

Kit Instructions

- The SJT9K1 kit is for TVTR1, 630m Transverter.
- The SJT9K2 is for TVTR2, 2200m Transverter.

The kits consist of a new local oscillator mounted inside a small black tube with three wires coming out, plus a short piece of solder wick. Installing the kit requires removing a tiny 5 pin Integrated Circuit and then soldering 2 fine wires to two surface mount capacitors and another wire to a ground point. You will need a very fine soldering tip on your iron. You will also need a steady hand and a magnifying glass or microscope. If you are not experienced with surface-mount work, it would be better to find a skilled friend. At the least, you should experiment with a scrap board, until you are confident with removing small components. Removal will be easier if you have access to a surface-mount re-work station with a hot air gun. The component can then be lifted off with tweezers within a second or two. A component can still be removed without the re-work station with a little patience and skill.

Step 1

Start by removing the main circuit board from the box.

Remove all connecting cables then remove the 4 screws holding the front panel. The screw heads are Pozi-Driv #0, but a Phillips #1 screwdriver is OK. They should not be very tight. When re-installing them, only lightly tighten because they are self-tapping screws into aluminium.



Step 2

Similarly remove the 4 screws holding the rear panel.

Step 3

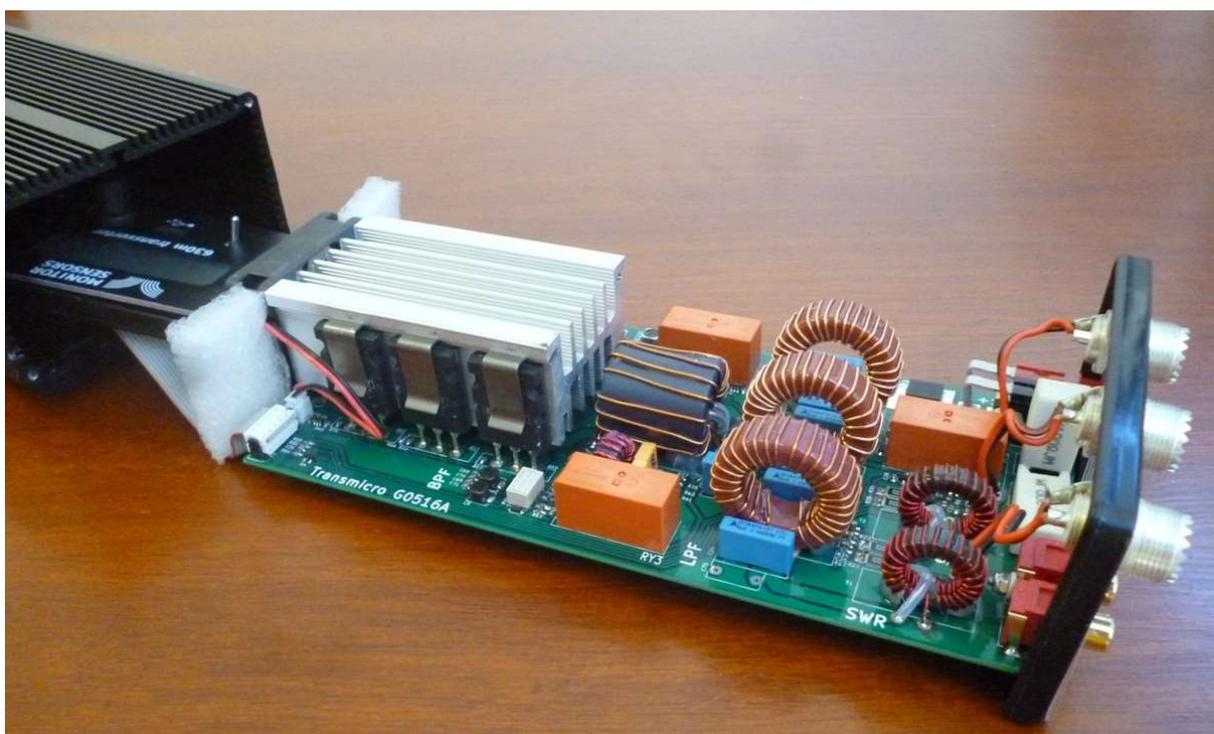
Look into the case from the front and observe the fan, which is centrally located. Push on the central hub of the fan with a finger to start the main circuit board moving towards the rear. It may be quite tight. The aim is to get it to protrude about one inch, so the main board can be gripped by thumb and first finger from the rear.

