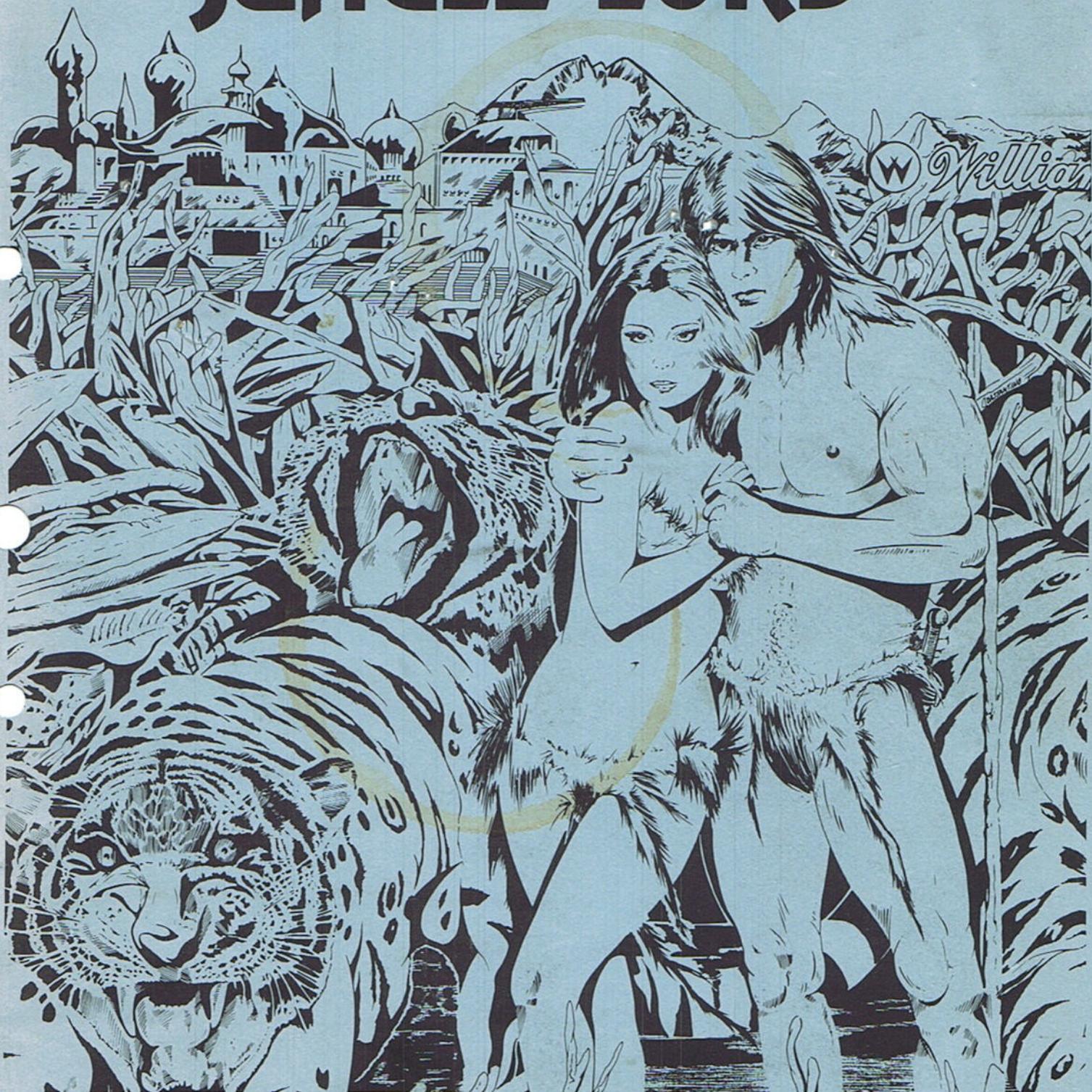


Williams®

16P-503-101  
Game No. 503  
April, 1981

# JUNGLE LORD



For service call TOLL-FREE:

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Williams®  
ELECTRONICS, INC.

3401 N. California Ave., Chicago, IL 60618

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## FOREWORD

This instruction and drawing set provides essential installation information unique to JUNGLE LORD. For game operation, bookkeeping, game adjustment, diagnostic and self-test and basic troubleshooting procedures, refer to the instruction booklet located in the envelope inside the coin door. For detailed troubleshooting and interconnection information, refer to Williams Solid State Flipper Maintenance Manual and Supplements.

### SPECIAL CONSIDERATIONS WHEN REPLACING CIRCUIT BOARDS

#### **CPU Board**

1. Revision level 7 CPU Boards (batteries located on lower left corner at board) or later boards must be used.
2. Must be equipped with blue-labeled Flipper ROMs and blue-labeled Game ROMs.
3. Jumpers W3, W10, W11, W14, W17, W19, W20, and W22 must be connected. Jumpers W4, W9, W12, W15, W16, W18, W21, and W23 must be removed. With the exception of W25, (Factory Setting Jumper) all other jumpers are not changed.

#### **Driver Board**

Either earlier model D 7997 or later model D 8341 boards may be used. When earlier boards are used, switch matrix series resistors R204 thru R211 must be zero-ohm or be replaced with wire jumpers. Later D 8341 boards do not use series resistors in the switch matrix.

#### **Sound Board**

1. D 8224 required for speech
2. Must be jumpered for white-labeled sound ROM operation and be equipped with Sound ROM 3. (Jumpers W2, W5, W7, W9, W10, W12, and W15 connected; W3, W4, W6, W8, W11, and W13 removed).

#### **Power Supply Board**

1. D 8345 board (equipped with relay) is required.
2. F4 (20A SB) for flipper solenoids and magnets must be installed.

#### **Display Boards**

Model C 8363 Master Display and 7-digit Slave Displays required.

#### **Optional Speech Module**

Requires ST5031 (IC7), ST5032 (IC5), and ST5033 (IC6) Speech ROMs.

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# JUNGLE LORD

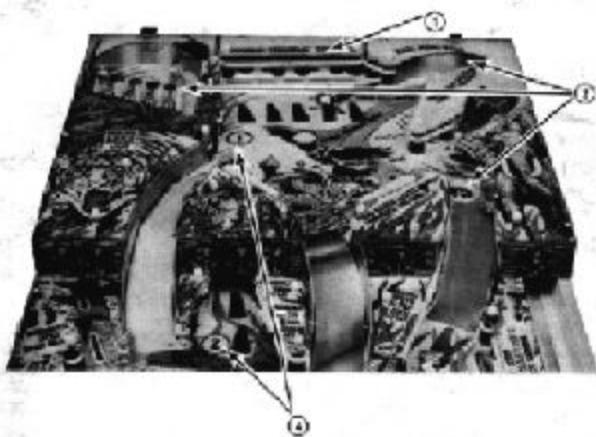
## SUMMARY OF FEATURES

In the Williams tradition, Jungle Lord is loaded with new features, both for player appeal and reliability. This summary sheet is provided to give you a better initial understanding of the game.

### PLAYER FEATURES

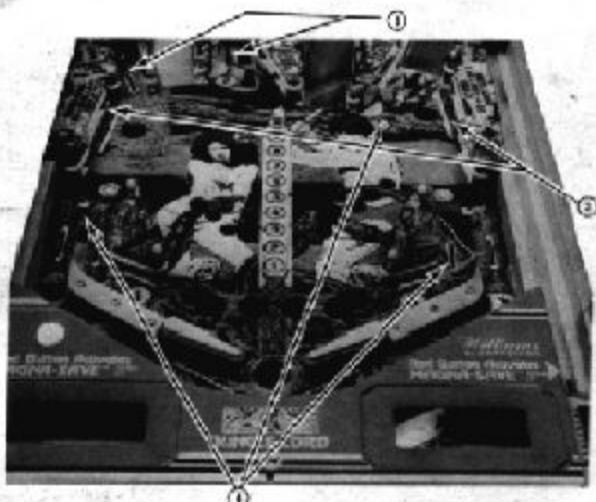
#### ① Double Trouble™ Scoring

The five bank drop targets located on the upper playfield start with one target showing. Hit that target and two targets appear; knock those down and three emerge, and on to four and then five. Demolishing the last sequence of five targets qualifies the player for **Double Trouble** scoring. A single target pops up; make it for 10,000 and **Double Trouble** targets pop up one at a time at random and must be hit within a certain time period before they drop. The first target hit collects 20,000 points, doubles to 40,000 for the second target, on to 80,000 for the third, to a maximum of 160,000. Any target not hit in time drops the scoring back to 10,000. For even more interesting playfield action, it is even possible to achieve 2X scoring with **Double Trouble**.



#### ② Multi-Ball™ Play

The mini-playfield with a captive mini-ball and four lanes spell out LORD. Making one of the two upper playfield eject holes kicks the mini-ball out to roll down one of the four lanes lighting a letter in LORD. Going down the #4 inside rollover lights the red arrow at the bottom of the right ramp; going up the ramp into the eject hole gives two kicks on the mini-playfield. Completing a lower playfield 3-bank (adjustable) also spots a letter in LORD. When LORD is completely lit, **Multi-Ball** play is enabled. A shot to either of the two top playfield eject holes locks up the ball in play. A second ball is released to be shot onto the playfield. As soon as the second ball is shot, the eject hole releases the locked up ball for 2-ball, 35 second (adjustable) **Multi-Ball** play. Should one of the two balls drain with time left, then another shot to the eject hole will kick out the drained ball for more **Multi-Ball** shooting time. Completely re-lighting LORD during **Multi-Ball** play scores Special.



#### ③ Magna-Save™ Feature

Hitting any drop target on the lower level banks will light timer lights for the **Magna Save** feature. Build up to five time units on each side of the playfield for use in saving draining balls. Players direct the number of seconds used for **Magna Save** via the left and right red control buttons forward of the flipper control buttons for spectacular playfield saves.

#### ④ 2X Scoring

Hitting the variously placed number targets and rollovers clearly marked 1, 2, 3, 4, and 5 with one ball gives a shooter double scoring for the remainder of that ball's play.

#### ⑤ Bonus X and Drain Shield

The inside bottom rollover lanes, marked 4 and 5, light the timed green arrow located in front of the turnaround for bonus multiplier. Making the turnaround shot within a certain period of time collects 2X, 3X, 5X to 10X. When 10X is made, if the ball rolls down either rollover lane again, the amber arrow in front of the horseshoe is lit and that spots the left or right drain shield. Whenever the drain shield is lit and the ball drains on the lit side, the ball is returned to the shooter and play continues. Making the horseshoe through the difficult left entrance shot gives a player an automatic drain shield.

## TECHNICAL FEATURES

### Drop Targets

5-Bank targets are individually reset and simultaneously released similar to Alien Poker drop targets to allow drop target memory. 3 Bank targets are similar to those used in Black Knight. Both types of target banks use blade-type switches that remain closed with the target down.

### Ball Ramp Mechanism

For the 2-Ball **Multi-Ball** feature, microswitches are used on the ball ramp. These switch mechanisms are essentially adjustment-free and will provide problem-free operation.

### Lower Flippers Hotter

The power for the upper playfield flippers is routed through the lower flipper EOS switches. No power to an upper flipper until the lower flipper EOS switch opens means stronger lower playfield flippers. Power for the upper flippers is in series with the low-impedance lower flipper pull-in winding, providing weaker action appropriate to the small upper playfield.

### New Design Power Supply Board

The fuse card is gone; the Special "BLACKOUT" relay is mounted on the board. General illumination 6.3 VAC is routed through the Power Supply.

### Driver Board

As in Black Knight, complex playfield features result in numerous closed switches. This requires that the switch matrix column drive series resistors (R204 thru R211) on the Driver Board be replaced with zero-ohm resistors or jumpers.

## PLAY ADJUSTMENTS

Function 31 - **Multi-Ball** timer - Continuously adjustable from 15 to 99 seconds. Adjusting the timer affects average ball time and the difficulty of winning a special. The factory recommended setting is 35 seconds.

Function 32 - Special Difficulty - The moderate factory setting of 00 allows letters in LORD to be spotted during **Multi-Ball** play by completing a 3-bank, with the conservative 01 setting, letters in LORD are spotted only from the mini-playfield during **Multi-ball** play.

Function 33 - **Double Trouble** timing - This adjustment controls the time a player has to make the **Double Trouble** drop target before it is released. Setting it to a higher number results in increased player scores; a lower setting in decreased player scores.

Function 34 - **Double Trouble** reset timing (0-99) - This adjustment controls the "penalty" time before a target is reset when not made before it is released during a **Double Trouble** scoring sequence.

Function 35 - **Multi-Ball** play difficulty - With conservative 01 setting, the last letter in LORD cannot be spotted by completing a 3-bank of drop targets. This will make achieving **Multi-Ball** play more difficult.

Assembly and Interconnection

With legs attached to cabinet and backbox positioned face-down on top of cabinet with the opening facing the rear of the cabinet proceed as follows:

- A. Pull five cables from backbox.
- B. Reach into right side of pedestal hole, pull up ground strap, and push it into backbox.
- C. Remove ties securing cabinet and playfield cables to cabinet and pull up these cables.
- D. Interconnect five cables. They are size and color coded.
- E. Insert line cord into notch in cabinet. DO NOT PLUG IN AT THIS TIME.
- F. Push remote volume control cable, White-Red solenoid ground cable, and transformer cable (terminated with four plugs) into backbox.
- G. Lift up backbox and position on cabinet pedestal, engaging brackets for support.
- H. Remove shipping blocks from insert door.
- I. Secure backbox to cabinet using two bolts and washers.
- J. Connect ground braid and White-Red wires under wing nut and washer at bottom of backbox.
- K. Loosely position remote volume cable and Sound Board power cable in harness and plug connector into 10J4 and 10J1, respectively.
- L. Connect bridge rectifier connector 6P1/6J1, and plug remaining two transformer connections into 3J1 and 3J9 on the Power Supply Board.

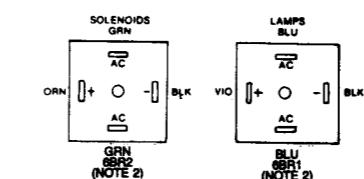
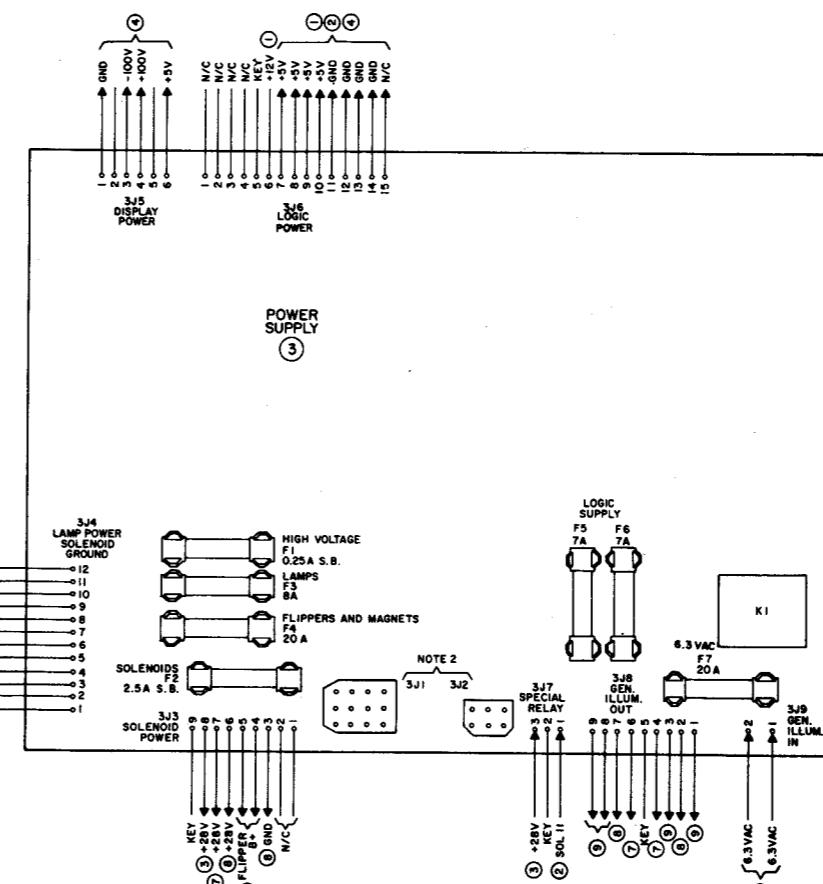
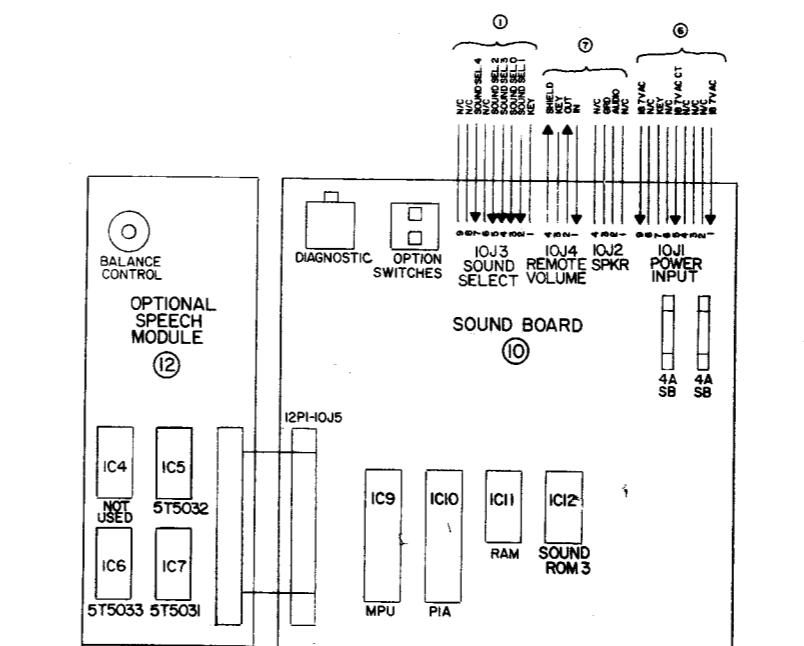
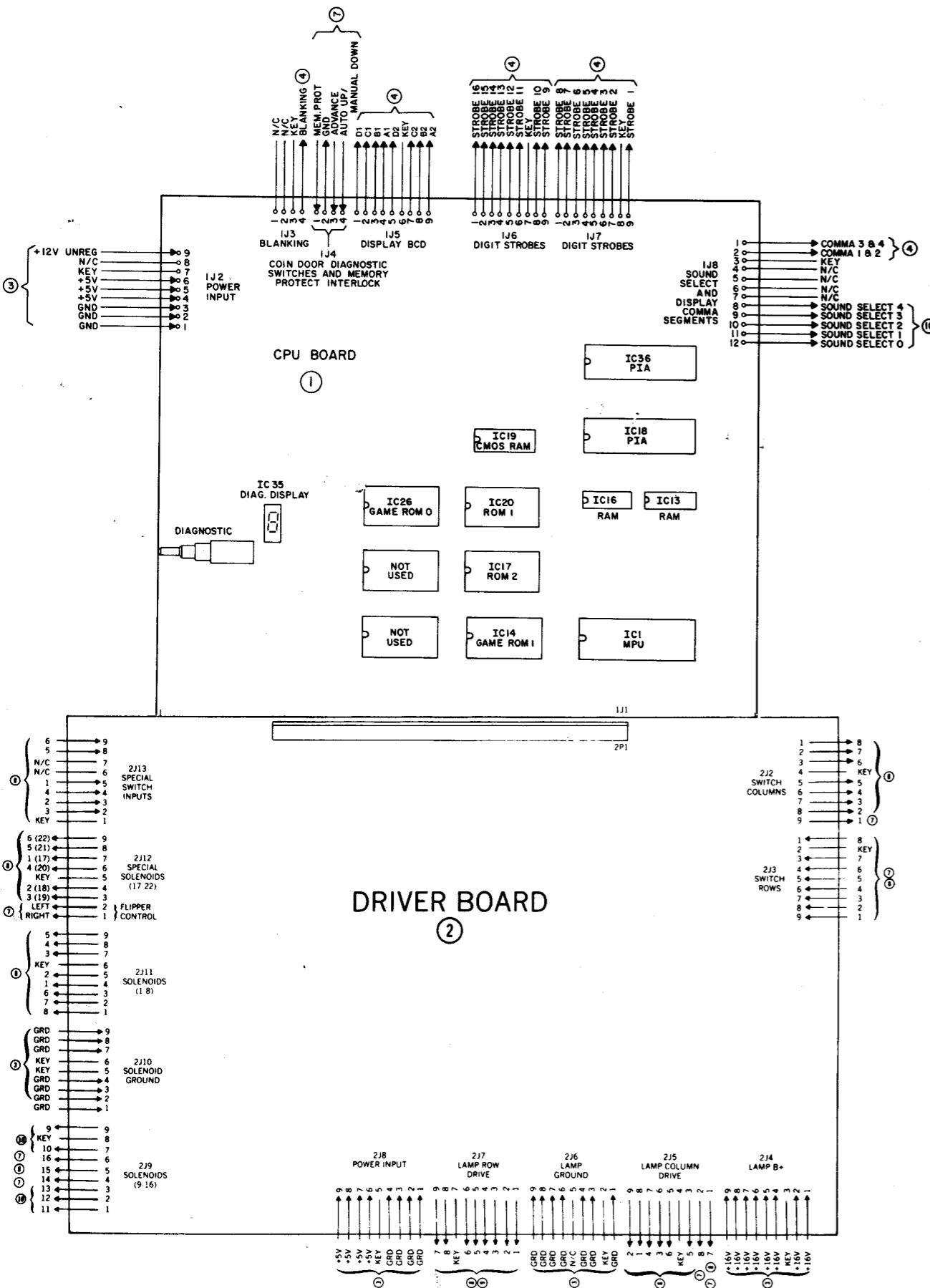
Inspection

