ASCOM SE550 EPROM replacement and tune-up

Disassemble the set

- Remove the code plug.
- Remove the microphone.
- Unscrew the socket cap head screw at the bottom of the code plug socket.
- Remove the front panel by hinging the code-plug/microphone end of the panel towards you.
- Remove the four screws holding the front AF/Logic board assembly to the case.
- Remove the four screws holding the rear RF board assembly to the case.
- Remove the RF and AF/Logic assemblies from the case.

Replace the EPROM

- Remove the screening can cover from over the CPU, RAM, and EPROM on the AF/Logic board
  N.B. The can is often soldered at the corners careful levering will normally break the solder joints
- Remove the old EPROM and insert the new EPROM.
  N.B. Make sure that all the leads of the new EPROM actually end up in the sockets - it's easy to bend a lead and wrap the lead under the EPROM
- Replace the screening cover - solder at one corner if there are no positive location dimples to hold it securely in place.

Assemble the set without the case

- Plug the RF and AF/Logic boards together without the case.
  N.B. Take care that the pins between the two assemblies and the front panel are correctly aligned!
- Insert a code plug - or a jumper across the bottom two pins of the code plug socket
- Insert a microphone
- Connect power and loudspeaker.

Switch set on and test basic function

- Press the power button BRIEFLY
  The set should power on, beep and display 70.000.000 with the error light lit.
  N.B. If you hold the button too long the set will immediately switch off! Do not wait for a beep or the display.
- Open squelch, by pressing the appropriate button.
  Check that audio sounds OK (lots of white noise) - if not double check loudspeaker connection and mating of front panel to main set (e.g. bent pins, pins in wrong holes!)
- Check operation of buttons.

Check and adjust TX

- Connect power meter/dummy load.
- Select frequency (70.450.000).
- Press PTT
  Check output power - set to 25W max using preset pot on RF board near 25D connector.
- Check frequency - adjust TCXO in centre screened compartment.
- Check/adjust peak deviation using the preset pot to the front/left side of the screened area.
  Set to 2.5-3.0 KHz peak.

Check and adjust RX

- Connect signal generator set to:
  Frequency 70.450MHz,
  Modulation FM 3KHz deviation,
  Level 10uV.
- Open squelch.
- Adjust RX PLL preset tuning pot, rear of TCXO compartment on RX side, peak for best signal - often approx 1/4 turn clockwise so that wiper is at 3 O'clock (towards RX side of set).
  N.B. There is a proper test point to measure the voltage, but this approach normally works well.
- Peak RX tuned circuits (the two section and three section filters) for best sensitivity, reduce signal generator level as necessary.
- Adjust gain reduction preset between the two filters, for best sensitivity.
  Turn clockwise until you each the end of the track, and the signal drops significantly, then turn clockwise for best signal.
- Close squelch and adjust Squelch preset (in front of front left corner of screened compartment) for best operation.
  Typically better than120dBm for 12db SINAD.

Reassemble the set

- Before reassembling the set it is worth checking the lithium battery to ensure that settings are remembered by the set while it is disconnected from power.
  - The battery should have a voltage of approx 3.6 Volts
    N.B. The official replacement battery is quite expensive, a watch or computer battery can be used – instead of mounting the battery inside the set, insulate it and, mount it behind the front panel on fling leads.
  - The chevron jumper pad adjacent to the battery should be jumpered with a blob of solder
- As all good instructions say, reassembly is the reverse of disassembly!

Enjoy!

N.B. at frequencies of 70.000MHz and below you will get the error led on and the diagnosis of RX VCO limit.