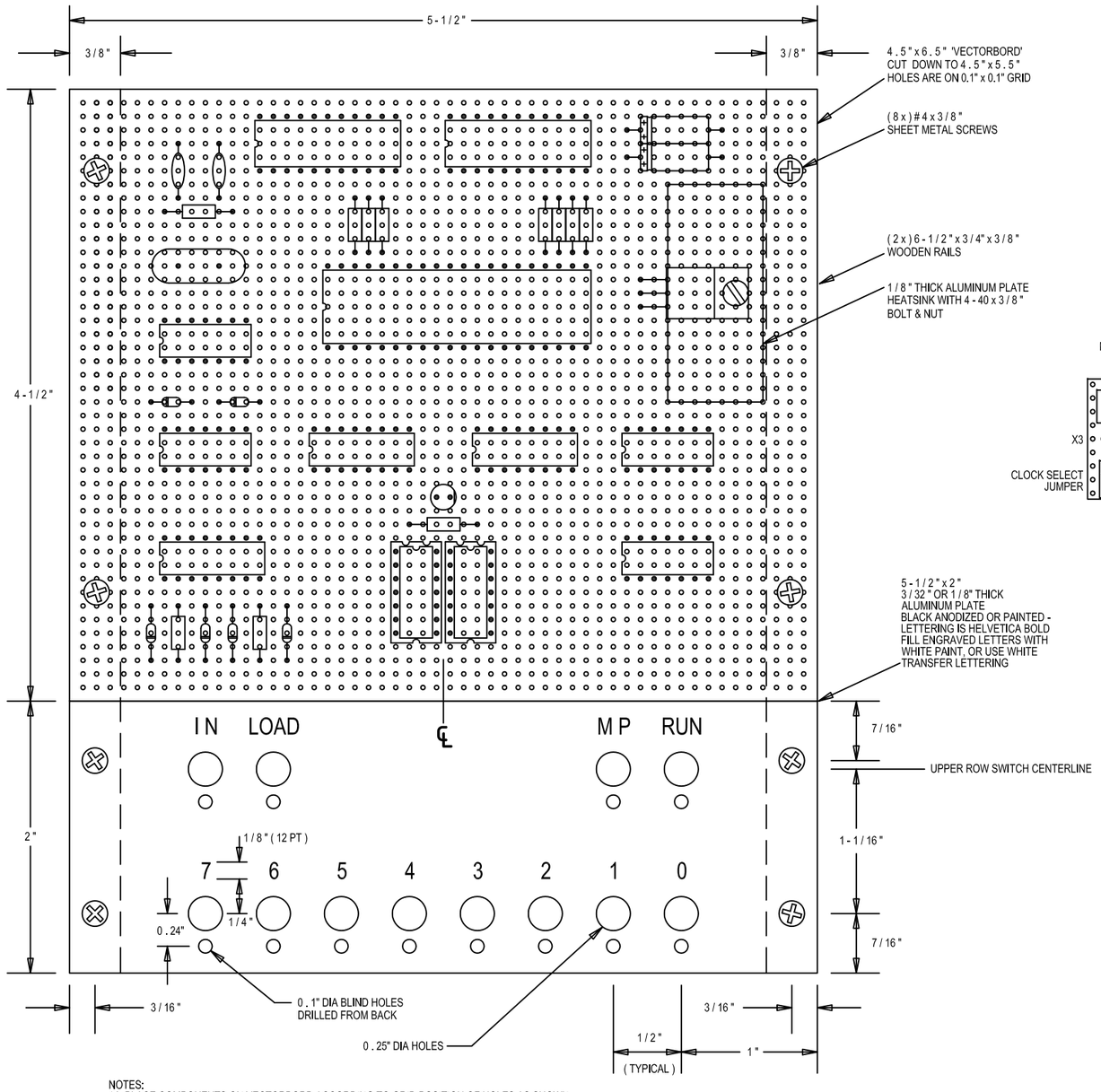

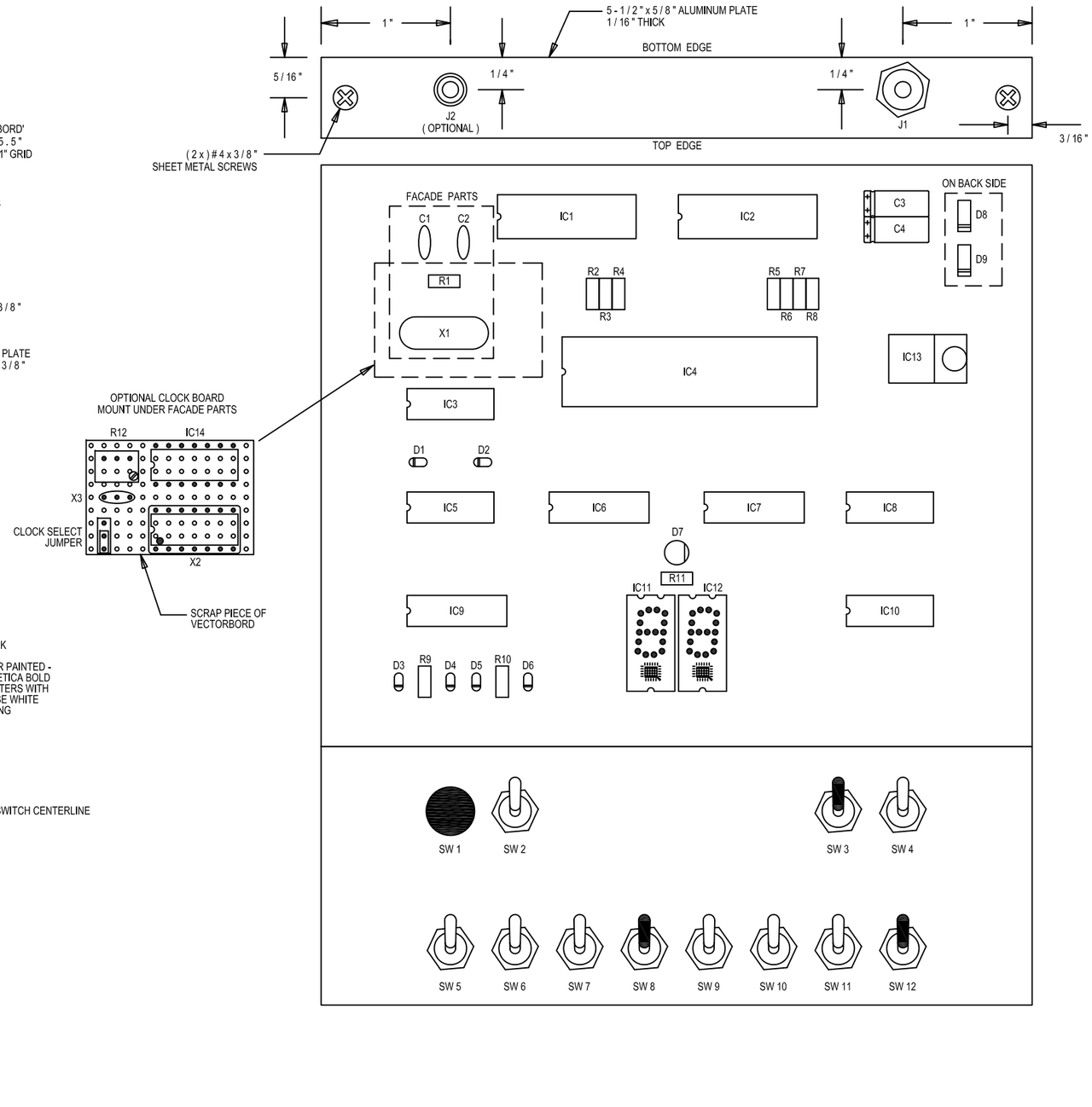

NOTES:
1) PLACE COMPONENTS ON VECTORBORD ACCORDING TO GRID POSITION OF HOLES AS SHOWN.
2) VECTORBORD HOLES THAT ARE USED FOR COMPONENTS (OR THEIR SOCKETS) ARE SHOWN WITH SOLID FILL.
3) FACADE PARTS (C1, C2, R1, X1) ARE MOUNTED FOR APPEARANCE ONLY, TO MATCH THE LOOK OF THE ORIGINAL "ELF". OPTIONALLY, FUNCTIONING PARTS MAY BE PLACED IN THESE POSITIONS AND USED INSTEAD OF THE OSCILLATOR (S) BASED ON X2 AND / OR X3 (AND THEIR SUPPORTING COMPONENTS).
4) IC AND DISPLAY SOCKETS ARE HELD TO VECTORBORD USING THE WIRE WRAPPING ITSELF, ALTHOUGH OPTIONALLY THE SOCKETS MAY BE HELD IN PLACE BY GLUE.
5) DECOUPLING CAPACITORS FOR THE IC'S ARE OPTIONAL AND NOT SHOWN HERE, AND THEY ARE NOT ASSIGNED COMPONENT NUMBERS. THE ORIGINAL "ELF" APPARENTLY