

PS2 Repair Guide

Removing the ps2 case (top).....	2
Disk Read Errors (DRE)	3
Cleaning the laser lens	3
Adjusting the laser angle.....	4
Adjusting the voltage	5
Replacing the laser.....	6
PS2 Power Supply Repairs	7
Replacing the fan	9
Problematic drive tray.....	10
Power, but cd tray won't open/ no picture/ no controller	14

The details in this guide are provided to aid in resolution of common problems found with the PS2. Opening your PS2 will invalidate any warranty you may have. Always take care when opening the PS2 and pay attention to the warning about electro static discharge (esd). Failure to do so may result in damage to your PS2

No responsibility is accepted for damage caused to your PS2 from following the details in this guide.

Always take care when opening your ps2, never switch the console on when the laser is visible, laser radiation can damage your site permanently, when working on the power supply handle as little as possible and with caution, capacitors can store power for a long time and at dangerous levels.

Always take precautions against esd (electro static discharge), when working on your ps2, wear an anti-static wrist strap; or ground yourself by touching a radiator for a few seconds before and during work.

Removing the ps2 case (top)

Tools required by this guide are,

- 1) A normal size star (Phillips) screwdriver.
- 2) A very small Phillips screwdriver.
- 3) A small, flat screwdriver.
- 4) Some isopropyl alcohol (IPA).
- 5) A few cotton buds.
- 6) Some mechanical grease.
- 7) A can of compressed air.
- 8) A multi-meter.

1) Remove any CDs from the unit and unplug all leads and memory cards. Turn the unit upside down and use a small, flat screwdriver to prize out all the little plastic screw covers, and rubber feet.



- 2) Take your normal sized Phillips screwdriver and unscrew all the screws.
 - 3) Make a note of where each part comes from; store them in a box to keep them safe.
 - 4) Turn the unit back up the right way, holding it all together. Place on the work surface and gently ease the case open. You will have to tilt the lid slightly towards the front, and slide out to avoid the cd tray. BE CAREFUL not to damage the eject/power button ribbon cable, as these are very fragile, and are taped to the top of the cd tray cover, as you slide the lid off over the cd tray, tilt the lid to the right, and watch from underneath so that you can see the ribbon cable.
- Before you go any further, it will help to plug in the console, (being careful not to touch any components) and eject the cd tray, then turn off the power from the back of the console; so that the tray stays out, this will give you access to the laser lens.

Disk Read Errors (DRE)

When you get the dreaded Disk Read Error, there are a few possible remedies that you can try. These are the steps for those procedures.

Cleaning the laser lens

1) Remove the 4 tiny screws from the cd tray cover, and lift the cover off (you will feel some resistance, but this is just the magnetic disc holding on to the disc hub).

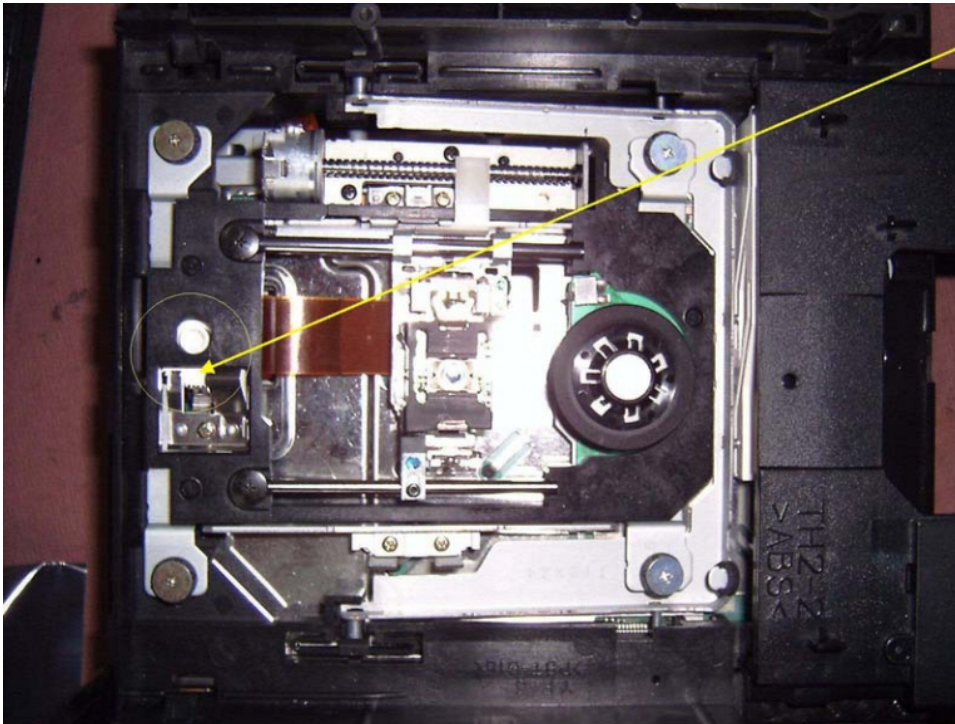


2) Using a Q tip with a small amount of isopropyl alcohol, gently rub the laser lens, and then use the dry end to remove excess alcohol.

3) Replace just the tray cover, then try playing some discs, you do not need to screw the cover on each time, the magnet will hold it on.

Adjusting the laser angle

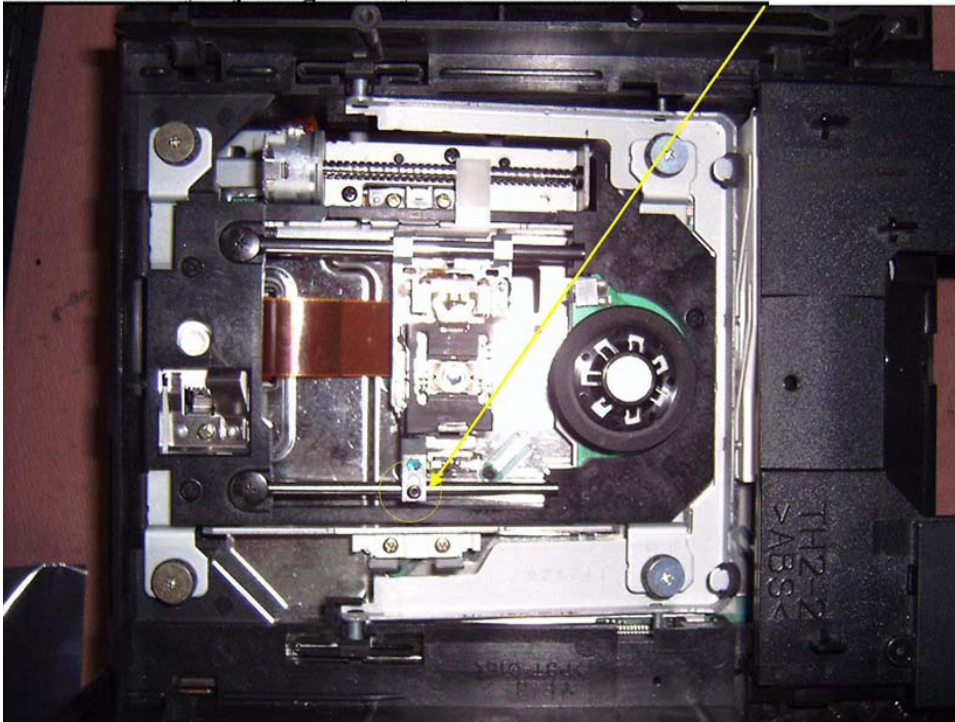
If the disc read error still occurs, you may be able to rectify it by adjusting the laser angle; turning the white cog at the rear of the cd tray does this, this cog adjusts the angle of the laser to the disc.



(This may differ on various versions), first, using a permanent marker, make a mark on the cog so that you know the original position of the cog, adjust this cog one notch at a time, and try playing a DVD game, cd game, DVD film and music cd until the ps2 reads them all, again; you do not need to screw the cover on each time, the magnet will hold it on, this is a time consuming job but it needs to be done this way, to ensure best results.

Whilst you have the unit open it's a good idea to perform some routine cleaning, preferably using a can of air, and check for areas such as the worm drive, and guide arms that may need re-greasing, as these parts can affect the operation of the console if they are dry.

