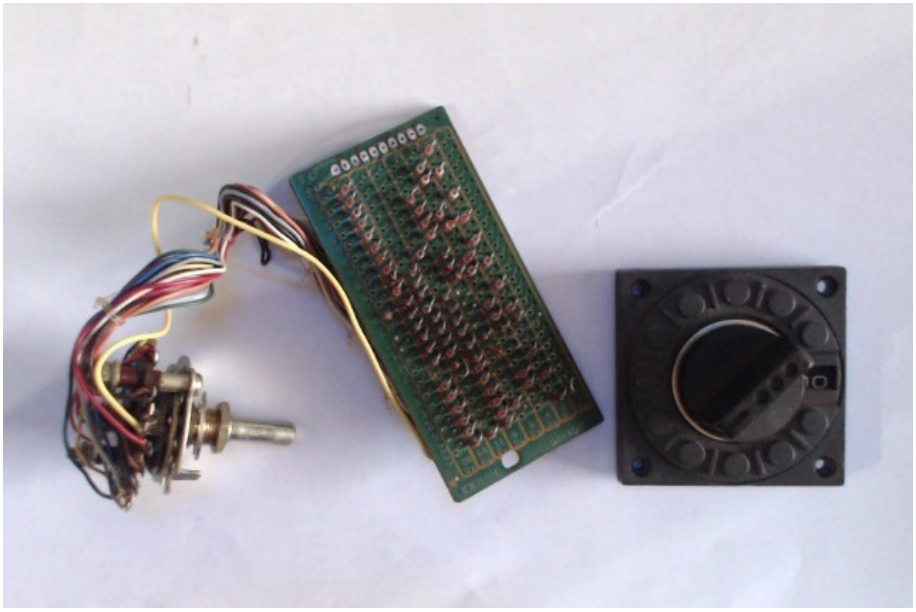
IC22S Arduino Mod VK3ZYZ 20240329

FIRST!! Make sure your IC22S is in working condition. They are very prone to dry joints after all this time.

1 Open case and remove diode matrix board.

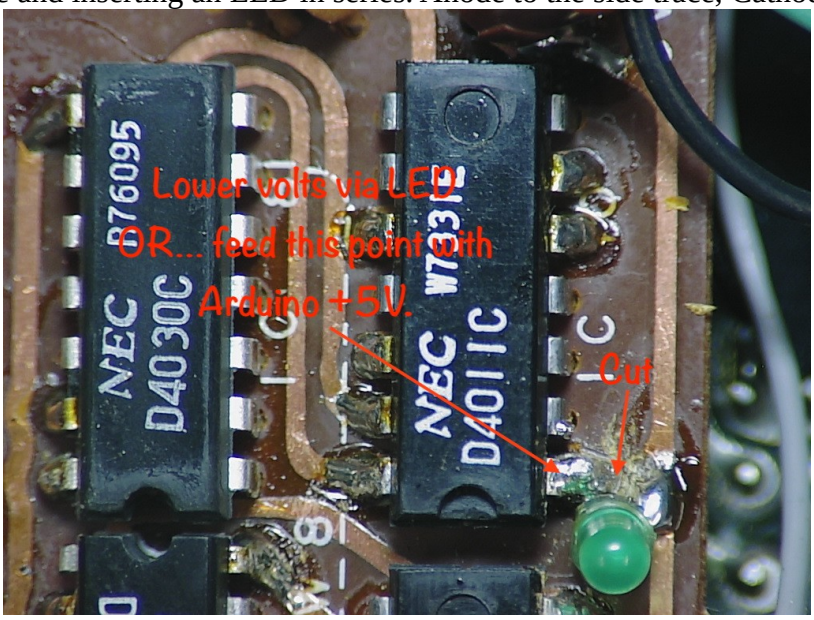
2 Remove channel knob. Do this by loosening knob grub screws then undo the 4 screws holding the channel knob panel to the case. Save the screws for later.

3 Undo the channel switch knob then remove the switch along with the matrix board. Removing the mounting screws from the main PCB will allow it to be lifted slightly to give the channel switch clearance for removal.

