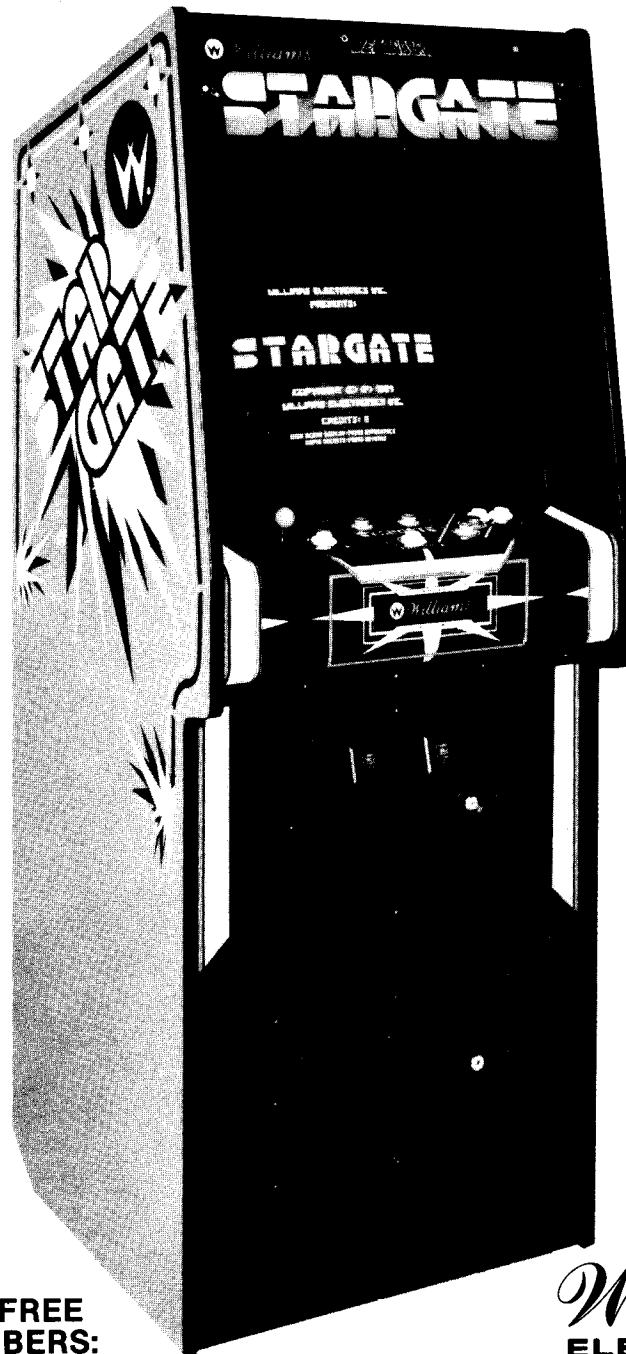


Williams[®]

16P-3002-103
December, 1981

STARGATE

DRAWING SET



FOR SERVICE...
NOTE NEW TOLL-FREE
TELEPHONE NUMBERS:

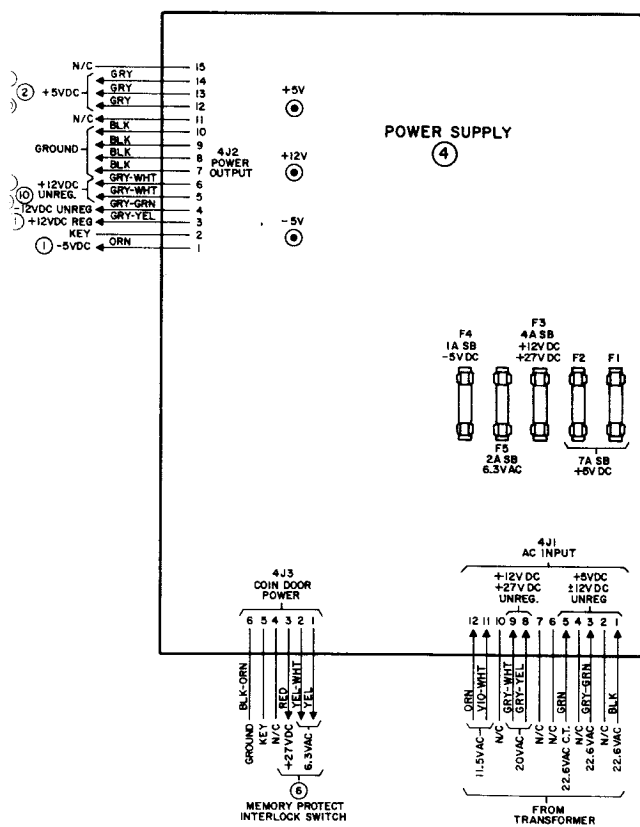
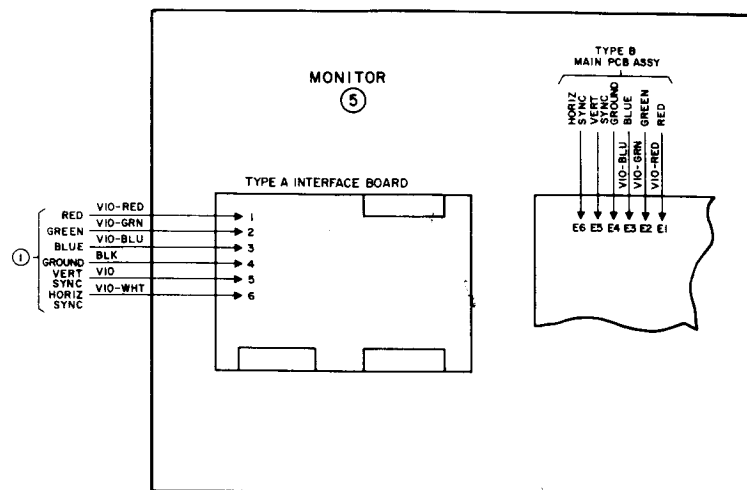
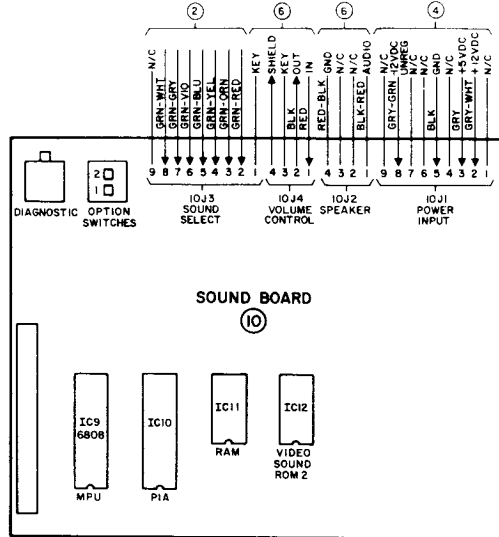
800-621-1253
IN ILLINOIS CALL:
800-572-1324

Williams[®] 
ELECTRONICS, INC.

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

CONTENTS

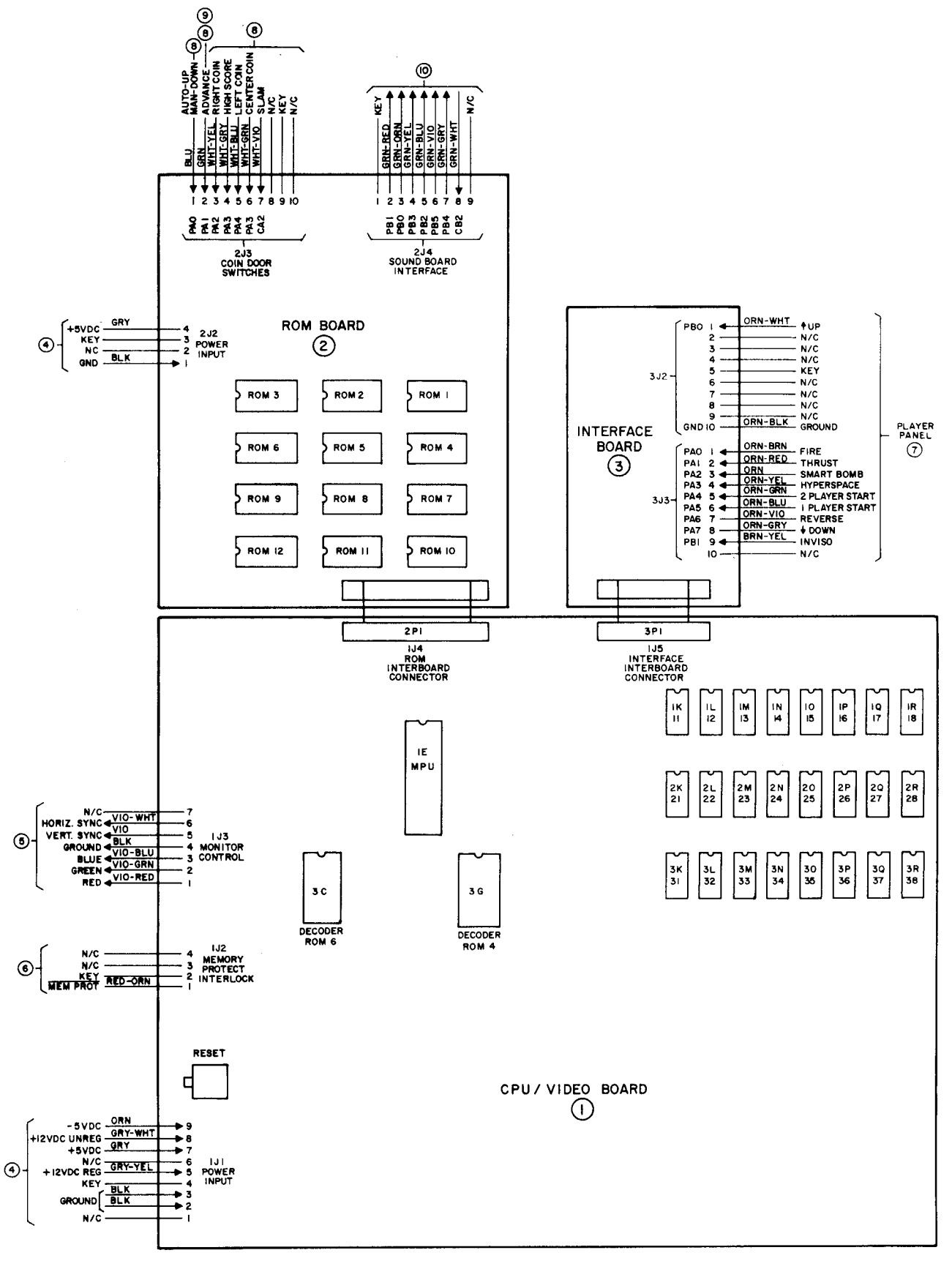
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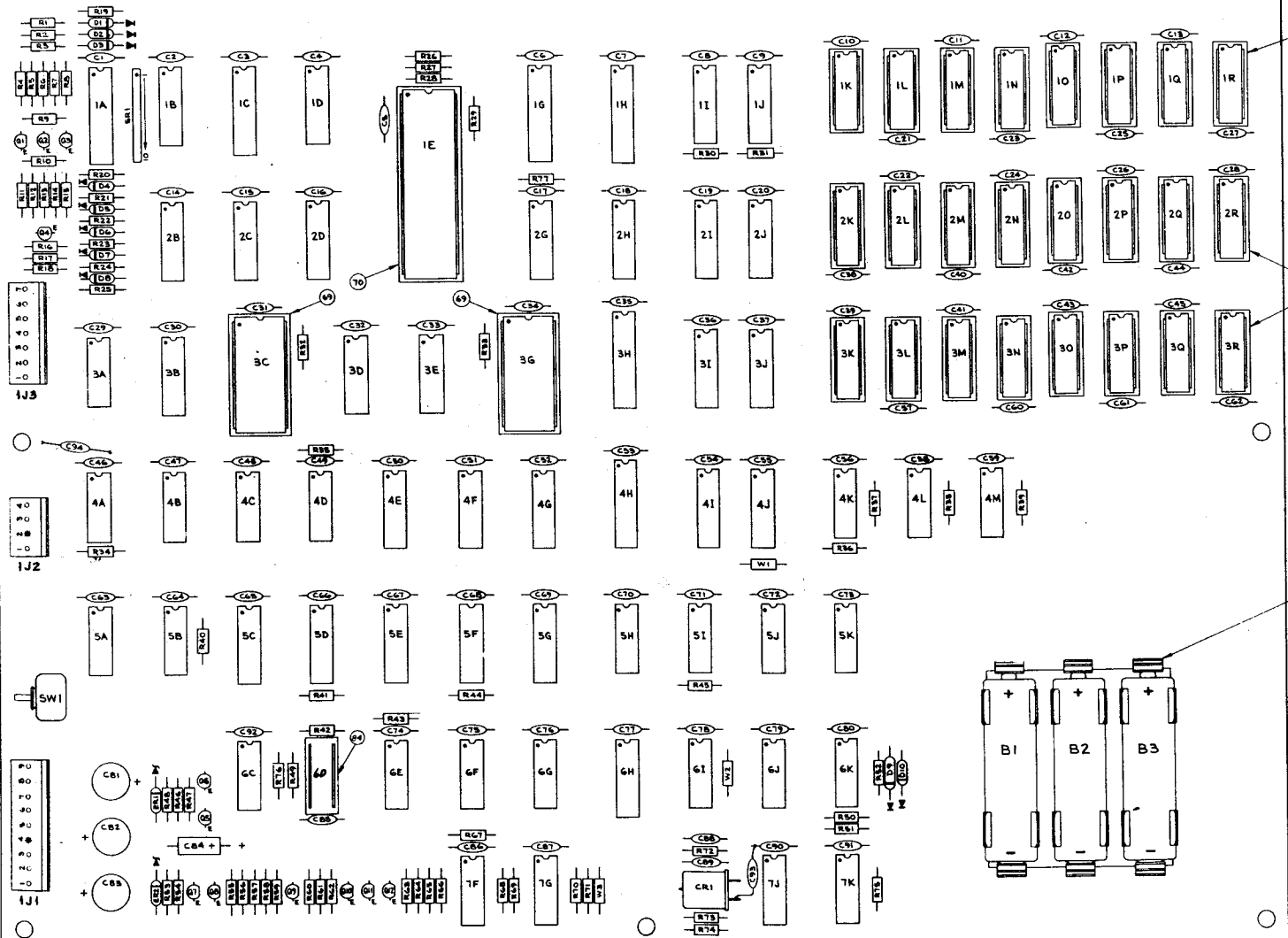
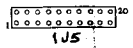
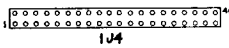
- ① CPU / VIDEO BOARD
- ② ROM BOARD
- ③ INTERFACE BOARD
- ④ POWER SUPPLY
- ⑤ MONITOR
- ⑥ CABINET
- ⑦ PLAYER PANEL
- ⑧ COIN DOOR
- ⑨ CASH BOX
- ⑩ SOUND BOARD

