# Sony S40 /S600 IR Modification
# www.bfoutdoors.com

**WARNING  This is such a extremely difficult modification I recommend it be left to someone that is very skilled in these kinds of things**

*Modification of commercial products is done at your own risk. Use extreme caution since high voltage exists within flash units. Take proper steps to assure all energy has been discharged (from the capacitors, etc.), before touching any component within the flash unit.)*

First I want to warn anyone attempting this modification that I don't assume any responsibility for damage done to the camera... It is a very difficult modification and should not be attempted unless you are very confident with yours skills.

That being said I would like to thank all who have helped me work myself through this. If there is a place to get the help needed to modify and convert a camera to work as a trail cam www.hagshouse.com is the place to go.

The first thing to do is to remove the screws that hold the camera together remove the batteries and the memory stick also.

When you open the back of the case careful prying with a fingernail will snap open the back half of the case. Caution needs to be taken as there are fragile plastic clips that can be damaged or broken. It will work off and I usually start on the battery side.

Once the back is off if modding a S600 it is best to tape the LCD screen down so it won't fall out of its place and risk damage.

Now you will need to pry the internal board and lenses assembly from the front half of the case. The shutter block will come out with the board and lense.On a S40 the front is attached to the board on the left side by a ribbon cable On a S600 it is attached by 2 wires that control the shutter cover. Again care so you don't damage these wires.

I didn't disconnect the front completely from the case just layed it down neatly beside the board and lenses assembly. Taking care not to damage/ stretch the cable /wires.

Now here are where the 2 cameras seem to be identical the lenses assembly is attached to the board by 3 ribbon cables. Before getting started I suggest that you tape a piece of a folded Kleenex over the lenses so that you won't smudge or scratch it.

