

REPAIR GUIDE FOR COMMON PROBLEMS FOUND WITH MPL10



PLEASE NOTE

All repairs must be carried out by a qualified person.

Before repairing please ensure that the MPL unit is disconnected from both the mains supply and the battery.

High risk of electric shock.

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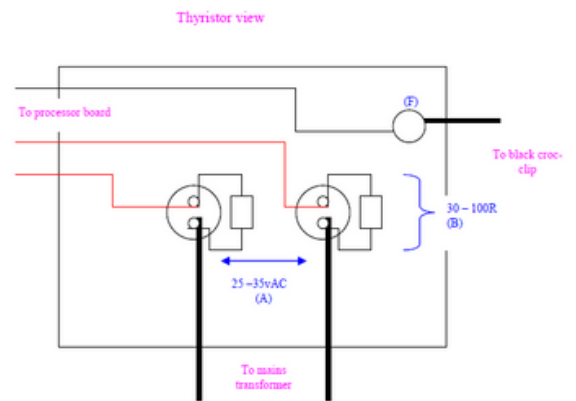
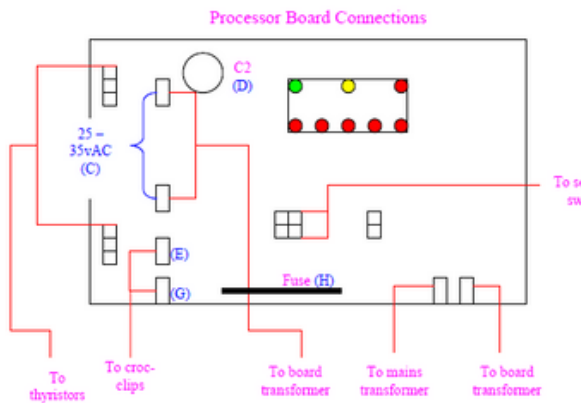
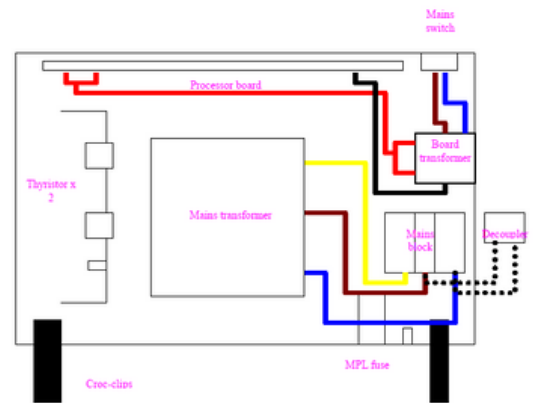
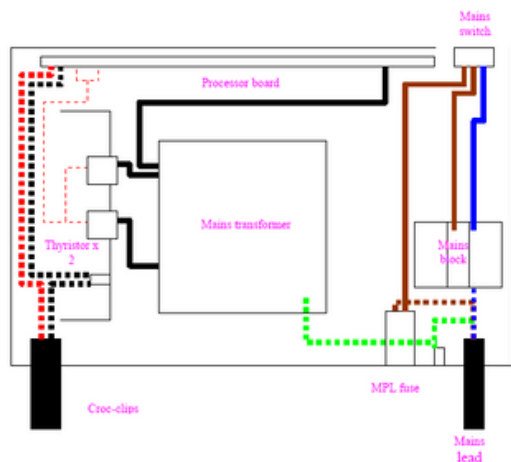
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1. ALL LIGHTS FAILING TO COME ON INCLUDING POWER LIGHT

First check fuse in the mains lead with a multimeter, ensure resistance across fuse is less than 1R.

Check MPL fuse with multimeter, ensure resistance across fuse is less than 1R.

Open case carefully by drilling through the 6 rivets on the top of the charger, making sure the charger is neither connected to the mains or a battery. Remove all remnants of rivets from the inside of the case. Check visually for broken or burnt wiring in the following sections:



It is worth paying particular attention to the mains block and switch to see if a loose crimp is the cause, and also checking to see if a physical short is stopping the unit from working. If under visual inspection no fault can be seen it is worth checking the mains lead has not got an internal break in the line between the plug and the mains block by checking resistance. Also the mains switch itself is working by measuring the resistance between the live (brown) wires goes between open circuit and closed circuit as the switch is pressed.