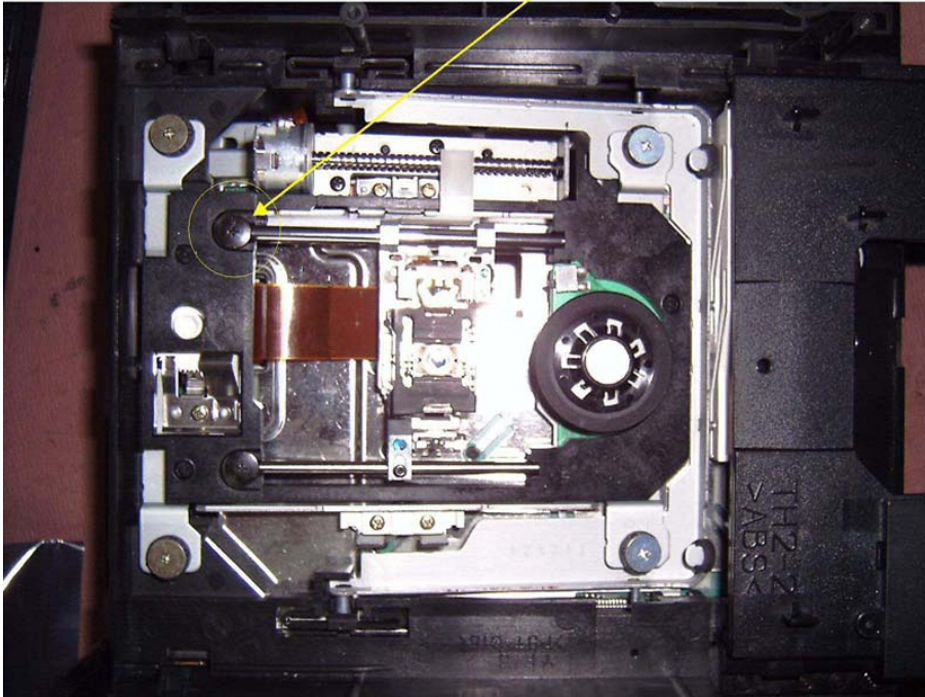
You can also try adjusting the tiny black screw on the laser arm.



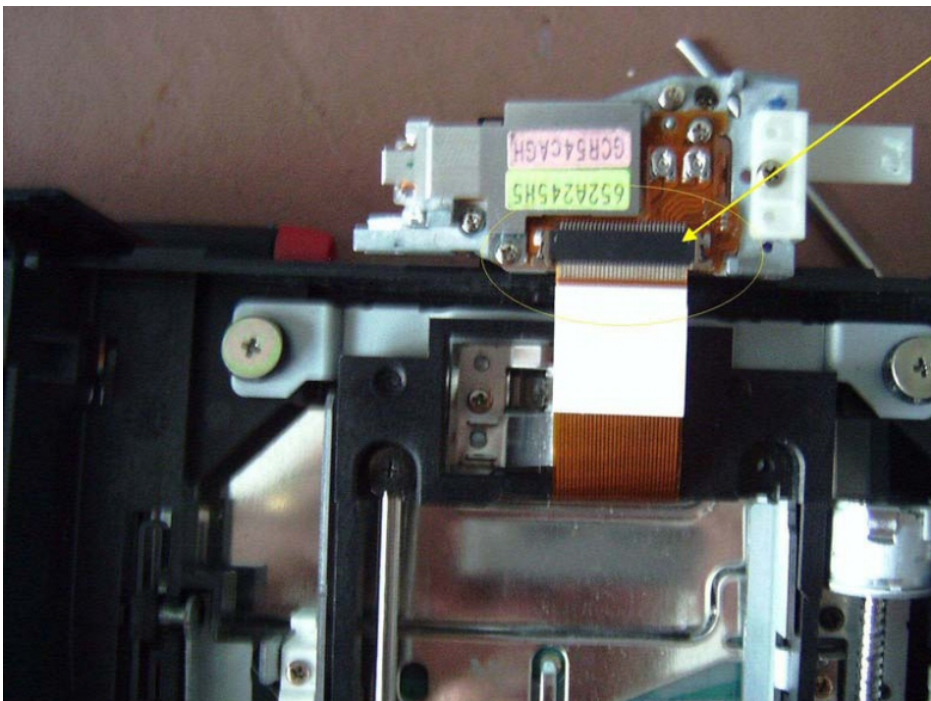
This should be adjusted just a fraction at a time, being careful not to over tighten, there has to be some slack to allow the laser to move along the guide arm. Again each time you adjust, you should test with each disc.

Adjusting the voltage

For this adjustment you must remove the laser from the unit, follow the steps above to gain access to the laser, once you are able to get at the laser, remove the screw from the end of the guide arm on the worm drive side.

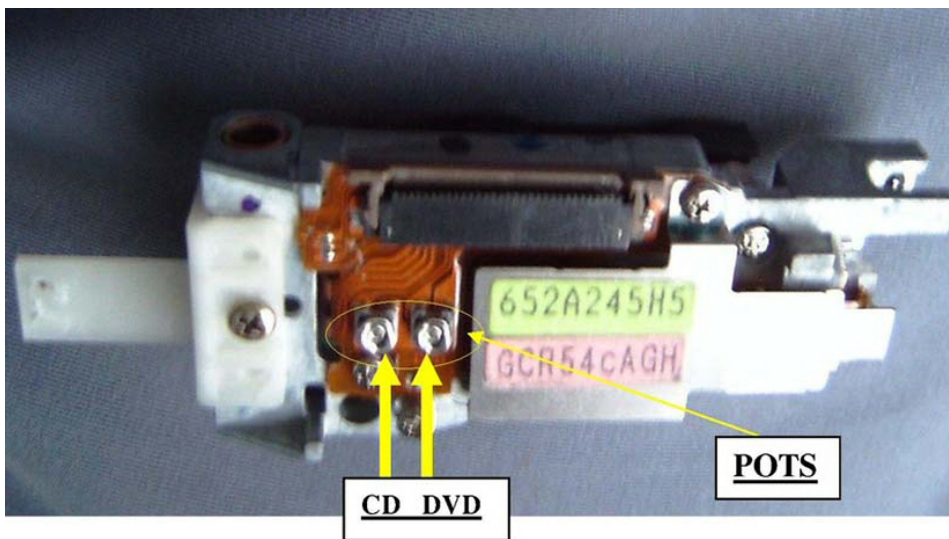


- 1) Lift the guide arm at the fixing point, and slide it out of the laser arm and its resting point.
- 2) Tilt the laser backwards so that you can remove the ribbon cable
- 3) Unclip the cable from the point indicated, BE CAREFUL NOT TO DAMAGE THE CLIP, the clip pulls out, but does not come off completely, I cannot stress enough the importance of being very careful with it, if it breaks off you will have great difficulty in getting the ribbon cable to stay in place when you put it back together.



Once you have the laser free of the cable, you can adjust the pots (potentiometers). You will need to use a multi meter to measure the resistance, measure the 2 top terminals of each pot.

They should both read about 1 K, and should not go below 600 ohms, you need only adjust the pots according to the type of disc your laser is having trouble with, i.e. read errors on DVD only, adjust DVD pot, if you are having trouble with DVD and cd adjust the pots one at a time.



Turning the screw clockwise increases the voltage, counter-clockwise decreases the voltage, make adjustments of about 50 ohms at a time, try decreasing the voltage first. After each turn try loading a troublesome disc, if you still get disk read errors after going through this process, return the screw to its original position and try increasing the voltage. Increasing voltage to much can cause serious damage to the laser, so this is only recommended as a last ditch attempt, and pots should be turned only a fraction.

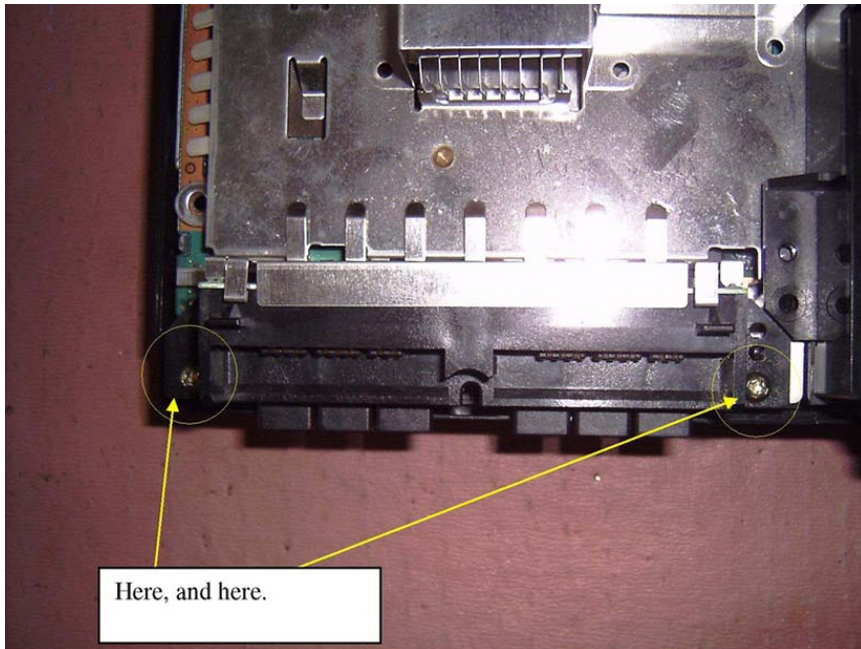
Replacing the laser

This is simple, follow the steps above for removing the laser, then just reverse the process using the new laser!, you may have to take the little screw out of the laser arm and put it in the new laser arm, you will then have to set it up by screwing it in a little at a time, and testing it until it reads all types of disc, this can be time consuming but it will help if you can either mark the screw, or make a note of its position before removing it from your old laser.

