Williams ELECTRONICS, INC.

16P-494-103
Game No. 494
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SCORPION
MULTI-BALL™

INSTRUCTION BOOKLET

This booklet provides game operation, bookkeeping, game adjustment, and diagnostic procedures for SCORPION. For installation information refer to the blue-covered game manual. For detailed 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 three PROM sockets may be used but the memory protection feature is lost:

2. Must be equipped with green-labeled SCORPION Game ROM and green-labeled flipper ROMs.

3. Jumper J3 must be connected and J4 removed.

Sound Board

1. **Must** be equipped with two fuse clips.

2. Must be jumpered for ROM operation and be equipped with Sound ROM 1.

Power Supply Board

1. Fuse F4 (15A SB) for flipper solenoids must be installed.

GAME OPERATION

*Indicates adjustable features

Game Over Mode - Turn game ON; player scores show zero, high score to date* alternates with player 1 score, player 1 up lamp flashes, game over lamp lights, all playfield lamps except for credit lamp cycle in attract mode.

Credit Posting - Insert coin; knocker sounds, number of credits displayed. If maximum credits* exceeded by coin or high score to date*, credits are posted correctly, coin lockout deenergized until remaining credits are below maximum. No credits may be won and coins are rejected while lockout is deenergized.

Game Start - Push credit button (two balls must be on ball ramp before game starts); start-up tune played, ball served, credit display reduced by one, player 1 up lamp flashes until first scoring switch is made, ball in play shows 1. Pushing credit button before ball 2 displayed allows additional players.

Bonus Advance - Left Bonus advanced by "2" and "3" Bull's-Eye targets, "4" and "5" rollovers, lower left Bull's-Eye target, and left center and right inside rollovers. Right Bonus advanced by "1" and "2" Bull's-Eye targets, "5" and "6" rollovers, lower right Bull's-Eye target, and left inside and right center rollovers. Making left or right eject hole collects associated bonus. Bonus Multiplier is advanced by making the 5-Bank of drop targets, and achieving Multi-Ball.

"1-3" Targets, "4-6" Rollovers - Lighting "1-3" or "4-6" advances lighting of right jet bumper, bottom jet bumper and spinner, and top jet bumper. The "4-6" lamps rotate by operating the right flipper.

Multi-Ball™ Play - Making eject hole when lamp is flashing locks up ball and a second ball is released. Locking up second ball collects both bonus and starts Multi-ball timer. The ball in play display becomes the timer display and the last digit of the player displays indicates the ball in play. Making the 5-bank during Multi-Ball play lights left and right outside rollovers for double timer bonus. The timer stops when the outhole switch or the left or right outside rollover is made.

Timer Features - A bonus of 1000 (or 2000 if left or right outside rollover is made when lit) for each second of Multi-Ball play is awarded at the end of the ball in play or prior to initiation of Multi-Ball play again on the same ball. Keeping the two balls in play for 15*, 35*, and 50* seconds lights the upper right return lane for 50,000 points, Extra Ball, and Special, respectively.

Top 3-Banks - Making both top 3-banks of drop targets collects and advances the drop target bonus.

Extra Ball - Unlimited Extra Balls per ball. Keeping both balls in play for 35* seconds lights the upper right return lane for an Extra Ball. Making the rollover awards an Extra Ball.

Memory - Upper right return lane lamps, bonus multipliers below 5X, lit "1-3" and "4-6" lamps, top 3-banks lamps* and locked up ball*.

End of Game - Match Digits* appears in ball in play display, *credit awarded for match. Exceeding high score to date awards *three credits. Match, High Score to Date, and Game Over sounds made as appropriate. Balls in eject holes are released and must be returned to ball ramp before new game can be started.

BOOKKEEPING AND EVALUATION TOTALS

(Functions 01-12)

1. In game over mode, set toggle switch to AUTO-UP and depress ADVANCE pushbutton. Test 04 is indicated in number of credits display, Function 00 in ball in play display, and game identification in Player 1 display.
2. Operate the ADVANCE pushbutton to display each function on the ball in play display (see Table 1) and record each total from Player 1 display. (To reveiw a total that has been advanced past, set toggle switch to MANUAL-DOWN and operate the ADVANCE pushbutton.)
3. Calculate the following if desired:
   % Paid Credits = Function 04 ÷ Function 08
4. Turn the game OFF and back ON to return to game over mode.
5. To change current High Score to Date to value of Function 13, momentarily depress HIGH SCORE RESET pushbutton.
6. To zero Functions 01-11, see page 7

GAME ADJUSTMENT PROCEDURE

(Functions 13-35)

Coin door must be open to change settings.