There is one small ribbon on the under side that I work out with a small pair of tweezers. I just pull it a little at a time on each ear.
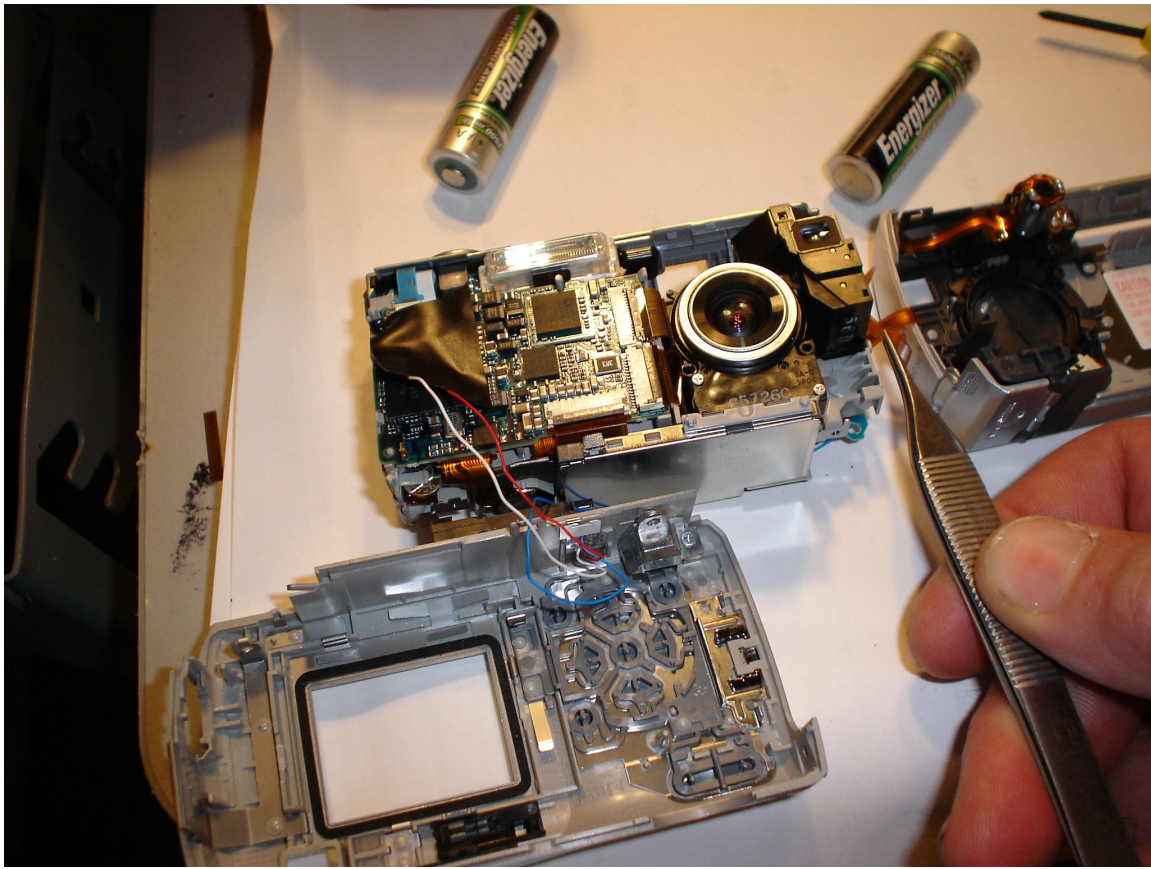
And there are 2 bigger ones they are held in place with locking clips that need to be lifted up so it unlocks the cables. Again Great care needs to be taken so that you don't damage these locking