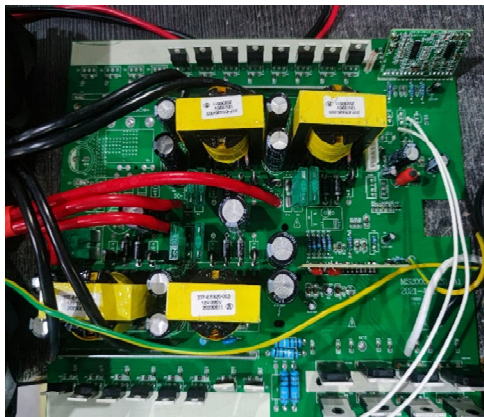




### 1. Instruments and equipment needed for maintenance:

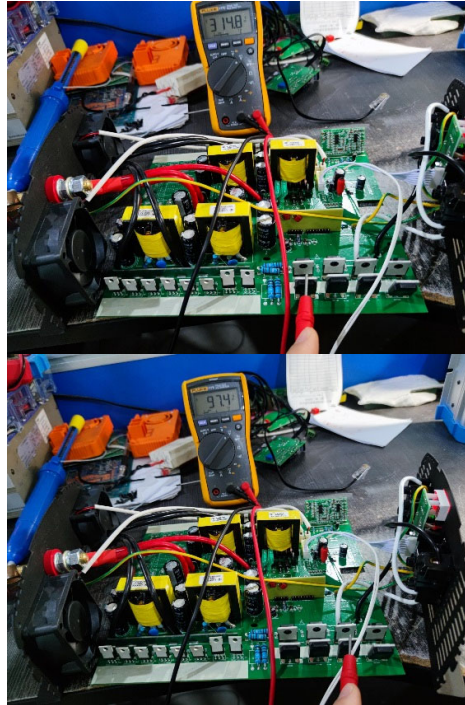
NO.	Test Instruments	Models and specifications
1	DC adjustable power supply	DC0-100V adjustable
2 Model: IOE-1000-12/24	Electrical parameter meter	Can display AC voltage/current, power, frequency
3	Multimeter	FLUKE 117 model
4	Oscilloscope	Above 50MHZ
5	Soldering iron	100W thermostatic ferrochrome
6	Electric screw driver	Requires regular small and medium screw heads

### 2、Repair guide

Fault issue	Problem points and inspection methods/steps	Photos	Maintenance treatment method	Remark
Confirmation of fault issue	1. Power-on inspection		<ol style="list-style-type: none"> <li>1. Observe whether the components are burned, sparkled, damaged, or whether the capacitors are bulging.</li> <li>2. Adjust the DC power supply current limit to 5A, and adjust the output voltage to the voltage corresponding to the product input.</li> <li>3. Connect the input and output leads correctly, turn on the product switch, and confirm whether the product has output and other faults (if there is any burn, do not power on first)</li> </ol>	<p>The DC power supply needs to limit the current to less than 5A.</p> <ol style="list-style-type: none"> <li>(1. Do not touch the high-voltage area of the rear stage with your hands when power is on.</li> <li>2. Use a multimeter to test and be careful of short circuits on the test leads.</li> <li>3. If the product has a remote control, you need to unplug the 5305 first and then pull the driver)</li> </ol>

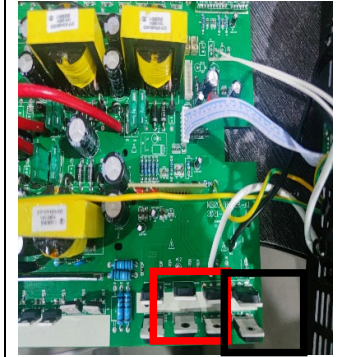
The product can be powered on, but there is no output

