ZACCARIA®

MANUALE D'ISTRUZIONI

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INSTALLATION

ASSEMBLING

Assembling should be done as follows:

1. Bolt legs to the cabinet (use special bolts in coin box).
2. Gently extract electric cable and place in the proper cavity, checking that non-skid knot is there.
3. Remove the elastic strip that secures the light board and lift it to a vertical position. During this operation make sure that the cable is not crushed between the parts. The light board has an automatic coupling that keeps it in a vertical position, to ease the fitting of the 4 bolts with the relevant washers, that can be found in the coin box too.

VISUAL INSPECTIONS

On all games there are certain points that should be always checked after transport.
Same are visual inspections which may be helpful to avoid some time consuming service work later.
Minor damages caused by rough handling during the transport are practically unavoidable.
Cable connectors may be loosened, switches (especially tilt switches) may loose their proper adjustment.
Especially the plumb bob tilt switch should always be adjusted after game is set on location.

1. Check whether cabinet cable is connected to the light board cable.
2. Check for any wires that may have become disconnected.
3. Make sure that the cables do not obstacle the moving parts.
4. Check that all fuses are making good contact.
5. Check whether the transformer is connected for the proper main voltage.
6. Check and adjust the sensitivity of tilt contacts as follows.
   A. Plumb bob tilt switch.
   Adjust the plumb bob tilt length according to the required sensitivity.
   B. Rail tilt and ball.
   Put the ball into the rail and check whether it moves properly and closes the contact when the cabinet is raised.
   C. Shockproof tilt
   There are two:
   The first one near plumb bob tilt, the second one near coin chutes. Adjust contact distance to desired sensitivity.

GENERAL GAME OPERATION

1. Put one the ball into the bottom hole
   Connect voltage and start the game
2. The «GAME OVER» lamp is lit
3. Check whether the machine accepts properly the coins and increments the relevant credits. Please keep in mind that the machine shall not accept any coins when turned off or if the number of credits has reached the max. programmed amount.
4. If after having started the game the GAME OVER lamp is lit, it is necessary to carry out some control functions, because the data stored in the battery memory, are not valid anymore. If the game has been disconnected for many weeks, this is very likely to happen.
   If on the other hand the machine has been recently used, and the GAME OVER lamp blinks, it is possible that the battery or its reloading circuit are out of order.
   In any case, before starting the machine it is advisable to reprogram it.
5. Act on credit push-button. The «GAME OVER» lamp shall extinguish.
   A. First player lamp shall be lit.
   B. The credits are decreased by one.
   C. «BALLS TO PLAY» lamp shall be lit.
   D. The playfield is ready and the ball is ejected from the hole.
6. Each time the credit push-button is operated, the number of credits is decreased by one and the number of players is updated.
7. The max. number of credits available is four.

The purpose of this chapter is to give a general line to follow, so as to maintain the machine in proper operation. The operations shown have to be carried out each time one operates on the machine, even when on power-up.

1. Carefully check that securing screws of electronic boards do not work loose as well as all connectors of the plate.
    — Check and if necessary tighten the screws of the rubber post.
    — Check the conditions of the rubber rings and if necessary change them (remember to check the adjustment of contacts each time the rubber rings are replaced).
    — Carefully clean playfield. Do not use highly caustic cleaners.

2. Playfield (lower part).
    — Check flipper assembly (tie rod, pin joints and contacts).
    — Check bumpers.
    — Check contact adjustments.
    — Check wiring harness to avoid stresses on the wires and obstacles to the moving parts.

3. Check and adjust tilt sensitivity.
    Remember: an efficient periodic maintenance greatly improves the pintable lifetime and avoids the possibility of damages.

NOTE

Games are factory programmed, according to the special requirements of their designation. The main programming elements may be changed, however, by following procedures below.
We remind you that these procedures shall be performed EXCLUSIVELY by skilled technicians, because wrong programming could cause malfunctions.

GENERAL TECHNICAL INFORMATION

To avoid that any cause (battery discharged or others) causes the loss of the data stored in RAM C-MOS, and thus the failure of the pintable, the basic program contains some typical programmings (to replace the switches that had been used with the precedent series).
When the microcomputer notes that the programming data of RAM C-MOS do not apply anymore, recall one of the 8 lists of typical programming (see table I).
For the CHOICE OF THE TYPICAL LIST, that will be called in case of necessity, the DIP SWS. 1, 2 and 3 are used, that are mounted on the C.P.U. board (see figure 1).
On the sound board there are 2 trimmers provided for the separate tuning of the max. volume of sounds and talking.
For the final tuning of the loud-speaker volume, both for sound and for talk, there is a potentiometer provided, that is located inside the cabinet on the right side of the door.

To operate on the «TESTS» with the pintable in GAME OVER position, on the door there is an «ADVANCE-RETURN» switch with central rest position (or 2 push-buttons, of which one «ADVANCE» and the other one «RETURN»). By acting on «ADVANCE» at each control the tests progress 1 by 1 from 0 through 37 and then again 0, 1, 2 etc. When pushing again «RETURN», each time the test number is decreased by one (contrary to what happens with «ADVANCE»).
The test number is indicated on the 2 figures of the «BALLS TO PLAY» display (see fig. 2). To leave the test, and return thus to GAME OVER, it is sufficient to stop and then start again the game, or to push ADVANCE or RETURN until the display shows 00.
To clear the «accounting» tests or in any case to amend the programming tests, it is necessary that SW n. 4 on the C.P.U.-board (see fig. 1) points to ON (PROGRAM), and then call the test to be changed, and act on the «CREDIT» push-button. After having cleared or programmed the test, to return in GAME OVER condition and thus to be able to play, call test 00 and then put SW n. 4 in OGG (GAME) position.
If the SW n. 4 has not been reset, and you are still in ON (PROGRAM) condition with the 00 (GAME OVER) test, there will be a buzzing sound and the TILT lamp will be blinking, to inform on the anomalous condition that doesn't allow to use the game.

IMPORTANT:

Please be advised that, as from our pinball mod. PINBALL CHAMP '82 onwards, few instructions must be observed when-ever the battery or RAM 6514 or RAM 5514 are replaced, or if changes to the program written in RAM (coin mechanism programming, ball programming) are made. This is to make sure that the machine accepts the programming:

1) Switch the machine off; remove RAM 6514 or 5514 in position IC 4 from its socket (under the battery on the left).
2) Insert RAM 6514 again; switch the machine on. Whatever programmed on RAM has been completely cancelled through operations 1. and 2.
3) Start programming by setting switch N. 4 in ON position.
4) Set tests N. 6-7-8-9 to zero with START button.
5) All the other tests (from N. 10 to N. 37) must be programmed again completely, although the test concerned is already in position. As an example: when reached position 11, 01 (which corresponds to the programming required) appears. In spite of this, go on with tests 02-03 ect., until coming back to position 01.
6) When the programming is completed, set switch N. 4 in OFF position again.
7) Switch off and on the machine: if GAME OVER lamp is lit everything is OK; if it is flashing repairing is required.

Now we are going to analyse the technical performances in a detailed manner, starting with the self-test function, followed by the accounting functions and eventually the various programming functions.

SELF TEST

DISPLAY (Test n.1). By this we check optically the proper operation of the display (5 groups of 8 figures each covering a total of 40 figures). The 5 groups are the the following: **1st player display; 2nd player display; 3rd player display; 4th player display; HIGHEST SCORE TO DATE display or DISPLAY CREDIT, TIME BONUS and BALLS TO PLAY.** When this test is entered, all the figures show the same numbers, starting with «0» that immediately becomes «1» then «2» and so on until «9», then they restart at «0» and so on.
By acting on CREDIT push-button the 8 figures of each display indicate 8 numbers in continuous succession.
Example 7 6 5 4 3 2 1 0
8 7 6 5 4 3 2 1

CONTACTS: (Test n. 2). By this test function it is possible to check the proper operation of the 64 INPUT contacts numbered from 00 through 64. When this test is entered, on the 2 figures of the CREDIT display appears the "closed" contact highest in number, and after having opened it, follows the number of the closed contact next in order. If none of the 64 contacts is "closed" no number is indicated. Under these circumstances it is possible to check whether all the contacts work properly, by closing them one by one and making sure that each time the corresponding number appears on the special display provided.
For the numbering of contacts see fig. 4.