clips as if they are destroyed the cable will not be able to be locked in place correctly I don't believe you can replace just the little clips if they break.
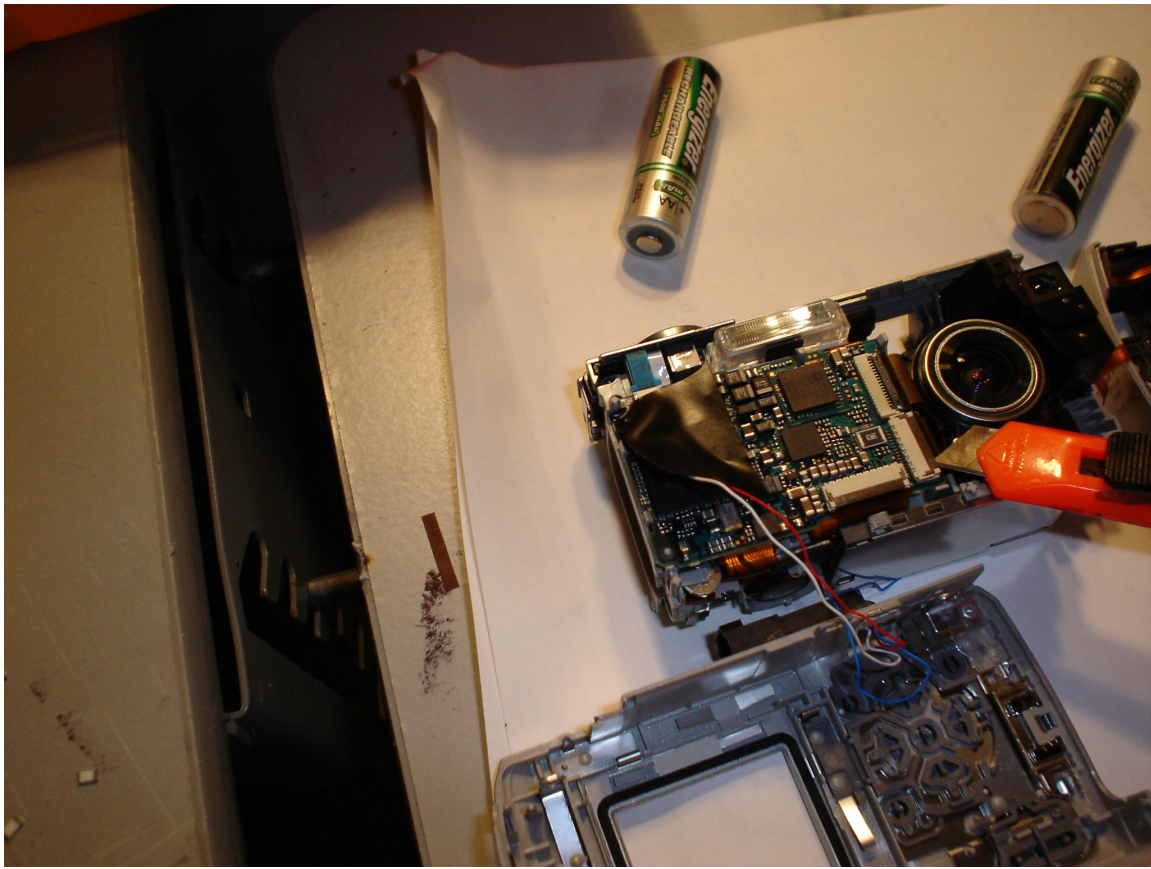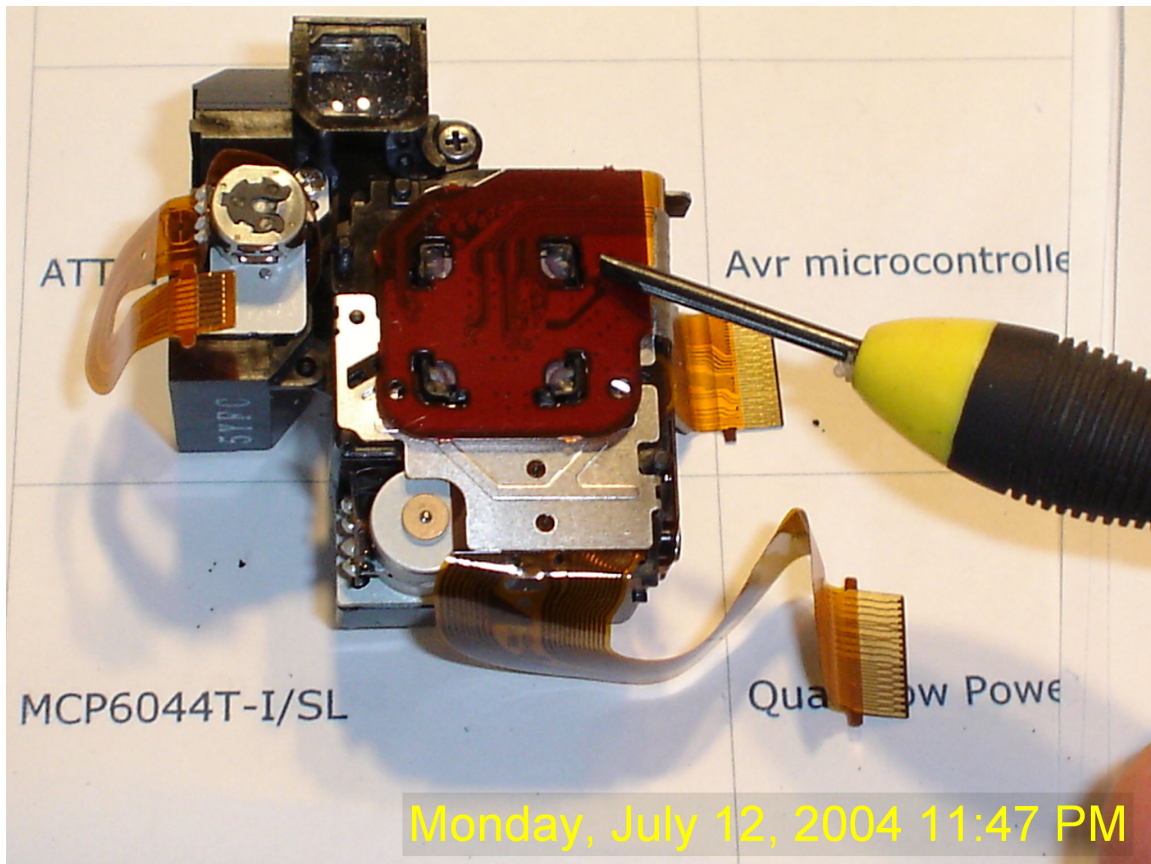
Once the 3 cables are disconnected the whole lenses assembly will lift out It's a little tricky here but I just lift it by the