reduced from 100k to 47k to fix this problem. The resistor, R1, is inside the oscillator coil screening can, and quite hard to change. The easiest option is to put another 100k resistor from the grid to ground on the valve socket to reduce the value to 50k if this has not already been done. The factory fitted 47k resistors in the oscillator assemblies once this problem was identified, so your AT5 may already have the right value of R1. A simple resistance check from pin2 of the valve socket to ground should confirm the value of R1, if you are in any doubt.

Those unfortunate owners who suffer modulation transformer failures will be happy to learn that Codar used the same 15VA autotransformer for the power supply choke as they did for the modulation transformer. Any 3 to 5H choke will do in the power supply. You can use the primary winding of any mains transformer of the same physical size and it should be close in inductance. Those intending to build a copy of the AT5 should be warned that the modulation transformer is a 110 to 240V step-up arrangement, and the 110V winding is the load for the modulator. The transformer steps up the voltage and impedance to the PA side of the transformer. This is the reason for the very adequate modulation on the AT5, despite the single-ended Class A modulator.

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