

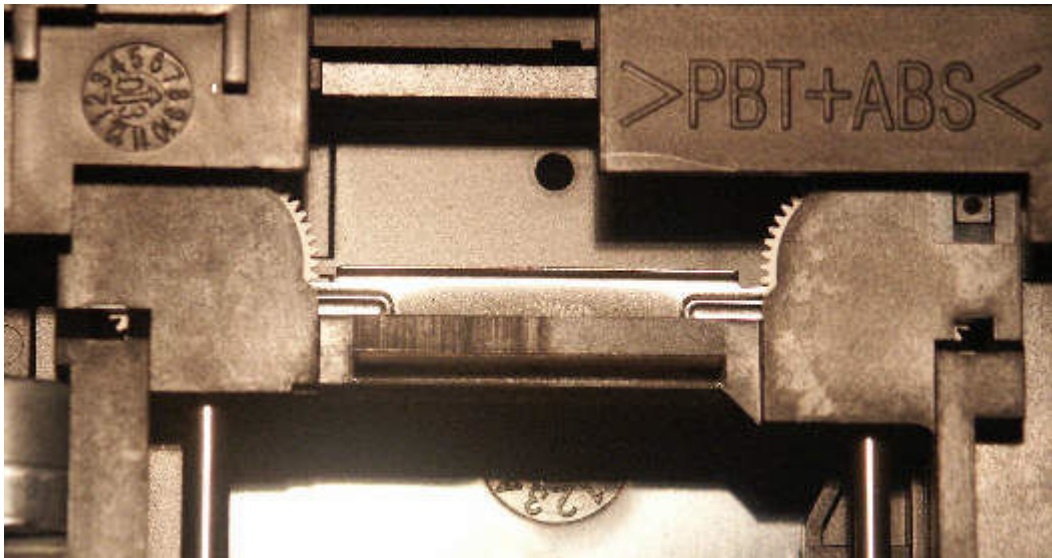
# V9/10 LASER PROTECTION & REPAIR:

## Cleaning & Adjusting the PS2 Laser:

Before assuming your PS2 is suffering the dreaded V9 syndrome, first try to clean the laser lens, as this is known to build up a thin layer of film which can reduce the laser's ability to read data from CD's and DVD's (especially if you smoke, or the station is stored in a dusty environment or on carpet). Refer to previous page ['Click here!'](#)

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**Adjusting Lens angle (Part 1)** - On V9&10 playstation laser assemblies there are two visible white cogs (pictured below) that enable you to adjust the angle or height of the sled as the lens moves to the outer edge of the disk. This adjustment is also known as the Radial Skew. As the laser gets old or worn - it may help to adjust this to bring the lens closer to the disk.

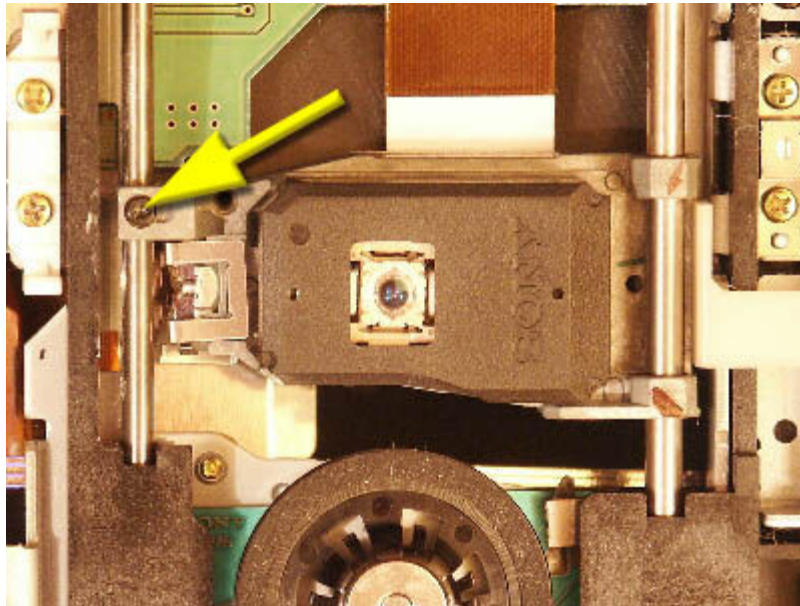


### To perform this adjustment:

- 1) Eject the tray so that it is out of the way.
- 2) Mark the original position of the cogs with a black marker pen.
- 3) To raise the sled adjust anti-clockwise
- 4) Only adjust one or two clicks at a time
- 5) After each adjustment test with both CD and DVD media.
- 6) Repeat until desired improvement occurs.
- 7) If no improvement - set back to original position.