SIDE PANEL

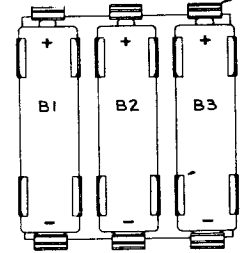
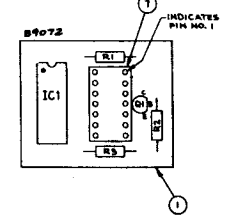
COMPONENT DOOR



A B C D E F G H I J K L M N O P Q R



ITEM NO.	PART NO.	PART DESIGNATION	DESCRIPTION	REQ'D. NO.
1	5170-09810-00		BARE P.C. BOARD	1
2	5280-09011-00	IC1	7410 TRIPLE 3-INPUT NAND	1
3	5160-09358-00	Q1	2N4401, TO-92 TRANSISTOR, NPN	1
4	5010-09358-00	R1	RESISTOR, C.F. 1K ± 5% 1/4 WATT	1
5	5010-02991-00	R2	RESISTOR, C.F. 47.5K ± 5% 1/4 WATT	1
6	5010-09034-00	R3	RESISTOR, C.F. 10K ± 5% 1/4 WATT	1
7	5101-09812-00		14 PIN I.C. HEADER	1



BILL OF MATERIAL					ITEM NO.	PART NO.	PART DESIGNATION	DESCRIPTION	REQ'D. NO.
					49	5010-09001-00	R2, R21, R24	RESISTOR, C.F. 330 OHM 5% 1/4 W.	3
1	5170-09656-00		BARE P.C. BOARD SEA	1	50	5010-09039-00	R56	RESISTOR, C.F. 10 OHM 5% 1/4 W.	1
2	5280-09073-00	4B	7400 QUAD 2-INPUT NAND	1	51	5043-09491-00	C89, C93	CAPACITOR, AXIAL 22 PFD. 1K V. ±10%	2
3	5280-08948-00	5H	7402 QUAD 2-INPUT NOR	1	52	5043-09492-00	C88	CAPACITOR, AXIAL 100 PFD. 50 V. ±10%	1
4	5281-09218-00	7J	74LS04 HEX. INVERTER	1	53	5040-09545-00	C84	CAPACITOR, AXIAL 22 MFD. 10 V. ±20%	1
5	5280-09019-00	5A, 5K	7404 HEX. INVERTER	2	54	5043-09065-00	C94	CAPACITOR, AXIAL 470 PFD. 50 V. XTR ±20%	1
6	5280-08973-00	6F	7408 QUAD AND	1	55	5043-08996-00	SEE NOTE #3	CAPACITOR, AXIAL 1 MFD. 50 V. ±20%	86
7	5280-09011-00	4L, 4M, 4I	7410 TRIPLE 3-INPUT NAND	3	56	5040-09421-00	C81, C82, C83	CAPACITOR, RADIAL 100 MFD. 25V. +50 -10%	3
8	5280-09475-00	3A, 6J	7411 TRIPLE 3-INPUT AND	2	57	5075-09059-00	ZR2	1N5990A 3.9 V. ZENER DIODE	1
9	5280-09530-00	5B	7420 DUAL 4-INPUT NAND	1	58	5075-09018-00	ZR1	1N5990A 6.8 V. ZENER DIODE	1
10	5280-09476-00	4C	7421 DUAL 4-INPUT AND	1	59	5070-08919-00	D1, D2, D3, D4, D5, D6, D7, D8	1N4148 DIODE, SILICON	8
11	5280-09477-00	6E, 6G	7432 QUAD 2-INPUT OR	2	60	5070-09266-00	D9	1N5817 DIODE, SILICON	1
12	5280-09478-00	4D, 4K, 4G, 6C, 7F, 7G	7474 DUAL-D TYPE FLIP-FLOP	6	61	5160-08938-00	Q5, Q6, Q7, Q8, Q9, Q10, Q11	2N4401, TO-92 TRANSISTOR, NPN	7
13	5280-09479-00	4A, 5J	7486 QUAD 2-INPUT EX-OR	2	62	5190-09016-00	Q1, Q2, Q3, Q4, Q12	2N4403, TO-92 TRANSISTOR, PNP	5
14	5281-09480-00	7K	74LS107 DUAL J-K FLIP-FLOP	1	63	5520-09495-00	CRI	12 MHZ CRYSTAL	1
15	5281-09532-00	5G	74LS133 13-INPUT NAND	1	64				
16	5281-09246-00	4G, 6H	74LS139 DUAL 2 to 4 LINE DECODER	2	65	5880-09022-00	B1, B2, B3	BATTERY ALKALINE 1.5 V. (AA)	3
17	5280-09481-00	3D, 3E, 4E, 4F	74153 DUAL 4 to 1 DATA INVERT	4	66	5881-09021-00		BATTERY HOLDER #171	1
18	5280-09468-00	1I, 1J, 2I, 2J, 3I, 3J, 4I, 4J	74166 8-BIT SHIFT REGISTER	8	67	5700-09628-00		14-PIN IC SOCKET	0
19					68	5700-09006-00		16-PIN IC SOCKET	24
20	5281-09308-00	1G	74LS245 OCTAL BUSTRANSCEIVER	1	69	5700-09004-00		24-PIN IC SOCKET	2
21	5281-09485-00	2C, 2H	74LS257 QUAD DATA MULPX.	2	70	5700-08985-00		40-PIN IC SOCKET	1
22	5370-08989-00	1D, 2D, 2G, 3B	8T97 HEX. TS BUFFER	0	71	5791-09437-00	1J5	20 PIN RIBBON CABLE HEADER	1
	5281-09385-00		74LS367 HEX BUS DRIVER	4	72	5791-09349-00	1J4	40 PIN RIBBON CABLE HEADER	1
23	5281-09486-00	1A, 1H, 3H, 4H	74LS374 OCTAL D-TYPE FLIP-FLOP	4	73	5791-09028-00	1J2	4 PIN HEADER 09-65-1041	1
24	A-5342-09695	3C	UNIVERSAL VERT. DECODER ROM5	1	74	5791-09497-00	1J3	7 PIN HEADER 09-65-1071	1
25	A-5342-09694	3G	UNIVERSAL HORIZ. DECODER ROM4	1	75	5791-09027-00	1J1	9 PIN HEADER 09-65-1091	1
26	B-9072	6D	CMOS MOD. ASSY BOARD	1	76	5019-09669-00	SR1	RESISTOR, 1K OHM 10 PIN SIP	1
27	5281-09533-00	5I	74LS393 DUAL 4-BIT BIN. COUNTER	1	77	5010-09534-00	W1, W2, W3	RESISTOR, C.F. 0 OHM 1/4 WATT	3
28	5340-09488-00	SEE NOTE #1	4116 (450 ns ACCESS) 16 K x 1 DYNAMIC RAM	24	78	5340-09689-00	1C	5114 1K x 4 CMOS STATIC RAM	1
29	5070-06258-00	D10	1N4001 DIODE	1		5340-09667-00		6514 1K x 4 CMOS STATIC RAM	0
30	5280-09489-00	5C, 5D, 5E, 5F	9316 4-BIT BIN. COUNTER	4	79	5281-09488-00	1B, 2B	74LS189 16x4 RAM	0
31	5400-09490-00	1E	6809E MICROPROCESSOR	1		5180-09628-00		7489 16x4 RAM	0
32	5010-09548-00	R10, R12, R14	RESISTOR, C.F. 68 OHM 2% 1/4 W.	3		5281-09716-00		74S189 16x4 RAM	0
33	5010-09036-00	R65	RESISTOR, C.F. 100 OHM 5% 1/4 W.	1		5281-09715-00		74LS289 16x4 RAM	2
34	5010-09187-00	R4, R6, R7, R16, R19, R25	RESISTOR, C.F. 150 OHM 5% 1/4 W.	6		5282-09717-00		74S289 16x4 RAM	0
35	5010-09508-00	R11, R13, R15	RESISTOR, C.F. 270 OHM 2% 1/4 W.	3	80	5641-09371-00	SW1	PUSH BUTTON SW. SPST	0
36	5010-09416-00	R18	RESISTOR, C.F. 470 OHM 5% 1/4 W.	1		5641-09312-00		PUSH BUTTON SW. DPDT MOM.	1
37	5010-08992-00	R1, R20, R23	RESISTOR, C.F. 560 OHM 5% 1/4 W.	3	81				
38	5010-09358-00	R5, R8, R9, R17, R48, R54, R74	RESISTOR, C.F. 1K OHM 5% 1/4 W.	7	82				
39	5010-09314-00	R3, R22	RESISTOR, C.F. 1.2 K OHM 5% 1/4 W.	2	83				
40	5010-08998-00	R59, R72, R73	RESISTOR, C.F. 2.2 K OHM 5% 1/4 W.	3	84	5700-09813-00		14 PIN IC SOCKET	1
41	5010-08997-00	R60, R63	RESISTOR, C.F. 2.7 K OHM 5% 1/4 W.	2					
42	5010-08983-00	R30, R31, R40, R44, R58	RESISTOR, C.F. 3.3 K OHM 5% 1/4 W.	5					
43	5010-08991-00	SEE NOTE #2	RESISTOR, C.F. 4.7 K OHM 5% 1/4 W.	27					
44	5010-09034-00	R46, R53	RESISTOR, C.F. 10 K OHM 5% 1/4 W.	2					
45	5010-08774-00	R47, R55, R57, R62	RESISTOR, C.F. 22 K OHM 5% 1/4 W.	4					
46	5010-09113-00	R61	RESISTOR, C.F. 33K OHM 5% 1/4 W.	1					
47	5010-09359-00	R64	RESISTOR, C.F. 47 K OHM 5% 1/4 W.	1					
48	5010-09442-00	R42, R49	RESISTOR, C.F. 330 K OHM 5% 1/4 W.	2					

