

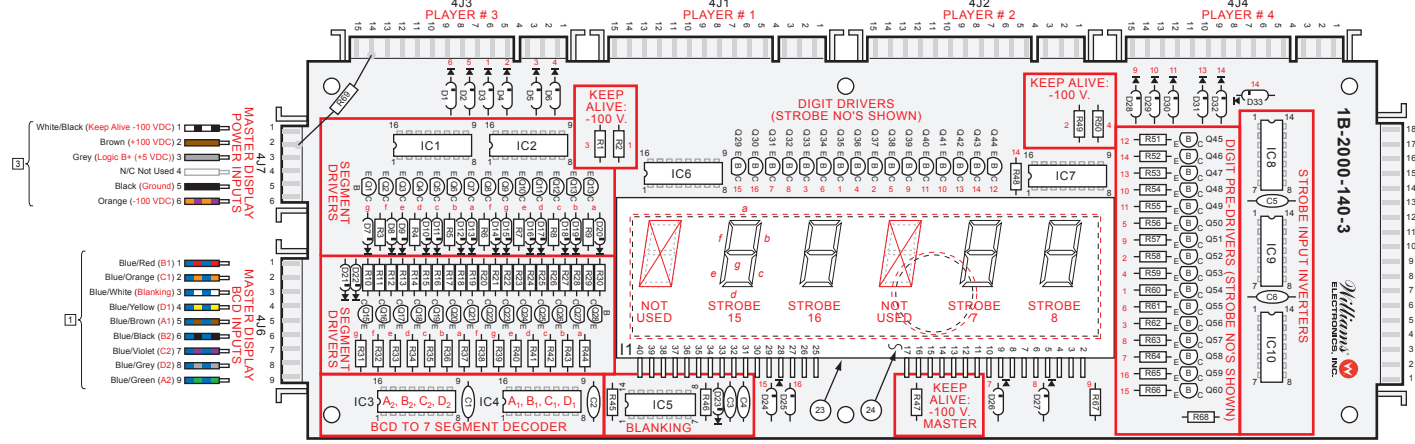
FIREPOWER

D8168 Master Display Board Assembly Drawing (Discrete Drivers)



BOARD CONNECTIONS:

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



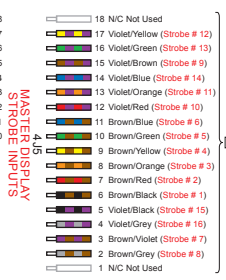
MASTER DISPLAY TROUBLESHOOTING

(Place Diagnostics in Display Digits Test)

- TROUBLESHOOTING: NO DISPLAY**
 - Check -100 VDC, +100 VDC & fuse on Power Supply.
 - Check connectors 3,5, 4,7, 1,3, 1,5, 1,6, 1,7.
 - Check for +100 VDC and -100 VDC on connector 4,7 - replace Power Supply Board if voltage incorrect.
 - Replace Master Display Board.
- TROUBLESHOOTING: INCORRECT DISPLAY**
 - Check +100 VDC, -100 VDC at 4,7.
 - Check for broken or shorted wires on 4,5, 4,6, 1,5, 1,6, 1,7.
 - Replace Master Display Board.

USE EXTREME CAUTION WHEN MEASURING HIGH VOLTAGES!!!