2. Check the back MOS voltage

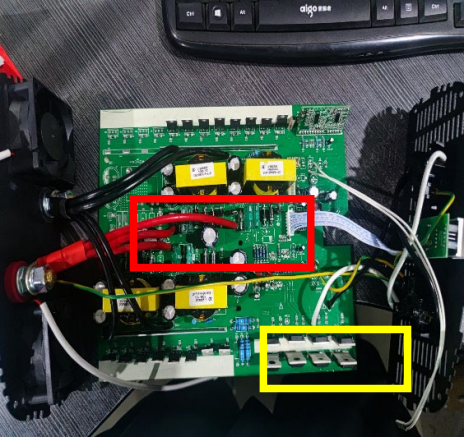


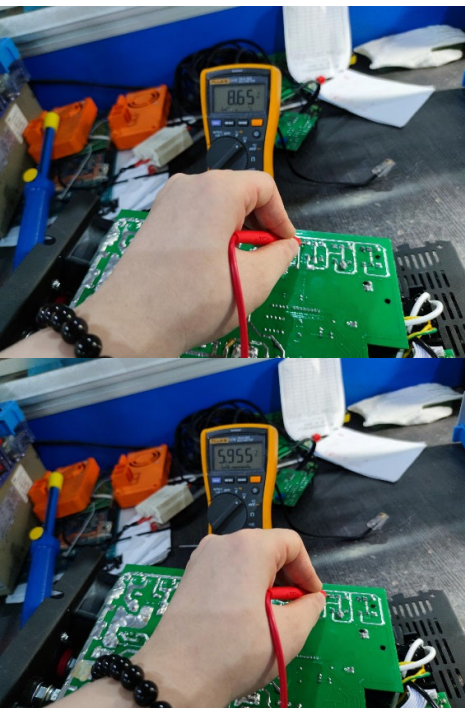
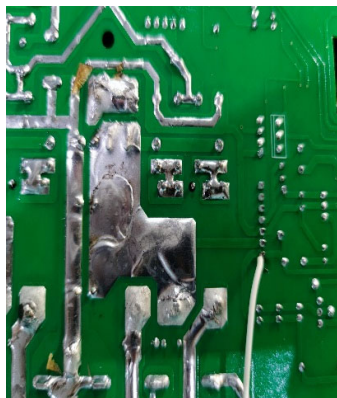
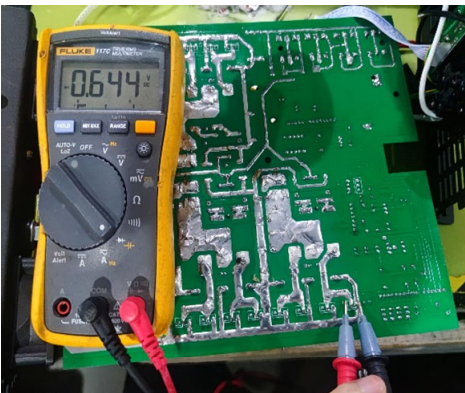
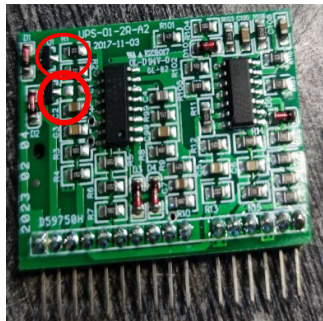
1. Set the multimeter to the DC range, put the black pen on the negative electrode, and put the red test pen on the metal surface of the rear field tube to measure the voltage of the rear stage tube. They are one set of 314V (145V at 110V) and one set of 97V (50V at 110V). ).

If there is no 330V, it means that the front MOS is not working. If there is no 100V, it means that the back MOS is not working. In the same way, when protecting, the front and back MOS protection can be judged based on whether there is high voltage. If there is high voltage, it means the back MOS protection, and vice versa, it means the front MOS protection.