plastic of the viewfinder and it will sort of snap out. Again lay it faces Lenses side down on a clean soft rag.
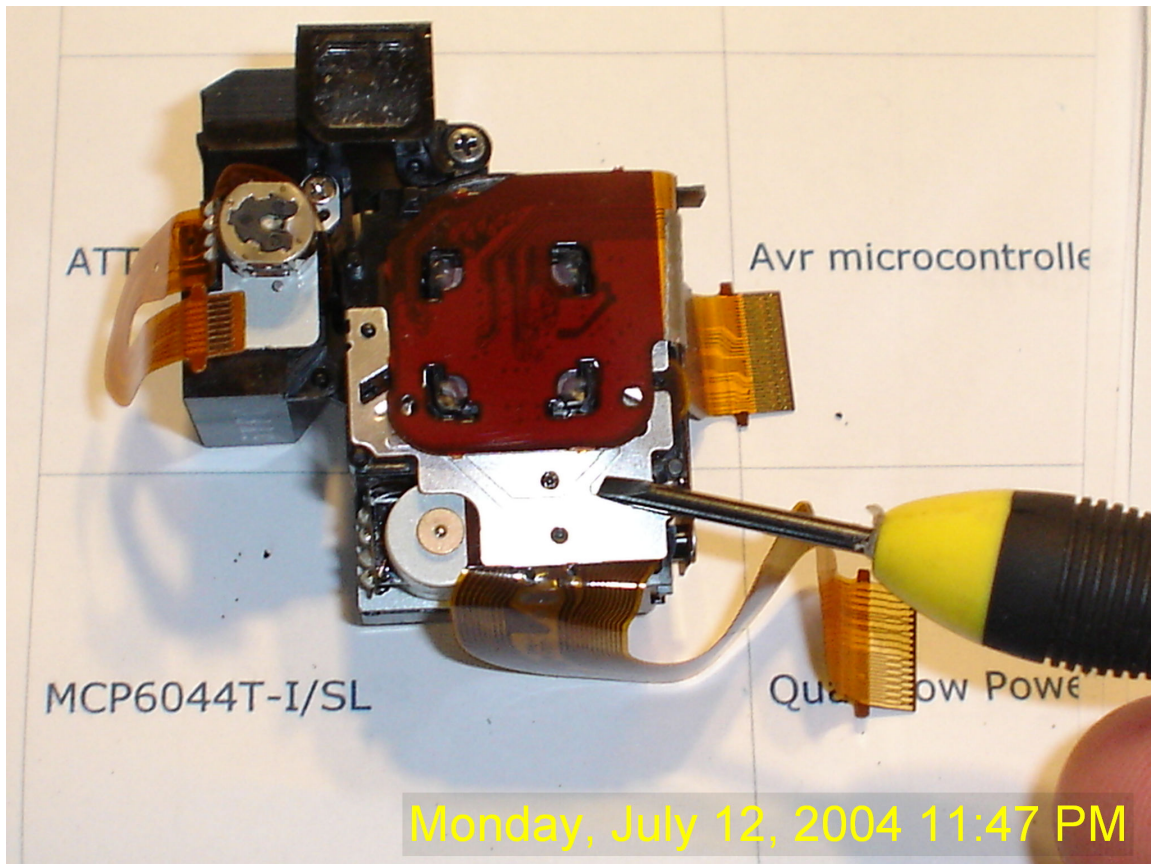
Now you will see the CCd ribbon The CCd is attached directly to this ribbon on the opposite side.  It is held in place with 4 sonic welds there also is a small screw holding it on the right side. Remove that screw also.