If all wiring is correct the next step is to check the mains transformer. First check the resistance between the thyristor legs (A shorted thyristor, will cause the mains transformer to short out the mains power.), this will typically be 30 – 100R (B), if working. Attaching the croc-clips to a battery may also indicate a blown thyristor as the battery will short, causing the croc-clips to spark.

If still no fault found connect the croc-clips to a battery and then connect the mains lead to mains supply and power.

****BE VERY CAREFUL WHEN TAKING MEASUREMENTS UNDER POWER – RISK OF ELECTROCUTION-MAINS BREAKER ADVISED****

First check AC voltage across live and neutral (Brown and blue.) over the mains block, by pressing the probes on the holding screws of the block. If mains is present you will get a reading between 220v-240v. A half reading will result in a reading of between 100v-120v, if this happens use the meter still in AC mode to read between the GND nut and live then neutral to show which voltage is missing. If 0v is detected check mains socket on wall.

If voltage is good, check the outputs firstly of the mains transformer. The best place to check this is on the lower connection of the thyristor to the mains transformer (A). This will typically be between 25vAC-35vAC.

If no fault has been discovered then the only cause left is the processor board has developed a fault. The Processor board is harder to fault find, but, what is worth checking is the soldering on the C2 capacitor (D), especially on older version boards.

****DISCONNECT FROM MAINS AND BATTERY BEFORE REMOVING PROCESSOR BOARD****

2. POWER LIGHT WORKING, YELLOW LIGHT FAILING TO COME ON

This sort of fault largely indicates a fault with the connection between the croc-clips and the processor board.

The first thing to check is the fuse in the croc-clips is not blown (if fitted.), this is usually visible but can be measured by meter.

Open case carefully by drilling through the 6 rivets on the top of the charger, making sure the charger is neither connected to the mains or a battery. Remove all remnants of rivets from the inside of the case.

Measure resistance between the black croc-clip and the NEG connection on the processor board (E), if resistance is greater than 1R, then check the negative plain nut (F) is tightened fully and remeasure resistance.

Measure resistance between the red croc-clip and the POS connection of the processor board (G), if resistance is greater than 1R then red croc-clip at fault.

If not either of these croc-clips, check the onboard fuse, F1 (H), of the processor board.

If none of these things has happened, the processor chip of the processor board has stopped working.



3. POWER LIGHT WORKING, YELLOW LIGHT WORKING, FLASHING SEQUENCE DOESN'T START AND AMP INDICATING LEDS NEVER BUILD

This is an indication that the croc-clips have been worn to the point where the impedance of the croc-clips, is too great and the charger can't work out voltages or currents.

This can't really be measured using a meter, but if the croc-clips look particularly badly worn or have been repaired using a soldering iron, is most likely the case.



4. THE UNIT SPARKS WHEN CONNECTED TO A BATTERY, OR BLOWS FUSES WHEN TURNED ON

This indicates that a thyristor has shorted. This may also lead to the mains transformer shorting.

Open case carefully by drilling through the 6 rivets on the top of the charger, making sure the charger is neither connected to the mains or a battery. Remove all remnants of rivets from the inside of the case.

First check the resistance between the thyristor legs (A shorted thyristor, will cause the mains transformer to short out the mains power.), this will typically be 30 – 100R (B), if working.

Desolder the broken thyristor(s) from the mains transformer, and then connect the unit to the mains.

****USE BREAKER, IF MAINS TRANSFORMER SHORTED IT WILL BLOW PLUG FUSES AND RESET TRIP SWITCHES. USE CAUTION!****

Check output from the transformer is in the range of 25vAC – 35vAC. If transformer output is in indicated range and input current is less than 0.5A, then the transformer has not been damaged and the thyristors can be replaced.