PS2 Power Supply Repairs

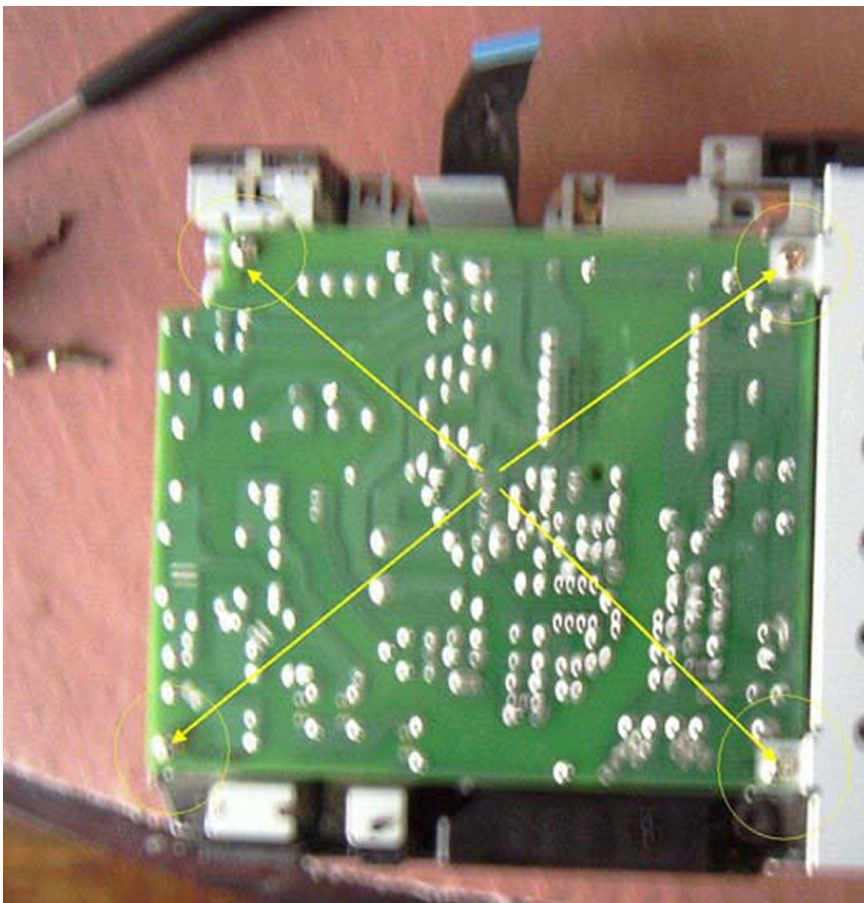
Be very careful when working on the power board as it contains dangerously high voltages, even when not connected to the mains. This is because capacitors can remain charged for some number of hours or days. Take all normal precautions before working in this area. In addition, handle the board as little as possible.

1) Follow the steps above to remove top cover, and then remove the two screws from the controller ports.



2) Lift the innards out of the base cover carefully, making sure that you don't damage the ribbon cable that is attached to the controller ports.

3) Turn the unit upside down whilst holding the controller ports, then remove the screws from the expansion bay plate (not pictured, but it is the dull plate with holes all over it), and the bottom of the psu (power supply unit).

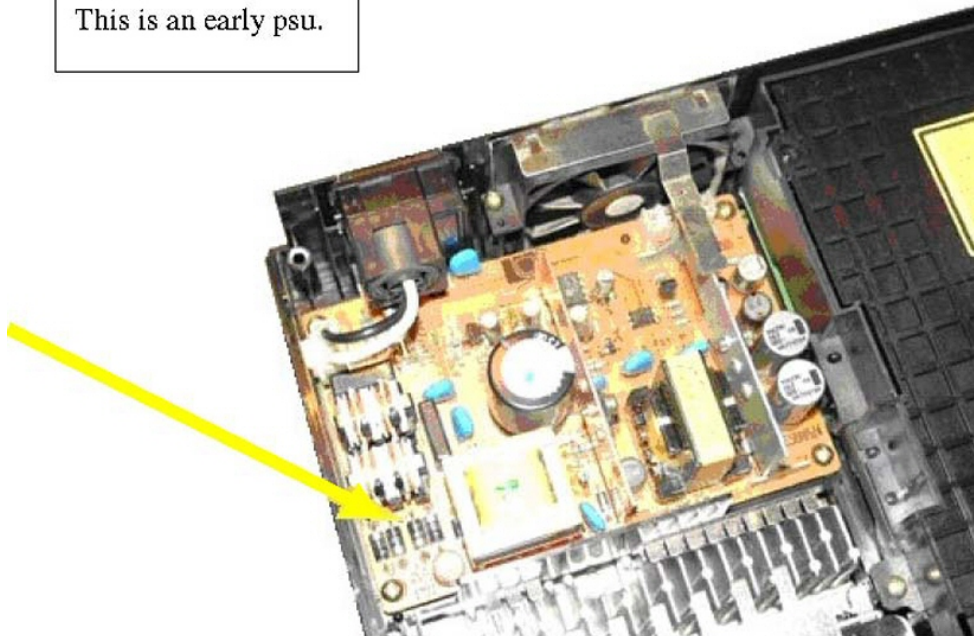


4) Next, pull the psu up and out of its connector socket, you will also need to free the on/off switch from its holding plate, by just sliding it out.

A very common failure, which seems to crop up on some of the earlier PS2 models, is power supply failure. When switched on there is no life and often, the internal fuses (or sometimes the fuse in the power lead) blow.

Very often, the fault lies with a very simple component on the power board. The usual component is a diode, of which there are four similar ones. Often though, the same diode fails each time. This is the third of the largish diodes, arrowed in the following picture.

This is an early psu.



Check the diodes with a continuity meter. If it shorts then it has blown and should be replaced with a 1 Amp diode. You should also test the board fuses (the amount of fuses differs, according to the version of the console) for continuity as one (or all) of these can be blown by the over current. You may also have to replace the main fuse in the power lead as this can go at the same time.

Here is a later psu



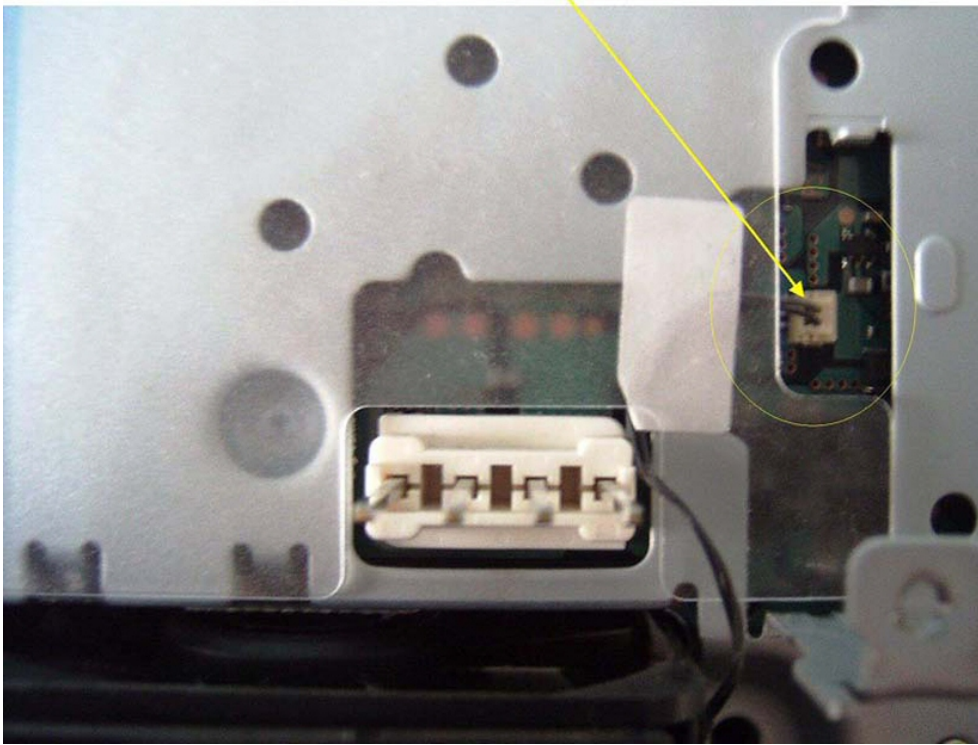
Replacing the fan

If your fan has stopped working the console will over heat and the cpu (emotion engine), and or the gpu (graphics processor) will burn out, the only solution to this is to replace the fan.

