ZACCARIA®

DEVIL RIDERS

MANUALE D'ISTRUZIONI

(I) (D) (GB) (F)

IIª EDIZIONE

INDICE

INHALTSVERZEICHNIS

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CONNECTOR CARD FOR DEVIL RIDERS

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 (if the TILT lamp lights up, check the sensitivity of the normally open tilt contacts).
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.

ROUTINE MAINTENANCE ON LOCATION

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. At the front board of the cabinet there is a plug for the headset, whose volume shall be adjusted on the headset itself (see figure 3).
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: each time the battery or RAM C-MOS 6514-9 are replaced, or in any case of interruption of the memory feeding, it is necessary to act as follows to enter the new program:

a) Clear the accounting tests (6, 7, 8, 9) even if they apparently are already cleared.
b) Program the tests from 10 through 37, without forgetting to program also those tests that apparently are already programmed. For example, if you wish to program the test 10 with 00, and on the display 00 has already appeared, then push the CREDIT push-button until 00 appears again.

Once the programming has been terminated, the GAME OVER LAMP shall remain lit.
If it is blinking this means that the programming has not been accepted, and thus it has to be repeated in the proper way.

TESTS

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 n1). By this we check optically the proper operation of the display (5 groups of 7 figures each covering a total of 35 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 7 figures of each display indicate 7 numbers in continuous succession.
Example: 6 5 4 3 2 1 0
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.
To check the proper operation of the SOUND board, use the special self-test program, that is on the board itself (see paragraph self-test sound and talking board).

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 number of TILTS (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 n. 4 on the C.P.U. board 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 10 is programmed with 00, RANDOM if test 10 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.

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.

HIGHEST SCORE (Tests n. 10, 17 and 25). There exists the possibility to choose among 2 different types of H.S.: NORMAL (Test 10 = 00) and RANDOM (Test 10 = 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 0.000.000 through 7.990.000
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 10 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 9.990.000, 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 = 500.000 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 10.000 points). When the button is kept pressed, the progress is fast.

SPECIAL 1 (RED SPECIAL) (Tests 27 and 33). Difficulty can be adjusted for obtaining the special, by using test 33 properly. This way the number of functions necessary to light the special lamp, can be varied.

00 = Hit targets 12 times
01 = Hit targets 6 times
02 = Hit targets 4 times
03 = Hit targets 3 times

For adjustement or changes, act on CREDIT button when SW 4 is ON (PROGRAM).
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 = 1.000.000 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 = Knock down the same banks 3 times
01 = Knock down one of the 2 bank 3 times
02-03 = Knock down one of the 2 banks once

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 = 300.000 points

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

BACKGROUND SOUND AND ATTRACTION SENTENCES (Test 29). Background sound is to be adjusted when on play, sentences and sounds when in game over.

00 = Sound disconnected, sentences connected
01 = Sound connected, sentences connected
02 = Sound disconnected, sentences disconnected
03 = Sound connected, sentences 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 it 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 ezpiry, all the controis 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).

REACT FUNCTION VARIANT (Test 35) Difficulty for lighting react lamps again is to be determined.

00 = Hit 1 target
01 - 02 - 03 = Knock down one target bank
To program or modify, act on credit push button when SW 4 in ON (Program)
Note: Tests 18, 36 and 37 are not utilized on "DEVIL RIDERS"

SOUND AND TALK BOARD SELF TEST

With the pintable in GAME OVER condition, act on push-button located on the AUDIO-board; the LED shall start blinking, and each blinking indicates the proper performance of a test, covering a total of 5 blinkings (5 tests).
The 1st blinking inidicates that the RAM store inside the microprocessor is regularly operating.
The 2nd blinking indicates that PIA 1 (IC 15) that is to be used for the dialogue with the «generated sound» (AY-3-8910) is operating.
The 3rd blinking indicates that PIA 2 (IC 14) that serves for the dialogue with the «speech synthetizer» (TMS 5200) is operating.
The 4th blinking indicates that the «sound generator» (AY-3-8910) is operating
The 5th blinking indicates that the «special synthetizer» is operating.
If everything operates properly, LID 1 is extinguished and remains in such conditions only after a certain number of sample phrases.
Keep in mind, that the completion of the SELF TEST does not mean at all that the AUDIO-board is correctly operating in all its parts, but it supplies avery good indication.

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 = Tilt number Player 4 display = Average game duration expressed in minutes	Whith SW4 on ON (PRO GRAM) 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.

PROGRAMMING

N. TEST	FUNCTION	PROGRAMMED VALUE	DESCRIPTION	DATA FOR THE PROGRAMMER
10	High-Score types	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 SW4 on ON act on CREDIT-push-button.
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	Hihg-Score initial value	from 0.00 to 9.99	When test 10 is programmed with 00, initial NORMAL H.S. is programmed. II test 10 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.

Segue: **PROGRAMMING**				
N. TEST	FUNCTION	VALUE PROGRAMMED	DESCRIPTION	DATA FOR THE PROGRAMMER
18	Not used			
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 01	Match exluded (no wins) Match connected (1 Replay)	Act on CREDIT pusch-button with SW4 on ON
22	1st winning scores	from 0.00 to 9.99	1st winning score, which awards the win programmed on test n.26 when exceeded. 0,0,0 = 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 0.00 to 9.99	2nd winning score wich awards the win programmed on test n. 26 when exceeded. 0,00 = no win	
24	3rd winning scores	from 0.00 to 9.99	3rd winning score which awards the win programmed on test n.26 when exceeded, 0,00 = no win.	
25	Wins with HIGHEST SCORE	00 01 02 03 04	No win 1 Replay 2 Replay 3 Replay 1 Superbonus	With SW4 on ON act on CREDIT push-button
26	Wins with scores (see test 22, 23, 24)	00 01 02 03 04	No win 1 Bonus Ball 1 Replay 1 Superbonus 500.000 points	With SW4 on ON act on CREDIT push-button
27	Wins with Special 1	00 01 02 03 04	No win 1 Bonus Ball 1 Replay 1 Superbonus 1.000.000 points	With SW4 on ON act on CREDIT push-button
28	Wins with Special 2	00 01 02 03 04	No win 1 Bonus Ball 1 Replay 1 Superbonus 300.000 points	With SW4 on ON act on CREDIT push-button
29	Background Sound and Attraction sentences	00 01 02 03	Sound disconnected, sentences connected Sound connected, sentences connected Sound disconnected, sentences disconnected Sound connected, sentences disconnected	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 SW4 on ON act on CREDIT push-button
31	Game Time Bonus	00 01	«Game time bonus» disconnected Count down connected	With SW4 on ON act on CREDIT push-button
32	Bonus Ball number variation	00 01 02 03	1 bonus ball 3 Bonus Balls 3 Bonus Balls 3 Bonus Balls	Press CREDIT button when SW4 is ON
33	Red Special	00 01 02 03	Hit targets 12 times Hit targets 6 times Hit targets 4 times Hit targets 3 times	Press CREDIT button when SW4 is ON
34	Special 2 ORANGE	00 01 02-03	Knock down the same bank 3 times Knock down one of the 2 banks 3 times Knock down one of the 2 banks once	Press CREDIT button when SW4 is ON
35	React function variant	00 01-02-03	Hit 1 target Knock down one target bank	Press CREDIT button when SW4 is ON
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

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	

CONDITION	CAUSE	REMEDY	NOTES
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

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.

DEVIL RIDERS
SERIAL N 1532
WINNED G 000000
PLAYED G 000003
COINS # 1 000003
COINS # 2 000003
COINS # 3 000003
****

CONNECTOR CARD FOR "DEVIL RIDERS"

INPUT/OUTPUT POSITION ON THE CONNECTOR
FEEDER BOARD

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	Phink	For flipper control
»	3	–	–
»	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

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-whitw	Output Sound e Speech

C.P.U. board

CN9	→	□	–
»	1	Yellow	170 Vcc
»	2	Black	GND
»	3	White	Power Faillure
»	4	Red	+ 5,6 Vdc
CN10	1	Yellow-orange	Printer – RX +
»	2	Grey-yellow	Printer – RX –
»	3	White-pink	Printer – TX –
»	4	Pink-black	Printer – TX +
»	5	–	–
»	6	White	Contacts – row ∅
»	7	Grey	Contacts – row 1

CONNECTOR	PIN	WIRE COLOUR	SIGNAL
CN10	8	—	—
»	9	—	—
»	10	White-grey	Contacts - column ∅
»	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	Violet-brown	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	Orange	Contacts - row 1
»	10	Grey-white	Contacts - column ∅
»	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

CN16	1	Black	GND
''	2	Red	+ 5,6 Vdc
''	3	Black	GND
''	4	Orange	Flipper Relay
CN17-C	1	Pink-white	Knocker
''	2	White-red	Coin mechanism coil
CN17-P1	3	Yellow-Pink	2nd moving target right bank
''	4	White-Violet	Left fricher flipper
''	5	Yellow-White	Left pop
''	6	Brown-White	Out hole
''	7	White-Blue	Right kicher flipper
CN17-P2	8	Green-White	Right flap
''	9	Green-Brown	Left flap
''	10	Red-Green	Top right pop
''	11	Yellow-Orange	1st moving target right bank
''	12	White-Orange	Right bank
''	13	Yellow-Brown	Right pop
''	14	Grey-White	Left bank
''	15	Black-White	Right move ramp
''	16	Black-Green	2nd moving target left bank
''	17	Yellow-Grey	Left move ramp
''	18	Pink-White	Top left pop
''	19	Red-White	1st moving target left bank
''	20	Yellow-Pink	3rd moving target right bank
''	21	Yellow-White	3rd moving target left bank
CN17-T	22	Yellow-White	Head little bell
''	23	Brown-White	1st speed move rider
''	24	Blue-White	2nd speed move rider
CN18	1	Yellow-white	Bonus 4
''	2	Light blue	Pop 2
''	3	Blue-Yellow	Bonus 8
''	4	Light green-Grey	Bonus 9
''	5	Pink-White	Pop 1
''	6	Pink-Brown	Bonus 6
''	7	Orange-Grey	Playfield relay
''	8	Green-Violet	Bonus 3
''	9	Yellow-Orange	Bonus 2
''	10	Green-White	Bonus 5
''	11	Red-White	Bonus 7
''	12	Light green-Orange	1st left bank
''	13	White	1st right bank
''	14	Brown	Right ''react''
''	15	Blue-Red	3rd left button
''	16	Orange-Violet	Bonus 1
''	17	Blue-Grey	Special left bank
''	18	Red-Black	2nd left bank
''	19	Blue-Orange	2nd right bank
''	20	Blue-White	Left ''react''
CN19	1	Pink	Left advanve multiplier
''	2	Orange-White	1st left button
''	3	Light green-White	2nd left button
''	4	Violet-Red	1st right button
''	5	Violet-Orange	Right advance multiplier
''	6	Brown	Special right bank

CONNECTOR	PIN	WIRE COLOUR	SIGNAL
CN19	7	Brown-Orange	2nd right fixed target
"	8	Pink-Violet	3rd right button
"	9	Yellow-Grey	3rd right fixed target
"	10	Green-Blue	Bonus ball
"	11	Yellow-Brown	2nd right button
"	12	Violet	2nd left fixed target
"	13	Violet-Blue	1st right fixed target
"	14	Black-Grey	"V" red special
"	15	Black-Blue	"S" red special
"	16	Pink-Blue	1st left fixed target
"	17	Red-Grey	Right "E" red special
"	18	Pink-Yellow	3rd left fixed target
"	19	Pink-Black	"L" red special
"	20	Green-Yellow	Right "D" red special
CN20	1	Yellow-White	X 10
"	2	Light Blue	X 20
"	3	Brown-Blue	Orange special
"	4	Light green-Grey	Left "E" red special
"	5	Pink-White	Left "I" red special
"	6	Pink-Brown	Bottom "R" red special
"	7	Orange grey	Right 20.000 PTS
"	8	Light green-Violet	Left 20.000 PTS
"	9	Yellow-Orange	Right advance red special
"	10	Green-White	Left advance red special
"	11	Black-Violet	X 5
"	12	Brown-White	Left "D" red special
"	13	Black-Green	Bonus 20.000 PTS
"	14	Blue-Yellow	Right "I" red special
"	15	Blue-Red	Red special
"	16	—	—
"	17	—	—
"	18	—	—
"	19	Blue-Orange	Top "R" red special
"	20	—	—
CN21	1	—	—
"	1	—	—
"	2	—	—
"	3	—	—
"	4	—	—
"	5	—	—
"	6	—	—
"	7	—	—
"	8	—	—
"	9	Blue-Green	8th move rider
"	10	—	—
"	11	—	—
"	12	Red-White	5th move rider
"	13	Grey-Blue	7th move rider
"	14	Violet-White	2nd move rider
"	15	Black-Grey	4th move rider
"	16	Orange-Brown	3rd move rider
"	17	Black-Red	6th move rider
"	18	Red-Violet	1st move rider
"	19	—	—
"	20	—	—
CN22	1	—	—
"	2	Blue-White	Bonus ball 2
"	3	Violet-Brown	UP game time bonus
"	4	Orange-Black	Balls to play
"	5	Yellow-Red	Credit
"	6	Yellow-Black	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	Violet - Yellow	Down game time bonus
"	15	White-Grey	Game over
"	16	Green-Red	Super bonus
"	17	Red	Can play 3
"	18	Blue	Highest score
"	19	Green-Blue	Bonus ball 1
"	20	—	—

CABINET

Printer service optional	A	Red	43 Vac
»	B	Black	43 Vac
»	C	Yellow-violet	Column 7
»	D	Grey	Row 1
»	E	Yellow-orange	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	Eletric wier
»	5	Red	43 Vac
»	6	Black	Eletric filter
»	7	Light blue	Eletric wier
»	8	Black	43 Vac
»	9	Blue	Eletric filter

TAV. I

› Programmi base › Basic programs › Programmes de base › Grundprogramme

Nº test	ITALIA 1			ITALIA			GREAT BRITAIN			FRANCE			DEUTSCH.			BELGIQUE			JUGOSLA.			U.S.A.		
	SW			SW			SW			SW			SW			SW			SW			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
10 High score	0			1			0			0			0			0			0			0		
11	01			01			01			01			01			01			01			01		
12	00			00			00			00			01			00			01			01		
13	02			02			05			05			02			02			02			01		
14	01			00			03			03			03			01			02			01		
15	02			03			05			10			05			02			02			01		
16	01			01			03			07			07			01			02			01		
17	3,00			4,00			4,00			4,00			4,00			4,00			4,00			4,00		
18	—			—			—			—			—			—			—			—		
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	1,00			1,50			1,50			1,50			1,50			1,50			1,50			1,50		
23	2,00			3,00			3,00			3,00			3,00			3,00			3,00			3,00		
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	—			—			—			—			—			—			—			—		

TAV. II ACTUAL PROGRAMMING EXAMPLES

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 £ =	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

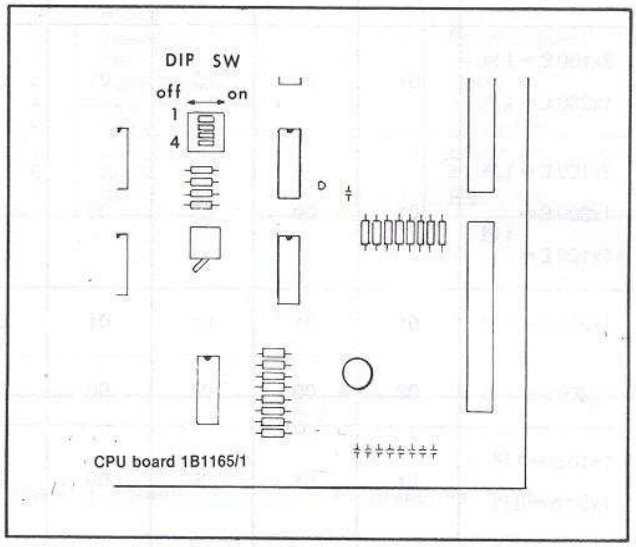
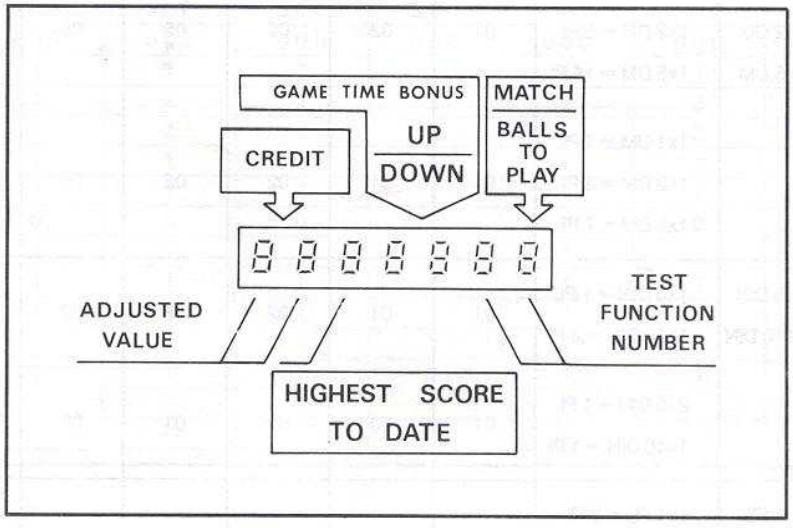
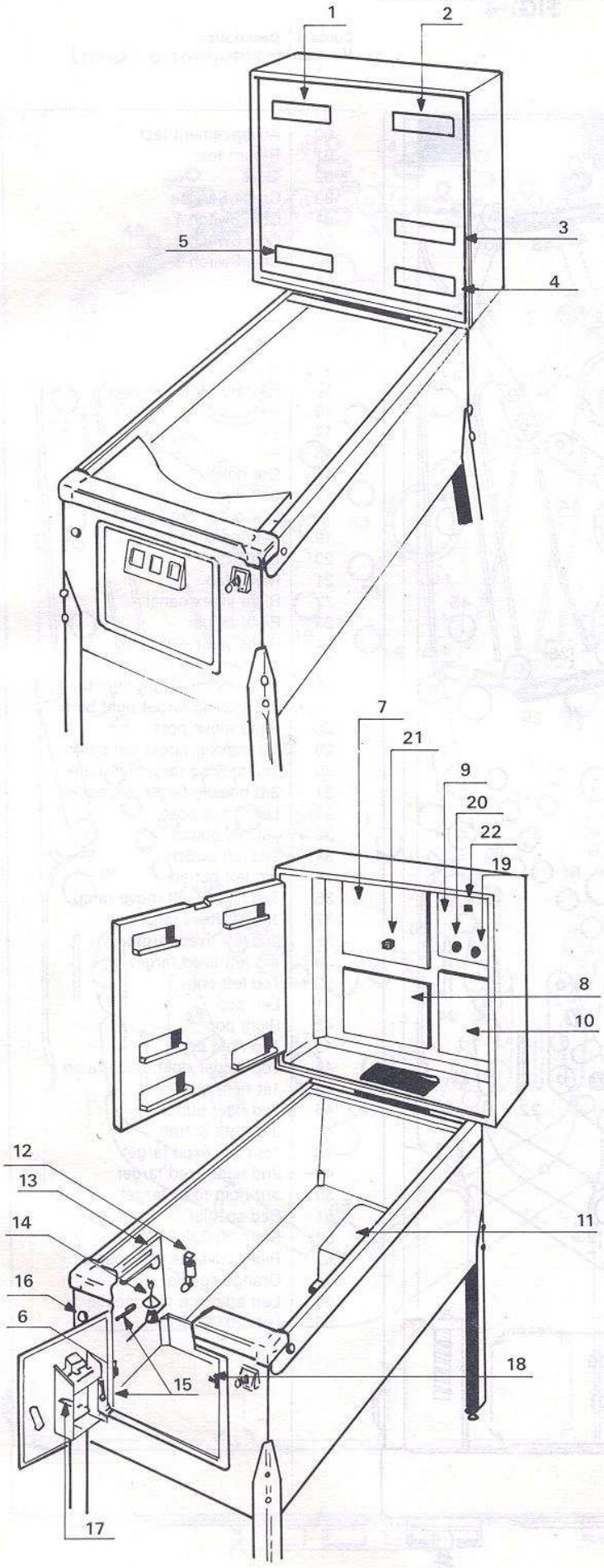

