Installing a LIF port into the IC-756ProIII transceiver

Introduction

This document describes the procedure for installing a LIF (Low Intermediate Frequency [455kHz]) port into the Icom IC-756ProIII transceiver. The procedures described in this document may also apply to other IC-756 models, but have not yet been attempted. This procedure requires a level of expertise sufficient to dismantle the transceiver and to solder SMT size components. Nonetheless, the installation is straight forward and should not cause any difficulties for the experienced radio amateur. It is important to unplug all connectors and power before working on any transceiver. It is also important to be grounded to avoid static discharges.

Please note: no responsibility or liability will be taken by the author of this document for any damage or malfunction caused by user modifications.

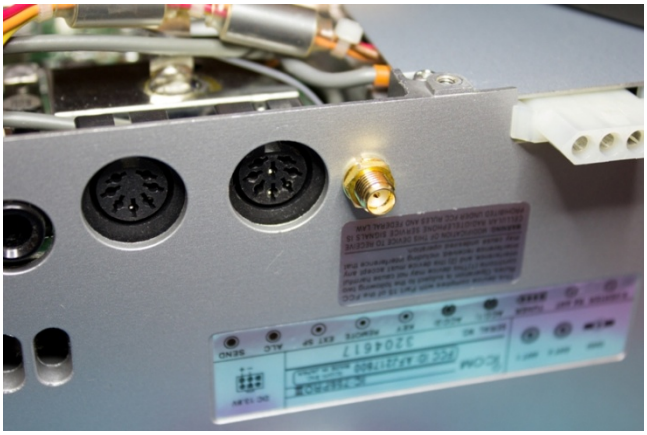
LIF port installation

Dismantling the Transceiver

The bottom cover of the radio must be removed. There are 10 screws that need to be removed and then the cover will come loose. These screws are two on either side and six on the bottom of the radio. The coaxial cable plug P701 @ J211 should be gently unplugged and moved out of the way. It may be useful to also disconnect J641 (multicolor ATU cable assembly) and move it out of the way as well. You should now have plenty of room to work.

Drilling the Hole

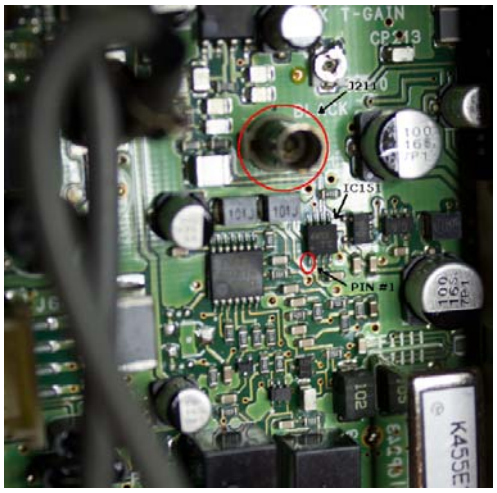
An SMA connector is the preferred connector because of its small size and limited real estate on the IC-756. A hole will need to be drilled next to the DIN 8 (ACC1) jack. Ensure that the hole is centered between the DIN 8 jack and the bulkhead. The SMA connector fits neatly into this space. Before drilling the hole, cover the PCB with masking tape to prevent metal shavings from falling into the lower part of the transceiver. Vacuum out the metal dust and clean all surfaces before reassembling.



Connecting the RF cable to the PCB

The 455kHz bidirectional port of the IC-756ProIII is on the bottom side of the main circuit board. The RF cable center is soldered onto a 1nF (1000pF) ceramic decoupling capacitor.

The Layout design drawing (left) and the picture of the actual PCB (right and below).



The other lead of the capacitor is bent by 90 degrees and soldered onto Pin 1 of IC151. For mechanical stability, it is advisable to solder a small ground wire to the RF cable shield first, and then to the nearby J211. I also added a drop of hot melt glue to the assembly in order to help reduce the likelihood of movement by increasing mechanical stability. If required, cover the exposed shield with heat shrink tubing. During this process, care must be taken to not overheat the SMD components.