LAMPS (Test n. 3). All the «piloted» lamps, that have been divided into two groups, are lit and extinguished alternatively at regular intervals. Check whether there are any lamps that are not operative.

SOLENOIDS (Test n. 4). All the solenoids (coils) are energized in sequence from 1 through 24. The number of the energized solenoid appears on the CREDIT display in that very moment.
NOTE THAT EACH SINGLE PINTABLE MODEL MAY USE ONLY PART OF THE 24 AVAILABLE SOLENOIDS.
In the test all the solenoids are treated in the same way (either used or not), and thus on the CREDIT display the numbers of all the 24 possible solenoids are indicated. Those that are not operative and are missing do not cause any effect (mechanical noise).
The number of employed solenoids is indicated on fig. 6.

SOUND AND TALKING (Test n. 5). This test serves to hear the various sounds and phrases programmed for the model and to check whether they are correct; in the same time on the CREDIT display appears the number of the sound or of the phrase being executed.

ACCOUNTING FUNCTIONS

TIME (Test n. 6). Same contains the accounting data relevant to the time (minutes) of pintable operation (1st player display), to the actual duration of the game (minutes) 2nd player display), the total number of TILT (3rd player display) and to the average duration of games (4th player display). The average duration of games is expressed in minutes, and is determined by the ratio between the play time and the number of games that have been played.
The above accounting functions can be cleared simultaneously, by keeping pressed the CREDIT push-button for about 5 seconds, provided SW 4 n 4 on the C.P.U. boards is on ON (PROGRAM).

TAKINGS (Test n. 7). The number of coins collected by the first coin chute (on the left side) is indicated on the 1st player display. The number of coins collected by the second coin chute (on the right side) is shown on 2nd player display. The 3rd player display accounts for the number of coins introduced into the third coin chute (the central one). On the 4th player display the number of «service» games is reported, that is those games obtained by pressing the «SERVICE» push-button that is located inside the door on the left side.
NOTE THAT THE «SERVICE» PUSH-BUTTON DOES NOT CHANGE THE NUMBER OF CREDITS, BECAUSE IT ENTERS DIRECTLY FROM 1 THROUGH 4 GAMES, AND ALSO THE ELECTROMECHANICAL COIN COUNTE IS NOT AFFECTED.
To clear it, SW n. 4 on the C.P.U. board (see figure 1) shall be in position ON (PROGRAM), and then act on the CREDIT push-button for about 5 seconds.

WINNINGS (Test n. 8 and 9). Test n. 8 indicates the winnings listed per types, that is: on the 1st player is indicated the overall quantity of games that have been played (the addition of the paid games, the won ones and the SERVICE games)
On the 2nd player display appear the won games.
On the 3rd player display one can see the number of won balls. Finally the 4th player display shows the quantity of awarded SUPERBONUSES.
— The test n. 9 shows how the winnings have been obtained.
The 1st player display indicates how many times the HIGHEST SCORE has been exceeded (NORMAL if test 18 is programmed with 00, RANDOM if test 18 is programmed with 01).
The 2nd player display shows the number of winnings obtained with winning scores.
The 3rd player display shows the number of winnings obtained with SPECIAL 1. Finally, on the 4th player display appears the number of winnings obtained with SPECIAL 2.
To clear the winnings, SW n. 4 shall be in position ON (PROGRAM); then enter test n. 8 and act on the CREDIT push-button for about 5 seconds; then enter test n. 9 and again press the CREDIT push-button for about 5 seconds.

SERVICE (Test. n. 10) Test 10 indicates:
- Total number of tilt n. 2 on 1st player display (play till)
- Total number of credits cancelled by tilt n. 2, on 2nd player display

COINS (Tests n. 11, 12, 13, 14, 15, 16). To meet the requirements due to the various types and values of coins used in the different countries, a highly sophisticated method for programming the cost of one «credit» (one game) has been adopted. The main features of this method are:

a) the possibility of giving one credit with several coins,

b) same number of allowances if the value of the introduced coins is the same, regardless of their number and type,

c) the possibility of establishing a cost per credit that differs from the value of the various coins.

To achieve proper programming of the cost of one credit, when allowances shall be granted, it is necessary to keep in mind that the cost ratio between the more expensive credit and the less expensive one shall be less than «2».

The tests 11, 13 and 15 shall be given the unit «value» of the coins that can be introduced respectively into coin chute n. 1 (on the left side), coin chute n. 2 (on the right side) and coin chute n. 3 (in the middle).

Do not forget that the coins shall be introduced into the 3 coin chutes in GROWING ORDER. The coin with the lowest value shall be introduced into the first coin chute, to the second coin chute can be assigned a coin of the same or higher value than the first one.

The third coin chute shall receive the coin that has or higher or at least the same value as the coin introduced into the second coin chute.

The tests, 12, 14 and 16 shall be programmed with the number of credits to be given to each coin introduced respectively into coin chutes 1, 2 and 3.

If several coins are needed to get one credit, it is necessary to program 00.

The coin attributed to the third coin chute, shall have the same or higher value than the cost of one credit. (The figure to be programmed on test n. 16 shall be equal to or higher than 1).

THE UNIT VALUE OF COINS IS THE FIGURE OBTAINED BY DIVIDING THE ACTUAL VALUE OF THE COINS BY THE MAX. COMMON DIVISOR.

Example. 10 p; 50 p;: 10   = 1 + 5
         100 L.; 200 L.; 500 L.:   = 1 + 2 + 5

As a further guidance for the operators on Table II some actual coin chute programming examples are reported, that are used for some European countries.

HIGH SCORE (Test n. 17, 18 and 25). There exists the possibility to choose among 2 different types of H.S.: NORMAL (Test 18 = 00) and RANDOM (Test 18 = 01). NORMAL H.S. represents the max. score value achieved by one player. When this score is exceeded by one or more players, it is replaced by the score obtained by the player who has totalled the highest score. The players that follow shall exceed the new H.S. value to have their winning score recorded.

RANDOM H.S on the contrary consists of a casual score, ranging within an area of 12.000.000 points, that is set forth at the beginning of each game.

The minimum value is given by the figure programmed with test 17, and that can range from 00.000.000 through 99.900.000

The same test is used to program a NORMAL H.S. at the beginning, when the pintable is installed, or in any case to clear or change the existing H.S. value. To do so, press several times the CREDIT push-button, if slow progressing is required, otherwise keep it pressed for fast progress. To change the initial value of Random H.S. it is necessary that SW4 on the C.P.U. board is in ON (PROGRAM) position, while it may be both on ON (PROGRAM) or OFF (GAME) to change the initial value of NORMAL H.S. The player who exceeds the NORMAL or RANDOM H.S. wins the prize established by the programming of test n. 25, with the following possibilities:

Test 25 = 00 = no win
           01 = 1 replay
           02 = 2 replays
           03 = 3 replays
           04 = 1 superbonus

Both test 18 and test 25 require SW n. 4 to be in ON (PROGRAM) position to change their programming, and then it is necessary to press the CREDIT push-button.

FOR NORMAL H.S., THE WIN IS AWARDED ONLY TO THE PLAYER WHO OBTAINS THE HIGHEST SCORE, EVEN WHEN THE PLAYERS EXCEEDING THE PRESET HIGHEST SCORE VALUE ARE MORE THAN ONE.
IN THE CASE OF RANDOM H.S. THE WIN IS GIVEN TO ALL THE PLAYERS WHO EXCEED THE PRESET H.S. VALUE.

MAX CREDIT (Test n. 19). Same represents the max. number of credits that can be recorded before the coin chute locking mechanism is released, thus preventing further introduction of coins. Same represents also the figure beyond which the credits are not icreased anymore because of any won games. It is programmable from 10 through 30 by acting on the CREDIT push-button, provided SW4 is set on ON (RANDOM).

BALLS (Test n. 20). Same represents the number of balls that are available during each game. It can be programmed from 01 through 02 by acting on the CREDIT push-button while SW4 shall be on ON.

MATCH (Test n. 20). Match is the possibility to award one replay to the player or to the players, who have managed to get a score on their display the two right end figures correspond to those of MATCH (see figure 2). If it is programmed with 00, it is excluded, while if the programmed figure is 01, it is connected. To change the programming act on the CREDIT push-button. SW n. 4 shall be set ON (PROGRAM).