DIP SW
off
on
1
4
CPU board 1B1165/1

FIG.2


GAME TIME BONUS
MATCH
BALLS TO PLAY
CREDIT
UP
DOWN
ADJUSTED VALUE
TEST FUNCTION NUMBER
HIGHEST SCORE TO DATE

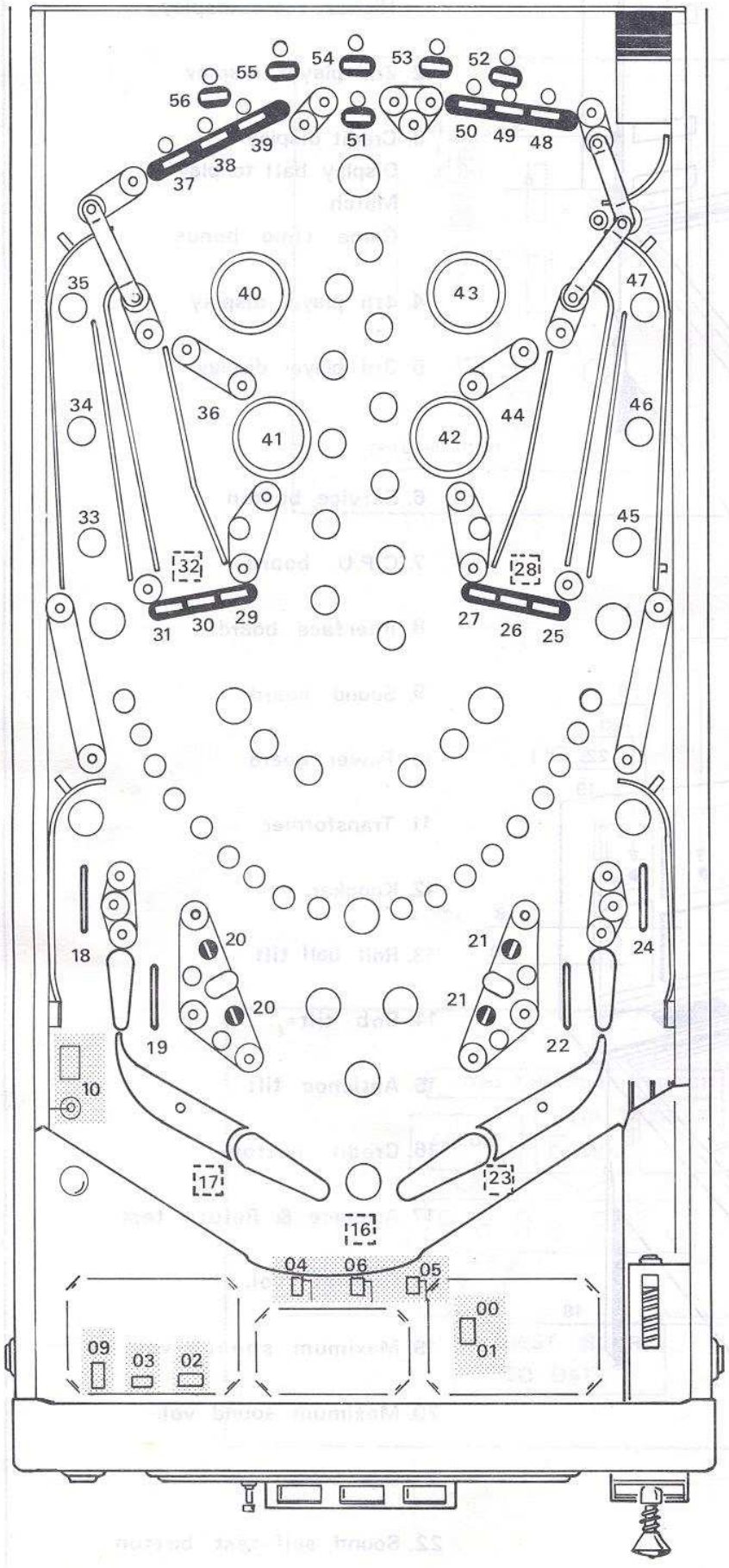
ASSEMBLY DRAWING



1. 1st player display
   Highest score display
2. 2nd player display
3. Credit display
   Display ball to play
   Match
   Game time bonus
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 speach vol.
20. Maximum sound vol.
21. Dip SWS
22. Sound self-test button

FIG. 4

Contact arrangement

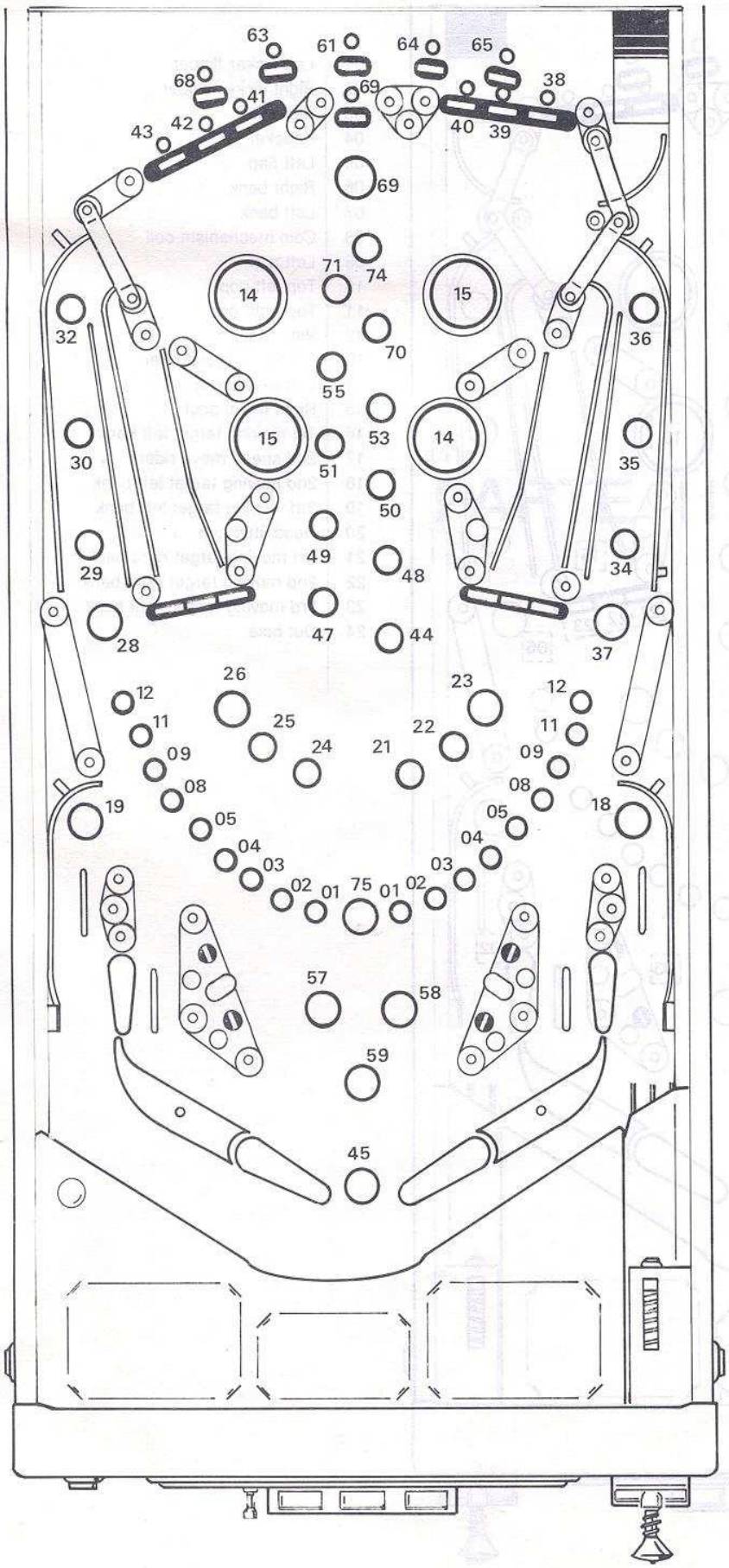


Inside cabinet contacts

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	Move rider
12	Factory burn test
13	—
14	—
15	—
16	Out hole
17	Left flipper
18	Left outer exit canal
19	Left innex canal
20	Left flap
21	Right flap
22	Right innex canal
23	Right flipper
24	Right outer exit canal
25	1st moving target right bank
26	2nd moving target right bank
27	3rd moving target right bank
28	Right move post
29	1st moving target left bank
30	2nd moving target left bank
31	3rd moving target left bank
32	Left move post
33	1st left button
34	2nd left button
35	3rd left button
36	Top flipper left move ramp
37	1st left fixed target
38	2nd left fixed target
39	3rd left fixed target
40	Top left pop
41	Left pop
42	Right pop
43	Top right pop
44	Top flipper right move ramp
45	1st right button
46	2nd right button
47	3rd right button
48	1st right fixed target
49	2nd right fixed target
50	3rd right fixed target
51	Red special
52	Right 20.000 PTS
53	Right advance red special
54	Orange special
55	Left advance red special
56	Left 20.000 PTS

FIG. 5

Lamp arrangement

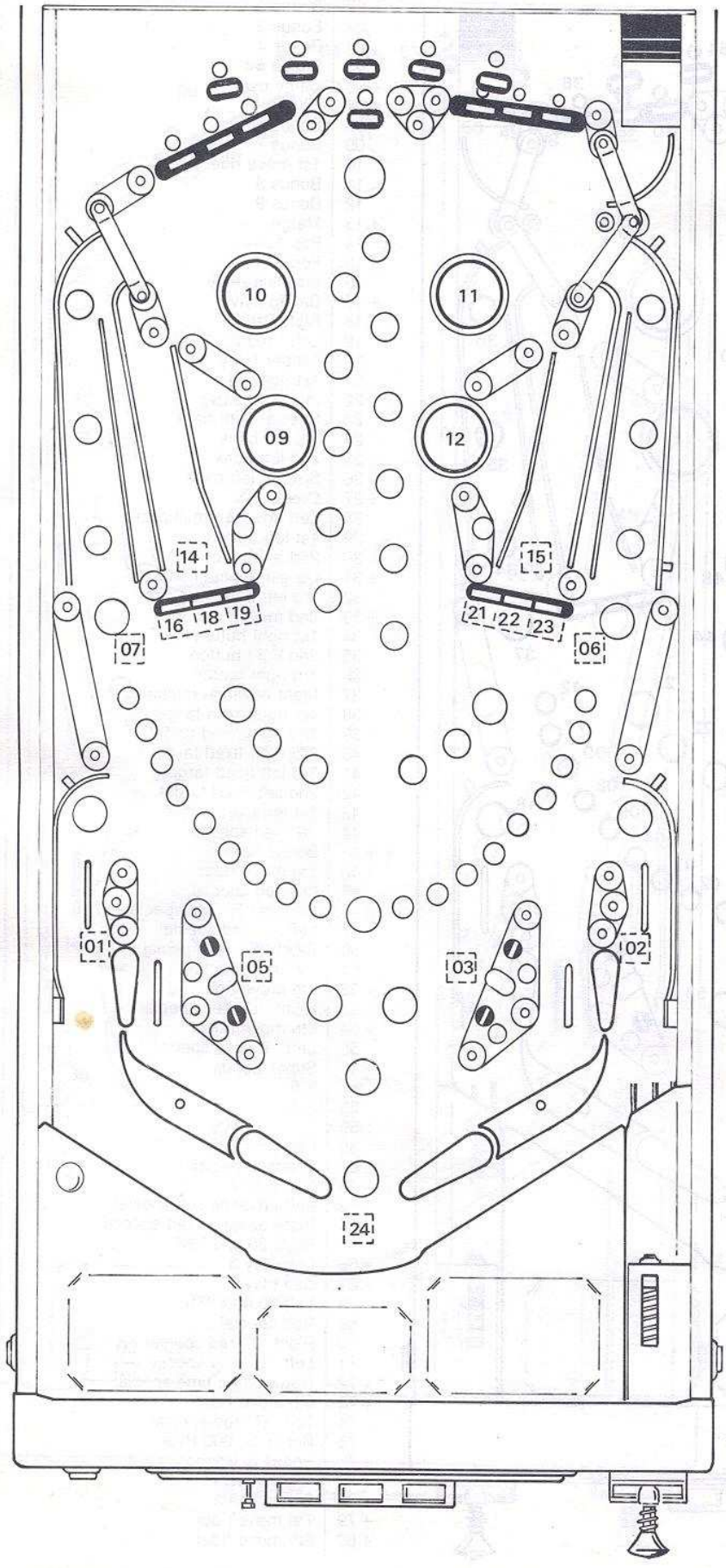


Lamp	Description
01	Bonus 1
02	Bonus 2
03	Bonus 3
04	Bonus 4
05	Bonus 5
+06	Game over
+07	Tilt
08	Bonus 6
09	Bonus 7
10	1st move rider
11	Bonus 8
12	Bonus 9
+13	Match
14	Pop 1
15	Pop 2
16	Playfield relay
+17	Ball to play
18	Right "react"
19	Left "react"
20	Flipper relay
21	1st right bank
22	2nd right bank
23	Special right bank
24	1st left bank
25	2nd left bank
26	Special left bank
+27	Credit
28	Left advance multiplier
29	1st left button
30	2nd left button
+31	Up game time bonus
32	3rd left button
+33	2nd move rider
34	1st right button
35	2nd right button
36	3rd right button
37	Right advance multiplier
38	1st right fixed target
39	2nd right fixed target
40	3rd right fixed target
41	3rd left fixed target
42	2nd left fixed target
43	1st left fixed target
44	"S" red special
+ +45	Bonus ball
+46	3rd move rider
47	"L" red special
48	Bottom "R" red special
49	Left "I" red special
50	Right "E" red special
51	"V" red special
+52	4th move rider
53	Right "D" red special
+54	5th move rider
55	Left "E" red special
+56	Super Bonus
57	X 5
58	X 10
59	X 20
+60	Can play 1
61	Orange special
+62	Can play 2
63	Left advance red special
64	Right advance red special
65	Right 20.000 PTS
+66	Can play 3
+67	Can play 4
68	Left 20.000 PTS
69	Red special
70	Right "I" red special
71	Left "D" red special
+72	Down game time special
+73	6th move rider
74	Top "R" red special
75	Bonus 20.000 PTS
+76	Bonus ball 2
+77	Highest score
+78	Bonus ball 3
+79	7th move rider
+80	8th move rider

+ : head lamps
+ + : head and playfield lamps

FIG. 6

Solenoid arrangement



Sol n°	Description
01	Left kicker flipper
02	Right kicker flipper
03	Right flap
04	Knocker
05	Left flap
06	Right bank
07	Left bank
08	Coin mechanism coil
09	Left pop
10	Top left pop
11	Top right pop
12	Right pop
13	1st speed move rider
14	Left move post
15	Right move post
16	1st moving target left bank
17	2nd speed move rider
18	2nd moving target left bank
19	3rd moving target left bank
20	Head little bell
21	1st moving target right bank
22	2nd moving target right bank
23	3rd moving target right bank
24	Out hole

F.LLI ZACCARIA S.n.c.
di Zaccaria Marino - Franco - Natale
COSTRUZIONI GIOCHI D'ATTRAZIONE
Via Armaroli, 15 - 40012 CALDERARA DI RENO (Bo) Italy
Telefono (051) 72 23 81 - 82 con ricerca automatica
Telex 213683 ZACC. I.

Devil Riders

PARTE II

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ricambi

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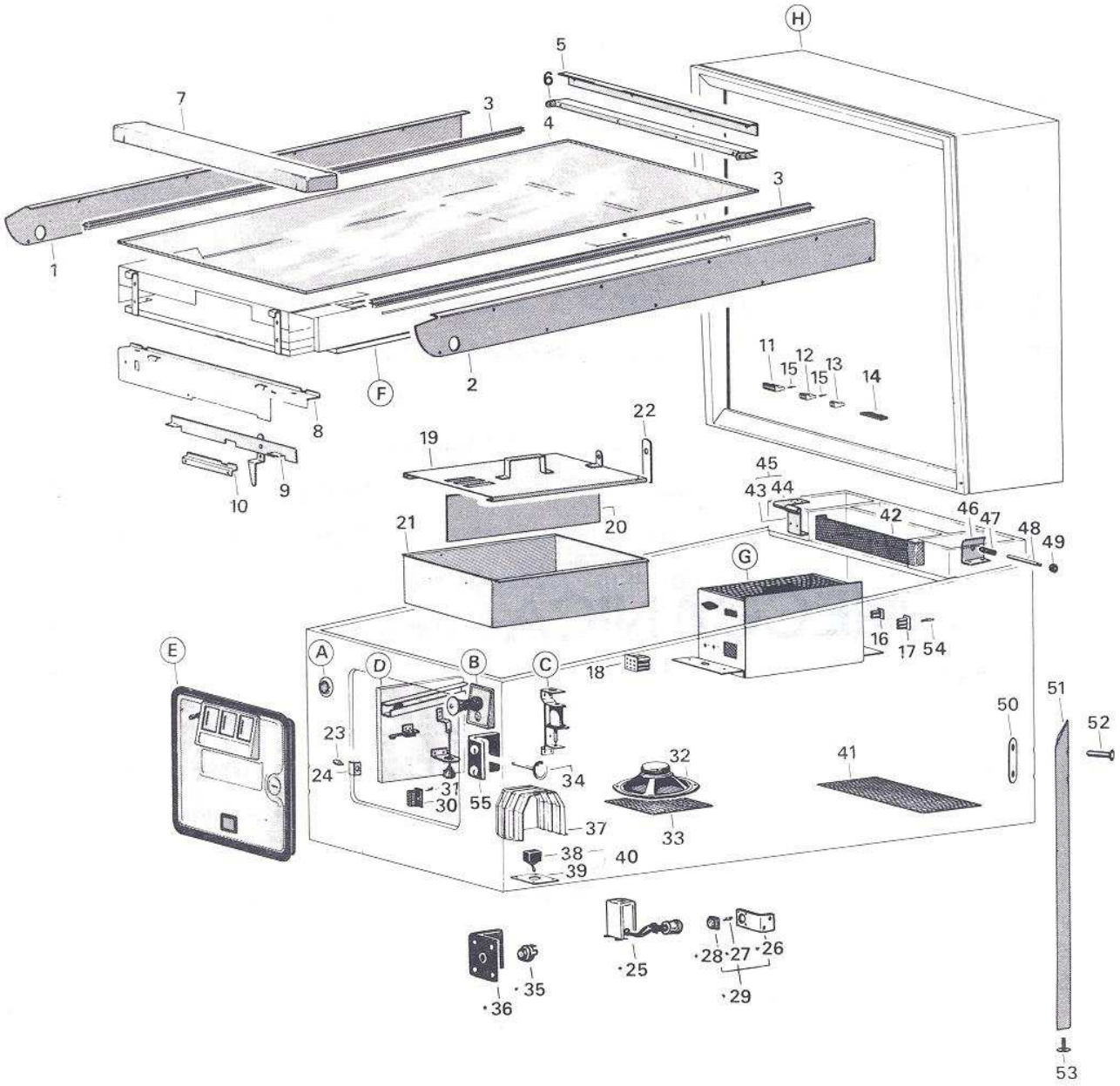
ELETTRONICA

