

FIVE STAR REDEEMPTION

OCTOSCORE

MINI MEGA SINGLE PLAYER TECHNICAL MANUAL

June 12, 2013



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	600	Pounds

Overview

The Octoscore consists of one lighted clock face a with motorized spinning disk, a player console with large buttons & levers, numeric displays for game play, speakers for sound effects, two coin acceptors, and a ticket dispenser. The objective is to skillfully stop the spinning disks so the player can attempt to accumulate points

TABLE OF CONTENTS

Features.....	1
Specifications	1
Overview	1
TABLE OF CONTENTS.....	2
Game Play	5
Program Mode.....	6
Changing Program Values.....	6
Button and display operation with miscellaneous settings (steps 00-68)	6
Misc Settings Steps 00 – 29.....	7
Misc Settings Continued Steps 30-53.....	8
Resetting Statistics and Diagnostics Steps 70-99	9
Target Point Values Steps 100-173	10
Resetting the Statistics & Calibrating the Eight Arrows	11
Diagnostics 71 – 78	12
Steps 71 – 78 Calibrating The Eight Arrows.....	12
Troubleshooting Steps for Diagnostics 71 - 78.....	12
Spinner Factory Diagnostics 79.....	13
Checking Spinner Motor, and Brake	13
Troubleshooting Steps for Diagnostic 79	13
Running Diagnostics 80.....	13
Display Keypad Inputs	13
Running Diagnostics 81.....	14
Testing Ticket Dispenser	14
Troubleshooting Steps for Diagnostic 81	14
Running Diagnostics 82.....	14
Testing for Spinner Intermittent Problems	14
Troubleshooting Steps for Diagnostic 82	14
STEP 99 Viewing Software Version	15
Button and Display Operation with Software ID.....	15
View and Changing Spinner Target Values.....	16
Viewing and Changing Spinner Target Values Steps 100 – 126.....	16
Steps 100 - 126	16
Viewing Spinner Target Points.....	16
Steps 150 - 176	18
Changing Spinner Pie Slice Position	18
Top Level Interconnect Diagram	21
GAME PICTORIAL	22
CONTROL MODULE	23
W23 (VTMUX Board P2, 16, 17 to 36-Pin Molex plug)	23
W23 (Opto Board P5 to 36-Pin Molex plug).....	23
W23 (Opto Board P6 to 36-Pin Molex plug).....	23

CONTROL MODULE (CONT)	24
W24 (36-Pin Molex Receptacle to Miscellaneous Control Panel Switches/Lights).....	24
CONTROL MODULE (CONT)	25
W22 (VTMUX Board P23 to 36-Pin Molex Plug).....	25
W25 (36-Pin Molex Receptacle to Arrow Button Lights).....	25
CONTROL MODULE (CONT)	26
W26 (VTMUX Board P30 to Arrow Head Lights)	26
CONTROL MODULE (CONT)	27
W27 (VTMUX Board P31 to Arrow Base Lights).....	27
CONTROL MODULE (CONT)	28
W24 (VTMUX Board P18 to Spinner Ring Lights).....	28
CONTROL MODULE (CONT)	29
W35 (VTMUX Board P29 to Large 8-Digit Display).....	29
TICKET DISPENSING MODULE	30
W21 (VTMUX Board P22 to Start Button Lever Light, Coin Acceptor Light, Tickets Low LED1, 2, Coin Meter, Ticket LED Panel Strip, and Tickets1.2 Dispensing Lights).....	30
TICKET DISPENSING MODULE (CONT)	31
W15 (VTMUX Board P28 to Ticket Dispenser #1)	31
W5 (VTMUX Board P21 to Ticket Dispenser #2).....	31
SPINNER MODULE	32
W34 (VTMUX Board P32 to Spinner Encoder J1).....	32
SPINNER MODULE (CONT)	33
SPINNER MODULE (CONT)	34
W30 (VTMUX Board P34, 36 to Spinner Motor and Brake Solenoid).....	34
MISCELLANEOUS WIRING	35
W18 (VTMUX Board P3 to Program Mode Button and Coin Acceptor)	35
MISCELLANEOUS WIRING (CONT)	36
W45 (VTMUX Board P4 to Bill Acceptor).....	36
MISCELLANEOUS WIRING (CONT)	37
W35-37 (Speakers).....	37
OPTO SENSORS WIRING	38
W84-87, 90, 91 (Slow Stop Lever, Start Lever, Tickets Out 1, 2, and Tickets Low 1, 2 Sensors)	38
OPTO SENSORS WIRING (CONT)	39
W16 (VTMUX Board P12 to Opto Board P9)	39
Display and Keypad Wiring	40
W7 (VTMUX Board P25 to Mixed Small/Large Displays)	40
Display and Keypad Wiring (cont)	41
W36, W37, W38 (VTMUX Board P26 to CONTROL PANEL Small 4-Digit Displays Wiring)	41
Display and Keypad wiring (cont)	42
W28, W29 (Keypad and Small Display Wiring).....	42
W28 (VTMUX Board J2 to Keypad KEY)	42

W29 (Keypad GUMB1 to Small Display J2)	42
W1, W2, W3, W7 (13.7 VDC Power Supply and Grounds)	43
W1 (13.7 VDC Power Supply to VTMUX Board P19)	43
W2 (13.7 VDC Power Supply to VTMUX Board P43)	43
W101, W102, W109 (Protective Ground Wiring)	44
Appendix A—VTMUX Board Layout	45
Appendix B—Opto Board Layout	46
Appendix C Troubleshooting Assistance	47
Troubleshooting Guide	47
Appendix D Replacing or Realigning Spinner Wheels	50
Appendix E	53
Technical Assistance	53
Five Star Redemption.....	54
8803 Shirley Avenue	54
Northridge, CA 91324	54
(818) 773-6057 Fax (818) 773-6064	54
Parts Department Option 1	54
Technical Support Option 2	54
Sales Department Option 3	54

Game Play

Octoscore offers very fast and interesting play with many different strategies for maximizing the points you can win.

The *Spinner* allows the player to accumulate points to win tickets.

- 1) Insert coin(s) to ready the game for play.
- 2) Pull back the *Start Lever* to begin the *Spinner Spinning*.
- 3) There are several seconds in which to influence where the *Spinner* will stop by skillfully pushing the *Slow Stop* button which decreases spinner speed or pulling back on the *Start Lever* which will increase the spinner speed.
- 4) Points are awarded and displayed each time the *Spinner* is spun.

Program Mode

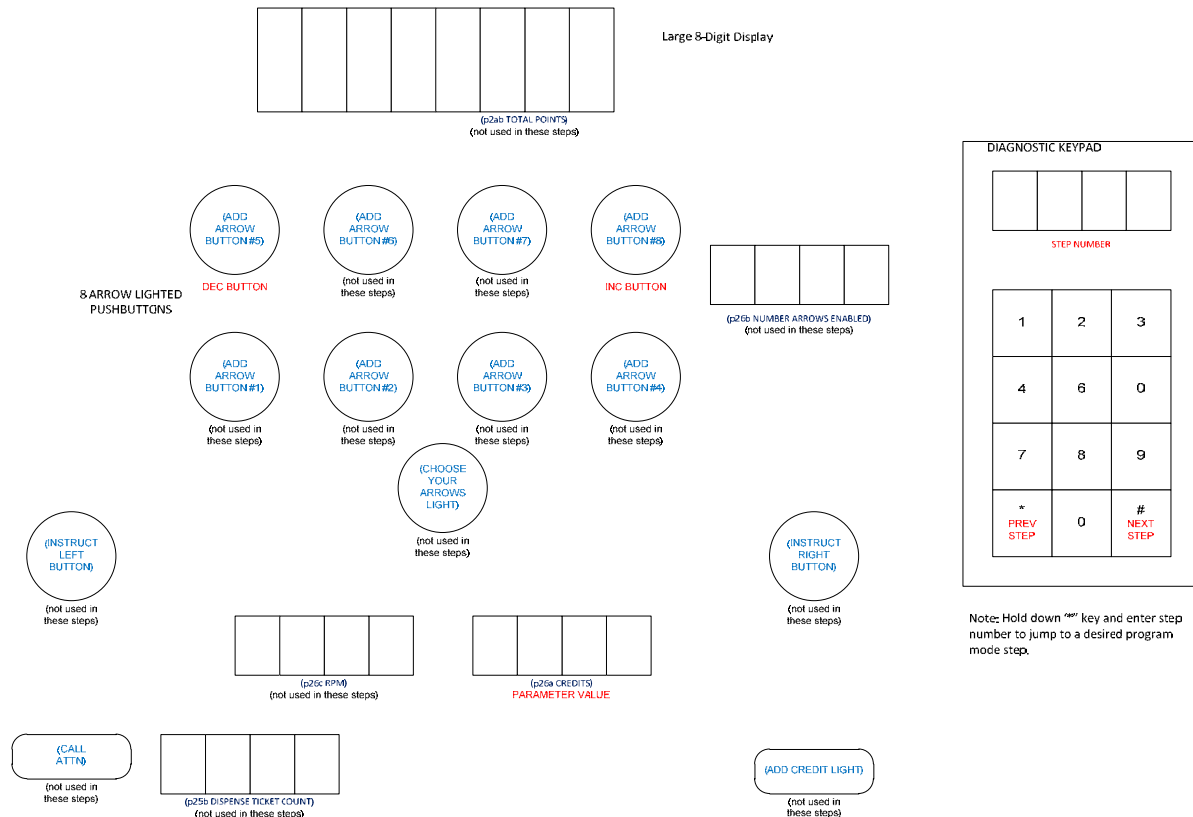
Changing Program Values

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

To go into *Program Mode*, Hold Down both the '*' and '#' symbols for approximately 5 seconds the Keypad Display should go Blank, next enter the number "11" which will allow the game operator to go into *Program Mode* (Keypad should display all zero's).

Pressing the **ARROW #5** will decrement the Value, Pressing the **ARROW #8** will increment the value. To increase the **STEP NUMBER** use the Numeric Keypad and press the '*', to decrease the **STEP NUMBER** press the '#' symbol. To Go to **STEPS** directly Hold down the "*" key while entering the **STEP NUMBER** in the keypad. Pressing the *Program Mode* or Holding Down both the '*' and '#' symbols will allow the operator to exit. The program button is located near the main board inside of the cabinet.

Button and display operation with miscellaneous settings (steps 00-68)



Changing Program Values (cont)**Misc Settings Steps 00 – 29**

Description	Step Number	Range (units)	Default Value	Comments
Misc settings				
coins_required_to_play	00	1 – 4	note 1	Number of coins required to play
attraction_audio_on_time	01	0 - 180 sec	note 1	Number of seconds attraction audio is on per attraction cycle (0 disables attraction audio)
attraction_audio_off_time	02	10 - 180 sec	note 1	Number of seconds attraction audio is off per attraction cycle
spinner_enable_stop_rpm1	03	1 - 600	note 1	Spinner #1 RPM above which stop lever can cut motor power (increments of 1)
spinner_enable_stop_dither1	04	0 - 100	note 1	Spinner #1 RPM dither before enabling cutting motor power during ramp up (increments of 1)
spinner_cruising_rpm1	05	30 - 200	note 1	Spinner #1 cruising RPM (increments of 5)
spinner_max_hyper_rpm1	06	100 - 600	note 1	Spinner #1 maximum hyperspeed RPM (increments of 5)
spinner_enable_brake_rpm1	07	0 - 100	note 1	Spinner #1 RPM above which stop lever can energize brake (increments of 1)
spinner_maximum_time1	08	5 - 30 sec	note 1	Maximum time before power is removed from spinner #1 motor (increments of 1)
auto_spin_until_over	09	0,1	note 1	0=do not auto spin, 1=auto spin until game is over (increments of 1)
maximum_points_per_game	10	25 - 9975	note 1	Maximum number points per game (increments of 25)
number_points_per_ticket	11	0 – 255	note 1	Number of points required per ticket dispensed (increments of 1)
maximum_spins_per_credit	12	1 - 255	note 1	Maximum number of spins per credit (increments of 1)
demo_mode	13	0,1	note 1	0=not demo mode, 1=demo mode
enable_keypad_display	14	0,1	note 1	0=do not enable keypad display in game mode, 1=enable keypad display in game mode
play_instructions_during_attraction	15	0-1	note 1	0=do not play instruction sound during attraction, 1=play instructions sounds during attraction
spinner_diagnostic_sensitivity	16	1-9	note 1	Spinner diagnostic sensitivity (1=most sensitive, 9=least sensitivity)
extra_games_disable	17	0,1	note 1	0=enable extra games, 1=disable extra games
timeout_to_spin_with_credits	18	5-120 sec	note 1	Time to push Start button before automatically spinning when player has credits (increments of 1)
timeout_to_spin_with_no_credits	19	5-120 sec	note 1	Time to push Start button before going to attraction when player has no credits (increments of 1)
spinner_allow_full_power_time	20	1 – 5	note 1	Time spinner must spin before the player can apply full-power to the spinner (increments of 1)
min_small_jackpot_spinner1	21	10 – 500	note 1	Minimum points for small jackpot on spinner #1 (increments of 10)
min_big_jackpot_spinner1	22	10 – 500	note 1	Minimum points for big jackpot on spinner #1 (increments of 10)
spinner_minimum_kick_rpm1	23	10 – 100	note 1	Spinner #1 RPM above which player can abort a stop (increments of 1)
spinner_maximum_kicks1	24	0 – 10	note 1	Spinner #1 maximum number of kicks allowed (increments of 1)
spinner_max_kick_time1	25	1 – 5 sec	note 1	Spinner #1 maximum kick time allowed (increments of 1)
spinner_add_arrows_rpm1	26	50 – 300	note 1	Spinner #1 rpm above which player can purchase arrows (increments of 1)
enable_rpm_display	27	0,1	note 1	0=disable rpm display, 1=enable rpm display
enable_arrow_points_display	28	0,1	note 1	0=disable display of arrow points, 1=enable display of arrow points
enable_could_have_won_display	29	0,1,2	note 1	0=disable display of additional points, 1=enable display of additional points if all eight arrows bought, 2=enable display of total points if all eight arrows bought

Note1: Default value varies for different customers.

