

# Pioneer Elite CLD-97 AC-3 Mod DIY Installation Guide

## **Background:**

Although the mod ordered from benedictus came with instruction (I am not going to post or send you that as I feel that is their work, contact them at the address below if interested), I am not very good with electronics so I prefer to have a more visual instruction set for doing modifications. I made this guide to help out anybody interested in doing the mod or at least help them make a decision on whether they would be able to handle it on their own.

## **Contact:**

If you would like to contact me for questions/comments. You can PM me at forums.LDDB.com or www.bluray.com under the username "invenio".

## **Credits/Thanks:**

The only people that currently sell and support the mod (very helpful and quick to help out!, thanks Benedikt):  
<http://www.benedictus.de/bde/index-bde.htm>

Big thanks to Margo for letting me take over the kitchen counter for 2 days while I was working on this!

## **Tools Needed:**

Screwdriver, wire stripper, soldering equipment, 3/8 or 10 mm drill bit, AC3 mod kit, CLD-97, voltmeter, patience.

V1.0

Ok, so Obviously you have the CLD-97. I would work in a well lit (and ventilated area for soldering). The modification took me a few hours, but I was really learning and trying to figure out where the best soldering points were and so forth. I think with this guide it may take substantially less time.



First, remove the wooden side panels by removing the 4 screws that hold these on. Next, the top of the player will have 5 hex head screws. You need a hex L wrench set, size 3/32" fits well into the screws.

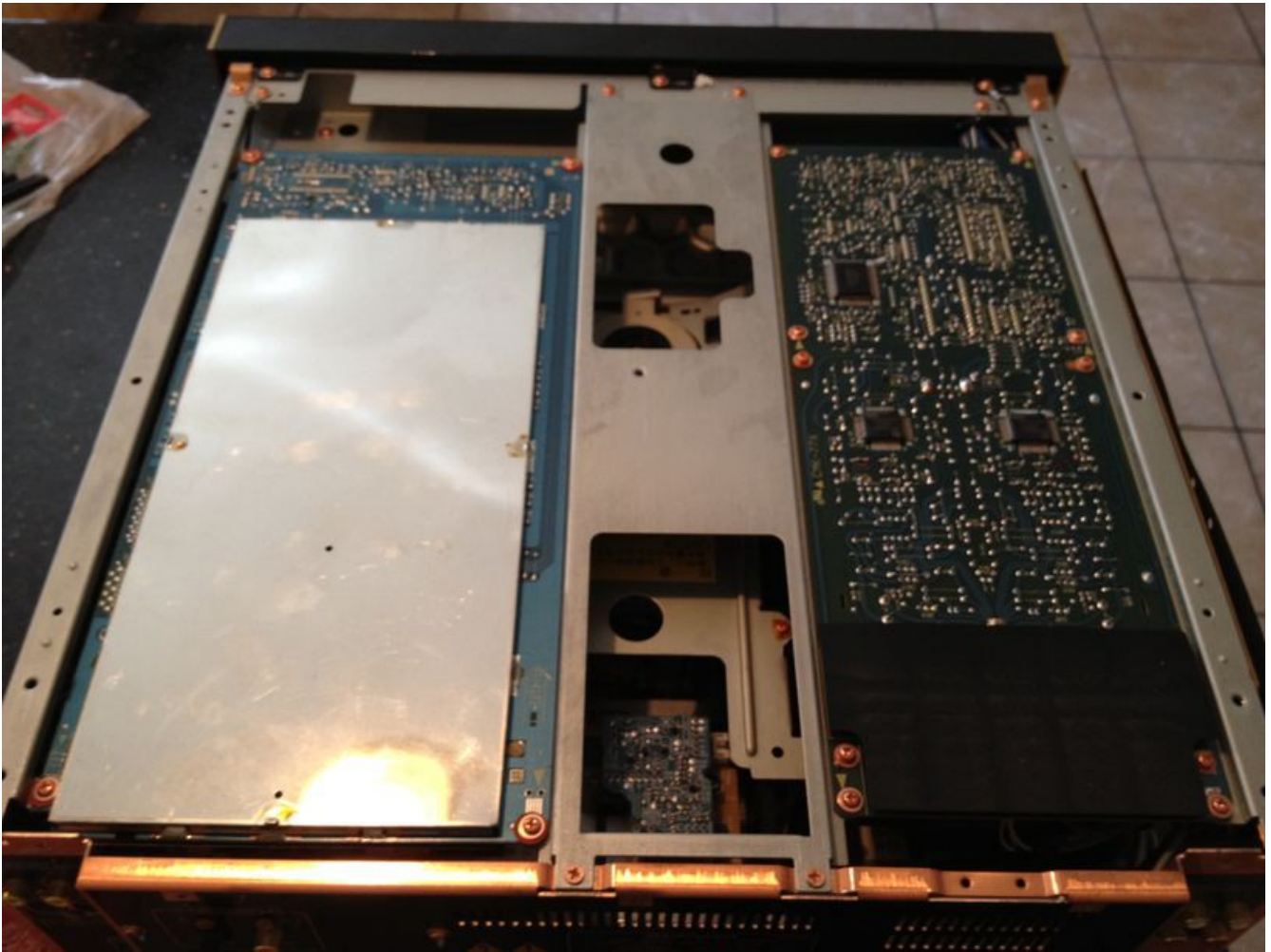




You can now remove the top cover.

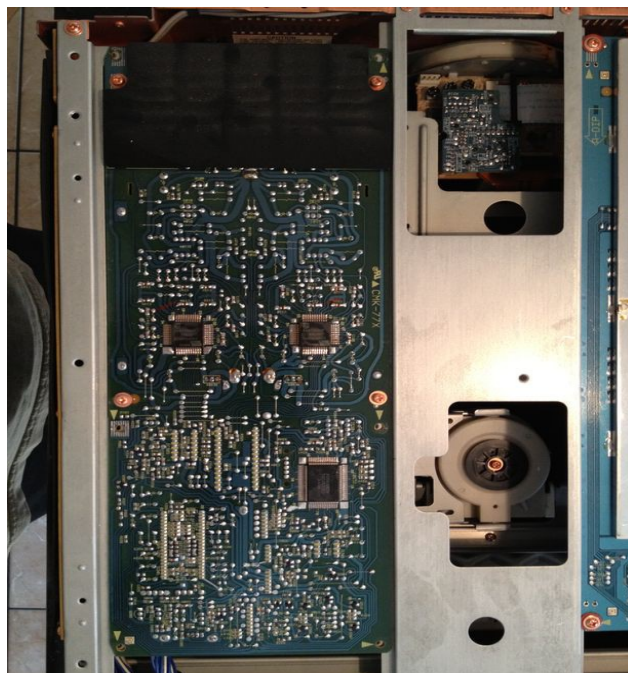


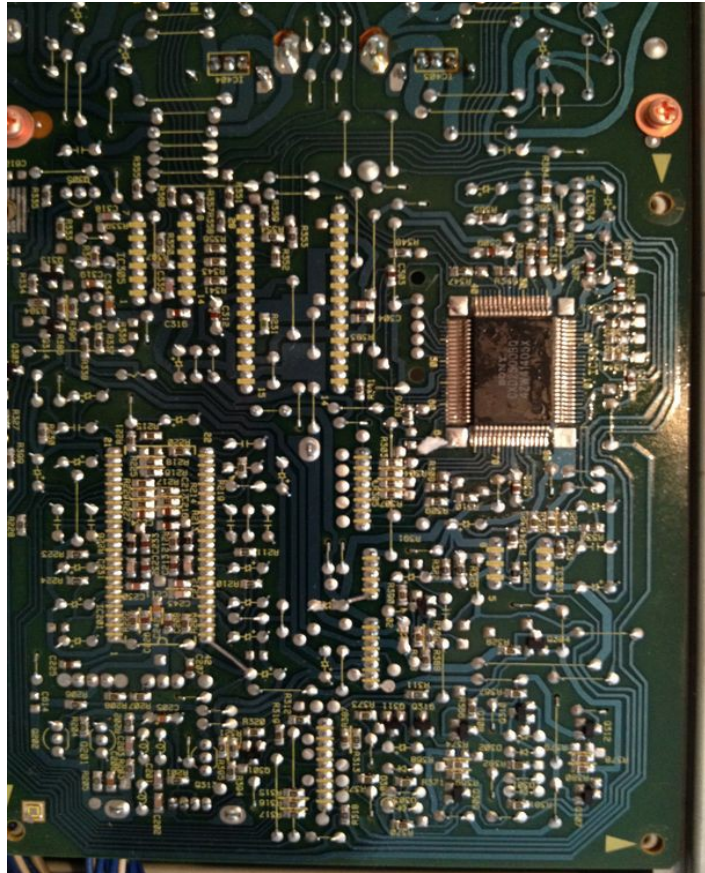
There are 5 screws to remove from the back so that the metal housing can be pulled off the player.



The board that we will be working on is on the top right of the picture above (which is the Left front of the player). You should turn the player so that you are sitting on it's left side as the board will be easier to work with. The following are some overhead views of the board.