- A. Check all connectors in backbox for loose wire termination. Reseat any loose wires by pushing in on the terminal.
- B. Push on all connectors attached to Master Display, CPU, Driver, and Sound Boards, and check terminations on capacitor and bridge rectifier at the lower right of the backbox.
- C. Gently press on all the socketed IC packages on the CPU and Sound Boards.
- D. Check that two fuses on the Sound Board, seven fuses on Power Supply Board, and two fuses on Insert Board are secure.
- E. Push on the connector attached to Slave Display Boards.
- F. Check that the line fuse in the bottom of the cabinet is secure.
- G. Check the transformer input connector in bottom of cabinet for loose wire termination. Reseat any loose wires by pushing in on the termination.
- H. Check the cabinet to coin door connector for lose wire termination. Reseat any loose wires by pushing in on the termination.

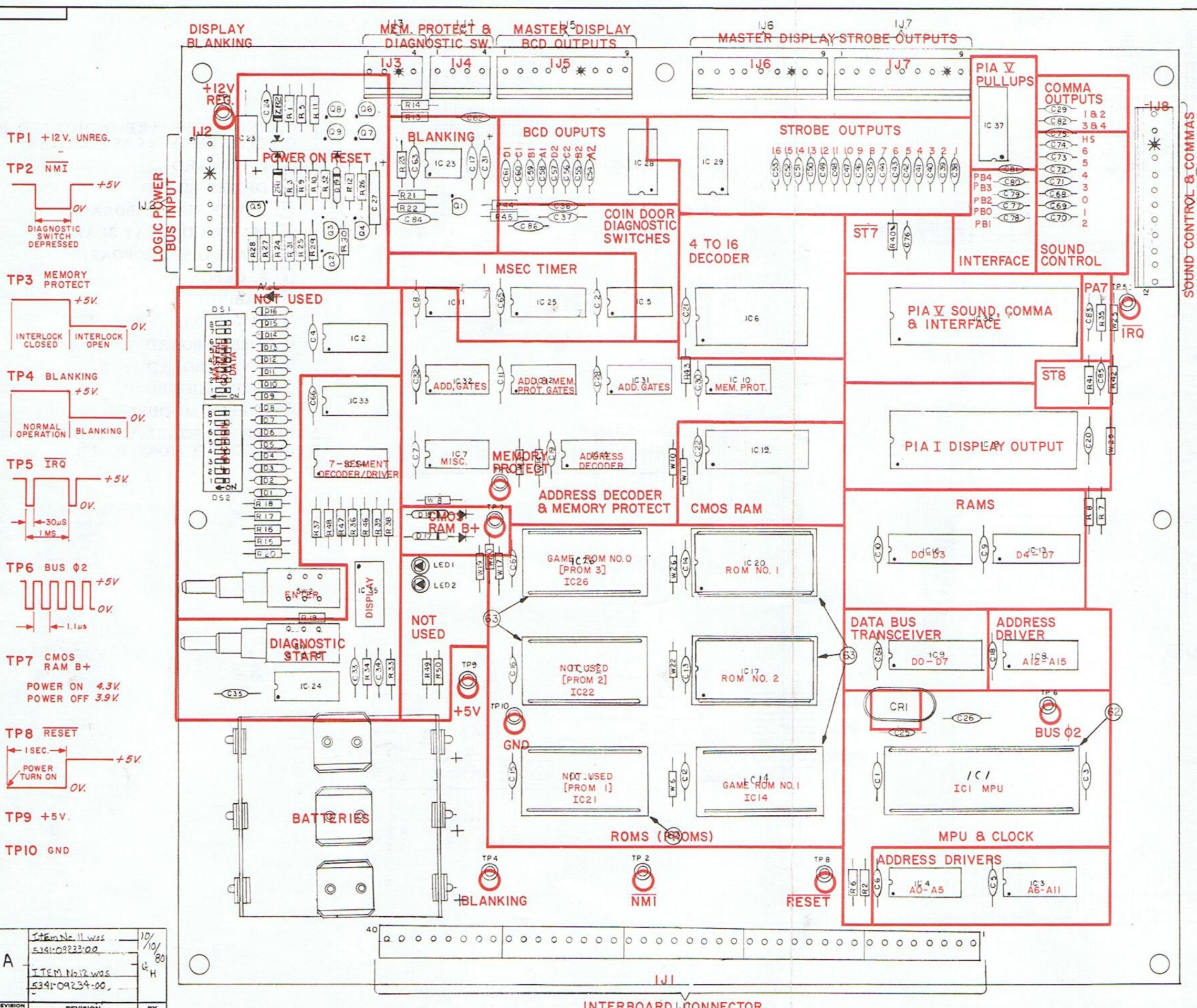
#### Power Turn-On and Game Setup

This machine MUST BE PLUGGED INTO A PROPERLY GROUNDED OUTLET to PREVENT SHOCK HAZARD to ensure PROPER GAME OPERATION. DO NOT use a "cheater" plug to defeat the ground pin on the line cord, and DO NOT cut off the ground pin. The line voltage MUST agree with that specified on the back of the cabinet or serious damage to the machine could occur. For low-line applications (105 or 210V ac), refer to the power wiring diagram.

1. With the coin door closed, plug the game in and turn it ON. The game should come on in the game over mode as indicated by the player 1 score reading zero, game over lights lit, and the high score to date alternating with the player scores.
2. If the game comes on in the diagnostic mode (number of credits display showing 04, ball in play display showing 00, and player 1 display showing game identification) turn the game OFF and ON again.
  - a. If the game now comes on in the game over mode the bookkeeping and game evaluation totals have been reset to zero.
  - b. If the game still comes on in the diagnostic mode, open the coin door and turn the game OFF, and ON twice. This is an indication of the batteries being removed with the power OFF or coming loose during shipment. This has also resulted in features reverting to factory settings. Any changes from factory settings must be reentered using procedures provided in the instruction booklet.
3. If the game still comes on in the diagnostic mode, refer to troubleshooting procedures in the maintenance manual.
4. Insert mini-ball through opening in plastic at the upper left corner of the upper playfield and place two balls on playfield next to outhole.
5. Perform diagnostic tests and make any desired changes to features as described in the instruction booklet.



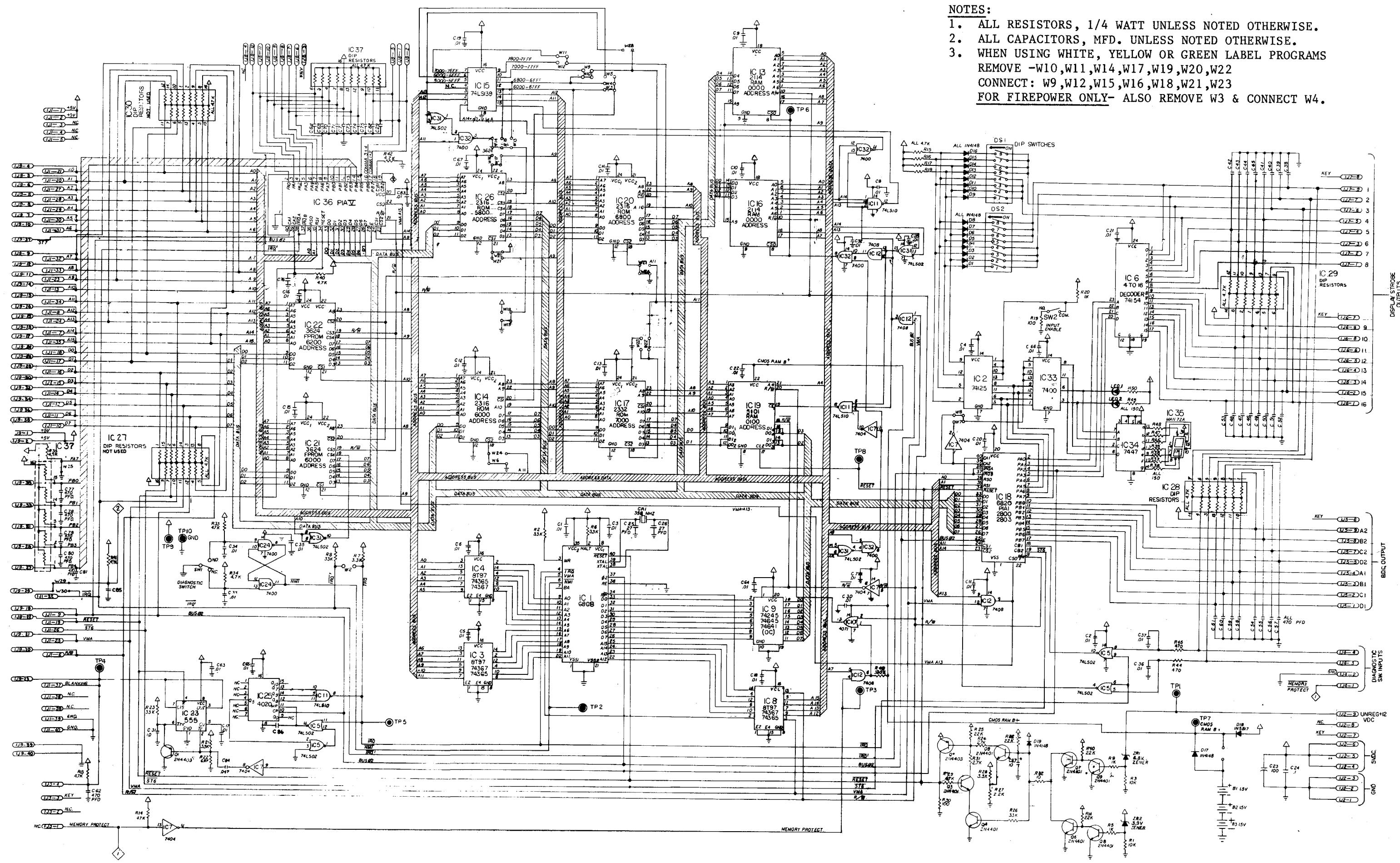
- NOTES:**
1. CONNECTIONS ARE INDICATED BY CIRCLED NUMBERS AS FOLLOWS:
    - (1) CPU BOARD
    - (2) DRIVER BOARD
    - (3) POWER SUPPLY BOARD
    - (4) MASTER DISPLAY BOARD
    - (5) SLAVE DISPLAY BOARD
    - (6) BACKBOX
    - (7) CABINET
    - (8) PLAYFIELD
    - (9) INSERT BOARD
    - (10) SOUND BOARD
    - (11) NOT ASSIGNED
    - (12) SPEECH MODULE
  2. REFER TO POWER WIRING DIAGRAM FOR CONNECTIONS TO 3P1.



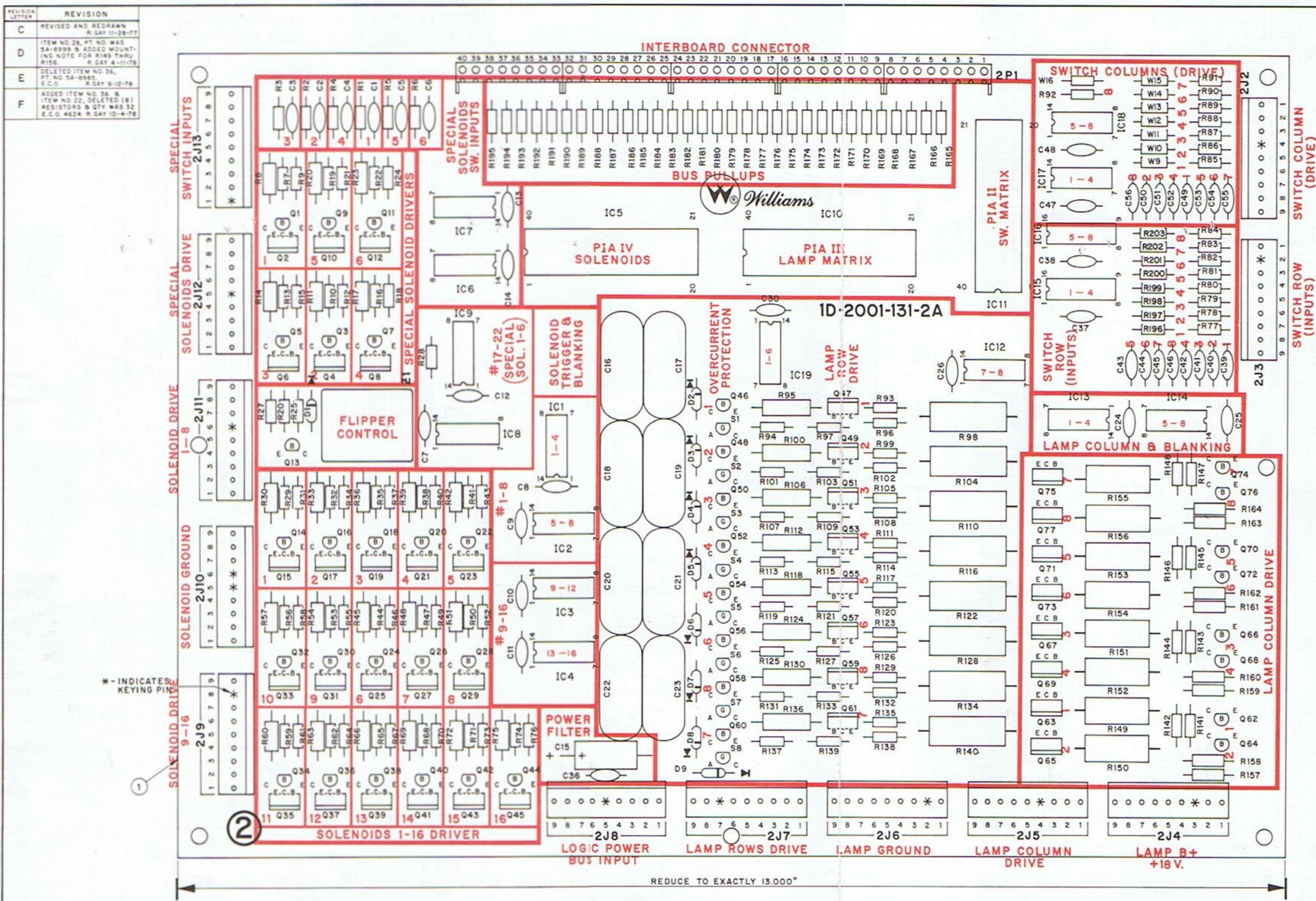
BILL OF MATERIAL				
ITEM NO.	PART NO.	PART DESIGNATION	DESCRIPTION	RECD NO.
1	5764-09465-X0		BARE PC. BOARD CPU	1
2	5280-09408-X0	-IC2	74125 HEX TRISTATE BUFFER	1
3	5370-08989-00	IC3,IC4,IC8	8T97 HEX. TRISTATE BUFFER	3
4	5281-09308-X0	IC9	74LS245 OCTAL BUFFER	1
5	5280-09010-00	IC6	74154 4 TO 16 DECODER	1
6	5280-09013-00	IC7	7404 HEX INVERTER	1
7	5281-09235-00	IC11	74LS10 TRIPLE 3. INVERTER	1
8	5280-08973-00	IC12	7408 QUAD AND	1
9	5340-09409-X0	IC13,IC16	2114-45 1K X4 STATIC RAM	2
10	5281-09246-00	IC15	74LS139 DUAL 2 TO 4 LINE DECODER	1
11	5341-09553-00	IC20	ROM 2K X8 LOWER	1
12	5241-09554-00	IC17	ROM 4KX8 UPPER	1
13	5430-08972-00	IC18,IC36	MC6821PIA	2
14	5340-09017-00	IC19	MC5101GMOS RAM	1
15	5431-09449-00	IC23	MC1455PI TIMER	1
16	5280-09073-00	IC24,IC32,IC33	7400 QUAD 2 INPUT NAND	3
17	5310-09236-00	IC25	4020 CMOS 14 BIT COUNTER	1
18	5310-09237-00	IC10	4071 CMOS QUAD 2 INPUT NOR	1
19	5281-09247-00	IC5,IC31	74LS02 QUAD 2 INPUT NOR	2
20	5280-09407-X0	IC34	7447 BCD TO 7 SEG LED DISP	1
21	5671-09411-00	IC35	MAN72A 7 SEG LED DISP	1
22	5010-09238-00	IC28,IC29	13 DIPRES./PACK 4.7K OHM	2
23	5010-09223-00	IC37	15 DIPRES./PACK 10K OHM	1
24	5645-09025-00	DS1,DS2	8 STO DIP SWITCHES	2
25	5075-09018-00	ZR1	IN5996 ZENER DIODE 6.8V	1
26	5075-09059-00	ZR2	IN5990 ZENER DIODE 3.9V	1
27	5020-08919-00	D1-D17,D19	IN4148 DIODE	18
28	5160-08938-00	Q3-Q9	2N4401 NPN TRANSISTOR	7
29	5010-09016-00	Q1,Q2	2N4403 PNP TRANSISTOR	2
30	5070-09266-00	D18	IN5817 DIODE	1
31	5520-09020-00	CRI	CRYSTAL 3.58 MHZ	1
32	5010-09358-00	R5,R9,R20	RESISTOR FC 1K OHM 5% 1/4W	3
33	5010-08983-00	R2,R6-R8,R21,R28	RESISTOR FC 3.3K OHM 5% 1/4W	6
34	5010-08991-00	R13-R18,R29	RESISTOR FC 4.7K OHM 5% 1/4W	13
35	5010-09086-00	R33-R35,R40-R42	RESISTOR FC 6.8K OHM 5% 1/4W	1
36	5010-09036-00	R19,R30	RESISTOR FC 100 OHM 5% 1/4W	2
37	5010-09187-00	R36-R39,R46-R50	RESISTOR FC 150 OHM 5% 1/4W	9
38	5010-09113-00	R23,R26	RESISTOR FC 33K OHM 5% 1/4W	2
39	5010-09084-00	R1,R3,	RESISTOR FC 10K OHM 5% 1/4W	2
40	5010-09241-00	R25,R32,R10,R11	RESISTOR FC 22K OHM 5% 1/4W	4
41	5010-08998-00	R27	RESISTOR FC 2.2K OHM 5% 1/4W	1
42	5010-09039-00	R12	RESISTOR FC 10 OHM 5% 1/4W	1
43	5010-09442-00	R43	RESISTOR FC 330K OHM 5% 1/4W	1
44	5010-08997-00	R24,R31	RESISTOR FC 27K OHM 5% 1/4W	2
45	5010-09083-00	R44,R45	RESISTOR FC 470 OHM 5% 1/4W	2
46	5043-08980-00	C1-C22,C28,C30	CAPACITOR CERAMIC 10MF 50V	36
		C32-C37,C63-C67		
		C83		
47	5040-08986-00	C23	CAPACITOR ELECT. 100 MFD 10V	1
48	5043-08995-00	C24	CAPACITOR CERAMIC 1 MF 50V	1
49	5043-09169-00	C25,C26	CAPACITOR CERAMIC 27 PFD 1KV	2
50	5041-09243-00	C27	CAPACITOR TANT. 10 MFD 10V	1
51	5041-09031-00	C31	CAPACITOR TANT. 1MF 25V	1
52	5043-09030-00	C84	CAPACITOR CERAMIC 0.47MF 50V	1
53	5043-09065-00	C29,C38-C62	CAPACITOR CERAMIC 470PFD 50V	43
		C65-C82,C85,C86		
54	5671-09019-00	LED1,LED2	LED RED	2
55	SEE NOTE	SW1,SW2	SWITCH MOMENTARY	2
56	5881-09021-00		BATTERY HOLDER #171	1
57	5791-09026-00	IJ1	HEADER 09-64-1083 8 PIN	5
58	5791-09028-00	U3,IJ4	HEADER 09-65-1041 4 PIN	2
59				
60	5791-09027-00	IJ2,IJ5-IJ7	HEADER 09-65-1091 9 PIN	4
61	5791-09043-00	IJ8	HEADER 09-65-1121 12 PIN	1
62	5700-08985-00		40 PIN IC SOCKET	1
63	5700-09004-00		24 PIN IC SOCKET	6
64	5010-09534-00	W3,W6,W8,W10,W11, W15,W17,W19,W20, W25,W26,W29,W22	RESISTOR FC 0 OHM 1/4W	13
65	5824-09248-00	TP1-TP10	TEST TERMINALS #1502-1	10