NOTES:

1. 4116: 1K, 1L, 1M, 1N, 1O, 1P, 1Q, 1R, 2K, 2L, 2M, 2N, 2O, 2P, 2Q, 2R, 3K, 3L, 3M, 3N, 3O, 3P, 3Q, 3R

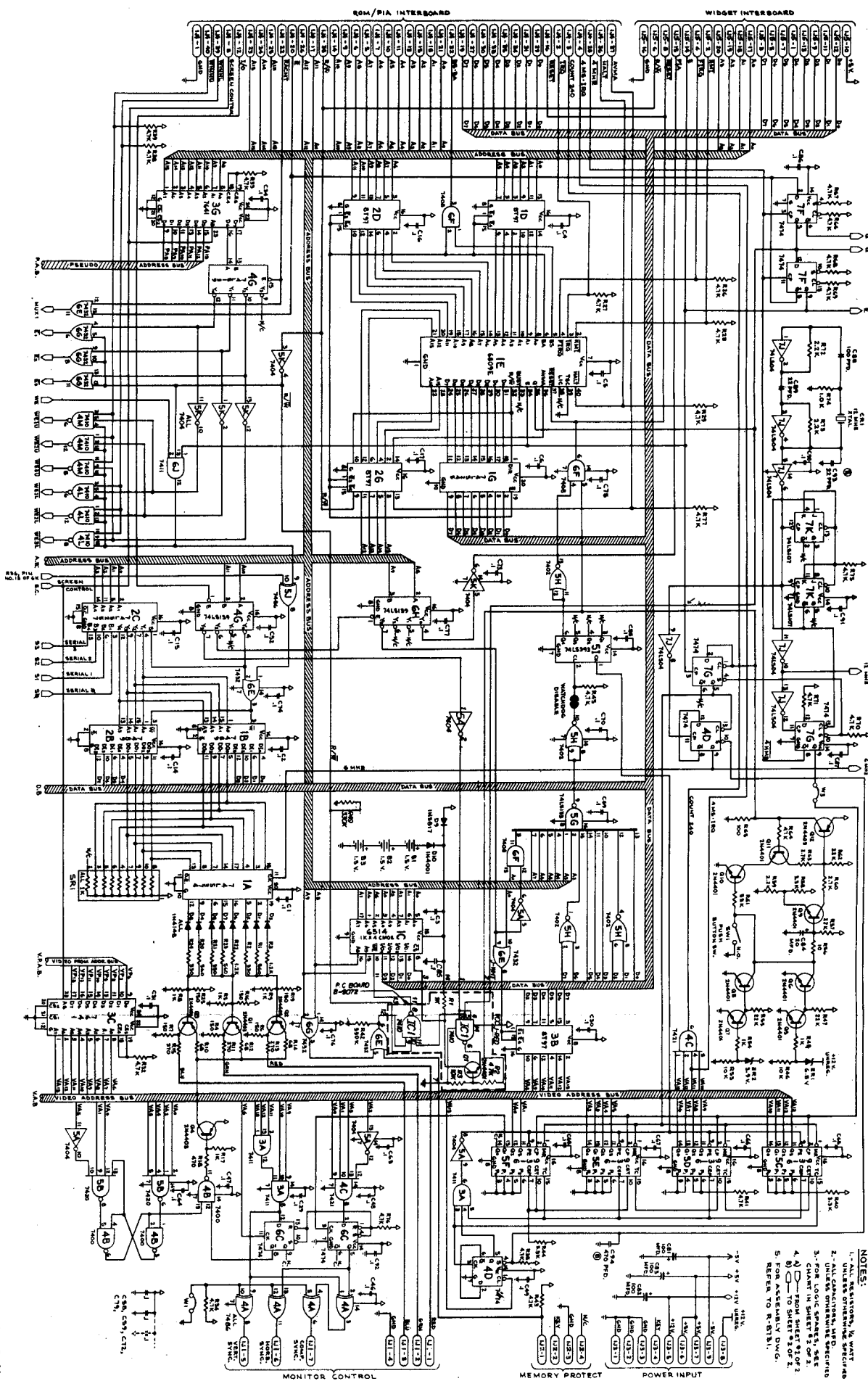
2. 47K 4 RESISTOR:

R26, R27, R28, R29, R32, R33, R35, R36, R37, R38, R39, R41, R43, R45, R50, R51, R52, R66, R67, R68, R69, R70, R71, R75, R84, R76, R77

3. J MFD. CAPACITORS:

C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C85, C86, C87, C90, C91, C92

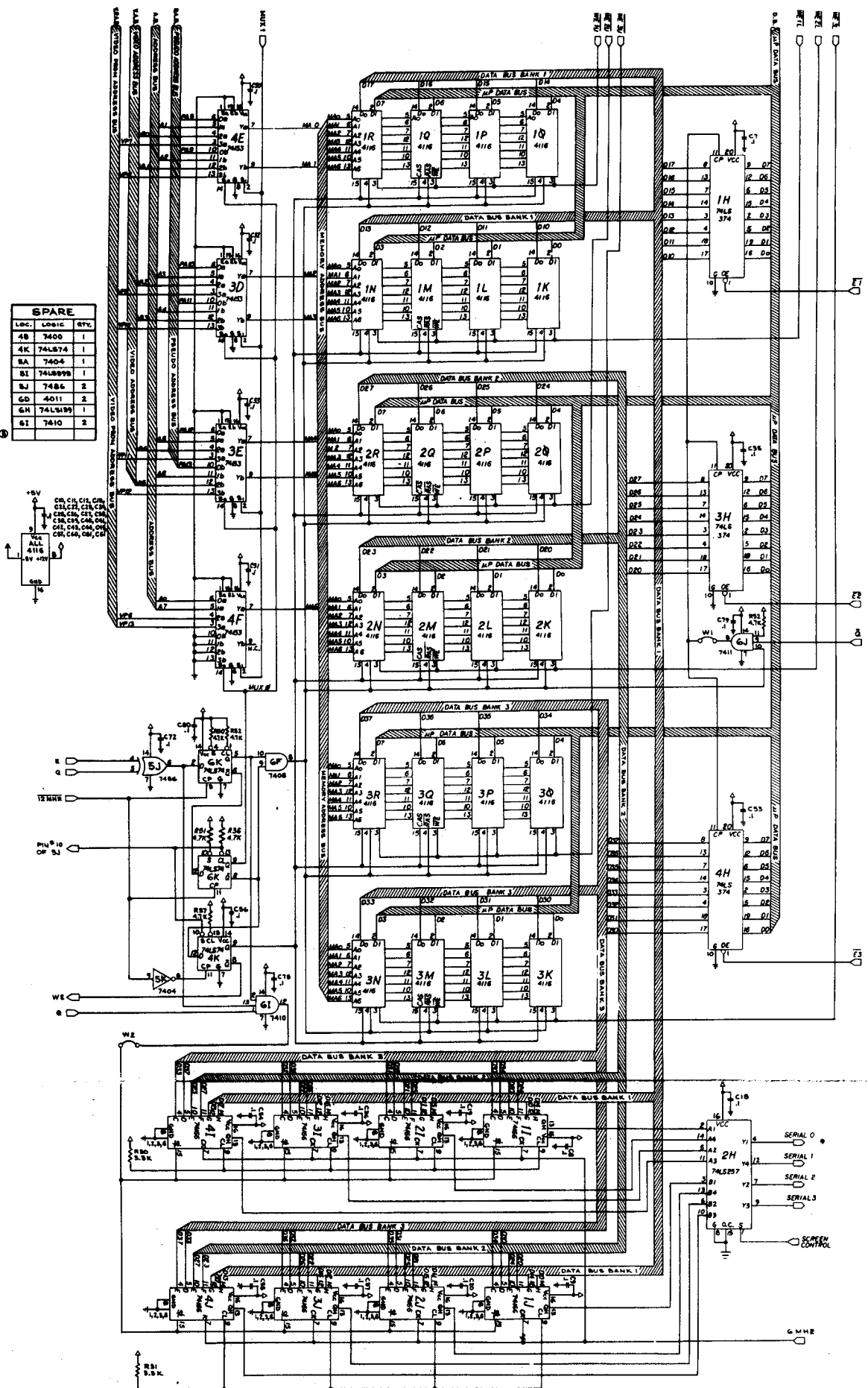
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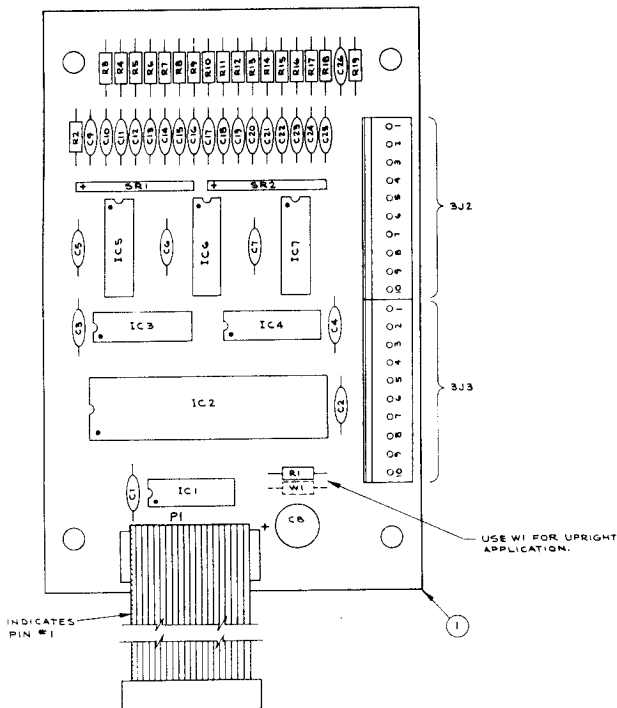
R8948 CPU Board Logic Diagram (Sheet 1 of 2)

- NOTES:
1. ALL RESISTORS, IN WATT
 2. ALL CAPACITORS, IN MICROFARADS, UNLESS OTHERWISE SPECIFIED
 3. FOR LOGIC SYMBOLS, SEE CHART IN SHEET 2 OF 2.
 4. A) FROM SHEET 2 OF 2.
 5. RETURN TO SHEET 2 OF 2.

