

NUOVA

**Bell Games**

s.r.l.

# **COBRA**

## **Service Manual Schematics**

## BOOKKEEPING FUNCTIONS

The game is designed to help the operator perform certain accounting functions. The game can display the number of total plays and replays (free games). It can display the number of coins dropped down each coin chute. The bookkeeping functions are displayed on all player score displays simultaneously. An identification number, 05 to 15, appears on the Match/Ball in Play window as follows:

- 05 - 00 to 40=Current Credits
- \*06 - 10000 to-99999=Total Plays (Payed & Free Games)
- \*07 - 10000 to-99999=Total Replays (Free Games)
- 08 - 00 to-99999=Game Percentage
- 09 - 00 to-99999=Total times "High Score to Date" is beat
- \*10 - 10000 to-99999=Coins Dropped thru Coin Chute # 1
- \*11 - 10000 to-99999=Coins Dropped thru Coin Chute # 2\*\*
- \*12 - 10000 to-99999=Coins Dropped thru Coin Chute # 3\*\*
- \*13 - 00 to-99999=Number of Specials awarded from Playfield Specials Or
- \*14 - 00 to-99999=Number of minutes of Game Play (Total)
- \*15 - SERVICE CREDITS

The game displays the first bookkeeping entry if the Self-Test button on the inside of the front door is pressed ten times. Alternately push and release the Self-Test button at one second intervals. The number 05 appears in the "Match/Ball in Play" window. Current credits appear on the player score displays. Each additional press of the button causes the next entry to be displayed.

After the data in each bookkeeping register is recorded, it can be set to zero simply by pressing switch button RED located on front door or by pressing the Coin Chute # 3 switch. Any or all registers can be cleared by alternating between the Self-Test button and the switch button front door or Coin Chute # 3 switch. The operator is given this option as a possible convenience and can elect to use or not use it as his needs direct.

Pressing the button 5 more times causes the game to play the power-up tune and light the Game Over light.

Service credits are designed to allow the serviceman to test the game under actual play conditions without disturbing the bookkeeping records that reside at identification number 06, 07, 10, 11 and 12.

To obtain Service Credits, push and release the Self-Test switch until identification number 05 appears in the "Match/Ball in Play" window. Hold in the Credit button until the desired number of Service Credits (up to five) appears on the player score displays.

NOTE: If, upon accessing identification number 05, a number of credits greater than five is displayed, pressing the credit button has no effect.

### C. FRONT DOOR GAME ADJUSTMENTS

#### High Score Feature Adjustments:

The game is designed to award an extra ball (option) of a free game at each of three score levels. The recommended levels are on the score card in the game.

Any level from 10.000 to 990.000 can be set, as desired. It is also possible to reset or turn off (00) any or all of the levels, if desired.

1. Push and release Self-Test button (See Figure III) at one second intervals approximately six times or until identification number 01 appears on the "Match/Ball in Play" display.
2. The number on the Player Score Displays is the score level. It can be increased, if desired, by holding the credit button in. To decrease the score level, hold the credit button in and depress and release the Self-Test button. Release the credit button when the desired number appears. Note that the level changes 10.000 points at a time. If the number "00" is left on the displays, the high score feature is eliminated for that level.
3. Repeat steps 1 and 2 for the second score levels. The identification numbers "02" for "03" see pag. 3 on the Match/Ball in Play display are for the second levels.

#### High Score to Date and 10.000.000 Feature:

The game is designed to award free games when "High Score to Date" is beat, or if the palyer exceeds 10.000.000 points.

It is recommended that the level, which will build with play, be periodically reset to the factory recommended level to encourage game play.

Adjustment, Steps 1 and 2. Continue pushing the Self-test button until the identification number "04" appears on the "Match/Ball in Play" display and then do Step 2.

Any level from "00" to 9.990.000 can be set as described. It is to be noted that "00" does NOT turn off the feature, as it does on High Score feature. The feature is turned off by self test position 19 as discussed under "Back Box Game Adjustments".