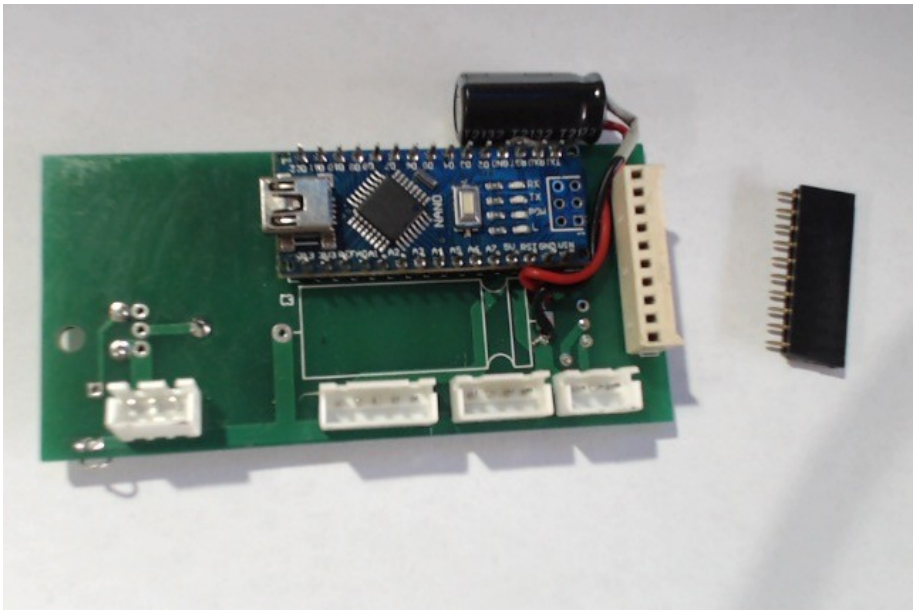


4 For best results, unsolder the white 10 pin connector from the diode matrix board so it can be installed on the Arduino board. Note, on this board, the connector has been removed.

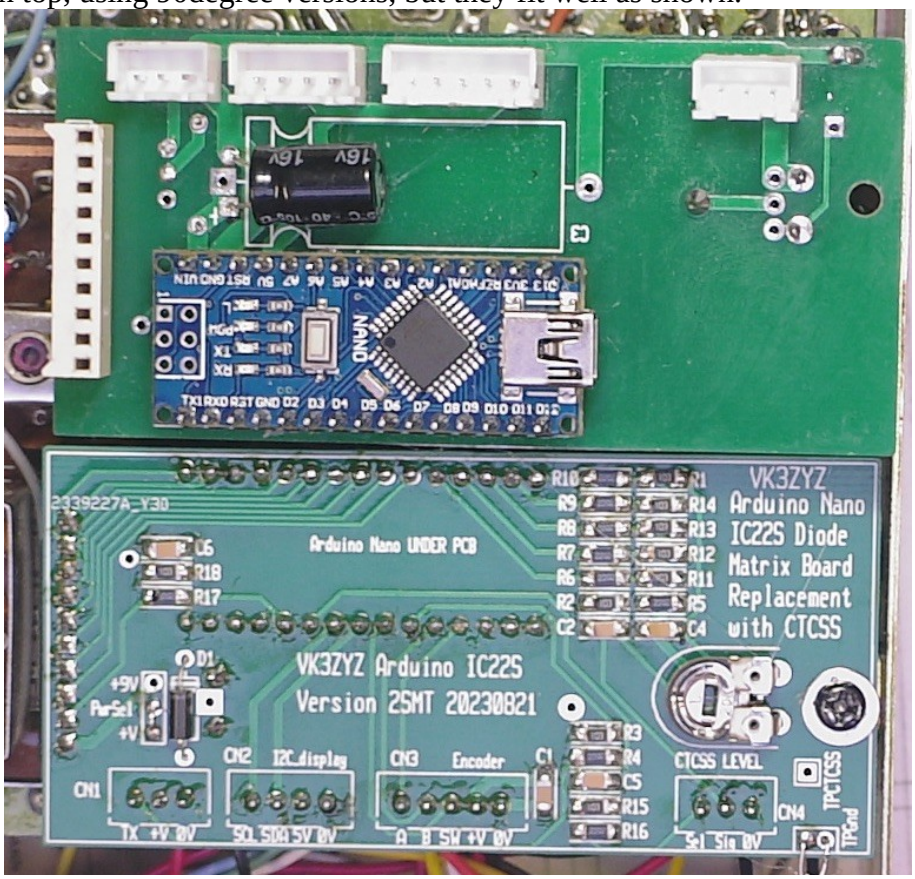
5 A mod is needed to lower the supply voltage to the logic board. This is done by cutting the power trace and inserting an LED in series. Anode to the side trace, Cathode to the IC pin1.



