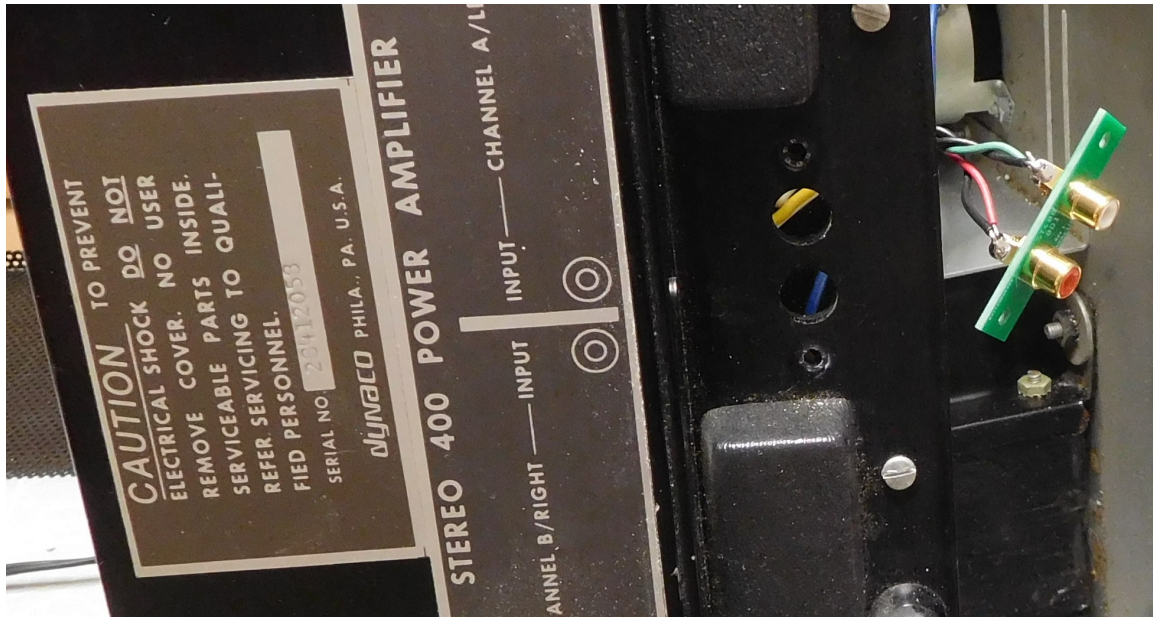


# *Update my dynaco*



## ***Dynaco Stereo 400/410/416 Replacement RCA Jack Installation (ST400RCAJ)***

© 2021 Akitika LLC

All rights reserved

Revision 1p02

March 9, 2021

## Table of Contents

Table of Contents .....	2
Table of Figures .....	2
Section 1: About This Manual .....	3
Who Should Attempt this Project? .....	3
Tools you'll need .....	3
Project Overview .....	3
Important Safety Notes .....	4
About Components .....	4
Recommended Solder .....	4
Warranty .....	4
Section 2: Kit Building Hints.....	5
Section 3: Building the New RCA Jack Assembly.....	5
Section 4: Removing the Old RCA Jack Assembly.....	6
Section 5: Installing the New RCA Jack Assembly.....	9
Section 6: Reassembling the ST400 .....	12

## Table of Figures

Figure 1-bending the RCA jack ground lugs .....	5
Figure 2-Assembling RCA jacks to the mounting PCB's.....	5
Figure 3-Building the new RCA jack assembly, front view.....	6
Figure 4-Building the new RCA jack assembly, back view .....	6
Figure 5-remove the two transformer shield screws.....	7
Figure 6-Remove two screws from the side, behind the fan.....	8
Figure 7-Remove two side screws (non-fan side).....	8
Figure 8-Remove 9 bottom screws .....	9
Figure 9-Back is rotated away from the chassis .....	10
Figure 10-solder wires to the new RCA jack assembly.....	11
Figure 11-Position the jack assembly prior to installation.....	11
Figure 12-New RCA jack kit is installed.....	12

## **Section 1: About This Manual**

This manual gives the information you need to build and install new, gold-plated RCA input jacks into Dynaco's Stereo 400/410/416 power amplifier. We'll just say Stereo 400 to cover all three models. Please note however, that this manual was written based on the Stereo 400, so there may be slight differences in the disassembly procedures for the Stereo 410 and the Stereo 416.