**SELF TEST SETUP FOR 16-19:**

To set up positions 16-19 push and release self test button till 16 shows on match/ball in play. Now pulse replay button for recommended setup from "00" thru "03". Repeat for positions 17, 18 or 19.

**SOUND**

In addition to game sounds, there is also a Master Volume Control located on the front door.

Please note that these module volume controls should be adjusted prior to setting the control on the front door.

**HIGH SCORE FEATURE:**

The game is designed to award an Extra Ball or Free Game at each of the two or three score levels.

See Front Door Game Adjustment.

AWARD	PLAYFIELD SELF TEST POSITION 16	HIGH SCORE SELF TEST POSITION 17
REPLAY	SET TO "03"	SET TO "03"
EXTRA BALL	SET TO "02"	SET TO "02"
NOVELTY	SET TO "01"	SET TO "01"
NO AWARD	SET TO "00"	SET TO "00"

**HIGH SCORE TO DATE OR OVER 10.000.000 SCORE FEATURE:**

The game is designed to award free games as an option if high score to date is beat or player exceeds 10.000.000 points. Each time this happens, the winning score becomes the new high score to beat. This score is displayed on all 4 player score displays at the end of each game as an incentive to play.

Recommended setting is underlined.

HIGH SCORE TO DATE FEATURE	SELF TEST POSITION 19
NO AWARD	SET TO "00"
ONE CREDIT	SET TO "01"
TWO CREDITS	SET TO "02"
<u>THREE CREDITS</u>	SET TO "03"

State and local laws may regulate the use of the above features, and they have been designed to allow for appropriate adjustment in order to conform to such requirements.

**MAXIMUM CREDITS:**

The maximum credits accepted by the machine limits the number of games that can be accumulated by coining, by winning replays or both. The maximum number of credits is selectable by means of switches 25 and 26. Four credit limits are available. Switch settings are listed below.

MAXIMUM CREDITS	SWITCHES	
	26	25
10	OFF	OFF
15	OFF	ON
25	ON	OFF
40	ON	ON

BALLS PER GAME:	//BALLS/GAMES	SWITCHES	
		32	31
	5	OFF	ON
	4	ON	OFF
	3	OFF	OFF
	2	ON	ON

**MATCH FEATURE:**

When the Match Feature is ON, a random number appears on the Match/Ball in Play window and the word Match is illuminated. If the number matches the tens digit in a player's score, a free game is awarded. The Match Feature creates an incentive to play.

MATCH	SWITCH 28
ON	ON
OFF	OFF

CREDIT DISPLAY:	CREDITS DISPLAYED	SWITCH 27
	YES	ON
	NO	OFF

GAME OVER ATTRACT ADJUSTMENT SW 16

SOUND AND LIGHT

YES	ON
NO	OFF

NUMBER OF GAMES REPLAYS PER GAME ADJUSTMENT SW 29

LIBERAL all replay earned will be collected ON

CONSERVATIVE only 1 replay per player per game OFF

# GAME ADJUSTMENTS

## A. Back Box Game Adjustments:

Each game has thirty-two switches located on A4, the MPU module, located in the back box, that allow play to be customized to the location. Credits per coin, credit display, and baser per game, are selectable by means of the switches. The switches are contained in four-sixteen lead packages numbered S1-8, S9-16, S17-24, and S25-32 for easy identification. The "ON" toggle position is marked on the assembly. Turn off power before making adjustments.

