

ACE R/C, Inc.

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SERVING THE RADIO CONTROL
HOBBYIST SINCE 1953

7:30 a.m. to 4:00 p.m.
Monday through Friday
(816) 584-7121

MILLER INTEGRATOR CALIBRATION

To narrow band a Proline or Digital Commander transmitter, we are installing a Miller Integrator between the encoder board and the RF deck. We must also add a .22 mf Tantalum capacitor on the RF deck. This is installed from the collector of the transistor Q3 to ground. For best results, retune the RF deck after installing this capacitor. If, in vary rare instances, the sidebands will not come down to below 55 db, the .22 mf capacitor should be replaced with a .47 mf. See the enclosed data sheet for more information. When the intergrator is used with the Digital Commander transmitter, the 10 uhy choke L1 on the encoder board must be replaced with a 4.7 mf Tantalum capacitor. This capacitor is installed with the positive end connecting to the modulation input of the Miller Integrator.

To install and adjust the Miller Integrator in a Proline or Digital Commander transmitter, you will need an oscilloscope with a band width of at least 60 mHz with a demodulator pickup and you will also need a spectrum analyzer to check the sidebands.

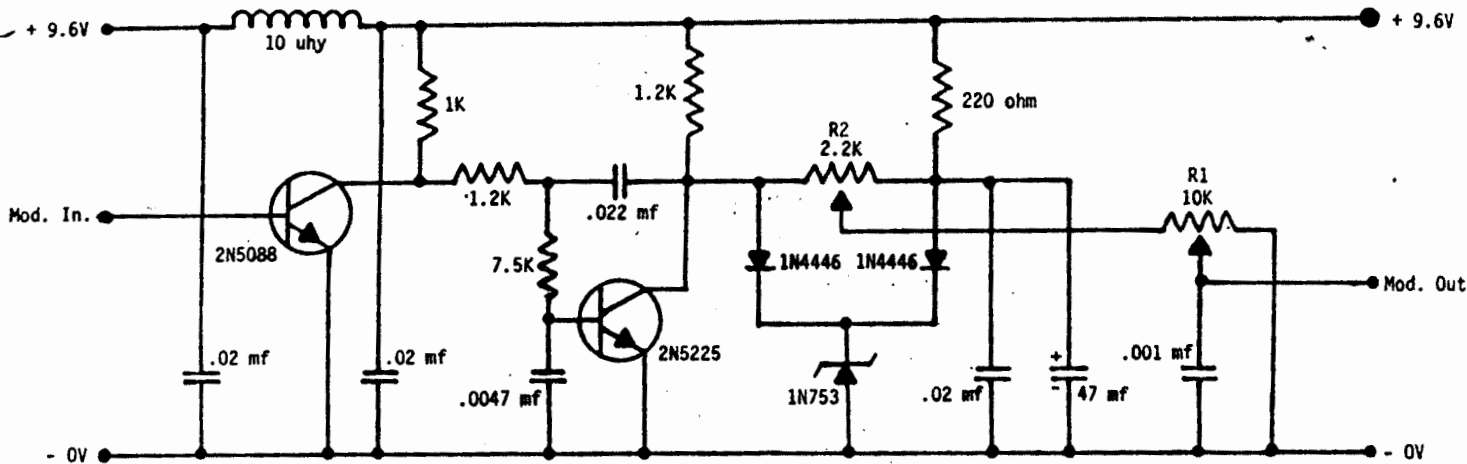
After the intergrator has been installed in the transmitter, rotate the trim pot R1 fully clockwise and the trim pot R2 fully counterclockwise. This will kill the modulation and allow you to check the frequency on a frequency counter. Now adjust the R2 pot fully clockwise and you will see the modulation on the scope and the spectrum analyzer.

Adjust the pot R1 counterclockwise until the output just starts to decrease on the scope. You will first see the pulses rounding off before the output decreases. You will note on the analyzer that the sidebands will now be much lower, especially on the lower sideband.

