

Stereo 150

Replacing and Upgrading the RCA Jacks

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Section 1: About This Manual

This manual covers the replacement of the RCA jacks in Dynaco's Stereo 150 Power Amplifier. The passage of 40+ years can add a lot of oxidation that makes it hard to get a good connection. That can lead to extra noise. The upgrade kit supplies gold plated jacks, a PCB mounting plate for the jacks, new 1% 1K Ohm ¼ Watt metal film input resistors, and the wire you'll need to complete the upgrade.

Please note: There are two versions of the Stereo 150:

1. The original version uses the PC-36 amplifier board. That version uses the external 1K Ohm resistors provided with this kit.
2. The later version uses the PC-43 amplifier board., which has the 1K resistors built onto the PC-43 circuit board. In that case, just add the provided 1K's to your spares cupboard, and you'll connect the center conductor of the new jack directly to the wires that connected to the center conductors of the old jacks.

Who Should Attempt this Project?

You can build this kit and improve your Dynaco Stereo 150 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.
3. make basic voltmeter measurements
4. 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

Tools You'll Need

You'll need the following tools to update your Stereo 150:

1. flat blade screwdriver for #6 screws, #2 Phillips screwdriver
2. pliers or nut drivers suitable for #6 hardware (5/16" nut driver or hex wrench)
3. needle nose pliers
4. pencil type soldering iron of 25 to 50 Watts (no huge honking soldering guns or blowtorches)
5. wire cutters and strippers

Project Overview

The project replaces and upgrades the Stereo 150's RCA jacks. The main steps are:

1. Disassembling the Stereo 150 to gain access to the jacks.
2. Pre-wiring the new jacks.
3. Removing the old jacks.
4. Hooking up the new jacks.
5. Reassembling the Stereo 150.

Important Safety Notes

By purchasing 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 amplifier.
- Large capacitors hold lots of energy for a long time. Before you put your hands into the amplifier:
 - 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. Remove loose objects from your shirt-pockets that might fall 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-Gaining Access to the RCA jacks

Safety First

1. Turn the amplifier off.
2. Remove the AC plug from the wall socket.
3. Wait one minute before starting disassembly to assure that the capacitors have discharged.

Gaining Access to the RCA jacks

Get a bowl or other safe place to store the screws you remove as you disassemble your Stereo 150.

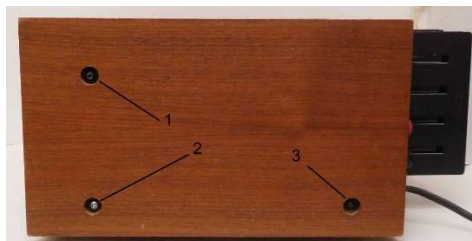


Figure 1-Remove 3 screws from each of two wood side panels

Remove the wooden side panels

1. Remove the screws that hold the wooden panels to the side of the amp. There are three long 6-32 machine screws and washers that hold each of the wooden panels in place. There are a total of 6 screws and washers that will be removed (3 from the left, and 3 from the right).
2. Set aside the screws into a bowl or other safe place.
3. Set the wooden panels aside in a safe place.

Remove the metal cover

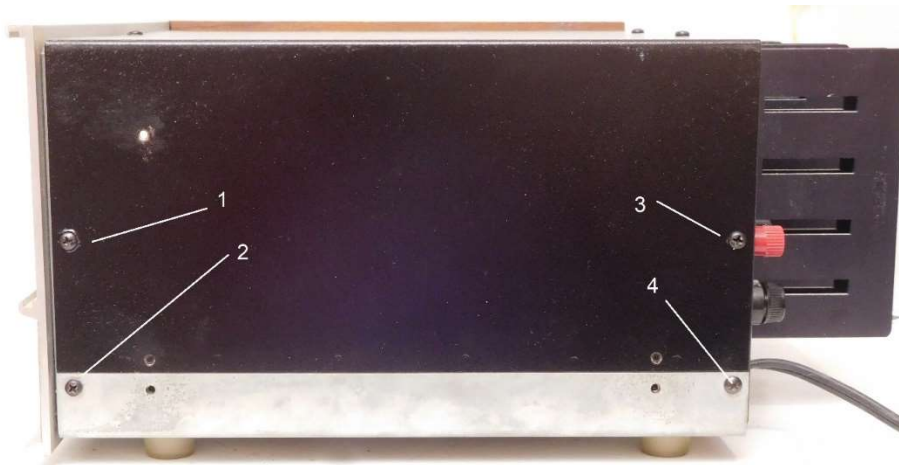


Figure 2-Locations of the sheet metal screws that hold the side of the cover

1. Remove the 4 sheet metal screws that hold the right side of the cover.
2. Remove the 4 sheet metal screws that hold the left side of the cover
3. Remove the 3 sheet metal screws that hold the top of the cover in place.
4. Put all the screws in a safe place.
5. Pull the cover straight up and set it aside. You may have to work at it a bit if it has been a long time since the cover was removed.