Changing Program Values (cont)

Misc Settings Continued Steps 30-53

Description	Step Number	Range (units)	Default Value	Comments
Misc settings (continued)				
biggest_arrow_bonus_points	30	0-1000	note 1	Bonus points for purchasing arrow with the most points (increments of 1)
disable_spinner_startup_fault	31	0,1	note 1	0=enable spinner startup fault, 1=disable spinner startup fault
spinner_default_arrow_number	32	1-9	note 1	1-8=spinner number, 9="spinning" arrow lights (increments of 1)
spinner_enable_brake_pieslices	33	1-255	note 1	Minimum number of pieslices spinner must rotate through before enabling brake (increments of 1)
disable_brake_ladder_free_spin	34	0,1	note 1	0=enable brake, 1=disable brake (increments of 1)
ladder_gives_free_spin	35	0-2	note 1	Ladder gives free spin 0=none, 1=first ladder only, 2=all ladders (increments of 1)
jackpot_transition_level1	39	100-9000	note 1	Progressive ladder transition from level 1 to level 2 (increments of 25)
jackpot_transition_level2	40	100-9000	note 1	Progressive ladder transition from level 2 to level 3 (increments of 25)
jackpot_transition_level3	41	100-9000	note 1	Progressive ladder transition from level 3 to level 4 (increments of 25)
jackpot_transition_level4	42	100-9000	note 1	Progressive ladder transition from level 4 to level 5 (increments of 25)
jackpot_increment_level1	43	1-10	note 1	Progressive jackpot increment in level 1 (increments of 1)
jackpot_increment_level2	44	1-10	note 1	Progressive jackpot increment in level 2 (increments of 1)
jackpot_increment_level3	45	1-10	note 1	Progressive jackpot increment in level 3 (increments of 1)
jackpot_increment_level4	46	1-10	note 1	Progressive jackpot increment in level 4 (increments of 1)
jackpot_increment_level5	47	1-10	note 1	Progressive jackpot increment in level 5 (increments of 1)
maximum_number_arrows_per_spin	48	1-8	note 1	Maximum number of arrows can be purchased per spin (increments of 1)
maximum_number_rungs_per_spin	49	1-8	note 1	Maximum number of rungs can be won per spin (increments of 1)
countdown_timer_beginning_count	50	60-1000	note 1	Countdown timer beginning count (increments of 1)
speed_awarding_arrow_points	51	1-3	note 1	1=normal speed, 2=faster speed, 3=fastest speed (increments of 1)
must_display_all_arrows	52	0,1	note 1	0=all arrows not required to flash, 1=all arrows must flash
disable_countdown_timer	53	0,1	note 1	0=enable countdown timer, 1=disable countdown timer

Note1: Default value varies for different customers.

Changing Program Values (cont)

Progressive Ladder and Point Values Steps 60-68

Description	Step Number	Range (units)	Default Value	Comments
progressive_beginning_points	60	100-5000	note 1	Progressive jackpot beginning points (increments of 10)
progressive_maximum_points	61	500-9990	note 1	Progressive jackpot maximum points (increments of 10)
progressive_ladder_points1	62	0-5000	note 1	Progressive ladder #1 points (increments of 25)
progressive_ladder_points2	63	0-5000	note 1	Progressive ladder #2 points (increments of 25)
progressive_ladder_points3	64	0-5000	note 1	Progressive ladder #3 points (increments of 25)
progressive_ladder_points4	65	0-5000	note 1	Progressive ladder #4 points (increments of 25)
progressive_ladder_points5	66	0-5000	note 1	Progressive ladder #5 points (increments of 25)
progressive_ladder_points6	67	0-5000	note 1	Progressive ladder #6 points (increments of 25)
progressive_ladder_points7	68	0-5000	note 1	Progressive ladder #7 points (increments of 25)

Resetting Statistics and Diagnostics Steps 70-99

Description	Step Number	Range (units)	Default Value	Comments
reset statistics	70	na	na	Reset all statistics that are re-settable
calibrate arrow #1	71	na	na	Facilitate calibration and display arrow #1 “pie slice”, points, and position number
calibrate arrow #2	72	na	na	Facilitate calibration and display arrow #2 “pie slice”, points, and position number
calibrate arrow #3	73	na	na	Facilitate calibration and display arrow #3 “pie slice”, points, and position number
calibrate arrow #4	74	na	na	Facilitate calibration and display arrow #4 “pie slice”, points, and position number
calibrate arrow #5	75	na	na	Facilitate calibration and display arrow #5 “pie slice”, points, and position number
calibrate arrow #6	76	na	na	Facilitate calibration and display arrow #5 “pie slice”, points, and position number
calibrate arrow #7	77	na	na	Facilitate calibration and display arrow #5 “pie slice”, points, and position number
calibrate arrow #8	78	na	na	Facilitate calibration and display arrow #5 “pie slice”, points, and position number
spinner factory diagnostic	79	na	na	Spinner factory diagnostic
keypad [t/o 1]	80	0-255	na	Display keypad inputs
ticket dispenser	81	25-9,975	na	Dispense a ticket from ticket dispenser #1 or ticket dispenser #2
spin spinners/display error count	82	0-255	na	Spin spinners and display error count of binary code miss-reads from spinner encoder
display software ID	99	na	na	8-digit software ID number
spinner offset1,2,3,4,5	na	na	na	(these parameters are automatically set in Steps 71-75)

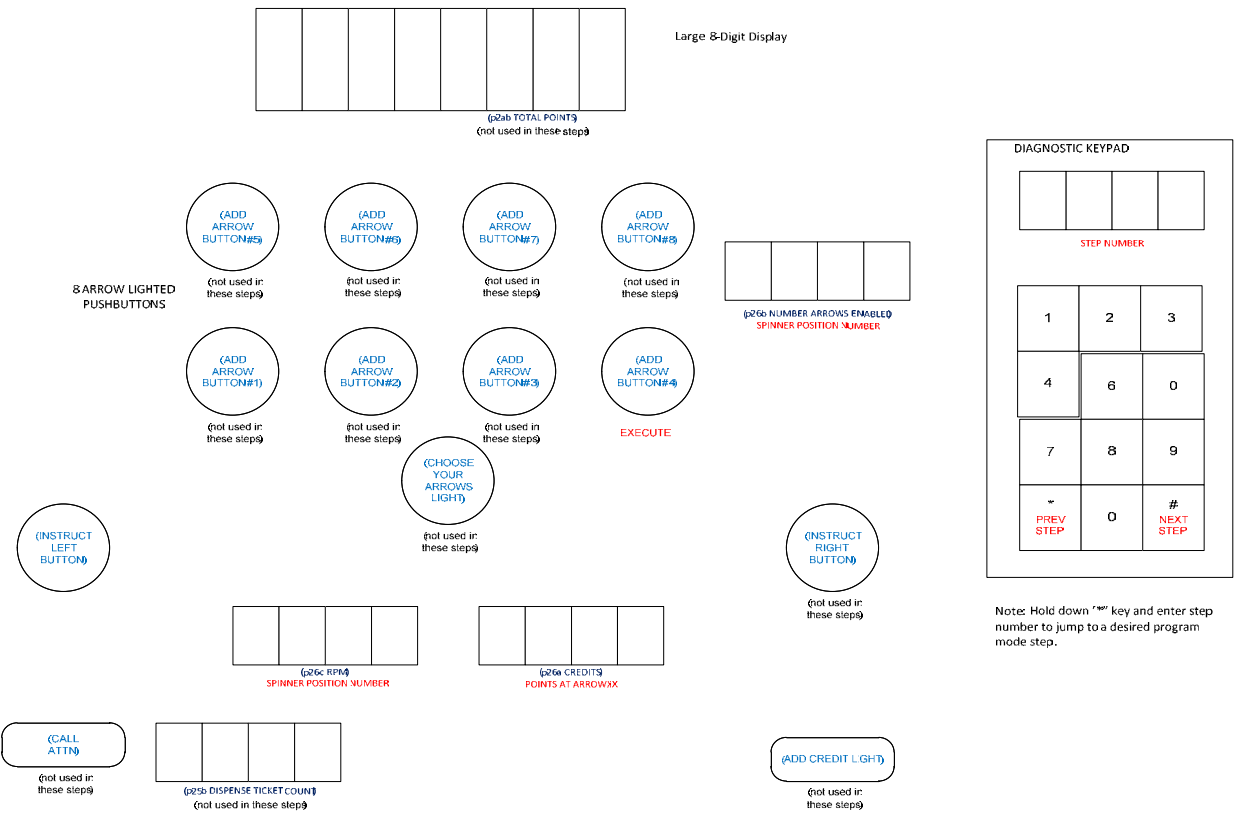
Note1: Default value varies for different customers.

Changing Program Values (cont)**Target Point Values Steps 100-173**

Description	Step Number	Range (units)	Default Value	Comments
target_points (Spinner #1)				
Position #00	100	0-2000		Points at position #00 (increments of 1)
Position #01	101	0-2000		Points at position #01 (increments of 1)
Position #02	102	0-2000		Points at position #02 (increments of 1)
Position #03	103	0-2000		Points at position #03 (increments of 1)
Position #04	104	0-2000		Points at position #04 (increments of 1)
Position #05	105	0-2000		Points at position #05 (increments of 1)
Position #06	106	0-2000		Points at position #06 (increments of 1)
Position #07	107	0-2000		Points at position #07 (increments of 1)
Position #08	108	0-2000		Points at position #08 (increments of 1)
Position #09	109	0-2000		Points at position #09 (increments of 1)
Position #10	110	0-2000		Points at position #10 (increments of 1)
Position #11	111	0-2000		Points at position #11 (increments of 1)
Position #12	112	0-2000		Points at position #12 (increments of 1)
Position #13	113	0-2000		Points at position #13 (increments of 1)
Position #14	114	0-2000		Points at position #14 (increments of 1)
Position #15	115	0-2000		Points at position #15 (increments of 1)
Position #16	116	0-2000		Points at position #16 (increments of 1)
Position #17	117	0-2000		Points at position #17 (increments of 1)
Position #18	118	0-2000		Points at position #18 (increments of 1)
Position #19	119	0-2000		Points at position #19 (increments of 1)
Position #20	120	0-2000		Points at position #20 (increments of 1)
Position_adjustments (Spinner #1)				
Pieslice Adjustment Position #00	150	0-4		Pieslice adjustment at position #00, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #01	151	0-4		Pieslice adjustment at position #01, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #02	152	0-4		Pieslice adjustment at position #02, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #03	153	0-4		Pieslice adjustment at position #03, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #04	154	0-4		Pieslice adjustment at position #04, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #05	155	0-4		Pieslice adjustment at position #05, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #06	156	0-4		Pieslice adjustment at position #06, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #07	157	0-4		Pieslice adjustment at position #07, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #08	158	0-4		Pieslice adjustment at position #08, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #09	159	0-4		Pieslice adjustment at position #09, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #10	160	0-4		Pieslice adjustment at position #10, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #11	161	0-4		Pieslice adjustment at position #11, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #12	162	0-4		Pieslice adjustment at position #12, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #13	163	0-4		Pieslice adjustment at position #13, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #14	164	0-4		Pieslice adjustment at position #14, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #15	165	0-4		Pieslice adjustment at position #15, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #16	166	0-4		Pieslice adjustment at position #16, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #17	167	0-4		Pieslice adjustment at position #17, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #18	168	0-4		Pieslice adjustment at position #18, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #19	169	0-4		Pieslice adjustment at position #19, where value of 2 is no adjustment (increments of 1)
Pieslice Adjustment Position #20	170	0-4		Pieslice adjustment at position #20, where value of 2 is no adjustment (increments of 1)

Changing Program Values (cont)

Resetting the Statistics & Calibrating the Eight Arrows



Pressing the **ARROW BUTTON #4** will reset the resettable statistics.

STEP #	DESCRIPTION
70	Reset Statistics

Changing Program Values (cont)

DIAGNOSTICS 71 – 78

STEPS 71 – 78 CALIBRATING THE EIGHT ARROWS

Use the SLOW STOP lever to rotate the spinner graphics to the calibration point on the arrow then press the #4 Push Button to calibrate that Arrow. Displays Spinner Information Pie Slices 0-255, Position Type, Points, and Position Number.

Step Number	Arrow Number
71	1
72	2
73	3
74	4
75	5
76	6
77	7
78	8

Troubleshooting Steps for Diagnostics 71 - 78

Problem	Solution
Pie Slice is not zero when spinner is pointing straight to the calibration point.	Recalibrate to TDC by manually positioning pointer to calibration point and pushing #4 Push Button (spinner may be energized by momentarily pulling the Stop Lever)
Wrong Pie Slice 0-255, Pie Slice number should increase smoothly from 0 to 255 as spinner is rotated clockwise	- Check Encoder Reader Board - Examine/reseat wiring harness connections.
Wrong Position Number, Position Number should increase smoothly from 0 as spinner is rotated clockwise through each Spinner Position	- Examine/reseat wiring harness connections. - Recalibrate to calibration point by manually positioning pointer straight up and pressing the #4 Push Button

Changing Program Values (cont)

SPINNER FACTORY DIAGNOSTICS 79

Checking Spinner Motor, and Brake

The number of the selected spinner is shown on the RPM display. Pull the **Stop Lever** to energize the spinner brake and the **Start Lever** to energize the spinner motor. Hold down the **Stop Lever** while Pulling the **Start Lever** to cause the spinner to spin more slowly. Perform the troubleshooting steps in the sequence specified in Troubleshooting Steps for Diagnostic 79 on next page.

TROUBLESHOOTING STEPS FOR DIAGNOSTIC 79

Problem	Solution
Particular spinner(s) do not spin	• Verify spinner board switches are set correctly • Examine/reseat wiring harness connections to spinner boards • Swap spinner boards to see if problem moves with the boards and replace any spinner board found to be defective (be sure board switches are set correctly) • Replace spinner motor and retest
Particular brake(s) do not activate	• Verify spinner board switches are set correctly • Examine/reseat wiring harness connections to spinner boards • Swap spinner boards to see if problem moves with the boards and replace any spinner board found to be defective (be sure board switches are set correctly) • Adjust/replace spinner brake and retest
Spinner does not spin	• Examine/reseat wiring harness connections to spinner boards • Look for low-voltage changes at VTMUX board output when spinner should be spinning and if voltage does not change, replace VTMUX board and retest
Brakes do not activate	• Examine/reseat wiring harness connections to spinner boards • Look for low-voltage changes at VTMUX board output when brake should be activated and if voltage does not change, replace VTMUX board and retest

RUNNING DIAGNOSTICS 80

Display Keypad Inputs

Push each of the individual numbers on the keypad to display the associated keypad number.

Changing Program Values (cont)

RUNNING DIAGNOSTICS 81

Testing Ticket Dispenser

Push the Flashing **Call Attendant Pushbutton** to Dispense a Single Ticket. If you have Dual Ticket dispensers press the **#4 Pushbutton** to go from Ticket Dispenser #1 to dispenser #2 and vice versa.

