

# **SCRAMBLE**

## **9-005-2**

INSTRUCTIONS    MANUAL  
and  
SCHEMATIC

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# SELF TEST

N. TEST	FUNCTION	N. FUNCTION IN TEST	DESCRIPTION
01	Test Display		1 All the displays show equal figures that follow each other 0, 1, 2, ..., 9, 0, and so on. 2 By keeping the "CREDIT" push-button pressed, the displays show numbers in succession.
02	Contact test		Number of closed contact
03	Lamp test		All the piloted lamps are continuously lit and extinguished
04	Solenoid test		The solenoids (from 1 through) are energized one after another. The figure indicates the energized solenoid. When it is operative it must be perceived.
05	Sound and talking test		Sounds and words are repeated one after another. The figure indicates the sound and the phrase being executed.

# ACCOUNTING

N. TEST	FUNCTION	DESCRIPTION	HOW TO CLEAR
06	Duration	Player 1 Display = Time of printable operation ( minutes ) Player 2 Display = Game time ( minutes ) Player 3 Display = Tilt number Player 4 Display = Average game duration expressed in minutes	With SW 4 on ON ( PROGRAM ) push-button about 5 sec.
07	Takings	Player 1 Display = Coins in coin chute 1 Player 2 Display = Coins in coin chute 2 Player 3 Display = Coins in coin chute 3 Player 4 Display = SERVICE games	With SW 4 act on CREDIT push-button abt. 5 sec.
08	Wins	Player 1 Display = Games played in total Player 2 Display = Won games Player 3 Display = Won balls Player 4 Display = Won superbonus	With SW 4 ON act on CREDIT push-button abt. 5 sec.
09	Wins	Player 1 Display = H.S. is exceeded Player 2 Display = Winning scores are exceeded Player 3 Display = Special 1 Player 4 Display = Special 2	With SW 4 in ON act for about 5 seconds on CREDIT button.
10	Service	Player 1 Display = Total number of Tilt 2 Player 2 Display = Credit number cancelled by Tilt 2	With SW 4 in ON act for about 5 seconds on CREDIT button.