### Credits/Coin Adjustments:

The credits per coin are selectable by means of S17-S20 for coin chute #2 (Center). The switch settings and resultant credits/coin are as follows:

S20	S19	S18	S17	Credits/Coin	S20	S19	S18	S17	Credits/Coin
OFF	OFF	OFF	OFF	Same as Coin Chute #1 Settings	ON	OFF	OFF	OFF	8/1 Coin
OFF	OFF	OFF	ON	1/1 Coin	ON	OFF	OFF	ON	9/1 Coin
OFF	OFF	ON	OFF	2/1 Coin	ON	OFF	ON	OFF	10/1 Coin
OFF	OFF	ON	ON	3/1 Coin	ON	OFF	ON	ON	11/1 Coin
OFF	ON	OFF	OFF	4/1 Coin	ON	ON	OFF	OFF	12/1 Coin
OFF	ON	OFF	ON	5/1 Coin	ON	ON	OFF	ON	13/1 Coin
OFF	ON	ON	OFF	6/1 Coin	CN	ON	ON	OFF	14/1 Coin
OFF	ON	ON	ON	7/1 Coin	ON	ON	ON	ON	15/1 Coin

The credits given are selectable by means of switches 1-5 incl., for coin chute #1 and switches 9-13 incl., for coin chute #3. Thirty-one different credit ratios are available for each coin chute. The switch settings and resultant credits/coin are listed below.

### CREDITS/COIN ADJUSTMENTS

COIN CHUTE #1 (HINGE SIDE) OR #3 (RIGHT SIDE)	SWITCHES					CREDITS	CREDITS	CREDITS	CREDITS	CREDITS	TOTAL CREDITS/COINS
	5	4	3	2	1						
OFF	OFF	OFF	OFF	OFF	1/1 Coin						
OFF	OFF	OFF	OFF	ON	2/1 Coin						
OFF	OFF	OFF	ON	OFF	3/1 Coin						
OFF	OFF	OFF	ON	ON	4/1 Coin						
OFF	OFF	ON	OFF	OFF	5/1 Coin						
OFF	OFF	ON	OFF	ON	6/1 Coin						
OFF	OFF	ON	ON	OFF	7/1 Coin						
OFF	OFF	ON	ON	ON	8/1 Coin						
OFF	ON	OFF	OFF	OFF	9/1 Coin						
OFF	ON	OFF	OFF	ON	12/1 Coin						
OFF	ON	OFF	ON	OFF	14/1 Coin						
OFF	ON	OFF	ON	ON	1/2 Coins*						
OFF	ON	ON	OFF	OFF	2/2 Coins*						
OFF	ON	ON	OFF	ON	3/2 Coins*						
OFF	ON	ON	ON	OFF	4/2 Coins*						
OFF	ON	ON	ON	ON	5/2 Coins*						
ON	OFF	OFF	OFF	OFF	6/2 Coins*						
ON	OFF	OFF	OFF	ON	7/2 Coins*						
ON	OFF	OFF	ON	OFF	8/2 Coins*						
ON	OFF	OFF	ON	ON	9/2 Coins*						
ON	OFF	ON	OFF	OFF	12/2 Coins*						
ON	OFF	ON	OFF	ON	14/2 Coins*						
ON	OFF	ON	ON	OFF	1/1st Coin	2/2nd Coin					
ON	OFF	ON	ON	ON	0/1st Coin*	1/2nd Coin	1/3rd Coin	1/4th Coin			3/2
ON	ON	OFF	OFF	OFF	0/1st Coin*	1/2nd Coin	0/3rd Coin**	2/4th Coin			3/4
ON	ON	OFF	OFF	ON	1/1st Coin	1/2nd Coin	1/3rd Coin	2/4th Coin			5/4
ON	ON	OFF	ON	OFF	1/1st Coin	2/2nd Coin	1/3rd Coin	3/4th Coin			7/4
ON	ON	OFF	ON	ON	1/1st Coin	2/2nd Coin	2/3rd Coin	2/4th Coin			7/4
ON	ON	ON	OFF	OFF	0/1st Coin***	0/2nd Coin***	1/3rd Coin				1/3
ON	ON	ON	OFF	ON	0/1st Coin**	0/2nd Coin**	0/3rd Coin**	1/4th Coin			1/4
ON	ON	ON	ON	OFF	0/1st Coin****	0/2nd Coin****	0/3rd Coin****	0/4th Coin****			1/5
ON	ON	ON	ON	ON	0/1st Coin***	0/2nd Coin***	1/3rd Coin	0/4th Coin****	1/5th Coin		2/5

\*No Credits until 2nd coin is dropped.