BILL OF MATERIALS				
ITEM NO.	PART No.	PART DESIGNATION	DESCRIPTION	REQ'D NO
1	1B-2000-140-3	IC1	BARE P.C. BOARD	1
2	5A-9221	IC2	15 DIP RESISTOR/PACK 2.2 K OHM	1
3	5A-9222	IC3	15 DIP RESISTOR/PACK 1 K OHM	1
4	5A-8970	IC3, IC4	MC14543 7 SEGMENT DRIVER	2
5	5A-9213	IC5	4012 CMOS DUAL 4 INPUT NAND GATE	1
6	5A-9220	IC6	15 DIP RESISTOR/PACK 22 K OHM	1
7	5A-9223	IC7	15 DIP RESISTOR/PACK 10 K OHM	1
8	5A-9267	IC8, IC9, IC10	4069 LOW POWER HEX. INVERTER	3
9	5A-9216	Q1 THRU Q14, Q45 THRU Q60	HIGH VOLTAGE NPN TRANSISTOR MPS-A42	30
10	5A-9217	Q15 THRU Q44	HIGH VOLTAGE PNP TRANSISTOR MPS-A62	30
11	5A-8785	D1 THRU D20, D24 THRU D33	IN4003 DIODE, SILICON	30
12	5A-8919	D21, D22, D23	IN4148 DIODE, SILICON	3
13	5A-9224	R68	RESISTOR, FC, 270 OHM 10% 1/4 W.	1
14	5A-9219	R5 THRU R66	RESISTOR, FC, 8.2 K OHM 10% 1/4 W.	16
15	5A-8817	R48	RESISTOR, FC, 10 K OHM 10% 1/4 W.	1
16	5A-9032	R31 THRU R44	RESISTOR, FC, 12 K OHM 10% 1/4 W.	14
17	5A-8774	R45, R67	RESISTOR, FC, 22 K OHM 10% 1/4 W.	2
18	5A-9035	R10, R12, R13, R15, R16, R18, R19, R21, R22, R24, R25, R26, R27, R30	RESISTOR, FC, 47 K OHM 10% 1/4 W.	14
19	5A-9162	R3 THRU R9, R11, R14, R17, R20, R23, R26, R29, R46	RESISTOR, FC, 100 K OHM 10% 1/4 W.	15
20	5A-9218	R1, R2, R47, R49, R50	RESISTOR, FC, 2.2 M OHM 10% 1/4 W.	5
21	5A-8980	C1, C2, C5, C6	CAPACITOR, CERAMIC, 01 MFD, 50 V.	4
22	5A-9065	C3, C4	CAPACITOR, CERAMIC, 470 PFD, 50 V.	2
23	5B-8966	I1	6 DIGIT DISPLAY	1
24	23A 6542		DISPLAY MTG. ADHESIVE FOAM	1
25	5A-9285	R69	RESISTOR, FC, 180 OHM 5% 1/4 W.	1



Slave Display Board

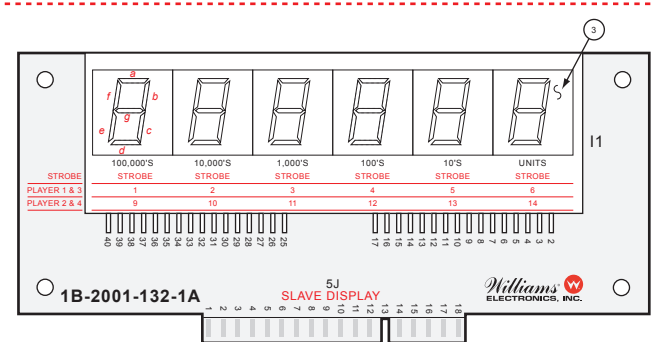
BILL OF MATERIALS				
ITEM NO.	PART No.	PART DESIGNATION	DESCRIPTION	REQ'D NO
1	1B-2001-132		BARE P.C. BOARD	1
2	5A-8966	I1	6 DIGIT DISPLAY	1
3	5A-9057		DISPLAY MTG. ADHESIVE FOAM	1

PLAYER DISPLAY (SLAVE DISPLAY) TROUBLESHOOTING

(Place Diagnostics in Display Digits Test)

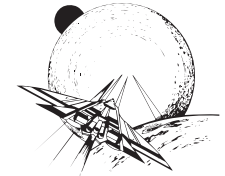
- TROUBLESHOOTING: 1 PLAYER DISPLAY INCORRECT/OFF**
 - Check correct location of connector from Master Display Board.
 - Replace Player Display - if still incorrect, replace Master Display Board.
- TROUBLESHOOTING: 2 - 4 PLAYER DISPLAYS INCORRECT/OFF**
 - Check correct location of connectors from Master Display Board.
 - Check voltage +100 VDC and -100 VDC on connector 4,7.
 - If voltages are correct - replace Master Display Board.

