

A PRE-WIRED PLUG FOR THE K2 MICROPHONE CONFIGURATION HEADER

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Ever since the K2 came out, there has been some consternation, at least in my mind, about the best way to wire the K2's microphone configuration header.

Obviously, there is little question... you wire it for the microphone you intend to use... no problem there.

But... HOW do you 'WIRE' it... I mean, do you use wire-wrap techniques and buy a special wire-wrapping tool? Do you 'hard wire' the header by soldering wires to the header posts? Are you going to be lucky enough to be able to find a non-electret Kenwood microphone which will permit you to merely install PC header jumpers between all the pins (clearly the easiest solution)? Will you use the Kenwood method but then and then rewire your microphone's connector to match the Kenwood configuration? What is the best way?

I still don't know the real answer to this question. However, I wish to offer the following as a possible alternative to wire-wrap or hard-wiring to the pins of the mic configuration header block itself.

I was recently confronted with a dilemma. In helping out a friend with the SSB option on his K2, I found myself with an ICOM electret microphone to be interfaced with the K2. The pinouts of the mic connector for the ICOM mic certainly did NOT follow the Kenwood configuration, which would have allowed me to merely cross-jumper MOST of the header pins with plug-in jumpers, and then to diagonally jumper the +5V pin to pin 5 on the mic connector side.

I had consulted with the owner of the K2 and convinced him that I should rewire his ICOM mic connector to Kenwood standards and then use header jumpers. But the more I thought about it, the less I really likes this idea.

I then remembered that a few weeks previous, Dave Belsley (W1EUY) had mentioned having used a 2-row multi-pin connector, which would slip right over ALL of the mic configuration header pins at one time. I was not able to find the original post on the subject, so I set out on my own to find an AVAILABLE device, because I wanted to complete the K2 and get it back to my friend as soon as possible.

A couple false starts...

I first considered ordering a connector from Mouser. Possibly an AMP AmpModu connector (Mouser 571-1874562), but this type of connector has push-in pins which would have had to have been soldered to and then pushed into the housing. Once installed, subsequent changes were going to be more difficult. AND the connector looked to be too tall, possibly hitting the Control Board once both were installed.

I then considered an FCI DUBOX system connector (Mouser 649-68683-308) which was much shorter and which offered individual solder tabs to which wires could be easily soldered, and re-soldered if the configuration had to change. This device looked very promising, but I would have had to order it (3-5 days transit time), and the price (\$2.38, NOT including shipping) was a bit more than I wanted to spend.

Finally... my answer

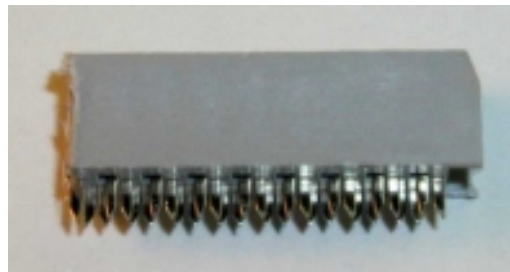
I then happened to look down into my PC parts junkie box and found JUST what I needed. An old 2-row 34-pin cable-mounted socket, probably from an old floppy or hard drive. It turned out that this connector met all of my requirements... 1) it was FREE (VERY IMPORTANT); 2) it was AVAILABLE; 3) it had AT LEAST enough sockets to accept all 16 of the mic header pins, and as it turned out; 4) it was an IDC-type (Insulation Displacement Connector) connector which meant that I probably wouldn't have to solder ANY wires in order to make my configuration connections... read on...

This connector was quite a bit longer than needed... 34 pins, when I needed only 16. So I first disassembled the connector, removed the ribbon cable, reassembled the connector, and then cut it in half (right through the MIDDLE set of pins) thus creating two 16-pin connectors. Pictures of one of the 16-pin connectors are shown below.

Figure 1



Figure 2



Note that the locking mechanism on the example, above, was accidentally broken on one side of the connector as I disassembled it. The other side was left intact and was used in the final connector and subsequent illustrations. You WANT to SAVE the connector locking mechanism (even though it'll be cut in two) if possible.

Figure 1 illustrates the two pieces which make up the IDC connector and figure 2 illustrates the insulation displacement connector 'forks' which actually do the job of displacing the insulation of a wire as it is forced down between the two pins of the fork. The as the wire is forced down between the pins of the fork, the insulation is forced out of the way and the wire inside is forced up against the pins of the fork to produce an electrical connection.

