

## Heil HTH-k Headset to Yaesu FT-817/FT-857/FT-897 Interface Circuit Notes

This circuit interfaces a Heil headset with electret microphone element to Yaesu transceivers that came equipped with a dynamic microphone.

The Yaesu FT-817, FT-857, FT-897 and many other radios originally came equipped with dynamic microphones with an output around 5 millivolts. As with virtually all electret mics, the Heil microphone element has a built-in JFET that results in an output many times higher.

This circuit implements a resistive pad consisting of a 680 ohm, impedance matching resistor which along with a 2.2K series resistor creates a voltage divider to reduce the level to that of the original dynamic element. This allows the Heil headset and Yaesu microphones to be used interchangeably without having to adjust the Mic Gain menu options on the radio.

The Heil microphone must also be supplied with a positive voltage to power the JFET. This is accomplished by taking +5V from the radio and applying it to the microphone in the headset through a 2.2K load resistor. A 1uf tantalum capacitor blocks this DC voltage from entering the radio on the Mic input lead while passing the audio from the headset.

The Heil headset has a Push To Talk (PTT) switch built into the cord which through this interface connects ground to the PTT lead from the radio, keying the transmitter.

All of this connects to the radio via an 8-position RJ45 type connector which is inserted into Mic Jack on the radio. Looking at the schematic you see the connector from the bottom, the side opposite the latching tab.

Lastly, the earpiece in the headset interface simply connects to the phones jack on the radio. In the case of the FT-897 a 3.5mm to 1/4" adapter is required but with the FT-817 and FT-857, the 3.5mm plug goes directly into the SP/PH jack. Looking at the interface schematic, you can see that a stereo plug is used. That works because the ring and sleeve are tied together in the radios. The white lead, ring lead in the audio cable, is left unconnected.

The RJ-45 type plug in the drawing is shown with the latch down and the contacts up and to the right. In this position, you can see the individual wires and their colors. If you are using a scrap Ethernet cable you can thus identify which wire goes to which contact.

The 3.5mm plug and cable was 1/2 of an audio extension cord cut to length, stripped and prepared for connection to the interface.

This interface was designed specifically for the Yaesu radios above but with a little ingenuity and the right connections, the theory can be applied to almost any radio. The Heil HTH-Y headset comes with a single pin 4 conductor plug that along with a matching jack would eliminate the need to cut the connector off the headset cord.

The layout and construction of the interface is left up to the builder.