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**Adjusting Lens angle (Part 2)** - Known as Azimuth or Tangential Skew adjusting. This will adjust the angle the lens sits at on the sled. This should only need adjusting when replacing lens units - even then, the factory set angle should be fine!

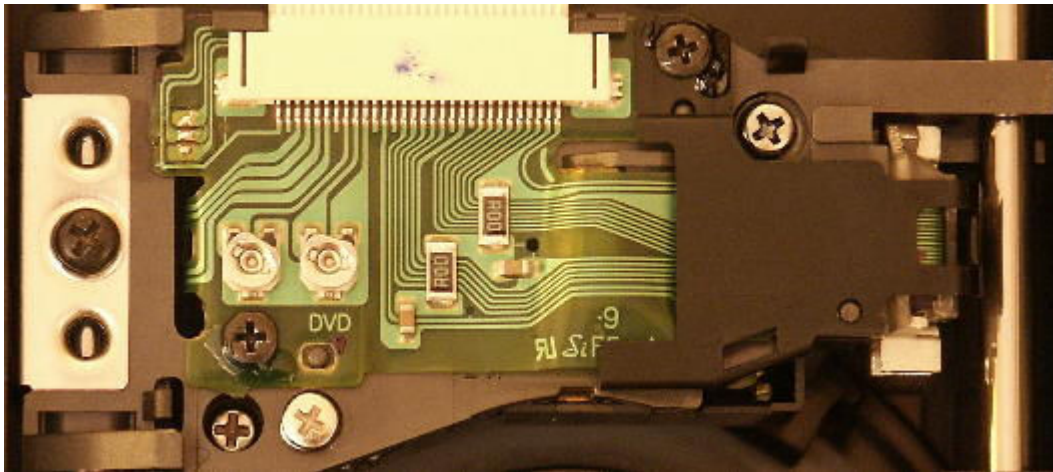
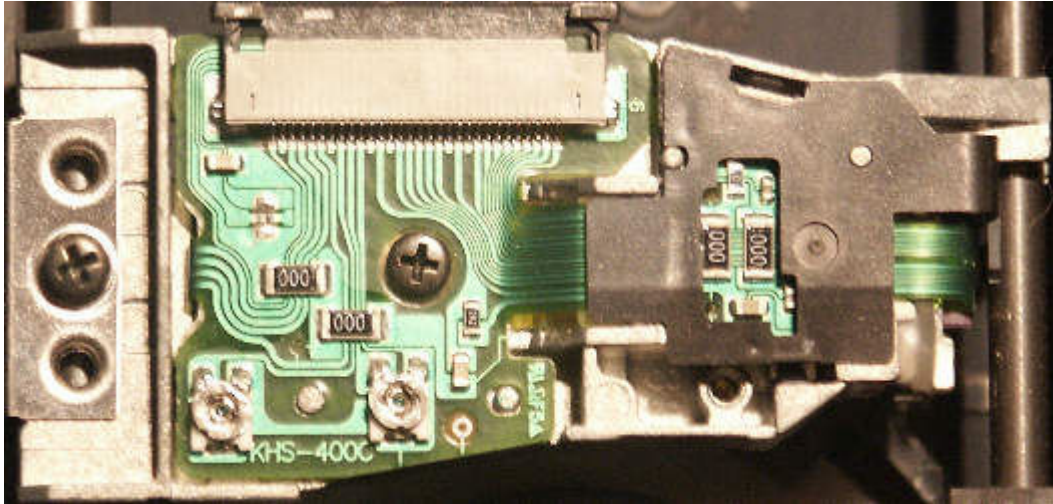


To perform this adjustment:

- 1) Mark the original position of the screw with a white mark.
- 2) To raise the lens on the left adjust clockwise (screw in)
- 3) To lower the lens adjust anti-clockwise (screw out)
- 4) Only adjust fractions of a turn at a time.
- 5) After each adjustment test with both CD and DVD media.
- 6) Repeat until desired improvement occurs.
- 7) If no improvement - set back to original position.

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**Adjusting the pots** - On all stations even ones of the same model number, the CD adjustment pot and the DVD pot can vary in factory set values, so always measure the original settings before adjusting the pots. It is not recommended to reduce the laser biasing by more than 10%, as this can reduce the life of the laser diode. Adjust your factory set laser biasing at YOUR OWN RISK.