The jacks in most Stereo 400's may be more than 40 years old. The ground connections tend to oxidize, which could result in a bad, high resistance, ground connection and excess noise. Replacing these jacks with new gold-plated jacks will make for a much lower resistance ground connection. These new jacks also project a bit more from the back panel. This makes the Stereo 400 able to mate with a wider range of RCA jack configurations.

### ***Who Should Attempt this Project?***

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.
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 (none are posted as of this version of the manual).

Please note that Stereo 400's are heavy. You are in for a wrestling match of sorts with this beast. Please also note that the amount of energy controlled by one of these behemoths is impressive. That makes it distressingly easy to let the "magic smoke" out of the amp. We urge you to use caution as you undertake replacement of the RCA input jacks.

### ***Tools you'll need***

You'll need the following tools:

1. Phillips screwdriver (#1 and #2), regular screw-drivers.
2. Pliers or nut drivers suitable for #4 and #6 hardware
3. needle nose pliers (helpful, but not strictly necessary)
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 consists of the following steps:

1. Disassembling the amp to allow separating the heat-sink assembly from the body of the amplifier.
2. Removing the old RCA Jacks.

3. Installing the new RCA Jacks.
4. Reassembling the amp.

### ***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 or clipping wires 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 2 full minutes for the capacitors to discharge!
- Remove jewelry and rings from your hands and wrists, or anything that might dangle into the amplifier.
- If working on the equipment with the power on, 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.
- Read and understand the safety manuals of all the tools you use.

### ***About Components***

We reserve the right to make design/or component changes at any time without prior notification.

### ***Recommended Solder***

The kit must be assembled with 63/37 Rosin Core solder. The recommended diameter is 0.031 inches.

### ***Warranty***

With the exception of fuses, Akitika LLC will replace for free any parts of a correctly assembled product that fails within one year of the date of purchase when the equipment has been used in home stereo applications. It is the responsibility of the kit builder to install the replacement part(s). This warranty applies to the original purchaser only. It does not apply to units that have been physically or electrically abused, modified without prior factory authorization, or assembled with other than 63/37 Rosin Core solder. Akitika LLC's liability shall in no event exceed the cost paid to Akitika LLC for the kit.

## Section 2: Kit Building Hints

Yes, I know you want to ignore this section and jump right into building the kit. However, please ***take a minute and read the advice***. I've condensed it into bullets so that even you guys who are in a hurry can benefit.

- Stop any time you're feeling confused, tired, or anxious. Taking breaks at those strategic times will keep the build enjoyable and greatly enhance your chances of first-time success.
- A soup bowl is your friend. Before you build, carefully empty the parts for just that board into a broad, flat, light colored soup bowl. That makes it easy to find the parts, and keeps them from getting lost.
- Is something in this manual confusing? Does something look wrong? Send your questions by email to [dan@akitika.com](mailto:dan@akitika.com) or [dan@updatemydynaco.com](mailto:dan@updatemydynaco.com). You'll help yourself and everyone who builds the kit.

## Section 3: Building the New RCA Jack Assembly

We recommend you read through this section first before you start to build. After you've read through it, go back and begin building the RCA jack assembly.

Remove and reserve the nuts that holds the ground lug to the RCA jack. Bend the RCA jack ground lugs as shown here using needle-nose pliers:



Figure 1-bending the RCA jack ground lugs

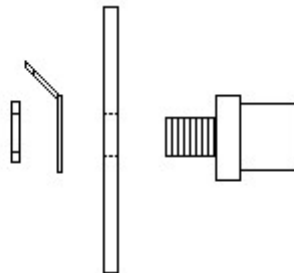


Figure 2-Assembling RCA jacks to the mounting PCB's

Install the gold-plated RCA jacks in the ST400 BD1 printed circuit board as shown in Figure 3 and Figure 4.



**Figure 3-Building the new RCA jack assembly, front view**



**Figure 4-Building the new RCA jack assembly, back view**

Note the position of the ground lugs and the orientation of the contacts of the jacks as shown in Figure 4. The ground lugs should ideally be at 12 o'clock, but anywhere from 11 o'clock to 1 o'clock is fine.