Slide out the decorative front panel

Slide out the decorative front panel and set it aside in a safe place.

Loosen the back panel assembly

Locate the two black Philips head sheet metal screws that secure the bottom of the back panel to the back edge of the chassis floor. Remove these two screws and put them in a safe place. This allows you to fold the back panel assembly away from the main body of the chassis. Be careful as you do this, making sure not to strain the wires that connect the back panel to the rest of the amplifier.

Remove the Screws that hold the amplifier PCB to the mounting brackets

Locate the four zinc-plated (silver colored) #6-32 screws and nuts that fasten the amplifier PCB to the mounting brackets. Remove the screws and nuts, and set them in a safe place, as they will be used for later re-assembly.

Remove the Screws that hold the RCA jack assembly to the back panel

Locate the two 4-40 machine screws and keps nuts that hold the RCA jack assembly to the back panel. Remove the screws and keps nuts and put them in a safe place. Pull the RCA jack PCB (and the insulator PCB) out of the back panel. The disassembled amp will look like what is shown in Figure 3.

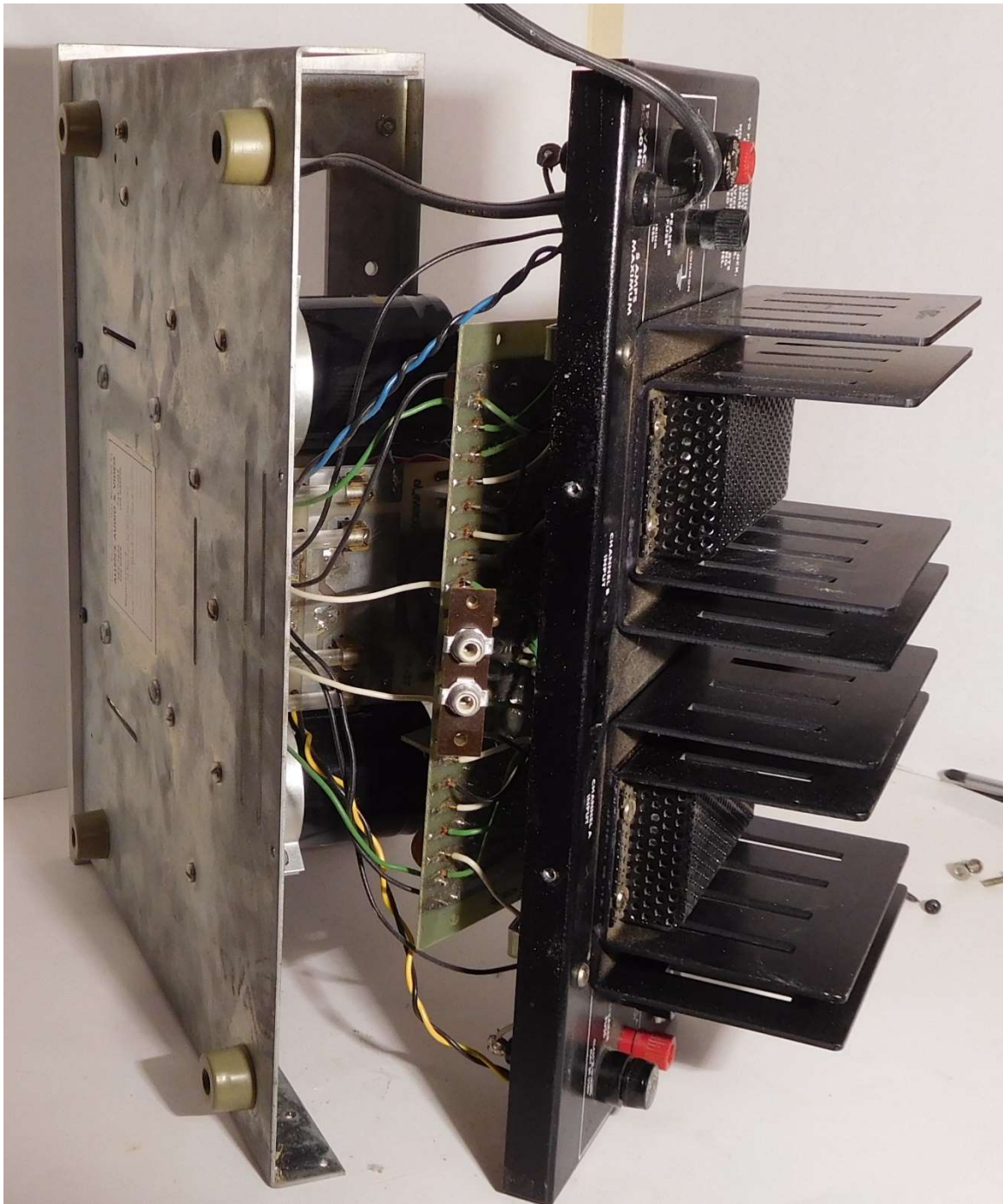


Figure 3-Disassembled Amp with original RCA jacks

PC-36 Version

The instructions now split. Continue in this section if your amplifier board is the PC-36. Skip ahead to “PC-43 Version” if you’re amplifier board is the PC-43.

Remove the original RCA jacks

Four wires hold the original jacks to the PCB.

- Channel A signal, via a 1K resistor, Eyelet 12
- Channel A ground, Eyelet 13
- Channel B ground, Eyelet 14
- Channel B signal, via a second 1K resistor, Eyelet 15

Desolder those four wires from the PCB. The ground wires will need a significant amount of heat and time owing to the large ground area. Once the wires are removed, use either a de-soldering tool or a toothpick to open up the associated holes.

Build the new RCA jack assembly



Figure 4-Mount the RCA jacks as shown onto the PCB

Use Figure 4 as your guide to assemble the new RCA jack assembly. You’ll note that this same PC board is used on the Stereo 400 RCA jacks. Note too, that the silk screen is turned inward, and will not be visible once installation is completed.

The two ground lugs will be connected together, and will be brought closer together and share a common ground wire. This is shown in Figure 5.