1. In game over mode, set toggle switch to AUTO-UP and depress ADVANCE pushbutton. Test 04 is indicated in number of credits display, Function 00 in ball in play display, and game identification in Player 1 display.
2. **To raise** Function number in ball in play display, operate ADVANCE pushbutton with switch set to AUTO-UP. **To lower** Function number operate ADVANCE with it set to MANUAL-DOWN.
3. With desired Function indicated in ball in play display, **raise** value in player 1 display by operating credit button with switch set to AUTO-UP; **lower** value by operating credit button with it set to MANUAL-DOWN. Value left of Player 1 display is new setting. For values see Table 1 and (for pricing) Table 2.
4. Repeat steps 2 and 3 until all required adjustments have been made.
5. Turn game OFF and back ON to return to game over mode.
6. To restore factory settings **and** zero audit totals, see page 7.

DIAGNOSTIC PROCEDURES

(Display Digits, Lamp, Solenoid, and Switch Tests)

1. In game over mode, set toggle switch to MANUAL-DOWN and depress ADVANCE. All displays should go blank.
2. Momentarily depress ADVANCE and set toggle switch to AUTO-UP. Display Digits test is performed.
3. Momentarily depress ADVANCE. Test 01 is indicated on number of credits display and Lamp Test is performed.
4. Set toggle switch to MANUAL-DOWN and momentarily depress ADVANCE. Test 02 is indicated on number of credits display and solenoid 01 on the ball in play display; solenoid 01 is pulsed by driver board.
5. Operate ADVANCE to pulse each solenoid (see Figure 3).
6. Set toggle switch to AUTO-UP and momentarily depress ADVANCE. Test 03 is indicated on number of credits display and stuck switches on ball in play display.
7. See Figure 4 . Operate switches; switch number is indicated on ball in play display.
8. Turn game OFF and back ON to return to game over mode.
9. To set up Auto-Cycle Mode (Display Digits, Lamp, and Solenoid Tests) see page 7.

Table 1. Game Adjustments

FUNCTION	DESCRIPTION	NOTES	FACTORY SETTING
00	Game Identification	1	1494 1
01	Coins, Left Chute (Closest to coin door hinge)	1	—
02	Coins, Center Chute	1	—
03	Coins, Right Chute	1	—
04	Total Paid Credits	1	—
05	Total Specials	1	—
06	Total Replay (Extra Ball) Scores	1	—
07	Match and High Score to Date Credits	1	—
08	Total Credits	1,2	—
09	Total Extra Balls	1,3	—
10	Total Ball Time in Minutes	1	—
11	Total Number of Balls Played	1	—
12	Current High Score to Date	4	500,000
13	Backup High Score to Date	5	500,000
14	Replay 1 Score	6	370,000
15	Replay 2 Score	6	580,000
16	Replay 3 Score	6	0
17	Replay 4 Score	6	0
18	Maximum Credits	7	20
19	Standard and Custom Pricing Control (00-07)	8	02
20	Left Coin Slot Multiplier	8	01
21	Center Coin Slot Multiplier	8	04
22	Right Coin Slot Multiplier	8	01
23	Coin Units Required for Credit	8	01
24	Coin Units Bonus Point	8	00
25	High Score Credits	5	03
26	Match (00=ON, 01=OFF)	—	00
27	Special 00 = Awards Credit 01 = Awards Extra Ball 02 = Awards Points	—	00
28	Scoring Awards 00 = Credits at Replay Score 01 = Extra Ball at Replay Score	—	00
29	Maximum Plumb Bob Tilts (1-9)	—	03
30	Number of Balls (03 or 05)	9	03
31	Locked Ball Memory Control/Multi-Ball Control 00 = No Memory, Multiple Multi-Ball per ball 01 = No Memory, Multiple Multi-Ball per ball 02 = No Memory, Multi-Ball only once per ball 03 = Memory, Multi-Ball only once per ball	—	01
32	Time (in seconds) required to light 50,000 lamp 00 - 99; 00 disables feature	—	15
33	Time (in seconds) required to light Extra Ball lamp 00 - 99; 00 disables feature	—	35
34	Time (in seconds) required to light Special lamp 00 - 99; 00 disables feature	—	50
35	Top 3-Banks Feature Memory Control/ Bonus Multiplier restore 00 = No Memory, 5X restores to 3X 01 = Memory, 5X restores to 3X 02 = No Memory, 5X restores to zero 03 = Memory, 5X restores to zero	9	03

