

# FIVE STAR REDEMPTION

# *Raptor II Captor* OPERATION MANUAL

September 22, 2008



## Features

- Bright Attention Grabbing Graphics & Cabinet
- Hot looking Lights
- Exciting Super Fast Skill Stop
- Oversized Highly Reliability Buttons
- Operator Programmable

## Specifications

Parameter	Value	Units
Voltage	115	VAC
Frequency	60	HZ
Weight	200	Pounds

## Overview

Raptor Capture II consists of a lighted Dinosaur panel with a gun. The player console has a gun for shooting, two numeric displays for game play, speakers for sound effects, two coin acceptors, and a ticket dispenser for winners. The objective is to skillfully shoot the ball into the colored dinosaur hoops or cups to obtain the highest point values.

# TABLE OF CONTENTS

<b>FEATURES</b> .....	<b>1</b>
<b>SPECIFICATIONS</b> .....	<b>1</b>
<b>OVERVIEW</b> .....	<b>1</b>
<b>TABLE OF CONTENTS</b> .....	<b>2</b>
<b>GAME PLAY</b> .....	<b>4</b>
<b>GAME OPERATOR OPTIONS</b> .....	<b>5</b>
<i>Viewing the Statistical Information</i> .....	5
<i>Changing or Viewing Miscellaneous Settings</i> .....	6
<i>Resetting the Statistics</i> .....	6
<i>Running the Diagnostics</i> .....	6
<i>Changing or Viewing the Playing Field Points</i> .....	7
<i>Changing or Viewing Jackpot Points</i> .....	7
<i>Changing or Viewing Hoop Points</i> .....	7
<i>Changing or Viewing Clock Face Points</i> .....	8
<b>APPENDIX A INPUT/OUTPUT SIGNALS</b> .....	<b>9</b>
W4 – VTMUX BOARD P2 TO PUSHBUTTONS & MISC SWITCHES.....	9
W7 – VTMUX BOARD P3 TO PUSHBUTTON SWITCHES .....	9
W90 – VTMUX BOARD P4 TO OPTO BOARD #1 P9 .....	10
W91 – VTMUX BOARD P5 TO OPTO BOARD #2 P9 .....	10
W95 – VTMUX BOARD P11 TO OPTO BOARD #3 P9.....	11
W96 – VTMUX BOARD P12 TO OPTO BOARD #4 P9 .....	11
W6 – VTMUX BOARD P16 TO MISC PANEL LIGHTS.....	12
W15 – VTMUX BOARD P17 CLOCKFACE LIGHTS 1 - 8.....	13
W16 – VTMUX BOARD P18 CLOCKFACE LIGHTS 9 -12 .....	13
W17 – VTMUX BOARD P22 HOOP LIGHTS .....	14
W18 – VTMUX BOARD P23 DINOSAUR LIGHTS WITH JACKPOT LIGHT.....	14
W19 – VTMUX BOARD P24 PLAYFIELD LIGHTS 1-8.....	15
W20 – VTMUX BOARD P29 PLAYFIELD LIGHTS 9-10.....	15
W24 - VTMUX BOARD P25 TO SMALL DISPLAY .....	16
W25 - VTMUX BOARD P26 TO SMALL DISPLAY .....	16
<b>APPENDIX B WIRING DIAGRAMS</b> .....	<b>17</b>
DIAGRAM 1 – TOP LEVEL INTERCONNECT DIAGRAM.....	17
DIAGRAM 2 – TOP LEVEL INTERCONNECT DIAGRAM 2/4.....	18
DIAGRAM 3 – TOP LEVEL INTERCONNECT DIAGRAM 3/4.....	18
DIAGRAM 4 – TOP LEVEL INTERCONNECT DIAGRAM 4/4.....	19
DIAGRAM 5 – FUNCTIONAL COMPONENTS.....	19
DIAGRAM 6 - PLAYFIELD LAYOUT .....	20
FIGURE 1 – W1 (13.7 VDC POWER SUPPLY TO 8051 VTMUX BOARD P43) .....	20
FIGURE 2 – W2 (13.7 VDC POWER SUPPLY TO 8051 VTMUX BOARD P19) .....	20
FIGURE 3 -W3 (13.7 VDC POWER SUPPLY AND CHASSIS GROUND).....	21
FIGURE 4 - W4 (TO MAINTENANCE MODE AND COIN ACCEPTOR SWITCHES).....	21
FIGURE 5 - W5 (VTMUX BOARD P30 TO AC RELAYS AND TICKETS LOW LED).....	21
FIGURE 6 - W6 - (VTMUX BOARD P16 TO MISCELLANEOUS PANEL LIGHTS).....	22

FIGURE 7 – W7 (MISCELLANEOUS PANEL INPUTS TO VTMUX P3).....	22
FIGURE 8 - W10 (VTMUX BOARD P4 TO OPTO BOARD #1 P9).....	23
FIGURE 9 - W11 (VTMUX BOARD P4 TO OPTO BOARD #2 P9).....	23
FIGURE 10 - W12 (VTMUX BOARD P5 TO OPTO BOARD #2 P9).....	24
FIGURE 11 - W11 (VTMUX BOARD P11 TO OPTO BOARD #3 P9) .....	24
FIGURE 12 - W13 (VTMUX BOARD P6 TO OPTO BOARD #4 P9).....	25
FIGURE 15 – TARGET SENSOR 09 – 14 .....	26
FIGURE 15 – TARGET SENSOR 15 – 20 .....	26
FIGURE 16 – MISCELLANEOUS SENSOR INPUTS .....	27
FIGURE 17 - W15, W16, W17, W18 (VTMUX BOARD P17, P18, P22, P23 TO CLOCKFACE AND DINOSAUR JACKPOT LIGHTS).....	28
FIGURE 18 - W19, W20, 26 (VTMUX BOARD P24, P29, P31 TO PLAYFIELD AND ARROW LIGHTS).....	29
FIGURE 19 - W21 (VTMUX BOARD P28 TO TICKET DISPENSER).....	30
FIGURE 20 - W23 (VTMUX BOARD P25 TO SMALL 4-DIGIT DISPLAY #1).....	30
W24 (VTMUX BOARD P26 TO SMALL 4-DIGIT DISPLAY #2).....	30
FIGURE 21 - W8 (VTMUX BOARD J1 TO LOUDSPEAKER).....	31
FIGURE 22 - W25 (VTMUX BOARD P1 TO CHASSIS GROUND) .....	31
<b>APPENDIX C POWER SUPPLIES CONNECTIONS .....</b>	<b>32</b>
W10 (13.7 VDC POWER SUPPLY #1 TO 8051 VTMUX BOARD P19) .....	32
W11 (13.7 VDC POWER SUPPLY #2 TO 8051 VTMUX BOARD P43) .....	32
W13 (13.7 VDC POWER SUPPLIES GROUND INTERCONNECT).....	32
NEON LIGHTS WIRING JUMBO CABINET .....	33
NEON LIGHTS WIRING GRAND CABINET .....	34
W100 – W104, W109 PROTECTIVE GROUND WIRING.....	35
<b>APPENDIX D PROGRAMMABLE OPTIONS WITH DEFAULTS.....</b>	<b>36</b>
GAME PLAY PROGRAMMING TABLE .....	36
<b>APPENDIX E REPLACEMENT PARTS.....</b>	<b>38</b>
<b>APPENDIX F.....</b>	<b>42</b>
<b>TECHNICAL ASSISTANCE .....</b>	<b>42</b>
<b>FIVE STAR REDEMPTION .....</b>	<b>44</b>

## **Game Play**

Raptor Capture offers very fast and interesting play with many different strategies for maximizing points.

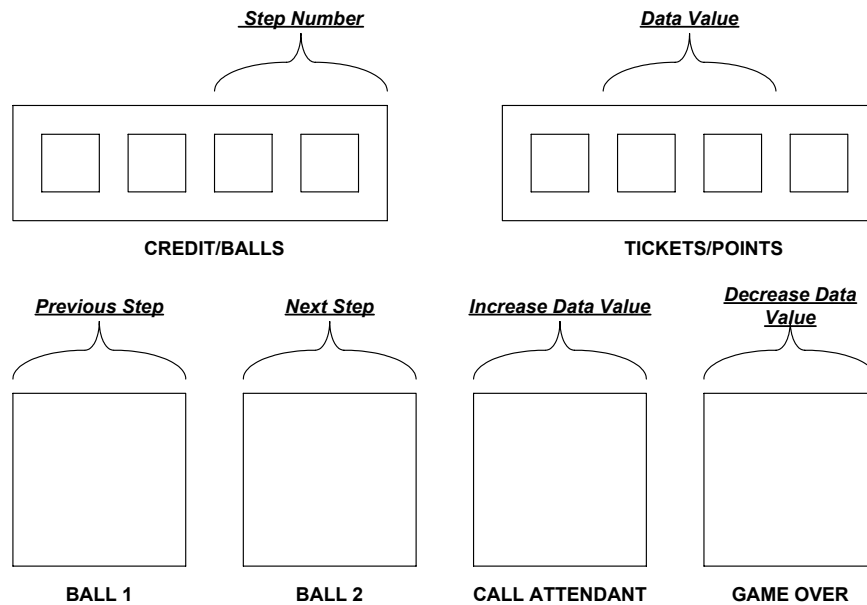
The objective is to skillfully shoot the ball into a cup, a stationary or swinging hoop to obtain points. The player can obtain jackpot points when they have landed or gone through a specific combination of dinosaur colors.

Tickets may be dispensed during or after game play, and Jackpots are only awarded at the game end.

## Game Operator Options

*Maintenance Mode* allows the Game Operator the option of programming the Game by entering data through the Control Panel, which is located on the game's cabinet. This mode includes viewing the game's statistical data, running diagnostics, and changing game play values.

### MAINTENANCE MODE BUTTONS



### GOING INTO MAINTENANCE MODE

Pressing the *Maintenance Mode* button for ½ second or greater allows the operator to go into *Maintenance Mode*. The operator can view, run diagnostics or change games play values. Pressing this button a second time allows the operator to exit.

### VIEWING THE STATISTICAL INFORMATION

Pressing the *Game 1 Button* will decrement the *Step Number*, and pressing the *Game 2 Button* will increase the *Step Number*.

STEP #	DESCRIPTION
0	Number of Coins Taken In (Lifetime)
1	Number of Coins Taken In (Since Last Reset)

## CHANGING OR VIEWING MISCELLANEOUS SETTINGS

Press *Call Attendant* button to increase the value, or Press the *Game over* button to decrease the value.

STEP #	DESCRIPTION
10	Number of Coins Required to Play Game 1
11	Number of Coins Required to play Game 2
12	Number of Coins Required to Play Game 3
13	Number of Balls for Game 1
14	Number of Balls for Game 2
15	Number of Balls for Game 3
16	Maximum Number of Balls Allowed Per Game
17	Number of Seconds Attraction Audio is On Per cycle
18	Number of Seconds Attraction Audio is Off per Cycle
19	Maximum Number of tickets that will dispense before calling Attendant
20	Ticket Dispensed After Last Ball or Dispense Tickets after Shooting Ball
21	Number of Seconds Before Returning to Attraction After Game Over
22	Number of Seconds Between Loading Balls During Attraction
23	The Spinner Speed in RPM's
24	The Spinner Percentage

## RESETTING THE STATISTICS

Pressing the *Call Attendant* button will execute the reset.

STEP #	DESCRIPTION
30	Reset Statistics

## RUNNING THE DIAGNOSTICS

Pressing the *Game 1 Button* will decrement the *Step Number*, and pressing the *Game 2 Button* will increase the *Step Number*.

STEP #	DESCRIPTION
31	Display the Value and Light Associated for the sensor that is blocked

Press the flashing *Call Attendant* button to execute each diagnostic.

32	Status of Ramp full, Gun loaded, Tickets lows, and tickets out sensors
33	Dispense Tickets
34	Load a ball by rotating the turntable.
35	Control Trough Gate Motor and Display Status of the Trough sensor.

### CHANGING OR VIEWING THE PLAYING FIELD POINTS

Press Call *Attendant* button to increase the value, or Press the *Game Over* button to decrease the value.

STEP #	DESCRIPTION
40	Points for Green Paw (Y1)
41	Points for Pink Paw (P1)
42	Points for Orange Paw (O1)
43	Points for Yellow Paw (Y1)
44	Points for Red Paw (R1)
45	Points for Cave #1
46	Points for Hole #1
47	Points for Hole #2
48	Points for Cave #2
49	Points for Volcano
50	Points for Playfield Pink Hoop
51	Points for Playfield Orange Hoop
52	Points for Playfield Green Hoop
53	Points for Playfield Yellow Hoop

### CHANGING OR VIEWING JACKPOT POINTS

Press Call *Attendant* button to increase the value, or Press the *Game Over* button to decrease the value.

STEP #	DESCRIPTION
60	Jackpot #1 Points
61	Jackpot #2 Points
62	Jackpot #3 Points
63	Jackpot #4 Points

### CHANGING OR VIEWING HOOP POINTS

Press Call *Attendant* button to increase the value, or Press the *Game Over* button to decrease the value.

STEP #	DESCRIPTION
64	Points for Hoop #1
65	Points for Hoop #2
66	Points for Hoop #3
67	Points for Hoop #4
68	Points for Hoop #5

## CHANGING OR VIEWING CLOCK FACE POINTS

Press Call *Attendant* button to increase the value, or Press the *Game Over* button to decrease the value.