USE EXTREME CAUTION WHEN MEASURING HIGH VOLTAGES!!!



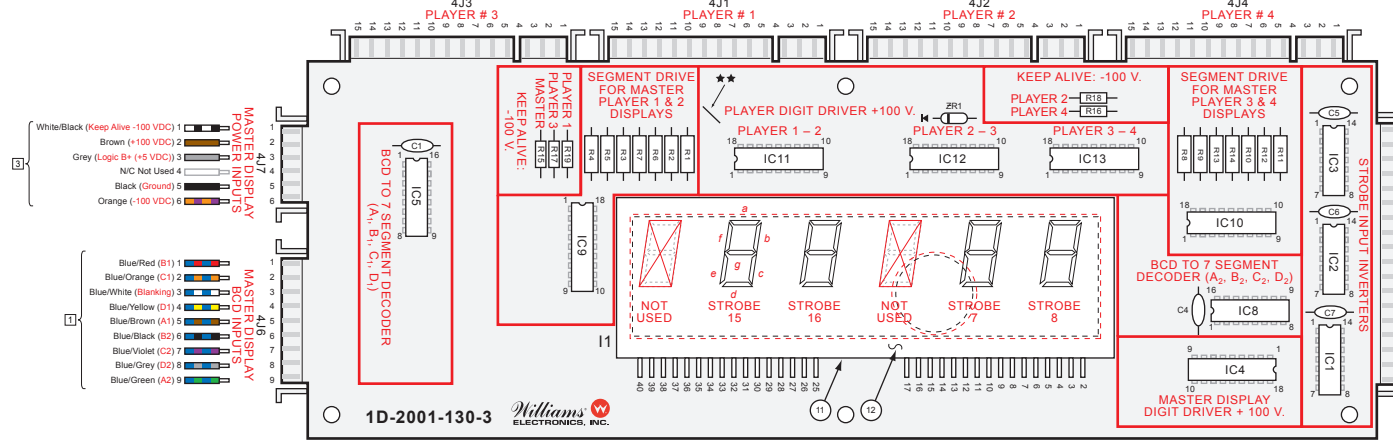
FIREPOWER

D8000 Master Display Board Assembly Drawing (IC Drivers)



BOARD CONNECTIONS:

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



MASTER DISPLAY TROUBLESHOOTING
 (Place Diagnostics in Display Digits Test)

- 1. TROUBLESHOOTING: NO DISPLAY**
- Check -100 VDC, +100 VDC & fuse on Power Supply.
 - Check connectors 3,5, 4,7, 1,3, 1,5, 1,6, 1,7.
 - Check for +100 VDC and -100 VDC on connector 4,7 - replace Power Supply Board if voltage incorrect.
 - Replace Master Display Board.
- 2. TROUBLESHOOTING: INCORRECT DISPLAY**
- Check +100 VDC, -100 VDC at 4,7.
 - Check for broken or shorted wires on 4,5, 4,6, 1,5, 1,6, 1,7.
 - Replace Master Display Board.

USE EXTREME CAUTION WHEN MEASURING HIGH VOLTAGES!!!

