

Williams[®]

16P-3003-101
Game No. 3003
November, 1981



**DRAWING SET
(Upright)**



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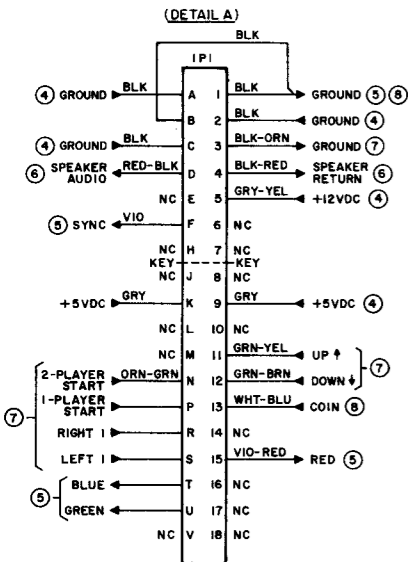
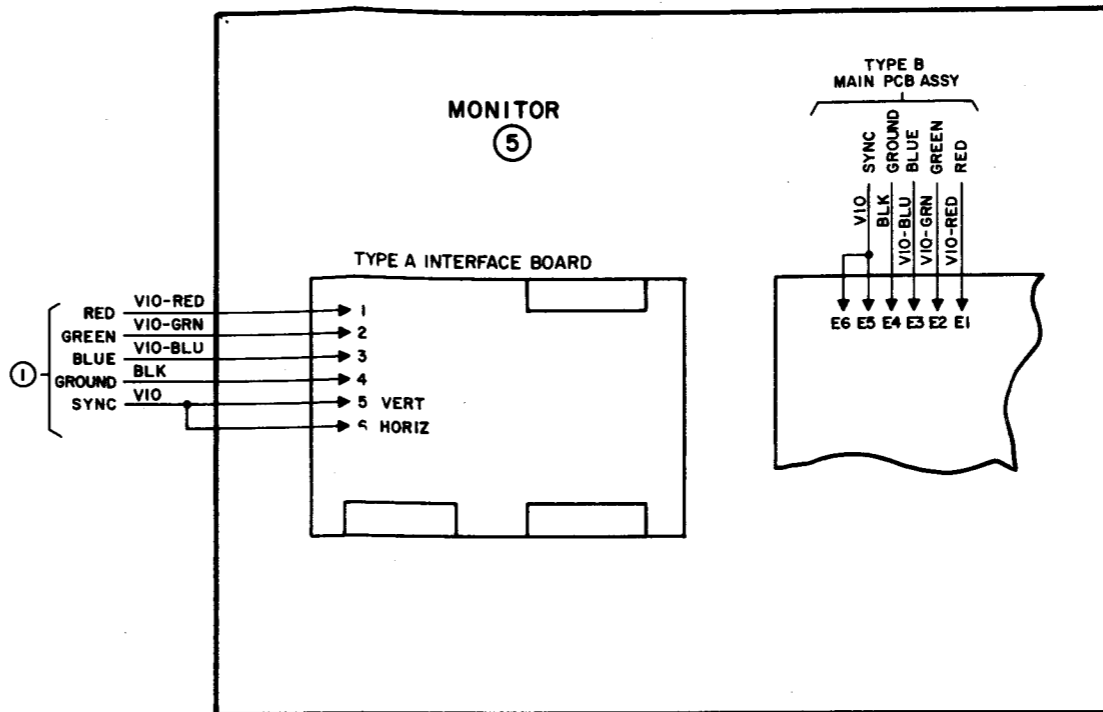
Williams[®] 
ELECTRONICS, INC.

3401 N. California Ave., Chicago, IL 60618
Cable Address: WILCOIN, CHICAGO
(312) 267-2240

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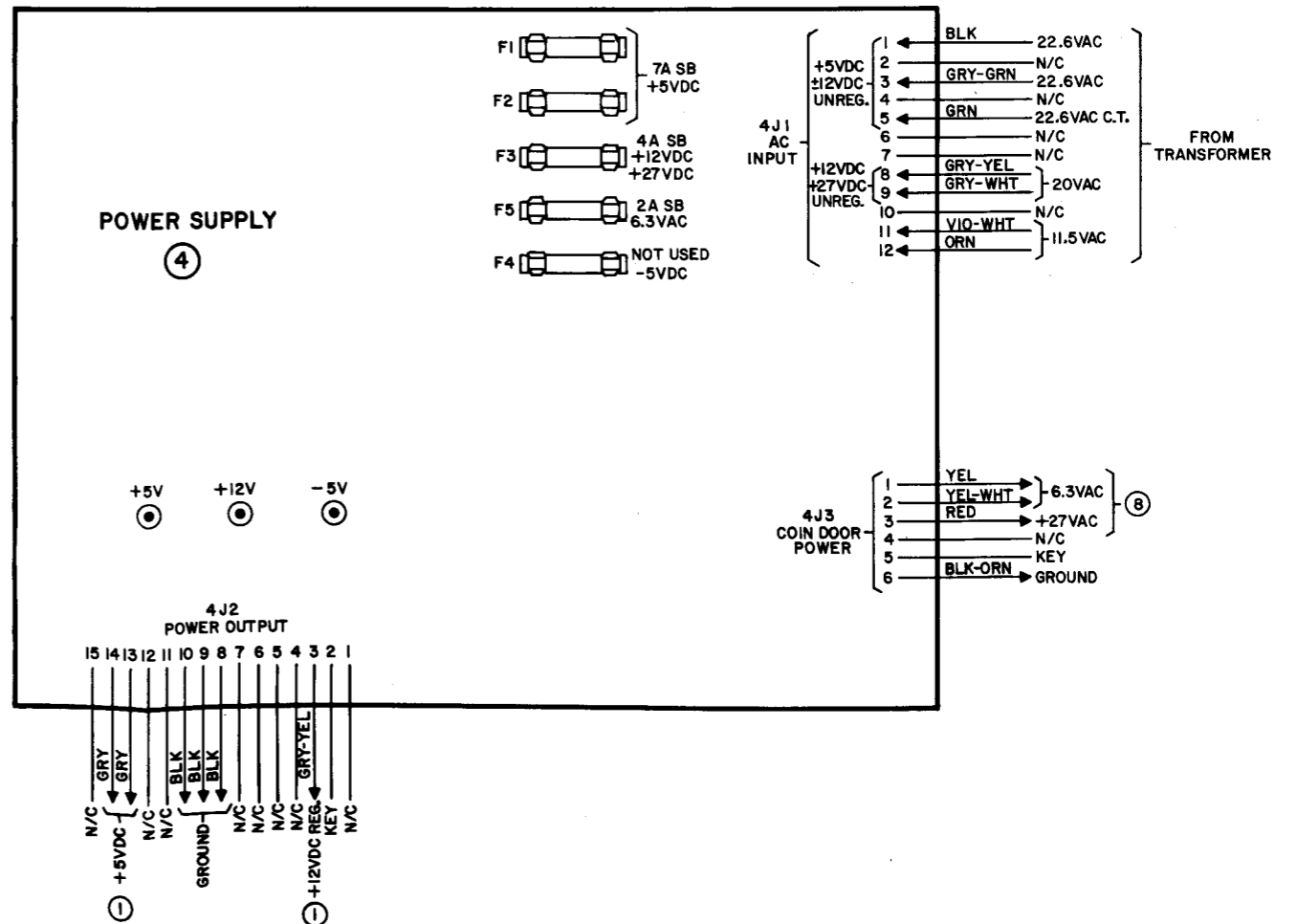
- ① CPU BOARD
- ② NOT ASSIGNED
- ③ NOT ASSIGNED
- ④ NOT ASSIGNED
- ⑤ MONITOR
- ⑥ CABINET
- ⑦ PLAYER PANEL
- ⑧ COIN DOOR

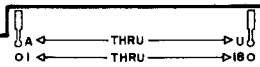


(DETAIL B)
SWITCH NUMBER

ADJUSTMENT	1	2	3	4	5	6	7	**8
*RECOMMENDED	OFF	ON	ON	ON	ON	OFF	ON	OFF
1 PLAY/2 COINS	OFF	OFF						
2 PLAYS/1 COIN	ON	OFF						
*1 PLAY/1 COIN	OFF	ON						
FREE PLAY	ON	ON						
6 BRUSHES			OFF	OFF				
5 BRUSHES			ON	OFF				
4 BRUSHES			OFF	ON				
*3 BRUSHES			ON	ON				
FIRST PATTERN EASY					OFF			
*FIRST PATTERN DIFFICULT					ON			
*WARP HOLE DISABLED						OFF		
WARP HOLE ENABLED						ON		
TABLE GAME							OFF	
UPRIGHT							ON	

