

HAFLEK DH-101 RCA JACK REPLACEMENT



INSTALLATION MANUAL

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Section 1: About This Manual

This manual gives the information you need to upgrade the RCA jacks on the Hafler DH-101 preamp to gold-plated RCA jacks. This upgrade has the following advantages:

- The metal in the original jacks tends to oxidize, making it difficult to get a low resistance connection. The gold plated RCA jacks make for low resistance connections, which leads to lower hum and noise.
- The grounds between the jacks are built into the PCB mounting structure, making installation of the upgraded jacks easier.
- Separate grounds between the phono and high-level sections are maintained.

Who Should Attempt these Projects?

You can build this kit if you can:

1. solder (using normal rosin core solder and a soldering iron),
2. use simple hand tools like screwdrivers, wire cutters, and pliers, and
3. read and follow directions.

It helps if you:

1. know a bit about electronics, or
2. have a friend who knows a bit about electronics
3. can get to YouTube to watch a few helpful videos about the assembly process (not available as of this version of the manual)

Tools and Supplies You'll Need

You'll need the following tools:

1. flat blade screwdrivers for #4 and #6 screws, #2 Philips head screwdriver
2. needle nose pliers (helpful, but not strictly necessary)
3. pencil type soldering iron of 25 to 50 Watts (no huge honking soldering guns or blowtorches)
4. wire cutters and strippers
5. de-soldering tools (see Appendix 1)
6. Magnifying glass, if you're over 42!

Recommended Solder

The kit must be assembled with 60/40 Rosin Core solder. The recommended diameter is 0.032 inches.

Project Overview

Broadly, the project consists of the following steps:

1. Building the new RCA jack circuit boards.
2. Adding a few capacitors to the new RCA jack circuit boards.
3. Installing the newly built jack circuit boards.
4. Reassembling your DH-101.

Important Safety Notes

By purchasing, using, or assembling this kit, you have agreed to hold AkitikA, LLC harmless for any injuries you may receive in its assembly and/or use. To prevent injuries:

- Wear safety glasses when soldering to prevent eye injuries.
- Always unplug the power before working on the equipment.
- Large capacitors hold lots of energy for a long time. Before you put your hands into the equipment:
 - Pull the AC plug!
 - Wait 1 full minute for the capacitors to discharge!
- Remove jewelry and rings from your hands and wrists, or anything that might dangle into the amplifier.
- If working in the amplifier, keep one hand in your pocket, especially if you're near the power supply or power supply wires. This can prevent serious shocks.
- Build with a buddy nearby. If you've ignored all the previous advice, they can dial 911 or get you to the hospital.

Section 2: Building the RCA jack PCBs

Please read to the bottom of this page before you start assembling. Doing so will save you some time and re-work.

Populating the jacks and grounding lugs

Install the gold-plated RCA jacks and ground lugs using the following rules:

1. Use all red-insulator jacks to build one of the fields.
2. Use all white-insulator jacks to build the other of the fields.
3. Insert the jacks into the silk-screened side of the board.



Figure 1-Insert the jacks into the silk-screen side

4. Use gas pliers and an 11/32" nut driver as shown below to tighten the jacks.

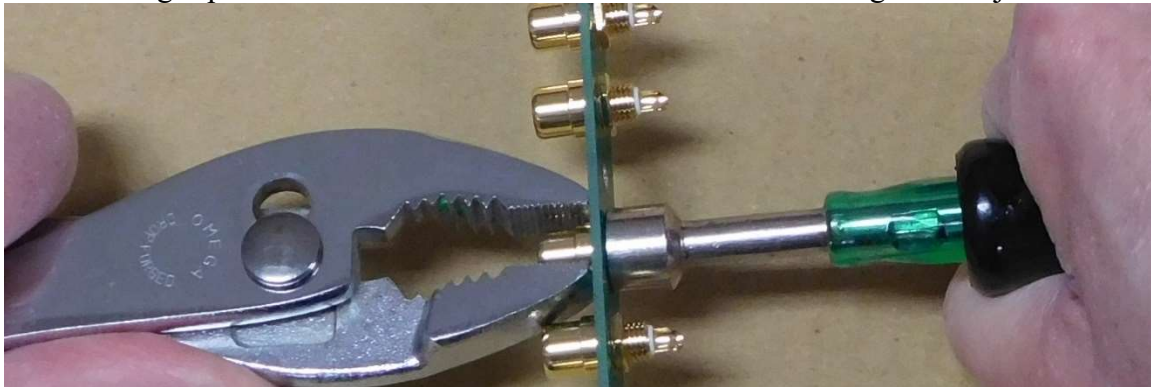


Figure 2-tightening a jack

5. Orient the open part of the cup of the center terminal up to enable easy soldering.



Figure 3-orientation of lugs and solder cups

6. Only three¹ of the jacks will get ground lugs:
 - a. J1 (shown in Figure 3)
 - b. J2 (shown in Figure 3)
 - c. J11 (at the other end of the jack panel)
7. Insert the ground lugs in the up position as shown above. Start out leaving the ground lugs flat, only bend them over after the jacks are installed and tightened.

