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Drawing Set

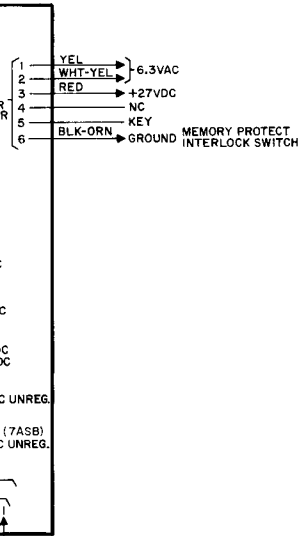
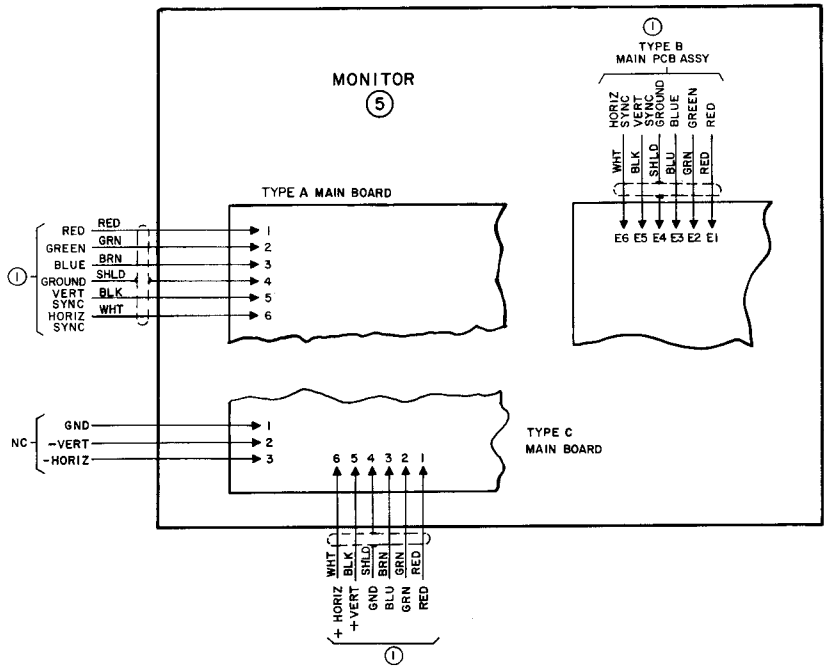
**BUBBLES**





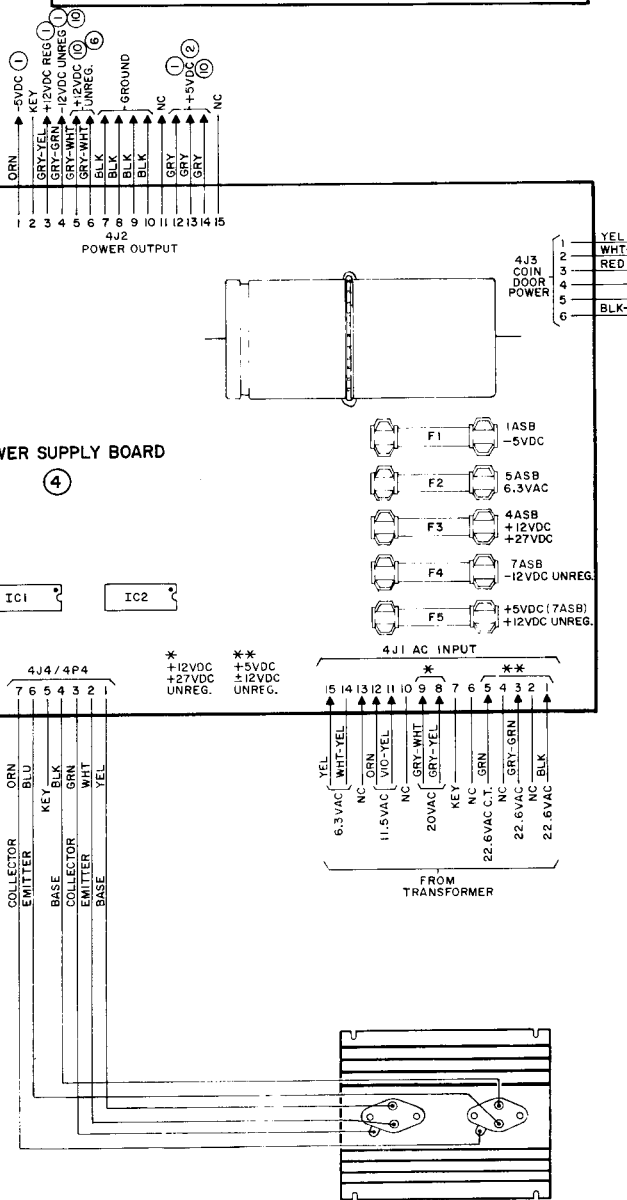
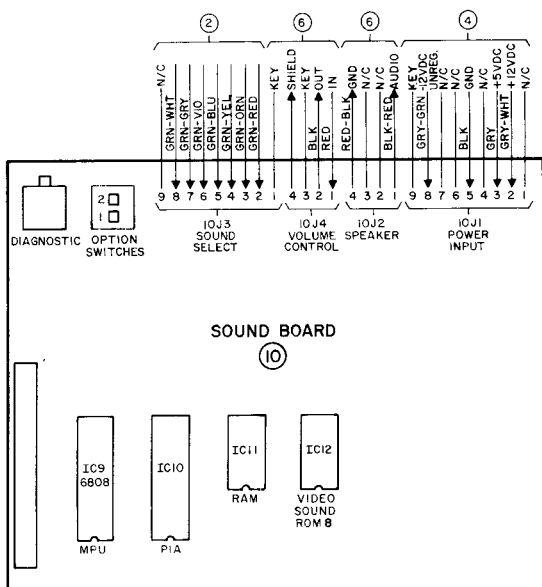
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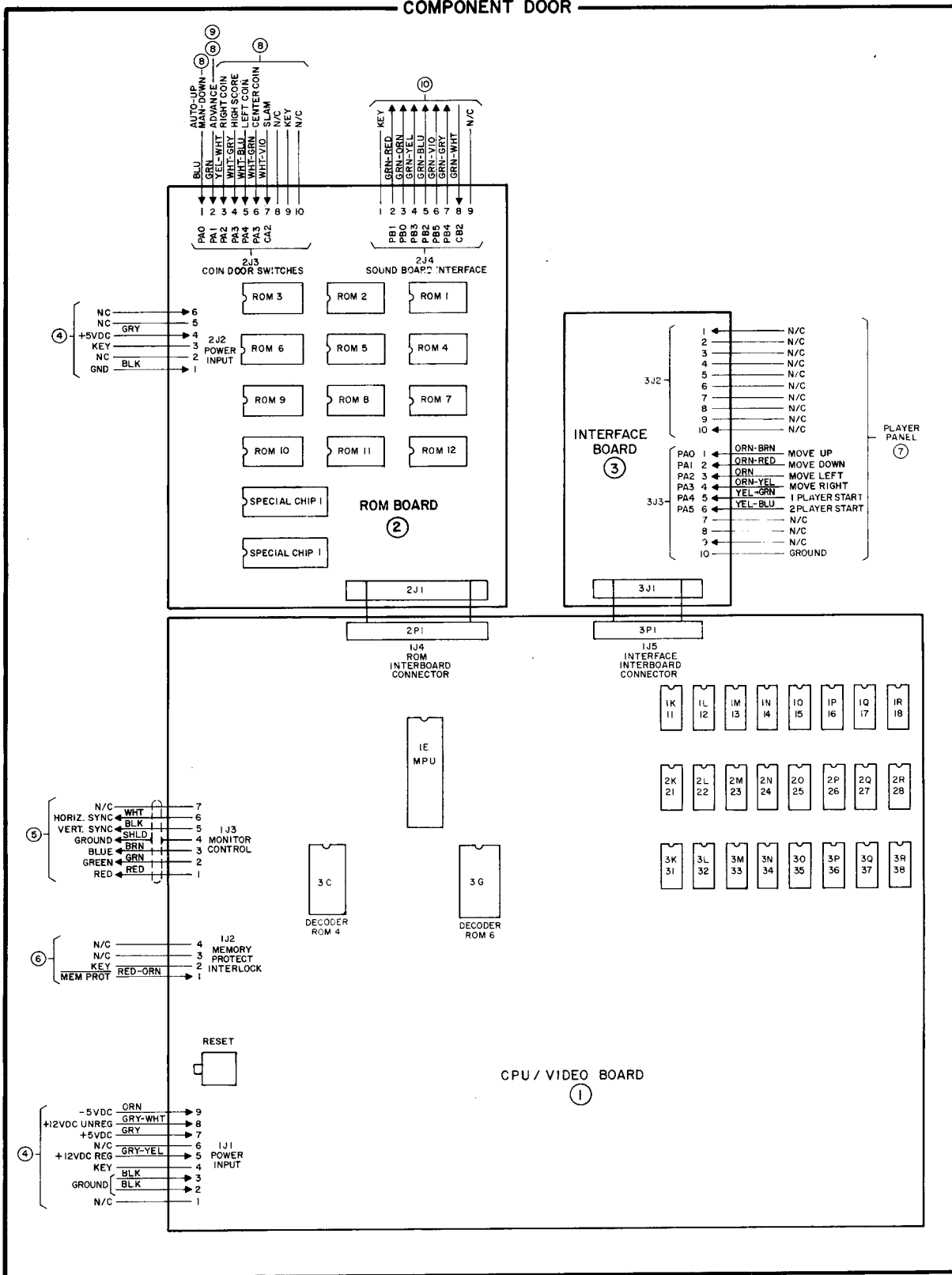
- ① CPU/ VIDEO BOARD
- ② ROM BOARD
- ③ INTERFACE BOARD
- ④ POWER SUPPLY
- ⑤ MONITOR
- ⑥ CABINET
- ⑦ PLAYER PANEL
- ⑧ COIN DOOR
- ⑨ CASH BOX
- ⑩ SOUND BOARD
- ⑪ NOT ASSIGNED
- ⑫ JOYSTICK BOARD

