www.PS2.nu

Website dedicated to the Playstation 2 games console.
Our main interest is modchip development, .

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Playstation 2 Laser Calibration using Oscilloscope

If your Playstation 2 has trouble reading certain discs it is probably due for a thorough cleaning and maybe laser calibration. Use a miniature vacum cleaner, canned compressed air and cleaning buds with isopropanol alcohol (IPA) to clean out all dust and dirt from the Playstation 2 including the laser.

Click here for images on how dirty your PS2 might be on the inside before cleaning

PLEASE! Use THIS THREAD in our messageboard for any comments/questions. I can not take the time to answer hundreds of personal emails with similar questions every day :-)

Caution! If you have any warranty left, always claim a warranty repair instead of doing any work yourself. If you open your PS2 you will break the warranty seal and the warranty will be VOID!

The laser is VERY sensitive to electrostatic discharge (ESD). Always work in an ESD-protected area when you service the Playstation 2.

WARNING!

When you perform laser calibration on Playstation 2, you will connect live 110V or 220V power with your console opened. This mean LETHAL danger. Uless you have enough experience of electronic service, DO NOT attempt.

If you are uncertain about your skill or available equipment to service the Playstation 2, leave the work to a professional workshop. We are not responsible to any damage to your self, your Playstation 2 or any other equipment or animals/persons. Use the information in this document on your own risk!

For professional calibration using oscilloscope and laser power meter in Sweden, contact us. We clean your PS2 and calibrate the DVD-player for SEK 750:- including VAT.

www.PSXCARE.com

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Use the instructions from this page to dismantle your PS 2

Laser calibration using an oscilloscope

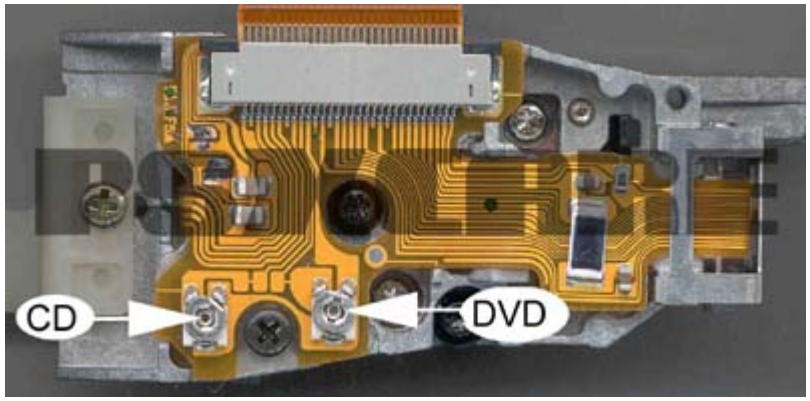
Most laser calibration guides for the PS2 is all about adjusting the laser potentiometers "blindly" or using a multimeter to measure the resistance of the potentiometers. But the reason you use variable potentiometers is that every PS2 need individual adjustment, so you cant use one reference value.

What you need is an oscilloscope and/or a laser power meter to measure what is going on when you turn the pots.

It is always best to measure on a brand new well working PS2 to get some reference values to use when you are calibrating a bad laser.

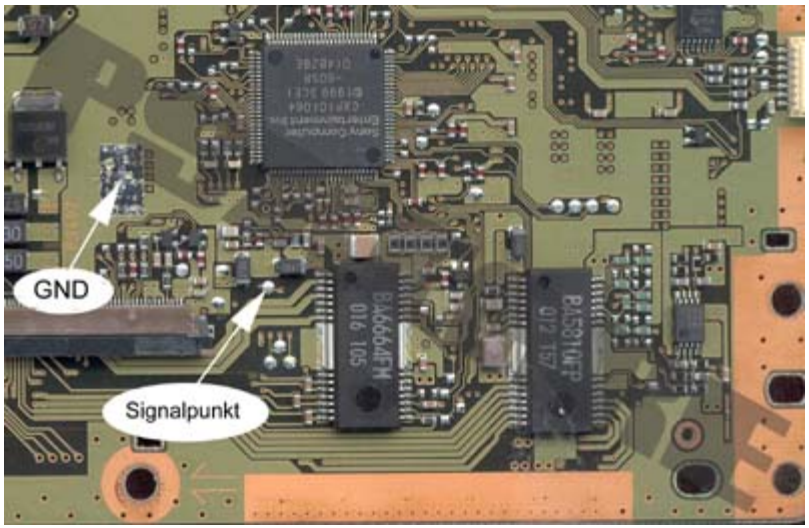
If you have a laser power meter you just have to put the photodetector above the laser lens and look at the readout. If you are using an oscilloscope you have to know where to find the RF/Eye Pattern measure points.

