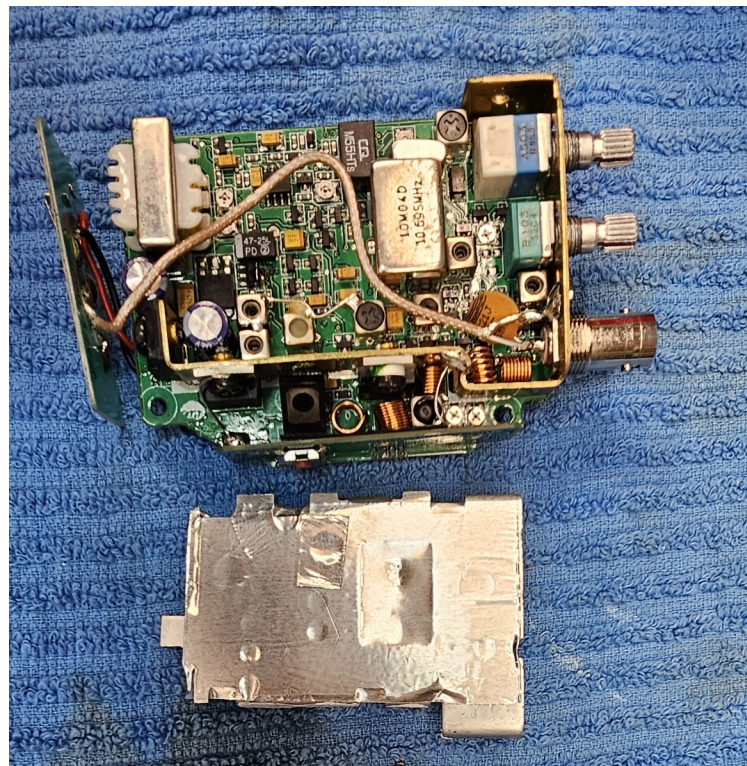# Albrecht AE-2990 AFS
Clarifier modification.
N5SIM 12/05/23

Although this modification has been completed on several AE-2990 radios, I make no guarantees or take any responsibility for any outcome when you attempting this modification

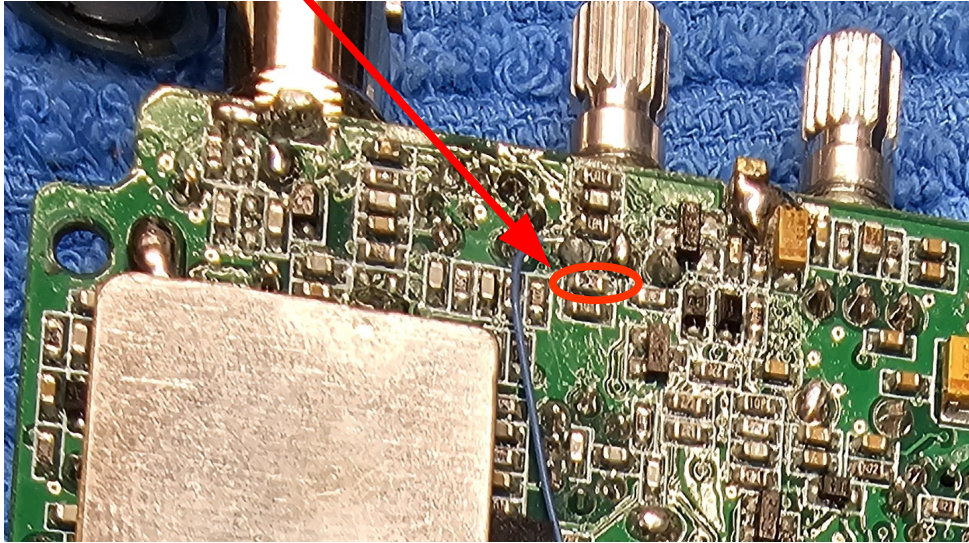1. Remove all covers, rubber and knobs.
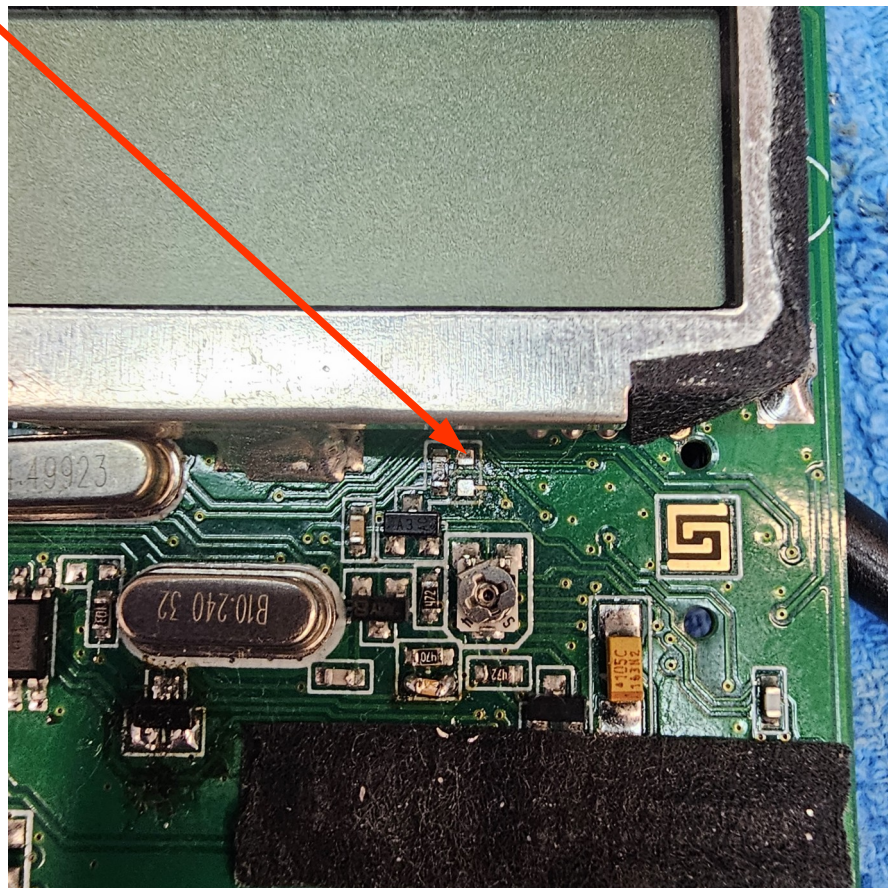

