CPU Board Assembly

Approximate Build Time: 2-3 hours

Parts List

Part #		QTY	DESCRIPTION	Notes:
1000-5013		1	CPU Pack	
2000-43000		1	Resistor, 100 Ohm 1/4w, 5%	(Brown-Black-Brown-Gold)
2000-43001		14	Resistor, 330 Ohm 1/4w, 5%	(Orange-Orange-Brown-Gold)
2000-43003		1	Resistor, 2.7 K Ohm 1/4w, 5%	(Red-Purple-Red-Gold)
2000-43004		1	Resistor, 5.6 K Ohm 1/4w, 5%	(Green-Blue-Red-Gold)
2000-43005		24	Resistor, 10 K Ohm 1/4w, 5%	(Brown-Black-Orange-Gold)
2000-43006		4	Resistor, 22K Ohm 1/4w, 5%	(Red-Red-Orange-Gold)
2000-43007		5	Resistor, 100 K Ohm, 1/4w, 5%	(Brown-Black-Yellow-Gold)
2000-46000		2	Potentiometer, 100K, 10 Turn	
2000-22009		1	Capacitor, 300 pf, Ceramic	(Marked 301K)
2000-22003		4	Capacitor, 10 MF, Electrolytic	
2000-22002		2	Capacitor, 1 MF, Electrolytic	
2000-22001		13	Capacitor Ceramic .01uF	(Marked 103)
2000-58001		6	Diode IN4148	
2000-34009		1	Header, 50 Pin	
2000-58004		6	Transistor, PN2222	
2000-58005		2	Transistor, PN2907	
2000-25000		1	Crystal, 4MHz	
2000-52000		1	Buzzer	
2000-13002		2	Card Ejector, Locking	

CPU Chips			
2000-49002		1	Switch, 4 Position, Dip
2000-34000		4	Socket, Dip, 40 Pin
2000-34001		6	Socket, Dip, 24 Pin
2000-34002		3	Socket, Dip, 16 Pin
2000-34003		3	Socket, Dip, 14 Pin
2000-34004		3	Socket, Dip, 8 Pin
2000-67010		1	INS 8073 Microprocessor
2000-67004		1	IC, 74LS154
2000-67002		1	IC, 74LS21
2000-67011		4	IC, HM6116
2000-67012		3	IC, INS 8255
2000-67003		1	IC, 74LS139
2000-67000		1	IC,74LS00
2000-67006		1	IC, CD4503
2000-67001		1	IC, 74LS14
2000-67007		1	IC, ICL8211
2000-67009		1	IC, ICL7660
2000-67005		1	IC, MC1413
2000-67008		1	IC, LM392

Continued on next page

Misc Parts		
2000-35000	1	Cable, Molded, 50 Conductor
4001-05000	1	CPU PCB

Assembly Steps:

Refer to CPU Diagram 1

( ) Install R1: 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R2: 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R3: 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R28: 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R31: 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R32: 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R35 - 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R56 - 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R57 - 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R58 - 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R26: 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R27: 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R36 - 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R37 - 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R38 - 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R40 - 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R41 - 10K Ohm resistor (Brown, Black, Orange,Gold)

( ) Install R42 - 10K Ohm resistor (Brown, Black, Orange,Gold)

( ) Install R44: 10K Ohm resistor (Brown-Black-Orange-Gold)

