JUNGLE LORD

INSTRUCTION BOOKLET

This booklet provides game operation, bookkeeping, game adjustment, and diagnostic and self-test procedures for JUNGLE LORD. 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. Revision level 7 CPU Boards (batteries located on lower left corner at board) or later boards must be used.
2. Must be equipped with blue-labeled Flipper ROMs and blue-labeled Game ROMs.
3. Jumpers W3, W10, W11, W14, W17, W19, W20, and W22 must be connected. Jumpers W4, W9, W12, W15, W16, W18, W21, and W23 must be removed. With the exception of W25, (Factory Setting Jumper) all other jumpers are not changed.

Driver Board
Either earlier model D 7997 or later model D 8341 boards may be used. When earlier boards are used, switch matrix series resistors R204 thru R211 must be zero-ohm or be replaced with wire jumpers. Later D 8341 boards do not use series resistors in the switch matrix.

Sound Board
1. D 8224 required for speech
2. Must be jumpered for white-labeled sound ROM operation and be equipped with Sound ROM 3. (Jumpers W2, W5, W7, W9, W10, W12, and W15 connected; W3, W4, W6, W8, W11, and W13 removed).

Power Supply Board
1. D 8345 board (equipped with relay) is required.
2. F4 (20A SB) for flipper solenoids and magnets must be installed.

Display Boards
Model C 8363 Master Display and 7-digit Slave Displays required.

Optional Speech Module
Requires 5T5031 (IC7), 5T5032 (IC5), and 5T5033 (IC6) Speech ROMs.

GAME OPERATION
*Indicates adjustable features.

Game Over Mode - Turn game ON; player 1 score shows 00; all player scores alternate the high score to date, Game Over lights. All playfield lamps cycle in attract mode.

Multi-Ball, *Magna-Save*, and *Double-Trouble* are trademarks of Williams Electronics, Inc.

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

Game Start - Two balls must be resting on ball ramp or ball shooter switches (maximum of one ball in ball shooter trough) before game will start. Push credit button, startup tune played, ball served, credit display reduced by 1, player 1 score flashes 00 until first scoring switch is made, ball in play shows 1. Pushing credit button before ball 2 displayed allows additional players.

Bonus Advance - The bonus is advanced (from 1,000 to 39,000) once for each 5-bank drop target, the "4" and "5" rollovers, and twice for left and right drains. The L-O-R-D rollovers provide 4, 3, 2, and 1 bonus advances, respectively. When a target in a 3-bank is made, a lamp starts flashing. Completing the 3-bank while the lamp is still flashing awards 5 bonus advances and spots a letter in L-O-R-D*. If the lamp goes out before the bank is made, it is reset. The flashing lamp duration decreases as more letters are spotted in L-O-R-D. Making "4" or "5" rollover lights Turnaround right entry to advance bonus multiplier (2X, 3X, 5X, 10X). Lit time decreases with bonus multiplier value.

***Magna-Save*™ Feature** - Left and right 3-bank targets advance *Magna-Save* timing. With magnet timer lamp(s) lit, holding in the corresponding *Magna-Save* button on the side of the cabinet energizes the magnet.

Drain Shield - Making turnaround from left entry (or right entry with 10X bonus multiplier lit) lights Drain Shield for an outside rollover. A ball drained through a lit rollover is returned to ball shooter trough.

***Double-Trouble*™ Feature** - 5-Bank starts with one target up. When it is made, two targets are reset; making them resets three targets, and so on until all five are reset. When the bank is made the fifth time, a single target is reset for *Double-Trouble* scoring. Making the target scores 10,000; making the next target before it is released scores double or 20,000. Doubling continues to 160,000. If a target is released before being made, scoring resets to 10,000. Making eject hole stops target timing.

2X Scoring - Making the 1-2-3 targets and 4 and 5 rollovers initiates 2X scoring for the duration of the ball in play.

***Multi-Ball*™ Play:** Making either eject hole kicks mini-ball. Making "4" rollover lights lower eject hole for two kicks. Making L-O-R-D rollover with mini-ball or completing a 3-bank* spots a letter. Completing L-O-R-D from a 3-bank lights the eject hole for *Multi-Ball* play. Making the eject hole when lit or completing L-O-R-D with the mini-ball initiates 35* seconds of Multi-Ball play. Making eject hole stops *Multi-Ball* timing. Spotting L-O-R-D during *Multi-Ball* play scores a special. Special awards one credit.

Memory - L-O-R-D lamps, magnet lamps*, Drain Shield lamps, eject hole *Multi-Ball* When Lit lamps, and 5-Bank Target sequence.

Tilt - Ball in play tilted on first closure of ball roll tilt and third* closure of Plumb Bob and playfield tilts. Slam tilt return game to game over.

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. A new game cannot be started with more than one ball resting in the ball shooter trough; excess balls must be returned to the playfield and rest on the ball ramp switches.