You'll want to make sure that the nuts that hold the jacks in place are snug. Here's the process I use:

1. Assemble everything as shown, but just finger tight for now.
2. Position the lugs (back view) at 10 or 11 o'clock.
3. Use a pair of slip-joint pliers on the base (widest part) of the front side of the RCA jack and an 11/32" nut-driver on the nut. Turn the nut to make a snug mechanical connection. The lug will move clockwise a bit, stopping in the range from 11 to 1 o'clock.
4. You may have to try the process a few times to get the feel of where to start the tightening operation.

Make sure that the nuts and jacks are quite tight. You don't want them to come loose once they are installed.

## **Section 4: Removing the Old RCA Jack Assembly**

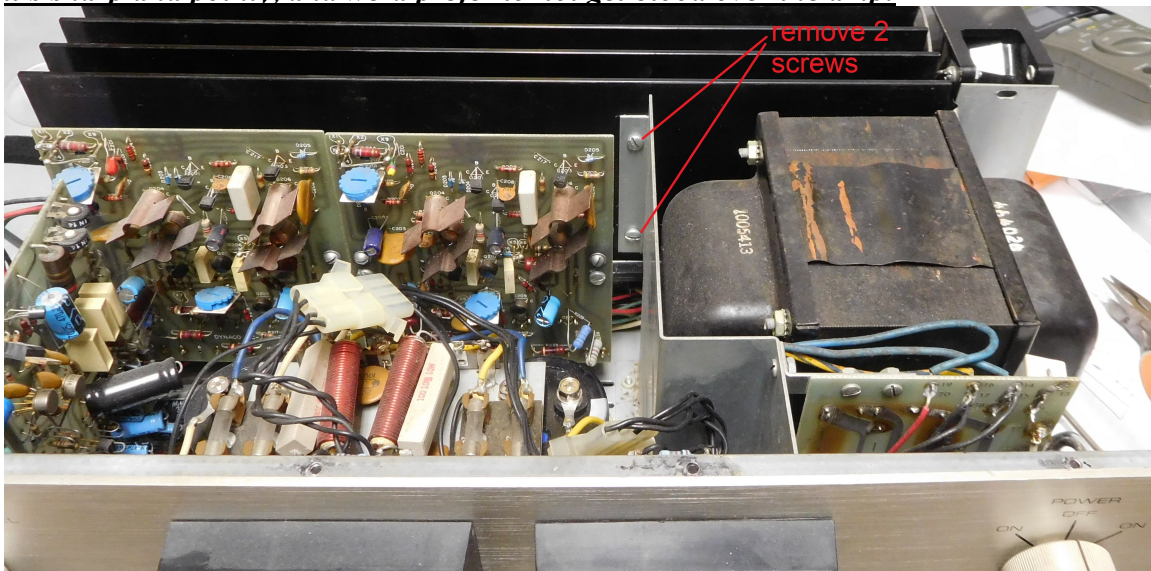
Make sure that your amp is unplugged before beginning. Wait at least one minute to allow the large capacitors to fully discharge.

The object of this procedure is to separate the big black heatsink assembly from the body of the amp. This will give you access to the old RCA jack assembly.

Label a cup, “perforated metal cover screws”. Remove the screws that hold the black, perforated metal cover to the chassis, and place them in the labeled cup. There are:

1. Four screws along the top front edge of the perforated metal cover, just behind the faceplate.
2. Two screws in a vertical line along the right-side front edge of the perforated metal cover, just behind the faceplate.
3. Two screws in a vertical line along the left-side front edge of the perforated metal cover, just behind the faceplate.
4. Two screws in a horizontal line on the right side where the perforated metal cover slides into the chassis base.
5. Two screws in a horizontal line on the left side where the perforated metal cover slides into the chassis base.

Remove the perforated metal cover. Even after the screws are gone, it may take considerable force if it has been a long time since the front cover was taken off. In addition, you may find that the cover is pinched between the transformer and the chassis. I find I will often need to place the point of an awl into one of the side perforations, and use it as a handle to pull up the transformer side of the cover. ***Be careful with the awl, as it's sharp and pointy, and we'd prefer to not get blood over the amp.***