# PROGRAMMING

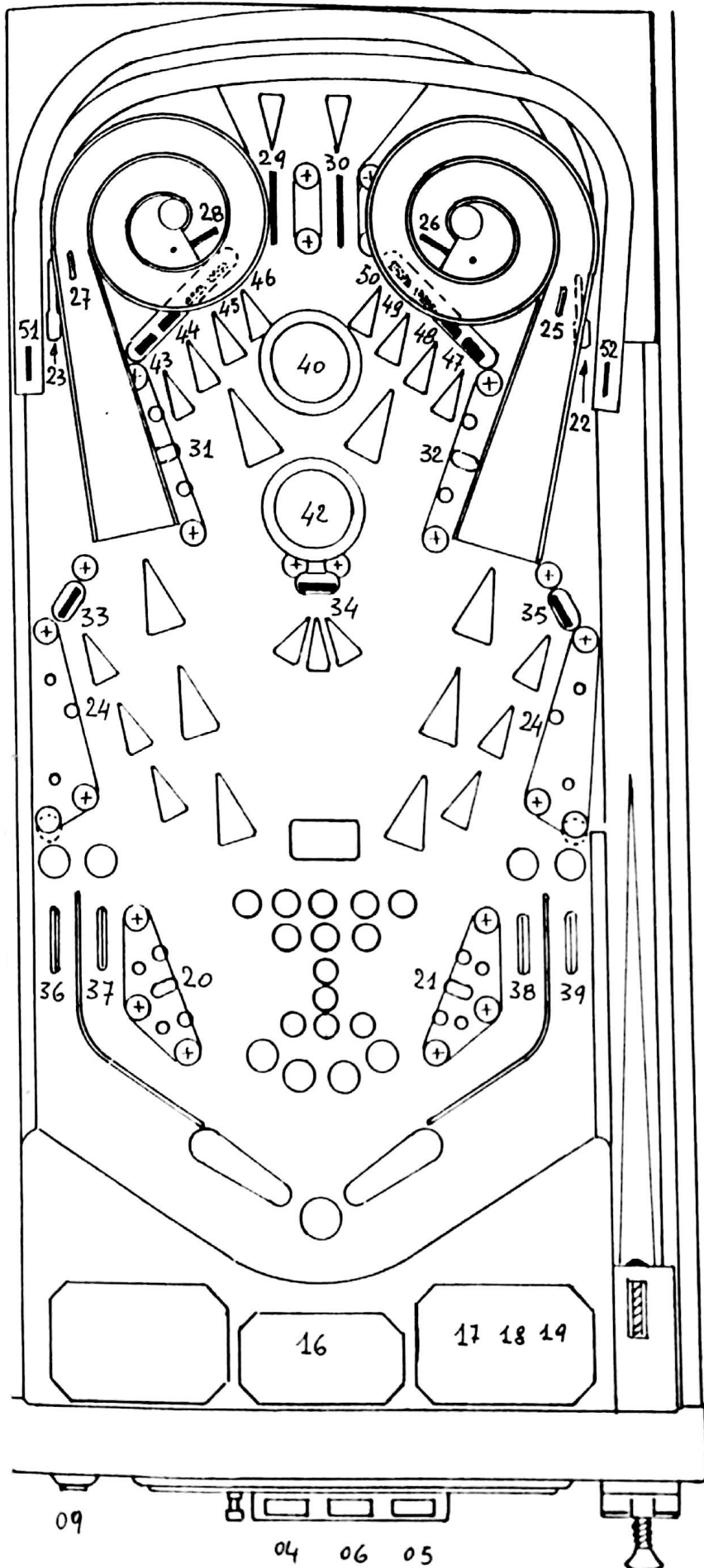
N. TEST	FUNCTION	PROGRAMM. VALUE	DESCRIPTION	DATA FOR THE PROGRAMMER
11	1 <del>2</del> <sup>VRJEDNOST</sup> Coin value 1st coin chute.	from 01 to 10	Value of the coins for the 1st coin chute ( at the left side close to the hinge ) .	Whit SW 4 on ON act on CREDIT push - button .
12	Coin credits	from 00 to 15	Credits per each single coin introduced into the first coin chute .	
13	<del>VRJEDNOST 2</del> <sup>VRJEDNOST 2</sup> Coin value 2nd coin chute.	from 01 to 10	Value of the coins for the 2nd coin chute ( at the right side , close to the key ) .	
14	Coin credits 2nd coin chute.	from 00 to 15	Credits per each single coin introduced into the second coin chute .	
15	Coin value 3rd coin chute.	from 01 to 10	Value of the coin for the 3rd coin chute ( in the center ) .	
16	Coins credit 3rd coin chute.	from 00 to 15	Credits per each single coin introduced into the third coin chute .	
17	<sup>VRJEDNOST</sup> High - Score initial value <del>VRJEDNOST</del>	from 00.0 to 99.9	When test 18 is programmed with 00, initial NORMAL H.S. is programmed . If test 18 is programmed 01, the min, RANDOM H.S. is programmed .	NORMAL H.S. can be preset also in GAME-OVER (SW 4 in OFF), RANDOM H.S. can be preset only in PROGRAM SW 4 in ON). Push CREDIT keep pushed for fast progress .
18	<sup>VRJEDNOST</sup> High - Score types <del>VRJEDNOST</del> TIPOVE BODOVA	00 01	NORMAL H.S or max. scores achieved by one player . RANDOM H.S. or casual scores that may change at the beginning of each game.	With SW 4 on ON act on CREDIT push - button .
19	Max credits <del>MAX. KREDIT</del>	from 10 to 30	Max number of credits beyond which coin chutes are locked , and no won games are attributed anymore .	Act on CREDIT push -button with SW 4 on ON .
20	Balls <del>LOPTE</del>	from 01 to 07	Balls per play .	Act on CREDIT push -button with SW 4 on ON .
21	Match IGRA	00 01	Match exluded ( no wins ) Match connected ( 1 Replay )	Act on CREDIT push -button with SW 4 on ON .
22	1st winning scores <del>1</del> <sup>1</sup> <del>VRJEDNOST</del> <sup>VRJEDNOST</sup>	from 00.0 to 99.9	1st winning score , which awards the win programmed on test n.26 when exceeded . 00.0 = no win	With SW 4 on ON act stepwise on CREDIT push - button for slow progress. For fast progress keep it pressed .
23	2nd winning scores <del>2</del> <sup>2</sup> <del>VRJEDNOST</del> <sup>VRJEDNOST</sup>	from 00.0 to 99.9	2nd winning score , which awards the win programmed on test n.26 when exceeded . 00.0 = no win	
24	3rd winning scores <del>3</del> <sup>3</sup> <del>VRJEDNOST</del> <sup>VRJEDNOST</sup>	from 00.0 to 99.9	3rd winning score , which awards the win programmed on test n.26 when exceeded . 00.0 = no win	
25	Wins with HIGH SCORE	00 01 02 03 04	No win 1 Replay 2 Replay 3 Replay 1 Superbonus	With SW 4 on ON act on CREDIT push - button .

