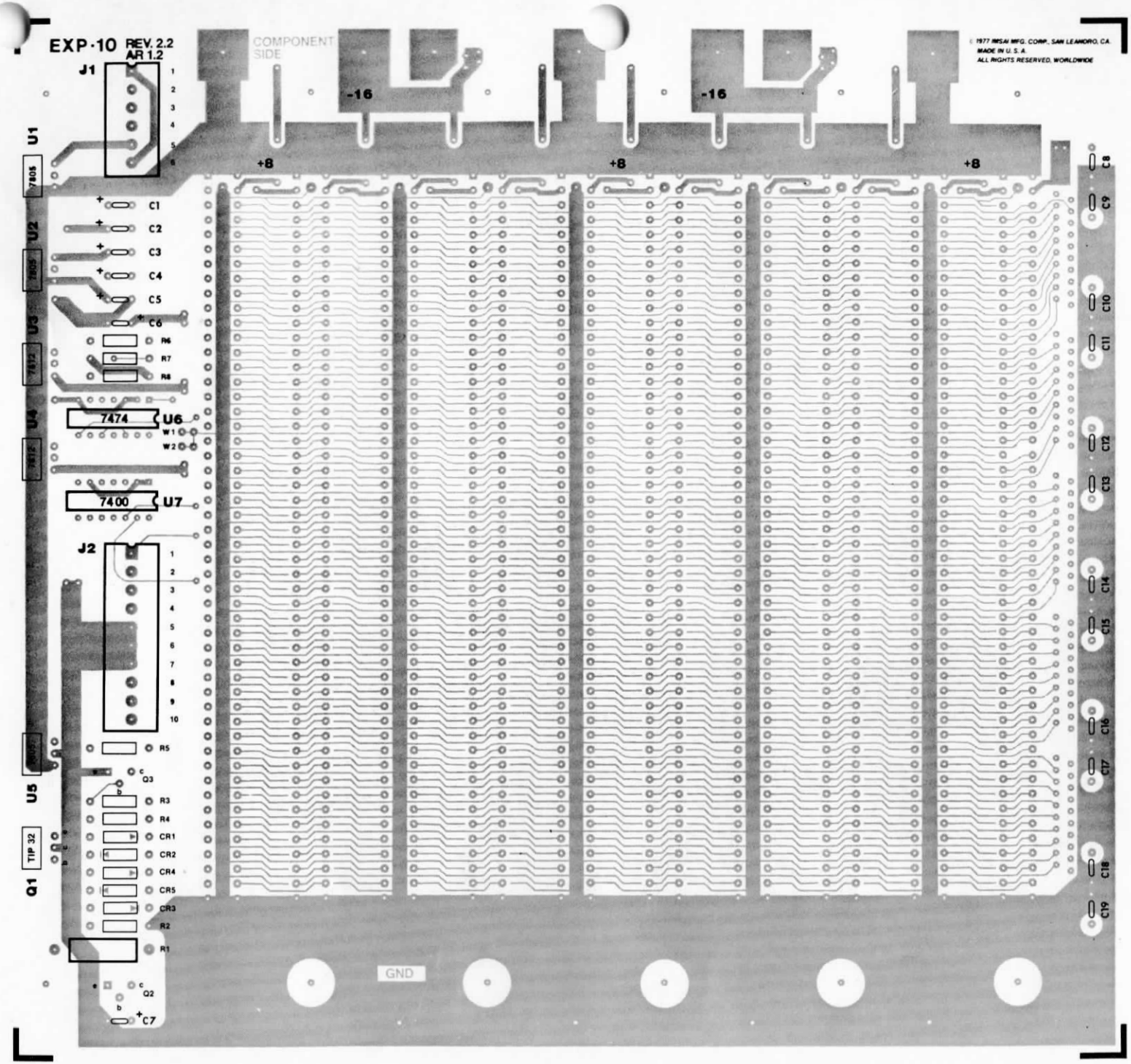
D. EXP-10 ASSEMBLY

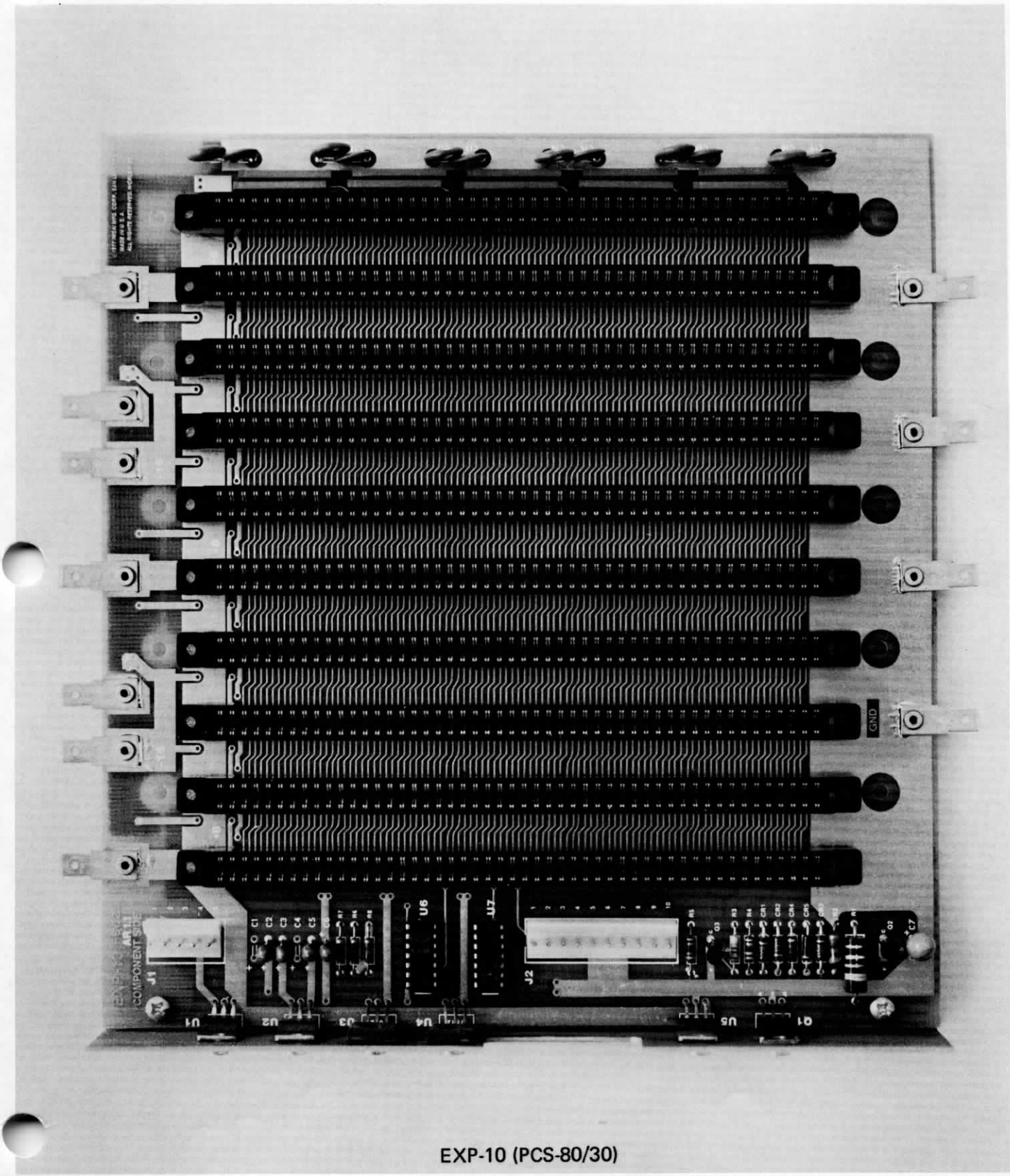
EXP-10 PARTS LIST

ITEM	IMSAI PART #	QUANTITY	DESCRIPTION
Solder	15-0000001	5'	
Screw	20-2402004	3	4-40x3/16" Nylon, Round Head, Slot
Screw	20-3202001	3	6-32x¼" Phillips Pan Head Machine CAD
Screw	20-3302001	2	6-32x5/16" Phillips Pan Head Machine CAD
Screw	20-3702001	10	6-32x3/4" Phillips Pan Head
Nut	21-3120001	10	6-32 Hex
Spacer	21-3600006	10	6-32x5/16" Threaded, Metal
Rivet	21-0220000	11	Pop Rivet, #6x3/32 USM AD42H
Tab	23-0900023	11	Faston, 3M 07-6-250
Connector	23-1700024	1	6 Conductor, Lock, Molex 09-65-1061
Connector	23-1700026	1	10 Conductor, Lock, Molex 09-65-1101
Insulator	28-0100002	3	TO220 Style, GG Semiconductor Package, Bergquist
Resistor	30-2047664	1	.47 Ohm, 2 Watt (yellow, violet, silver)
Resistor	30-2820362	1	82 Ohm, ¼ Watt (grey, red, black)
Resistor	30-2470362	2	47 Ohm, ¼ Watt (yellow, violet, black)
Resistor	30-3220362	1	220 Ohm, ¼ Watt (red, red, brown)
Resistor	30-4220362	3	2.2K Ohm, ¼ Watt (red, red, red)