WINNING SCORES (Test n . 22, 23, 24 and 26). There are three scores, that can be programmed within a range from 0.00 through 99.900.000, respectively with tests 22, 23 and 24. The player or the players who exceed one or more (max. 3) winning scores, are awarded a prize as determined on test n. 26, for each exceeded winning score.

The scores programmed with 0.0 to are not enabled (they do not award any, win even when test 26 is programmed for wins). The test n. 26 determines the type of win at each winning score limit, that can be chosen among:

Test 26 = 00 = non win
           01 = 1 bonus ball
           02 = 1 replay
           03 = 1 superbonus
           04 = 2.000.000 points

For the programming of these tests it is necessary that SW n.4 is on ON (PROGRAM), and then act on CREDIT push-button.

For the scores (test 22, 23, 24) push repeatedly the CREDIT push-button to progress 1 by 1 (corresponding each to 100.000 points). When the button is kept pressed, the progress is fast.

TEST. 33

00 = Hit the moving target into the centre 11 times
01 = Hit the moving target into the centre 6 times
02 = Hit the moving target into the centre 5 times
03 = Hit the moving target into the centre 2 times

Push CREDIT button - provided that SW. 4 is in ON (Program) - to program and change.

Test 27 determines the type of win to be awarded when the Special target is hit while corresponding lamp is lit

00 = no win
01 = 1 bonus ball
02 = 1 replay
03 = 1 superbonus
04 = 4.500.000 points

For adjustment or changes, act on CREDIT button when SW 4 is ON (PROGRAM).

SPECIAL 2 ORANGE SPECIAL (Test 28, 34). Difficulty can be adjusted for lighting the "orange special" lamp by modifying test n. 34.

00 = Hit the targets bank 4 times
01 = Hit the targets bank 3 times
02/03 = Hit the target bank 2 times

Test n. 28 determines the type of win to be awarded when the orange Special target is hit while the corresponding lamps is lit

00 = no win
01 = 1 bonus ball
02 = 1 replay
03 = 1 superbonus
04 = 1.000.000 points

For adjustment or changes, act on CREDIT button when SW 4 is ON (PROGRAM)

BACKGROUND SOUND AND ATTRACTION SOUNDS (Test 29). Background sound is to be adjusted when on play, attraction sounds when in GAME OVER

00 = Sound disconnected, attractions connected
01 = Sound connected, attractions connected
02 = Sound disconnected, attractions disconnected
03 = Sound connected, attractions disconnected

COIN METER (Test n. 30). Same is an electromechanical impulse meter, to be connected with the circular 8-way connector located in the cabinet and that the «UNIT VALUE» of the coins introduced into 3 coin chutes.
It is never modified by the wins or the service games (obtained throught the SERVICE push-button). The game can be played regularly both with connected and cut-off coin meter, if the test is programmed with 00. Note that the impulse meter is programmed with 00. Note that the impulse meter is always operatin regardless of the type of programming used for test 30.
To program or to change, act on CREDIT push-button, provided SW 4 is in ON (PROGRAM) position.
The impulse meter and relevant wiring are available upon request

GAME TIME BONUS (Test n. 31). After having used the available balls (see test 20 + possible winned balls), it is possible to get a game time extention that may range from a minimum of 10 seconds to a maximum of 99 seconds, determined by the play of the last normal ball. This time is indicated by 2 digits in the center of the HIGHEST SCORE TO DATE display (see figure 2). Upon play time expiry, all the controls are stopped, and thus the ball to play runs straight to the hole.
If the test has been programmed 00, the game is terminated normally (game time bonus excluded), while with 01 programming game time bonus is connected. To program or change, act on CREDIT push-button, provided SW 4 is in ON (PROGRAM) position.

BONUS BALL NUMBER VARIATION (Test 32). Maximum number of possible bonus balls, while one ball on play, is determined.

00 = 1 bonus ball
01 = 3 bonus ball
02 = 3 bonus ball
03 = 3 bonus ball

To program or change, act on CREDIT push-button, provided SW 4 is set on ON (PROGRAM).

TIME SPECIAL VARIATION (Test 35). It is possible to graduate the difficulty to light BONUS MULTIPLIER lamps by modifying test 35

00 = 500.000 PTS
01/02/03 = 1 BONUS BALL

PAY OUT On request, a token payout with cup may be connected with the machine (KE 0037 optional).
The pay out operates when scoring SUPER BONUS programmed in the relevant win tests.

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 sucession.
02	Contact test	88	Number of closed contact
03	Lamp test	/	All the piloted lamps are continuously lit and extinguished
04	Solenoid test	88	The solenoids (from 1 through 24) are energized one after another. The figure indicates the energized solenoid. When it is operative it must be perceived.
05	Sound and talking test	88	Sounds and works 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 pintable operation (minutes) Player 2 display = Game time (minutes) Player 3 display = Total number of tilt Player 4 display = Average game duration expressed in minutes	With SW4 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 SW4 ON 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 SW4 ON act on CREDIT push-button for 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 SW4 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 SW4 in ON act for about 5 seconds on CREDIT button.

PROGRAMMING

N. TEST	FUNCTION	PROGRAMMED VALUE	DESCRIPTION	DATA FOR THE PROGRAMMER
11	Coin value 1st coin chute.	from 01 to 10	Value of the coins for the 1 st coin chute (at the left side close to the hinge)	Whit SW4 on ON act on CREDIT-push-button.
12	Coin credits 1st. coin chute.	from 00 to 15	Credits per each single coin introduced into the first coin chute	
13	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	High-Score initial value	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 (SW4 in OFF), RANDOM H.S. can be preset only in PROGRAM SW4 in (ON). Push CREDIT keep pushed for fast progress

N. TEST	FUNCTION	VALUE PROGRAMMED	DESCRIPTION	DATA FOR THE PROGRAMMER
18	High Score types	00	NORMAL H.S. or max. scores achieved by one player.	With SW4 on ON act on CREDIT push-button.
		01	RANDOM H.S. or casual scores that may change at the beginning of each game.	
19	Max credits	from 10 to 30	Max number of credits beyond which coin chutes are locked, and no won games are attributed anymore	Act on CREDIT pusch-button with SW4 on ON
20	Balls	from 01 to 07	Balls per play	Act on CREDIT pusch button with SW 4 on ON
21	MATCH	00	Match exluded (no wins)	Act on CREDIT pusch-button with SW4 on ON
		01	Match connected (1 Replay)	
22	1st winning scores	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 SW4 on ON act stepwise on CREDIT push-button for slow progress. For fast progress keep it pressed
23	2nd winning scores	from 00.0 to 99.9	2nd winning score wich awards the win programmed on test n. 26 when exceeded. 00.0 = no win	
24	3rd winning scores	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	No win	With SW4 on ON act on CREDIT push-button
		01	1 Replay	
		02	2 Replay	
		03	3 Replay	
		04	1 Superbonus	
26	Wins with scores (see test 22, 23, 24)	00	No win	With SW4 on ON act on CREDIT push-button
		01	1 Bonus Ball	
		02	1 Replay	
		03	1 Superbonus	
		04	2.000.000 points	
27	Wins with Special 1 "Red Special"	00	No win	With SW4 on ON act on CREDIT push-button
		01	1 Bonus Ball	
		02	1 Replay	
		03	1 Superbonus	
		04	4.500.000 points	
28	Wins with Special 2 "Orange Special"	00	No win	With SW4 on ON act on CREDIT push-button
		01	1 Bonus Ball	
		02	1 Replay	
		03	1 Superbonus	
		04	1.000.000 points	
29	Background sound and attraction sounds	00	Sound disconnected, attractions connected	With SW 4 on ON act on CREDIT push-button
		01	Sound connected, attractions connected	
		02	Sound disconnected, attractions disconnected	
		03	Sound connected, attractions disconnected	
30	Coin meter	00	Normal operation both with excluded and with connected impulse meter	With SW4 on ON act on CREDIT push-button
		01	When impulse meter is disconnected the pin table cannot be used	
31	Game Time Bonus	00	«Game time bonus» disconnected	With SW4 on ON act on CREDIT push-button
		01	Count down connected	
32	Bonus Ball number variation	00	1 bonus ball	Press CREDIT button when SW4 is ON
		01	3 Bonus Balls	
		02	3 Bonus Balls	
		03	3 Bonus Balls	
33	Red Special	00	Hit the moving target into the centre 11 times	Press CREDIT button when SW4 is ON
		01	Hit the moving target into the centre 8 times	
		02	Hit the moving target into the centre 5 times	
		03	Hit the moving target into the centre 2 times	
34	Special 2 ORANGE	00	Hit the targets bank 4 times	Press CREDIT button when SW4 is ON
		01	Hit the targets bank 3 times	
		02/03	Hit the targets bank 2 times	
35	TIME SPECIAL	00	500.00 PTS	Press CREDIT button when
		01/02/03	1 BONUS BALL	
36	NOT USED			
37	NOT USED			