Troubleshooting Steps for Diagnostic 81

Problem	Solution
Does not dispense tickets	• Clear ticket dispenser of any jammed tickets • Load tickets if empty • Try dispensing a ticket using diagnostic mode, if ticket does not dispense: - o Check wiring harness - o Replace ticket dispenser and retest - o Replace VTMUX board and retest

RUNNING DIAGNOSTICS 82

Testing for Spinner Intermittent Problems

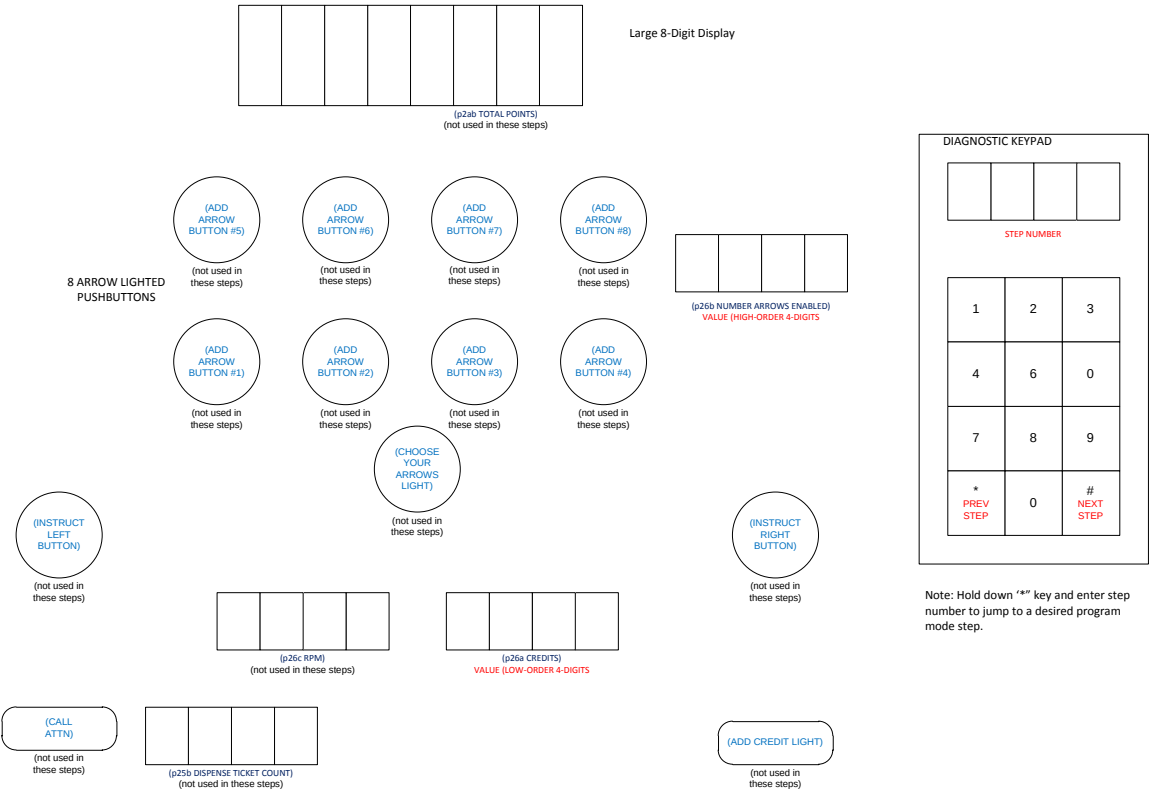
Check for spinner intermittent problems while spinners are spinning. Momentarily press keypad 1 to begin test on selected spinner. **Press Keypad 0** to stop test. Perform the troubleshooting steps in the sequence Troubleshooting Steps for Diagnostic 82.

TROUBLESHOOTING STEPS FOR DIAGNOSTIC 82

Problem	Solution
Spinner errors detected (a couple errors during a couple minutes of operation is normal and will not cause problems in game's operation)	• Examine/reseat wiring harness connections to spinner boards • Replace spinner board and retest • Replace spinner mechanism and retest

STEP 99 VIEWING SOFTWARE VERSION

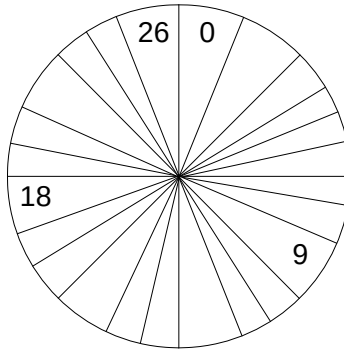
Button and Display Operation with Software ID



View and Changing Spinner Target Values

VIEWING AND CHANGING SPINNER TARGET VALUES STEPS 100 – 126

Pressing the **FAST STOP BUTTON** will decrement the Value, Pressing the **START BUTTON** will increment the value. To increase the **STEP NUMBER** use the Numeric Keypad and press the ‘*’, to decrease the **STEP NUMBER** press the ‘#’ symbol. To Go to **STEPS** directly Hold down the “*” key while entering the **STEP NUMBER** in the keypad. Pressing the *Program Mode* or Holding Down both the ‘*’ and “#” symbols will allow the operator to exit. The program button is located near the main board inside of the cabinet.



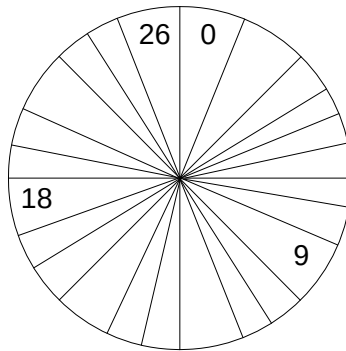
Steps 100 - 126

Viewing Spinner Target Points

STEP NUMBER SPINNER #1	SPINNER POSITION	TARGET POINTS
100	0	INCREMENTS OF 1
101	1	“
102	2	“
103	3	“
104	4	“
105	5	“
106	6	“
107	7	“
108	8	“
109	9	“
110	10	“
111	11	“
112	12	“
113	13	“
114	14	“
115	15	“
116	16	“
117	17	“
118	18	“

STEP NUMBER SPINNER #1	SPINNER POSITION	TARGET POINTS
119	19	“
120	20	“
121	21	“
122	22	“
123	23	“
124	24	“
125	25	“
126	26	“

View and Changing Spinner Target Values

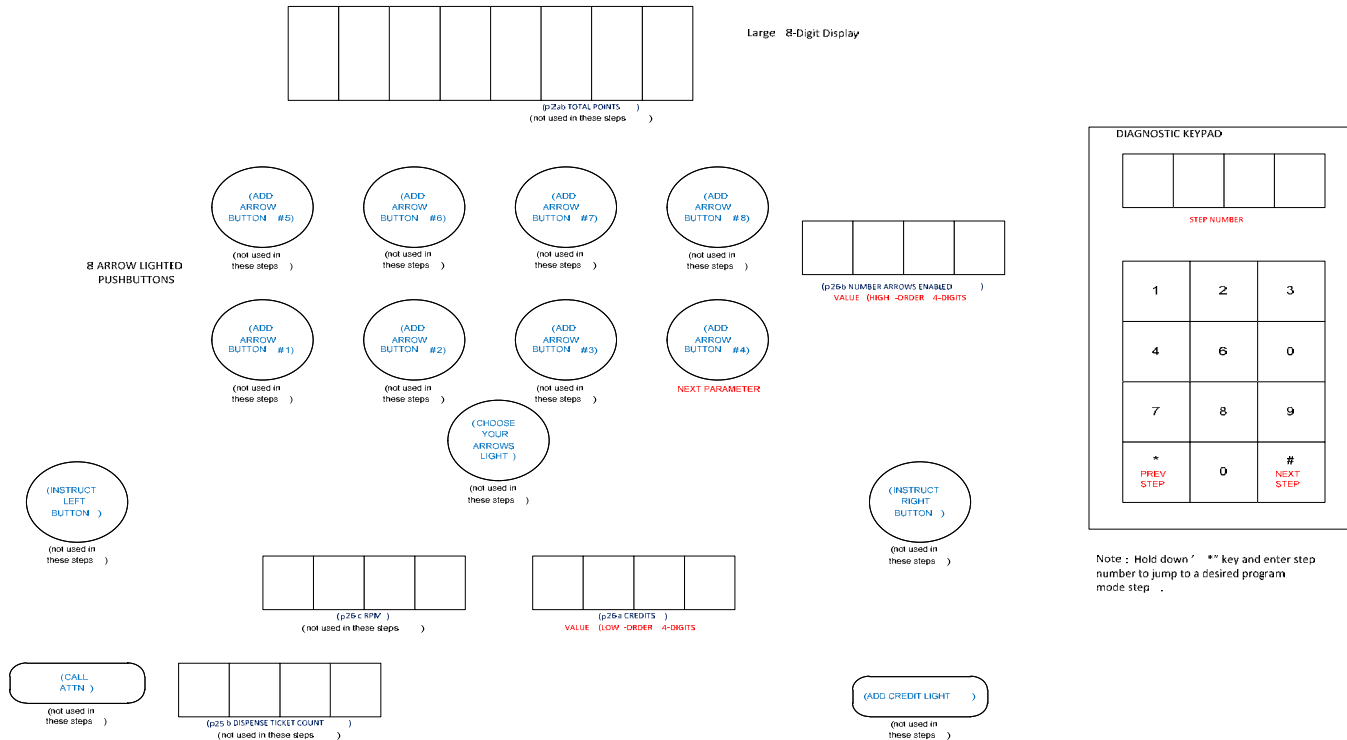


Steps 150 - 176

Changing Spinner Pie Slice Position

Step Number	Spinner Pie Slice Position	Spinner Position
150	0	0 = -2 PIE SLICES 1 = -1 PIE SLICES 2 = NO CHANGE 3 = +1 PIE SLICE 4 = +2 PIE SLICE
151	1	“
152	2	“
153	3	“
154	4	“
155	5	“
156	6	“
157	7	“
158	8	“
159	9	“
160	10	“
161	11	“
162	12	“
163	13	“
164	14	“
165	15	“
166	16	“
167	17	“
168	18	“
169	19	“
170	20	“
171	21	“
172	22	“
173	23	“
174	24	“
175	25	“
176	26	“

VIEWING STASTICAL INFORMATION STEPS 700, 701, AND 800



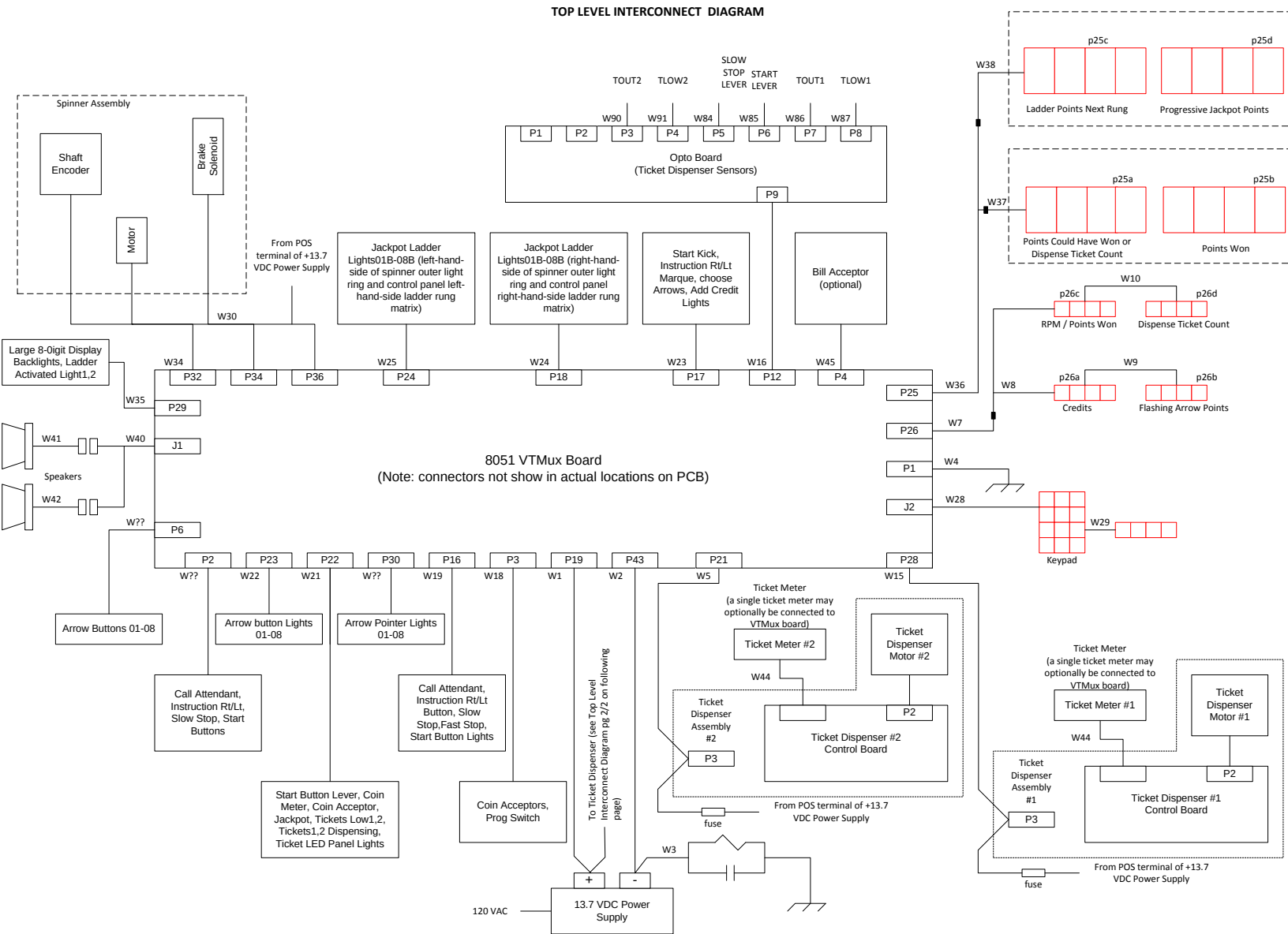
To increase the **STEP NUMBER** use the Numeric Keypad and press the ‘*’, to decrease the **STEP NUMBER** press the ‘#’ symbol. To Go to **STEPS** directly Hold down the “*” key while entering the **STEP NUMBER** in the keypad. To View Statistics Press the **#4 BUTTONS** to cycle through each Statistic.