Notes:

1. Functions 00-11 cannot be changed from the coin door; however, Functions 01-11 can be set to zero as described in Section 4.
2. Total Credits (Function 08) is the sum of Function 04 and as applicable, Functions 05, 06, and 07.
3. Total Extra Balls (Function 09) is the sum of the game extra ball feature and Functions 15 and 06, as applicable.
4. Current High Score to Date (Function 12) can be changed to the value of the Backup High Score to Date (Function 13) by operating the HIGH SCORE RESET switch while in the game over mode.
5. Function 13 may be set to any multiple of 10,000 points. Setting Function 25 to zero with Function 13 set to any score but zero permits the High Score to Date feature to operate but no credits are awarded.
6. Functions 14-17 (Replay Scores) may be set to any multiple of 10,000 points. Setting a function to zero disables the replay score point. **Always disable the Replay 4 level first, the Replay 3 level second, etc. The replay levels must be set with ascending values.**
7. Setting Maximum Credits (Function 18) to zero places the game in a **free play mode.**
8. With Function 19 set to 00, Functions 20-24 must be set manually. Refer to Table 2 for seven standard pricing schemes (selected by values of 01-07 for Function 19) and custom pricing values.
9. For 5 ball play, it is recommended that Function 35 be set to 02.

RECOMMENDED SCORE LEVELS

CREDIT GAMES

3-Ball: *370,000; 580,000;
or 430,000; 540,000, 750,000
5-Ball: 480,000; 770,000
(See Note 9)

EXTRA BALL

3-Ball: 350,000
5-Ball: 450,000

*Factory setting

Table 2. Standard and Custom Price Settings

COIN DOOR MECHANISM	CREDITS	FUNCTION					
		19	20	21	22	23	24
Twin-Quarter	1/25¢, 3/50¢, 7/$1	00	03	12	03	02	12
Quarter, Dollar, Quarter	1/25¢, 3/50¢, 7/$1 coin only	00	03	14	03	02	00
	1/25¢, 7/$1 coin only	00	01	07	01	01	00
	1/25¢, 3/50¢, 6/$1	00	01	04	01	01	02
	1/25¢, 6/$1 coin only	00	01	06	01	01	00
	1/25¢, 5/$1	00	01	04	01	01	04
	1/25¢, 5/$1 coin only	00	01	05	01	01	00
	•1/25¢, 4/$1	**02**	**01**	**04**	**01**	**01**	**00**
	•1/50¢, 2/75¢, 3/4 x 25¢, 4/$1 or 5 x 25¢	**05**	**03**	**15**	**03**	**04**	**15**
	•1/50¢, 3/$1	**01**	**01**	**04**	**01**	**02**	**04**
	1/50¢	00	01	04	01	02	00
1DM, 5DM,2DM	**•1/1DM, 3/2DM, 10/5DM**	**03**	**09**	**45**	**18**	**05**	**45**
	2/1DM, 5/2DM, 14/5DM	00	13	65	26	05	65
20-Cent, 50-Cent	1/20¢, 3/50¢	00	06	00	15	05	00
1 Franc, 10 Franc, 5 Franc	**•1/2F, 3/5F only, 8/10F only**	**04**	**01**	**16**	**06**	**02**	**00**
25 Cent,	**•1/25¢, 4/1G**	**06**	**01**	**00**	**04**	**01**	**00**
1 Guilder,	1/25¢, 5/1G	00	01	00	04	01	04
50 Yen, 100 Yen	**•1/50Y, 2/100Y**	**07**	**01**	**00**	**02**	**01**	**00**
1 Franc or	1/1F, 3/2F	00	01	01	01	01	02
Twin-1 Franc	1/1F	00	01	01	01	01	00
5 Franc,	**•1/5F, 2/10F**	**07**	**01**	**00**	**02**	**01**	**00**
10 Franc	1/10F	00	01	00	02	02	00
Twin-2 Franc	**•1/2F**	**02**	**01**	**04**	**01**	**01**	**00**
10, 20 Franc	**•1/10F, 2/20F**	**07**	**01**	**00**	**02**	**01**	**00**
Twin-1 Sucre	1/3S, 2/5S	00	02	00	02	05	00

•Indicates standard price settings by adjusting **only** Function 19. For other price settings, set Function 19 to 00 and set Functions 20 through 24 to the values indicated in the chart.