\*\*No Credits until 4th coin is dropped.

\*\*\*No Credits until 3rd coin is dropped.

\*\*\*\*No Credits until 5th coin is dropped.

1) "INITIAL SHOT"

10K, 25K, 50K and kickback

2) "A B C D TARGETS"

If completed for the first time, GOLDEN GATE BONUS scores 10K  
POP scores 5000  
Each additional time, GOLDEN GATE BONUS increases up to 90 K.

3) Upper stars score 1000 points each.

If hit one after the other, without any further contact between them, you will score the lit "GOLDEN GATE BONUS", and the "CRIMINAL HAUNT VALUE" in front of the upper left ramp (direction "OAKLAND") will light up. If the upper stars are hit a second time, the "DOUBLE SCORE PLAYFIELD" will light up briefly.

You can make these two plays only by going up the left ramp (direction "OAKLAND").

4) "CRIMINALS HAUNT" TARGET

Each time it is hit, it will score the lit value  
10K 20K 30K 40K EXTRA BALL

SW 21 ON memorized the following ball

SW 21 OFF not memorized the following ball

5) 4 DROP TARGETS BANK

Hitting all four targets:

1st time: Bonus target at 10K value, 1st. lit for capture,  
"W/L SPOT NEXT ABCD SX" will light up (alternated with slingshot).

2nd time: Bonus target at 20K value, 2nd. lit for capture,  
"W/L SPOT NEXT ABCD STILL OFF (DX or SX) will light up.

3rd time: Bonus target at 30K value, 3rd. lit for capture, "CAPTURE"  
in front of the upper ramp will light up.

Each additional time: 40K - 50K - 60K - 70K - SPECIAL

SPECIAL can be obtained contemporaneously to:

SW	6	-	7	
	OFF		OFF	50K + SP.
	ON		OFF	60K + SP.
	OFF		ON	70K + SP.
	ON		ON	70K then SP.

"DROP TARGET BONUS" value can be memorized or cleared for every new ball in play by using:

SW	8	ON	memorized in the following ball
SW	8	OFF	not memorized in the following ball

#### 6) "STATE PRISON" PLAY (CAPTURE OF 1 OR 2 BALLS)

When the ball goes up the two ramps, it ends up in "STATE PRISON". It scores the lit "ESCAPE VALUE", it activates the kickback, and then goes back into play.

If "CAPTURE" is lit or flashing, the ball will be captured and a second ball will be put into play. If the 2nd ball is captured too, the 3rd ball will be put into play. When this 3rd ball touches any contact, the two balls previously captured will be free. The "ESCAPE VALUE" increases every time two balls are freed:

25 K - 50 K - 75 K - 100 K - SPECIAL -

The special can also be obtained with the following values:

	14	15	
SW + SW	ON	ON	50 K + S
	OFF	ON	75 K + S
	ON	OFF	100 K + S
	OFF	OFF	100 K then S

When the 1st ball is captured and SW 24 is ON, you have 10 seconds (as shown on the credit display) during which you must capture the 2nd ball too, otherwise the 1st ball is automatically freed.

SW	24	ON	timer functions
SW	24	OFF	timer does not function; 1st ball remains captured until 2nd ball is captured.



In a one player game, capture of the 1st ball can be regulated in the following fashion:

SW 22 ON 1st captured ball remains such even loosing 2nd ball.

SW 22 OFF 1st captured ball is free when 2nd ball is lost.

