

-----  
INDEX:  
-----

1. Intro
2. Warnings
3. Diagnostic Mode
4. Cleaning the Laser
5. Do I need to adjust the voltage?
6. Clicking and squeaking explained
7. Adjusting the Voltage
8. Disclaimer
9. Contact
10. Credits

(Multiple sections are contained on each page; scroll down if you don't see  
The data you want)

-----  
INTRO:  
-----

You might wonder why your PS2 isn't working. Well, if you're getting Disc  
Read Errors on multiple discs, all of which appear to be in good condition,  
Then you most likely have one of two common problems. Either your laser is  
Being obstructed by dirt and dust, or the laser's voltage is not properly  
Adjusted.

Note that this FAQ was written for people with little or no knowledge of  
Electronics. The technical-speak has been highly simplified for those without  
The electronic know-how.

If you are WELL versed in electronics and own an oscilloscope, and a 10:1  
Test probe with ground clamp, see MrB / DNA's very detailed FAQ. It includes  
Directions for adjusting laser voltage, and replacing the laser unit. You  
Will need software to unzip the file, and Adobe Acrobat Reader to view the  
PDF file. Another file that will aid you in using an O-Scope to adjust your  
Voltage is located here.

-----  
WARNINGS:  
-----

The Playstation 2 is a precise gaming console. Fixing the console yourself  
Should not be done unless completely necessary. You may also risk electric  
Shock, so do anything within your power to remain safe while attempting these  
Repairs.

If you can, use an anti-static wristband to ground yourself. This device is  
Available at any electronics store (e.g. Radio Shack.)

These repairs require opening the case, which WILL void your warranty. If  
Your console is still under warranty think twice about cracking the seal.  
Adjusting the laser's voltage requires some precision, being too rough can

-----  
WARNINGS:  
-----

The Playstation 2 is a precise gaming console. Fixing the console yourself  
Should not be done unless completely necessary. You may also risk electric  
Shock, so do anything within your power to remain safe while attempting these  
Repairs.

If you can, use an anti-static wristband to ground yourself. This device is  
Available at any electronics store (e.g. Radio Shack.)

These repairs require opening the case, which WILL void your warranty. If

Your console is still under warranty think twice about cracking the seal. Adjusting the laser's voltage requires some precision, being too rough can Cause damage, which you will not be able to fix. Be very careful when doing This process!!! Be prepared to pay Sony over \$120 to fix this part if you Damage it!!! Always attempt the laser CLEANING before trying to adjust the voltage!!!!!!

#### ----- DIAGNOSTIC MODE: -----

This is the easiest thing you can do to attempt to fix your PS2, while it Hardly ever works it only take a minute or two, and should be done first Before you take apart your machine.

- 1) You must be in the "main menu" screen of the PS2 console, the first screen That comes up when you start with no disc in.
- 2) Press the "triangle button"
- 3) Select "Console" from the top using the up directional buttons and press The "Triangle" button
- 4) Select "On" using the up and down directional buttons and press the "X" Button
- 5) Insert a disc. The console automatically starts the diagnosis.

#### ----- CLEANING THE LASER: -----

Required Materials:

- Normal Phillips head screwdriver
- Jewellery (Small) Phillips head screwdriver
- Q-Tip
- Rubbing Alcohol (Isopropyl)

Optional Materials:

- Can of Air
- Butter knife

Taking the PS2 apart is fairly simple, nothing too complicating. All that You're basically going to do is remove the upper shell, remove the lens Cover, clean the lens, and put everything back together again. Just be sure To follow the steps, and read through each step and understand it before Going through with it. Sometimes the instructions may seem a little too in Depth or complicating, but just use your common sense and you should Understand what I'm trying to say. It's a lot easier if you print it out, as Well.

