

RA6830JD Microprocessor Noise Fix

Dallas Lankford, 11/13/03, rev. 1/7/05

The first 6830 I bought was a JD model, and it was plagued with microprocessor noise throughout its tuning range. It was especially noticeable at higher frequencies where man made noise is low. Very disappointing, and a sad commentary on human nature which is not really relevant to the solution described here. I spent quite a bit of time trying to find the cause of the problem, and consulted several otherwise quite knowledgeable people, but to no avail. I even met a fellow who had another noisy 6830. I don't recall if it was a JD or not.

Recently, due to success at eliminating microprocessor noise from my RA6778C's, I had another go at the JD. To my surprise, I discovered that the noise was being picked up only by the 1st IF at 40.455 MHz on the 2nd mixer board. Further examination showed that the short mini coax with SMB connectors which connects the 1st mixer board to the 2nd mixer board was acting as an antenna.

I fabricated two small 40 MHz baluns using 8 bifilar turns of #24 on Amidon FT-50-68 toroids, soldered the unbalanced leads directly to SMB (m) connectors, and the balanced leads to the center conductors of pieces of RG-316 approximately the same length as the original mini coax. At the center points of the two pieces of RG-316 I soldered their braids together with a short length of #22 solid, and in turn soldered that to a ground lug that I added to one of the mounting screws. I routed the dual RG-316 through the side plates, as the original had been routed. Actually, the routing took place before the second balun was soldered to RG-316. Figures 1 and 2 below show these changes to the 6830.

About 99 % of the microprocessor noise in my RA6830JD is now gone. A few isolated spots of noise remain, but most of these are also heard on my RA6830-516's, although more weakly. These remaining isolated spots of microprocessor noise vary in strength with respect to time. On some occasions few, if any, are heard. At this time I do not know the reason for the noise strength variation.