With Speech Module, the following phrases are produced during game play.

Game Start, add players 2, 3, and 4; Random phrase:

Fight Jungle tiger and win.
Can you be Jungle Lord?
Beat tiger and Jungle Lord.
Can you fight in Jungle?

Achievement	Response
Win credit from special or replay	You Jungle Lord.
Multi-Ball Start	Stampede! - "trumpet"
Collect Drain Shield	Fight Tiger Again.
Start *Double-Trouble*	You (Jungle Lord) in *Double-Trouble*
Spot L-O-R-D	Jungle Lord - "trumpet"
High Score to Date	You win. You Jungle Lord.
Game Over	Me, Jungle Lord.
Game Over after winning Special or Replay	You win. Fight in Jungle again.

BOOKKEEPING AND GAME EVALUATION
(Functions 01-17)

1. Set AUTO-UP/MANUAL-DOWN switch to AUTO-UP and depress ADVANCE pushbutton. Test 04 is indicated in the credits display, Function 00 in Match display, and Game Identification in Player 1 display.

2. Operate the ADVANCE pushbutton to display Functions 01 thru 04 on the Match display (See Table 1) and record the corresponding totals (number of coins and total paid credits) from the Player 1 display. (To review a total that has been advanced past, set switch to MANUAL-DOWN and operate the ADVANCE pushbutton).

3. Operate the ADVANCE pushbutton to display Functions 05, 06, and 07 in the Match display and record the corresponding free credit totals from the Player 1 display.

4. Operate the ADVANCE pushbutton to display Function 08 in the Match display. Total credits is indicated in the Player 1 display, total free credits in the Player 2 display, and percentage of free credits in the Player 4 display.

5. Operate the ADVANCE pushbutton to display Function 09 thru 12 in the Match display and record the corresponding totals from the Player 1 display.

6. Operate the ADVANCE pushbutton to display Functions 13 thru 17 in the Match display and record the corresponding totals from the Player 2 display.

7. With switch set to MANUAL-DOWN operate ADVANCE to display Function 50 in the Match Display. From Function 50 you can return to game over or zero audit totals and return to game over. Perform step 8.a. or 8.b. as desired.

8. a. To return to game over, set the switch to AUTO-UP and depress ADVANCE.
    b. **To zero audit totals** and return to game over set switch to AUTO-UP, operate the credit button to display 35 in the Player 1 display, and depress ADVANCE.

Table 1. Audit Totals

	DESCRIPTION		
FUNCTION	PLAYER 1	PLAYER 2	PLAYER 4
00	Game Identification (2503 1)	—	—
01	Coins, Left chute	—	—
	(closest to coin door hinge)	—	—
02	Coin, center chute	—	—
03	Coin, right chute	—	—
04	Total Paid Credits	—	—
05	Special Credits	—	—
06	Replay Score Credits	—	—
07	Match Credits	—	—
08	Total Credits	Free Credits	% Free Credits
09	Total Extra Balls	—	—
10	Ball Time in Minutes	—	—
11	Total Balls Played	—	—
12	Current High Score	—	—
	to Date		
13	Backup High Score	High Score to Date	—
	to Date	Credits Awarded	
14	Replay 1 Score	Times exceeded	—
15	Replay 2 Score	Times exceeded	—
16	Replay 3 Score	Times exceeded	—
17	Replay 4 Score	Times exceeded	—

GAME ADJUSTMENT PROCEDURE
(Functions 13-41)

Coin door must be open to change settings.

1. Set AUTO-UP/MANUAL-DOWN switch to AUTO-UP and depress ADVANCE pushbutton. Test 04 is indicated in the Credits display, Function 00 in Match display, and game identification in Player 1 display.
2. **To raise** Function number in Match 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 Match 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 in Player 1 display is new setting. For values see Table 2 and (for pricing) Table 3.
4. Repeat sets 2 and 3 until all required adjustments have been made.in Player 1 display.
5. Operate ADVANCE until Function 50 is indicated in Match display. From Function 50 you can return to game over or **restore factory settings**. Perform step 6 or 7 as desired.
6. To return to game over, depress ADVANCE with switch set to AUTO-UP.
7. To restore factory settings **and** zero audit totals:
   a. Operate Credit button with switch set to AUTO-UP until 45 is indicated in Player 1 Display.
   b. Depress ADVANCE. The game returns to Test 04, Function 00.
   c. Set switch to MANUAL-DOWN and depress ADVANCE to indicate Function 50.
   d. Set switch to AUTO-UP and depress ADVANCE.

RESETTING HIGH SCORE TO DATE
1. Using game adjustment procedure, set Function 13 to the desired reset value.
2. Depress HIGH SCORE RESET pushbutton.

