

Pansat 3500SD C13 - C14 Capacitor Replacement Guide



There are several indications that you may need to replace the c13 and c14 capacitors in your 3500 receiver. The most common symptom is a sudden loss of picture reception and the QUALITY reading constantly jumping anywhere between 0 and 99%.

Other symptoms reported have been loss of some stations along with numerous bad or scrambled signal messages, constant pixalization of picture, and sudden low drop of Quality signal when nothing else has been changed, etc. Note, while these last symptoms may indicate a capacitor problem they can also be caused by other things.

As long as you are in the process you should replace both capacitors even if you think only one is bad.

The process to replace is very simple and does not require any electrical knowledge other than how to use a soldering iron.

What you need:

- 1) Two replacement capacitors with the value of 470uf16v or 470uf/35V*
Use two of the same value, do not mix values.
- 2) A soldering iron. (not a solder gun)
- 3) Electrical Solder. (Rosin Core Solder)
- 4) Phillips screwdriver. (+)

Optional:

- Vacuum Desoldering Tool, Desoldering Bulb or Desoldering Braid.
- Rosin Soldering Paste. (Flux)
- Needle Nose Pliers.
- Wire cutter.

*I prefer the 470uf/35V capacitor (Radio Shack #272-1030) for its larger voltage value.

All the items above are available from electronic stores such as Radio Shack.

How to:

First thing to do is turn your receiver OFF using the switch at the rear of the unit. Then disconnect all attachments at the rear and unplug the power to your STB.

Remove the top of the STB; there is one large screw on each side and one smaller screw at the rear of the cover, top center.

With the cover removed this is how your receiver looks inside:



Here is the area you are looking for, the red arrows point to C13 (right) and C14 (left)

You should look for outward signs of a blown capacitor, while a bad cap may not always show signs they usually do. In this case C13 (right side of picture) was the culprit. Look at the tops of all the other caps and you can see they are all FLAT. Now look at C13, it has clearly swelled up and the top is visibly “domed” upward. Also look for signs or leakage, brown spots on the cap or the board.



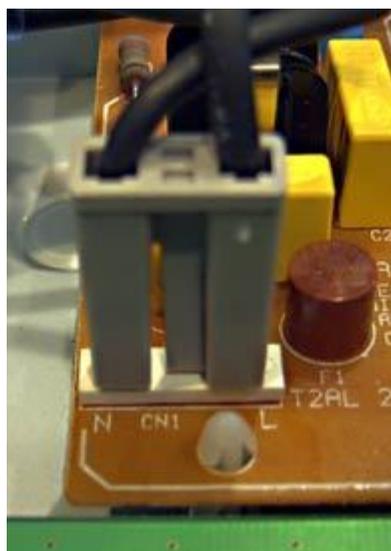
I will jump ahead just a little here so you can get a good idea of what to look for. These are the two caps that were removed; on the left is C14 with the normal “flat” top. In the center is C13 with its swollen and “domed” top. Even though there were no signs of leakage at first, once removed you can see that the bottom of the capacitor was indeed leaking. (Picture on the right)



Ok, back to removal and repair. The next thing to do is disconnect three connections. First is the ribbon cable at bottom left, it disconnects from the side that is attached to the larger “green” board. Next is the two power connections, one at the top of the board and the other at the switch at the rear of the chassis.