MECCANICA

catalogo
ricambi

TAV. I



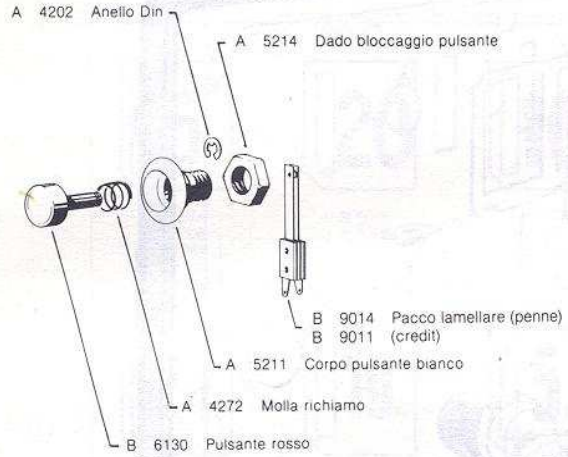
1	A 7219	Sponda sinistra
2	A 7218	Sponda destra
3	A 7039	Guida vetro
4	MV 015	Vetro del piano di gioco
5	A 7073	Angolare vetro
6	A 7074	Colletto cassone
7	B 7090	Poggiamano
8	B 7085	Aggancio poggiamano
9	B 7044	Leva aggancio poggiamano
10	A 7099	Squadretta fissaggio leva
11	CE 1986	Connettore 7 vie arancio (femmina)
12	CE 1989	Connettore 3 vie giallo (femmina)
13	CE 1988	Connettore 2 vie giallo (femmina)
14	CE 1984	Connettore 20 vie nero (femmina)
15	CE 1993	Chiave di polarizzazione 640630-1
16	CE 1808	Connettore 2 vie AMP volante
17	CE 1764	Connettore 3 vie AMP volante
18	CE 1765	Connettore 9 vie AMP volante
19	B 7217	Coperchio cassetta monete
20	A 7272	Divisorio cassetta monete
21	B 7216	Cassetta monete
22	A 6018	Squadretta fissaggio cassetta monete
23	CE 3002	Pulsante a saldare 9633 - 9433
24	A 5317	Squadretta a «L» porta pulsante credit
*25	CEB 145	Contatore «Valore» delle monete
*26	A 7174	Squadretta porta connettore
*27	CE 1325	Contatto femmina
*28	CE 1326	Connettore per stampante UTG porta femmina
*29	B 7173	Connettore per stampante montato e cablato
30	CE 1339	Connettore femmna 2 × 8 MODU 2
31	CE 1340	Contatto femmina MODU 2
32	CE 2018	Altoparlante 7W 4 Ω
33	A 7150	Rete protezione altoparlante
34	CE 1753	Potenziometro 100
35	CE 3082	Jack cuffia
36	A 7406	Staffa supporto potenziometro e Jack
37	A 7217	Protezione interruttore
38	A 4451	Interruttore
39	A 5112	Piastrina porta interruttore
40	B 7172	Interruttore montato
41	A 7398	Lamiera forata 320 × 160
42	A 7176	Rete protezione colletto cassone
43	B 7140	Cerniera maschio con perno
44	A 7155	Cerniera corta
45	B 7171	Completo cerniera
46	A 6256	Squadretta guida asta aggancio automatico
47	A 6258	Molla aggancio automatico
48	A 6257	Asta aggancio automatico
49	A 6220	Manopola zigrinata 5 MA
50	A 6106	Piastrina fissaggio bulloni
51	E 003	Gamba flipper
52	A 7047	Bullone
53	B 7045	Piedino
54	CE 1966	Contatto AMP maschio
55	A 6308	Squadretta porta pulsanti programmazione

*OPTIONAL

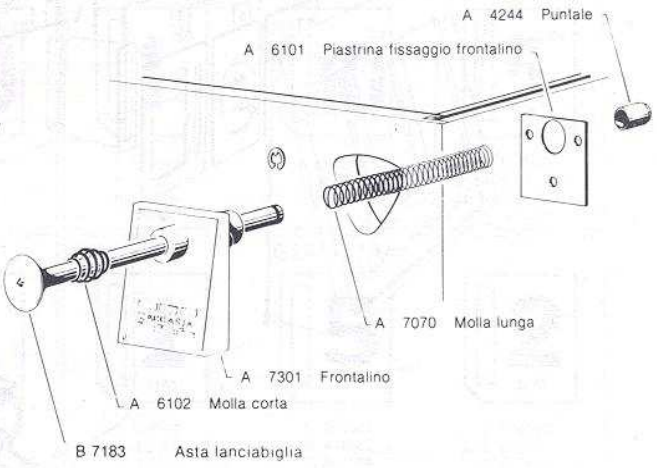
A	Vedi:	TAV. II	pag. 5
B	Vedi:	TAV. II	pag. 5
C	Vedi:	TAV. II	pag. 5
D	Vedi:	TAV. II	pag. 5
E	Vedi:	TAV. III	pag. 6-7
F	Vedi:	TAV. IV	pag. 8-9
G	Vedi:	TAV. XIV	pag. 19
H	Vedi:	TAV. XV	pag. 20

TAV. II

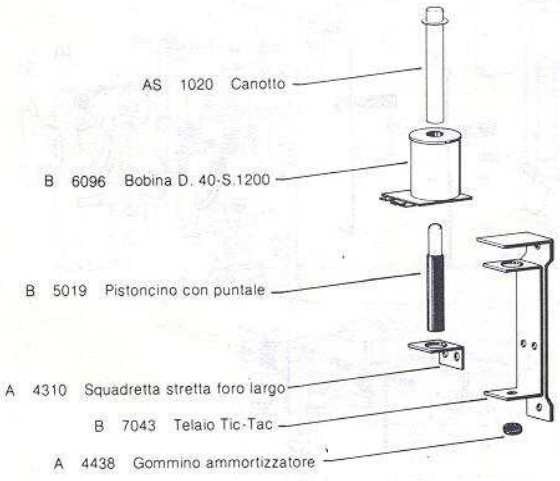
A PULSANTE



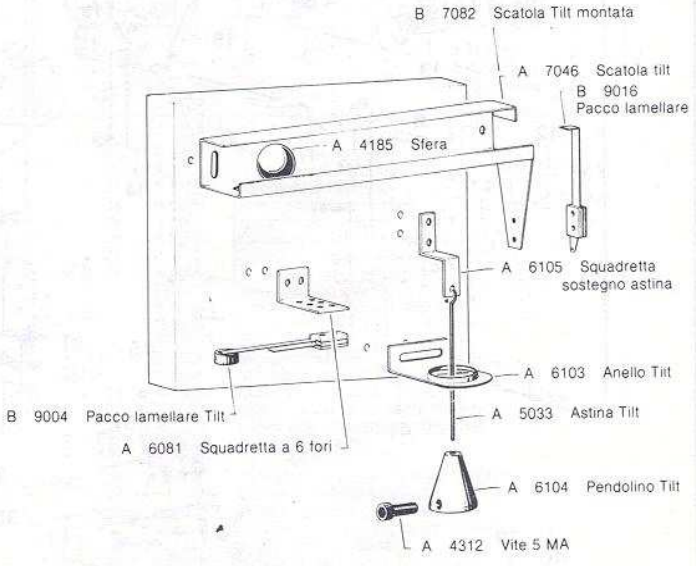
B C 8004 LANCIABIGLIA



C C 8091 TIC-TAC

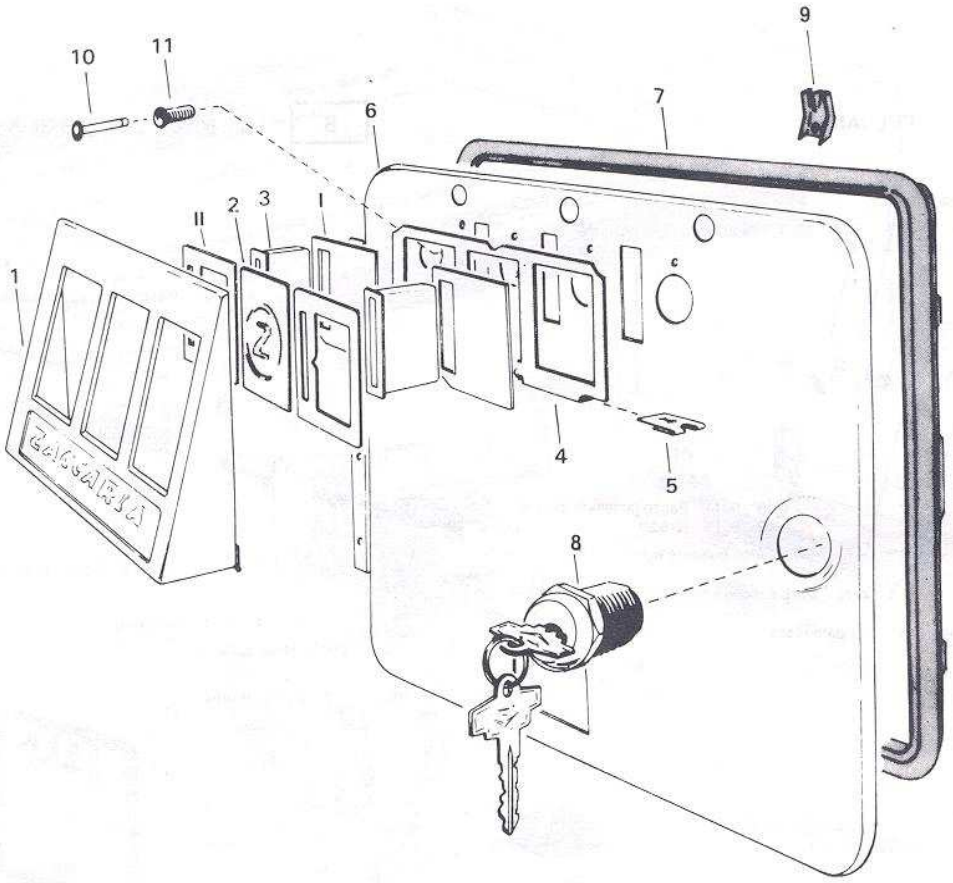


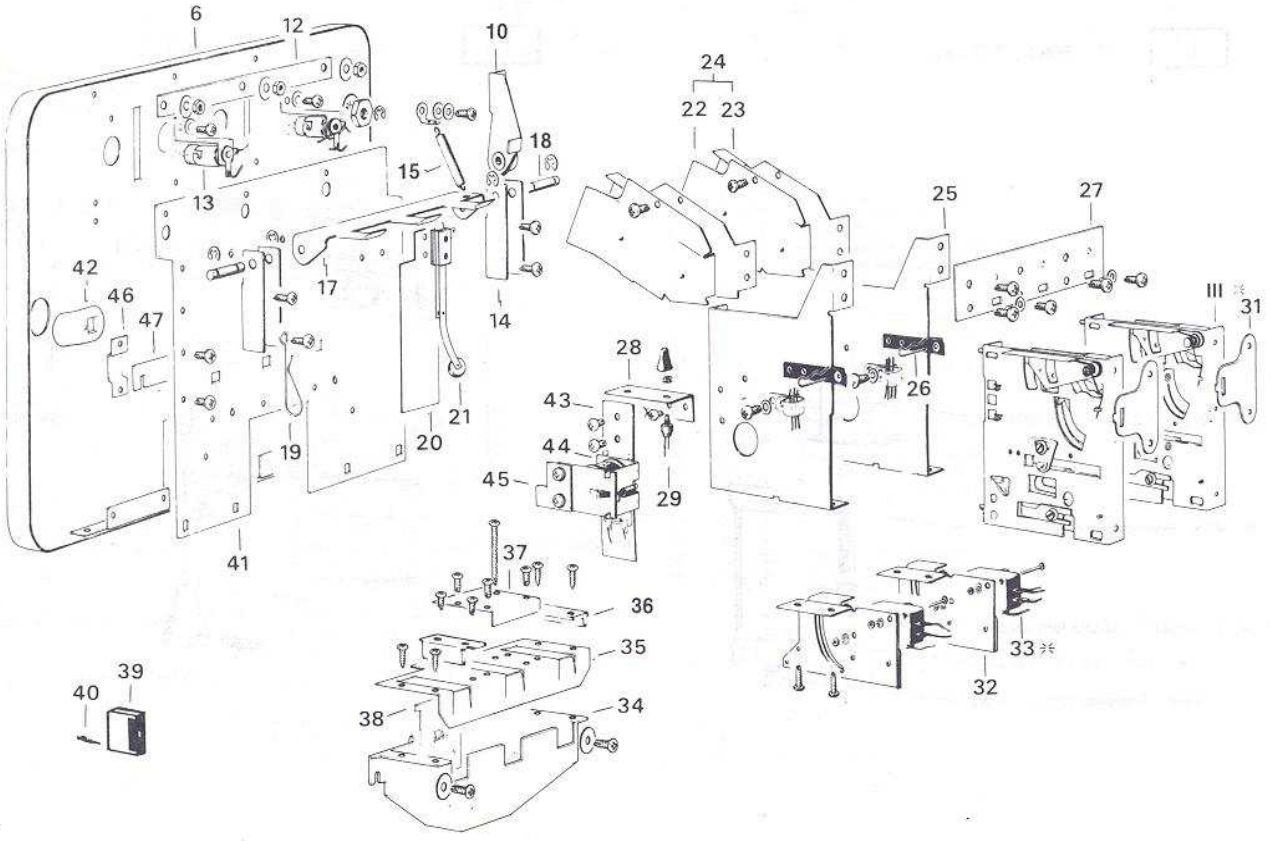
D C 8006 TAVOLETTA TILT



TAV. III

E C 8140 SPORTELLO PORTA GETTONIERE





AUSTRALIA

I B 5056
II A 5007
III B 7258

AUSTRIA

I B 5045
II A 5008

I B 5047
II A 5007

BELGIO

I B 5074
II A 5008
III B 7244

I B 5076
II A 5007

I B 5075
II A 5007
III B 7148

DANIMARCA , SVEZIA

I B 4074
II A 5007
III B 7337
* B 7327

I B 5066
II A 5007

I B 5065
II A 4401m.
III B 7336
* B 7328

FRANCIA

I B 6166
II A 5008
III B 7239

I B 5034
II A 4401
III B 7097

I B 5060
II A 4401
III B 7096

GERMANIA

I B 4059
II A 5008
III B 7112

I B 4041
II A 4401
III B 7114

I B 4060
II A 5007
III B 7113

INGHILTERRA

I B 4062
II A 5007
III B 7099

I B 4091
II A 4401
III B 7147

ITALIA

I B 5091
II A [illegible]7
III B 7084

I B 6136
II A 5242
III B 7175

SVIZZERA

I B 5024
II A 5008

I B 5060
II A 4401

I B 5025
II A 5007

UNGHERIA

I B 6174
II A 5007
III B 7084

I B 6173
II A 5242
III B 7175 m

U.S.A. , CANADA

I B 5046
II A 5008
III B 7092

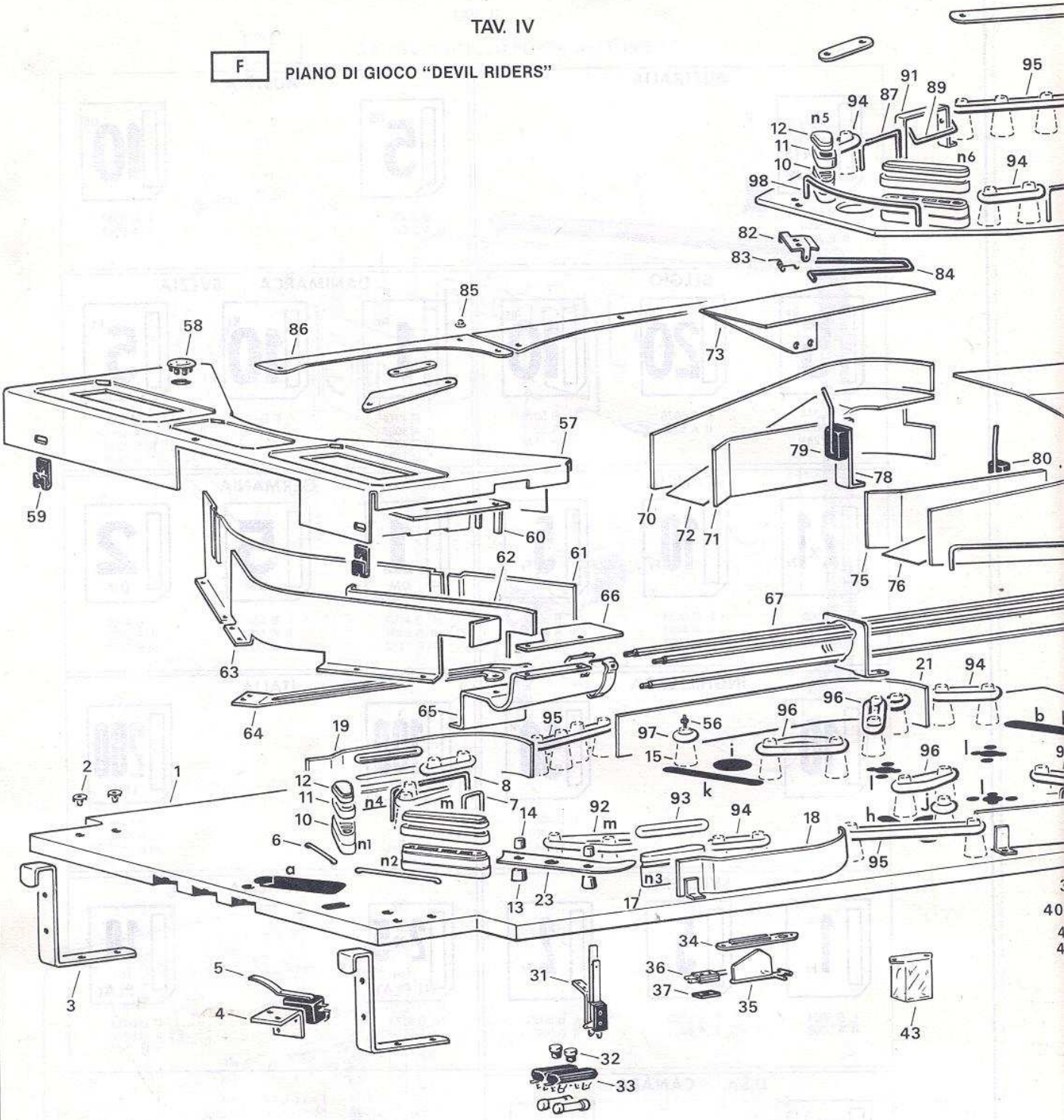
I B 5061
II A 5007
III B 7084m.

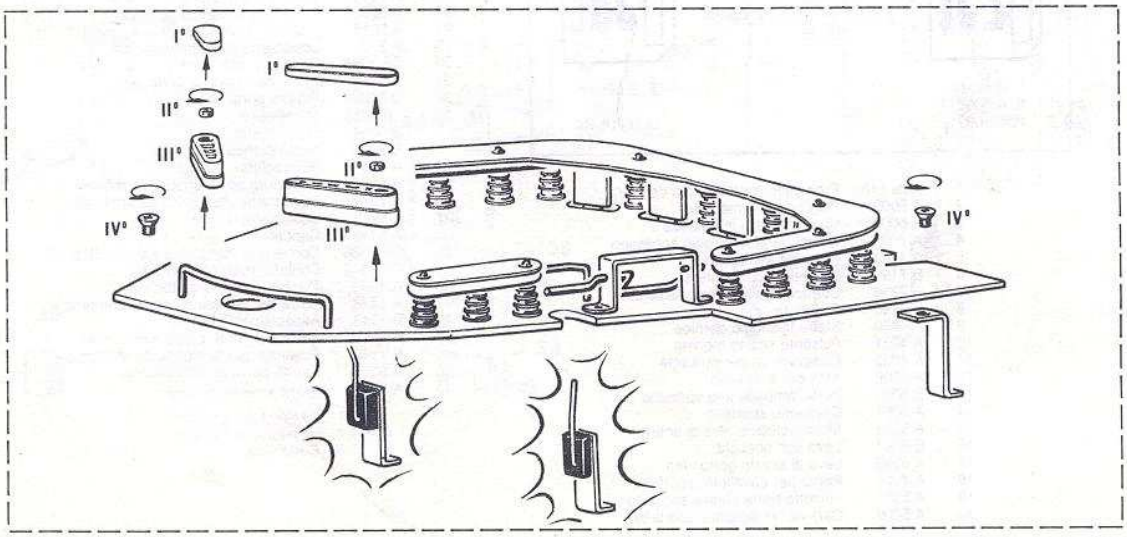
1	ASB 116	Frontalino sportello con cerniera
2	A 5009	Piastrina con marchio
3	A 6008	Guida moneta in plastica
4	A 7005	Componente fissaggio accessori
5	A 4383	Piastrina semidoppia
6	B 7194	Sportello con cerniera
7	A 7236	Cornice in alluminio pressofuso
8	B 7196	Serratura
9	A 4460	Staffa fissaggio cornice
10	A 4031	Pulsante scarto moneta
11	A 4032	Componente per pulsante
12	A 5006	Asta per frontalino
13	B 5029	Porta lampada alto sportello
14	A 6001	Cavallotto sportello
15	A 5201	Molla richiamo leva di scarto
16	B 6001	Leva con boccola
17	A 6002	Leva di scarto gettoniera
18	A 4005	Perno per cavallotto sportello
19	A 5021	Ferretto porta chiave sportello
20	A 5205	Cartoncino isolatore sportello
21	B 9015	Pacco lamellare tilt
22	A 7009	Scorrimonete maschio
23	A 7008	Scorrimonete femmina
24	B 6076	Scorrimonete assemblato
25	B 7006	Supporto gettoniera
26	A 5252	Forcellina fissaggio gettoniera
27	A 5014	Piastrina accoppiamento supporti
28	A 5206	Squadretta porta pulsanti
29	CE 3085	Deviatore con ritorno
31	A 5114	Piastrina fissaggio gettoniera
32	B 6109	Piastra porta micro
33	*B 5053	Micro nero
	B 5054	Micro rosso
	B 5055	Micro bianco
34	A 7300	Raccoglitore in lega
35	A 6009	Copertura per raccoglitore monete
36	A 7279	Squadretta unidirezionale antifrode
37	A 5010	Squadretta a 4 fori
38	A 5011	Cancelletto
39	CE 1338	Connettore maschio 2 x 8 vie MODU 2
40	CE 1348	Contatto maschio MODU 2
41	A 7002	Piastra supporto gettoniere
42	A 4328	Leva per serratura sportello anteriore
43	B 7143	Alloggiamento bobina
44	B 6101	Bobina D. 12-S. 6.000 con nucleo
45	B 7144	Piastrina con componente in ottone
46	A 5002	Fermo barra arresto moneta
47	A 5001	Barra arresto moneta