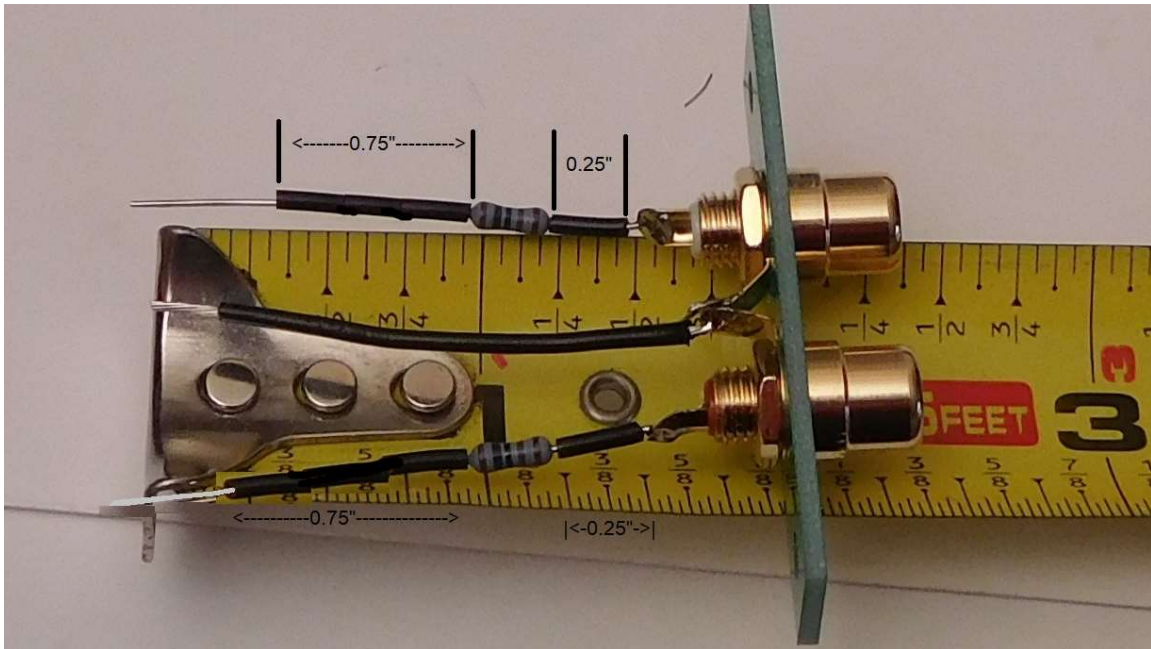


Figure 5-Completing the RCA Jack Assembly for the PC-36 based amps

1. Prepare both 1K resistors as follows:
 - a. Leave both leads full length.
 - b. Strip $\frac{1}{4}$ " of the insulation from the supplied black wire, and put it on one side of each resistor.
 - c. Strip $\frac{3}{4}$ " of the insulation from the supplied black wire and put it on the other side of each resistor.
 - d. Assemble the resistors to the RCA jack center conductors as shown in Figure 5. Leave the long side of each resistor long for now.
2. Cut a 2" length of the supplied black 22 AWG stranded wire and strip about $\frac{1}{4}$ " from both ends.
 - a. Bring the ground lugs close together as shown.
 - b. Feed one stripped end of the 22 AWG wire through the lugs and solder the wire to both lugs.

Install the new RCA jack assembly

1. Put the new RCA jack assembly into the same space the old one occupied. For now that means it will hang between the PC Board and the back panel.
2. Make sure that the jack with the red insulator is toward the side of the back panel that the power cord enters.
3. Feed the two resistors and one ground wire into the solder side of the PCB as follows:
 - a. 1K resistor from the RED RCA jack insulator to eyelet 15.
 - b. Black ground wire into either eyelet 13 or 14.
 - c. 1K resistor from the WHITE RCA jack insulator to eyelet 12.
4. Solder the two resistors and 1 black wire into the indicated eyelets. Please note that soldering in the ground wire will take extra heat and time owing to the large area of the ground traces.

