



MP66 Setup guide



Safety warning

THIS KIT IS NOT FOR BEGINNERS !

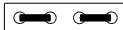
This kit uses high and potentially lethal voltages. Under no circumstance should someone undertake the realisation of this kit unless he has full knowledge about safely handling main powered devices.

Follow the testing procedure in the shown order. If one test fails, find out the problem, correct it then resume.

Always unplug power between steps and discharge high voltage capacitors as described below.

Always use an insulated screw driver to adjust the trimmers. There are several points that carry high voltage that may kill you if you accidentally touch them.

It is very easy to create shortcuts when moving the DMM probes. Be very careful because most of the time, shortcuts are fatal to the circuits.

Step	Description
1.	Jumpers setting Install 2 jumpers on JMP1 to set the transformer ratio to 1:5. 
2.	Short circuit check Do a basic short circuit check with your digital multimeter (DMM) set to Ohms : Between Test point TP2 (GND) and TP7 (V+300). You should get several hundred of kilo-Ohms. If it is not the case, find out and fix the short before applying power.
3.	Test setup At this point, you need an assembled and wired SKMP case, with a DIO2 board fitted. Install your MP66 in 2 free slots. Do not forget to place the mylar insulator sheet underneath the PCB. Do not secure it yet with nuts. Connect a flat cable between the DIO2 and the MP66 board (look at the "SKMP assembly guide"). Disconnect all other micpres by removing the flat cables. Connect the PSL1 or PSL2 power supply leaving the mains plug disconnected. Make sure NO tube is installed on your MP66 board . Prepare a discharge cable for the high voltage capacitors.
4	Discharge cable IMPORTANT The circuit uses 300V DC voltages. Several electrolytic capacitors are charged to this potential. When power is removed, the tube heaters turn off, leaving the tubes in a high impedance state preventing the capacitors discharge. This means that very high potentials will remain on the circuit many minutes after the power has been removed. Before putting your fingers on the circuit, it is necessary to discharge the capacitors. Use a piece of insulated wire and a 1K to 10K resistor connected to ground. The ground can be taken on the ground bar that links the XLR plugs. To discharge the caps, touch TP7 a few seconds with the resistor leg.





Step		Description
5.	High voltage check	<p>Set your DMM to DC Volts on a 500 V scale and connect it between TP2 (GND) and TP7 (V+). Use test hooks and be careful not to create shortcuts.</p> <p>Plug in power and check that the 3 LEDs on the power supply unit are lighting normally. If one or more LED is staying off or is lighting too low or too bright, immediately plug off power and start checking your board.</p> <p>Check that you get a positive voltage of 295 to 300 Volts on your DMM.</p> <p>Plug off power.</p> <p>Discharge capacitors.</p>
6	Heater check	<p>Insert both tubes in their respective sockets. Do that progressively, without hardness, the risk being to bend one of the tube pins.</p> <p>Set your DMM to DC Volts on a 3V scale and connect it between TP6 and TP5. Use test hooks and be careful not to create shortcuts.</p> <p>Plug in power.</p> <p>The value displayed should ramp up from 0.2V to around 0.6V then back slowly to 0.56V when the tubes get hot.</p> <p>This value is the voltage across a 3.75 Ohms resistor, in serial connection with the heater circuit. 0.56V means a current of $0.56 / 3.75 = 150\text{mA}$ in the filaments.</p> <p>Plug off power.</p> <p>Discharge capacitors.</p>
7.	Sound check	<p>Connect the input and output XLR wires to the board terminals.</p> <p>Plug in a dynamic microphone to the input XLR.</p> <p>Connect the output to your monitoring system. It can be a headphone amplifier or it can go through one of your ADC inputs if you run a software studio.</p> <p>Set gain switch to Mid, gain knob to minimum, Hi-Pass switch up, Air switch centre, phase switch up, 48V up and Output level to max.</p> <p>Plug in power and wait about 30 seconds for tubes warm up.</p> <p>Turn up the gain knob until you hear the microphone. If the gain is not enough, switch to High-Gain. Check that your micpre is working. Check the 3 switch gain positions, the High-Pass switch, the Air switch, the phase switch and the output level knob.</p> <p>Make the same test with a static microphone, with the 48V switch set to On.</p> <p>Plug off power.</p> <p>Set the 48V switch to Off.</p> <p>Discharge capacitors.</p>
8.	DI check	<p>Plug the board's flat cable to connector CN1 or CN2 on the DIO2 board if it is not the case yet.</p> <p>Insert an instrument jack into the corresponding front panel jack socket.</p> <p>Plug in power.</p> <p>You should hear your instrument when playing.</p> <p>Plug off power.</p>



Step	Description
9. Clip LED setup	<p>Warning : Do not forget to set your 48V phantom switch to OFF.</p> <p>This setup will be based on voltage levels rather than on actual clipping because, in tube preamps, the clipping comes in very progressively and it is difficult to hear.</p> <p>Connect a 1 KHz sine source to the input.</p> <p>You can use your multitrack software loop playing a sine tone like the one that is downloadable from the “Downloads & Useful links” section on our website. Route the signal to an audio output and connect your DMM to this output. The DMM is set to AC Voltage, on a 100 millivolts scale. Adjust the software output level in order to get 100mVAC. Connect this output your micpre input.</p> <p>Set the gain potentiometer to 0 and the gain switch to High (top position).</p> <p>Plug in power and wait 30 seconds.</p> <p>Warning : Use an insulated screw driver to adjust the trimmers.</p> <p>Adjust P3 trimmer (Clip1) clockwise until it starts turning the LED red.</p> <p>Now set the gain switch to Mid (centre position) and the output pad to maximum.</p> <p>Increase the 1 KHz level in software to 0.5V AC.</p> <p>Set your DMM to a 20VAC scale and connect it on the output of the preamp, between pins 2 and 3 of the output XLR.</p> <p>Adjust the Gain potentiometer until you read 12.35V AC on the DMM. This is about +24dBu.</p> <p>Adjust P4 trimmer (Clip2) until it starts turning the LED red.</p> <p>Plug off power.</p> <p>Discharge capacitors.</p>
10. Congratulations	You're done !