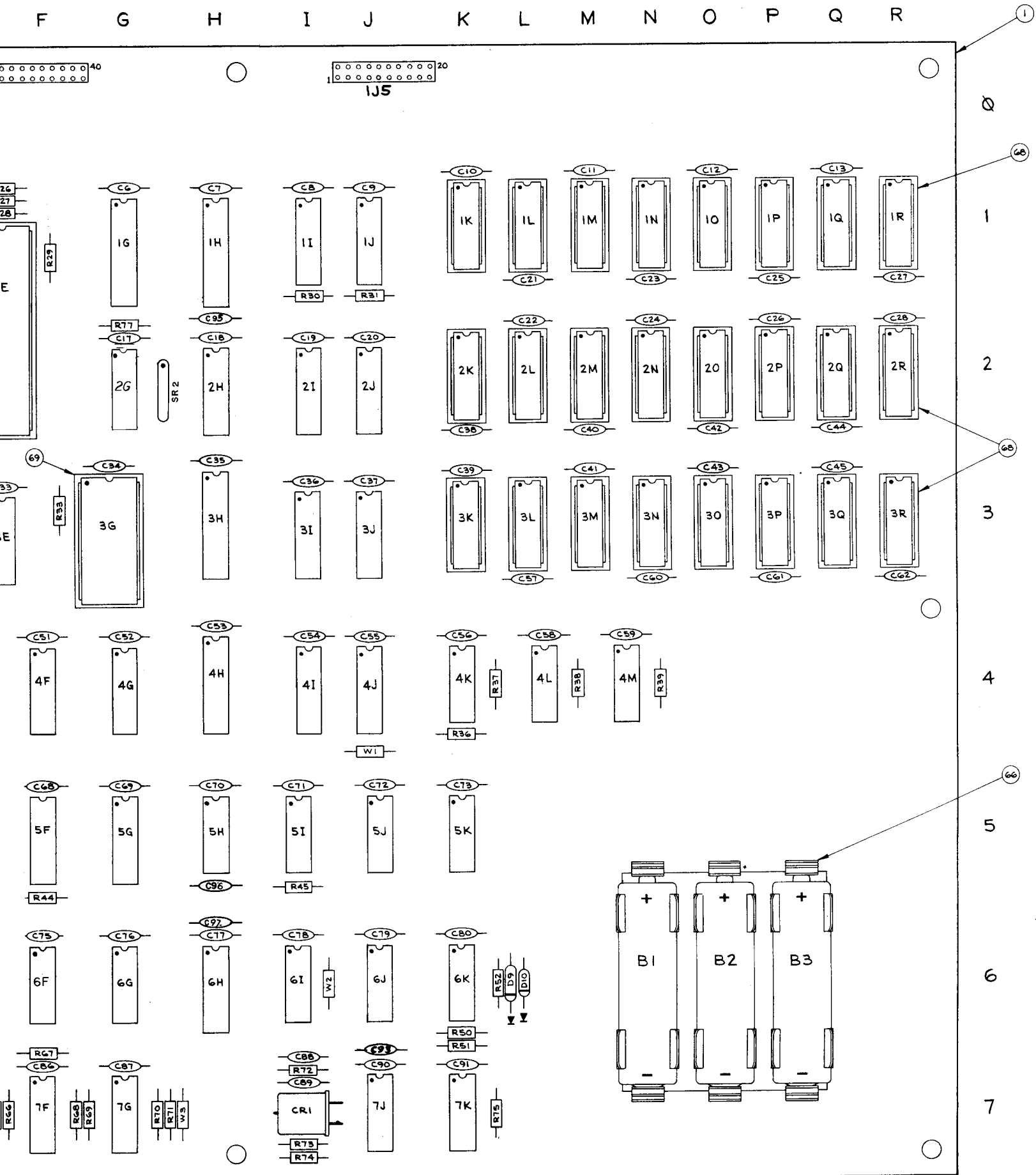
# BOARD WIRING



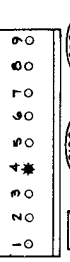
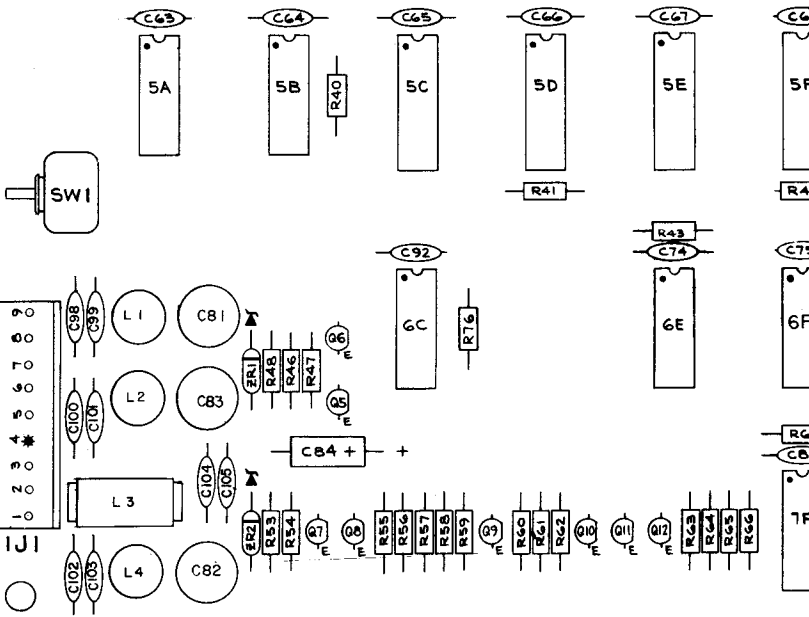
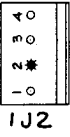
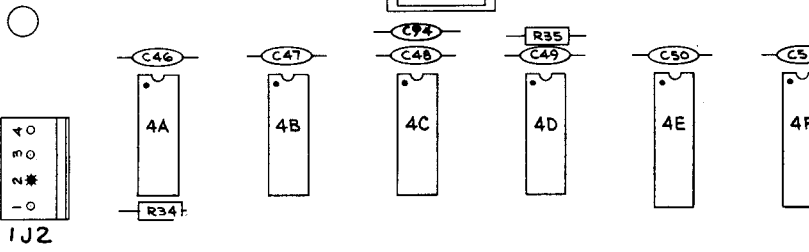
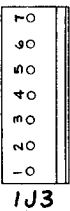
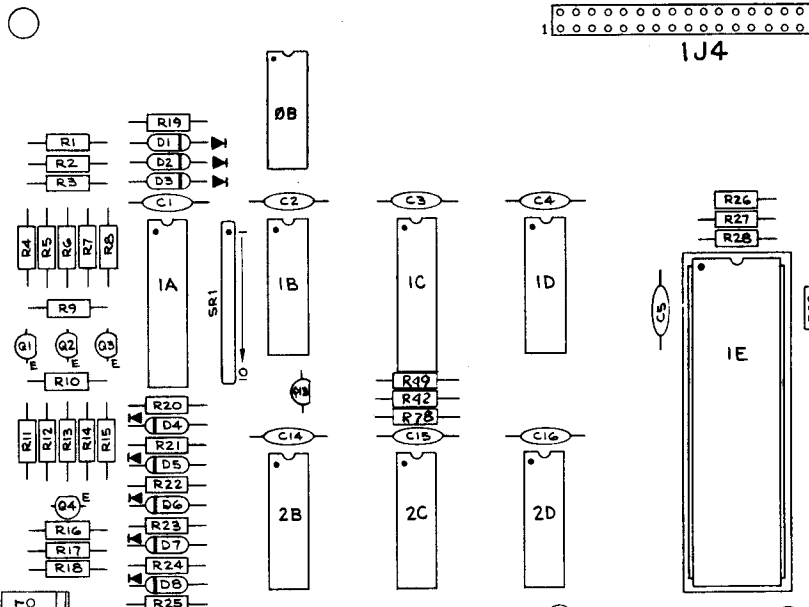
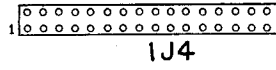
SIDE PANEL

COMPONENT DOOR





A B C D E F





| ITEM NO.       | PART NO.                    | PART DESIGNATION                  | DESCRIPTION                               | REQ'D. NO. |
|----------------|-----------------------------|-----------------------------------|---|------------|
| (K) 47         | 5010-09035-00               | R64                               | RESISTOR, C.F. 47K OHM 5% 1/4 W.          | 1          |
| (L) 48         | 5551-09822-00               | L3                                | COIL, 9.74H, 3A                           | 1          |
| 49             | 5010-09001-00               | R2, R21, R24                      | RESISTOR, C.F. 330 OHM 5% 1/4 W.          | 3          |
| 50             | 5010-09039-00               | R56                               | RESISTOR, C.F. 10 OHM 5% 1/4 W.           | 1          |
| (A) 51         | 5043-09491-00               | C89, C93                          | CAPACITOR, AXIAL 22 PFD. 1K V. ±10%       | 2          |
| 52             | 5043-09492-00               | C88                               | CAPACITOR, AXIAL 100 PFD. 50 V. ±10%      | 1          |
| 53             | 5040-09545-00               | C84                               | CAPACITOR, AXIAL 22 MFD. 10 V. ±20%       | 1          |
| (G) (A) 54     | 5043-09065-00               | C94 THRU C97                      | CAPACITOR, AXIAL 470 PFD. 50 V. XTR ±20%  | 4          |
| (E) 55         | 5043-08996-00               | SEE NOTE #3                       | CAPACITOR, AXIAL 1 MFD. 50 V. ±20%        | 85         |
| 56             | 5040-09421-00               | C81, C82, C83                     | CAPACITOR, RADIAL 100 MFD. 25 V. +50 -10% | 3          |
| 57             | 5075-09059-00               | ZR2                               | 1N5990A 3.9 V. ZENER DIODE                | 1          |
| 58             | 5075-09018-00               | ZR1                               | 1N5996A 6.8 V. ZENER DIODE                | 1          |
| 59             | 5070-08919-00               | D1, D2, D3, D4, D5, D6, D7, D8    | 1N4148 DIODE, SILICON                     | 8          |
| 60             | 5070-09266-00               | D9                                | 1N5817 DIODE, SILICON                     | 1          |
| (E) 61         | 5160-08938-00               | Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q13 | 2N4401, TO-92 TRANSISTOR, NPN             | 8          |
| 62             | 5190-09016-00               | Q1, Q2, Q3, Q4, Q12               | 2N4403, TO-92 TRANSISTOR, PNP             | 5          |
| 63             | 5520-09495-00               | CRI                               | 12 MHZ CRYSTAL                            | 1          |
| (L) 64         | 5093-09345-00               | C98-C105                          | CAPACITOR, AXIAL 100 PFD 50V ±20%         | 8          |
| 65             | 5880-09022-00               | B1, B2, B3                        | BATTERY ALKALINE 1.5 V. (AA)              | 3          |
| 66             | 5881-09021-00               | ---                               | BATTERY HOLDER *171                       | 1          |
| 67             | 5700-09628-00               | ---                               | 14-PIN IC SOCKET                          | 0          |
| (J) (H) 68     | 5700-09006-00               | ---                               | 16-PIN IC SOCKET                          | 24         |
| 69             | 5700-09004-00               | ---                               | 24-PIN IC SOCKET                          | 2          |
| 70             | 5700-08985-00               | ---                               | 40-PIN IC SOCKET                          | 1          |
| 71             | 5791-09437-00               | IJ5                               | 20 PIN RIBBON CABLE HEADER                | 1          |
| 72             | 5791-09349-00               | IJ4                               | 40 PIN RIBBON CABLE HEADER                | 1          |
| 73             | 5791-09028-00               | IJ2                               | 4 PIN HEADER 09-65-1041                   | 1          |
| 74             | 5791-09497-00               | IJ3                               | 7 PIN HEADER 09-65-1071                   | 1          |
| 75             | 5791-09027-00               | IJ1                               | 9 PIN HEADER 09-65-1091                   | 1          |
| 76             | 5019-09669-00               | SR1                               | RESISTOR, 1K OHM 10 PIN SIP               | 1          |
| 77             | 5010-09534-00               | W1, W2, W3                        | RESISTOR, C.F. 0 OHM 1/4 WATT             | 3          |
| (C) 78         | 5340-09689-00               | 0B, 1C                            | 5114 1K X 4 CMOS STATIC RAM               | 1          |
| 5340-09667-00  | 6514 1K X 4 CMOS STATIC RAM |                                   | 0   |            |
| (C) 79         | 5281-09483-00               | 1B, 2B                            | 74LS189 16 X 4 RAM                        | 0          |
| 5280-09625-00  | 7489 16 X 4 RAM             |                                   | 0   |            |
| 5282-09716-00  | 74S189 16 X 4 RAM           |                                   | 0   |            |
| 5281-09715-00  | 74LS289 16 X 4 RAM          |                                   | 2   |            |
| 5282-09717-00  | 74S289 16 X 4 RAM           |                                   | 0   |            |
| 80             | 5641-09371-00               | SW1                               | PUSH BUTTON SW. SPST                      | 0          |
| 5641-09312-00  | PUSH BUTTON SW. DPDT MOM.   |                                   | 1   |            |
| 82             |                             |                                   |   |            |
| (J) (D) 83     | 5019-09786-00               | SR2                               | SIP 4.7K Ω 5R 6 PIN 5% 125 W/R @ 70°C     | 1          |
| (L) (E) (D) 84 | 5281-09856-00               | 1H, 3H, 4H                        | OCTAL LATCH 74LS373                       | 3          |
| (E) (D) 85     |                             |                                   |   |            |

**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. 4.7K Ω RESISTOR:**

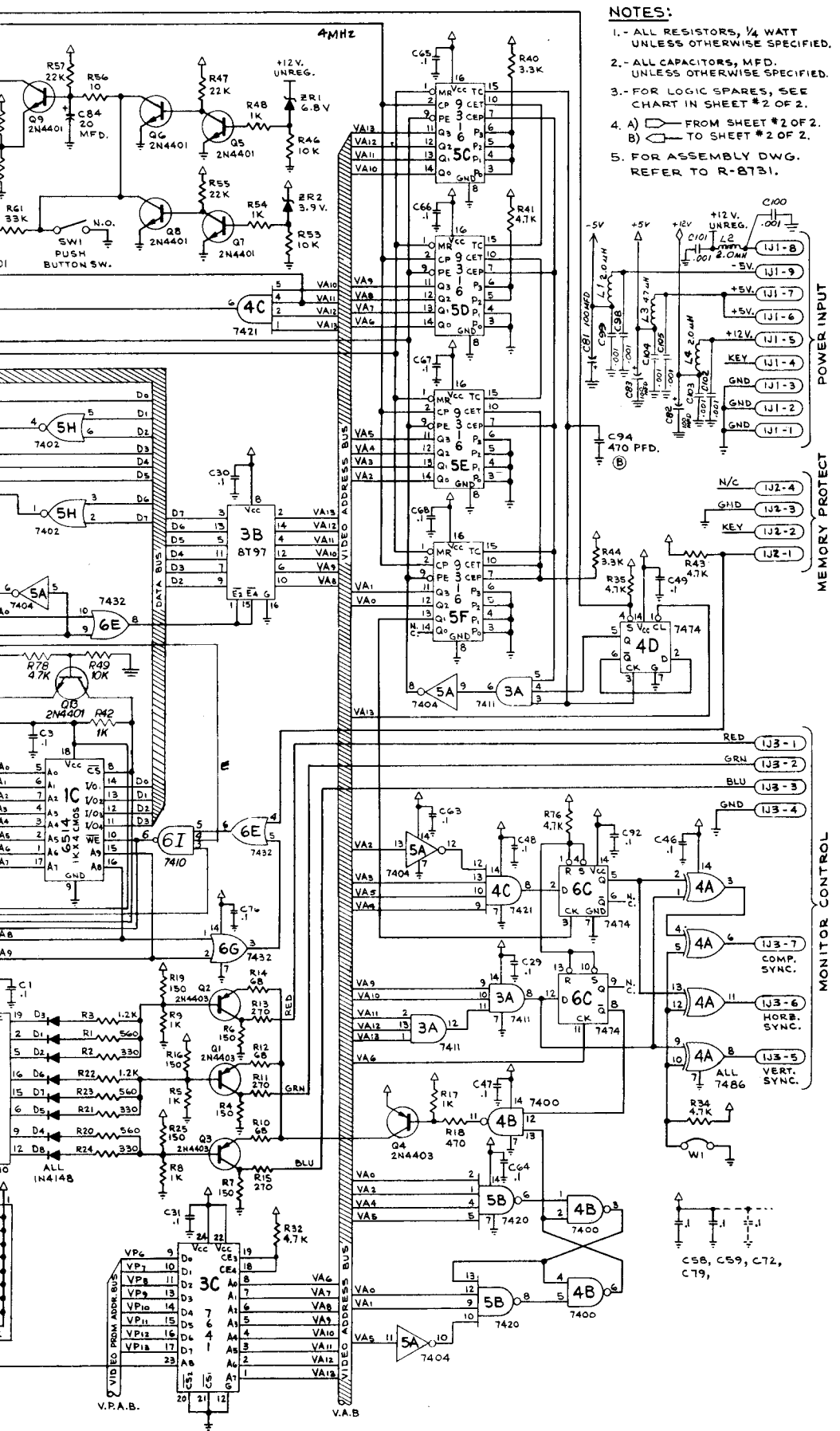
R26, R27, R28, R29, R32, R33, R35, R36, R37, R38, R39, R41, R43, R45, R50, R51, R52, R66, R67, R68, R69, R70, R71, R75, R84, R76, R77, R78