IMPORTANT. With SW4 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

TROUBLE SHOOTING

CONDITION	CAUSE	REMEDY	NOTES
The game cannot be started	— No voltage available	—	
	— Plug is off	Plug in	
	— The 3-way connector (CN-«line») of the feeder rack is not connected	Connect	
	— Mains fuse burned	Replace	If they burn again, this means that there is a short circuit
	— The 9-way connector (CN «Ja») on the feeder rack disconnected	Replace	
	— Mains switch open	Close	
	— Connetor (CN 1) on feeder and connectors (CN «J1»-«J2»-«J3») on feeder rack disconnected	Connect	
	— Voltage change over not or insufficiently connected	Correct	The voltage change over unit contains also the mains fuse
All stationary lamps are not lit	— Fuse F2 on the feeder rack thrown out.	Replace	Shall not be more than 20A; if it is thrown out again there is a short-circuit
	— CN J1-J2-J3 connector not connected	Plug in	
	— Electric wire disconnected	Connect	
All the piloted lamps are not operating	— 5 VRM is not available	Fuse F3 (15A) on Power-board is burned	Test carefully with tester
	— The connector between C.P.U. and the interface is disconnected	Tighten the loose connectors	
	— Interface (CN 16) feeding connector is not plugged in		
	— The connectors of the lamps on Interface (CN 18-19-20-21-22) are not connected		
	— The connectors at the feeder board output are disconnected (CN 2-3-4)		
	— At the C.P.U. input and at the Interface 5,6 V d.c. are missing	Fuse F2 (5A) is burned and shall therefore be replaced. If it is thrown out again, there is a short circuit. Replace feeder board.	
	— C.P.U. is always cleared	Replace feeder and then replace C.P.U.	
	— Others	Replace interface	
All displays are extinguished.	— + 170 V d.c. is missing because fuse F1 (1A) is burned. Or high voltage regulator is damaged. Or high voltage regulator safety circuit is actuated.	Replace the fuse. 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. To restore +170 V it is necessary to stop the pintable and then to start it again	
	— At C.P.U. —input +5,6 V is missing	Check and if necessary replace the F2 (5A) fuse on the feeder board	
	— CN 14 or all connectors of displays are disconnected	Plug in connectors	
	— Display damaged		
	— C.P.U. damaged		
On all the displays wrong figures are appearing	— Cable damaged	Replace the cable	
	— C.P.U. damaged	Replace C.P.U.	
One or more figures on one or more displays are wrong.	— Display damaged		
	— Cabel damaged		
All figures are too bright	— +170 V feeder damaged	Replace the feeder board	
All the solenoids do not work	— 39 VRM input is missing	Reset the fuse. If it is thrown out again there is a short circuit.	
	— CN 17 connector is not plugged in	Plug in the connector	
	— Interface damaged	Replace the Interface	
	— C.P.U. damaged	Replace the C.P.U.	
One or more solenoids do not work	— Coils burned	Replace coil and the relevant Darlington	
	— Darlington burned	Replace the Darlington and check the diode on the coil.	
	— Electric wires loose	Connect the loose wires	
	— The fuses under the playfield have been thrown out	Reset the burned out fuses	
One or more solenoids are always energized	— Interface-board damaged	Replace the Interface-board	
	— C.P.U. damaged	Replace the C.P.U. board	
	— Short circuit		
All the contacts remain inactive	— CN 10-11 connectors are loose	Plug in	
	— C.P.U. is damaged	Replace C.P.U.-board	

One or more contacts do not work	— Loose wires — Interrupted or loose — Contact oxydized	Connect all the loose wires Reset the diode Clean the contact	
One or more contacts are wrongly read	— The contact wires are short circuited and also with respect to the lamp and solenoid wires — Diode contacts are short circuited — C.P.U. is damaged	Eliminate the short circuit Replace the short circuited diode Replace C.P.U.	
All sounds and words are missing	— The loudspeaker is not connected or damaged — Loudspeaker potentiometer cut off — CN 6 connector (Sound board) disconnected — 5 V d.c. feeding voltage is missing — +12 V d.c. feeding voltage missing — +5 V d.c. feeding voltage missing — Sound and talk board damaged	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 the regulator 78H05 Replace the sound and talk board	

VERY IMPORTANT. Never connect or disconnected the connectors while the game is running

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The game is supplied with a special plug to connect a print-out unit that is very useful to print on paper all the most important accounting functions, as well as the serial number of the game.
Hereafter a fac-simile print out.
The same plug is to be used also for the coin meter.

MEXICO 86
```
SERIAL   N  1532
WINNED   G  000000
PLAYED   G  000003
COINS  #  1  000003
COINS  #  2  000003
COINS  #  3  000003
*******************
```

CONNECTOR	PIN	WIRE COLOUR	SIGNAL

POWER Board

CONNECTOR	PIN	WIRE COLOUR	SIGNAL
CN1	─▶	☐	—
	1	Red	165 Vac 0,3 A
	2	Red	165 Vac 0,3 A
	3	Brown	10 Vac 0,5 A
	4	Brown	10 Vac 0,5 A
	5	Yellow	10,5 Vac 6 A
	6	Yellow	10,5 Vac 6 A
	7	Blue	43 Vac 5 A
	8	Blue	43 Vac 5 A
	9	White	6,5 Vac 15 A
	10	White	6,5 Vac 15 A
	11	Green	6,5 Vac 15 A
	12	Green	6,5 Vac 15 A
CN2	─▶	☐	—
	1	—	—
	2	Black	GND
	3	—	—
	4	Violet	+ 39 Vrm common for al the solenoid in the cabinet
	5	Pink	Cabinet - Playfield interconnections
	6	White	For flipper control
CN3	─▶	☐	—
	1	White	Cabinet - Playfield interconnections
	2	Pink	For flipper control
	3	Brown	+5Vrm common all controlled playfield lamps
	4	Brown	+5 Vrm common all controlled playfield lamps
	5	Violet	+39 Vrm common for playfield solenoids
	6	—	—
CN4	─▶	☐	—
	1	—	—
	2	Brown	+5 Vrm common light board controlled lamps
	3	Violet	+ 39 Vrm common for head solenoids
	4	—	—
CN5	─▶	☐	—
	1	Orange	Flipper Relay
	2	Black	GND
	3	Black	GND
	4	Red	+ 5,6 Vdc
	5	Red	+ 5,6 Vdc
	6	White	Power Failure
	7	Black	GND
	8	Yellow	170 Vcc
	9	Black	GND
	10	Green	− 5 Vdc
	11	Red	+ 5,6 Vdc
	12	Blue	+ 12 Vdc

SOUND Board

CONNECTOR	PIN	WIRE COLOUR	SIGNAL
CN6-T	─▶	☐	—
	1	Black	GND
	2	Green	− 5 Vdc
	3	Red	+ 5,6 Vdc
	4	Blue	+ 12 Vdc
CN6-C	5	Yellow-grey	Output Sound e Speech
	6	Violet-White	Output Sound e Speech

C.P.U. board

CONNECTOR	PIN	WIRE COLOUR	SIGNAL
CN9	─▶	—	—
	1	Yellow	170 VCC
	2	Black	GND
	3	White	Power Failure
	4	Red	+ 5,6 VDC
CN10	1	Orange-Yellow	Printer -RX +
	2	Yellow-Grey	Printer -RX-
	3	White-Pink	Printer -TX-
	4	Black-Pink	Printer -TX +
	5	—	—
	6	White	Contacts-row ∅
	7	Grey	Contacts-row 1

