

EMINENT E310 EXTENSIONBOX

1. INTRODUCTION

This kit adds extra functionalities to your Eminent Unique E310. It makes a split between the upper and lower manual.

This means that you can play strings and sustains, passed through an included small stone phaser, together with normal sounding tabs.

The upper manual sounds unchanged.

The small stone phaser is the same as the original circuit with the original parts.

You can change rate and depth.

Also, a variable attack envelope for the sustain tabs is present, this adds a new way of playing the keyboard.

There are also several extra features present on the circuit board. Feel free to experiment with these.

As an example, I demonstrate the feature how to play the sustains together with the sustain voices, you will not believe your ears !

The basic setup has been tested and approved.

Please be aware that every Eminent sounds different.

2. BEFORE YOU START - READ THIS FIRST !

No special skills are required for this project. However take care before you proceed :

- Use only a small solder iron, since component leads are tiny and excessive heat will destroy them.
- The small stone part of the PCB can be replaced with your very own small stone phaser, just connect the IN and OUT respectively. The controls must be placed on the wooden panel. You can save money by this, or you can use the IC's of your small stone phaser and put them in the sockets of the extension box. These IC's are expensive and hard to find.
- Print these instructions, I've provided a O at the beginning of each step, Just mark these O's to continue to the next step.
- Follow step by step the instructions, these have been tried and desillusions will be avoided
- Secure all wires with tie straps, loose wires could break
- For cabling, I recommend following the indicated color scheme.
- Always use shrinking tube to isolate shielded wires (see also the original shielded wires used in the organ).
- Try to find a quiet spot to work and use much light inside the organ, try to avoid using light bulbs, they can melt plastic. Use a no heating TL lamp.
- Triple check your work, short circuits can ruin your organ and this project !
- Don't rush, take your time.

3. SOLDERING THE PRINTED CIRCUIT BOARD

IMPORTANT REMARK 1 : A small modification has to be made to the circuit board because 1 electronic part ran out of availability.

See page 7 of the picture manual and follow the procedure to successfully adapt.

IMPORTANT REMARK 2 : The circuit board is divided in 3 parts (see also the separate remark sheet)

- the left part is the keyboard split section (resistors R1 to R40, transistors T1 to T3)

- the center part is the Small stone phaser (resistors R50 to R92, transistors T1 to T5). I know the same numbers for the transistors, I'm sorry, just keep this in mind

- the right part is a cutable extra board needed for own experiments.

Follow these steps :

- O Start with the 18 jumper wires, marked J1 to J18
- O Solder a jumper wire between points 4 & 5 of RE5
- O Solder resistors R1 to R16 (including R16)

- Solder resistors R19 to R40 (including R40) - Pay attention, R40 is the resistor next to C20, not R40 on the small stone part !!!!! (I know, I know)
- If needed, solder the resistors R50 to R92 (including R92) on the small stone part.
- Solder IC sockets IC1 to IC 9 (including IC9)
- Solder relays Re 1, Re 2, Re 3 and Re 4. Relay 5 & 6 are for future use.
- If needed, solder relay Re 7
- Solder all solder lugs (the bigger holes)
- Solder capacitors C1 to C15 (incl. C15)
- Solder capacitors C18 and C19
- Solder capacitors C21 and C22
- If needed solder capacitors C 51 to C 65 (incl. C 65)
- Use a 10uf - 50V elco for C res
- Solder transistors T1, T2 and T3 on the left part of the PCB
- If needed, solder transistors T1,T2,T3,T4 and T5 on the small stone part of the PCB.
- Solder IC 3 and IC 4
- Insert all IC's in their sockets

3b. SOLDERING THE RELAY BOARD

- Use a normal drilled ready to use PCB to mount 2 relays of 12V
- Pay attention to the right polarity of the relays, connect the + of the first relay to the – of the 2nd relay
- See also picture for a better understanding.

4. MODIFICATIONS ON THE E310'S CIRCUIT BOARDS

- **STRING ENSEMBLE BOARD**

- Remove resistors R35 (5k6)
- Remove R107 (10k)

- **ORBITONE BOARD**

- Remove resistor R106 (22k)

- **MODULATOR BOARD**

- **The modulators to be adapted, are the ones located at the bottom of the frame. They have a 10k resistor at position R38 (see also the picture manual)**

- Replace 3 resistors R38 (10k) with resistors (15k)
- Add 3 resistors (15k) in positions R17

5. SHIELDED WIRES AND THEIR CONNECTIONS