Capacitor	32-2001010	6	.01uF 25V Disk Ceramic
Capacitor	32-2010010	6	.1uF 30V Disk Ceramic
Capacitor	32-2122070	2	2.2uF 25V Tantalum

ITEM	IMSAI PART #	QUANTITY	DESCRIPTION
Capacitor	32-2233070	1	33uF, 25V Tantalum
Diode	34-1000006	2	1N914, Signal Type
Diode	34-1000007	3	1N4002
Transistor	35-2000002	1	2N3904
Transistor	35-2000003	1	2N3906
Transistor	35-2000010	1	TIP 32 3A
Resistor Pak	35-6000003	10	220 Ohm, SIP
IC	36-0740001	1	7400, Quad 2 Input NAND
IC	36-0747401	1	7474, Dual D Flip Flop
Regulator	36-0780501	2	7805, +5V
Regulator	36-0781201	1	7812, +12V
Connector	91-1200060	1	EXPM-5 Assembly, Edge Connectors (Alt: 91-1700006)
Harness	91-1200306	1	Harness Assembly, EXP-10/PS-28U
PC Board	92-0000059	1	EXP-10, Rev. 2.2
Bracket	93-3170017	1	Heat Sink Bracket, EXP-10



PAC 9-15-77 EXP-10 MOTHER BOARD IMSAI



EXP-10 (PCS-80/30)

D. EXP-10 ASSEMBLY

( ) 1. Carefully unpack your kit and check all parts against the parts list shown at the beginning of this instruction set. Do not discard any of the packing materials until all of the parts are accounted for. In case of any discrepancies, contact IMSAI Customer Service immediately.

( ) 2. Position the board as shown in the Assembly Diagram at the beginning of this section. The component side (silk screen) should be towards you and the edge with five (5) pop-riveted tabs should be down. All references in these instructions assume that the board is viewed with this orientation.

Refer to the photographs at the end of Section II in order to identify components with which you may be unfamiliar.

RESISTOR AND CAPACITOR INSTALLATION

NOTE: If you are using a lead bender to bend resistor and diode leads, bend resistor leads R2 - R8 and diode leads CR1 - CR5 for 0.50 inch spacing and bend resistor leads R1 for 0.75 inch spacing.

( ) 3. Insert and solder two 2.2uF tantalum capacitors at locations C3 and C5.

CAUTION: When installing the tantalum capacitors, the "+" lead (marked on the capacitor) must be inserted in the pad marked "+" on the silk screen. An incorrectly installed tantalum capacitor could damage the board.