**3. 1 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, C86, C87, C90, C91, C92

4. FOR SCHEMATIC REFER TO 16-BB09

| BILL OF MATERIAL |               |                                |  |            |
|------------------|---------------|--------------------------------|--|------------|
| ITEM NO.         | PART NO.      | PART DESIGNATION               | DESCRIPTION                              | REQ'D. NO. |
| 1                | 5770-09656-00 |                                | BARE P.C. BOARD                          | 1          |
| 2                | 5280-09073-00 | 4B                             | 7400 QUAD 2-INPUT NAND                   | 1          |
| 3                | 5280-08948-00 | 5H                             | 7402 QUAD 2-INPUT NOR                    | 1          |
| 4                | 5281-09215-00 | 7J                             | 74LS04 HEX. INVERTER                     | 1          |
| 5                | 5280-09013-00 | 5A, 5K                         | 7404 HEX. INVERTER                       | 2          |
| 6                | 5280-08973-00 | 6F                             | 7408 QUAD AND                            | 1          |
| 7                | 5280-09011-00 | 4L, 4M, 6I                     | 7410 TRIPLE 3-INPUT NAND                 | 3          |
| 8                | 5280-09475-00 | 3A, 6J                         | 7411 TRIPLE 3-INPUT AND                  | 2          |
| 9                | 5280-09530-00 | 5B                             | 7420 DUAL 4-INPUT NAND                   | 1          |
| 10               | 5280-09476-00 | 4C                             | 7421 DUAL 4-INPUT AND                    | 1          |
| 11               | 5280-09477-00 | 6E, 6G                         | 7432 QUAD 2-INPUT OR                     | 2          |
| 12               | 5280-09478-00 | 4D, 4K, 6K, 6C, 7F, 7G         | 7474 DUAL-D TYPE FLIP-FLOP               | 6          |
| 13               | 5280-09479-00 | 4A, 5J                         | 7486 QUAD 2-INPUT EX-OR                  | 2          |
| 14               | 5281-09480-00 | 7K                             | 74LS107 DUAL J-K FLIP-FLOP               | 1          |
| 15               | 5281-09532-00 | 5G                             | 74LS133 13-INPUT NAND                    | 1          |
| 16               | 5281-09246-00 | 4G, 6H                         | 74LS139 DUAL 2 to 4 LINE DECODER         | 2          |
| 17               | 5280-09481-00 | 3D, 3E, 4E, 4F                 | 74153 DUAL 4 to 1 DATA INVERT            | 4          |
| 18               | 5280-09668-00 | 1I, 1J, 2I, 2J, 3I, 3J, 4I, 4J | 74166 8-BIT SHIFT REGISTER               | 8          |
| 19               |               |                                |  |            |
| 20               | 5281-09308-00 | 1G                             | 74LS245 OCTAL BUS TRANSCEIVER            | 1          |
| 21               | 5281-09485-00 | 2C, 2H                         | 74LS257 QUAD DATA MUX                    | 2          |
| 22               | 5370-08989-00 | 1D, 2D, 2G, 3B                 | 8T97 HEX. TS BUFFER                      | 0          |
|                  | 5281-09385-00 |                                | 74LS367 HEX BUS DRIVER                   | 4          |
| 23               | 5281-09486-00 | 1A,                            | 74LS374 OCTAL D-TYPE FLIP-FLOP           | 1          |
| 24               | A-5342-09821  | 3C                             | UNIVERSAL VERT. DECODER ROM 4            | 1          |
| 25               | A-5342-09694  | 3G                             | UNIVERSAL HORIZ. DECODER ROM 4           | 1          |
| 26               | 5551-09848-00 | L1, L2, L4                     | COIL, 2.04H, .5A                         | 3          |
| 27               | 5281-09533-00 | 5I                             | 74LS393 DUAL 4-BIT BIN. COUNTER          | 1          |
| 28               | 5340-09488-00 | SEE NOTE #1                    | 4116 (450 ns ACCESS) 16K X 1 DYNAMIC RAM | 24         |
| 29               | 5070-06258-00 | D10                            | 1N4001 DIODE                             | 1          |
| 30               | 5280-09489-00 | 5C, 5D, 5E, 5F                 | 9316 4-BIT BIN. COUNTER                  | 4          |
| 31               | 5400-09490-00 | 1E                             | 6809E MICROPROCESSOR                     | 1          |
| 32               | 5010-09548-00 | R10, R12, R14                  | RESISTOR, C.F. 68 OHM 2% 1/4 W.          | 3          |
| 33               | 5010-09036-00 | R65                            | RESISTOR, C.F. 100 OHM 5% 1/4 W.         | 1          |
| 34               | 5010-09187-00 | R4, R6, R7, R16, R19, R25      | RESISTOR, C.F. 150 OHM 5% 1/4 W.         | 6          |
| 35               | 5010-09508-00 | R11, R13, R15                  | RESISTOR, C.F. 270 OHM 2% 1/4 W.         | 3          |
| 36               | 5010-09416-00 | R18                            | RESISTOR, C.F. 470 OHM 5% 1/4 W.         | 1          |
| 37               | 5010-08992-00 | R1, R20, R23                   | RESISTOR, C.F. 560 OHM 5% 1/4 W.         | 3          |
| 38               | 5010-09356-00 | R42, R59, R77, R48, R54, R74   | RESISTOR, C.F. 1K OHM 5% 1/4 W.          | 8          |
| 39               | 5010-09314-00 | R3, R22                        | RESISTOR, C.F. 1.2K OHM 5% 1/4 W.        | 2          |
| 40               | 5010-08998-00 | R59, R72, R73                  | RESISTOR, C.F. 2.2K OHM 5% 1/4 W.        | 3          |
| 41               | 5010-08997-00 | R60, R63                       | RESISTOR, C.F. 2.7K OHM 5% 1/4 W.        | 2          |
| 42               | 5010-08983-00 | R30, R31, R40, R44, R58        | RESISTOR, C.F. 3.3K OHM 5% 1/4 W.        | 5          |
| 43               | 5010-08991-00 | SEE NOTE #2                    | RESISTOR, C.F. 4.7K OHM 5% 1/4 W.        | 1          |
| 44               | 5010-09034-00 | R49, R46, R53                  | RESISTOR, C.F. 10K OHM 5% 1/4 W.         | 3          |
| 45               | 5010-08774-00 | R47, R55, R57, R62             | RESISTOR, C.F. 22K OHM 5% 1/4 W.         | 4          |
| 46               | 5010-09113-00 | R61                            | RESISTOR, C.F. 33K OHM 5% 1/4 W.         | 1          |



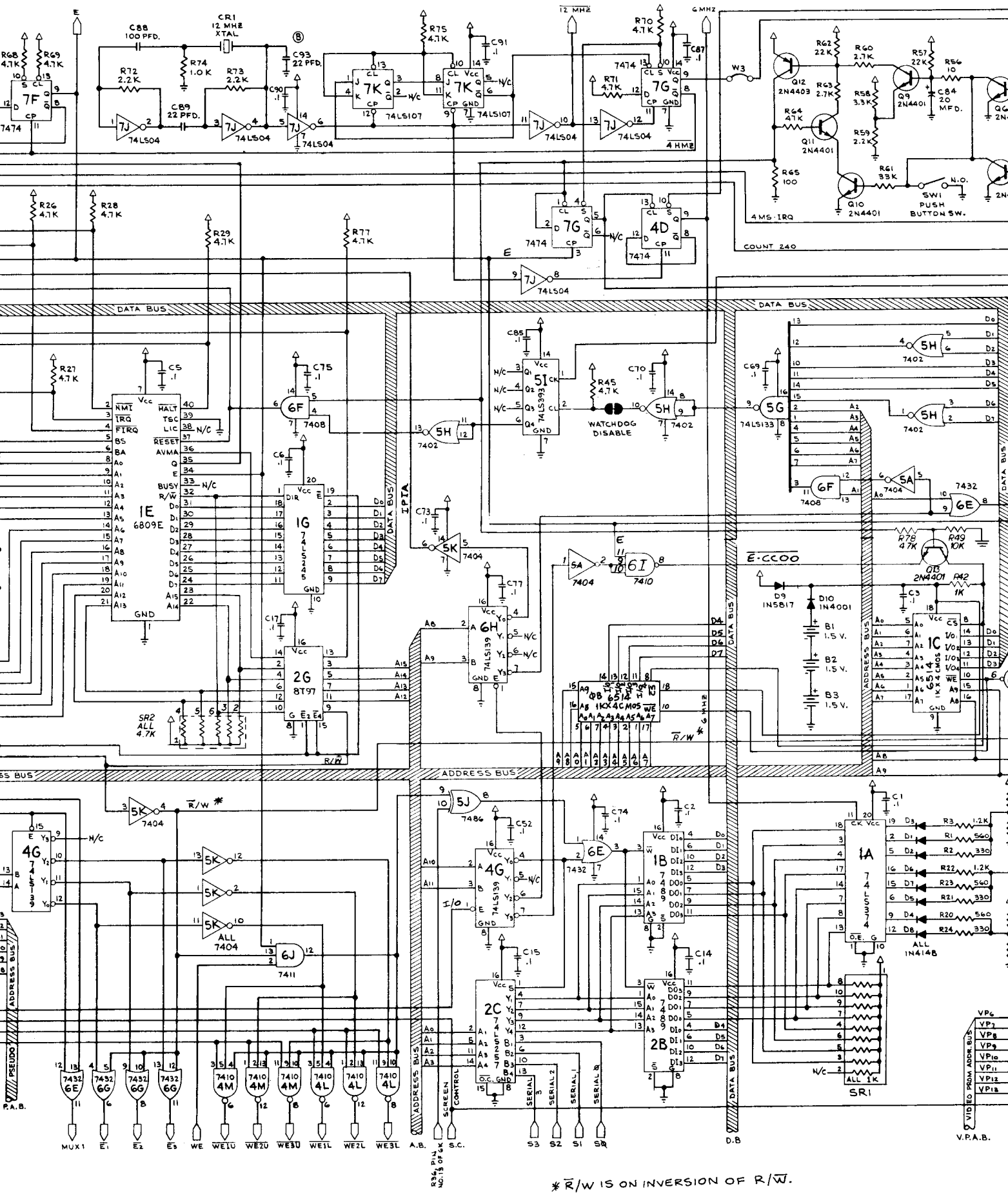
**NOTES:**

- 1.- ALL RESISTORS, 1/4 WATT UNLESS OTHERWISE SPECIFIED.
- 2.- ALL CAPACITORS, MFD. UNLESS OTHERWISE SPECIFIED.
- 3.- FOR LOGIC SPARES, SEE CHART IN SHEET #2 OF 2.
4. A) FROM SHEET #2 OF 2.  
B) TO SHEET #2 OF 2.
5. FOR ASSEMBLY DWG. REFER TO R-8731.