BILL OF MATERIALS				
ITEM NO.	PART No.	PART DESIGNATION	DESCRIPTION	REQD NO
1	1D-2001-130-3		BARE P.C. BOARD	1
2	5A-8971	IC1, IC2, IC3	MC14089 HEX. INVERTER	3
3	5A-8970	IC5, IC8	MC14543 BCD TO SEVEN SEGMENT LATCH DECODER DRIVER	2
4	5A-8969	IC9, IC10	UDN-780 GAS DISCHARGE DISPLAY SEGMENT DRIVER	2
5	5A-8968	IC4, IC11, IC12, IC13	UDN-6184 GAS DISCHARGE DISPLAY SEGMENT DRIVER	4
6	5B-8981	R1 THRU R14	RESISTOR, FC, 10 K OHM 10% 1/4 W.	14
7	5B-8982	R15 THRU R19	RESISTOR, FC, 3 MEG OHM 10% 1/4 W.	5
8	5A-9135	ZR1	1N4740A ZENNER DIODE, 10 V, 5% 1 W.	1
9	5A-8980	C1, C4 THRU C7	CAPACITOR, CERAMC, 01 MFD, 50 V.	5
10	5B-8966	I1	6 DIGIT DISPLAY	1
12	23A 6542		DISPLAY MTC, ADHESIVE FOAM	1

NOTES:
 * IC11, IC12, IC13 & IC14 ARE DIONICS-S12 DRIVERS THEN R1 THRU R14 ARE 5A-9148 RES., FC, 15 K OHM ±10% 1/4 W. ZR1 NOT USED.
 ** CUT & JUMP ON +100 V. NOT IMPLEMENTED.

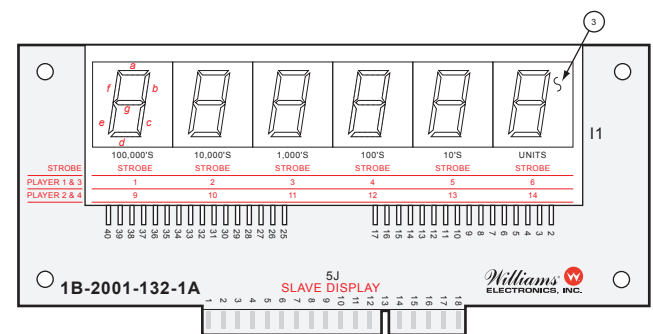
Slave Display Board

BILL OF MATERIALS				
ITEM NO.	PART No.	PART DESIGNATION	DESCRIPTION	REQD NO
1	1B-2001-132		BARE P.C. BOARD	1
2	5A-8966	I1	6 DIGIT DISPLAY	1
3	5A-9057		DISPLAY MTC, ADHESIVE FOAM	1

PLAYER DISPLAY (SLAVE DISPLAY) TROUBLESHOOTING
 (Place Diagnostics in Display Digits Test)

- 1. TROUBLESHOOTING: 1 PLAYER DISPLAYS INCORRECT/OFF**
- Check correct location of connector from Master Display Board.
 - Replace Player Display - if still incorrect, replace Master Display Board.
- 2. TROUBLESHOOTING: 2 - 4 PLAYER DISPLAYS INCORRECT/OFF**
- Check correct location of connectors from Master Display Board.
 - Check voltage +100 VDC and -100 VDC on connector 4,7.
 - If voltages are correct - replace Master Display Board.

USE EXTREME CAUTION WHEN MEASURING HIGH VOLTAGES!!!



DIGIT CROSS REFERENCE CHART		
DIGIT	7-SEGMENT DECODER	STROBE
Master 1 (Left)	IC5	15
Master 2	IC5	16
Master 3	IC5	7
Master 4 (Right)	IC5	8
#1 100,000	IC5	1
#1 10,000	IC5	2
#1 1,000	IC5	3
#1 100	IC5	4
#1 Units	IC5	5
#2 100,000	IC5	9
#2 10,000	IC5	10
#2 1,000	IC5	11
#2 100	IC5	12
#2 10	IC5	13
#2 Units	IC5	14
#3 100,000	IC8	1
#3 10,000	IC8	2
#3 1,000	IC8	3
#3 100	IC8	4
#3 10	IC8	5
#3 Units	IC8	6
#4 100,000	IC8	9
#4 10,000	IC8	10
#4 1,000	IC8	11
#4 100	IC8	12
#4 10	IC8	13
#4 Units	IC8	14