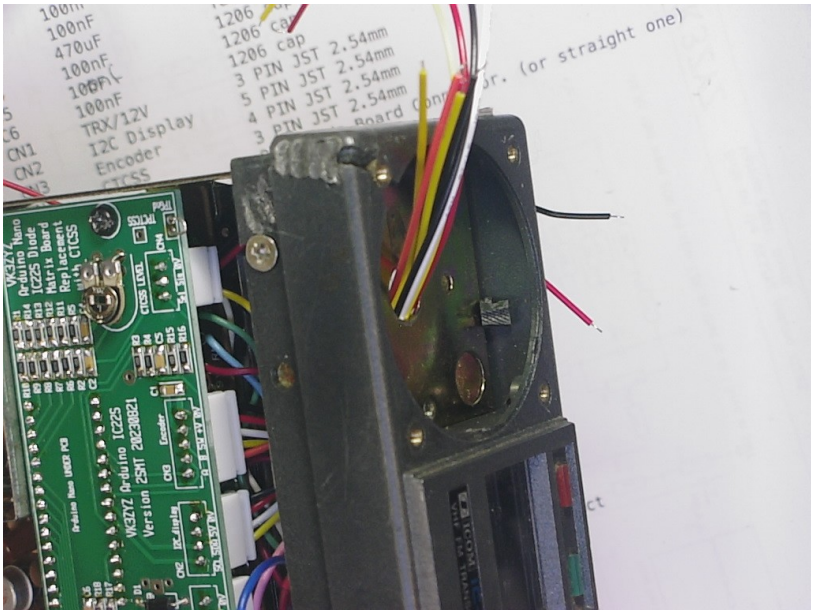
6 Here you see the white connector from the diode board installed on the Arduino board. Otherwise, the straight black connector can be used but then the mounting hole will need to be slotted as the white connector is offset. If you use the white one, ensure it is orientated as shown below. NOTE! This shows the mounting of a large electro if yours is too big for the PCB clearance.



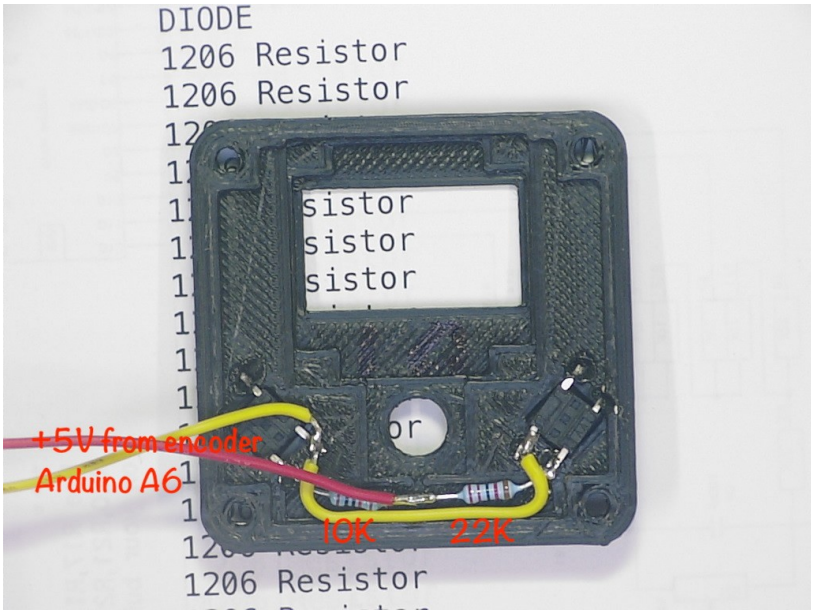
7 Assemble the Arduino board if you have not done so as yet, making sure to place the JST connectors on the bottom of the board, orientated as shown. Originally, I was going to have them on top, using 90degree versions, but they fit well as shown.



