



**ADA MP-1**  
v1.xx Rear Input Jack Conversion Mod

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## Introduction:

Have you ever gotten pissed off that ADA designed the rear input jack on the first version of the MP-1 to accommodate a low-impedance balanced signal? Well I did. And I assume a lot more people did because they addressed this annoyance on their v2.xx models. I mean really, a low-level input jack on a guitar preamp? Gimme a break. Does this mean that people with a v1.xx MP-1 are SOL? Well, ADA used to do this conversion in house upon request for a mere \$50. Since ADA is, well, not around anymore, we MP-1 users must turn to DIY (Do-It-Yourself). This photo-essay describes in detail with pics and schematics what to do and how to do it.

This mod requires NO specialized replacement parts to buy with the exception of some signal and jumper wire. How about that? Cool huh?

You will, however, need the right tools for the job.

Since this mod requires desoldering a few components, I have included an informative write-up with some desoldering tips.

This mod involves 9 steps and shouldn't take you more than **2 hours** tops (**1 hour** if you know what you are doing).

1. Removing the Top and Bottom Panel
2. "Semi"-Removing the Front Panel
3. Desoldering the Front Input Jack
4. Reconfiguring the Front Input Jack Circuit Switch and component area PCB
5. Removing the Rear Input series and impedance resistors (**R71** and **R72**) from the main PCB
6. Running a new isolated signal wire from the rear jack to the front component area
7. Desoldering the Rear Input Jack
8. Reconfiguring the Rear Input Jack Circuit Switch and component area PCB
9. Connecting the Rear Input Jack to the signal wire.

ROCK ON!

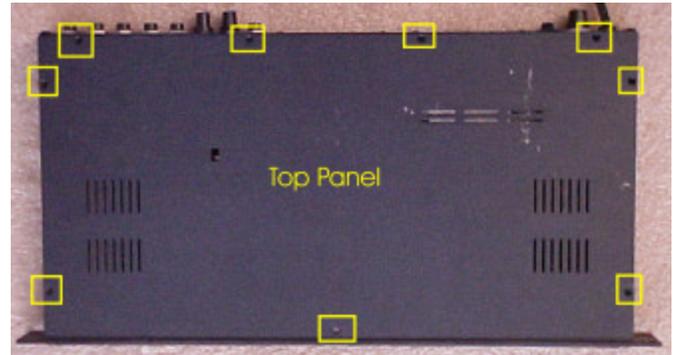
-HB



## Step 1. Removing the Top and Bottom Panel

There are 9 counter-sunk machine screws on both the top and bottom panels that must be removed.

Top Panel screw locations



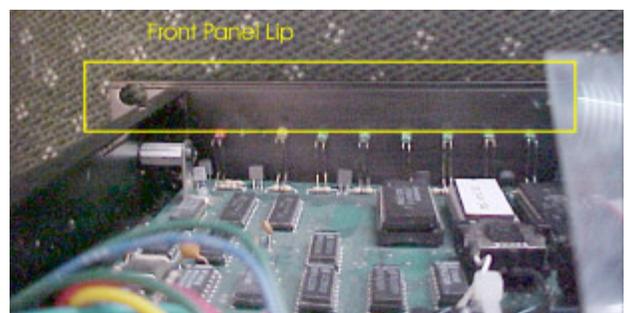
Bottom Panel Screw Locations



Be careful taking the panels off because there is a lip on both the top and bottom of the front panel that helps keep all the panels flush. Pull the panels out from the back of the unit, don't lift them out.

When re-attaching both panels be sure to slide the panels into the lip and confirm all screw holes are in the correct locations. Be forewarned, these panel screws strip easily, especially if you accidentally cross-thread one.

Here is a pic of the front panel lip



After removing the top panel, **REMOVE THE TUBES!**

This will avoid any incidental damage and will also give you more room to work with.

## Step 2. "Semi"-Removing the Front Panel

To remove the Input Jack from the component area of the main PCB, unfortunately you will have to "semi"-remove the front panel.

