

Williams[®]

16P-495-101
Game No. 495
August, 1980

BLACKOUT



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FOREWORD

This instruction and drawing set provides essential installation information and any maintenance information unique to BLACKOUT. All assembly drawings and logic and schematic diagrams are also included. For game operation, bookkeeping, game adjustment and diagnostic procedures, refer to the instruction booklet located in the envelope inside the coin door. The booklet also provides solenoid, lamp, and switch charts. For troubleshooting and interconnection information refer to Williams Solid State Flipper Maintenance Manual.

SPECIAL CONSIDERATIONS WHEN REPLACING CIRCUIT BOARDS

CPU Board

1. For memory protection feature, revision level 6 CPU Boards (batteries located on lower right corner of board) must be used. Revision level 4 CPU Boards equipped with IC14 and IC16 sockets may be used but the memory protection feature is lost:
2. Must be equipped with green-labeled BLACKOUT PROMs or game ROM and green-labeled flipper ROMs.
3. When Game ROM is used, jumper J3 must be connected and J4 removed.

Sound Board

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

Power Supply Board

1. Fuse F4 (10A SB) for flipper solenoids must be installed.

Optional Speech Module

1. Requires 5T4951 (IC7), 5T4952 (IC5), and 5T4953 (IC6) speech ROMs.

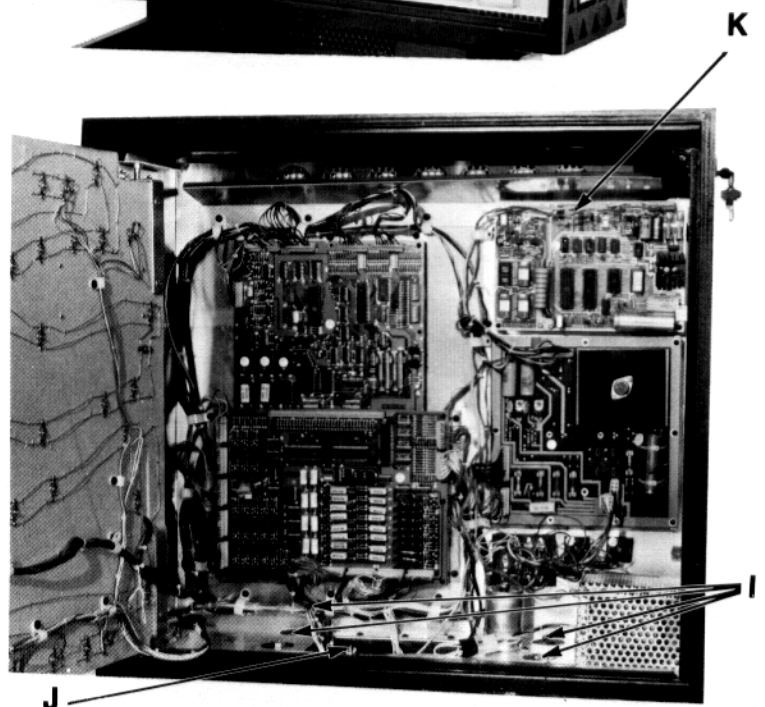
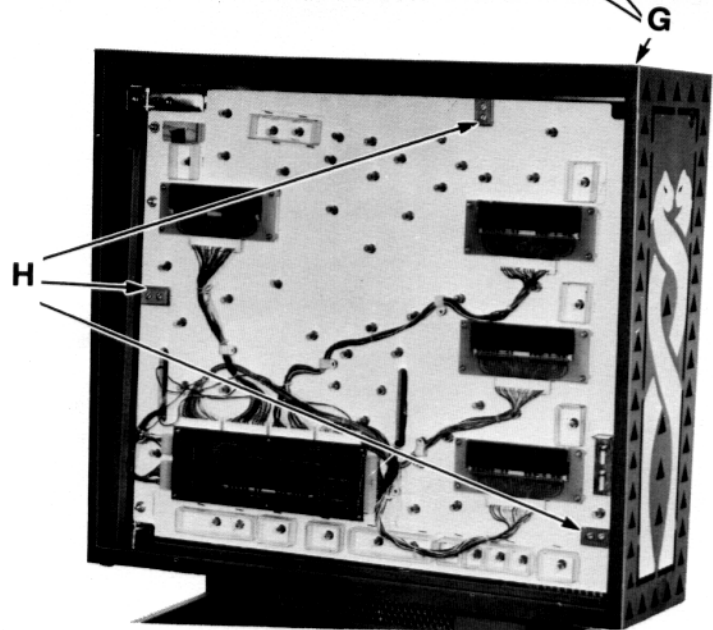
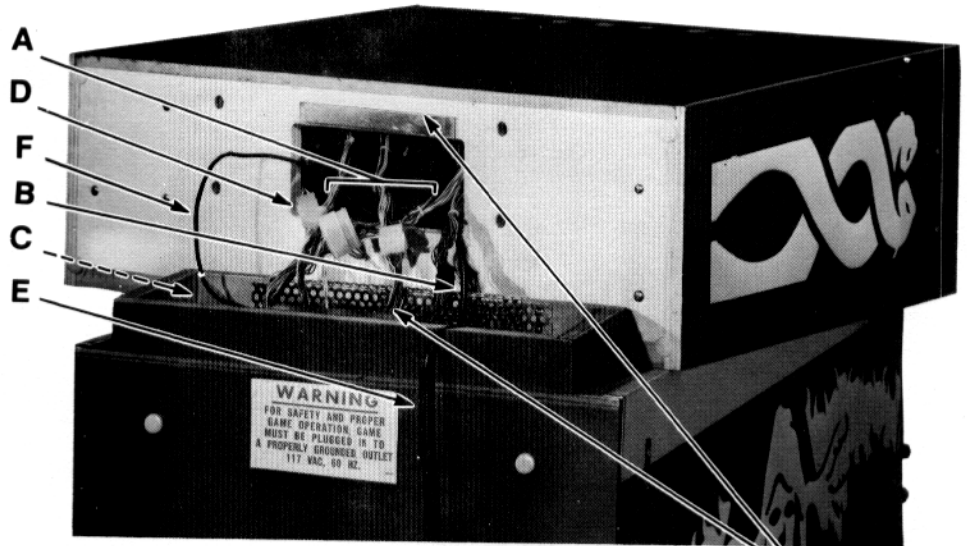
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Assembly and Interconnection