# Segue: PROGRAMMING

N. TEST	FUNCTION	PROGRAMM. VALUB	DESCRIPTION	DATA FOR THE PROGRAMMER
26	Wins with scores ( see test 22.23.24)	00 01 02 03 04	No win 1 Extra Ball 1 Replay 1 Superbonus 2.000.000 Points	With SW 4 on ON act on CREDIT push - button
27	Wins with Special 1	00 01 02 03 04	No win 1 Extra Ball 1 Replay 1 Superbonus 2.000.000 Points	With SW 4 on ON act on CREDIT push - button .
28	Wins with Special 2	00 01 02 03 04	No win 1 Extra Ball 1 Replay 1 Superbonus 1.000.000 Points	With SW 4 on ON act on CREDIT push - button .
29	Background sound	00 01	Sound disconnected, attractions connected . Sound connected , attractions connected .	With SW 4 on ON act on CREDIT push - button .
30	Coin meter	00 01	Normal operation both with excluded and with connected impulse meter . When impulse meter is disconnected the pin table cannot be used .	With SW 4 on ON act on CREDIT push - button .
31	Not used			
32	Extra number variation	00 01 02 03	1 Extra ball 3 Extra balls 3 Extra balls 3 Extra balls	Press CREDIT button when SW 4 is ON .
33	Lamps LEFT HILL and RIGHT HILL	00 01 02 03	All lamp. off All lamp. 30.000 pts. ON All lamp. 50.000 pts. ON All lamp. LAST LAP ON	Press CREDIT button when SW 4 is ON .
34	Special 2 ORANGE	00 01 02 - 03	Difficult Easy Easy	Press CREDIT button when SW 4 is ON .
35	SPECIAL 1 RED	00 01 02 03	Ligh for 10 sec. Ligh " 15 sec. Ligh " 18 sec. Ligh " 18 sec.	Press CREDIT button when SW 4 is ON .
36	Not used			
37	Not used			

IMPORTANT : With SW 4 in ON ( PROGRAM ) position , the pintable cannot enter a game , even though there may be credits available , and the machine is in GAME OVER condition. A buzzer and the blinking of the TILT lamp indicate anomalous condition .