To do this you will need to follow the steps above for removing the psu.

1) Once you have the psu removed all you have to do is carefully pull out the plug indicated in the picture, then undo the screw holding the fan in place and slide the fan out.

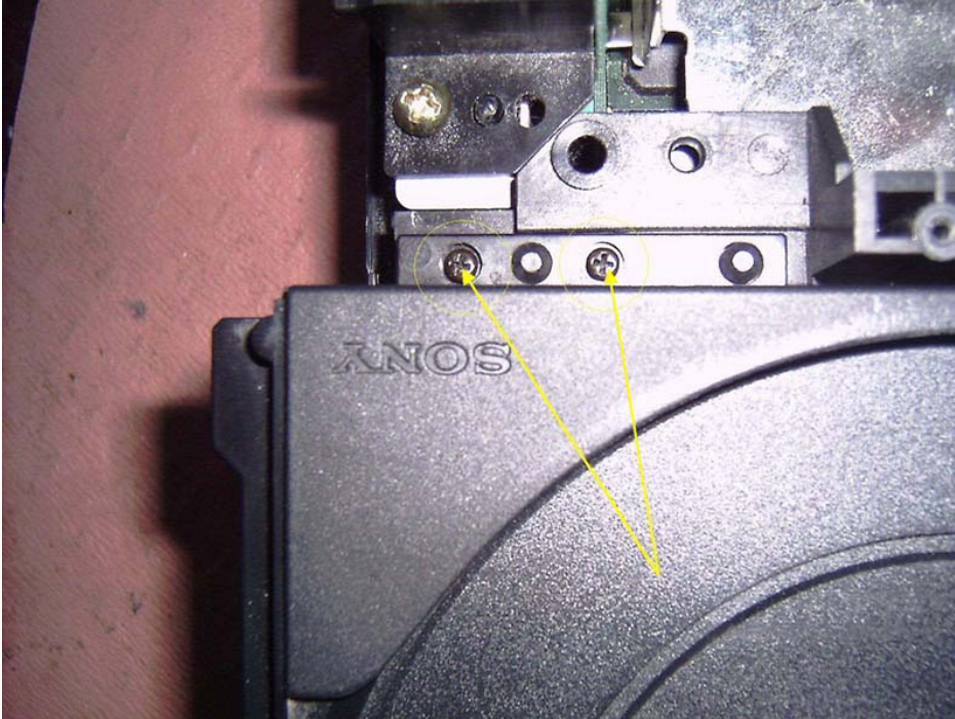
2) Reverse the procedure to fit the new fan.



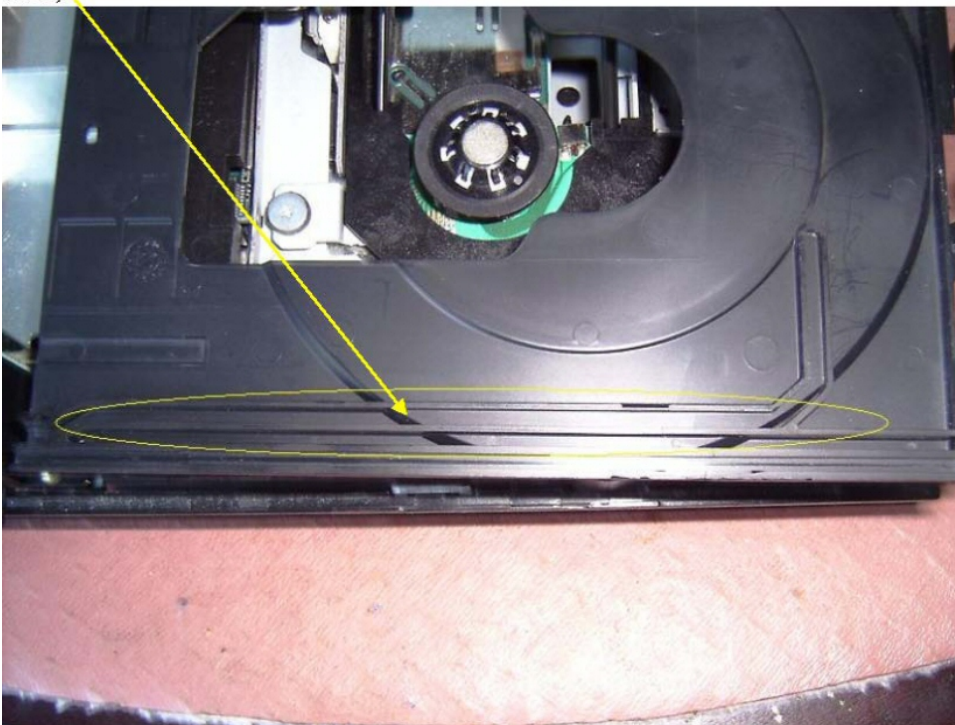
Problematic drive tray

If your console has been dropped, it's common for the drive tray to stop functioning, properly, or at all. There are several reasons for this. 1) The cogs that operate the tray are out of alignment. 2) The guide slots on the bottom of the tray are damaged 3) the pin on the arm that opens the tray is broken off.

- 1) Follow the steps above up to the point of access to the drive tray.
- 2) When you have access to the drive tray; undo the two small screws that hold the tray in place.

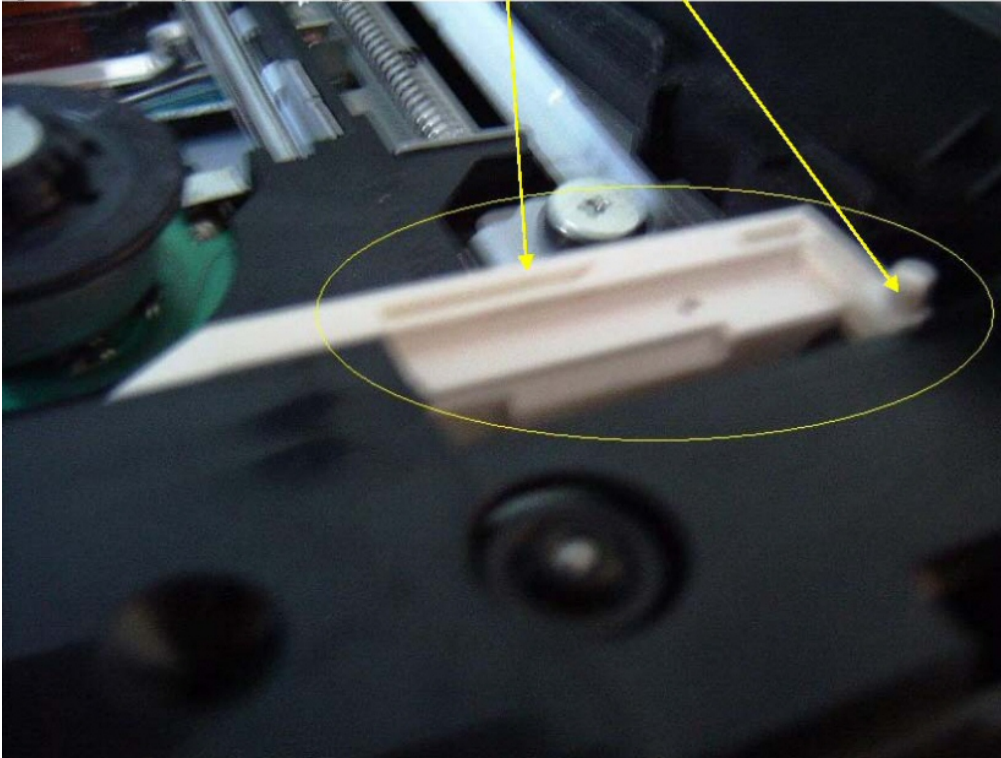


- 3) Lift the tray from the edge with the Sony symbol on it, and then pull the tray forward and it will come away from the console.
- 4) Turn the tray upside down, and check the track for wear,



if the track is cracked or broken it will stop the tray from opening properly, if this is the case you will either need to replace the tray, or glue a piece of thin plastic in to the damaged area, but you must make sure it isn't any deeper than the original track, as this may also impede movement.