With legs attached to cabinet, position backbox as shown and 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 the tie securing cabinet and playfield cables to cabinet and pull up these cables.
- D Interconnect five cables. They are size and color coded except for power connector where wire colors do not match.
- E Insert line cord into notch in cabinet. **DO NOT PLUG IN AT THIS TIME.**
- F Push remote volume control cable into backbox.
- G Lift up backbox and position on cabinet pedestal, engaging brackets for support.
- H Remove shipping blocks.
- I Secure backbox to cabinet using four bolts and washers.
- J Connect ground braid under wing nut and washer.
- K Loosely position remote volume control cable in harness and plug connector into 10J4 on Sound Board.



Inspection

A Check all connectors in backbox for loose wire terminations. Reseat any loose wires by pushing in on the termination.

B (Not called out) Push on all connectors attached to the CPU, Driver, Sound, and Power Supply Boards and check terminations on capacitor and bridge rectifiers.

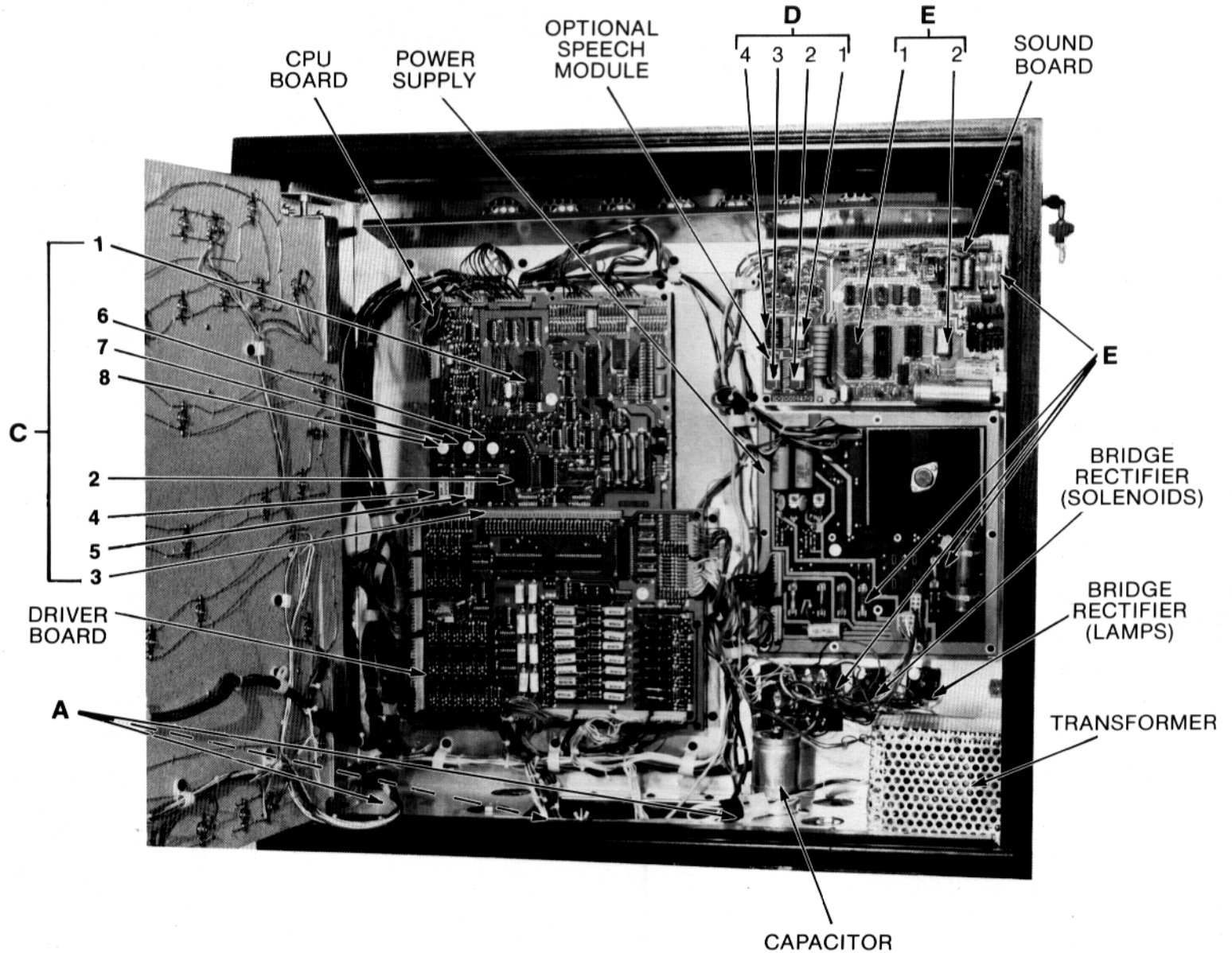
C Gently press on the socketed IC packages on CPU Board:

1 MPU, 2 RAM, 4 and 5 ROMS, and 6, 7 and 8 PROMS or 3 Game ROM.

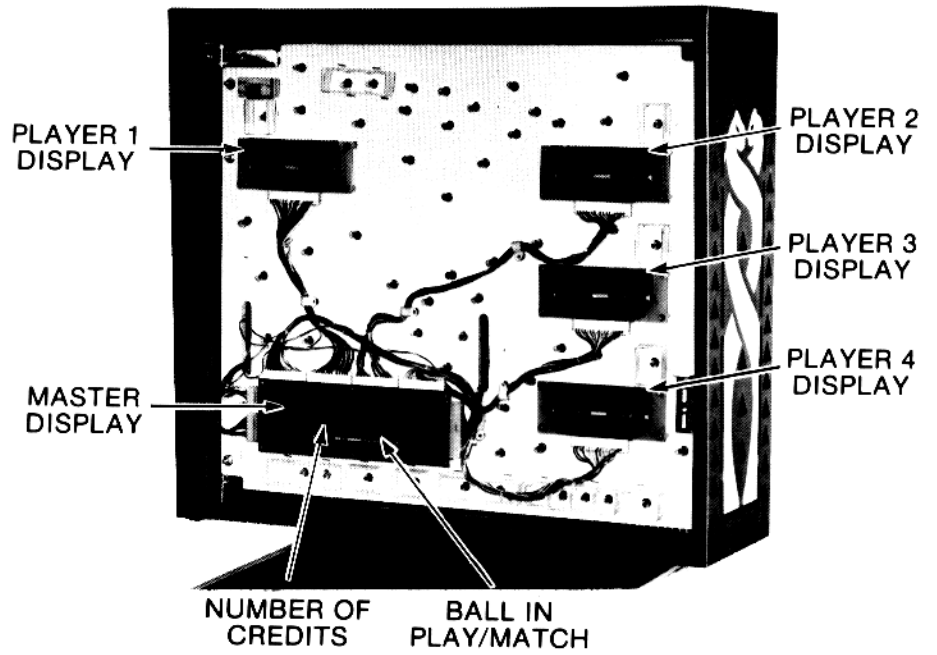
D Gently press on the socketed IC packages on the Speech Module (if provided): 1, 2, and 3 ROMs.

E Gently press on the socketed IC packages on Sound Board: 1 MPU, 2 Sound ROM.

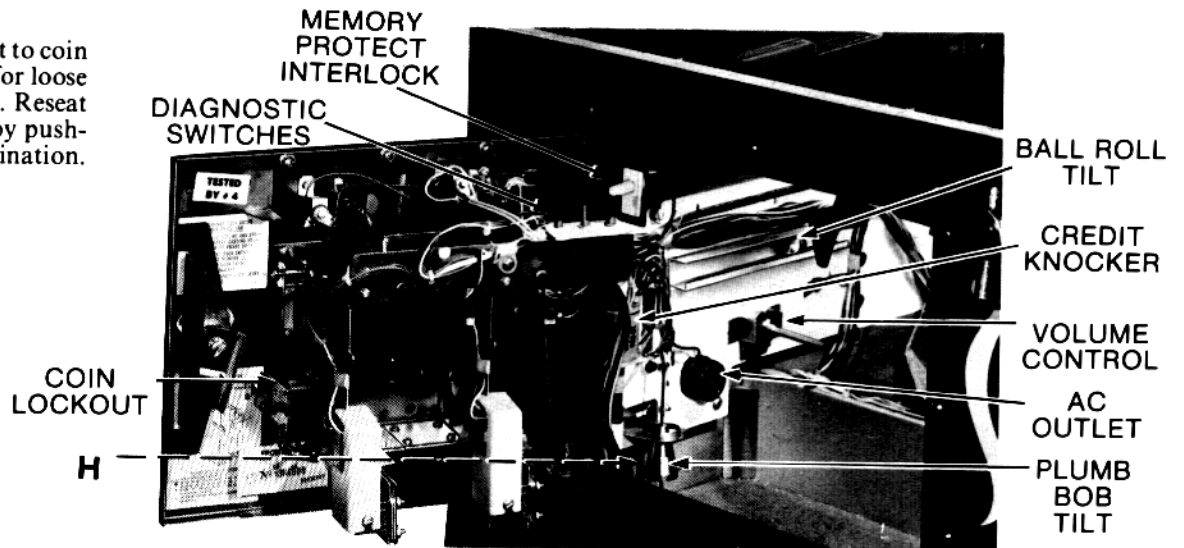
F Check that two fuses on Sound Board, five fuses on Power Supply, and three fuses on fuse card are secure.



