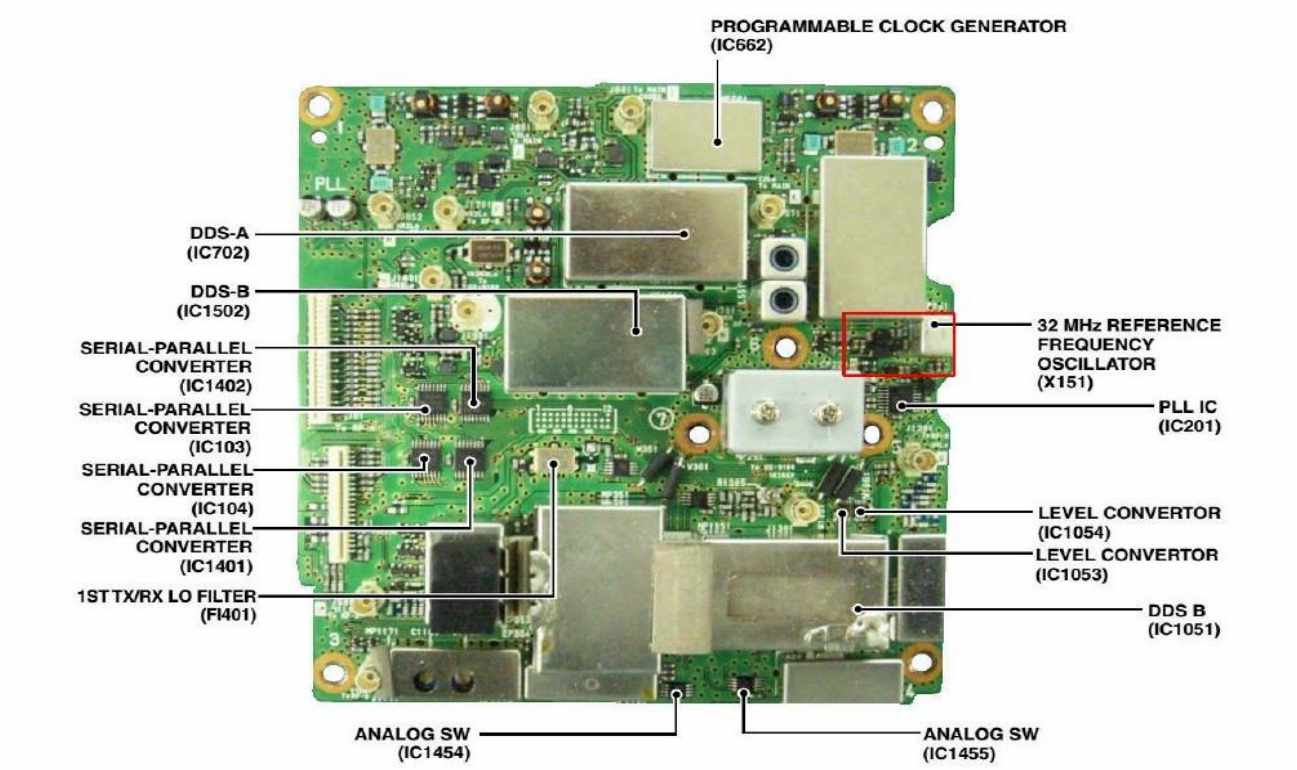
RefGen 1V4 Install IC9100

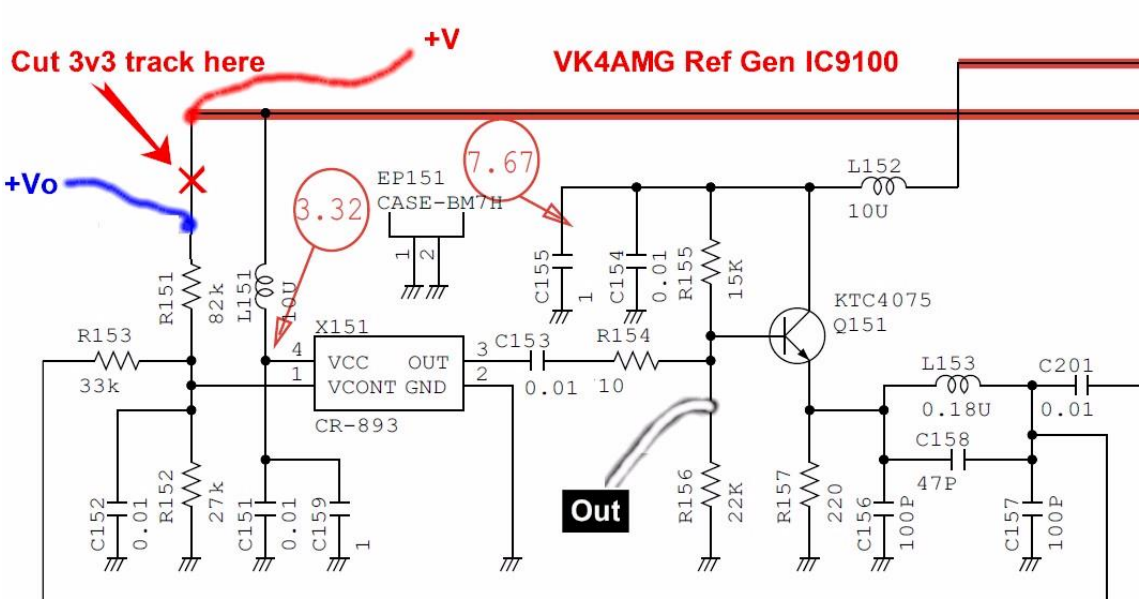
The RefGen module provides 32MHz reference to the IC9100 PLL circuits when driven with a 10MHz signal of 0dBm or more. When the 10MHz signal is not available the RefGen is muted and the IC9100's internal reference CR-893 is powered. The supply to the RefGen MUST not exceed 3.5 volts