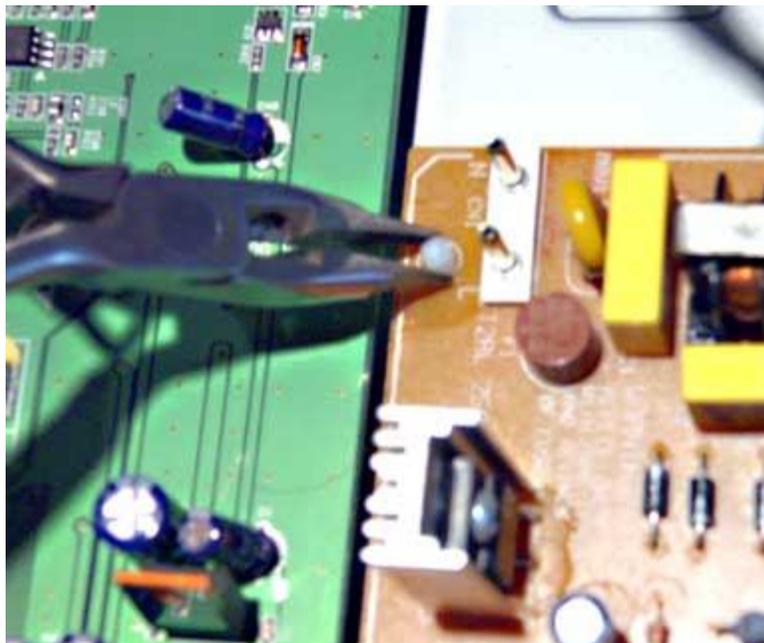


I like to reconnect things the same way they were originally connected so I used a felt tip pen to mark a letter “T” on the top wire connection to the switch. (Left picture) The power plug already had a white dot on one side so I made a mental note of it. (Right picture)
Note, the ribbon cable connector is keyed and will only go back on one way.

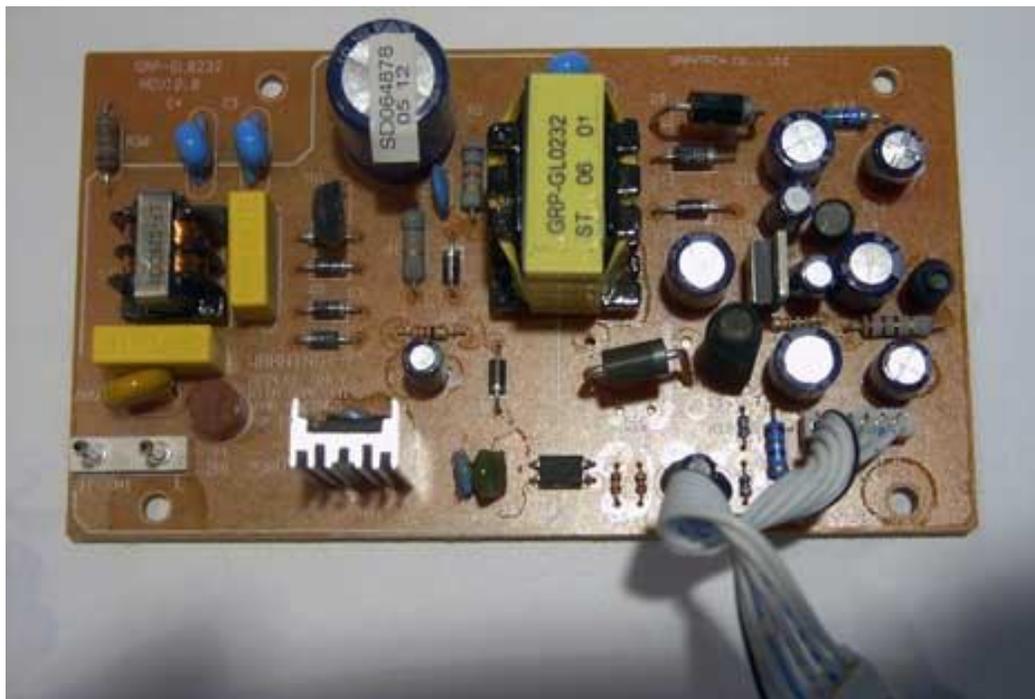


Use care disconnecting these three, a gentle rocking back and forth while pulling will allow the connections to come off easily. Do not pull the wires, grasp the connectors.

After making all the disconnects remove the two screws on the right side of the board. The left side of the board is mounted on plastic stand-offs that have flexible “wings” at the top. I use needle nose pliers to hold these wings together so that I can lift the board off the stand-off.



