

Converting Kenwood TK-762G or TK-862G to 9600 Baud NinoTNC operation

6/29/2022 de N2IRZ

Before starting, verify that the radio works normally for voice or data.

What you'll need:

- Data Cable (see Step 1)
- Philips screwdriver with #1 tip
- Soldering iron & solder
- Wire stripper and cutter
- Small drill bit and drill (see Step 4)
- 6" black cable with pre-crimped picoblade contacts: DigiKey part no. WM12935-ND. (Has 2 contacts. Other lengths and colors are available).
- 8-position picoblade connector body: DigiKey part no. WM1726-ND. It is possible the connector body is already installed at CN4.

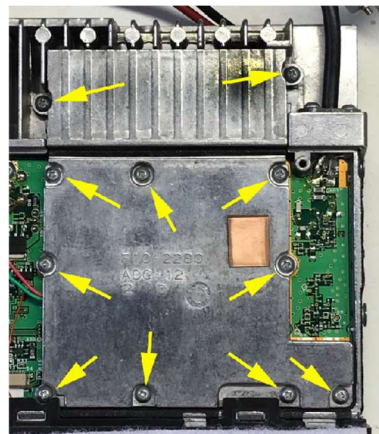


Note that items in the radio are static-sensitive, ideally use a static-protective wrist strap.

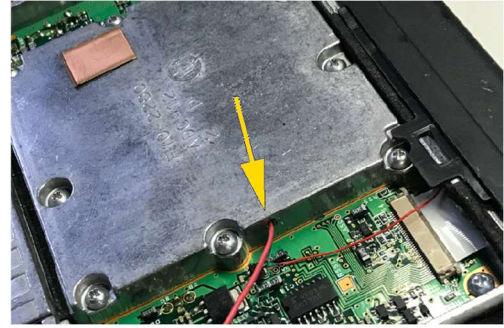
1. Assemble the data cable. Instructions are below.
2. Remove the bottom cover of the radio (2 screws). Lift from the rear of the radio.



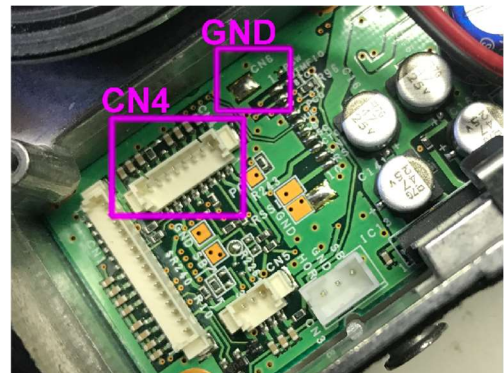
3. Remove the shielding box (11 screws, including 2 at the very rear of the case). Lift from the rear of the radio.



4. Drill a 3/32" hole in the side of the shielding box as shown. The drill size is not critical, try for as small as possible but large enough to fit the one wire that has to pass through. Debur the hole to remove sharp edges.



5. Remove the top cover (2 screws). Lift from the rear of the radio.
6. Locate CN4 and the Ground point.



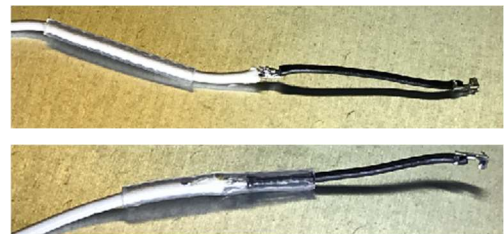
7. Solder the Data Cable Ground wire to the ground point. Tin the PC Board first if necessary, the image shows it already tinned.



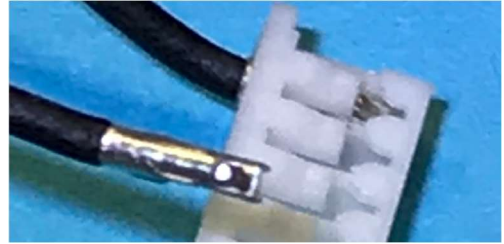
8. Solder the Data Cable PTT wire to the wire on a pre-crimped microblade contact and insulate the joint.