FACTORY AUDIT TOTALS
(Functions 42-49)

The following factory audit functions are assigned:

42 - Total times *Multi-ball* achieved
43 - Total times *Double-Trouble* achieved
44 - Total Drain Shields Collected
45 - Total 20,000 *Double-Trouble* scores
46 - Total 40,000 *Double-Trouble* scores
47 - Total 80,000 *Double-Trouble* scores
48 - Total 160,000 *Double-Trouble* scores

Table 2. Game Adjustments

FUNCTION	DESCRIPTION	NOTES	*FACTORY SETTING
13	Backup High Score to Date [HSTD Credits Awarded]	1	2,000,000
14	Replay 1 Score [Times exceeded]	2	700,000
15	Replay 2 Score [Times exceeded]	2	1,500,000
16	Replay 3 Score [Times exceeded]	2	0
17	Replay 4 Score [Times exceeded]	2	0
18	Maximum Credits	3	30
19	Standard and Custom Pricing Control (00-08)	4	01/02
20	Left Coin Slot Multiplier	4	01/09
21	Center Coin Slot Multiplier	4	04/45
22	Right Coin Slot Multiplier	4	01/18
23	Coin Units Required for Credit	4	01/05
24	Coin Units Bonus Point	4	00/45
25	Minimum Coin Units	4	00
26	Match: 00 = Match ON; 01 = Match OFF	-	00
27	Special: 00 = Awards Credit; 01 = Awards Bonus Ball; 02 = Awards Points	-	01
28	Replay Scores: 00 = Awards Credit; 01 = Awards Extra Ball or Bonus Ball	-	00
29	Maximum Plumb Bob Tilts	-	03
30	Number of Balls(03 or 05)	-	03
31	*Multi-Ball* Timer (15-99 seconds)	-	35
32	Special Difficulty 00 = Conservative, 01 = Moderate	5	01
33	*Double-Trouble* Timing 00 = Conservative, 09 = Liberal	-	05
34	*Double-Trouble* Reset Timing 00 = Liberal, 99 = Conservative	-	00
35	Multi-Ball Difficulty, 00 = Moderate, 01 = Conservative	6	00
36	Drain Shield 00 = enabled, 01 = disabled	-	00
37	Attract Mode Speech/Magnet Memory 00 = Speech, memory; 01 = Speech, no memory 10 = No speech, memory; 11 = No speech, no memory	-	00
38	Bell/Buzzer 00 = Bell, Buzzer; 01 = Bell, no buzzer 10 = Bell for credits only, Buzzer; 11 Bell for credits only, no buzzer	-	00
39	Background Sound 00 = ON; 01 = OFF		
40	High Score Credits	1	03
41	Maximum Extra Balls at one time (00 No Extra Ball)	-	01

* Second Factory Setting value is with jumper W25 connected.

[ ] Description in brackets shown in Player 2 Display.

1. Function 13 may be set to any multiple of 100,000 points. Setting Function 40 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.

2. Functions 14-17 (Replay Scores) may be set to any multiple of 100,000 points. Setting a function to zero disables the replay score point.

3. Setting Maximum Credits (Function 18) to zero places the game in a **free play mode**.

4. With Function 19 set to 00, Functions 20-25 must be set manually. Refer to Table 2 for eight standard pricing schemes (selected by values of 01-08 for Function 19) and custom pricing values.

5. 3-Banks do not spot letter in L-O-R-D during *Multi-Ball* with conservative setting.