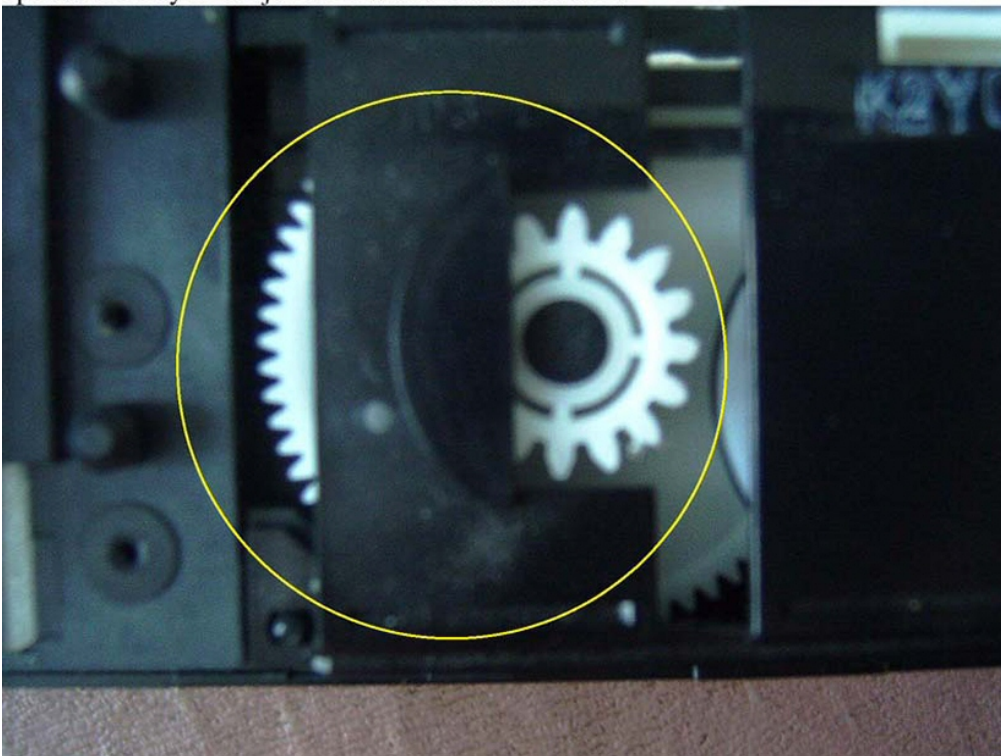
5) If the track is ok check that the white arm, and the pin at the end of the arm that operates the tray aren't damaged,



If the pin is damaged the tray won't open, and the arm will have to be replaced (see below).

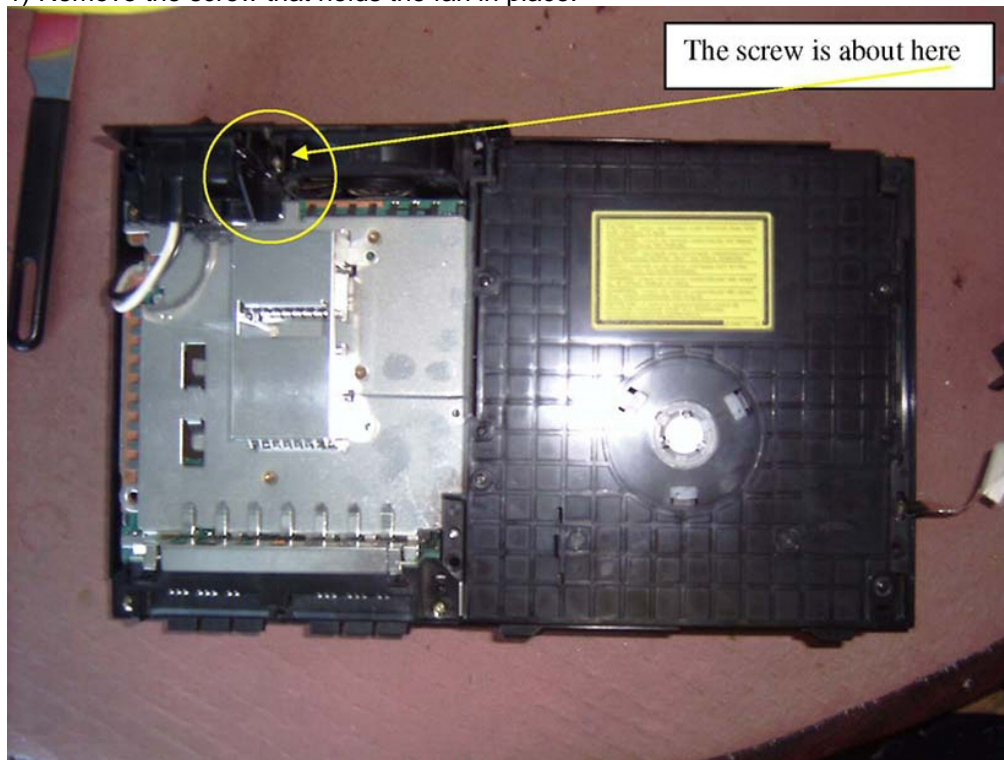
6) If you have still found no damage then the next step is to check the cogs that function with the attached arm.

operate the tray in conjunction with the attached arm.

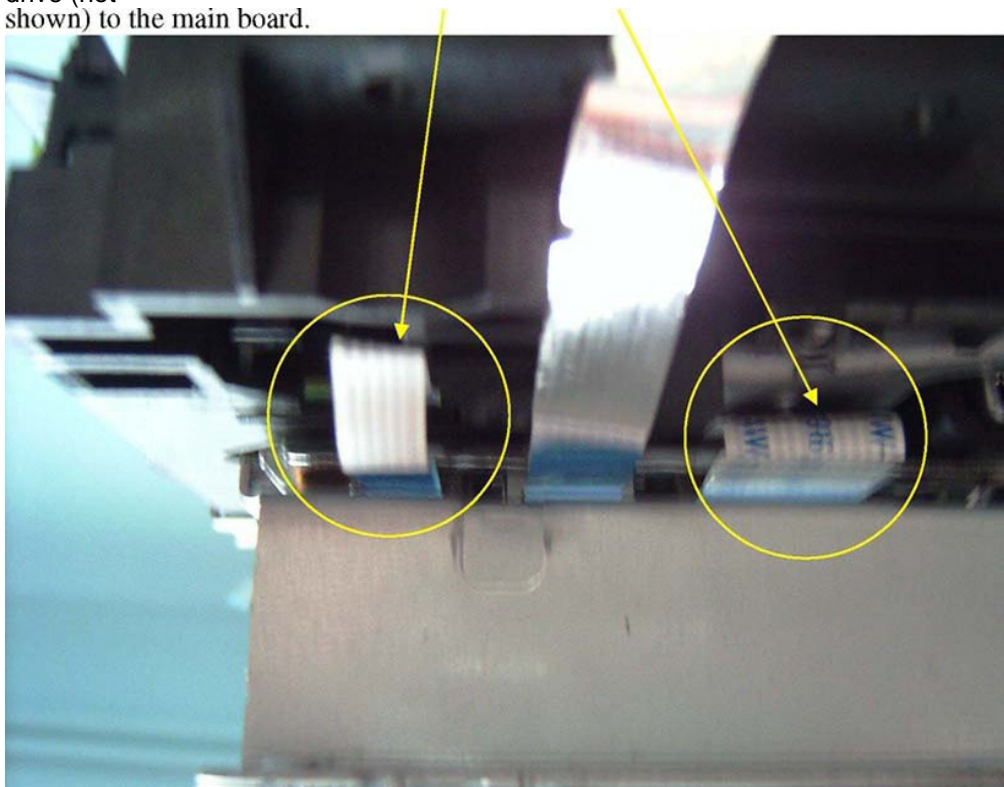


First you have to remove the cd unit.

1) Remove the screw that holds the fan in place.