# CONTACTS ARRANGEMENT



## CONTACT NUMBER

## DESCRIPTION

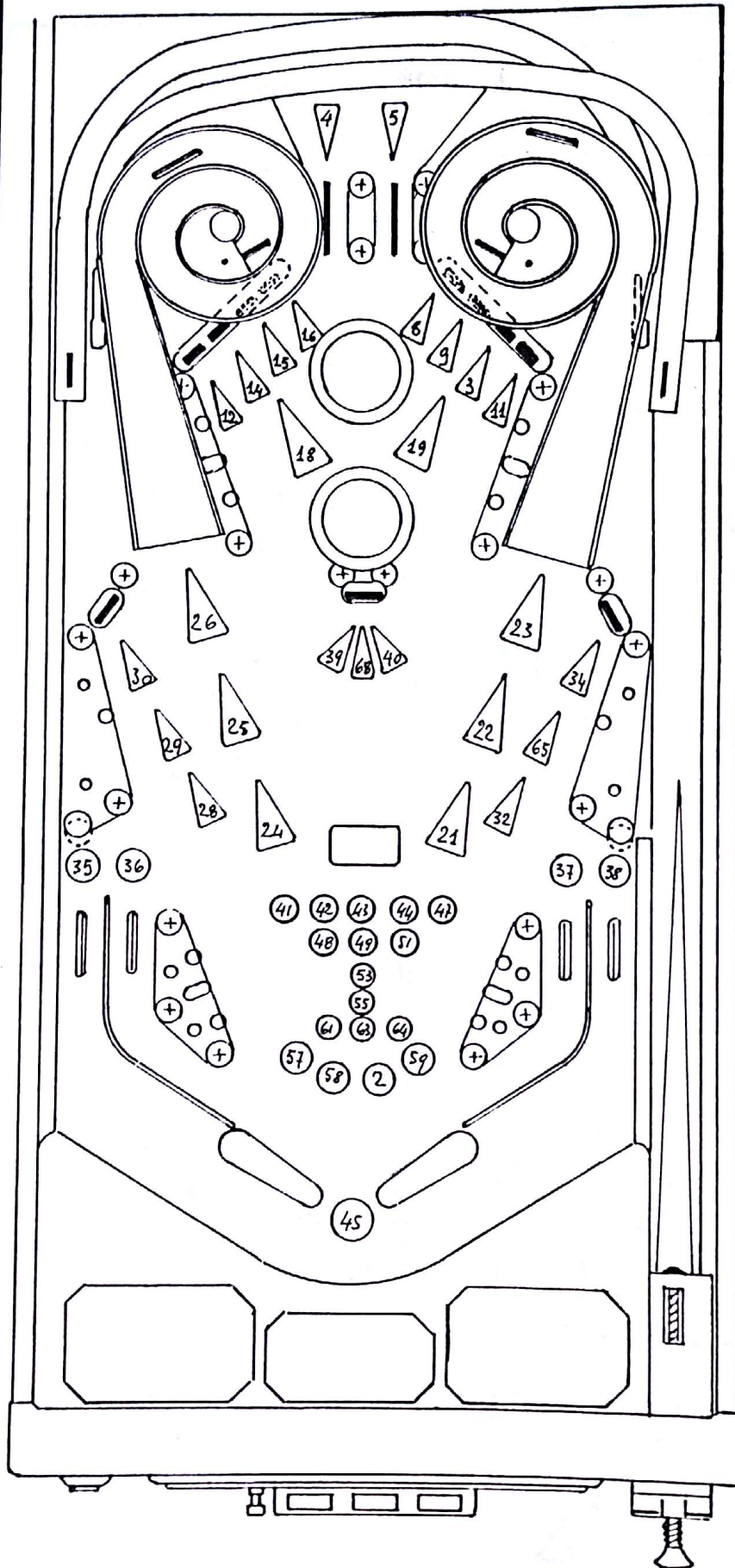
00	Advancement Test
01	Return Test
02	Tilt 2
03	Service
04	Coin Switch 1 ( Left )
05	Coin Switch 2 ( Right )
06	Coin Switch 3 ( Center )
07	----
08	----
09	Credit Button
10	Tilt 1
11	Factory Burn Test
12	----
13	----
14	----
15	----
16	Out Hole
17	Ball Number 3
18	Ball Number 2
19	Ball Number 1
20	Left Flap Down
21	Right Flap Down
22	Top Big Race Kicker
23	Top Little Race Kicker
24	Fixed Contacts
25	Right Hill
26	Right Hill Door
27	Left Hill
28	Left Hill Door
29	Left Top Rollover
30	Right Top Rollover
31	Left Flap Up
32	Right Flap Up
33	Left Special Target
34	Central Target
35	Right Special Target
36	Left Outer Exit Canal
37	Left Inner Canal
38	Right Inner Canal
39	Right Outer Exit Canal
40	Top Pop
41	----
42	Down Pop
43	Left "H" Target
44	Left "I" Target
45	Left "L" Target Down
46	Left "L" Target Up
47	Right "L" Target Down
48	Right "L" Target Up
49	Right "I" Target
50	Right "H" Target
51	Top Big Race Exit
52	Top Little Race Exit
53	----
54	----