### **NOTE:**

**If you were planning on replacing the output volume pot (50k dual linear), now may be a good time.**

Locate the left front panel screws, the input jack nut, and the volume pot nut. Remove them.



Do NOT remove the center retaining screws



Locate the right front panel screws. Simply loosen them up enough so you can pry open the left side to completely expose the Input Jack. You do not need to completely remove the screws.



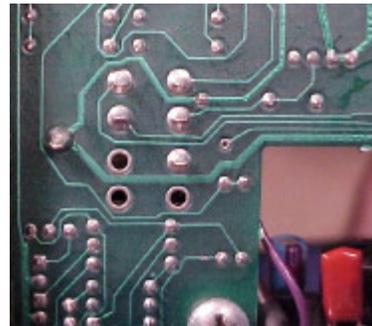
When separating the front panel from the chassis, be careful not to disturb the LCD ribbon cable nor any of the panel LEDs.

### Step 3: Desoldering the Front Input Jack

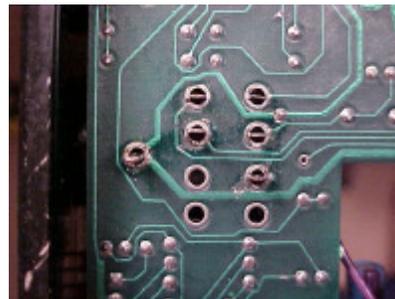
Now comes the fun part, desoldering the input jack from the PCB (Printed Circuit Board). This involves some prior experience and skill to get it right. Please read the section at the end of this doc on **“Good Desoldering Practices”** before you attempt this.

After a good clean desoldering of all 6 jack terminals, you should be able to lift the jack off the PCB with little or no effort. Keep using the desoldering wick (braid) on all 6 terminals one after another until the jack literally falls out. Be careful not to melt or score the surrounding PCB area. Also watch for pads lifting off the PCB. If you see a pad starting to lift, STOP! Your iron has too high of wattage for this application. Buy or borrow another one. Patience is a virtue here. If you continue with lifted pads, you risk breaking traces. If this does happen to you I have included some repair tips in the **“Good Desoldering Practices”** section.

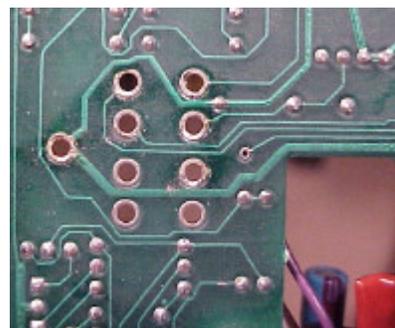
Here is what it looks like before we get started on the desoldering.



...after using the solder-sucker and the desoldering braid.



...with the jack removed and the pads cleaned of excess solder.



Very nice!  
No lifted pads, no broken traces!

Once the jack is safely removed, go ahead and reconnect the front panel back to the chassis. Confirm that no LEDs were accidentally shorted and that they are all in the correct position for view through the front mylar panel.

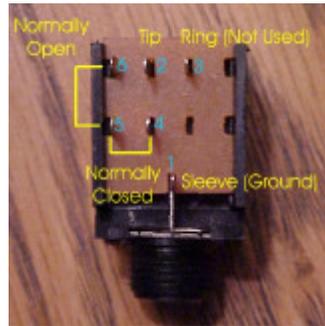
#### Step 4: Reconfiguring the Front Input Jack Circuit Switch and component area PCB

To start, the Front Input Jack is a Stereo TRS (Tip-Ring-Sleeve) ¼” Phono Jack with an isolated SPDT (Single-Pole-Double-Throw) switch on it. Since the input jack is configured as mono in this application, the “ring” (terminal 3) goes unused.

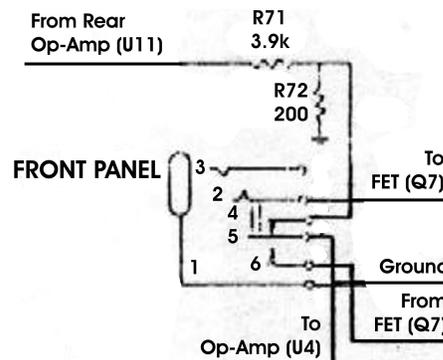
You do not need to understand this nor be able to read schematics to finish this mod. I included this in the section for all the geeks who love to over-analyze everything.