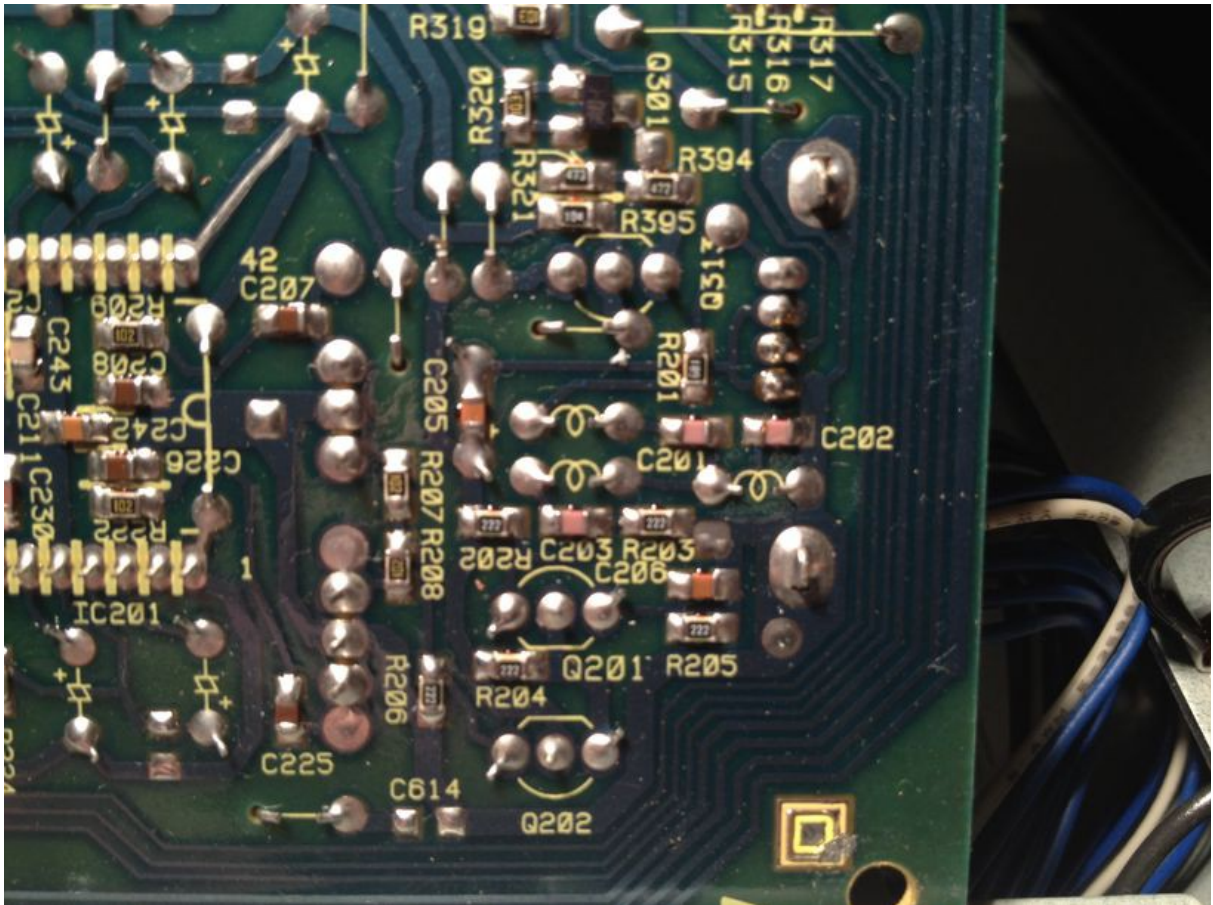
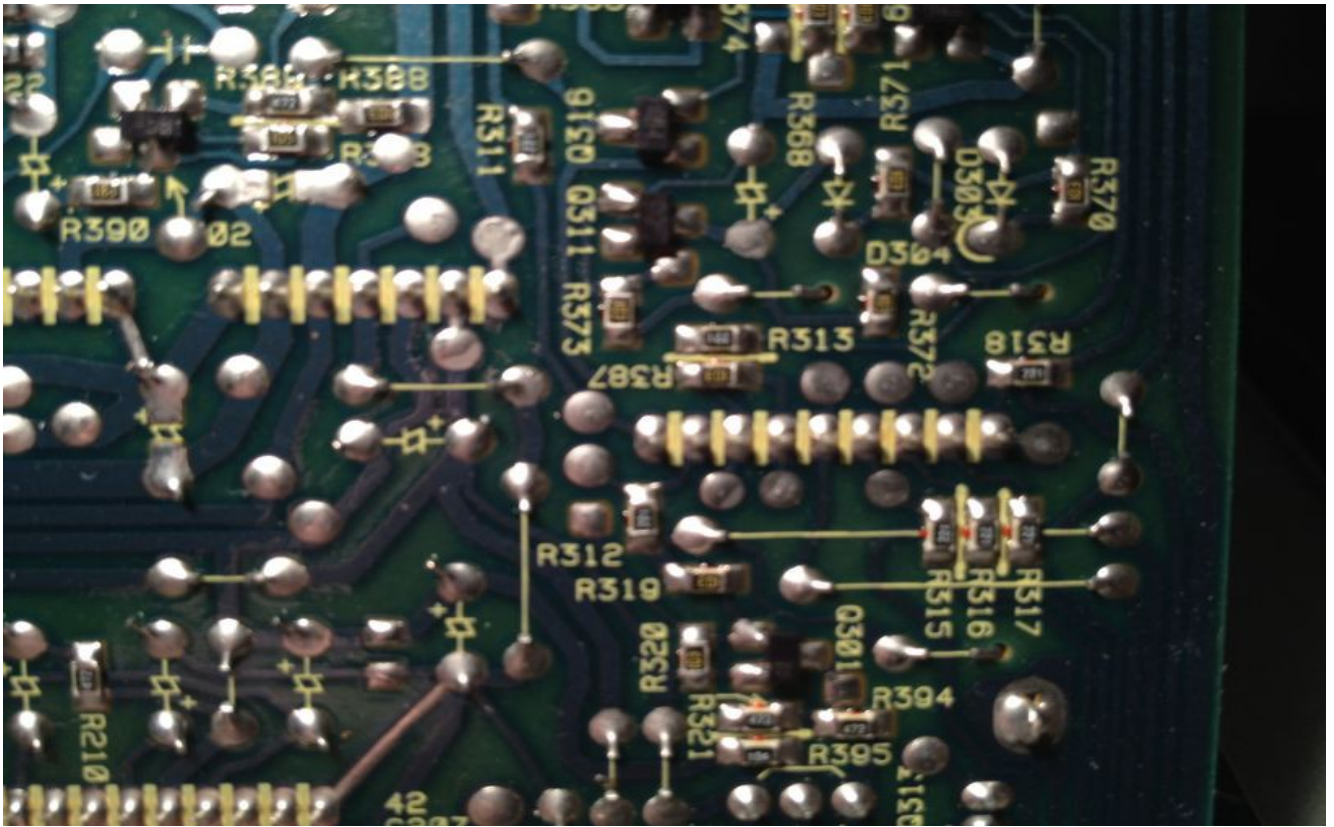
The following is a picture of the board area that we will be working on.



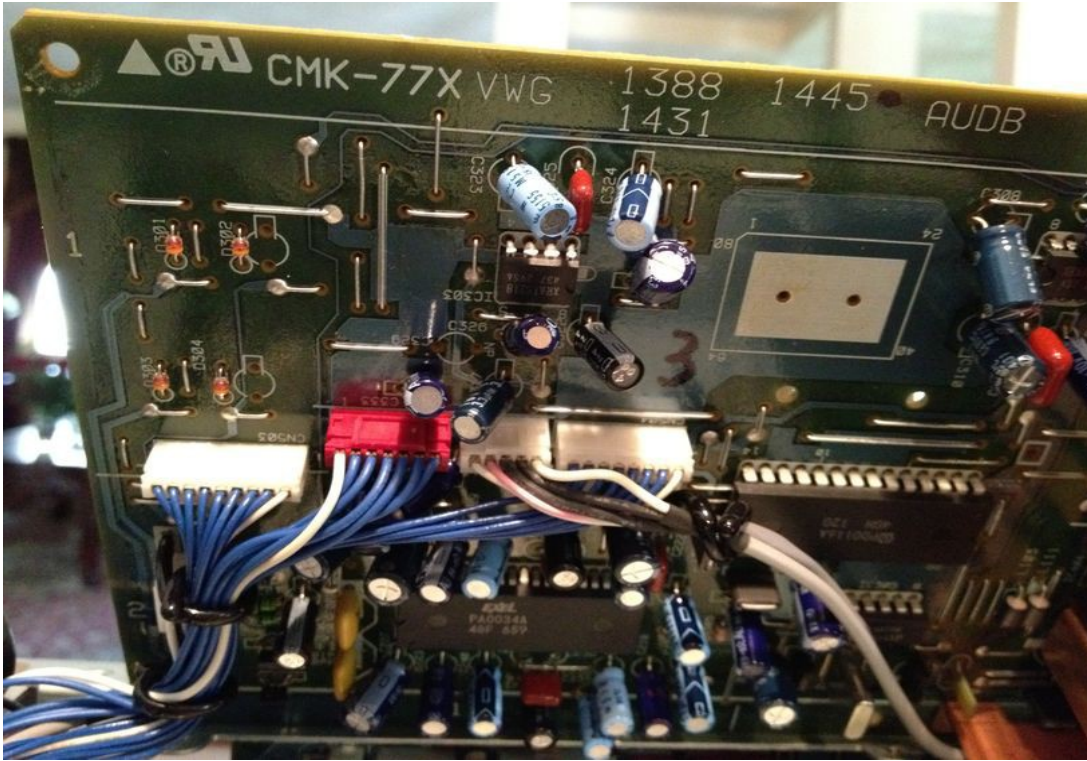


Before we go on there is decision to be made. That is whether to unscrew this circuit board from the machine. The advantage of this is that you can tilt it up while you work if you prefer, and also that it will make installing the RCA port in the back somewhat easier. If you decide to take it off, only remove the 6 screws shown removed in the picture. DO NOT removed the other 4 as this holds a metal housing underneath the board that will fall down and be a real pain in the a\$\$ put put back on, I learned this the hard way!