Description	Step Number	Range (units)	Default Value	Comments
Resettable Statistics 01=coins 02=spins 03=game timeouts 04= tickets dispensed 05 =points	700	NA (see comments) 0 – 16,777,216 0 – 16,777,216	NA FULL 0 0 Na	Display the resettable statistics

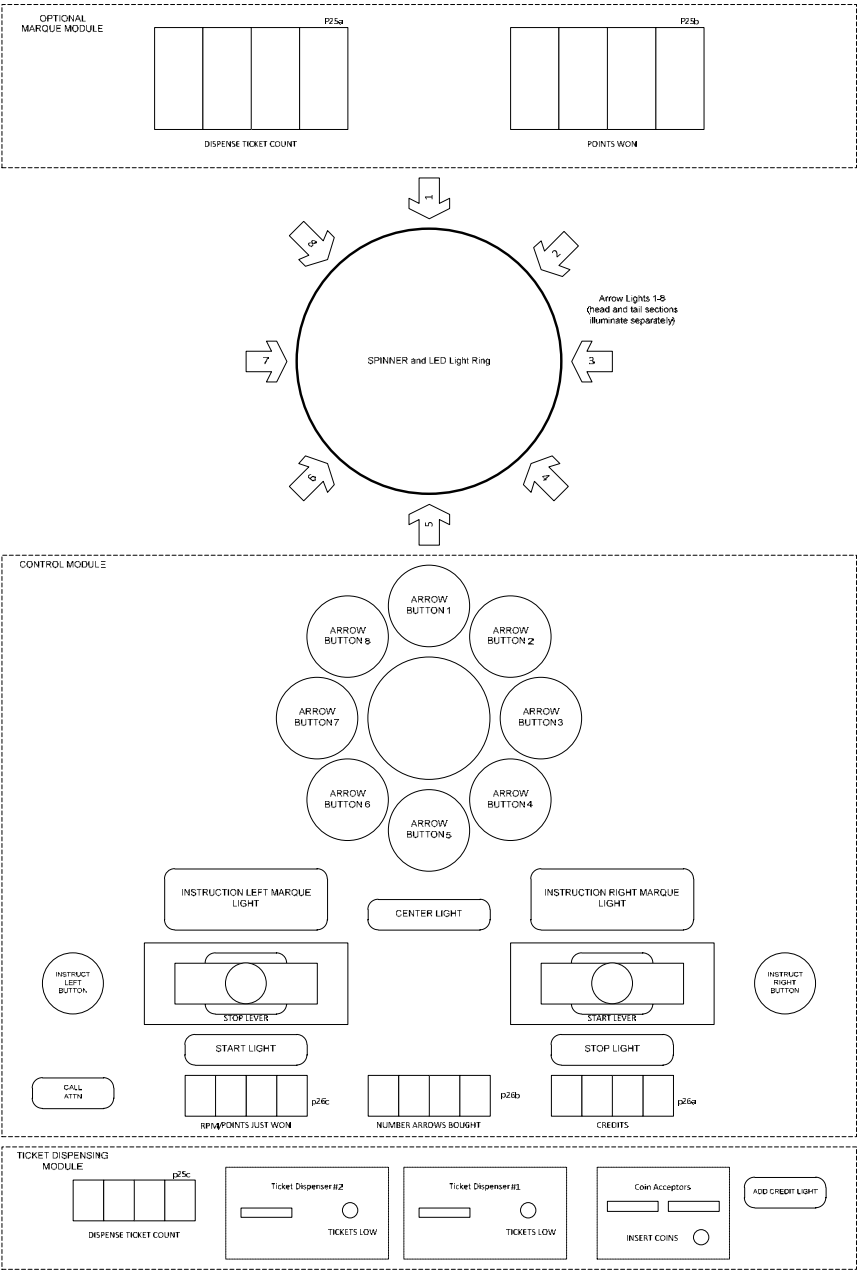
Viewing Statistical Information

Description	Step Number	Range (units)	Default Value	Comments
06=spinner tampers 07=spins with 1 arrows purchased 08= spins with 2 arrows purchased 09= spins with 3 arrows purchased 10= spins with 4 arrows purchased 11= spins with 5 arrows purchased 12= spins with 6 arrows purchased 13= spins with 7 arrows purchased 14= spins with 8 arrows purchased	701	0 – 16,777,216	NA	Display the lifetime statistics
Lifetime Statistics 01=coins 02=spins 03=game timeouts 04= tickets dispensed 05 =points 06=spinner tampers 07= spins with 1 arrows purchased 08= spins with 2 arrows purchased 09= spins with 3 arrows purchased 10= spins with 4 arrows purchased 11= spins with 5 arrows purchased 12= spins with 6 arrows purchased 13= spins with 7 arrows purchased 14= spins with 8 arrows purchased		0 – 16,777,216		
Resettable Percent Spins Arrows 01=percent spins with 1 arrows 02=percent spins with 2 arrows 03=percent spins with 3 arrows 04=percent spins with 4 arrows 05=percent spins with 5 arrows 06=percent spins with 6 arrows 07=percent spins with 7 arrows 08=percent spins with 8 arrows	800	0-100	NA	Display the resettable percent spins with 1-8 arrows

Top Level Interconnect Diagram



GAME PICTORIAL

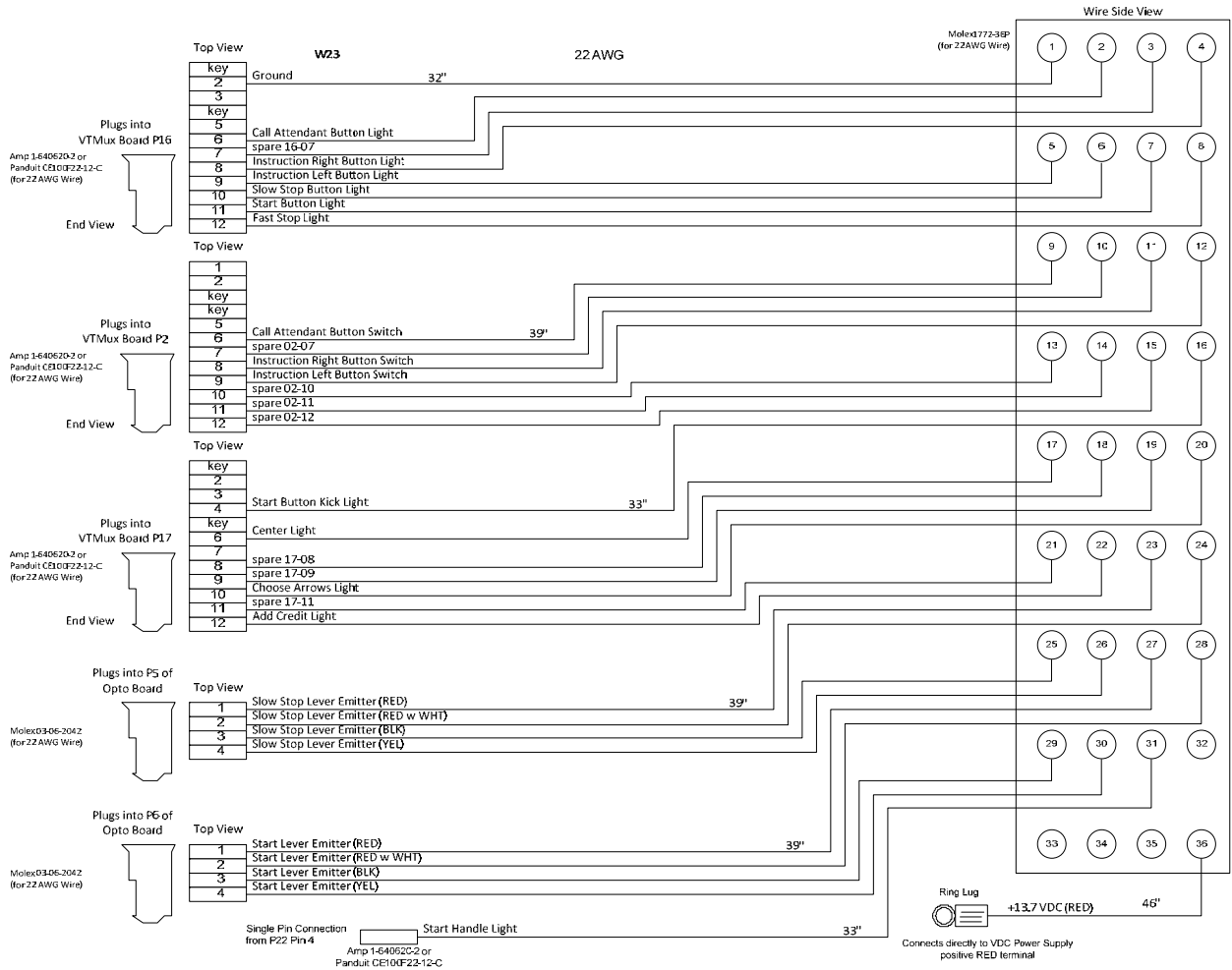


CONTROL MODULE

W23 (VTMUX Board P2, 16, 17 to 36-Pin Molex plug)

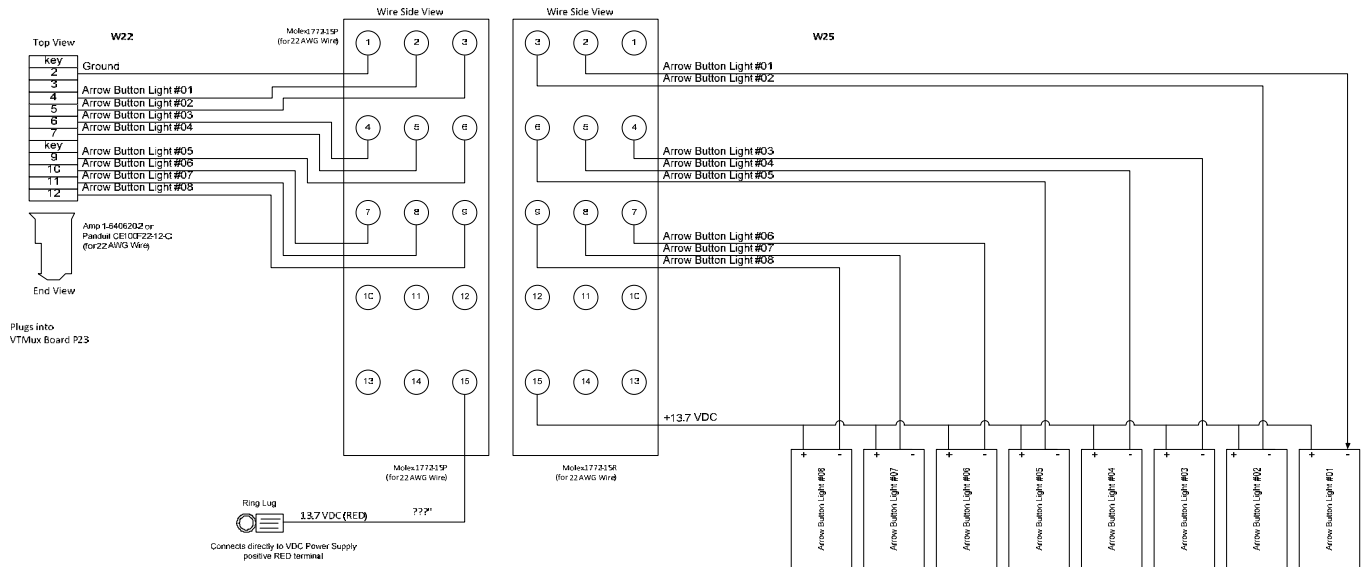
W23 (Opto Board P5 to 36-Pin Molex plug)

W23 (Opto Board P6 to 36-Pin Molex plug)



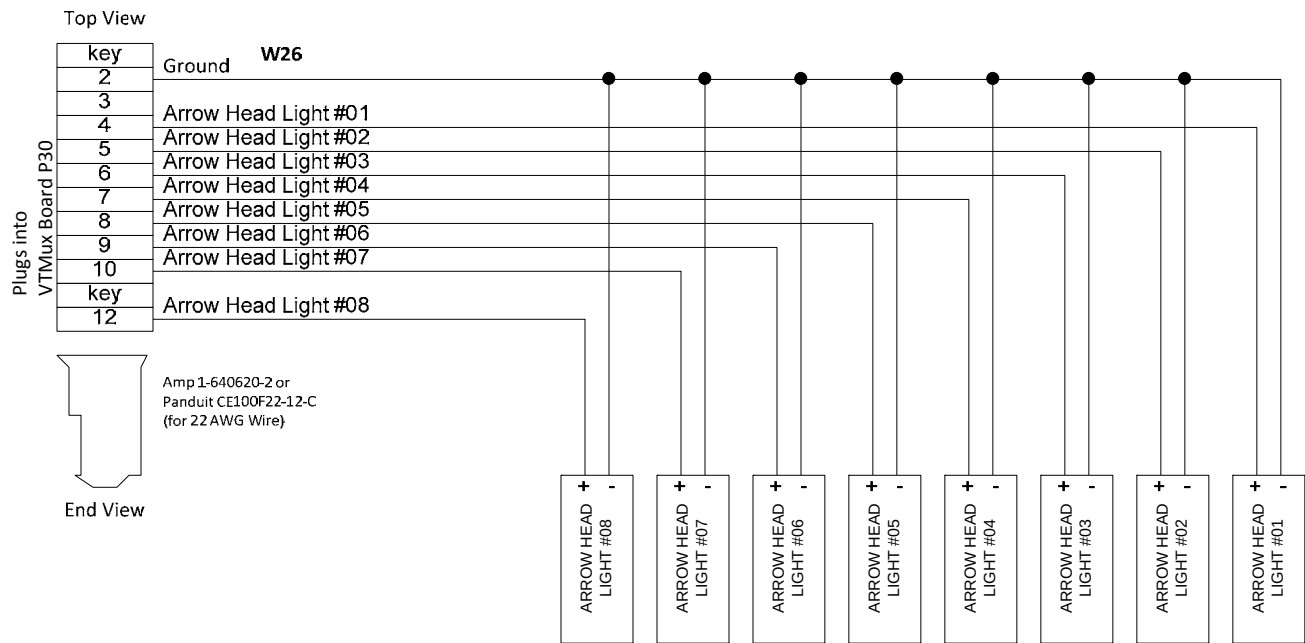
CONTROL MODULE (CONT)

W22 (VTMUX Board P23 to 36-Pin Molex Plug) W25 (36-Pin Molex Receptacle to Arrow Button Lights)