<b>STEP #</b>	<b>DESCRIPTION</b>
70	Points for 01:00 O'clock Position
71	Points for 02:00 O'clock Position
72	Points for 03:00 O'clock Position
73	Points for 04:00 O'clock Position
74	Points for 05:00 O'clock Position
75	Points for 06:00 O'clock Position
76	Points for 07:00 O'clock Position
77	Points for 08:00 O'clock Position
78	Points for 09:00 O'clock Position
79	Points for 10:00 O'clock Position
80	Points for 11:00 O'clock Position
81	Points for 12:00 O'clock Position



## Appendix A Input/Output Signals

### CPU AUXILIARY INPUTS

#### **W4 – VTMUX BOARD P2 TO PUSHBUTTONS & MISC SWITCHES**

<b>Control Panel Output</b>	<b>Wire #</b>	<b>Auxiliary Inputs</b>	<b>To VTMUX Board Location</b>
NOT USED	1	V+	JP2 PIN 1
GROUND	2	GROUND	JP2 PIN 2
CONNECTOR KEY	3	KEY	JP2 PIN 3
CONNECTOR KEY	4	KEY	JP2 PIN 4
MAINTENANCE MODE BUTTON	5	IN 1	JP2 PIN 5
TILT SWITCH	6	IN 2	JP2 PIN 6
COIN ACCEPTOR	7	IN 3	JP2 PIN 7
NOT USED	8	IN 4	JP2 PIN 8
OPEN DOOR SWITCH	9	IN 5	JP2 PIN 9
NOT USED	10	IN 6	JP2 PIN 10
NOT USED	11	IN 7	JP2 PIN 11
NOT USED	12	IN 8	JP2 PIN 12

#### **W7 – VTMUX BOARD P3 TO PUSHBUTTON SWITCHES**

<b>Control Panel Outputs</b>	<b>Wire #</b>	<b>Auxiliary Inputs</b>	<b>To VTMUX Board Location</b>
NOT USED	1	V+	JP3 PIN 1
GROUND	2	GROUND	JP3 PIN 2
CONNECTOR KEY	3	KEY	JP3 PIN 3
START BUTTON #1	4	IN 9	JP3 PIN 4
CONNECTOR KEY	5	KEY	JP3 PIN 5
START BUTTON # 2	6	IN 10	JP3 PIN 6
START BUTTON # 3	7	IN 11	JP3 PIN 7
NOT USED	8	IN 12	JP3 PIN 8
NOT USED	9	IN 13	JP3 PIN 9
NOT USED	10	IN 14	JP3 PIN 10
GAME OVER BUTTON	11	IN 15	JP3 PIN 11
CALL ATTENDANT BUTTON	12	IN 16	JP3 PIN 12

## APPENDIX A INPUTS/OUTPUTS

### W90 – VTMUX BOARD P4 TO OPTO BOARD #1 P9

Control Panel Outputs	Wire #	Auxiliary Inputs	To VTMUX Board Location
12V	1	V+	JP4 PIN 1
GROUND	2	GROUND	JP4 PIN 2
CONNECTOR KEY	3	KEY	JP4 PIN 3
SENSOR CUP # 1 (GREEN PAW)	4	IN 17	JP4 PIN 4
SENSOR CUP #2 (PINK PAW)	5	IN 18	JP4 PIN 5
CONNECTOR KEY	6	KEY	JP4 PIN 6
SENSOR CUP #3 (ORANGE PAW)	7	IN 19	JP4 PIN 7
SENSOR CUP #4 (YELLOW PAW)	8	IN 20	JP4 PIN 8
SENSOR CUP #5 (RED PAW)	9	IN 21	JP4 PIN 9
SENSOR CUP #6 (CAVE #1)	10	IN 22	JP4 PIN 10
SENSOR CUP #7 (HOLE #1)	11	IN 23	JP4 PIN 11
SENSOR CUP #8 (HOLE #2)	12	IN 24	JP4 PIN 12

### W91 – VTMUX BOARD P5 TO OPTO BOARD #2 P9

Inputs	Wire #	Auxiliary Inputs	To VTMUX Board Location
12V	1	V+	JP5 PIN 1
GROUND	2	GROUND	JP5 PIN 2
CONNECTOR KEY	3	KEY	JP5 PIN 3
SENSOR CUP #9 (CAVE #2)	4	IN 25	JP5 PIN 4
SENSOR CUP #10 (VOLCANO)	5	IN 26	JP5 PIN 5
SENSOR PLAYFIELD HOOP #1(PINK)	6	IN 27	JP5 PIN 6
CONNECTOR KEY	7	KEY	JP5 PIN 7
SENSOR PLAYFIELD HOOP #12 (ORANGE)	8	IN 28	JP5 PIN 8
SENSOR PLAYFIELD HOOP #13 (GREEN)	9	IN 29	JP5 PIN 9
SENSOR PLAYFIELD HOOP #14 (YELLOW)	10	IN 30	JP5 PIN 10
SENSOR PLAYFIELD HOOP #15	11	IN 31	JP5 PIN 11
SENSOR PLAYFIELD HOOP #16	12	IN 32	JP5 PIN 12

## APPENDIX A INPUTS/OUTPUTS

### W95 – VTMUX BOARD P11 TO OPTO BOARD #3 P9

<b>Inputs</b>	<b>Wire #</b>	<b>Auxiliary Inputs</b>	<b>To VTMUX Board Location</b>
12V	1	V+	JP11 PIN 1
GROUND	2	GROUND	JP11 PIN 2
CONNECTOR KEY	3	KEY	JP11 PIN 3
SENSOR HOOP #17	4	IN 57	JP11 PIN 4
SENSOR HOOP #18	5	IN 58	JP11 PIN 5
SENSOR HOOP #19	6	IN 59	JP11 PIN 6
SENSOR HOOP #20	7	IN 60	JP11 PIN 7
SENSOR HOOP #21	8	IN 61	JP11 PIN 8
SENSOR HOOP #22	9	IN 62	JP11 PIN 9
SENSOR HOOP #23	10	IN 63	JP11 PIN 10
CONNECTOR KEY	11	KEY	JP11 PIN 11
SENSOR HOOP #24	12	IN 64	JP11 PIN 12

### W96 – VTMUX BOARD P12 TO OPTO BOARD #4 P9

<b>Inputs</b>	<b>Wire #</b>	<b>Auxiliary Inputs</b>	<b>To VTMUX Board Location</b>
12V	1	V+	JP12 PIN 1
GROUND	2	GROUND	JP12 PIN 2
CONNECTOR KEY	3	KEY	JP12 PIN 3
BALL PRELOADED SENSOR	4	IN 65	JP12 PIN 4
GUN & TROUGH SENSOR	5	IN 66	JP12 PIN 5
TICKETS LOW SENSOR	6	IN 67	JP12 PIN 6
TICKETS OUT SENSOR	7	IN 68	JP12 PIN 7
RAMP FULL SENSOR	8	IN 69	JP12 PIN 8
NOT USED	6	IN 70	JP12 PIN 9
NOT USED	10	IN 71	JP12 PIN 10
NOT USED	11	IN 72	JP12 PIN 11
CONNECTOR KEY	12	KEY	JP12 PIN 12

## APPENDIX A INPUTS/OUTPUTS

### APPENDIX B CPU AUXILIARY OUTPUTS

#### **W6 – VTMUX BOARD P16 TO MISC PANEL LIGHTS**

<b>Outputs</b>	<b>Wire #</b>	<b>Auxiliary Outputs</b>	<b>To VTMUX Board Location</b>
<i>CONNECTOR KEY</i>	<i>1</i>	<i>KEY</i>	<i>JP16 PIN 1</i>
<i>GROUND</i>	<i>2</i>	<i>GROUND</i>	<i>JP16 PIN 2</i>
<i>GROUND</i>	<i>3</i>	<i>GROUND</i>	<i>JP16 PIN 3</i>
<i>CONNECTOR KEY</i>	<i>4</i>	<i>KEY</i>	<i>JP16 PIN 4</i>
<i>START #1 BUTTON LIGHT</i>	<i>5</i>	<i>OUT 1</i>	<i>JP16 PIN 5</i>
<i>START #2 BUTTON LIGHT</i>	<i>6</i>	<i>OUT 2</i>	<i>JP16 PIN 6</i>
<i>START # 3 BUTTON LIGHT</i>	<i>7</i>	<i>OUT 3</i>	<i>JP16 PIN 7</i>
<i>NOT USED</i>	<i>8</i>	<i>OUT 4</i>	<i>JP16 PIN 8</i>
<i>NOT USED</i>	<i>6</i>	<i>OUT 5</i>	<i>JP16 PIN 9</i>
<i>NOT USED</i>	<i>10</i>	<i>OUT 6</i>	<i>JP16 PIN 10</i>
<i>GAME OVER LIGHT</i>	<i>11</i>	<i>OUT 7</i>	<i>JP16 PIN 11</i>
<i>CALL ATTENDANT LIGHT</i>	<i>12</i>	<i>OUT 8</i>	<i>JP16 PIN 12</i>

## APPENDIX A INPUTS/OUTPUTS

### W15 – VTMUX BOARD P17 CLOCKFACE LIGHTS 1 - 8

<b>Outputs</b>	<b>Wire #</b>	<b>Auxiliary Outputs</b>	<b>To VTMUX Board Location</b>
CONNECTOR KEY	1	KEY	JP17 PIN 1
GROUND	2	GROUND	JP17 PIN 2
GROUND	3	GROUND	JP17 PIN 3
CLOCK FACE #1	4	OUT 9	JP17 PIN 4
CONNECTOR KEY	5	KEY	JP17 PIN 5
CLOCK FACE #2	6	OUT 10	JP17 PIN 6
CLOCK FACE #3	7	OUT 11	JP17 PIN 7
CLOCK FACE #4	8	OUT 12	JP17 PIN 8
CLOCKFACE #5	6	OUT 13	JP17 PIN 9
CLOCK FACE #6	10	OUT 14	JP17PIN 10
CLOCKFACE #7	11	OUT 15	JP17 PIN 11
CLOCK FACE #8	12	OUT 16	JP17 PIN 12

### W16 – VTMUX BOARD P18 CLOCKFACE LIGHTS 9 -12

<b>Outputs</b>	<b>Wire #</b>	<b>Auxiliary Outputs</b>	<b>To VTMUX Board Location</b>
CONNECTOR KEY	1	KEY	JP18 PIN 1
GROUND	2	GROUND	JP18 PIN 2
GROUND	3	GROUND	JP18 PIN 3
CLOCK FACE #9	4	OUT 17	JP18 PIN 4
CLOCK FACE #10	5	OUT 18	JP18 PIN 5
CONNECTOR KEY	6	KEY	JP18 PIN 6
CLOCK FACE #11	7	OUT 19	JP18 PIN 7
CLOCK FACE #12	8	OUT 20	JP18 PIN 8
NOT USED	6	OUT 21	JP18 PIN 9
NOT USED	10	OUT 22	JP18 PIN 10
NOT USED	11	OUT 23	JP18 PIN 11
NOT USED	12	OUT 24	JP18 PIN 12

## APPENDIX A INPUTS/OUTPUTS

### **W17 – VTMUX BOARD P22 HOOP LIGHTS**

<b>Outputs</b>	<b>Wire #</b>	<b>Auxiliary Outputs</b>	<b>To VTMUX Board Location</b>
CONNECTOR KEY	1	KEY	JP22 PIN 1
GROUND	2	GROUND	JP22 PIN 2
GROUND	3	GROUND	JP22 PIN 3
HOOP #1 (YELLOW)	4	OUT 25	JP22 PIN 4
HOOP #2 (ORANGE)	5	OUT 26	JP22 PIN 5
HOOP #3 (PINK)	6	OUT 27	JP22 PIN 6
CONNECTOR KEY	7	KEY	JP22 PIN 7
HOOP #4 (GREEN)	8	OUT 28	JP22 PIN 8
HOOP #5 (RED)	6	OUT 29	JP22 PIN 9
HOOP #6 (SWING)	10	OUT 30	JP22 PIN 10
NOT USED	11	OUT 31	JP22 PIN 11
NOT USED	12	OUT 32	JP22 PIN 12

### **W18 – VTMUX BOARD P23 DINOSAUR LIGHTS WITH JACKPOT LIGHT**

<b>Outputs</b>	<b>Wire #</b>	<b>Auxiliary Outputs</b>	<b>To VTMUX Board Location</b>
CONNECTOR KEY	1	KEY	JP23 PIN 1
GROUND	2	GROUND	JP23 PIN 2
GROUND	3	GROUND	JP23 PIN 3
DINO YELLOW	4	OUT 33	JP23 PIN 4
DINO ORANGE	5	OUT 34	JP23 PIN 5
DINO PINK	6	OUT 35	JP23 PIN 6
DINO GREEN	7	OUT 36	JP23 PIN 7
CONNECTOR KEY	8	KEY	JP23 PIN 8
DINO RED	6	OUT 37	JP23 PIN 9
NOT USED	10	OUT 38	JP23 PIN 10
NOT USED	11	OUT 39	JP23 PIN 11
SUPER JACKPOT	12	OUT 40	JP23 PIN 12

## APPENDIX A INPUTS/OUTPUTS

### W19 – VTMUX BOARD P24 PLAYFIELD LIGHTS 1-8

<b>Inputs</b>	<b>Wire #</b>	<b>Auxiliary Inputs</b>	<b>To VTMUX Board Location</b>
CONNECTOR KEY	1	KEY	JP24 PIN 1
GROUND	2	GROUND	JP24 PIN 2
GROUND	3	GROUND	JP24 PIN 3
PLAYFIELD #1 (GREEN PAW)	4	OUT 41	JP24PIN 4
PLAYFIELD #2 (PINK PAW)	5	OUT 42	JP24 PIN 5
PLAYFIELD #3 (ORANGE PAW)	6	OUT 43	JP24 PIN 6
PLAYFIELD #4 (YELLOW PAW)	7	OUT 44	JP24 PIN 7
PLAYFIELD #5 (RED PAW)	8	OUT 45	JP24 PIN 8
CONNECTOR KEY	9	KEY	JP24 PIN 9
PLAYFIELD #6 (CAVE #1)	10	OUT 46	JP24 PIN 10
PLAYFIELD #7 (HOLE #1)	11	OUT 47	JP24 PIN 11
PLAYFIELD #8 (HOLE #2)	12	OUT 48	JP24 PIN 12

### W20 – VTMUX BOARD P29 PLAYFIELD LIGHTS 9-10

<b>Inputs</b>	<b>Wire #</b>	<b>Auxiliary Inputs</b>	<b>To VTMUX Board Location</b>
CONNECTOR KEY	1	KEY	JP29 PIN 1
GROUND	2	GROUND	JP29 PIN 2
GROUND	3	GROUND	JP29 PIN 3
PLAYFIELD #9 (CAVE #2)	4	OUT 49	JP29PIN 4
PLAYFIELD #10 (VOLCANO)	5	OUT 50	JP29 PIN 5
NOT USED	6	OUT 51	JP29 PIN 6
NOT USED	7	OUT 52	JP29 PIN 7
NOT USED	8	OUT 53	JP29 PIN 8
NOT USED	9	OUT 54	JP29 PIN 9
CONNECTOR KEY	10	KEY	JP29 PIN 10
NOT USED	11	OUT 55	JP29 PIN 11
NOT USED	12	OUT 56	JP29 PIN 12