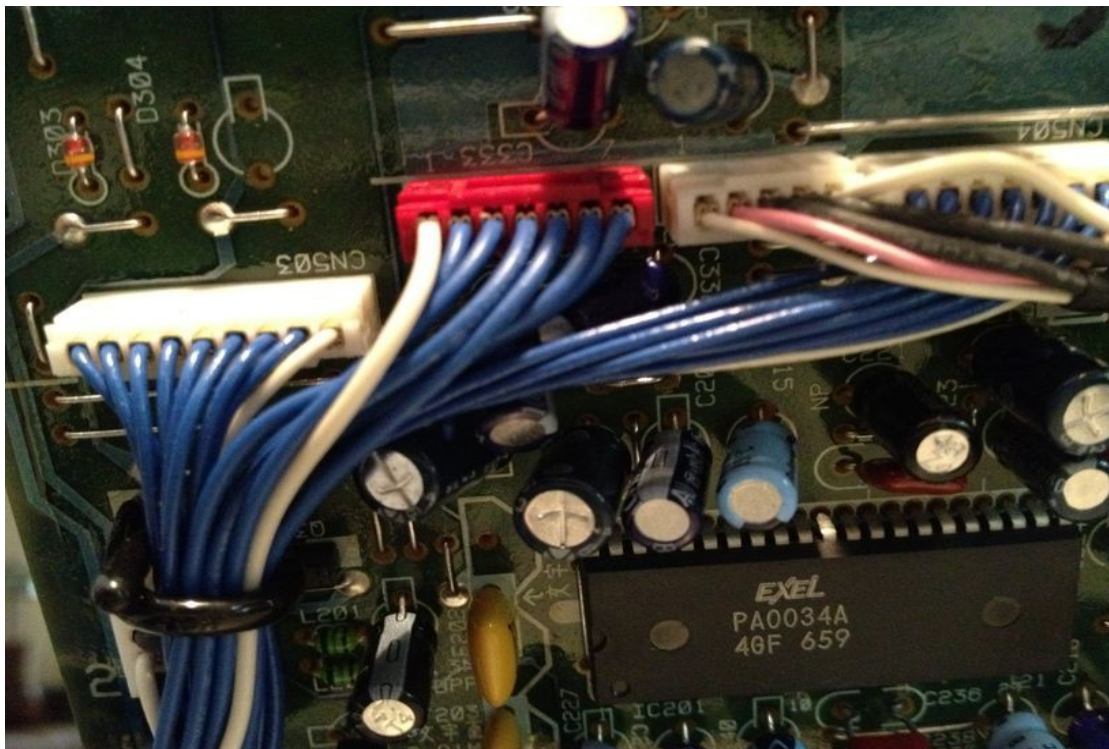
The next two pictures show the soldering points. I removed the board so that I could find the pin designation on the other side of the board as they are not printed on the viewable side. However, as this guide will give you specific directions on where to solder you do not have to remove circuit board find these. I will post some pictures of the back of the board later on. Also, if you do decide to have a look, I recommend you flip the circuit board edge closest to the center of the player up, as the side edge is secured with wires that are running along the device's side.



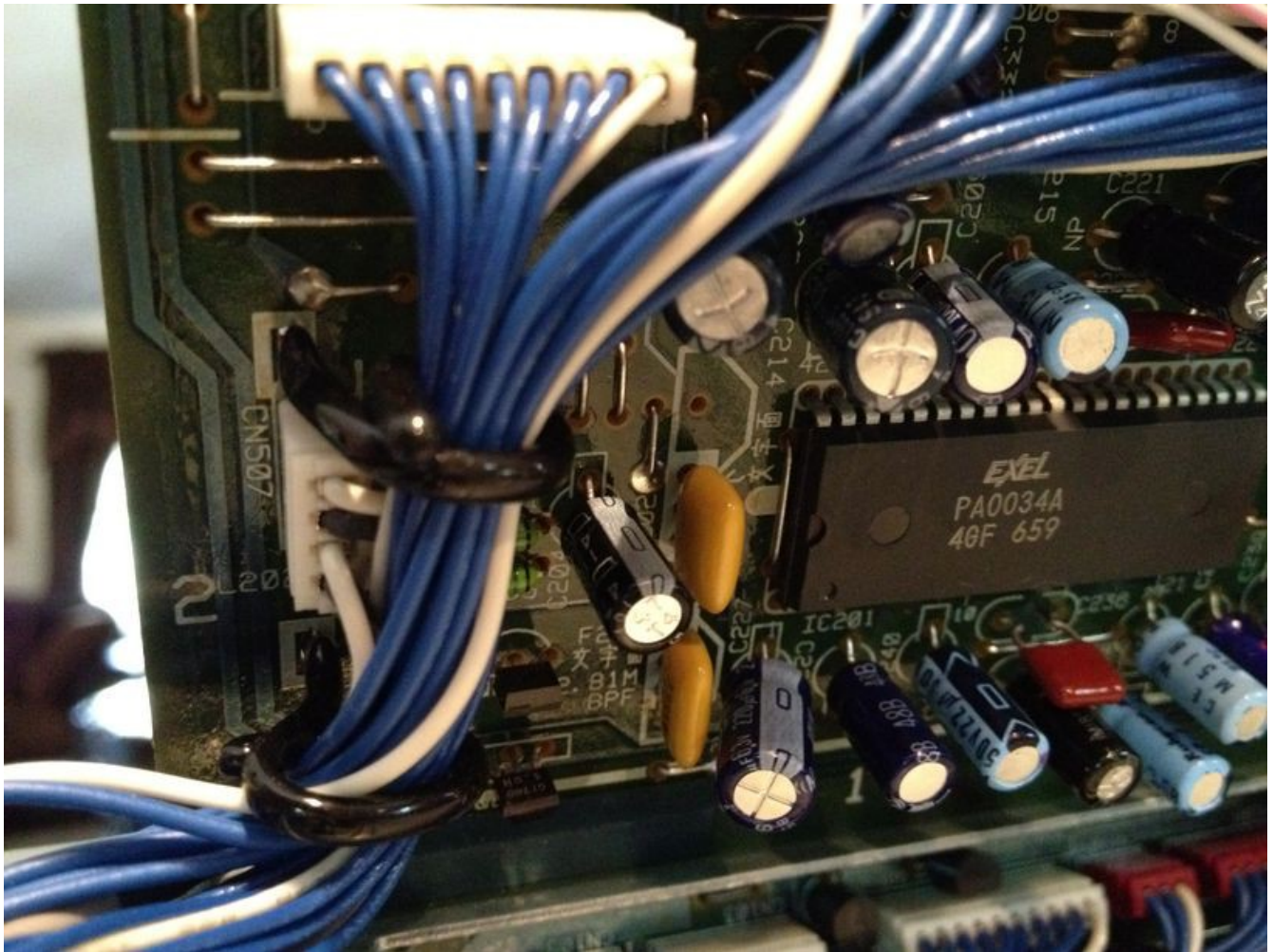
The following are pictures of the underside of the board so that you can confirm the pin designations (optional with this guide, but I had to do it as I was going off test instructions only).



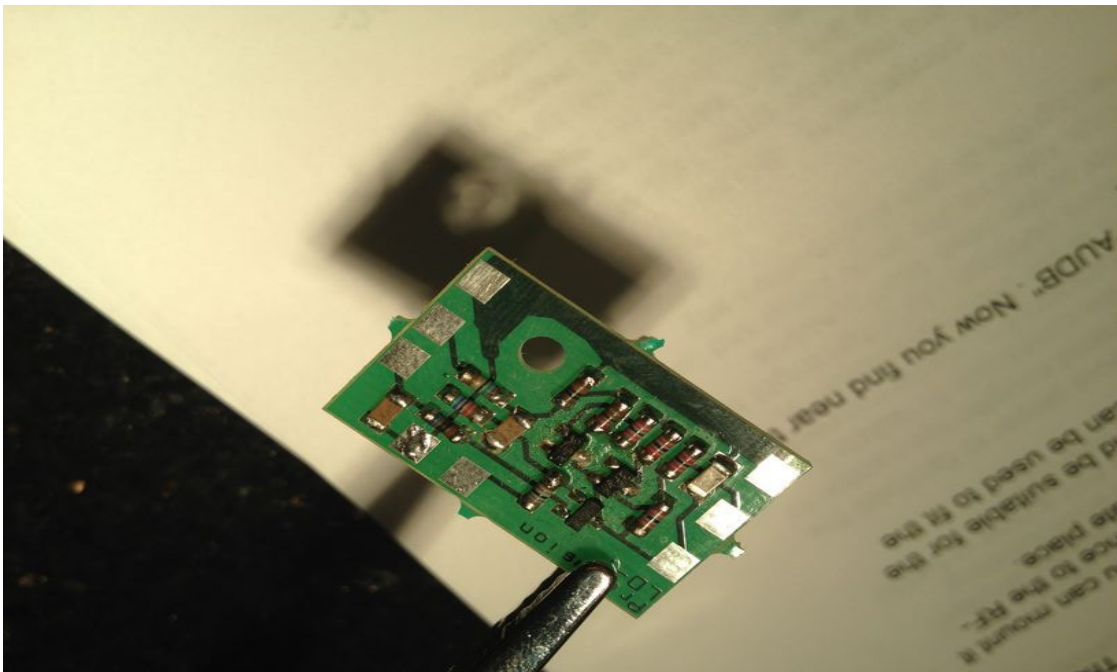
In the above picture, CN503 is on the left, CN501 is the red one in the middle.