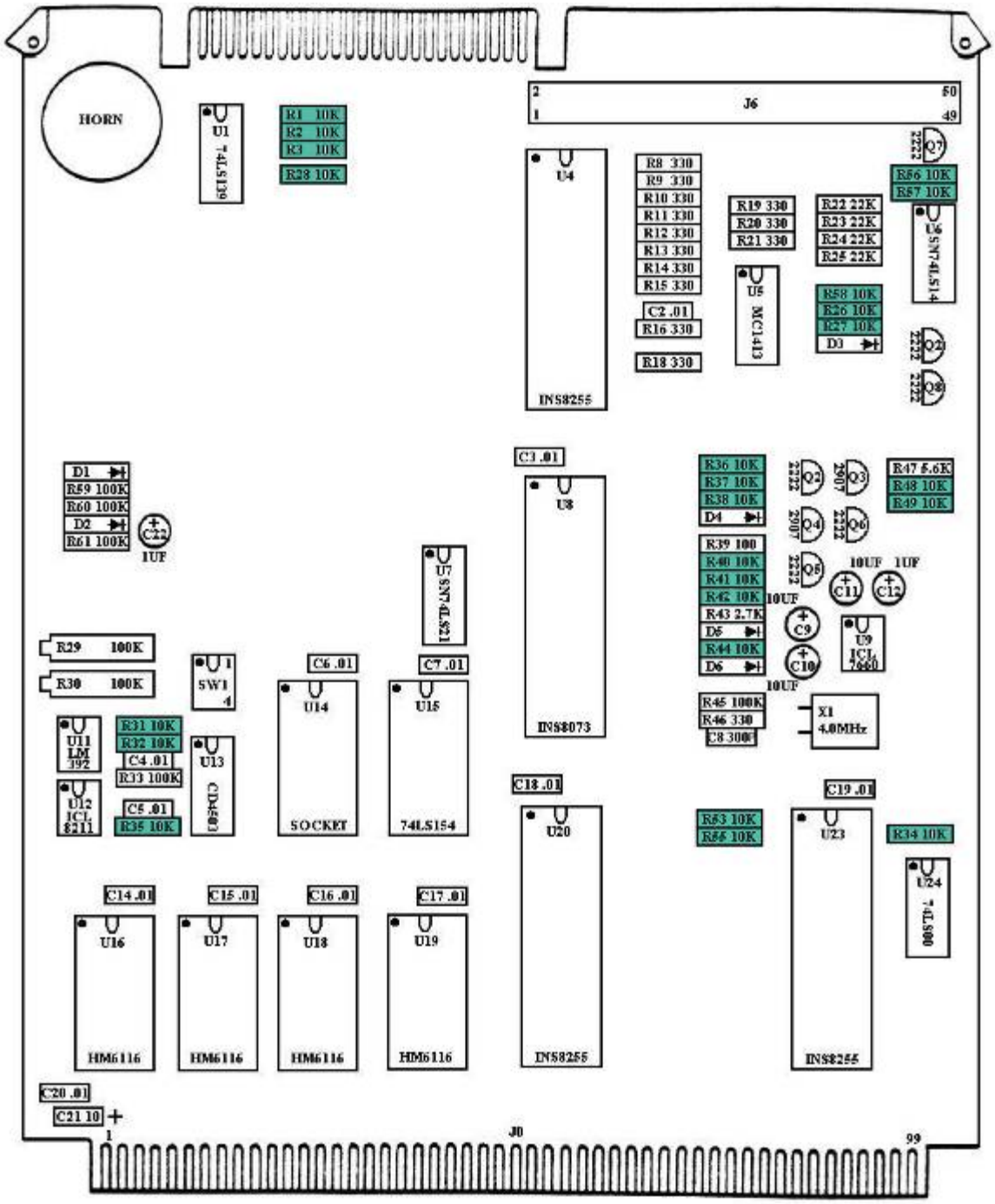
( ) Install R48 - 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R49 - 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R53 - 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R55 - 10K Ohm resistor (Brown-Black-Orange-Gold)

( ) Install R34: 10K Ohm resistor (Brown-Black-Orange-Gold)



CPU Diagram 1

Refer to CPU Diagram 2

( ) Install R8 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R9 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R10 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R11 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R12 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R13 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R14 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R15 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R16 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R18 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R19 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R20 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R21 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R46 - 330 Ohm resistor (Orange-Orange-Brown-Gold)

( ) Install R22 - 22K Ohm resistor (Red-Red-Orange-Gold)

( ) Install R23 - 22K Ohm resistor (Red-Red-Orange-Gold)

( ) Install R24 - 22K Ohm resistor (Red-Red-Orange-Gold)

( ) Install R25 - 22K Ohm resistor (Red-Red-Orange-Gold)