## APPENDIX A INPUTS/OUTPUTS

### W24 - VTMUX BOARD P25 TO SMALL DISPLAY

Outputs	Display Outputs	From CPU Board Location
<i>NOT CONNECTED</i>	<i>GROUND</i>	<i>JP25-1</i>
<i>SMALL DISPLAY ENABLE</i>	<i>DISP 0E1</i>	<i>JP25-2</i>
<i>SMALL DISPLAY CLK</i>	<i>DISP CLK</i>	<i>JP25-3</i>
<i>SMALL DISPLAY NOT CONNECTED</i>	<i>V+</i>	<i>JP25-4</i>
<i>SMALL DISPLAY VPP &amp; VLED</i>	<i>VCC</i>	<i>JP25-5</i>
<i>SMALL DISPLAY NOT CONNECTED</i>	<i>DISP STB1</i>	<i>JP25-6</i>
<i>SMALL DISPLAY DATA</i>	<i>DISP DATA1</i>	<i>JP25-7</i>
<i>GROUND</i>	<i>GROUND</i>	<i>JP25-8</i>

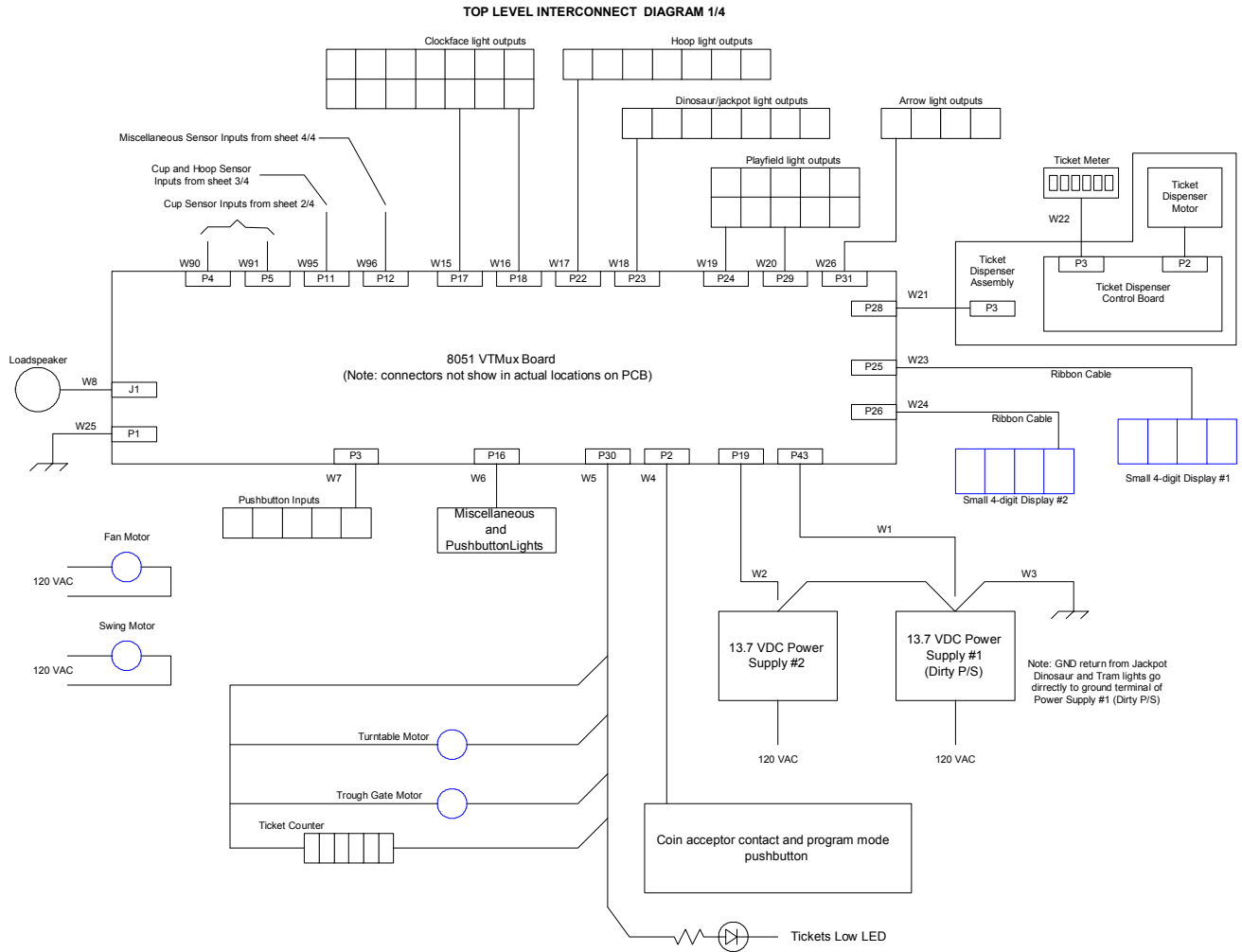
### W25 - VTMUX BOARD P26 TO SMALL DISPLAY

<i>NOT CONNECTED</i>	<i>GROUND</i>	<i>JP26-1</i>
<i>SMALL DISPLAY ENABLE</i>	<i>DISP 0E2</i>	<i>JP26-2</i>
<i>SMALL DISPLAY CLK</i>	<i>DISP CLK</i>	<i>JP26-3</i>
<i>SMALL DISPLAY NOT CONNECTED</i>	<i>V+</i>	<i>JP26-4</i>
<i>SMALL DISPLAY VPP &amp; VLED</i>	<i>VCC</i>	<i>JP26-5</i>
<i>SMALL DISPLAY NOT CONNECTED</i>	<i>DISP STB2</i>	<i>JP26-6</i>
<i>SMALL DISPLAY DATA</i>	<i>DISP DATA2</i>	<i>JP26-7</i>
<i>GROUND</i>	<i>GROUND</i>	<i>JP26-8</i>



# Appendix B Wiring Diagrams

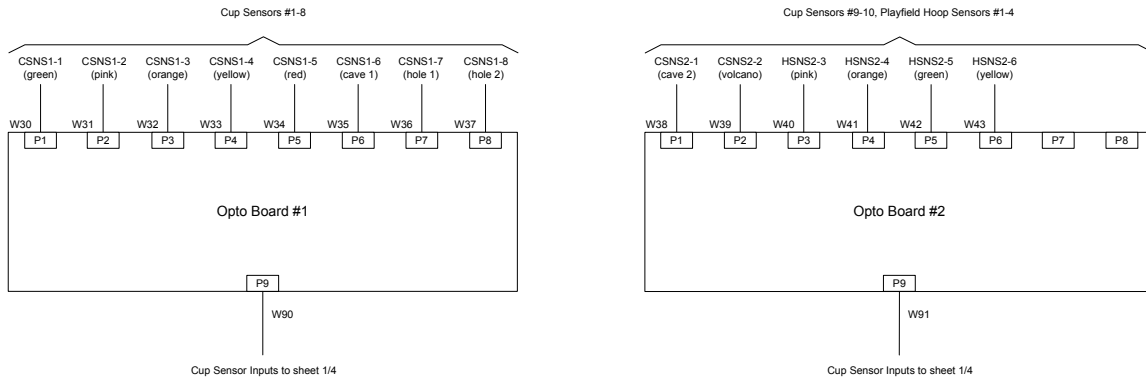
to LV over



**DIAGRAM 1 – TOP LEVEL INTERCONNECT DIAGRAM**

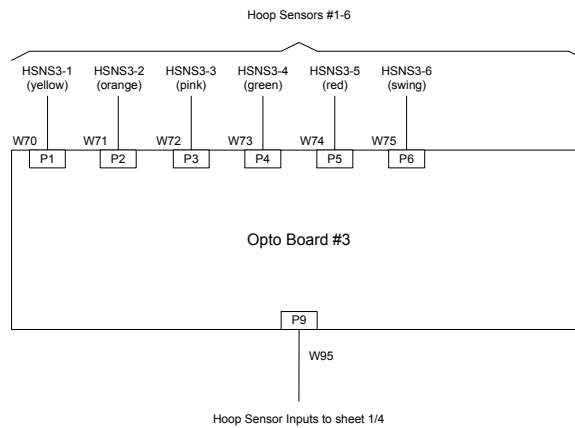
# APPENDIX B WIRING DIAGRAMS

TOP LEVEL INTERCONNECT DIAGRAM 2/4



**DIAGRAM 2 – TOP LEVEL INTERCONNECT DIAGRAM 2/4**

TOP LEVEL INTERCONNECT DIAGRAM 3/4



**DIAGRAM 3 – TOP LEVEL INTERCONNECT DIAGRAM 3/4**

# WIRING DIAGRAMS APPENDIX B

TOP LEVEL INTERCONNECT DIAGRAM 4/4

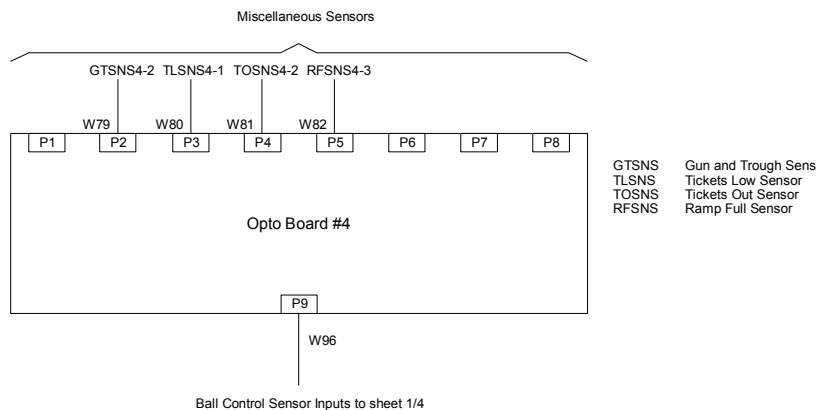


DIAGRAM 4 – TOP LEVEL INTERCONNECT DIAGRAM 4/4

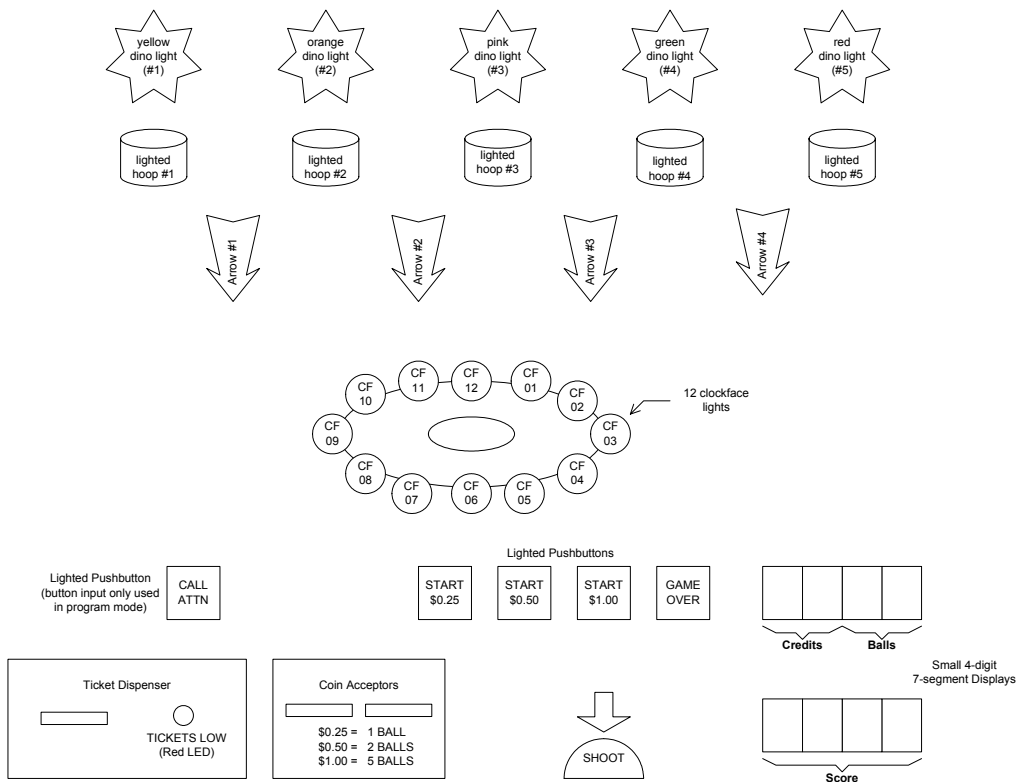
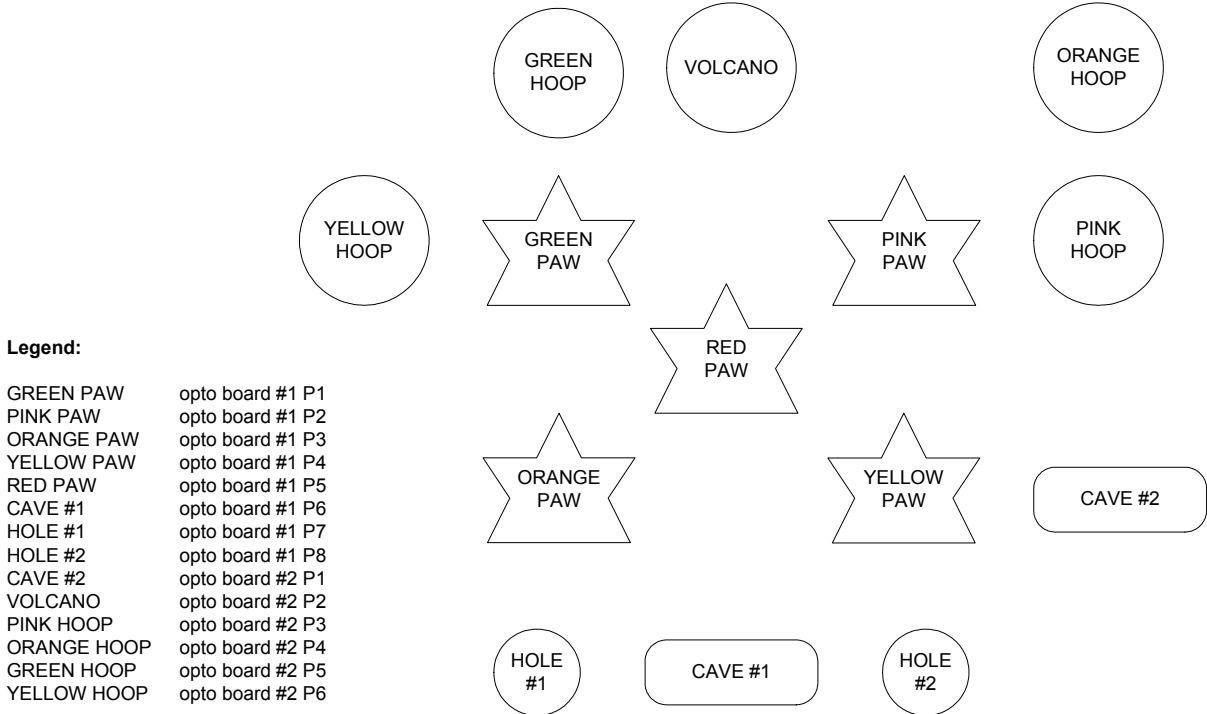