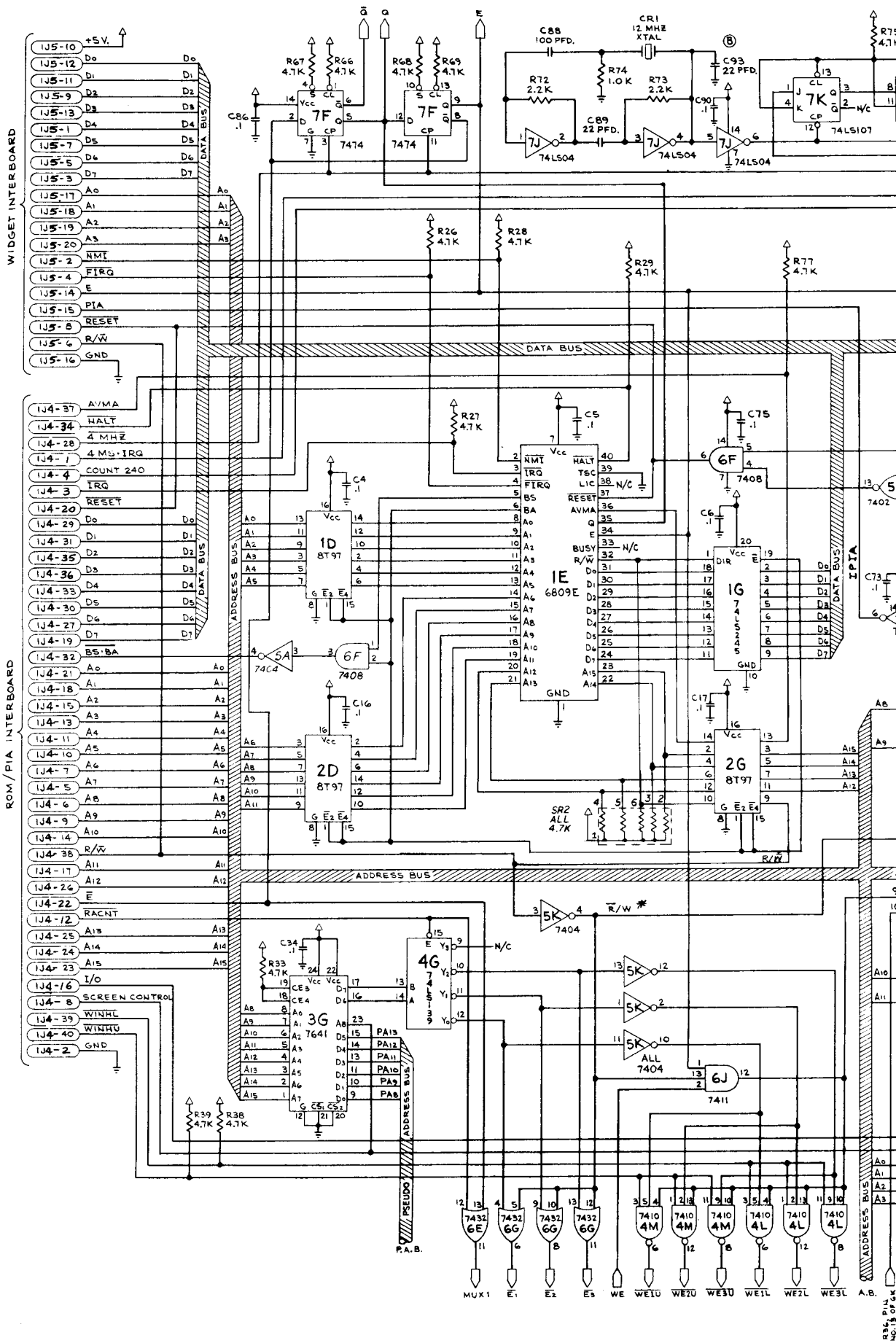
POWER INPUT

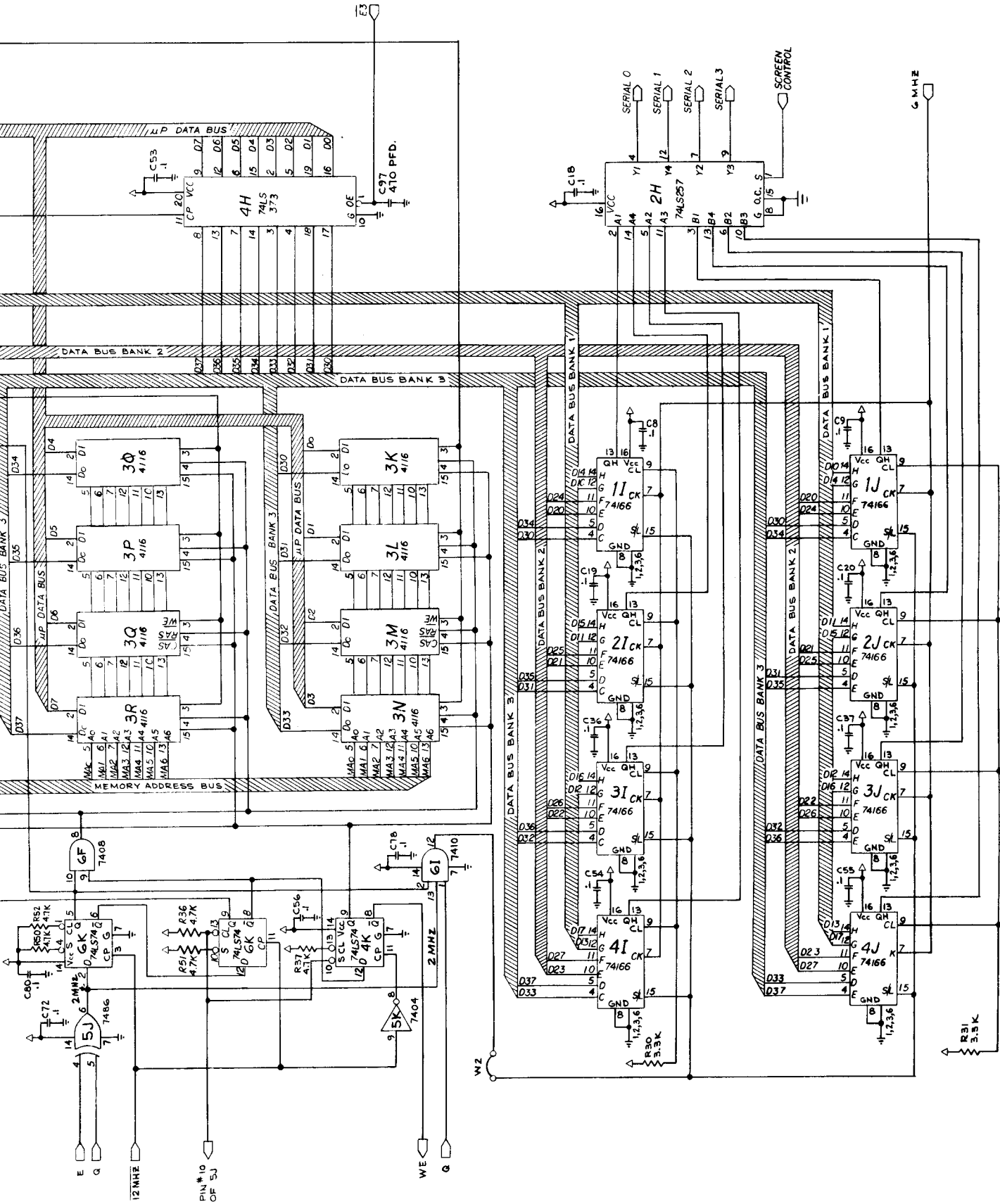
MEMORY PROTECT

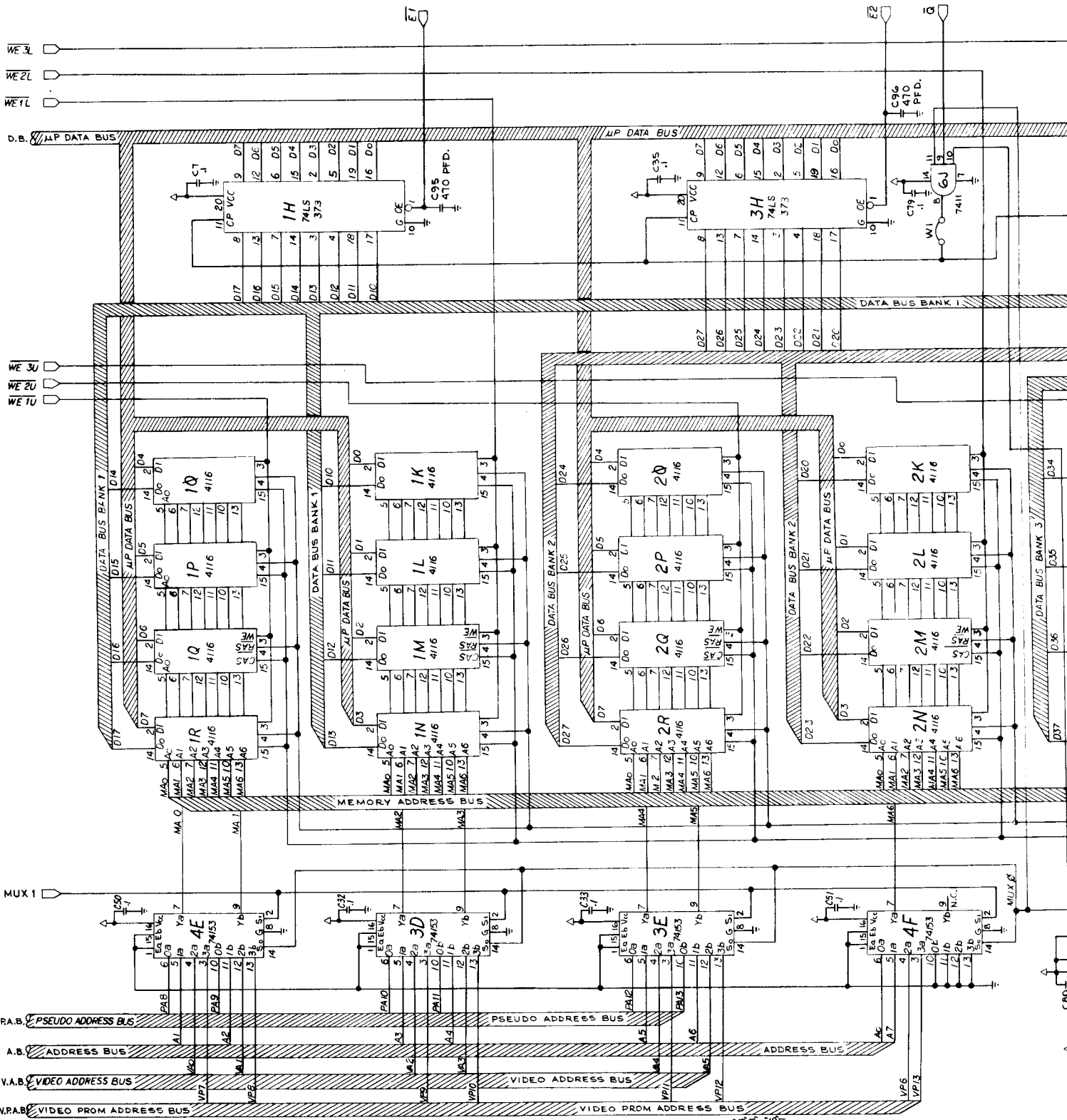
MONITOR CONTROL



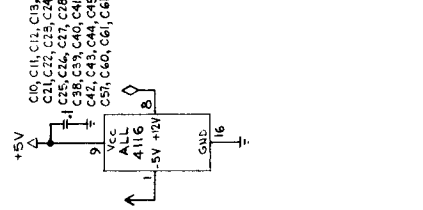
\* R/W IS ON INVERSION OF R/W.





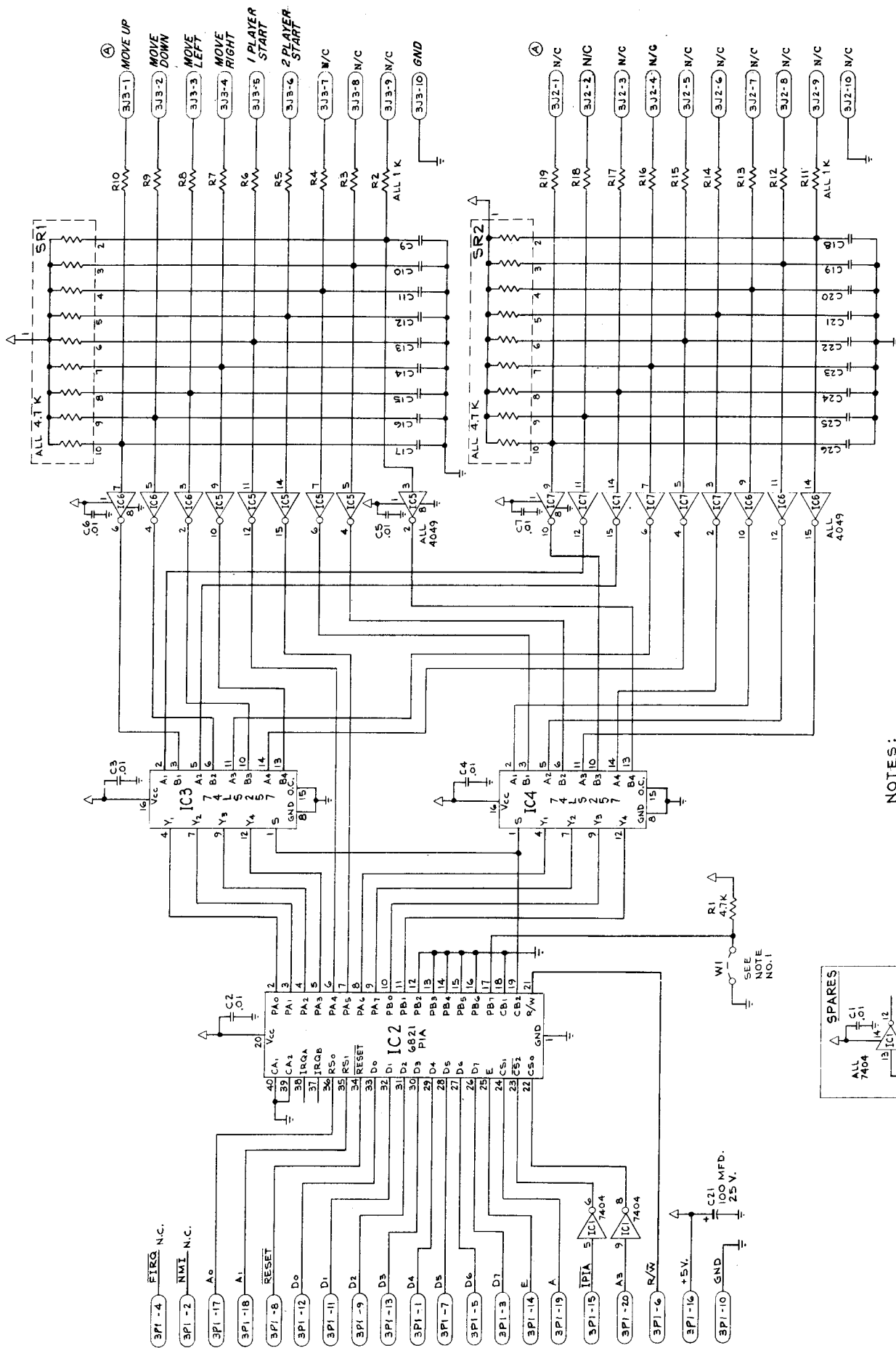


| SPARE |           |
|-------|-----------|
| LOC.  | QTY.      |
| 4B    | 7400 1    |
| 4K    | 74LS74 1  |
| 5I    | 74LS993 1 |
| 5J    | 7486 2    |
| 6D    | 4011 2    |
| 6H    | 74LS199 1 |
| 6I    | 7410 2    |

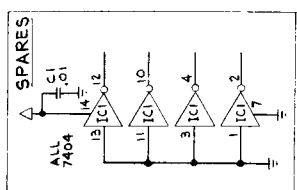


(D)

(E)



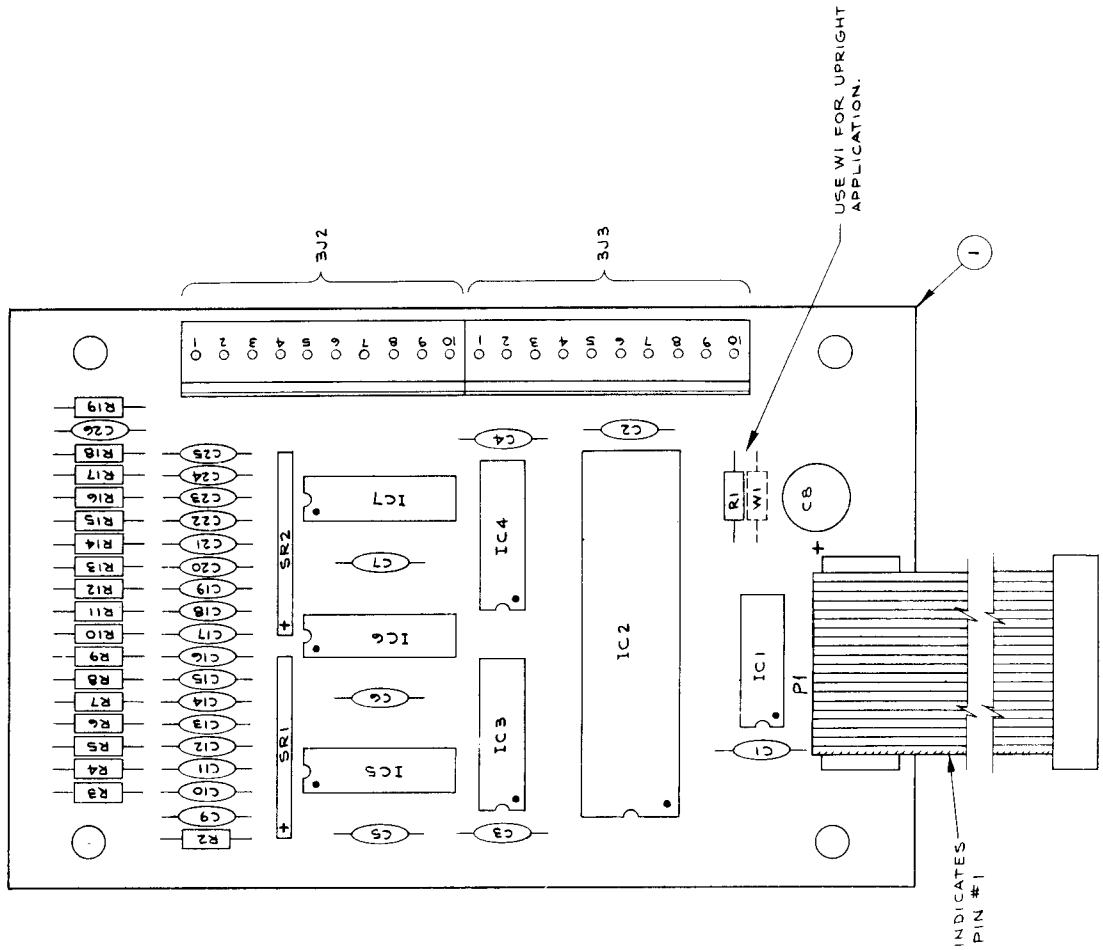
**NOTES:**  
 1. USE W1 FOR UPRIGHT APPLICATION.  
 2. FOR ASSEMBLY DWG REFER TO C-8783



C-8783 Interface Board Assembly and Logic Diagram

# BILL OF MATERIAL

| ITEM NO. | PART NO.      | PART DESIGNATION | DESCRIPTION  | NO. REQD. |
|----------|---------------|------------------|--|-----------|
| 1        | 5772-09680-00 |                  | BARE P.C. BOARD                                    | 1         |
| 2        | 5430-08972-00 | 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 9 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        | 5010-09554-00 | W1               | RESISTOR, C.F. 0 OHM 1/4 WATT                      | 1         |
| 10       | 5043-09065-00 | C9 THRU C26      | CAPACITOR, CERAMIC DISC 470 PFD. 50 V. XTR ±20%    | 18        |
| 11       | 5040-09421-00 | C8               | CAPACITOR, ELECT. RADIAL 100 MFD. 25 VOLT, +50-10% | 1         |
| 12       | 5043-08980-00 | C1 THRU C7       | CAPACITOR, CERAMIC DISC, .01 MFD. 50 V. +80-20%    | 7         |
| 13       | 5795-09540-00 | P1               | 20 PIN RIBBON CABLE ASSY.                          | 1         |
| 14       | 5791-09444-00 | 3J2, 3J3         | 10 PIN HEADER 09-65-1101                           | 2         |