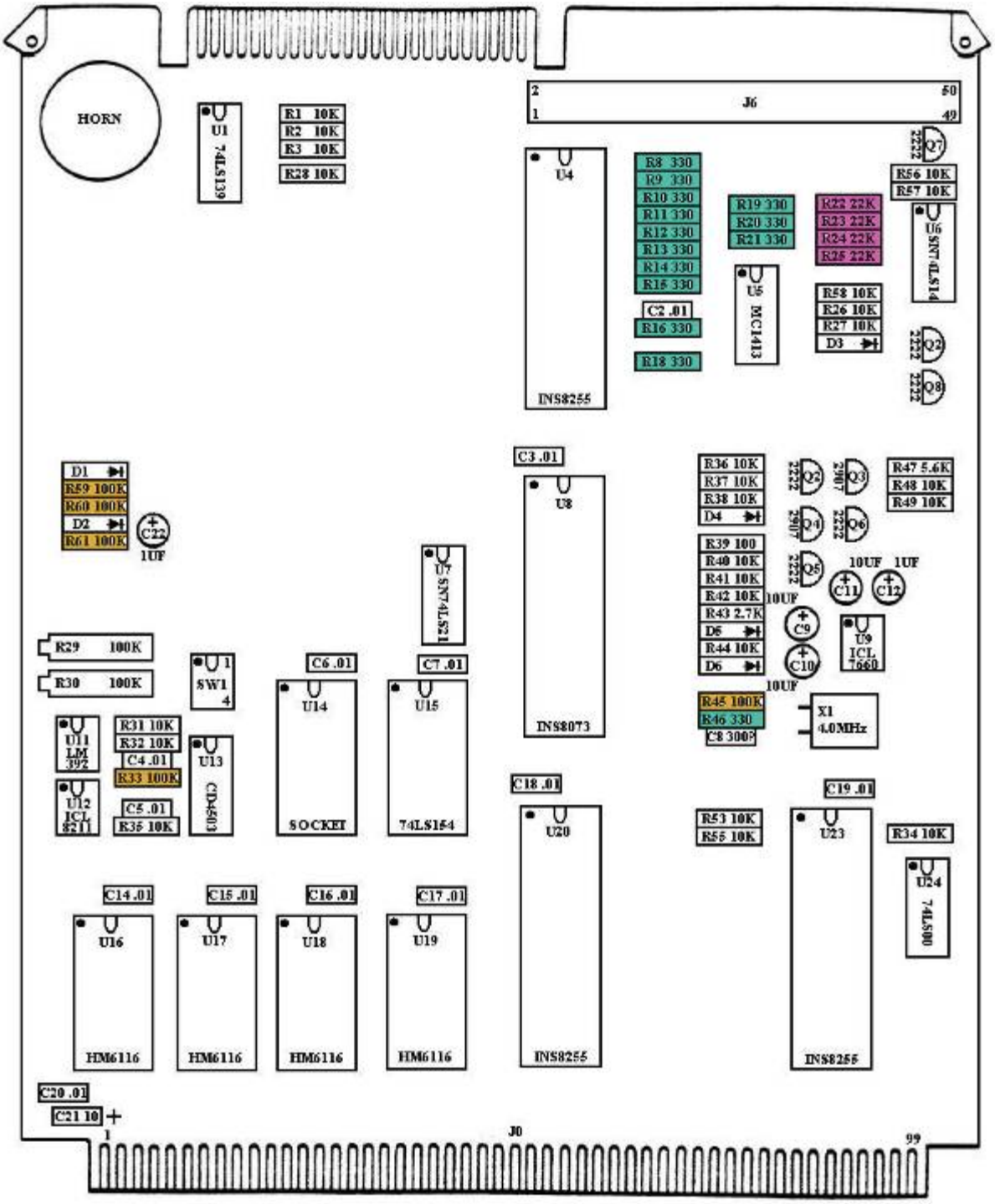
( ) Install R33 - 100K Ohm resistor (Brown-Black-Yellow-Gold)

( ) Install R45 - 100K Ohm resistor (Brown-Black-Yellow-Gold)

( ) Install R59 - 100K Ohm resistor (Brown-Black-Yellow-Gold)

( ) Install R60 - 100K Ohm resistor (Brown-Black-Yellow-Gold)

( ) Install R61 - 100K Ohm resistor (Brown-Black-Yellow-Gold)



CPU Diagram 2

Refer to CPU Diagram 3

( ) Install R39 - 100 Ohm resistor (Brown-Black-Brown-Gold)

( ) Install R43 - 2.7K Ohm resistor (Red-Purple-Red-Gold)

( ) Install R47 - 5.6K Ohm resistor (Green-Blue-Red-Gold)