On All stations, depending on which media the laser struggles with:

- 1) Carefully adjust the CD (or DVD) pot down by 50 to 100 ohms at a time,
- 2) Test a backed-up CD (or DVD) that is known to work on other stations,
- 3) If it does not play at all or skips, then continue to adjust the pot.
- 4) Do not reduce the pot by more than 20%.

In General original settings can be around:

V9 stations - CD = 1200 to 1400, DVD = 1200 to 1400

On worn lasers you will find more often than not - settings of around 10 to 20% less than factory setting are required to guarantee reliable booting. Although this may reduce the life of the laser - at least you will get (depending on the required extent of adjustment) an extra 6 to 12+ months life out of the worn laser before being forced to buy a new one. So a simple answer to all those people who warn against adjusting the laser pots is - "well a working laser that will die some time in the future is far better than one that does not work at all now!"

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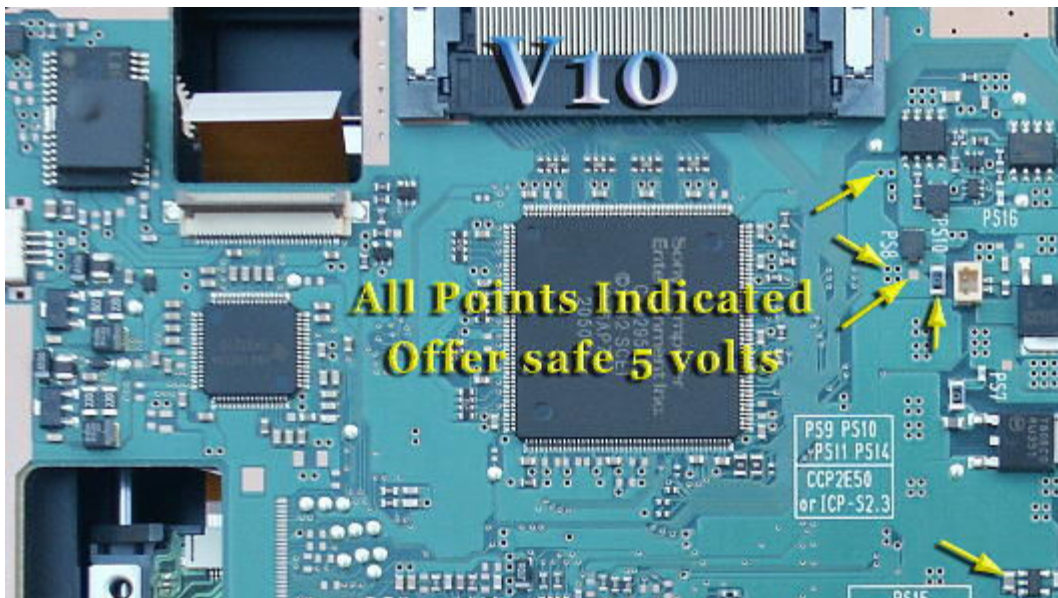
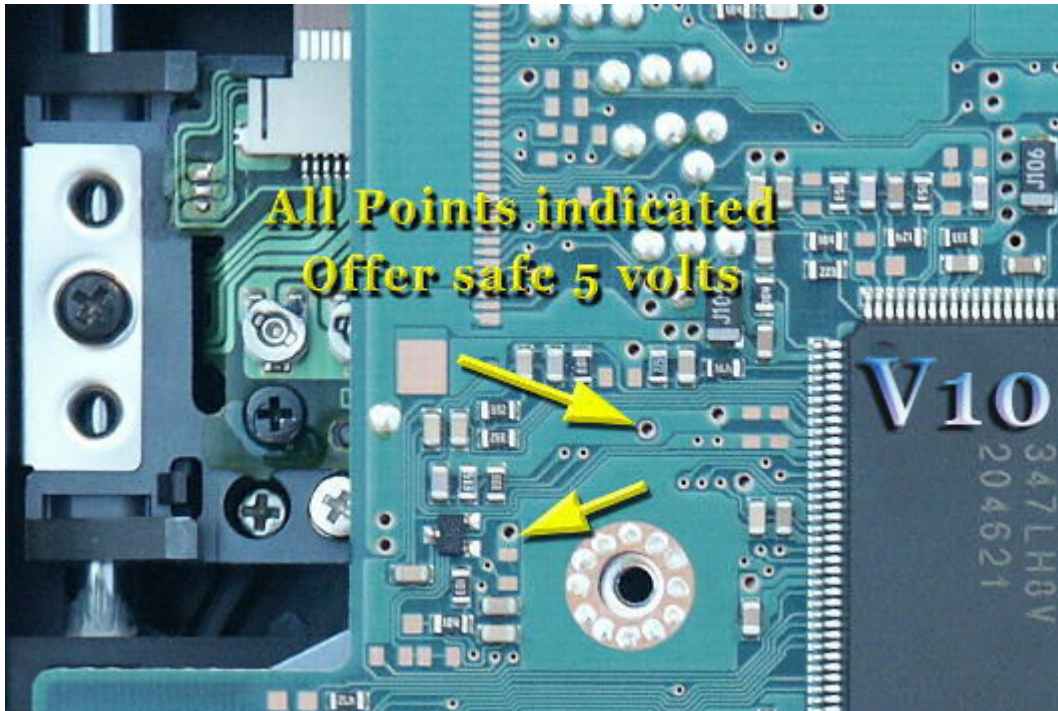
## The V9/10 Syndrome as we know it...