6. Last letter in L-O-R-D cannot be spotted by 3-Bank with conservative setting.

RECOMMENDED SCORE LEVELS
CREDIT GAMES
3-Ball: *700,000; 1,500,000
5-Ball: 1,000,000; 2,000,000

EXTRA BALL
3-Ball: 500,000
5-Ball: 700,000

*Factory Setting

Table 3. Standard and Custom Price Settings

COIN DOOR MECHANISM	CREDITS	FUNCTION						
		19	20	21	22	23	24	25
Twin-Quarter Quarter, Dollar, Quarter	1/25¢, 3/50¢, 7/$1	00	03	12	03	02	12	00
	1/25¢, 3/50¢, 7/$1 coin only	00	03	14	03	02	00	00
	1/25¢, 7/$1 coin only	00	01	07	01	01	00	00
	1/25¢, 3/50¢, 6/$1	00	01	04	01	01	02	00
	1/25¢, 6/$1 coin only	00	01	06	01	01	00	00
	1/25¢, 5/$1	00	01	04	01	01	04	00
	2/50¢, 5/$1	00	01	04	01	01	04	02
	1/25¢, 5/$1 coin only	00	01	05	01	01	00	00
	•1/25¢, 4/$1	01	01	04	01	01	00	00
	2/50¢, 4/$1	00	01	04	01	01	00	02
	•1/50¢, 2/75¢, 3/4 x 25¢ 4/$1 or 5 x 24¢	05	03	15	03	04	15	00
	1/50¢, 3/$1, 4/$1.25	00	03	12	03	04	15	00
	1/50¢, 3/$1, 7/$2	00	12	48	12	14	96	18
	•1/50¢, 3/$1, 6/$2	03	01	04	01	02	04	00
	1/50¢	00	01	04	01	02	00	00
1DM, 5DM, 2DM	•1/1DM, 3/2DM, 10/5DM	02	09	45	18	05	45	00
	2/1DM, 5/2DM, 14/5DM	00	13	65	26	05	65	00
20-Cent, 50-Cent	1/20¢, 3/50¢	00	06	00	15	05	00	00
1 Franc, 10 Franc, 5 Franc	•1/2F, 3/5F only, 8/10F only	04	01	16	06	02	00	00
25 Cent, 1 Guilder,	•1/25¢, 4/1G	06	01	00	04	01	00	00
	1/25¢, 5/1G	00	01	00	04	01	04	00
Twin 100 Yen	2/100Y	00	02	00	02	01	00	00
1 Franc or Twin-1 Franc	1/1F, 3/2F	00	01	01	01	01	02	00
	1/1F	00	01	01	01	01	00	00
5 Franc, 10 Franc	•1/5F, 2/10F	07	01	00	02	01	00	00
	•1/10F	08	01	00	02	02	00	00
Twin-2 Franc	•1/2F	03	01	04	01	01	00	00
10, 20 Franc	•1/10F, 2/20F	07	01	00	02	01	00	00
Twin-1 Sucre	1/3S, 2/5S	00	02	00	02	05	00	00

•Indicates standard price settings by adjusting **only** Function 19. For other price settings, set Function 19 to 00 and set Functions 20 through 25 to the values indicated in the chart.

DIAGNOSTIC PROCEDURES

Display Digits Test
1. Set AUTO-UP/ to MANUAL-DOWN switch and depress ADVANCE. Displays should indicate all 0's.
2. Set the switch to AUTO-UP. Displays should sequence from all 0's thru all 9's. Comma segments should come on when odd digits are displayed.
3. To stop cycling, set switch to MANUAL-DOWN. Operate ADVANCE pushbutton to step tests one number at a time. Set switch to AUTO-UP to resume cycling.

Sound Test
1. From Display Digits Test depress ADVANCE with the switch set to AUTO-UP. Test 00 should be indicated in the number of Credits display and the Match display sequences from 00 thru 06. Different sounds should be produced for 00, 01, 02, 03, and 04.
2. To continuously pulse a single sound, set the toggle switch to MANUAL-DOWN. Operate ADVANCE pushbutton to sequence through sounds one at a time. Set toggle switch to AUTO-UP to resume sequencing.

Lamp Test
From Sound Test depress ADVANCE with the switch set to AUTO-UP Test 01 should be indicated in the Credits display and all multiplexed lamps should flash.

	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
ROW									
1	RED-BRN 2J7-1	Same Player Shoots Again(Backbox)	Right Magnet Lamp #2	#1 Target	Right 3-Bank	5-Bank #1 Arrow (Left)	Left Magnet #3	"1" Bonus	"9" Bonus
2	RED-BLK 2J7-2	Ball in Play	Right Magnet Lamp #3	#2 Target	2X Scoring	5-Bank #2 Arrow	Left Magnet #4	"2" Bonus	"10" Bonus
3	RED-ORN 2J7-3	Tilt	Right Magnet Lamp #4	#3 Target	Keep Shooting (Playfield)	5-Bank #3 Arrow	Left Magnet #5 (Top)	"3" Bonus	"20" Bonus
4	RED-YEL 2J7-4	Game Over	Right Magnet Lamp #5 (top)	#4 Rollover	Mini-field Special	5-Bank #4 Arrow	Extra Kick When Lit	"4" Bonus	"30" Bonus
5	RED-GRN 2J7-5	Match	"L"	#5 Rollover	Left 3 Bank	5-Bank #5 Arrow (Right)	Lock Lamps (X2)	"5" Bonus	2X
6	RED-BLU 2J7-6	High Score to Date	"O"	Left Drain Shield	Loop Spots Letter	Mini-Field Illumination	*Double-Trouble* Lamp	"6" Bonus	3X
7	RED-VIO 2J7-9	*Multi-Ball* Timer	"R"	Right Drain Shield	Loop Spots X Value	Left Magnet #1 (Bottom)	Mini-field illumination	"7" Bonus	5X
8	RED-GRY 2J7-8	Right Magnet Lamp #1 (Bottom)	"D"	Mini-field Illumination (X2)	Mini-field Illumnination	Left Magnet #2	Mini-field Illumination	"8" Bonus	10X

Figure 1. Lamp Matrix

Solenoid Test

1. From Lamp Test depress ADVANCE with the switch set to AUTO-UP. Test 02 should be indicated in the Credits display. Display sequences from 01 thru 25. Corresponding solenoids 01 thru 24 are pulsed. Flipper relay is de-energized with subtest 25.

