

EL-34

Installation Guide

VFO Stabilizer for TEN TEC Corsair II Transceiver
Required Reference Manual - ELcon FLL VFO-Stabilizer



Figure 1 – TEN TEC Corsair II after Modifications

Installation description

Version 1.0a

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Important! Hints or tips for the correct function of the EL-34.



Watch it! Absolutely observe.

1 Introductory remarks

In the past I had installed the Cumbria design stabilizer kit (version 2) in several radios (Atlas 210x, Drake TR-7, Yaesu FT-902DM), but while successful at stabilizing their VFOs, I had ended up removing them based on 2 problems.

a) This particular stabilizer had a tendency to temporarily unlock while going from Rx to Tx, and would then lock at a slightly different frequency in Tx. (this happened because it had a feature of accepting a second frequency as a RIT frequency and lock on it.)

The problem with the above was that you could have a small offset of the Tx frequency, which was impossible to control from listening to the Rx station.

b) The locking steps even though theoretically 10Hz, in reality were more, since I could zero beat a station while the stabilizer was unlocked, but then it will lock at a slightly different frequency, being noticeable while listening to SSB stations.

Cumbria designs later must have addressed the above issues with their revision 3, but then the company went out of business, so the kit is no longer available.

Lately, while searching the net, I found a similar kit by a Swiss based company **ELcon**, which sells for a very reasonable price, the **EL-34**, and decided to give it a try. The kit arrived quickly and went together with no problems. Instructions, PCB and components were top quality.

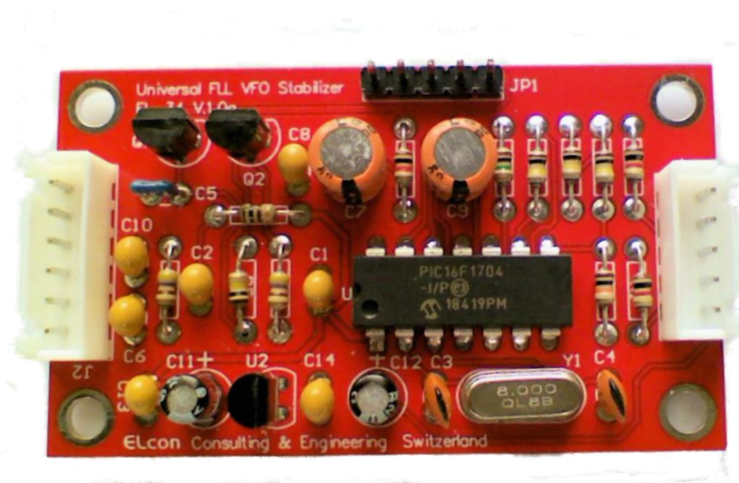


Figure 1 FLL-VFO Stabilizer E-34

2 Installation Summary

I had the EL-34 built for some time and based on the experience of Pete Juliano, N6QW, about installing a stabilizer in his Corsair I, proceeded to install the EL-34 in my rig.

I ended up installing the EL-34 board exactly at the same place as Pete, at the side of the PTO, first secured on a same size copper plated PCB via spacers, and the combination secured to the PTO can with double sided sticky tape.

According to the EL-34 instructions, I would have to disconnect the RIT control wire from the PTO (it is the 2nd one from the front surface), and wire it to the CAR in of the EL-34 board via an 82K resistor and then reprogramming the reference voltage of the stabilizer.

2.1 Installation Steps

Just for the sake of simplicity, I decided to omit the above steps, and installed the EL-34 directly, taking RF sampling from the PTO output with a piece of RG-316, power from the +8V regulated supply of the PTO (pin 4 from the front) and put the control voltage lead of the stabilizer directly to the RIT pin without any diode. My thinking being that the EL-34 should be able to vary the RIT potential not only above but also below the preset voltage, which could not happen via a diode.

The dual color indicator LED was installed flush with the J2 connector of the EL-34. It does not show in the photos, but although it can be omitted, it is useful to check for the stabilizer function.