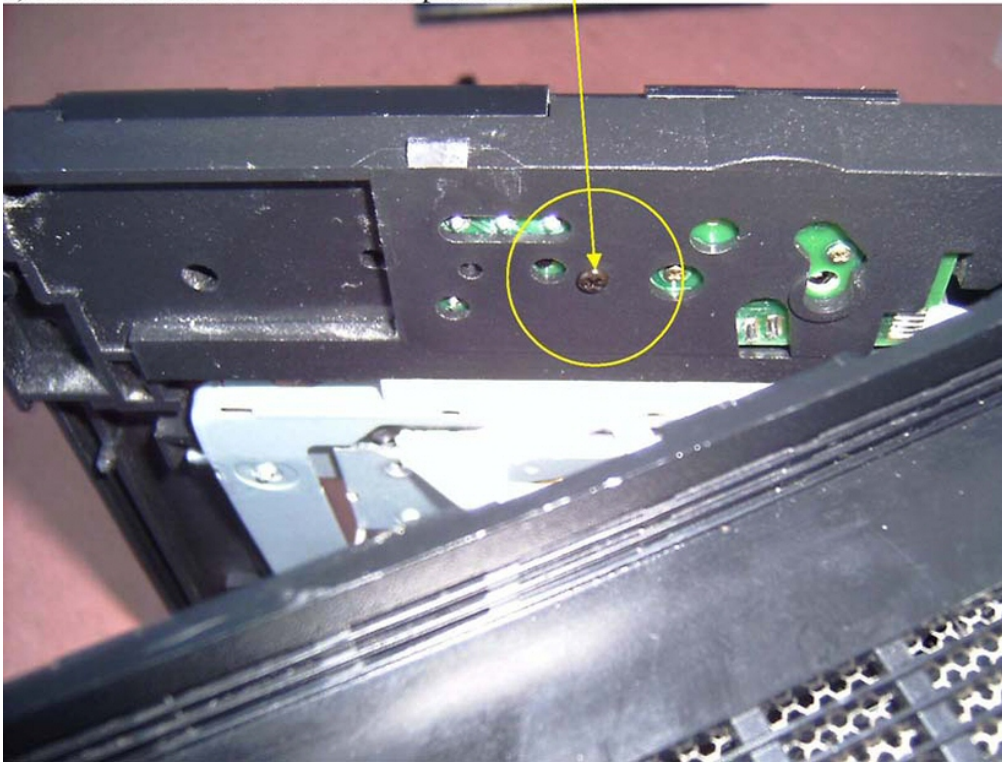


2) Lift the fan casing up slightly, and prize the front edge up, then lift the back edge up and slide the cd unit forward carefully until it is free. Be very careful not to damage the ribbon cables that attach the cd tray, spindle motor and worm drive (not shown) to the main board.



Once you have the cd tray free of the console; turn it upside down.

3) Remove the screw that holds the plastic cover on.



Check for broken teeth and misaligned cogs, realign if necessary, if teeth are missing the cog or whole unit will have to be replaced.

Power, but cd tray won't open/ no picture/ no controller

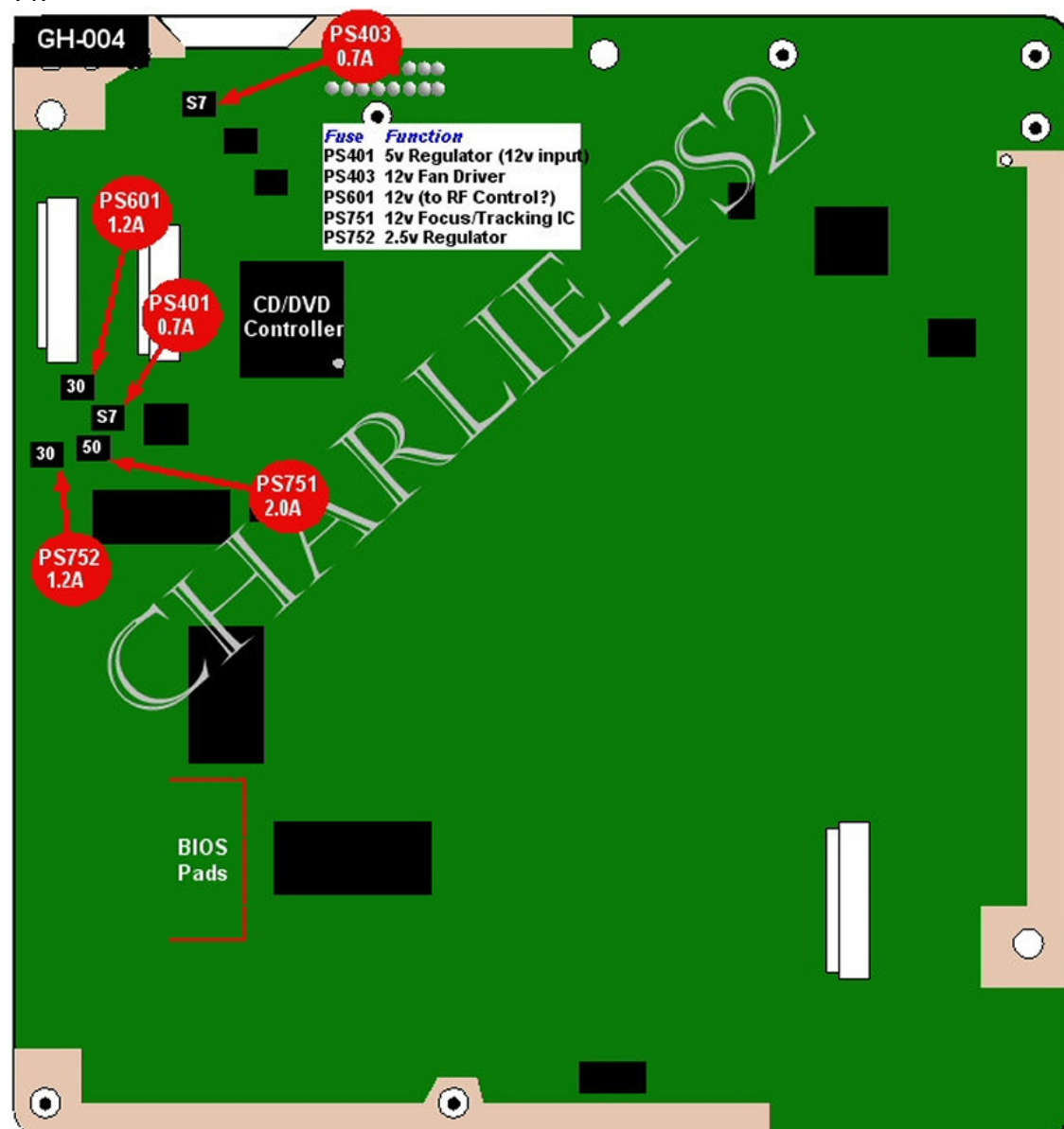
If you turn your console on and find that the fan spins, but no lights come on and no picture is displayed, and/ or the cd tray won't open, or your control ports won't work, the chances are that a surface mounted fuse has blown.

I must warn you that replacing a surface mounted fuse should only be attempted if you are experienced with a soldering iron, if not then I suggest you find someone who is, to do this for you.

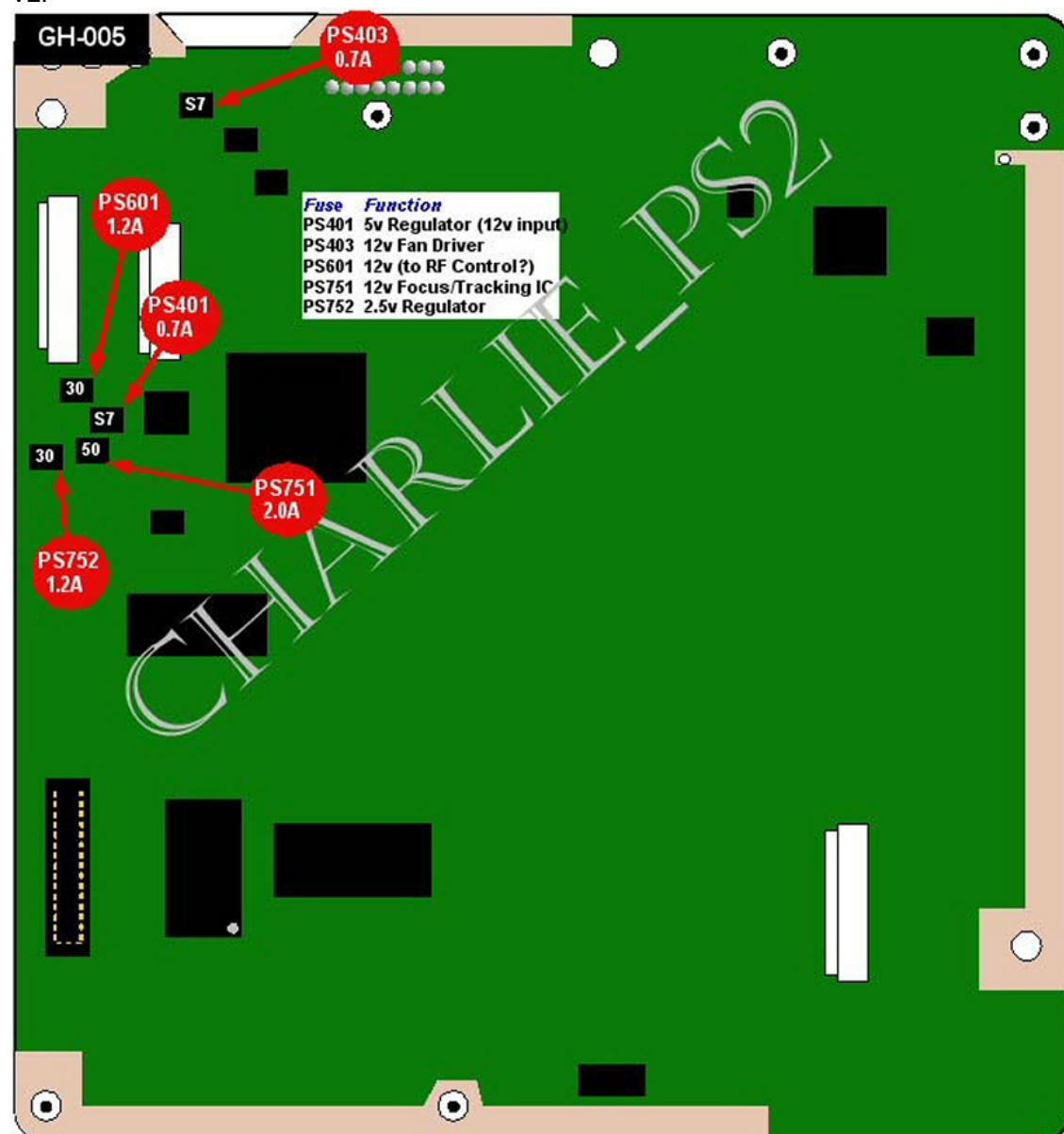
Check all surface mounted fuses with a multi-meter or continuity tester. They should conduct and have a resistance of zero, if not then the faulty fuse should be replaced with a fuse of the same value.