2. To continuously pulse a single solenoid set switch to MANUAL-DOWN. Operate ADVANCE pushbutton sequence through the solenoids one at a time. Set toggle switch to AUTO-UP to resume sequencing.

Sol.
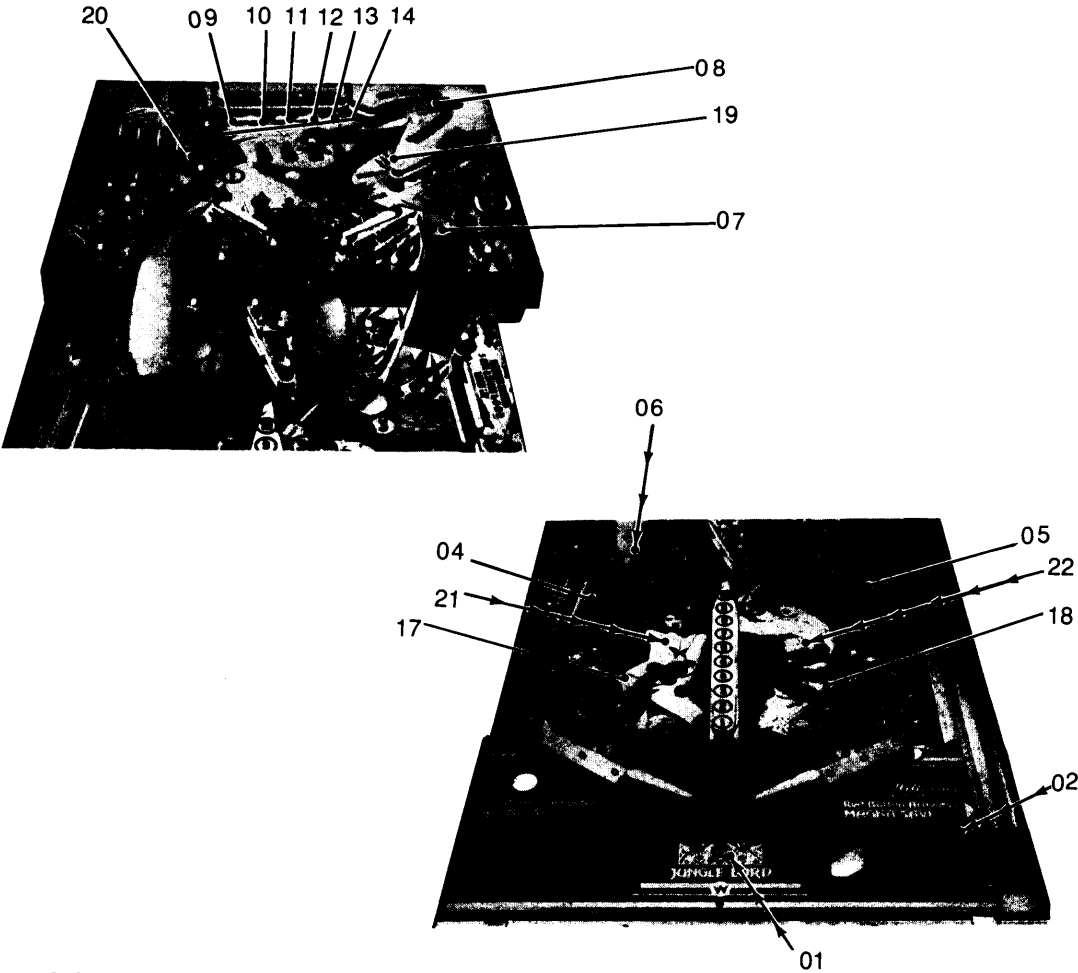
| No.	Function		No.	Function
01	Ball Release		12	5-Bank #4 Drop Target Reset
02	Ball Ramp Thrower		13	5-Bank #5 (Right) Drop Target Reset
03	Special Relay		14	5-Bank Drop Targets Release
04	Left Drop Target 3-Bank Reset		15	Bell
05	Right Drop Target 3-Bank Reset		16	Coin Lockout
06	Buzzer		17	Left Kicker
07	Lower Eject Hole		18	Right Kicker
08	Upper Eject Hole		19	Upper Kicker
09	5-Bank #1 (Left) Drop Target Reset		20	Mini-Ball Kicker
10	5-Bank #2 Drop Target Reset		21	Left Magnet Relay
11	5-Bank #3 Drop Target Reset		22	Right Magnet Relay