RESETTING AUDIT TOTALS AND ADJUSTMENTS; INITIATING AUTO-CYCLE MODE

1. In game over mode, set the AUTO-UP/MANUAL-DOWN switch to MANUAL-DOWN and momentarily depress the ADVANCE pushbutton. All displays should go blank.
2. Remove the backglass and unlatch and open the insert door.
3. Set all switches on the MASTER COMMAND slide switch to OFF (move to the right).
4. Set switch on MASTER COMMAND switch to ON (move to left):
   a. To zero audit totals (Functions 01-11) set switch 8 to ON.
   b. To restore factory settings **and** zero audit totals, set switch 7 to ON. *Coin Door must remain open to restore factory settings.*
   c. For Auto-Cycle Mode set switch 6 to ON.
5. Momentarily depress MASTER COMMAND ENTER pushbutton. The LEDs should blink once.
6. a. After zeroing audit totals turn game OFF and ON to return to game over mode.
   b. After restoring factory settings, turn game OFF and on **twice** to return to game over mode.
   c. To initiate Auto-Cycle Mode, set toggle switch to AUTO-UP and momentarily depress the ADVANCE pushbutton. Each cycle of this mode sequences through display digits test, flashes all multiplexed lamps 64 times and pulses each solenoid. To terminate the Auto-Cycle mode and go to game over, turn the game OFF and ON.