We will be reconfiguring the SPDT switch on the Front Input Jack to accommodate the Rear Input Jack connection. Like the v2.xx specifications, the Front Input Jack in this mod will also take precedence over the Rear Input Jack, while the Rear Input Jack’s NC (Normally Closed) switch acts to shunt the signal to ground when there is no plug inserted. ADA was right on the \$\$\$ when they came up with this idea for the new v2.xx specs. It works great.

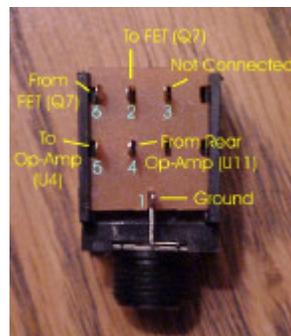
Here is a layout of the jack as seen from the bottom. Note the terminal numbers.



Here is a redrawn schematic of the unmodded Front Input Jack

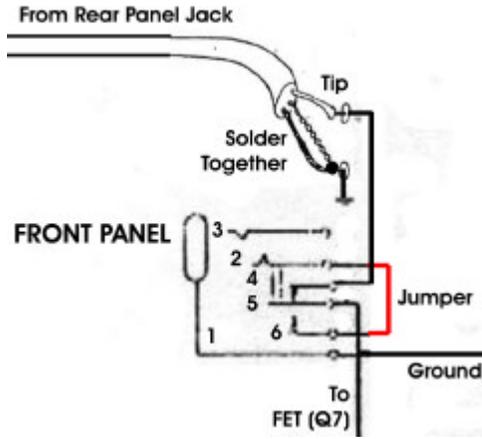


Jack layout based on the unmodded schematic as it corresponds with the terminals.

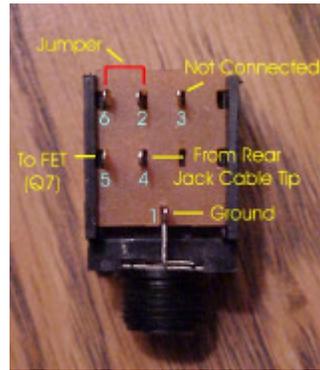


This is the modded schematic of the jack switch we will be using.

Notice the cool Rear Input Jack wire drawing.



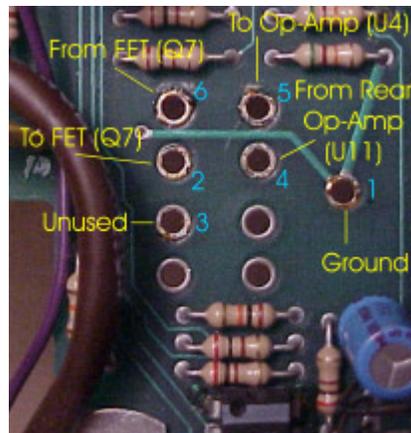
The jack terminal layout as it corresponds with the modded schematic.



**Terminals 2 and 6** must be jumpered on the Input Jack.



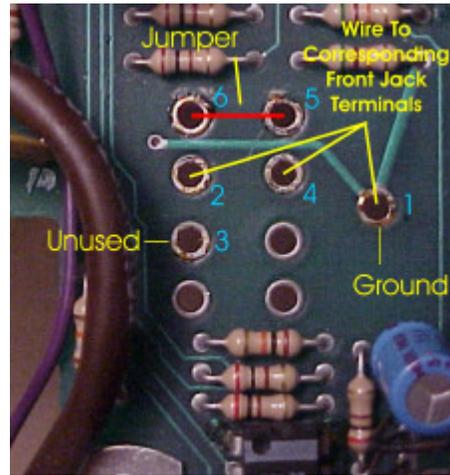
This is the layout of the Input Jack location on the MP-1 main PCB.