Figure 2. Playfield Solenoid Locations and Solenoid Chart

Table 4. Solenoid Connections

| SOL. NO.	FUNCTION	WIRE COLOR	CONNECTIONS	DRIVER TRANS.	SOLENOID PART NO.
01	Ball Release	GRY-BRN	2P11-4, 8P3-1, 8P6-17	Q15	SA-23-850-DC
02	Ball Ramp Thrower	GRY-RED	2P11-5, 8P3-2, 8P6-18	Q17	SG-23-850-DC
03	Special Relay	GRY-ORN	2P11-7, 3P7-1	Q19	5580-09555-00
04	Left Drop Target 3-Bank Reset	GRY-YEL	2P11-8, 8P3-4, 8P6-20	Q21	SA3-23-850-DC
05	Right Drop Target 3-Bank Reset	GRY-GRN	2P11-9, 8P3-5, 8P6-21	Q23	SA3-23-850-DC
06	Buzzer	GRY-BLU	2P11-3, 8P3-6, 8P6-22	Q25	A-8597
07	Lower Eject Hole	GRY-VIO	2P11-2, 8P3-7	Q27	SG-23-850-DC
08	Upper Eject Hole	GRY-BLK	2P11-1, 8P3-8	Q29	SG-23-850-DC
09	5-Bank #1 (Left) Drop Target Reset	BRN-BLK	2P9-9, 8P3-9	Q31	SA5-24-750-DC
10	5-Bank #2 Drop Target Reset	BRN-RED	2P9-7, 8P3-10	Q33	SA5-24-750-DC
11	5-Bank #3 Drop Target Reset	BRN-ORN	2P9-1, 8P3-11	Q35	SA5-24-750-DC
12	5-Bank #4 Drop Target Reset	BRN-YEL	2P9-2, 8P3-12	Q37	SA5-24-750-DC
13	5-Bank #5 (Right) Drop Target Reset	BRN-GRN	2P9-3, 8P3-13	Q39	SA5-24-750-DC
14	5-Bank Drop Targets Release	BRN-BLU	2P9-4, 8P3-14	Q41	SA6-24-750-DC
15	Bell	BRN-VIO	2P9-5, 7P1-17	Q43	SM-29-1000-DC
16	Coin Lockout	BRN-GRY	2P9-6, 7P1-18, 7P2-4	Q45	SM-35-4000-DC
*17	Left Kicker	BLU-BRN	2P12-7, 8P3-17, 8P6-11	Q2	SG-23-850-DC
*18	Right Kicker	BLU-RED	2P12-4, 8P3-18, 8P6-12	Q4	SG-23-850-DC
*19	Upper Kicker	BLU-ORN	2P12-3, 8P3-19	Q6	SG-23-850-DC
20	Mini-Ball Kicker	BLU-YEL	2P12-6, 8P3-20	Q8	SG-23-850-DC
*21	Left Magnet Relay	BLU-GRN	2P12-8, 8P3-21, 8P6-15	Q10	A-8592
22	Right Magnet Relay	BLU-BLK	2P12-9, 8P3-22, 8P6-16	Q12	A-8592
*	Lower Right Flipper	BLU-VIO	7P1-8, 8P3-34, 8P6-3	—	SFL-19-400/ 30-750-DC
*	Upper Right Flipper	BLK-YEL	7P1-31, 8P3-33	—	SFL-19-400/ 30-750-DC
*	Lower Left Flipper	BLU-GRY	7P1-10, 8P3-32, 8P6-4	—	SFL-19-400/ 30 -7 50-DC
*	Upper Left Flipper	BLK-BLU	7P1-30, 8P3-31	—	SFL-19-400/ 30-750-DC

*NOTES:

1. Contacts of solenoids 21 and 22 switch ground to magnets (Part No. 20-8991).

2. Special switch connections for solenoids 17 through 19 are as follows:

   17 — ORN-BRN — 2P13-5, 8P3-24, 8P6-5
   18 — ORN-RED — 2P13-3, 8P3-25, 8P6-6
   19 — ORN-BLK — 2P13-2, 8P3-26

3. Flipper button connections are as follows:

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

4. Typical wiring for solenoids and special switches:
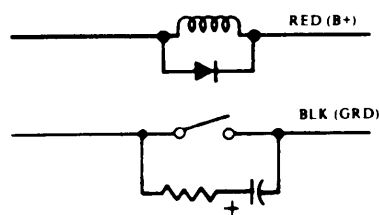
Switch Test

1. From Solenoid Test depress ADVANCE with the switch set to AUTO-UP. Test 03 should be indicated in the Credits display and any stuck switches in the Master display. As stuck switch(es) is displayed a sound is produced. The display continuously cycles through the stuck switches and as they are opened, the number is removed from the sequence. When all switches are open, the Match display is blank and the sounds stop.

2. If all switches in a row are displayed, first verify that all are open and then check for a short to ground on the row wire.

3. Operate switches; a sound is produced and switch number is momentarily indicated in the ball in play display. If two switches in a row are indicated with one switch closed, check for a short between the column wires; for multiple indication check column wire for short to ground. If two switches in a column are indicated with one switch closed, check for short between row wires.