2. Remove the aluminum heat sink plate.

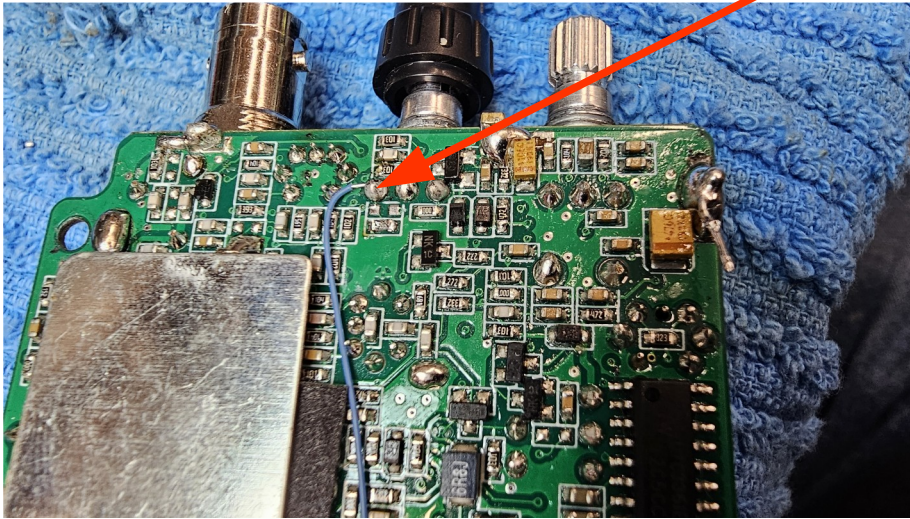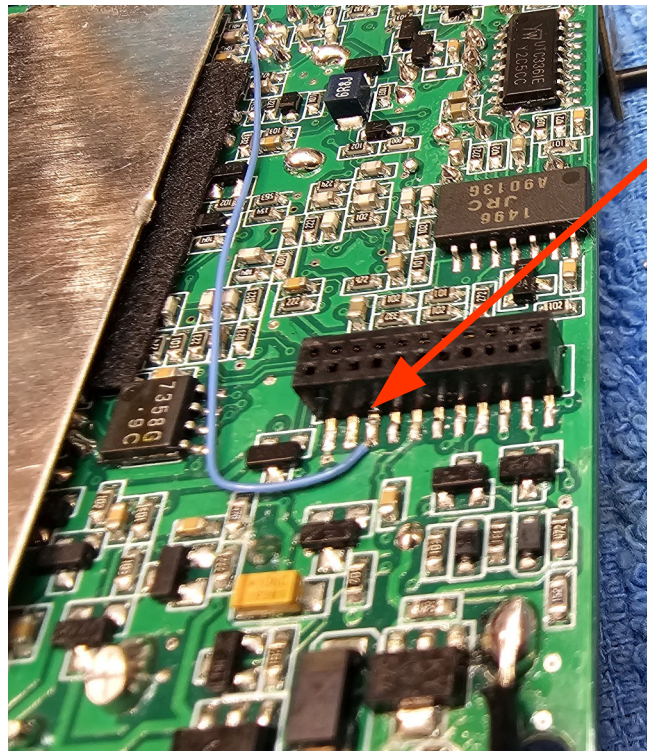3. Next, remove R15. Top resistor.