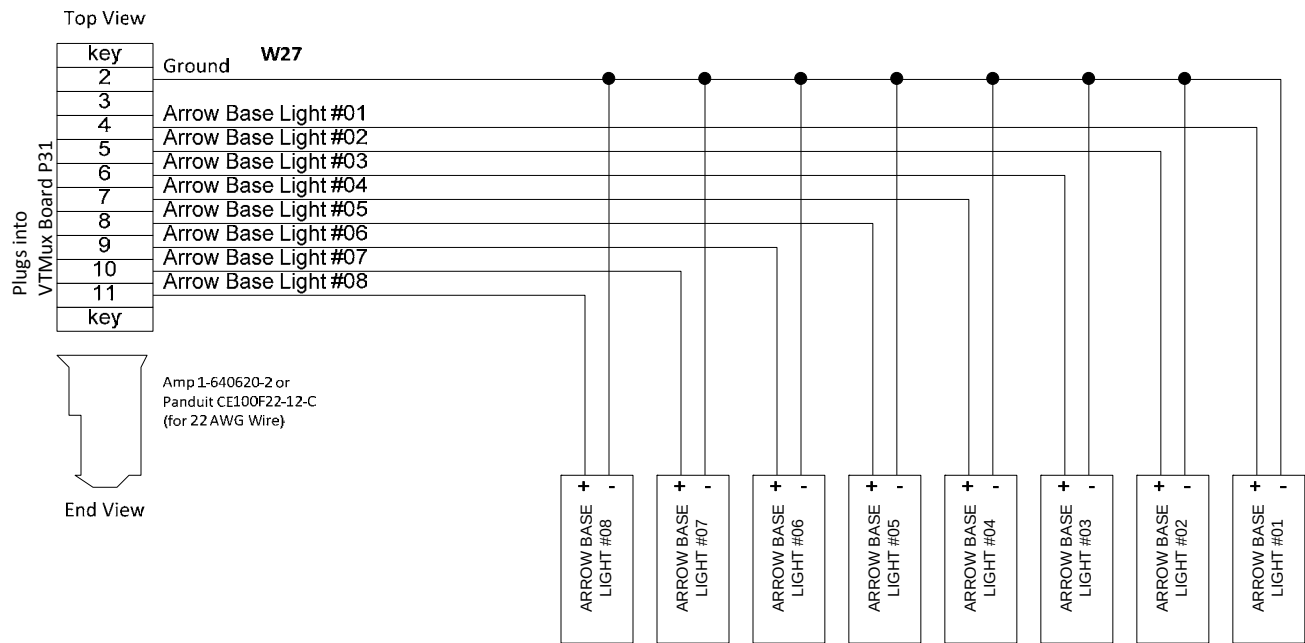
CONTROL MODULE (CONT)

W26 (VTMUX Board P30 to Arrow Head Lights)



CONTROL MODULE (CONT)

W27 (VTMUX Board P31 to Arrow Base Lights)



CONTROL MODULE (CONT)

W24 (VTMUX Board P18 to Spinner Ring Lights)

Amp 1-640620-2 or
Panduit CF100F22-12-C
(for 22 AWG Wire)

Plugs into
VTMux Board P18

Top View

W24

key
2
3
4
5
key
7
8
9
10
11
12

Ground

Spinner Ring Light #01

Spinner Ring Light #02

Spinner Ring Light #03

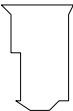
Spinner Ring Light #04

Spinner Ring Light #05

Spinner Ring Light #06

Spinner Ring Light #07

Spinner Ring Light #08



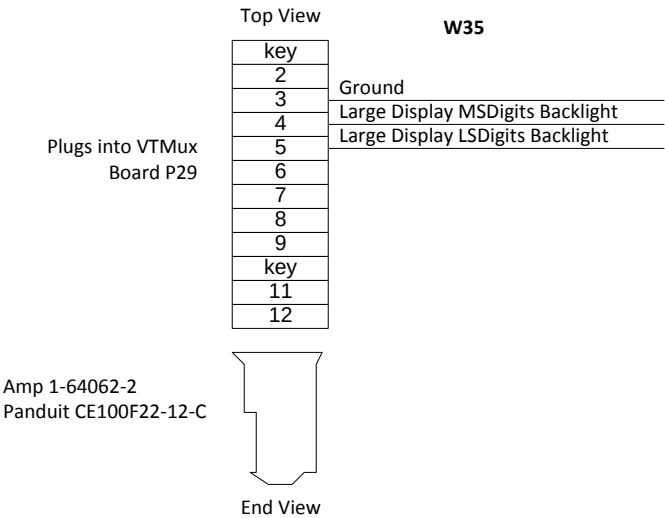
End View

Amp 1-640620-2 or
Panduit CF100F22-12-C
(for 22 AWG Wire)



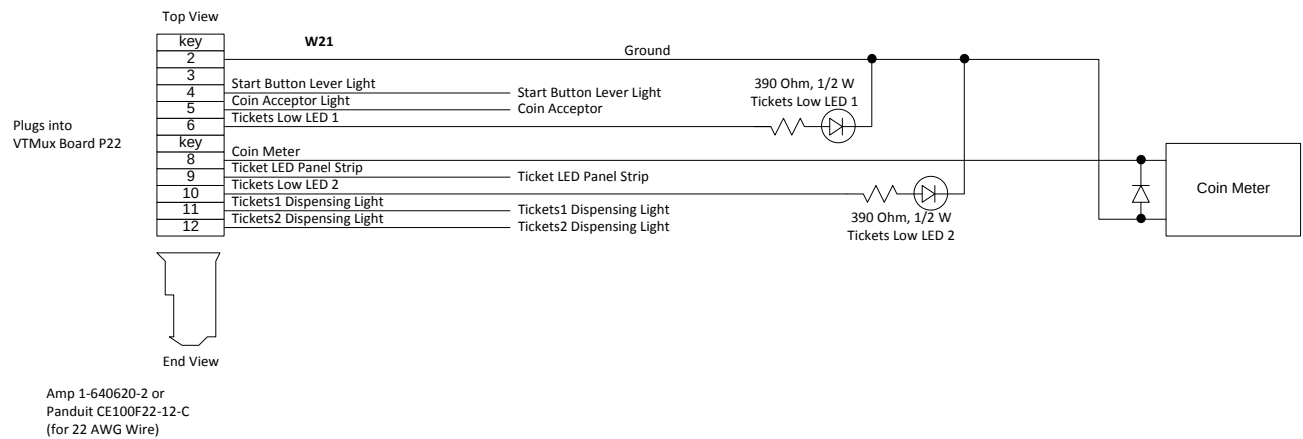
CONTROL MODULE (CONT)

W35 (VTMUX Board P29 to Large 8-Digit Display)



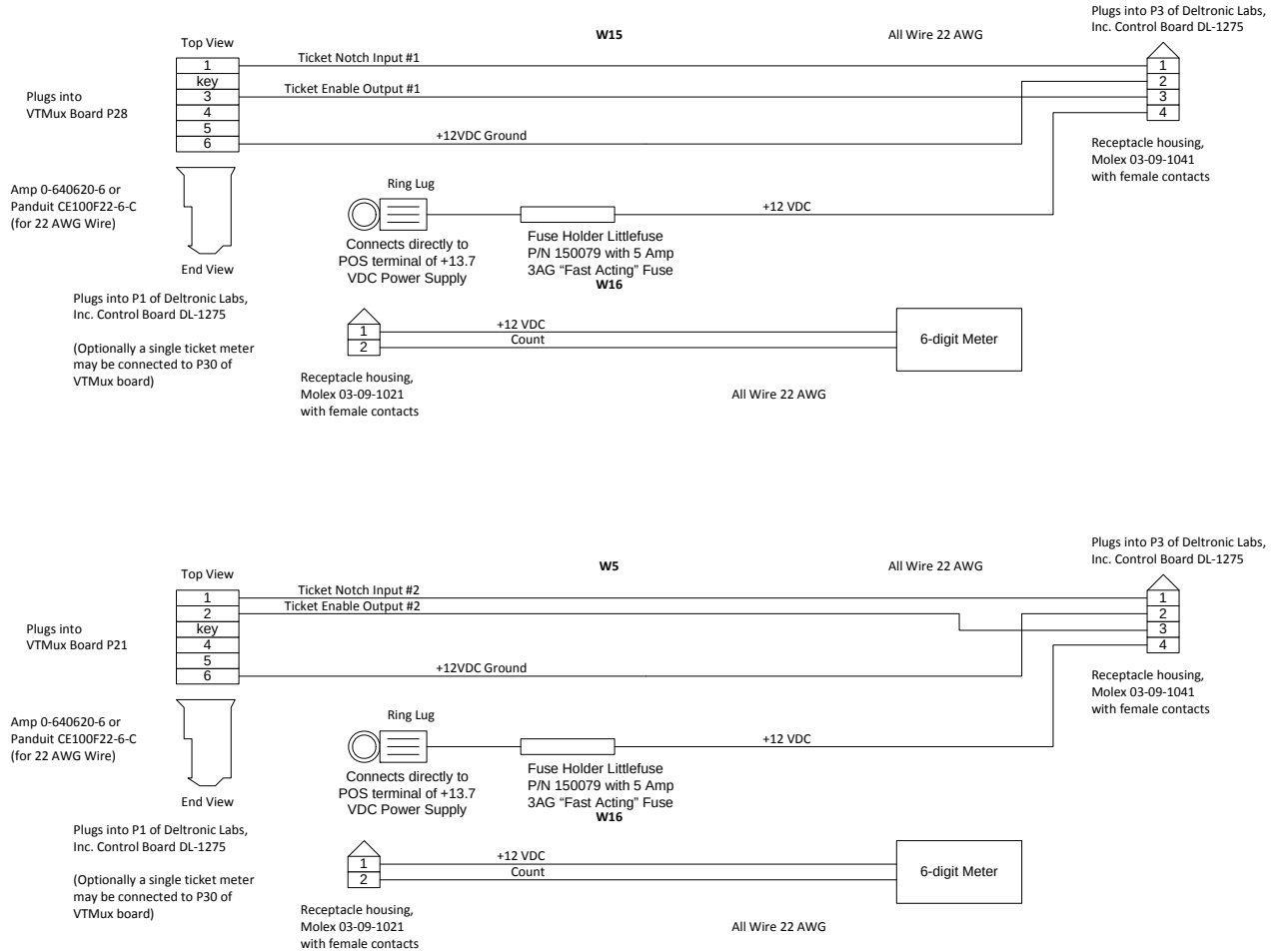
TICKET DISPENSING MODULE

W21 (VTMUX Board P22 to Start Button Lever Light, Coin Acceptor Light, Tickets Low LED1, 2, Coin Meter, Ticket LED Panel Strip, and Tickets1.2 Dispensing Lights)



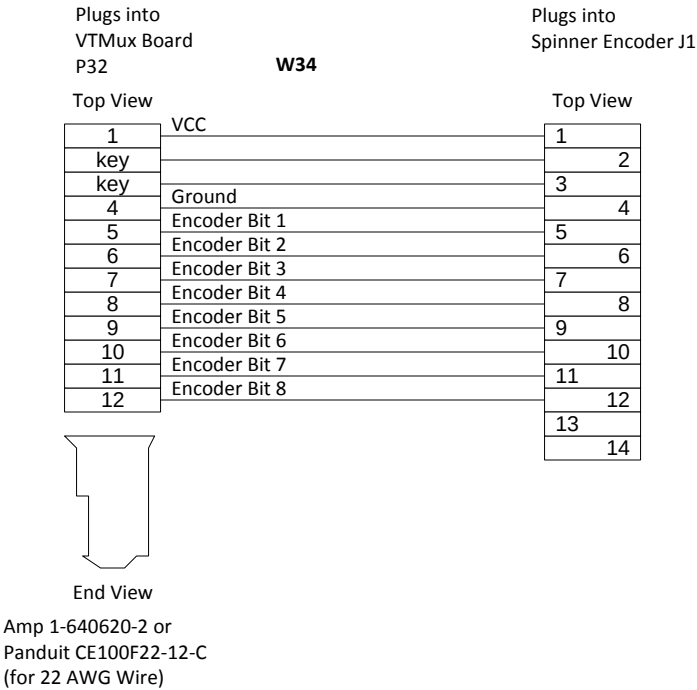
TICKET DISPENSING MODULE (CONT)

W15 (VTMUX Board P28 to Ticket Dispenser #1) W5 (VTMUX Board P21 to Ticket Dispenser #2)

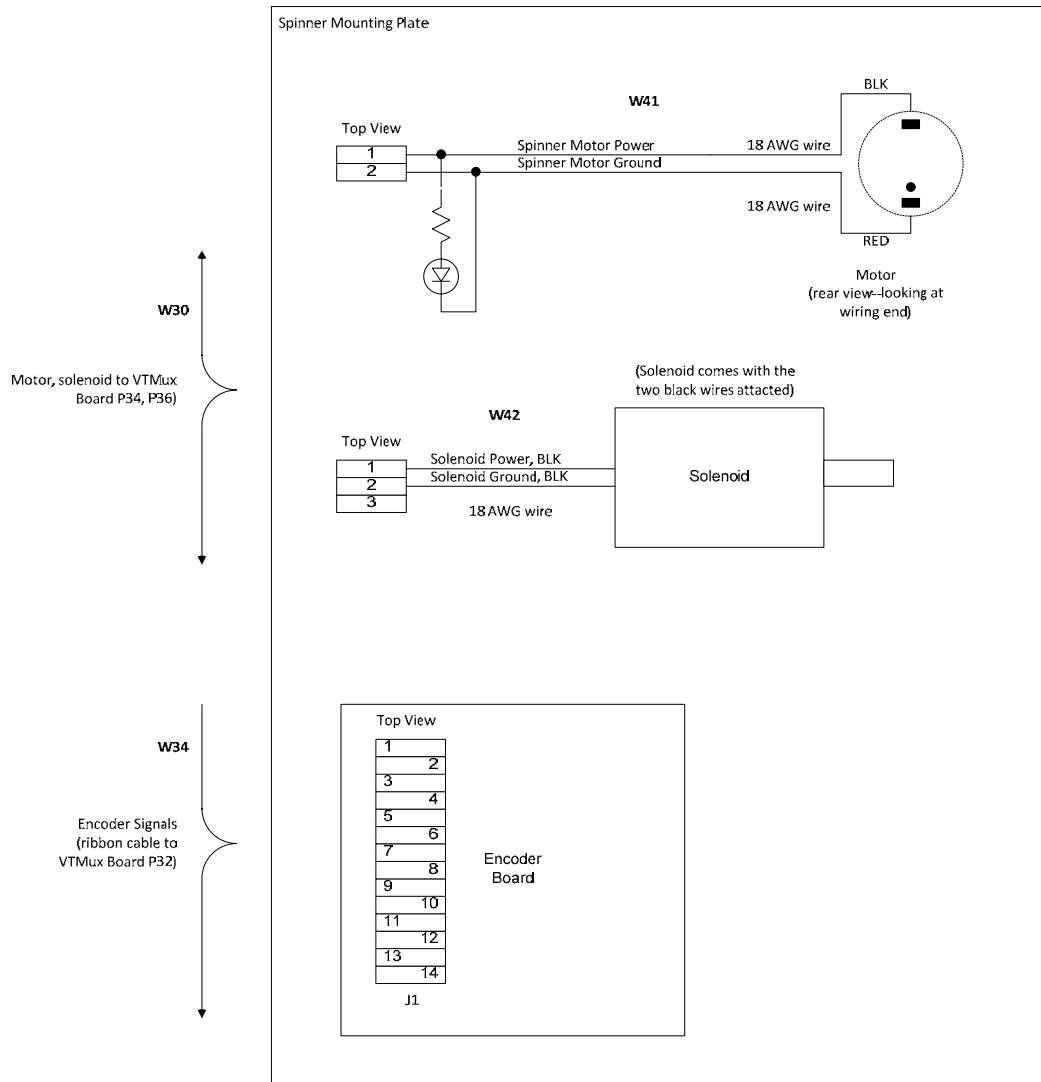


SPINNER MODULE

W34 (VTMUX Board P32 to Spinner Encoder J1)