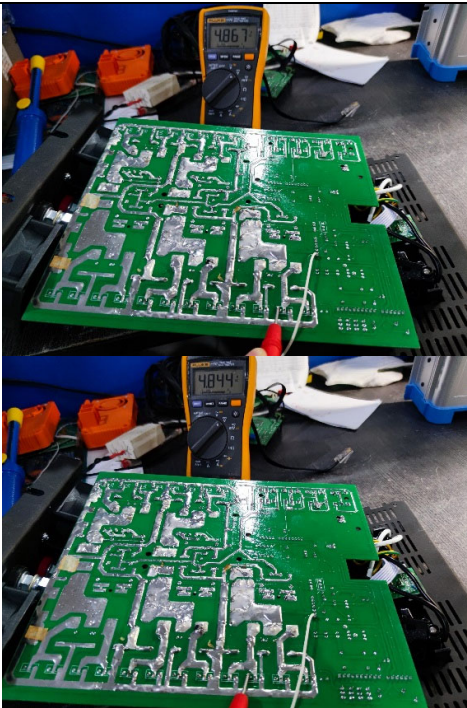
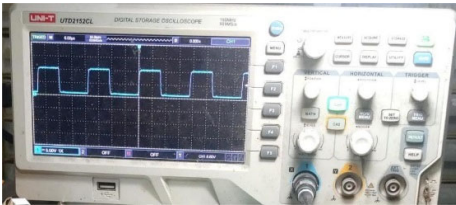


The 4 on the left have 283v and the 4 on the right have 101V.

<p>The product has no output, the green light is on, and the red light is flashing.</p>	<p>3. Check the rectifier part and the back MOS part</p>		<ol style="list-style-type: none"> <li>1. Check whether the 16 rectifier diodes in the red remarked are damaged. Adjust the multimeter to the diode mode and measure the resistance. If there is no continuity, it is good. If the diode is damaged, replace it with the same type of diode.</li> <li>2. Check whether the four Back MOS tubes in the yellow remarked are damaged. Adjust the multimeter to the diode position to test whether there is a short circuit in the GS/DS and whether the diodes in the body are normal. If the MOS tube is damaged, replace it with the same type of MOS tube.</li> </ol>	
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<p>Replace defective components and test the MOS driving voltage.</p>	<p>4. Replace the components and test the MOS driving voltage.</p>		<ol style="list-style-type: none"> <li>1. Connect a wire to the shutdown port of the switch interface as shown in the figure to turn off the product switch.</li> <li>2. Connect the lead to + and the terminal on the side panel of the product to -, and test the driving voltage of the G pole of the subsequent MOS tube.</li> <li>3. The driving voltage of the rear pole is 8.65 for one group and 5.9 for the other group. If the driving voltage is incorrect, check whether the driving signal on the UPS-2 small board is normal.</li> </ol>	 <p>Because this board is not an isolation board, the negative poles of its front and back MOS are connected, so the back MOS drive can be measured by directly pulling the front pole driver.</p>
<p>The product is energized with large current (short circuit)</p>	<p>5. Measure the MOS tube as shown in the picture on the right. Take out the tube with the smallest resistance and measure it in sequence until the resistance value in the picture on the left.</p>		<ol style="list-style-type: none"> <li>1. Check whether the MOS tube of the product is damaged. If damaged, replace the MOS tube of the same model.</li> <li>2. Check whether the resistor connected to the G pole of the MOS tube is damaged. If it is damaged, replace it.</li> <li>3. Check the diodes and transistors on the small board as shown below, and replace them if they are damaged. (One B9D transistor and one 4148 diode drive two MOS tubes. If</li> </ol>	



			there are still defects after replacement, the small board needs to be replaced)	
Test the driving voltage of the front MOS tube	6. Test the driving voltage of the front-stage MOS tube .		<ol style="list-style-type: none"> <li>1. Connect a wire to the shutdown port of the switch interface of the product as shown in the figure, and turn off the product switch.</li> <li>2. Connect the lead to + and the terminal on the side panel of the product to - to test the driving voltage of the G pole of the MOS tube.</li> <li>3. The front-end drive voltage is between 4-6V.</li> </ol>	<ol style="list-style-type: none"> <li>1. The switch needs to be turned off.</li> <li>2. The DC power supply needs to have a current limit within 5A.</li> </ol>
Test the front MOS tube waveform	7. Test the front-stage MOS tube waveform		The normal waveform of the front-stage MOS tube driver is as shown on the left.	

Power-on inspection	8. Power-on inspection		<p>1. After the drive is normal, remove the leads and power on the input terminal to test whether the product output is normal.</p> <p>2. After the product is normal, add a small load test. After the small load is normal, gradually increase the load. After everything is normal, the product will be repaired.</p>	
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