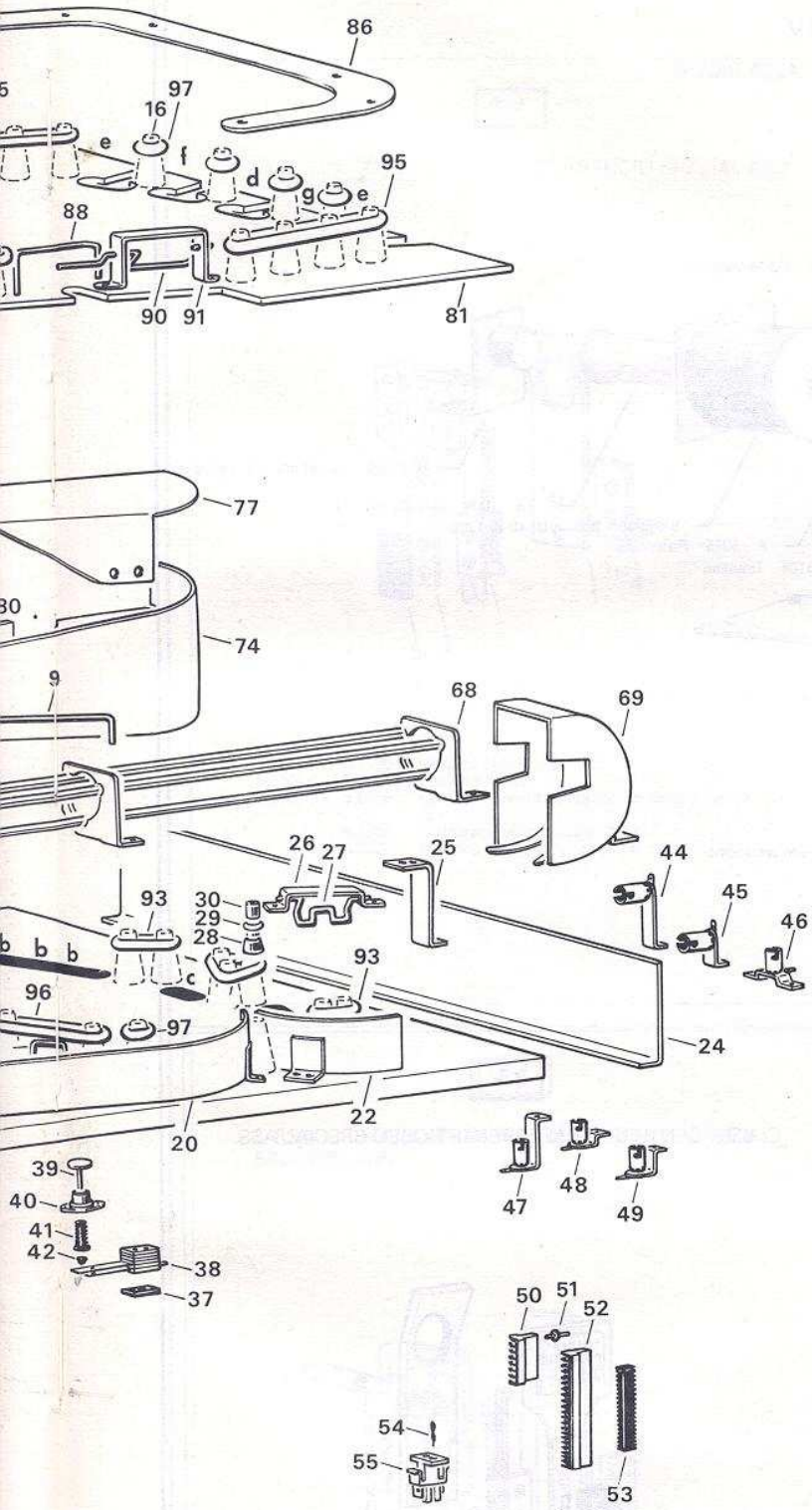
I Piastrina serigrafata
II Introduzione moneta
III Gettoniera

TAV. IV

F PIANO DI GIOCO "DEVIL RIDERS"



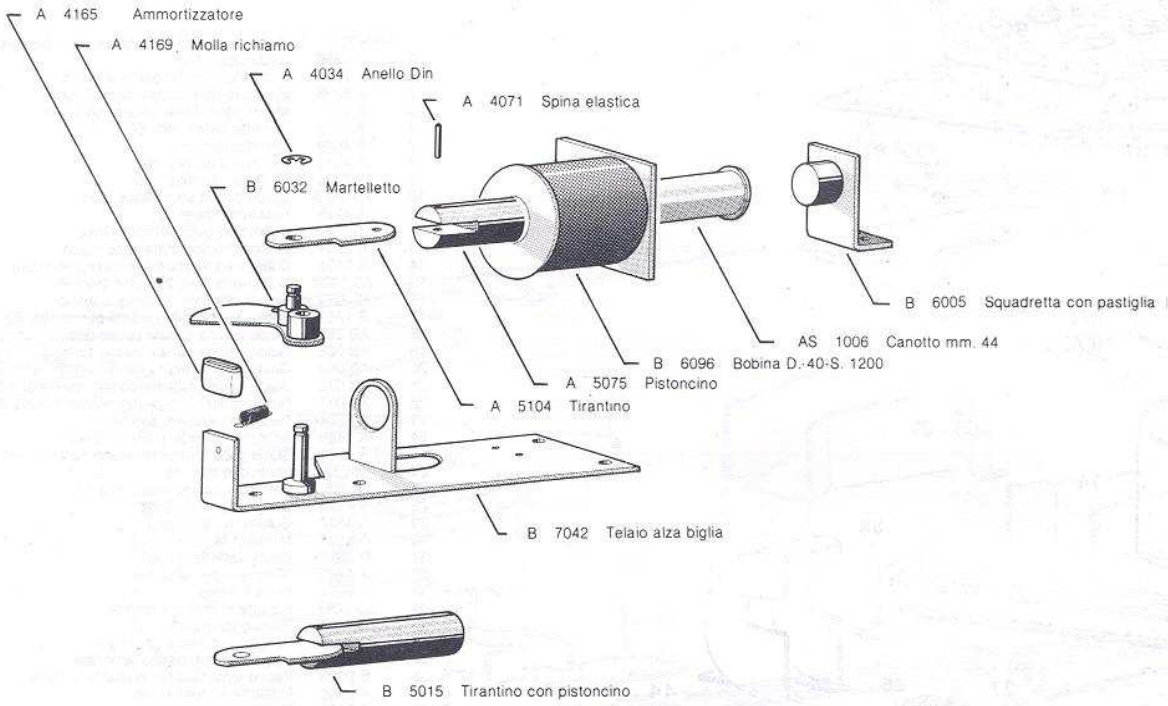




1	MRB 722	Piano di gioco serigrafato mod. "Devil Riders"
2	A 4386	Dado sicurf /M4
3	A 7364	Supporto alto per piano di gioco
4	A 5298	Supporto mircro della buca finale
5	B 6164	Micro interruttore della buca finale
6	A 4368	Ferretto basso mm. 80
7	A 4629	Ferretto mm. 30
8	A 4431	Ferretto alto mm. 80
9	A 4395	Ferretto alto mm. 185
10	AS 1079	Corpo penna smontabile rosso
11	A 4245	Fascetta flipper
12	AS 1080	Coperchio penna flipper rosso
13	A 5194	Colonnetta spaccata base rossa
14	A 5195	Colonnetta spaccata a coperchio rossa
15	AS 1200	Colonnetta mm. 27 color arancio
16	AS 1200	Colonnetta mm. 27 color arancio
17	B 7362	Penna smontabile piccola perno mm. 62
18	XB 066	Guida pallina canale basso destro
19	XB 065	Guida pallina canale basso sinistro
20	XB 069	Guida pallina destra canale fioretti con piedini saldati
21	XB 070	Guida pallina sinistra canale fioretti con piedini saldati
22	XB 071	Guida pallina con piedini saldati canale lancio
23	A 6274	Piastrina recupero pallina
24	A 7480	Angolare rinforzo piano di gioco
25	A 4574	Staffa a "Z" supporto piano rialzato
26	X 037	Ponticello mm. 48
27	X 035	Ferretto unidirezionale mm. 48
28	A 4533	Componente minipost
29	A 4537	Gommino minipost
30	A 4535	Minipost M4
31	B 9019	Pacco lamellare flap
32	A 4068	Gommino per minipost
33	B 7054	Porta fusibile
34	AS 1042	Basetta in plastica grande
35	AS 1035	Passaggio grande
36	B 9008	Pacco lammellare passaggi
37	A 6020	Piastrina copri pacco lamellare
38	B 9009	Pacco lamellare per pulsante a stella
39	A 5066	Pulsante a stella rosso
40	A 5199	Basetta per pulsante
41	A 5233	Inserto di regolazione in ottone
42	A 4260	Quiclok
43	Cec 005	Relay PR 41B 0048
44	B 6045	Porta lampada alto
45	B 6222	Porta lampada piatto alto mm. 15
46	B 6177	Portalampada piano bingo
47	B 6045	Portalampada alto
48	B 6043	Portalampada basso
49	B 6044	Portalampada medio
50	CE 1986	Connettore 7 vie AVG femmina, arancio
51	CE 1993	Chiavetta di polarizzazione
52	CE 3154	Connettore 14 vie AVG femmina, giallo
53	CE 1984	Connettore 20 vie AVG femmina, nero
54	CE 1966	Contatto AMP maschio
55	CE 1808	Connettore 2 vie AMP volante
56	A 7055	Vite portaisole legno (A 7063 vite portaisole /M4)
57	MRB 709	Carter serigrafato Devil Riders
58	A 4362	Spia rossa
59	A 4343	Piastrina semidoppia fissaggio carter
60	MRB 710	Graduatore serigrafato Devil Riders
61	A 7361	Angolare rialzo carter
62	A 7360	Guida pallina corta alta
63	A 7359	Guida pallina lunga alta
64	A 7363	Binario pallina alto
65	B 7293	Staffa raccoglitore pallina P.C.
66	A 6319	Copertura lancia biglia
67	A 7575	Trafila per canale lancio pallina 790 mm.
68	A 6269	Supporto trafila A 90°
69	B 7288	Canale risalita pallina assemblato
70	B 7373	Sponda lunga rampa mobile sinistra con piedini saldati
71	B 7375	Sponda corta rampa mobile sinistra con piedini saldati
72	B 7381	Supporto rampa mobile sinistra con molla
73	A 7573	Copertura rampa mobile sinistra
74	B 7372	Sponda lunga rampa mobile destra con piedini saldati
75	B 7374	Sponda corta rampa mobile destra con piedini saldati
76	B 7378	Supporto rampa mobile destra con molla
77	A 7574	Copertura rampa mobile destra
78	A 5347	Squadretta supporto microinterruttore ponticello
79	B 6185	Microinterruttore E 51-60-B-R
80	B 6254	Microinterruttore E 51-60-E
81	MRB 707	Piano rialzato in plexiglas serigrafato Devil Riders
82	A 4723	Supporto ferretto discesa pallina piegato 90°
83	A 4564	Molla a torsione richiamo ferretto discesa pallina
84	A 4562	Ferretto discesa pallina
85	A 4279	Coperchiotto isole
86	MRB 711	Isole piane Devil Riders
87	x113	Ferretto filettato M3 piegato L = 73 mm. sinistro
88	x112	Ferretto filettato M3 piegato L = 73 mm. destro
89	x105	Ferretto sinistro comando micro
90	x111	Ferretto destro comando micro
91	A 4619	Ponticello supporto ferretto
92	A 4254	Gommino N. 6
93	A 4248	Gommino N. 1
94	A 4250	Gommino N. 2
95	A 4253	Gommino N. 5
96	A 4252	Gommino N. 4
97	A 4246	Gommino N..0
98	x108	Ferretto filettato 3MA mm. 134

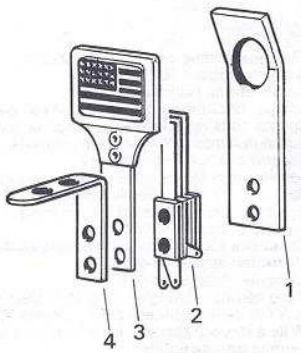
TAV. V

Fa C 8050 ALZA BIGLIA



Fb

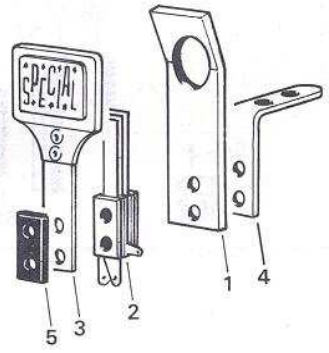
C 8381 CENTRINO STELLE E STRISCIE ASSEMBLATO



1	A 6335	Rinforzo centrino con foro
2	B 9007	Pacco lamellare
3	B 6255	Centrino trasparente
4	A 6318	Squadretta porta centrino n.t.

Fc

C. 8361 CENTRINO TRASPARENTE ROSSO SPECIAL ASS.

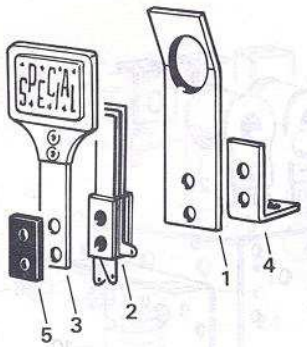


1	A 6335	Rinforzo centrino con foro
2	B 9007	Pacco lamellare
3	B 6247	Centrino trasparente rosso special con lamella
4	A 6318	Squadretta porta centrini n.f.
5	A 6020	Piastrina copri pacco lamellare

TAV. VI

Fd

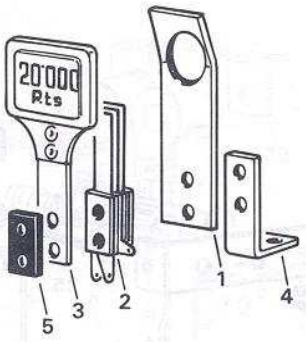
C 8382 CENTRINO TRASPARENTE ARANCIO SPECIAL ASS.



1	A 6335	Rinforzo centrino con foro
2	B 9007	Pacco lamellare
3	B 6256	Centrino trasparente arancio special con lamella
4	A 4682	Squadretta porta bersagli 20x30
5	A 6020	Piastrina copri pacco lamellare

Fe

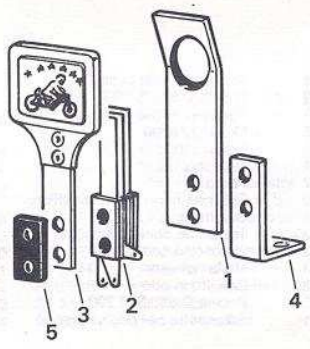
C. 8383 CENTRINO TRASPARENTE 20.000 PTS ASS.



1	A 6335	Rinforzo centrino con foro
2	B 9007	Pacco lamellare
3	B 6257	Centrino trasparente 20.000 PTS con lamella
4	A 4682	Squadretta porta bersagli 20 × 30
5	A 6020	Piastrina copri pacco lamellare

Ff

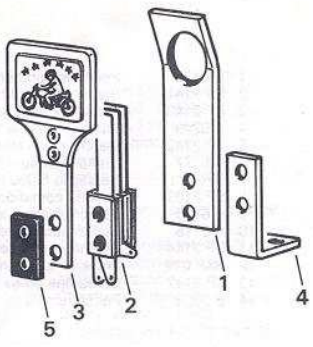
C 8384 CENTRINO TRASPARENTE ADVANCE SPECIAL SINISTRO ASS.



1	A 6335	Rinforzo centrino con foro
2	B 9007	Pacco lamellare
3	B 6258	Centrino trasparente advance special sinistro con lamella
4	A 4682	Squadretta porta bersagli 20x30
5	A 6020	Piastrina copri pacco lamellare

Fg

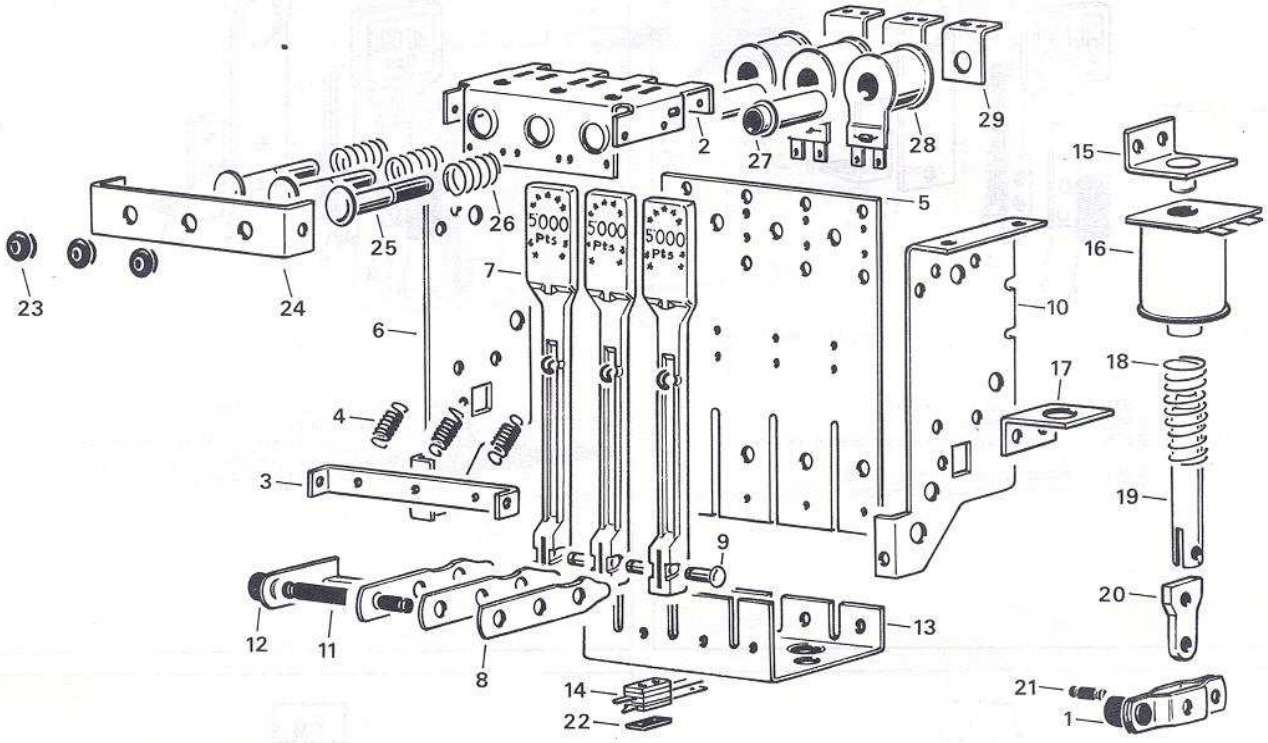
C 8385 CENTRINO TRASPARENTE ADVANCE SPECIAL DESTRO ASS.