A close up above shows this in more detail. CN501 (red connector) is hard to see the markings as there are wires in the way.

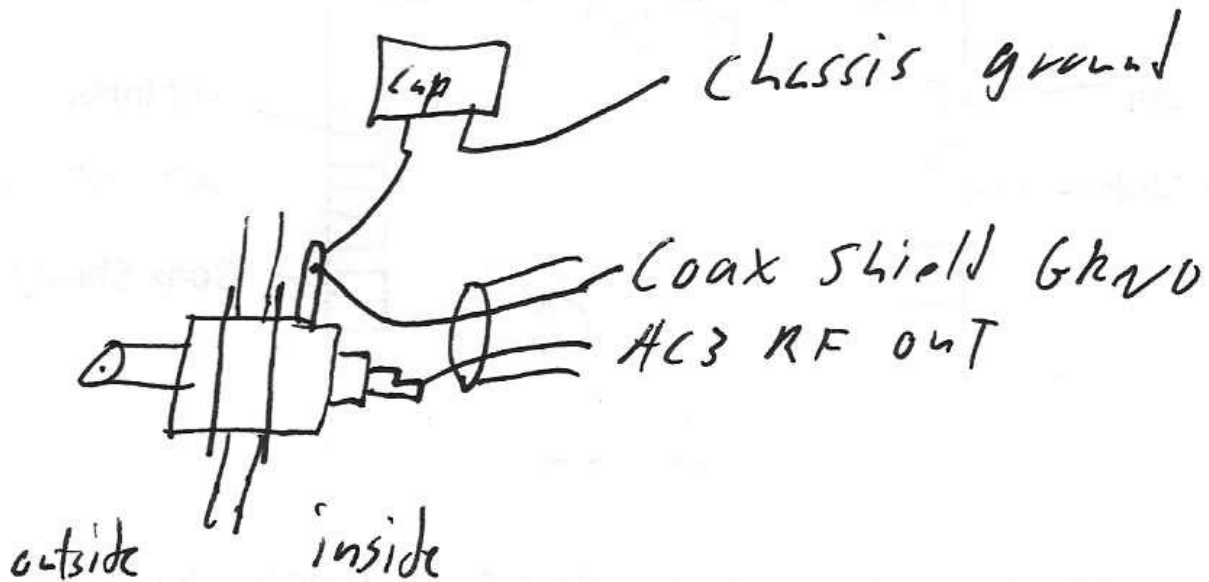
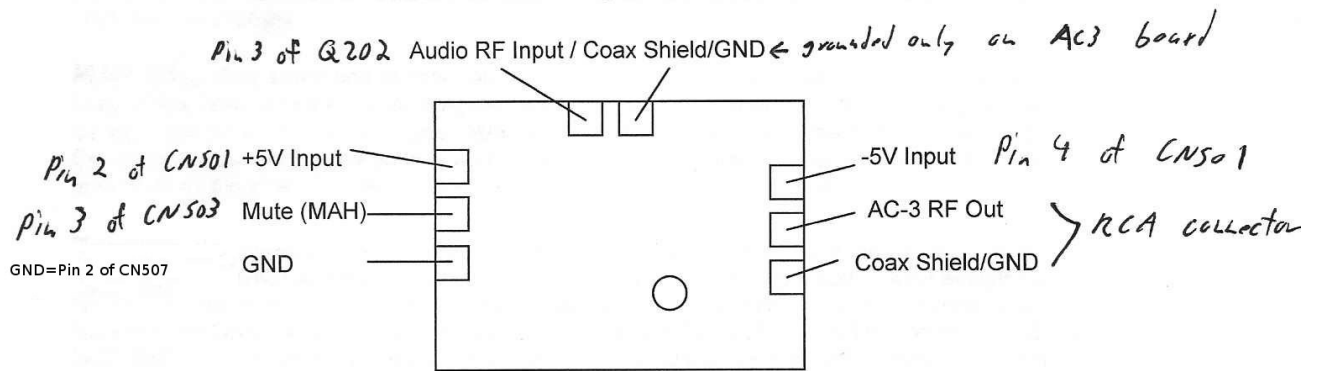


The above picture shows CN507 (vertical on the left) that will attach to the GND terminal of the mod chip.





Above you can see the mod chip. There are 8 soldering points that we need to connect. The following picture is a diagram of the connections for the mod chip and the external RCA connector (showing the ground wire connections).



Next, strip the wires individually. I found that roughly measuring out the length, then cutting the wire, then striping was the best way to go. Once all the wires are cut, you can add a little solder to the end of each wire which will make it easier to solder onto the circuit boards.

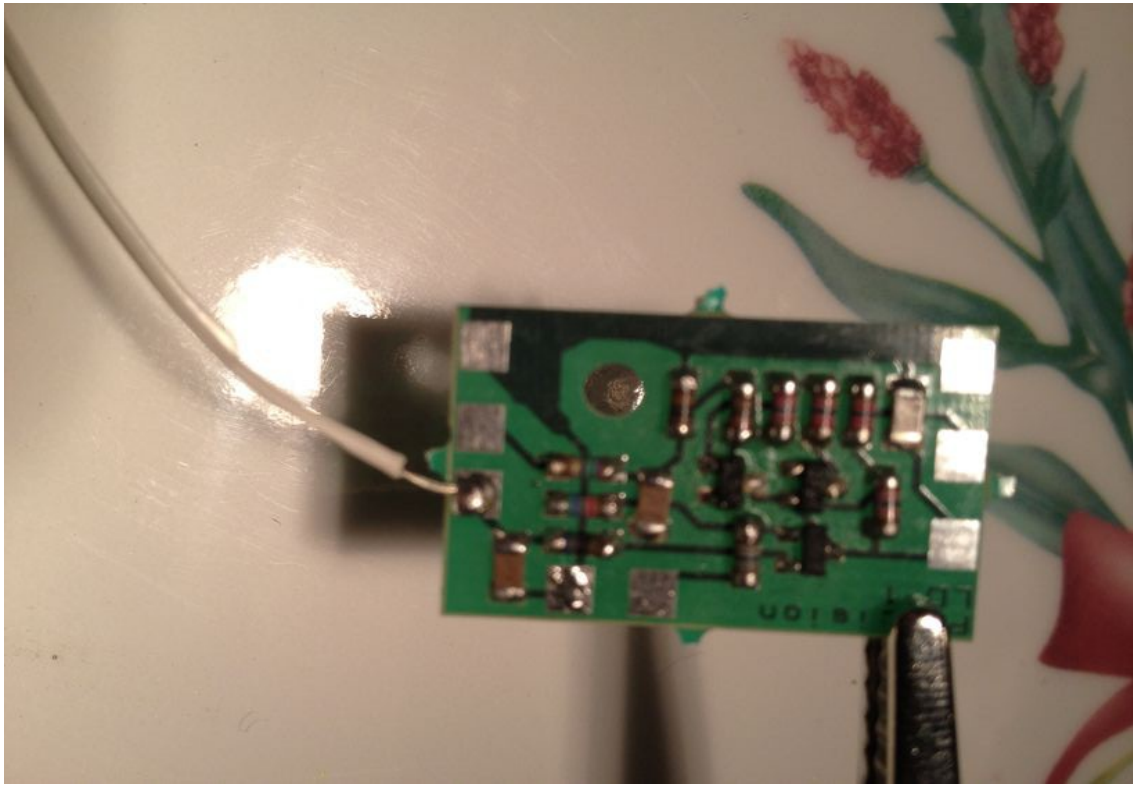




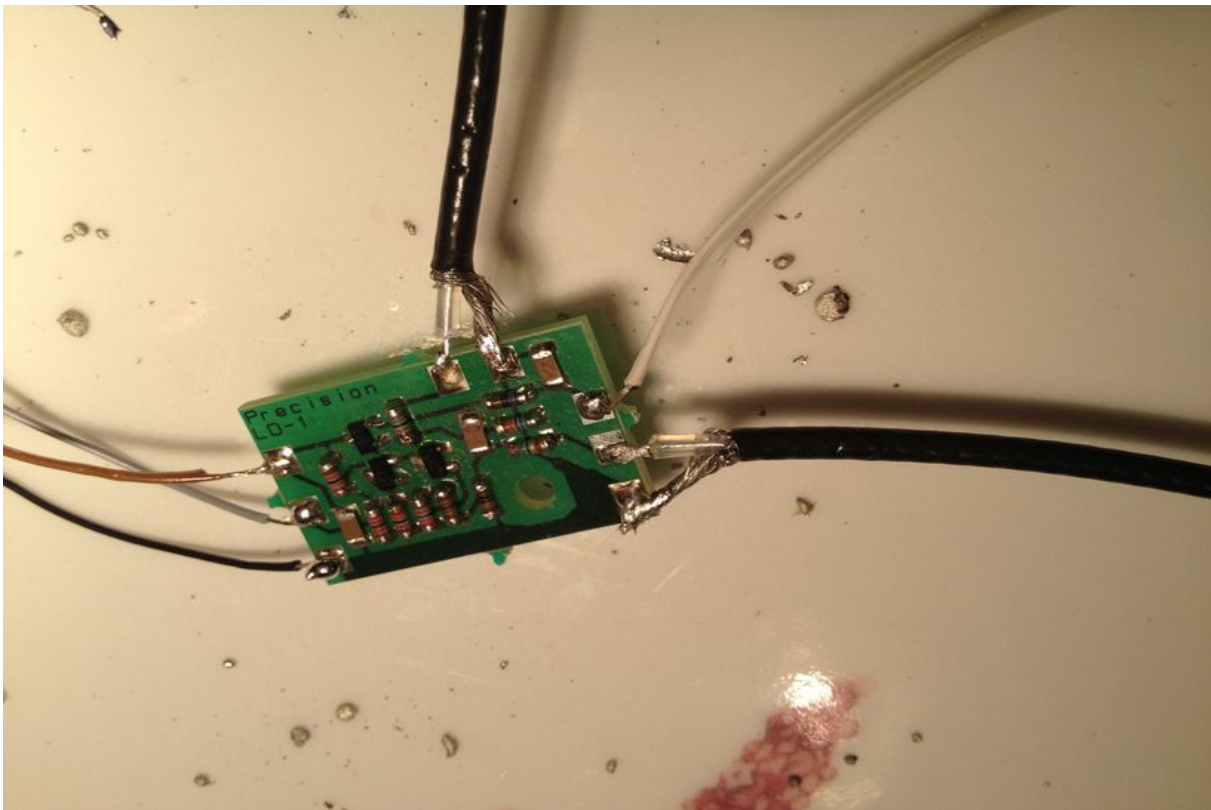
The picture above shows one of the wires with solder at the ends. Use a very small amount, especially for the side that goes on the Laserdisc player circuit board as the contacts are very small.