09

04 06 05



# LAMP ARRANGEMENT



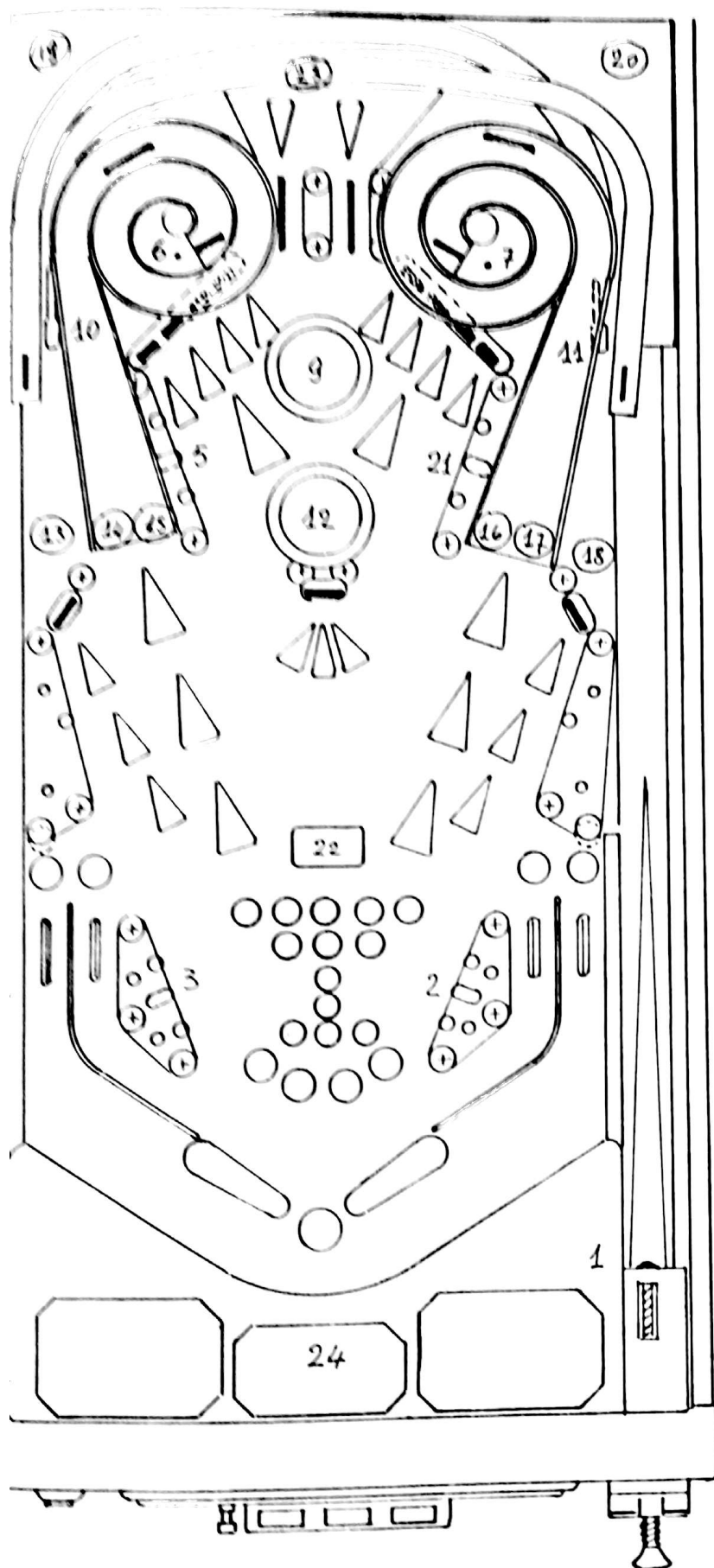
## LAMP

## DESCRIPTION

01	---
02	Bonus Multipl. x 20
03	Right "L" up
04	Top Left Rollover
05	Top Right Rollover
+06	Game Over
+07	Tilt
08	Right "H"
09	Right "I"
10	---
11	Right "L" Down
12	Left "H"
+13	Match
14	Left "I"
15	Left "L" Down
16	Left "L" Up
+17	Balls to Play
18	Left Orange Special
19	Right Orange Special
+20	Flipper Relay
21	30.000 PTS. Right Hill
22	50.000 PTS. Right Hill
23	"Last lap" Right Hill
24	30.000 PTS. Left Hill
25	50.000 PTS. Left Hill
26	"Last lap" Left Hill
+27	Credit
28	3.rd Position Left Special
29	2.nd Position Left Special
30	1.st Position Left Special
31	---
32	3.rd Position Right Special
33	---
34	1.st Position Right Special
35	Left "Pit Stop"
36	Left "Refuel"
37	Right "Refuel"
38	Right "Pit Stop"
39	100.000 PTS. Left Center Target
40	100.000 PTS. Right Center Target
41	Bonus 1
42	Bonus 2
43	Bonus 3
44	Bonus 4
+45	Extra Ball 1
46	---
47	Bonus 5
48	Bonus 8
49	Bonus 7
50	Lamps Relay
51	Bonus 6
52	---
53	Bonus 9
54	---
55	Bonus 10
56	---
57	Bonus MULTIPL. per 5
58	Bonus MULTIPL. per 10
59	Bonus MULTIPL. per 40
+60	Player 1
61	Bonus 20
+62	Player 2
63	Bonus 30
64	Bonus 40
65	2nd Position Right Special
+66	Player 3
+67	Player 4
68	ADV. Bonus MLP. Centr. Sp.
69	---
70	---
71	---
72	---
73	---
74	---
75	---
+76	Extra Ball 2
+77	High Score To Date
+78	Extra Ball 3
79	---
80	---

