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MANUALE D'ISTRUZIONI

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CONNECTOR CARD FOR TIME MACHINE

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INSTALLATION

ASSEMBLING

Assembling should be done as follows:

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

VISUAL INSPECTIONS

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

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

GENERAL GAME OPERATION

1. Put one the ball into the bottom hole
   Connect voltage and start the game.
2. The «GAME OVER» lamp is lit (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.

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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 (5, 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.

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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 N.B. The presence of the ball in the lower hole or the mobile plate in down position respectively keep the contacts 16 and 5 closed. To avoid their interference with the test functions, we recommend to enter the solenoid test to have the plate going up and to remove the possible ball in the lower hole.

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.

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1-01 ; 12-01 ; 13-01 ; 14-01 ; 15-01 ; 16-01

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 9.990.000
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 25 = 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.

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00 = Difficult
01 = Medium difficulty
02 = Medium - easy
03 = Easy

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 (Test 26, 34 and 36). It is possible, moreover, to tune the difficulty for obtaining lighting up of the "special" lamp, by modifying test n. 34.

00 = the lamp in front of the banks is extinguished
01 = the lamp in front of the banks is lit
02-03 = coupled lighting up of the special lamps

Test 36 determines whether the lamps on the mobile plate are lit one by one or two at a time.

00 = The lamps are extinguished one by one.
01 = Lamps are extinguisched two at at time.
02 = Like 01
03 = Like 01

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

SOUND BACKGROUND (Test 29). If during the game a sound background is required, this test shall be programmed with 01, if not with 00. To program or modify, act on CREDIT push-button, provided SW 4 is in ON (PROGRAM) position.

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 records the «UNIT VALUE» of the coins introduced into the 3 coin chutes.
It is never modified by the wins or the service games (obtained through the SERVICE push-button). The game can be played regularly both with connected and cut- off coin meter, if the test is programmed with 00. Note that the impulse meter is programmed with 00. Note that the impulse meter is always operating 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 the relevant wiring are available upon request.

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

GAME VARIATIONS ON TIME BRIDGE (Test 32). By this test the bonus multiplier value is determined.

00 = Lamps extinguished
01 = Lamps 30 000 lit
02 = Lamps lit
03 = Lamps lit

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

GAME VARIATIONS ON STATIONARY TOP TARGETS (Test 35). By this test it is possible to determine whether the stationary top targets are extinguished one by one or two at a time.

00 = Extinguished one by one
01-02-03 = Extinguished two at a time

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

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 indicates 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.

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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 (PROGRAM) push-button about 5 sec.
07	Takings	Player 1 display = Coins in coin chute 1 Player 2 display = Coins in coin chute 2 Player 3 display = Coins in coin chute 3 Player 4 display = SERVICE games	With SW4 ON act on CREDIT push-button abt. 5 sec.
08	Wins	Player 1 display = Games played in total Player 2 display = Won games Player 3 display = Won balls Player 4 display = Won superbonus	With SW4 ON act on CREDIT push-button for abt. 5 sec.
09	Wins	Player 1 display = H.S. is exceeded Player 2 display = Winning scores are exceeded Player 3 display = Special 1 Player 4 display = Special 2	With SW4 in ON act for about 5 seconds on CREDIT button.

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. If 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.

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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	00 01	Background sound excluded Background sound connected	With SW 4 on ON act on CREDIT push-button
30	Coin meter	00 01	Normal operation both with excluded and with connected impulse meter When impulse meter is disconnected the pin table cannot be used	With 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	Time bridge variation	00 01 02 03	Lamps extinguished Lamp 30.000 lit Lamps lit Lamps lit	Press CREDIT button when SW4 is ON
33	Special 1 MACHINE	00 01 02 03	Difficult Medium difficulty Medium-easy Easy	Press CREDIT button when SW4 is ON
34	Special 2 ORANGE	00 01 02-03	Difficult Medium difficulty Easy	Press CREDIT button when SW4 is ON
35	Stationary top targets	00 01-02-03	Extinguished one by one Extinguished two at a time	Press CREDIT button when SW4 is ON
36	Mobile plate stationary targets	00 01 02 03	Extinguished one by one Extinguished two at a time Extinguished two at a time Extinguished two at a time	
37	Not used			

IMPORTANT: With SW4 in ON (PROGRAM) position, the pintable cannot enter a game, even though there may be credits available, and the machine is in GAME OVER condition. A buzzer and the blinking of the TILT lamp indicate anomalous condition.