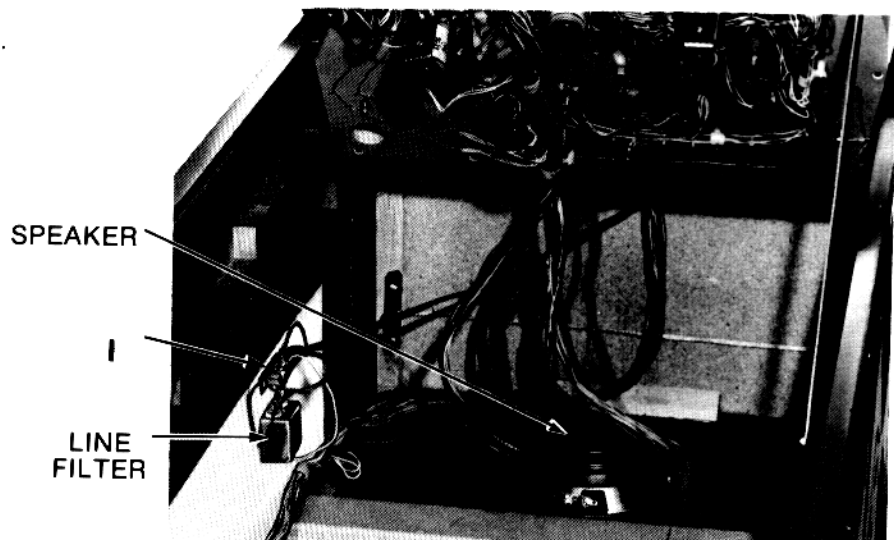
G (Not called out) Push on all connectors attached to Master and Player Display Boards.



H Check the cabinet to coin door connectors for loose wire terminations. Reseat any loose wires by pushing in on the termination.



I Check that the line fuse is secure.



Power Turn-On

This machine **MUST BE PLUGGED INTO A PROPERLY GROUNDED OUTLET to PREVENT SHOCK HAZARD** and 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 (page 23).

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 scores reading zero, player 1 up light flashing, game over lights lit, and the high score to date alternating with the player 1 score.
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. Perform diagnostic tests and make any desired changes to features as described in the instruction booklet.

Electrical Adjustments**Games with Speech Module**

1. Set miniature switch 2 to ON to enable speech; set it to OFF to inhibit speech.
2. Set switch 1 to OFF to select synthesized sounds, set it to ON to select musical notes.

3. Adjust balance control on Speech Module for relative volume of speech and sounds.
4. Adjust volume control in cabinet for desired volume.

Games without Speech Module

1. Setting of miniature switch 2 does not matter.
2. Set switch 1 to OFF to select synthesized sounds; set it to ON to select musical notes.
3. Adjust volume control in cabinet for desired volume.

Special Maintenance Information

When the diagnostic pushbutton is depressed, eight electronic sounds are produced. Next, if the optional Speech Module is provided, the BLACKOUT vocabulary is produced. This sequence is continuously repeated until the game is turned OFF and back ON.

VOCABULARY**LOCATED IN ROM***English*

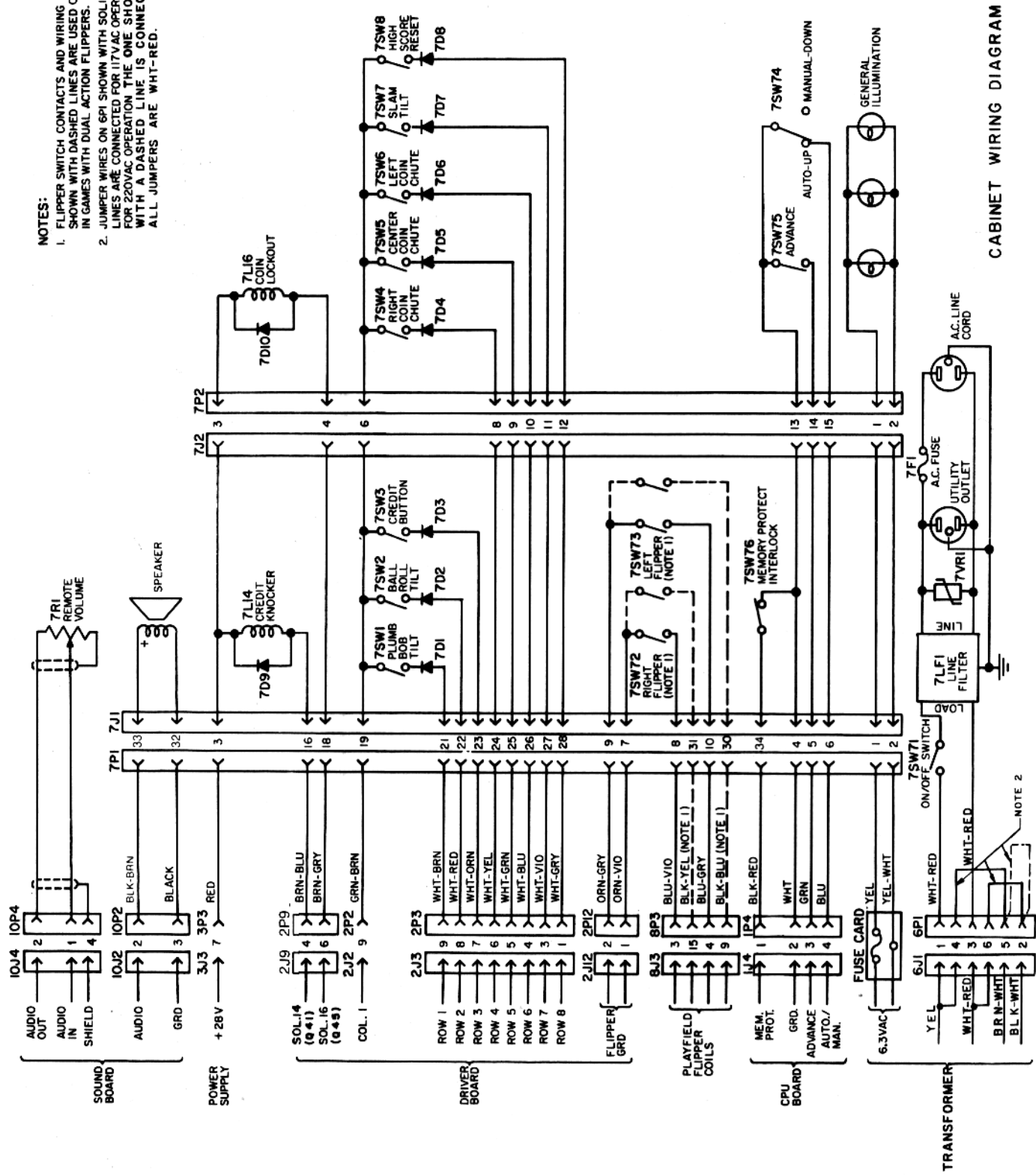
<i>BLACKOUT</i>	<i>5T 4951</i>
<i>LAUNCH</i>	<i>5T 4951</i>
<i>MISSION</i>	<i>5T 4951</i>
<i>CONDITION</i>	<i>5T 4951 and 5T 4952</i>
<i>GREEN</i>	<i>5T 4952</i>
<i>RED</i>	<i>5T 4952</i>
<i>YELLOW</i>	<i>5T 4952</i>
<i>RESUME</i>	<i>5T 4952 and 5T 4953</i>
<i>ORBIT</i>	<i>5T 4953</i>
<i>COMPLETED</i>	<i>5T 4953</i>