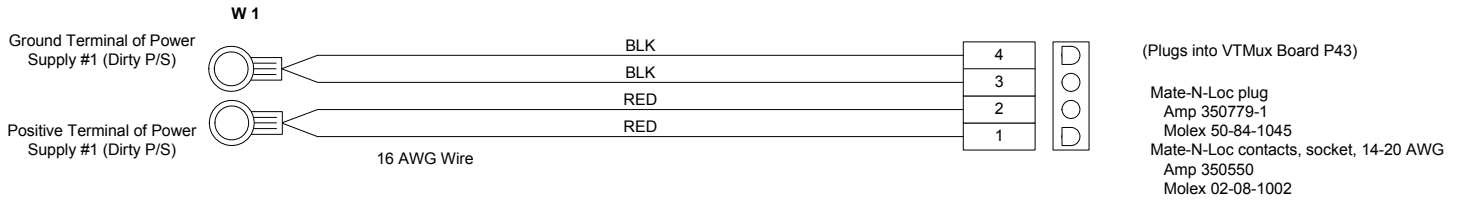
DIAGRAM 5 – FUNCTIONAL COMPONENTS

# WIRING DIAGRAMS APPENDIX B

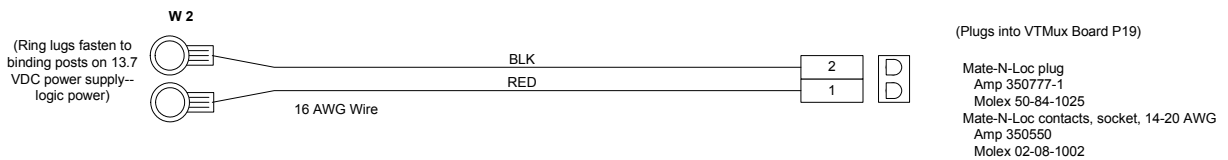
## PLAYING FIELD



**DIAGRAM 6 - PLAYFIELD LAYOUT**

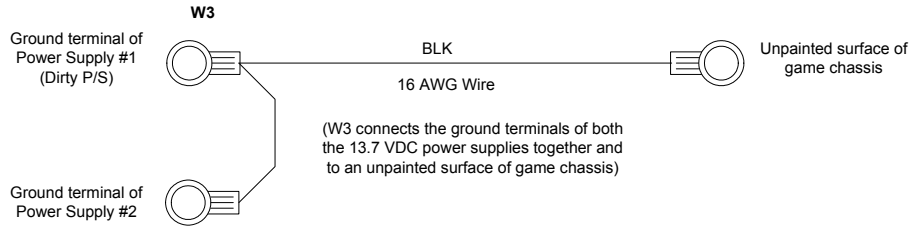


**FIGURE 1 – W1 (13.7 VDC POWER SUPPLY TO 8051 VTMUX BOARD P43)**

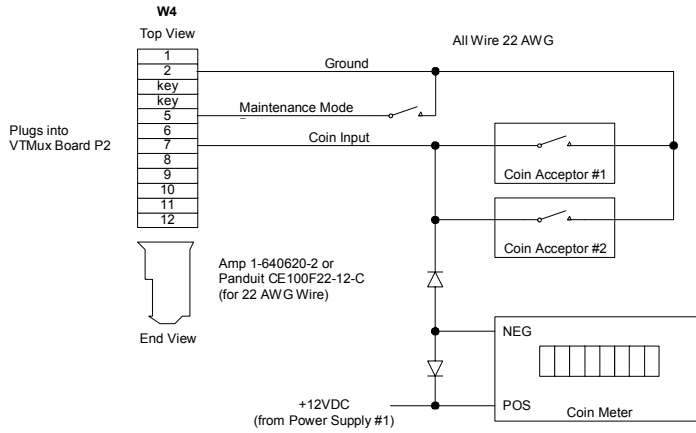


**FIGURE 2 – W2 (13.7 VDC POWER SUPPLY TO 8051 VTMUX BOARD P19)**

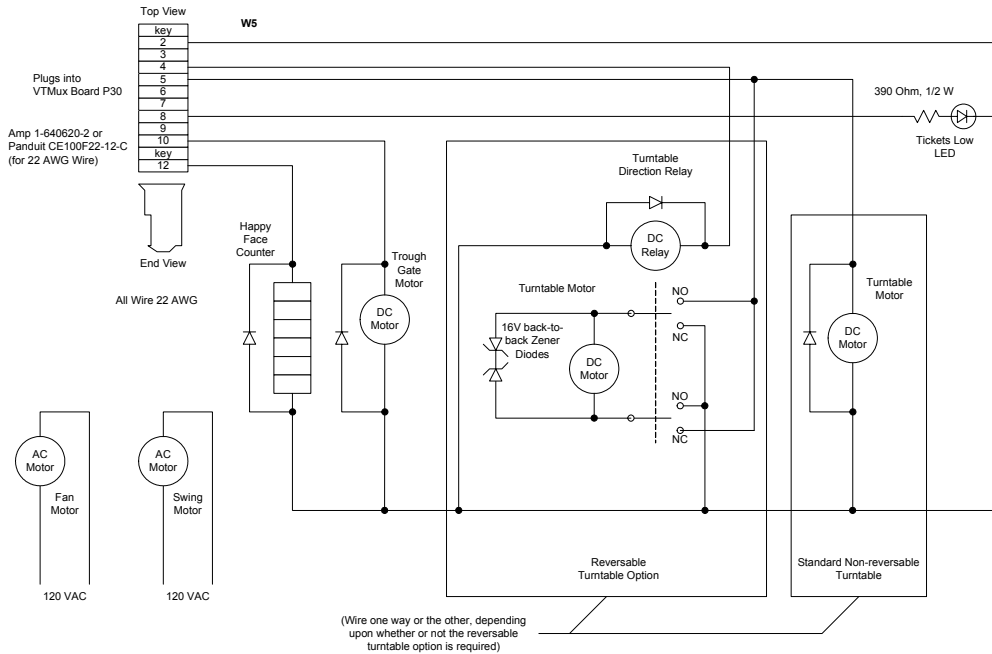
# WIRING DIAGRAMS APPENDIX B



**FIGURE 3 -W3 (13.7 VDC POWER SUPPLY AND CHASSIS GROUND)**

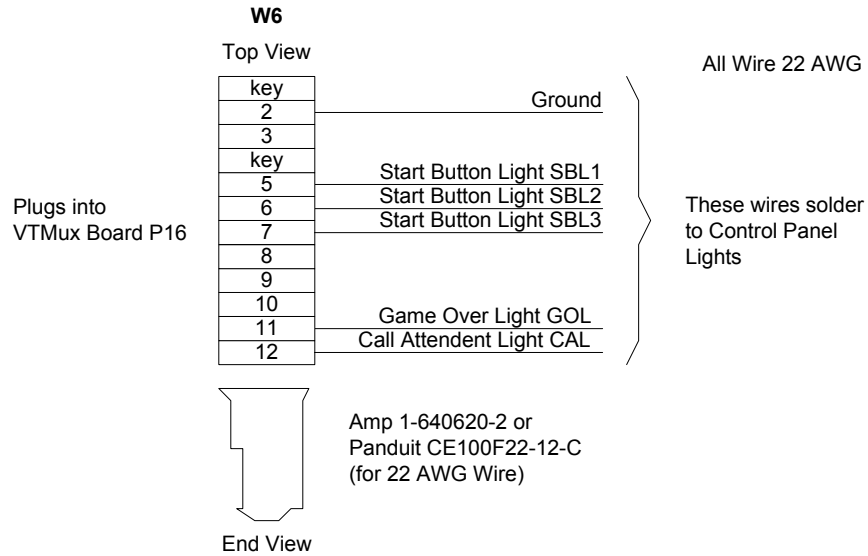


**FIGURE 4 - W4 (TO MAINTENANCE MODE AND COIN ACCEPTOR SWITCHES)**

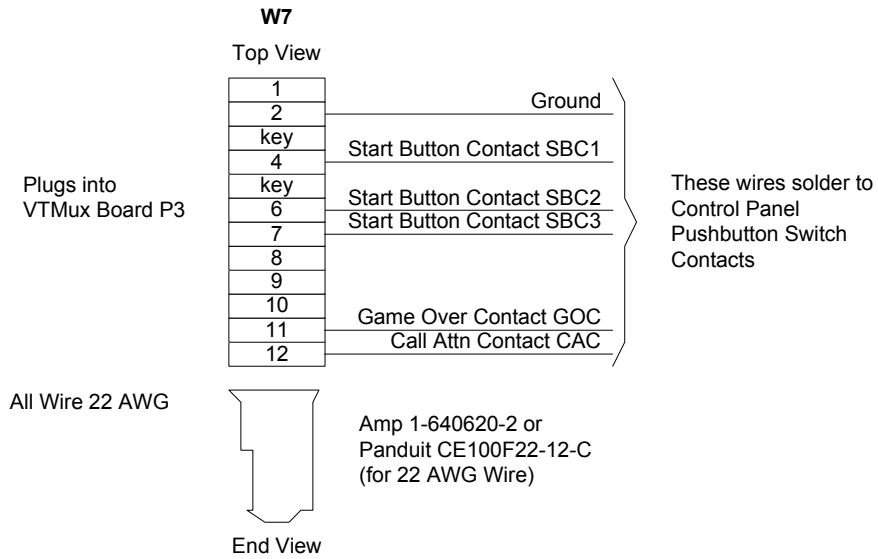