¹ You'll end up with a pile of 16 unused ground lugs.

Replacing the jack fields

Opening your DH-101

Uninstall your DH-101 from your audio system. Pull the AC cord to make sure that you can safely work on it. Remove 4 screws, two from each side of the preamp, then lift the cover off the preamp. Set the cover and screw aside for safe keeping.

Removing the old jack fields

Remove the 8 screws and nuts that hold the jack fields in place. Desolder the bypass capacitors from the chassis lug, and ease the jack field out of its location, one at a time. You may have to cut some of the cable ties to allow you to move the wires and the jack field. Replacement cable ties have been provided for you to tidy things up at the conclusion of re-assembly.

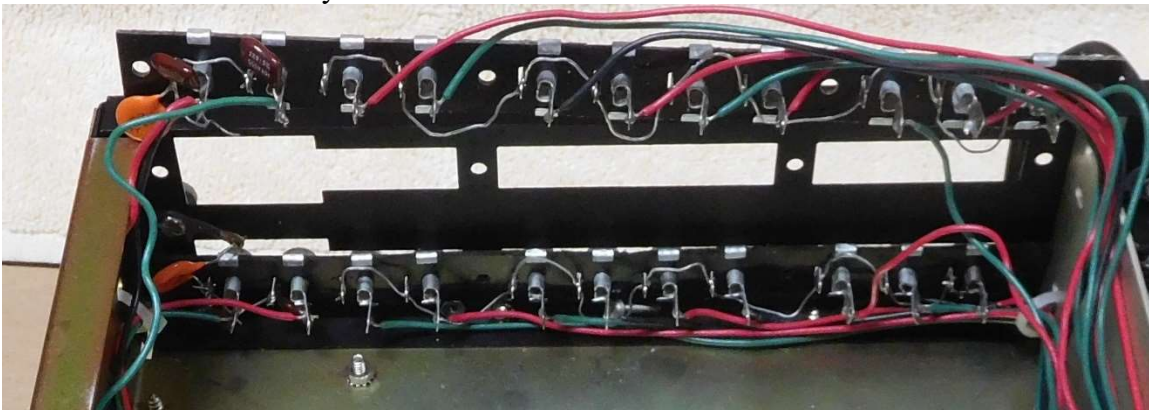


Figure 4-remove jack field

Place the new jack field above the old one with J1 and J2 oriented above the two brown capacitors on the left side of the jack field.