( ) 4. Insert and solder three 2.2K Ohm, 1/4 watt resistors (red, red, red) at locations R6, R7, and R8.

( ) 5. Insert and solder two 47 ohm, 1/4 watt resistors (yellow, violet, black) at locations R4 and R5.

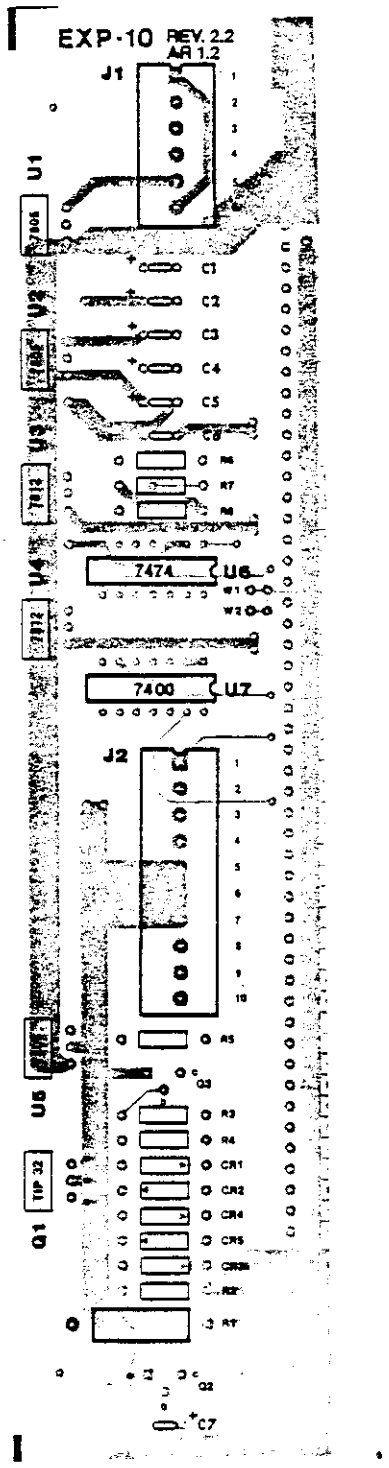
( ) 6. Insert and solder a 220 ohm, 1/4 watt resistor (red, red, brown) at location R3.

( ) 7. Insert and solder a 82 ohm, 1/4 watt resistor (grey, red, black) at location R2.

( ) 8. Insert and solder a .47 ohm, 2 watt resistor (yellow, violet, grey) at location R1.

( ) 9. Insert and solder a 33uF tantalum capacitor at location C7. Observe polarity as shown on the board.

( ) 10. Trim excess leads.



( ) 11. Insert and solder six .1uF disk capacitors in the following locations.

( ) C8	( ) C14
( ) C10	( ) C16
( ) C12	( ) C18

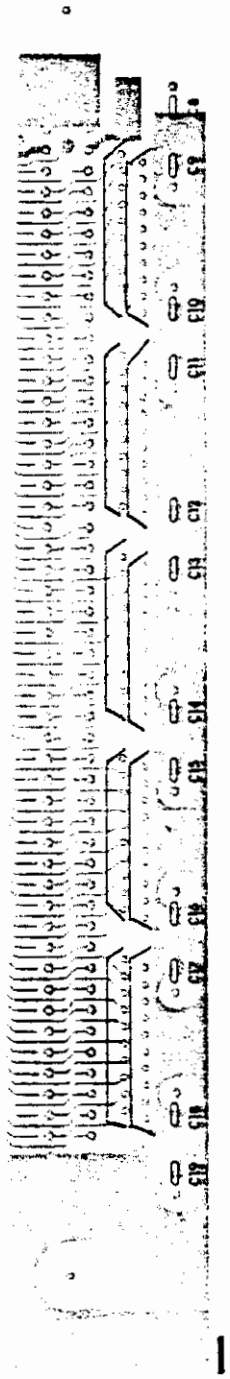
( ) 12. Insert and solder six .01uF disk capacitors in the following locations:

( ) C9	( ) C15
( ) C11	( ) C17
( ) C13	( ) C19

( ) 13. Locate the ten resistor packages. These blue plastic, packages are 1 1/8 inch in length and have ten leads each. There is a black dot at one end of the pack which denotes pin 1. Pin 1 should be oriented towards the top of the board when resistor packages are installed.