5. Re-install the 4-40 hardware that holds the input jacks to the back panel. *Hint: sometimes a bit of scotch tape wrapped around your finger helps get the nuts into the right place to get them started.*
6. Clip the extra length of the resistor leads on the component side of the board to a length of perhaps 1/16" past the end of the solder mount.

PC-43 Version

The simple version: move the 2 signal and 1 common ground wire from the old jacks to the new jacks. If you'd like a little more detail, then read on:

There are four connections from the existing RCA jacks to the PC-43 circuit board. There are:

- Eyelet 12 – Channel A signal, goes to center conductor of Channel A RCA jack.
- Eyelet 13 – Channel A and Channel B Ground
- Eyelet 14 – Channel A and Channel B Ground
- Eyelet 15- Channel B signal, goes to center conductor of Channel B RCA jack.

Please note that eyelets 13 and 14, the grounds, both connect to the same large pad on the PCB. Thus there will typically only be three wires, two signal (eyelets 12 and 15) and one ground. That ground, connecting to either eyelet 13 or 14, goes directly to the common grounds of the new RCA jacks.

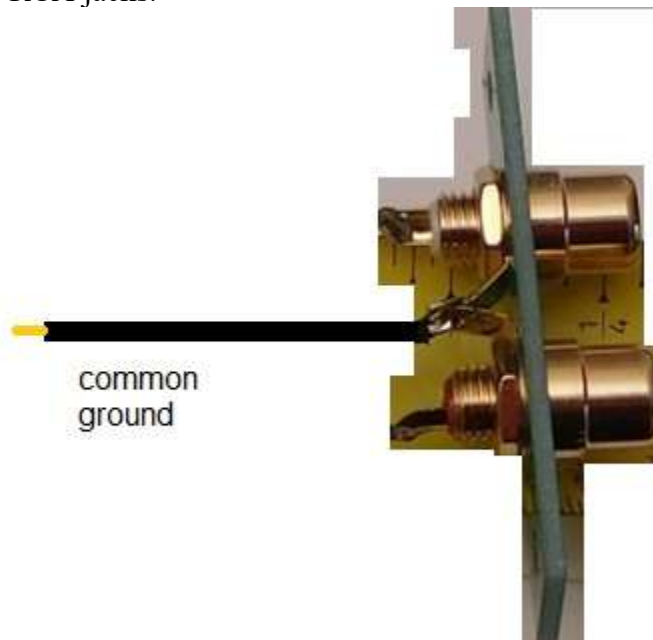


Figure 6-RCA jacks share common ground

Reassemble the Amplifier

1. Reinstall the 6-32 hardware that holds the amplifier PCB to the mounting brackets.
2. Re-attach the back panel of the amplifier with the two screws that join the bottom to the back panel.
3. Refer back to Figure 2 to re-attach the cover. Don't forget the 3 screws that go into the top of the cover.
4. Reinstall the wooden end panels using the long 6-32 machine screws and washers:
 - a. 3 screws for the right side
 - b. 3 screws for the left side
5. Return the amplifier to service in your music system.