

MODIFICATIONS FOR 2400 BAUD OPERATION

MO-202/DE-202 WITH TA-451 AND R451

INTRODUCTION.

The following modifications allow 2400 baud operation with minimum chatter and minimum response time. In order to run 2400 baud, the tone frequencies had to be doubled to 2400/4400 Hz.

MO-202 MODS.

Freq. Determining Components.

R5 is changed to 3.3K.

R7 is changed to 10K.

C3 is left unchanged.

Audio Output Network.

A fairly high level audio output is needed to drive the deviation pot in the exciter. 1V p-p is needed to drive the TA451 to 4 kHz deviation (optimum dev.) with the deviation pot set to half range, thus allowing adjustments either way. A flat output is needed to obtain equal deviation at high and low tones.

C1 is eliminated to give flat output.

R1 and R2 is replaced by a jumper for higher output level.

Adjustments.

R6 is set to the mark tone of 4400 Hz with the data input at rest.

R7 is set to the space tone of 2400 Hz with the data input active (ground E2).

DE-202 MODS.

Freq. Determining Components.

C2 is changed to half the value by connecting two .033 uF mylar capacitors in series (tack soldered at junction).

C3 is changed to .0047 uF ceramic.

C6 is changed to .001 uF ceramic.

Note C3 (loop filter) and C6 (output filter) affect chatter. C5, which is unchanged affects RCD response time, and it is found that reducing the value caused noise in the RCD signal because of the white noise present in the receiver output with no signal.

Adjustments.

The center frequency is adjusted per instruction manual, but at 3400 Hz. Note that using a higher or lower frequency results in data pulses which are skewed (not equal mark and space).

R451 RECEIVER MODS.

No mods are necessary on the receiver. The audio source for the DE-202 is connected to the DISC output terminal on the receiver.

We also tried connecting the audio input of the DE-202 to the top of the volume control, which is squelched, but found that the data signal is more reliable and the RCD responds faster by using the DISC terminal on the receiver for the audio source. We tried speeding up the squelch circuit by reducing the value of the noise detector filter capacitor from 0.47 uF to 0.15 uF, but found it is unnecessary because unsquelched audio could be used.

TA451 EXCITER MODS.

To connect the audio from the MO-202 directly to the deviation pot, the mic. gain pot is removed, and the two capacitors and one transistor connected to the top of the deviation pot are removed. A jumper wire is connected from the pad normally used for the top of the mic. gain pot over to the bottom-most pad formerly used by a cap connected to the dev. pot.

To make the exciter come up quickly with RTS, C55, at the B+ input is removed. R18, which supplies B+ for the voltage regulator running the oscillator, is reconnected to the oven power terminal with a short jumper wire tack soldered to the floating end of R18. Thus, the oscillator runs all the time, and only the higher level stages are keyed on and off with RTS.

After the system is connected, observe the transmitter deviation with a service monitor, and set the deviation pot for 4 kHz deviation. It should be about the same with mark and space tones.