Insert the microblade contact into the CN4 housing, at Pin 7. (There may be a contact already in Pin 3 with a wire to +12v).

(continued...)



The 'bump' on the contact lines up with the plastic 'fingers' on the connector housing.

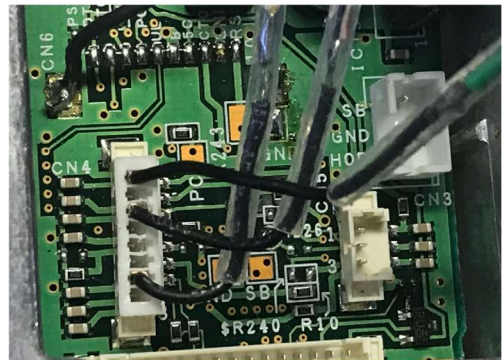


This shows the 'bump' on top of the contact.



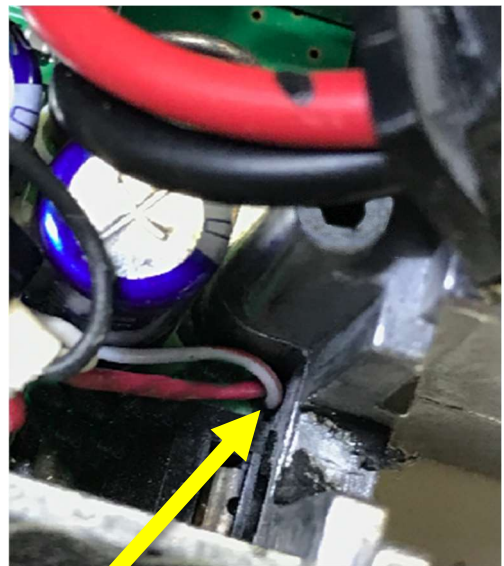
Repeat this process for the RXA wire, inserting it into Pin 1 of CN4.

This shows the connector housing inserted into CN4. Contacts shown are in positions 1, 3 and 7.

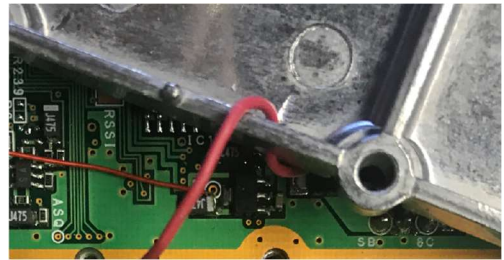
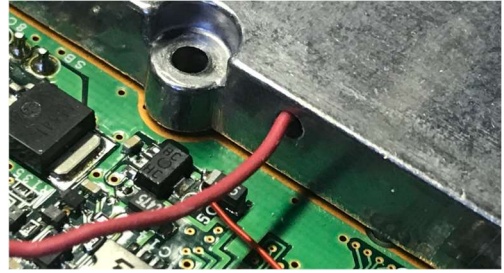


9. Pull the Data Cable TXA wire from the top of the radio to the bottom in the location shown (near the power cord notch). There is just enough space to pass two or three wires at the exact spot shown.

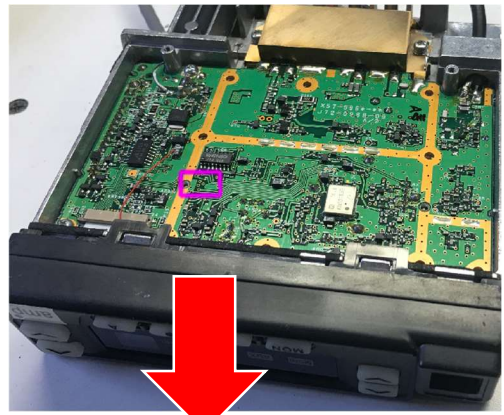
(Top image shows red and white/black wires entering the pass-through point from the top of the radio. The image below shows these wires exiting to the bottom of the radio. The white/black wire is unrelated to this modification).