Also in figure 1, you can see the OFFSET slots in the top cover of the connector. These slots correspond to the matching OFFSET 'forks' in the body of the connector (figure 2). To install a wire on this type of connector, all you have to do is to lay the end of the wire between the two forks of a pin and then align and press the TOP COVER down over the wire to force it down and into the fork.

I found it somewhat difficult to properly align the slots in the top cover with the forks UNTIL I realized that all I had to do was to insert the locking (top) section of the connector into its mate on the socket part, and to merely PUSH DOWN. The locking mechanism assures that the slots in the top are in line with the forks in the bottom and pushing installs the wire. See figure 3 to see a connector completely configured for the ICOM mic.

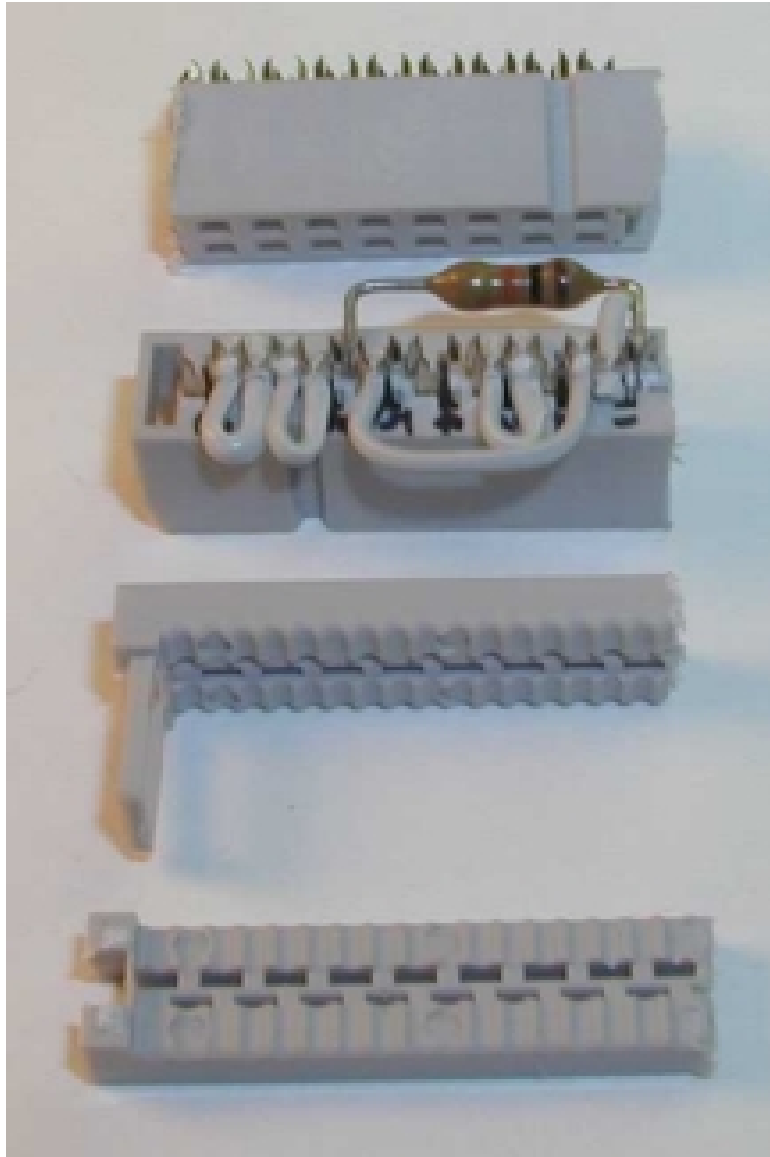
Once I was so successful at installing the first wire, I thought I was ready to roll... until I realized that I also had to install a 10k resistor (to power the amplified in the electret mic). The resistor lead was thicker than the fork in the IDC connector could accept, so I bent the leads as required to allow them to fall right over the top of the two forks I'd have to install them into, and then I took a pair of THIN needle nosed pliers and FLATTENED the lead between the jaws of the pliers.

This gave me the required wire thickness to allow the resistor leads to fit tightly into the IDC connector forks.

Now, I needed a wire to connect directly between the AF pin (already accommodating one end of the 10K resistor) and the #1 pin of the mic header block. I just soldered one end of the wire to the resistor lead, and inserted the other end into the fork for Pin #1 and pressed. See figure 4 on the next page.