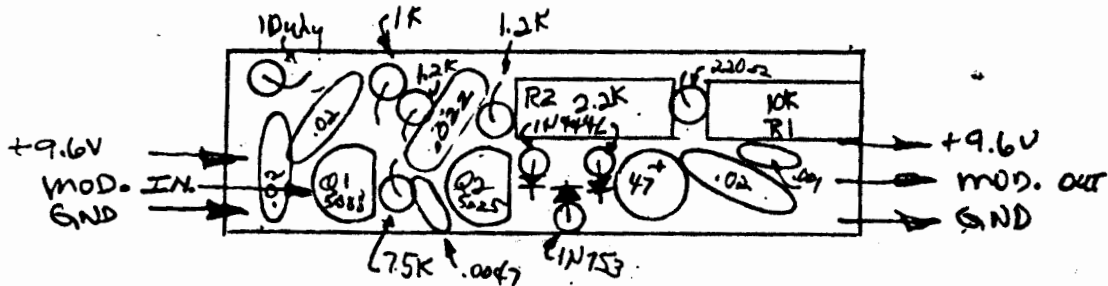
Adjust pot R2 for a clean, sharp off time between pulses on your scope. You will see the upper sideband now falls off and will be similar to the lower sideband.

After adjusting the intergrator several times, you will quickly be able to adjust the sidebands so they will be symmetrical and below 55 dB at 20 kHz out.

Paul Holsten
Plant Manager



MILLER INTEGRATOR



I. RF DECK WIRING

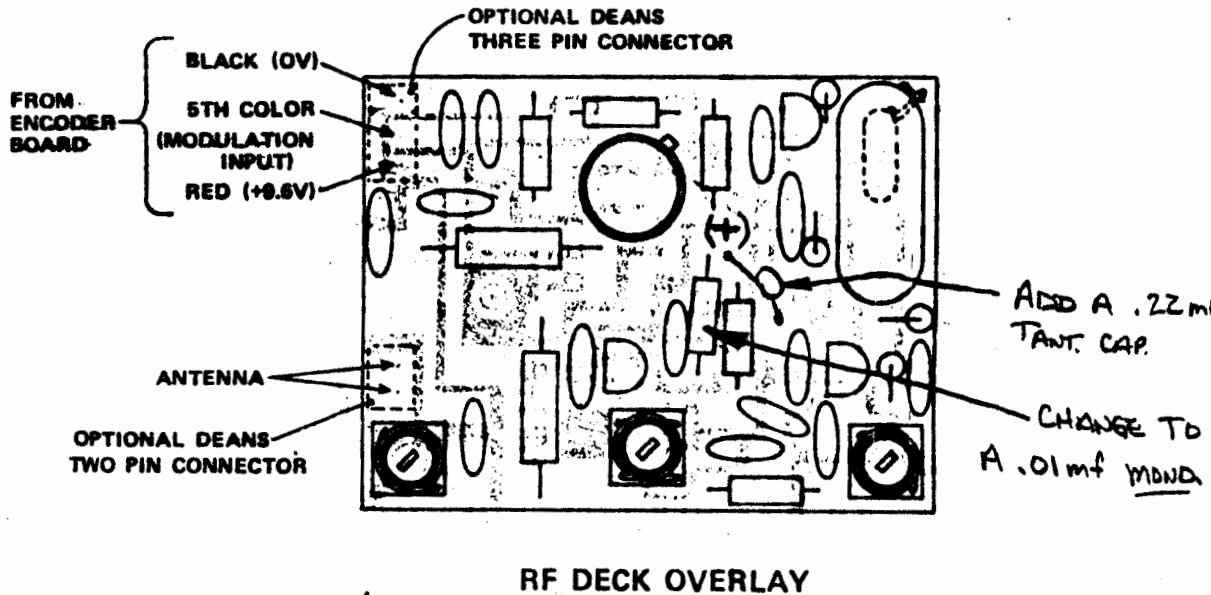
- () 1. Strip, tin, and solder the wires in the remaining three wire bundle coming from the encoder board in the proper holes indicated on the RF deck overlay drawing.
- () 2. Take two 1½" pieces of scrap wire and strip, tin, and solder them both to the solder lug on the antenna mount. Cover this connection with heat shrink tube. Strip, tin, and solder the other ends of these wires in the two holes indicated on the RF overlay drawing. Clip the wire leads short to prevent them from shorting on the transmitter case.
- () 3. Mount the RF deck and the frequency I.D. plate on the transmitter case using two 2-56 X 1/4" flat head bolts as shown in Figure I. The crystal should be on the left as you look inside the back of the case. Tighten securely to insure good ground. Make sure the antenna lug is not shorting to the RF deck and that no leads on the RF deck are touching the transmitter case.