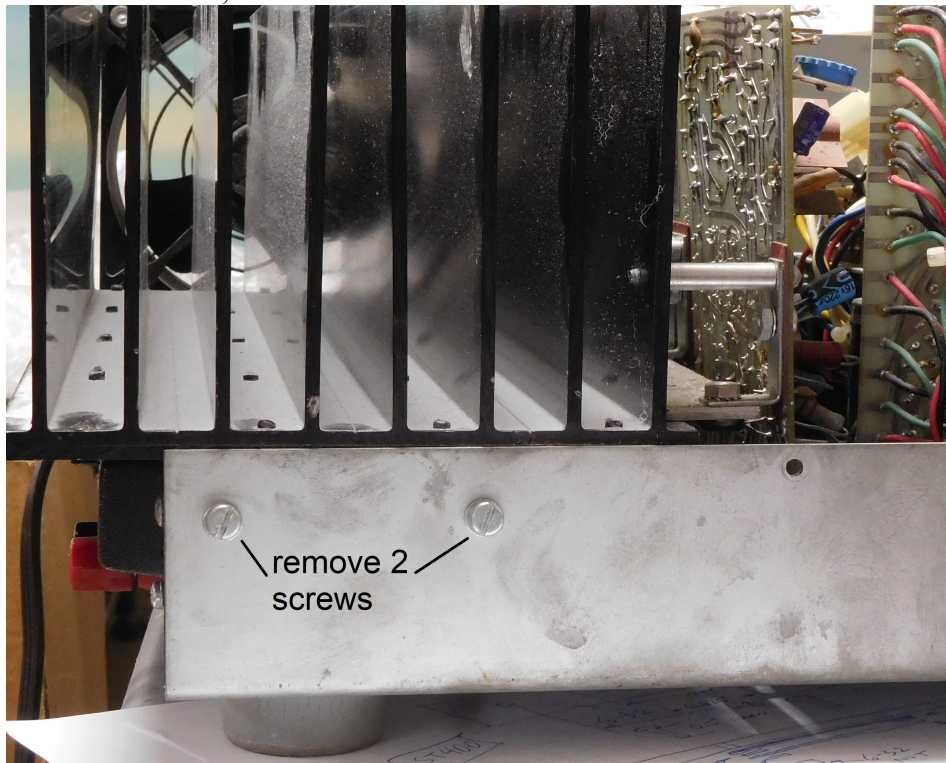
**Figure 5-remove the two transformer shield screws**

Now, remove the two screws shown in Figure 5 that hold the transformer shield to the heat sink. The bottom screw will probably require a mix of contortionist skills and a small screwdriver. We recommend that you label the screws with their original location to take the guess-work out of reassembly.

Remove 2 screws on the side, from behind the fan.



**Figure 6-Remove two screws from the side, behind the fan**  
Remove two side screws, on the non-fan side of the chassis.



**Figure 7-Remove two side screws (non-fan side)**

Turn the Stereo 400 on its side, with the transformer side on the table to get access to and remove 9 screws on the bottom. Once again, labeling these screws and the lock-washers can take some of the guess-work out of reassembly.





**Figure 8-Remove 9 bottom screws**

Assuming that your Stereo 400 is like mine, you should now be able to wiggle the heat-sink assembly loose from the chassis. Be careful and gentle, as there are a number of wires that hold the heat-sink assembly to the chassis. Your Stereo 400 might even have a screw that mine didn't, as there may have been changes during production that I am not aware of.

With a little persistence and a lot of care, you will be able to swing the bottom of the heat-sink assembly away from the chassis. Remove the 2 screws, 2 nuts, and 2 lock washers adjacent to the RCA jacks that hold them into the heatsink. Don't let the lockwashers fall into the chassis.

Gently pull the old RCA jack assembly into the clear space between the heatsink assembly and the chassis, as shown in Figure 9.

Notice the two twisted pairs connected to the RCA jacks:

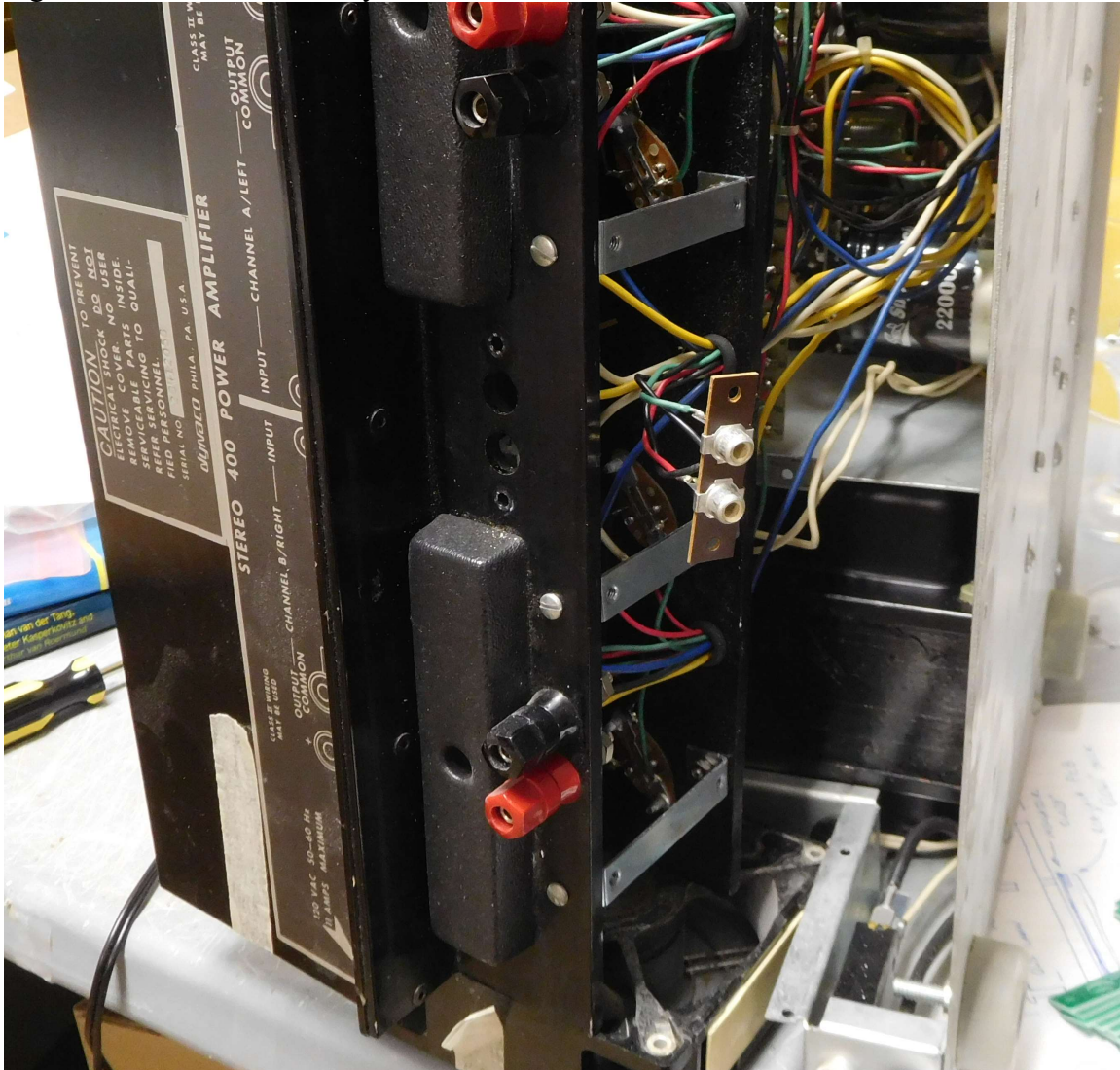
1. Green and Black (green is left channel signal and the associated black is left channel ground).
2. Red and Black (red is right channel signal and the associated black is right channel ground).