Routing the cable and reassembling of the transceiver

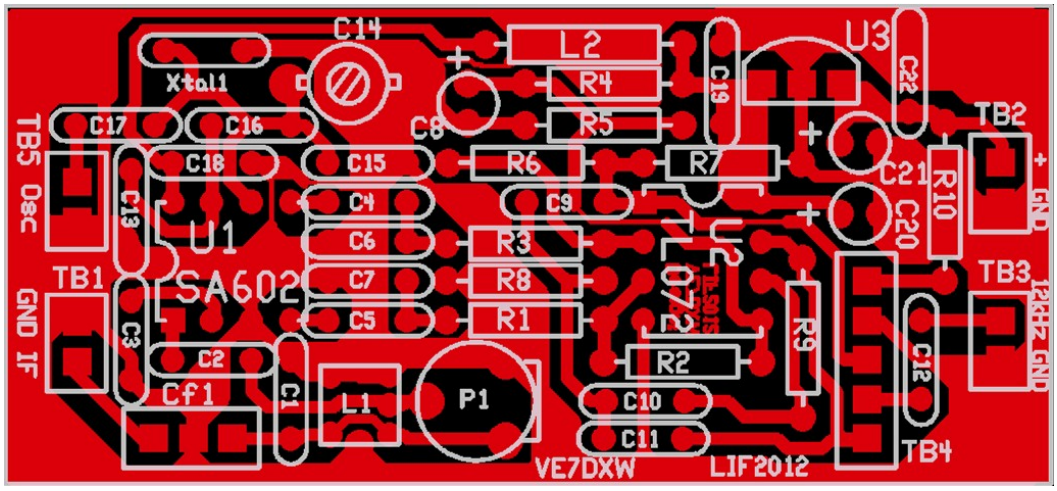
There is enough clearance to route the 6" RF cable over and around components on the PCB without getting in the way. For mechanical stability, it is recommended to tack down the RF cable with a dab of hot melt glue to the top of the Noise Blanker Circuit cover as shown in the photo below.

Replace the bottom cover and all screws.

Connection of the LIF converter (RX-only)

The LIF RX output of the transceiver connects to the IN port (TB1) of the LIF assembly and the audio Line out (TB3) connects to the tip line-in of the sound card. TB2 provides power (+12V). TB5 is not used for the RX-only version. A jumper has to be placed on TB4 between 3-4 to bypass the 7kHz high pass filter or between 4-5 to enable it.

Note: The transmit audio is still filtered with the existing filter inside the IC-756. If the MDSR is properly configured the standard microphone can be used to transmit, while the RX is processed through the computer.
For more details see “Lock to TXCR” the MDSR help menu.

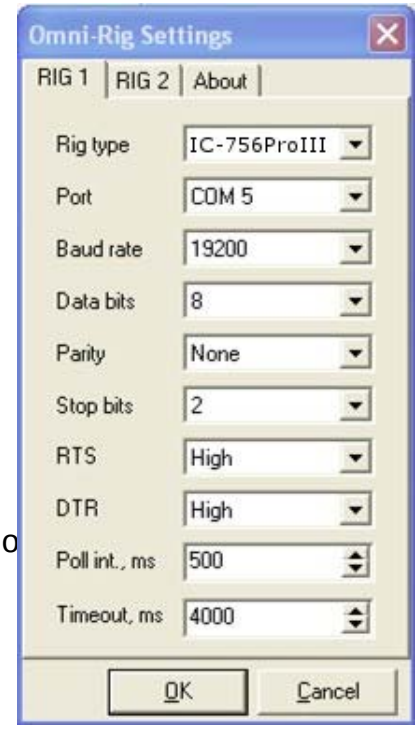


Setup of the CAT interface

The MDSR software controls the transceiver via the CAT port. The connector cable CI-V is the Icom version of the interface cable that plugs into the back of the radio and the RS-232 port of the computer. There are also virtual RS-232 cables available that connect via the USB bus to the computer.

OmniRig Setup for the IC-756ProIII series transceivers

To enter setup menu in MDSR-SA, select the tool icon at the bottom right and select “OmniRig Configuration & Status”, select the key icon “Configure OmniRig”. Only configure RIG 1.



- Select the transceiver to be controlled from the drop down menu (IC-756ProIII).
- Select the port of the computer. If the Com port is not known, go to the “Device Manager” and select the ports icon. The port number should be listed there.
- The Baud Rate has to match the setting in the Transceiver. The default setting for the IC-756ProIII is 19200.
- All the other settings should be as displayed here.

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That completes the installation of the LIF port of the FT-950. The MDSR team wishes you all the best. If you like the performance of the MDSR software please tell all your friends about it.

73

The MDSR Development Team

To order the PCB kit or for more information please go to:
http://users.skynet.be/myspace/mdsr
Specify: 455k IF

Note: if you are interested in the TX – BiLiF option contact VE7DXW directly.