CONNECTOR	PIN	WIRE COLOUR	SIGNAL
CN10	8	—	—
"	9	—	—
"	10	Grey-white	Contacts - column Ø
"	11	Black-white	Contacts - column 1
"	12	Red-green	Contacts - column 2
"	13	Black-yellow	Contacts - column 3
"	14	Black-orange	Contacts - column 4
"	15	Red-yellow	Contacts - column 5
"	16	—	—
"	17	Brown-violet	Contacts - column 6
"	18	Yellow-violet	Contacts - column 7
"	19	—	—
"	20	—	—
CN11	1	—	—
"	2	—	—
"	3	Red	Contacts - row 2
"	4	Yellow	Contacts - row 3
"	5	Black	Contacts - row 4
"	6	Green	Contacts - row 5
"	7	Blue	Contacts - row 6
"	8	—	—
"	9	—	—
"	10	Grey-white	Contacts - column Ø
"	11	Black-white	Contacts - column 1
"	12	Red-green	Contacts - column 2
"	13	Black-yellow	Contacts - column 3
"	14	Black-orange	Contacts - column 4
"	15	Red-yellow	Contacts - column 5
"	16	Brown-violet	Contacts - column 6
"	17	Yellow-violet	Contacts - column 7
"	18	—	—
"	19	—	—
"	20	—	—

INTERFACE Board

CONNECTOR	PIN	WIRE COLOUR	SIGNAL
CN16	—	—	—
"	1	Black	Gnd
"	2	Red	+ 5.6 Vdc
"	3	Black	GND
"	4	Orange	Flipper Relay
CN17-C	—	—	—
"	1	White-Pink	Knocker
"	2	Red-White	Coin mechanism coil
"	3	Yellow-Pink	Token dispenser
CN17-P1	4	Violet-White	Power play kicker
"	5	Yellow-White	Right pop
"	6	Brown-White	Out hole
"	7	Blue-White	Right flap
"	8	Green-White	Left-flap
"	9	Brown-Green	Left bank
"	10	Red-Green	Bottom right pop
"	11	Orange-Yellow	Right bank
"	12	Orange-White	1ST moving single target
"	13	Brown-Yellow	Left pop
"	14	Grey-White	2ND moving single target
"	15	Black-White	4TH moving single target
CN17-P2	16	Black-Green	Playfield effect lamps
"	17	Yellow-Grey	5TH moving single target
"	18	White-Pink	3RD moving single target
"	19	Red-White	Goal moving target
"	20	Yellow-Pink	Top flipper relay
"	21	—	—
"	22	—	—
"	23	—	—
"	24	—	—
CN18	1	Yellow-white	Adv. time special left inner canal
"	2	Light blue	Right pop
"	3	Yellow-Blue	"E" red special
"	4	Green-Grey	"X" red special
"	5	Pink	Bottom right pop
"	6	Brown-Pink	Red special
"	7	Orange-Grey	Left pop
"	8	Green-Violet	30.000 PTS left inner canal
"	9	Orange-Yellow	X 60
"	10	Green-White	Goal moving target
"	11	Red-White	"M" red special
"	12	Orange-Green	"A" red special
"	13	White	Top "O" red special
"	14	Brown	"I" red special
"	15	Red-Blue	50.000 PTS Orange special
"	16	Orange-Violet	Outer exit canal
"	17	Blue-Grey	1ST fixed target
"	18	Black-Red	"L" red special
"	19	Orange-Blue	"G" red special
"	20	Blue-White	"C" red special

CN19	1	Pink	2ND fixed target
	2	Orange-White	10 sec. power play time
	3	Brown-Light green	15 sec. power play time
	4	Red-Violet	Orange special
	5	—	—
	6	Brown	"O" red special
	7	Brown-Orange	2ND time special
	8	Violet-Pink	100.000 PTS orange special
	9	Yellow-Grey	Time special
	10	Green-Blue	Bonus ball 1
	11	Brown-Yellow	200.000 PTS orange special
	12	Violet	Bonus 2
	13	Blue-Violet	1ST time special
	14	Black-Grey	Bonus 8
	15	Black-Blue	Bonus 4
	16	Blue-Pink	Bonus 3
	17	Red-Grey	Time special target
	18	Yellow-Pink	Bonus 1
	19	Black-Pink	Bonus 5
	20	White-Green	Bonus 9
CN20	1	Yellow-White	X 40
	2	Light blue	X 80
	3	Brown-Blue	Bonus 10.000 PTS
	4	Green-Grey	Bonus 10
	5	Pink	Bonus 7
	6	Brown-Pink	Bonus 6
	7	Orange-Grey	50.000 PTS power play score
	8	Green-Violet	100.000 PTS power play score
	9	Orange-Yellow	30.000 PTS power play score
	10	Green-White	20 sec. power play time
	11	Black-Violet	X 20
	12	Brown-White	Adv. bonus multiplier power play random
	13	Black-Green	Left top canal
	14	Yellow-Blue	Adv. triple bonus power play random
	15	Red-Blue	200.000 PTS power play score
	16	Green-Blue	Right top canal
	17	Blue-Grey	Central top canal
	18	Black-Red	Adv. "Time Special" power play random
	19	Orange-Blue	Adv. "Orange Special" power play random
	20	—	
CN21	1	—	—
	2	—	—
	3	—	—
	4	—	—
	5	—	—
	6	—	—
	7	—	—
	8	—	—
	9	—	—
	10	—	—
	11	—	—
	12	—	—
	13	—	—
	14	—	—
	15	—	—
	16	—	—
	17	—	—
	18	—	—
	19	—	—
	20	—	—
CN22	1	—	—
	2	Blue-White	Bonus ball 2
	3	Brown-Violet	Up game time bonus
	4	Black-Orange	Balls to play
	5	Red-Yellow	Credit
	6	Black-Yellow	Match
	7	—	—
	8	Green	Can play 1
	9	Violet-Pink	Bonus ball 3
	10	Black-White	Tilt
	11	—	—
	12	Yellow	Can play 2
	13	Black	Can play 4
	14	Yellow-Violet	Down game time bonus
	15	Grey-White	Game over
	16	Red-green	Super bonus
	17	Red	Can play 3
	18	Blue	Highest score
	19	Green-Blue	Bonus ball 1
	20	Green-White	Head effect lamps

Printer service optional	A	Red	43 Vac
»	B	Black	43 Vac
»	C	Yellow-violet	Column 7
»	D	Grey	Row 1
»	E	Orange-Yellow	Printer RX +
»	F	Yellow-grey	Printer RX —
»	G	White-pink	Printer TX —
»	H	Black-pink	Printer TX +
J4	1	Brown	Electric wier
»	2	Yellow	Service socket
»	3	Red	Service socket
»	4	Yellow-green	Electric wier
»	5	Red	43 Vac
»	6	Black	Electric filter
»	7	Light blue	Electric wier
»	8	Black	43 Vac
»	9	Blue	Electric filter

TAV. 1

Programmi base – Basic programs – Programmes de base – Grundprogramme

N° test	ITALIA 1 SW			ITALIA SW			GREAT BRITAIN SW			FRANCE SW			DEUTSCH. SW			BELGIQUE SW			JUGOSLA. SW			U.S.A. SW		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
	on	on	on	off	on	on	on	off	on	off	off	on	on	on	off	off	on	off	on	off	off	off	off	off
	—			—			—			—			—			—			—			—		
11	01			02			01			01			01			01			01			01		
12	00			01			00			00			01			00			01			01		
13	02			05			02			05			02			04			02			01		
14	01			03			01			03			03			02			02			01		
15	02			05			5			10			05			04			02			01		
16	01			03			3			07			07			02			02			01		
17	500			750			750			750			750			750			750			750		
18 High score	0			1			0			0			0			0			0			0		
19	15			15			15			15			15			15			15			15		
20	03			03			03			03			03			03			03			03		
21	1			1			1			1			1			1			1			1		
22	150			300			300			300			300			300			300			300		
23	400			600			600			600			600			600			600			600		
24	000			000			000			000			000			000			000			000		
25	1			1			1			1			1			1			1			1		
26	1			2			2			2			2			2			2			2		
27	2			2			2			2			2			2			2			2		
28	1			1			1			1			1			1			1			1		
29	1			1			1			1			1			1			1			1		
30	0			0			0			0			0			0			0			0		
31	1			1			1			1			1			1			1			1		
32	1			1			1			1			1			1			1			1		
33	1			1			1			1			1			1			1			1		
34	1			1			1			1			1			1			1			1		
35	1			1			1			1			1			1			1			1		
36	—			—			—			—			—			—			—			—		
37	~			—			—			—			—			—			—			—		