+ = Head Lamps  
++ = Head and Playfield Lamps

# SOLENOID ARRANGEMENT



SOL n	DESCRIPTION	DRIVE (darlington)
01	Reject Ball	5
02	Right Flap Down	14
03	Left Flap Down	9
04	Knocker	20
05	LEFT Flap Up	4
06	Left Door	13
07	Right Door	3
08	Coin Mechanism Coil	15
09	Up Pop	19
10	Top Little Race Kicker	7
11	Top Big Race Kicker	18
12	Down Pop	8
13	Left Race Lamps	6
14	Left Hill Lamps Ex.	17
15	Left Hill Lamps Int.	12
16	Right Hill Lamps Int.	2
17	Right Hill Lamps Ex.	1
18	Right Race Lamps	22
19	Top Big Race Lamps Left	21
20	Top Big Race Lamps Right	11
21	Right Flap Up	23
22	Super Score Lamps	10
23	Top Little Race Lamps	16
24	Out Hole	24



( VII ) TROUBLE SHOOTING

CONDITION	CAUSE	REMEDY	NOTES	OND
The game cannot be started	<ul style="list-style-type: none"> <li>- No voltage available</li> <li>- Plug is off</li> <li>- The 3-way connector (CN "line") of the feeder rack is not connected .</li> <li>- Mains fuse burned</li> <li>- The 9-way connector (CN "ja ") on the feeder rack disconnected .</li> <li>- Mains switch open</li> <li>- Connector (CN 1) on feeder and connectors (CN "J1" "J2" J3") on feeder rack disconnected.</li> <li>- Voltage change over not or insufficiently connected</li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>Plug in</li> <li>Connect</li> <li>Replace</li> <li>Replace</li> <li>Close</li> <li>Connect</li> <li>Correct</li> </ul>	<p>If they burn again, this means that there is a short circuit</p> <p>The voltage change over unit contains also the mains fuse.</p>	dis ngu
All stationary lamps are not lit	<ul style="list-style-type: none"> <li>- Fuse F2 on the feeder rack thrown out.</li> <li>- CN J1-J2-J3 connector not connected</li> <li>- Electric wire disconnected</li> </ul>	<ul style="list-style-type: none"> <li>Replace</li> <li>Plug in</li> <li>Connect</li> </ul>	Shall not be more than 20A if it is thrown out again there is a short-circuit.	or ares mor play ng .
All the piloted lamps are not operating	<ul style="list-style-type: none"> <li>- 5 VRM is not available</li> <li>- The connector between C.P.U. and the interface is disconnected</li> <li>- Interface (CN 16) feeding connector is not plugged in .</li> <li>- The connectors of the lamps on interface (CN 18-19-20-21-22) are not connected .</li> <li>- The connectors at the feeder board output are disconnected (CN 2-3-4)</li> <li>- At the C.P.U. input and at the interface 5,6 V d.c. are missing .</li> <li>- C.P.U. is always cleared</li> <li>- Others</li> </ul>	<p>Fuse F3 (15A) on Power board is</p> <p>Tighten the loose connectors</p> <p>Fuse F2 (5A) is burned and shall therefore be replaced. If it is thrown out again, there is a short circuit. Replace feeder board. Replace C.P.U. Replace interface.</p>	Test carefully with tester	fig toc  th not  or eno: WOI