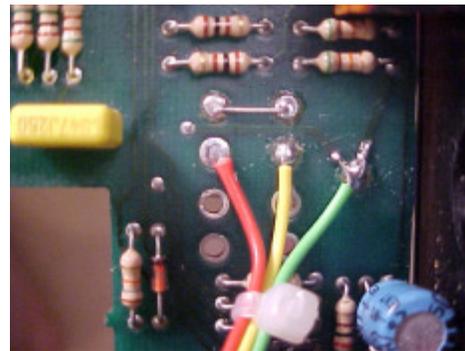
In the new modded configuration, the Input Buffer FET (Q7) will be directly connected to Op-Amp U4 via a jumper wire on the PCB.

Run a jumper wire from **Pad 5** to **Pad 6**.

You will also be running 3 wires from **Pads 2, 4, and 1** to the corresponding terminals on the input jack.

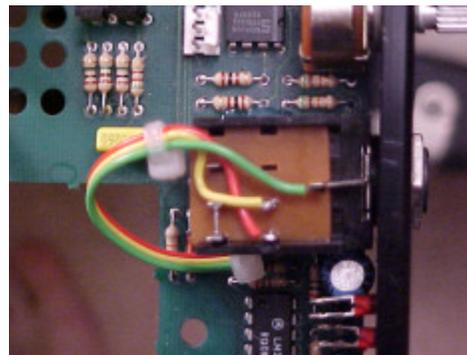


Pic of jumper from **Pad 5** to **6** and standard 24-gauge stranded hook-up wire soldered to **Pads 2, 4, and 1**



Using the infamous Craig Anderton “Dead-Bug” technique, install the input jack back into the chassis upside down with the terminals facing up.

Run the hook-up wire from **Pads 2, 4, and 1** on the PCB board corresponding to **Terminals 5, 4, and 1** on the input jack.



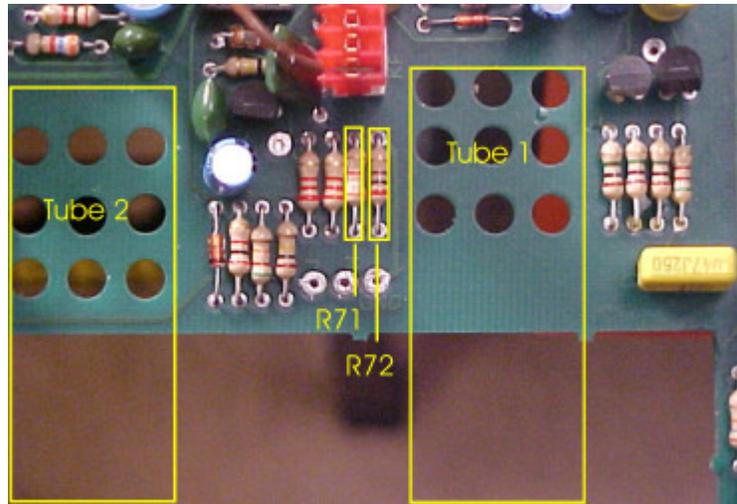
Optionally you can put a layer of hot-glue over all the terminals and wire connections after you have tested it to further protect the solder joints. **RECOMMENDED!**



## Step 5: Removing the Rear Input series and impedance resistors (R71 and R72) from the main PCB

Completely desolder and remove resistors **R71** and **R72**. They will not be needed anymore.

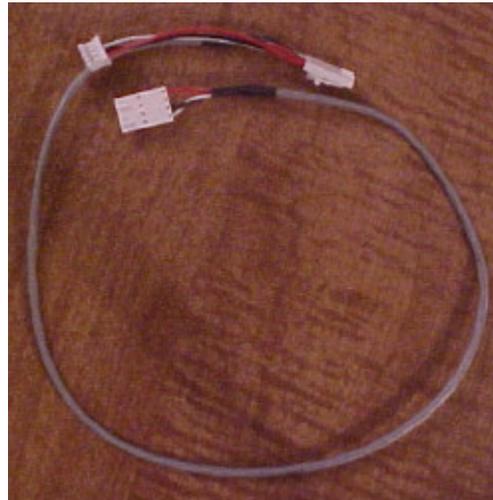
Note the Tube-Board on this unit has been removed for clarity.



