

Tools.

Before you go diving in and start pulling out Anode plugs, you need to have the right tools and even though it is possible to make a discharge probe from a screwdriver, a crocodile clip, a few resistors and a bit of wire, its safest to have the right bit of kit and invest in a **HV (High Voltage) Probe**. These are available on ebay and prices vary depending on source. To use it you will need a **Digital Multimeter**, but **NOT** the Auto -ranging type. The HV probe steps the voltage down by **1,000 to 1**, thus making it safe for your multimeter to measure the voltage.

So if there is **5,000** volts in your **CRT (Cathode Ray Tube)** it will show as **5** volts DC on your multimeter.

**Getting started.**

Before you do anything, **UNPLUG YOUR CAB !**

Through the whole of this procedure safety is the most important thing on the agenda. Don't cut corners or make assumptions, monitors have "**Danger & Risk of Electrical Shock**" labels on the back of them for a reason. They can hold voltages in tens of thousands and are killers.

If you are willing to learn how to repair your own monitor, great, its nice to know you are willing to try but **PLEASE** make sure you use the correct equipment, and most importantly follow the correct procedures with respect to safety.

NEVER go into the back of a monitor with both arms
(if you were to get a shock, it will cross your heart !!).

Be **very, very** carefull when removing a monitor or moving it about, as the **CRT (Cathode Ray Tube)** is a bit like a bomb, if you mishandle it or drop it, it will implode first before it chucks fragments of razor sharp glass upto 30 feet.

If in doubt, **DO NOT TOUCH** its a brilliant motto, use it.



So what exactly do i discharge ?

To be able to work on your monitor chasis, you need to remove it and to be able to remove it you need to discharge the CRT. The chasis has a **Line Output Transformer (LOPT)** on it, which connects to the CRT via a thick red lead and is attached under a big rubber cup called the **Anode cap**. This is where the Anode clips into the back of the tube and its here where we discharge the tube. **DO NOT** grab, touch or fiddle with anything in this area until the monitor is discharged !



HV Probe meter connections & GND clip.

Connect the black lead to the common connector on your multimeter and the red lead to volts connector. Once you have done this select **200 volts DC** on the dial in the middle of your multimeter.

Now take the black lead with the crocodile clip on it and attach it to part of the monitor cage, where it will make a good GND connection.



Time to probe.

Now pick up the probe with one hand and put the other hand you are not using in your pocket, by doing this, you avoid your body making a circuit, in case your other hand is touching something it shouldn't. Now gently push the tip of the probe under the rubber cup until it reaches the clip in the center, if you glance at your multimeter whilst you are doing this any voltage stored in the tube, will be shown on the read out, but only for a few seconds or so.

! Remember the probe steps down the voltage to the meter by **1,000 > 1 !**

So if its saying **1** on your display, don't be fooled into thinking its **1 volt DC** as it is actually reading **1,000 volts DC !!**

To be sure that it has totally discharged, you may want to do this 2 or maybe 3 times, with a few minutes gap in between, as sometimes a tube will recharge a little.



Removing the cap.

Under the rubber cup, is a clip which has a couple of little prongs that face away from each other and these are what clip it in the hole.

Whilst still keeping one hand in your pocket, grab the rubber cap with your other hand in the center and pinch it together tightly, then whilst still pinched push it either to the left or right of its original position and then pull towards you, it should then come free from the hole.





Grounding the cap.

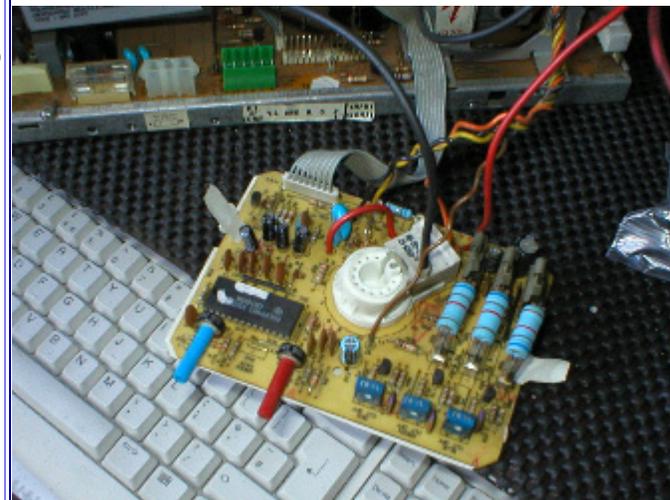
To make sure the anode is holding no charge, touch it against the monitor cage a couple of times.

Pic on right gives a better view of the prongs inside the cup.



Removing the neck card.

As the neck of a tube is easily damaged, it pays to be cautious when removing the neck card, it is also possible to get a shock from the neck pins, so again caution should be used. Grab the card (pcb) at the top and bottom, by the tips of your fingers, very gently wiggle from top to bottom in small increments as you pull, do not rush, take your time and pull gently !





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