Now for the sonic welds what these are is actually melted plastic of the aligning pins that hold the ccd and the ribbon tight in the lenses assembly. There are 4 of them and they are grey and just on the inside of the 4 black angle post. The black angle post is part of the lenses assembly and will not move.

ATT                                                     Avr microcontrolle

MCP6044T-I/SL                                  Qua   w Powe

Monday, July 12, 2004 11:47 PM

 To open the lenses up and remove the ccd and its ribbon cable you need to trim the sonic welds off. DO not try to open or remove the shiny metal plate that remains in place throughout the modification. I just used an exacto knife and trimmed the edges along the Black angle post. Great care need to be taken here as if you were to slide something down along the edge of the angle post you could actually tear the CCD off the Ribbon cable I have heard of several people who have done this already Also Again a just scrape the plastic off until I can visually see that crack down the sides of the 4 black angle brackets. But be careful because one slip and you could cut through a trace in the flex cable. Once it is clear before you try to open it turn it upside down and blow all the little pieces off it so they won't drop in the lenses when you open it up.

Once you have the CCd and its ribbon out you will see the IR glass filter attached to the CCD.
 Now there are 2 methods available to you for doing the IR conversion

  1.  REPLACEMENT IR FILTER
Just getting replacement glass from the different suppliers and just removing the original and replacing it with the new glass. I believe you will need to dab a small spot of glue/Adhesive on each corner to be sure it wont pop out later this may or not work in every camera Time I guess will tell ?
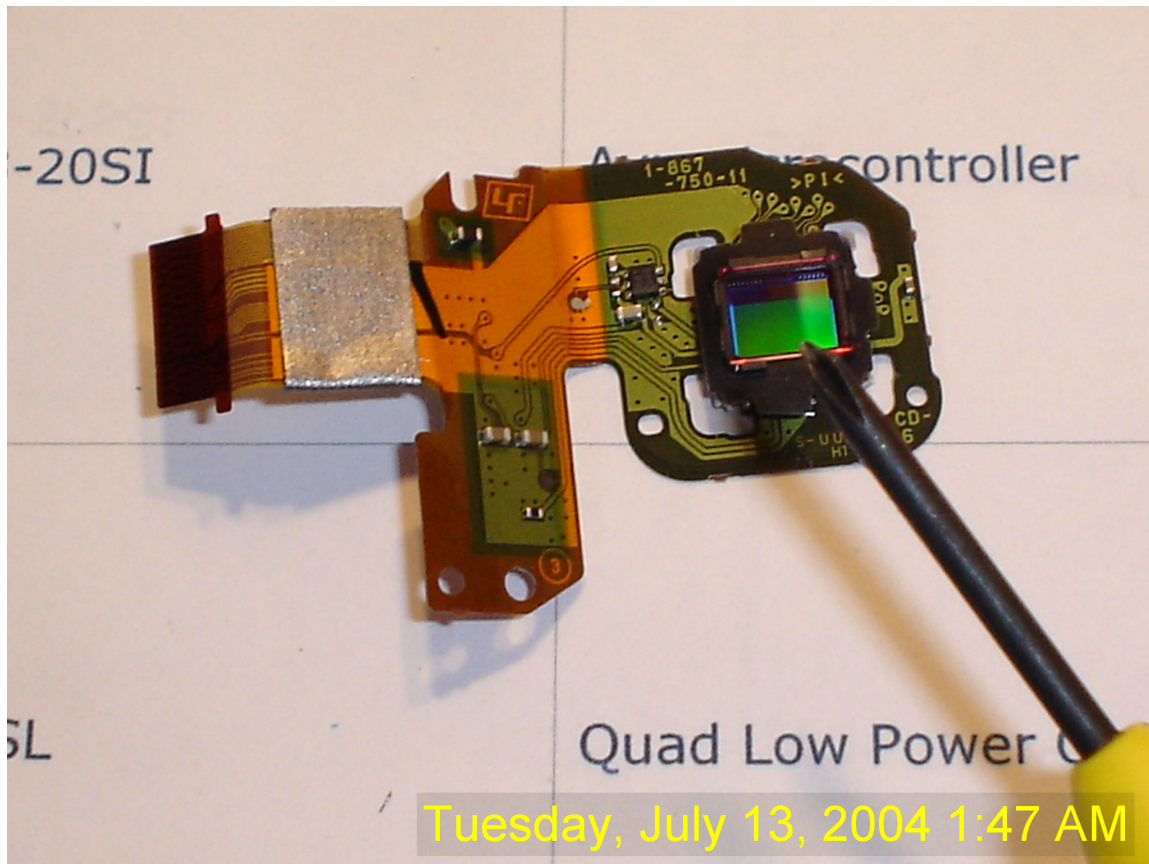
2. SHIM METHOD
Using shims to shim the CCD the correct distance to the lenses. This is a more
painstaking approach but I believe may be a way that most any camera would be able to
be converted as you actually focus it to its best position with small shims. Credit to this
goes to tree sight as he is the one who helped me do my modifications.