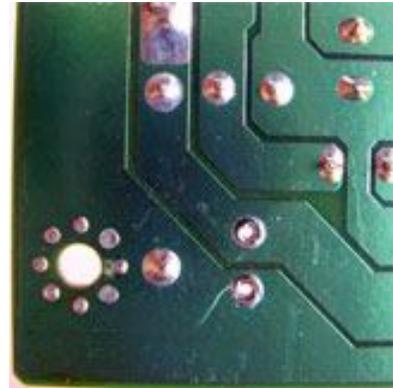
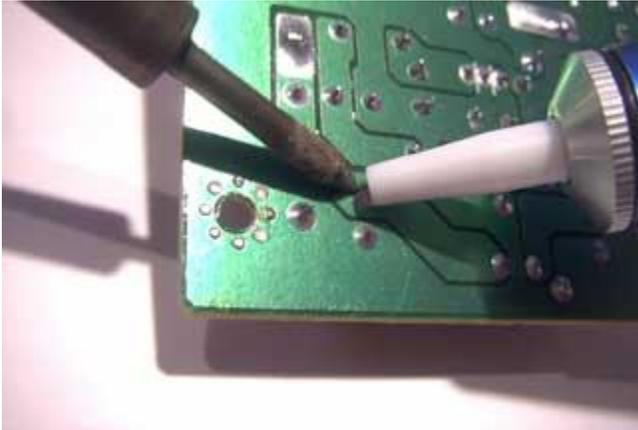
Here is what you have once the board is lifted out of your STB.



Pay attention to the orientation to the capacitors before removal. These capacitors are polarized, one side is marked (-) or minus, is usually striped on that side also. Be careful to put the new capacitors in the same way as the originals. Polarity is also marked on the board, with the negative position indicated by a white dot.

Turn the board over, locate the capacitor solder points, apply heat with the soldering iron and remove the existing capacitor. I would recommend using some type of desoldering method, in the picture to the left a Vacuum Desoldering Tool is being used.

On the right is the solder points shown with the capacitor and solder removed. Do this to both existing capacitors.

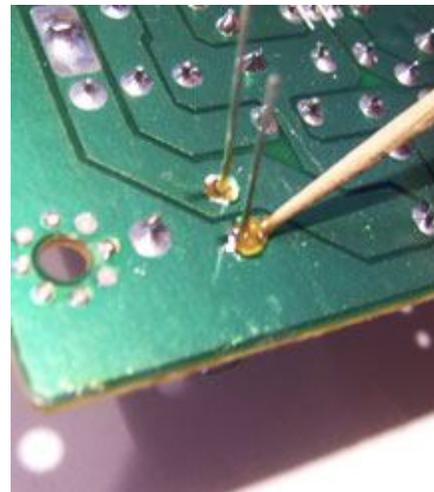


Below, on the left, is the removed, existing capacitor and the replacement 470uf/35V capacitor. The “can” of the 470uf/35V capacitor is larger because of the increased voltage handling capacity. (35V) The legs are the same spacing and there is plenty of room so the caps fit fine.

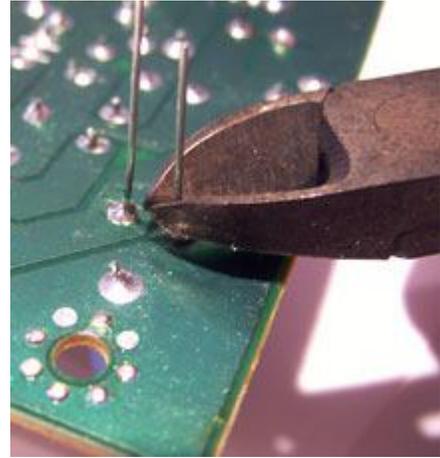
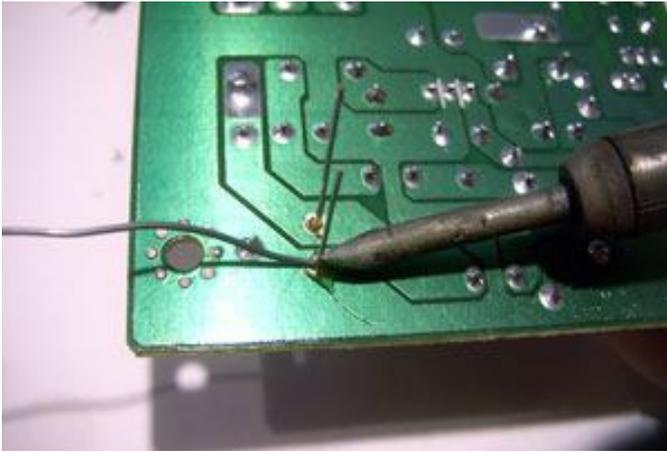
Place a new capacitor through a pair of solder points, being very sure that you have aligned it correctly.

At this point it is very helpful to have a second person to hold the capacitor while you solder.