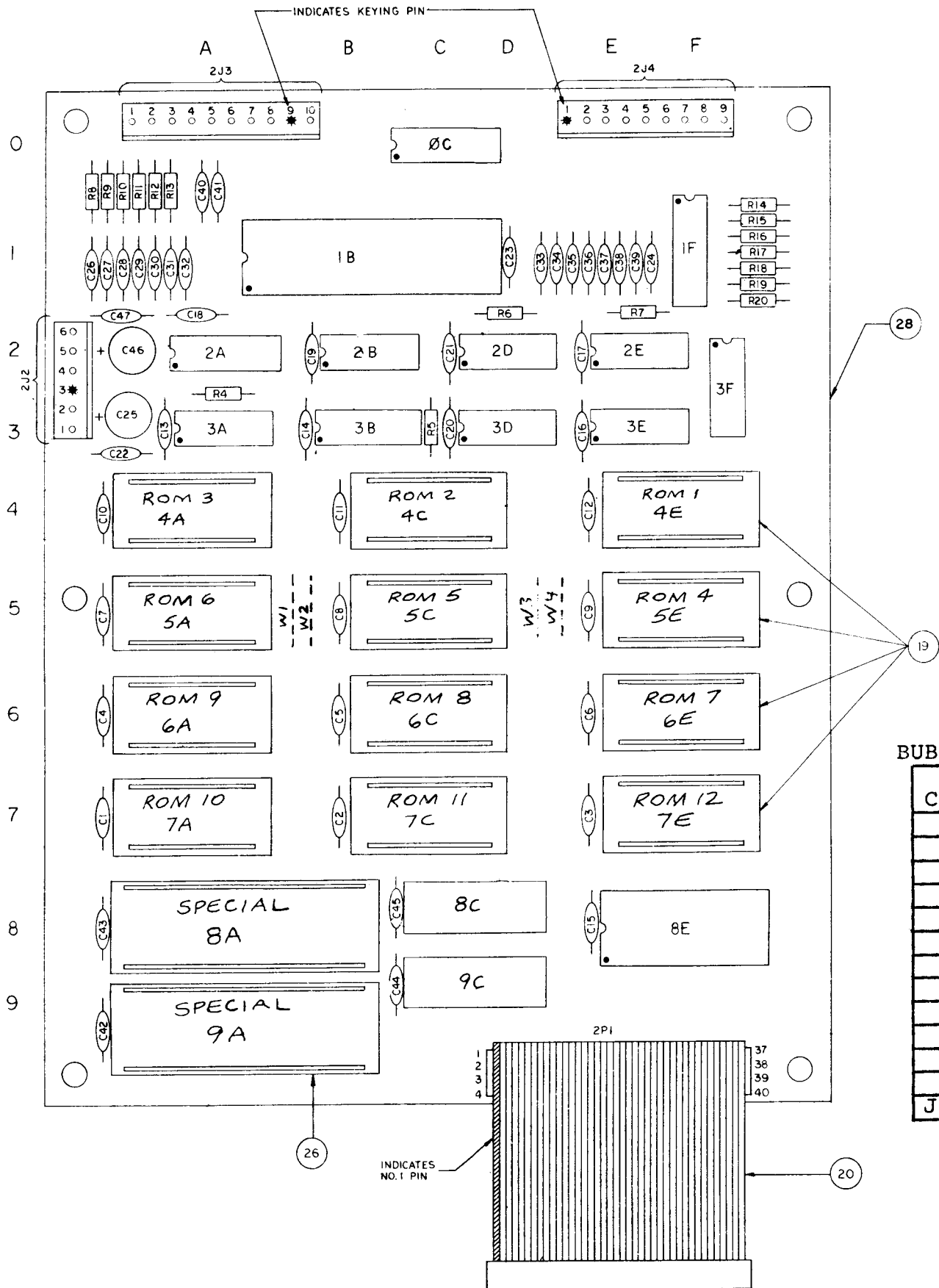


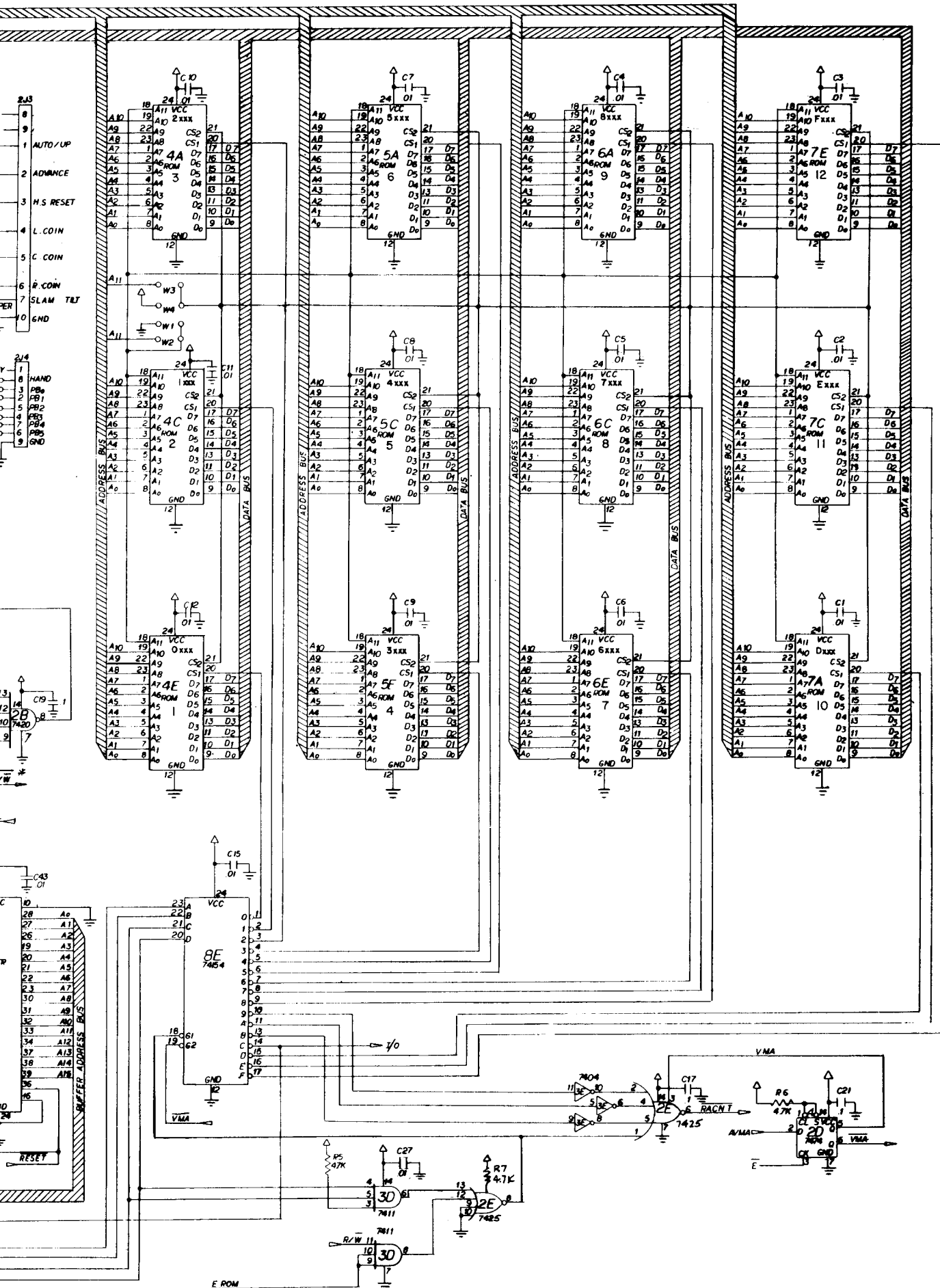


TABLES

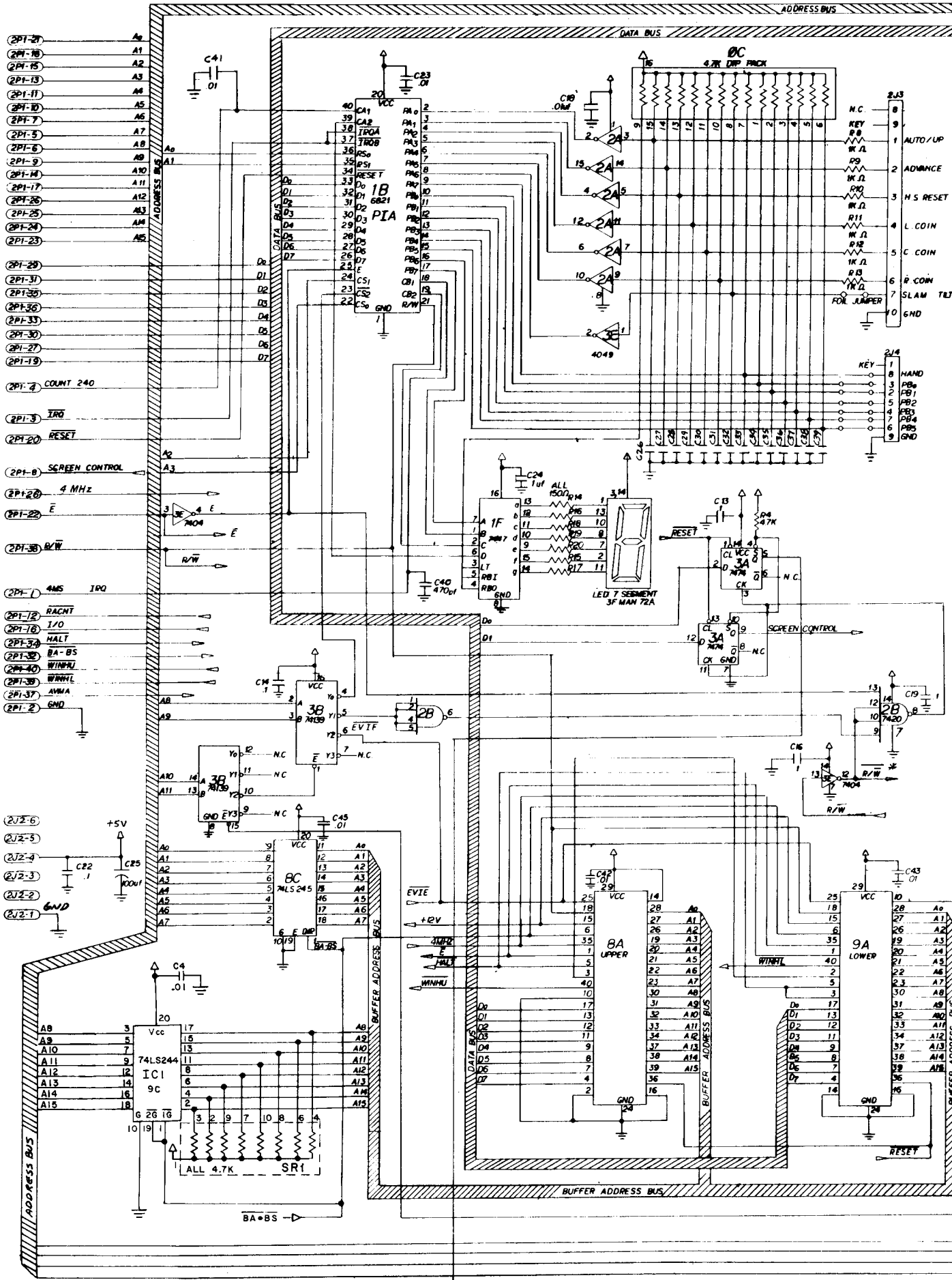
| SHIP CODE | ROM #   | PART #         | COLOR  |
|-----------|---------|----------------|--------|
| 4E        | ROM 1B  | A-5343-10111-B | brown  |
| 4C        | ROM 2B  | A-5343-10112-B | brown  |
| 4A        | ROM 3B  | A-5343-10113-B | brown  |
| 5E        | ROM 4B  | A-5343-10114-B | brown  |
| 5C        | ROM 5B  | A-5343-10115-B | brown  |
| 5A        | ROM 6B  | A-5343-10116-B | brown  |
| 6E        | ROM 7B  | A-5343-10117-B | brown  |
| 6C        | ROM 8B  | A-5343-10118-B | brown  |
| 6A        | ROM 9B  | A-5343-10119-B | brown  |
| 7A        | ROM 10B | A-5343-10120-B | brown  |
| 7C        | ROM 11B | A-5343-10121-B | brown  |
| 7E        | ROM 12B | A-5343-10122-B | brown  |
| UMPER     |         |                | W1, W3 |

| BILL OF MATERIALS |               |                          |   |           |
|-------------------|---------------|--------------------------|---|-----------|
| ITEM NO.          | PART NO.      | PART DESIGNATION         | DESCRIPTION                                   | REQ'D NO. |
| 1                 | 5771-09840-00 |                          | BARE PC. BOARD                                | 1         |
| 2                 | 5280-09407-00 | 1F                       | 7447BCD TO 7SEG LED DISPLAY                   | 1         |
| 3                 | 5280-09478-00 | 2D, 3A                   | 7474 DUAL-D TYPE FLIP-FLOP                    | 2         |
| 4                 | 5281-09246-00 | 3B                       | 74LS139 DUAL 2 TO 4 LINE DECODER              | 1         |
| 5                 | 5280-09530-00 | 2B                       | 7420 DUAL 4-INPUT NAND                        | 1         |
| 6                 | 5280-09475-00 | 3D                       | 7411 TRIPLE 3 INPUT AND                       | 1         |
| 7                 | 5280-09013-00 | 3E                       | 7404 HEX INVERTERS                            | 1         |
| 8                 | 5280-09551-00 | 2E                       | DUAL 4 INPUT 7425 NOR GATE WITH STROBE        | 1         |
| 9                 | 5280-09010-00 | 8E                       | 74154 4 TO 16 LINE DEC. / DEMULT.             | 1         |
| 10                | 5430-08972-00 | 1B                       | MC 6821 PIA                                   | 1         |
| 11                | 5019-09239-00 | QC                       | 4.7K 15 RES 16 PIN DIP PACK                   | 1         |
| 12                | 5010-09187-00 | R14 THRU R20             | RESISTOR C.F. 150 OHM 5% 1/4 W                | 7         |
| 13                | 5010-08991-00 | R4 THRU R7               | RESISTOR C.F. 4.7K OHM 5% 1/4 W               | 4         |
| 14                | 5671-09411-00 | 3F                       | MAN 72A 7SEG LED DISPLAY                      | 1         |
| 15                | 5043-08980-00 | C1-C21, C23, C24, C42-45 | CAP. CERAMIC .01 MFD 50V +80-20%              | 27        |
| 16                | 5040-09421-00 | C25, C46                 | CAP ELEC 100 MFD. 25V RAD +50%-10%            | 2         |
| 17                | 5043-08996-00 | C22, C47                 | CAP CERAMIC .1 MFD. 50V ±20%                  | 2         |
| 18                | 5043-09065-00 | C26 THRU C41             | CAP CERAMIC 470 PFD. 50V AXIAL +/-20%         | 16        |
| 19                | 5700-09004-00 |                          | 24-PIN IC. SOCKET                             | 12        |
| 20                | 5795-09611-00 | 2P1                      | 40 PIN RIBBON CABLE ASS'Y 5"                  | 1         |
| 21                | 5791-09038-00 | 2J2                      | HEADER, 6 PIN, 09-65-1061                     | 1         |
| 22                | 5791-09444-00 | 2J3                      | 10 PIN MALE CONN 09-65-1101                   | 1         |
| 23                | 5791-09027-00 | 2J4                      | 9 PIN CONN 09-65-1091                         | 1         |
| 24                | 5310-08975    | 2A                       | 4049 INVERTING HEX BUF.                       | 1         |
| 25                | 5010-09358-00 | R8 THRU R13              | RESISTOR C.F. 1K OHM 5% 1/4 W                 | 6         |
| 26                | 5700-08985-00 |                          | 40-PIN IC. SOCKET                             | 2         |
| 28                | D-9192        |                          | ROM/PIA BD. SUB-ASSEMBLY                      | 1         |
| 29                | SEE CHART     | 4A THRU 7E SEE CHART     | GAME ROM ASSEMBLY                             | AS REQ'D  |
| 30                | 5010-09534-00 | W1 THRU W4 SEE CHART     | RESISTOR C.F. 0 OHM 1/4 WATT                  | AS REQ'D  |
| 31                | 5410-09866-00 | 8A, 9A                   | FULL CUSTOM I.C.                              | 2         |
| 32                | 5281-09308-00 | 8C                       | I.C., 74LS245 OCTAL BUS / LINE DR / LINE RCVR | 1         |