** SET SWITCH 8 TO ON TO FREEZE PATTERN FOR MONITOR ADJUSTMENTS.





1M
SOUND
WAVEFORM
ROM

3M
SOUND
TIMING ROM

4R 4C00
(D4-D7)
SCRATCH RAM

4P 4400
(D4-D7)
COLOR RAM

4N 4000
(D4-D7)
CHARACTER
RAM

4M 4C00
(D0-D3)
SCRATCH RAM

4L 4400
(D0-D3)
COLOR RAM

4K 4000
(D0-D3)
CHARACTER
RAM

① CPU BOARD

5F
ROM B
CHARACTERS

5E
ROM A
MAZE

6P
SPECIAL

6J
ROM 4

6H
ROM 3

6F
ROM 2

6E
ROM 1

7F
COLOR ROM

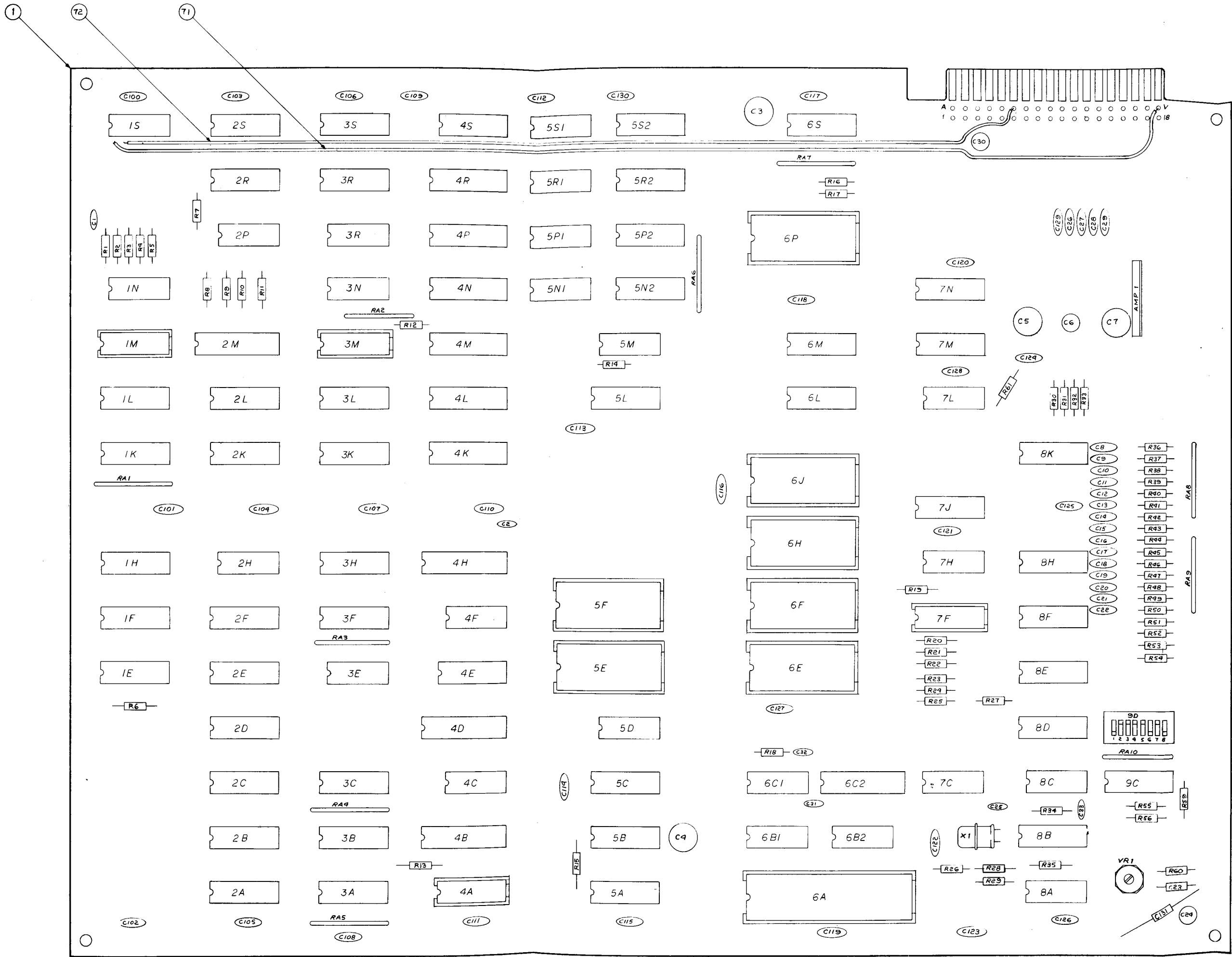
4A
VIDEO ROM

6A
Z-80 MPU

9D SWITCH
ADJUST
(DETAIL B)

VOLUME
CONTROL

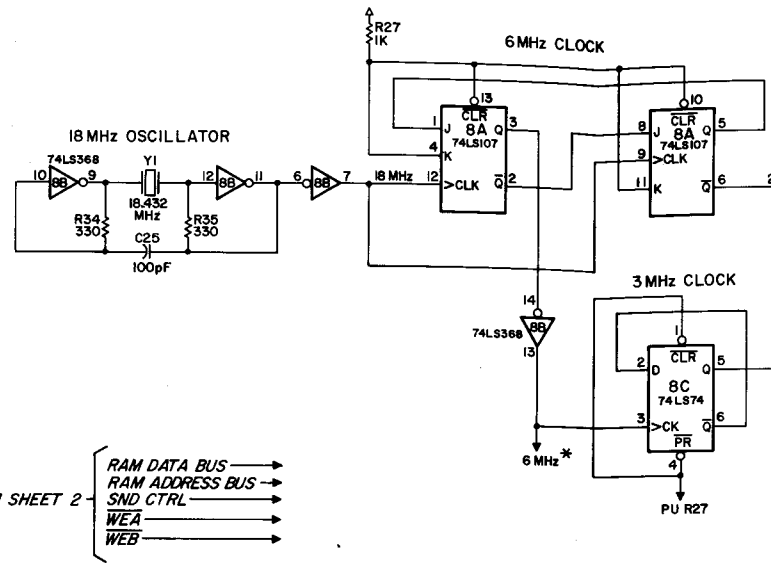




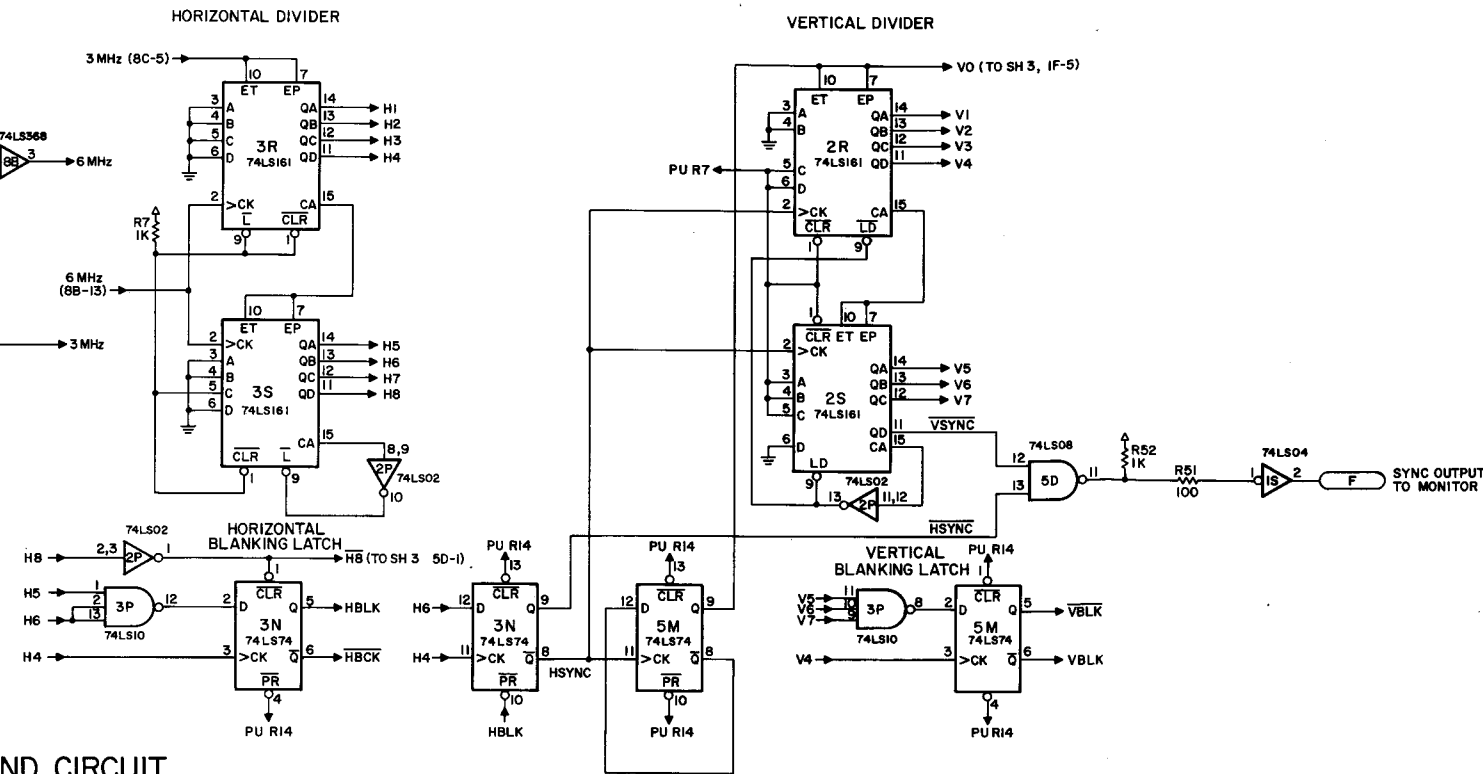
BILL OF MATERIAL

BILL OF MATERIAL				ITEM NO.	PART NO.	PART DESIGNATION	DESCRIPTION	REQ'D NO.	
ITEM NO.	PART NO.	PART DESIGNATION	DESCRIPTION	REQ'D NO.					
1	5770-09754-00		BARE P.C. BOARD	1	50	5282-09758-00	ICM/TRX COLOR PROM	1	
2	5010-08774-00	R1, R2, 60	RESISTOR 22K 1/4W 5%	3	51	5282-09759-00	ICM/TRX WAVE FORM GENERATOR	1	
3	5010-08998-00	R9	RESISTOR 2.2K 1/4W 5%	1	52	5282-09760-00	ICM/TRX SOUND CONTROL ASM	1	
4	5010-09001-00	R34, R35	RESISTOR 330 1/4 W 5%	2	53	5282-09761-00	ICM/TRX VIDEO GENERATOR ASM	1	
5	5010-09034-00	R3	RESISTOR 10K 1/4W 5%	1	54	5310-09772-00	ICCD4066, 4 A/SW	1	
6	5010-09035-00	R9, R8	RESISTOR 47K 1/4W 5%	2	55	5340-09751-00	ICRAM/S 2125AL 1K x 1	4	
7	5010-09036-00	R51	RESISTOR 100 1/4W 5%	1	56	5340-09752-00	ICRAM/S 2114-3 1K x 4	6	
8	5010-09160	R22, 25, 28, 36-50, 54	RESISTOR 220 1/4W 5%	19	57	A-5343-09762-	ICM/TRX ROM A ASM	1	
9	5010-09162-00	R5	RESISTOR 100K 1/4W 5%	1	58	A-5343-09763-	ICM/TRX ROM B ASM	1	
10	5010-09358-00	R6, 7, 10, 12-20, 24 25, 27, 29, 30-33, 52, 55, 56, 59	RESISTOR 1K 1/4W 5%	24	59	A-5343-09764-	ICM/TRX ROM 1 ASM	1	
11	5010-09416-00	R11, R21, R53	RESISTOR 470 1/4W 5%	3	60	A-5343-09765-	ICM/TRX ROM 2 ASM	1	
12	5010-09768-00	R23	RESISTOR 180 1/4W 5%	1	61	A-5343-09766-	ICM/TRX ROM 3 ASM	1	
13	5014-09755-00	VR1	VARIABLE RESISTOR 1K 1/2W	1	62	A-5343-09767-	ICM/TRX ROM 4 ASM	1	
14	5019-09748-00	RA1, RA3, RA4, RA6-RA10	S.I.P. 1K 8R, 5, 5%	8	63	5370-09750-00	IC3712 AUDIO AMP	1	
15	5040-09776-00	C3, C4, C5, C7	CAPACITOR, +50-10 470 MFD 16V RADIAL	4	64	5400-09753-00	I.C. MPU 280A	1	
16	5040-09777-00	C30	CAPACITOR, +50-10 10 MFD 16V RADIAL	1	65	5410-09771-00	ICCUSTOM	1	
17	5043-08980-00	C1	CAPACITOR .01 MFD 50V +80-20	1	66	5520-09749-00	18.432 MHE CRYSTAL	1	
18	5043-09773-00	C8-C22, C26-C29, C100-C130	CAPACITOR .1 MFD 18V +80-20	50	67	5645-09025-00	8 STATION DIP SWITCH	1	
19	5043-09492-00	C31, C32, C33, C25	CAPACITOR 100 PFD 50V ±10	4	68	5700-08985-00	40 PIN IC SOCKET	1	
20	5043-09775-00	C2	CAPACITOR 330 PFD 18V +20-20	1	69	5700-09004-00	5F, 5F, 6E, 6F, 6H, 6J, 6P	24 PIN IC SOCKET	7
21	5280-09530-00	3E	IC7420, DUAL 4 IN NAND	1	70	5700-09006-00	1M, 3M, 4A, 7F	16 PIN IC SOCKET	4
22	5280-09547-00	7C	IC7427 3 IN NOR	1	71	HW-00030-B		JUMP WIRE WHITE 14"	
23	5280-09625-00	2K, 2L, 3F, 3H	IC7489 16 x 4 RAM	4	72	HW-00030-G		JUMP WIRE WHITE 12"	
24	5281-09215-00	G81, 15	IC74LS04 HEX INV	2	73	5040-09422-00	C6, C24	CAPACITOR 47MFD 50V +50-10	2
25	5281-09235-00	3P	IC74LS10 3 IN NAND	1	74	5043-08996-00	C131, C23	0.1 MFD AXIAL 50V 7-20	2
26	5281-09246-00	4S, 5L, 7M	IC74LS139 2-4 DECODER	3	75	5010-08991-00	R61	4.7K Ω, 5%, 1/4 W	1
27	5281-09247-00	2P, 5N1, 7L	IC74LS02 2 IN NOR	3	76	5019-09780-00	RA2, RA5	S.I.P. 1K 4R, 5, 5%	2
28	5281-09308-00	4H, 6C2	IC74LS245 OCTAL TRANSCEIVER	2					
29	5281-09385-00	4S, 8D, 8E, 8F, 8H, 5P1, 6L, 6M	IC74LS367 HEX BUFFER	8					
30	5281-09480-00	8A	IC74LS107 DUAL	1					
31	5281-09484-00	7N	IC74LS42 BCD-DECODER	1					
32	5281-09485-00	5S1, 5P2, 5S2	IC74LS257 QUAD 2-1 MULTX	3					
33	5281-09487-00	3N, 5M, 6C1, 6C	IC74LS74 DUAL	4					
34	5281-09499-00	4C, 6B2	IC74LS00 QUAD 2 IN NAND	2					
35	5281-09733-00	1L, 1H	IC74LS174 HEX F/F	2					
36	5281-09734-00	1K, 1F, 2F	IC74LS283 ADDR 4B	3					
37	5281-09735-00	1E, 2S, 2R, 2E, 3R, 3S, 9C	IC74LS161 BIN CTR	7					
38	5281-09736-00	2M, 4D	IC74LS273 OCTAL F/F	2					
39	5281-09737-	2H, 4F	IC74LS86 QUAD OR	2					
40	5281-09738-00	3B, 3L, 4E, 5A	IC74LS157 MLTPX	4					
41	5281-09739-00	3A, 3K	IC74LS158 MLTPX I	2					
42	5281-09740-00	3C	IC74LS375 LATCH	1					
43	5281-09741-00	4B	IC74LS377 QUAD F/F	1					
44	5281-09742-00	5B, 5C	IC74LS194 SHFT/R	2					
45	5281-09743-00	5D, 7H	IC74LS08 QUAD 2 IN AND	2					
46	5281-09744-00	5R1, 5N2, 5R2	IC74LS258 MLTPX	3					
47	5281-09745-00	7J	IC74LS138 DMLTPX	1					
48	5281-09746-00	8B	IC74LS363 HEX INV	1					
49	5281-09747-00	8K	IC74LS259 LATCH	1					