NOTE: USE EITHER 5641-09312-00, 5641-09024-00 OR 5641-09371-00

TOLERANCES				GTY.	ASSEMBLE ON
UNLESS OTHERWISE SPECIFIED					
FRACTIONAL	.01/.04"				
DECIMAL	.0008"				
ANGLE	+ .008° - .000°				
SCREW SIZE					
REGULAR	.517"				
CONCENTRICITIES	V.I.R. .008"				
CREW THREADS	CLASSE 2				
WILLIAMS ELECTRONICS, INC. MANUFACTURERS OF PINBALL EQUIPMENT 3401 N. CALIFORNIA CHICAGO, ILL. 60618 267-2240					
NAME		PIN BALL CPU SUB-ASSEMBLY			
MATERIAL		HEAT TREATMENT		FINISH	
D. HOBBS		DATE 9-20-80		APP'D. D-8342	



## *CPU Board Logic Diagram*



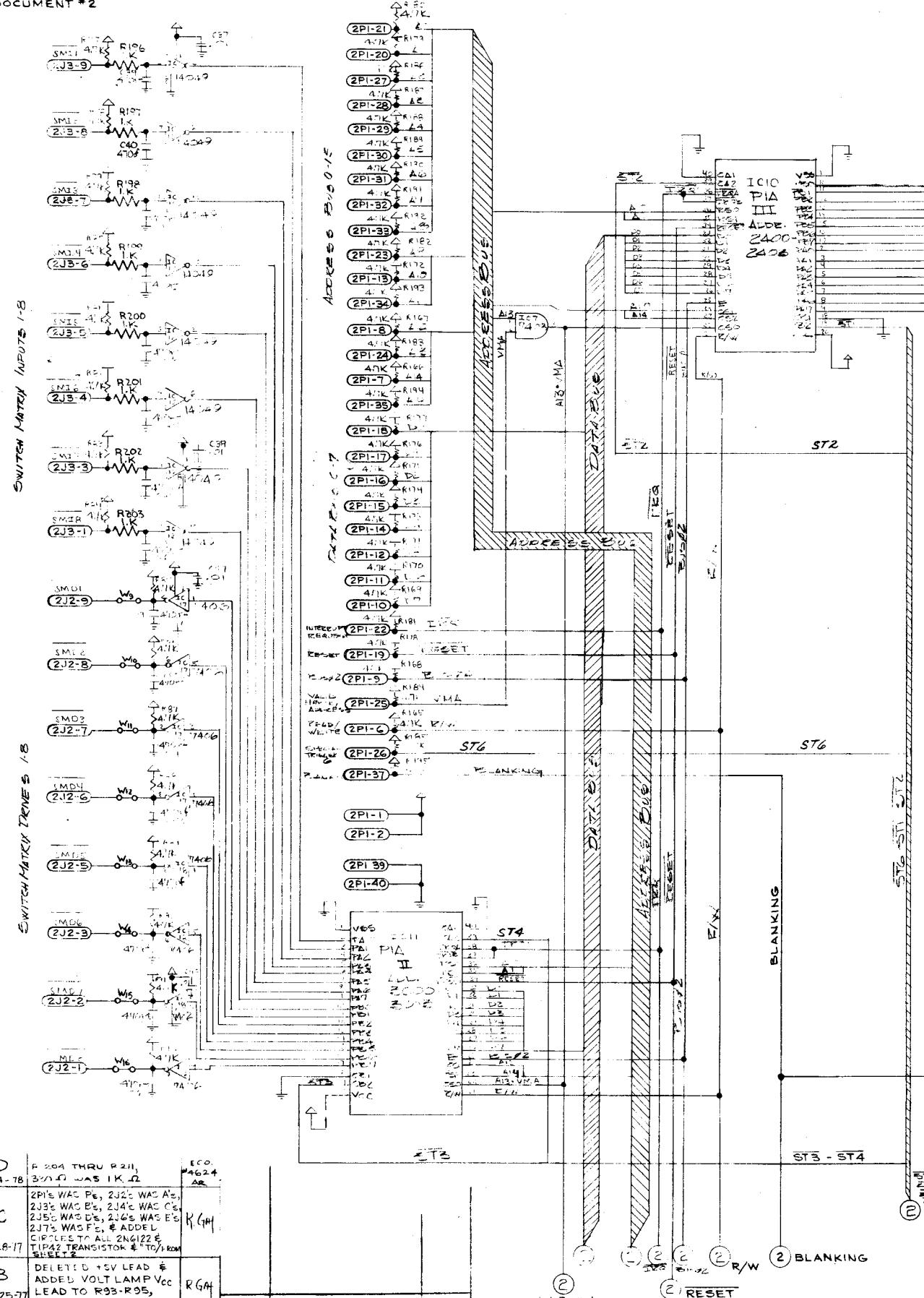
BILL OF MATERIAL			
ITEM NO.	PART NO.	PART DESIGNATION	DESCRIPTION
1	1B-2001-131	BARE P.C. BOARD	1
2	5A-8948	IC8, IC9	N7403 QUADRUPLE 2 INPUT POSITIVE NOR GATE
3	5A-8974	IC12, IC17, IC18, IC19	N7406 HEX INVERTER BUFFER DRIVERS W/ OPEN COLLECTOR HIGH VOLTAGE OUTPUTS
4	5A-8973	IC1 THRU IC4, IC6, IC7, IC13, IC14	N7408 QUADRUPLE 2 INPUT POSITIVE AND GATE BUFFER
5	5A-8975	IC15, IC16	MC1409 INVERTING HEX BUFFER
6	5A-8972	MC6820 PERIPHERAL INTERFACE ADAPTER	3
7	5A-8938	Q1, Q3, Q5, Q7, Q9, Q11, Q13, Q15, Q16, Q18, Q20, Q22, Q24, Q26, Q28, Q29, Q31, Q33, Q35, Q37, Q39, Q41, Q43, Q45	2N4401 NPN TRANSISTOR
8	5A-8976	Q4, Q48, Q50, Q55, Q54, Q56, Q58, Q60, Q62, Q64, Q66, Q68, Q70, Q72, Q74, Q76	2N6427 DARLINGTON NPN TRANSISTOR
9	5A-8977	Q2, Q4, Q6, Q8, Q10, Q12, Q14, Q16, Q19, Q21, Q25, Q27, Q29, Q31, Q33, Q35, Q37, Q39, Q41, Q43, Q45	TIP32 DARLINGTON NPN POWER TRANSISTOR
10	5A-8978	Q5, Q65, Q67, Q69, Q71, Q73, Q75, Q77, Q79	TIP42 PNP POWER TRANSISTOR
11	5A-8979	Q47, Q49, Q51, Q53, Q55, Q57, Q59, Q61	2N6122 NPN POWER TRANSISTOR
12	5A-6268	D1	IN4001 DIODE
13	5A-8919	D2 THRU D9	IN4148 DIODE
14	5A-9014	S1THRU S8	2N5060 SCR
15	5A-8980	C1 THRU C14, C24, C30, C30, C37, C38, C47, C48	CAPACITOR, CERAMIC, 101 MFD. +80-20% 50 V.
16	5A-8995	C16 THRU C23	CAPACITOR, POLYESTER FILM, 1 MFD. 10%
17	5A-9065	C37 THRU C46, C49 THRU C56	CAPACITOR, CERAMIC, 470 PFD. 20% 50 V.
18	5A-8986	C15	CAPACITOR, ELECT., 100 MFD. 10 V.
19	5A-8996	C36	CAPACITOR, CERAMIC, 1 MFD. +80-20% 50 V.
20	5A-8991	R1 THRU R6, R27, R27 THRU R92, R157 THRU R195	RESISTOR, FC, 4.7K OHM 10% 1/4W
21	5A-8983	R27	RESISTOR, FC, 3.3K OHM 10% 1/4W
22	5A-8984	R96, R97, R102, R105, R108, R111, R114, R117, R121, R122, R126, R127, R132, R133, R136, R139, R196 THRU R203	RESISTOR, FC, 1K OHM 10% 1/4W
23	5A-8992	R7, R10, R13, R16, R19, R22, R29, R32, R35, R38, R41, R44, R47, R50, R53, R56, R59, R62, R65, R68, R71, R74	RESISTOR, FC, 560 OHM 10% 1/4W
24	5A-8993	R8, R11, R14, R17, R20, R23, R30, R33, R36, R39, R42, R45, R48, R51, R54, R57, R60, R63, R66, R72, R75	RESISTOR, FC, 68 OHM 10% 1/2W
25	5A-8997	R9, R12, R15, R18, R21, R24, R25, R31, R34, R37, R40, R43, R47, R49, R52, R55, R58, R61, R64, R67, R70, R73, R76	RESISTOR, FC, 2.7K OHM 10% 1/4W
26	5A-8817	R26	RESISTOR, FC, 10 K OHM 10% 1/4W
27	5A-8998	R141 THRU R148	RESISTOR, FC, 2.2K OHM 10% 1/4W
28	5A-8999-1	R149 THRU R156	RESISTOR, FC, 27 OHM 10% 2W
29	5A-9084	R95, R100, R105, R111, R116, R124, R130, R136	RESISTOR, FC, 100 OHM 10% 3W
30	5A-9085	R93, R99, R105, R111, R117, R125, R133, R135	RESISTOR, FC, 1.5K OHM 10% 1/4W
31	5A-9086	R94, R101, R107, R119, R125, R131, R137	RESISTOR, FC, 6.8K OHM 10% 1/4W
32	5A-9037	R98, R104, R110, R116, R122, R125, R134, R142	RELAY, WIREWOUND, .4 OHM 10% 3 WATT
33	5A-8994	Z1	RELAY, 4 POLE - 5 AMP. CONTACTS 40 OHM COIL 6 V.D.C.
34	5A-9066	2P1	8 PIN RECEPTACLE
35	5A-9027	2J2 THRU 2J13	9 PIN HEADER
36	5A-2534	W9 THRU W16	RESISTOR, FC, 0 OHM, 1/4W

\* R149 THRU R156 MUST BE MOUNTED  $\frac{1}{8}$ " ABOVE SURFACE OF BOARD.

WILLIAMS ELECTRONICS, INC.			
SUBSIDIARY OF XCOR CORPORATION			
3401 N. CALIFORNIA CHICAGO, ILL. 60618 CORNELIA 7-2240			
PART NAME: DRIVER BOARD ASSEMBLY			
OWN.	DATE	APPRO.	SCALE
R. Gay	8-16-77	i	2+1
PART NO. D-7997			

16-7997

DOCUMENT #2



D  
10-4-78  
F 204 THRU R211,  
300Ω WAS 1K .02  
ECO# 4624  
ARC

C  
10-28-77  
DELETED +5V LEAD &  
ADDEL VOLT LAMP Vcc  
LEAD TO R93-R95,  
R99-R101, R106-R107,  
R111-R112, R117-R119, R122-  
R125, R124-R131 & R135-R137  
K/H