1	A 6335	Rinforzo centrino con foro
2	B 9007	Pacco lamellare
3	B 6259	Centrino trasparente advance special destro con lamella
4	A 4682	Squadretta porta bagagli 20 × 30
5	A 6020	Piastrina copri pacco lamellare

TAV. VII

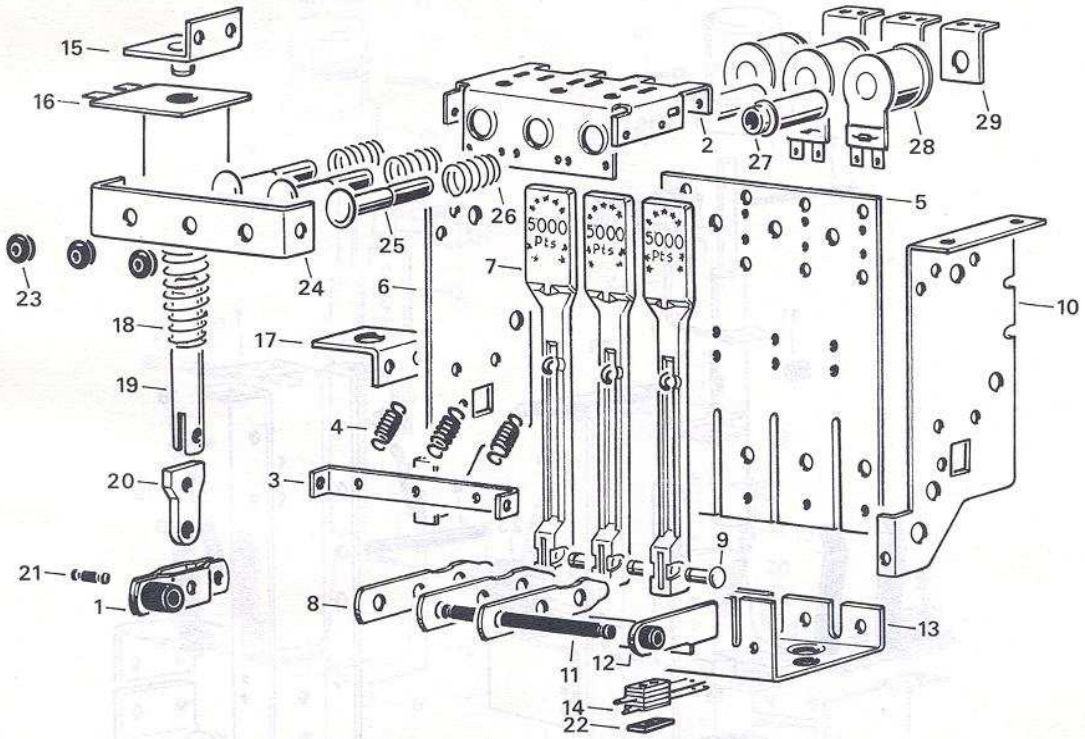
F h C 8386 BANCO BERSAGLI A 3 POSIZIONI DESTRO



1	B 6123	Piastrine con boccola
2	SP 2141	Staffa fissaggio bobine piccole
3	SP 2140	Trave per aggancio molle
4	A 6249	Molla a trazione
5	SP 2143	Piastra guida leve
6	A 6177	Staffa laterale sinistra
7	MRB 717	Bersaglio 5.000 PTS
8	SP 2153	Levetta comando bersagli
9	A 6185	Perno fissaggio leva
10	A 6178	Staffa laterale destra
11	SP 2144	Alberino fulcro leve
12	BSP 019	Trave di collegamento destro
13	SP 2142	Staffa fine corsa
14	B 9006	Pacco lamellare
15	B 6121	Squadretta con pastiglia
16	B 6112	Bobina D.50 - S.1600
17	A 6179	Squadretta foro grande
18	A 6110	Molla richiamo
19	A 6188	Pistoncino
20	A 6184	Tirantino
21	A 6187	Perno
22	A 6020	Piastrina copri pacco lamellare
23	A 4438	Gommino
24	SP 2139	Trave fine corsa pistoncini
25	B 6122	Pistoncino con puntale
26	A 4263	Molla richiamo
27	AS 1053	Canotto in ottone
28	B 6120	Bobina D 355-S. 1.200
29	A 6181	Squadretta per bobina piccola

TAV. VIII

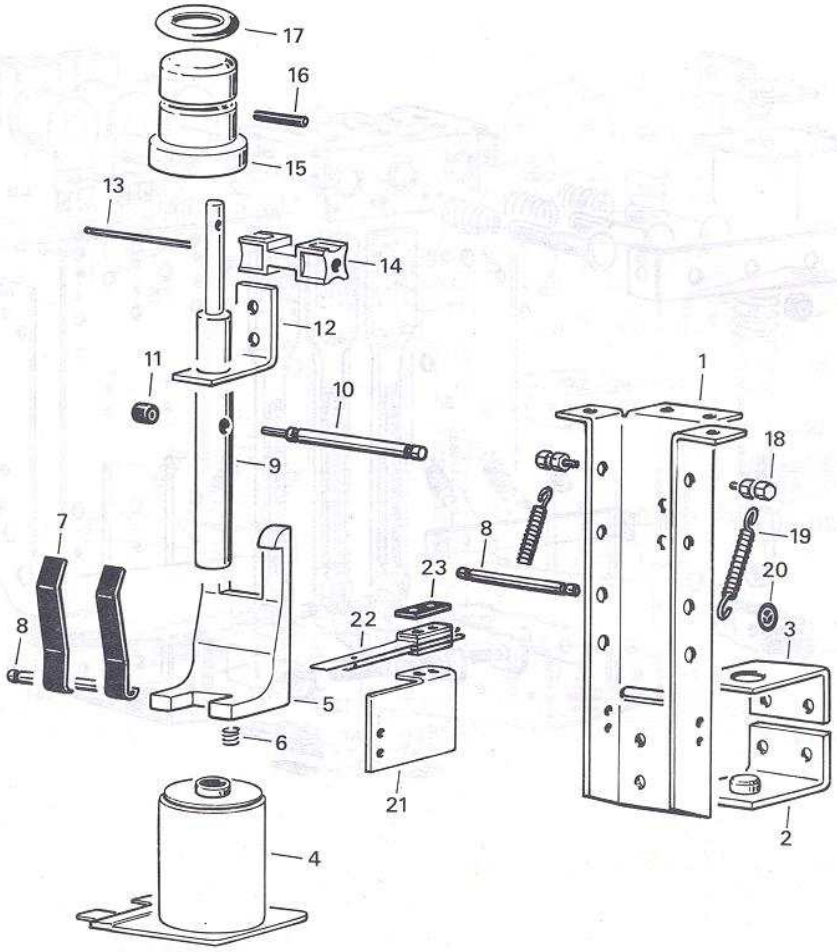
Fk C 8387 BANCO BERSAGLI A 3 POSIZIONI SINISTRO



1	B 6123	Piastrine con boccola
2	SP 2141	Staffa fissaggio bobine piccole
3	SP 2140	Trave per aggancio molle
4	A 6249	Molla a trazione
5	SP 2143	Piastra guida leve
6	A 6177	Staffa laterale sinistra
7	MRB 717	Bersaglio 5.000 PTS
8	SP 2153	Levetta comando bersagli
9	A 6185	Perno fissaggio leva
10	A 6178	Staffa laterale destra
11	SP 2144	Alberino fulcro leve
12	BSP 018	Trave di collegamento sinistro
13	SP 2142	Staffa fine corsa
14	B 9006	Pacco lamellare
15	B 6121	Squadretta con pastiglia
16	B 6112	Bobina D.50 - S.1600
17	A 6179	Squadretta foro grande
18	A 6110	Molla richiamo
19	A 6188	Pistoncino
20	A 6184	Tirantino
21	A 6187	Perno
22	A 6020	Piastrina copri pacco lamellare
23	A 4438	Gommino
24	SP 2139	Trave fine corsa pistoncini
25	B 6122	Pistoncino con puntale
26	A 4263	Molla richiamo
27	AS 1053	Canotto in ottone
28	B 6120	Bobina D 355-S 1.200
29	A 6181	Squadretta per bobina piccola

TAV. IX

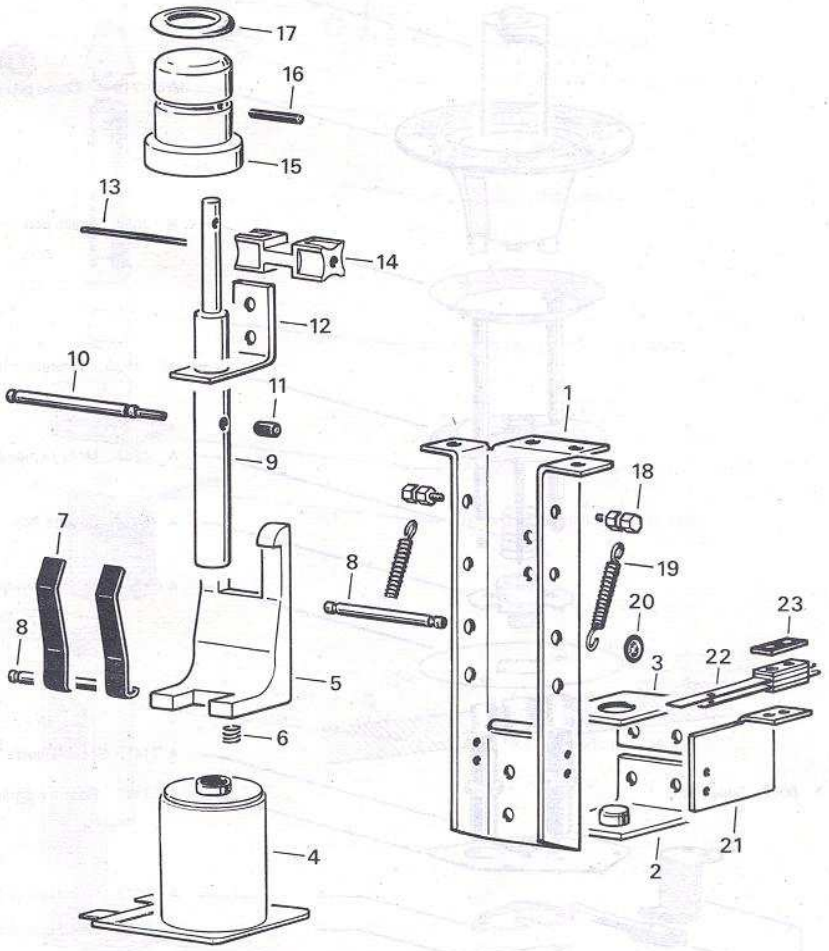
Fj C 8378 GRUPPO POST MOBILE DESTRO



1	A 7572	Staffa supporto post mobile
2	B 5082	Squadretta con pastiglia mm. 25 × 46x3
3	A 5386	Squadretta supporto bobina mm. 25x46x3
4	B 6192	Bobina D 63-S.1100
5	AS 1222	Aggangio corsa post mobile
6	A 4764	Molla a compressione
7	A 4762	Molla piatta post mobile
8	A 4760	Perno con 2 alloggiamenti Ø4 l = 52 mm.
9	A 7571	Perno supporto post mobile
10	A 5385	Perno con 3 alloggiamenti Ø5 l = 79,5 mm.
11	A 5090	Tubino distanziale 4,8 × 9,5 × 3,3
12	A 4763	Squadretta fine corsa
13	A 4759	Filo armonico Ø3 mm. l = 51 mm.
14	AS 1221	Arresto pistone post mobile
15	AS 1224	Supposto gommino post mobile
16	A 6260	Spina elastica 3 × 16
17	A 4248	Gommino N. 1
18	A 4761	Barretta esagonale mm. 5 parzialmente filettata
19	A 6249	Molla a trazione
20	A 4774	Quiclok
21	A 5389	Squadretta fissaggio pacco lamellare sinistra
22	B 9036	Pacco lamellare post mobile
23	A 6020	Piastrina copri pacco lamellare

TAV. X

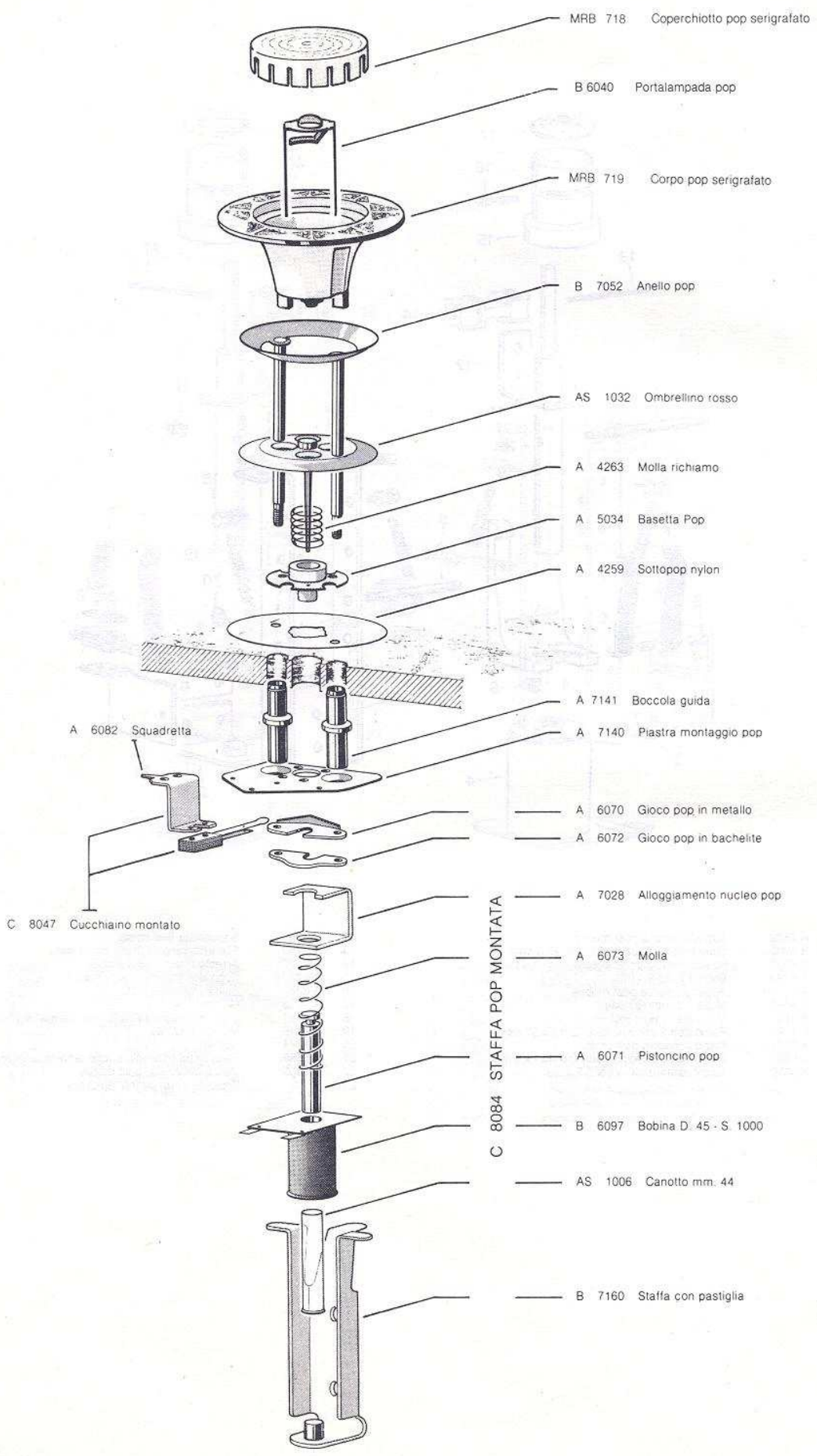
Fi C 8379 GRUPPO POST MOBILE SINISTRO



1	A 7572	Staffa supporto post mobile
2	B 5082	Squadretta con pastiglia mm. 25 × 46x3
3	A 5386	Squadretta supporto bobina mm. 25x46x3
4	B 6192	Bobina D 63-S.1100
5	AS 1222	Aggangio corsa post mobile
6	A 4764	Molla a compressione
7	A 4762	Molla piatta post mobile
8	A 4760	Perno con 2 alloggiamenti Ø4 l = 52 mm.
9	A 7571	Perno supporto post mobile
10	A 5385	Perno con 3 alloggiamenti Ø5 l = 79,5 mm.
11	A 5090	Tubino distanziale 4,8 × 9,5 × 3,3
12	A 4763	Squadretta fine corsa
13	A 4759	Filo armonico Ø 3mm. l = 51 mm.
14	AS 1221	Arresto pistone post mobile
15	AS 1224	Supposto gommino post mobile
16	A 6260	Spina elastica 3 × 16
17	A 4248	Gommino N. 1
18	A 4761	Barretta esagonale mm. 5 parzialmente filettata
19	A 6249	Molla a trazione
20	A 4774	Quiclok
21	A 5389	Squadretta fissaggio pacco lamellare sinistra
22	B 9036	Pacco lamellare post mobile
23	A 6020	Piastrina copri pacco lamellare

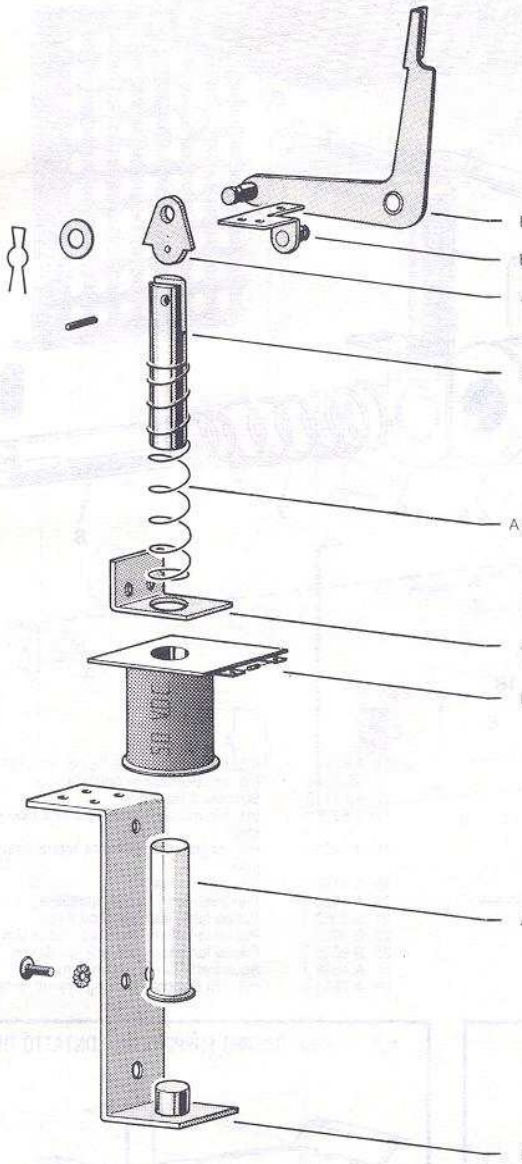
TAV. XI

F I POP


MRB 718 Coperchiotto pop serigrafato
B 6040 Portalampada pop
MRB 719 Corpo pop serigrafato
B 7052 Anello pop
AS 1032 Ombrellino rosso
A 4263 Molla richiamo
A 5034 Basetta Pop
A 4259 Sottopop nylon
A 7141 Boccola guida
A 7140 Piastra montaggio pop
A 6082 Squadretta
A 6070 Gioco pop in metallo
A 6072 Gioco pop in bachelite
C 8047 Cucchiaino montato
A 7028 Alloggiamento nucleo pop
A 6073 Molla
A 6071 Pistoncino pop
B 6097 Bobina D. 45 - S. 1000
AS 1006 Canotto mm. 44
B 7160 Staffa con pastiglia
C 8084 STAFFA POP MONTATA

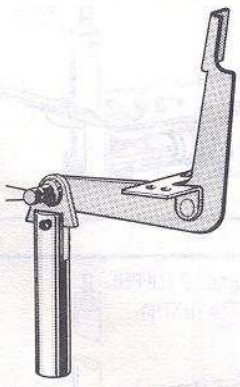
TAV. XII

Fi FLAP

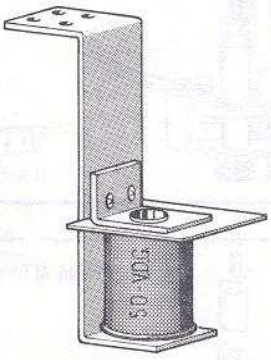


B 6027 Martelletto Flap
B 5012 Squadretta supporto martelletto
A 4149 Tirantino
A 5075 Pistoncino
A 6110 Molla richiamo martelletto
A 5072 Squadretta
B 6096 Bobina D. 40 - S. 1200
AS 1006 Canotto mm. 44
B 7159 Staffa a "Z" con pastiglia