( ) Install C2 - .01uF ceramic capacitor (marked 103)

( ) Install C3 - .01uF ceramic capacitor (marked 103)

( ) Install C4 - .01uF ceramic capacitor (marked 103)

( ) Install C5 - .01uF ceramic capacitor (marked 103)

( ) Install C6 - .01uF ceramic capacitor (marked 103)

( ) Install C7 - .01uF ceramic capacitor (marked 103)

( ) Install C14 - .01uF ceramic capacitor (marked 103)

( ) Install C15 - .01uF ceramic capacitor (marked 103)

( ) Install C16 - .01uF ceramic capacitor (marked 103)

( ) Install C17 - .01uF ceramic capacitor (marked 103)

( ) Install C18 - .01uF ceramic capacitor (marked 103)

( ) Install C19 - .01uF ceramic capacitor (marked 103)

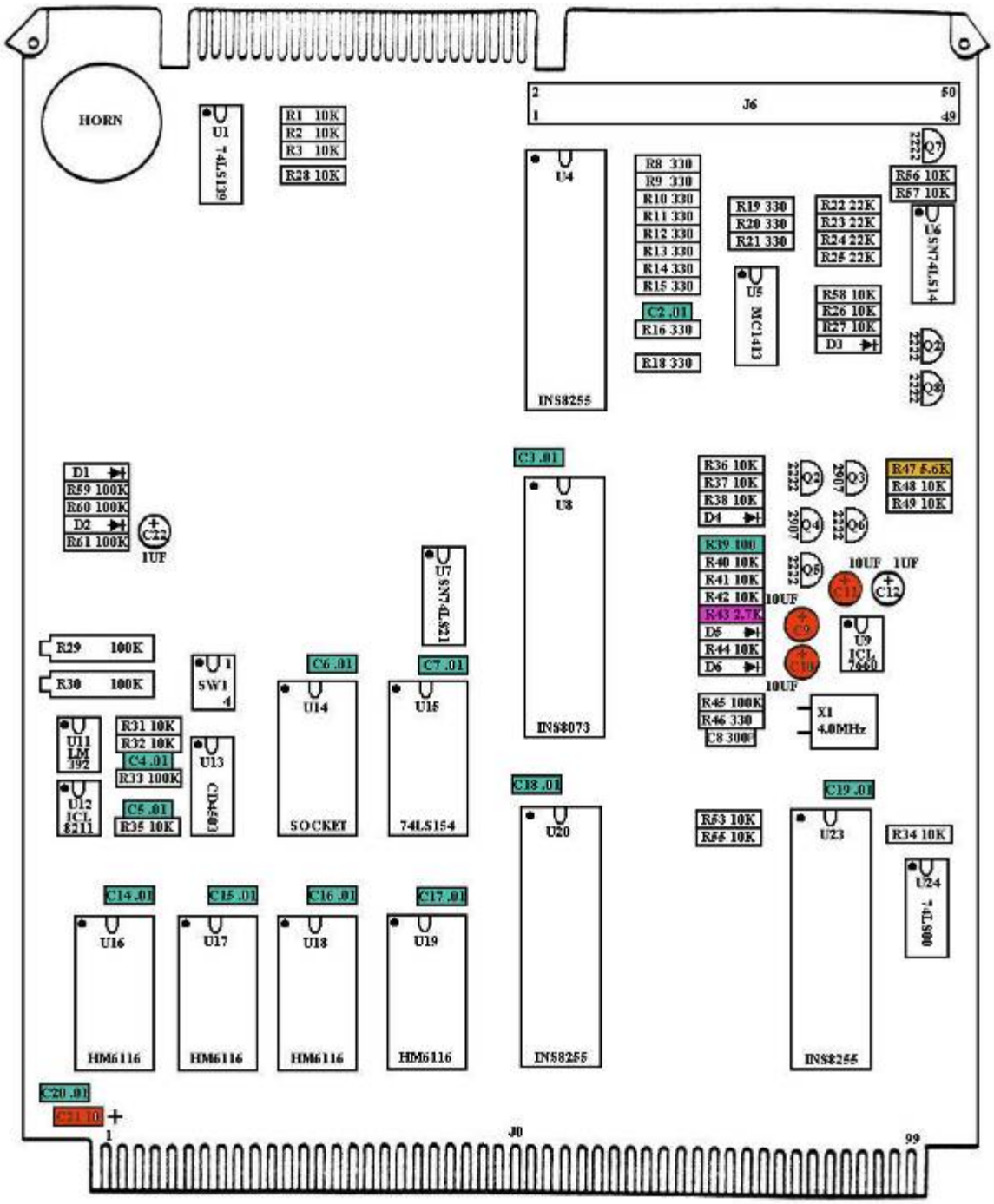
( ) Install C20 - .01uF ceramic capacitor (marked 103)