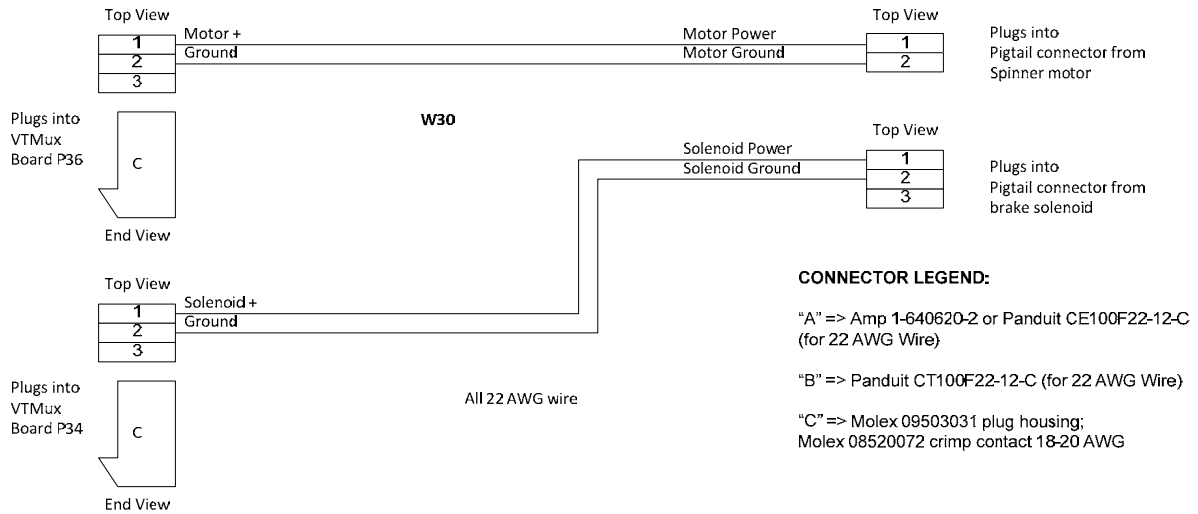


SPINNER MODULE (CONT)



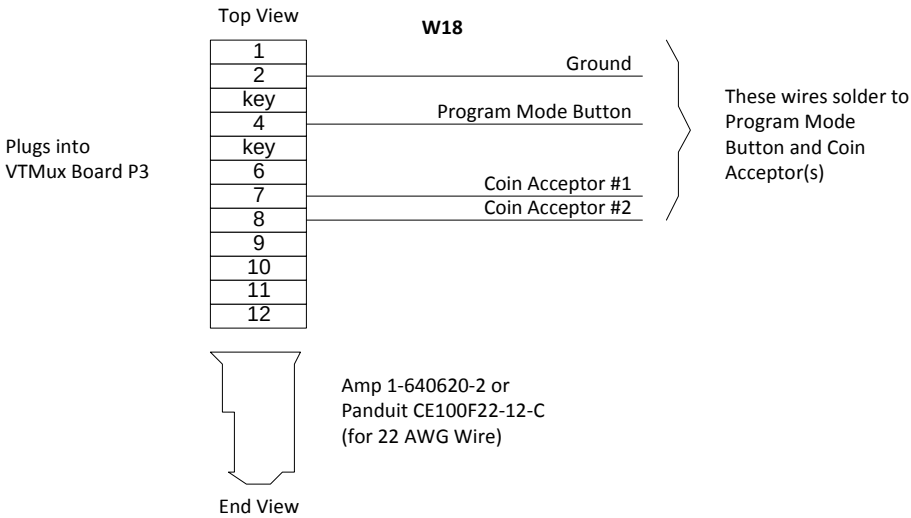
SPINNER MODULE (CONT)

W30 (VTMUX Board P34, 36 to Spinner Motor and Brake Solenoid)



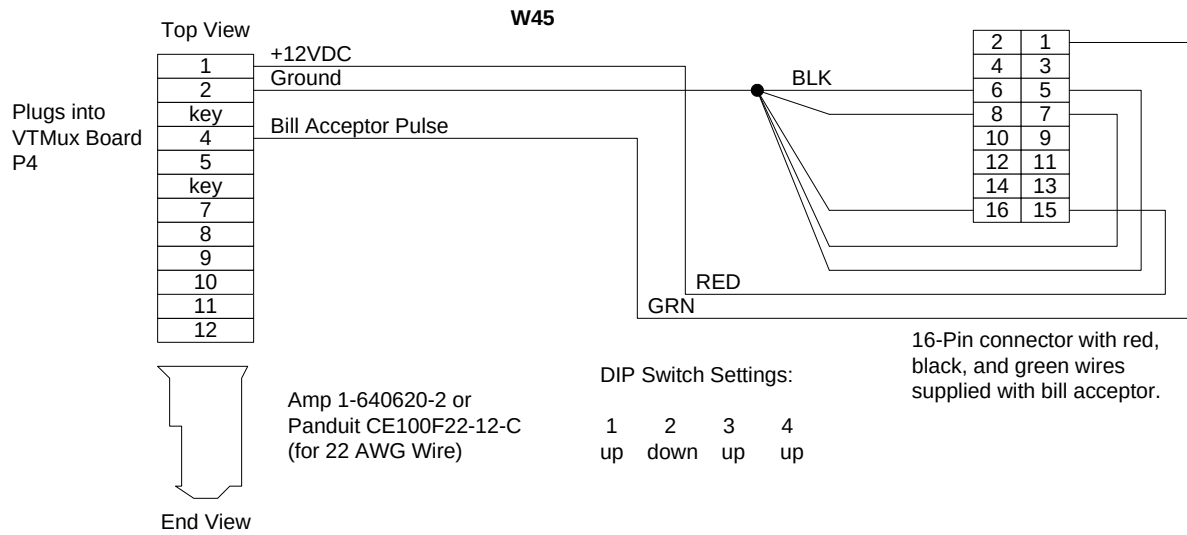
MISCELLANEOUS WIRING

W18 (VTMUX Board P3 to Program Mode Button and Coin Acceptor)



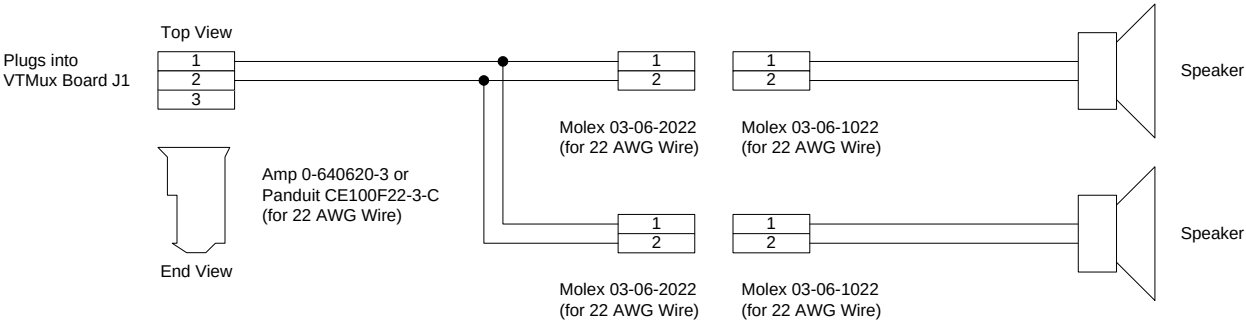
MISCELLANEOUS WIRING (CONT)

W45 (VTMUX Board P4 to Bill Acceptor)



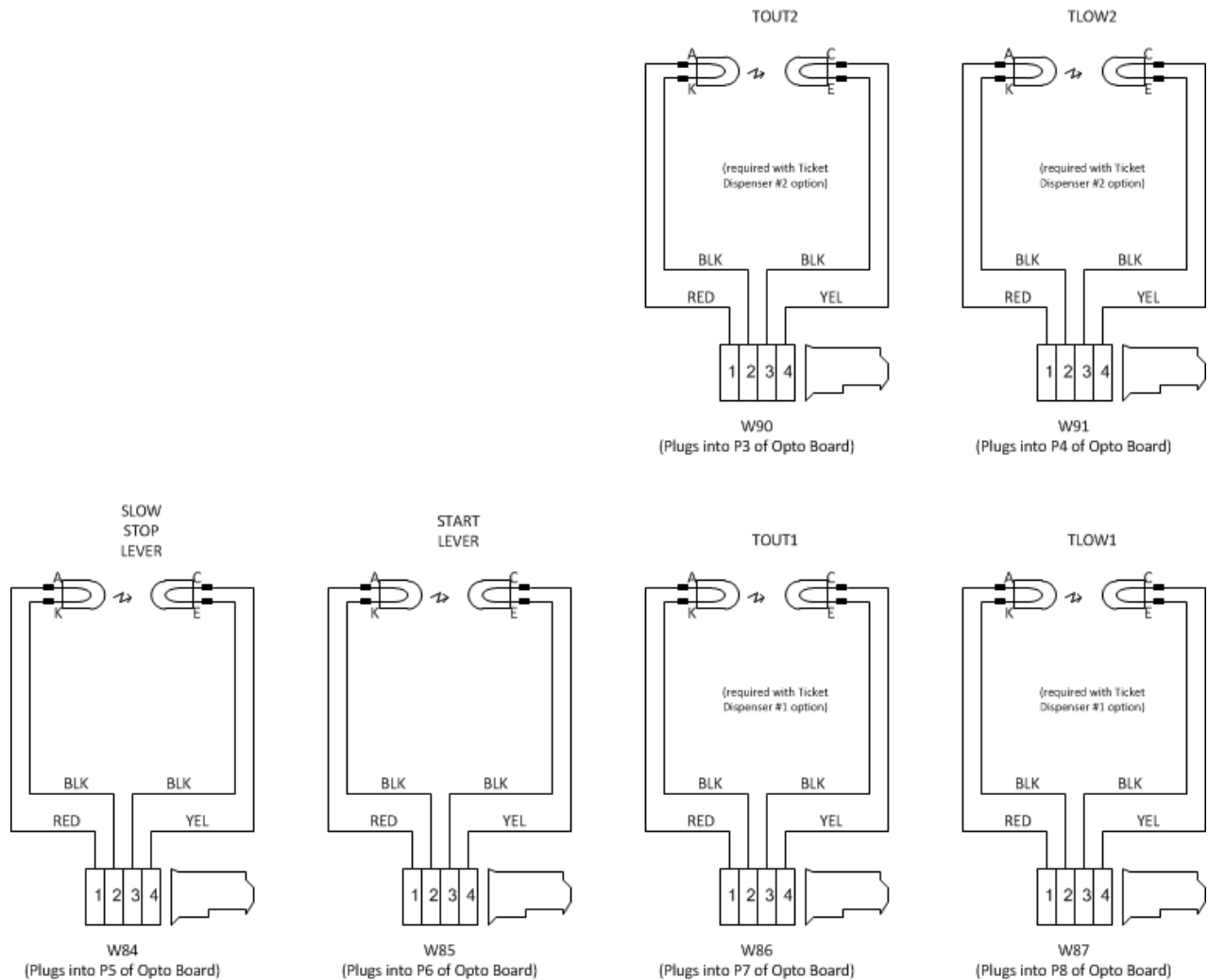
MISCELLANEOUS WIRING (CONT)

W35-37 (Speakers)



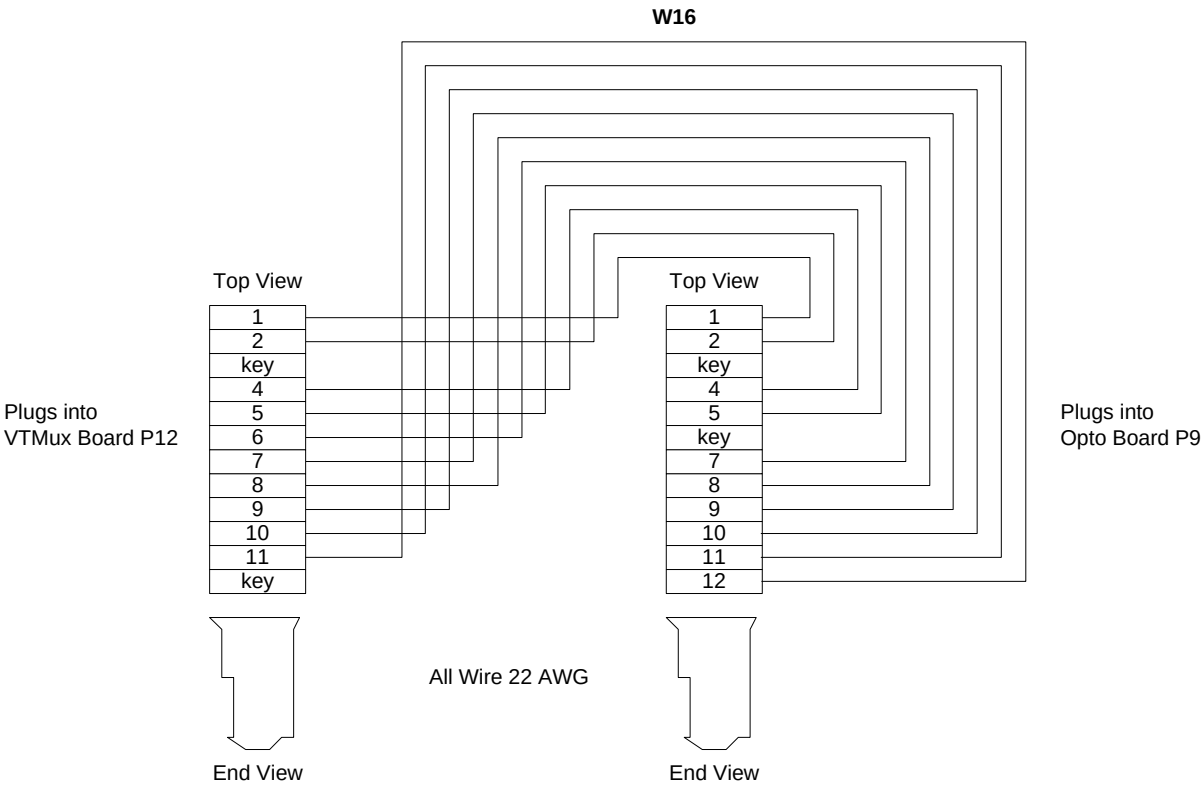
OPTO SENSORS WIRING

W84-87, 90, 91 (Slow Stop Lever, Start Lever, Tickets Out 1, 2, and Tickets Low 1, 2 Sensors)