For the wiring, I used LONG (3" or longer) wires pulled from the ribbon cable removed from the IDC cable. Inserted them as required into the IDC forks, just to the point that they would stay put long enough for me to cover them with the top cover of the connector, and pushed them down into the fork. Once both ends had been inserted, I cut the wire ends off to leave only that amount required for the jumper.

Figure 1



A completed configuration connector is shown below in a larger detail.

Figure 4

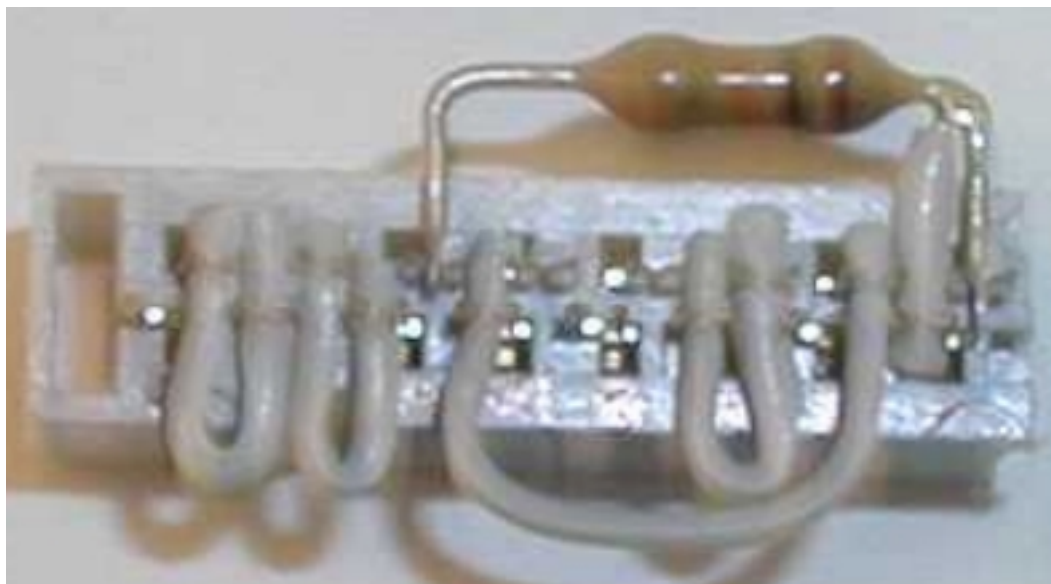
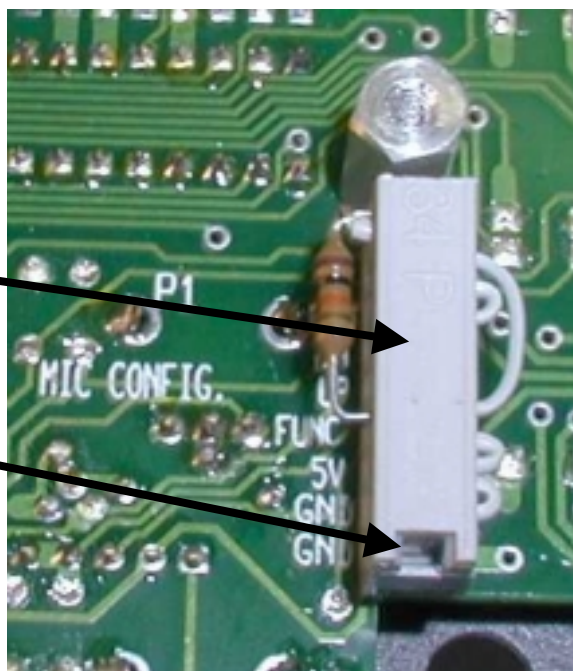


Figure 5

With this arrangement, any time I choose to reconfigure the mic header for a different microphone, the only thing I have to do is pull off the wires and relocate them as required.

Although not absolutely required, The top cover of the IDC connector has been left attached to the connector for future use, if the mic header block must be reconfigured.

NOTE in figure 5 that, because the locking mechanism of the IDC connector adds to the length of the connector, the connector must be wired so that the locking mechanism is on the end AWAY from the threaded spacer. Otherwise, the connector will not fit onto the mic configuration header.



This is by far not the only way to handle the wiring of your K2's mic configuration connector. However, it does allow you to do the wiring WITHOUT any soldering to the header pins themselves, AND it allows for changes to be made easily.

IDC connectors can often be found (cheap) at hamfests, or in your own junkbox, left over from a previous PC building project. If you must buy them, they usually cost about \$1.75 U.S., or less.