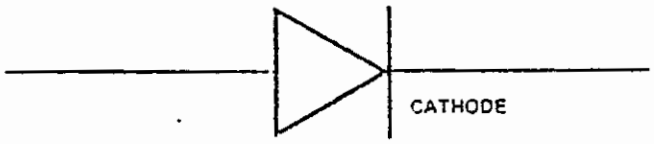
( ) 14. Insert and solder the ten resistor packages, side-by-side, in the locations indicated by brackets.

( ) 15. Trim excess leads.



DIODE AND TRANSISTOR INSTALLATION

NOTE: All diodes are polarized and must be installed with a specific orientation. The "cathode" end is marked with a colored band and is represented on the Assembly Diagram in the following manner:



( ) 16. Insert and solder three 1N4002 diodes in the following locations, preserving the proper orientations.

( ) CR1
( ) CR2
( ) CR3

( ) 17. Insert and solder two 1N914 diodes in the following locations preserving the proper orientations.

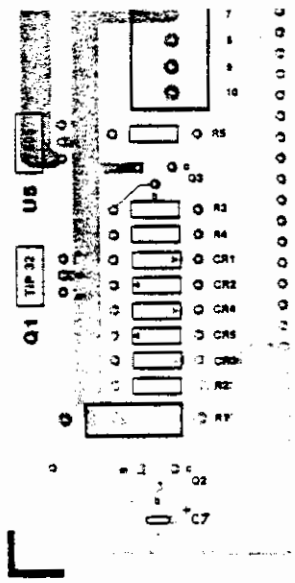
( ) CR4
( ) CR5

NOTE: See Section II, Figure II - 2 for instructions concerning correct transistor orientation.

( ) 18. Insert and solder a 2N3906 transistor at location Q2.

( ) 19. Insert and solder a 2N3904 transistor at location Q3. NOTE: Q1 will be installed with the regulators.

( ) 20. Trim all excess leads.



IC AND CONNECTOR INSTALLATION

NOTE: IC's U2 and U5 are voltage regulators and will be installed later.

( ) 21. Insert the six pin Molex connector 09-65-1061 at location J1. It is necessary to orient the locking ramp of the connector to the right in order to position this connector correctly.

( ) 22. Insert a 7474 IC in location U6 with pin 1 in the upper right-hand corner (see Section II, Figure II - 1).

( ) 23. Insert a 7400 IC in location U7 with pin 1 in the upper right-hand corner.

( ) 24. Insert the 10-pin Molex connector 09-65-1101 at location J2. Position the locking ramp to the right.

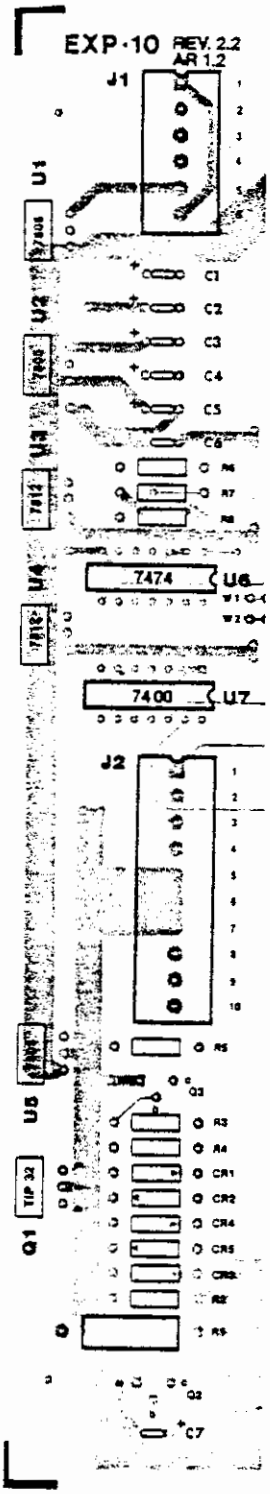
( ) 25. Solder the components installed in Steps 21 - 24.