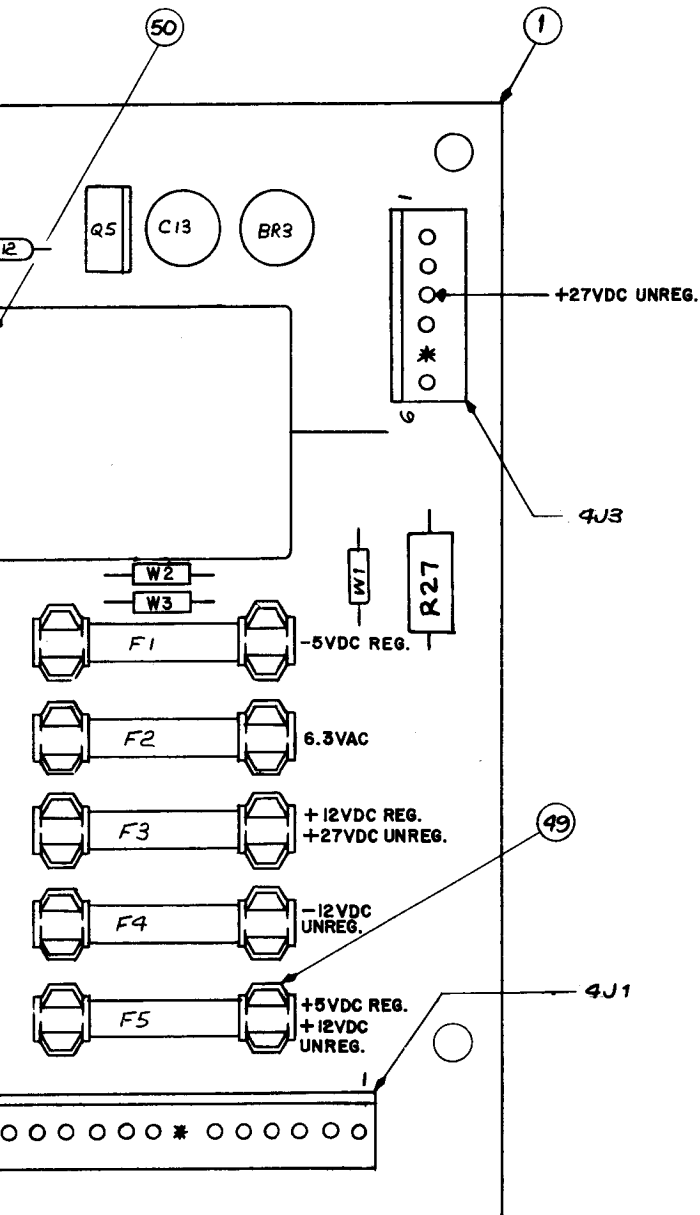




D-9144 ROM Board Logic Diagram



# BILL OF MATERIAL

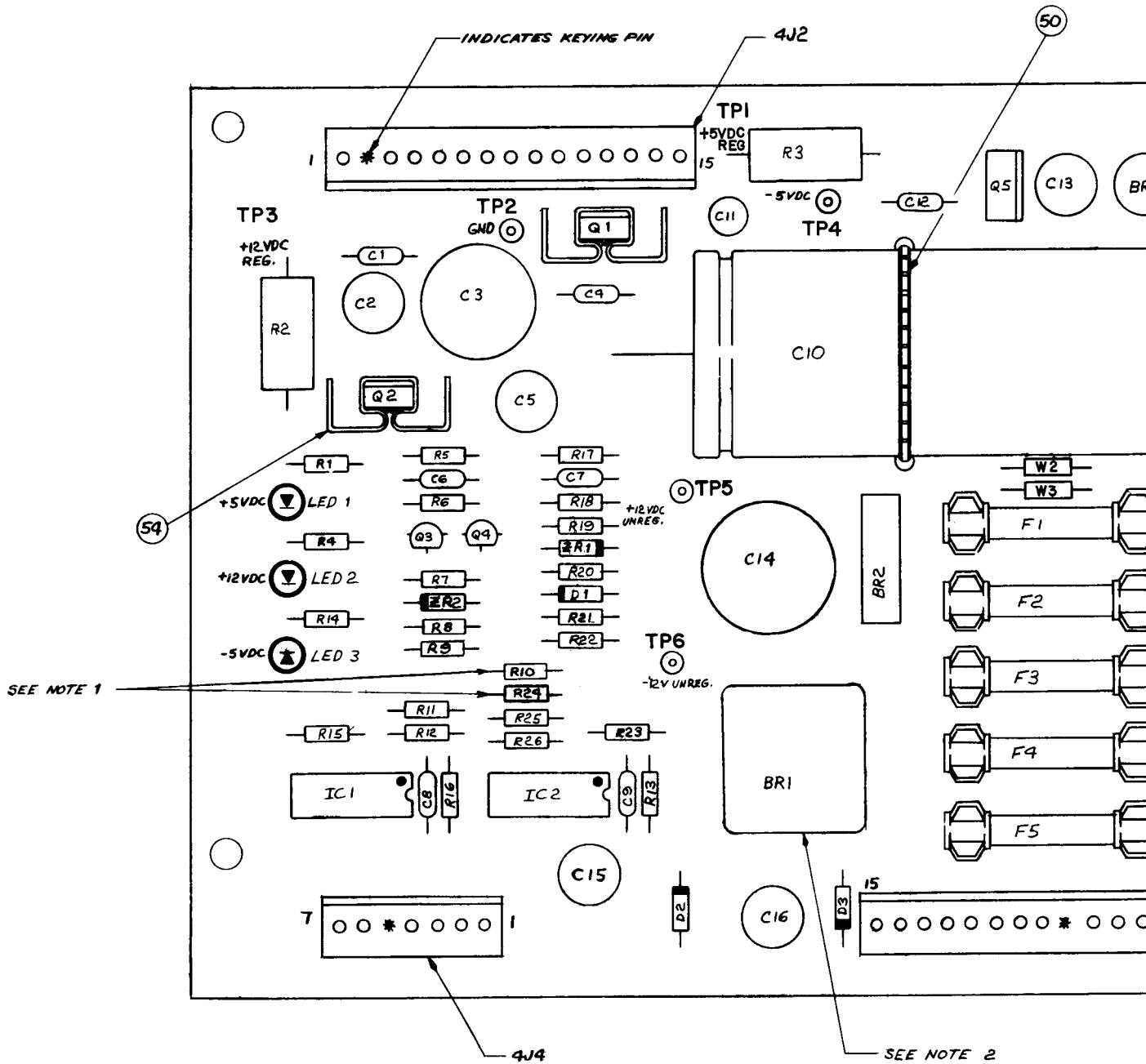


| ITEM NO. | PART NO.      | PART DESIGNATION  | DESCRIPTION                              | REQ'D NO. |
|----------|---------------|-------------------|--|-----------|
| 1        | 5773-09679-00 |                   | BARE P.C. BOARD                          | 1         |
| 2        | 5010-09085-00 | R23               | RESISTOR, 1.5K 5%, 1/4W                  | 1         |
| 3        | 5010-08541-00 | R13, R15          | RESISTOR, 2.7K 2%, 1/4W                  | 2         |
| 4        | 5010-09508-00 | R21               | RESISTOR, 870Ω 2%, 1/4W                  | 1         |
| 5        | 5010-09428-00 | R20               | RESISTOR, 1.5K 2%, 1/4W                  | 1         |
| 6        | 5010-09509-00 | R16               | RESISTOR, 1.1K 2%, 1/4W                  | 1         |
| 7        | 5010-08510-00 | R7                | RESISTOR, 12K 2%, 1/4W                   | 1         |
| 8        | 5010-09314-00 | R4                | RESISTOR, 1.2K 5%, 1/4W                  | 1         |
| 9        | 5010-09416-00 | R1, R14           | RESISTOR, 470Ω 5%, 1/4W                  | 2         |
| 10       | 5013-09542-00 | R11               | RESISTOR, 7.3K 1%, 1/4W                  | 1         |
| 11       | 5013-09427-00 | R12               | RESISTOR, 9.99K 1%, 1/4W                 | 1         |
| 12       | 5013-09426-00 | R25               | RESISTOR, 2.15K 1%, 1/4W                 | 1         |
| 13       | 5012-09429-00 | R3                | RESISTOR, 12Ω 5%, 5W                     | 1         |
| 14       | 5012-09512-00 | R2                | RESISTOR, 27Ω 5%, 5W                     | 1         |
| 15       | 5012-09037-00 | R27               | RESISTOR, 0.4Ω 5%, 3W                    | 1         |
| 16       | 5013-09665-00 | R26               | RESISTOR, 3.11K 1%, 1/4W                 | 1         |
| 17       | 5010-09434-00 | RG, R18           | RESISTOR, C.F. 22Ω ± 5% 1/4W             | 2         |
| 18       | 5010-09036-00 | RS, R9, R17 & R22 | RESISTOR, C.F. 100Ω ± 5% 1/4W            | 4         |
| 19       | 5010-09039-00 | RB, R19           | RESISTOR, C.F. 10Ω ± 5% 1/4W             | 2         |
| 20       | 5010-09534-00 | W1                | RESISTOR, 0Ω                             | 1         |
| 21       | 5043-08996-00 | C6, C7            | CAPACITOR, 0.1μF CERAMIC +80% -20% 50V   | 2         |
| 22       | 5040-09421-00 | C2, C16           | CAPACITOR, 100MFD, 25V RADIAL +50% -10%  | 2         |
| 23       | 5040-09422-00 | C15               | CAPACITOR, 47 MFD, 50V RADIAL +50% -10%  | 1         |
| 24       | 5040-09420-00 | C3                | CAPACITOR, 1000MFD, 25V RADIAL +75% -10% | 1         |
| 25       | 5040-09419-00 | C10               | CAPACITOR, 18,000MFD 20V AXIAL +75% -10% | 1         |
| 26       | 5040-09423-00 | C5                | CAPACITOR, 330 MFD 10V RADIAL +50% -10%  | 1         |
| 27       | 5040-09504-00 | C14               | CAPACITOR, 4700MFD 35V RADIAL +50% -10%  | 1         |
| 28       | 5043-09446-00 | C1, C4 & C12      | CAPACITOR, 1MFD 50V AXIAL ±5% -20 ± 80%  | 3         |
| 29       | 5043-08065-00 | C9                | CAPACITOR, 470PFD 50V AXIAL XTR ± 10%    | 1         |
| 30       | 5043-09492-00 | C8                | CAPACITOR, 100PFD 50V AXIAL 52L ± 5%     | 1         |
| 31       | 5040-09506-00 | C13               | CAPACITOR, 220MFD 16V RADIAL +50% -10%   | 1         |
| 32       | 5040-09493-00 | C11               | CAPACITOR, 22MFD 10V RADIAL +50% -10%    | 1         |
| 33       | 5070-06258-00 | D1, D2 & D3       | DIODE, 1N4001                            | 3         |
| 34       | 5075-09406-00 | ZR1               | ZENER, 1N5234 ± 5% (6.2V)                | 1         |
| 35       | 5075-09662-00 | ZR2               | ZENER, 1N5244 ± 5% (14V)                 | 1         |
| 36       | 5130-09430-00 | Q3, Q4            | TRANSISTOR, MPS A55                      | 2         |
| 37       | 5130-09661-00 | Q1, Q2            | SCR 8 AMP, 100V                          | 2         |
| 38       | 5250-09515-00 | Q5                | VOLTAGE REGULATOR, T905                  | 1         |
| 39       | 5460-09424-00 | IC1, IC2          | VOLTAGE REGULATOR, 723                   | 2         |
| 40       | 5100-09890-00 | BR1               | BRIDGE RECTIFIER, 35 AMP, 200V           | 1         |
| 41       | 5100-09513-00 | BR2               | BRIDGE RECTIFIER, 4.0A, 50V              | 1         |
| 42       | 5100-09514-00 | BR3               | BRIDGE RECTIFIER, 1.0A, 50V              | 1         |
| 43       | 5671-09048-00 | LED1, LED2, LED3  | LED, RED                                 | 3         |
| 44       | 5824-09298-00 | TP1 - TP6         | TERMINAL #1502-1 (TEST POINT)            | 4         |

|    |               |           |                           |    |
|----|---------------|-----------|---------------------------|----|
| 45 | 5731-09432-00 | F4 & F5   | FUSE, TA.S.B.             | 2  |
| 46 | 5731-06314-00 | F3        | FUSE, 9A, S.B., 250V      | 1  |
| 47 | 5731-06569-00 | F1        | FUSE, 1A, S.B., 250V      | 1  |
| 48 | 5731-09651-00 | F2        | FUSE, 5A, S.B., 250V      | 1  |
| 49 | 5732-09178-00 |           | FUSEHOLDER,               | 10 |
| 50 | 03-1520       |           | TIE WRAP                  | 1  |
| 51 | 5791-09074-00 | 4J1 & 4J2 | HEADER, 15 PIN 09-65-1051 | 2  |
| 52 | 5791-09030-00 | 4J3       | HEADER, 6 PIN 09-65-1061  | 1  |
| 53 | 5791-09497-00 | 4J4       | HEADER, 7 PIN 09-65-1071  | 1  |
| 54 | 5705-09663-00 |           | HEAT SINK                 | 2  |
|    | 5705-09668-00 |           | HEAT SINK                 | 0  |

NOTE 2

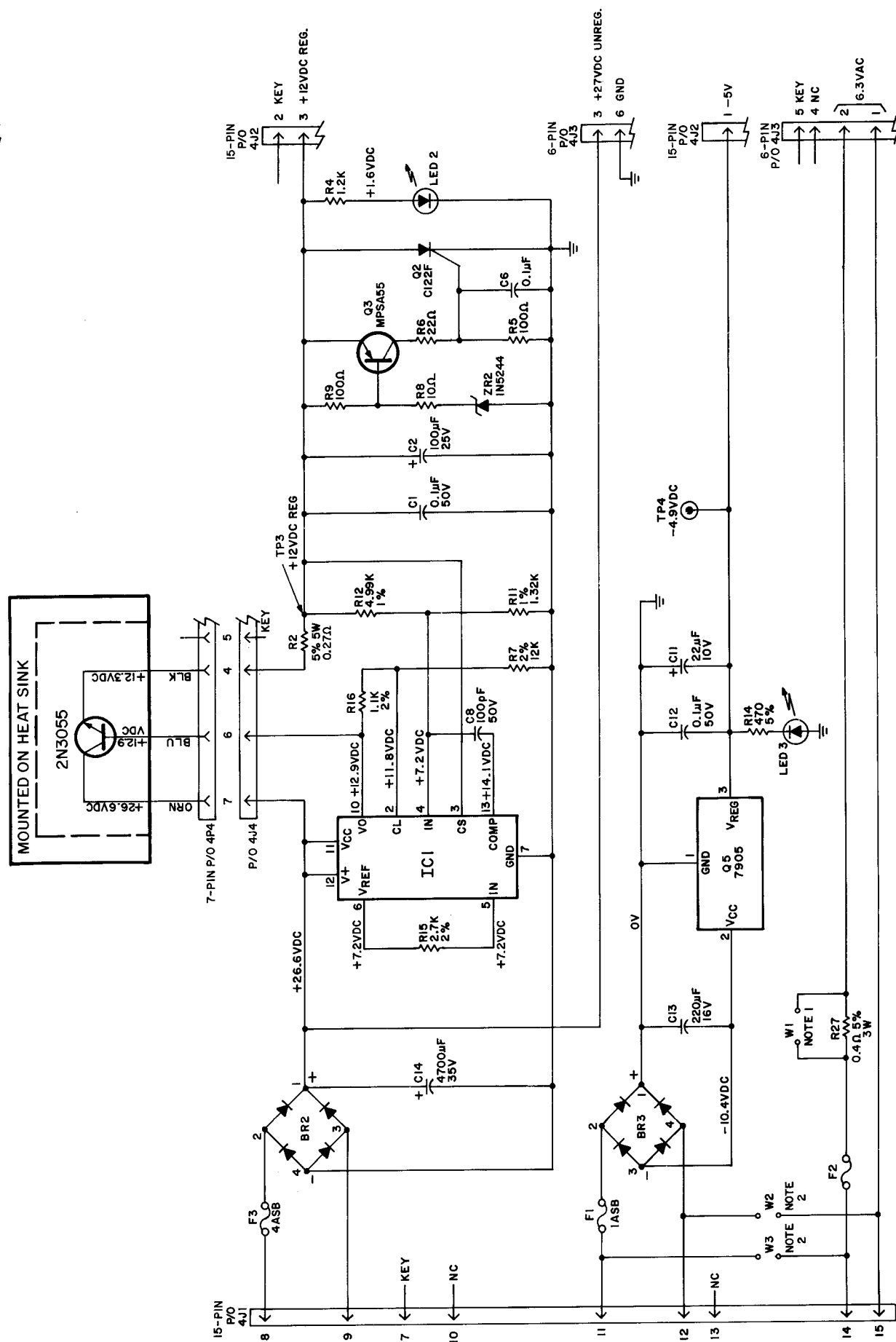
| DESCRIPTION        | REQ'D NO. |
|--------------------|-----------|
| STOR. C.F. 5% 1/4W | 1         |
| TDR. C.F. 5% 1/4W  | 1         |