## **Section 5: Installing the New RCA Jack Assembly**

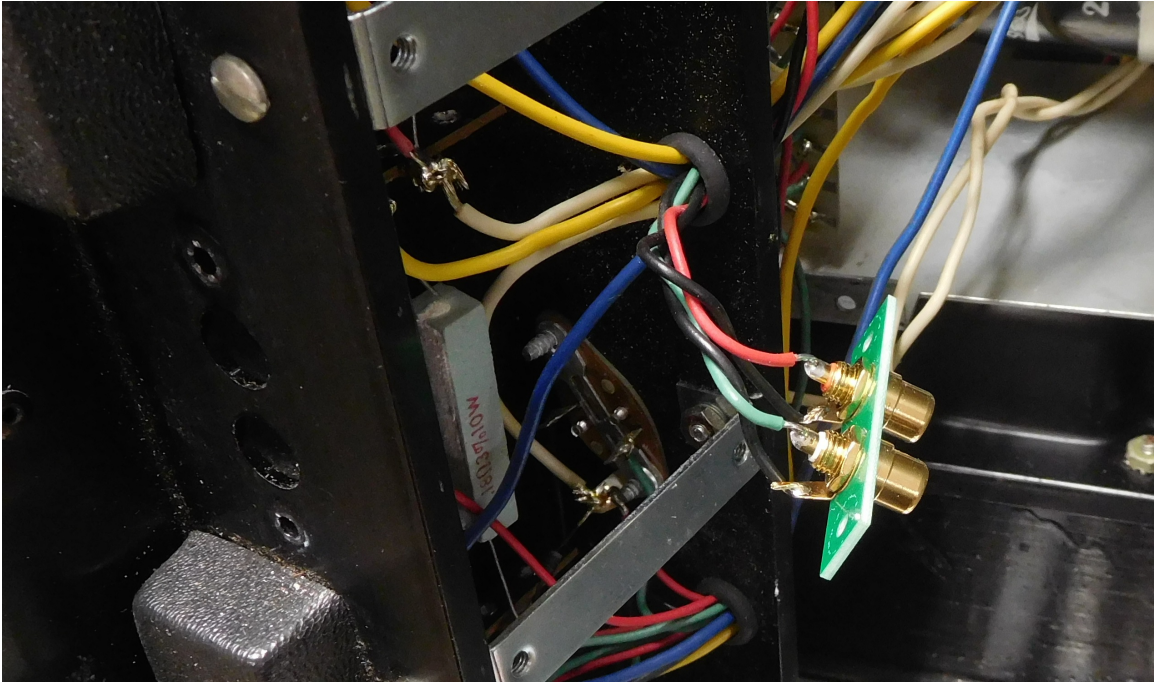
Clip the wires as close to the old jacks as possible to leave the maximum possible length. Maintain the pair relationships. Strip ¼" of insulation from the ends of each of the 4 wires. Bend the ends into L-shaped hooks, and insert them into the new RCA jack assembly:

1. Red wire to center conductor of red RCA jack.
2. Black wire from the red-black pair to the ground lug of the red RCA jack.
3. Green wire to the center conductor of the white RCA jack.

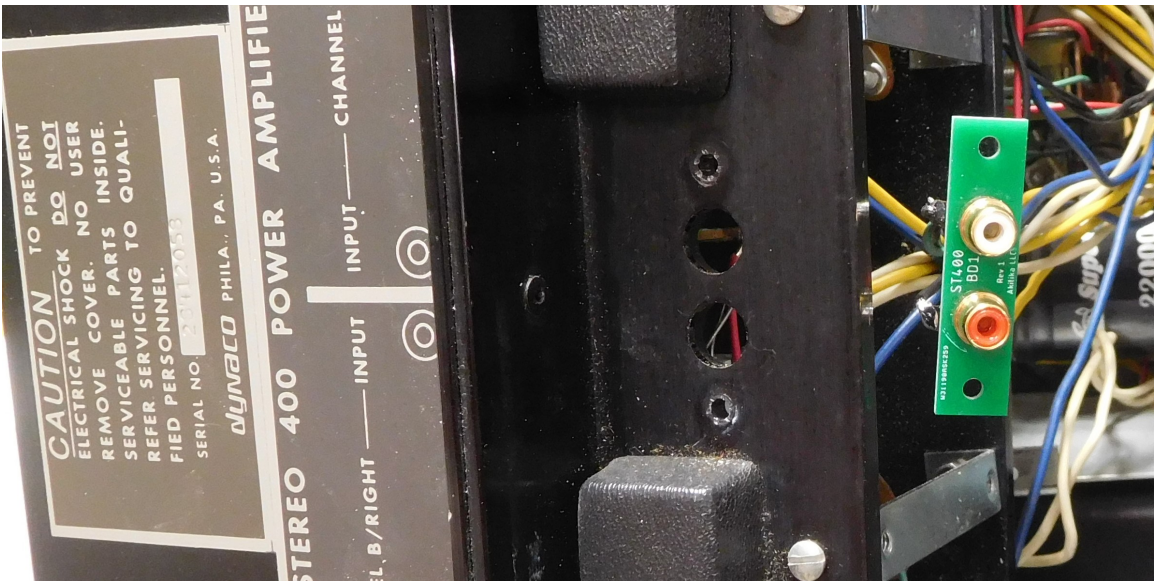
4. Black wire from the green-black pair to the ground lug of the white RCA jack.  
If you'd like, you can now fold the wire ends over, converting the L-shape to a U-shape.  
Either way, it's time to solder the 4 connections to the jacks.  
Figure 9-Back is rotated away from the chassis



**Figure 9-Back is rotated away from the chassis**



**Figure 10-solder wires to the new RCA jack assembly**



**Figure 11-Position the jack assembly prior to installation**

Use the supplied 6-32x5/8" sems screw and 6-32 keps nuts to fasten the new RCA jack assembly to the heatsink. There will be a little bit of play between the mounting holes, screws, and RCA jack PCB. Your goal is to end up with the RCA jacks centered in their holes in the heatsink.