B  
B-25-77  
REMOVED +5V LEAD &  
ADDEL VOLT LAMP Vcc  
RGA

A  
9-16-77  
REDUCE POWER  
SUPPLY CURRENT  
DLP

REVISION LETTER

REVISION

BY

TO / FROM SHEET 2

RESET

R/W

BLANKING

ST3 - ST4

ST1 - ST2

ST3

ST4

ST5

ST6

ST7

ST8

ST9

BLANKING

ST5

ST6

ST7

ST8

BLANKING

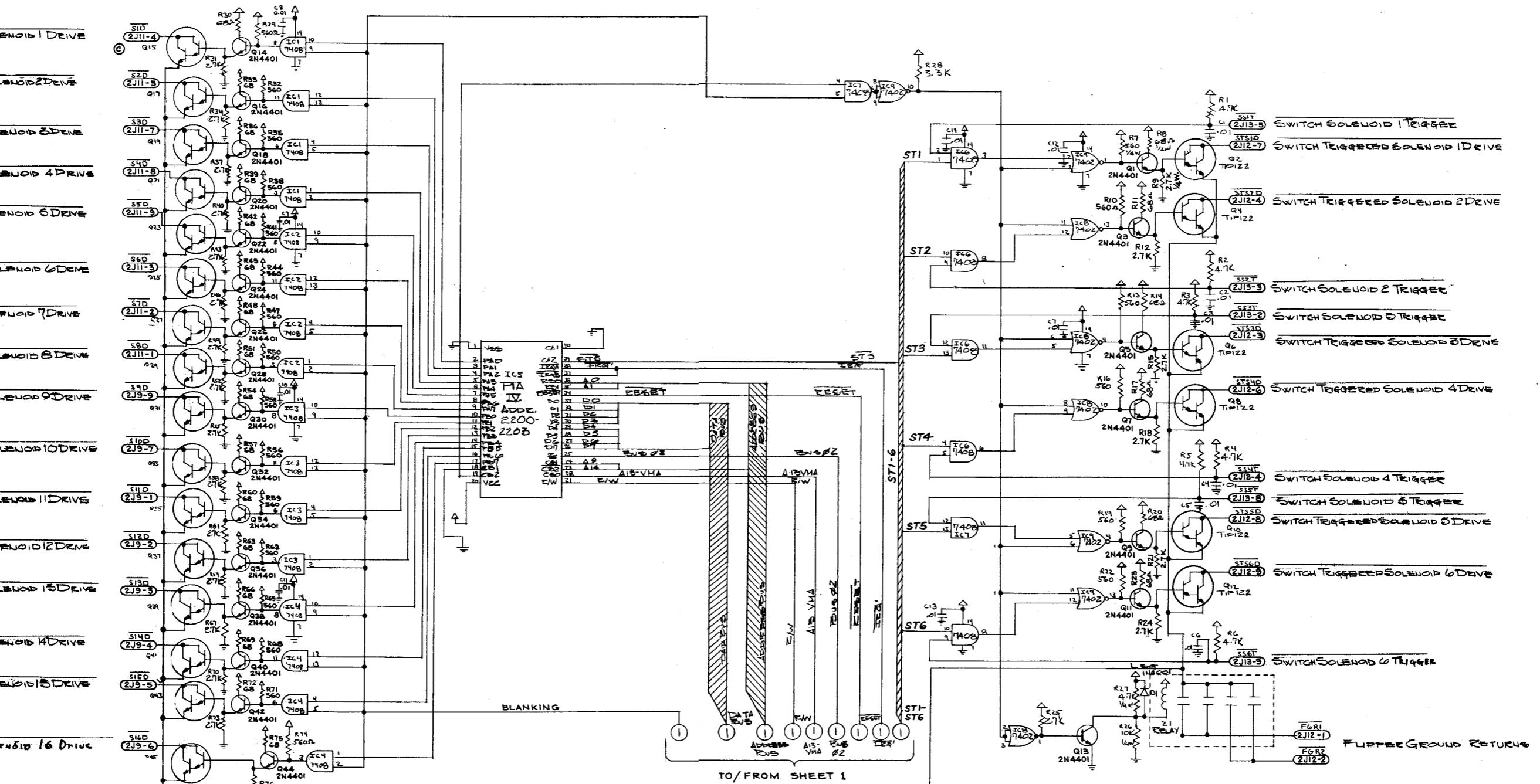
ST5

ST6

ST7

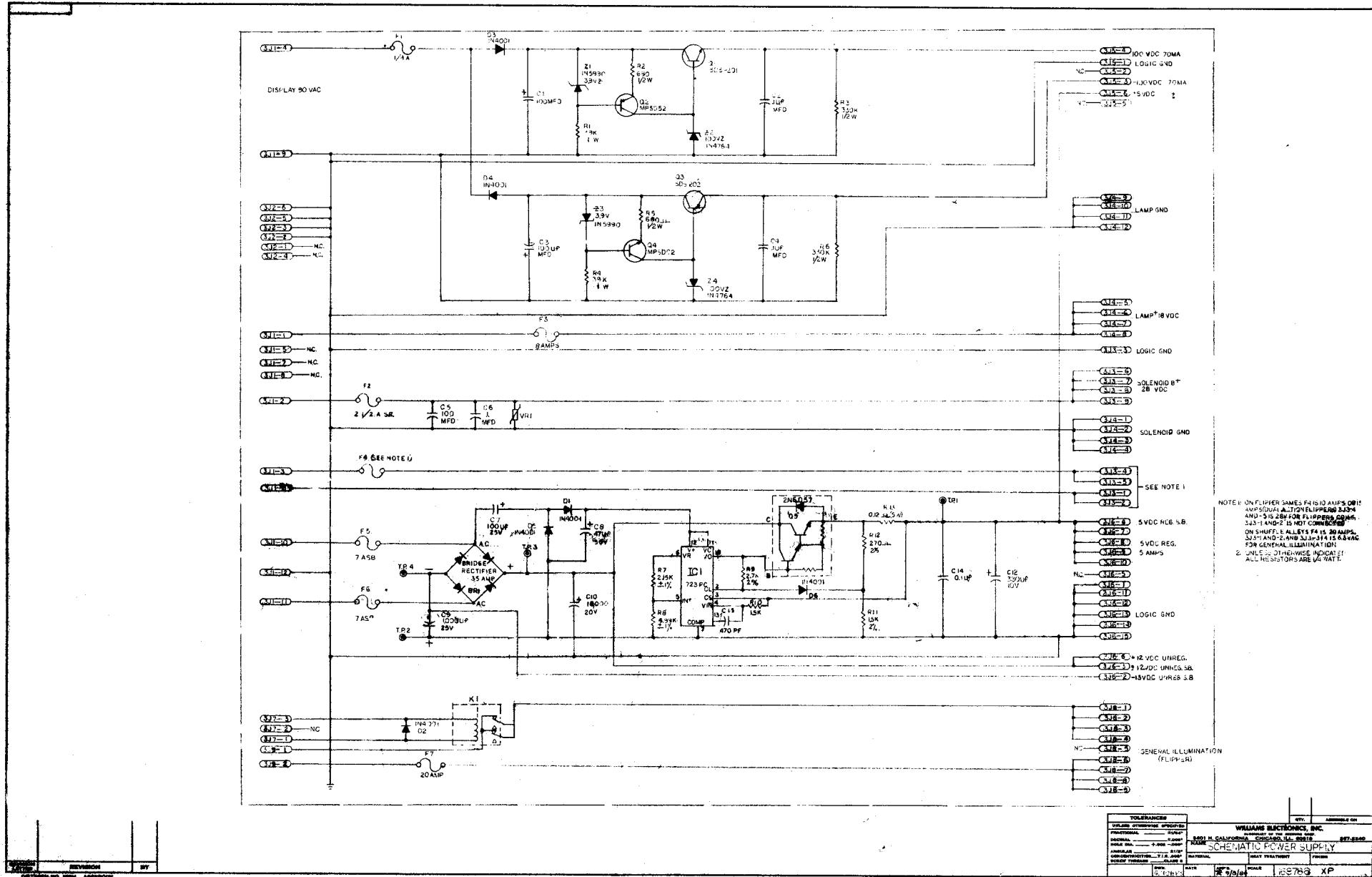
ST8

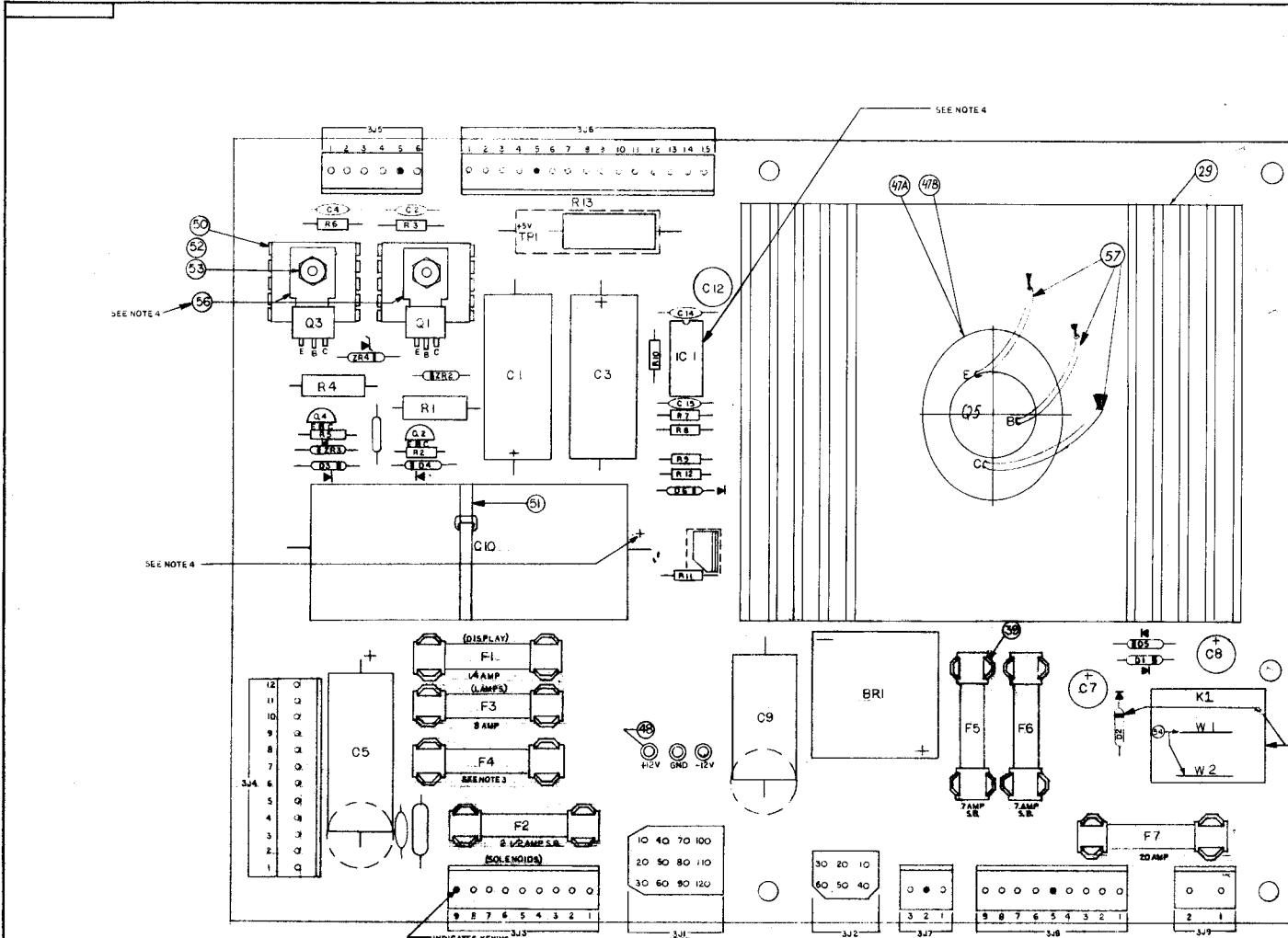
TOLERANCES		QTY	ASSEMBLED ON
UNLESS OTHERWISE SPECIFIED			
FRACTIONS	$\pm 1/16$		
DECIMALS	$\pm .008$		
HOLDS	$\pm .008$		
ANGULAR	$\pm 1/2^\circ$		
DATE	APP'D	SCALE	16-7997
NAME	WILLIAMS ELECTRONIC MFG. CORP.		
MATERIAL	3401 N. CALIFORNIA	CHICAGO 18, ILL.	CORNELIA 7-2240
HEAT TREATMENT			
FINISH			



C	CHANGE TIP 120 TO VENDOR ECO. SELECTED DARLINGTON 4889
B	2J8's WAS G's, 2J9's WAS J's, 2J11 WAS K's, 2J12 WAS L's 2J13's WAS M's & ADDED "TO/FROM SHEET 1" & CIRCUITS TO ALL 2N4401 TRANSISTORS 10-28-77
A	REVISION "A"
REVISION	BY
GND.	GND.

TOLERANCES UNLESS OTHERWISE SPECIFIED		NAME WILLIAMS ELECTRONIC MFG. CORP. SUBSIDIARY OF THE REUBER CORP. 3401 N. CALIFORNIA CHICAGO 18, ILL. CORNELIA 7-2240
FRACTIONS $\pm 1/16$	DECIMALS $\pm .005$	
		HOLES $\pm .000$
		ANGULAR $\pm 1/8^\circ$
WIRE	WIRE	HEAT TREATMENT
WIRE	WIRE	FINISH
WIRE	WIRE	QTY ASSEMBLED ON
WIRE	WIRE	APP'D.
WIRE	WIRE	SCALE
WIRE	WIRE	16D-7997





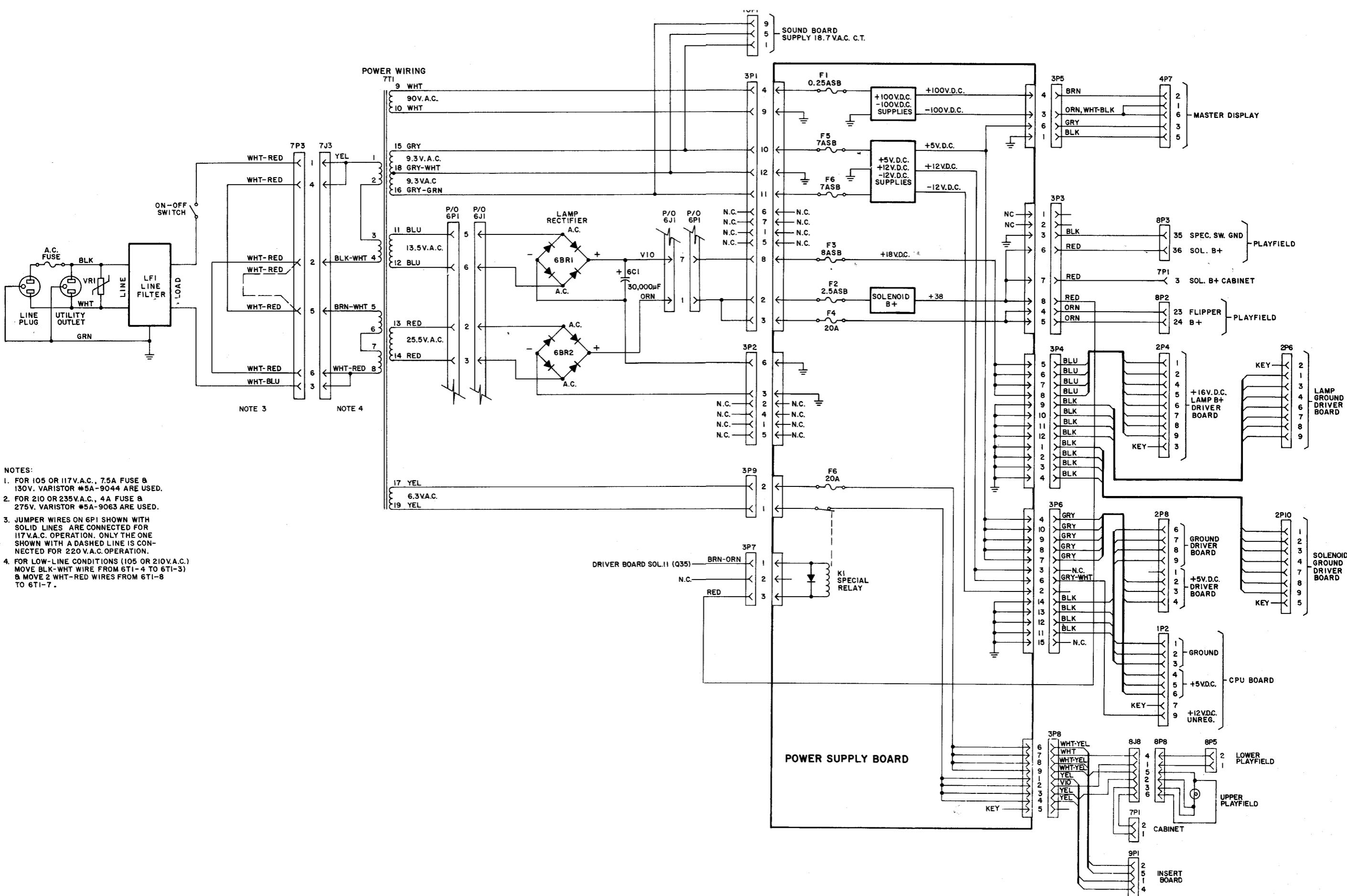
REVISION LETTER	REVISION	BY
A	ITEM #42 PART NO WAS 5730-06508-00 5730-06567-004 DESCRIPTION CHANGE CHANGE ITEM #42 PART NO WAS 5010-09428-00 ITEM #42 PART NO WAS 5010-09429-00 ITEM #23 REVISED DESCRIPTION ITEM #41 PART NO WAS 5730-05077-00	G.H.

BILL OF MATERIALS		READ	
ITEM	PART NO.	DESCRIPTION	READ
EX-1	5765-09468-00	BARE PCB BOARD	
EX-2	5010-09426-00	RESISTOR 2.5K ± 1% 1/4W METAL FILM	
EX-3	5010-09441-00	RESISTOR 1.99K ± 1% 1/4W METAL FILM	
EX-4	5010-09428-00	RESISTOR 1K2 ± 2% 1/4W CARBON FILM	
EX-5	5010-09489-00	RESISTOR 1K ± 2% 1/4W	
EX-6	5010-09491-00	RESISTOR 2.7K ± 2% 1/4W	
EX-7	5010-09408-00	RESISTOR 270 OHMS ± 25% 1/4W	
EX-8	5010-09429-00	POWER RESISTOR 10WHS ± 5% 3W	
EX-9	5010-09426-00	RESISTOR 1.99K ± 2% 1W	2
EX-10	5010-09081-00	RESISTOR 680 OHMS ± 1% W	2
EX-11	5010-09068-00	RESISTOR 330K 5% 1W	2
EX-12	5010-09419-00	CAP ELECTROLYTIC 1000UF 25V	25V
EX-13	5010-09420-00	CAPACITOR 100UFD ELECT. 100V	
EX-14	5010-09429-00	CAPACITOR 470PF	
EX-15	5040-09537-00	CAPACITOR 100 MFD ELECT. 100V	
EX-16	5040-09533-00	CAPACITOR 100 MFD ELECT. 100V	
EX-17	5040-09707-00	CAPACITOR 100 MFD ELECT. 100V	
EX-18	5040-09426-00	CAPACITOR 470PF	
EX-19	5070-09448-00	CAPACITOR 100 MFD SOV DISC.	
EX-20	5043-09599-00	DIODE 1N4001	6
EX-21	5075-09056-00	ZENER 1N4754 100V ± 5%	± 5%
EX-22	5060-09424-00	VOLTAGE REGULATOR MC723 PC	
EX-23	5043-09445-00	CAPACITOR 100UFD 25V DISC.	25V
EX-24	5040-09424-00	CAPACITOR 100UFD 25V RADIAL	
EX-25	5164-09057-00	TRANSISTOR 50S: 201 NPN	
EX-26	5164-09056-00	TRANSISTOR MP3 Q02 PNP	
EX-27	5194-09058-00	TRANSISTOR 50S: 202 PNP	
EX-28	5194-09055-00	TRANSISTOR MP3 P02 PNP	
EX-29	5706-04451-00	HEAT SINK	
EX-30	5791-09047-00	CONNECTOR 6 PIN(H)	
EX-31	5791-09074-00	CONNECTOR 6 PIN(H)	
EX-32	5791-09027-00	CONNECTOR 5 PIN(H)	2
EX-33	5791-09038-00	CONNECTOR 5 PIN(H)	
EX-34	5162-09425-00	TRANSISTOR, POWER, SN5087 NPN	
EX-35	5791-09043-00	CONNECTOR 12 PIN(H)	
EX-36	5791-09455-00	CONNECTOR 12 PIN(H)	
EX-37	5791-09468-00	CONNECTOR 12 PIN(H)	
EX-38	5791-09068-00	CONNECTOR 12 PIN(H)	
EX-39	5732-09178-00	FUSE HOLDER	14
EX-40	573H-09128-00	FUSE 2-1/2 AMP SB	
EX-41	573H-09071-00	FUSE 5 AMP	
EX-42	573H-06508-00	FUSE 10 AMP (5 AMP)	1...
EX-43	573H-09023-00	FUSE 20 AMP	
EX-44	573H-08761-00	FUSE 20 AMP	
EX-45	5017-09061-00	VARISTOR	
EX-46A	5700-09446-00	SOCKET	
EX-47B	5701-09599-00	MICA INSULATOR	
EX-48	5624-09249-00	RELAY 24VDC 1AMP SPDT	
EX-49	5100-09416-00	TERMINAL #1502-1 (TEST POST)	3
EX-50	5705-09042-00	BRIDGE RECTIFIER 35AMPS 100V	
EX-51	3A-7520-1	HEAT SINK	2
EX-52	4005-0016-07	5-40X 7/16 RH. MECH. SCREW	2
EX-53	1405-0111-00	5-8 HEX NUT	2
EX-54	W1, W2	JUMPER #2 18 AWG	2
EX-55	5040-09428-00	CAPACITOR 47 UF 50V RADIAL	
EX-56	20-9229	THERMAL COMPOUND	
EX-57	58	LEAD WIRE #18AWG (5)	
EX-58	5731-09432-00	FUSE 7A 5B 250V	2

DRAWING	REVISION NO.
PCB	0
SCHEMATIC	0
PCB	0
PL	0

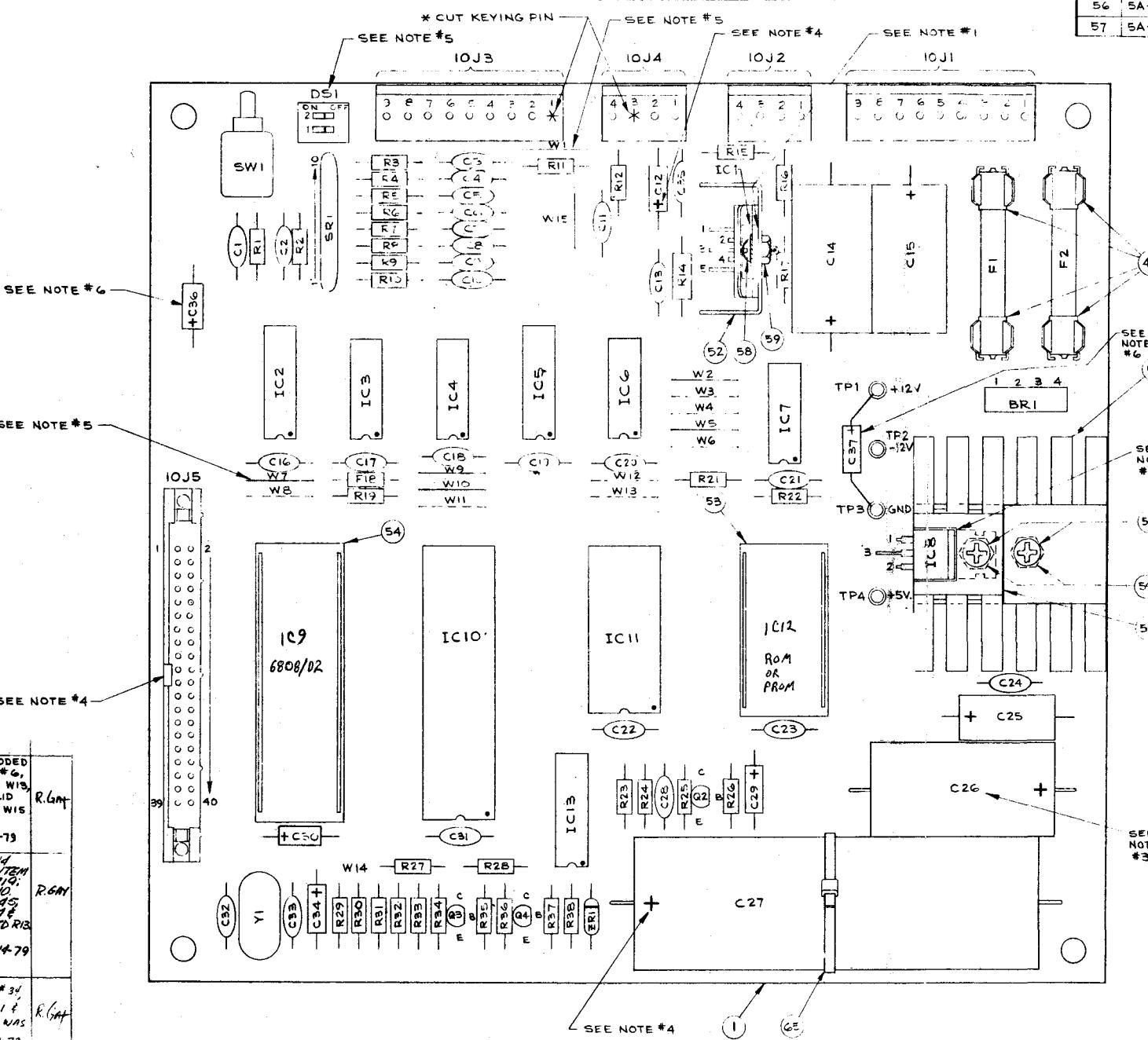
REVISION DRAWINGS: SCHEMATIC 16-8786-00

TOLENCES	UNLESS OTHERWISE SPECIFIED
FRACTIONAL	8/16
ANGLE	45°
HOLE DIA.	.062 - .064
NAME	POWER SUPPLY BOARD SUB-ASSEMBLY
ANGULAR TOLERANCE	5°
CONSTRUCTION	1.00
MATERIAL	FR4
REACT TREATMENT	FR4
SCREW THREADS	
DATE	9/27/80
AMT	
SCALE	
DRAWN BY	G.HOBBS