C 8040 Martelletto Flap montato

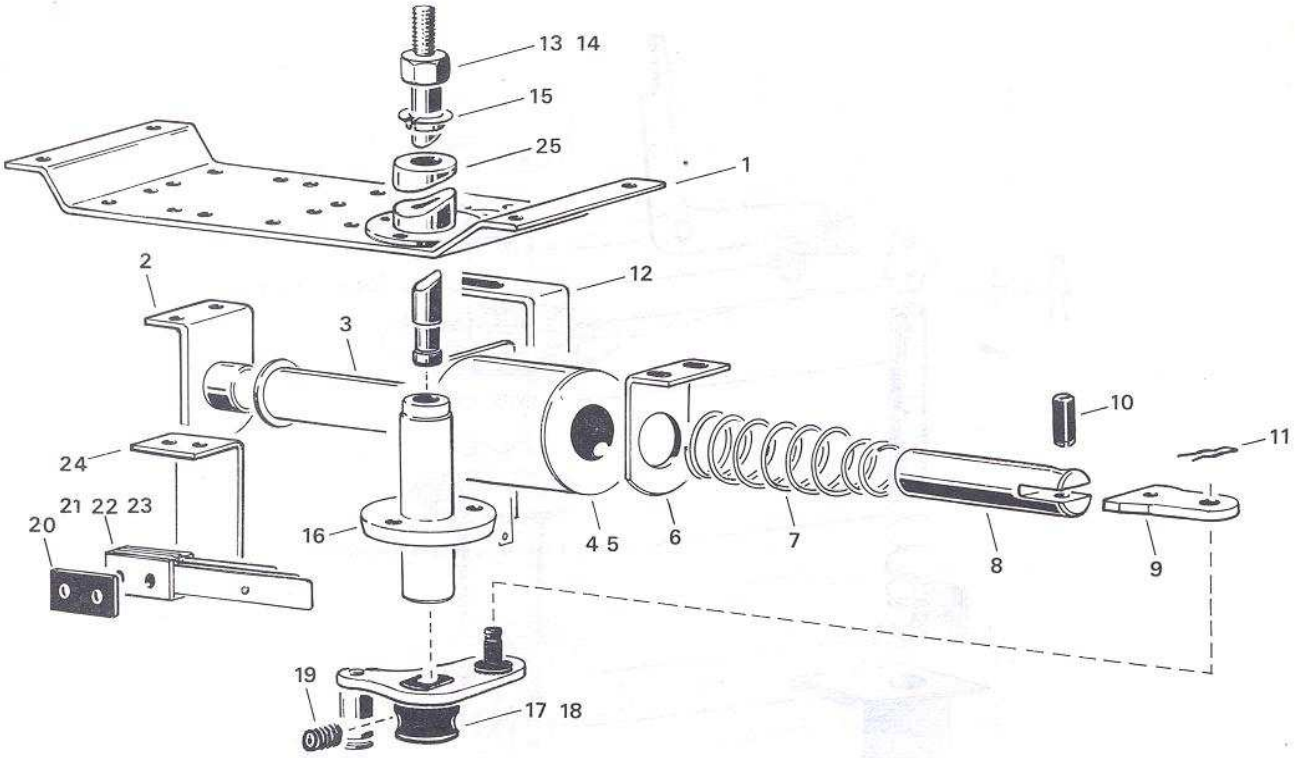


C 8082 Staffa a "Z" montata



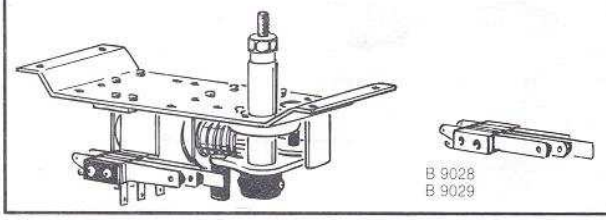
TAV. XIII

Fn 1,2,3,4,5,6 PENNE FLIPPER

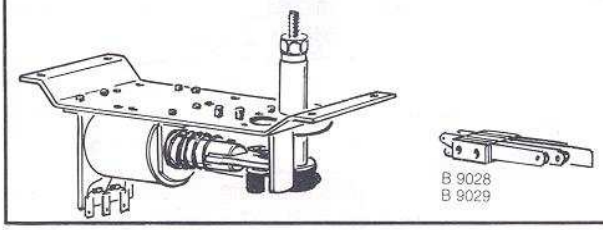


1	A 7491	Staffa supporto gruppo penna	
2	B 6100	Squadretto larga con pastiglia	
3	AS 1006	Canotto mm. 44	
4	B 6098	(n1, n2) Bobina D.50 - S.600, D.14 - S.5.000	
5	B 6179	(n3, n4, n5, n6,) Bobina D.355-S.1.000 -D.14-S.6.000	
6	A 5071	Squadretta larga	
7	A 6110	Molla richiamo aletta flipper	
8	A 5188	Pistoncino	B 6243 Tirantino con pistoncino ass.
* 9	A 6184	Tirantino	
10	A 4347	Spina elastica 4 × 12	
11	A 4148	Forcella di 6	
12	A 6336	Squadretta arresto aletta flipper	
13	A 6337	(n1, n2, n3, n4) Perno penna flipper mm. 77	
14	A 6294	(n5, n6) Perno penna flipper mm.131	
15	AS 1142	(n5, n6) Boccola in plastica	
16	AS 1113	Boccola flipper n.t.	
17	B 6226	(n1, n3, n5) componente aletta flipper ass. sinistro	
18	B 6225	(n2, n4, n6) Componente aletta flipper ass. destro	
19	A 4150	Vite testa cava	
20	A 6020	Piastrina copri pacco lamellare	
21	B 9002	Pacco lamellare distacco flipper	
22	B 9029	Pacco lamellare distacco flipper S.K.	
23	B 9028	Pacco lamellare contatto su flipper	
24	A 4638	Squadretta porta pacchi lamellari	
25	A 7551	(n5, n6) Boccola prolungamento penne	

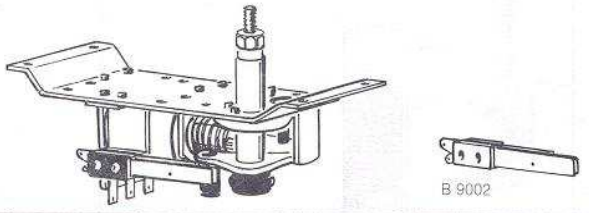
n1 - C 8365 GRUPPO FLIPPER CON CONTATTO SINISTRO



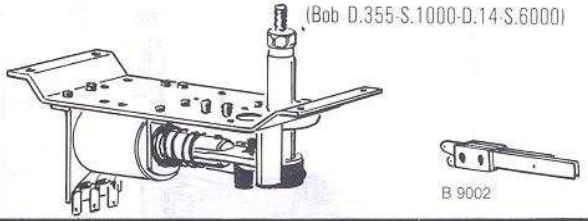
n2 - C 8366 GRUPPO FLIPPER CON CONTATTO DESTRO



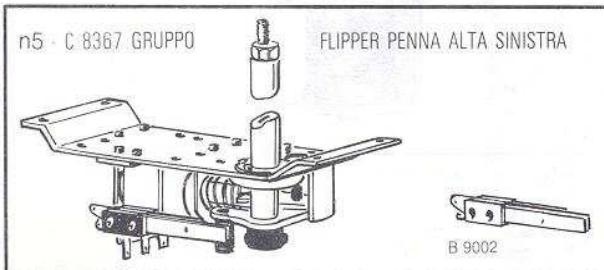
n3 - C 8369 GRUPPO FLIPPER SINISTRO



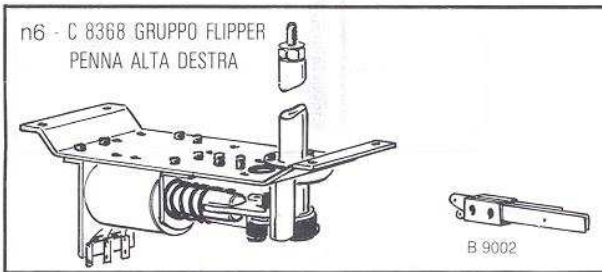
n4 - C 8370 GRUPPO FLIPPER DESTRO
(Bob D.355-S.1000-D.14-S.6000)



n5 - C 8367 GRUPPO FLIPPER PENNA ALTA SINISTRA

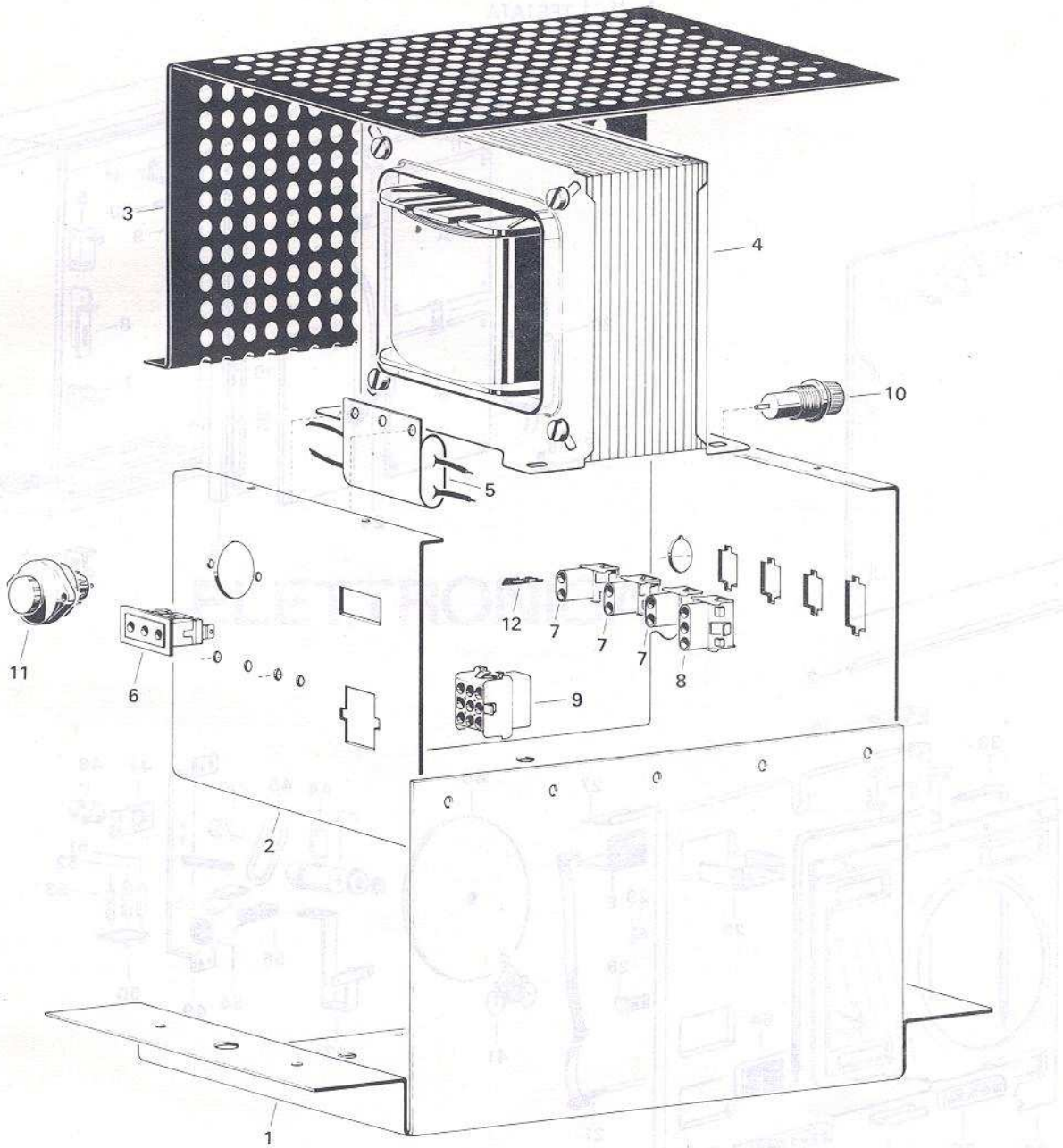


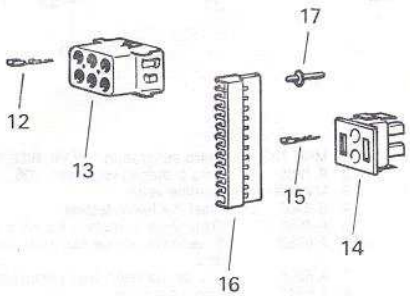
n6 - C 8368 GRUPPO FLIPPER PENNA ALTA DESTRA



TAV. XIV

G CEC 286 TELAIO ALIMENTAZIONI

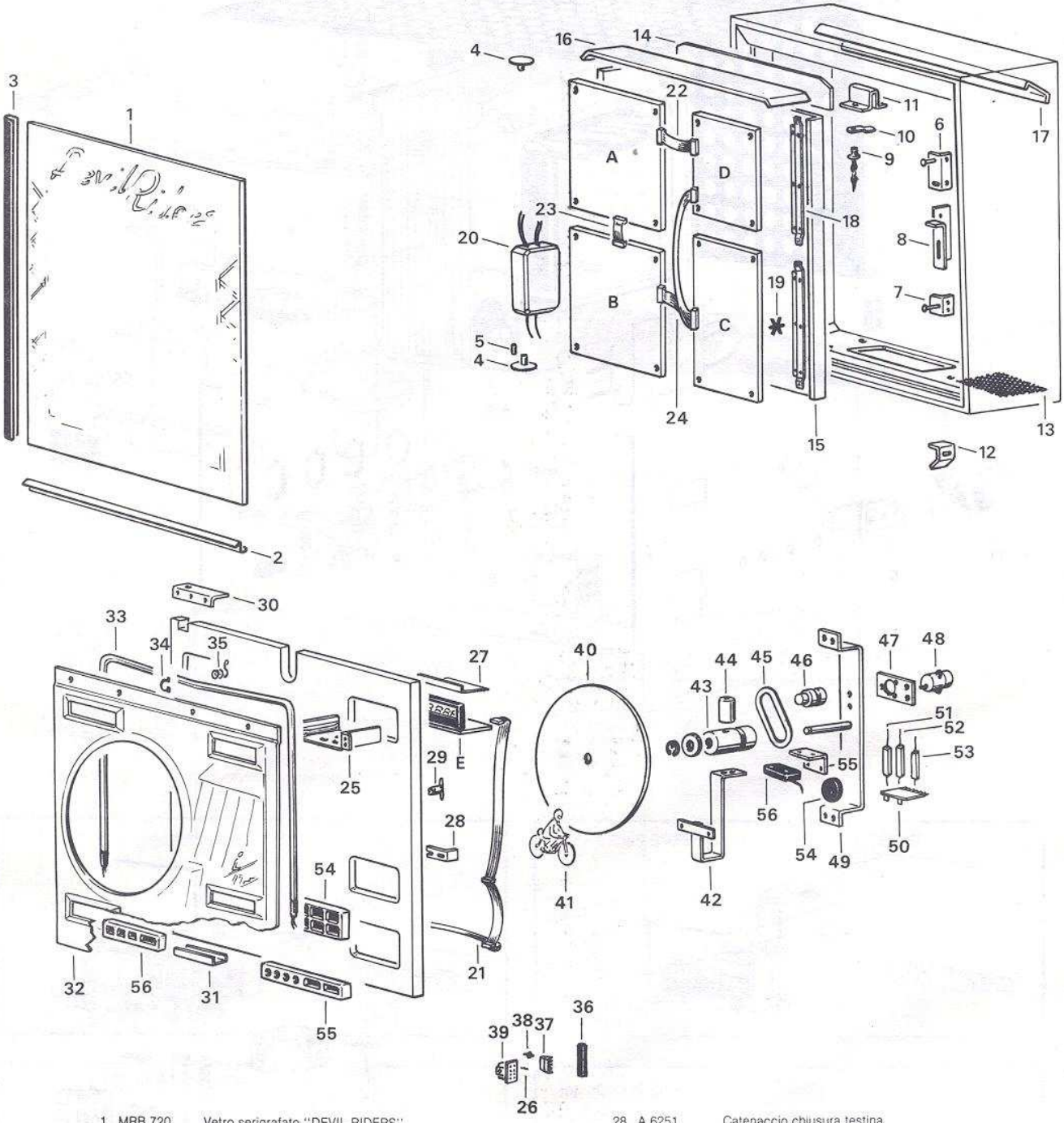




1	A 7396	Staffa rinforzo telaio
2	A 7395	Telaio in alluminio
3	A 7397	Lamiera forata protezione telaio
4	C 8189	Trasformatore 2C 1019
5	C 8068	Filtro di rete 5A
6	A 6281	Presa bipolare con massa
7	CE 1809	Connettore AMP 2 vie da pannello
8	CE 1706	Connettore AMP 3 vie da pannello
9	CE 1744	Connettore AMP 9 vie da pannello
10	CE 1758	Portafusibili da pannello
11	CE 1763	Cambio tensioni
12	CE 1965	Contatto AMP femmina
13	CE 1872	Connettore 6 vie AMP da pannello
14	CE 1808	Connettore 2 vie AMP volante
15	CE 1966	Contatto AMP maschio
16	CE 1985	Connettore AVG 13 vie femmina, arancio
17	CE 1993	Chiave da polarizzazione

TAV. XV

H TESTATA



1	MRB 720	Vetro serigrafato "DEVIL RIDERS"
2	A 7205	Asta sostegno vetro mm. 695
3	MV 009	Cornice vetro
4	B 6186	Piastrina fulcro testina
5	A 4568	Distanziale in metallo 4,8 × 8 × 14
6	A 6282	Squadretta grande riscontro catenaccio con foro
7	A 6255	Squadretta riscontro catenaccio
8	A 6342	Staffa a 3 asole
9	B 7151	Serratura
10	A 4320	Linguetta aggancio serratura
11	A 6253	Riscontro porta serraggio
12	A 6259	Squadretta aggancio automatico
13	A 7220	Protezione in lamiera stirata mm. 110 × 130
14	A 7401	Lamiera protezione aereazione
15	A 7322	Lamiera schermo testata
16	A 7207	Piastra parte superiore mm. 600 × 95
17	A 7400	Bandella protezione liquidi
18	A 7399	Staffa supporto schede
19	A 4111	Supporto per circuiti stampati
20	C 8304	Trasformatore per neon
21	CEB 235	Flat Cable a 6 connettori 20 vie femmine D.R.
22	CEB 141	Flat Cable a 2 connettori 20 vie femmine C.P.U.-SOUND
23	CEB 006	Flat Cable a 2 connettori 20 vie femmine C.P.U.-INTERFACE
24	CEB 196	Cablaggio alimentazione schede
25	B 7137	Staffa supporto Display
26	CE 1966	Contatto AMP maschio
27	A 6171	Tettoia protezione Display
28	A 6251	Catenaccio chiusura testina
29	B 6041	Portalampada testina
30	A 6261	Rinforzo ad "L" testata superiore
31	A 6252	Rinforzo ad "U" testata inferiore
32	MRB 721	Termoformatura serigrafata "DEVIL RIDERS"
33	B 7379	Tubo al neon "DEVIL RIDERS"
34	A 4685	Molla ancoraggio neon
35	A 4686	Molla a compressione fissaggio neon
36	CE 1984	Connettore a 20 vie AVG femmina nero
37	CE 1987	Connettore a 5 vie AVG femmina arancio
38	CE 1993	Chiavetta di polarizzazione
39	CE 1871	Connettore AMP vie volante
40	MRB 723	Disco in plexiglass ⌀240 serigrafato DEVIL RIDERS
41	MRB 724	Termoformatura motociclista
42	B 6253	Staffa piegata fissaggio motociclista con piastrino saldato
43	B 5081	Perno ⌀22 con boccole inserite
44	A 4768	Cilindretto forato ⌀25 mm.
45	A 4773	Cinghia motore ⌀3
46	A 4766	Puleggia motorino ⌀22
47	A 5391	Piastrina fissaggio motore
48	B 7376	Motoriduttore B12 (A) AF/72
49	B 7380	Staffa a omega per testata con perno
50	A 4775	Basetta ancoraggio a 6 posizioni
51	CE 3347	Resistenza 820 OHM 5 W
52	CE 1209	Resistenza 220 OHM 1/2 W
53	CE 5267	Resistenza 1500 OHM 1/4 W
54	B 6260	Buzzer tipo PK BO 3AO
55	A 5298	Supporto micro buca finale
56	B 6185	Microinterruttore ES1-60 BR

