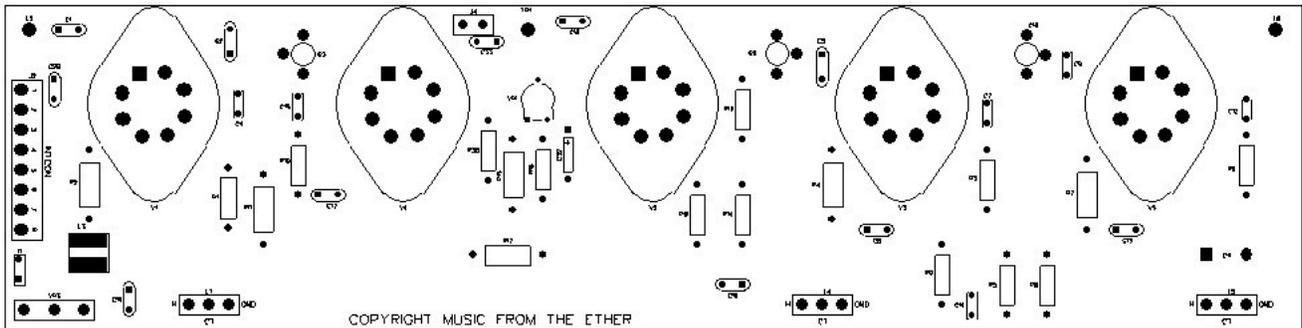


BUILD NOTES

Music From The Ether MK-1 Theremin Oscillator Board Vers. 1.0



The above diagram shows the top side of the oscillator PCB with component locations. Refer to the accompanying oscillator schematic for the complete circuit diagram. Component selection is not super critical however, it is strongly encouraged that you use the components listed on the BOM as there are specific lead spacings and component sizes to take into account to fit in the space allocated on the PC Board. If you choose components other than those specified pay attention to the lead spacing and component size requirements.

This board contains three Hartley oscillators which basically use two inductive coils in series with a parallel capacitance to form a resonant tank circuit producing a sinusoidal oscillation. Mica capacitors **MUST** be used for C2, C5 and C9 as they are in "charge" of the frequency range and stability of the oscillators. Unless you want to risk tearing a hole in the fabric of the space/time continuum **DO NOT SUBSTITUTE** the mica capacitors for flux capacitors or anything else!

The PC Board is mounted to the chassis by way of the five octal tube sockets. Because there are three RF oscillators on this board there is ground plane on both sides and in the middle of the board (which makes it frightfully expensive to manufacture) to minimize the possibility of cross trace interference between the oscillators. The ground planes as well as the chassis must be grounded (0 Vdc side of the power supply) this is accomplished in the mounting procedure for the tube sockets. Referring to the picture of the populated oscillator PC Board, mount the 10 aluminum spacers on the top side of the PC Board using #4-40 x 1/4" screws and an internal tooth #4 lock washer on both top and bottom sides of the board leaving the screws slightly loose. Once tightened the lock washers on both sides of the PC board will cut through the solder masking and assure that the ground planes will be grounded at multiple locations. Place the octal tube sockets in their respective locations (V1 through V5) on the top side of the PC Board seated on the top of the spacers. Place the board into the bottom of the oscillator chassis with the sockets protruding from the socket holes and secure the socket flanges and spacers to the bottom side of the chassis first using #4-40 x 1/4" screws. Next, tighten the #4-40 screws located on the bottom of the PC board, solder all of the tube socket pins to the PC board and clip off the excess leads. This will assure that you can now remove the PC board assembly by removing the screws on the top of the chassis and everything will remain in alignment for replacing the PC board onto the underside of the chassis. As a secondary chassis ground it is also recommended to place a Keystone Electronics #7311 terminal under the mounting screw on the socket for V1 and soldering a jumper wire to ground pad #5 on the interconnection terminal strip as shown on the oscillator chassis image.