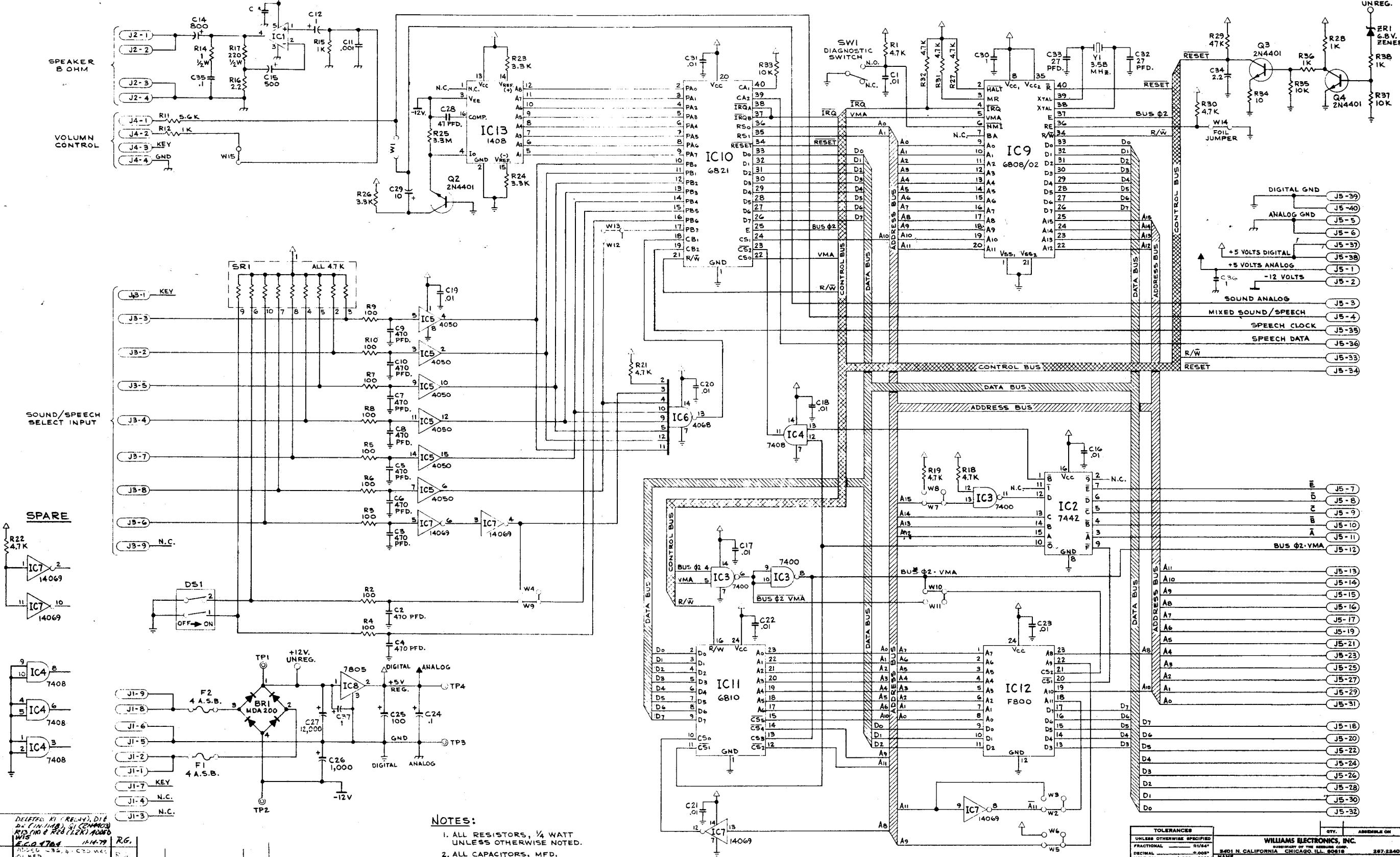


## **BILL OF MATERIAL**

ITEM NO.	PART NO.	PART DESIGNATION	DESCRIPTION	REQ'D. NO.
1	IC-2001-146-3		BARE P.C. BOARD	1
2	SA-9156	IC1	TDA 2002 V. AUDIO AMPLIFIER	1
3	SA-9012	IC2	7442 BCD-DEC DECODER	1
4	SA-9078	IC3	7400 QUAD 2 INPUT NAND	1
5	SA-8973	IC4	7408 QUAD 2 INP. AND GATE	1
6	SA-9153	IC5	4050 BUFFER	1
7	SA-9154	IC6	4068 8 INPUT NAND GATE	1
8	SA-8971	IC7	14069 HEX INVERTER	1
9	SA-9157	IC8	7805 5 VOLT REG. W/TO220 CASE	1
10	SA-8972	IC10	6821 P.I.A.	1
11	SA-9003	IC11	6810 RAM	1
12	SA-9152	IC13	1408 D/A CONVERTER	1
13	SC-8938	Q2, Q3, Q4	2N4401 NPN TRANSISTOR	3
14				
15	SA-9018	ZR1	IN5996 6.8V. ZENER DIODE	1
16				
17	SA-9158 OR SA-9357	BRI	MDA 200/3N253 BRIDGE RECTIFIER	1
18	SA-9020	Y1	3.58 MHZ CRYSTAL	1
19	SB-8991	R1, R18, R19, R21, R22, R27, R30, R31, R32	RESISTOR, FC, 4.7K OHM 5% 1/4 WATT	9
20	SB-9086	R2 THRU R10	RESISTOR, FC, 100 OHM 10% 1/4 WATT	9
21	SA-8984	R12, , R15, R28, R36, R38	RESISTOR, FC, 1K OHM 10% 1/4 WATT	5
22	SA-9181	R14	RESISTOR, FC, 1 OHM 10% 1/2 WATT	1
23	SA-9161	R16	RESISTOR, FC, 2.2 OHM 10% 1/4 WATT	1
24	SA-9361	R17	RESISTOR, FC, 220 OHM 10% 1/2 WATT	1
25				
26	SB-8985	R23, R24, R26	RESISTOR, FC, 3.3K OHM 10% 1/4 WATT	3
27	SA-9179	R25	RESISTOR, FC, 3.3M OHM 10% 1/4 WATT	1
28	SA-9359	R29	RESISTOR, FC, 47K OHM 5% 1/4 WATT	1
29	SB-8817	R33, R35, R37	RESISTOR, FC, 10K OHM 10% 1/4 WATT	3
30	SB-9039	R34	RESISTOR, FC, 10 OHM 10% 1/4 WATT	1
31	SA-8980	C1, C16 THRU C23 C31	CAPACITOR, CERAMIC, .01 MFD. 50 V. ±20%	11
32	SA-9065	C2 THRU C10	CAPACITOR, CERAMIC, .01 MFD. 470 PFD. 50 V. ±20%	9
33	SA-9345	C11	CAPACITOR, CERAMIC, .001 MFD. 200 100 V.	1
34	SA-9365	C12, C30, C36	CAPACITOR, ELECTROLYTIC 1 MFD. 6.3V.-10/+50%	3
35	SA-8996	C13, C24, C35	CAPACITOR, CERAMIC, .1 MFD. 50 V. ±20%	3
36	SA-9165 SA-9165-1	C14	CAPACITOR, ELECTROLYTIC, 800 MFD. 16 V. OR 1,000 MFD. 15 V. ±20%	1
37	SA-9164 SA-9164-1	C15	CAPACITOR, ELECTROLYTIC, 500 MFD. 15 V. OR 470 MFD. 25 V. ±20%	1
38	SA-8986	C25	CAPACITOR, ELECTROLYTIC, 100 MFD. 10 V. ±20%	1
39	SA-8893	C26	CAPACITOR, ELECTROLYTIC, 1,000 MFD. 25 V. ±20%	1
40	SA-9046	C27	CAPACITOR, ELECTROLYTIC, 12,000 MFD. 16 V. ±20%	1
41	SA-9180	C28	CAPACITOR, CERAMIC, 47 PFD. 1K V. ±20%	1
42	SA-9343	C29	CAPACITOR, ELECTROLYTIC, 10 MFD. 25 V. LOW LEAK ±20%	1
43	SA-9169	C32, C33	CAPACITOR, CERAMIC DISC, 27 PFD. 1K V. ±10%	2
44	SA-9163	C34	CAPACITOR, TANTALUM, 2.2 MFD. 15V. ±20%	1
45	SA-9031	C37	CAPACITOR, TANTALUM, 1 MFD. 25V. ±20%	1
46	SA-9024	SW1	MOMENTARY SWITCH SPDT	1
47	SA-9330	D51	2 STD. DIP SWITCH	1

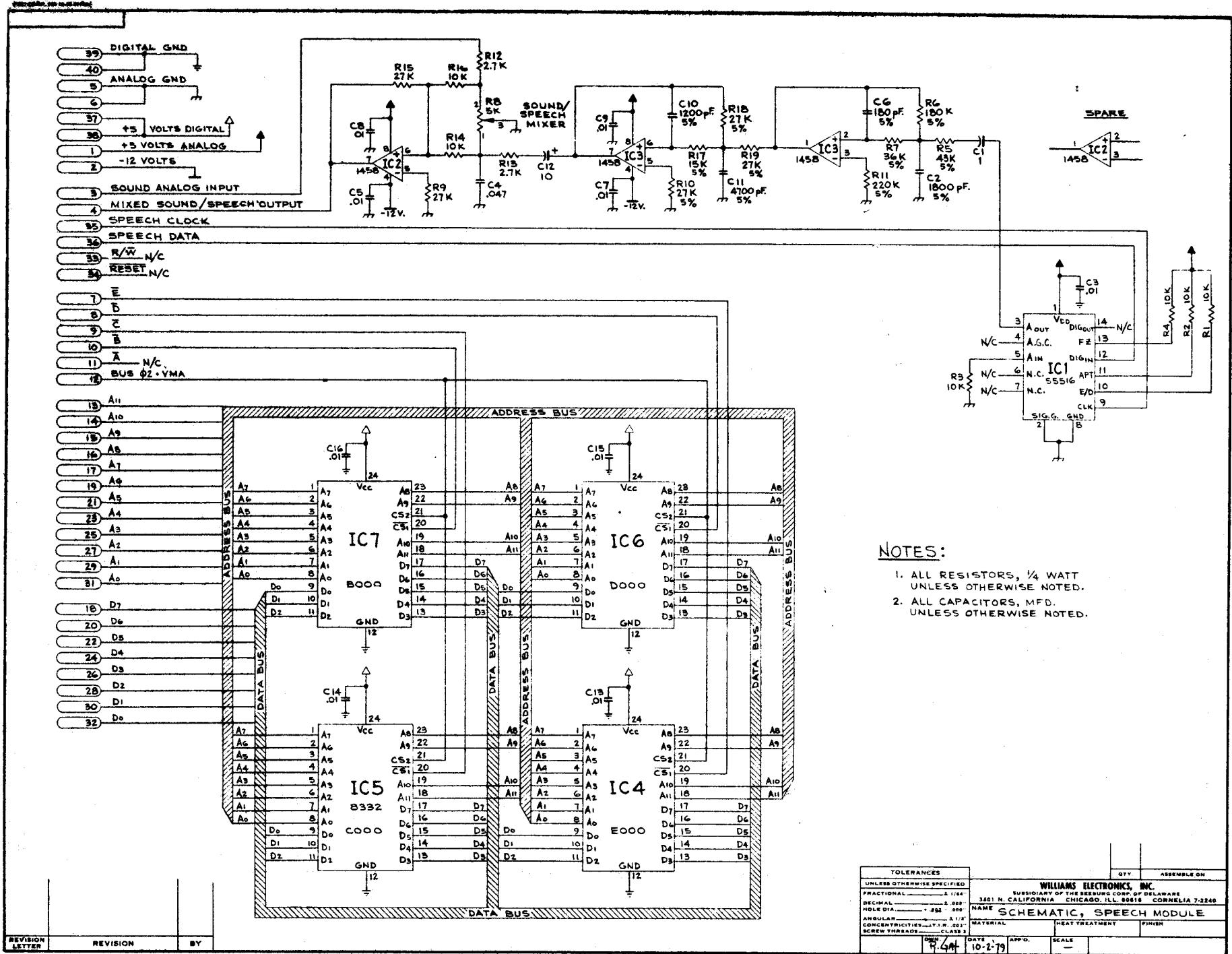


### *Sound Board Assembly Drawing*

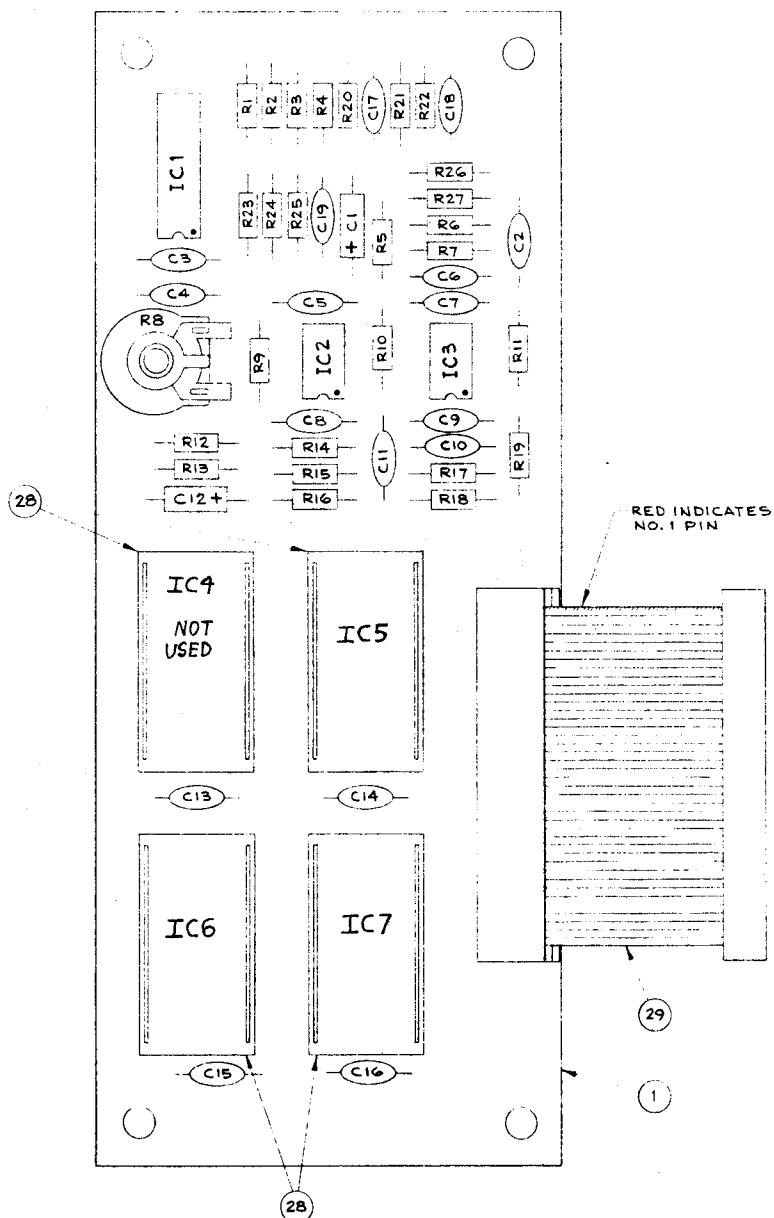


C	DELETED K1 (RELAY), D16 D17 C11 (1A80) G1 (SERIAL 03) R15 (1A80) R20 (1A80) E.C.O. 1764 11-1979 R.G.
B	ADDED C31 & IN W13 DASH LINE WAS SOLID LINE E.C.O. 10-71 R.G.
A	10/25/79 C12/C14/C15, PULLDOWN REWIRING E.C.O. 11-1979 R.G.

TOLERANCES	GT.Y.	ASSEMBLE ON
UNLESS OTHERWISE SPECIFIED		
FRACTIONAL	$\pm 1/8\%$	
DECIMAL	$\pm .001$	
HOLE DIA.	$\pm .005$	
ANGULAR	$\pm 1/8^\circ$	
CONCENTRICITIES	$\pm .001$	
SCREW THREADS	CLASS 2	
MATERIAL	HEAT TREATMENT	FINISH
DRAWN BY	APP'D	DATE
R.G.	10/10/79	10/10/79
SCALE		1GD-8224



C-8225



## BILL OF MATERIAL

ITEM NO.	PART NO.	PART DESIGNATION	DESCRIPTION	REQ'D. NO.
1	IC-2001-148-2		BARE P.C. BOARD	1
2	SA-9334	IC1	3417 CONTINUOUSLY VARIABLE SLOPE DELTA MODULATOR	1
3	SA-9321	IC2, IC3	1458 DUAL OP-AMP.	2
4	SA-8992	R1, R4, R22, R23	RESISTOR, FC, 560 OHM 10% 1/4 WATT	4
5	SA 8776	R2	RESISTOR, FC, 68K OHM 5% 1/4 WATT	1
6	SA-8983	R3	RESISTOR, FC, 3.3 K OHM 10% 1/4 WATT	1
7	SB-8817	R5, R16	RESISTOR, FC, 10K OHM 10% 1/4 WATT	2
8	SA-8773	R6	RESISTOR, FC, 18K OHM 5% 1/4 WATT	1
9	SA-9353	R7	RESISTOR, FC, 6.2 KOHM 5% 1/4 WATT	1
10	SA-9324	R9, R10, R11, R15, R18, R19	RESISTOR, FC, 27K OHM 10% 1/4 WATT	6
11	SB-8997	R12, R13	RESISTOR, FC, 2.7K OHM 10% 1/4 WATT	2
12	SA-8772	R14, R17	RESISTOR, FC, 15K OHM 5% 1/4 WATT	2
13	SA-9314	R20	RESISTOR, FC, 1.2K OHM 10% 1/4 WATT	1
14	SA-9331	R21	RESISTOR, FC, 19K OHM 10% 1/4 WATT	1
15	SA-9185	R8	POTENTIOMETER, 5K OHM	1
16	SA-9218	R24	RESISTOR, FC, 2.2M. OHM 10% 1/4 WATT	1
17	SA-8984	R25, R27	RESISTOR, FC, 1K OHM 10% 1/4 WATT	1
18	SA-9356	R26	RESISTOR, FC, 820 OHM 5% 1/4 WATT	1
19	SA-9031	C1	CAPACITOR, TANTALUM, 1 MFD. 20% 25 VOLT	1
20	SA-8980	C2, C3, C5, C7, C8, C9, C13 THRU C16	CAPACITOR, CERAMIC, .01 MFD. +80%-20% 50 VOLT	10
21	SA-9030	C4	CAPACITOR, CERAMIC, .047 MFD. 20% 50 VOLT	1
22	SA-9347	C6	CAPACITOR, CERAMIC, 1800 PFD. 5% 50 VOLT	1
23	SA-9346	C10	CAPACITOR, CERAMIC, 1200 PFD. 5% 50 VOLT	1
24	SA-9348	C11	CAPACITOR, CERAMIC, 4700 PFD. 5% 50 VOLT	1
25	SA-9343	C12	CAPACITOR, ELECTROLYTIC, 10 MFD. 20% 25 VOLT LOW LEAK	1
26	SA-9263	C17	CAPACITOR, .33 MFD. 20% 200 VOLT	1
27	SA-8996	C18, C19	CAPACITOR, CERAMIC, .1 MFD. 20% 25 VOLT	2
28	SA-9004		24 PIN SOCKET	4
29	SA 9354	J1	PISTON CABLE ASSEM	1

## TOLERANCES

UNLESS OTHERWISE SPECIFIED

FRACTIONAL

DECIMAL

HOLE DIA.