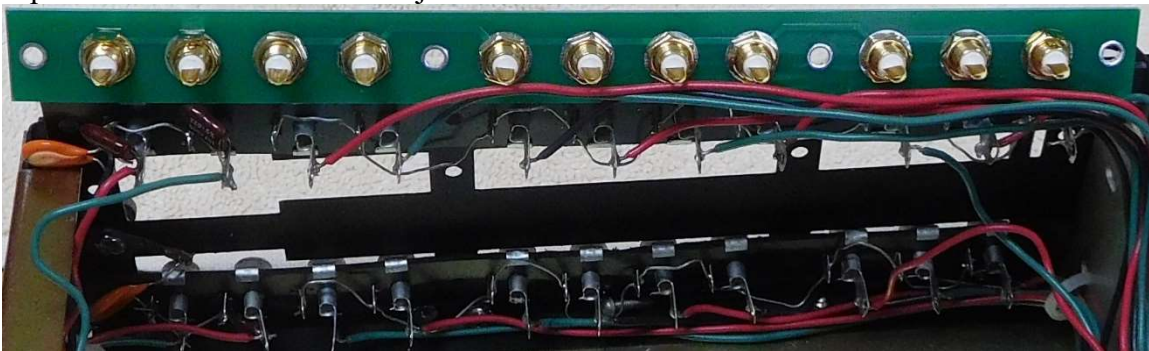


Figure 5-Stack the jack fields

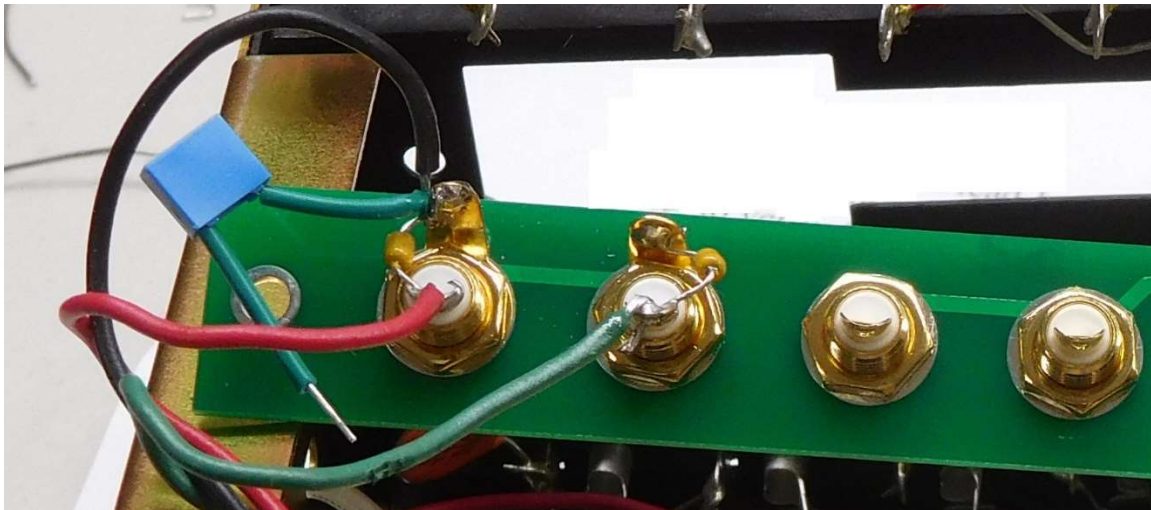


Figure 6-Wiring left channel phono connections

Add capacitors to the new board as follows:

1. Leave full-length leads on the 0.1 μF (100 nF) blue box capacitors. Scrape the ends of the leads to make them easy to solder. Slide green insulation over the leads, leaving about 3/8" of bare lead showing.
2. Connect 220 pF COG capacitors from the center conductor to ground on J1 and J2.
3. Move the following wires from the old to the new jack field. Note that these colors only apply to the left channel jack field.:
 - a. Black wire to the ground lug (three wires are here...the black wire, one lead of the 220 pF capacitor, and 1 lead of the 100 nF capacitor).
 - b. Red wire from the old jack field to the new jack field J1 center conductor.
 - c. Green wire from the old jack field to the new jack field J2 center conductor.
4. Move the rest of the wires, one at a time, from the old jack field to the new one.
 - a. Note that the colors for the left and right channels in equivalent positions are different.
 - b. Swapping wires, one at a time, is the way to prevent errors.
 - c. Figure 9 summarizes the wire colors.



Figure 7-New left channel jack field installed

Repeat the same set of operations for the right channel jack field. Make sure to move one wire at a time to make sure that they are transferred correctly.

If necessary, use the new cable ties to lace the wires back to the walls of the chassis.

- The left channel wires are routed above the RCA jacks and below the upper fold of the chassis.
- The right channel wires are routed below the RCA jacks, along the floor of the chassis.

Check your work to make sure that all of the jacks have been soldered. Once this inspection is complete, move onto the next section

Reinstalling the jack fields

Re-install the jack fields, re-using the original screws and 4-40 keps nuts. Solder the free ends of both 100 nF capacitors into the ground lug near the phono inputs.