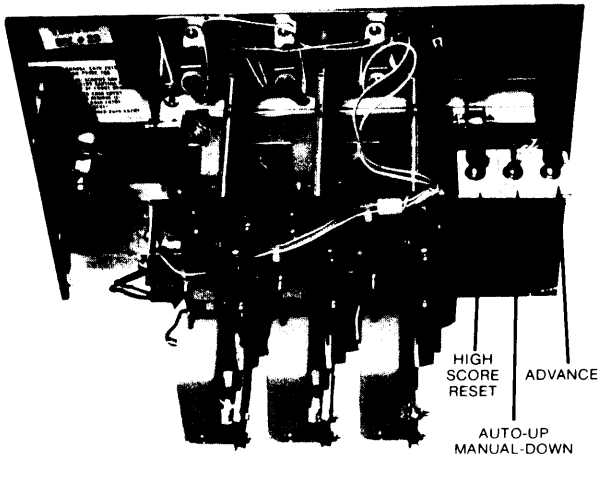


Figure 1. Coin Door Diagnostic Switches

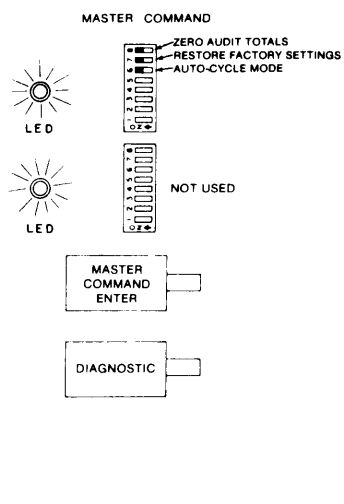
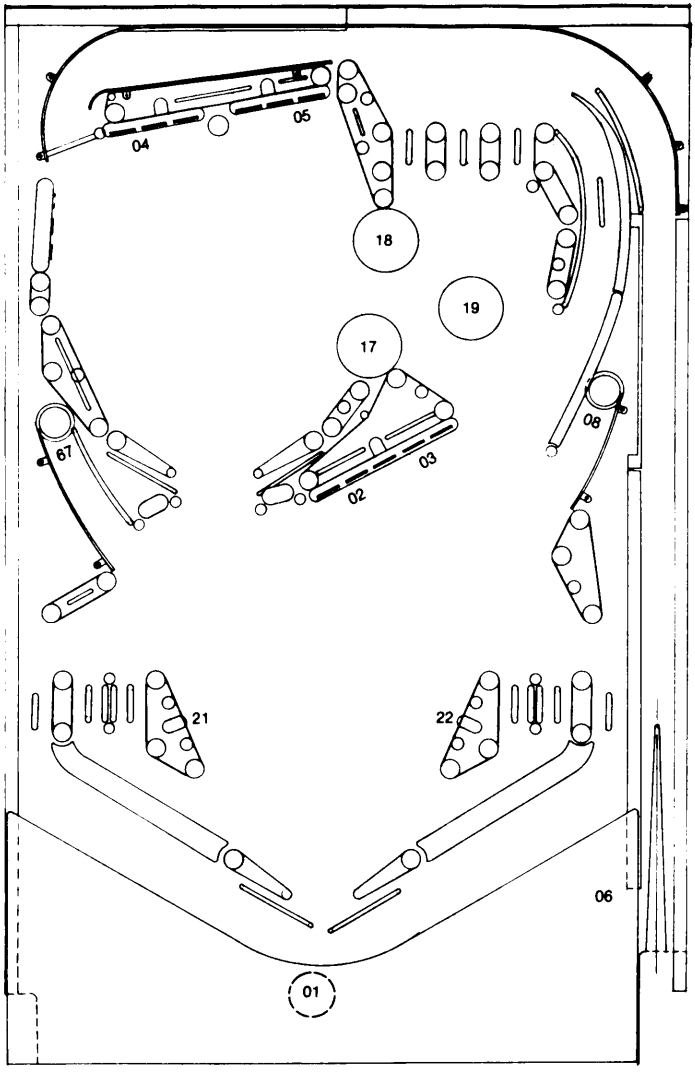


Figure 2. Master Command Settings Switch



SOL. NO.	FUNCTION
01	Ball Release
02	5-Bank, Left Drop Targets Reset
03	5-Bank, Right Drop Targets Reset
04	Top Left 3-Bank Drop Targets Reset
05	Top Right 3-Bank Drop Targets Reset
06	Ball Ramp Thrower
07	Left Eject Hole
08	Right Eject Hole
09	Sound
10	Sound
11	Sound
12	Sound
13	Sound
14	Credit Knocker
15	Special Relay
16	Coin Lockout
17	Bottom Jet Bumper
18	Top Jet Bumper
19	Right Jet Bumper
20	Not Used
21	Left Kicker
22	Right Kicker

Figure 3. Playfield Solenoid Locations and Solenoid Chart

Table 3. Solenoid Connections

SOL. NO.	FUNCTION	WIRE COLOR	CONNECTIONS	DRIVER TRANS.	SOLENOID PART NO.
01	Ball Release	GRY-BRN	2P11-4, 8P3-17	Q15	SA-23-850-DC
02	5-Bank, Left Drop Targets Reset	GRY-RED	2P11-5, 8P3-18	Q17	SA3-23-850-DC
03	5-Bank, Right Drop Targets Reset	GRY-ORN	2P11-7, 8P3-19	Q19	SA3-23-850-DC
04	Top Left 3-Bank Drop Targets Reset	GRY-YEL	2P11-8, 8P3-20	Q216	SA3-23-850-DC
05	Top Right 3-Bank Drop Targets Reset	GRY-GRN	2P11-9, 8P3-21	Q23	SA3-23-850-DC
06	Ball Ramp Thrower	GRY-BLU	2P11-3, 8P3-22	Q25	SG-23-850-DC
07	Left Eject Hole	GRY-VIO	2P11-2, 8P3-23	Q27	SG-23-850-DC
08	Right Eject Hole	GRY-BLK	2P11-1, 8P3-24	Q29	SG-23-850-DC
09	Sound	BRN-BLK	2P9-9, 10P3-3	Q31	—
10	Sound	BRN-RED	2P9-7, 10P3-2	Q33	—
11	Sound	BRN-ORN	2P9-1, 10P3-5	Q35	—
12	Sound	BRN-YEL	2P9-2, 10P3-4	Q37	—
13	Sound	BRN-GRN	2P9-3, 10P3-7	Q39	—
14	Credit Knocker	BRN-BLU	2P9-5, P1-16	Q41	SA2-23-850-DC
15	Special Relay	BRN-VIO	2P9-5, 6P2-2	Q43	5A-9384
16	Coin Lockout	BRN-GRY	2P9-6, 7P1-18, 7P2-4	Q45	SM-35-4000-DC
*17	Bottom Jet Bumper	BLU-BRN	2P12-7, 8P3-11	Q2	SG-23-850-DC
*18	Top Jet Bumper	BLU-RED	2P12-4, 8P3-12	Q4	SG-23-850-DC
*19	Right Jet Bumper	BLU-ORN	2P12-3, 8P3-13	Q6	SG-23-850-DC
*20	Not Used	BLU-YEL	2P12-6, 8P3-14	Q8	—
*21	Left Kicker	BLU-GRN	2P12-8, 8P3-15	Q10	SG-23-850-DC
*22	Right Kicker	BLU-BLK	2P12-9, 8P3-16	Q12	SG-23-850-DC
*	Lower Right Flipper	BLU-VIO	7P1-8, 8P3-3	—	SFL-19-400/ 30-750-DC
*	Upper Right Flipper	BLK-YEL	Lower Right Flipper	—	SFL-19-400/ 30-750-DC
*	Lower Left Flipper	BLU-GRY	7P1-10, 8P3-4	—	SFL-19-400/ 30-750-DC
*	Upper Left Flipper	BLK-BLU	Lower Left Flipper	—	SFL-19-400/ 30-750-DC