ELETTRONICA

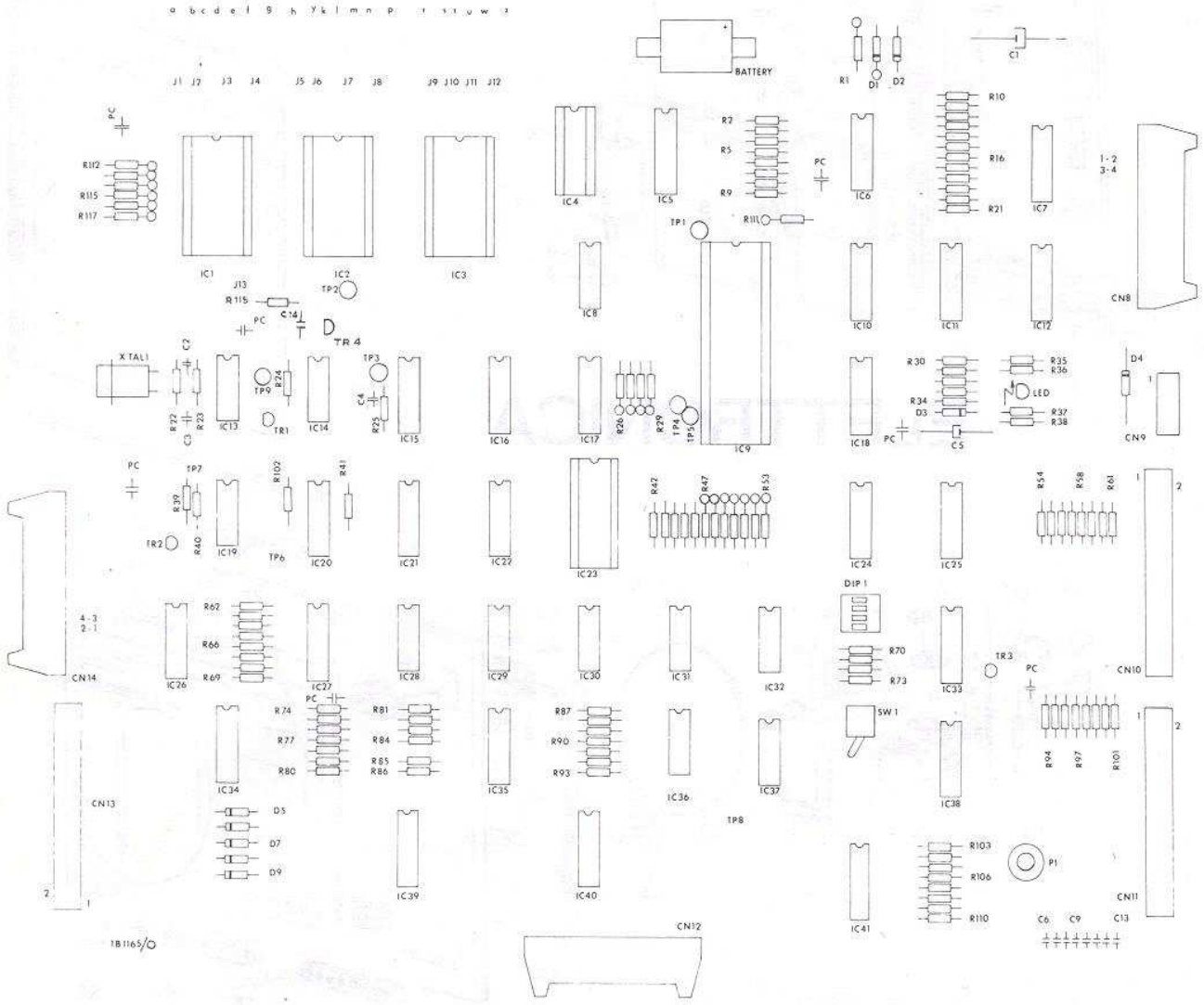
catalogo
ricambi

TAV. XVI

Ha

CEB 222 C.P.U. BOARD ASSEMBLY WITHOUT MEMERIES

CEC 301 C.P.U. BOARD ASSEMBLY WITH MEMORIES "DEVIL RIDERS"

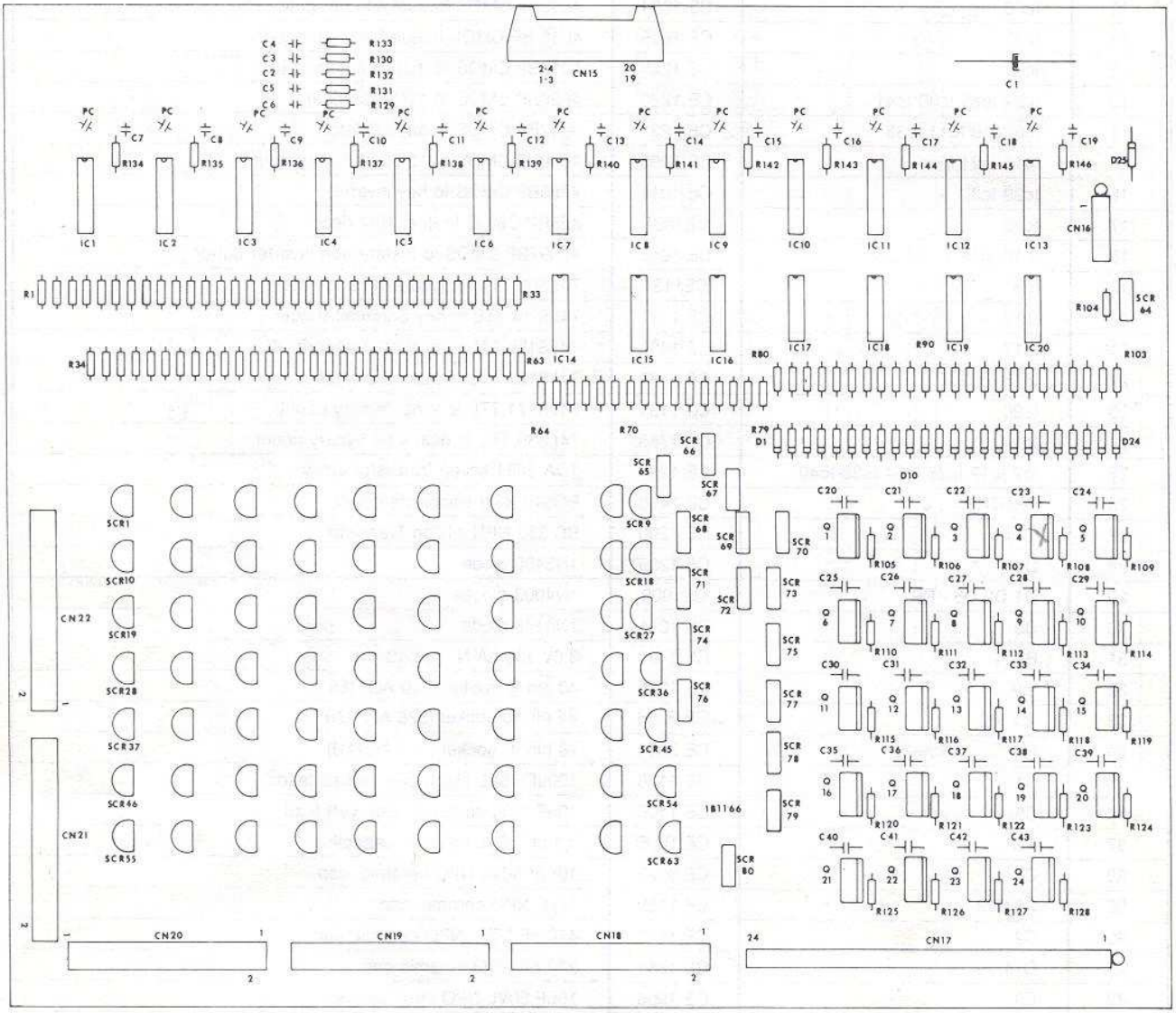


	Ic1	RE 405	B2764 MOS IC 8192×8 EPROM (Tipe "Devil Riders" N° 1)
	Ic2	RE 406	B2764 MOS IC 8192×8 EPROM (Tipe "Devil Riders" N° 2)

ITEM. No	PART DESIGNATION	CODE PART No	DESCRIPTION
1	PC 1B 1165/1	CE 2155	Printed circuit board 1B1165/1
2	CN9	CE 1980	4 pin male conn. MTA 640 383-4
3	CN 10 CN 11	CE 1981	20 pin male conn. MTAS4-826379-0
4	CN8 CN12 CN14	CE 1351	20 flat cable male conn.
5	Ic9	CE 1668	2650 - A-1 MOS Ic 8 bit M.Proc
6	Ic23	CE 1227	2101 AL-4 MOSC Ic 256 × 4 RAM
7	Ic5	CE 1661	2114 L MOS Ic 1K × 4 ram
8	Ic4	CE 3004	6414 -9 CMOS Ic IK × 4 ram
9	Ic19	CE 1014	4001 BP CMOS Ic quad nor gate
10	Ic28	CE 1394	4002BP CMOS Ic dual 4-in nor gate
11	Ic37	CE 1016	4011 BP CMOS Ic quad 2-in nand gate
12	Ic31	CE 1228	4012BP CMOS Ic dual 4-in nand gate
13	Ic27 Ic35 Ic36 Ic41	CE 1230	4028BP CMOS Ic 10f10 decoder
14	Ic6 Ic10 Ic11 Ic33	CE 1231	4042BP CMOS Ic quad D latch
15	Ic15 Ic21	CE 1995	4040BP CMOS Ic 12 stage bynari count
16	Ic29 Ic30	CE 1015	4069BP CMOS Ic hey inverter
17	Ic32	CE1883	455BP CMOS Ic dual 10f4 deco.
18	Ic18 Ic18 Ic24 Ic25	CE 1055	40097BP CMOS Ic 3 state non inverter buffer
19	Ic8	CE1134	74LS00 TTL Ic quad 2-in nand gate
20	Ic13	CE 1177	74LS 14 TTL Ic hey Schmmit trigger
21	Ic17	CE 1432	74LS156 TTL Ic dual 10f4 decord
22	Ic16 Ic22	CE 1433	74LS157 TTL Ic quad 2-in MPX
23	Ic20	CE 1131	74LS171 TTL Ic sync. bynary count.
24	Ic14	CE 1788	74LS39 TTL Ic dual 4 bit bynary count
25	Ic7 Ic12 Ic26 Ic34 Ic38 Ic40	CE 1225	TDA 3081 seven transistor array
26	TR1-TR3	CE 1438	BC548 NPN silicon transistor
27	TR4	CE 1290	BC 337 NPN silicon Transistor
28	D4	CE 1299	1N5400 diode
29	D1 D2 D5 - D9	CE1009	1N4003 diodes
30	D3	CE 1011	1N4148 diode
31	BATT	CE 1396	3,6V 100mA N. cd battery
32	Ic9	CE 1245	40 pin Ic socket (540 AG11D)
33	Ic1 Ic2	CE 3236	28 pin IC socket /528 AG11D)
34	Ic4	CE 3080	18 pin IC socket (518 AG11D)
35	C1	CE 1118	100uF 16VL elect. cap. radials leads
36	C5	CE 1100	10uF 16VL tantalum cap. vert lead
37	PC	CE 1005	0,1 uF 50VL ceramic capacitors
38	C4	CE 3095	10Kpf 50VL NPO ceramic. cap.
39	C6-C13	CE 1159	1kpF NPO ceramic cap.
40	C2	CE 1513	470 pF 50VL NPO ceramic cap.
41	C14	CE 1381	220 pF NPO ceramic cap.
42	C3	CE 1906	10pF 50VL NPO ceramic cap.
43	R2-R9-R25-R42-R102 R113 R117	CE 1171	10K 1/4W 5% carbon resistors
44	R10-R21 R24 R35 R39 R40		
	R54-R69 R74-R93 R103 R111	CE 1023	5,6K 1/4 5% carbon resistors
45	R26-R34	CE 1164	2,2K 1/4W 5% carbon resistors
46	R27 R70-R73 R94-R101	CE 1170	1K 1/4W 5% carbon resistors
47	R22 R23	CE 1392	680 1/4W 5% carbon resistor
48	R36	CE 1269	390 1/4W 5% carbin resistor
49	R1	CE 1409	100 1/4W 5% carbon resistor
50	R38	CE 3094	22 1/2W 5% carbon resistor
51	R115	CE 1194	22 K 1/4 W 5% carbon resistor
52	XTAL 1	CE 1743	6MHZ cristal quartz Hc 18/U
53	DIP 1	CE 1356	Dip swirch 4 way
54	LED 1	CE 1542	FLV110 red led
55	Ic1 Ic2	CE 1962	B2764 MOS IC 8192 × 8 EPROM

TAV. XVII

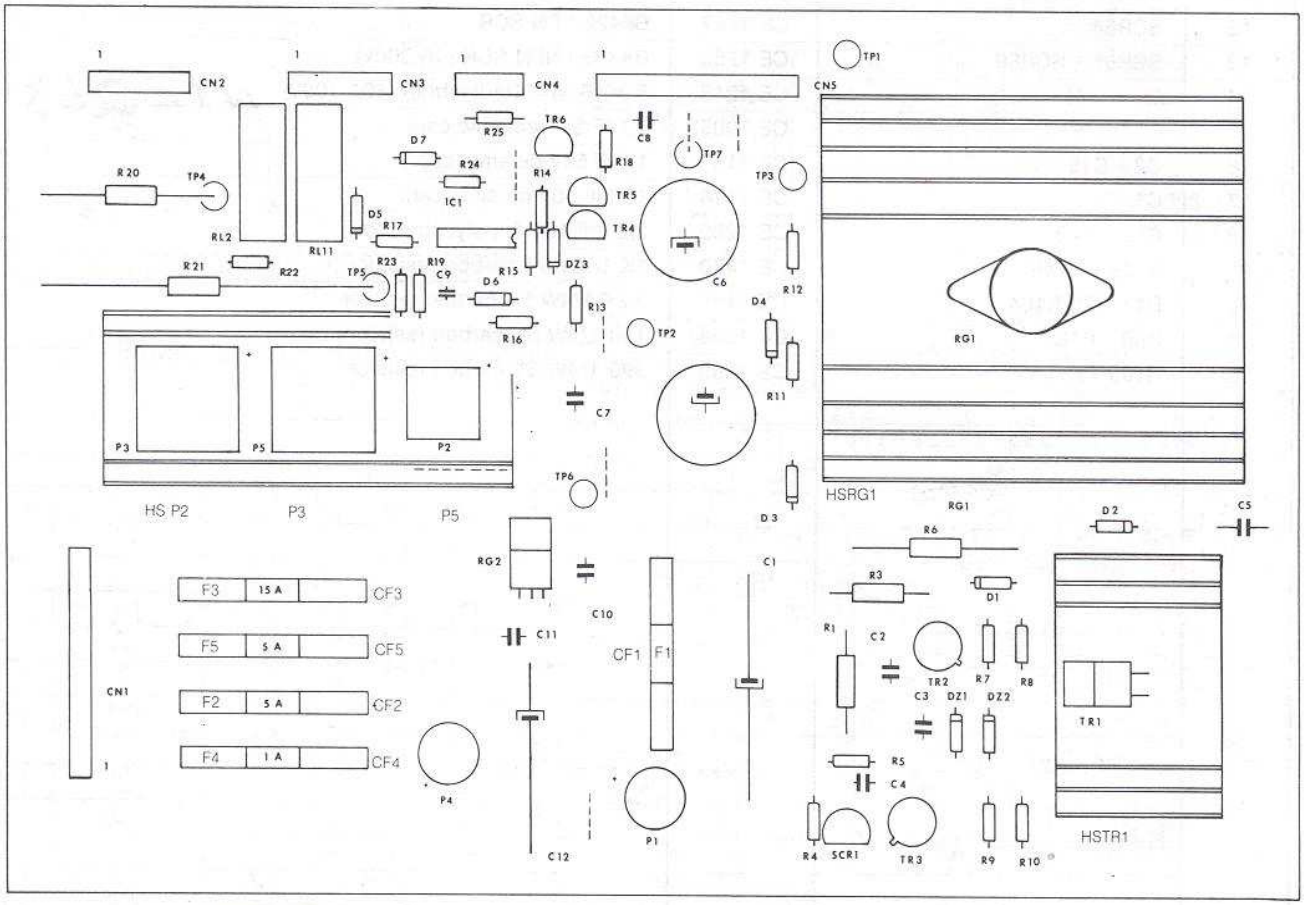
Hb CEC 181 INTERFACE BOARD ASSEMBLY



ITEM. No.	PART DESIGNATION	CODE PART. No.	DESCRIPTION
1	PC 1B1166	CE 2156	Printed circuit board 1B1166
2	CN16	CE 1980	4 pin male conn. MTA 640383-4
3	CN17	CE 1982	12 pin male conn. MTA 640383-12
4	CN18 ÷ CN22	CE 1981	20 pin male conn. MTIS4-826379-0
5	CN15	CE 1351	20 pin flat cable male conn
6	Ic1 ÷ Ic13	CE 1236	4724BC MOS Ic 8 bit. Abb. LATCH
7	Ic17 ÷ Ic20	CE 1304	7407 TTL Ic hex buffer
8	Ic14 Ic15 Ic16	CE 1215	4050BC MOS Ic hex buffer
9	D1 ÷ D24	CE 1539	1N4003 diodes
10	D25	CE 1299	1N5400 diode
11	SCR1 ÷ SCR63	CE 1249	2N5060 PNPN SCR (0,8A 30V)
12	SCR64	CE 1267	BF422 NPN SCR
13	SCR65 ÷ SCR80	CE 1250	BAX62 PNPN SCR (4A 200V)
14	Q1 ÷ Q24	CE 1218	BD649 NPN Darlinghton (10A 100V) NTE 263
15	PC	CE 1005	0,1uF 50V ceramic cap.
16	C2 ÷ C19	CE 1159	1KpF 50V ceramic cap.
17	C1	CE 1118	100uF 50V ceramic cap.
18	C20 ÷ C43	CE 1260	2,2KpF 100VL polyester cap.
19	R129 ÷ R146	CE 1170	1K 1/4W 5% carbon resistor
20	R1 ÷ R79 R104	CE 1164	2,2K 1/4W 5% carbon resistor
21	R80 ÷ R103	CE 1268	150 1/4W 5% carbon resistor
22	R105 ÷ R128	CE 1269	390 1/4W 5% carbon resistor

TAV. XVIII

Hc CEC 179 POWER BOARD ASSEMBLY (Vers. /0)