ANGULAR

CONCENTRICITIES

SCREW THREADS

WILLIAMS ELECTRONICS, INC.

SUBSIDIARY OF THE BESEBERG CORP. OF DELAWARE

3801 N. CALIFORNIA CHICAGO, ILL. 60616 CORNELIA 7-2240

NAME SPEECH MODULE ASSEMBLY

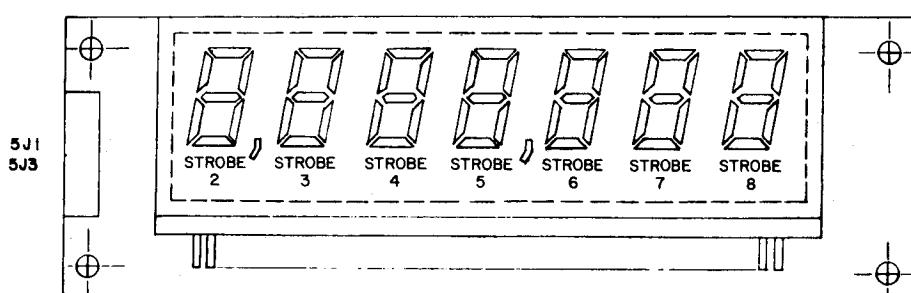
MATERIAL HEAT TREATMENT FINISH

DWN. DATE APP'D. SCALE

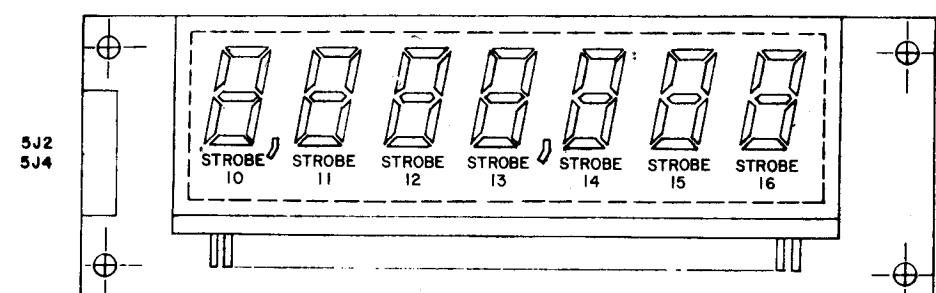
R 44 9-28-79 2:1 C-8225

REVISION LETTER	REVISION	BY

PLAYERS #1 &amp; #3

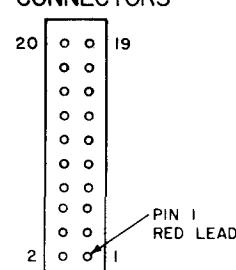


PLAYERS #2 &amp; #4


**4J1/5J1 (PLAYER 1)  
4J3/5J3 (PLAYER 3)**

1 100,000's  
2 -100V KEEP ALIVE  
3 1,000,000's  
4 f SEGMENT  
5 N/C  
6 g SEGMENT  
7 +100V (N/C)  
8 e SEGMENT  
9 10,000's  
10 d SEGMENT  
11 1,000's  
12 +100V KEEP ALIVE  
13 100's  
14 COMMA  
15 10's  
16 c SEGMENT  
17 N/C  
18 b SEGMENT  
19 UNITS  
20 a SEGMENT

DETAIL A  
4J1 - 4J4, 4J8  
5J1 - 5J5  
CONNECTORS

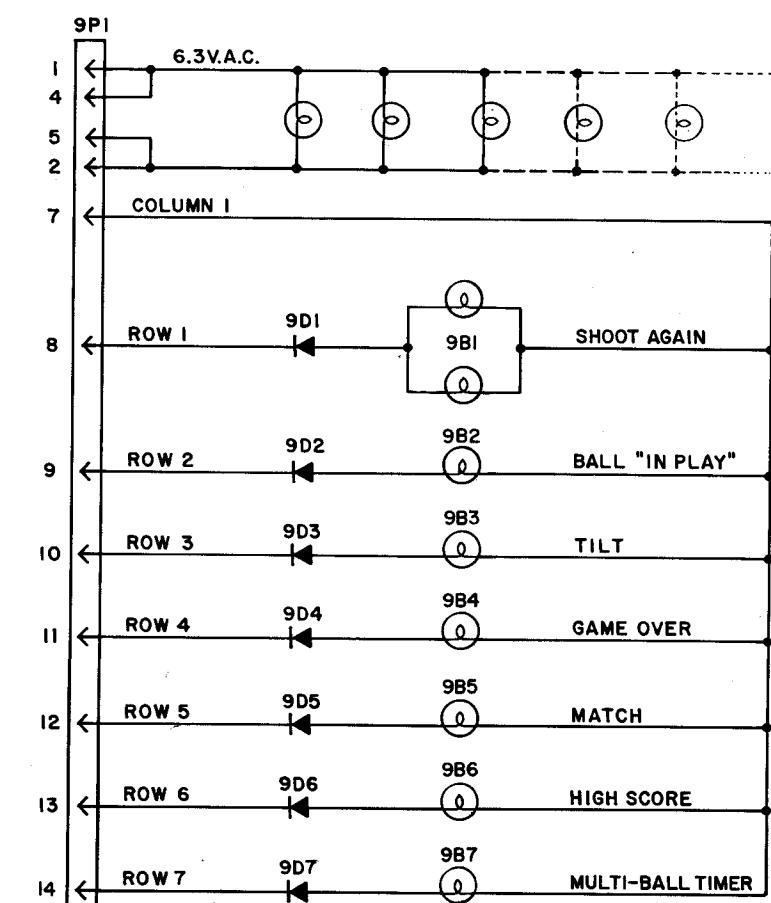
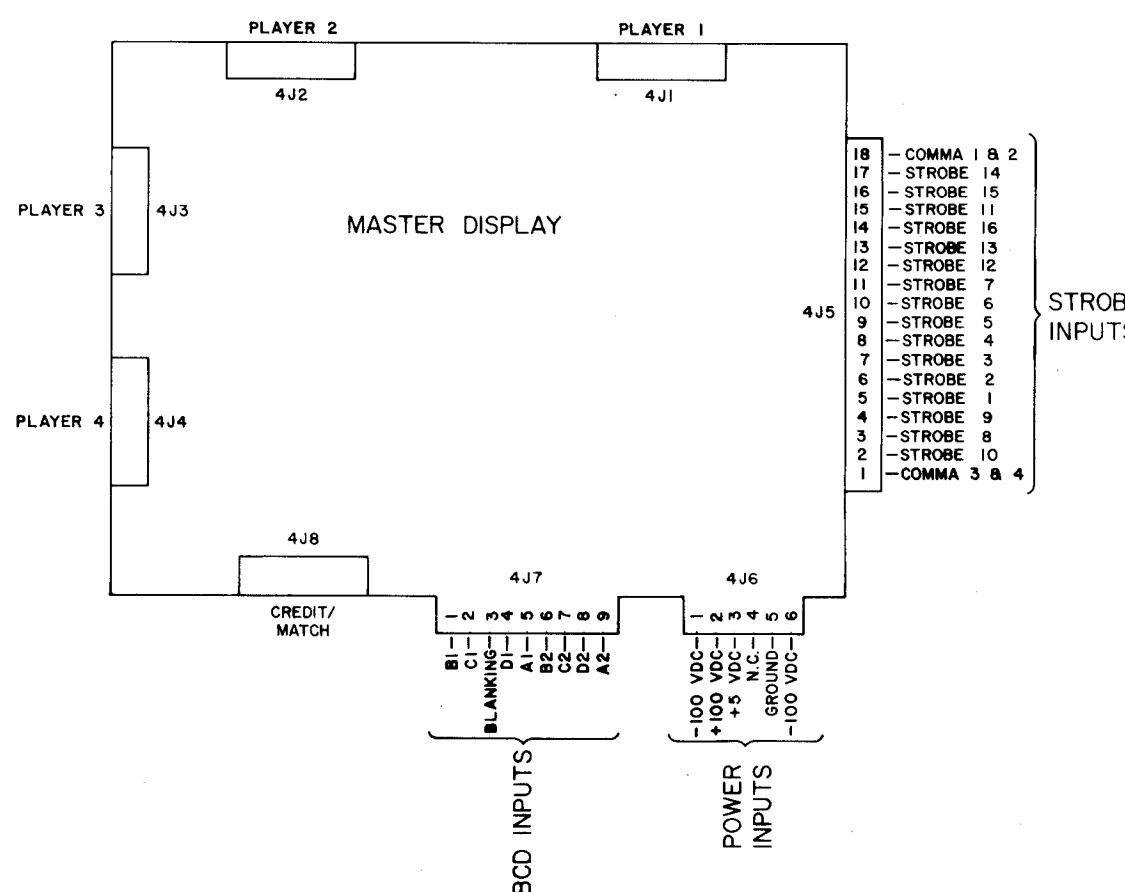

**4J2/5J2 (PLAYER 2)  
4J4/5J4 (PLAYER 4)**

1 100,000's  
2 -100V KEEP ALIVE  
3 1,000,000's  
4 f' SEGMENT  
5 N/C  
6 g' SEGMENT  
7 +100V (N/C)  
8 e' SEGMENT  
9 10,000's  
10 d' SEGMENT  
11 1,000's  
12 +100V KEEP ALIVE  
13 100's  
14 COMMA  
15 10's  
16 c' SEGMENT  
17 N/C  
18 b' SEGMENT  
19 UNITS  
20 a' SEGMENT

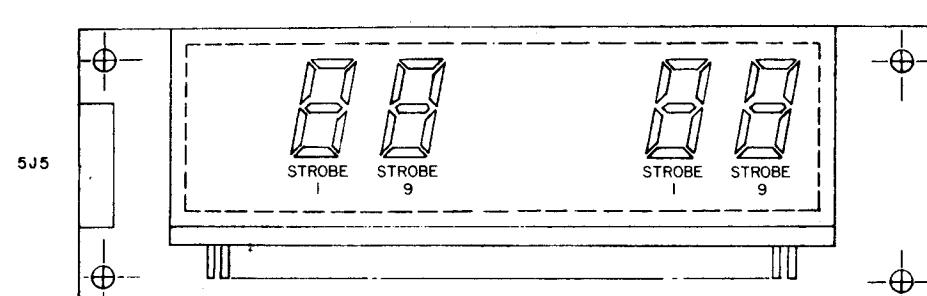
**4J8/5J5 (CREDIT/MATCH)**

1	f' Segment (Credit)
2	-100V Keep Alive
3	e' Segment
4	g' Segment
5	c' Segment
6	d' Segment
7	b' Segment
8	10's
9	Units
10	a' Segment
11	e Segment
12	f Segment
13	10's
14	d Segment
15	+100V Keep Alive
16	c Segment
17	g Segment
18	b Segment
19	Units
20	a Segment

Credit  
Match  
Match



CREDITS / BALL IN PLAY

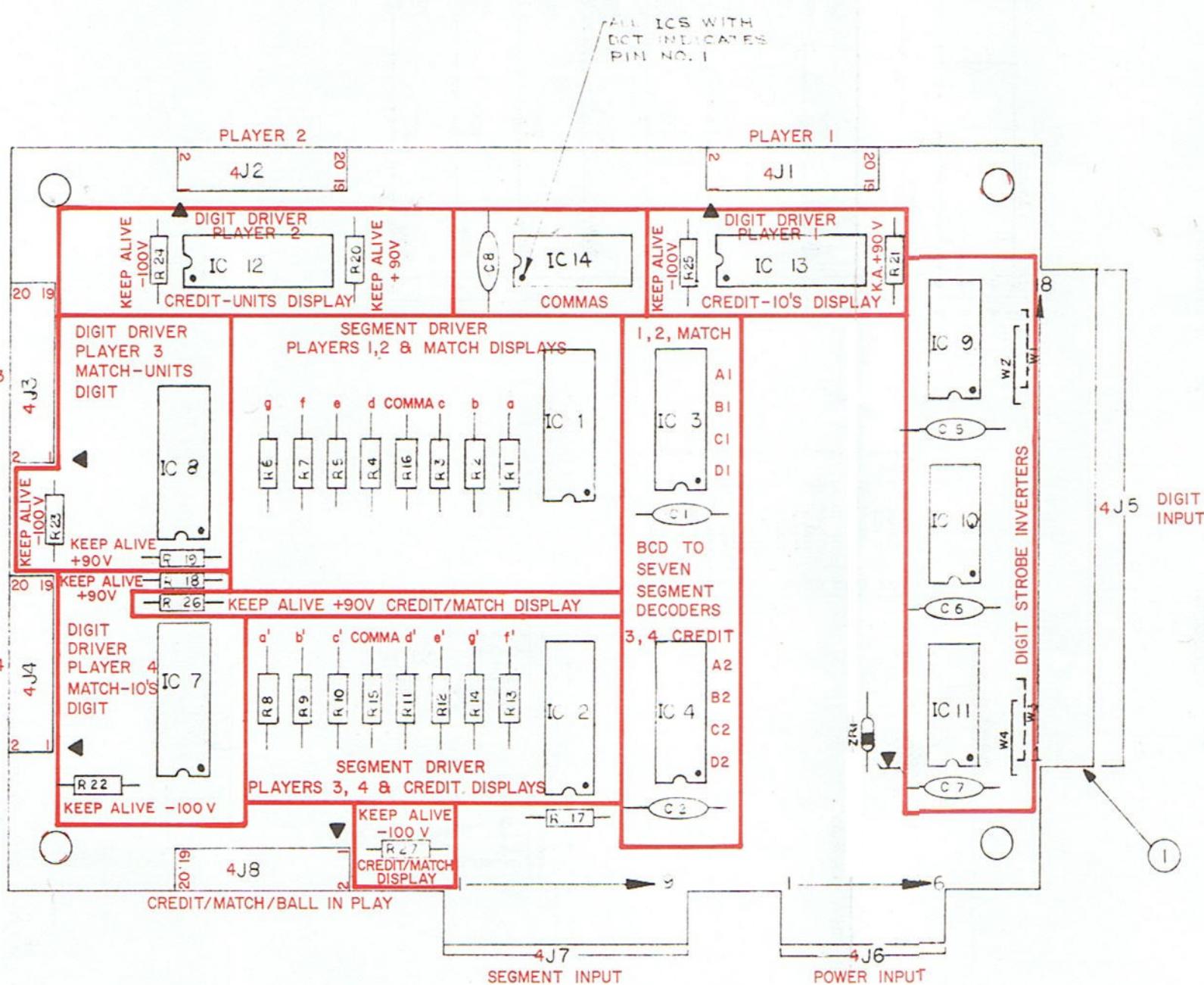


## BILL OF MATERIAL

ITEM NO.	PART NO.	PART DESIGNATION	DESCRIPTION	REQ'D Q.U.
1	IC-2001-162-B		BARE P.C. BOARD	1
2	SA-8971	IC 9, IC10, IC11	MC14068 HEX. INVERTER	3
3	SA-8970	IC3, IC4	MC14543 BCD TO SEVEN SEGMENT LATCH/DECODER/DRIVER	2
4	SA-8969	IC1, IC2	UDN-7180 GAS DISCHARGE DISPLAY SEGMENT DRIVER	2
5	SA-8968	IC7, IC8, IC12, IC13	UDN-6186A OR UDN-6186B GAS DISCHARGE DISPLAY SEGMENT DR.	4
6		IC14	MC14081 QUAD 2 INPUT AND GATE	1
7	SB-8981	R1-R14	RESISTOR, FC, 10K OHM 10% 1/2 WATT	14
8	SA-9135	ZR1	IN4740A ZENER DIODE 10V, 5% 1W	1
9	SA-8980	C1, C2, C5 THRU C8	CAPACITOR CERAMIC, 01 MFD, 50V	6
10		W2, W4	JUMPER #22 GA SOLID WIRE	2
11	SA-9086	R17	RESISTOR, FC, 6.8K OHM 10% 1/4 WATT	1
12	SB-8982	R18 THUR R27	RESISTOR, FC, 3 MEG. OHM 10% 1/4 WATT	10
13		JB, J1 THUR J4	20 PIN RIBBON HEADER	5
14		R15, R16	RESISTOR, 15K OHM, 10% 1/2 WATT	2

## DIGIT CROSS REFERENCE

DIGIT	7-SEGMENT DECODER/DRIVER	STROBE (DRIVER)
Credit 10's	IC4/IC2	1 (IC13)
Credit Units	IC4/IC2	9 (IC12)
Match 10's	IC3/IC1	1 (IC7)
Match Units	IC3/IC1	9 (IC8)
#1 1,000,000	IC3/IC1	2 (IC13)
#1 100,000's	IC3/IC1	3 (IC13)
#1 10,000's	IC3/IC1	4 (IC13)
#1 1,000's	IC3/IC1	5 (IC13)
#1 100's	IC3/IC1	6 (IC13)
#1 10's	IC3/IC1	7 (IC13)
#1 Units	IC3/IC1	8 (IC13)
#2 1,000,000's	IC3/IC1	10 (IC12)
#2 100,000's	IC3/IC1	11 (IC12)
#2 10,000's	IC3/IC1	12 (IC12)
#2 1,000's	IC3/IC1	13 (IC12)
#2 100's	IC3/IC1	14 (IC12)
#2 10's	IC3/IC1	15 (IC12)
#2 Units	IC3/IC1	16 (IC12)
#3 1,000,000's	IC4/IC2	2 (IC8)
#3 100,000's	IC4/IC2	3 (IC8)
#3 10,000's	IC4/IC2	4 (IC8)
#3 1,000's	IC4/IC2	5 (IC8)
#3 100's	IC4/IC2	6 (IC8)
#3 10's	IC4/IC2	7 (IC8)
#3 Units	IC4/IC2	8 (IC8)
#4 1,000,000's	IC4/IC2	10 (IC7)
#4 100,000's	IC4/IC2	11 (IC7)
#4 10,000's	IC4/IC2	12 (IC7)
#4 1,000's	IC4/IC2	13 (IC7)
#4 100's	IC4/IC2	14 (IC7)
#4 10's	IC4/IC2	15 (IC7)
#4 Units	IC4/IC2	16 (IC7)
#1 Comma	-/IC1	2.5 (IC13)
#2 Comma	-/IC2	10,13 (IC12)
#3 Comma	-/IC1	2.5 (IC8)
#4 Comma	-/IC2	10,13 (IC7)