The following pictures are used here only to illustrate the surface mounted fuse positions

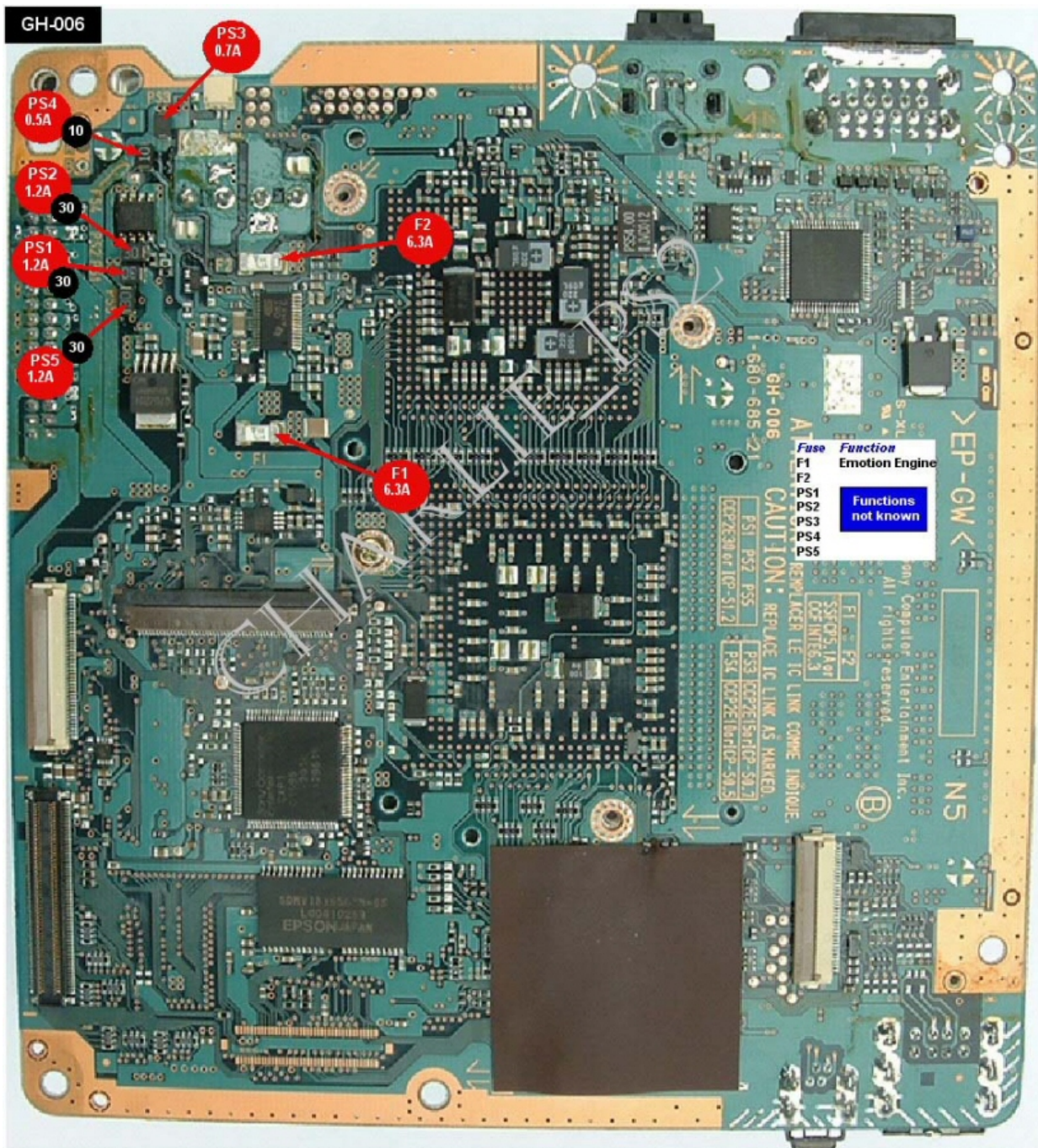
V1.



V2.