The good news is that the above experiment **was 100% successful!**

I only had to reset the **center OFFSET voltage** from the control board, from its initial value of 3.23 to 2.74V. This brought the RIT center voltage within specifications of the EL-34 ($2.5 \pm 0.4V$), and the OFFSET control works just fine.

No need for modifying the PTO circuitry at all, just piggy-bag the stabilizer and you are all set!!!

An alternative method of interfacing the EL-34 to the Corsair PTO which I have implemented and at least theoretically can provide a better flexibility of the stabilization process is as follows:

- a) Disconnect the Offset cable from the PTO and connect the output of the EL-34 (J2 PIN 4) in its post of the PTO.
- b) Connect the original Offset cable to the CLAR-IN (J2 PIN 2) via a series 470K, 1/8W resistor. Recheck the center position of the Offset potentiometer and adjust it, if necessary, per the manual.



With the above simple steps, the CLAR-IN voltage to the EL-34 is reduced to 2.55V and its output voltage comes well within the proposed range (2.05V). Thus, you avoid the need of reprogramming the EL-34 parameters.

2.2 final Steps

The Offset control range becomes limited, but still quite acceptable, with the added benefit of becoming VERY detailed at the minimum position.

As for the results, this stabilizer does NOT exhibit either of the above-described problems. It stays locked when Tx-ing and will not interfere with fine tuning the frequency.

Bye bye 300Hz drift from a cold start to relative frequency stability after 1 hour.....

ROCK solid frequency from a cold start.

Hope the above info becomes valuable to fellow hams. Please let me know if there are any comments or questions.