NATION	EMPLOYED COINS	COST OF CREDITS	FIRST COIN		SECOND COIN		THIRD COIN		Multiplication factor imp. count. (coin count.)
			Value Test 11	Credits Test 12	Value Test 13	Credits Test 14	Value Test 15	Credits Test 16	
ITALY	1 coin m. = 100 £	2x100 = 1 Pl.	01	00	01	00	02	01	x 100 £
	2 coin m. = 100 £	3x100 £ = 1 Pl.	01	00	01	00	03	01	
	1 coin m. = 100 £ / 2 coin m. = 200 £	2x100 £ = 1 Pl. / 1x200 £ = 1 Pl.	01	00	02	01	02	01	x 100 £
		3x100 £ = 1 Pl. / 1x200 £ = 1 Pl. / +1x100 £ = 1 Pl.	01	00	02	00	03	01	x 100 £
	1 coin m. = 200 £	1x200 £ = 1 Pl.	01	01	01	01	01	01	x 200 £
	2 coin m. = 200 £	3x200 £ = 2 Pl.	02	00	02	00	03	01	x 200 £
ENGLAND	1 coin m. = 10 p / 2 coin m. = 50 p	1x10 p = 1 Pl. / 1x50 p = 6 Pl.	01	01	05	06	05	00	x 10 p
		2x10 p = 1 Pl. / 1x50 p = 3 Pl.	01	00	05	03	05	03	x 10 p
BELGIUM (AUSTRIA) (HUNGARY)	1 coin m. 5 FRS / 2 coin m. 10 FRS	2x5 FRS = 1 Pl. / 1x10 FRS = 1 Pl.	01	00	02	01	02	01	x 5 FRS
		3x5 FRS = 1 Pl. / 1x10 FRS = 1 Pl. / +1x5 FRS	01	00	02	00	03	01	X 5 FRS
FRANCE (DANM.) (SWEDEN)	1 coin m. 1 FR / 2 coin m. 5 FR / 3 coin m. 10 FR	2x1 FR = 1 Pl. / 1x5 FR = 3 Pl. / 1x10 FR = 7 Pl.	01	00	05	03	10	07	x 1 FR
WEST. GERM. (SWITZERL.)	1 coin m. 1 DM / 2 coin m. 2 DM / 3 coin m. 5 DM	1x1 DM = 2 Pl. / 1x2 DM = 5 Pl. / 1x5 DM = 14 Pl.	01	02	02	05	05	14	x 1 DM (FS)
		1x1 DM = 1 Pl. / 1x2 DM = 3 Pl. / 1x5 DM = 7 Pl.	01	01	02	03	05	07	x 1 DM (FS)
YUGOS.	1 coin m. 5 DIN / 2 coin m. 10 DIN	1x5 DIN = 1 Pl. / 1x10 DIN = 2 Pl.	01	01	02	02	02	02	x 5 DIN
		2x5 DIN = 1 Pl. / 1x10 DIN = 1 Pl.	01	00	02	01	02	01	x 5 DIN
SWITZERL.	1 coin m. = 1 FS / 2 coin m. 2 FS	1x1 FS = 2 Pl. / 1x2 FS = 5 Pl. / 5 FS = 14 Pl.	01	02	02	05	05	14	x 1 FS
		1x1 FS = 1 Pl. / 1x2 FS = 3 Pl. / 5 FS = 7 Pl.	01	01	02	03	05	07	X 1 FS

FIG. 1

DIP SW

off ⟶ on

1
4

D ÷

1B1165/2

C.P.U. board

FIG. 2·

HIGHEST SCORE TO DATE

GAME TIME BONUS

MATCH

UP
DOWN

BALLS
TO
PLAY

CREDIT

8 8 8 8 8 8 8 8

ADJUSTED
VALUE

TEST FUNCTION
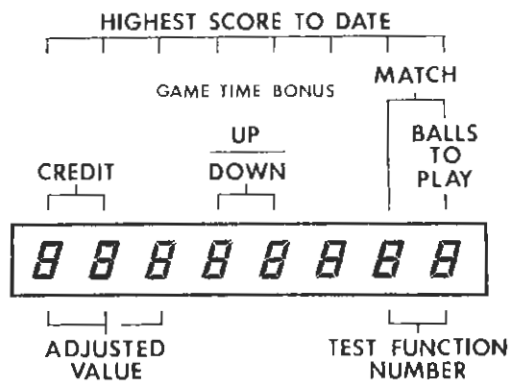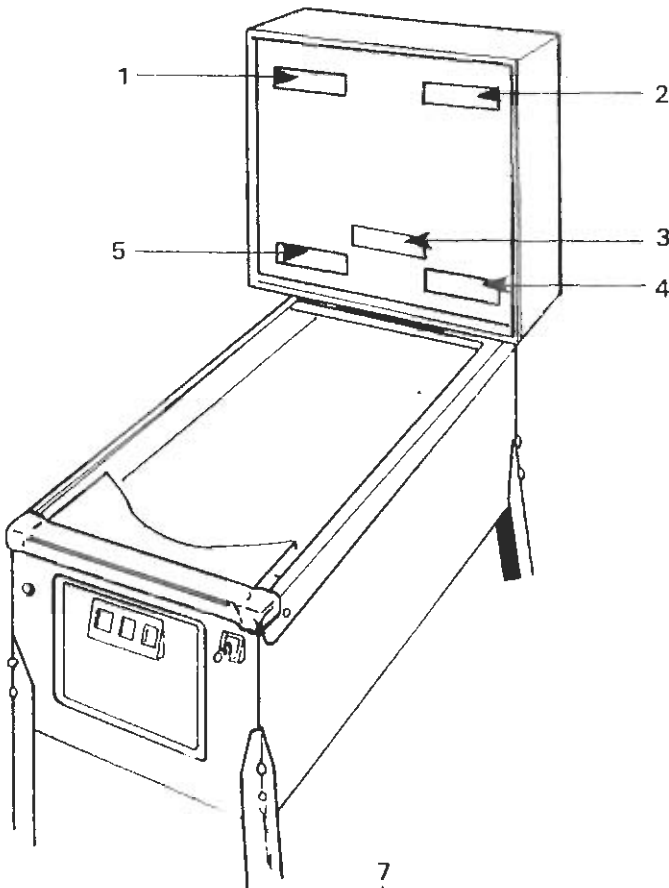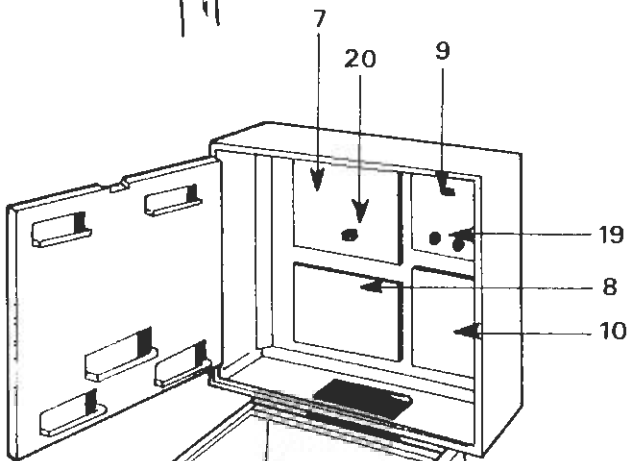NUMBER

1 . 1st player display

2 . 2nd player display

3 . Credit display
   Display ball to play
   Match
   Game time bonus
   Highest score display

