

Intro

The M3D V1.0 is a conversion effort that allows the MME analog board to be used for a full-size keyboard. The MME is for the most part faithful to the original classic synthesizer circuit. There are a few alterations to note, being the addition of buffers for envelope outputs, pulse-width modulation circuits for each VCO pulse wave as well as the omission of the A-440 tone generator, overload driver/lamp combo and the headphone amplifier circuits. The added portions in the MME happen to be placed on the MME control board which made it possible to be even more faithful to the original.

Other than the classic format of controls, the M3D control boards contain the circuits not included in the MME design. In order to use the MME analog board for this conversion effort there are two simple modifications that must be performed.

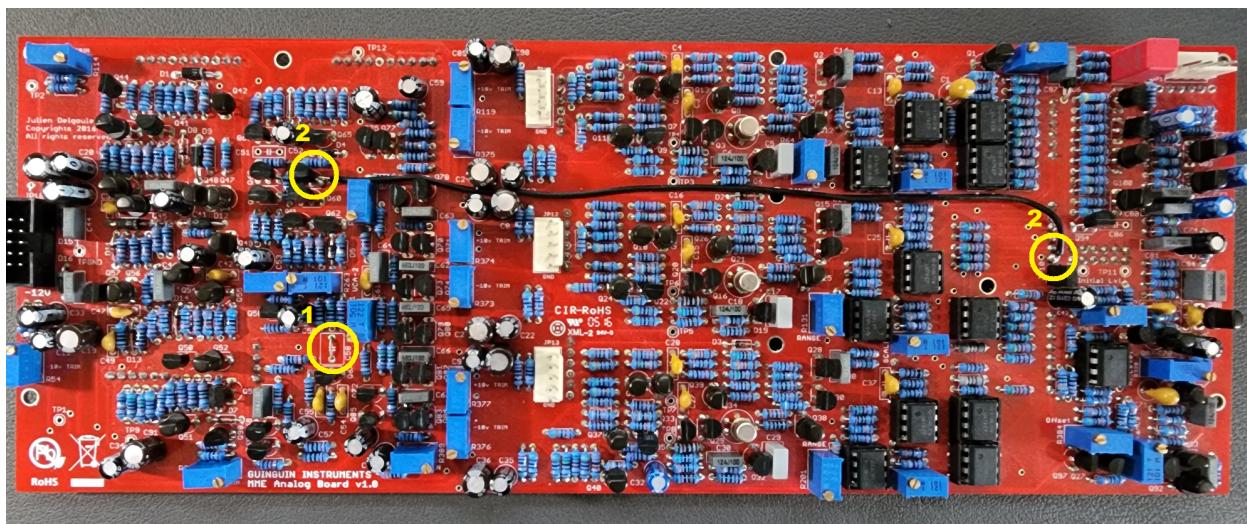
Prepping the MME analog board

1: Bypass the preamp output capacitor.

To snub in the overload lamp driver circuit C58 must be jumpered and relocated to the M3D Control Board 1 as C1. Since the overload lamp driver is prior to the preamp's output capacitor a jumper is used to replace the capacitor so that the signal may be carried over to the M3D boards with the default inter-board connection.

2: Run a wire to the open connector

To inject the A-440 tone into the VCA a wire must be soldered from the collector of Q59 (2N3392, pin 3) to pin 1 of connector JP5. The VCA circuit that the A-440 tone is injected into is constrained within the MME analog board which warranted a creative solution. Fortunately there is one unoccupied inter-board connector pin that can be used to transfer the signal with the help of a wire.



1: bypassed preamp output capacitor.

2: soldered wire from Q59, pin 3 to JP5, pin 1.

PCB Documents

- [Control Board 1 ibom](#)
- [Control Board 2 ibom](#)
- [Control Board 1 schematic](#)
- [Control Board 2 schematic](#)

Build Guide

It is important to follow this assembly process to ensure that everything has been installed adequately. Use the interactive-bill-of-material(ibom) documents provided above to ensure the correct placement of parts.

1: Soldering the small stuff

- Install and solder all transistors, resistors, capacitors and connectors to both applicable sides of the M3D boards.

2: Prep & install the hardware

- Using pliers or wire snips remove the mounting tabs on each pot and rotary switch. The tabs on the pots snap off easily while the rotary switch tabs may be wiggled until it fatigues and snaps.
- Install each rocker switch and rotary switch, ensure each one is flat against the PCB before completely soldering.
- Install each of the 0.75" standoffs to the face-side of the PCBs using 1/4" 8-32 panhead screws - there are 32 standoffs in total for the control boards.
- To keep the parts flush against the front panel, place one of the 6 0.25" spacers onto the bushing of each rotary switch.
- Install each potentiometer but do not solder. Align and insert each component into the front panel. On the panel, install 1/4", 8-32, 100° flathead screws to each of the 3/4" standoffs. Install washers and nuts to each pot and rotary. Now that the mounting height is established, solder each potentiometer into place.

If desired, at this point jacks may be installed to the CV, Gate & Main output connectors to proceed to test and calibrate the unit. The control boards may be removed from the front panel to aid troubleshooting.