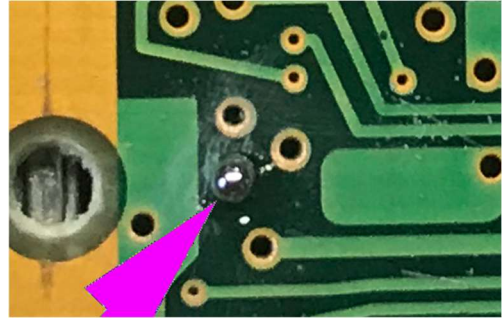
10. Route the Data Cable TXA wire through the hole drilled in the shielding box, from outside to inside.



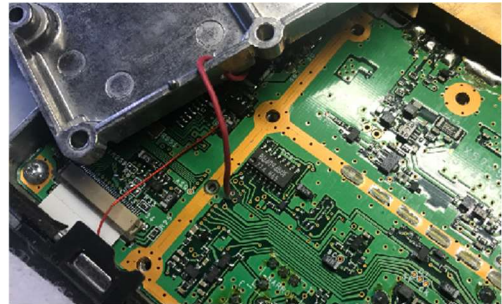
11. Locate the 'triangle' of vias (PC Board pass-throughs) just forward of IC9 on the main PC Board.



12. The via is fragile, so we solder a wire into it and then solder the TXA wire to that. Clean off the via pad shown (arrow) to bare copper, then insert some thin wire and solder it. Solder the Data Cable TXA wire to the thin wire. Be careful with the heat, as it's easy to delaminate the copper via and ruin the radio. Be sure the bare connection cannot short to the shielding cover or PC board.

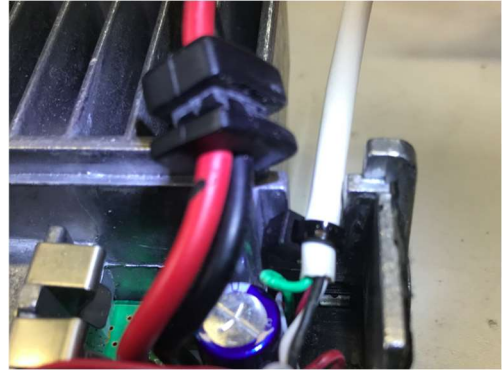
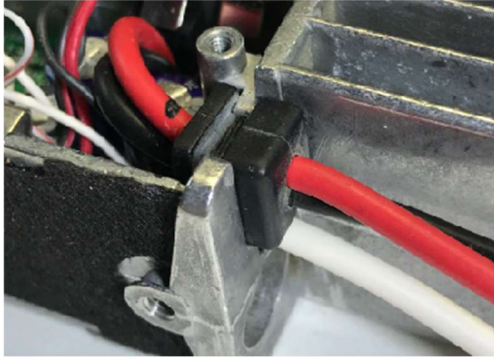


13. Gently maneuver the shielding box cover into its original position, managing the wires so there is a little slack inside the shielding box but not a lot. The goal is to avoid any wires in tension.



14. Reinstall the shielding box cover (11 screws). These don't need to be very tight. Tip: Turn the screw backwards (CCW) a bit until it 'snaps' into place, then tighten. This avoids cutting new threads in the bottom half of the shielding box.
15. Pull the TXA wire from the top (speaker) side of the radio if necessary so there is just a little slack between the shielding box cover and the rear PC Board pass-through point. Don't pull it tight.
16. Reinstall the bottom cover (2 screws).