**Segue : TROUBLE SHOOTING**

CONDITION	CAUSE	REMEDY	NOTES
<p>All displays are extinguished</p> <p>On all the displays wrong figures are appearing</p>	<ul style="list-style-type: none"> <li>- + 170 V d.c. is missing because fuse F1 (1A) is burned .</li> <li>Or high voltage regulator is damaged .</li> <li>Or high voltage regulator safety circuit is actuated .</li> <li>- At C.P.U. -input +5,6 V is missing</li> <li>- CN 14 or all connectors of displays are disconnected .</li> <li>- Display damaged</li> <li>- C.P.U. damaged</li> <li>- Cable damaged</li> <li>- C.P.U. damaged</li> </ul>	<p>Replace the fuse .</p> <p>Check with the tester whether the high- voltage feeder operates. When safety device is actuated , try to disconnect the displays . If the feeder operates at 170 V this means that on the displays there exists a short circuit .</p> <p>To restore + 170 V it is necessary to stop the pintable and then to start it again .</p> <p>Check and if necessary replace the F2 (5A) fuse on the feeder board.</p> <p>Plug in connectors .</p> <p>Replace the cable .</p> <p>Replace C.P.U.</p>	
One or more figures on one or more displays are wrong .	<ul style="list-style-type: none"> <li>- Display damaged</li> <li>- Cabel damaged</li> </ul>		
All figures are too bright	<ul style="list-style-type: none"> <li>- + 170 V feeder damaged</li> </ul>	Replace the feeder board	
All the solenoids do not work	<ul style="list-style-type: none"> <li>- 39 VRM input is missing</li> <li>- CN 17 connector is not plugged in</li> <li>- Interface damaged</li> <li>- C.P.U. damaged</li> </ul>	<p>Reset the fuse . If it is thrown out again there is a short circuit .</p> <p>Plug in the connector</p> <p>Replace the interface</p> <p>Replace the C.P.U.</p>	
One or more solenoids do not work	<ul style="list-style-type: none"> <li>- Coils burned</li> <li>-Darlington burned</li> <li>- Electric wires loose</li> <li>- The fuses under the playfield have been thrown out</li> </ul>	<p>Replace coil and the relevant darlington</p> <p>Replace the darlington and check the diode on the coil</p> <p>Connect the loose wires</p> <p>Reset the burned out fuses</p>	