( ) Install C9 - 10 UF electrolytic capacitor. The positive end must face the top edge of the board (the end with the smaller edge connector).

( ) Install C10 - 10 UF electrolytic capacitor. The positive end must face the top edge of the board (the end with the smaller edge connector).

( ) Install C11 - 10 UF electrolytic capacitor. The positive end must face the top edge of the board (the end with the smaller edge connector).

( ) Install C21 - 10 UF electrolytic capacitor. The positive end faces right (toward the middle of the board.)



CPU Diagram 3

Refer to CPU Diagram 4

( ) Install C12 - 1 UF electrolytic capacitor. The positive end must face the top edge of the board (the end with the smaller edge connector).

( ) Install C22 - 1 UF electrolytic capacitor. The positive end must face the top edge of the board (the end with the smaller edge connector).

( ) Install C8 - 300PF (marked 301K) capacitor.

( ) Install D1 - IN4148 Diode. Make sure the end with the band faces right (orientation is marked on the board for each diode.)

( ) Install D2 - IN4148 Diode. Make sure the end with the band faces right (orientation is marked on the board for each diode.)

( ) Install D3 - IN4148 Diode. Make sure the end with the band faces right (orientation is marked on the board for each diode.)

( ) Install D4 - IN4148 Diode. Make sure the end with the band faces right (orientation is marked on the board for each diode.)

( ) Install D5 - IN4148 Diode. Make sure the end with the band faces right (orientation is marked on the board for each diode.)

( ) Install D6. - IN4148 Diode. Make sure the end with the band faces right (orientation is marked on the board for each diode.)