Firstly - the prevention - by far easier than the cure:

- 1) Carefully lift Pin17 of the LA6508 Chip,
- 2) Ensure no solder links it to the pad it was just lifted from,
- 3) Link Pin17 to 5 volts as demonstrated in the picture below.

Pin17 was connected to 12v which is suspected to be the cause of dead V9 & V10's when scratched or poor media is played in the station.





But if it is to late...

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**Measuring the Coil resistance of your lens**

### ***Background information***

The coils on the laser lens are used to move the lens up, down, left and right during focusing. This is performed by sending a current through very thin enamelled wire that is wound into coils.

These coils will shift the lens in various directions and various distances depending on the magnitude of the current flowing in the coils. The movement is generated by the coils producing magnetic fields of various strengths which attracts or repels the lens from two magnets positioned on either side of the lens.

There are two things that control the amount of current flowing in the coils. One is the BA / LA controller chip on the PS2 main board and the other is the resistance of the coils themselves. If either the coils or the BA / LA chips become damaged the laser will not focus.

A further concern is that if for what ever reason (poor manufacturing or excessive current flow due to bad media used) the enamel on the wires becomes over heated and bubbles, flakes or peels off - then you can end up with shorts in the coil that will kill both your laser and also the BA / LA controller chips. This occurs both with chipped and new with no chip installed stations.

This has been seen to happen a lot with the cheaply made V9 and V10 Sony lasers.

A good working laser should have coil resistances of **4.5 to 5ohms on both coils**.

Any lower than 4.5 ohms and your LA chip will more than likely over heat and eventually die due to the excess current draw required to pump the required voltage through the coils in order to focus.

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### ***Taking the Measurements***

There are 3 locations that can be used to measure the resistance of the coils. Although this is usually only required or performed when the laser or BA / LA chip is already damaged - I have included it anyway so that people can fault find their dead stations.

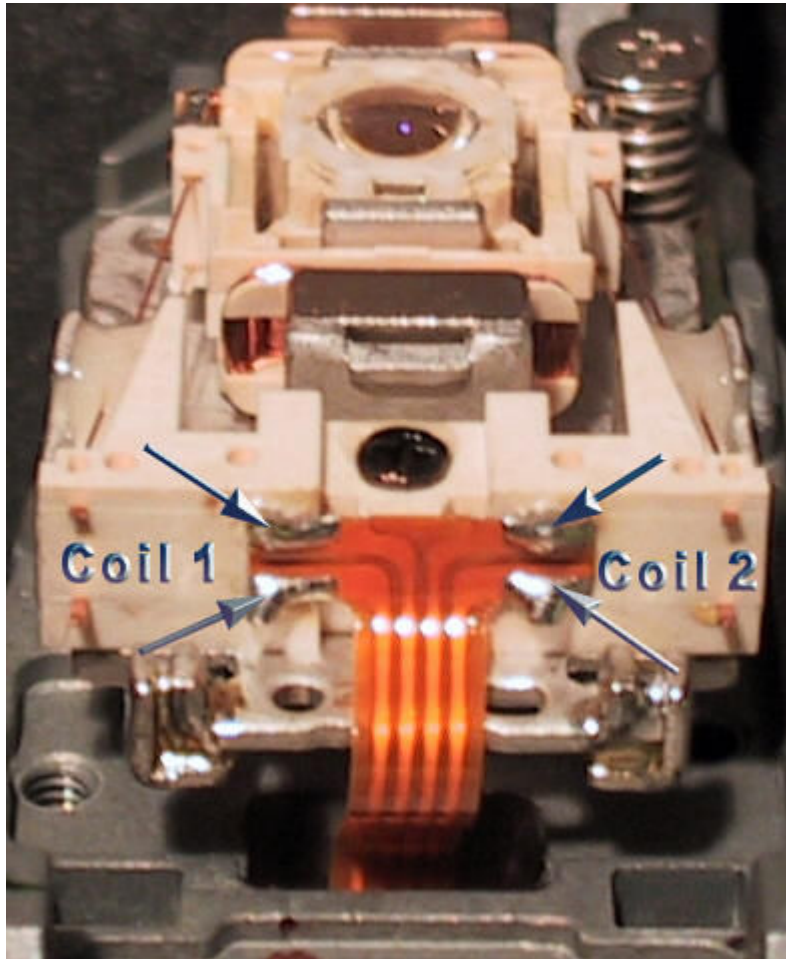
One of the locations is on the edge of two surface mount capacitors on the PS2 main board near the BA / LA controller chip. I wont discuss that location as it is measuring the coil resistance in circuit, which can provide false readings if say the controller chip is itself damaged.