**FIGURE 5 - W5 (VTMUX BOARD P30 TO AC RELAYS AND TICKETS LOW LED)**

# WIRING DIAGRAMS APPENDIX B

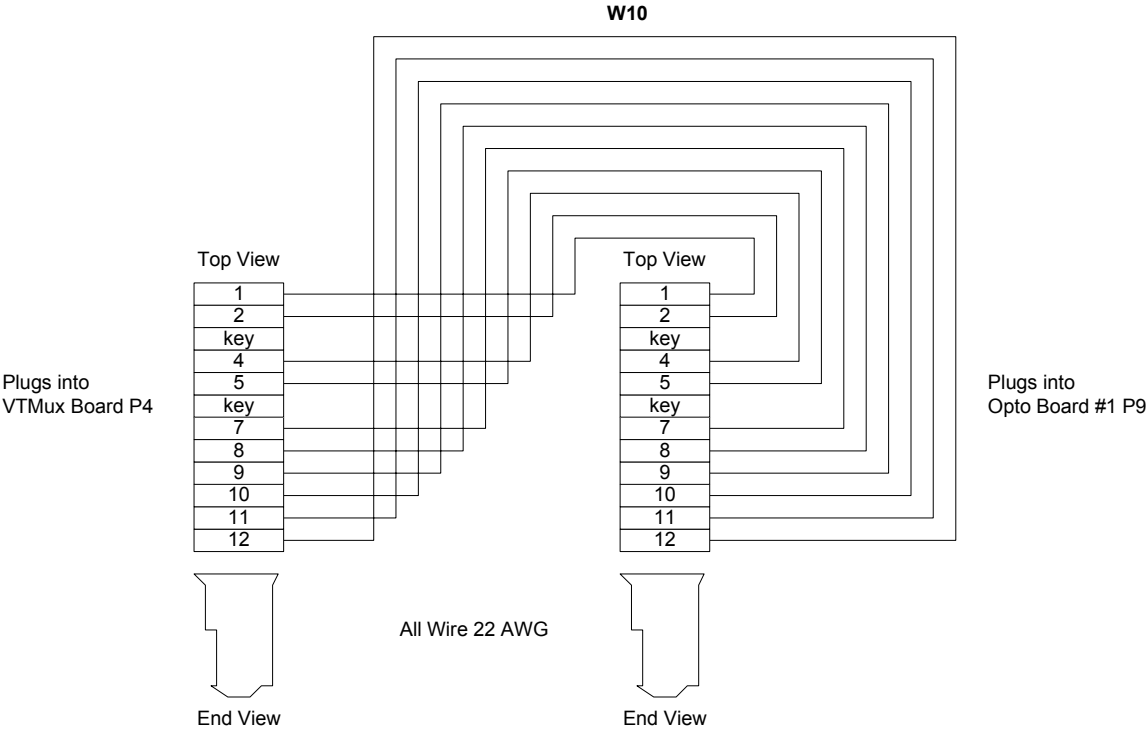


**FIGURE 6 - W6 - (VTMUX BOARD P16 TO MISCELLANEOUS PANEL LIGHTS)**

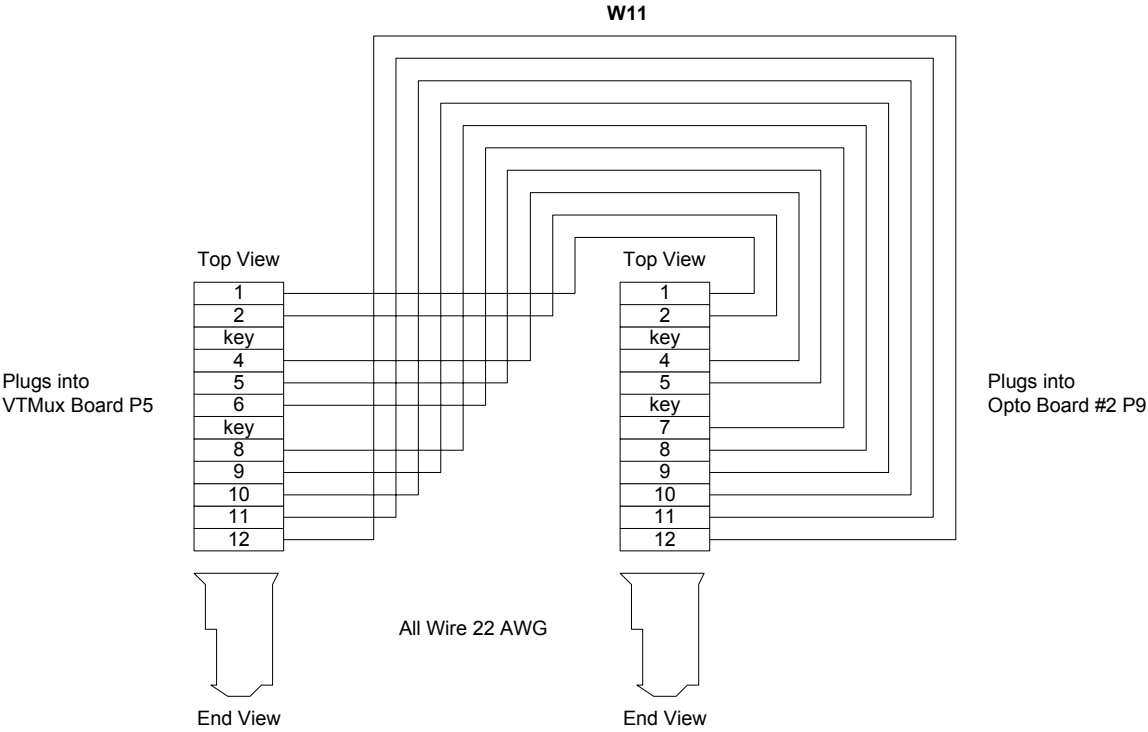


**FIGURE 7 – W7 (MISCELLANEOUS PANEL INPUTS TO VTMUX P3)**

# WIRING DIAGRAMS APPENDIX B

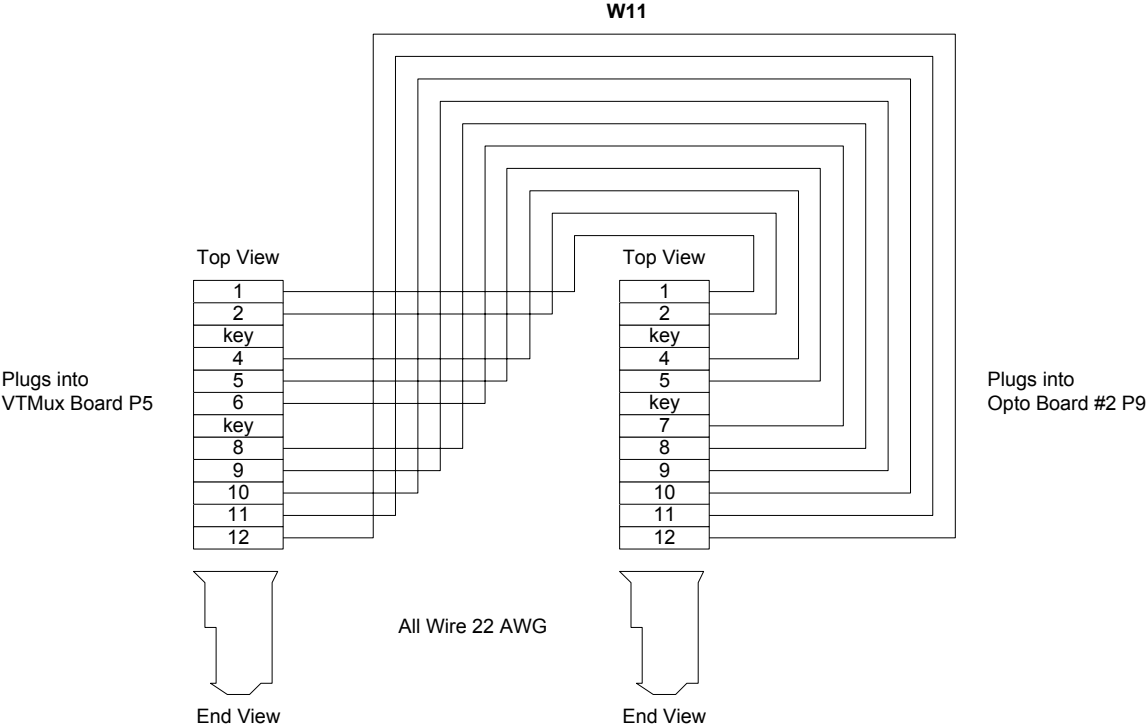


**FIGURE 8 - W10 (VTMUX BOARD P4 TO OPTO BOARD #1 P9)**

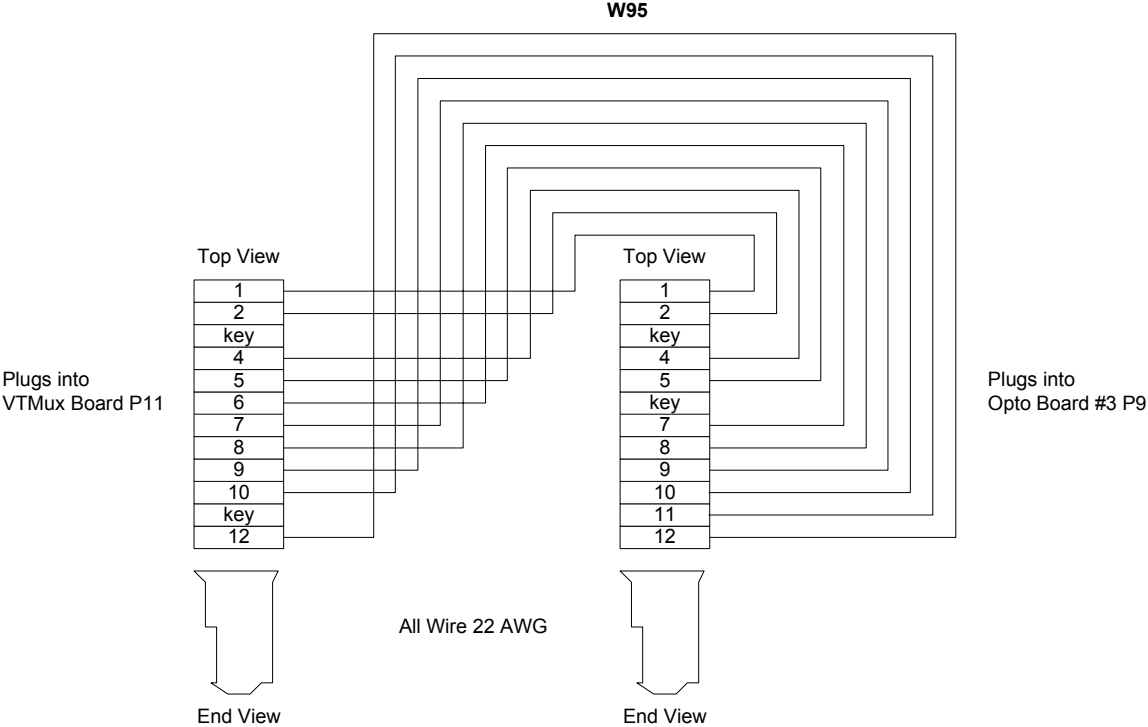


**FIGURE 9 - W11 (VTMUX BOARD P4 TO OPTO BOARD #2 P9)**

# WIRING DIAGRAMS APPENDIX B



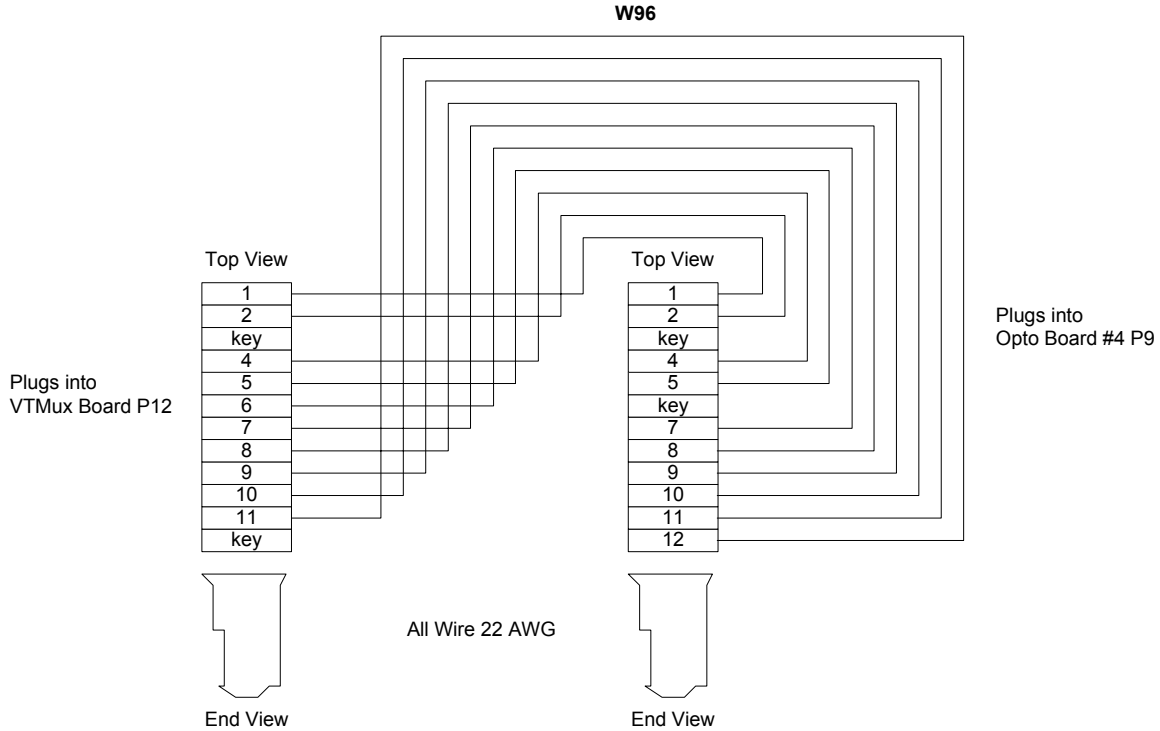
**FIGURE 10 - W12 (VTMUX BOARD P5 TO OPTO BOARD #2 P9)**



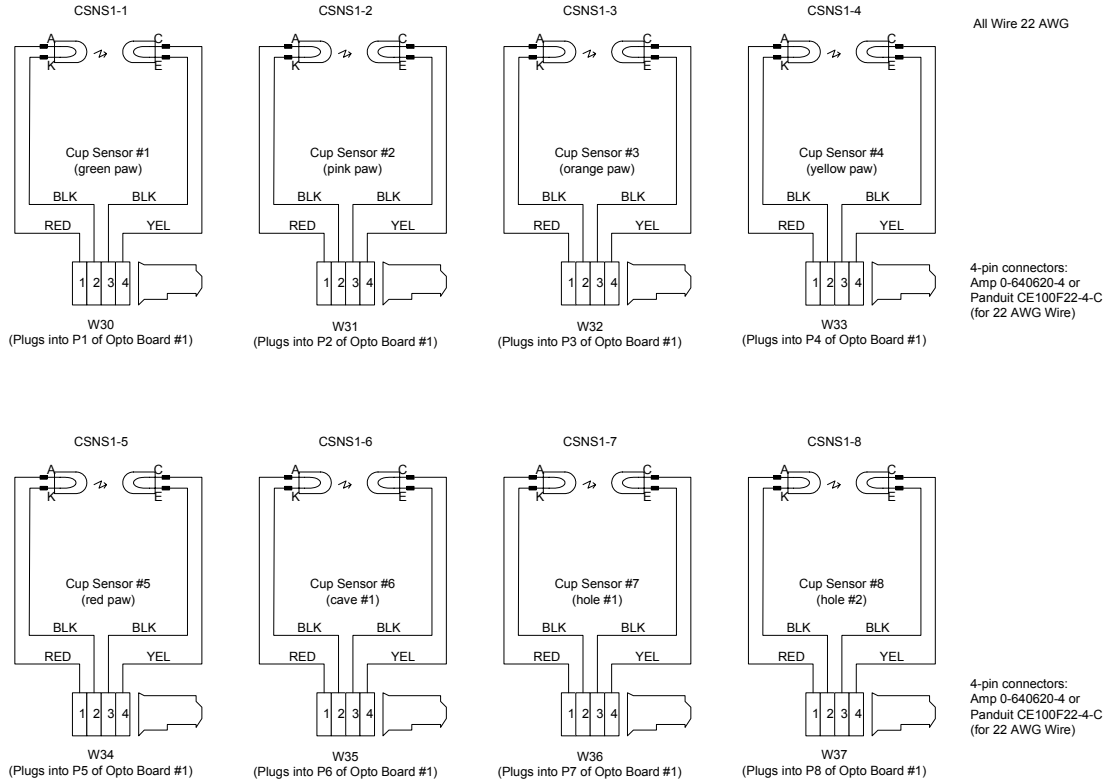
**FIGURE 11 - W11 (VTMUX BOARD P11 TO OPTO BOARD #3 P9)**