**NOTES**

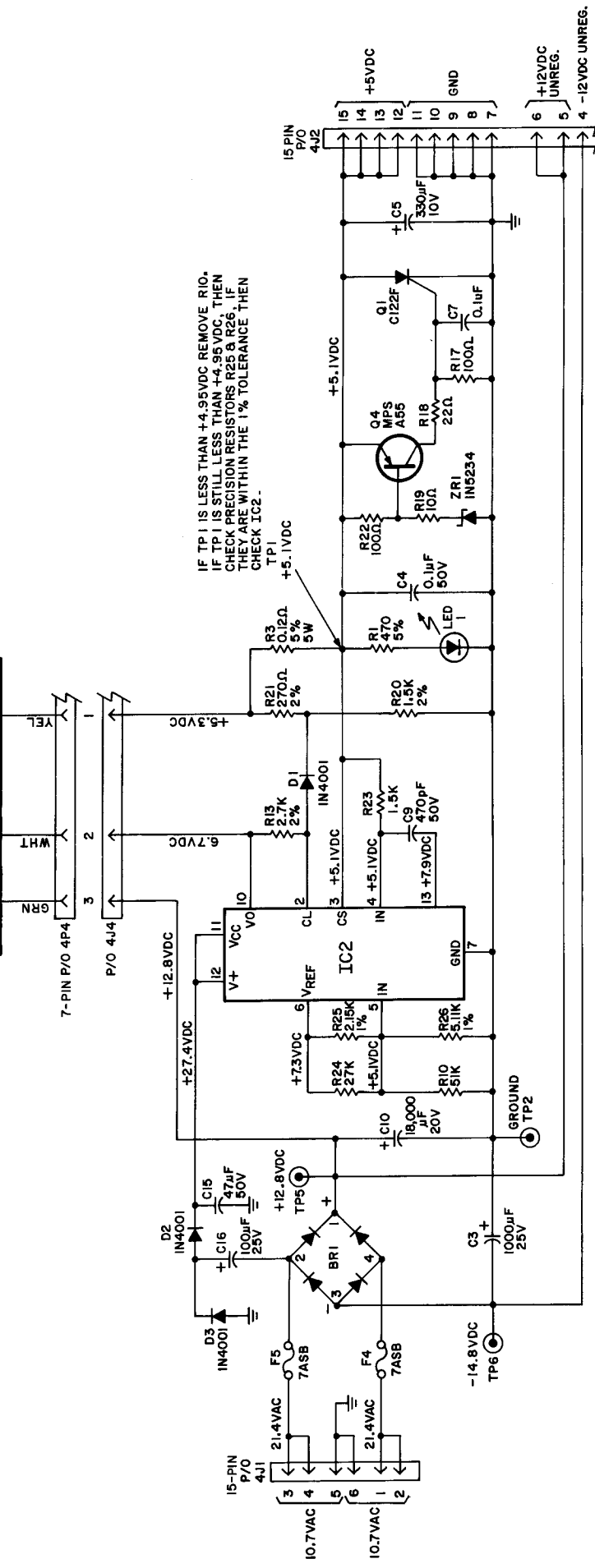
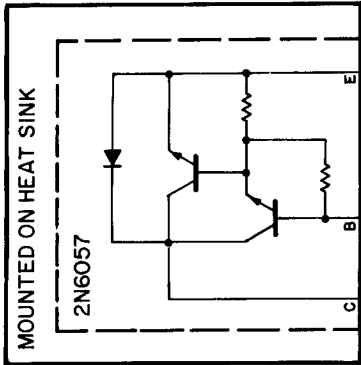
1. REMOVE R10 IF +5VDC IS LESS THAN 4.95 VDC.
2. BR1 MUST BE MOUNTED 1/8" ABOVE SURFACE OF BOARD.

|          |               |                  |                            |           |
|----------|---------------|------------------|----------------------------|-----------|
| 55       | 5010-09682-00 | R10              | RESISTOR C.F. 51K ±5% 1/4W | 1         |
| 56       | 5010-09324-00 | R24              | RESISTOR C.F. 27K ±5% 1/4W | 1         |
| ITEM NO. | PART NO.      | PART DESIGNATION | DESCRIPTION                | REQ'D NO. |



- NOTES:
1. W1 IS NOT USED ON UPRIGHT GAMES.
  2. W2 & W3 ARE NOT USED.
  3. 1 ASB 250V.

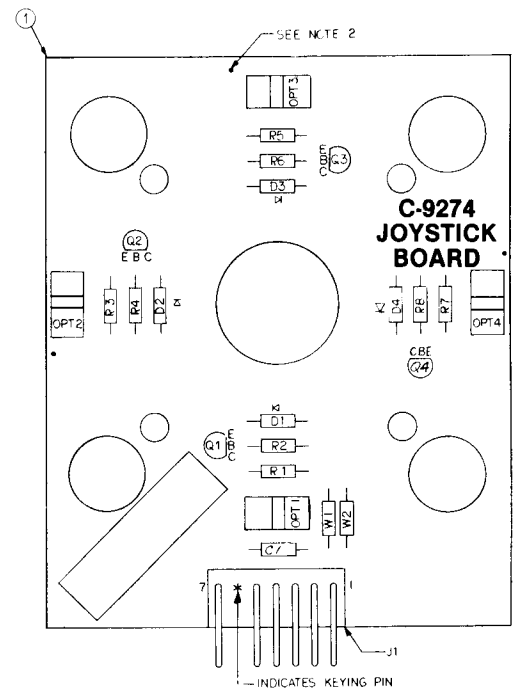
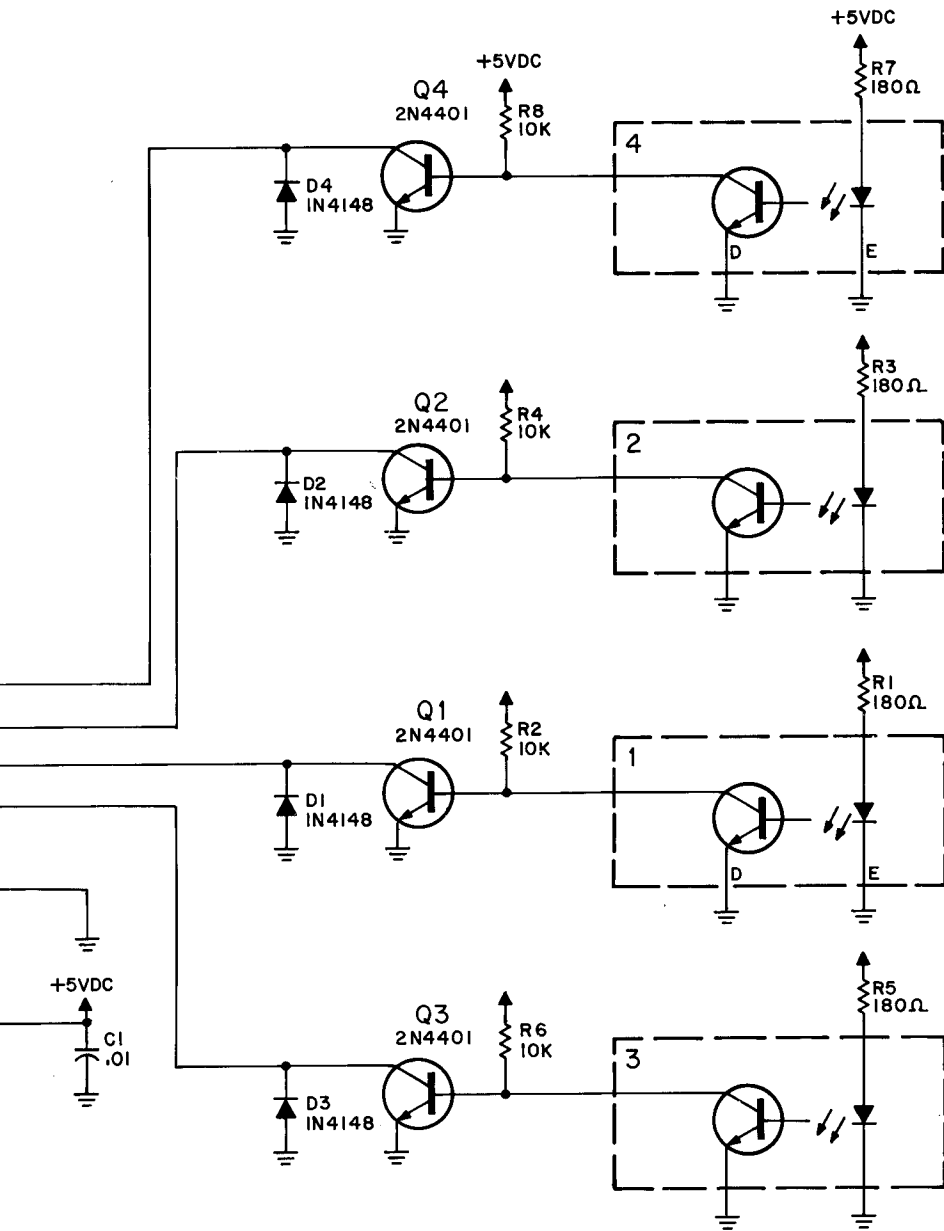
D-8784 Power Supply Board Schematic Diagram

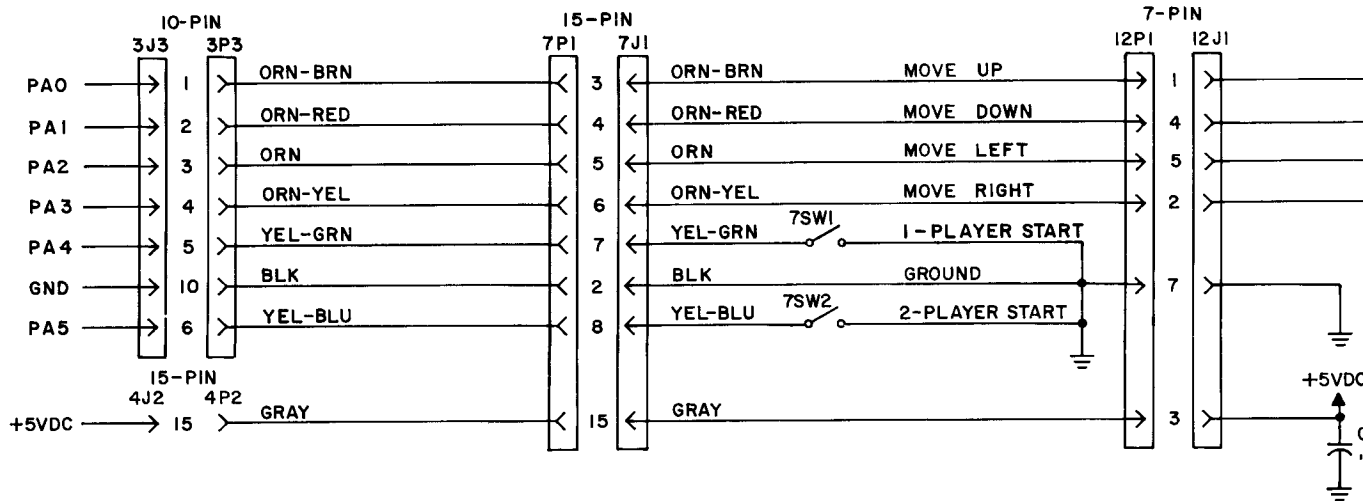
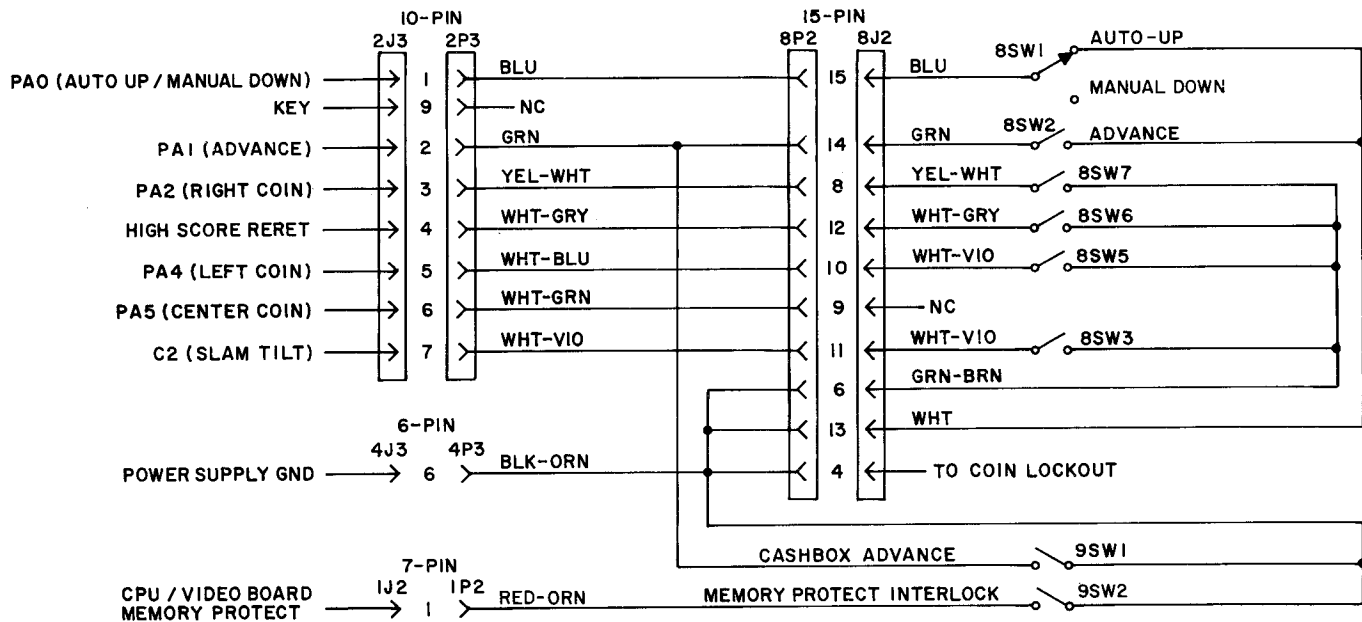
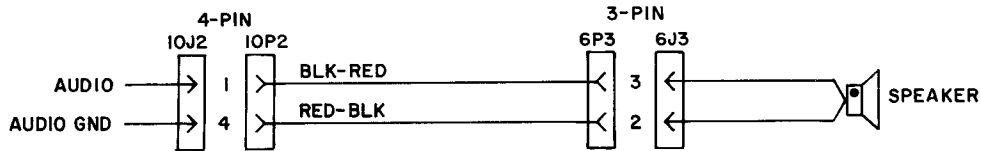
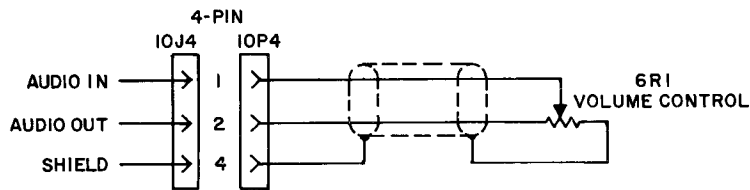