## Step 6: Running a new isolated signal wire from the rear jack to the front component area

For the shielded signal wire running from the Rear Input Jack to the front input location, I used one of those computer CD-ROM audio cables. You know, the one that runs from your CD-ROM to your Sound Card so you can listen to CDs in your computer?

These babies can be scored at your local computer store (or Radio Shack) for anywhere from 50¢ to a \$1.



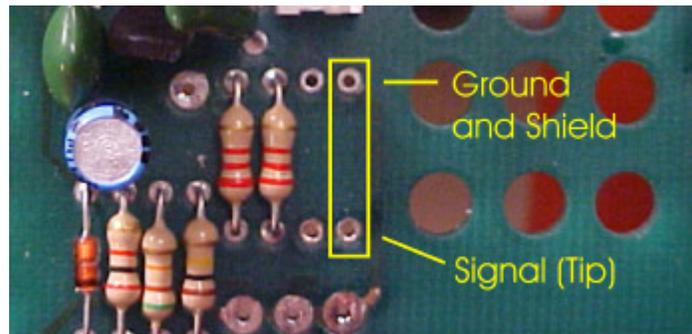
These are 2 conductor cables with a braided shield. If you have a computer with this cable in it, pull it out now and use it here. This is **WAY** more important than listening to CDs on your computer!

### **Note:**

**The braided shield and ground wire should be soldered together at the PCB end.**

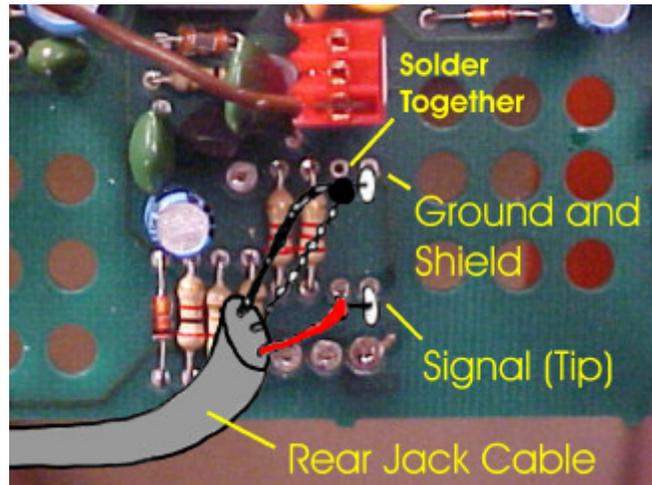
Alternately you can use three wires and twist the wire you designate as the shield around the other two for the entire length of the wires. Please note that the shield wire will only be connected at one end (at the PCB).

The Rear Jack cable will be soldered to the PCB at this point, the ex-location of **R72**, may it Rest in Peace.



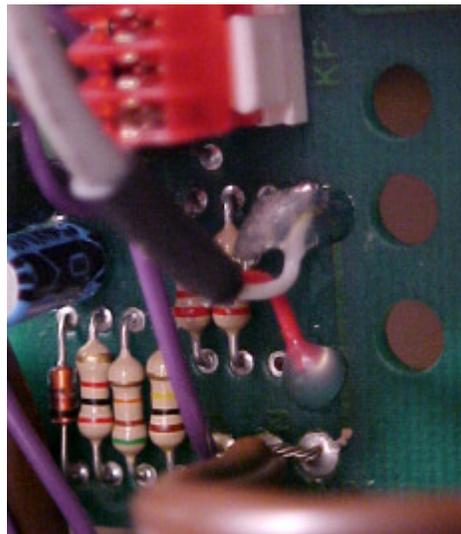
Here is another pic of what it should look like.