SPARE		
LOC.	LOGIC	QTY.
4B	7400	1
4K	74LS74	1
5A	7404	1
5I	74LS99B	1
5J	7486	2
6D	4011	2
6H	74LS99	1
6I	7410	2



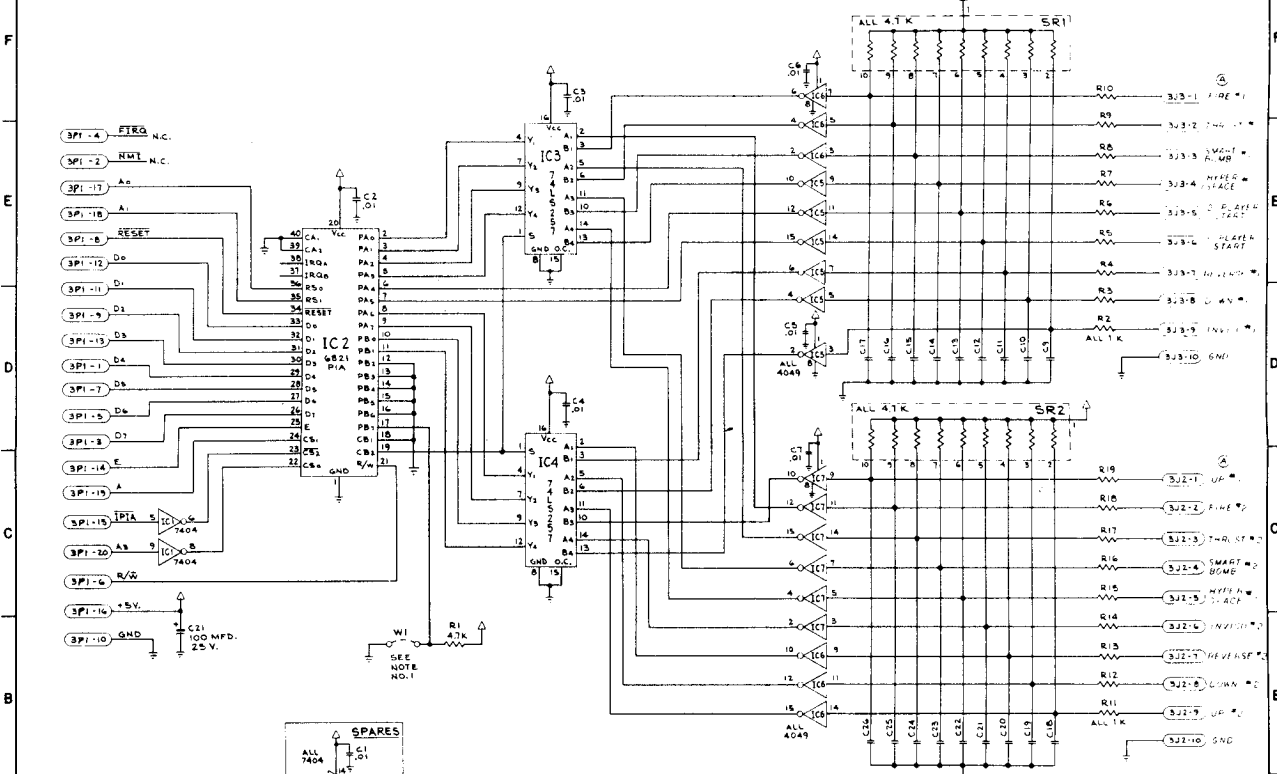
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1	5172-09600-00		BARE P.C. BOARD	1
2	5450-08972-00	IC2	6821 PIA	1
3	5310-08975-00	IC5, IC6, IC7	4049 CMOS HEX INVERTOR	3
4	5280-09013-00	IC1	7404 HEX INVERTER	1
5	5281-09485-00	IC3, IC4	74LS257 QUAD DATA MULTIPLEXER	2
6	5019-09362-00	SR1, SR2	4.7K OHM 8 RES. 10 PIN SIP	2
7	5010-09388-00	R2 THRU R19	RESISTOR, C.F. 1K OHM 5% 1/4 WATT	18
8	5010-08991-00	R1	RESISTOR, C.F. 4.7K OHM 5% 1/4 WATT	1
9	5010-09594-00	W1	RESISTOR, C.F. 0 OHM 1/4 WATT	1
10	5045-09065-00	C8 THRU C26	CAPACITOR, CERAMIC DISC 470 PFD. 50 V. XTR 220%	18
11	5040-09421-00	C6	CAPACITOR, ELECT. RADIAL 100 MFD. 25 VOLT. 50-10%	1
12	5045-08980-00	C1 THRU C7	CAPACITOR, CERAMIC DISC. 0.1 MFD. 50 V. 50-20%	7
13	5175-09540-00	PI	20 PIN RIBBON CABLE ASSY.	1
14	5191-09444-00	BJ2, BJ3	10 PIN HEADER 09-65-1101	2



NEW PARTS RELEASE 7212
REVISION BY

TOLERANCES	UNLESS OTHERWISE SPECIFIED
FRACTIONAL	±10%
DECIMAL	±1%
ANGULAR	±0.5°
WELD DIMENSIONS	±0.005"
WIRE DIMENSIONS	±0.005"
WIRE TOLERANCE	±0.005"

WILLIAMS ELECTRONICS, INC.
3801 N. CALIFORNIA, CHICAGO, ILL. 60618, CORNELIA 7238
NAME VIDEO WIDGET ASSEM (380 SYSTEM)
MATERIAL: NONE
TEST METHOD: NONE
DATE: 2-4-81
BY: R.GAY
C-8783



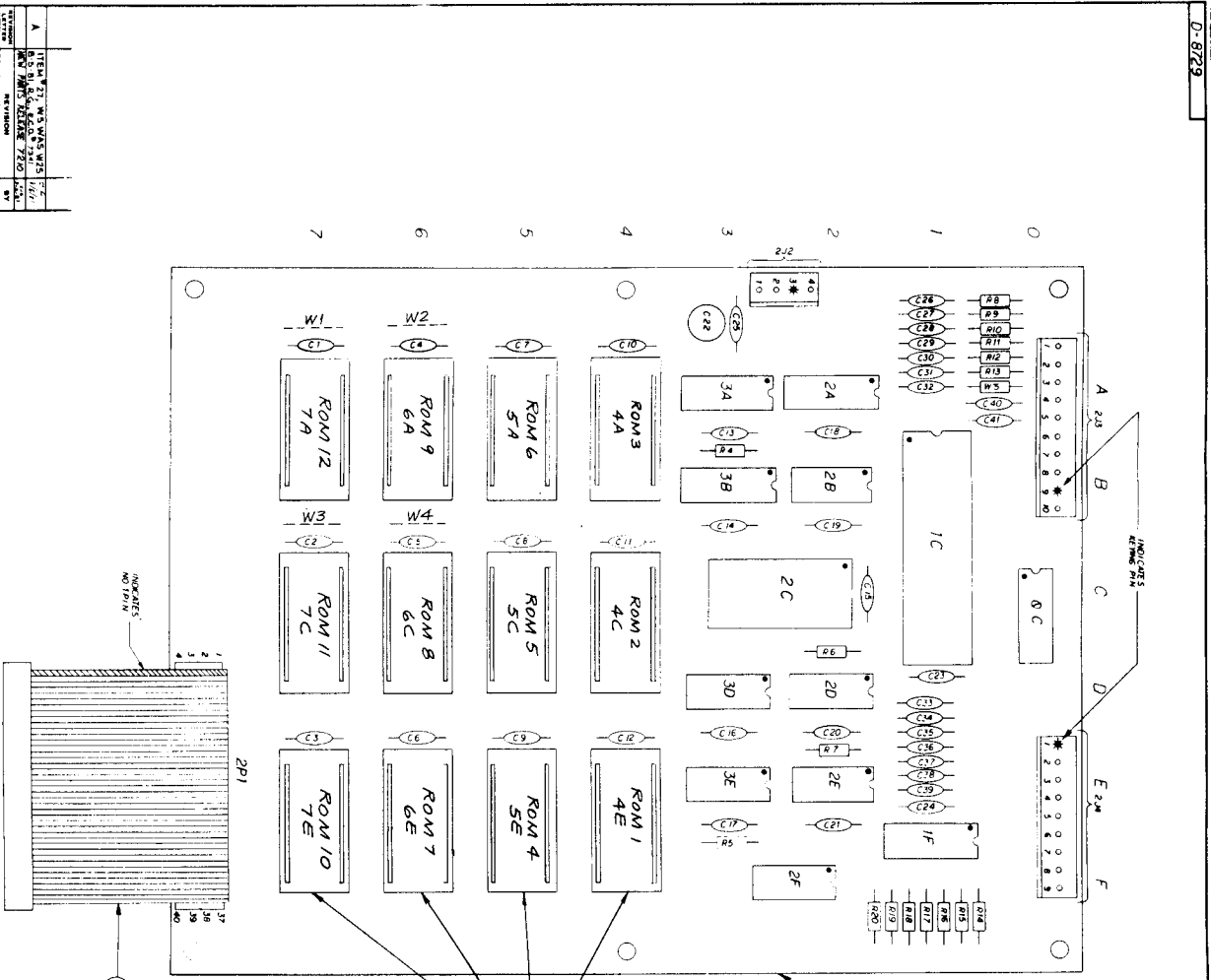
NOTES:
1. USE W1 FOR UPRIGHT APPLICATION.
2. FOR ASSEMBLY DWG REFER TO C-8783

ADDED SWITCH DESCRIPTION TO PIAE 303-1 THRU 303-10 & 303-11 FROM 10-30-80 BY PCO-7443
NEW PARTS RELEASE 7211

TOLERANCES	UNLESS OTHERWISE SPECIFIED
FRACTIONAL	±10%
DECIMAL	±1%
ANGULAR	±0.5°
WELD DIMENSIONS	±0.005"
WIRE DIMENSIONS	±0.005"
WIRE TOLERANCE	±0.005"

WILLIAMS ELECTRONICS, INC.
3801 N. CALIFORNIA, CHICAGO, ILL. 60618, CORNELIA 7238
NAME SCHEMATIC, VIDEO WIDGET BD (380 SYS)
MATERIAL: NONE
TEST METHOD: NONE
DATE: 2-4-81
BY: R.GAY
16-8813