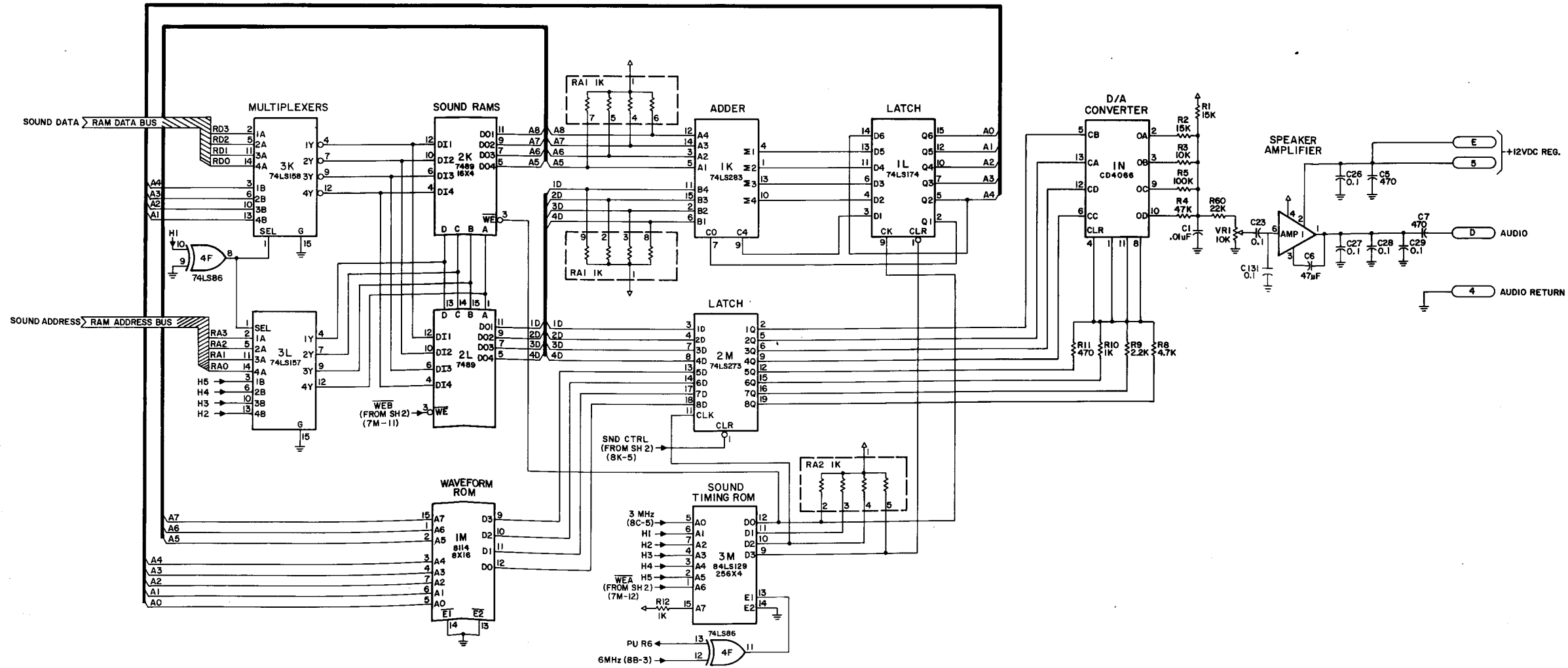
CLOCK CIRCUIT

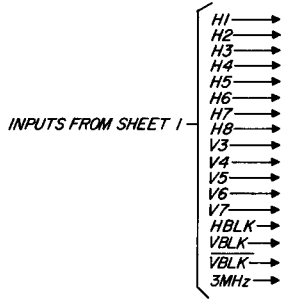


DIVIDERS

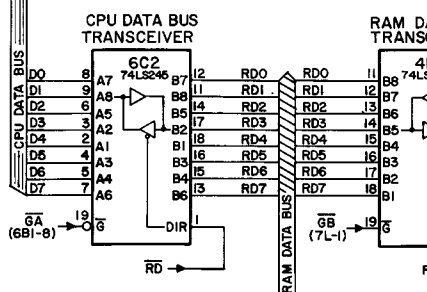
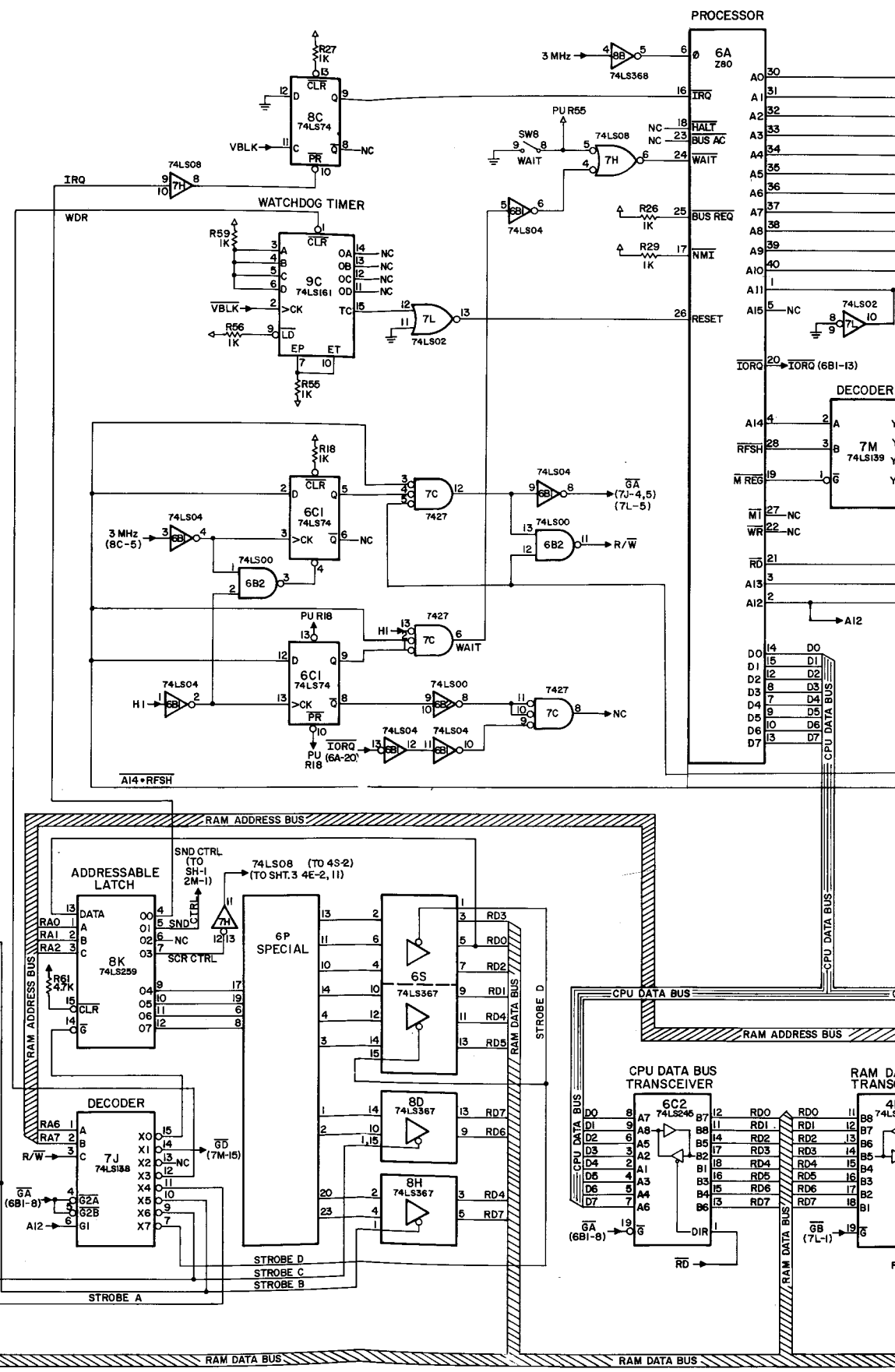
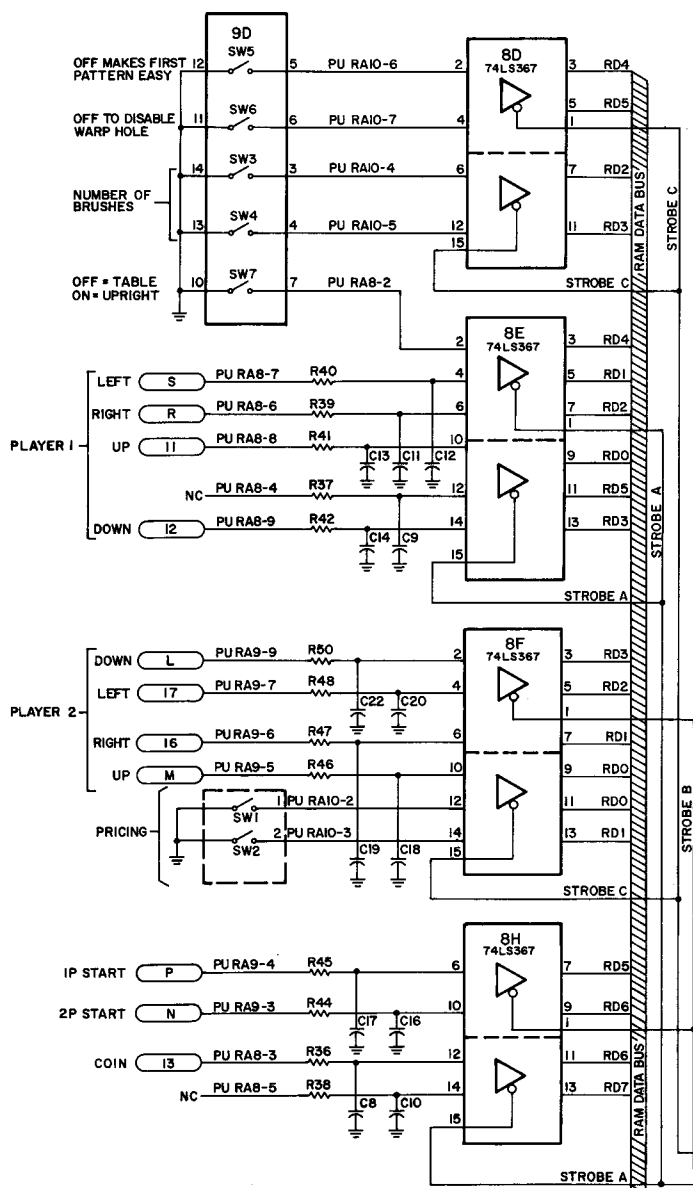