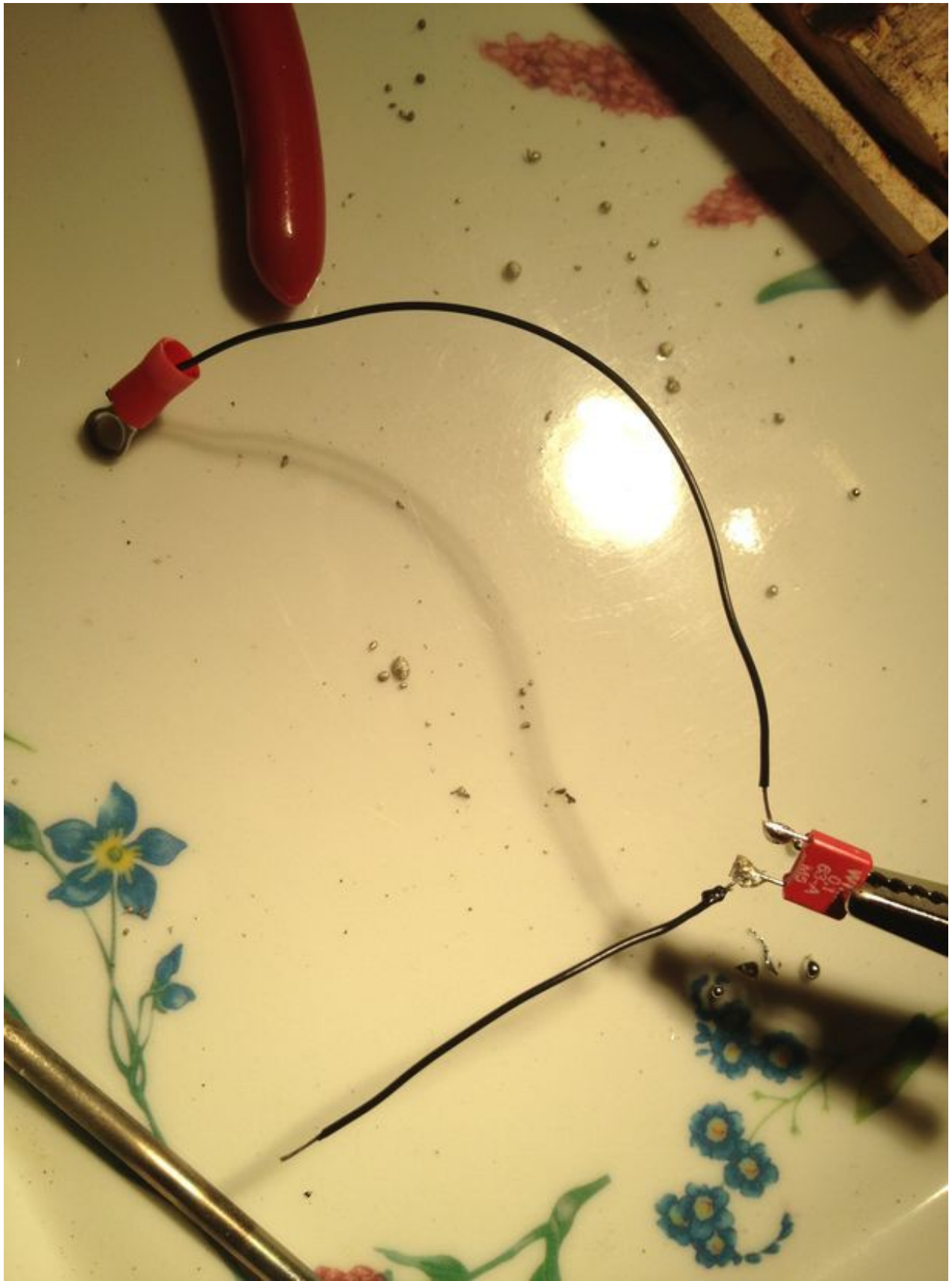
The picture above is the coaxial cable with the outer housing removed and the shield/ground twisted and ready for soldering.



The first wire soldered onto the contact point on the AC3 mod.



All the wires soldered on. Make certain they are securely on and that there are no cross connections.



The picture above is the ground wire with capacitor that will be attached to the RCA plug.

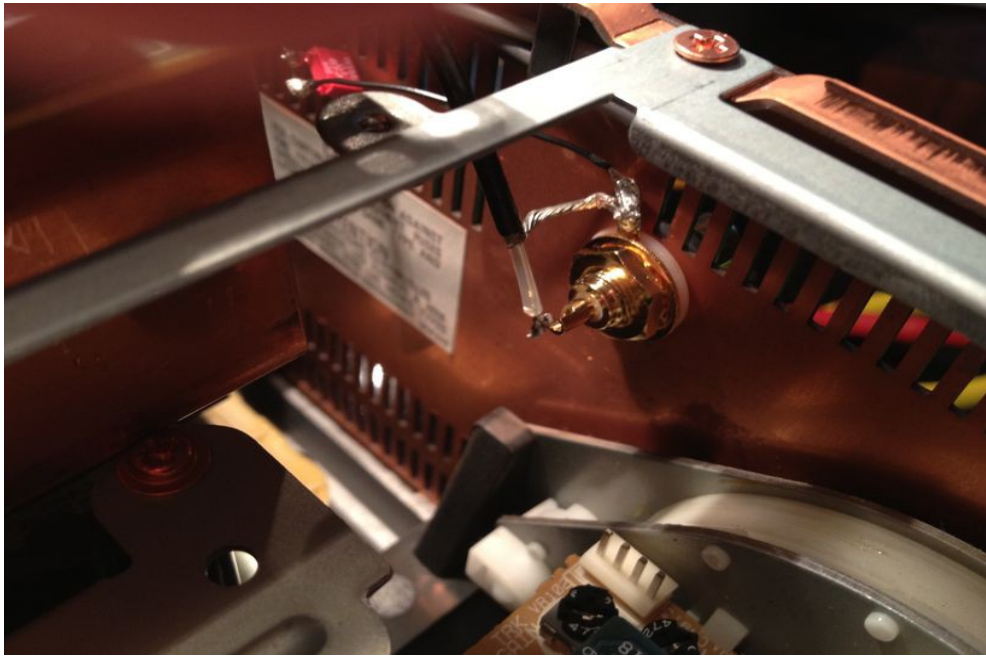
Next, we are going to work on the RCA plug connection.



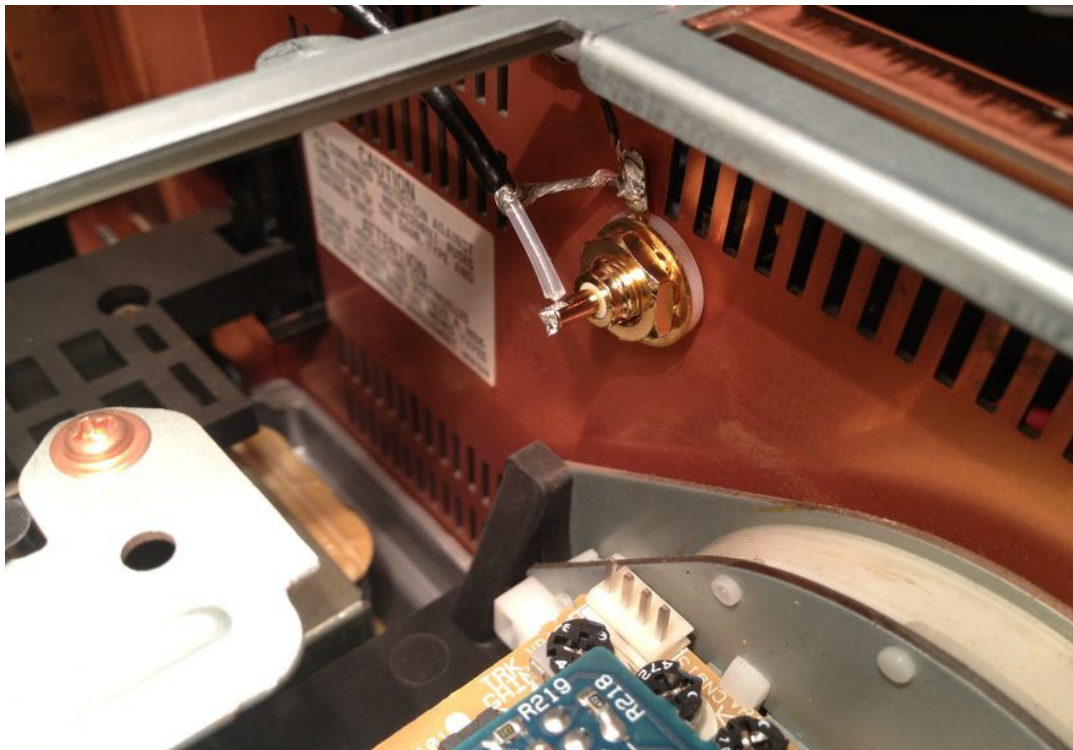
A good place to put the RCA plug is the center-left side of the back right at the point where “NTSC” is written. You can drill a 5/8” or 10 mm hole at this location. It will minimize the length of inside coaxial cable from the mod chip to the RCA connection, and also stay away from any mechanics inside the machine. There are two ways to drill the hole. You can remove the back cover (over 10 screws and some connectors) or you can drill through. If you do not plan to remove the back cover (I didn't) I would strongly recommend having another person hold a vacuum on the inside of the player so when you are drilling through all the small metal filings get sucked up instead of falling into the machine.