8783 Interface Board Assembly and Logic Diagram

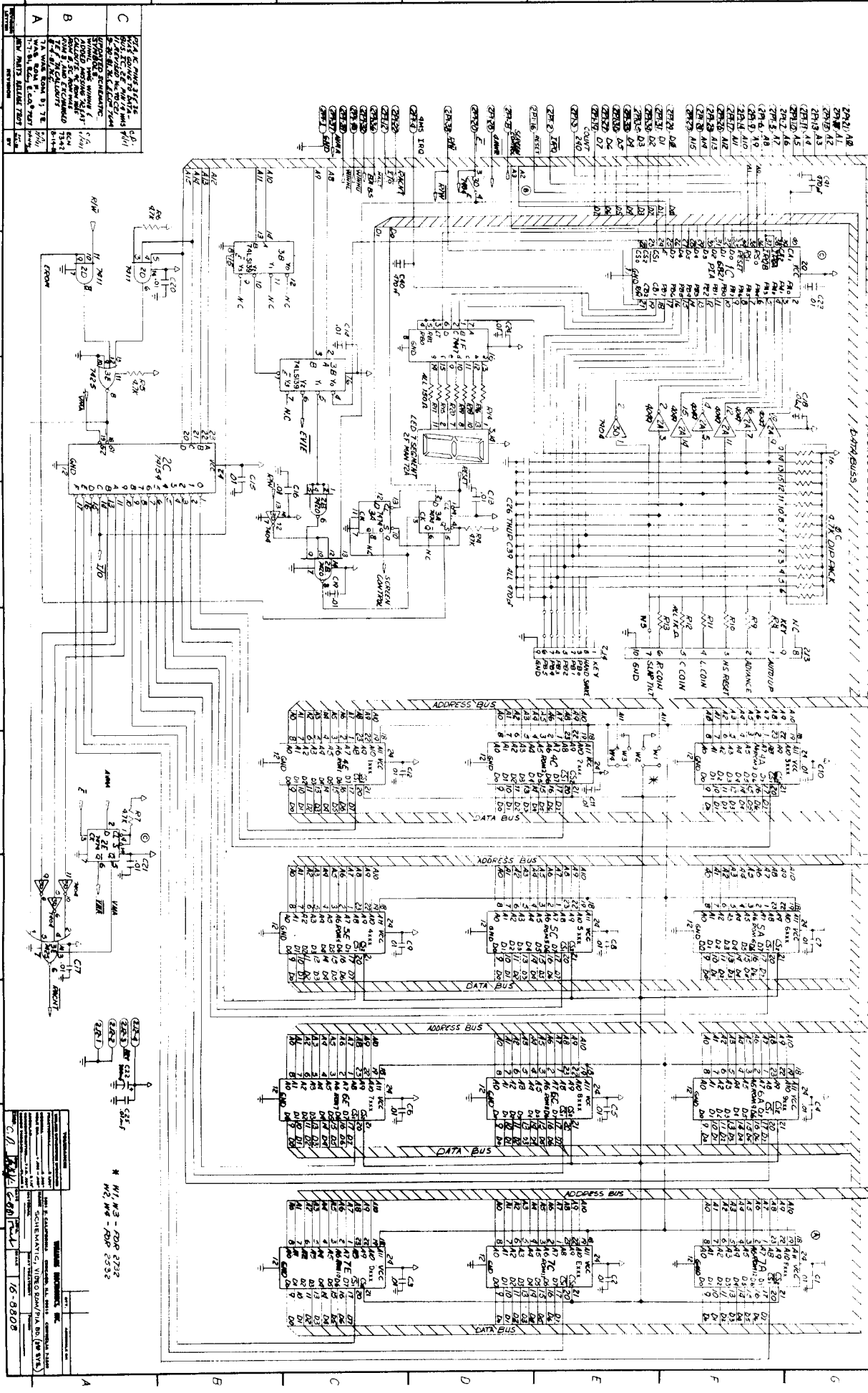


GRUPE	STARBUATE
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5A	A-5343-07103
6E	A-5343-07104
6A	A-5343-07105
7A	A-5343-07106
7E	A-5343-07107
7C	A-5343-07108
7A	A-5343-07109
7E	A-5343-07110
7C	A-5343-07111

ITEM NO.	PART NO.	PART DESIGNATION	DESCRIPTION	QTY REQD
1	5271-00	IF	BASE PC BOARD	1
2	5380-00	3A, 2E	DUAL IN-LINE P-RIP-OP	2
3	5380-00	3B	DUAL IN-LINE P-RIP-OP	2
4	5380-00	3C	DUAL IN-LINE P-RIP-OP	2
5	5380-00	3D	DUAL IN-LINE P-RIP-OP	2
6	5380-00	3E	DUAL IN-LINE P-RIP-OP	2
7	5380-00	3F	DUAL IN-LINE P-RIP-OP	2
8	5380-00	3G	DUAL IN-LINE P-RIP-OP	2
9	5380-00	3H	DUAL IN-LINE P-RIP-OP	2
10	5380-00	3I	DUAL IN-LINE P-RIP-OP	2
11	5380-00	3J	DUAL IN-LINE P-RIP-OP	2
12	5380-00	3K	DUAL IN-LINE P-RIP-OP	2
13	5380-00	3L	DUAL IN-LINE P-RIP-OP	2
14	5380-00	3M	DUAL IN-LINE P-RIP-OP	2
15	5380-00	3N	DUAL IN-LINE P-RIP-OP	2
16	5380-00	3O	DUAL IN-LINE P-RIP-OP	2
17	5380-00	3P	DUAL IN-LINE P-RIP-OP	2
18	5380-00	3Q	DUAL IN-LINE P-RIP-OP	2
19	5380-00	3R	DUAL IN-LINE P-RIP-OP	2
20	5380-00	3S	DUAL IN-LINE P-RIP-OP	2
21	5380-00	3T	DUAL IN-LINE P-RIP-OP	2
22	5380-00	3U	DUAL IN-LINE P-RIP-OP	2
23	5380-00	3V	DUAL IN-LINE P-RIP-OP	2
24	5380-00	3W	DUAL IN-LINE P-RIP-OP	2
25	5380-00	3X	DUAL IN-LINE P-RIP-OP	2
26	5380-00	3Y	DUAL IN-LINE P-RIP-OP	2
27	5380-00	3Z	DUAL IN-LINE P-RIP-OP	2
28	5380-00	3AA	DUAL IN-LINE P-RIP-OP	2
29	5380-00	3AB	DUAL IN-LINE P-RIP-OP	2

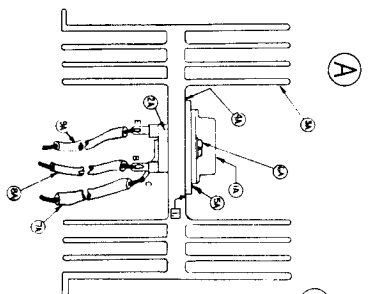
BILL OF MATERIALS

DRAWING NO. D-8729
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 DATE 1-1-68
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 CHECKED BY [Signature]
 APPROVED BY [Signature]
 TITLE D8730 ROM Board Assembly Drawing



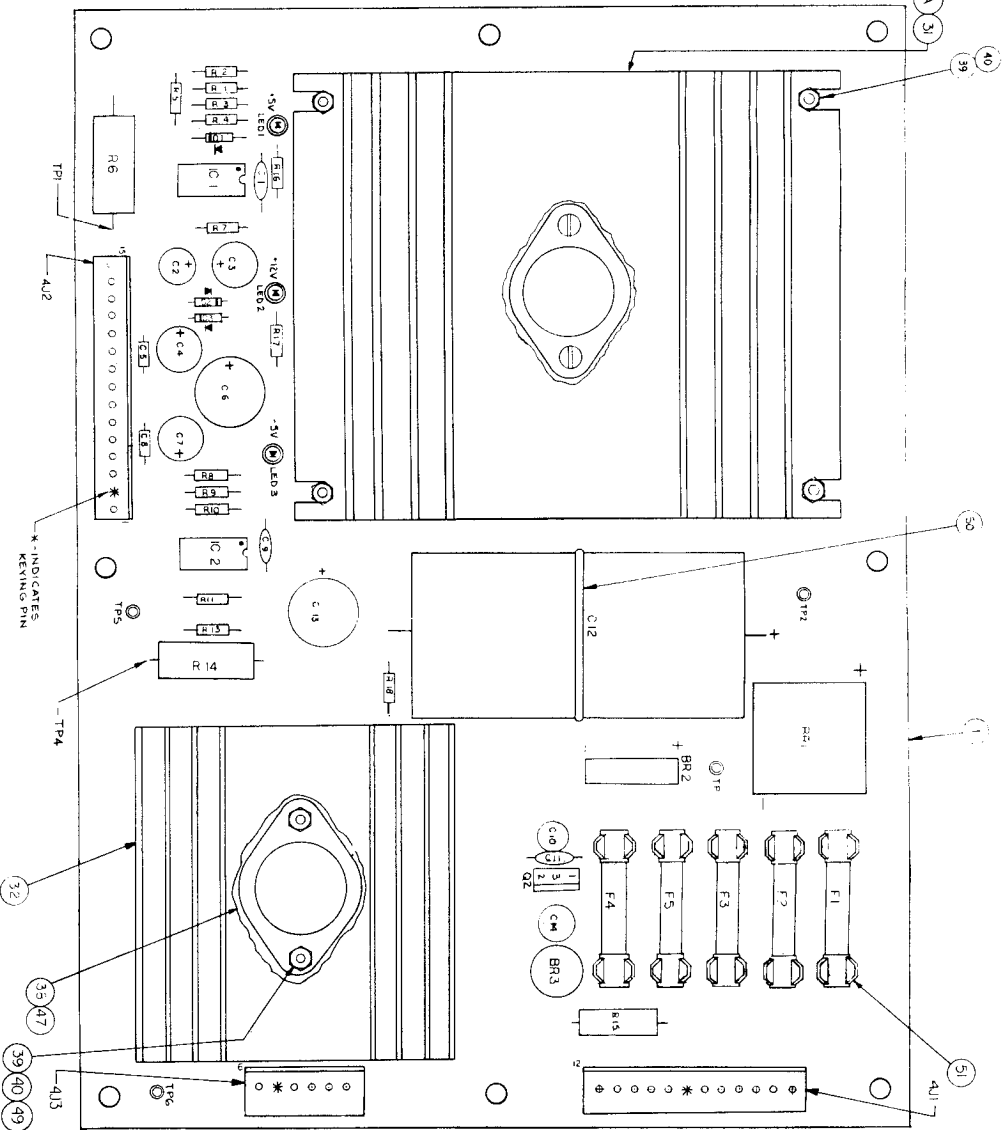
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C11	74LS163	1	...
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C20	74LS163	1	...
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C24	74LS163	1	...