***NOTES:**

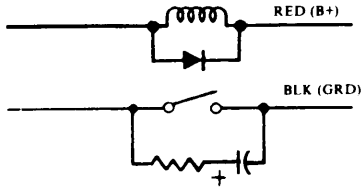
1. Special switch connections for solenoids 17 through 22 are as follows:

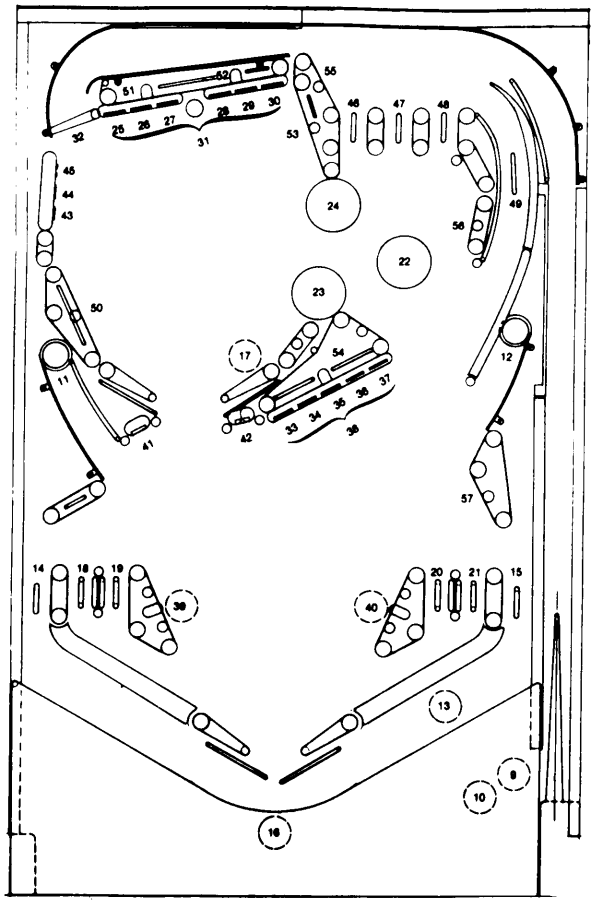
   17 -- ORN-BRN -- 2P13-5, 8P3-5
   18 -- ORN-RED -- 2P13-3, 8P3-6
   19 -- ORN-BLK -- 2P13-2, 8P3-7
   20 -- ORN-YEL -- 2P13-4, 8P3-8
   21 -- ORN-GRN -- 2P13-8, 8P3-9
   22 -- ORN-BLU -- 2P13-9, 8P3-10