OPTIONAL CONNECTOR WIRING

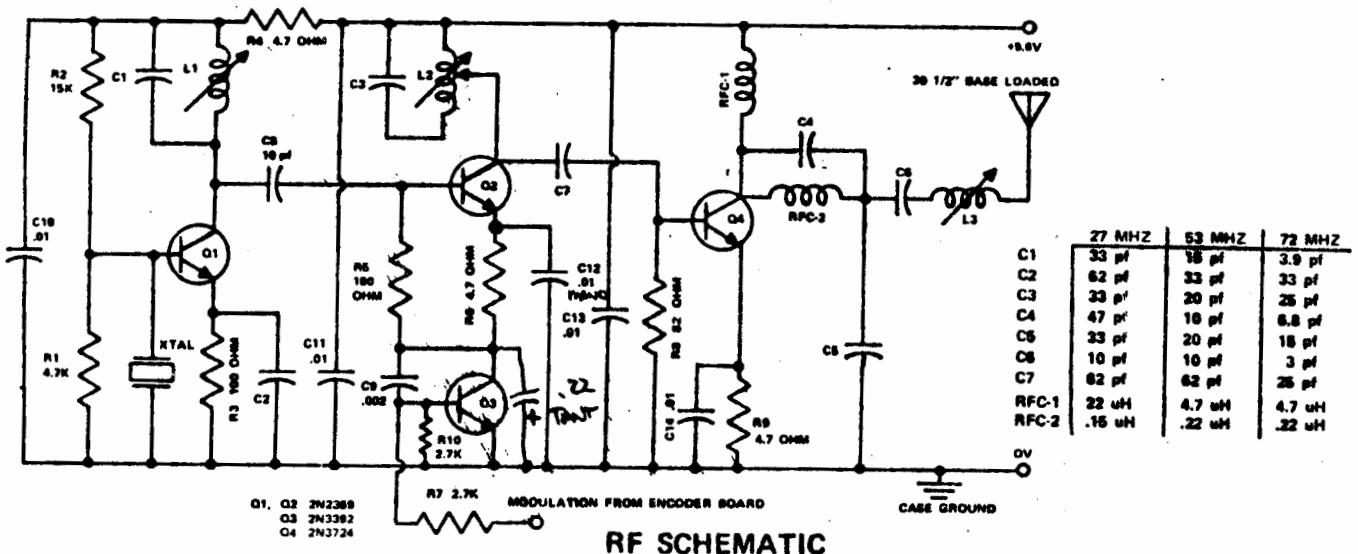
If desired, you may wire the RF deck up with Deans plugs to permit easy removal for quick frequency change. This is an option and the plugs are not furnished.

Obtain one pair each of the Deans two pin & three pin connectors. Drill out the wire holes in the RF deck to accept the connector and solder the male half of each connector onto the RF deck and the female halves to the wires coming from the encoder board and the antenna—use insulation sleeving on the females. Make sure that the proper wires make the correct connection to the RF board when the connectors are plugged together. Also make sure the legs on the connectors don't short out on the transmitter case when the RF deck is installed.

Your transmitter is now ready for set-up and integration with the rest of the system.



RF DECK OVERLAY



RF SCHEMATIC