DID NOT USE DECOUPLING CAPACITORS, AND WORKING "ELF" COMPUTERS HAVE BEEN MADE WITHOUT THEM. THE BUILDER OF AN "ELF" CAN DECIDE WHETHER DECOUPLING CAPACITORS SHOULD BE USED.
6) VECTOR # T44 / C (DIGIKEY # V1071-ND) PINS ARE USED FOR ALL TOP-SIDE DISCRETE COMPONENTS EXCEPT FOR X1 AND IC13 AND D7. USE A SMALL SCREWDRIVER OR SIMILAR TOOL TO PRESS THESE PINS INTO THE HOLES IN THE VECTORBORD, THEN SOLDER THE DISCRETE COMPONENT LEADS TO THE "U" SHAPED SADDLES ON THE TOPS OF THE PINS. WIRE WRAP DIRECTLY TO PINS OF D7. SOLDER WIRING TO PINS OF X1 (IF USED) AND IC13. DIODES D8 & D9 ARE SOLDERED DIRECTLY TO J1 AND IC13.
7) THE TIL311 HYDRID DISPLAYS (IC11 & IC12) HAVE UNUSUAL NOTCHING TO SHOW ORIENTATION; THIS DRAWING SHOWS THE NOTCHING, AND ALSO SHOWS THE RECOMMENDED ORIENTATION OF THE ASSOCIATED IC SOCKETS UNDER THE DISPLAYS.