4 . 4th players display

5 . 3rd players 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

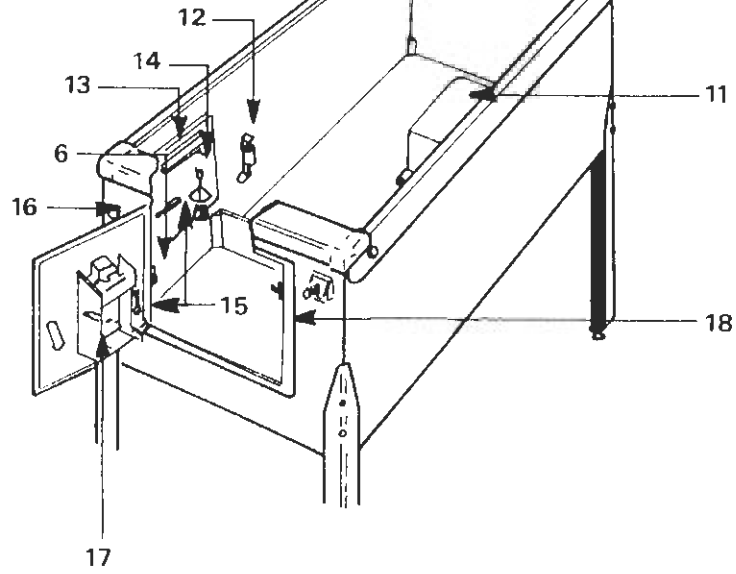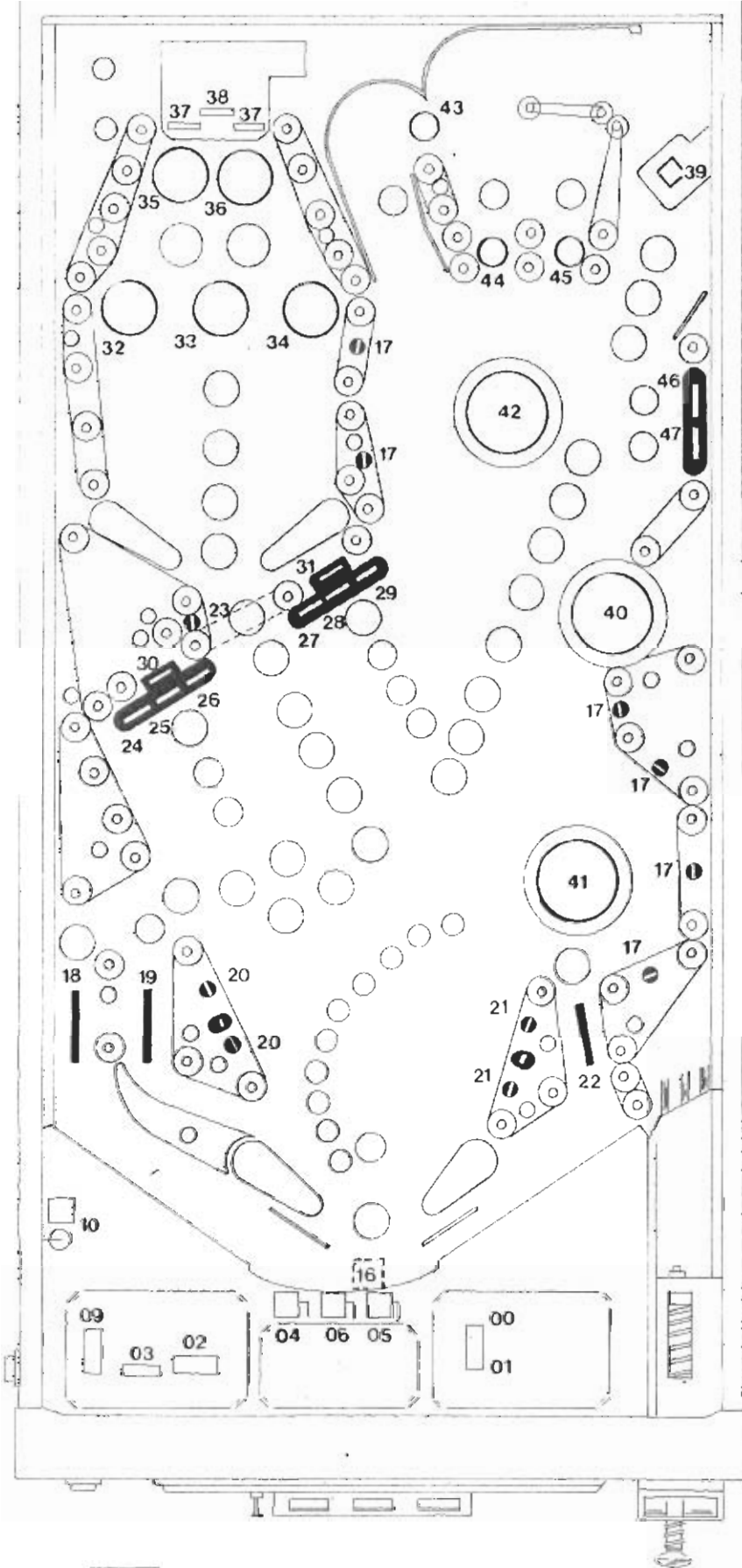18 . General vol.

19 . Maximum sound vol.

20 . Dip switch

FIG. 4

Contact arrangement

Contact Number	Description
00	Advancement test
01	Return test
02	Tilt 2
03	Credit Service
04	Coin Switch 1
05	Coin Switch 2
06	Coin Switch 3
07	—
08	—
09	Credit
10	Tilt
11	Factory burn test
12	—
13	—
14	—
15	—
16	Out hole
17	Fixed contacts
18	Left outer exit canal
19	Left inner canal
20	Left flap
21	Right flap
22	Right inner canal
23	Top flippers contact
24	Left bank 1ST moving target
25	Left bank 2ND moving target
26	Left bank 3RD moving target
27	Right bank 1ST moving target
28	Right bank 2ND moving target
29	Right bank 3RD moving target
30	Time special
31	Orange special
32	1ST moving single target
33	2ND moving single target
34	3RD moving single target
35	4TH moving single target
36	5TH moving single target
37	Goal moving target
38	Goal center moving target
39	Power play kicker
40	Right pop
41	Bottom right pop
42	Left pop
43	Top left canal
44	Top central canal
45	Top right canal
46	Right 2ND fixed target
47	Right 1ST fixed target

☐ Inside the cabinet contacts

FIG. 6

Solenoid arrangemnt
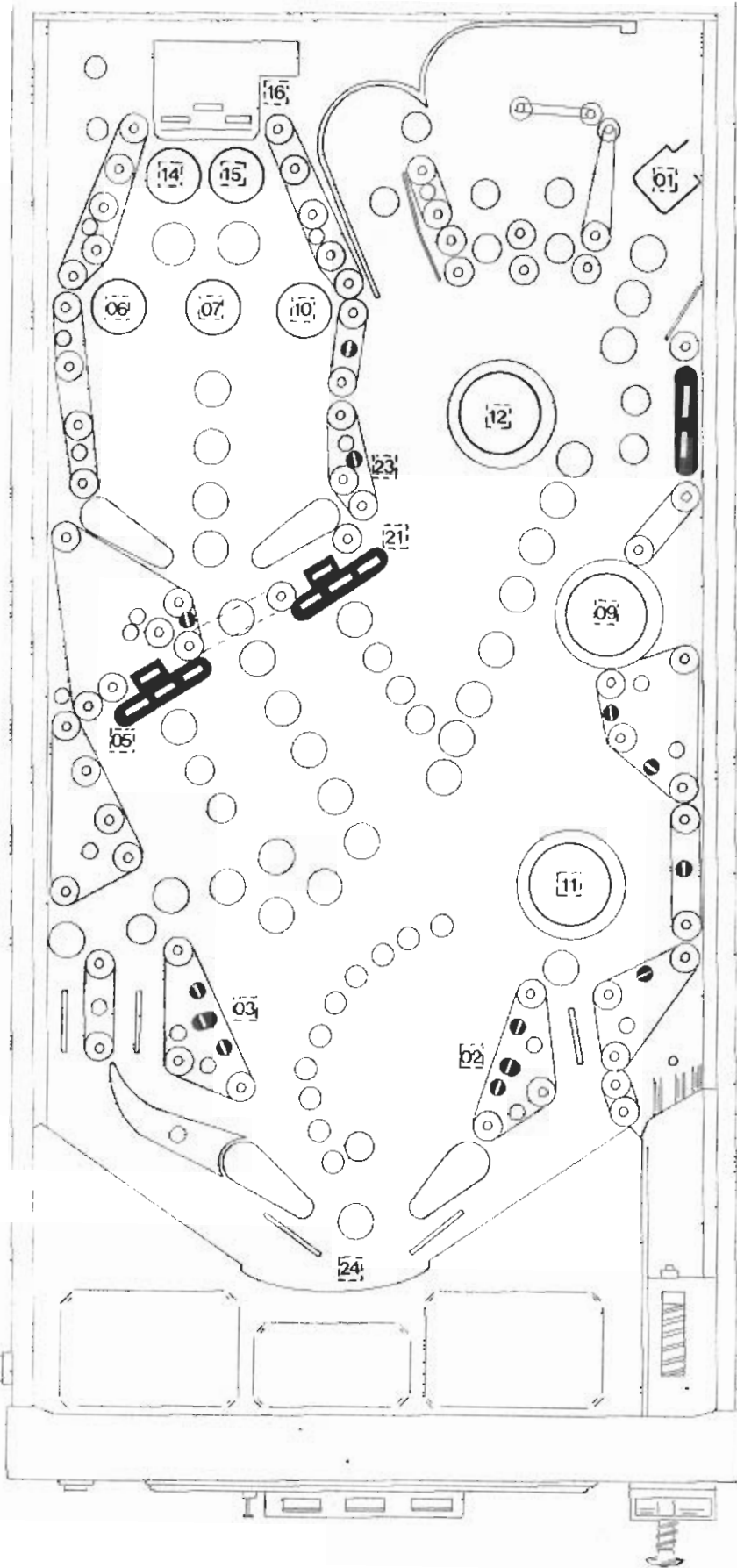
Sol n°	Description	Drive (dar-lington)
01	Power play kicker	5
02	Right flap	14
03	Left flap	9
04	Knocker	20
05	Left bank	4
06	1ST moving single target	13
07	2ND moving single target	3
08	Coin mechanism coil	15
09	Right pop	19
10	3RD moving single target	7
11	Bottom right pop	18
12	Left pop	8
13	--	6
14	4TH moving single target	17
15	5TH moving single target	12
16	Goal moving target	2
17	Head effect lamps	1
18	Playfield effect lamps	22
19	--	21
20	--	11
21	Right bank	23
22	Token dispenser	10
23	Top flipper relay	16
24	Out hole	24