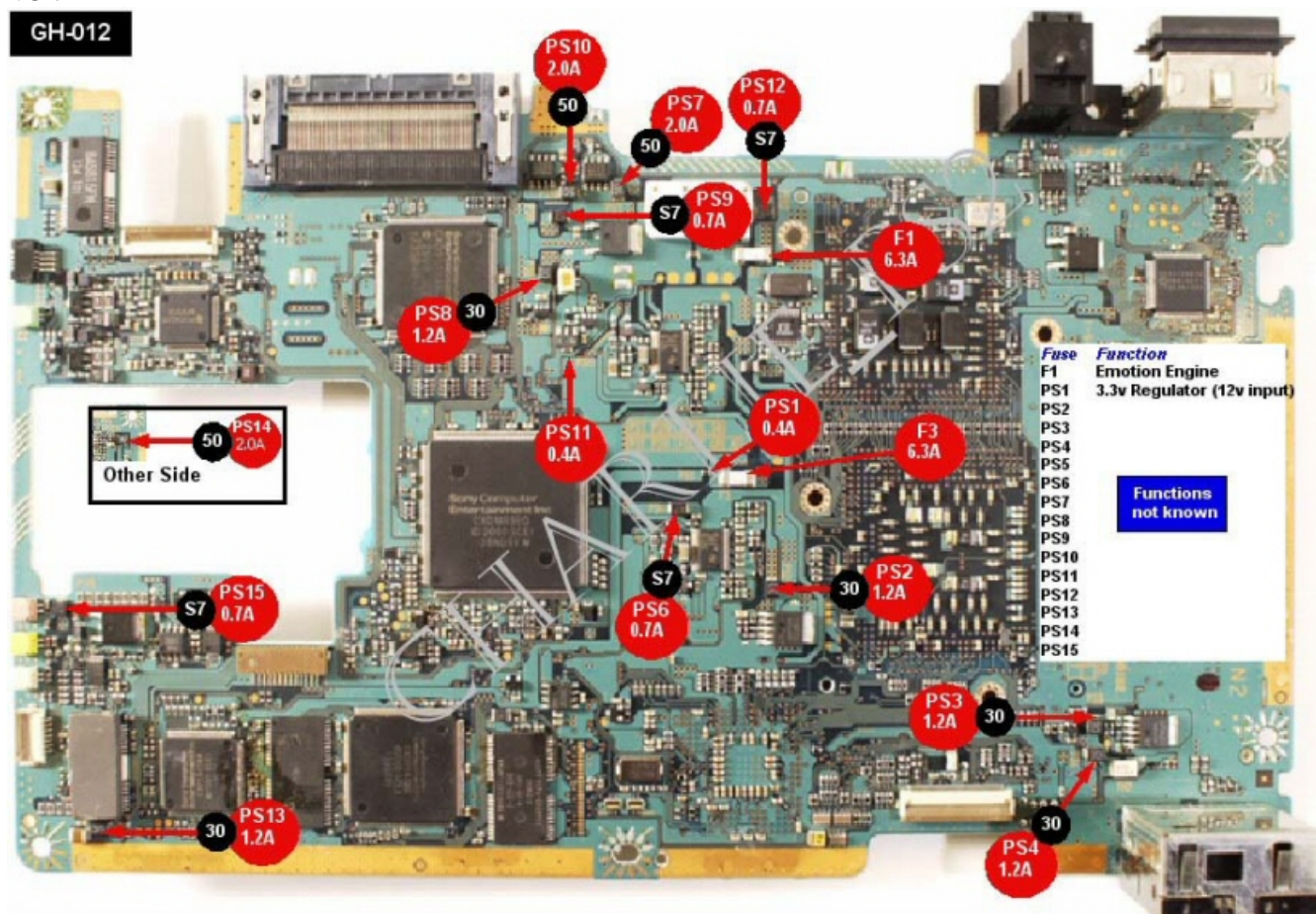


GH-006



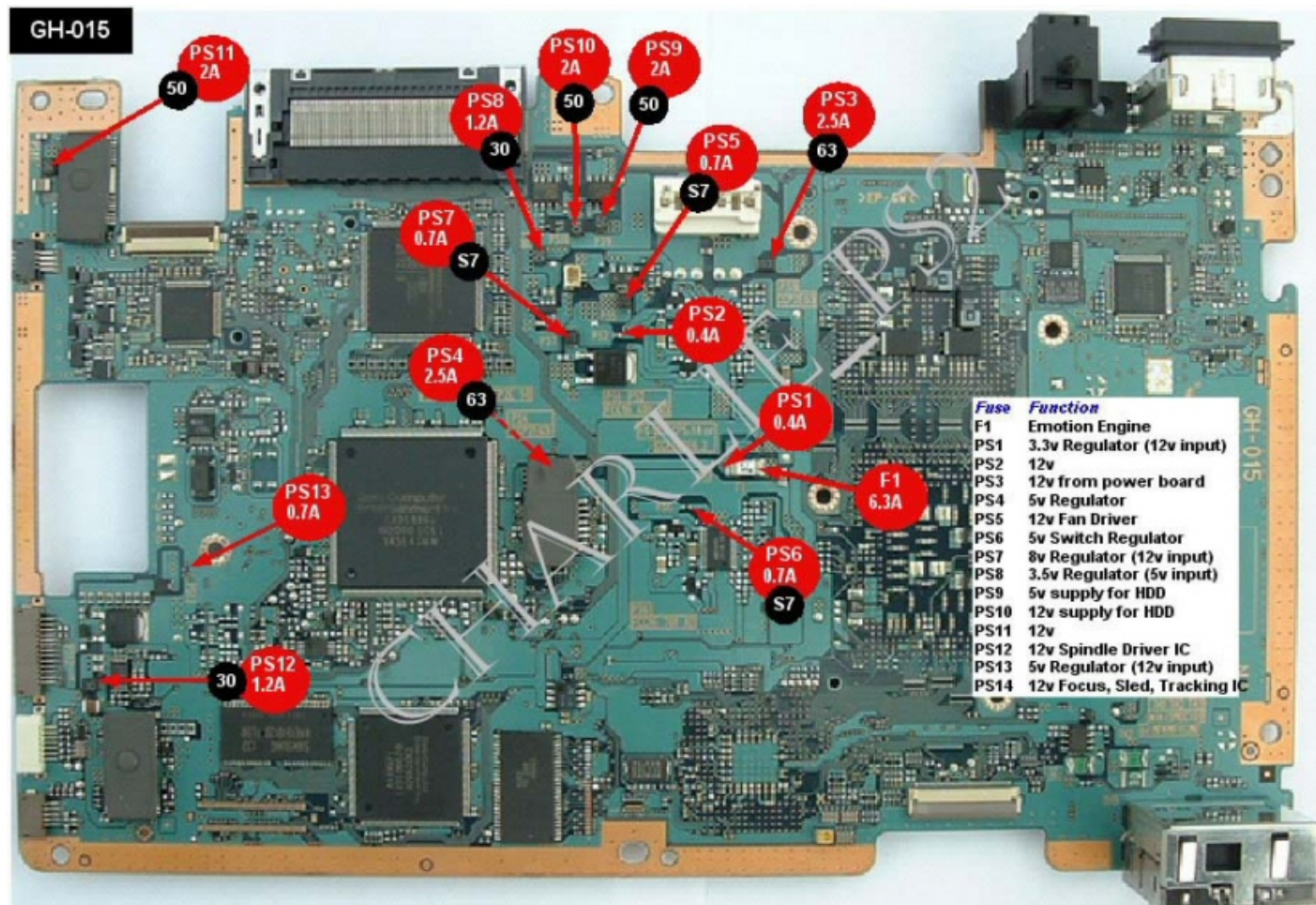
V3.

GH-012

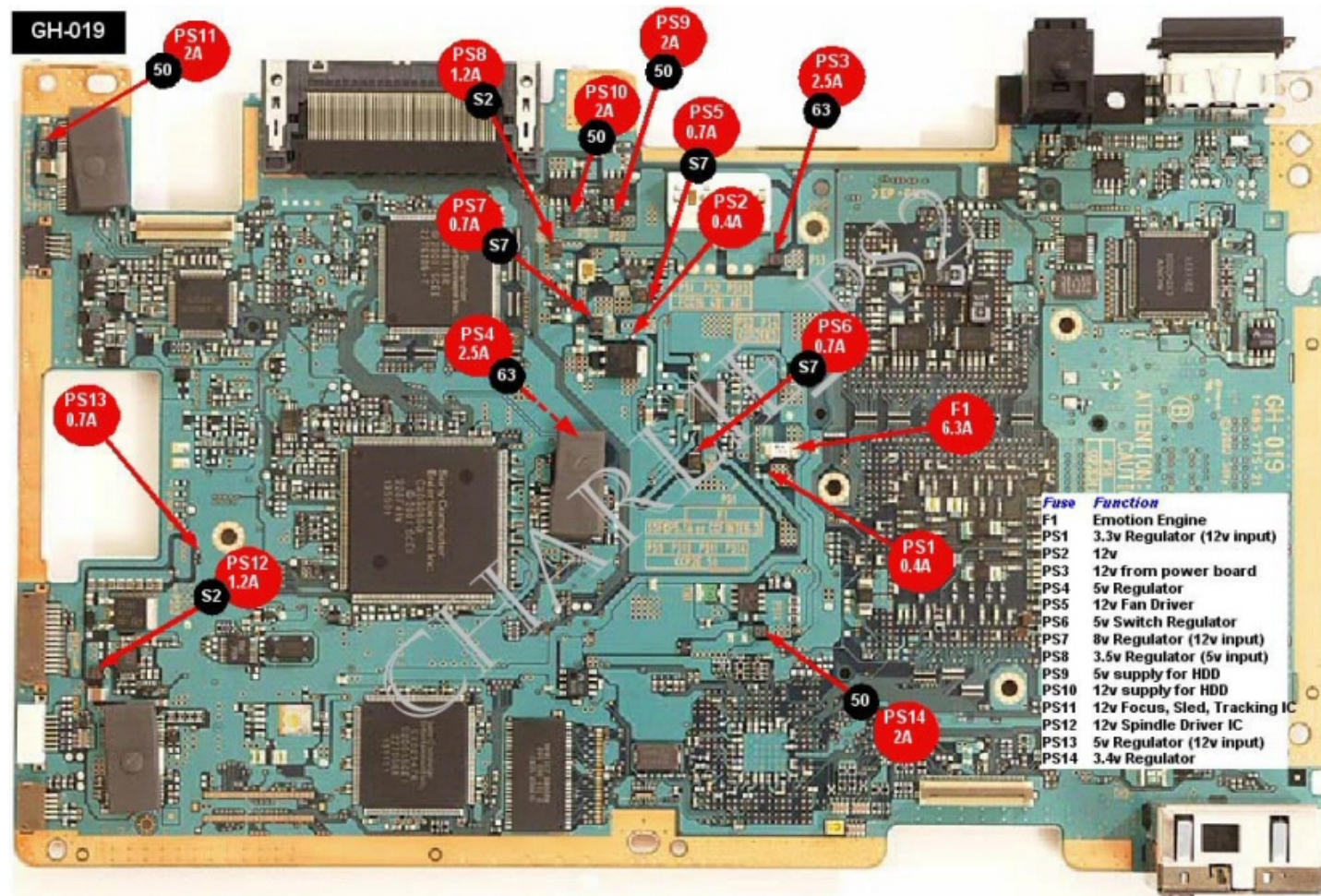


V4.

GH-015



V7.



V9.