Laserpotentiometers on the PS2

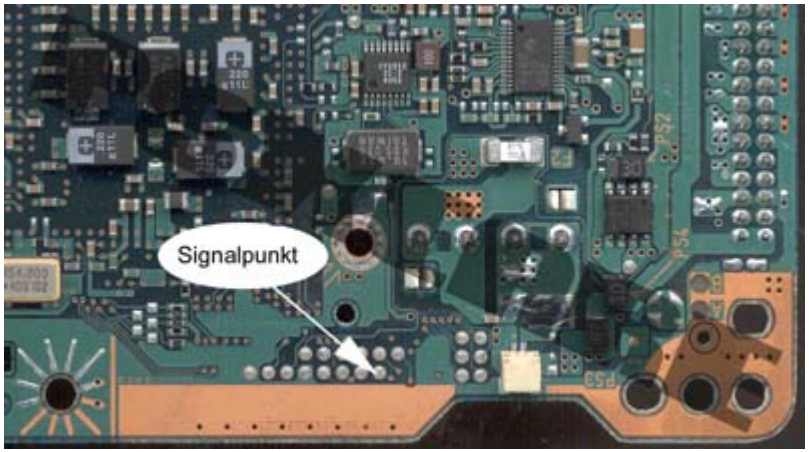


This is a picture from the underside of the PS2 Laser. The pots are marked on the picture. Turn clockwise to increase power and counterclockwise to decrease power. Dont turn those in the blind, or you might kill your laser using to much power or just be unable to get back to a working setting. Now, get your scope and connect it to the proper test point. You also need to find a good ground connection, if you dont know how you should not be reading this anyhow. Even if we have not scanned your exact PS2 model, you should be able to find the test point as your board is probably very similar to one of the following pictures:

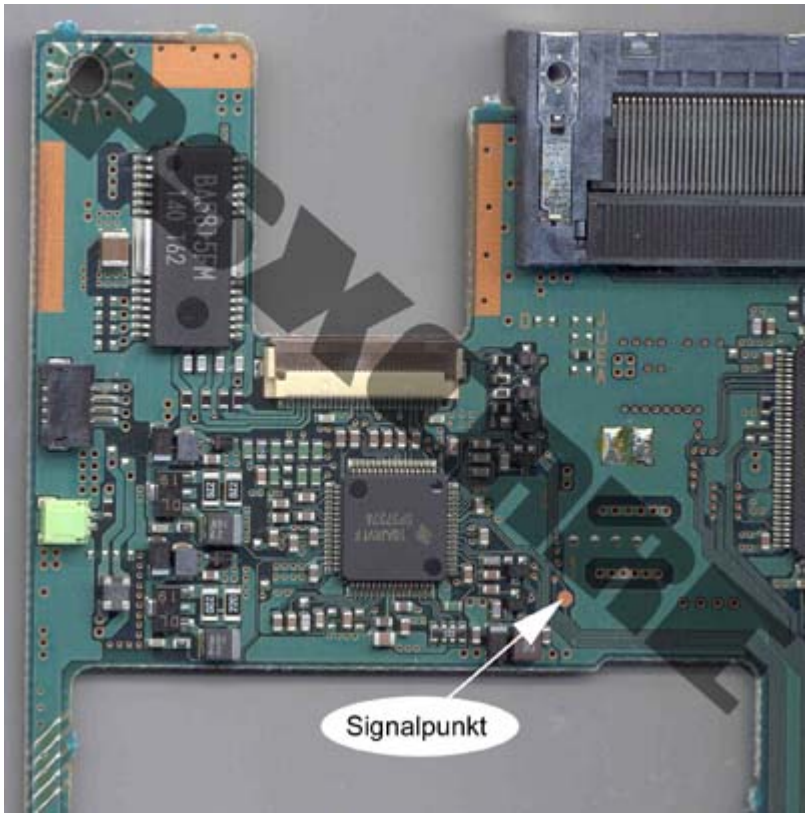
Japan PS2 SCPH-10000



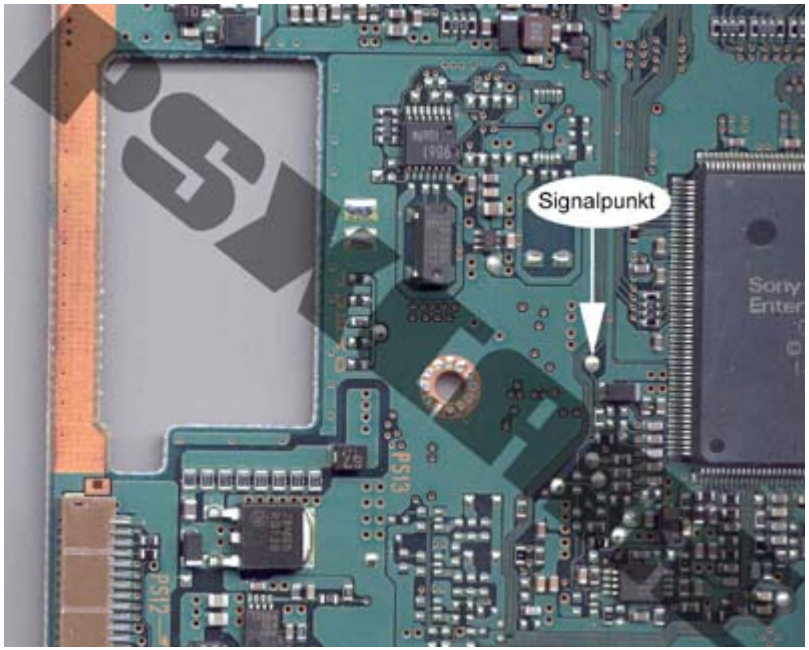
Euro PS2 SCPH-30004 "v3"



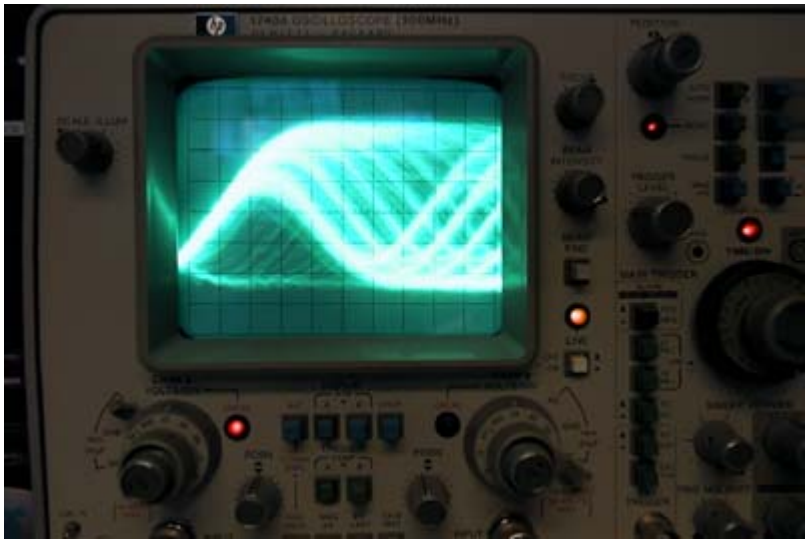
Euro PS2 SCPH-30004 "v4"



Euro PS2 SCPH-30004R "v5"



Adjust your oscilloscope and start measuring



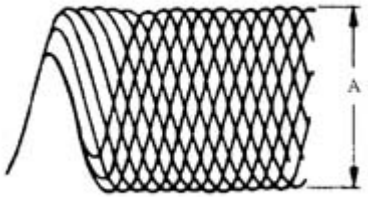
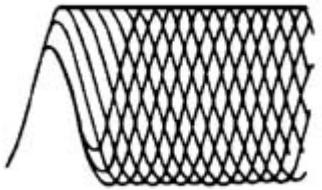
Set the scope at 20mV and 0.2us Sweep. The scope must be at least 20Mhz.

When you connect the scope you should se a clear "eye pattern" signal.

When you increase laser power, the amplitude (height) of the pattern will increase. Do not adjust to high, or the pattern will "clip" at the top and bottom.

You have to test with several different discs/media as all media have different reflectivity. Therefore, if you calibrate the laser so it will be just below clipping with cd-r media, it might "clip" when using originals.

We recommend you take readings from a brand new PS2 to get reference levels. Normal values are 800mV peak to peak with DVD media and 640mV peak to peak with CD media.

Correct signal, nice round curves at the top and bottom.	Clipped signal at the top and bottom of the pattern.
"EYE-PATTERN" SIGNAL  Scope settings : 20 mV/Sect 0.2 us/Sect	Distorted (overdriven) "EYE-PATTERN" Signal  Scope settings : 20 mV/Sect 0.2 us/Sect