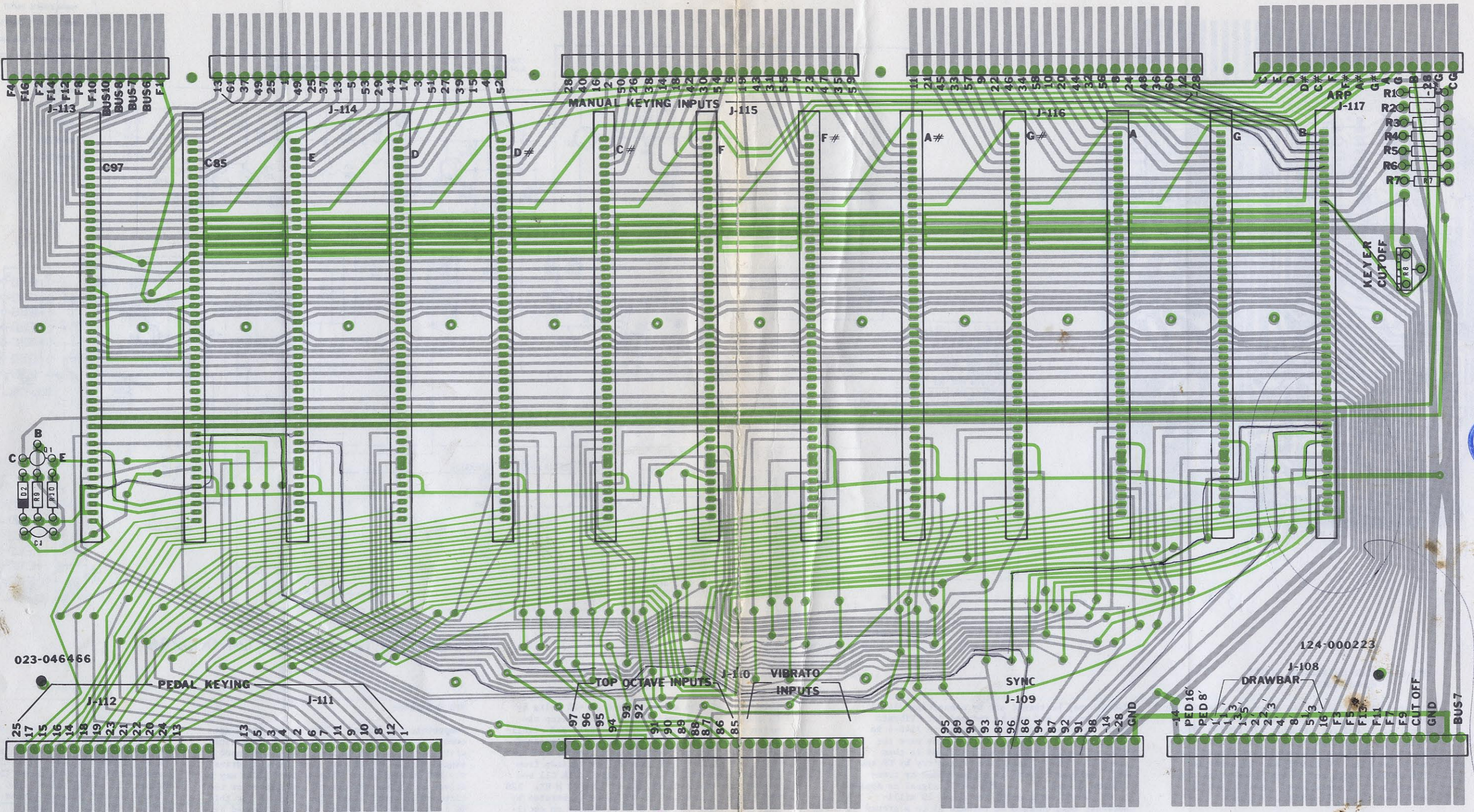


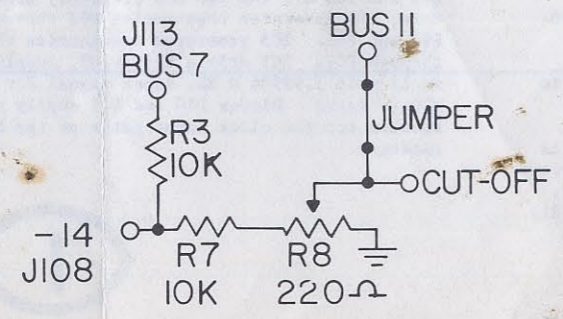
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FIGURE 3-5
UPPER MANUAL SYNTHESIS
MOTHER BOARD-SCHEMATIC,
LAYOUT AND THEORY
(124-000223-002)



1 INPUTS FROM MDD
124-000222-002 UPPER MANUAL SYNTHESIS MOTHER BOARD

MDD signals (from 124-000266 board) enter at J-110, then go to one of 13 daughter boards (124-000223). A master pulse output from the Lower Manual Synthesis assembly (124-000223) is used to synchronize frequencies used on both manuals and as harmonics of several notes on the same manual, to prevent cancellation effects. When synchronizing output is missing, the odd harmonics (Black Tonebars) usually will not sound. The tonebar inputs (J108) come from the tonebar stop switches via the Preset Mother Board (124-000243). This negative D.C.

voltage adjusts the keyer supply voltage and therefore the square-wave output current. To minimize the interaction between keyers feeding the same filter, the input impedance of the filter is 100 ohms or less. Therefore, the output voltage at the filter terminals (J108 and J113) is very low when the filters are connected. A keyer cut-off control near J117 adjusts the decay limit of the keying voltage during sustain. J114, J116, and J117 are marked with key numbers. These are the upper manual outputs.

*OK WITH
AUDIO
FROM FILTER*