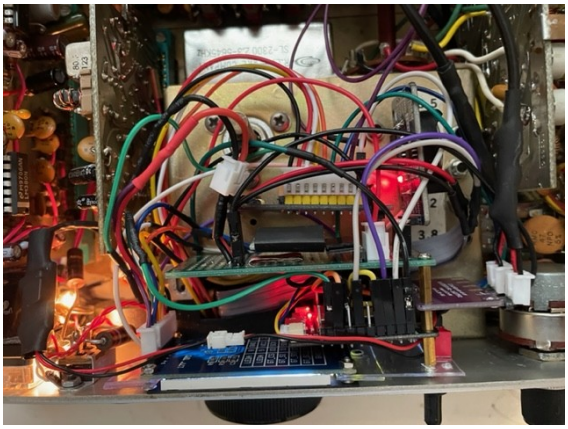
Club Members:

I just successfully installed a Drake TR7 crystal filter into my Atlas 210x. I had to modify the norm carrier oscillator frequency, the opp carrier frequency and the cw offset frequency. I also had to connect the output of the crystal filter to the second IF section (PC200) using a torid core core. I replaced the stock carrier oscillator board with a si5351 oscillator board CLK1 using an ESP32 FireBeatle Micro controller which also controls my VFO CLK0 in this radio.

This project is not for the faint of heart but because the crystal filter was dying and the drop-off I measured with my NanoVNA was below 26 db, I really had no choice but to change the crystal filter. If you have similar problems, I would recommend you buy Clint's 5.645MHz crystal filter. I had already converted the radio to a digital DDS with the si5351 oscillator and I could no longer tune the carrier oscillator board to keep the radio from drifting, so, I replaced the carrier oscillator board with CLK1 of the si5351 oscillator.

The radio used was completely overhauled, new capacitors, new driver transistors, cleaned up and tuned. The radio worked fine but the drop-off from the crystal filter was not acceptable. The receiver sensitivity was down and the transmit was 50W on 80m, 60W on 40m, 20m, 70W on 15m and 40W on 10m. Now the receiver sensitivity is back to normal and I am getting 80W on 80m, 90W on 40m thru 15m and 70W on 10m. This shows the role the crystal filter plays in transmit power.



I am currently putting together a document package to share this information and will get back to everyone once it is completed. It was a fun project and I learned a lot in the process. The information I got from Clint-W7KEC and Kevin-ZL1UJG in their Atlas 210X/215X Transceivers Engineering Supplement was invaluable. Thank you Clint and Kevin for all of your work.

The following is a link to the manual, circuit and code files:

https://github.com/JohnWSatterfield/Atlas_210X_Digital_VFO