SOUND CIRCUIT

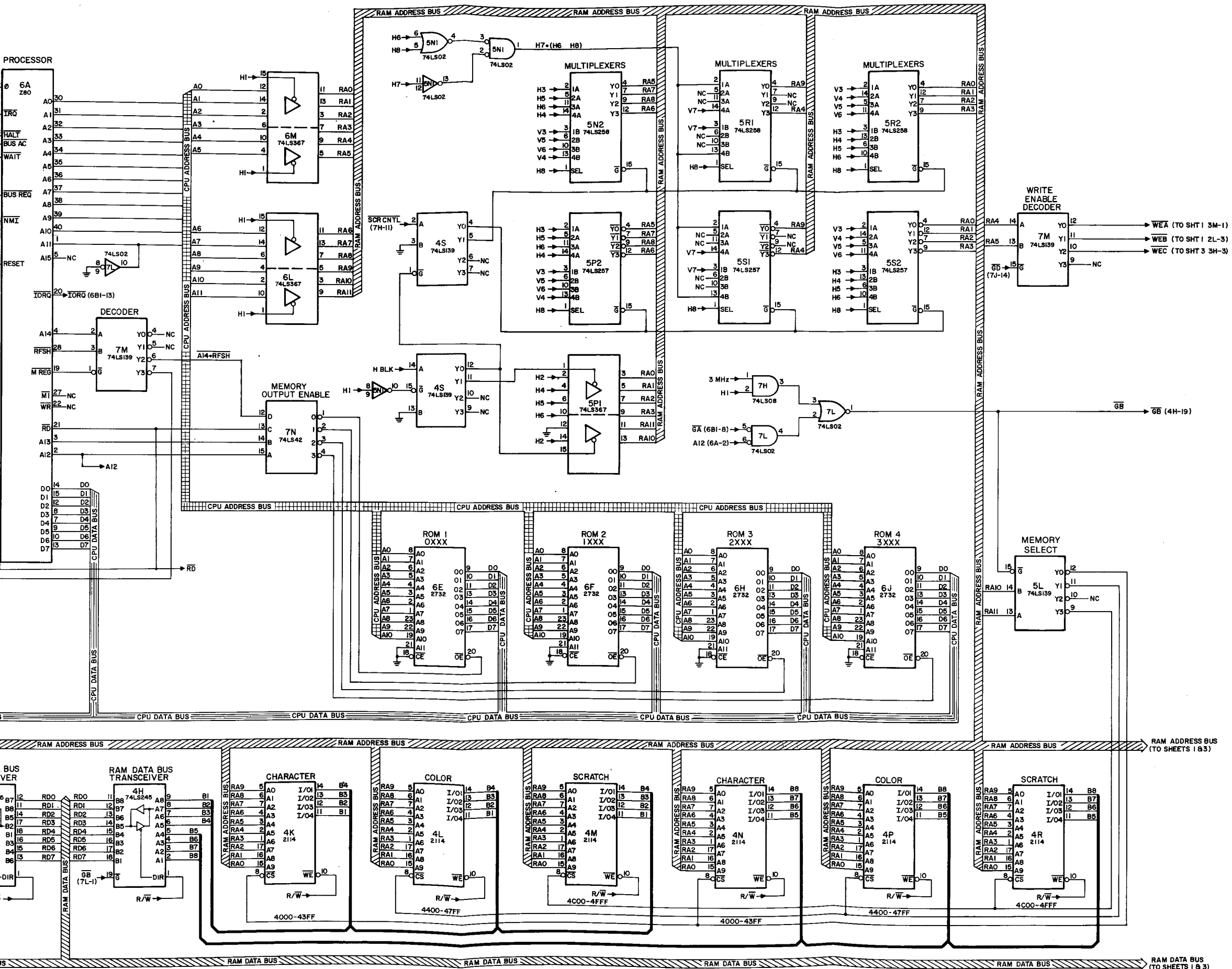




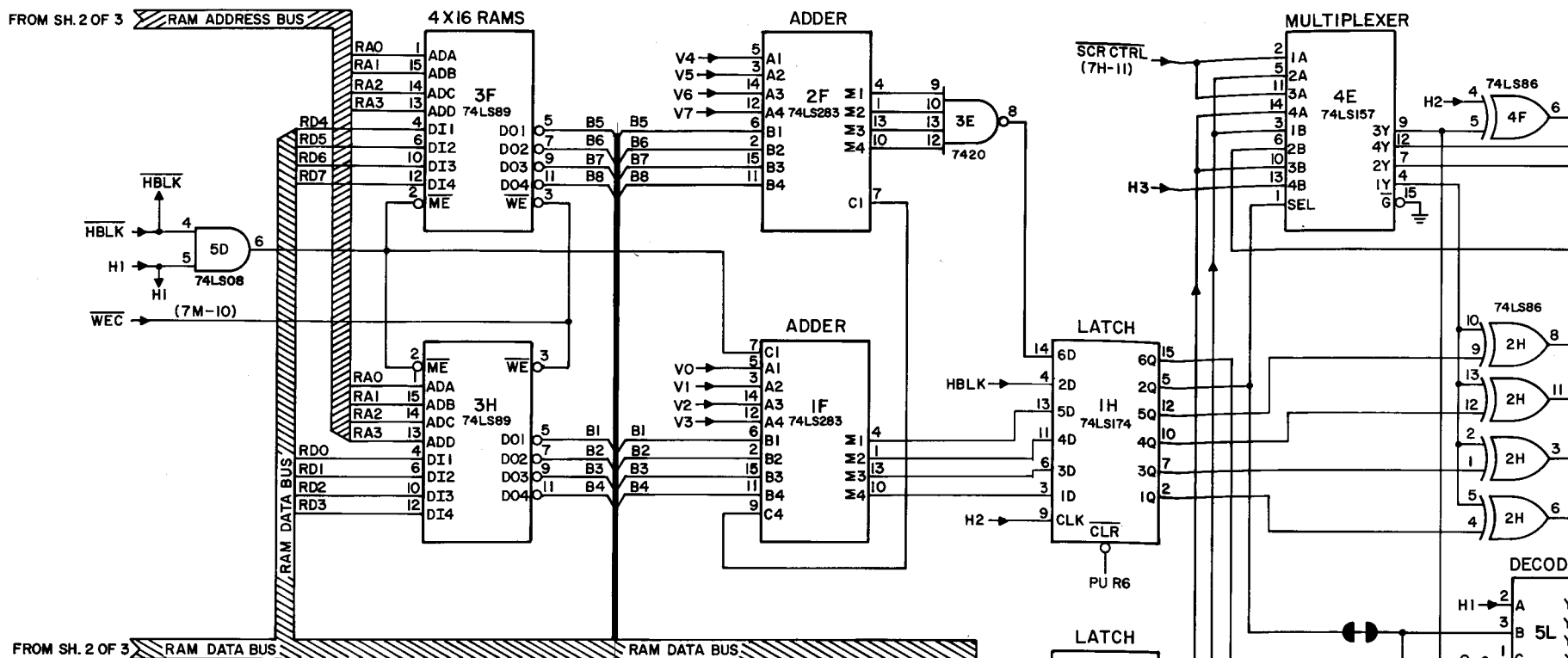
INPUT BUFFERS



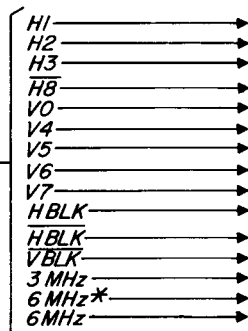
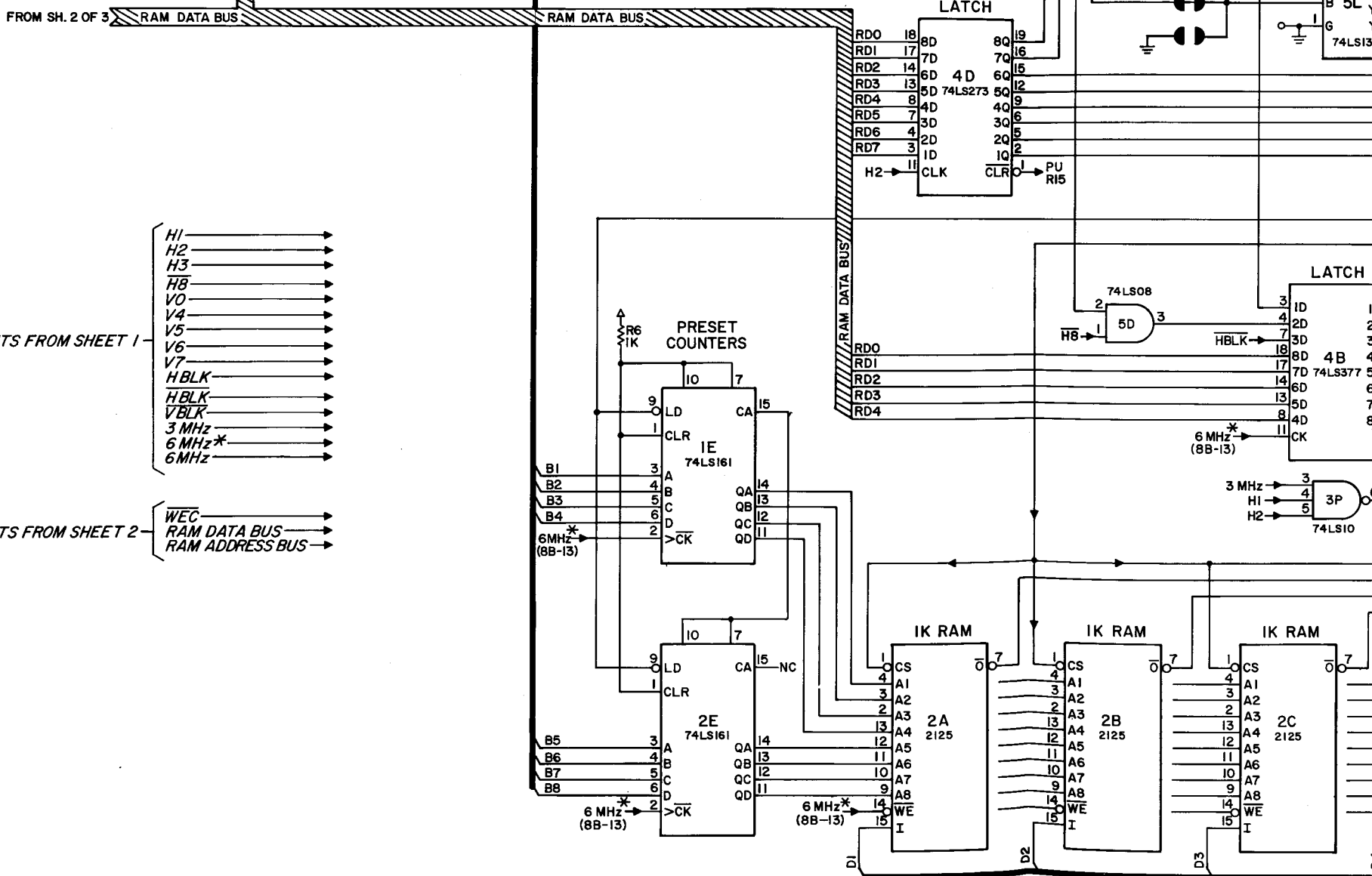
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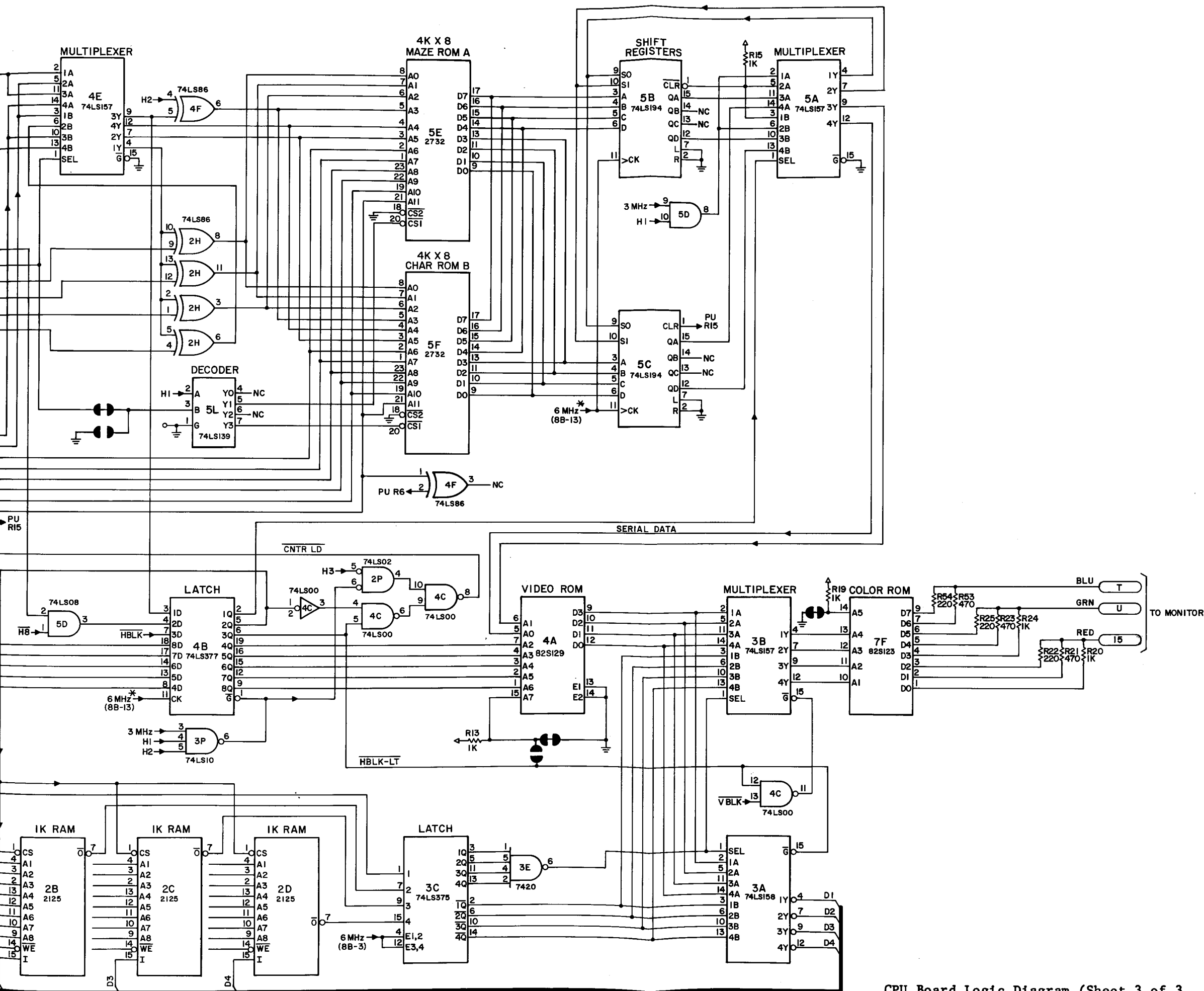


FROM SH. 2 OF 3

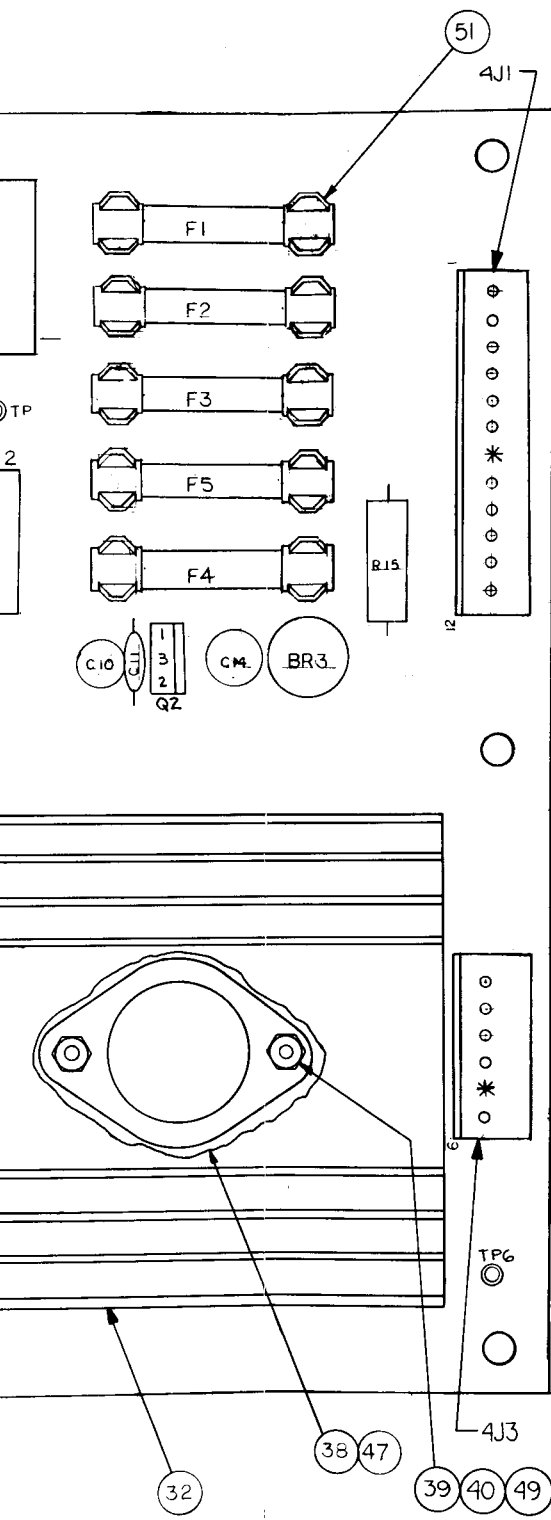


FROM SH. 2 OF 3

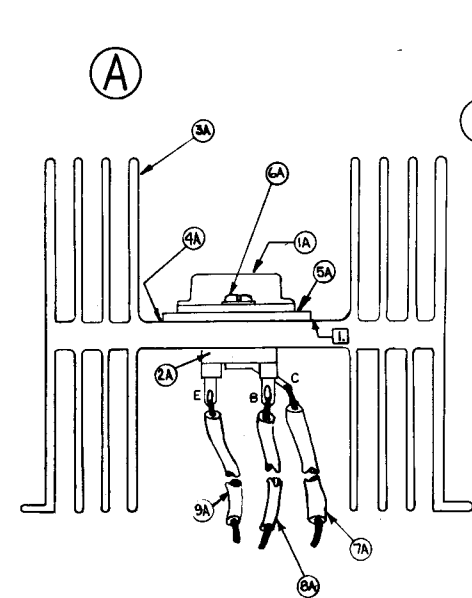




CPU Board Logic Diagram (Sheet 3 of 3)