IMPORTANT: Do not pull the board by the rear panel. The rear panel is connected to the board with a single screw, which will not take the strain of removing the main board. Before pulling on the main board, rotate the front panel so it fits inside the case as shown.

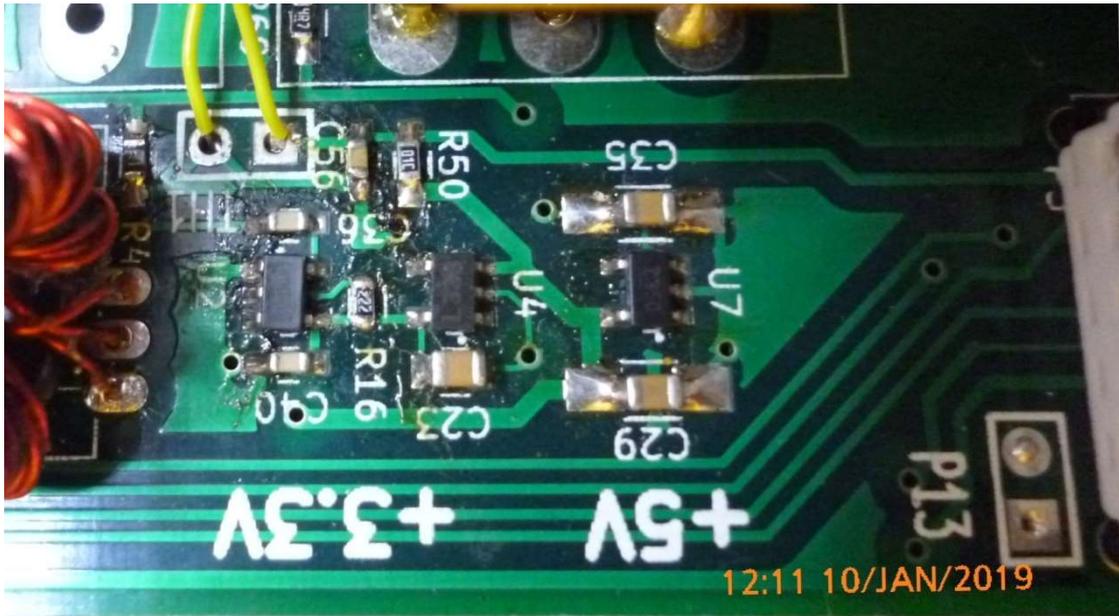


Step 4

Gripping the main board at the rear between thumb and first finger, it should now be possible to slide the main board backwards with the front panel still attached. There is just room for the front panel to pass through the case. Make sure it does not get jammed at any point. This is preferable to removing the ribbon cables which may be damaged in the process.