**...and NO, that is not a 3-legged earthworm!**



Here is an actual pic of what the finished connection looks like. I topped off the job here with hot glue to further insulate and protect the leads and solder joints.

The cool thing about using hot glue is that it is not completely permanent but holds surprisingly well. If need be, it can be easily peeled off.

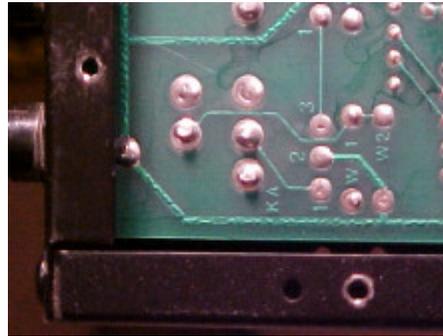


## Step 7: Desoldering the Rear Input Jack

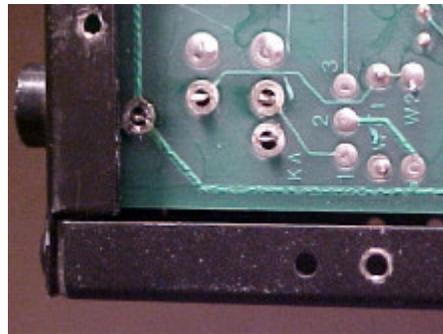
Use the same desoldering technique to remove the Rear Jack as you did removing the front.

After all the solder is cleaned off, removing this jack won't be as easy as the first. Since removing the rear panel to expose the jack would be more trouble than it is worth, you will need to work out this jack at an angle. To do this, I was able to *slightly* bend the PCB board down with one finger while I pulling up on the jack in the opposite direction to get it to come out. If you take your time and do it right, it WILL come out. Be careful not to damage the terminals or crack the jack casing pulling it out. We will be re-using this jack.

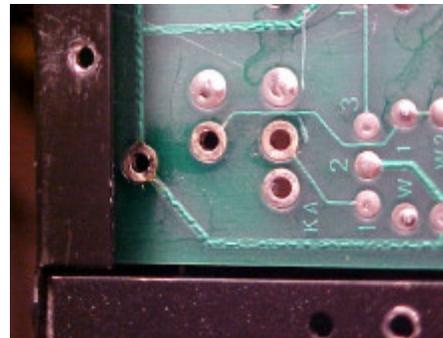
The unsoldered Rear Input Jack location



...after desoldering



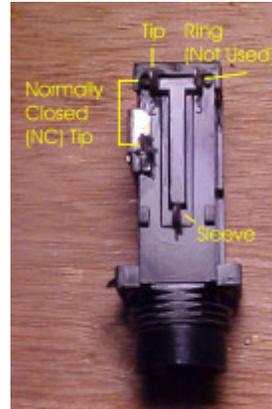
Rear Input jack area with Input Jack removed



## Step 8: Reconfiguring the Rear Input Jack Circuit Switch and component area PCB

I will not go into as much detail on the schematics of the Rear Input Jack as I did the front since we will be completely bypassing the entire **“Balanced Input Buffer”** section that drives this input stage.

The Rear Input Jack is also a Stereo TRS ¼” Phono Jack, however, instead of an isolated SPDT switch, it has a Normally Closed (NC) Tip Switch.



Here is the layout of the Rear Input Jack.

Since we want to shunt the signal to ground when the cable is unplugged, we need to run a jumper wire from the Normally Closed Tip Switch to the Sleeve Terminal (Ground).

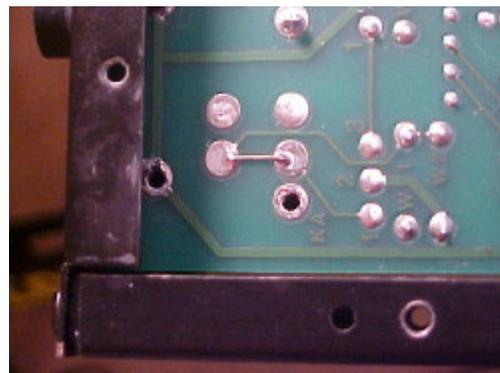
Note the **“Ring”** Terminal will go unused since we will be using this as a mono jack from now on.



