

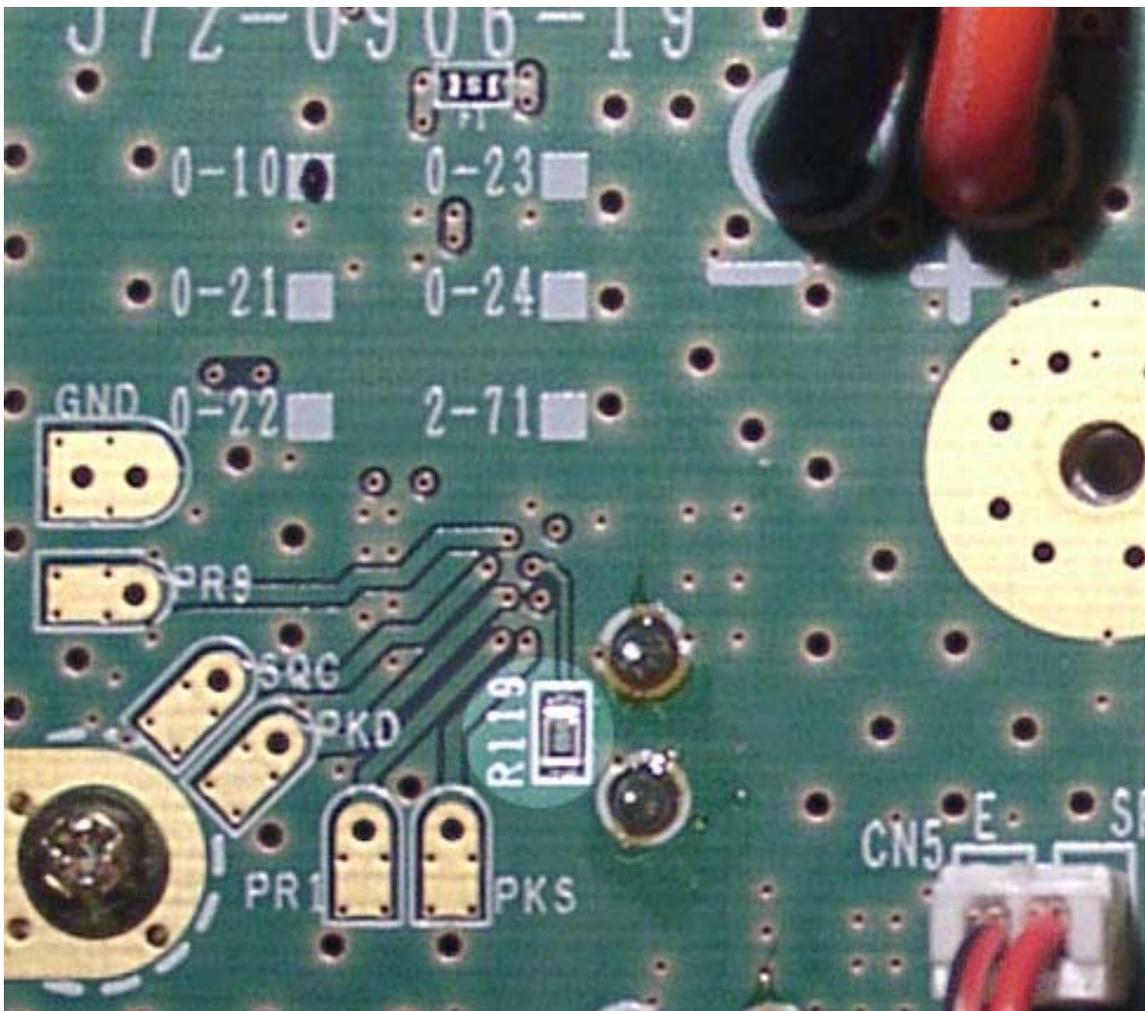
Kenwood TM-271 Packet Connector, COS and PL Mod

This document is to combine three necessary modifications to the Kenwood TM-271 for use as a remote base radio. For the PL mod I would like to thank Bernie Parker (K5BP) for sharing his modification. For the COR mod I would like to thank Ken Arck (AH6LE).

The first mod is to pull the necessary signal leads out of the radio using the packet connector pads on the circuit board. The US version of the TM-271 is not available with the factory packet connector. This is a very simple mod, the pads are very clearly marked. Simply solder the signal wires to the pads on the board.

The pin out is as follows.

GND is of course Ground
PR9 is RX Audio
SQG is COR
PKD is TX Audio
PKS is PTT



There is a notch under the power cable to run the wires out of the radio chassis. I used a zip tie around the power and signal cable to relieve stress on the solder connections.

The second mod is for COR only. The TM-271 will activate the COR line any time the radio is in transmit. This mod is to correct this factory design flaw. The parts needed are one 2N2222 transistor and one 100k resistor. The collector of the 2N2222 transistor will be connected to the SQC pad inside the radio, the 100k resistor will be connected to the base of the 2N2222 and the PKS pad. The emitter will be connected to the COR out to the controller. The PKS pad is the PTT line, this pad has +5 volts when in receive or standby activating the 2N2222 to complete the path between the SQH pad and the COR out. When the radio is in transmit the PKS pad is pulled to ground and removes the voltage from the base of the 2N2222 and disabling the COR out.

(See blue box in the picture below)

The third mod is from Bernie Parker (K5BP)

I used different components than Bernie did so I am going to write this for the components I used.

This mod is necessary if you want to use PL Logic on received signal. To do this mod you will need three parts 1 2N2222 transistor and two 10k resistors

The PL logic is available at Q-254 transistor's collector. You need to add the parts to keep from overloading Q-254 and the micro processor. Connect one 10 K resistor to the collector of Q-254 and the other end of the 10k resistor to the base of the 2N2222 transistor you are adding to the radio. The emitter of the 2N2222 connects to ground at pin 9 of IC-252. Connect one end of the second 10k resistor to the collector of the 2N2222 the other end connects to 5 volts at pin 6 of IC 252 which acts as a pull up resistor for the active high PL out logic. Next connect a wire to the collector of the 2N2222 and run out of the chassis with the rest of the signal wires. When a valid PL tone is detected this line will be active high with 5 volts.

One drawback to this mod is the volume control will have to be set at least to the 9 o'clock position. When the TM-271 is set to encode only the PL logic line will act as a normal COR line and will go high with an open squelch.

(See red box in the picture below)

I have also done another mod, All of our repeaters have custom made rack mount face plates made to fit each radio, and to keep things looking neat I do not like to like to plug anything into the mic plug. So this mod is to run the programming pin out the back of the radio with the other connections to the controller. This mod is simple, I just connected the programming wire to pin 2 directly to the circuit board.

(See yellow box in the picture below)



It is not necessary to do both the PL and the COR mods, however I did both so I could have a COR and a PL line to the controller. The audio from the PR9 pad is un muted so you will have COR and receive audio whether you receive correct PL or not. This allows me to disable the PL with a macro by changing the port to Carrier or CTCSS access instead of using the A72 command.

I hope this helps.

73
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