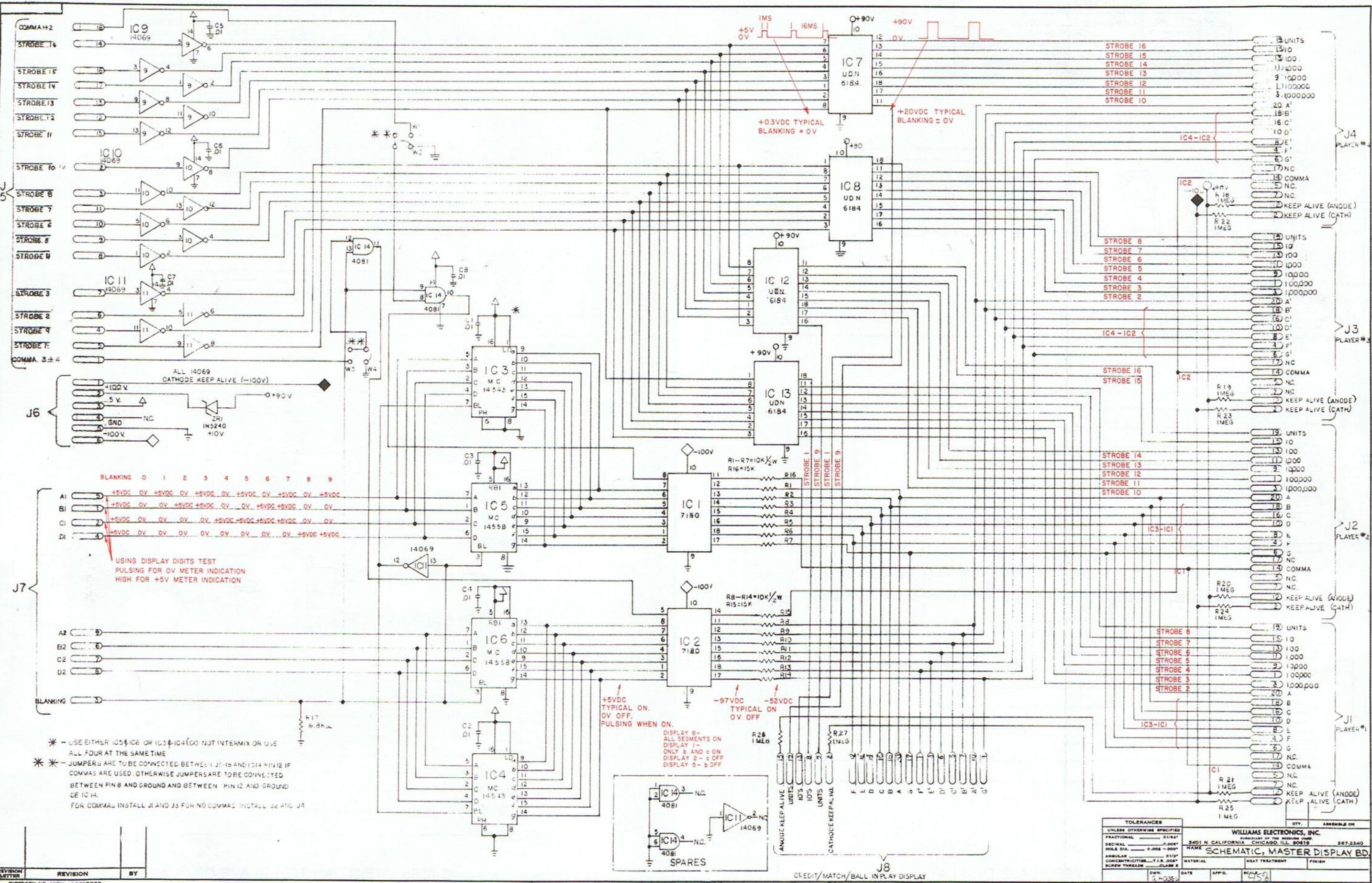


TOLERANCES		GT.Y.	ASSEMBLE ON
UNLESS OTHERWISE SPECIFIED			
FRACTIONAL	± 1/64"		
DECIMAL	± .005"		
HOLE DIA.	+.002 -- -.000"		
ANGULAR	± 1/16°		
CONCENTRICITIES	T.I.R. .003"		
SCREW THREADS	CLASS 2		
OWN.	DATE	APP'D.	SCALE
G.H.	5-23-80		2:1 5490

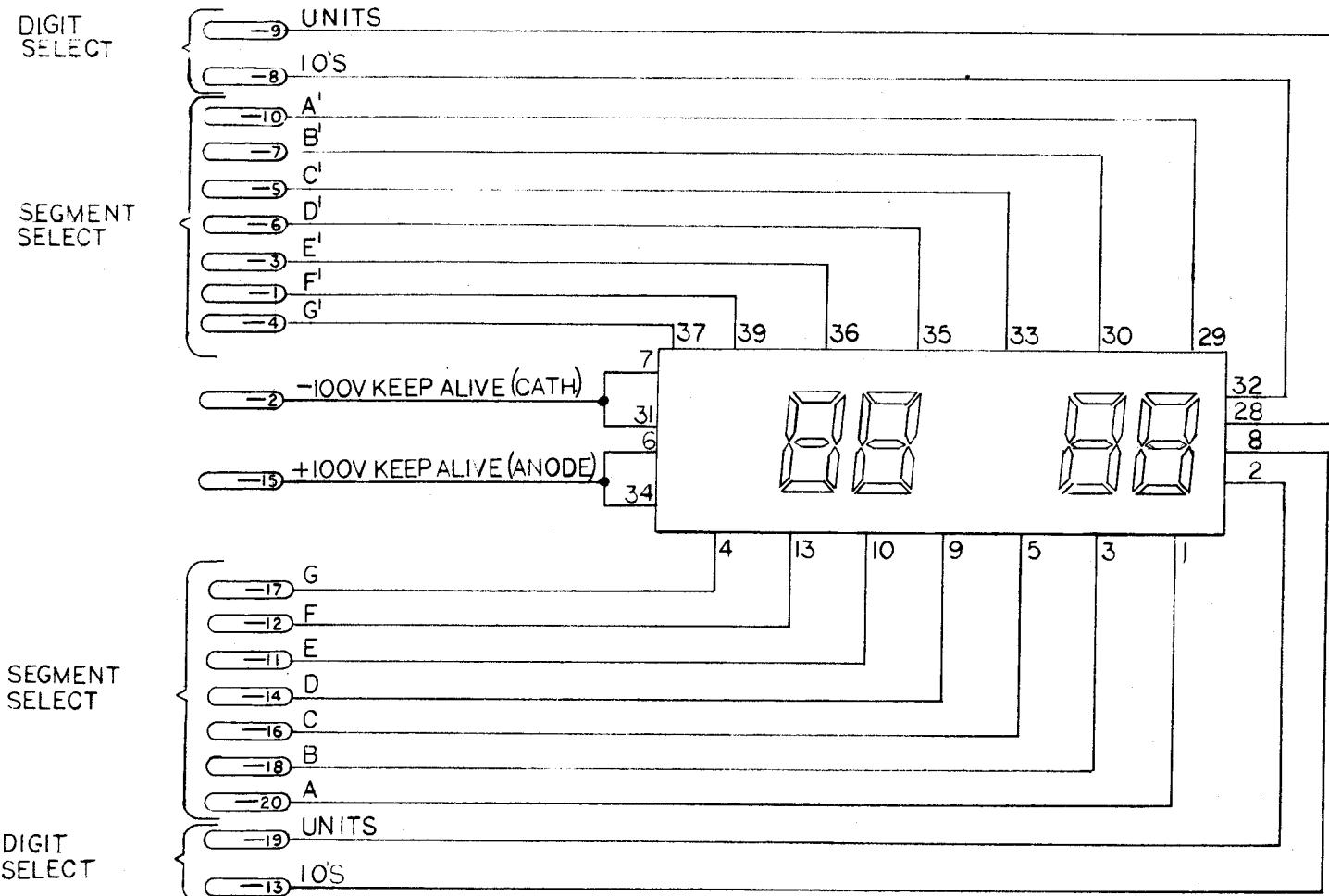
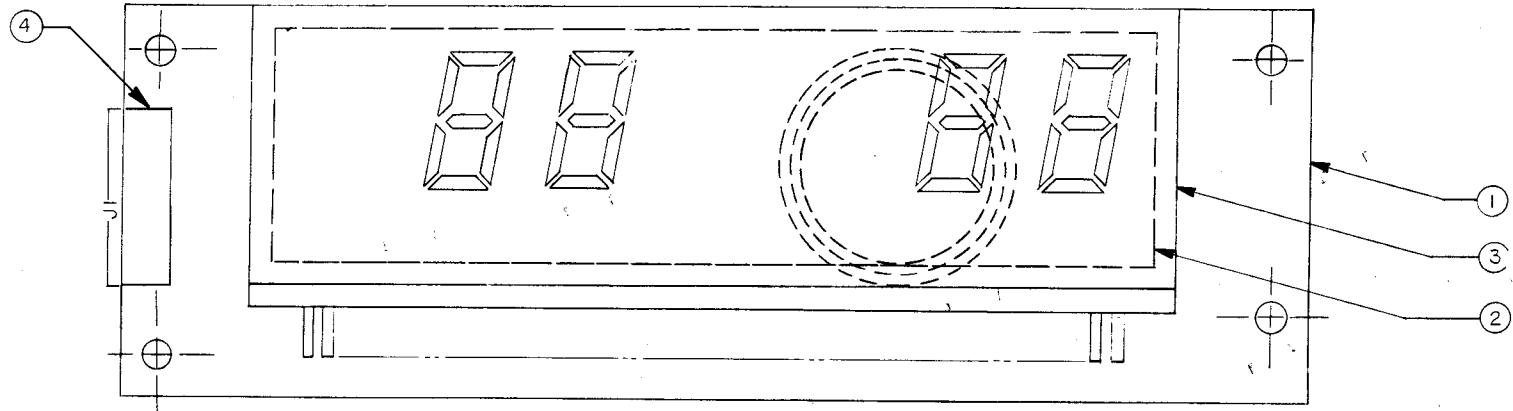
WILLIAMS ELECTRONICS, INC.  
SUBSIDIARY OF THE SEEBURG CORP. OF DELAWARE  
3401 N. CALIFORNIA CHICAGO, ILL. 60618 CORNELIA 7-2240

NAME: MASTER DISPLAY BOARD ASSEMBLY

MATERIAL HEAT TREATMENT FINISH

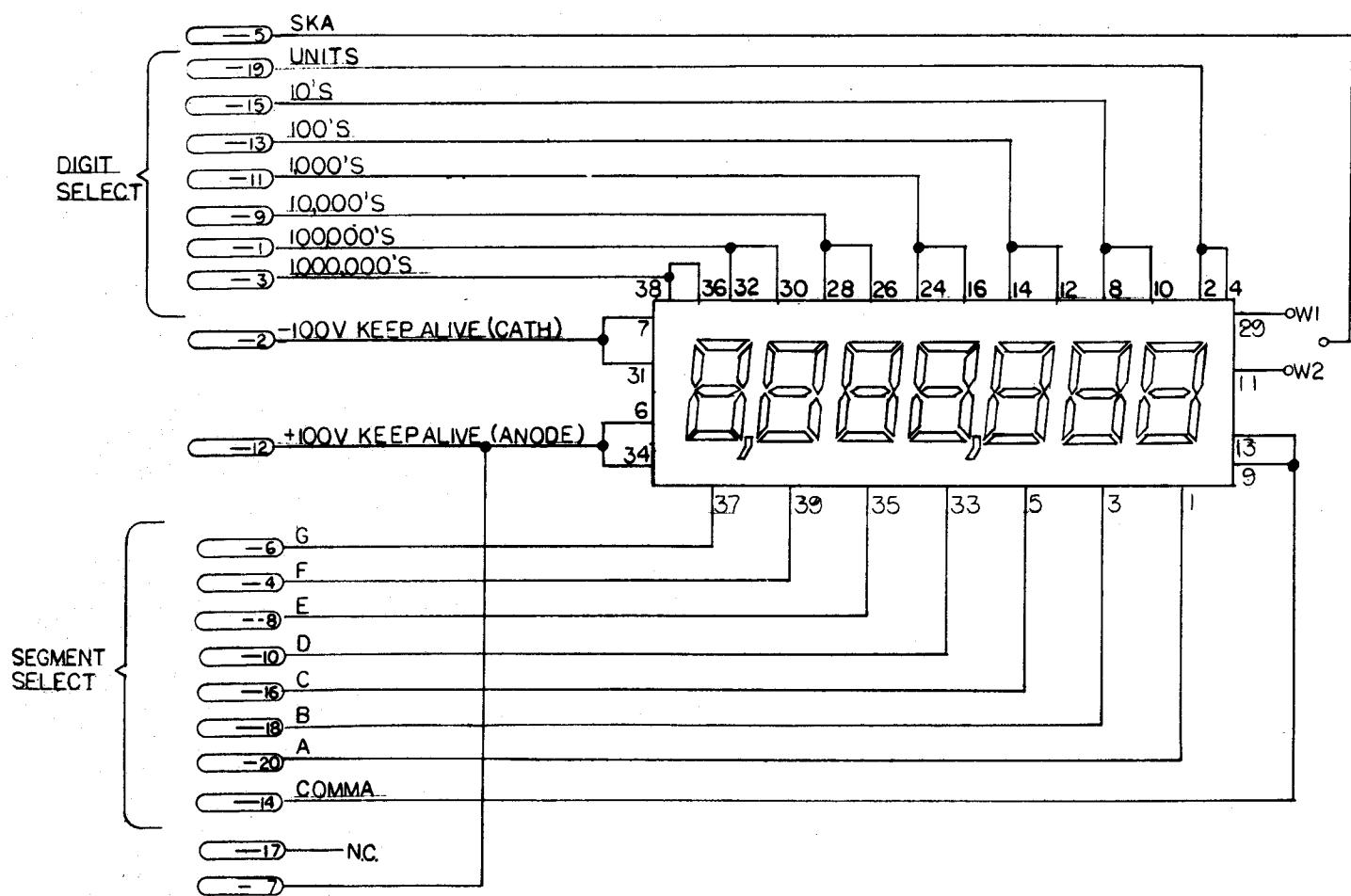
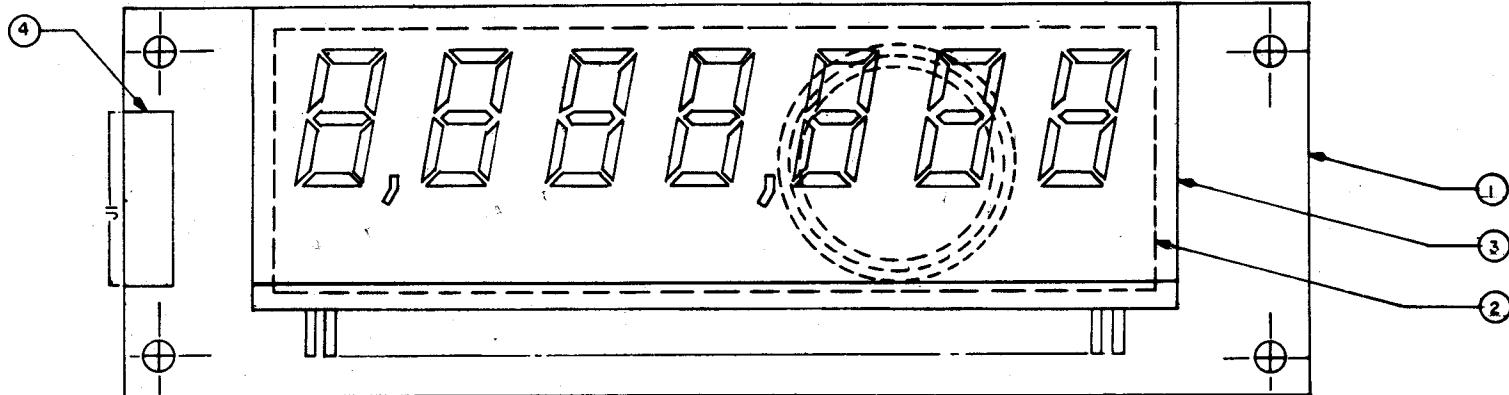


BILL OF MATERIAL				
ITEM	PART NO.	PART DESIGNATION	DESCRIPTION	REQ'D
1	5161-0546B-00		CREDIT/MATCH SLAVE PC BOARD	1
2	23-6545-		FOAM DISPLAY - BACK	1
3	5610-0544B-00		4-DIGIT DISPLAY	1
4	5791-0541B-00	J1	20 PIN RIBBON HEADER	1
5	23-6546		FOAM DISPLAY - FRONT	1
6	03-1513-2		CAPLUG	1

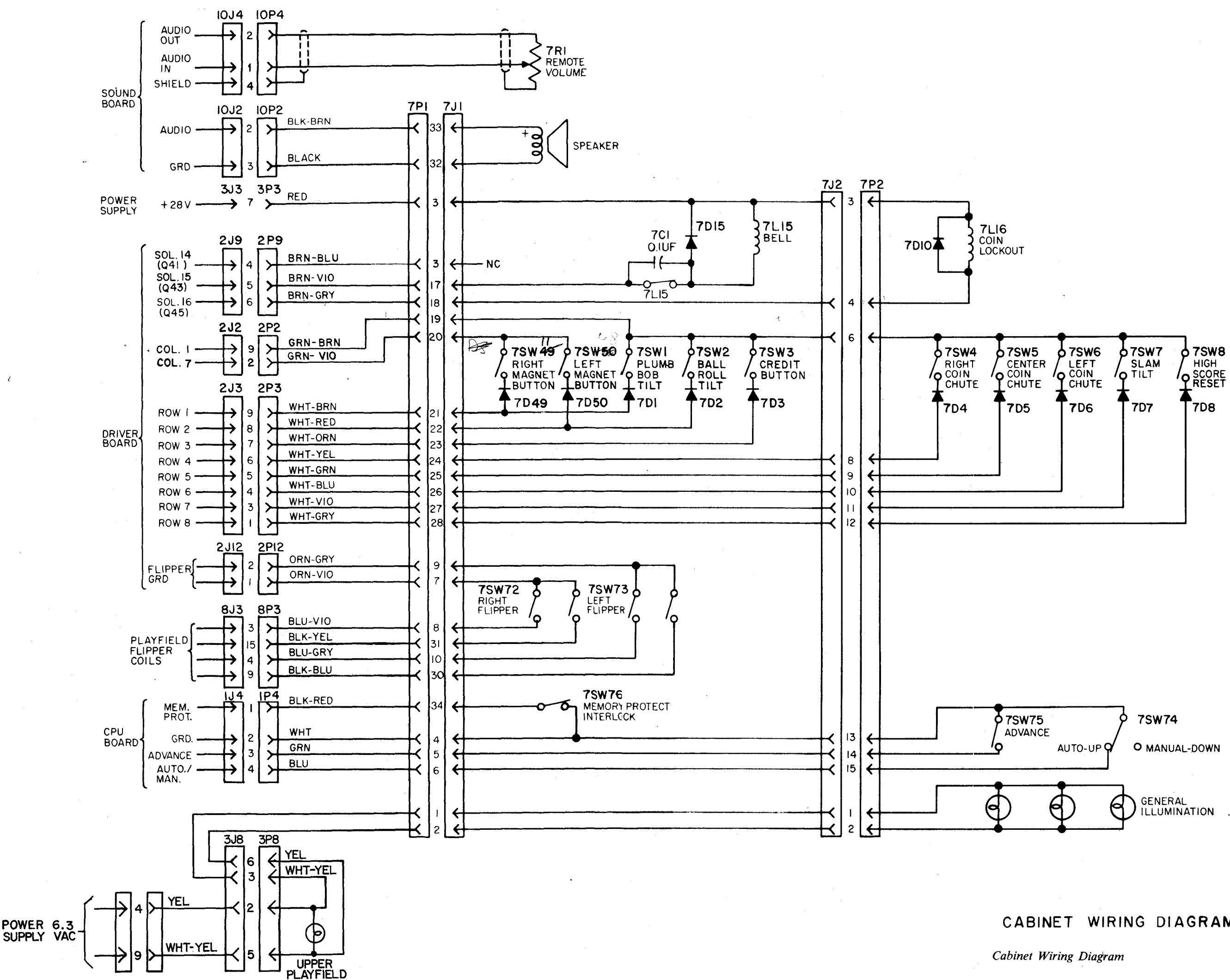


C 8365 CREDIT/MATCH SLAVE DISPLAY

BILL OF MATERIAL				
ITEM	PART NO.	PART DESIGNATION	DESCRIPTION	REQ'D.
1	5162-08448-XP		SLAVE DISPLAY P.C. BOARD	1
2	23-6848		DISPLAY MTC ADHESIVE FOAM	1
3	8670-08438-XP		7 DIGIT DISPLAY	1
4	5781-08438-XP	J1	20 PIN RIBBON HEADER	1
5	08-1818-2		CAPLUG	1