4. If proper indications are obtained in Test 03 but matrix problem is suspected in game play, disconnect lamp connectors 2P5 and 2P7. Recheck in game play. Perform CPU Self-Test if problem remains. If problem is cleared, check for short between lamp matrix and jet bumper mounting brackets.

5. Shorted diodes can cause "rectangle" switch matrix problems as follows: Right 3-bank bottom target down (switch 25), left 3-bank center target down (switch 30), and as a ball makes the left standup (switch 46) a shorted diode at switch 30 would cause switch 41, Playfield Tilt, to be indicated.
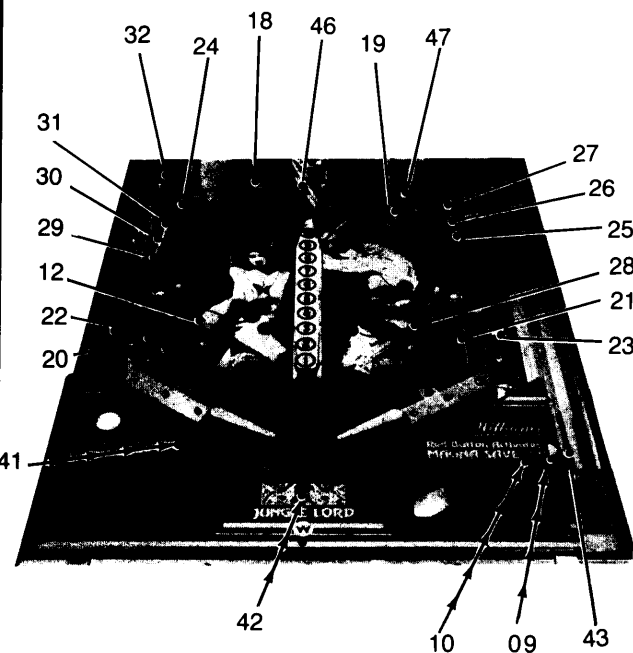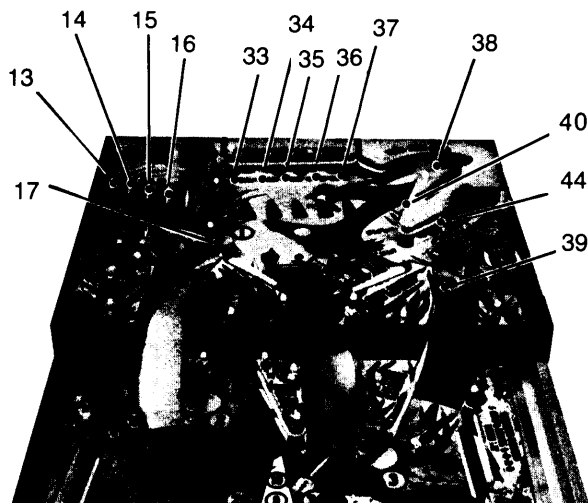
**Switch
No.   Function (Score‡)**

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 Tilt
08	High Score Reset
09	Right Ball Ramp
10	Left Ball Ramp
11	Not Used
12	Left Kicker (10)
13	"L" Rollover (5000)
14	"O" Rollover (5000)
15	"R" Rollover (5000)
16	"D" Rollover (5000)
17	1 Target (1000)
18	2 Target (1000)
19	3 Target (1000)
20	4 Rollover (1000)
21	5 Rollover (1000)
22	Left Drain Lane (5000)
23	Right Drain Lane (5000)
24	Turnaround Lower Rollover (1000/16,000*)
25	Right 3-Bank, Lower Drop Target (1000)
26	Right 3-Bank, Center Drop Target (1000)
27	Right 3-Bank, Upper Drop Target (1000)
28	Right Kicker (10)
29	Left 3-Bank, Lower Drop Target (1000)
30	Left 3-Bank, Center Drop Target (1000)
31	Left 3-Bank, Upper Drop Target (1000)
32	Turnaround, Upper Rollover (1000*)
33	5-Bank, #1 Drop Target (Left) (10,000**)
34	5-Bank, #2 Drop Target (10,000**)
35	5-Bank, #3 Drop Target (10,010**)
36	5-Bank, #4 Drop Target (10,000**)
37	5-Bank, #5 Drop Target (Right) (10,000**)
38	Upper Eject Hole (1000)
39	Lower Eject Hole (1000)
40	Upper Kicker (10)
41	Playfield Tilt
42	Outhole
43	Ballshooter Trough
44	Playfield Entry
45	Upper Left Standup (10)
46	Left Standup (10)
47	Right Standup (10)
48	Not Used
49	Right Magnet Button
50	Left Magnet Button

‡ All scores are doubled for 2X Scoring.