It is also possible to bring the "ESCAPE VALUE" back to 25K every time a ball is lost:

SW 30 ON "ESCAPE VALUE" memorized

SW 30 OFF "ESCAPE VALUE" not memorized

#### 7) "LEFT LOWER RAMP" and "RUNAWAYS TARGET"

By going up this ramp, you qualify the "RUNAWAYS TARGET" play. When the ball passes on the left return lane, the RUNAWAYS value counts down from 1,000,000 to 25K. You can win the million only once every play, therefore, once the million has been won, it will not light up again during the same play. SW 23 controls that, if the million has not been won before of the last ball in the play, it can be lit briefly and casually without going up the left lower ramp.

SW 23 ON million during last ball

OFF no

#### 8) "MULTIPLIER CHANNEL"

Each time the ball goes through this channel, the multiplier adds up: 2X - 3X - 4X - 5X - After each lost ball, the multiplier.

#### 9) "SPECIAL OUTLANE"

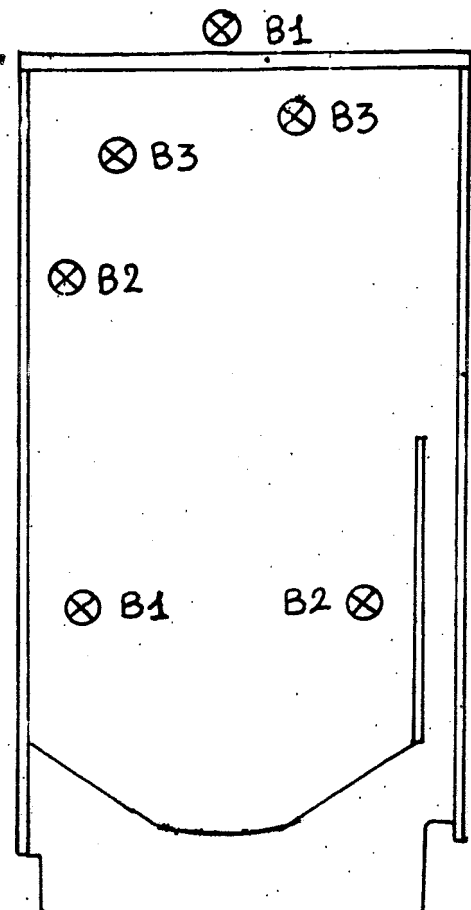
They light up alternately, contemporaneously to the special "DROP TARGET"

### LAMP DRIVER LOCATION

DESCRIPTION	SCR	JACK	- PIN
OUTLANE RIGHT SPECIAL (B1 SEE FIG. 1)	1	AUX	1
MULTIPLIER 2X	2	AUX	2
OUTLANE LEFT SPECIAL (B2 SEE FIG. 1)	3	AUX	3
MULTIPLIER 3X	4	AUX	4
RUNAWAYS 100K (B3 SEE FIG. 1)	5	AUX	6
MULTIPLIER 4X	6	AUX	7
1 MILLION	7	AUX	8
MULTIPLIER 5X	8	AUX	9
G.I. FLASHER (BOARD)	9	AUX	10
	10	AUX	11
	11	AUX	12
	12	AUX	13