ROM Board Logic Diagram

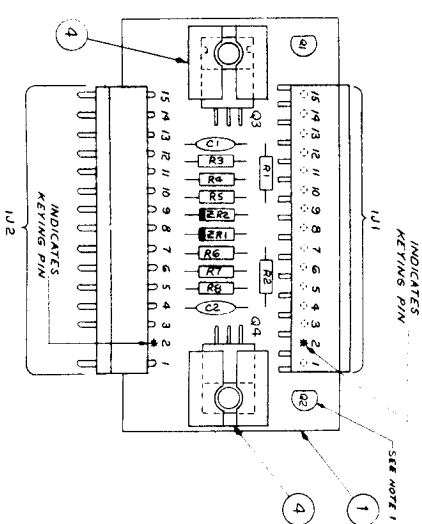
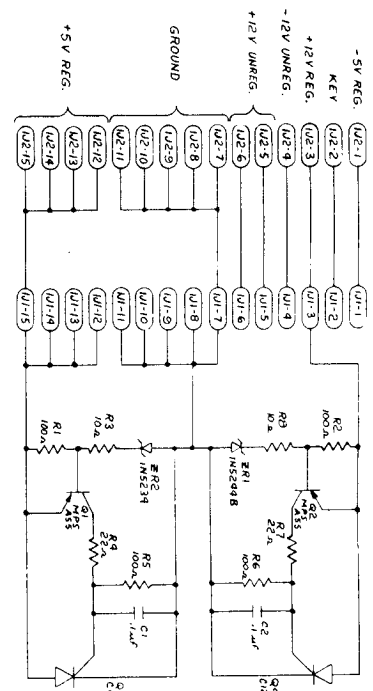


ITEM NO	PART NO	DESCRIPTION	REQD NO
1A	5462-0942-00	TRANSISTOR NPN	1
2A	5300-0941-00	TRANSISTOR PNP	1
3A	5300-0941-00	TRANSISTOR PNP	1
4A	20-0734-00	HEAT SINK	1
5A	370-0918-00	TOP SHIELD	1
6A	4008-0008-00	HEAT CONDUCTIVE COMPOUND	1
7A	5853-0951-00	HEADERS, 10 PIN, 0.65-1181	2
8A	5853-0951-00	HEADERS, 12 PIN, 0.65-1181	1
9A	5853-0951-00	HEADERS, 12 PIN, 0.65-1181	1
10A	5853-0951-00	HEADERS, 12 PIN, 0.65-1181	1

NOTES:
 1. SEE DIMENSIONS AND TOLERANCES ON DRAWING.
 2. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.
 3. FINISH SHALL BE AS SPECIFIED ON DRAWING.
 4. MATERIAL SHALL BE AS SPECIFIED ON DRAWING.
 5. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED.



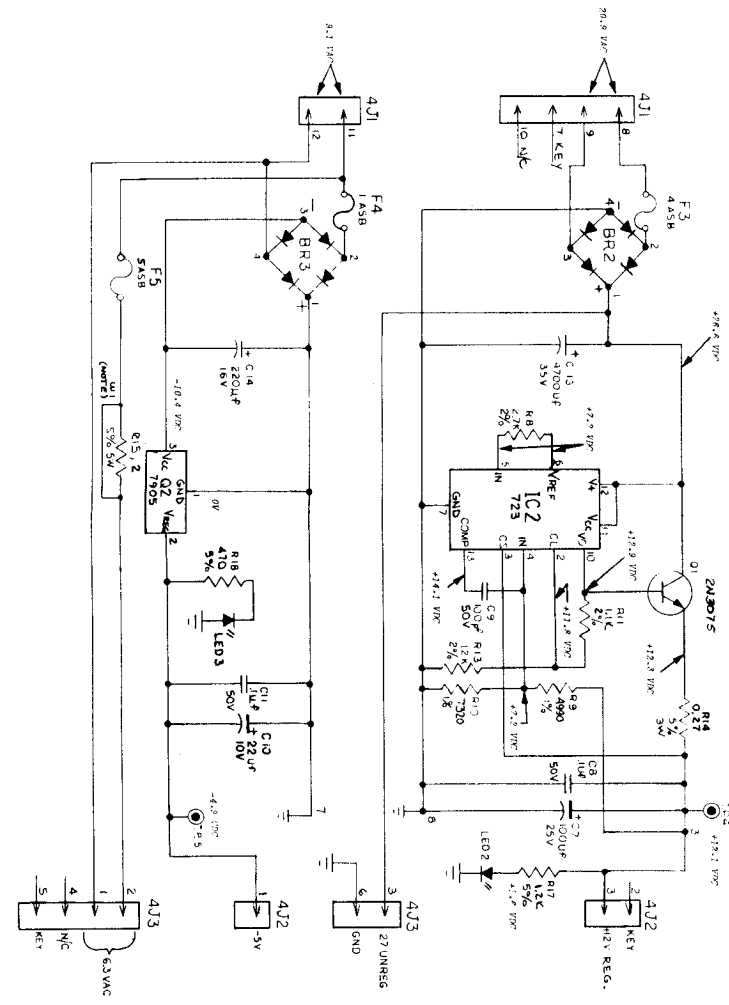
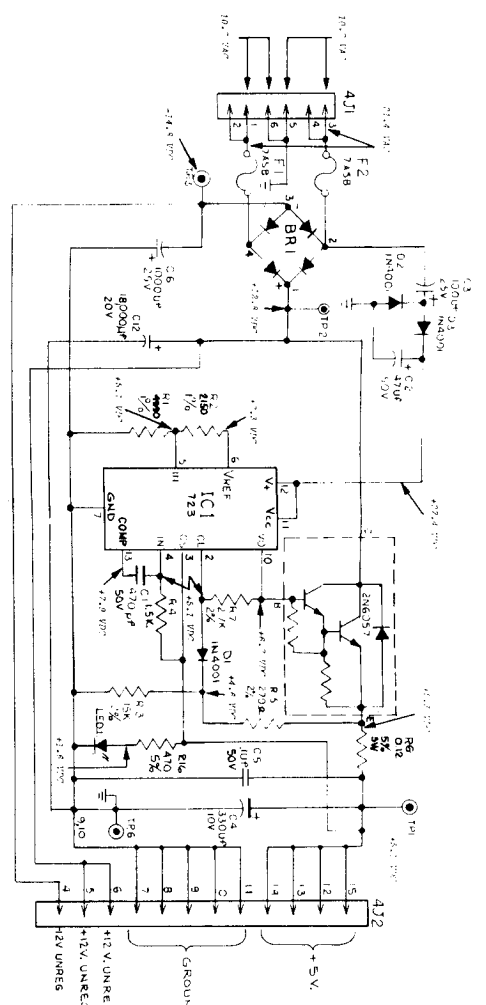
ITEM NO	PART NO	DESCRIPTION	REQD NO
1	5113-0914-00	BASE P.C. BOARD	1
2	5800-0905-00	RESISTOR, 1/4 W, 5%, 1/4 W	1
3	5001-0941-00	RESISTOR, 27K, 3/4 W, 1/4 W	2
4	5000-0940-00	RESISTOR, 210, 2 1/2 W, 1/4 W	1
5	5000-0912-00	RESISTOR, 1.5K, 2 1/2 W, 1/4 W	1
6	5000-0909-00	RESISTOR, 1.5K, 2 1/2 W, 1/4 W	1
7	5000-0910-00	RESISTOR, 1.5K, 2 1/2 W, 1/4 W	1
8	5000-0911-00	RESISTOR, 1.5K, 2 1/2 W, 1/4 W	1
9	5000-0912-00	RESISTOR, 1.5K, 2 1/2 W, 1/4 W	1
10	5000-0913-00	RESISTOR, 2.1K, 2 1/2 W, 1/4 W	1
11	5000-0914-00	RESISTOR, 27, 5%, 5 W	1
12	5000-0915-00	RESISTOR, 27, 5%, 5 W	1
13	5000-0916-00	RESISTOR, 27, 5%, 5 W	1
14	5000-0917-00	RESISTOR, 27, 5%, 5 W	1
15	5000-0918-00	RESISTOR, 27, 5%, 5 W	1
16	5000-0919-00	RESISTOR, 27, 5%, 5 W	1
17	5000-0920-00	RESISTOR, 27, 5%, 5 W	1
18	5000-0921-00	RESISTOR, 27, 5%, 5 W	1
19	5000-0922-00	RESISTOR, 27, 5%, 5 W	1
20	5000-0923-00	RESISTOR, 27, 5%, 5 W	1
21	5000-0924-00	RESISTOR, 27, 5%, 5 W	1
22	5000-0925-00	RESISTOR, 27, 5%, 5 W	1
23	5000-0926-00	RESISTOR, 27, 5%, 5 W	1
24	5000-0927-00	RESISTOR, 27, 5%, 5 W	1
25	5000-0928-00	RESISTOR, 27, 5%, 5 W	1
26	5000-0929-00	RESISTOR, 27, 5%, 5 W	1
27	5000-0930-00	RESISTOR, 27, 5%, 5 W	1
28	5000-0931-00	RESISTOR, 27, 5%, 5 W	1
29	5000-0932-00	RESISTOR, 27, 5%, 5 W	1
30	5000-0933-00	RESISTOR, 27, 5%, 5 W	1
31	5000-0934-00	RESISTOR, 27, 5%, 5 W	1
32	5000-0935-00	RESISTOR, 27, 5%, 5 W	1
33	5000-0936-00	RESISTOR, 27, 5%, 5 W	1
34	5000-0937-00	RESISTOR, 27, 5%, 5 W	1
35	5000-0938-00	RESISTOR, 27, 5%, 5 W	1
36	5000-0939-00	RESISTOR, 27, 5%, 5 W	1
37	5000-0940-00	RESISTOR, 27, 5%, 5 W	1
38	5000-0941-00	RESISTOR, 27, 5%, 5 W	1
39	5000-0942-00	RESISTOR, 27, 5%, 5 W	1
40	5000-0943-00	RESISTOR, 27, 5%, 5 W	1
41	5000-0944-00	RESISTOR, 27, 5%, 5 W	1
42	5000-0945-00	RESISTOR, 27, 5%, 5 W	1
43	5000-0946-00	RESISTOR, 27, 5%, 5 W	1
44	5000-0947-00	RESISTOR, 27, 5%, 5 W	1
45	5000-0948-00	RESISTOR, 27, 5%, 5 W	1
46	5000-0949-00	RESISTOR, 27, 5%, 5 W	1
47	5000-0950-00	RESISTOR, 27, 5%, 5 W	1
48	5000-0951-00	RESISTOR, 27, 5%, 5 W	1
49	03-7558	INSULATOR, NYLON	2
50	03-7520	TIE WRAP	1
51	80120178-00	FUSEHOLD, DER.	10