**Next, Onto the PCB area...**

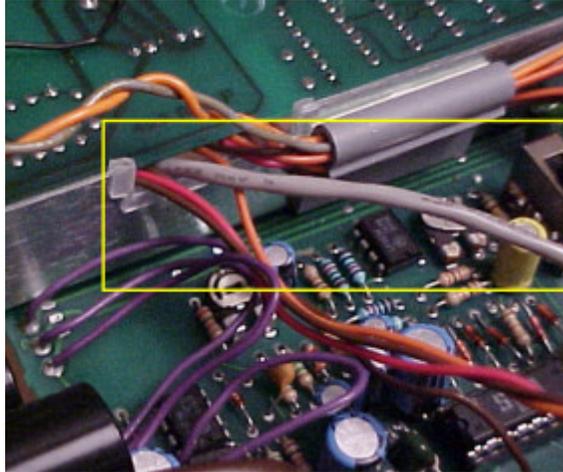
Solder a jumper wire across the two pads as shown in the pic.

Since we will not be using the Balanced Input Buffer circuit anymore, we want to safely disable it so it won't add any excess noise to the signal. This jumper wire will shunt both the Inverting and Non-inverting Inputs of Op-Amp U11 to ground just as if the jack was still installed and there was no plug inserted.



### Step 9: Connecting the Rear Input Jack to the signal wire.

Flip the unit over and feed the Rear Input Jack wire through the chassis wire gap.

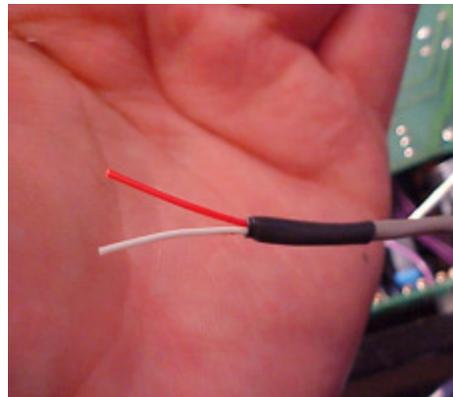


Strip the sheath off about an inch exposing the two wires and the braided shield.

Cut the Braided Shield wire off where the sheath meets the other two wires as in the pic.

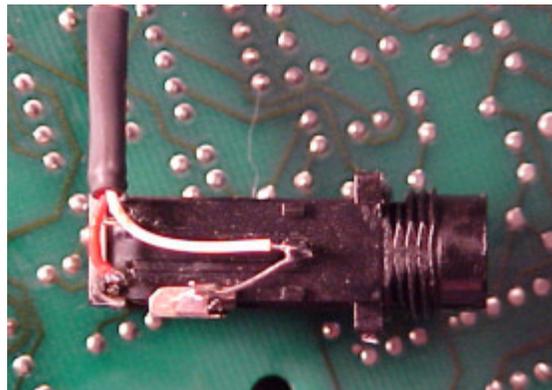


Optionally, put a piece of heat shrink tubing around the sheath's edge to insulate the braided shield.

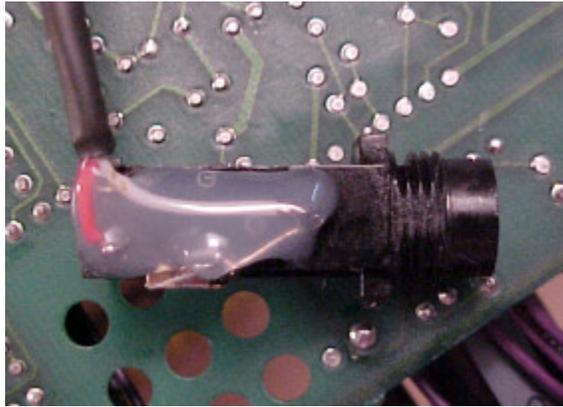


Strip the two wires and attach them to the jack as shown.