8) IC SOCKETS HAVING 1 / 2 " LONG WIRE WRAP PINS ARE RECOMMENDED FOR TOP-SIDE IC'S AND DISPLAYS.
9) SOLDER WIRES TO SW1 ~ SW12, AND USE SOLDERED DAISY-CHAIN WIRING FOR THE V+ & GND SWITCH CONNECTIONS.
10) FOR SMALL OSCILLATOR BOARD, USE REGULAR PCB SOCKETS AND POINT-TO-POINT SOLDERED CONNECTIONS.
11) ALL WIRING SHOULD BE INTENDED FOR WIRE WRAPPING, e.g. 30 AWG SOLID WIRE WITH KYNAR INSULATION.

THIS LAYOUT FAITHFULLY REPRODUCES THE ORIGINAL COSMAC 'ELF' COMPUTER CIRCUIT AS DESCRIBED IN THE AUGUST 1976 ISSUE OF POPULAR ELECTRONICS MAGAZINE.

AUDIO OUTPUT JACK J2 AND SMALL OSCILLATOR CIRCUIT BOARD ARE NOT AUTHENTIC TO THE ORIGINAL "ELF", AND ARE OPTIONAL.

USE THIS DRAWING ALONG WITH THE SCHEMATIC DIAGRAM AND PARTS LIST.

COSMAC "ELF" LAYOUT & DIMENSIONS

DRAWN BY PAUL SCHMIDT ON MARCH 11, 2017