2. Flipper button connections are as follows:

   Right -- ORN-VIO -- 2P12-1, 7P1-7
   Left -- ORN-GRY -- 2P12-2, 7P1-9

3. Typical wiring for solenoids and special switches:





SWITCH NO.	FUNCTION (Score)
01	Plumb Bob Tilt
02	Ball Roll Tilt
03	Credit Button
04	Right Coin Switch
05	Center Coin Switch
06	Left Coin Switch
07	Slam Switch
08	High Score Reset
09	Ball Ramp Thrower
10	Ball Ramp
11	Left Eject Hole (Bonus)
12	Right Eject Hole (Bonus)
13	Playfield Tilt
14	Left Outside Rollover (5000)
15	Right Outside Rollover (5000)
16	Outhole
17	Right Flipper *LANE CHANGE* switch
18	Left Center Rollover (1000)
19	Left Inside Rollover 1000)
20	Right Inside Rollover (1000)
21	Right Center Rollover (1000)
22	Right Jet Bumper
23	Bottom Jet Bumper
24	Top Jet Bumper
25	Top Left 3-Bank, Left Drop Target (2000)
26	Top Left 3-Bank, Center Drop Target (2000)
27	Top Left 3-Bank, Right Drop Target (2000)
28	Top Right 3-Bank, Left Drop Target (2000)
29	Top Right 3-Bank, Center Drop Target (2000)
30	Top Right 3-Bank, Right Drop Target (2000)
31	Top 3-Banks Drop Targets Series (Highest Lit Value)
32	Spinner
33	5-Bank, #1 Drop Target (Left) (2000)
34	5-Bank, #2 Drop Target (2000)
35	5-Bank, #3 Drop Target (2000)
36	5-Bank, #4 Drop Target (2000)
37	5-Bank, #5 Drop Target (Right) (2000)
38	5-Bank, Drop Targets Series (10,000)
39	Left Kicker (10)
40	Right Kicker (10)
41	Advance "Left" Bull's-Eye Target (1000)
42	Advance "Right" Bull's-Eye Target (1000)
43	"1" Target (1000)
44	"2" Target (1000)
45	"3" Target (1000)
46	"4" Rollover (1000)
47	"5" Rollover (1000)
48	"6" Rollover (1000)
49	Upper Right Return Lane Rollover (1000 plus lit value)
50	Upper Left Flipper Standup (10)
51	Top Left 3-Bank Standup
52	Top Right 3-Bank Standup (10)
53	Lower Top Center Standup (10)
54	5-Bank Standup
55	Upper Top Center Standup (10)
56	Top Right Standup (10)
57	Lower Right Standup (10)

Figure 4. Playfield Switch Locations and Switch Chart

ROW \ COLUMN	1 GRN-BRN 2J2-9	2 GRN-RED 2J2-8	3 GRN-ORN 2J2-7	4 GRN-YEL 2J2-6	5 GRN-BLK 2J2-5	6 GRN-BLU 2J2-3	7 GRN-VIO 2J2-2	8 GRN-GRY 2J2-1
1 WHT-BRN 2J3-9	PLUMB BOB TILT 1	BALL RAMP THROWER 9	RIGHT FLIPPER *LANE CHANGE* SWITCH 17	TOP LEFT 3-BANK, LEFT DROP TARGET 25	5-BANK #1 DROP TARGET (LEFT) 33	ADVANCE LEFT LOWER BULL'S-EYE TARGET 41	UPPER RIGHT RETURN LANE 49	LOWER RIGHT STANDUP 57
2 WHT-RED 2J3-8	BALL ROLL TILT 2	BALL RAMP 10	LEFT CENTER ROLLOVER 18	TOP LEFT 3-BANK, CENTER DROP TARGET 26	5-BANK #2 DROP TARGET 34	ADVANCE RIGHT LOWER BULL'S-EYE TARGET 42	UPPER LEFT FLIPPER STANDUP 50	NOT USED 58
3 WHT-ORN 2J3-7	CREDIT BUTTON 3	LEFT EJECT HOLE 11	LEFT INSIDE ROLLOVER 19	TOP LEFT 3-BANK, RIGHT DROP TARGET 27	5-BANK #3 DROP TARGET 35	"1" TARGET 43	TOP LEFT 3-BANK STANDUP 51	NOT USED 59
4 WHT-YEL 2J3-6	RIGHT COIN SWITCH 4	RIGHT EJECT HOLE 12	RIGHT INSIDE ROLLOVER 20	TOP RIGHT 3-BANK, LEFT DROP TARGET 28	5-BANK #4 DROP TARGET 36	"2" TARGET 44	TOP RIGHT 3-BANK STANDUP 52	NOT USED 60
5 WHT-GRN 2J3-5	CENTER COIN SWITCH 5	PLAYFIELD TILT 13	RIGHT CENTER ROLLOVER 21	TOP RIGHT 3-BANK, CENTER DROP TARGET 29	5-BANK #5 DROP TARGET (RIGHT) 37	"3" TARGET 45	LOWER TOP CENTER STANDUP 53	NOT USED 61
6 WHT-BLU 2J3-4	LEFT COIN SWITCH 6	LEFT OUTSIDE ROLLOVER 14	RIGHT JET BUMPER 22	TOP RIGHT 3-BANK, RIGHT DROP TARGET 30	5-BANK DROP TARGETS SERIES 38	"4" ROLLOVER 46	5-BANK STANDUP 54	NOT USED 62
7 WHT-VIO 2J3-3	SLAM SWITCH 7	RIGHT OUTSIDE ROLLOVER 15	BOTTOM JET BUMPER 23	TOP 3-BANKS DROP TARGET SERIES 31	LEFT KICKER 39	"5" ROLLOVER 47	UPPER TOP CENTER STANDUP 55	NOT USED 63
8 WHT-GRY 2J3-1	HIGH SCORE RESET 8	OUTHOLE 16	TOP JET BUMPER 24	SPINNER 32	RIGHT KICKER 40	"6" ROLLOVER 48	TOP RIGHT STANDUP 56	NOT USED 64