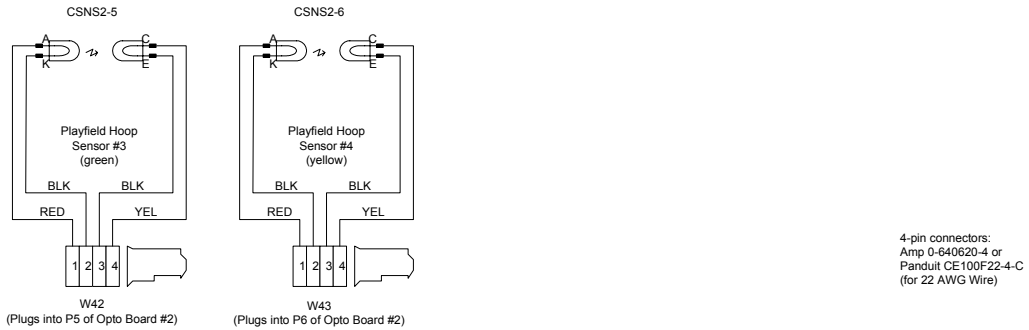
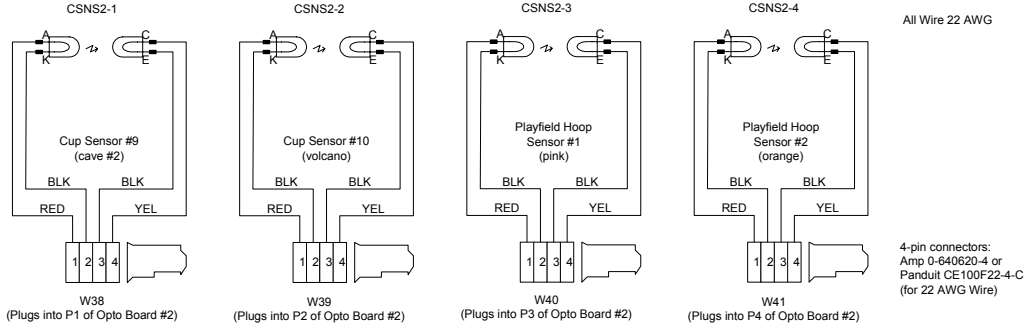
# WIRING DIAGRAMS APPENDIX B



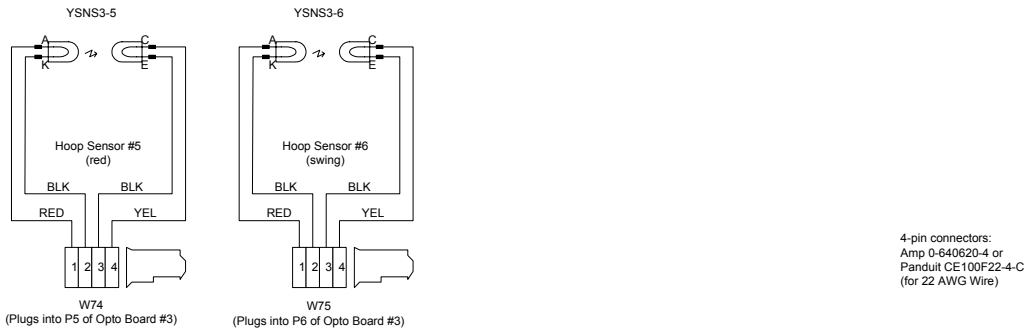
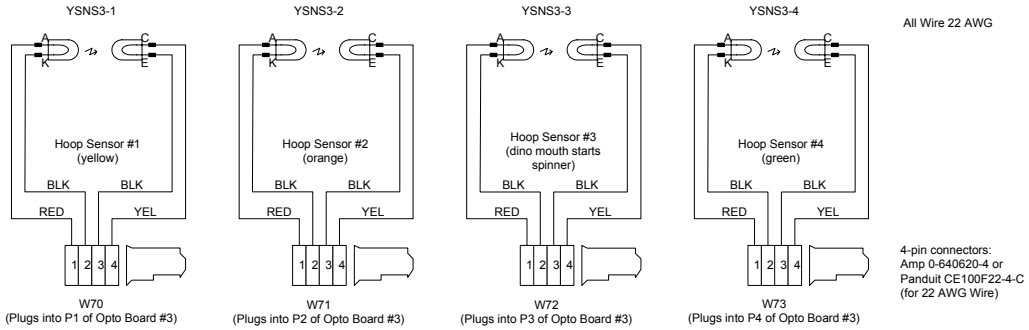
**FIGURE 12 - W13 (VTMUX BOARD P6 TO OPTO BOARD #4 P9)**



# WIRING DIAGRAMS APPENDIX B

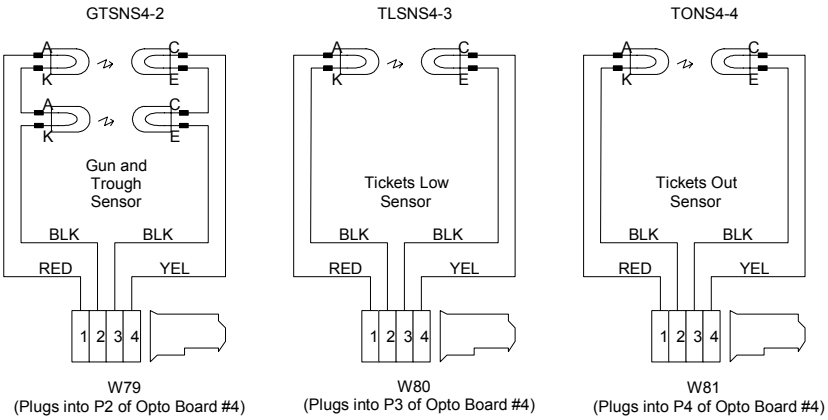


**FIGURE 15 – TARGET SENSOR 09 – 14**



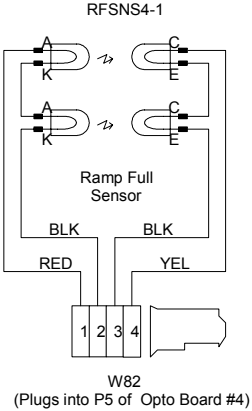
**FIGURE 15 – TARGET SENSOR 15 – 20**

# WIRING DIAGRAMS APPENDIX B



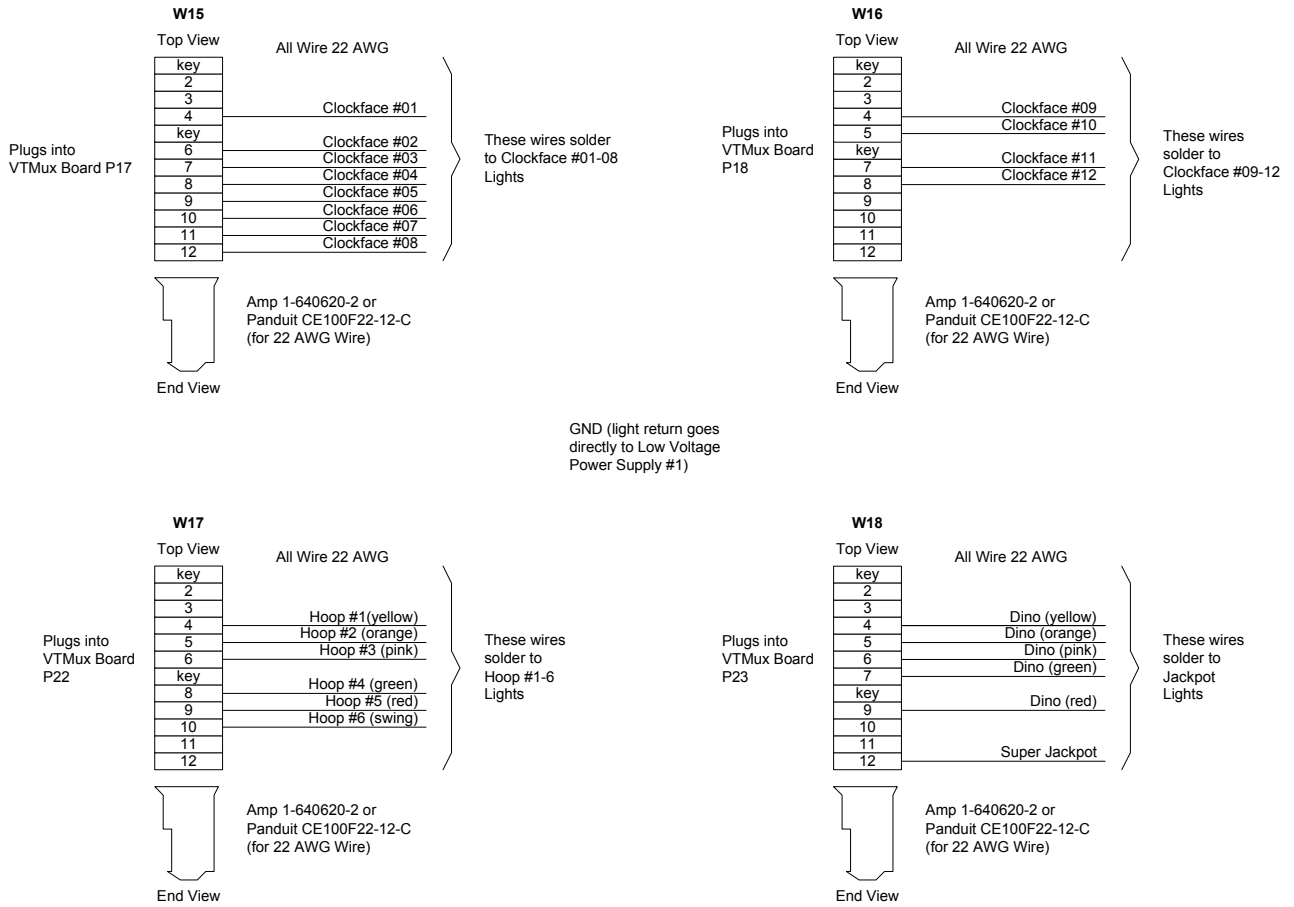
All Wire 22 AWG

4-pin connectors:  
Amp 0-640620-4 or  
Panduit CE100F22-4-C  
(for 22 AWG Wire)



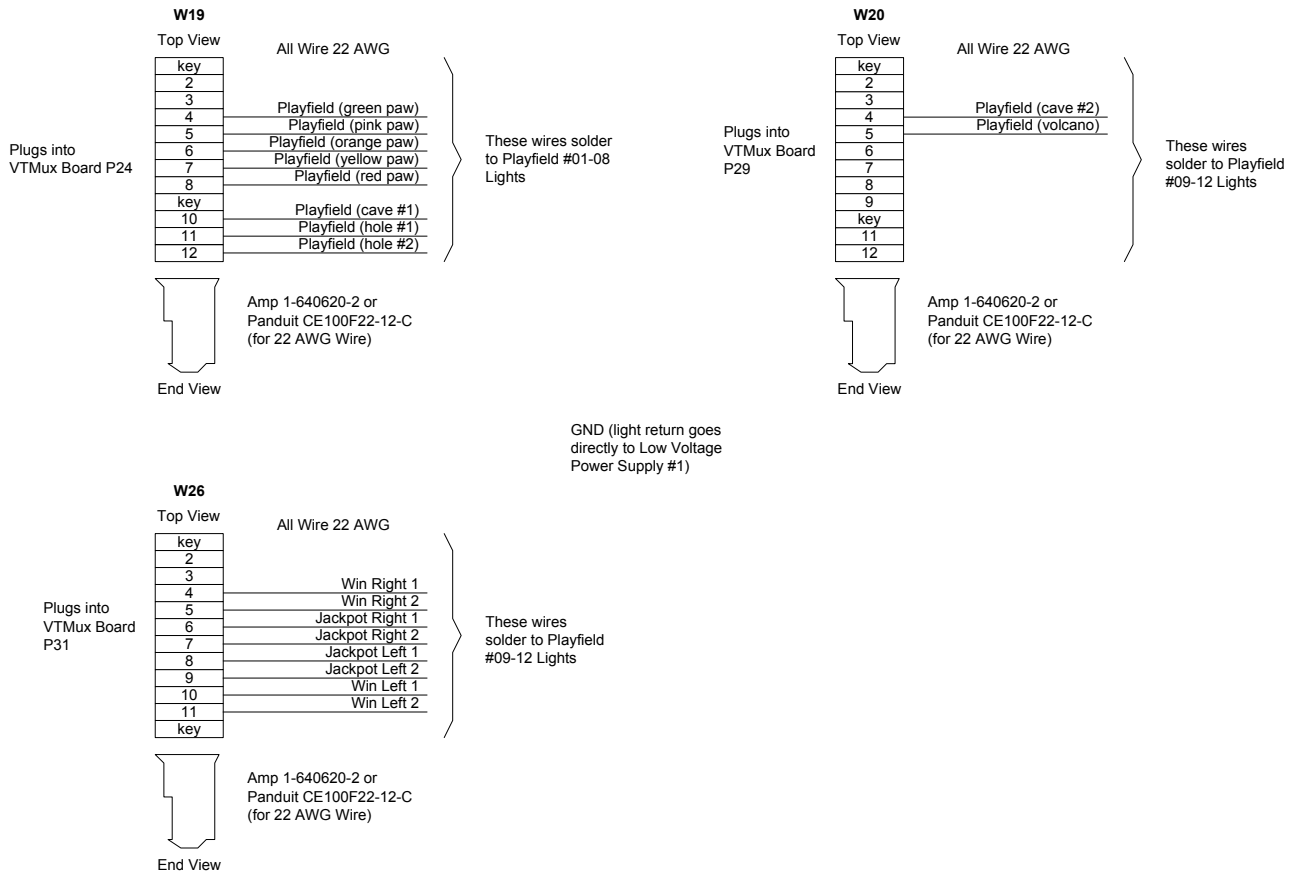
**FIGURE 16 – MISCELLANEOUS SENSOR INPUTS**

# WIRING DIAGRAMS APPENDIX B



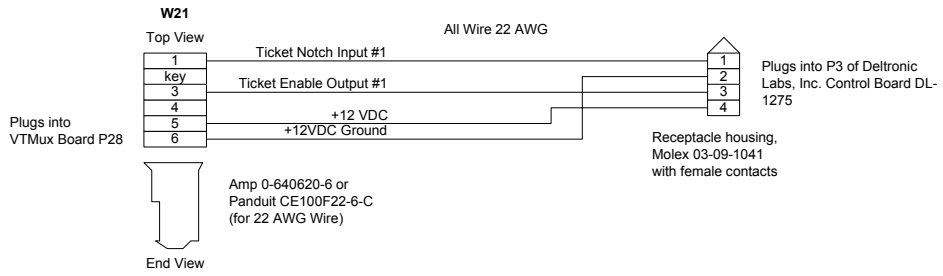
**FIGURE 17 - W15, W16, W17, W18 (VTMUX BOARD P17, P18, P22, P23 TO CLOCKFACE AND DINOSAUR JACKPOT LIGHTS)**