( ) 26. The 100 pin edge connectors now are installed. If you have received the standard five edge connectors, we recommend that you install the first connector in the farthest left location, skip a connector slot, install the next connector, etc., until all five connectors are in place. If additional connectors are purchased, begin again at the left and fill the empty connector slots.

( ) 27. Solder one pin at each end of each connector. This will keep the connectors level on the board during the remainder of the soldering.

CAUTION: The solder mask minimizes the chances of shorting adjacent traces. It is imperative, however, that extra care be taken during assembly to avoid shorting adjacent pins due to excess solder; a short between board and connector is extremely difficult to locate.

( ) 28. Solder the remaining pins on one connector at a time. Check each connector for shorts and solder pools. After thoroughly checking a connector, proceed to the next one, following the same procedure.



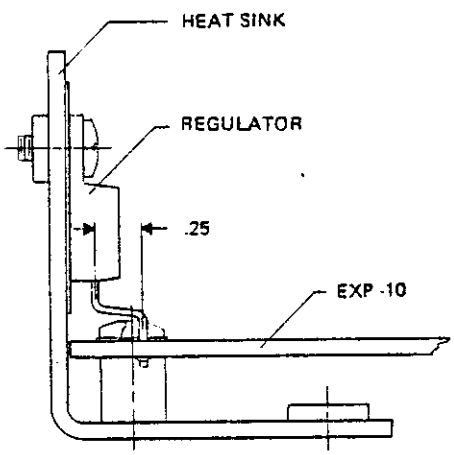
REGULATOR INSTALLATION

( ) 29. Locate the regulator bracket. Orient the bracket with the stand-offs under the board, lined up with the holes provided. Attach with two 6-32x5/16" machine screws.

( ) 30. The leads of the regulators and transistor Q1 must be double bent in the fashion shown in Figure III - 4.

FIGURE III-4

REGULATOR MOUNTING DETAIL



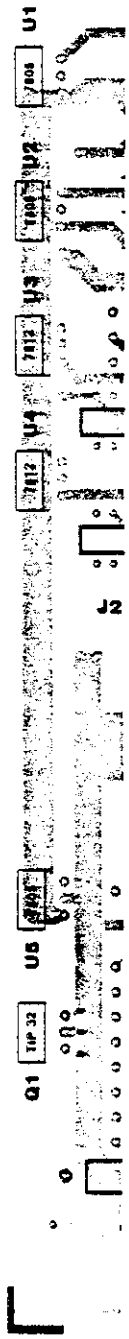
NOTE: To install a regulator the builder first must insert the three legs into the proper holes; an insulator then is placed between the regulator body and the heat sink/bracket. A 4-40x3/16" nylon machine screw then is placed through the regulator and insulator and screwed into the captive nut on the bracket.

( ) 31. Install two 7805 regulators in locations U2 and U5.

( ) 32. Install a TIP 32 transistor at location Q1.

( ) 33. Install two 2.2uF tantalum capacitors in locations C2 and C6, taking care to observe polarity (+ to +) as shown on the board.

( ) 34. Install a 7812 regulator in location U3.



FINAL INSTRUCTIONS

( ) 35. Trim all leads.

( ) 36. Carefully check the motherboard for unsoldered joints, excess solder, solder balls and splashes.

ASSEMBLY OF THE EXP-10 MOTHERBOARD IS COMPLETE. PROCEED WITH ASSEMBLY OF THE MAINFRAME.