17. Turn the radio over. Lift up the radio's power cable from its slot, insert the Data Cable into the slot (zip tie inside the radio) then reinstall the power cable in the slot. (There may be a rubber 'plug' in the bottom of the slot: If so, remove it).



21. Route the wires neatly and not under tension as needed. Set the speaker back into position with the foam ring.



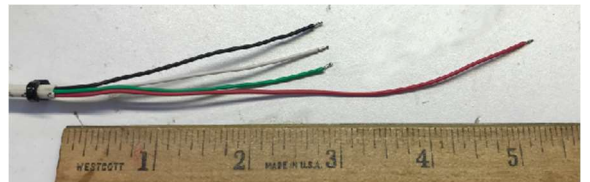
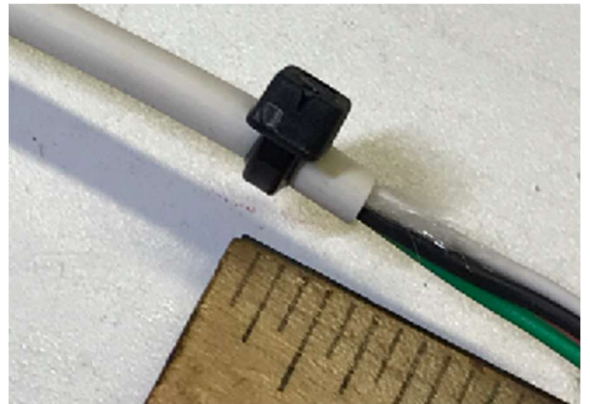
22. Reinstall the top cover. This completes the modification.

Data Cable Assembly Instructions

What you'll need:

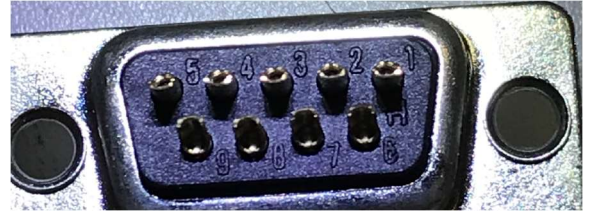
- DE-9M connector (ideally 'solder cup')
- DE-9 connector hood
- 18" of 4-conductor wire (ideally stranded)
- One small zip-tie
- Soldering iron and solder
- Wire stripper and cutting pliers

1. Strip about 5-1/2" of the outer insulation from the 4-conductor cable.
2. Place a small zip-tie around the outer insulation about 1/4" from where you stripped the outer insulation off and tighten it well. Snip off the extra tail.
3. Strip 1/8" from the end of one of the wires and tin them. This is for TXA, remember which color it is.
4. Cut the other three wires to 3" long, then strip them 1/8" and tin them. These are for RXA, PTT and Ground. Again, remember the colors.
5. Strip 3/4" of the outer insulation from the other end of the 4-conductor cable. Strip all four ends 1/8" and tin them.

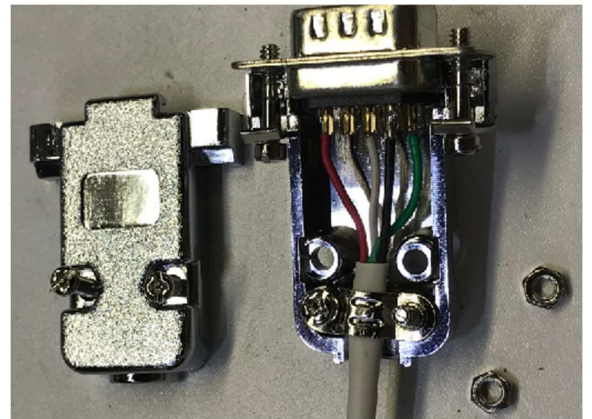


6. Solder the four wires to the DE-9M connector as follows:

- TXA: Pin 1
- PTT: Pin 3
- RXA: Pin 5
- GND: Pin 6



7. Install the DE-9 hood.



The finished data cable