### **What you are looking for:**

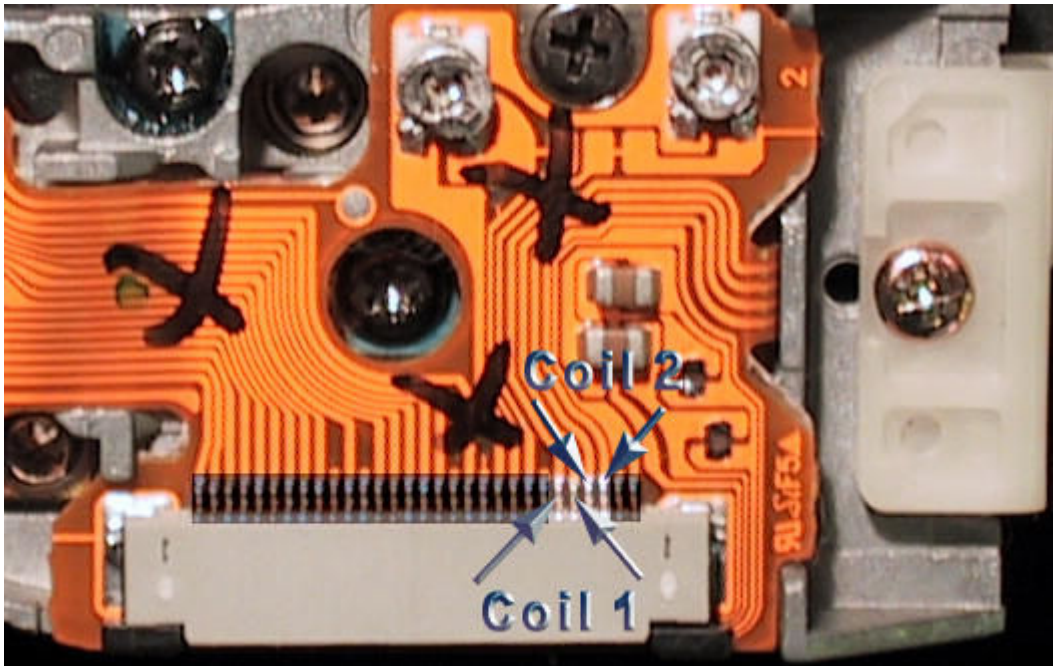
1) Approximately 4.5 ohms across coil 1 & 2 = Good laser coils - check pots or clean.

- 2) Less than 1 ohm across coil 1 & 2 = Very Bad laser coils
- 3) Approximately 4.5 ohms across coil 1 & less than 1 ohm on coil 2 = Bad laser
- 4) Approximately 4.5 ohms across coil 2 & less than 1 ohm on coil 1 = Bad laser

Location (1) - requires the complete removal of the lens from the PS2. Also requires the removal of the plastic shroud covering the lens.



Location (2) - Preferred location! - Requires only access to the rear of the lens, as such no part of the laser other than the ribbon cable connecting it to the Main board need be removed.



### *Bringing the dead back to life*

#### What are your options??

- 1) Replacing the LA with another LA (Hard to find) plus the Pin17 mod.
- 2) If not totally Dead, piggy back a BA chip on the half dead LA ([Kiaser Sozei](#))
- 3) Totally replace the LA with a BA chip (do it yourself or use a LA6508R)
- 4) With all these options, unless lucky, the laser will also need to be replaced.