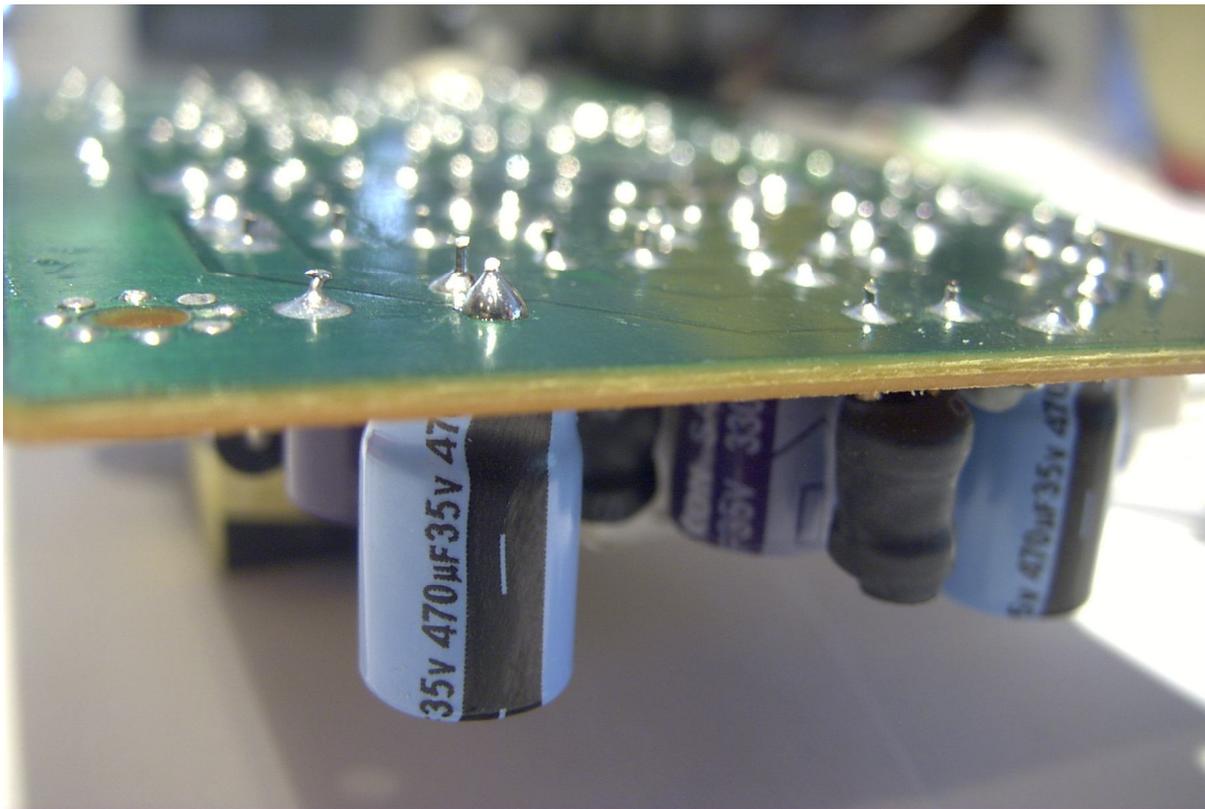
Making sure the alignment is correct, push the legs of the capacitor through the holes and hold the capacitor flat against the board. In the picture on the right solder paste (flux) is being applied on the legs at the solder points. An alternate method is to simply dip the tip of your solder into the paste. This step can be omitted but the paste makes the solder flow evenly into the area being soldered and adhere better to the surfaces.



Apply a bead of solder to all four legs and then clip off the excess length with a pair of wire cutters.



Here is your finished product as seen from the solder side.



Here is the finished board as seen from the component side. Notice the striped, minus side of the capacitors is aligned with the white dot on the board.



That's it! That's all there is to it, easy wasn't it.
Now all that is left is to reverse the disassembly procedure to put your STB back together.

Place the board over the plastic stand-offs and press firmly into place.

Replace the two screws on the right side of the board.

Reconnect the ribbon cable, power cable and the two connections to the rear switch.

Replace the cover.

Reconnect all your connections to your TV and the dish.

Plug in the STB, turn on the switch at the back and watch TV.

After doing this capacitor replacement most people have reported that the TV picture is sharper and clearer than when their receiver was new.