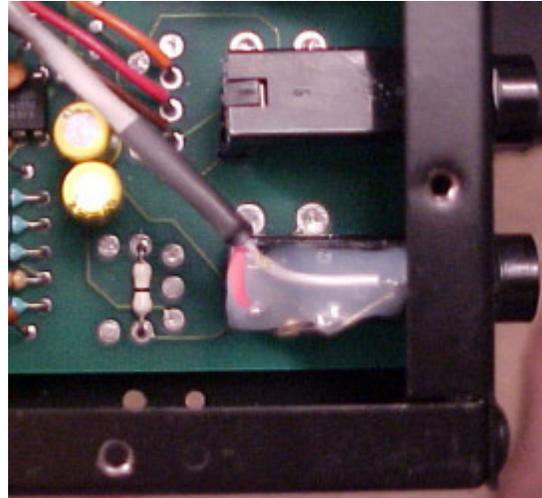
One wire (signal) will be soldered to the “**tip**” terminal and the ground wire will be soldered to the “**sleeve**” terminal



...and of course, yes, it might be a good idea to hot-glue this one too.



That's it! Install the jack in the same "Dead-Bug" fashion as the Front Jack and YOU'RE DONE!



Don't forget to re-install your tubes...

Now you can use the MP-1 rear-input in your rack just as if you were using the front! No more running cables around your rack case to get to the front jack! I hated that!

– HB

## Good Desoldering Practices:

Just as soldering requires practice to get right, so does desoldering. If you have never desoldered before (or have never been that successful at it), I have included some tips for you here that may help you along the way.

There are two types of desoldering tools I use:

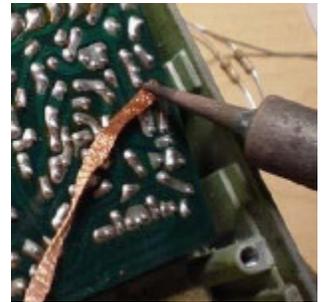


I use the desoldering (vacuum) pump initially to suck up all the excess solder and then use the soldering braid to thoroughly clean the pads. This method will produce excellent results if you do it right. No broken traces, no lifted pads, and a clean surface to be resoldered. You should also be able to lift desoldered components out with little or no effort if it is done right.

### Notes on the Desoldering Braid:

Desoldering Braids remove the solder by *capillary action*. Simple to use.

1. Place the desoldering braid on the solder joint.
2. Apply the hot soldering iron to the desoldering braid for a second.
3. Remove the desoldering braid and the iron at the same time. The solder will be drawn up into the desoldering braid. Use a wire cutter to clip off the used portion of the braid when you are finished.



### Soldering Irons:

I personally use a pencil tip iron with a switchable heat setting (I think I got it at Radio Shack). The heat setting let's you switch from 15W to 30W. For standard PCB soldering I use the 15W setting. For desoldering purposes I use the 30W setting. It seems to work pretty well.

### Lifted Traces and/or Pads:

For soldering and desoldering purposes here I would not use over a 30W iron. Anything more than this and you risk lifting PCB traces or pads. If this happens, you must clean the surrounding area thoroughly with acetone or naphtha, and use clear epoxy to re-attach the pad/trace to the PCB. After letting the epoxy fully cure, use an X-Acto knife with a small blade (#11) and *carefully* scrape the epoxy from the top of the pad. This will allow you to re-tin the pad so that the solder will stick. You may also need to re-drill the through-hole if the epoxy has plugged it. Use a high-speed Dremel tool with a 1/32" (very small) drill bit to ream the hole. Any bit thicker than a 1/32" and you'll risk lifting the pad again.

**Broken Traces:** DON'T PANIC! It happens to the best of us!

Scrape the two broken edges of the trace *carefully* to reveal the copper. Tin, then use bus jumper wire to make a "bridge". If the broken part of the trace is longer than 1", you may want run a line of epoxy along the jumper wire after it has been soldered to keep it from lifting the trace further.

Radio Shack carries this jumper wire, it is catalog #278-1341.