In both original and improved forms, the RCA jack grounds should not contact the heatsink. That isolation prevents the formation of ground loops which could cause hum.

You'll note that the tops of the new RCA jacks project further than the old ones by about 1/8". This may allow the use of a wider range of RCA jack style for making input connections.

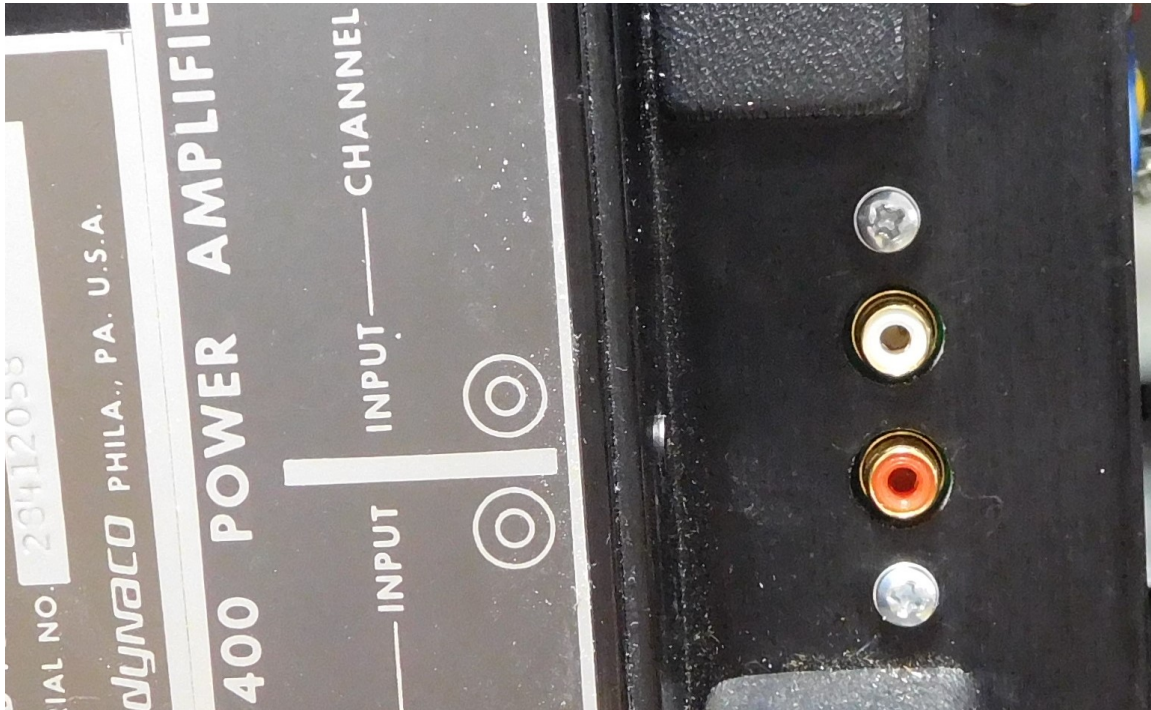


Figure 12-New RCA jack kit is installed

## Section 6: Reassembling the ST400

Reverse the procedure used to disassemble the ST400 to reassemble it. Briefly:

1. Carefully wiggle the heatsink assembly back into position in the chassis. Be careful not to bend components as you work it back into place. Depending upon your preferences:
  - a. You may find that it's easier to set the amp on its feet so that gravity could help guide the heat sinks assembly back into place. Then insert the 4 side screws in place before turning the amp vertical again to re-install the 9 bottom screws.
  - b. Alternatively, you may find it easier to leave the amp vertical with its transformer side down, and re-install the 9 bottom screws, then set the amp horizontal to reinstall the four side screws.
2. Reinstall the screws that hold the transformer shield to the heatsink.
3. Reinstall the perforated black cover.
4. Return your ST400 to service in your system.