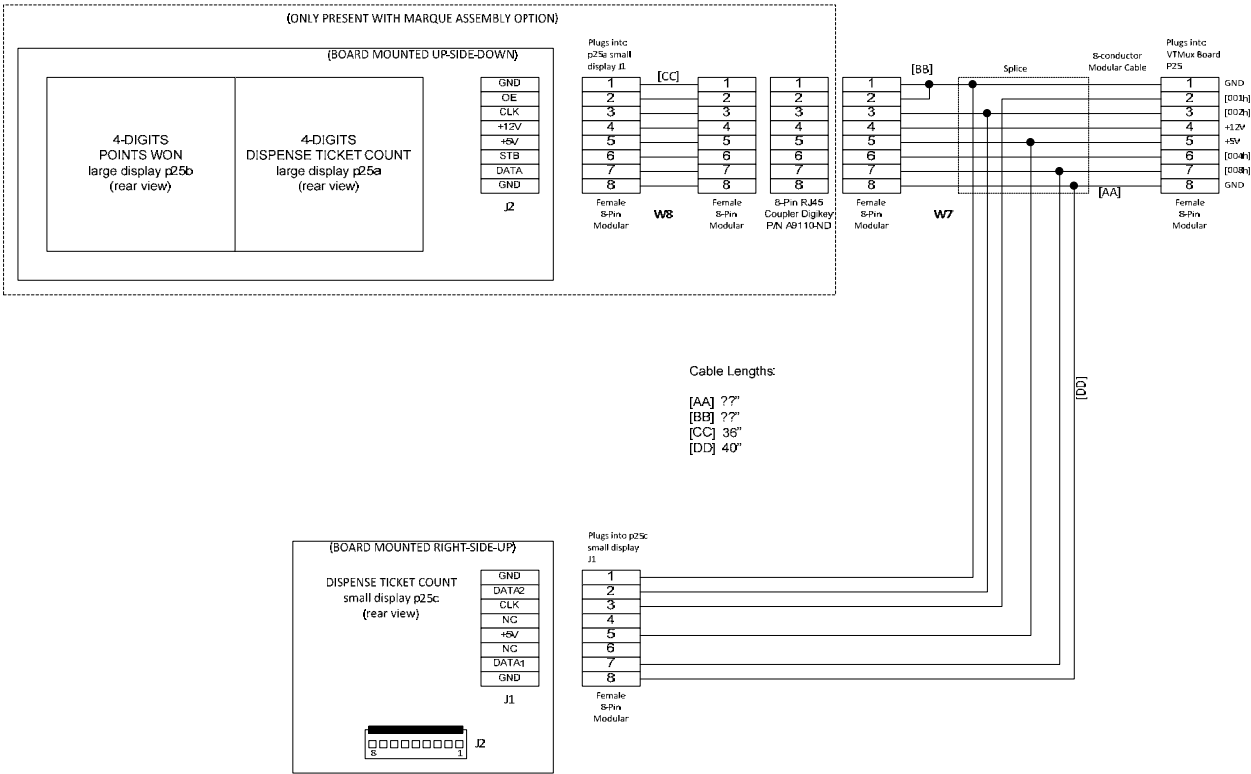
OPTO SENSORS WIRING (CONT)

W16 (VTMUX Board P12 to Opto Board P9)



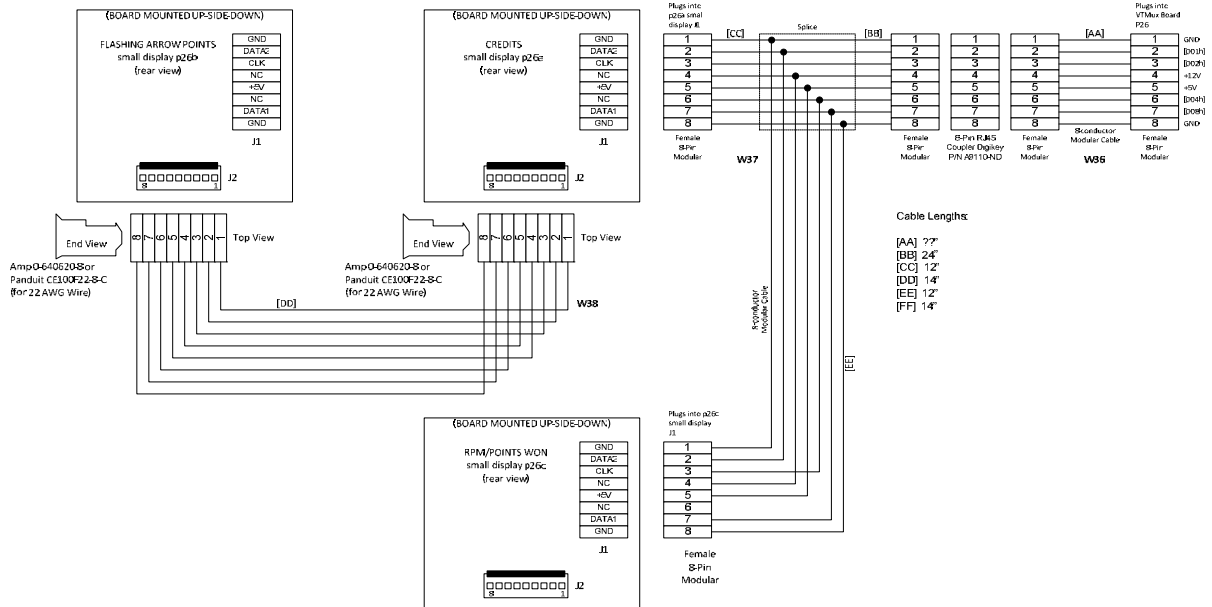
Display and Keypad Wiring

W7 (VTMUX Board P25 to Mixed Small/Large Displays)



Display and Keypad Wiring (cont)

W36, W37, W38 (VTMUX Board P26 to CONTROL PANEL Small 4-Digit Displays Wiring)

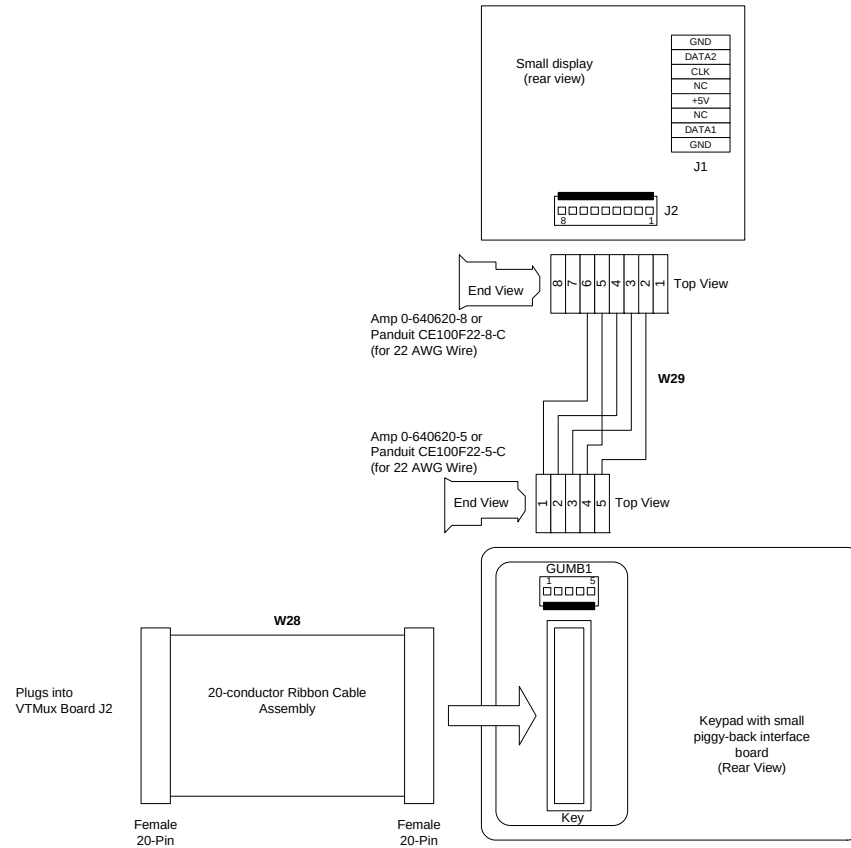


Display and Keypad wiring (cont)

W28, W29 (Keypad and Small Display Wiring)

W28 (VTMUX Board J2 to Keypad KEY)

W29 (Keypad GUMB1 to Small Display J2)



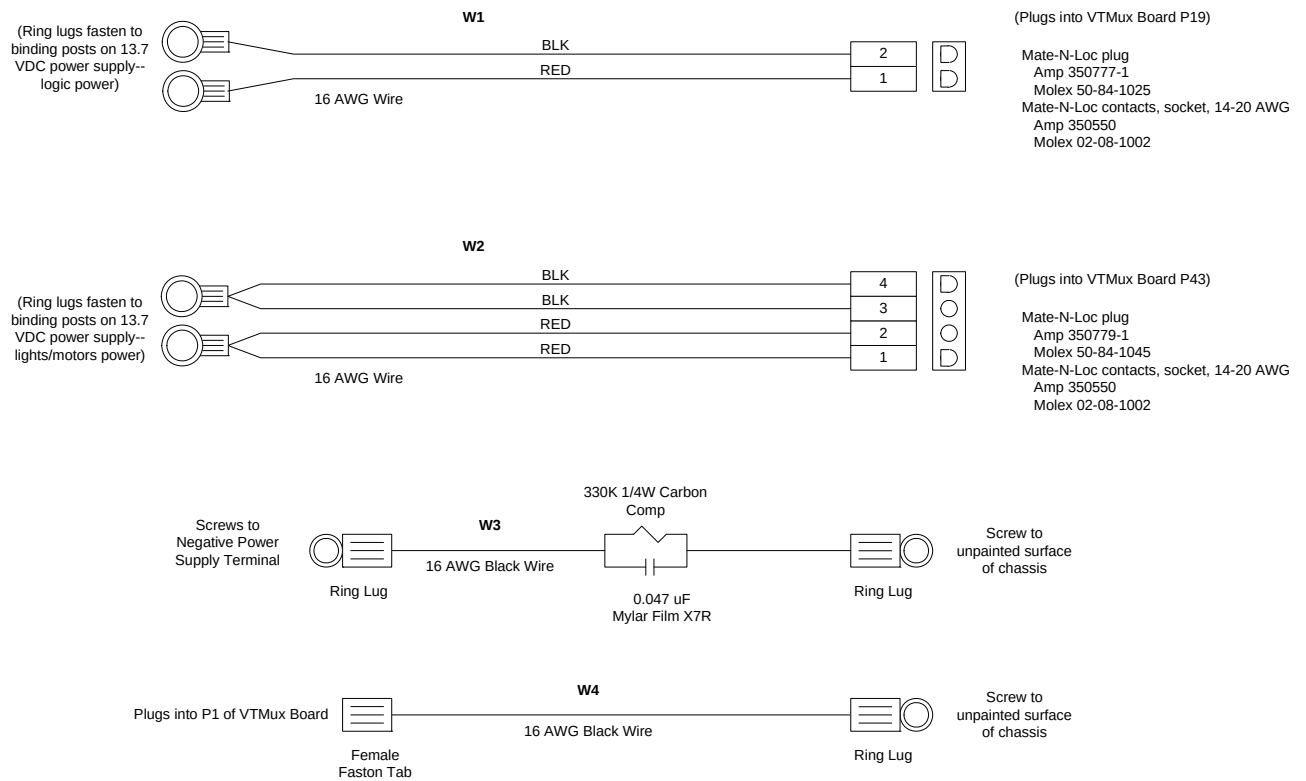
W1, W2, W3, W7 (13.7 VDC Power Supply and Grounds)

W1 (13.7 VDC Power Supply to VTMUX Board P19)

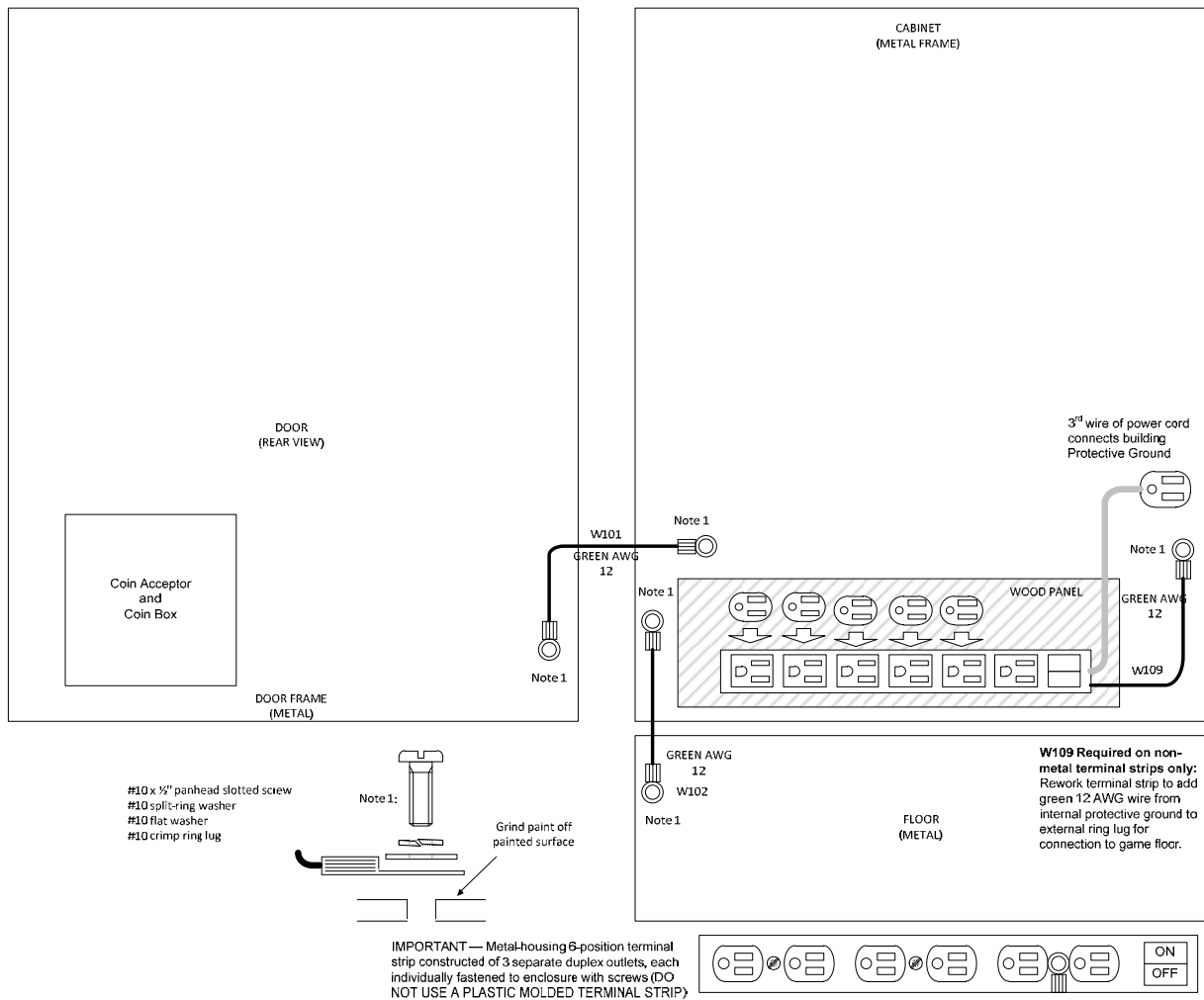
W2 (13.7 VDC Power Supply to VTMUX Board P43)