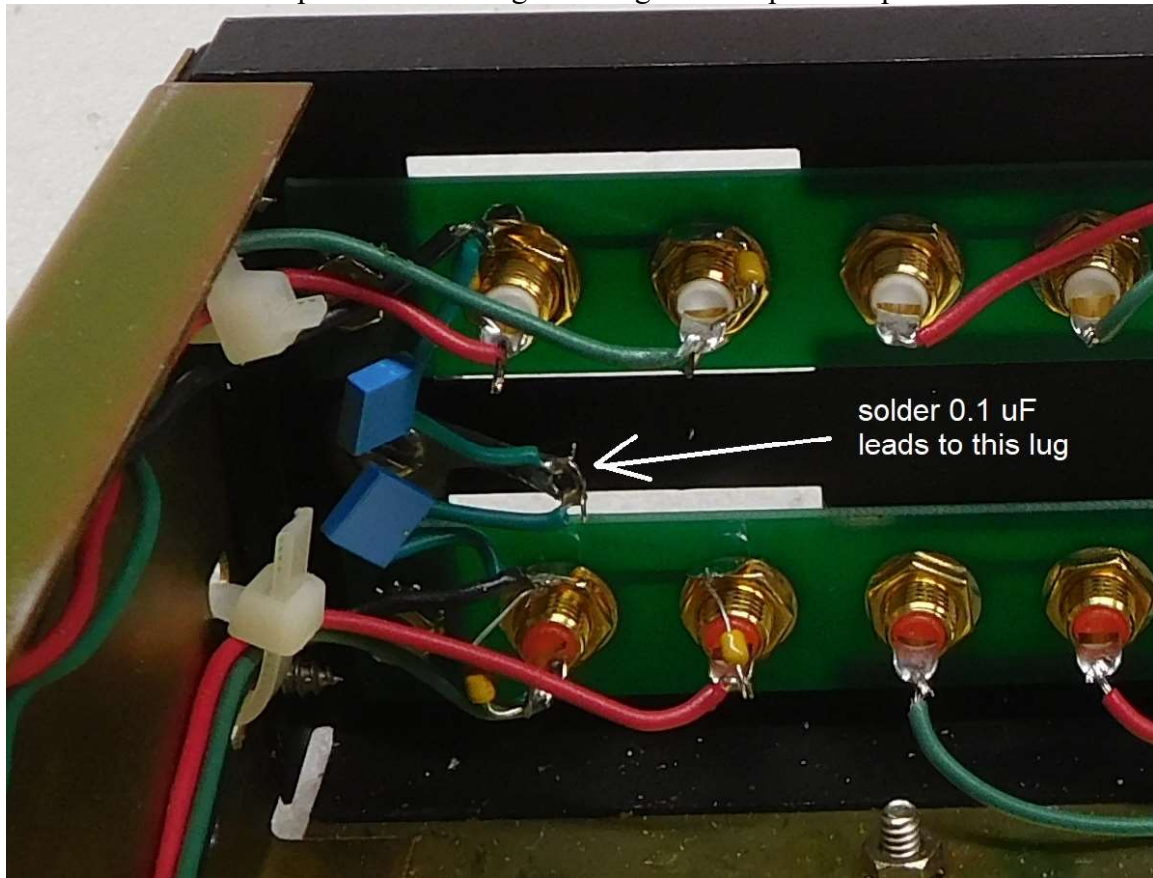


Figure 8-Don't forget to solder the 0.1 uF capacitor leads

Final Re-assembly

Turn the enclosure upside down and shake it to try and dislodge and remove any cut bits of wire you may have generated as you replaced the jack fields. Replace the cover and the screws that hold it in place. Return your DH-101 to your system, and enjoy the increased clarity of your music.

	Phono 1	Phono 2	Tuner	Aux	Play 1	Play 2	Rec 1	Rec 1	Out	To	From
LEFT	1	2	3	4	5	6	7	8	9	10	11
LEFT	Red	green	red	green	black	red	green	red	green	red	green
RIGHT	Green	red	green	red	green	black	red	black	red	green	red
RIGHT	12	13	14	15	16	17	18	19	20	21	22

The view is from the inside of the preamp, looking at the connections for the RCA jacks on the back panel
 Figure 9-Wire Color Summary for Signal (hot) conductors of the RCA Jacks

Appendix 1: The Toothpick Trick

This appendix describes an easy way to clear the solder from a hole in the PCB. It can also be used to clear the solder from terminals on pots or jacks. Doing so makes it easier to install a new component, or reinstall wires that were temporarily removed to allow access to some other component.

All you'll need is a soldering iron and some toothpicks with sharp points. The diameter of the pointed part of the toothpick must be smaller than the diameter of the hole that you're trying to clear.

Heat the solder land on the component side of the board until the solder flows. Insert the toothpick from the component side of the board while pushing and twisting the toothpick. If the solder has melted, the toothpick should push through the board, displacing the solder. Remove the soldering iron, but let the toothpick remain in the hole until the solder has solidified. Now remove the toothpick. There should be a hole through the solder sufficiently large to allow you to insert the component lead or wire.

Sometimes, a bit of the toothpick will break off in the hole. If this happens, use a stiff piece of wire to push the toothpick fragment out of the hole.