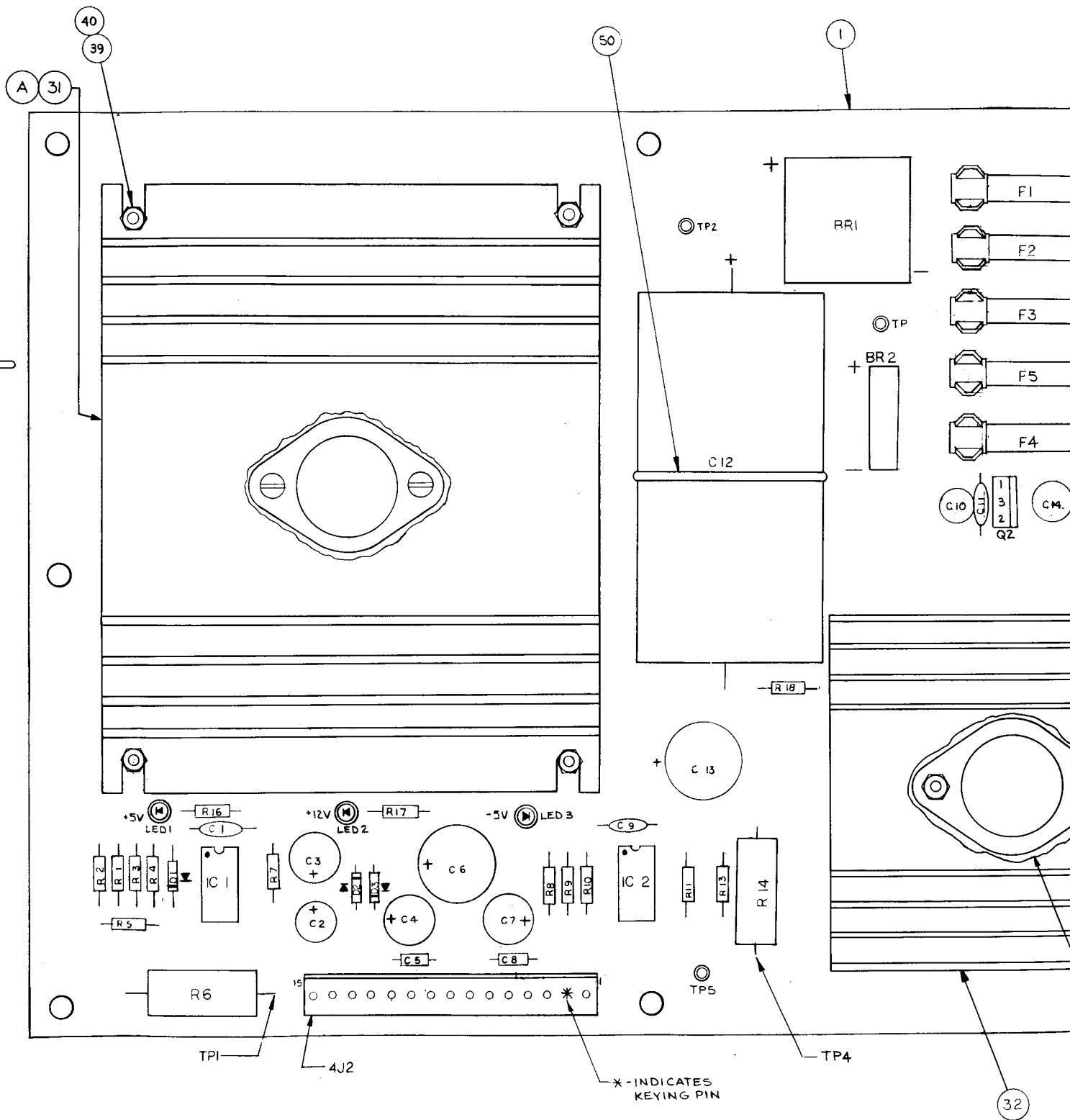


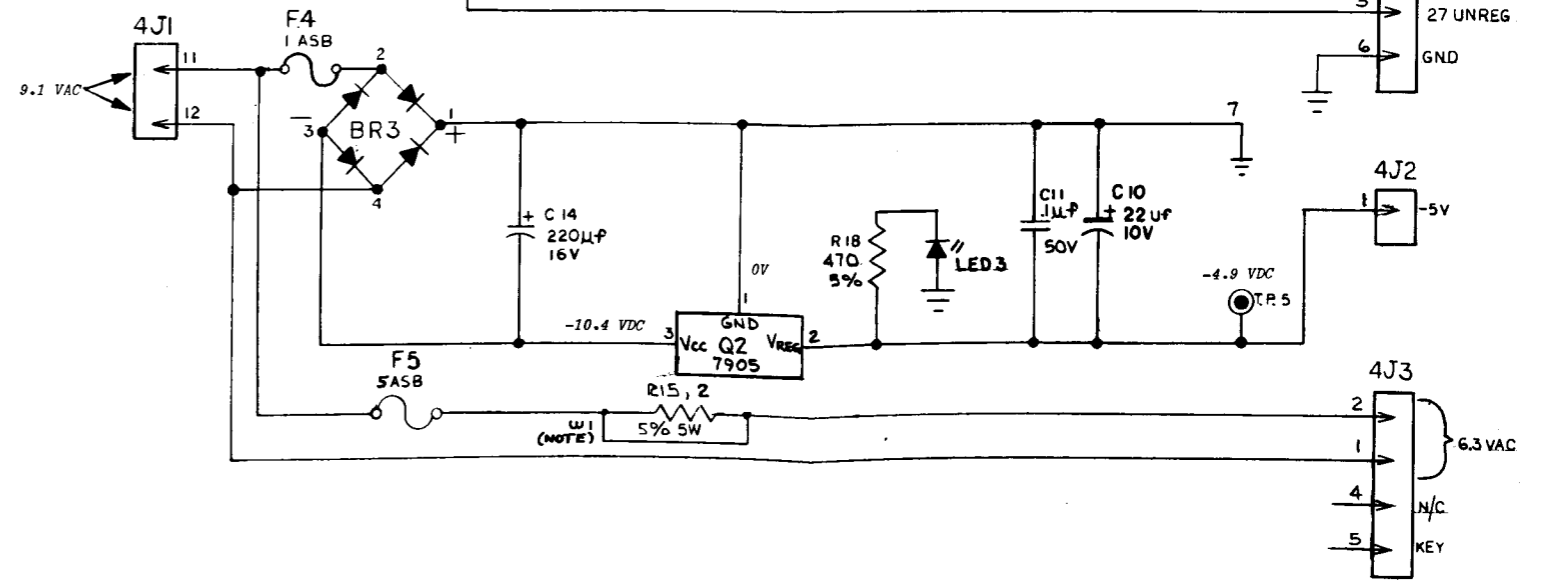
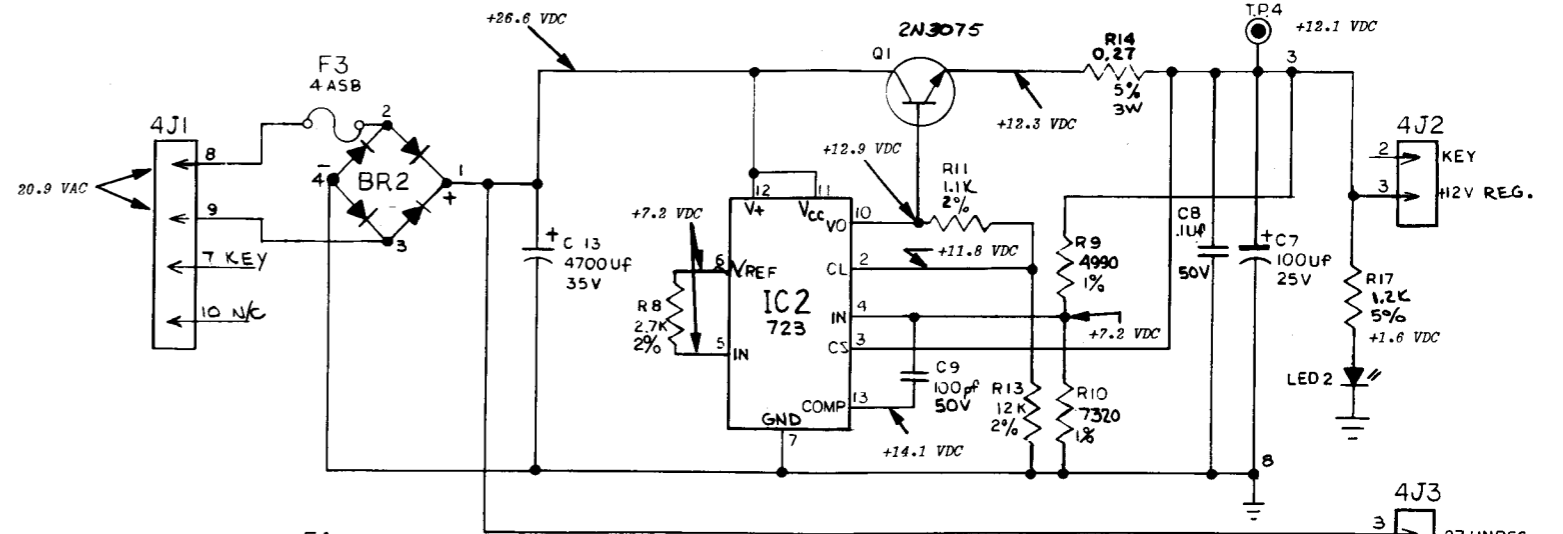
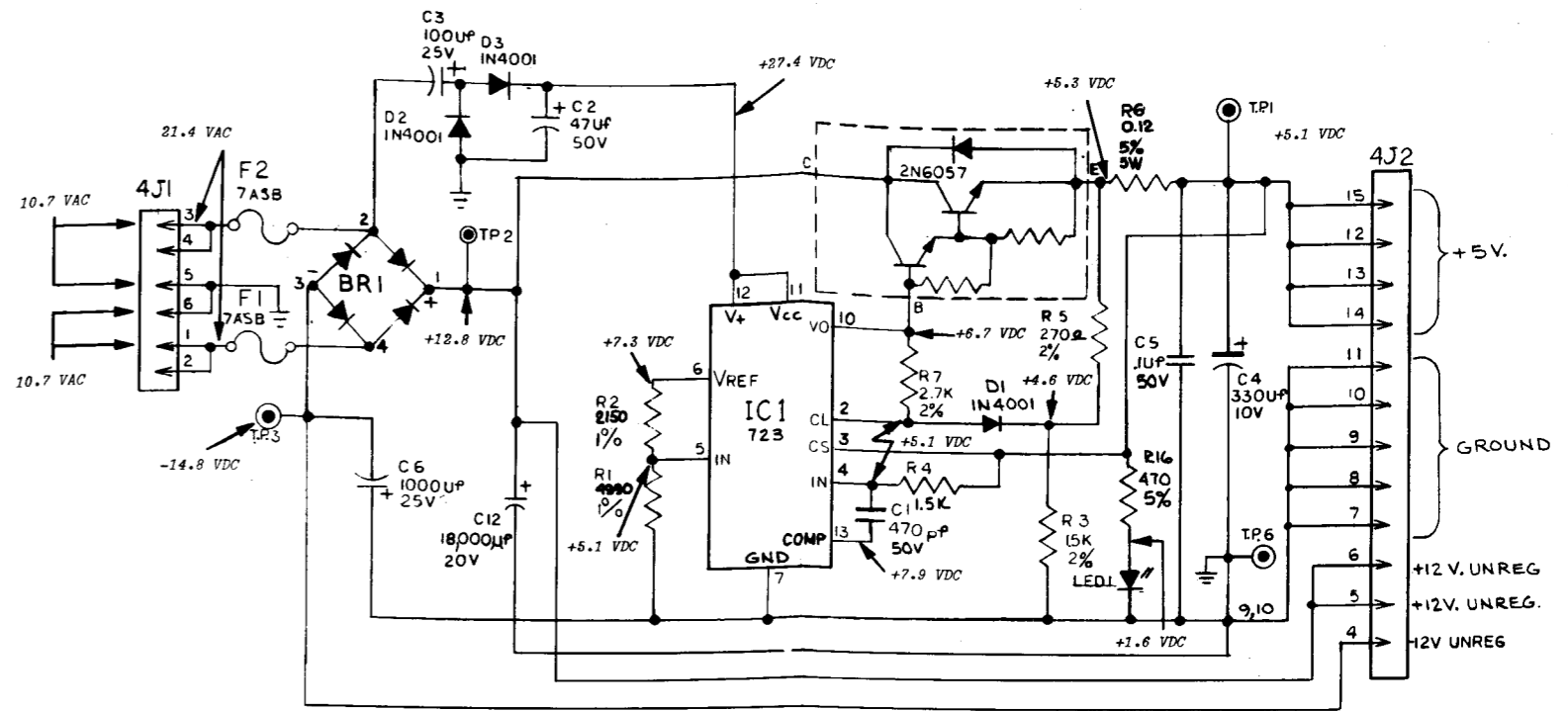
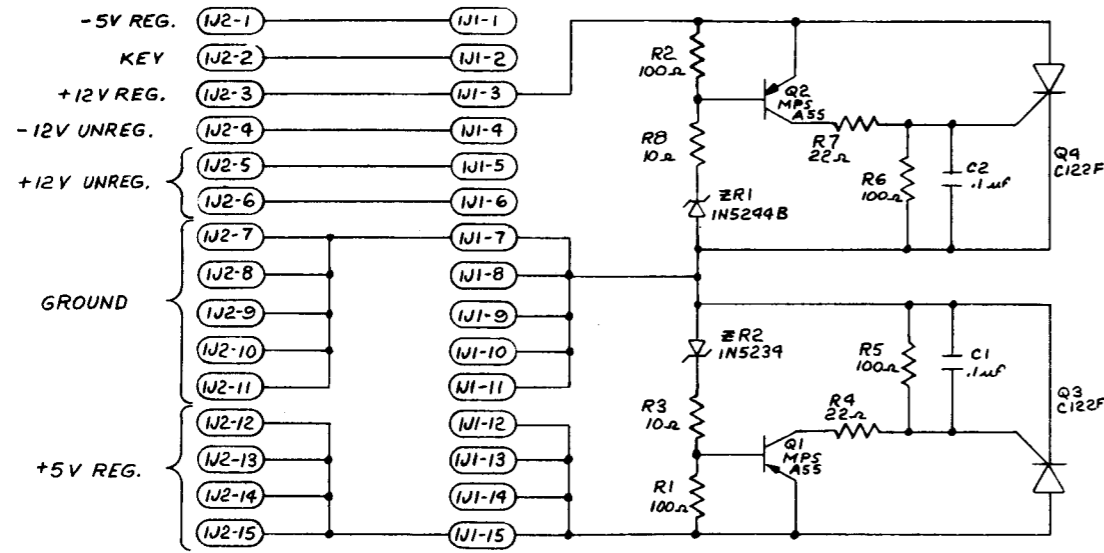
BILL OF MATERIAL				
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1	5173-09474-00		BARE P.C. BOARD	
2	5010-09085-00	R4	RESISTOR, 1.5K 5%, 1/4W	1
3	5010-09541-00	R8, R7	RESISTOR, 2.7K 2%, 1/4W	2
4	5010-09508-00	R5	RESISTOR, 270 2%, 1/4W	1
5	5010-09428-00	R3	RESISTOR, 1.5K, 2%, 1/4W	1
6	5010-09509-00	R11	RESISTOR, 1.1K 2%, 1/4W	1
7	5010-09510-00	R13	RESISTOR, 12K 2%, 1/4W	1
8	5013-09542-00	R10	RESISTOR, 732K 1%, 1/4W	1
9	5013-09427-00	R1 & R9	RESISTOR 499K 1% 1/4W	2
10	5013-09426-00	R2	RESISTOR 2.15K 1% 1/4W	1
11	5012-08429-00	R6	RESISTOR 12Ω, 5%, 5W	1
12	5012-09512-00	R14	RESISTOR .27 5%, 5W	1
13	5040-09421-00	C3 & C7	CAPACITOR, 100MFD, 25V. RADIAL	2
14	5040-09422-00	C2	CAPACITOR, 47MFD, 50V. RADIAL	1
15	5040-09420-00	C6	CAPACITOR, 1000MFD, 25V. RADIAL	1
16	5040-09419-00	C12	CAPACITOR, 18,000MFD, 20V. RADIAL	1
17	5040-09423-00	C4	CAPACITOR, 330MFD, 10V. RADIAL	1
18	5040-09504-00	C13	CAPACITOR, 4700MFD, 35V. RADIAL	1
19	5043-08994-00	C5, C8, C11	CAPACITOR, 1MFD, 50V. AXIAL 25U	3
20	5043-09065-00	C1	CAPACITOR, 470 PFD, 50V. AXIAL XTR	1
21	5043-09492-00	C9	CAPACITOR, 100 PFD 50V. AXIAL 52U	1