1. Make sure that you have a neat, clean area set aside for taking the PS2 Apart. A small box or cup to put screws in wouldn't hurt, either. Flip your PS2 over so that the bottom (horizontally speaking) is facing up. There Should be 6 screw covers, 4 plastic and 2 rubber that need to be removed. You can use the butter knife for this, or your nails, whichever is easier. Screws should be uncovered under them. There should be 2-4 more screw covers On the outer side of the base, underneath the controller ports (where the system goes out a few inches from the base). The older model PS2's have 4 screw covers, while the newer ones have only 2. Remove them all, and you should now have a total of 8-10 screws unveiled. Set the screw covers aside.
2. Using the normal sized Phillips head screwdriver, remove all of the screws. REMEMBER where the longer screws go, or mark the holes with a piece of tape or anything that will remind you of which holes the long screws go into. If you do not remember where the long screws go, you could put a hole through a circuit board by trying to force the long screw in where it is not supposed to be. Make sure all of the screws are removed, and put them aside.

3. The PS2 shell should now be ready to remove. ONLY the UPPER side (with the PS2 logo) needs to be removed to clean the lens - Leave the BOTTOM side on. But, be very careful when taking the upper shell off, or you could damage the PS2. To take the shell off, you first should place the PS2 horizontally, with the PS2 logo facing up. Next, you need to move the side of the shell out a little, sideways, so that the Eject/Reset buttons are not blocking the shell, and it can be lifted off. Just play around with it a little and you should get it. Then, lift it at an angle, like opening the cover of a book. Take the bottom (Vertically speaking) of the shell, with the PS2 logo on it, and lift it an angle. You should notice a small wire around the area where the Reset/Eject buttons are. The wire should be taped to the top of the Lens cover. Remove the tape, and then carefully lift the cover so that it is laying flat, and the PS2 is open like a book, connected at the middle by the wire. The Lens is now almost accessible.

4. To gain access to the lens, you need to remove the lens cover. The lens cover is located right in the area where the PS2 ejects the tray out, just above the tray. It's square shaped, and has a small white circle piece on it. To remove the lens cover, simply take out the 2-4 screws located on the side with the Jewelry screw driver. Place the screws aside, and lift the lens cover. You should now see the lens, a small circular glass piece located in the back of the disc tray.

\*\*\*Optional\*\*\*

Now comes the optional part. If you have a Can of compressed Air, you can use that to get all of the dust out of the PS2. Spray all around the area, especially the fan. You don't need to remove anything, just spray. When it seems that the dust is removed, go on to step 5.

5. Now, the lens can finally be cleaned. Take the Q-Tip and swab it generously in the rubbing alcohol, but make sure that there's not too much on it so that it's dripping. Take the Q-Tip and carefully yet firmly rub the lens in a circular motion for a good 30 seconds. Then, flip the Q-Tip over to the dry side and dry it off in the same circular motions. The lens should now be clean.

6. All that's left now is putting the PS2 back together, which should be fairly easy. Place the lens cover back on, making sure that it's tight and snug in position. Screw it in place. Then, tape the wire back onto the lens cover and flip the shell back into place on the PS2. Screw the screws back in, making sure the longer screws are going into the correct holes. The screws don't all have to be tight, so don't sweat it if 1 or 2 of them aren't seeming to fit into the holes all of the way, as long as they're in the right holes. Put the screw covers back into place, and you're done.

Congratulations, your PS2 is now cleaned, and working like new, without having to spend a dime! Feel free to repeat this process in the future, as well, if Disc Read Errors ever occur again.

#### ----- DO I NEED TO ADJUST THE VOLTAGE? -----

To determine whether or not these repairs are necessary, read the following carefully...

You may need to adjust the voltage if:

1. Your PS2 reads games on DVDs but will not read games on CDs
2. Your PS2 reads games on CDs but will not read games on DVDs
3. Your PS2 will read no games, you have already cleaned the laser and you are using undamaged discs

Do not adjust the voltage if:

1. You do not receive the message "Disc Read Error" in the browser screen

when trying to load problem discs

2. Your PS2 only gets errors on certain CD or DVD games, not All CD or DVD games. Try cleaning the problem disc, or using a Disc-Doctor

3. You receive "error reading CD" during games such as GTA3/VC or other games that stream data (clean the laser in this case)

please note that fine tuning may be needed if your PS2 reads CD games but not audio/PS1 CDs (or vice versa)... Or if your PS2 reads DVD games but not DVD movies (or vice versa)... Personally I don't suggest fine tuning without a voltage meter.