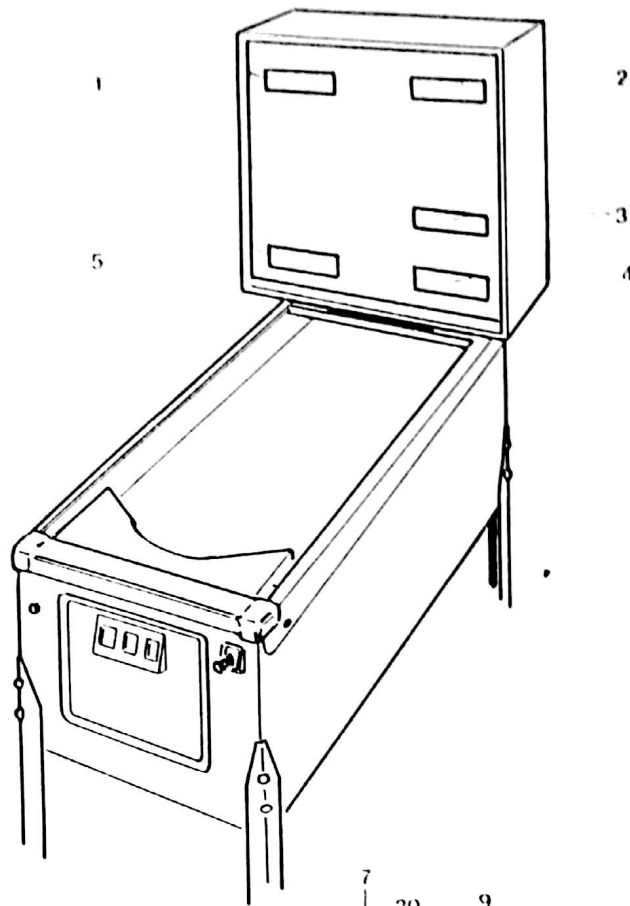
# Segue : TROUBLE SHOOTING

CONDITION	CAUSE	REMEDY	NOTES
One or more solenoids are always energized	<ul style="list-style-type: none"> <li>- Interface - board damaged</li> <li>- C.P.U. damaged</li> <li>- Short circuit</li> </ul>	Replace the Interface - board Replace the C.P.U. - board	
All the contacts remain inactive	<ul style="list-style-type: none"> <li>- CN 10 - 11 connectors are loose</li> <li>- C.P.U. is damaged</li> </ul>	Plug in Replace C.P.U. - board	
One or more contacts do not work	<ul style="list-style-type: none"> <li>- Loose wires</li> <li>- Interrupted or loose</li> <li>- Contact oxydized</li> </ul>	Connect all the loose wires Rezet the diode Clean the contact	
One or more contacts are wrongly read	<ul style="list-style-type: none"> <li>- The contact wires are short circuited and also with respect to the lamp and solenoid wires</li> <li>- Diode contacts are short circuited</li> <li>- C.P.U. is damaged</li> </ul>	Eliminate the short circuit Replace the short circuited diode Replace C.P.U.	
All sounds and words are missing	<ul style="list-style-type: none"> <li>- The loudspeaker is not connected or damaged</li> <li>- Loudspeaker potentiometer cut off</li> <li>- CN 6 connector ( Sound board ) disconnected</li> <li>- 5 V d.c. feeding voltage is missing</li> <li>- +12 V d.c. feeding voltage missing</li> <li>- +5 V d.c. feeding voltage missing</li> <li>- Sound and talk board damaged</li> </ul>	Connect , if necessary replace Replace another one having similar features Plug in the connector Replace fuse F4 (1A) on the feed board , if burned Replace fuse F2 (5A) on the feed board , if burned If +5 V d.c. are missing , but +12 V d.c. are available ,replace regulator 78H05 Replace the sound and talk board	

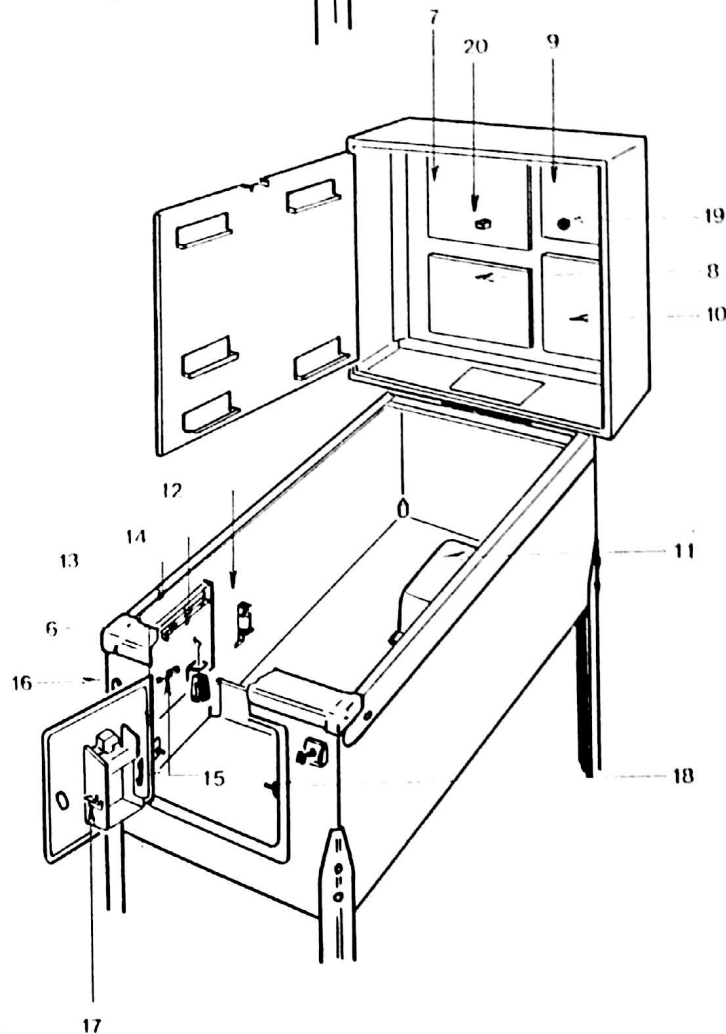
VERY IMPORTANT . NEVER CONNECT DISCONNECTED THE CONNECTORS WHILE THE GAME IS RUNNING



# ASSEMBLY DRAWING



- 1. 1st player display
- 2. 2nd player display
- 3. Credit display  
Display ball to play  
Match  
Game time bonus  
Highest score display
- 4. 4th player display
- 5. 3rd player display
- 6. Service button



- 7. C.P. U. board
- 8. Interface board
- 9. Sound board
- 10. Power board
- 11. Transformer
- 12. Knocker
- 13. Roll ball tilt
- 14. Bob tilt
- 15. Antichoc tilt
- 16. Credit button
- 17. Advance & return test
- 18. General vol.
- 19. Maximum sound vol.
- 20. Dip switch