22	5040-09506-00	C14	CAPACITOR, 220MFD, 16V. RADIAL	1
23	5040-09493-00	C10	CAPACITOR, 22MFD, 10V. RADIAL	1
24	5070-06258-00	D1, D2, D3	DIODE, IN4001	3
25	5100-09418-00	BR1	BRIDGE RECTIFIER, 35AMP, 100V	1
26	5100-09513-00	BR2	DIODE BRIDGE, 4.0A, 50V	1
27	5100-09514-00	BR3	DIODE BRIDGE, 1.0A, 50V.	1
28	5731-09432-00	F1, F2	FUSE, 7A, 5A	2
29	5731-06314-00	F3	FUSE, 4A, 5A, 250 V.	1
30	5731-06569-00	F4	FUSE, 1A, 5A	1
31	B-8416-00		HEAT SINK ASSEMBLY (SEE A)	1
32	5705-09543-00		HEAT SINK	1
33	5791-09074-00	4J2	HEADER, 15 PIN, 09-65-1151	1
34	5791-09043-00	4J1	HEADER, 12 PIN, 09-65-1121	1
35	5250-09515-00	Q2	VOLTAGE REGULATOR 7905	1
36	5460-09424-00	IC1, IC2	VOLTAGE REGULATOR 723	2
37	5824-09248-00	TP2, TP3, TP5, TP6	TERMINAL #1502-1 (TEST POST)	4
38	20-9229-00		THERMAL COMPOUND .02 OUNCE	AR
39	4005-01051-07		5-40x7/16 RH. MECH. SCREW	6
40	4405-01112-00		5-40 HEX NUT	6
41	5161-09552-00	Q1	2N3055 TRANSISTOR NPN	1
42	5731-09651-00	F5	FUSE, 5A, 5A	1
43	5791-09038-00	4J3	HEADER, 6 PIN, 09-65-1061	1
44	5012-09544-00	R15	RESISTOR, 2.0Ω, 5%, 5W	1
45	5010-09416-00	R16, R18	RESISTOR, 470Ω, 5%, 1/4W	2
46	5010-09314-00	R17	RESISTOR, 1.2K, 5%, 1/4W	1
47	5701-09538-00		INSULATOR, MICA, 3mil	1
48	5671-09019-00	LED1, LED2, LED3	LED, RED	3
49	03-7598		INSULATOR, NYLON	2
50	03-7520		TIE WRAP	1
51	5732-09178-00		FUSE HOLDER	10