Tree sight sent me this pm early in my attempts to help me along

The s40 and s600 can be ir modified without replacing the ir cut filter with clear
glass. May let 1-2 % lighter to pass that way. Then you just shim the ccd into postion
to where it becomes focus. Focus the cam in a dark room to get it to where it needs to
be. The day pics may be a little bit off, but the auto focus pretty much compensates
for this. Where I have the most trouble is when the light is low enough for the flash to
go off but light enough that the auto focus locks on. Then the pics are a little out of
focus, but I don't think anything can be done for this when a cam has just auto focus
and not a fix focus setting. My s600 took about 0.046" of shim thickness but this will
very according to where it is calibrated to at the manufacture I think. The s40 has not
been that much, more like 0.038". I make my shims by punching a 7mm hole and
then cutting a 3/8" square around the hole. Oh, when you remove the glass filter you
remove the square frame also and the ccd just rest on the shims.
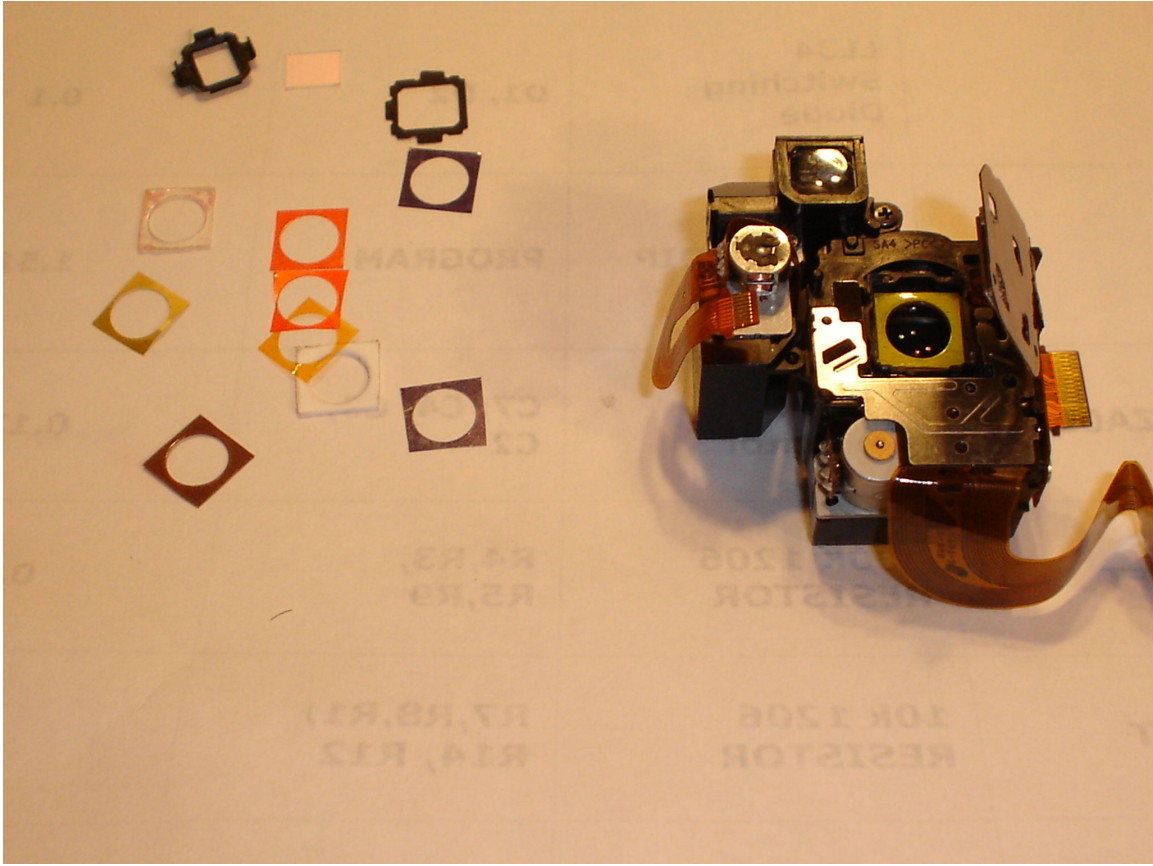
Remove filter and holder and any glue left on the face of the ccd so that it will set level on your stack of shims. The shims go into the back end of the lens assembly in what looks like a square hole with steps. Place shims in the deepest step about 3/8" square. Make shim to fit in this well socket without binding and a 7mm hole I believe works best. You can purchase the shim material from accutrex.com go to the link plastic color coded shim material or practishim.com. You will have a 50$ minimum order. I got there kit order and some of there smallest thickness material 6" x 24" sheets. This would be enough to do 1000 mods or so.

I have done only 2 IR mods with this method and while it was difficult it was more time consuming they both were successful. I believe I have settled with .029 shims in the S40 and.03675 shims in my S600.

Once I have opened the lens the first time there is no need to remove the 2 big ribbon cables again I just disconnect the smaller one with my tweezers and flip the whole lens assembly on the back of the board after I have covered it with a clean soft rag.

Once you have replaced the glass or shimmed it to where you want to close it back up you need to put the CCD and its ribbon cable back in place. I then use scotch tape to secure the ccd and the ribbon down tight to the shims or replacement glass .Once I am sure after taking some test pictures that I am satisfied with the focus I take it apart again and using my exacto knife I jut the tape out of the sonic welded area and apply a 2 part epoxy on the studs and the black angle brackets. Then close it up and finish the camera modification to work with your controller.



This is mainly to help you get the cameras CCD out and to get you started with the ir modification Again I feel it is quite difficult and be sure of yourself and that you are capable before trying it.