French

BLACKOUT	5T 4954
DÉPART	5T 4954 and 5T 4955
MISSION	5T 4955
ALERTE	5T 4955
ROUGE	5T 4955 and 5T 4956
JAUNE	5T 4956
REPRISE	5T 4956 and 5T 4957
ORBITE	5T 4957
ACCOMPLIE	5T 4957

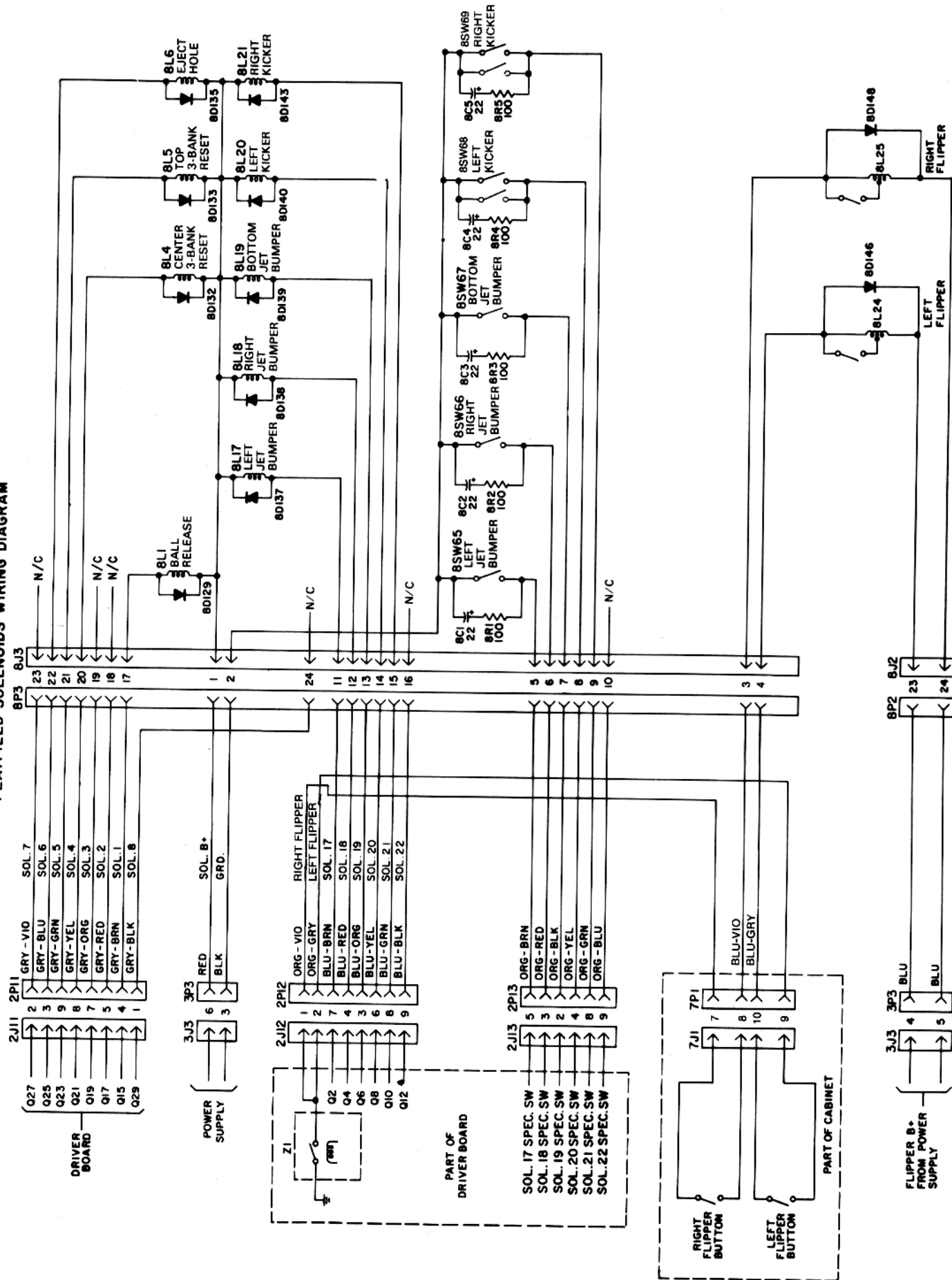
NOTES:

1. FLIPPER SWITCH CONTACTS AND WIRING SHOWN WITH DASHED LINES ARE USED ONLY IN GAMES WITH DUAL ACTION FLIPPERS.
2. JUMPER WIRES ON GPI SHOWN WITH SOLID LINES ARE CONNECTED FOR 117VAC OPERATION, FOR 220VAC OPERATION THE ONE SHOWN WITH A DASHED LINE IS CONNECTED. ALL JUMPERS ARE WHT-RED.



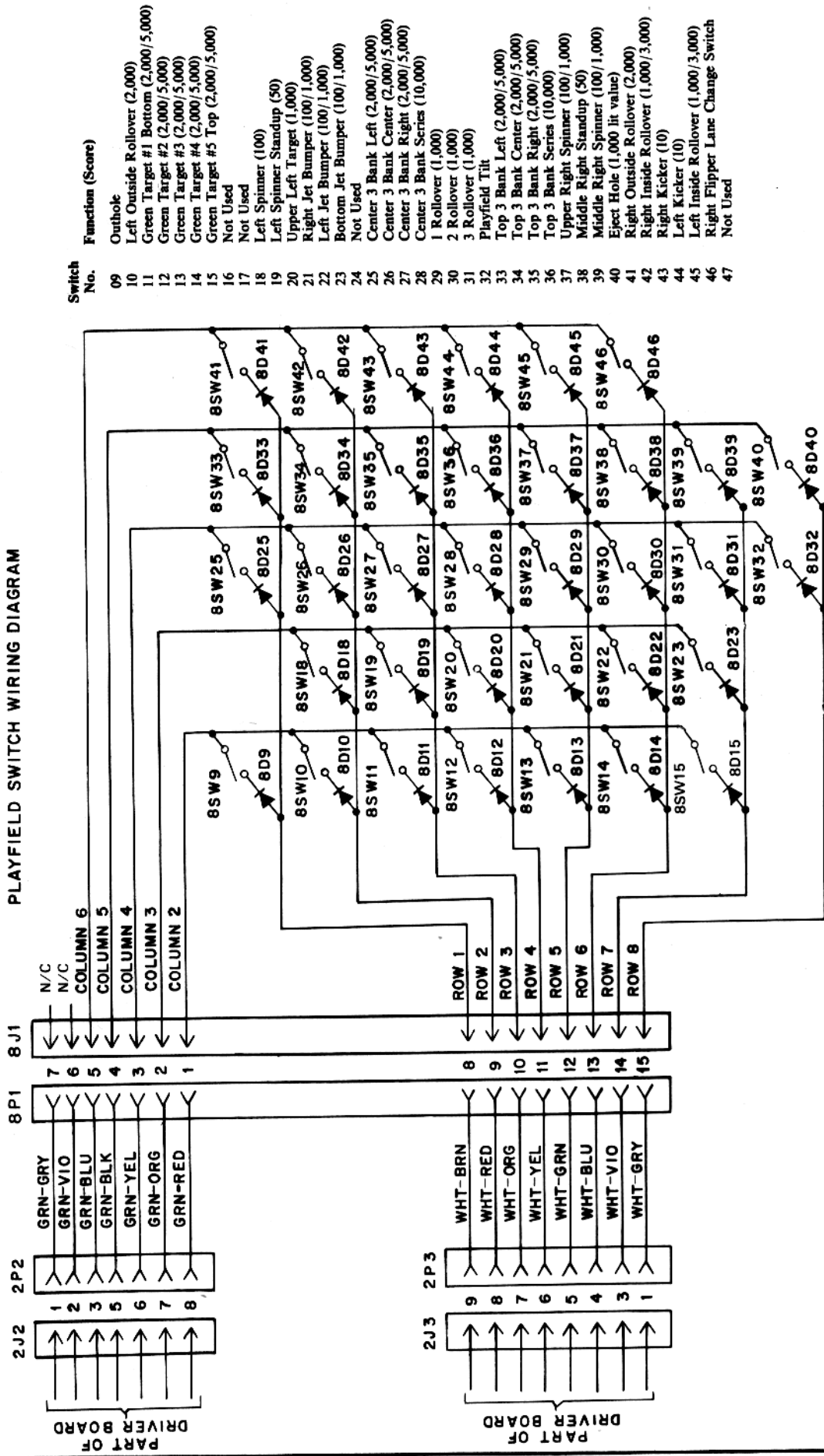
CABINET WIRING DIAGRAM

PLAYFIELD SOLENOIDS WIRING DIAGRAM



Playfield Solenoid Wiring Diagram

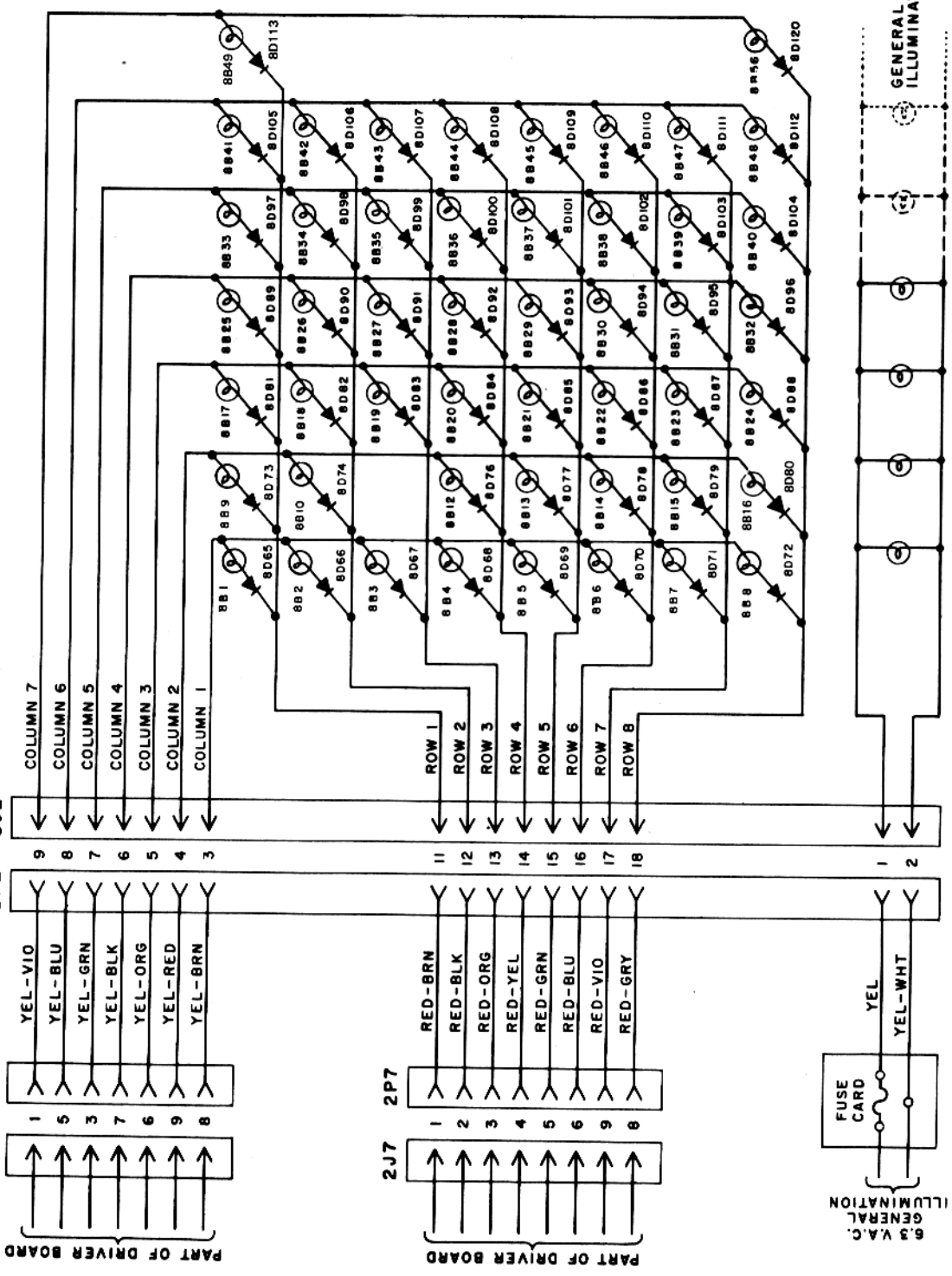
BLACKOUT PLAYFIELD SWITCH WIRING DIAGRAM



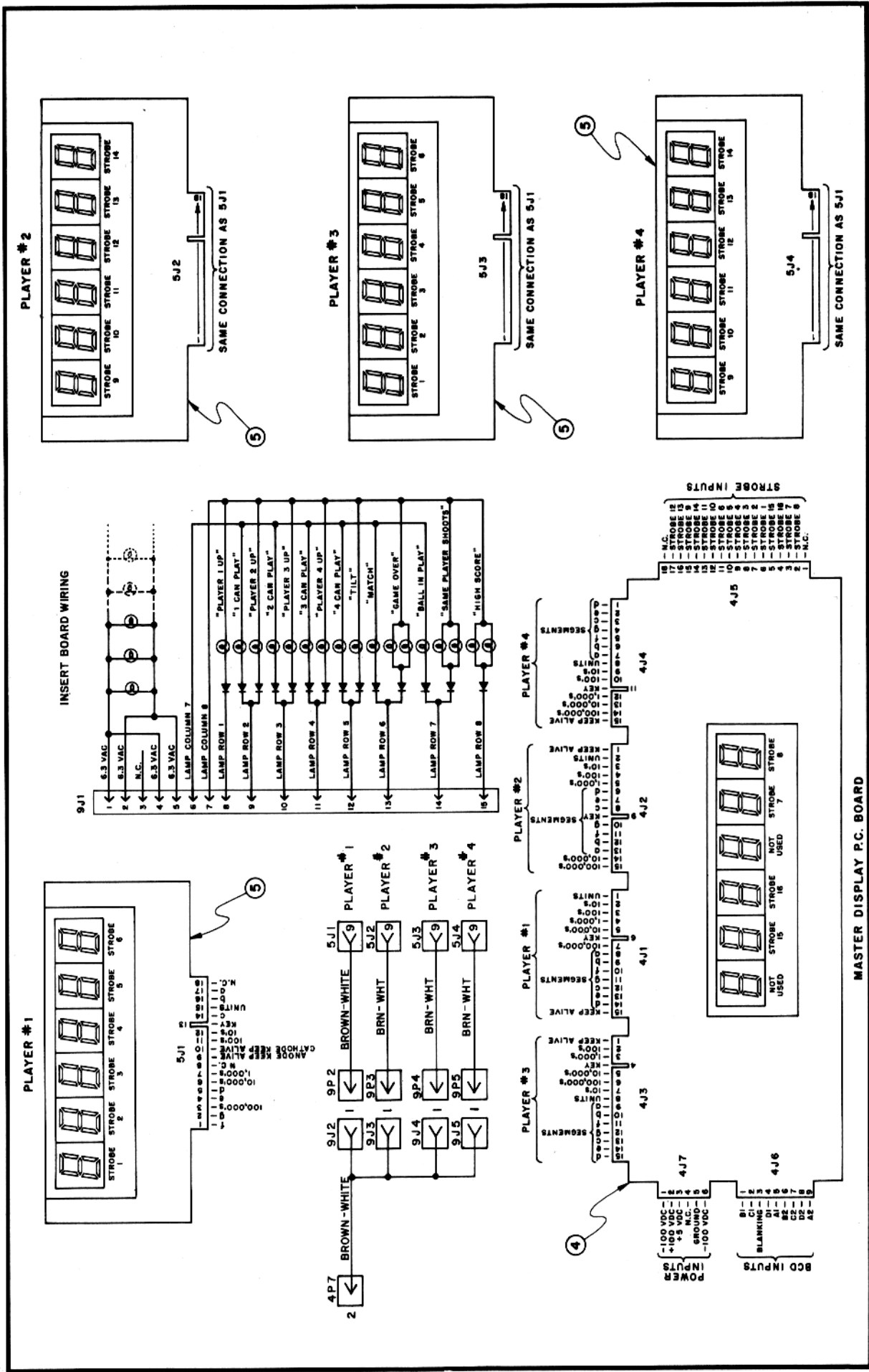
Switch No.	Function (Score)
09	OutHole
10	Left Outside Rollover (2,000)
11	Green Target #1 Bottom (2,000/5,000)
12	Green Target #2 (2,000/5,000)
13	Green Target #3 (2,000/5,000)
14	Green Target #4 (2,000/5,000)
15	Green Target #5 Top (2,000/5,000)
16	Not Used
17	Not Used
18	Left Spinner (100)
19	Left Spinner Standup (50)
20	Upper Left Target (1,000)
21	Right Jet Bumper (100/1,000)
