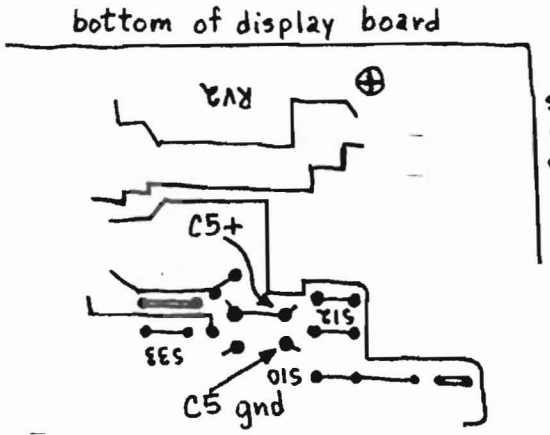
NRD-525 S-Meter Damping

Dallas Lankford, 28 I 93

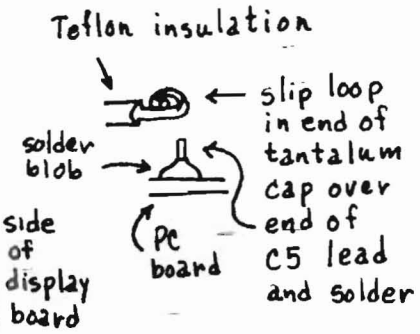
(1) Remove front panel.

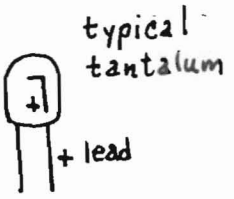
(2) Add 10 µF 16 volt tantalum capacitor in parallel with C5.

(3) Replace front panel.



Rear View Of Display Board





In his article " More on modifications for the NRD-525," Denzil Wraight remarked that the S-meter jumps about even on steady signals from a signal generator, and that this nervous activity can be tamed with extra capacitance across C5 on the display board. He used a 1 µF tantalum capacitor. The S-meter behavior is determined by the voltage at the wiper of RV6 on the IF amp PC board (RV6 is a 10K pot from the AGC line to ground), and by R10 (10K), C5 (0.1 µF), and R7 (4.7K) on the display PC board, plus IC5 internal components via pin 13. It appears that the S-meter time constant is determined mainly by R10 and C5, in which case the time constant about 1 mS, as found from the time constant formula $T = RC$ (when R is in ohms and C is in farads, T is in seconds). Increasing the capacitance at C5 to 1 µF increases the time constant to 10 mS. It seemed to me that a meter time constant of even 100 mS would not be unreasonable, so I decided to try 10 µF in parallel with C5. The AGC line voltage varies from about 5 VDC at no signal to about 1.9 VDC for 100K µV at the antenna input, so the voltage at the junction of R10, C5, and R7 should not exceed 5 VDC. Thus a 10 µF 16 V tantalum capacitor conveniently available at my local Radio Shack was tried. Tantalum caps are polarized, so observe lead polarity and attach the tantalum to the C5 lead ends as shown on the PC board sketch above. If the lead ends of C5 do not stick straight up, unsolder them (remove solder with desoldering braid) and while applying heat with the soldering iron tip use a dental probe (or similar) to bend the lead ends straight up. Attach the tantalum cap as shown by the details above. Even with 10 µF across C5, my 525 S-meter is still a little nervous.