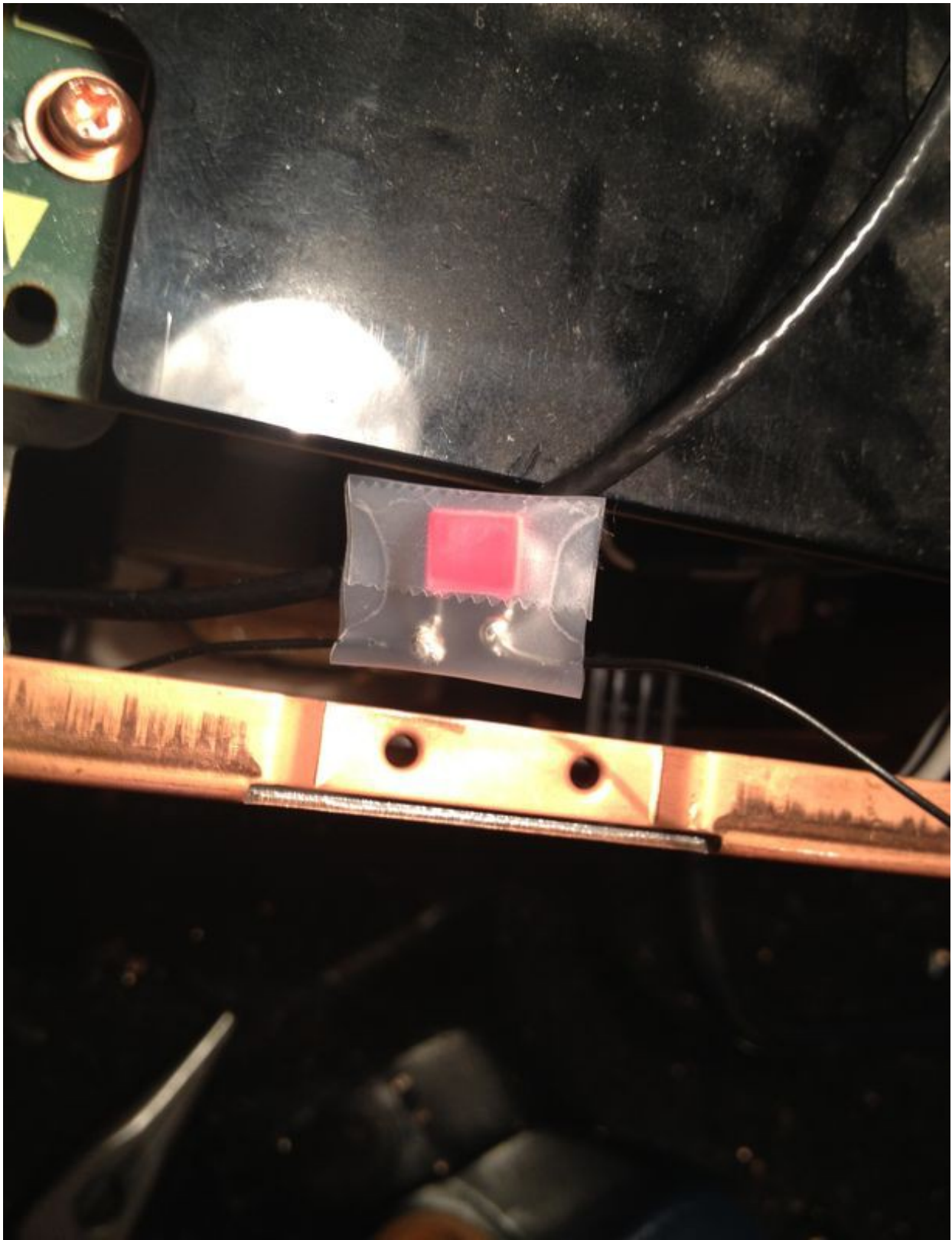
RCA in place. Some quick notes. Pull that multimeter out and make sure that the ground of the RCA connection is NOT connected to the chassis of the player. The plastic washers should be isolating the plug from the metal of the player.



This is a picture from the side. I recommend soldering the chassis ground wire that we previously made unto the ground of the RCA connector adapter as well as the ground of the coaxial cable from the mod chip. That way you can put the plug in and then just slip on the “ground rca connector ring” and it’s all done and you don’t have to try soldering inside the machine. As you can see the center wire of the coaxial cable is almost in place and has a bit of solder on it already. I just manually put it into the connector groove, applied a little heat with the soldering iron and it was all done.



And it's all done.



I put some tape around the capacitor on the RCA connector ground wire just to make sure it doesn't come in contact with anything metal. I also secured along the secured wire run on the back of the machine so it doesn't come loose.

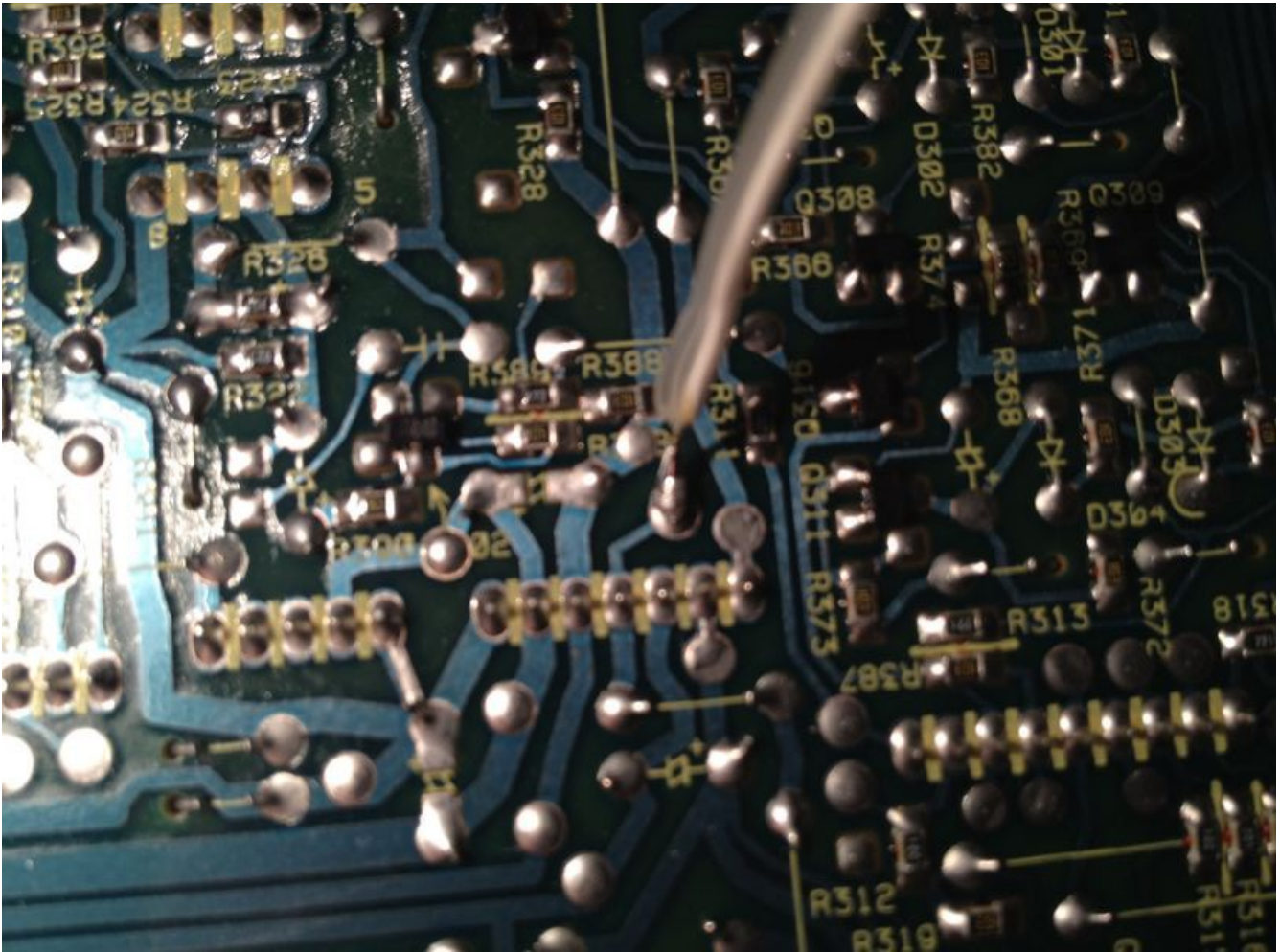




The above picture was taken with the circuit board flipped up (you may not have such a good view as the circuit board would be in the way).