W3 (Chassis Ground)

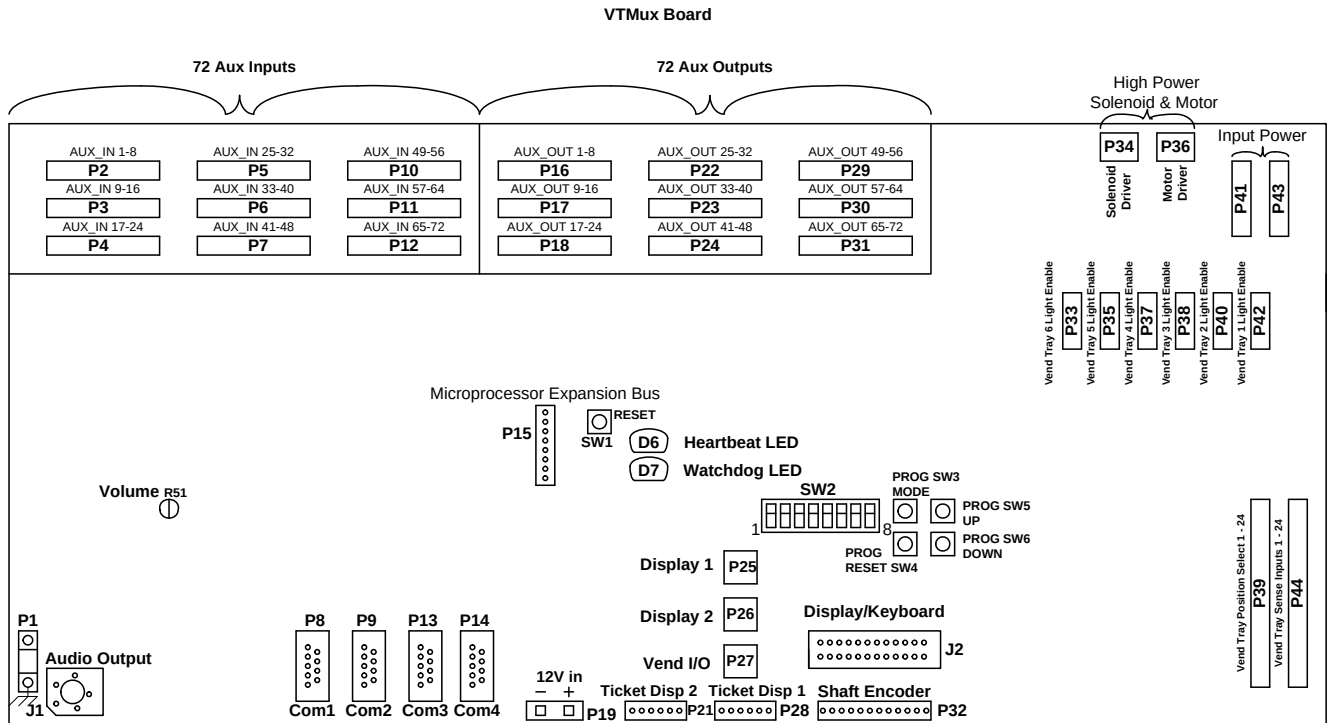
W4 (Audio Ground)



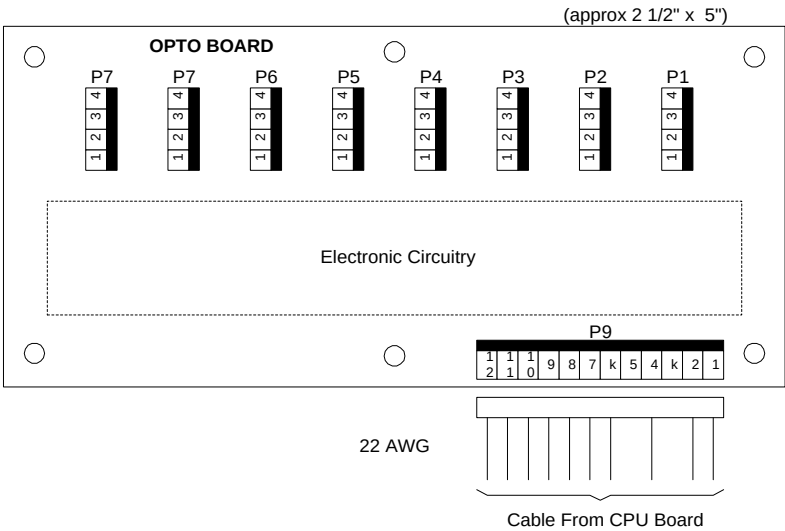
W101, W102, W109 (Protective Ground Wiring)



Appendix A—VTMUX Board Layout



Appendix B—Opto Board Layout



✓

Appendix C Troubleshooting Assistance

Troubleshooting Guide

Problem	Solution	Associated Program Step # (if applicable)
Game will not power up	Verify 120 VAC power is present on cabinet power strips	NA
	Replace 13.7 VDC power supply	NA
Pushbutton light does not illuminate	Examine and replace any burned-out lamp	NA
	Measure low-voltage across terminals of lamp socket and if voltage not present when light should be on, check wiring harness	NA
	Measure low-voltage at output from VTMUX board and if voltage not present when light should be on, replace VTMUX board and retest	NA
Game does not respond to pushing a flashing pushbutton	Check number of coins required to play setting	Step 30
	Examine and replace any defective pushbutton	NA
	Look for low-voltage changes at VTMUX board input when pushbutton pushed and if voltage does not change, check wiring harness	NA
	Replace VTMUX board and retest	NA
Does not respond when coin/token inserted	Examine and replace any defective coin acceptor mechanism	NA
	Look for low-voltage changes at VTMUX board input when coin/token inserted and if voltage does not change, check wiring harness	NA
	Replace VTMUX board and retest	NA
No sound	Check VOLUME potentiometer on VTMUX board and turn clockwise to increase volume	NA
	Examine and replace any defective speaker	NA
	Check wiring harness	NA
	Replace VTMUX board and retest	NA
Does not dispense tickets	Clear ticket dispenser of any jammed tickets	NA
	Load tickets if empty	NA
	- Try dispensing a ticket using diagnostic mode, if ticket does not dispense: - Check wiring harness	Step 78
	Replace ticket dispenser and retest	NA
	Replace VTMUX board and retest	NA

Problem	Solution	Associated Program Step # (if applicable)
4-digit display always blank or shows gibberish	• Replace 4-digit display and retest • Replace VTMUX board and retest • Check wiring harness	NA NA NA
Spinner light-ring does not illuminate	• Look for low-voltage changes at VTMUX board output when light-ring should be illuminated and if voltage does not change, replace VTMUX board and retest • Look for low-voltage changes at input to solid state relay when light-ring should be illuminated and if voltage does not change, check wiring harness • Look for 120 VAC voltage changes at output from solid state relay when light-ring should be illuminated: - o If voltage does not change, replace solid state relay and retest - o If voltage does change, replace light-ring and/or neon high-voltage transformer and retest (CAUTION— EXTREMELY DANGEROUS HIGH VOLTAGE)	NA NA NA NA NA
Spinner does not spin	• Troubleshoot spinner motors	Step 76
Spinner brake does not operate	• Troubleshoot spinner brakes	Step 76
SOME spinners CONSISTENTLY give wrong POINTS	• Verify correct POINT programming: - o Spinner #1 - o Spinner #2 - o Spinner #3 - o Spinner #4 - o Spinner #5 • Troubleshoot spinner boards and calibrate spinner(s) (requires access to spinner mechanism) • Troubleshoot spinner boards and spinner mechanism (does not require access to spinner mechanism, but does not allow calibration of spinner to TDC)	Steps 100-115 Steps 200-215 Steps 300-315 Steps 400-415 Steps 500-515 Step 71-75 Steps 76
SOME spinners INTERMITTENTLY give wrong POINTS	• Troubleshoot spinners and spinner boards for intermittent problems	Step 79
ALL spinners CONSISTENTLY give wrong POINTS	• Verify correct POINT programming: - o Spinner #1 - o Spinner #2 - o Spinner #3 - o Spinner #4	Steps 100-115 Steps 200-215 Steps 300-315 Steps 400-415

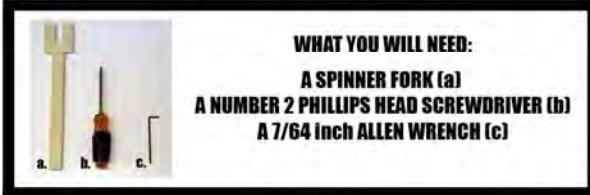
Problem	Solution	Associated Program Step # (if applicable)
	- o Spinner #5 • Troubleshoot spinner boards and wiring harness for data bus jamming	Steps 500-515 Step 79
SOME spinners CONSISTENTLY cause a JUMP to wrong spinner	• Verify correct POSITION TYPE programming: - o Spinner #1 - o Spinner #2 - o Spinner #3 - o Spinner #4 - o Spinner #5 • Troubleshoot spinner boards and calibrate spinner(s) if required (requires access to spinner mechanism) • Troubleshoot spinner boards and spinner mechanism (does not require access to spinner mechanism, but does not allow calibration of spinner to TDC)	Steps 150-173 Steps 250-273 Steps 350-373 Steps 450-473 Steps 550-573 Step 71-75 Steps 79

REPLACING SPINNER

Appendix D Replacing or Realigning Spinner Wheels

INSTRUCTIONS FOR

1. REPLACING A SPINNER'S ENCODER WHEEL or
2. REALIGNING AND TIGHTENING ENCODER WHEEL



STEP # 1:

Power game down. Detach any harnesses connected to the spinner. Loosen wing nuts shown and remove spinner assembly from game.



STEP # 2:

Using the 7/64 Allen Wrench, remove the two allen bolts that hold the ghost arrow to the pulley



STEP # 3

Using the # 2 phillips head screwdriver, remove the 4 screws which hold the black spinner assembly to the white main spinner bracket. Then remove the black spinner assembly from the white main spinner bracket



REPLACING OR REALIGNING SPINNER WHEEL

INSTRUCTIONS FOR REPLACING A SPINNER'S ENCODER WHEEL

STEP # 4

(SKIP STEP IF YOU ARE ONLY REALIGNING AND TIGHTENING)

Using the # 2 screwdriver, remove the set screw that holds the brake arm. This screw is next to the brake spring.



STEP # 5

(SKIP STEP IF YOU ARE ONLY REALIGNING AND TIGHTENING)

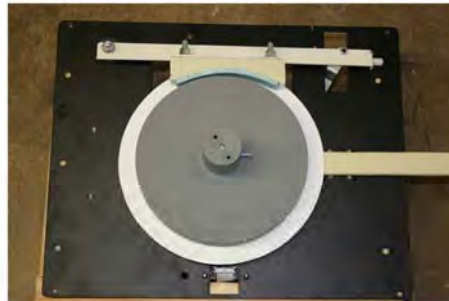
Turn the assembly around and loosen the set screw which holds the pulley to the motor shaft. Then, lift the brake arm and slide the pulley and encoder disc off.



STEP # 6

(most critical step)

Slide the spinner fork against the motor shaft. Lower the pulley and encoder disc onto the motor shaft so that it rests gently upon the fork. This will give you the proper spacing. Then, tighten the set screw loosened in Step #6, and remove the spinner fork.



NOTE: UNITS BUILT AFTER 3/01/07 HAVE A NOTCH CUT INTO THE MOTOR SHAFT THAT THE SET SCREW TIGHTENS INTO. IF YOUR UNIT IS DATED AFTER 03/01/07 - THE SET SCREW MUST BE TIGHTENED INTO THIS NOTCH TO FUNCTION.

REPLACING OR REALIGNING SPINNER WHEEL

STEP # 7

Take a moments now to observe the new assembly. The encoder disc should not be touching the white spacers near the motor shaft . The disc should be seated about an 1/8" away from these spacers.

STEP # 8

Reattach the black spinner assembly to the white main spinner bracket . Then install the whole assembly back into the game

RECALIBRATION PROCEDURE

Using the keypad - go to the step associated with the recently replaced spinner

Step #71 = Spinner #1

Step # 72 = Spinner #2

Step #73 = Spinner #3

Step #74 = Spinner #4

Step #75 = Spinner # 5

TO ENTER PROGRAM MODE - take the keypad and hold in the # and * buttons until the keypad display goes blank. Push 1-1 on the keypad - you are now in program mode. Hold the * button down and push either 71, 72, 73, 74, or 75

By lightly tapping the FAST STOP BUTTON, move the spinner arrow until it reaches the 12 o'clock position, where there should be an alignment line. Once the point of the arrow is at 12 o'clock - hit the flashing START BUTTON. Your spinner is no recalibrated.

If you have any questions during your installation - feel free to call our technical service department directly at

(818) 775 - 9374

or, if a technician is not immediately available, please call

(818) 581 - 1772