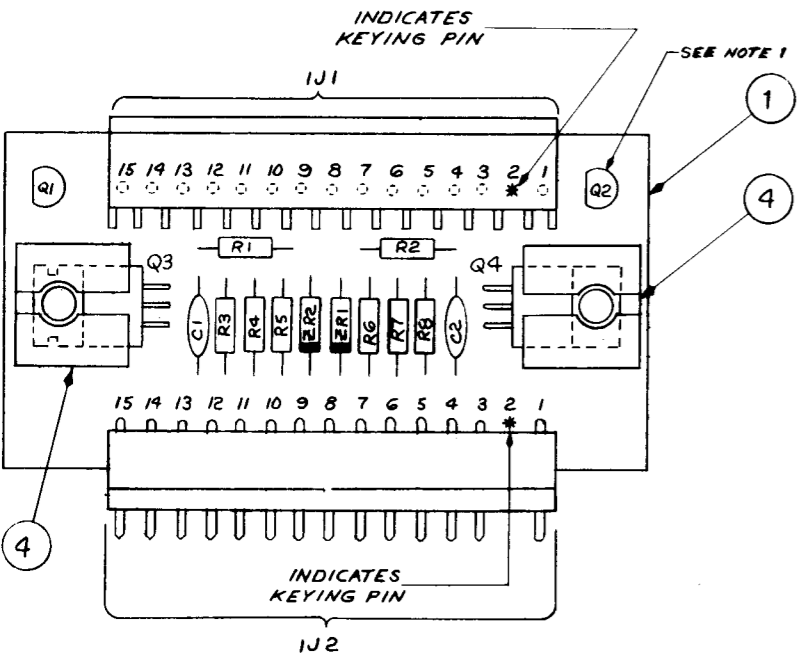
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1A	5162-09425-00	TRANSISTOR NPN 2N6057	1
2A	5700-09445-00	TRANSISTOR-SOCKET TO3	1
3A	5705-09431-00	HEAT SINK	1
4A	20-9729-00	THERMAL COMPOUND 1.5 OUNCE	1
5A	5701-09538-00	TO3 3 MIL MICA INSULATOR	1
6A	4006-01003-8	MS-6-22xV2-P-PH	2
7A	5853-09591-00	LEAD WIRE #18 AWG 4 3/8 STRIPPED (GRN)	1
8A	5853-09592-00	LEAD WIRE #18 AWG 4 3/8 STRIPPED (WHT)	1
9A	5853-09593-00	LEAD WIRE #18 AWG 4 3/8 STRIPPED (VEL)	1

NOTES:
 1. HEAT SINK COMPOUND MUST BE APPLIED BETWEEN MICA INSULATOR AND HEAT SINK AND BETWEEN MICA INSULATOR AND TRANSISTOR.