Figure 5. Switch Matrix

ROW \ COLUMN	1 YEL-BRN 2J5-8	2 YEL-RED 2J5-9	3 YEL-ORN 2J5-6	4 YEL-BLK 2J5-7	5 YEL-GRN 2J5-3	6 YEL-BLU 2J5-5	7 YEL-VIO 2J5-1	8 YEL-GRY 2J5-2
1 RED-BRN 2J7-1	SAME PLAYER SHOOTS AGAIN (PLAYFIELD)	1,000 BONUS LEFT	9,000 BONUS LEFT	7,000 BONUS RIGHT	2X	LEFT TIMER LAMP (BACKBOX)	RIGHT TIMER LAMP (BACKBOX)	#1 PLAYER UP
2 RED-BLK 2J7-2	LEFT & RIGHT DOUBLE TIMER BONUS	2,000 BONUS LEFT	10,000 BONUS LEFT	8,000 BONUS RIGHT	3X	"1" ROLLOVER	1 CAN PLAY	#2 PLAYER UP
3 RED-ORN 2J7-3	5-BANK LITES TIMER OUTLANES	3,000 BONUS LEFT	1,000 BONUS RIGHT	9,000 BONUS RIGHT	5X	"2" ROLLOVER	2 CAN PLAY	#3 PLAYER UP
4 RED-YEL 2J7-4	RIGHT JET BUMPER	4,000 BONUS LEFT	2,000 BONUS RIGHT	10,000 BONUS RIGHT	3-BANKS SCORE 10,000	"3" ROLLOVER	3 CAN PLAY	#4 PLAYER UP
5 RED-GRN 2J7-5	SPINNER AND BOTTOM JET BUMPER	5,000 BONUS LEFT	3,000 BONUS RIGHT	COLLECT DOUBLE TIMER BONUS	3-BANKS SCORE 20,000	"1" BULL'S-EYE TARGET	4 CAN PLAY	TILT
6 RED-BLU 2J7-6	TOP JET BUMPER	6,000 BONUS LEFT	4,000 BONUS RIGHT	RETURN LANE SCORES SPECIAL	3-BANKS SCORE 30,000	"2" BULL'S-EYE TARGET	MATCH	GAME OVER
7 RED-VIO 2J7-9	LEFT EJECT HOLE	7,000 BONUS LEFT	5,000 BONUS RIGHT	RETURN LANE SCORES 5,000	3-BANKS SCORE 50,000	"3" BULL'S-EYE TARGET	BALL IN PLAY (MASTER)	SAME PLAYER SHOOTS (BACKBOX)
8 RED-GRY 2J7-8	RIGHT EJECT HOLE	8,000 BONUS LEFT	6,000 BONUS RIGHT	RETURN LANE SCORES EXTRA BALL	3-BANKS SCORES SPECIAL	BALL IN PLAY (DISPLAY 4)	CREDITS PLAYFIELD	HIGH SCORE

Figure 6. Lamp Matrix