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

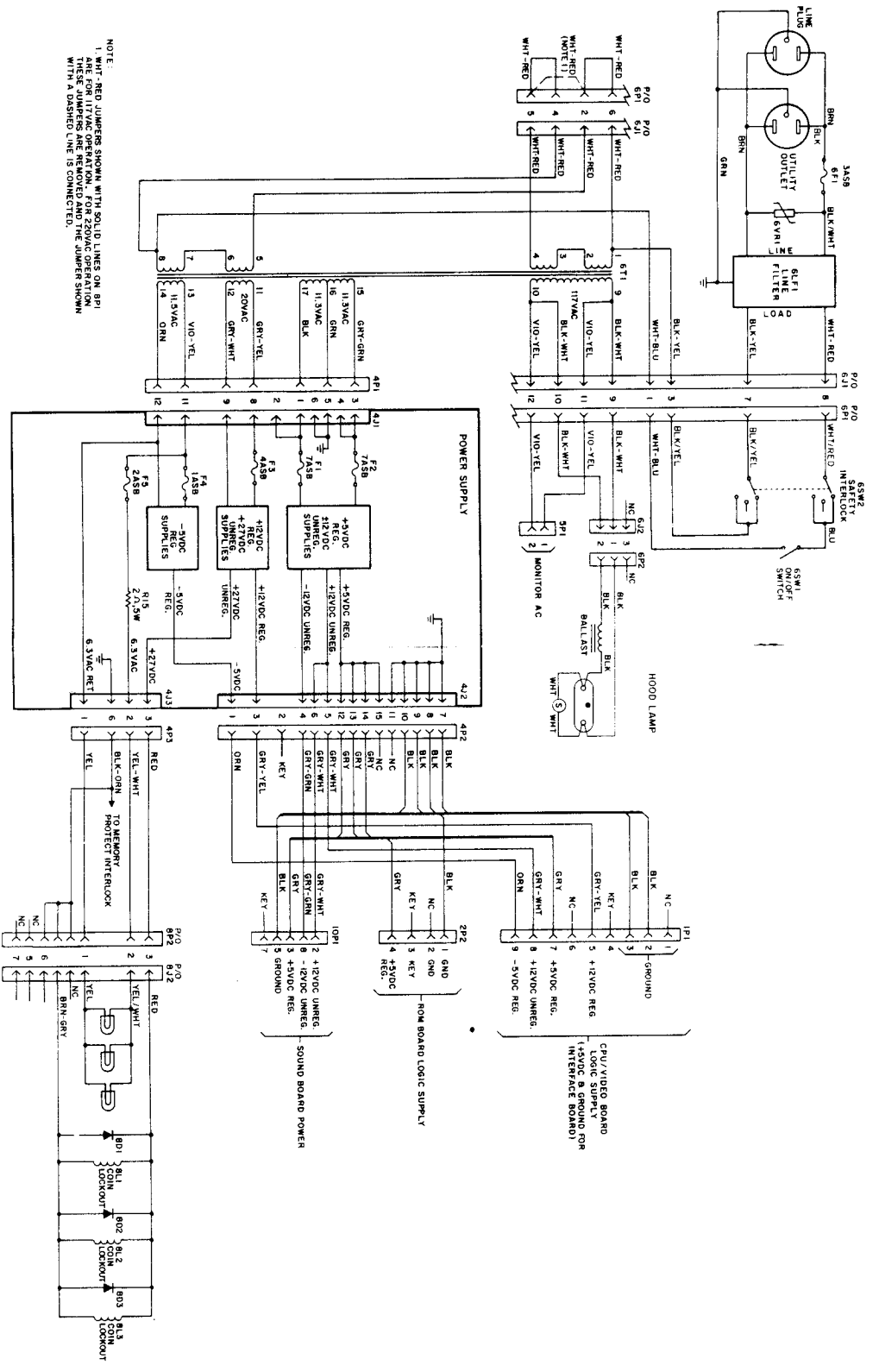
BILL OF MATERIALS

ITEM NO	PART NO.	PART DESCRIPTION	DESCRIPTION	REQD NO.
1	5773-00	09664-00	BARE P.C. BOARD	1
2	5792-00	IU1	RIGHT ANGLE CONNECTOR, 1/8 IN.	1
3	5791-00	IU2	HEADER CONNECTOR, 1/8 IN.	1
4	5705-00	09663-00	HEAT SINK, ALUM. 5741	2
	5705-00	09688-00	HEAT SINK, THERMALLOT 4093	0
7	5130-00	03,04	SCR (22F (100V)	2
8	5130-00	01,02	TRANSISTOR MFG 885	2
9	5075-00	ZAI	ZENER 5.6V ± 5% (4W)	1
10	5075-00	ZR2	ZENER 1N5294 ± 5% (6.2V)	1
11	5006-00	R1, R2, R5, R6	RESISTOR 100 Ω ± 5% 1/4 W	4
12	5009-00	R3, R8	RESISTOR 1K ± 5% 1/4 W	2
13	5010-00	R4, R7	RESISTOR 22 Ω ± 5% 1/4 W	2
14	099434-00	C1, C2	CAPACITOR 0.1 μF CERAMIC +80% -20% 50V	2

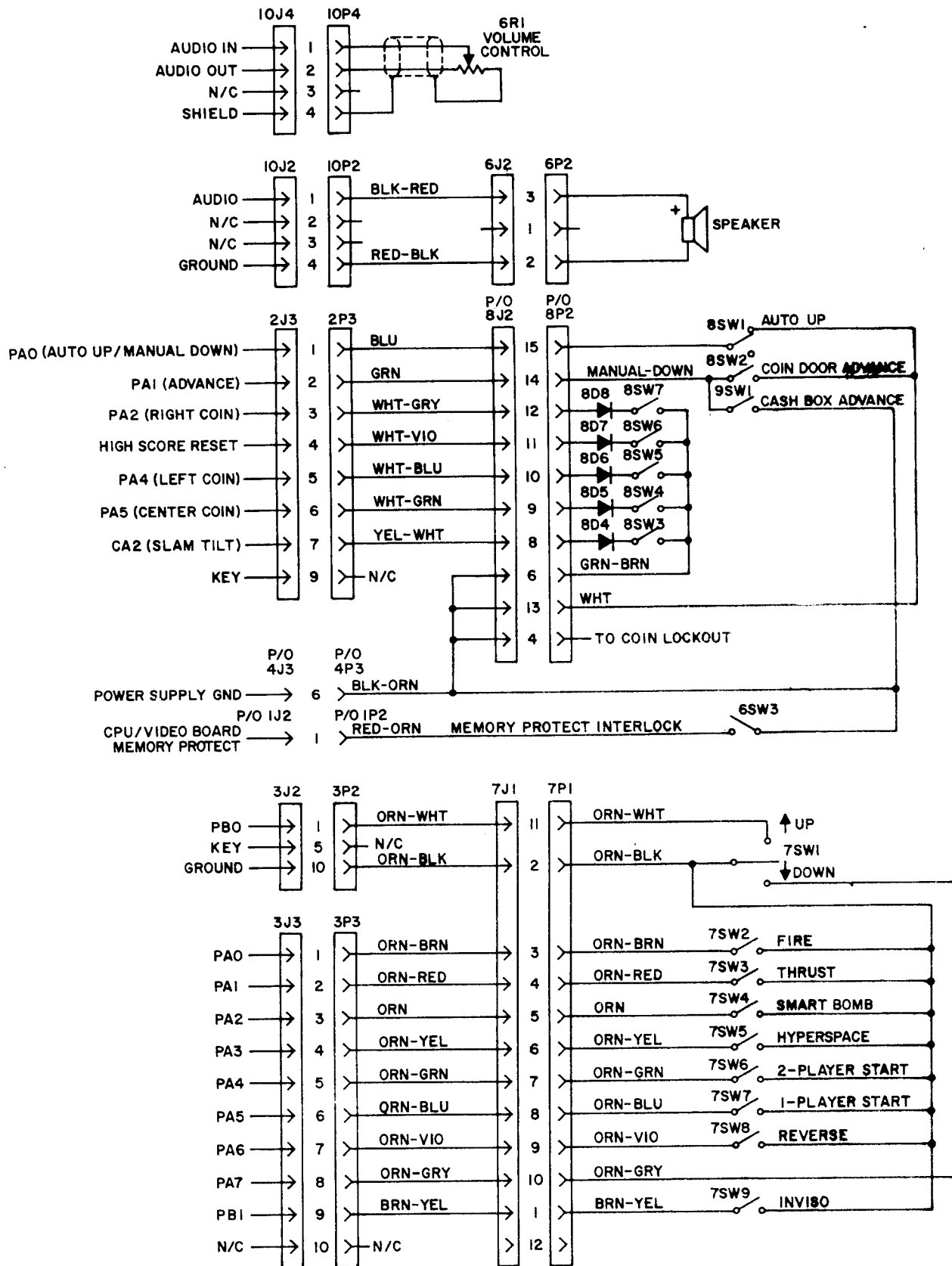


Power Supply Board Schematic Diagram and Overvoltage Protection Board

NOTE:
 ALL COMPONENTS MUST BE PER SPECIFICATIONS.



NOTE:
 1. WHT-RED JUMPERS SHOWN WITH SOLID LINES ON P/P1
 THE 50M AMPERS ARE RELAYED ON 250VAC OPERATION
 THE 50M AMPERS ARE RELAYED ON 125VAC OPERATION
 WITH A DASHED LINE IS CONNECTED.



Cabinet Wiring Diagram

BILL OF MATERIAL

ITEM NO.	PART NO.	PART DESIGNATION	DESCRIPTION	REQ'D. NO.
1	01-2 01-146-6		BARE P.C. BOARD REV F	1
2	5370-09156-00	IC1	TDA 2002 V AUDIO AMPLIFIER	1
3	5280-09012-00	IC2	7442 BCD-DEC DECODER	1
4	5280-09073-00	IC3	7400 QUAD 2 INPUT NAND	1
5	5280-08973	IC4	7408 QUAD 2 INP. AND GATE	1
6	5310-09153-00	IC5	4050 BUFFER	1
7	5310-09154-00	IC6	4068 8 INPUT NAND GATE	1
8	5310-08971-00	IC7	4069 HEX INVERTER	1
9	5250-09157-00	IC8	7805 5 VOLT REG. W/TO 220 CASE	1
10	5430-08972-00	IC10	6821 P.I.A.	1
11	5340-09003-00	IC11	6810 RAM	1
12	5371-09152-00	IC13	1408 D/A CONVERTER	1
13	5160-08938-00	Q2, Q3, Q4	2N4401 NPN TRANSISTOR	3
14				
15	5075-09018-00	ZR1	1N5996A 6.8V ZENER DIODE	1
16				
17	5100-09357-00)	BR1	MDA 200/3N253	1
	5100-09158-00)		BRIDGE RECTIFIER	0
18	5520-09020-00	Y1	3.58 MHZ CRYSTAL	1
19	5010-08991-00	R1,R18,R19,R21,R22, R27,R30,R31, R32	RESISTOR, FC, 4.7K OHM, 5% 1/4 WATT	9
20	5010-09036-00	R2 thru R10	RESISTOR, FC, 100 OHM, 5% 1/4W	9
21	5010-09358-00	R12,R15,R28,R36,R38	RESISTOR, FC, 1K OHM, 5% 1/4W	5
22	5010-09181-00	R14	RESISTOR, FC, 1 OHM, 10% 1/2 WATT	1
23	5010-09161-00	R16	RESISTOR, FC, 2.2 OHM, 5% 1/4 WATT	1
24	5010-09361-00	R17	RESISTOR, FC, 220 OHM, 5% 1/2 WATT	1
25				
26	5010-08983-00	R23, R24, R26	RESISTOR, FC, 3.3K OHM, 5% 1/4 WATT	3
27	5010-09179-00	R25	RESISTOR, FC, 3.3M OHM, 5% 1/4 WATT	1
28	5010-09035-00	R29	RESISTOR, FC, 47K OHM, 5% 1/4 WATT	1
29	5010-09034-00	R33, R35, R37	RESISTOR, FC, 10K OHM, 5% 1/4 WATT	3
30	5010-09039-00	R34	RESISTOR, FC, 10 OHM, 5% 1/4 WATT	1
31	5043-08980-00	C1, C16 thru C23, C31	CAPACITOR, CER. .01 MFD. 50V. +80%, -20%	10
32	5043-09065-00	C2 thru C10	CAPACITOR, CER. 470 PFD. 50V. +20%	9
33	5043-09345-00	C11	CAPACITOR, CER. .001 MFD. +20% 100V.	1
34	5040-09365-00	C12, C30, C36	CAPACITOR, ELECT. 1 MFD. 63V. -10 +50%	3
35	5043-08996-00	C13, C24, C35	CAPACITOR, CER. .1 MFD. 50V. +20%	3
36	5040-09165-00	C14	CAPACITOR, ELECT. 1,000 MFD. 16V. +-20%	1
37	5040-09164-00	C15	CAPACITOR, ELECT. 470 MFD. 10V. +-20%	1
38	5040-08986-00	C25	CAPACITOR, ELECT. 100 MFD. 10V. +-20%	1
39	5040-08895-00	C26	CAPACITOR, ELECT. 1,000 MFD. 25V. +-20%	1
40	5040-09376-00	C27	CAPACITOR, ELECT. 4700 MFD. 16V. +-20%	1
41	5043-09180-00	C28	CAPACITOR, CER. 47 PFD. 1K V. +-20%	1
42	5040-09343-00)	C29	CAPACITOR, ELECT. 10 MFD. 20V	1
43	5043-09169-00	C32, C33	CAPACITOR, CER. DISC, 27 PFD. 1KV. +-10%	2
44	5041-09163-00	C34	CAPACITOR, TANTALUM 2.2 MFD. 15V. +-20%	1
45	5041-09031-00	C37	CAPACITOR, TANTALUM 1 MFD. 25V. +-20%	1
46	5641-09658-00)	SW1	MOMENTARY SWITCH SPDT	1
47	5645-09330-00	DS1	2 STD, DIP SWITCH	1
48	5731-06314-00	F1, F2	4 AMP SLOW BLOW FUSE	2
49	5732-09178-00		FUSEHOLDER	4
50	5705-09172-00		HEAT SINK THERMALLOY #6072B	1
51	5705-09173-00		HEAT SINK THERMALLOY #6071B	1
52	5705-09199-00		HEAT SINK THERMALLOY #6030	1
53	5700-09004-00		24 PIN SOCKET	1
54	5700-08985-00		40 PIN SOCKET	1
55	5791-09027-00	10J1, 10J3	9 PIN MALE CONNECTOR 09-65-1091	2
56	5791-09028-00	10J2, 10J4	4 PIN MALE CONNECTOR 09-65-1041	2
57				
58	4006-01003-06		6-32x3/8" P-PH-S	3
59	4406-01117-00		6-32 HEX NUT	3
60	5010-09534-00		0 OHM RESISTOR	A/R
61	5824-09248-00	TP1 THR TP4	TERMINAL #1502-1	4
62	5010-09363-00	R11	RESISTOR, FC, 5.6K OHM 5% 1/4 WATT	1
63				
64	5019-09362-00	SR1	RESISTOR, 4.7K OHM 10 PIN SIP	1
65	03-7520-1		TIE WRAP	1
66	4703-00007-00		#6 EXT. LOCKWASHER	3
67	20-9229		THERMAL COMPOUND	.01