* Switch 24 scores 1000 when made before switch 32, 1000 when made after switch 32 with Advance Bonus X or Lite Drain Shield lit, and 16,000 when made after switch 32 with neither lamp on.

** 5-Bank 10,000 score is doubled up to 160,000 for *Double-Trouble* feature.

Figure 3. Playfield Switch Locations and Switch Chart

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COLUMN / ROW	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	Right Ball Ramp 9	1 Target 17	Right 3-Bank, Lower Drop Target 25	5-Bank, #1 Drop Target (Left) 33	Playfield Tilt 41	Right Magnet Button 49	Not Used 57
2 WHT-RED 2J3-8	Ball Roll Tilt 2	Left Ball Ramp 10	2 Target 18	Right 3-Bank, Center Drop Target 26	5-Bank, #2 Drop Target 34	Outhole 42	Left Magnet Button 50	Not Used 58
3 WHT-ORN 2J3-7	Credit Button 3	Not used 11	3 Target 19	Right 3-Bank, Upper Drop Target 27	5-Bank, #3 Drop Target 35	Ballshooter Trough 43	Not Used 51	Not Used 59
4 WHT-YEL 2J3-6	Right Coin Switch 4	Left Kicker 12	4 Rollover 20	Right Kicker 28	5-Bank, #4 Drop Target 36	Playfield Entry 44	Not Used 52	Not Used 60
5 WHT-GRN 2J3-5	Center Coin Switch 5	"L" Rollover 13	5 Rollover 21	Left 3-Bank, Lower Drop Target 29	5-Bank, #5 Drop Target (Right) 37	Upper Left Standup 45	Not Used 53	Not Used 61
6 WHT-BLU 2J3-4	Left Coin Switch 6	"O" Rollover 14	Left Drain Lane 22	Left 3-Bank Center Drop Target 30	Upper Eject Hole 38	Left Standup 46	Not Used 54	Not Used 62
7 WHT-VIO 2J3-3	Slam Tilt 7	"R" Rollover 15	Right Drain Lane 23	Left 3-Bank, Upper Drop Target 31	Lower Eject Hole 39	Right Standup 47	Not Used 55	Not Used 63
8 WHT-GRY 2J3-1	High Score Reset 8	"D" Rollover 16	Turnaround, Lower Rollover 24	Turnaround, Upper Rollover 32	Upper Kicker 40	Not Used 48	Not Used 56	Not Used 64

Figure 5. Switch Matrix

INITIATING AUTO-CYCLE MODE

1. Set AUTO-UP/MANUAL-DOWN switch to AUTO-UP and depress ADVANCE pushbutton. Test 04 is indicated in Credit display and Function 00 in Match Display.
2. Set switch to MANUAL-DOWN and depress ADVANCE to indicate Function 50 in the Match Display.
3. Set switch to AUTO-UP and operate Credit button to indicate 15 in Player 1 Display.
4. Depress ADVANCE pushbutton to start Auto-Cycle mode. Each cycle of this mode sequences thru the Display Digits Test, Sound Test (00), Lamp Test (01), and Solenoid test (02).
5. To terminate the test and return to game over, turn the game OFF and back ON.

CPU BOARD SELF-TEST

Depress the DIAGNOSTIC pushbutton on the left side of the CPU Board. The following indications are provided for a few seconds and then the game attempts to go to game over:

0 - Test Passed
1 - IC13 RAM Faulty
2 - IC16 RAM Faulty
3 - IC17 ROM 2 Faulty
4 - IC17 ROM 2 Faulty
5 - IC20 ROM 1 Faulty
6 - IC14 Game ROM 1 Faulty
7 - IC26 Game ROM 0 Faulty
8 - IC19 CMOS RAM or Memory Protect Circuit Faulty
9 - Coin-door closed, Memory Protect Circuit Faulty, or IC19 CMOS RAM Faulty.

Note that "0" remaining after power turn-on indicates CPU Board lockup.

SOUND BOARD SELF-TEST

Depress DIAGNOSTIC pushbutton on the top of the Sound Board. Several electronic sounds should be produced and then the JUNGLE LORD vocabulary is produced. This sequence is repeated until the game is turned OFF and back ON.

Vocabulary Located
in ROM

Vocabulary	Located in ROM
JUNGLE	5T 5031 (IC7)
LORD	5T 5031
FIGHT	5T 5031
TIGER	5T 5031
STAMPEDE	5T 5031 and 5T 5032 (IC5)
DOUBLE	5T 5032
TROUB(LE)	5T 5032
YOU	5T 5032
WIN	5T 5032
AGAIN	5T 5032 and 5T 5033 (IC6)
CAN	5T 5033
BEAT	5T 5033
"Trumpet" Sound	5T 5033

The following partial or composite words produced in game play are not produced in diagnostics.

IN
ME
AND
BE

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