22	Left Jet Bumper (100/1,000)
23	Bottom Jet Bumper (100/1,000)
24	Not Used
25	Center 3 Bank Left (2,000/5,000)
26	Center 3 Bank Center (2,000/5,000)
27	Center 3 Bank Right (2,000/5,000)
28	Center 3 Bank Series (10,000)
29	1 Rollover (1,000)
30	2 Rollover (1,000)
31	3 Rollover (1,000)
32	Playfield Tilt
33	Top 3 Bank Left (2,000/5,000)
34	Top 3 Bank Center (2,000/5,000)
35	Top 3 Bank Right (2,000/5,000)
36	Top 3 Bank Series (10,000)
37	Upper Right Spinner (100/1,000)
38	Middle Right Standup (50)
39	Middle Right Spinner (100/1,000)
40	Eject Hole (1,000 lit value)
41	Right Outside Rollover (2,000)
42	Right Inside Rollover (1,000/3,000)
43	Right Kicker (10)
44	Left Kicker (10)
45	Left Inside Rollover (1,000/3,000)
46	Right Flipper Lane Change Switch
47	Not Used

**BLACKOUT
PLAYFIELD LAMP WIRING DIAGRAM**

Bulb No.	Function
01	Same Player Shoots Again
02	1,000 Bonus
03	2,000 Bonus
04	3,000 Bonus
05	4,000 Bonus