NOTES:

1. USE THERMAL COMPOUND BETWEEN IC1 AND IC8, AND HEAT SINKS.

2. CAUTION: AVOID STATIC DISCHARGE DAMAGE TO MOS LOGIC.

3. SYMBOLS SHOWN ON COMPONENTS ARE FOR REFERENCE ONLY.

DO NOT SCREEN OR STAMP.

4. OBSERVE INDEX MARK OF ALL INTEGRATED CIRCUITS;

DIODES D1, D2, AND ZR1;

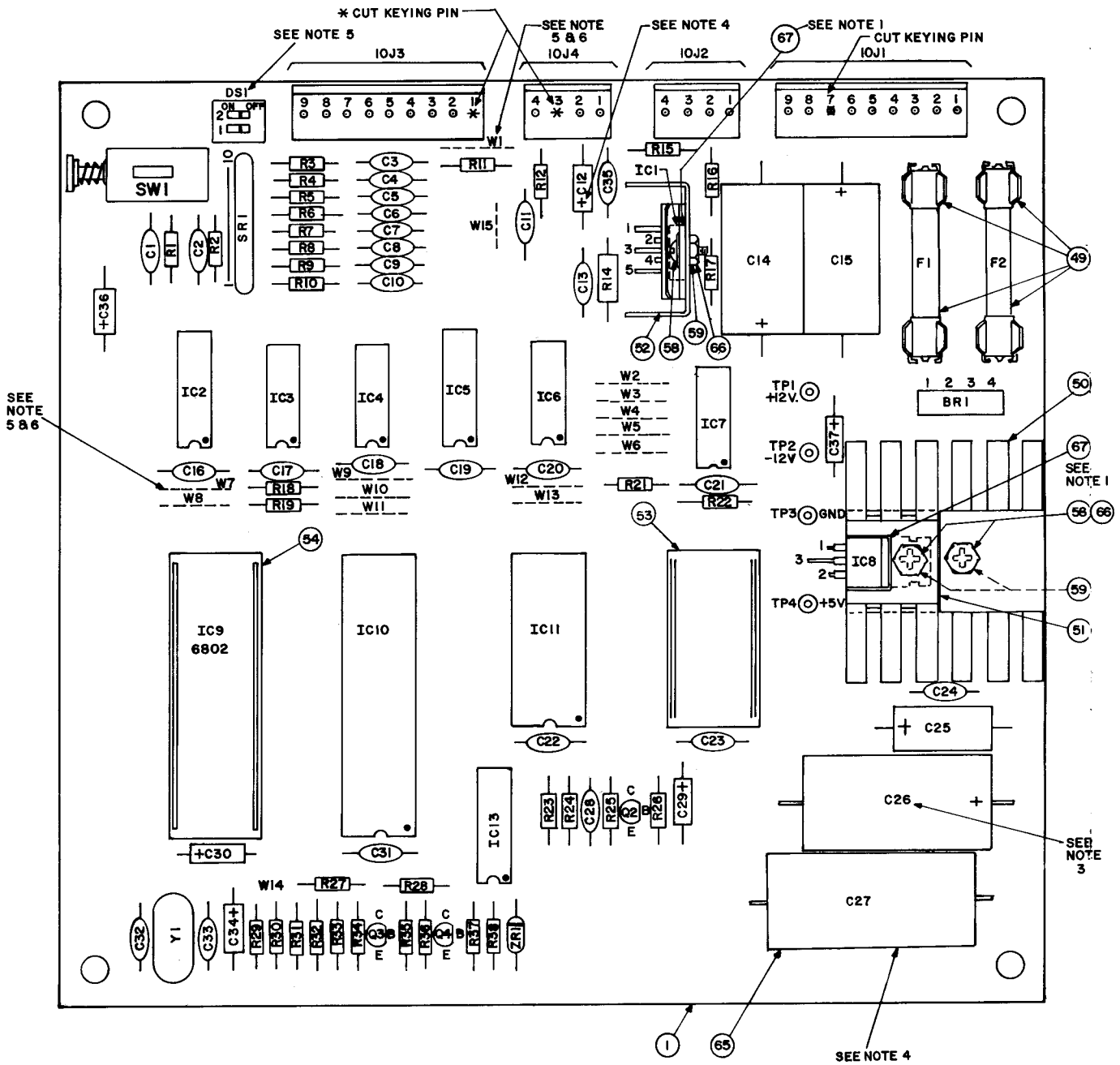
CAPACITORS C12, C14, C15, C25, C26, C27;

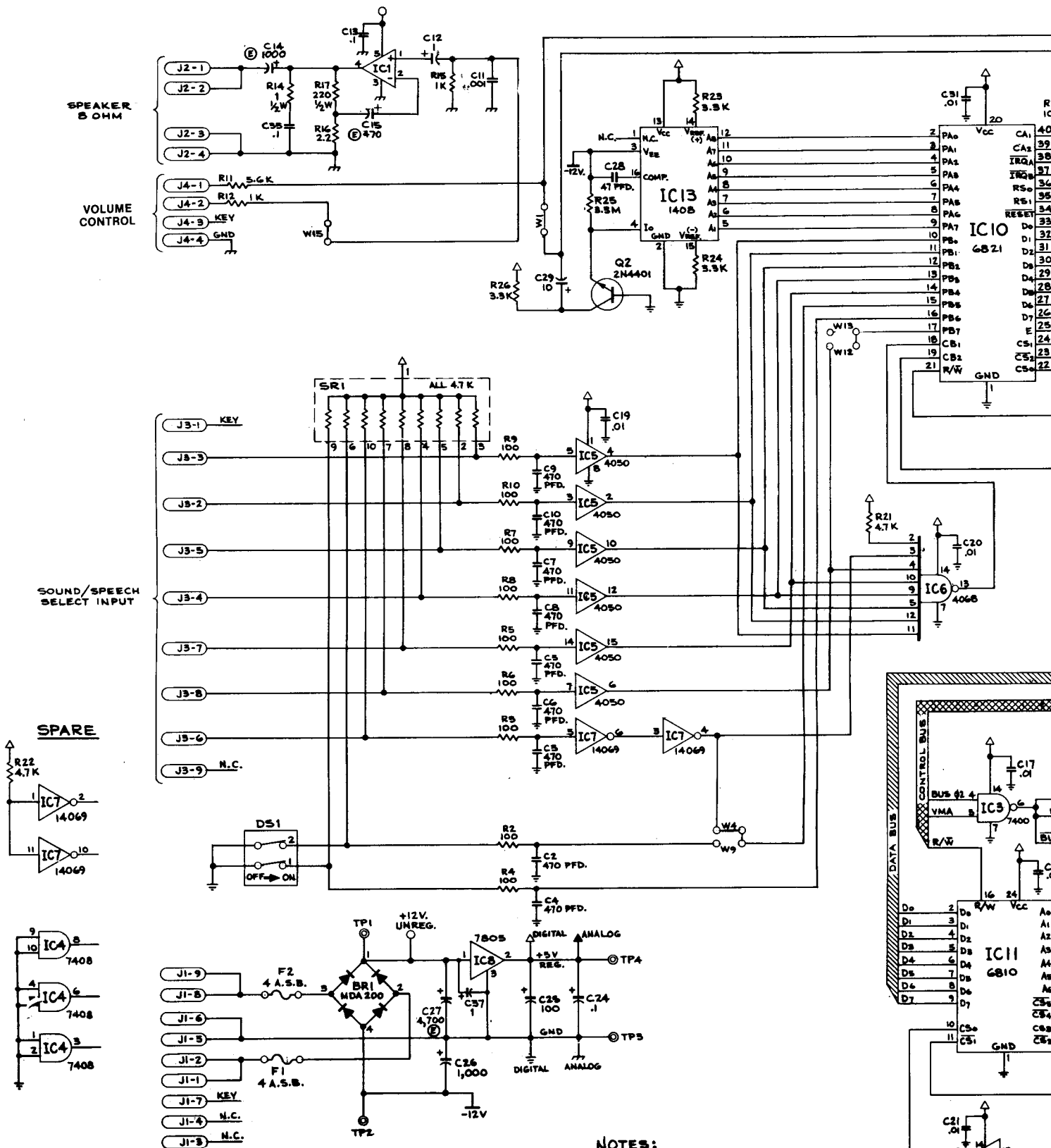
CONNECTORS 10J1, 10J2, 10J4, 10J3, 10J5;

POSITION OF TRANSISTORS Q1, Q2, Q3, Q4.

5. JUMPERS

W3) W2)
W4) W6)
W5) IN W9) OUT
W10) W11)
W12)
W13)





NOTES:
 1. ALL RESISTORS, 1/4 WATT UNLESS OTHERWISE NOTED.
 2. ALL CAPACITORS, MFD. UNLESS OTHERWISE NOTED.