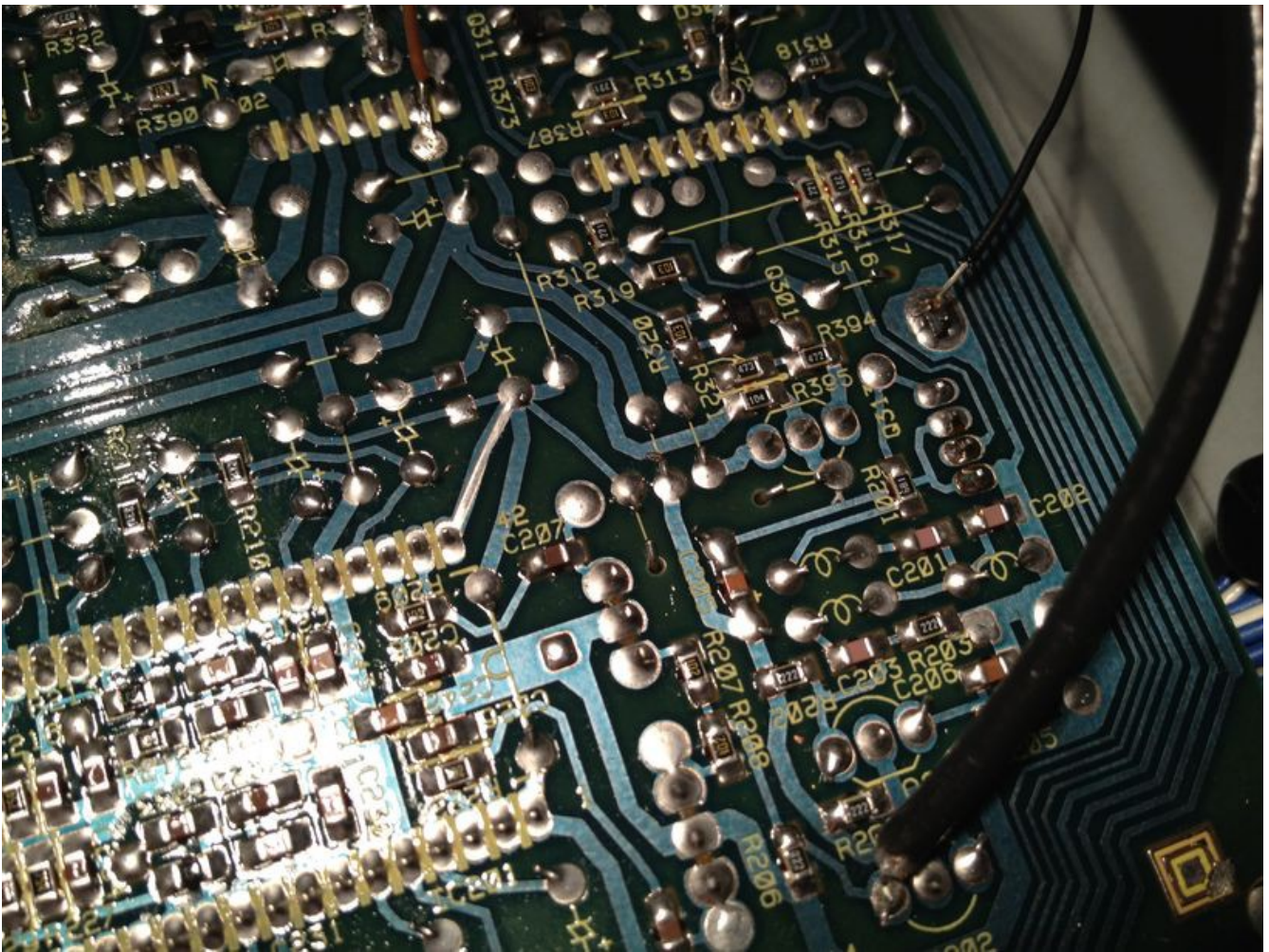


Ok, so your mod chip should be “floating” somewhere in the front of the player like this. All the wires are attached, the RCA plug is all done, and now comes the “steady hand portion.” The contacts are really small and I would consider this moderate/hard soldering. Make sure the tips of your wires have a very small amount of solder on them as the last thing you want is to accidentally connect contact points. I would say, less is more in this scenario. You can always add more if needed, but removing solder from the circuit board is difficult.



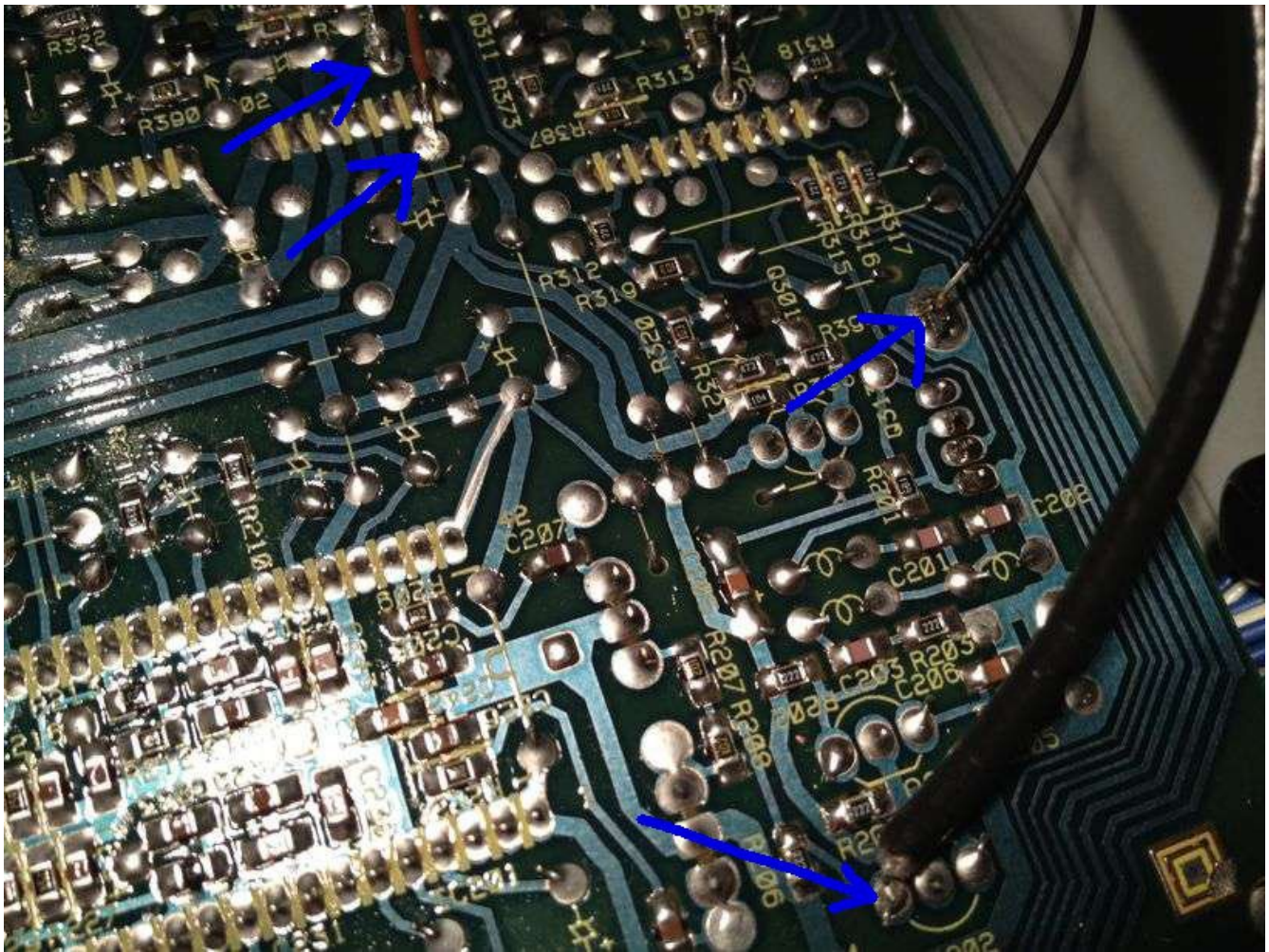
Before I start, I should mention something about the Pin designations. These are taken from the instructions that I received from Benedictus. However, I believe some of them are actually technically wrong as the pin number direction is reversed on some of the connectors (I believe CN507, from the previous pictures you can tell that the plug direction is reversed as well). Meaning that pin numbers go right to left on some, and left to right on others. However, the directions organize these in the same direction. I will follow the directions with the “wrong” pin numbering but you can see the connection points from the pictures. If you don’t remove the circuit board from the player, you would not be able to tell pin direction anyway, so it doesn’t really matter.

So, here is the first connection, the -5V input to Pin 4 of CN501 (it’s easier to pick a connection point to the pin rather than going straight to the pins which are VERY close to each other). There is no right or wrong order, but I moved from an up to down direction so that the wires would not get in my way as I was attaching them one at a time.