06	5,000 Bonus
07	6,000 Bonus
08	7,000 Bonus
09	8,000 Bonus
10	9,000 Bonus
11	10,000 Bonus
12	Not Used
13	2X
14	3X
15	4X
16	5X
17	Green Target #1 Arrow (Bottom)
18	Green Target #2 Arrow
19	Green Target #3 Arrow
20	Green Target #4 Arrow
21	Green Target #5 Arrow (Top)
22	Center 3 Bank Arrow (Left)
23	Center 3 Bank Arrow (Center)
24	Center 3 Bank Arrow (Right)
25	Right Jet Bumper
26	Left Jet Bumper
27	Bottom Jet Bumper
28	-1-
29	-2-
30	-3-
31	Left Inside Rollover
32	Right Inside Rollover
33	Loop 5,000
34	Loop 10,000
35	Loop 15,000
36	Loop 20,000
37	Extra Ball When Lit
38	Top 3 Bank Arrow (Left)
39	Top 3 Bank Arrow (Center)
40	Top 3 Bank Arrow (Right)
41	Top Right Spinner
42	Middle Right Spinner
43	Eject Hole Green 5,000
44	Eject Hole Amber 5,000
45	Eject Hole Red 5,000
46	Eject Hole BLACKOUT
47	Left Special
48	Right Special
49	20,000 Bonus
56	Credits (Playfield)



Playfield Lamp Wiring Diagram



Insert Board Wiring Diagram