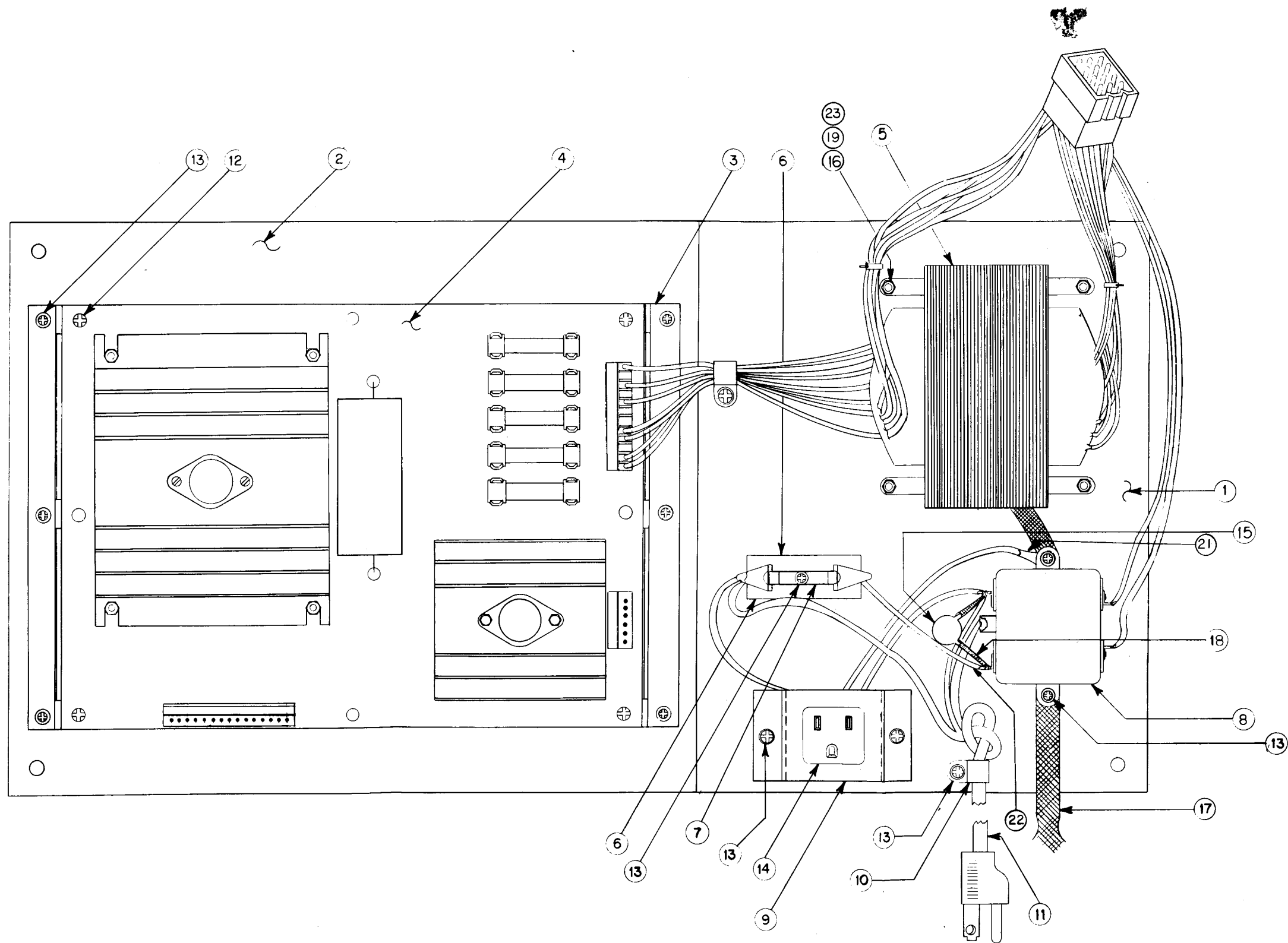


BILL OF MATERIALS				
ITEM NO.	PART NO.	PART DESIGNATION	DESCRIPTION	REQ'D NO.
1	5773-09664-00		BARE P.C. BOARD	1
2	5792-09676-00	IJ1	RIGHT ANGLE CONNECTOR, 15 PIN	1
3	5791-09670-00	IJ2	HEADER CONNECTOR, 15 PIN	1
4	5705-09663-00		HEAT SINK, AAVID 5741	2
	5705-09688-00		HEAT SINK, THERMALLOY 6093	0
7	5130-09661-00	Q3, Q4	SCR 122F (100V)	2
8	5190-09430-00	Q1, Q2	TRANSISTOR MPS 455	2
9	5075-09662-00	ZR1	ZENER IN5244 ± 5% (14V)	1
10	5075-09406-00	ZR2	ZENER IN5239 ± 5% (6.2V)	1
11	5010-09036-00	R1, R2, R5, R6	RESISTOR C.F. 100.Ω ± 5% 1/4W	4
12	5010-09039-00	R3, R8	RESISTOR C.F. 10.Ω ± 5% 1/4W	2
13	5010-09434-00	R4, R7	RESISTOR C.F. 22.Ω ± 5% 1/4W	2
14	5043-08996-00	C1, C2	CAPACITOR 0.1 μF CERAMIC +80%-20% 50V	2



NOTES:
 1. OBSERVE POLARITY OF CAPACITORS, DIODES AND POSITION OF TRANSISTORS.
 2. REFERENCE DWG: SCHEMATIC 16-8810

NOTE:
 W1 CONNECTED ONLY FOR COCKTAIL APPLICATIONS.



BILL OF MATERIALS			
ITEM	PART N ^o	DESCRIPTION	QTY.
1	11-580	POWER SUPPLY MTG. BD.	1
2	01-7001	POWER SUPPLY GND PLATE	1
3	01-7002	POWER SUPPLY SUPPORT BRKT.	2
4	D-8359	POWER SUPPLY BOARD	1
5	C 8529	VIDEO TRANSFORMER ASSY	1
6	B-6448-1	FUSE MOUNT ASS'Y.	1
7	5731-08633-00	LINE FUSE 3AMP 115V	1
8	5102-08895-00	LINE FILTER 5A	1
9	01-6948-	OUTLET MTG BRACKET	1
10	03-6048-6	CABLE CLAMP - 3/8	2
11	SEE NOTE #2	LINE CORD	1
12	4006-01018-04	MS. #6-32 x 7/4 P-RH	4
13	4108-01022-08	SMS #8-32 x 1/2 P-RWH-A	13
14	5851-09184-00	3WIRE SNAP-IN OUTLET	1
15	SEE NOTE #1	VARIATOR	1
16	4408-01117-00	NUT 8-32 HEX	4
17	20-9223-3	6INCH BRAIDED GROUND WIRE	1
18	20-9256	1 INCH SLEEVING INSULATION	2
19	4703-00008-00	NO#8 EXTERNAL LOCK WASHER	4
21	5825-06523-00	TERMINAL LUG	1
22	5852-09575-00	BLACK-18'AWG JUMPER WIRE-25'	1
23	4008-01005-22	MS. 8-32 x 1 3/8 P-PH	4

NOTES:

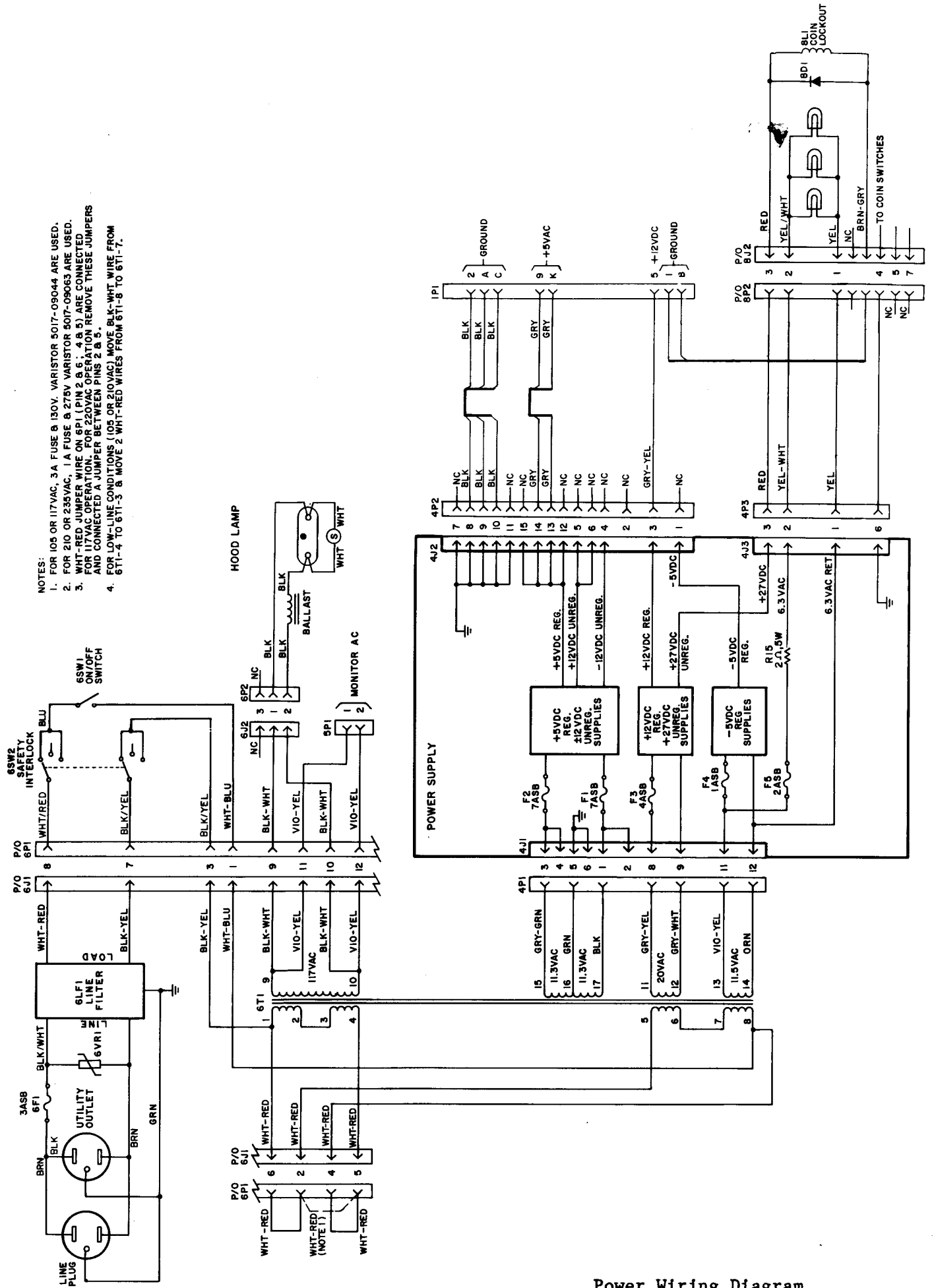
1. FOR 115V.A.C., 130V. VARIATOR # 5017-09044 IS USED.

FOR 230V.A.C., A 275V VARIATOR # 5017-09063 IS USED.

2. LINE CORD PART NUMBERS:

- 5850-06206-00 12 FT. EUROPE
- 5850-08728-00 U.S. DOM.
- 5850-08737-00 AUS.
- 5850-08743-00 U.S.L.A.
- 5850-09128-00 12 FT. FRANCE
- 5850-09131-00 AWG 18-12 JAPAN

- NOTES:
1. FOR 105 OR 117VAC, 3A FUSE & 130V. VARISTOR 5017-09044 ARE USED.
 2. FOR 210 OR 235VAC, 1A FUSE & 275V VARISTOR 5017-09063 ARE USED.
 3. WHT-RED JUMPER WIRE ON 6P1 (PIN 2 & 6; 4 & 5), ARE CONNECTED FOR 117VAC OPERATION. FOR 220VAC OPERATION, REMOVE THESE JUMPERS AND CONNECTED A JUMPER BETWEEN PINS 2 & 5.
 4. FOR LOW-LINE CONDITIONS (105 OR 210VAC) MOVE BLK-WHT WIRE FROM 6T1-4 TO 6T1-3 & MOVE 2 WHT-RED WIRES FROM 6T1-8 TO 6T1-7.



Power Wiring Diagram