# WIRING DIAGRAMS APPENDIX B

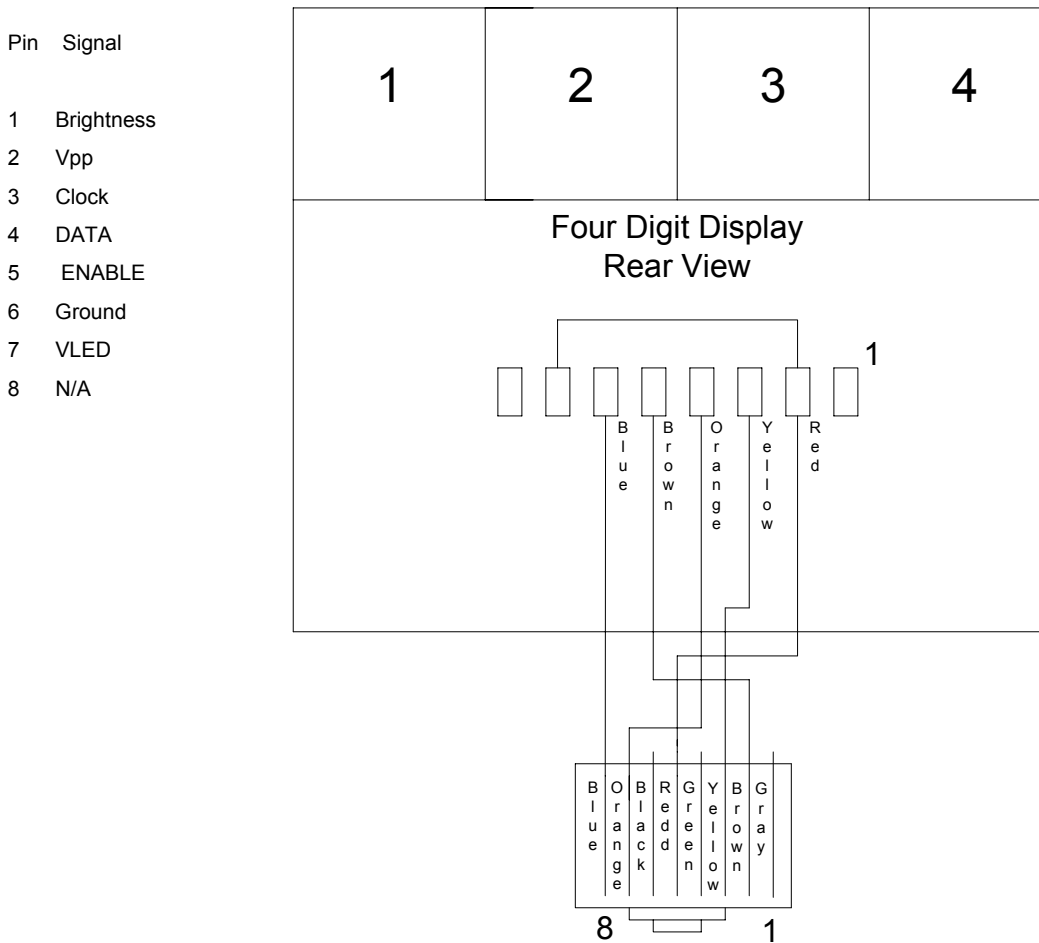


**FIGURE 18 - W19, W20, 26 (VTMUX BOARD P24, P29, P31 TO PLAYFIELD AND ARROW LIGHTS)**

# WIRING DIAGRAMS APPENDIX B

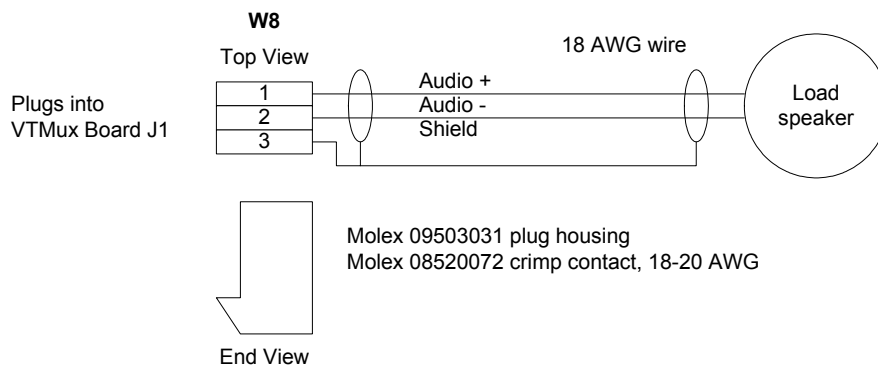


**FIGURE 19 - W21 (VTMUX BOARD P28 TO TICKET DISPENSER)**

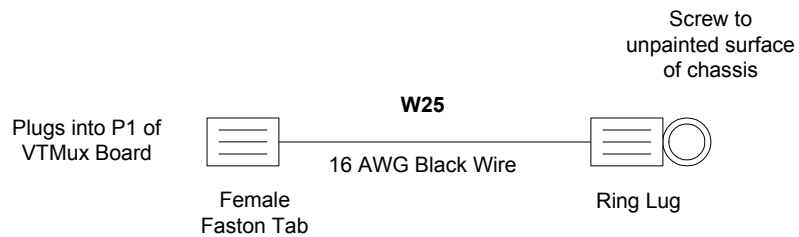


**FIGURE 20 - W23 (VTMUX BOARD P25 TO SMALL 4-DIGIT DISPLAY #1)  
W24 (VTMUX BOARD P26 TO SMALL 4-DIGIT DISPLAY #2)**

## APPENDIX B WIRING DIAGRAMS

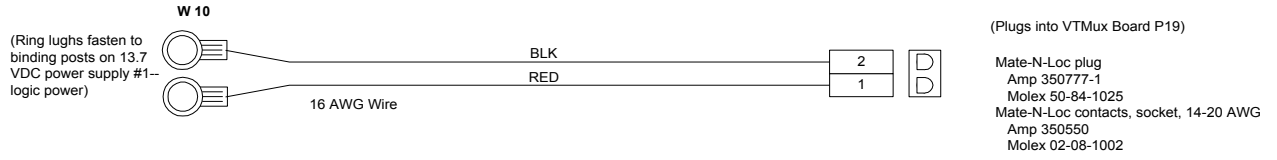


**FIGURE 21 - W8 (VTMUX BOARD J1 TO LOUDSPEAKER)**

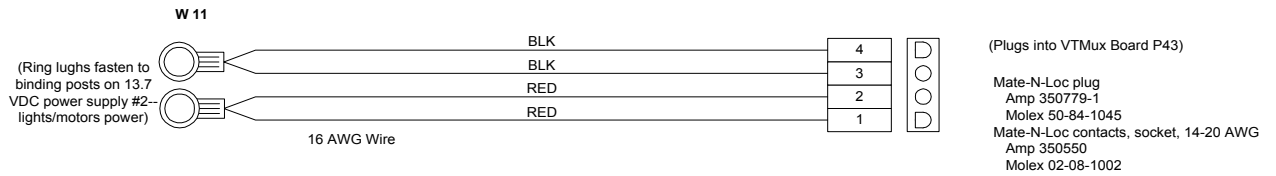


**FIGURE 22 - W25 (VTMUX BOARD P1 TO CHASSIS GROUND)**

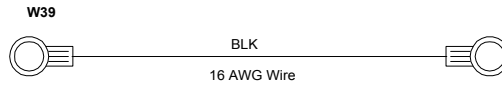
## Appendix C Power Supplies Connections



### **W10 (13.7 VDC POWER SUPPLY #1 TO 8051 VTMUX BOARD P19)**



### **W11 (13.7 VDC POWER SUPPLY #2 TO 8051 VTMUX BOARD P43)**

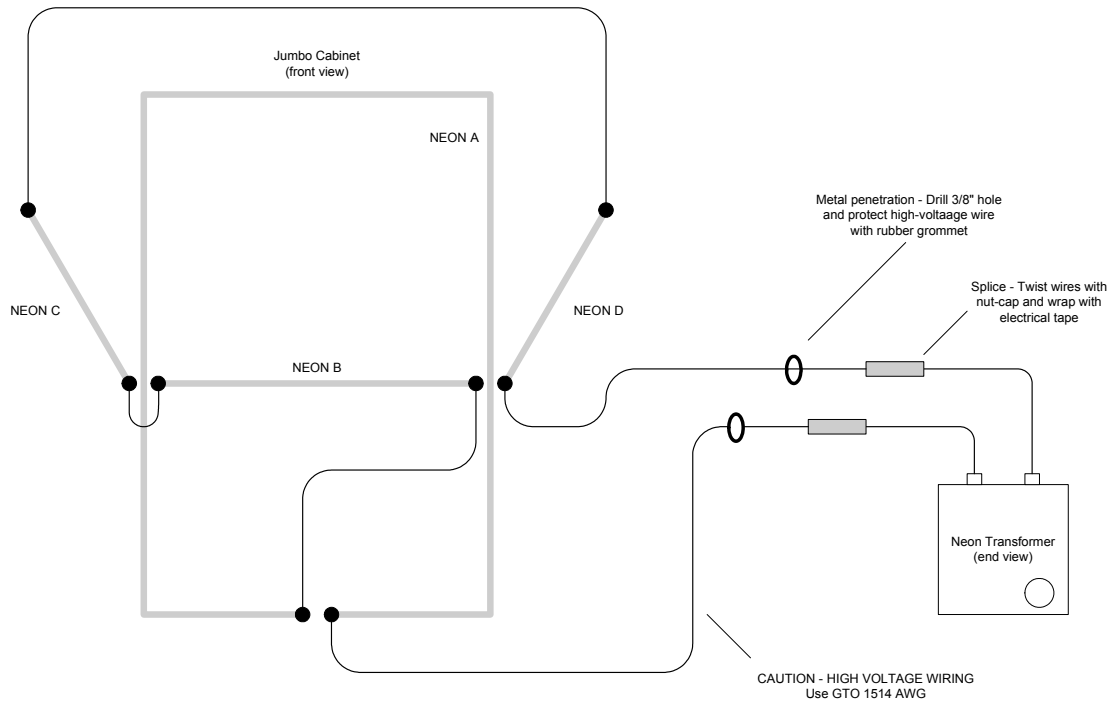


(W39 connects the two ground terminals of the two 13.7 VDC power supplies together)