4. Remove R34

5. Connect a short (62mm) piece wire to potentiometer left pin.

6. Connect the other side of the wire to the 3rd pin from the left, bottom row of the female header.

When finished, it should look something like this:

Carefully check all connections, then you can place both boards back together. Make sure you line up the pins correctly and re-solder all ground links.

At this point, you should have a fully working radio, tune the radio as you normally would.

Reassemble the case, and now you have a clarifier that tracks in Tx & Rx.

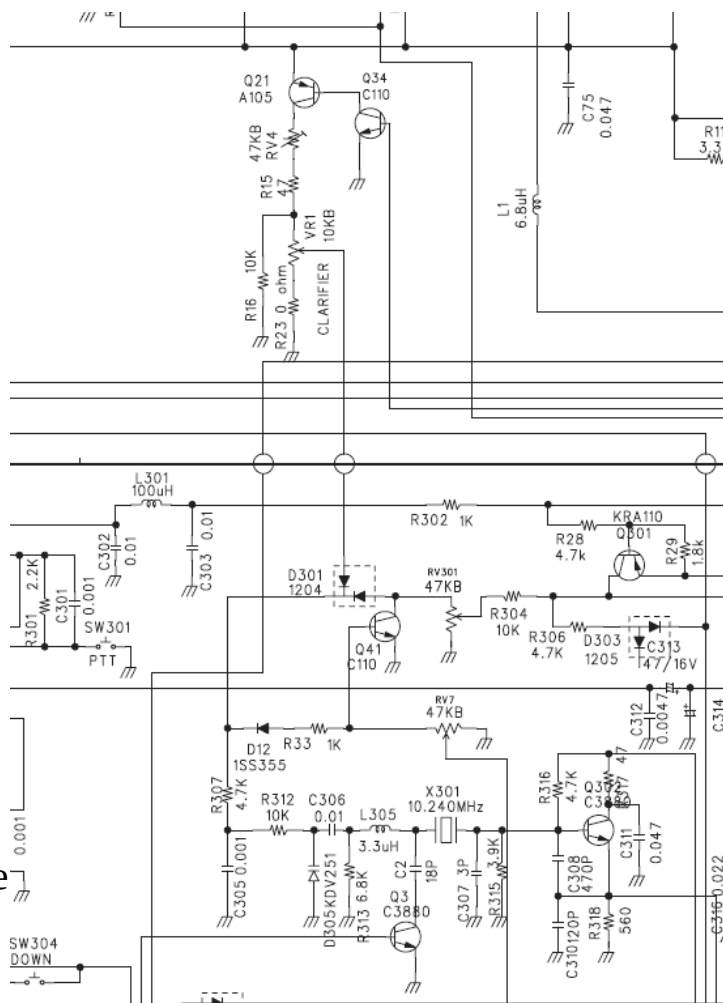Below is a quick explanation of how this works…

RX:

 In receive, Q34 gets a signal from the processor and turns on Q21 allowing voltage to pass through RV4, R15 to the potentiometer VR1 (*clarifier*) during receive. This sends voltage to the varactor diode D305, controlling the 10.240 oscillator allowing it to change the capacitance of the varactor diode and thus shift the frequency slightly + or -.

Removing R15 &16 disconnects VR1 from the Rx only voltage and allows us to insert a constant 6 vdc from the regulator.

TX:

In Transmit, the processor turns off Q34 thus turning off Q21 and preventing the 6 volts from getting to VR1 (clarifier potentiometer) The processor, at the same time, turns off Q41 allowing 6 volts to flow to RV301. (*this is the Transmit frequency adjustment*). By removing R34 we break this Tx switched voltage path, leaving only the constant 6 volts at D301 that we supplied at VR1 to be present in TX and RX.

Now when you vary the clarifier during tx or rx, the frequency will shift. The tx and rx frequency will be locked together because you have supplied 6vdc from a constant source.

Enjoy!
Toby D. N5SIM