

TUNING THE CW SCRUBBER BY EAR

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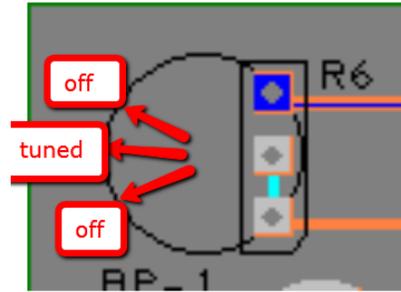
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While I've tuned the scrubbers I've built using a dual-trace oscilloscope, I've found that the following "tune my ear" method works at 700 Hz quiet well too. I've not checked the position of the delay thumb pot for 600 or 500 Hz operation; but, plan to do so later.

The attached picture shows the approximate range within which R33, the delay thumb-pot, should be set.

Disregard the R6 designation shown in the photo; I borrowed that picture from the manual in order to draw the red arrows in the picture. With the method described in the text in

the picture, I'm assuming you are feeding the scrubber with a 200 mvpp 700 Hertz tone at the input of the unit on the back panel.



Tuning scrubber by ear. Assuming a 200mvpp input and BPF pots at or nearly at CCW position, turn the REGEN pot fully CW (clockwise) and adjust the delay pot, R33, from off below to "tuned" (~horizontal) to off above. When you do this it should be low to high to low in volume. Then adjust back to "tuned" for peak. This is for 700 Hz. Sweet spot for 600 or 500 may be a bit different.

As per the manual, you can obtain a tone from your signal generator (assuming you have one), use the side-tone off your RX rig, or download one of the tone files per the manual from the www.midnightscience.com site.

Once the tone is injected into the scrubber, turn the REGEN pot at left on the front panel fully clockwise (CW), turn the volume to about 20 to 25% CW also, and then while listening with headphones slowly tune the delay pot, R33, from the lower OFF position as per the picture through the tuned position and finally to the second off position at the top while listening. The tone should be quieter at each off position and loudest at the tune position. While tuning from the tune position to the top off position you may hear a bit of distortion as the regen circuit drops in volume; this is normal. Then, tune the pot back to the maximum tone "tuned" volume position. Leave it there and try the filter on the air.

If you have an oscilloscope and used it to align the delay correctly, your channel pictures should be as shown in the picture.

The maximum gain of the regen, with R12 of 220K used at U2a, is about 50, resulting from a 100 mvpp input for the scrubber and rail-to-rail output at pin 1 of U2a.

If this tuning test does not work, it is likely that there has been an assembly error. As per the manual, do the DC voltages check again. Correct any problems found there. If not, then double-check that all of the

components are installed in the correct positions and that all solder joints look good. If you are still having problems, then trace through the circuit from the input one op-amp circuit at a time. We've received good reports on this kit and some "WOW" reviews. In addition it has been out for a number of months now; so, if you are having difficulties it is mostly likely due to some sort of assembly error, a component failure, or station grounding. Feel free to email us if you need help.