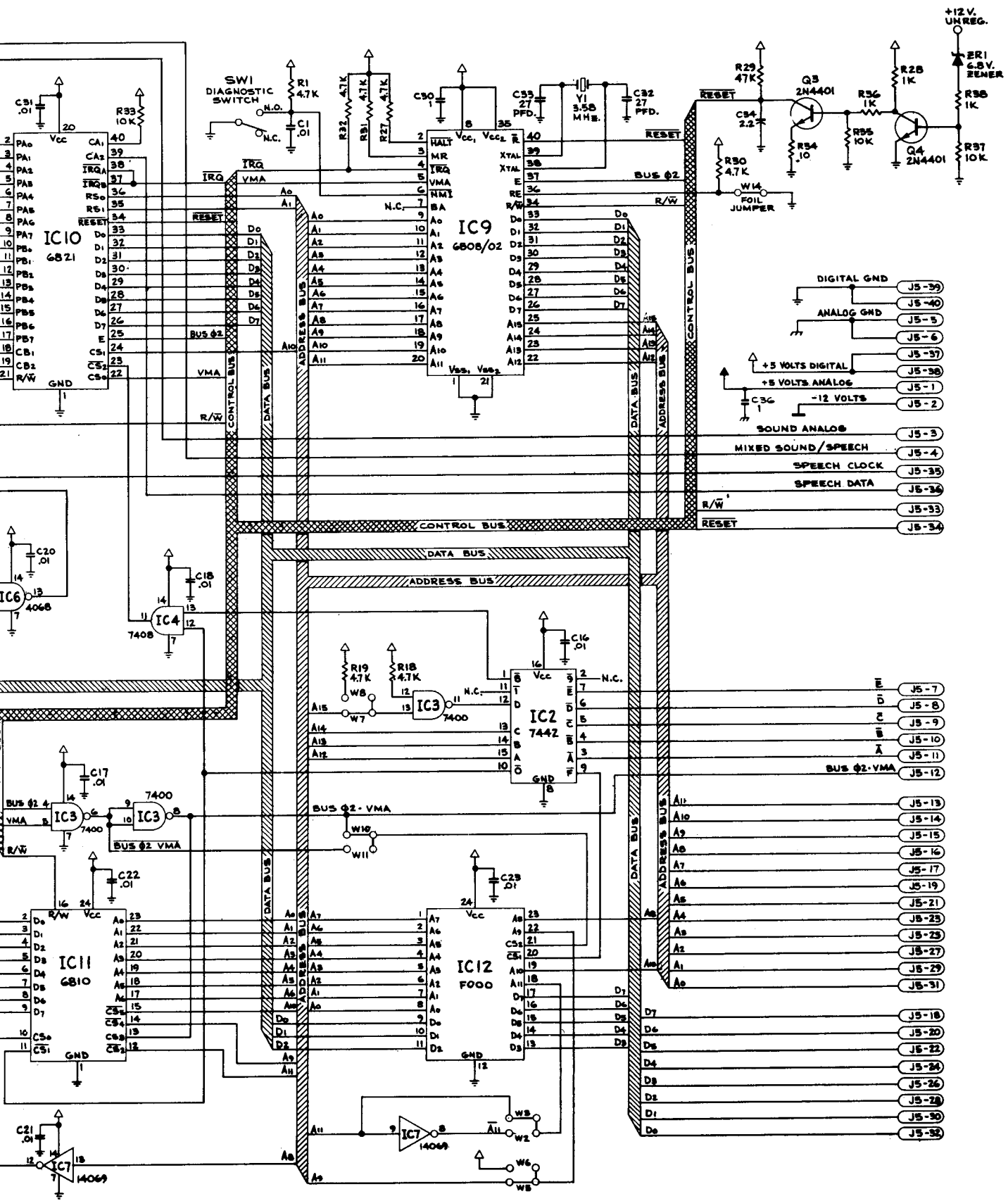


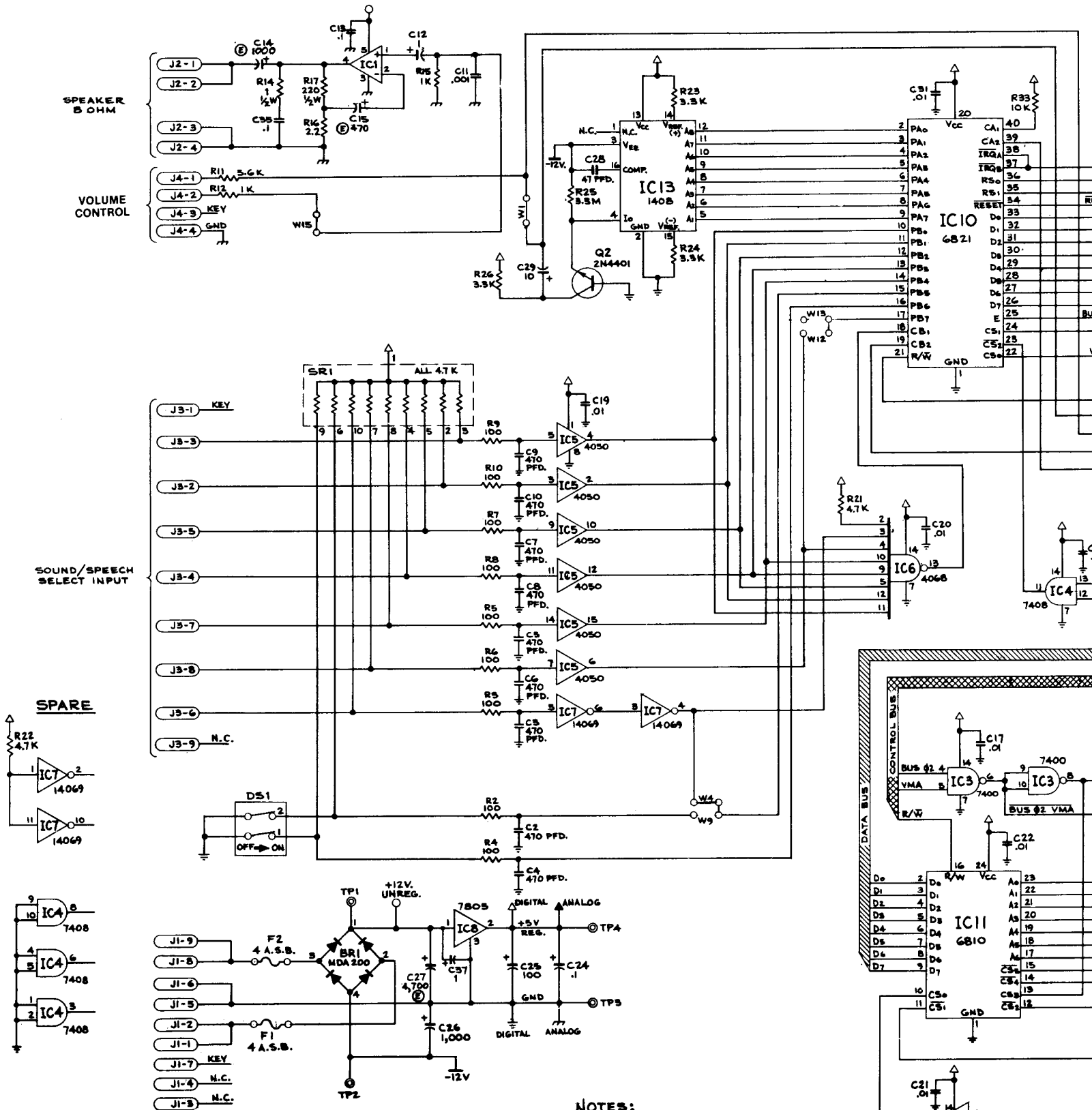
| BILL OF MATERIAL |                   |                  |                             |     |
|------------------|-------------------|------------------|-----------------------------|-----|
| ITEM NO.         | PART NO.          | PART DESIGNATION | DESCRIPTION                 | QTY |
| 1                | 5172<br>09870-00  |                  | BARE P.C BOARD              | 1   |
| 2                | 5070-<br>08919-00 | D1 THRU D4       | IN4148 DIODE                | 4   |
| 3                | 5010-<br>09034-00 | R2, R4, R6, R8,  | 10K 1/4W 5% RESISTORS       | 4   |
| 4                | 5010-<br>09168-00 | R1, R3, R5, R7,  | 180 Ω 1/4 W 5% RESISTORS    | 4   |
| 5                | 5160-<br>08938-00 | Q1, Q2, Q3, Q4   | 2N4401 TRANSISTORS          | 4   |
| 6                | 5490-<br>09821-00 | OPT. 1,2,3,4     | OPTO INTER. MODULE          | 4   |
| 7                | 5791-<br>09921-00 | J1               | 7 P RT. ANGLE HEADER        | 1   |
| 8                | 5010-<br>09534-00 | W1, W2,          | 0 OHMS RESISTORS            | 2   |
| 9                | 5043-<br>08980-00 | C1               | CAPAXIAL CER. .01 50V-80-20 | 1   |
| 10               |                   |                  |                             |     |

NOTE: DOT INDICATES COLLECTOR OF OPTO.



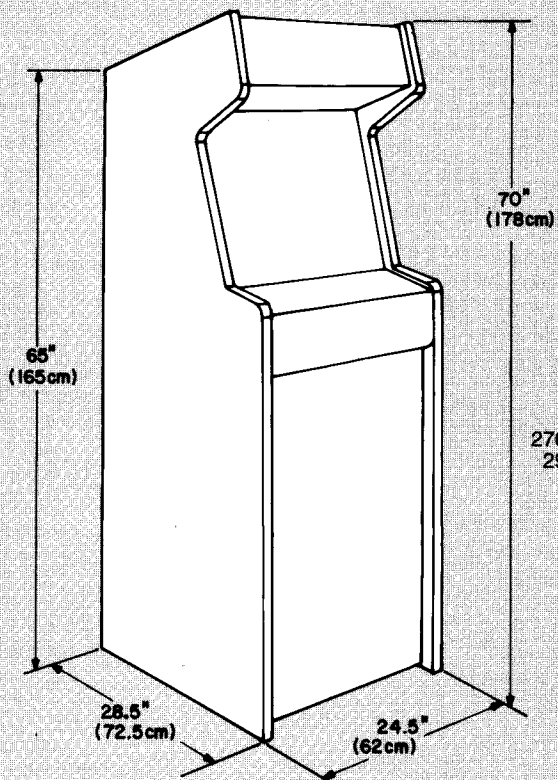






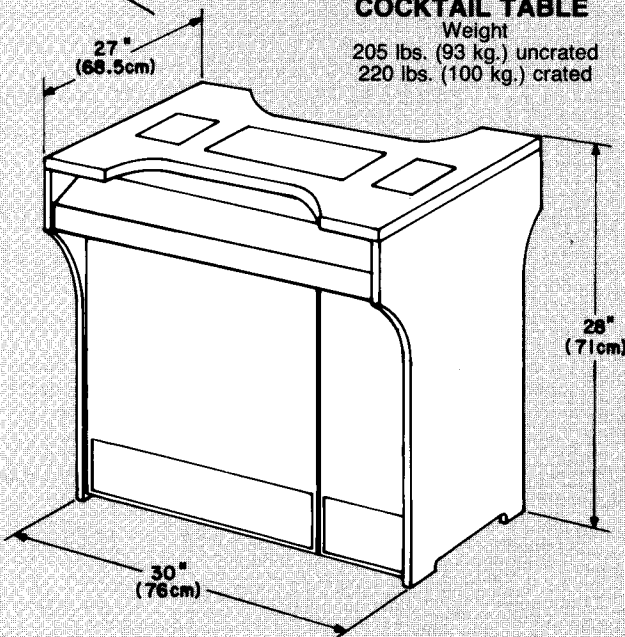
**NOTES:**

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



**UPRIGHT**

Weight  
270 lbs. (122.5 kg.) uncrated  
290 lbs. (131.5 kg.) crated



**COCKTAIL TABLE**

Weight  
205 lbs. (93 kg.) uncrated  
220 lbs. (100 kg.) crated

Mini-upright also available on special order.

**POWER REQUIREMENTS**

115/230VAC Nominal, 50/60Hz  
@1.7/0.85A 192W  
(20A surge for one cycle  
at power turn on)  
Normal Line=98-126VAC  
196-252VAC  
High Line\*=113-145 VAC  
226-290VAC  
Low Line\*=88-113VAC  
176-226VAC

\*Transformer jumpers required.  
See service manual.

**ENVIRONMENT**

Operating Temperature  
0° to +45°C ambient  
(+32° to +113°F)  
Storage Temperature  
-40° to +65°C ambient  
(-40° to +149°F)  
90% RH at 40°C (104°F), non-condensing

**MONITOR**

19" Color Raster\*  
non-interlaced  
UL, CSA & DHHS Approved  
\*13" monitor on mini-upright models

**VIDEO SYSTEM\*\***

256 Colors, 340 x 240 PIXEL Resolution  
6809E Microprocessor  
ROM: 48K BYTES  
Video and Scratch RAM: 50K BYTES  
CMOS RAM: 1Kx4

**SOUND SYSTEM\*\***

6808 Microprocessor  
ROM: 4K BYTES

**JOYSTICK**

8-way optical-digital

\*\*Patent pending

Specifications subject to change  
without notice.

**SERVICE**

For the back-up that keeps you out-front,  
call Williams toll-free at 800/621-1253.  
In Illinois, call toll-free at 800/572-1324.

**WARNING**

**Warning**—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been certified to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to correct the interference.

*Williams*   
**ELECTRONICS, INC.**  
3401 N. California Ave., Chicago, IL 60618  
(312) 267-2240, Telex 253095

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