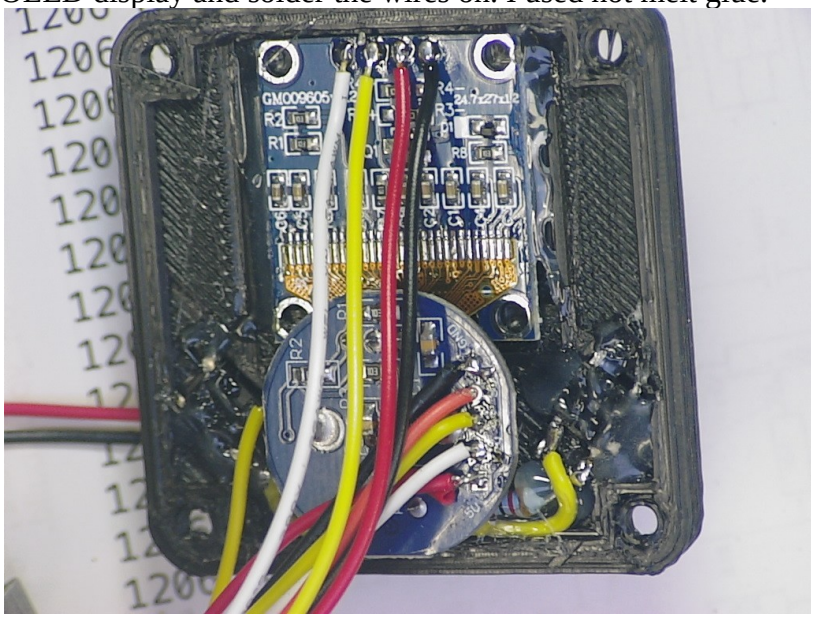
8 Note!!! The JST connectors on the ends of the supplied cables will not fit through the holes in the metalwork unless you file one out, so poke the wires through before soldering to the encoder, OLED display and pushbuttons.



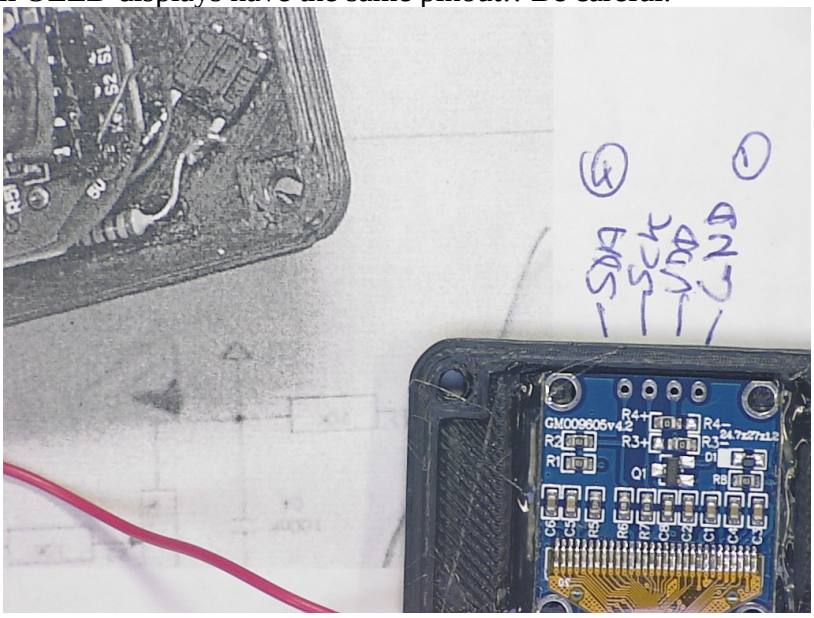
9 If you are going with the pushbutton option, mount them and the resistor on the 3D printed front. Super glue or hot melt can be used.



10 Mount the OLED display and solder the wires on. I used hot melt glue.



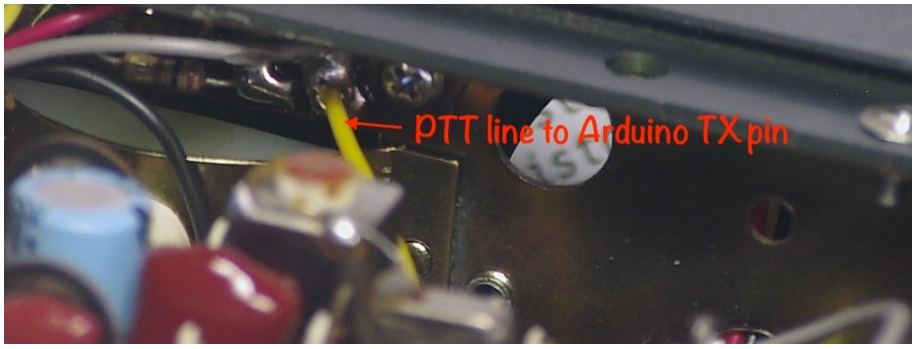
A hint, write down the display connections as seen from the back as when the display is mounted, the labels cannot be seen, and not all displays are the same. Guess how I know?? Also, not all OLED displays have the same pinout!! Be careful.