C 8364 PLAYER SLAVE DISPLAY

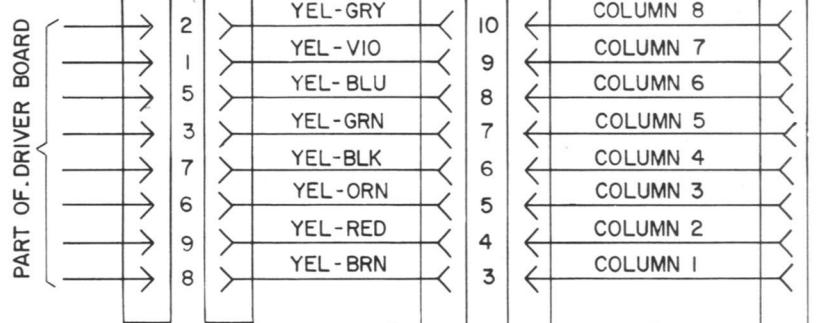


CABINET WIRING DIAGRAM

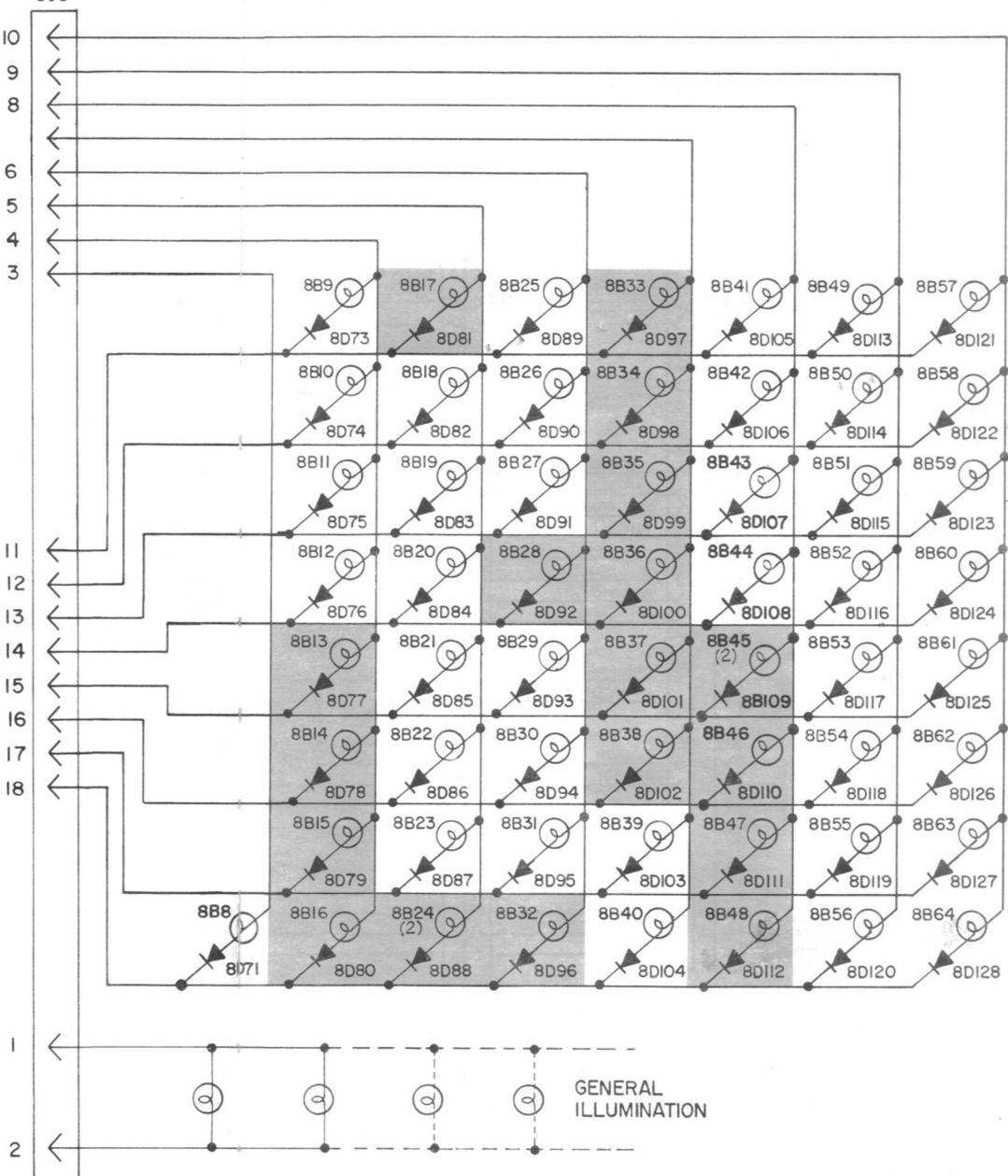
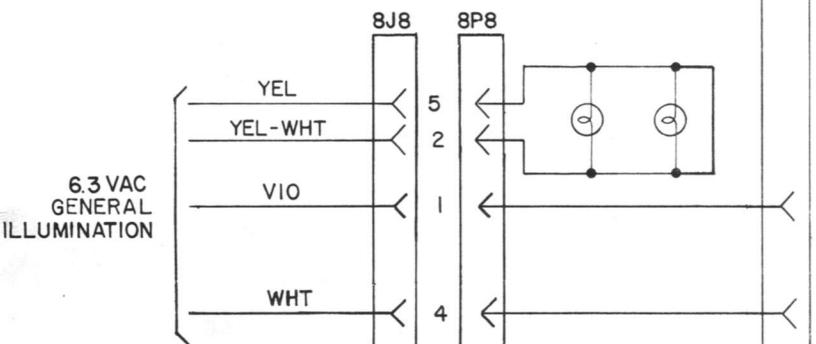
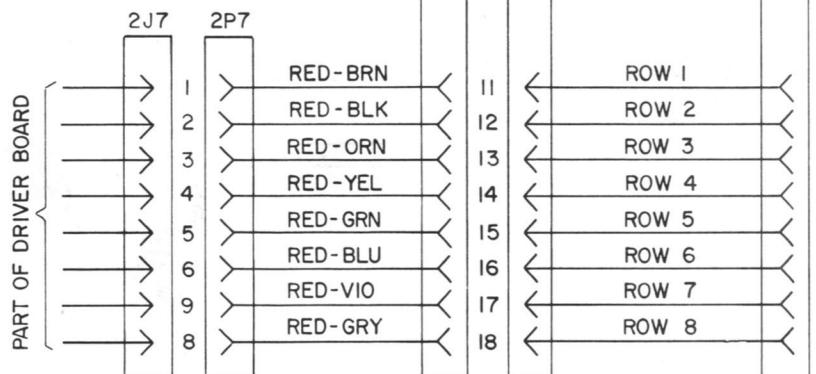
Cabinet Wiring Diagram

JUNGLE LORD  
PLAYFIELD LAMP WIRING DIAGRAM

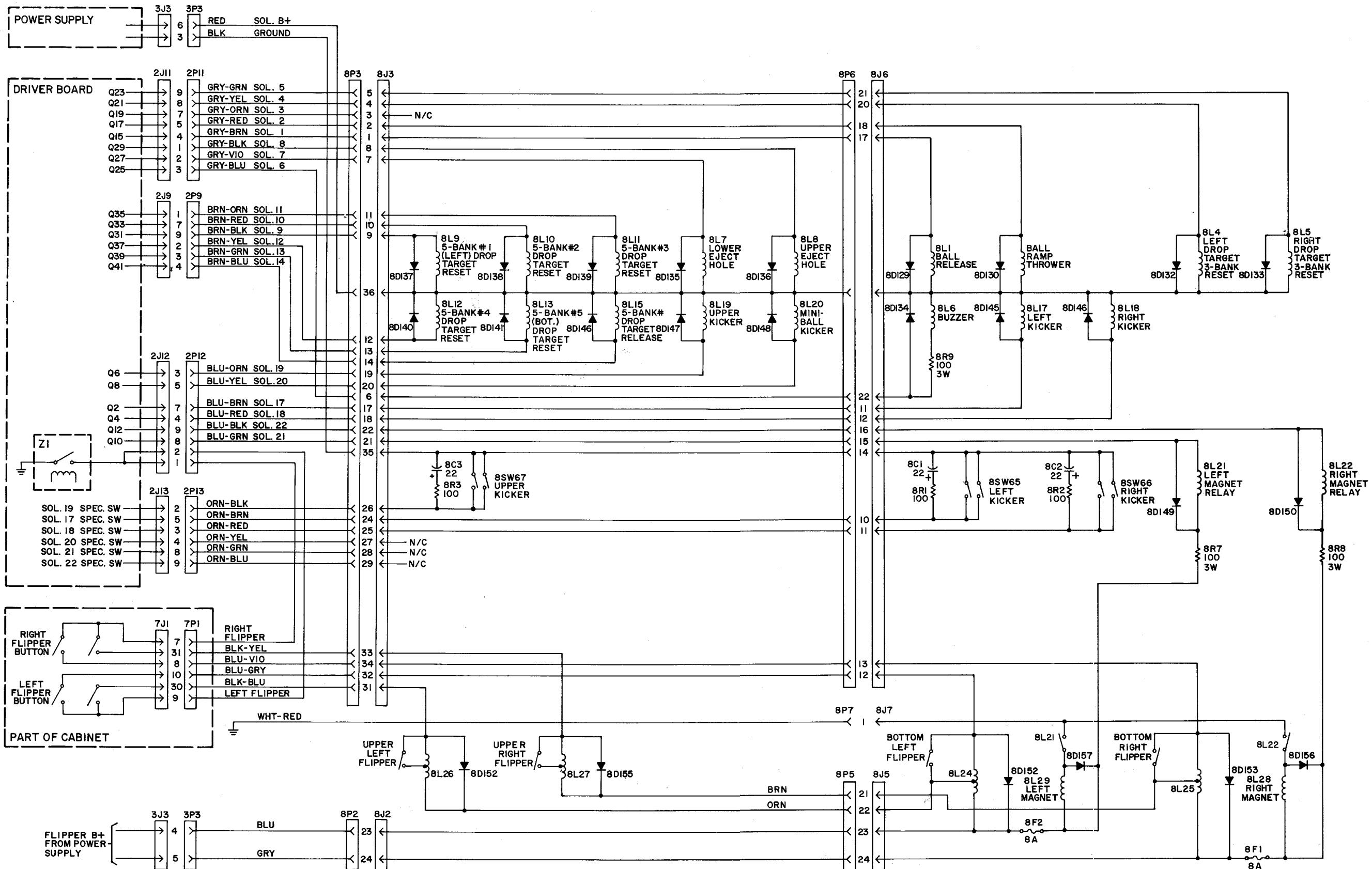
503



INDICATES MOUNTED ON  
UPPER PLAYFIELD AND  
CONNECTIONS ARE NOT  
ROUTED THROUGH 8P5/8J5.



Bulb No.	Function
01	Score Player Shoots Again (I)
02	Ball in Play
03	Tilt
04	Game Over
05	Match Score to date
06	Multi-Ball Timer
07	Right magnet Lamp #1 (Bottom)
09	Right magnet Lamp #2
10	Right magnet Lamp #3
11	Right magnet Lamp #4
12	Right magnet Lamp #5 (top)
13	"L"
14	"R"
15	"D"
16	#1 Target
17	#2 Target
18	#3 Target
20	#4 Rollover
21	#5 Rollover
22	Left Magnet Shield
23	Right Drain Shield
24	Min-field Illumination (Left)
25	Right 3-Bank
26	Left 3-Bank
27	Keep Shooting (Playfield)
28	Min-field Special
29	Left 3-Bank
30	Left 3-Bank Letter
31	Loop Spots X Value
32	Min-field Illumination
33	5-Bank #1 Arrow (Left)
34	5-Bank #2 Arrow
35	5-Bank #3 Arrow
36	5-Bank #4 Arrow
37	5-Bank #5 Arrow (Right)
38	Min-field Illumination
39	Left magnet #1 (Bottom)
41	Left magnet #2
42	Left Magnet #3
43	Left Magnet #4
44	Left Magnet #5 (Top)
45	Extra Kick When Lit
46	Lock Lamps (X)
47	Drop Target Lamp
48	Min-field Illumination x 2
49	"I" Bonus
50	"2" Bonus
51	"3" Bonus
52	"4" Bonus
53	"5" Bonus
54	"6" Bonus
55	"7" Bonus
56	"8" Bonus
57	"9" Bonus
58	"10" Bonus
59	"20" Bonus
60	"30" Bonus
61	2X
62	3X
63	5X
64	10X



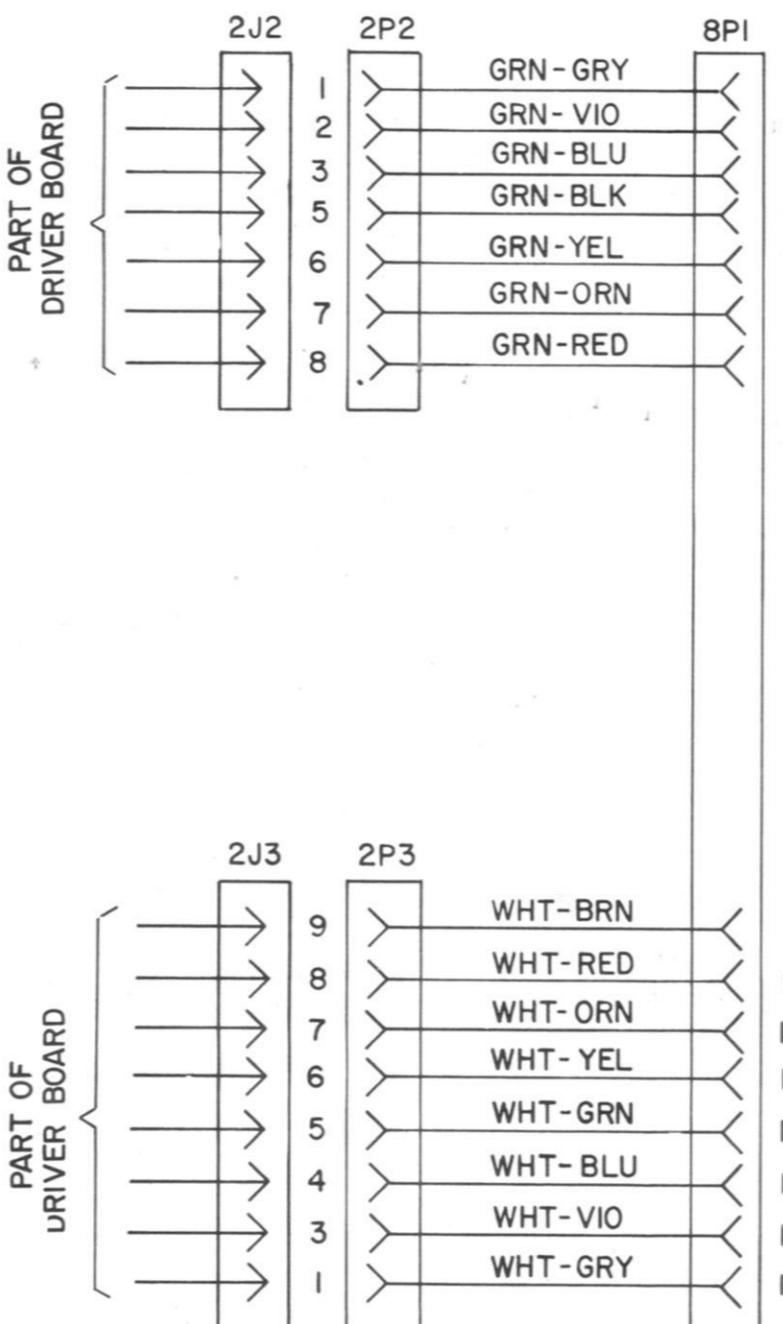
**JUNGLE LORD**  
PLAYFIELD SWITCH WIRING DIAGRAM

Switch	No. Function (Score <sup>†</sup> )
09	Right Ball Ramp
10	Left Ball Ramp
11	Not Used
12	Left Kicker (10)
13	"L" Rollover (5000)
14	"O" Rollover (5000)
15	"R" Rollover (5000)
16	"D" Rollover (5000)
17	1 Target (1000)
18	2 Target (1000)
19	3 Target (1000)
20	4 Rollover (1000)
21	5 Rollover (1000)
22	Left Drain Lane (5000)
23	Right Drain Lane (5000)
24	Turnaround Lower Rollover (1000/16,000*)
25	Right 3-Bank, Lower Drop Target (1000)
26	Right 3-Bank, Center Drop Target (1000)
27	Right 3-Bank, Upper Drop Target (1000)
28	Right Kicker (10)
29	Left 3-Bank, Lower Drop Target (1000)
30	Left 3-Bank, Center Drop Target (1000)
31	Left 3-Bank, Upper Drop Target (1000)
32	Turnaround, Upper Rollover (1000*)
33	5-Bank, #1 Drop Target (Left) (10,000**)
34	5-Bank, #2 Drop Target (10,000**)
35	5-Bank, #3 Drop Target (10,010**)
36	5-Bank, #4 Drop Target (10,000**)
37	5-Bank, #5 Drop Target (Right) (10,000**)
38	Upper Eject Hole (1000)
39	Lower Eject Hole (1000)
40	Upper Kicker (10)
41	Playfield Tilt
42	Outhole
43	Ballshooter Trough
44	Playfield Entry
45	Upper Left Standup (10)
46	Left Standup (10)
47	Right Standup (10)
48	Not Used
49	Right Magnet Button
50	Left Magnet Button

<sup>†</sup>All scores are doubled for 2X Scoring.

\*Switch 24 scores 1000 when made before switch 32, 1000 when made after switch 32 with Advance Bonus X or Lite Drain Shield lit, and 16,000 when made after switch 32 with neither lamp on.

\*\*5-Bank 10,000 score is doubled up to 160,000 for Double-Trou.



■ INDICATES MOUNTED ON UPPER PLAYFIELD AND ARE NOT ROUTED THROUGH 8P4/8J4.