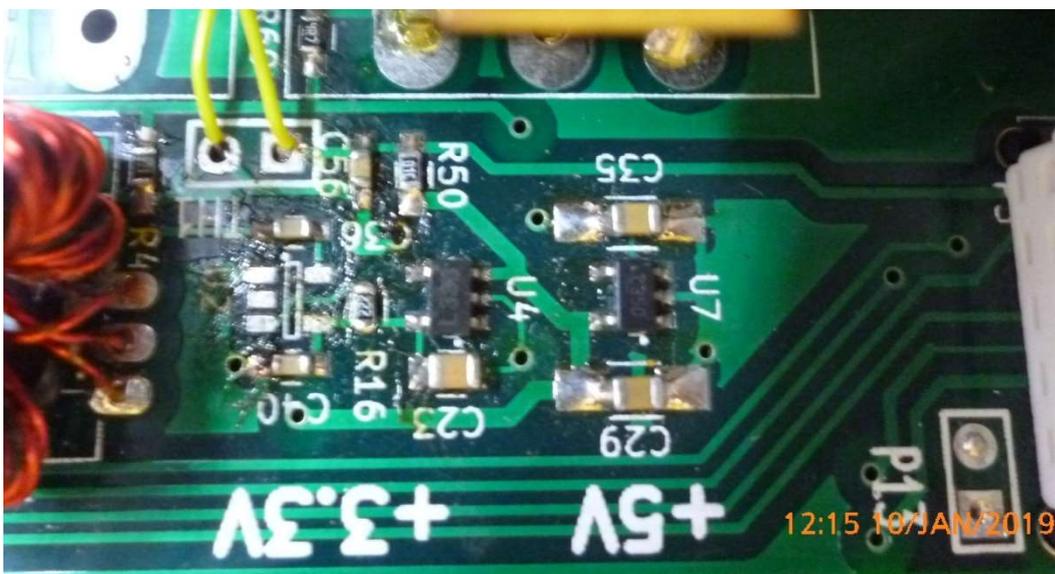
All components of the board are now accessible. Take a close look at the left side of the board. About 1½ inches from the front of the board, locate the IC labelled U2. This is the local oscillator. This is the IC which will be removed.



Step 5

You will note that U2 has three pins on the left side as shown above and two pins on the right side. Lay the solder wick supplied so it covers the two pins on the right. Heat the solder wick until all the solder on these pins has been sucked into the wick and there is no further movement of solder. This usually takes three or four seconds. It does not matter if the solder on adjacent resistor R16 is also removed. This resistor will not be used after the modification, so it can be removed from the board or left in position. At this point the two pins on U2 will still be connected to the board by a minute amount of solder directly under the pins. Now heat each pin in turn and use a fine point to lift the pin off of its pad. The fine tip of a craft knife is ideal. Once the two pins are free of the board, place the solder wick on the three pins on the other side. Wait until the solder on all three pins is flowing, then apply gentle sideways pressure to U2 and it will slide free of the board. Remove any residual solder from the board with the solder wick. Your kit includes a new local oscillator IC inside the small black tube. The old U2 will not be needed.

The circuit board should now look like this:



Step 6

Make a hole in the left air baffle as shown below:



Feed the new oscillator assembly through the hole from back to front. Now solder the white wire to P13, round hole. The round hole is furthest from the board edge. The P13 square hole is connected to 12 Volts, which will destroy the oscillator, so be careful to use the round hole, which is ground.



Next solder the purple wire, which is the middle wire of the three. It goes to one end of C36, the end nearest the coil. Note that C36 is not actually used in the circuit but it provides a larger connection point for the wire than just the solder pad alone. Finally solder the blue wire to one end of C40, the end nearest to R16. It should look like this:



The new local oscillator installation is complete. Inspect the board carefully to insure stray solder is not present and no components have been accidentally moved. The main circuit board needs to be re-installed in the box.

Step 7

When replacing the main board, make sure the ventilation holes in the case will be at the front. Align the board with the second slot on each side. Take care that the ribbon cables run smoothly under the air baffles and are not kinked. It takes patience to align the board correctly. It may help to hold the case near vertical to allow the front panel to descend under its weight. The final position of the board is determined when the 4 rear panel screws are lightly tightened. The black plastic trim needs to fit squarely on the case and squarely to the panel. Try not to cut new threads in the case when inserting the screws. Lastly fit the trim to the front panel and lightly tighten the 4 front screws.

Step 8

Reconnect the power cable, co-axial connectors, and PTT line, if used. Turn on the Transverter. Check for normal receive and transmit. The replacement oscillators are tested at the factory for correct output. The SJT9K1 oscillators are set to 1.33 MHz. The SJT9K2 oscillators are set to 1.67 MHz. The oscillators are generally within 1 or 2Hz of the nominal frequency. If there are any problems email service@monitorsensors.com.