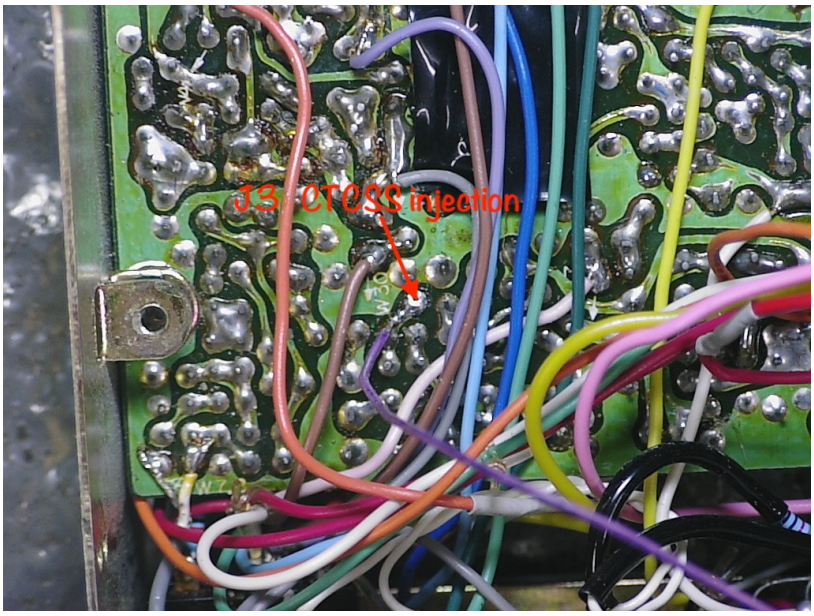
Also, after testing to make sure the connections are correct, apply some hot melt glue to anchor the wires.

While talking about wires, the JST leads will need the wires colours swapped around to correspond the that shown in this document. This can be done by carefully depressing the little tab on the crimp terminal and withdrawing it from the head shell. Then, reinsert the wire in the correct place.

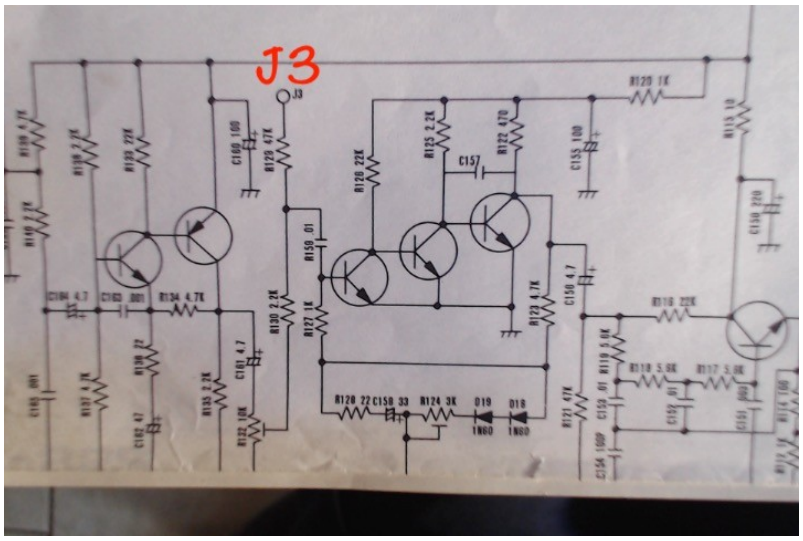
11 CN1 has TX (the PTT sense), +V and 0V. The PTT can be fed from this point on the front panel. 0V I just soldered to the PLL board shield and the +V from the power switch.



12 The CTCSS wire goes to a pad under the main PCB.



It is a red wire coming from CN4 but it needs to be extended to fit and I used purple for it.



The CTCSS injection is this point on the circuit...

13 For now, the brown wire from the IC22S Duplex switch is cut so as to not use the duplex logic, but if you want to try VK2RK's code version that still uses that, have a look on the forum. Look at post #42 onwards.
http://www.sadarc.org/xenforo/upload/index.php?threads/ic22s-arduinoized.275/page-3
It could be read from A7 as that is extended to the Duplex pin on the 10 way connector.

14 Please feel free to mod your IC22S Arduino installation as you see fit, and keep an eye on the forum as there are ongoing developments.

Finished with pushbuttons.

And this is the version without the front pushbuttons.
Denys.
VK3ZYZ