73, Marinos sv9dru / ki4gin

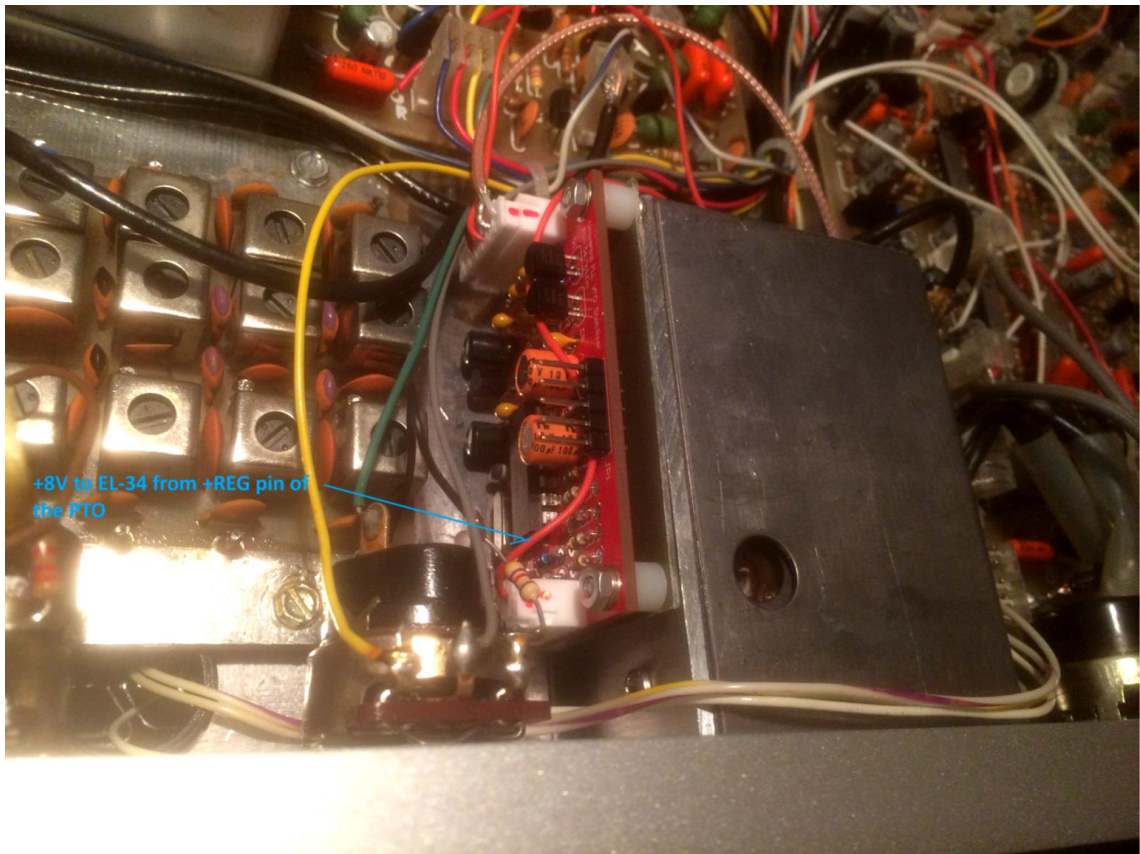


Figure 2- Power Supply

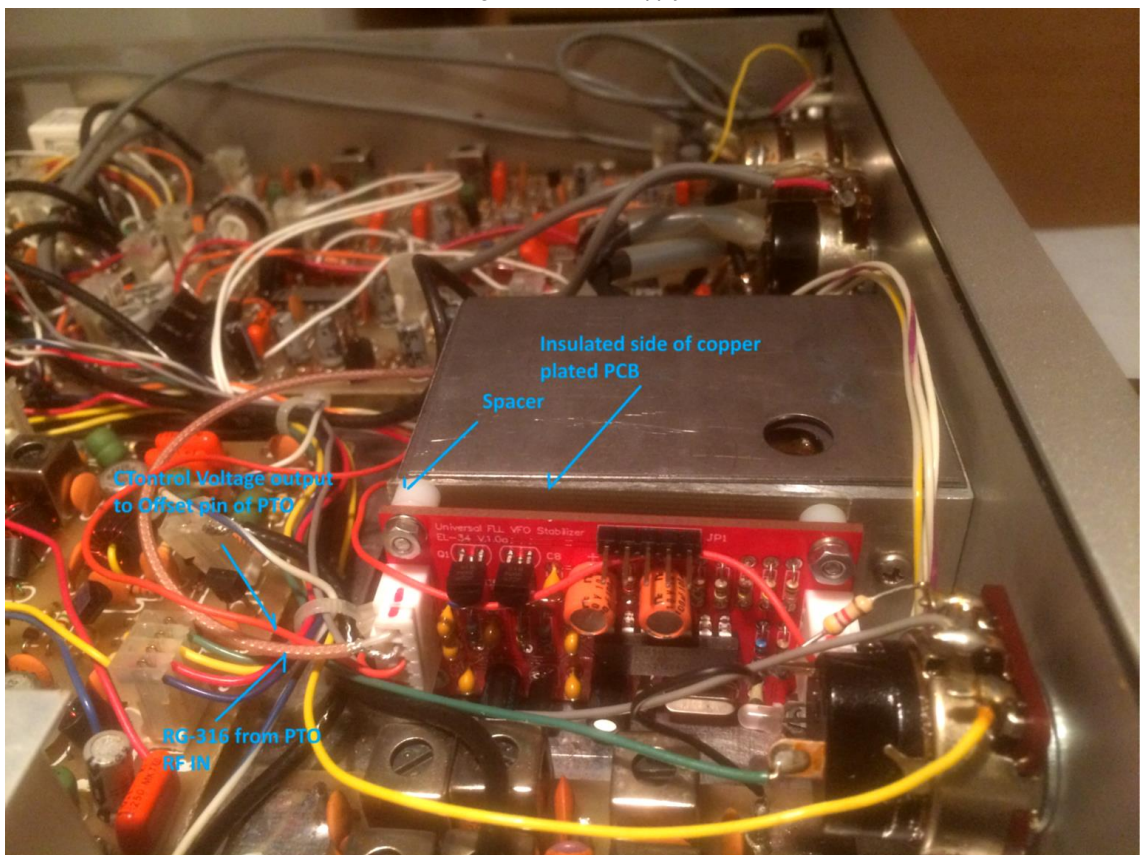


Figure 3- EL-34 in place

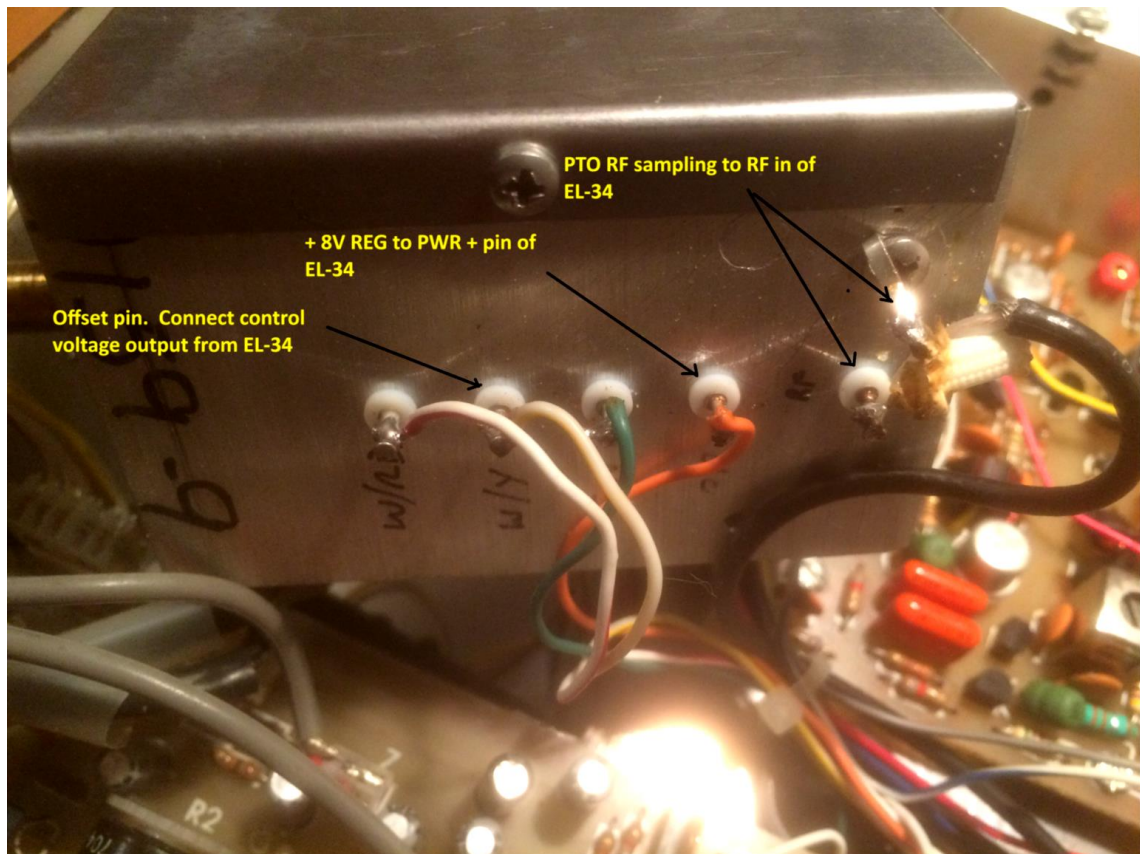
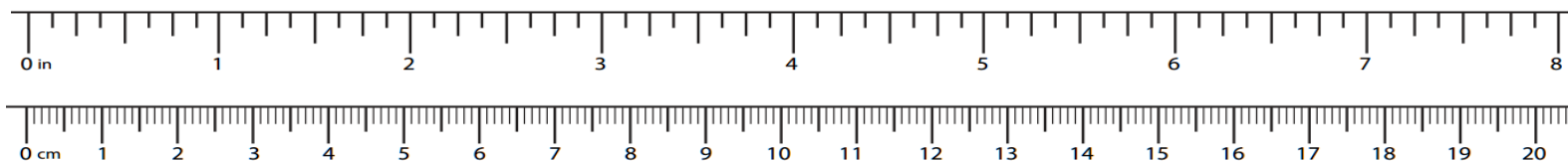


Figure 4- Connections at the PTO

3 Appendix

3.1 Ruler



3.2 Disclaimer of liability

Any actions based on the information contained in this document are taken at the user's own responsibility. Any liability is excluded, both for direct and indirect damages and consequential damages that may arise in connection with the use of the information contained in this document.