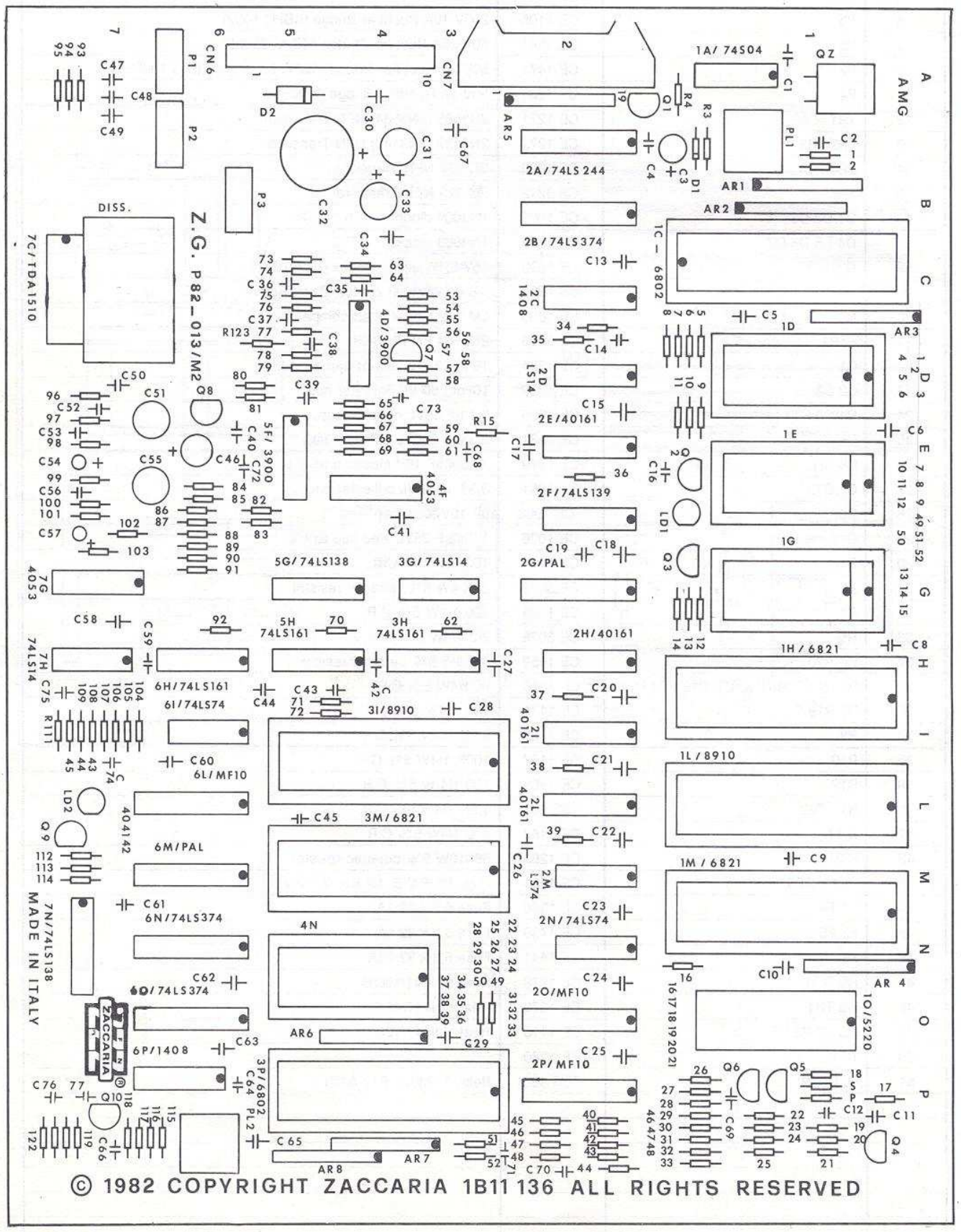


ITEM No	PART DESIGNATION	CODE PART No	DESCRIPTION
1	PC 1B1167/0	CE 2157	Printed circuit 1B1167/0
2	CN1 CN5	CE 1982	12 Pin mate MTA1-640 383-2
3	CN3 CN2	CE 1983	6 Pin male connector MTA1-640 383-6
4	CN 4	CE 1980	4 Pin male connector MTA1-640 383-4
5	RG1	CE 1238	+ 5 5A Voltage regulator 078H05K
6	RG2	CE 1648	-5 1A Voltage regulator 07905VC
7	P1	CE 1274	400V 1A Rectifier Bridge (W04)
8	P5	CE 1105	200V 10A Rectifier Bridge (KBPC 1002)
9	P3	CE 1994	50V 25A Rectifier Bridge (KBPC 25005)
10	P2	CE 1471	50V 8A Rectifier Bridge (KBPC 8005) (or KBPC 10005)
11	P4	CE 1233	50V 1A Rectifier Bridge (W005)
12	TR1	CE 1271	2N3585 (2N3584) NPN Transistor
13	TR2-TR3	CE 1272	2N3439 (2N3440) NPN Transistor
14	TR4-TR5	CE 1290	BC 337 NPN Transistor
15	TR6	CE 3212	BC 323 NPN Transistor
16	D1-D2-D3	CE 1009	1N4004 diodes
17	D4-D5-D6-D7	CE 1539	1N4003 diodes
18	D21-D22	CE 1220	75V 0,4W zener diodes (Bz × 79c75)
19	D23	CE 1966	5,6 0,4W zener diodes (Bz × 79c5V6)
20	Ic1	CE 1803	LM 339 Linear quad comparator
21	ScR1	CE 3006	2N6564 PN PN SCR
22	C1	CE 1284	100uF 350VL electr cap axial L.
23	C2 C3	CE 1399	10kpf 250 VL Poliester cap
24	C4 C8 C11	CE 1005	0,1 uF 50VL ceramic cap
25	C5	CE 1261	0,33uF 250VL poliester cap
26	C6 C6/	CE 1979	10.000uF 16V elec cap axial L.
27	C7 C10	CE 1261	0,33 uF 50VL poliester cap.
28	C9	CE 1903	1uF 16V elec. cap. vert.
29	C12	CE 1026	1.000uF 25VL elec cap axal L.
30	R1	CE 1282	100K IW 5% C.R.
31	R3	CE 3072	22K 4W 5% ceramic resistor
32	R4	CE 1305	100 1/2W 5% C.R.
33	R5	CE 3038	2,2 1/4W 5% C.R.
34	R6 R20	CE 1659	47 3W 5% ceramic resistor
35	R7 R11 R14 R15 R16 R18 R23 R24	CE 1170	IK 1/4W 5% C.R.
36	R8 R19	CE 1171	10K 1/4W 5% C.R.
37	R9	CE 1165	4,7K 1/4W 5% C.R.
38	R10	CE 1167	100K 1/4W 5% C.R.
39	R12	CE 1269	100 1/4 W 5% C.R.
40	R13 R22	CE 1267	1,5K 1/4W 5% C.R.
41	R.17	CE 1163	470 1/4W 5% C.R.
42	R.21	CE 1263	68010W 5% ceramic resistor
43	CF1 ÷ CF5	CE 1401	Clips for P.C.B. for 6 × 30 fuse
44	F1 F4	CE 1368	Fuse 6,3 × 32 1A
45	F2 F5	CE 1439	Fuse 6,3 × 32 5A
46	F3	CE 1441	Fuse 6,3 × 32 20A
47	HS RG1	CE 1278	Heat sink 41/100/B
48	HS TR1	CE 1279	Heat sink 17/40/C
49	HS P2 P3 P5	CE 1110	Heat sink 17/100/D
50	TR3	CE 1280	
51	RL1 RL2	CEC 155	Relay V 23027 B13 A101

TAV. XIX

Hd CEB 223 SOUND & SPEECH BOARD ASSEMBLY WITHOUT MEMORIES

CEC 302 SOUND & SPEECH BOARD ASSEMBLY WITH MEMORIES "DEVIL RIDERS" «ITALIANO»
CEC 303 SOUND & SPEECH BOARD ASSEMBLY WITH MEMORIES "DEVIL RIDERS" «FRANCESE»
CEC 304 SOUND & SPEECH BOARD ASSEMBLY WITH MEMORIES "DEVIL RIDERS" «INGLESE»
CEC 305 SOUND & SPEECH BOARD ASSEMBLY WITH MEMORIES "DEVIL RIDERS" «TEDESCO»



ITEM No	PART DESIGNATION	CODE PART No	DESCRIPTION
1	P.C 1B11 136	CE 2242	Printed circuit P82-013/M2
2	CN6	CE 3069	Male connector 1-640383-0
3	CN7	CE 1351	Male connector 20PIN 90° F.C.
4	IC1A	CE 1647	Integrated circuit 74S04
5	IC1C	CE 1714	Integrated circuit 6802P
6	IC1D-1E-1G		Integrated circuit see note 1
7	IC1H-1M	CE 1715	Integrated circuit 6821P
8	IC IL	CE 1844	Integrated circuit AY-3-8910
9	IC10	CE 3330	Integrated circuit TMS 5220NL Speach
10	IC2A	CE 1589	Integrated circuit 74LS244
11	IC 2B	CE 1843	Integrated circuit 74LS374
12	IC 2C	CE 1730	Integrated circuit MC 1408L6 (8N)
13	IC2D-3G	CE 1177	Integrated circuit 74LS14
14	IC2E-2H-2I-2L	CE 1131	Integrated circuit MC 74LS161
15	IC2F	CE 1670	Integrated circuit 74LS139
16	IC2G	CE 3297	Pal 14L4 or 14H4-or 16L8
17	IC2M-2N	CE 1141	Integrated circuit 74LS74
18	IC20	CE 3296	Integrated circuit MF10CN
19	IC4D-5F	CE 1148	Integrated circuit LM3900N
20	IC4F	CE 1435	Integrated circuit 4053B
21	IC5G	CE 1144	Integrated circuit 74LS138
22	IC7C	CE 3045	Integrated circuit TDA1510
23	R1-2-12-85	CE 1448	Carbon Resistor 470 1/4W
24	R3	CE 1408	Carbon Resistor 27K 1/4W
25	R4-37 ÷ 39	CE 1165	Carbon Resistor 4K7 1/4W
26	R5 ÷ 11-14-34	CE 1024	Carbon Resistor 3K3 1/4W
27	R13	CE 1576	Carbon Resistor 8K2 1/4W
28	R23-29-36-43-48-56-59 ÷ 61-93-94-	CE 1171	Carbon Resistor 10K 1/4W
	81		
29	R18-53-55-66-67-80-82-83-98 ÷ 100-	CE 1167	Carbon Resistor 100K 1/4W
	102-103		
30	R17-19-20 ÷ 22-24-25-58-69-73-101-	CE 1164	Carbon Resistor 2K2 1/4W
	15		
31	R26 ÷ 28-40 ÷ 42-45 ÷ 47	CE 1251	Carbon Resistor 33K 1/4/W
32	R16-33-44	CE 1417	Carbon Resistor 3K9 1/4W
33	R35	CE 1214	Carbon Resistor 3M3 1/4W
34	R54-64	CE 1196	Carbon Resistor 470K 1/4W
35	R57	CE 1194	Carbon Resistor 22K 1/4W
36	R63-65-75 ÷ 78-R123	CE 1034	Carbon Resistor 820K 1/4W
37	R68	CE 1193	Carbon Resistor 47K 1/4W
38	R74	CE 1252	Carbon Resistor 220K 1/4W
39	R79	CE 1056	Carbon Resistor 1M8 1/4W
40	R96-99	CE 1306	Carbon Resistor 4,7
41	R97	CE 1392	Carbon Resistor 680
42	ICR1 ÷ 4	CE 1936	Resistor networks LO9-1R-10K
43	ICR5	CE 3031	Resistor networks LO9-1R-4K7
44	C1-4 ÷ 11-13-15-18-20 ÷ 25-30--34-	CE 1005	Capacitor 0,1 uF disc ceramic
	35-40-41-47-48-50-52-56-67		
45	C2-17-19-26	CE 1159	Capacitor 1000 pF disc Ceramic
46	C3-54	CE 1375	Capacitor 4,7 uF Elect. Vert.
47	C12	CE 1298	Capacitor 22pF disc Ceramic
48	C14-C37-C38-C39	CE 1721	Capacitor 47pF disc Ceramic
49	C16	CE 1029	Capacitor 10.000 pF disc Ceramic
50	C31-C33-C51-C55	CE 1118	Capacitor 100 uF elect. vert 16V
51	C32	CE 1580	Capacitor 1000 uF elect vert. 16V
52	C36	CE 1513	Capacitor 470 pF disc ceramic
53	C46	CE 1610	Capacitor 47 uF electr, vert. 16V

ITEM No	PART DESIGNATION	CODE PART No	DESCRIPTION
54	C53	CE 1473	Capacitor 330 pF disc ceramic
55	C57-C68 ÷ C73	CE 1541	Capacitor 0,22 uF Tantalium
56	P2-P3	CE 1598	Trimmer 10K
57	Q1-Q7-Q8	CE 1438	Transistor BC 548
58	Q2	CE 1732	Transistor 2N4401
59	Q3-Q4	CE 1694	Transistor 2N3904
60	Q5-Q6	CE 1814	Transistor BC327
61	D1	CE 1011	Diode 1N4148
62	D2	CE 1299	Diode 1N5402/1
63	QZ1	CE 3066	Crystall oscillator 3,579 Mhz
64	PS1	CE 1277	Push button N.O.
65	LE1	CE 1542	Leed FLV 110
67	HS1	CE 3100	Heat Sink for TDA 1510 ML9/30
68	20-2P	CE 3305	20 Pin Socket for I.C.
69	1D-1E-1G-10	CE 3236	28 Pin Socket for I.C.
70	IC-1H-1L-1M	CE 1245	40 Pin Socket for I.C.
71		A 5299	Vite 3MA × 8 TC
72		A 4023	Vite 3MA × 12 TC
73		A 4132	Dado 3MA
74		A 4161	Rondella dentellata 3MA

Note 1: Of above integrated circuits, only ics for game sounds are assembled.

1D RE 407 B 2764 MOS IC 8192 × 8 EPROM (Type "Devil Riders" Italiano n. 1)
1E RE 408 B 2764 MOS IC 8192 × 8 EPROM (Type "Devil Riders" Italiano n. 2)
1G RE 409 B 2764 MOS IC 8192 × 8 EPROM (Type "Devil Riders" Italiano n. 3)

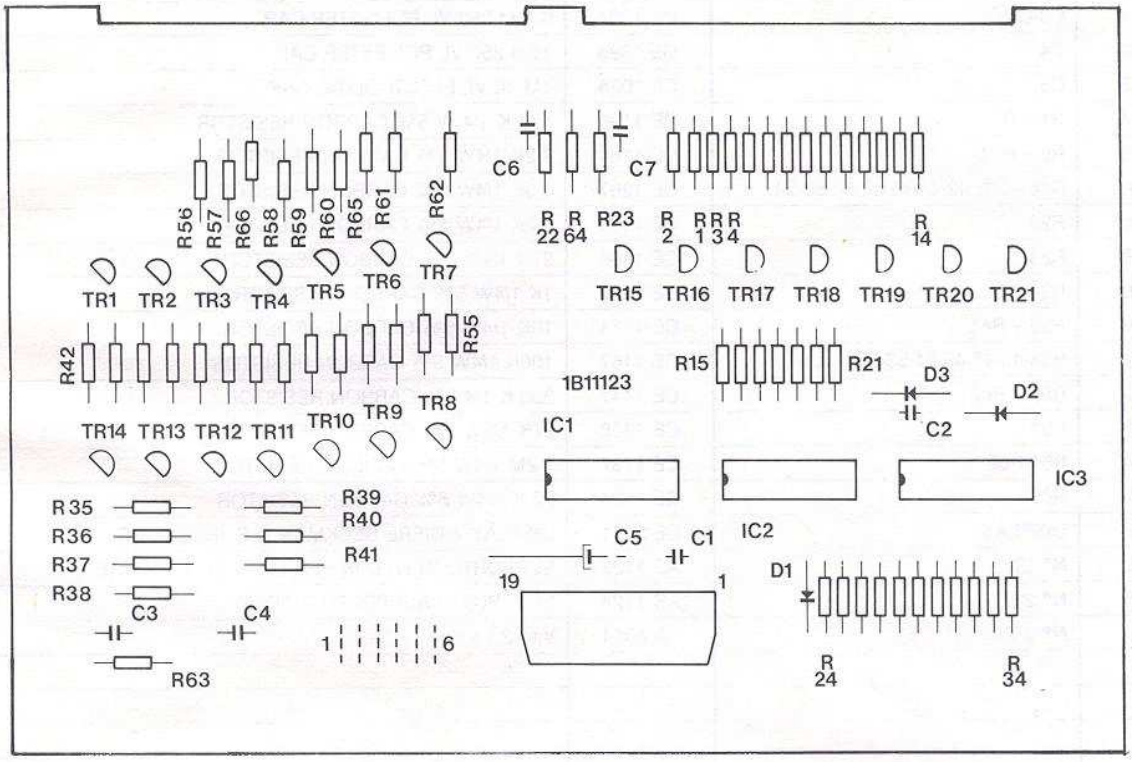
1D RE 410 B 2764 MOS IC 8192 × 8 EPROM (Type "Devil Riders" Inglese n. 1)
1E RE 411 B 2764 MOS IC 8192 × 8 EPROM (Type "Devil Riders" Inglese n. 2)
1G RE 412 B 2764 MOS IC 8192 × 8 EPROM (Type "Devil Riders" Inglese n. 3)

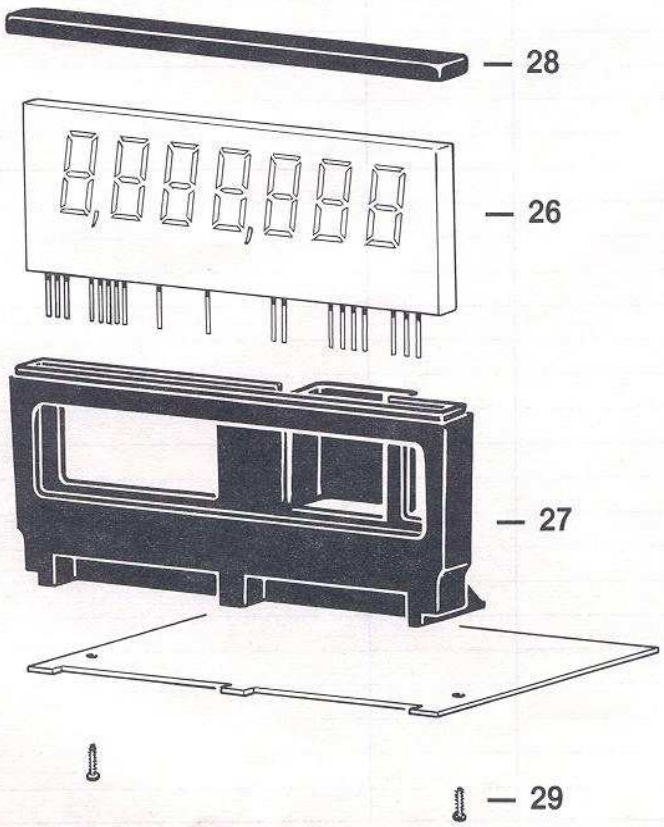
1D RE 413 B 2764 MOS IC 8192 × 8 EPROM (Type "Devil Riders" Tedesco n. 1)
1E RE 414 B 2764 MOS IC 8192 × 8 EPROM (Type "Devil Riders" Tedesco n. 2)
1G RE 415 B 2764 MOS IC 8192 × 8 EPROM (Type "Devil Riders" Tedesco n. 3)

1D RE 416 B 2764 MOS IC 8192 × 8 EPROM (Type "Devil Riders" Francese n. 1)
1E RE 417 B 2764 MOS IC 8192 × 8 EPROM (Type "Devil Riders" Francese n. 2)
1G RE 418 B 2764 MOS IC 8192 × 8 EPROM (Type "Devil Riders" Francese n. 3)

TAV. XX

HE CEC 247 DISPLAY BOARD ASSEMBLY 7 DIGIT





ITEM No.	PART DESIGNATION	CODE PART. No.	DESCRIPTION
1	PRINTED CIRCUIT	CE 2222	P.C. 1B 11123
2	CN	CE 1351	20 PIN FLAT CABLE MALE CONNECTOR
3	I.C. 1	CE 1230	4028 BP C MOS I.C. BCD TO DEC. DECO.
4	I.C. 2	CE 1231	4042 BP C MOS I.C. QUAD. TYPE LATCH
5	I.C. 3	CE 1235	4511 BP C MOS I.C. BCD 7 SEG. DEC.
6	TR 1 ÷ TR 7	CE 1234	BF 423 PNP TRANSISTOR
7	TR 8 ÷ TR 21	CE 1217	BF 422 NPN TRANSISTOR
8	D1	CE 1539	1 N 4004 DIODE
9	D2-D3	CE 1011	1 N 4148 DIODE
10	C1	CE 1005	0,1 M 50VL CERAMIC CAP.
11	C3-C6-C7	CE 1004	0,1 M 250 VL POLIESTER CAP.
12	C4	CE 1399	10 n 250 VL POLIESTER CAP.
13	C5	CE 1028	1M 16 VL ELECTROLITIC CAP.
14	R1 ÷ R7	CE 1196	470 K 1/4 W 5% CARBON RESISTOR
15	R8 ÷ R14	CE 1164	2,2K 1/4W 5% CARBON RESISTOR
16	R15 ÷ 21; 42-44-46-48-50-52-54	CE 1267	1,5K 1/4W 5% CARBON RESISTOR
17	R22	CE 1576	8,2K 1/4W 5% CARBON RESISTOR
18	R23	CE 1408	27K 1/4W 5% CARBON RESISTOR
19	R24	CE 1170	1K 1/4W 5% CARBON RESISTOR
20	R25 ÷ R41	CE 1171	10K 1/4W 5% CARBON RESISTOR
21	R43-45-47-49-51-53-55	CE 1167	100K 1/4W 5% CARBON RESISTOR
22	R56 ÷ R62	CE 1447	330 K 1/4 5% CARBON RESISTOR
23	R63	CE 1408	27K 1/2W 5% CARBON RESISTOR
24	R64-R66	CE 1737	1,2M 1/4W 5% CARBON RESISTOR
25	R65	CE 1194	22 K 1/4W 5% CARBON RESISTOR
26	DISPLAY	CE 3211	DISPLAY 7 CIFRE BECKMAN O BURROUGHS
27	N° 27	AS 1123	SUPPORTO IN NYLON PER DISPLAY A 7 CIFRE
28	N° 28	AS 1124	COPERCHIO SUPPORTO DISPLAY
29	N° 29	A 4074	Vite 2,9 × 6,4