

IMPROVING THE ATLAS 210X TRANSCEIVER

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The Atlas 210X must be one of the best mobile transceivers on the market today due to its small size, light weight, and solid state final. It covers five HF bands with an output of around 90 watts and operates directly from a 12 volt supply. However, it does have some limitations and the following notes may be of interest to other users.

SENSITIVITY

Although the specifications for the Atlas 210X state sensitivity to be better than 0.4 microvolts for a 10 dB signal-plus-noise to noise ratio from 80 to 20 metres, about 0.4 μ V on 15 metres and 0.6 μ V on 10 metres, the set under test did not meet this specification on 10 and 15 metres. In comparison with another older valve transceiver it did not show up very well on these bands, so the problem was taken up with the manufacturer.

The Customer Service Manager suggested peaking the receiver input coils, making sure the VFO injection voltage was at least 0.4 volt, and if the sensitivity was still down, that a pre-amplifier would be found helpful, especially on 10 metres.

RF PRE-AMPLIFIER

No RF stage is used in the Atlas ahead of the mixer stage and a pre-amplifier will be found to be a worthwhile modification. The circuit suggested by Atlas is shown in Fig. 1. It uses a 2N3866 and really improves the sensitivity of this transceiver especially on 10 metres. The sensitivity on this band is now around 0.3 μ V for 10 dB signal plus noise to noise ratio. The extra gain also improves the operation of the AGC system which now works in a much more satisfactory manner.

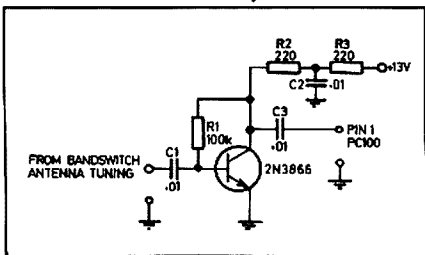


FIG. 1: Preampifier.

The pre-amp was made on a small PCB by VK4UA and is about 2 inches long by 1 inch high. It could be made on a strip of Veroboard. It will fit the area of the



ATU and AC Supply.

Atlas PCB No 900, mounted at the top rear and using the two holes in this board to mount two 3/8 inch long stand-offs. The pre-amp fits neatly in place at the rear side of the dial drum.

The pre-amp is connected into the circuit by mini-coax between the band change switch for the antenna tuning circuits and pin 1 of socket for PCB No PC100. Plus 13 volts is taken from pin 10 of the socket for PC100. The ground connection is to the chassis nearby.

Due to the increased RF gain a resistor of 2,700 ohms is connected between the RF gain control R6—10k ohms and R7 (470 ohms). The additional resistor is supported on a small tag-strip near the gain control. The circuit alteration is shown in Fig. 2.

It was also found desirable to reduce the range of the audio gain control by disconnecting the lead from pin 22 on PC 300C and connecting it to the moving arm of a 20k ohm tab pot connected between

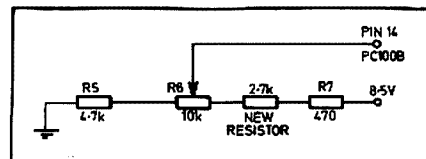


FIG. 2: Extra Resistor to reduce gain.

pin 22 and ground. The desired audio level can now be pre-set to give a better range for the audio gain control. See Fig. 3.

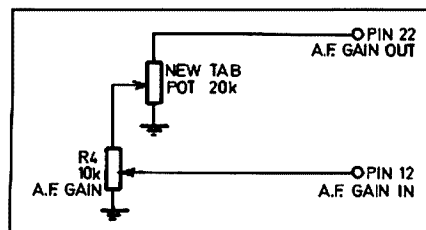


FIG. 3: New Tab Pot to reduce AF gain.