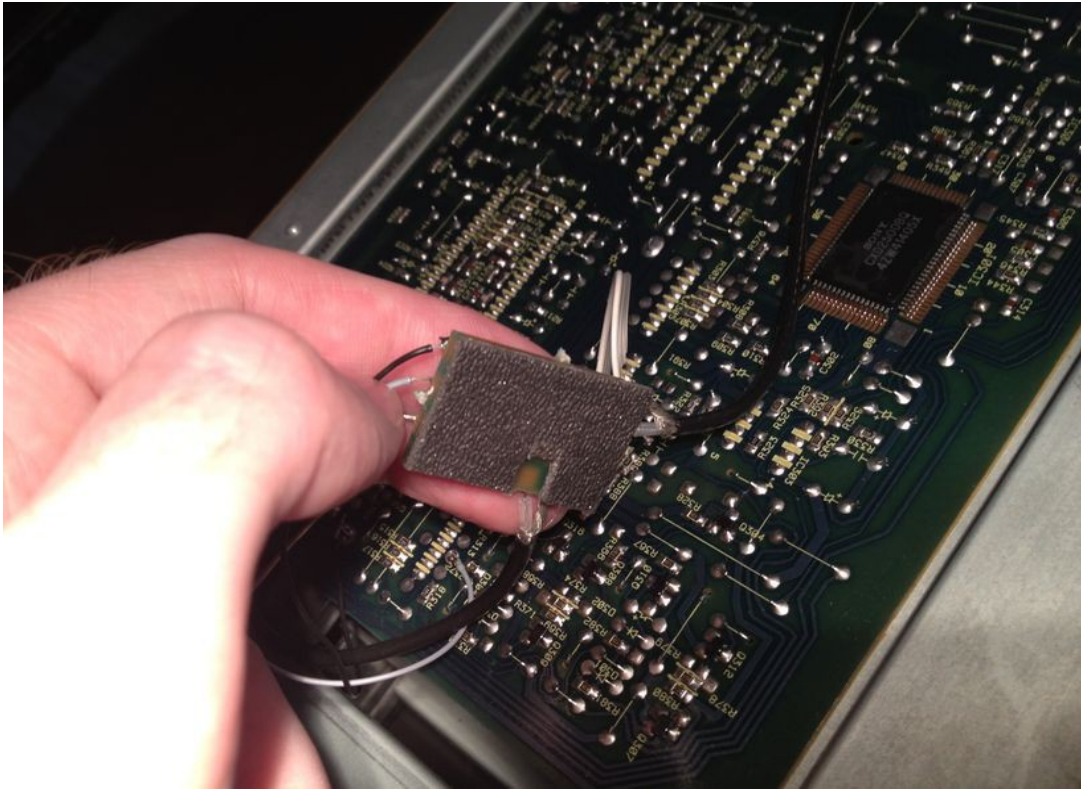
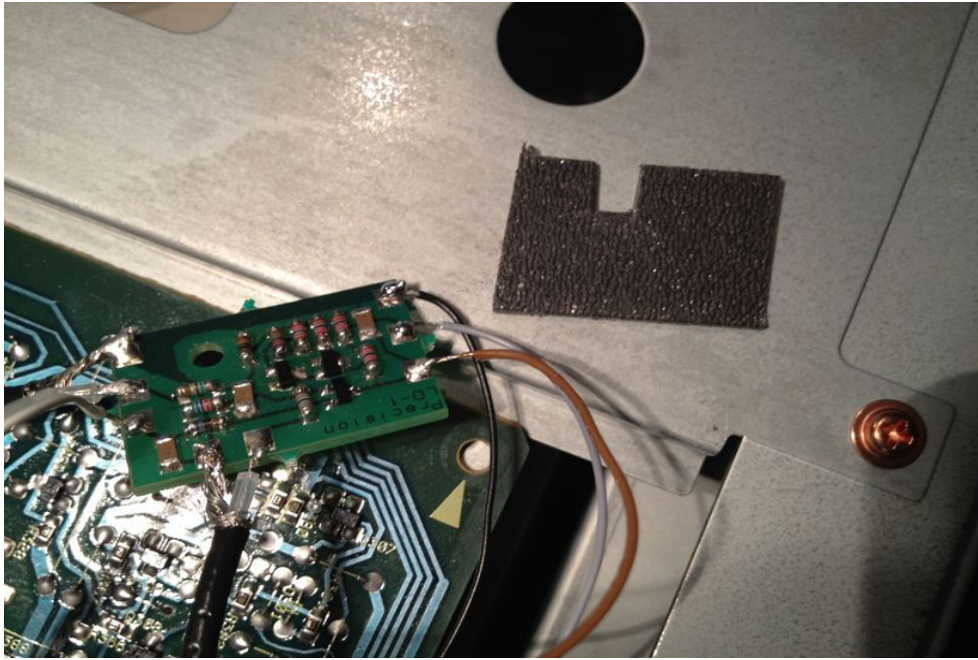


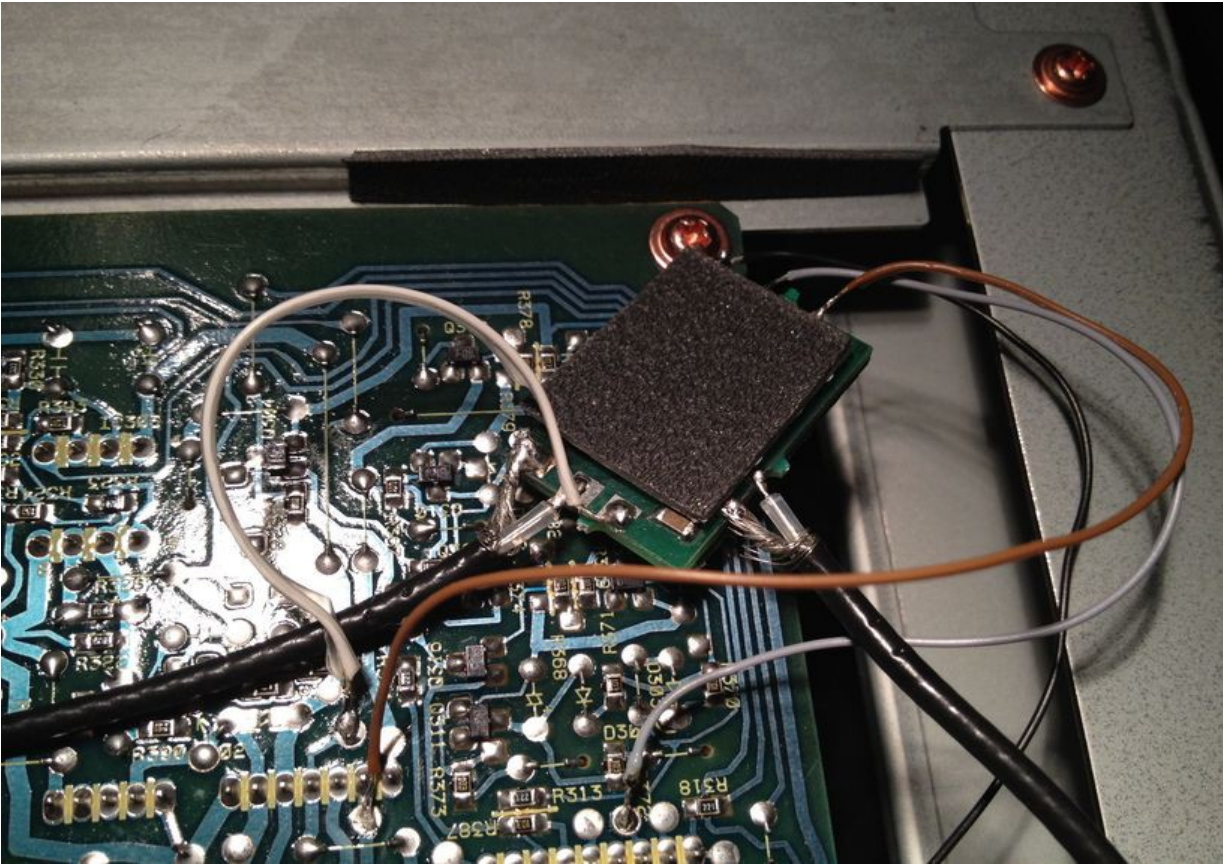
And here are the other connections. The left is the RF=farthest back pin of Q202 (note that the GND of the coaxial cable is only connected on the mod chip). The right wire is GND=pin 4 of CN507 (but much easier to attach at the large connection towards the center of the player as seen above). The -5V and +5V connections can be seen at the top of the image. Just follow the alternative connection points above and below the pins of CN501. -5 is pin 4, +5 is pin 2.

Below is another version of the above picture with arrows showing the connection points.



The next step is securing the mod chip and all the wires so that they don't come in contact with any mechanical components or cause short circuits. There is a hole on the mod chip that can be used to secure it to the corner of the player circuit board. However, this did not look safe to me. I chose to have it "free" in the device. I put two non-conducting dampening material on the top and bottom of the mod chip. This allowed the wires some freedom, and it gently squeezed it between the player circuit board the outer case.





The above picture shows the dampening material on both sides of the mod chip, I also put a slight strip on the edge of the case above, just in case if the mod chip slides up and comes in contact with the case.

That's pretty much it. Now go back and test all the wires with your multimeter to make sure all the connections are good and there are no shorts. I would put in a laserdisc and fire up the machine so you can check voltages. Test the +5V and -5V. The RCA connector should be 3.6 V when playing, and 0V when paused. Also, do a side change to make sure that the cables you ran near the RCA connector are not interfering with the mechanism.

If everything looks good, put everything back together.



Grab a laserdisc with AC3. Hook it up to your AC3 demodulator via RCA cable.



And last but not least, your receiver should say.....



Hope this helped. Send me a line on lddb or blu-ray.com!