#### CLICKING AND SQUEAKING EXPLAINED

Clicking is most likely the laser unit moving back and forth trying to access a peice of data. If it can't find that data it will move back and forth until it does. In the case of a DRE, since the PS2 never finds that data it will continue clicking untill you receive the error.

In case clicking is loud, or you hear squeaking, it might be a good idea to clean the slide rods that the laser rides on, and then add some oil or grease. I will be adding more information on this very soon.

Loud clicking can be the result of warped discs in the drive, check to see if your disc is warped if you get loud clicking.

#### ADJUSTING THE VOLTAGE:

Read these instruction all the way through, and make sure you understand all the steps before doing anything!

1. Remove your warranty sticker, located next to the power cord. Take off the cover to the expansion bay.

2. Remove the screw covers on the very bottom of your playstation 2. There are six total. Four of them will be rubberized and two will be plastic. You may need a flat head screwdriver to remove the plastic ones. Ignore the extra 4 plastic covers on the raised, upper portion of the underside of your PS2, these are for removing the top shell.

3. With a phillips-head screwdriver remove the six screws under the covers you just took off. Four short and two long.

4. Pull up on the bottom portion of the case to remove it.

5. Remove the metal shield covering the circuit board (the shiny one). With the front of the PS2 facing toward you, it is on the right. There is only one screw holding it in place, it has an arrow pointing toward it.

6. Remove the expansion bay plate (the dull one with holes). With the front of the PS2 facing toward you, it will be on your left. Once again there is only one screw holding it in place with an arrow pointing toward it.

7. Lift out the expansion bay housing. It is attached to the circuit board by a short ribbon cable. Under this are the laser control screws.

8. The laser control screws are on a small amber circuit board slightly recessed in the plastic case. You will be adjusting one or both of the two small silver screws with a black screw inbetween them.

With the front of the PS2 facing you, the silver screw on the LEFT controls the voltage for the CD reading. The silver screw on the RIGHT controls the voltage for the DVD reading.

I suggest putting a small dot, with a sharpie pen, in the 12 o'clock position of each screw to help with the adjusting process...

9. Stand the PS2 on it's side (vertically, memory cards at bottom, power button at top) at a slight angle. You wont be able to stand it at this angle unless it is done on carpet floor. Having a friend hold it in position might

be better. Make sure that the expansion bay housing does not come in contact with the circuit board, as you will be turning it on, and you don't want the metal housing to short out the board. Let it hang down, away from the board.  
10. With the PS2 plugged in (power and video) turn it on. You are ready to adjust the voltage for the laser. Only adjust the screw for the type of disc you are having problems with. If you are having problems with both, do them one at a time. Remember, now that the unit is on its side the CD voltage control screw is above the DVD control screw.

If at all possible use a non-metallic screwdriver, as static electricity can ruin this portion of your PS2 (a \$65+ part!)...

11. Turning the screw clockwise increases the voltage, counter-clockwise decreases the voltage. Because you risk of blowing the laser if you give it too much voltage, always start by decreasing voltage. In my experience, you generally have to add voltage, but for safety, I suggest you reduce voltage first.

Using a small screw-driver (non-magnetic & non-metallic if possible) turn the appropriate screw counter-clockwise two degrees. Load in the CD and wait, if you still get a disc read error move the screw another two degrees. Repeat the process...

If you still get disc read errors after about 20 degrees of rotation, put the screw back to the 12 o'clock position and start moving the screw clockwise two degrees at a time.

It may take a while, but you will most likely find the sweet spot where your discs begin to read again. I have never had to move the screw more than 30 degrees, although I have heard as much as 180 degrees are needed for a modded PS2 to play backup CD-Rs.

12. Try a few different trouble discs before re-assembly to make sure you don't need more fine adjustment. As well, hold the PS2 elevated in the horizontal position and make sure it reads while in this position. I have found that slightly more voltage (2-6 degrees) is needed to run discs in the horizontal position than the vertical position.

13. Turn off the PS2 and re-assemble it.

-----  
**DISCLAIMER:**

-----  
I am not in any way

Responsible for any damage you may do to your Playstation 2 while attempting the procedures within this document.

Please note that this FAQ is not guaranteed to fix your PS2, you may actually end up doing more damage!