FIG. 1

THE LAMPS ARE CONNECTED IN SERIE  
USE: OSRAM 24 V. 10W RIF. N. 5637



### LAMP DRIVER LOCATION

DESCRIPTION	SCR	JACK	PIN
1st. COBRA IN DROP TARGET	13	P1	1
DROP TARGET BONUS 10K	15	P1	2
LIT KICK BACK	14	P1	3
DROP TARGET BONUS 50K	16	P1	4
LEFT ROLLOVER STAR MULTIPLIER 2X	17	P1	5
GOLDEN GATE BONUS 10K	18	P1	6
ESCAPE VALUE 25K	19	P1	7
ESCAPE VALUE SPECIAL	20	P1	8
THUMPER BUMPER	22	P1	9
PLAYFIELD SCORE DOUBLE W/L	21	P1	10
"D" TARGET	24	P1	11
SHOOT AGAIN (PLAYFIELD)	23	P1	12
2nd. COBRA IN DROP TARGET	28	P1	14
DROP TARGET BONUS 20K	30	P1	15
1st.	29	P1	16
DROP TARGET BONUS 60K	31	P1	17
LEFT ROLLOVER STAR MULTIPLIER 3X	32	P1	18
GOLDEN GATE VALUE 30K	33	P1	19
ESCAPE VALUE 50K	34	P1	20
BALL SHOOTER 10K	37	P1	22
PLAYFIELD SCORE DOUBLE W/F	36	P1	23
"C" TARGET	39	P1	24
SPOT NEXT ABCD W/L DX	38	P1	25
"CAPTURE" (2)	50	P1	26
3th. COBRA IN DROP TARGET	43	P2	1
DROP TARGET 30K	45	P2	2
2nd.	44	P2	3
DROP TARGET 70K	46	P2	4
LEFT ROLLOVER STAR MULTIPLIER X4	47	P2	5