FIG. 5

Lamp arrangement
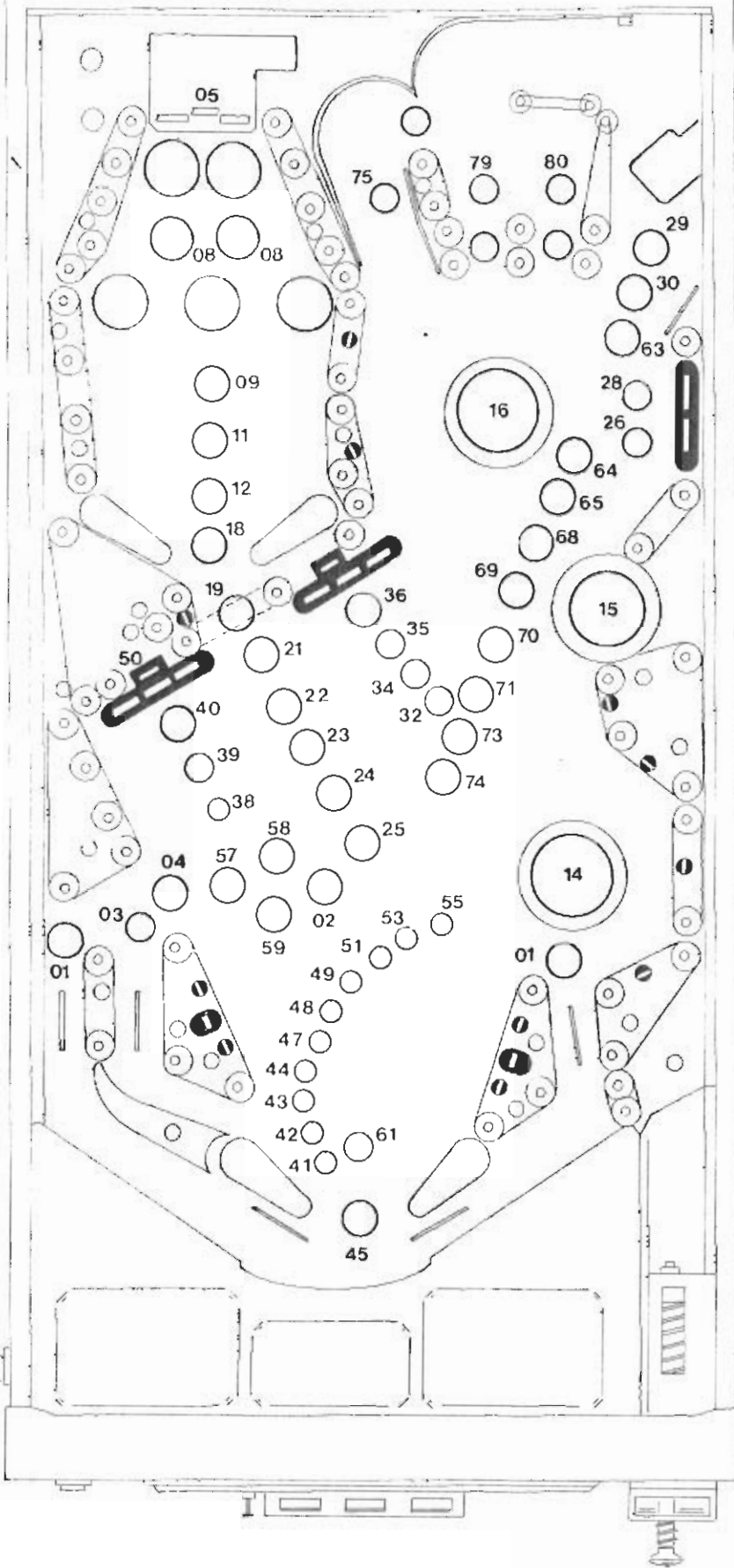
		n° SCR
01	Outer exit canals	80
02	X 60	66
03	30.000 PTS left inner canal	67
04	Adv. Time special left inner canal	78
05	Goal moving target	70
+ 06	Game over	68
+ 07	Tilt	65
08	Red special	72
09	"M" red special	71
10	—	76
11	"E" Red special	77
12	"X" Red special	75
+ 13	Match	74
14	Bottom right pop	73
15	Right pop	79
16	Left pop	69
+ 17	Ball to play	8
18	"J" Red special	45
19	"C" Red special	35
+ 20	Flipper relay	64
21	Top "O" Red special	54
22	"G" Red special	44
23	"O" Red special	26
24	"A" Red special	63
25	"L" Red special	18
26	1ST fixed target	27
+ 27	Credit	9
28	2ND fixed target	53
29	10 sec. Power play time	17
30	15 sec. Power play time	62
+ 31	Up game time bonus	7
32	50.000 PTS Orange special	36
33	—	43
34	100.000 PTS orange special	61
35	200.000 PTS orange special	15
36	Orange special	16
+ 37	—	25
38	1ST Time special	33
39	2ND Time special	34
40	Time special	52
41	Bonus 1	23
42	Bonus 2	24
43	Bonus 3	5
44	Bonus 4	51
+ 45	Bonus ball 1	6
46	—	41
47	Bonus 5	59
48	Bonus 6	13
49	Bonus 7	31
+ 50	Time special target	14
51	Bonus 8	60
52	—	42
53	Bonus 9	32
54	—	50
55	Bonus 10	49
+ 56	Super Bonus	3
57	X 20	21
58	X 40	4
59	X 80	40
+ 60	Can play 1	22
61	Bonus 10.000 PTS	58
+ 62	Can play 2	12
63	20 sec. Power play time	30
64	30.000 PTS Power play score	39
65	50.000 PTS Power play score	57
+ 66	Can play 3	2
+ 67	Can play 4	11
68	100.000 PTS Power play score	48
69	200.000 PTS Power play score	20
70	Adv. triple bonus power play random	38
71	Adv. bonus multiplier power play random	56
+ 72	Down game time bonus	10
73	Adv. "Time special" power play random	37
74	Adv. Orange special" power play random	29
75	Left top canal	47
+ 76	Bonus ball 2	28
+ 77	Highest score	1
+ 78	Bonus ball 3	19
79	Central top canal	46
80	Right top canal	55

+ : head lamps
+ + : head and playfield lamps