### **W13 (13.7 VDC POWER SUPPLIES GROUND INTERCONNECT)**

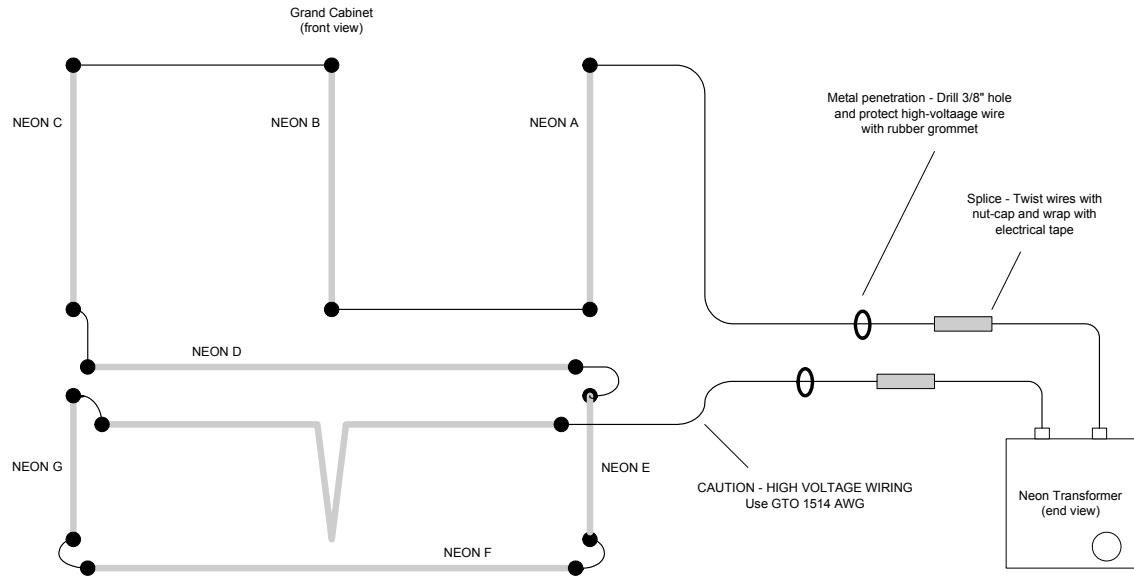


# APPENDIX C POWER SUPPLIES CONNECTIONS



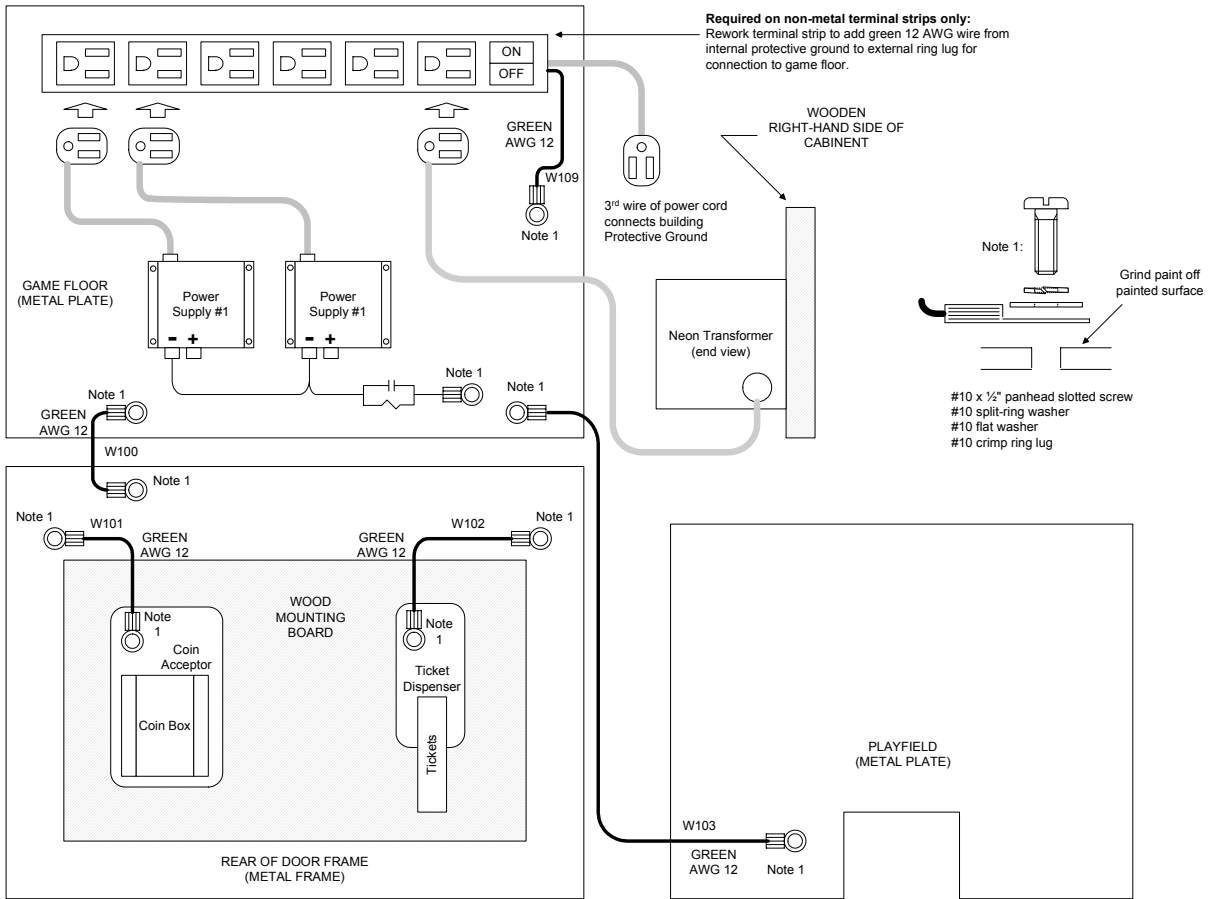
**NEON LIGHTS WIRING JUMBO CABINET**

# APPENDIX C POWER SUPPLIES CONNECTIONS



**NEON LIGHTS WIRING GRAND CABINET**

# APPENDIX C POWER SUPPLIES CONNECTIONS



**W100 – W104, W109 PROTECTIVE GROUND WIRING**

## Appendix D Programmable Options with Defaults

**GAME PLAY PROGRAMMING TABLE**

STEP#	PROGRAM OPTION	TYPE	PROGRAMMABLE	VALUE
0	NUMBER OF COINS TAKEN IN (LIFETIME)	COINS	NO	N/A
1	NUMBER OF COINS TAKEN IN (SINCE RESET)	COINS	NO	N/A
10	COINS REQUIRED TO PLAY GAME 1	COINS	YES	1
11	COINS REQUIRED TO PLAY GAME 2	COINS	YES	2
12	COINS REQUIRED TO PLAY GAME 3	COINS	YES	4
13	NUMBER OF BALLS FOR GAME 1	BALLS	YES	1
14	NUMBER OF BALLS FOR GAME 2	BALLS	YES	2
15	NUMBER OF BALLS FOR GAME 3	BALLS	YES	5
16	MAXIMUM NUMBER OF BALLS PER GAME	BALLS	YES	5
17	AUDIO ATTRACTION ON TIME	SECONDS	YES	30
18	AUDIO ATTRACTION OFF TIME	SECONDS	YES	10
19	MAXIMUM TICKETS WITHOUT ATTENDANT	TICKETS	YES	500
20	DISPENSE TICKET AFTER OR DURING GAME	BOLO	YES	1
21	NUMBER OF SECONDS BEFORE LEAVING GAME	SECONDS	YES	20
22	NUMBER OF SECONDS BETWEEN BALL LOADING	SECONDS	YES	15
23	SPINNER SPEED	RAM'S	YES	60
24	SPINNER PERCENTAGE	PERCENT	YES	5
30	RESET ALL RESETABLE STATISTICS	N/A	NO	N/A
31	DISPLAY NUMBER OF SENSOR THAT IS BLOCKED	N/A	N/A	N/A
32	DISPLAY MISC OPTO SENSOR STATUS	N/A	N/A	N/A
33	DISPENSE TICKETS	N/A	N/A	N/A
34	TEST TURNTABLE MOTOR	N/A	N/A	N/A
35	TEST GUN TROUGH MOTOR	N/A	N/A	N/A
40	POINTS FOR GREEN PAW (G1)	POINTS	YES	10
41	POINTS FOR PINK PAW (P1)	POINTS	YES	10
42	POINTS FOR ORANGE PAW (O1)	POINTS	YES	5
43	POINTS FOR YELLOW PAW (Y1)	POINTS	YES	5
44	POINTS FOR RED PAW (R1)	POINTS	YES	15
45	POINTS FOR CAVE #1	POINTS	YES	10
46	POINTS FOR HOLE #1	POINTS	YES	1
47	POINTS FOR HOLE #2	POINTS	YES	1
48	POINTS FOR CAVE #2	POINTS	YES	15
49	POINTS FOR VOLCANO	POINTS	YES	100




## APPENDIX D PROGRAMMABLE OPTIONS

50	<i>POINTS FOR PLAYFIELD PINK HOOP</i>	<i>POINTS</i>	<i>YES</i>	<i>500</i>
51	<i>POINTS FOR PLAYFIELD ORANGE HOOP</i>	<i>POINTS</i>	<i>YES</i>	<i>15</i>
52	<i>POINTS FOR PLAYFIELD GREEN HOOP</i>	<i>POINTS</i>	<i>YES</i>	<i>25</i>
53	<i>POINTS FOR PLAYFIELD YELLOW HOOP</i>	<i>POINTS</i>	<i>YES</i>	<i>100</i>
60	<i>JACKPOT #1 POINTS</i>	<i>POINTS</i>	<i>YES</i>	<i>20</i>
61	<i>JACKPOT #2 POINTS</i>	<i>POINTS</i>	<i>YES</i>	<i>50</i>
62	<i>JACKPOT #3 POINTS</i>	<i>POINTS</i>	<i>YES</i>	<i>100</i>
63	<i>JACKPOT #4 POINTS</i>	<i>POINTS</i>	<i>YES</i>	<i>1000</i>
64	<i>POINTS FOR HOOP #1</i>	<i>POINTS</i>	<i>YES</i>	<i>100</i>
65	<i>POINTS FOR HOOP #2</i>	<i>POINTS</i>	<i>YES</i>	<i>15</i>
66	<i>POINTS FOR HOOP #3</i>	<i>POINTS</i>	<i>YES</i>	<i>500</i>
67	<i>POINTS FOR HOOP #4</i>	<i>POINTS</i>	<i>YES</i>	<i>25</i>
68	<i>POINTS FOR HOOP #5</i>	<i>POINTS</i>	<i>YES</i>	<i>250</i>
70	<i>CLOCKFACE POINTS FOR 1:00 POSITION</i>	<i>POINTS</i>	<i>YES</i>	<i>10</i>
71	<i>CLOCKFACE POINTS FOR 2:00 POSITION</i>	<i>POINTS</i>	<i>YES</i>	<i>25</i>
72	<i>CLOCKFACE POINTS FOR 3:00 POSITION</i>	<i>POINTS</i>	<i>YES</i>	<i>10</i>
73	<i>CLOCKFACE POINTS FOR 4:00 POSITION</i>	<i>POINTS</i>	<i>YES</i>	<i>5</i>
74	<i>CLOCKFACE POINTS FOR 5:00 POSITION</i>	<i>POINTS</i>	<i>YES</i>	<i>10</i>
75	<i>CLOCKFACE POINTS FOR 6:00 POSITION</i>	<i>POINTS</i>	<i>YES</i>	<i>50</i>
76	<i>CLOCKFACE POINTS FOR 7:00 POSITION</i>	<i>POINTS</i>	<i>YES</i>	<i>10</i>
77	<i>CLOCKFACE POINTS FOR 8:00 POSITION</i>	<i>POINTS</i>	<i>YES</i>	<i>5</i>
78	<i>CLOCKFACE POINTS FOR 9:00 POSITION</i>	<i>POINTS</i>	<i>YES</i>	<i>10</i>
79	<i>CLOCKFACE POINTS FOR 10:00 POSITION</i>	<i>POINTS</i>	<i>YES</i>	<i>25</i>
80	<i>CLOCKFACE POINTS FOR 11:00 POSITION</i>	<i>POINTS</i>	<i>YES</i>	<i>5</i>
81	<i>CLOCKFACE POINTS FOR 12:00 POSITION</i>	<i>POINTS</i>	<i>YES</i>	<i>250</i>









## Appendix E Replacement Parts

	<b>Power Supply</b>	<b>CA1-0046-RC</b>
	<b>Bladder Ring</b>	<b>MA2-0111-R</b>
	<b>Display Board</b>	<b>PC1-1007-RC</b>
	<b>Opto Board</b>	<b>PC1-1025-RC</b>
	<b>Coin Switch</b>	<b>TB4-2004</b>
	<b>Shooter Flapper and Pin</b>	<b>HH9-0042</b>
	<b>Play Field PAW Sensor Large</b>	<b>HH6-0018-Y</b>
	<b>Play Field PAW Sensor Small (Red)</b>	<b>HH6-0018-R</b>

## APPENDIX E REPLACEMENT PARTS









	<b>Ticket Board</b>	<b>TT1-0008-RC</b>
	<b>Ramp Sensor</b>	<b>PC1-1025-R</b>
	<b>Spindle (Plastic)</b>	<b>MA2-0023-RC</b>
	<b>Ball</b>	<b>MA2-0111-B</b>
	<b>Front Of Shooter Assembly</b>	<b>GU3-0000</b>
	<b>Shooter Handle</b>	<b>GU2-0012-R</b>
	<b>Shooter Handle Full Assembly</b>	<b>GU3-0012-RC</b>
	<b>Bladder</b>	<b>MA2-0111</b>

## APPENDIX E REPLACEMENT PARTS

	<b>Turntable Assembly</b>	<b>TB6-X044-RC</b>
	<b>Turntable Motor</b>	<b>MA2-0041-RC</b>
	<b>Door Extension Block</b>	<b>GU3-0066</b>
	<b>Blower</b>	<b>BE1-0002</b>
	<b>Sensor Cave 1</b>	<b>PC1-1055-1</b>
	<b>Sensor Cave 2</b>	<b>PC1-1055-2</b>
	<b>Trough Sensor</b>	<b>BU2-0006</b>
	<b>Shooter Pivot Stop</b>	<b>GU3-0066</b>



## APPENDIX E REPLACEMENT PARTS

	<b>Claw Sensor</b>	<b>CA4-0094-S</b>
	<b>Control Panel</b>	<b>TB4-1001-R/C</b>
	<b>Control Panel</b>	<b>TB4-1001-RC</b>
	<b>Claw (Bck &amp; Frnt)</b>	<b>TB1-0005-RC</b>
	<b>Cup Assembly #1</b>	<b>CA4-0080-Y</b>
	<b>Cup Assembly #2</b>	<b>CA4-0080-G</b>
	<b>Cup Assembly #3</b>	<b>CA4-0080-P</b>
	<b>Cup Assembly #4</b>	<b>CA4-0080-O</b>
	<b>Cup Assembly #5</b>	<b>CA4-0080-R</b>

## Appendix F

### Technical Assistance

#### Call Attendant Error Codes

<b>Error Codes</b>	<b>Description</b>	<b>Resolution</b>
9001	Error while dispensing tickets	Ran Out of Tickets , Clean Ticket Dispenser, or Replace Ticket Dispenser
9002	Tickets Are Out	Add More Tickets to Ticket Dispenser
8010	Playfield Sensor Error	Replace Green Paw Sensor
8020	“	Replace Pink Paw Sensor
8030	“	Replace Orange Paw Sensor
8040	“	Replace Yellow Paw Sensor
8050	“	Replace Red Paw Sensor
8060	“	Replace Volcano Paw Sensor
8070	“	Replace Hole #1 Sensor
8080	“	Replace Hole #2 Sensor
7010	“	Replace Cave #2 Sensor
7020	“	Replace Volcano Sensor
7030	“	Replace Pink Playfield Hoop Sensor
7040	“	Replace Orange Playfield Hoop Sensor
7050	“	Replace Green Playfield Hoop Sensor
7060	“	Replace Yellow Playfield Hoop Sensor
6010	Hoop Sensor Opto Board	Replace Yellow Hoop Sensor
6020	“	Replace Orange Hoop Sensor
6030	“	Replace Pink Hoop Sensor
6040	“	Replace Green Hoop Sensor
6050	“	Replace Red Hoop Sensor
6060	“	Replace Clock Hoop Sensor
5020	Miscellaneous Sensor Error	Replace Gun Trough Sensor
5030	“	Replace Tickets Low Sensor
5040	“	Replace Tickets Out Sensor
5050	“	Replace Ramp Full Sensor

# TECHNICAL ASSISTANCE

## Problems and Possible Resolutions

Symptom	Resolution
Game is not running properly. 1 display is blank, and the other has zeros.	Check the power supply connected to P41 or P43, insure that the red LED is illuminated in the back of Power Supply # 1. If not illuminated replace the power supply.
Both displays are blank or have erroneous characters constantly being displayed.	1. Check the VTMUX Board and see if the green LED is blinking on & off. If Not blinking: a) Check Power Supply #1 insure that the red LED is illuminating or verify that it is outputting 12volts.
NO Sound	Turn the POT R50 on the VTMUX board Clockwise until sound comes on.
	Make sure that the speaker cable assembly P1 is properly connected to J1.
The Ticket Dispenser Red LED is always ON	Check Ticket Dispenser for Tickets Being Low or Out.

### **Contacting Customer Service**

Most distributors provide technical assistance for the products they sell. If your distributor cannot solve your problem, assistance can be obtained through Five Star Redemption. Call (818) 773-6056 extension 232 between the hours of 8:00 AM and 4:00 PM Pacific time, Monday through Friday, and ask for the service department.

Please have the following information available:

1. Type of Game
2. Serial Number
3. Distributor's Name
4. Description of Problem

The service technician may ask you to perform some tests on your machine, so it is preferable to call from the game's location if possible.

### **Five Star Redemption ADDRESS AND TELEPHONE NUMBERS**

**8835 Shirley Avenue  
Northridge, CA 91324  
(818) 773-6057 Fax (818) 773-6064**

**Parts extension 1  
Technical Support Extension 2  
Sales Department Extension 3**