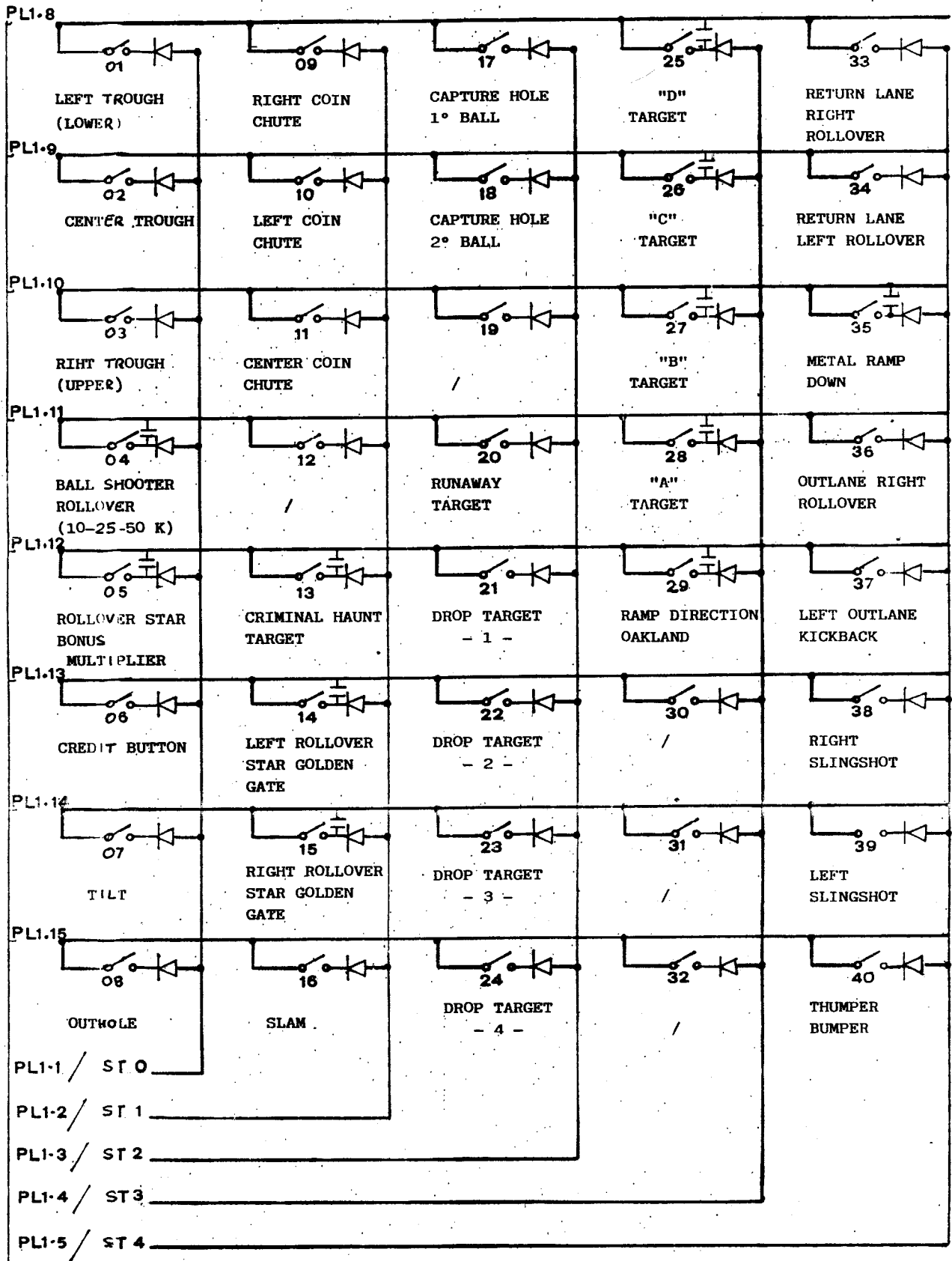
LAMP DRIVER LOCATION

DESCRIPTION	SCR	JACK	- PIN
GOLDEN GATE BONUS 60K	48	P2	6
ESCAPE VALUE 75K	49	P2	7
BALL SHOOTER 25K	52	P2	9
CRIMINAL HAUNT EXTRA BALL	51	P2	10
"B" TARGET	54	P2	11
SPOT NEXT ABCD W/L SX	53	P2	12
4th. COBRA IN DROP TARGET	58	P2	13
DROP TARGET 40K	60	P2	14
3rd.	59	P2	15
DROP TARGET SPECIAL	61	P2	16
LEFT ROLLOVER STAR X5	62	P2	17
GOLDEN GATE BONUS 90K	63	P2	18
ESCAPE VALUE 100K	64	P2	19
CRIMINALS HAUNT ADV. VALUE W/F	65	P2	20
BALL SHOOTER 50K	67	P2	21
"A" TARGET	69	P2	23
CREDIT INDICATOR	68	P2	24
RUNAWAYS T. 25K	26	BB	1
BACK BOX TOP LAMP DX	25	BB	2
CRIMINALS HAUNT T. 10K	27	BB	3
SHOOT AGAIN (BACK BOX)	35	BB	5
RUNAWAYS T. 50K	41	BB	7
BACK BOX TOP LAMP SX	40	BB	8
CRIMINALS HAUNT 20K	42	BB	9
RUNAWAYS T. 75K	56	BB	12
GAME OVER (BACK BOX)	55	BB	13
CRIMINALS HAUNT 30K	57	BB	14
TILT (BACK BOX)	70	BB	18
CRIMINALS HAUNT 40K	72	BB	19

SOLENOID DRIVER LOCATION

TRANSISTOR	JACK	PIN	DESCRIPTION	TEST NUMBER
2	PL1	8	DROP TARGET RESET	01
3	CABINET	3	KNOCKER	02
4	PL1	2	1° OUTHOLE KICKER	03
8	PL2	5	CAPTURE HOLE KICKER	04
10	PL2	11	THUMPER BUMPER	06
11	PL2	13	RIGHT SLINGSHOOT	08
12	PL2	12	LEFT SLINGSHOOT	07
13	PL2	3	2° OUTHOLE KICKER	05
16	PL2	14	KICKBACK	09

- PL1 - 1 - WHITE /RED      - PL1 - 2 - ORANGE      - PL1 - 3 - GRAY/YELLOW      - PL1 - 4 - WHITE/YELLOW  
 PL1 - 5 - RED/YELLOW      - PL1 - 8 - PINK/ORANGE      - PL1 - 9 - YELLOW/BROWN      - PL1 - 10 - GRAY/BLACK  
 PL1 - 11 ORANGE/BLACK      - PL1 - 12 - BROWN      - PL1 - 13 - BROWN/RED      - PL1 - 14 - GRAY/RED  
 PL1 - 15 WHITE/BROWN



COBA