( ) Install Q1 - PN2222 Transistor

( ) Install Q2 - PN2222 Transistor

( ) Install Q5 - PN2222 Transistor

( ) Install Q6 - PN2222 Transistor

( ) Install Q7 - PN2222 Transistor

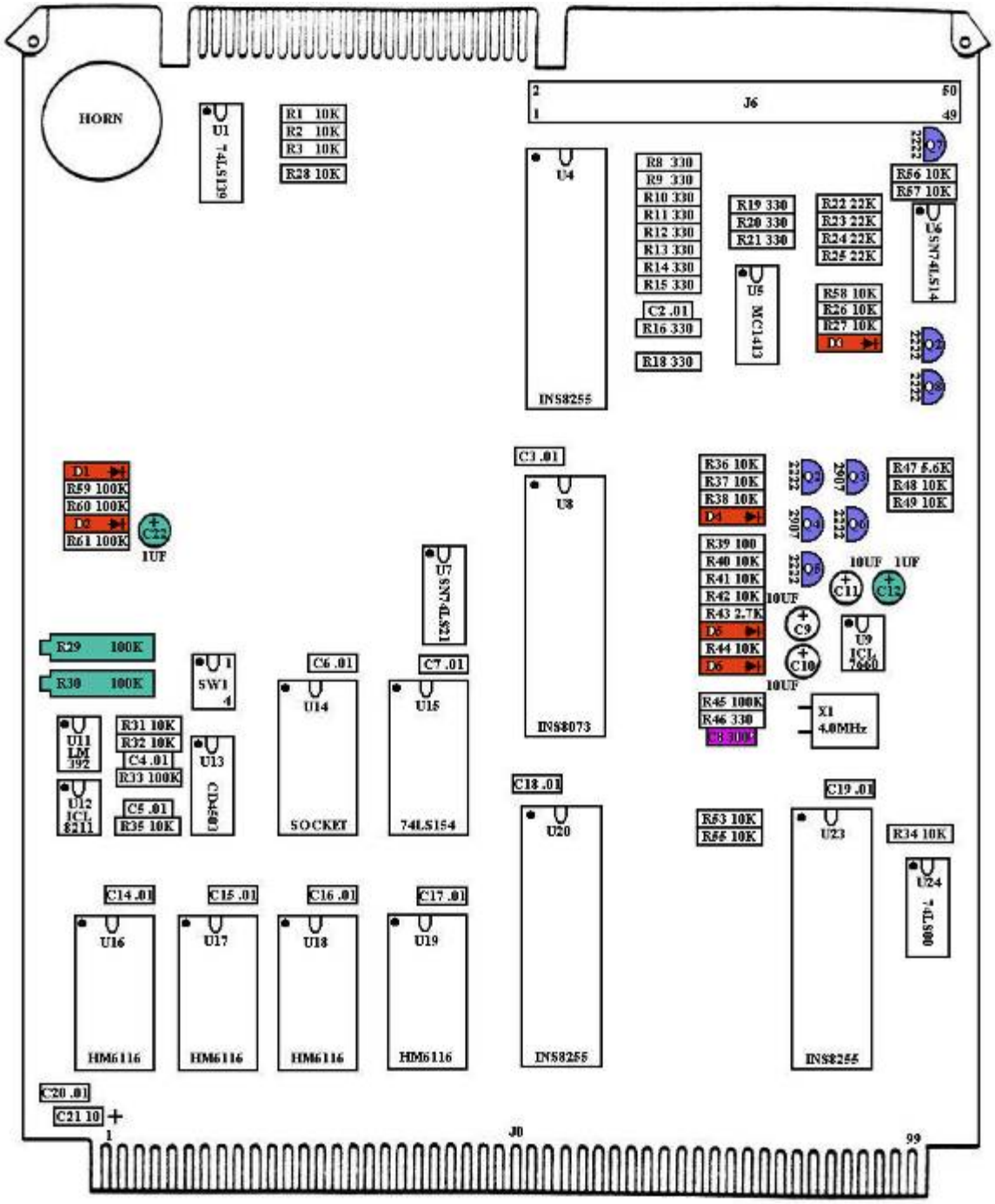
( ) Install Q8 - PN2222 Transistor

( ) Install Q3 - PN2907 Transistor

( ) Install Q4 - PN2907 Transistor

( ) Install R29 - 100K Potentiometer. The screw on the potentiometer faces to the left or outside of the board.

( ) Install R30 - 100K Potentiometer. The screw on the potentiometer faces to the left or outside of the board.