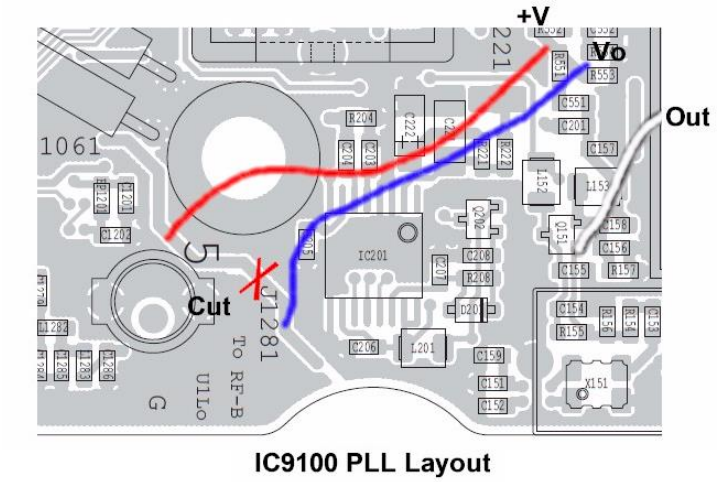
Connections are made in the IC9100 PLL Board marked with the red border below. Remove the cover on the UX9100 side of the radio. Removal of the UX-9100 23cm module if fitted, is recommended. Drill a hole to suit a SMA flange mounted connector on the IC9100 rear panel adjacent to the UX9100 antenna socket (see photo below).



IC9100 – PLL Board

The partial schematic below, Icom 9100 Service Manual, shows the connection points for the radio.

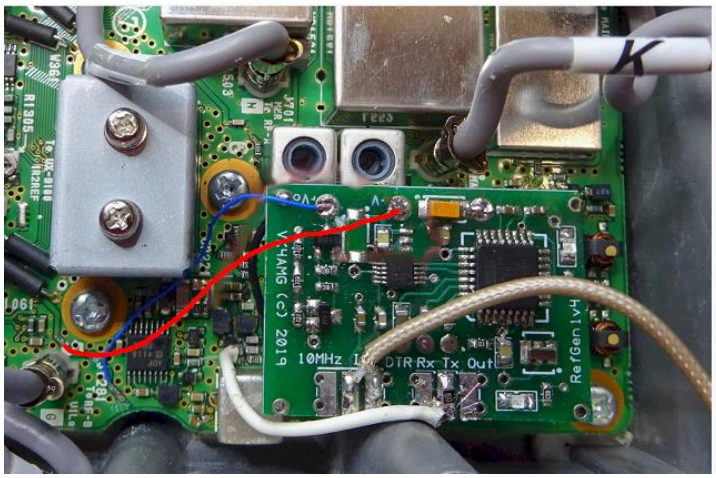




IC9100 PLL Layout

Connect the wires to the PLL module before fitting the RefGen and making its connections. The 3V3 PCB track is cut as marked with X. The track is scraped clean in two places to connect the red and blue wire respectively. A white wire is soldered to the base of Q151 (as above).

The photo below show the RefGen installed into an Icom IC9100. The red wire is connected to +V on the RefGen and the blue to +V Ref. The white connects to the Out of the RefGen output.



The module may be mounted on pigtails through each corner and soldered to the PLL shield or by double sided tape. A 60W temp controlled iron may need a supplementary heat source to solder to the tinplate. If the double-sided tape option is used one pigtail should be fitted to provide the ground / supply common connection for the RefGen.

The 10MHz signal is fed from the rear panel connector to the 10MHz pads on the RefGen.

Test the operation of the module before reassembling the radio. The green LED will light when the radio is powered. When the 10MHz is applied the yellow LED will indicate the RefGen is supplying the 32MHz refence to the radio. Refit and test the UX-9100 module. Replace covers.

In normal operation, the changeover from the radio's internal reference to the RefGen should be transparent. If the 10MHz signal is removed, a short burst of noise will be heard, before the radio continues to operate from its internal TCXO.