CPU Diagram 4

Refer to CPU Diagram 5

( ) Insert 8-position DIP Socket at U9

( ) Insert 8-position DIP Socket at U11

( ) Insert 8-position DIP Socket at U12

( ) Insert 14-position DIP Socket at U6

( ) Insert 14-position DIP Socket at U7

( ) Insert 14-position DIP Socket at U24

( ) Insert 16-position DIP Socket at U1

( ) Insert 16-position DIP Socket at U5

( ) Insert 16-position DIP Socket at U13

( ) Insert 24-position DIP Socket at U14

( ) Insert 24-position DIP Socket at U15

( ) Insert 24-position DIP Socket at U16

( ) Insert 24-position DIP Socket at U17

( ) Insert 24-position DIP Socket at U18

( ) Insert 24-position DIP Socket at U19

( ) Insert 40-position DIP Socket at U4

( ) Insert 40-position DIP Socket at U8

( ) Insert 40-position DIP Socket at U20

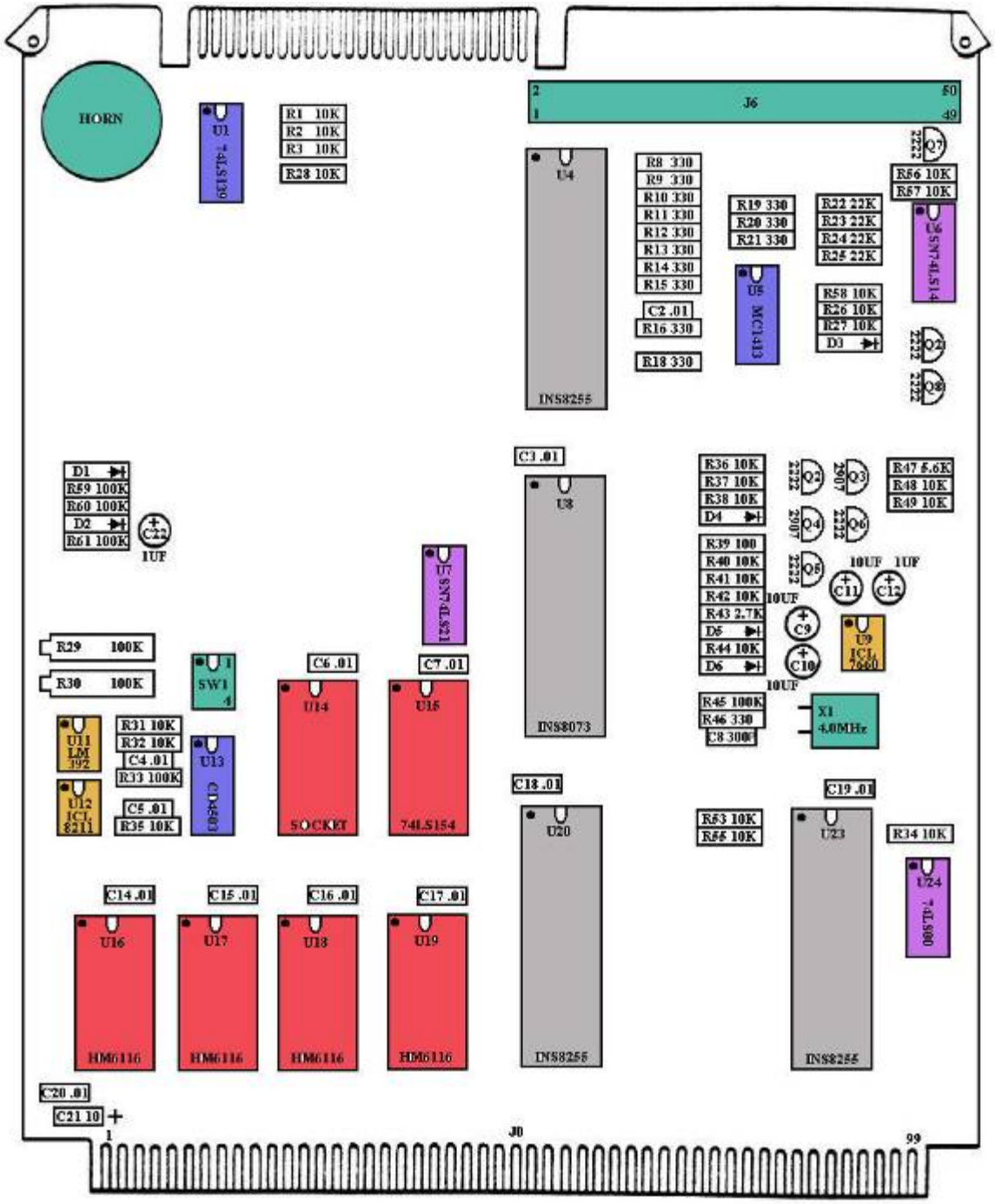
( ) Insert 40-position DIP Socket at U23

( ) Install X1 - 4MHz Crystal. Ensure it lays flat on the board before soldering.

( ) Insert the 4-position DIP Switch in SW1. The notch faces the top of the board.

( ) Install J6 - 50 pin locking header. The key faces the bottom of the board.

( ) Install the Horn into position H1. The positive side faces left.



CPU Diagram 5

( ) Using antistatic devices, insert the following IC chips into the correct positions (notch faces towards top of board):

( ) U1 is Decoder SN74LS139.

( ) U5 is Driver MC1413.

( ) U6 is Inverter SN74LS14.

( ) U7 is Dual AND SN74LS21.

( ) U9 is Voltage Inverter ICL7660.

( ) U11 is Comparator LM392.

( ) U12 is Voltage Sensor ICL8211.

( ) U13 is Hex Buffer CD4503.

( ) U15 is Decoder 74LS154.

( ) U16, U17, U18, and U19 are Memory 2Kx8 HM6116.

( ) U24 is Quad NAND 74LS00.

( ) U4, U20, and U23 are Programmable I/O INS8255.

( ) U8 is the Microprocessor INS8703.

( ) Install the two board tabs. Use a pair of pliers to squeeze the retaining bars in.

This concludes your CPU Board assembly. Set it aside until called for later.