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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	

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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.

TIME MACHINE
SERIAL N 1532
WINNED G 000000
PLAYED G 000003
COINS # 1 000003
COINS # 2 000003
COINS # 3 000003
****

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CONNECTOR CARD FOR TIME MACHINE
INPUT/OUTPUT POSITION ON THE CONNECTOR
FEEDER BOARD

CONNECTOR	PIN	WIRE COLOUR	SIGNAL
POWER Board			
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	—	—
"	4	—	—
CN5	→	□	—
"	1	Grey	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 ø
"	7	Grey	Contacts — row 1

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CONNECTOR	PIN	WIRE COLOUR	SIGNAL
CN10	8	—	—
"	9	—	—
"	10	White-grey	Contacts - column 8
"	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	—	—
"	10	Grey-white	Contacts - column 8
"	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-P	3	Yellow-Pink	Central pop
"	4	White-Violet	Top hole
"	5	Yellow-White	Left pop
"	6	Brown-White	Out hole
"	7	White-Blue	Left flap
"	8	Green-White	Right flap
"	9	Brown-Green	Left bank
"	10	Red-Green	Right pop
"	11	Yellow-Orange	Motor relay
"	12	Orange-White	Right bank
CN17-T	13	Brown-Yellow	Crown 1
"	14	Grey-White	Wheel lamp 4
"	15	Black-White	Wheel lamp 7
"	16	Green-Black	Back 1
"	17	Yellow-Grey	Wheel lamp 8
"	18	White-Pink	Wheel lamp 5
"	19	Red-White	Wheel lamp 9
"	20	Yellow-Pink	Crown 3
"	21	Violet-White	Back 2
"	22	Yellow-White	Crown 2
"	23	White-Brown	Wheel lamp 6
"	24	Blue-White	Wheel lamp 10
CN18	1	Yellow-white	Top fixed target 4
"	2	Light blue	Pop
"	3	Blue-Yellow	Right bank
"	4	Light green-Grey	Time bridge 1
"	5	White-Pink	Time bridge 2
"	6	—	—
"	7	—	—
"	8	—	—
"	9	Yellow-Orange	Top fixed target 2
"	10	White-Green	Top fixed target 5
"	11	Red-White	Top fixed target 7
"	12	Light green-Orange	80.000 pts
"	13	White	Time bridge 6
"	14	Brown	Time bridge 4
"	15	Blue-Red	30.000 pts time bridge
"	16	Orange-Violet	Top fixed target 1
"	17	Blue-Grey	30.000 pts
"	18	Red-Black	50.000 pts
"	19	Blue-Orange	Lamp special green
"	20	Blue-White	Time bridge 5

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CONNECTOR	PIN	WIRE COLOUR	SIGNAL
CN19	1	Pink	Lamp special red
"	2	White-Orange	Advance multiplier
"	3	Light green-Brown	10.000 pts
"	4	Violet-Red	Bonus 4 past
"	5	—	—
"	6	Brown	Lamp special orange
"	7	Brown-Orange	Bonus 6 past
"	8	Pink-Violet	Bonus 2 past
"	9	Yellow-Grey	Bonus 7 past
"	10	Green-Blue	Bonus ball
"	11	Yellow-Brown	Bonus 3 past
"	12	Violet	Bonus 9 past
"	13	Violet-Blue	Bonus 5 past
"	14	—	—
"	15	Black-Blue	Multiplier time bridge
"	16	Pink-Blue	Bonus 10 past
"	17	Red-Grey	Bonus 5 future
"	18	Pink-Yellow	Bonus 8 past
"	19	Pink-Black	Bonus 2 future
"	20	Green-Yellow	Bonus 8 future
CN20	1	Yellow-White	Bonus multiplier ×10
"	2	Light-Blue	Bonus multiplier ×20
"	3	Yellow-Blue	Lamp "M"
"	4	Light green-Grey	Bonus 10 future
"	5	Pink-White	Bonus 4 future
"	6	Pink-Brown	Bonus 3 future
"	7	Orange-Grey	Lamp "H"
"	8	Light green-Violet	Lamp "I"
"	9	Yellow-Orange	Lamp "C"
"	10	Green-White	Lamp "A"
"	11	Black-Violet	Bonus multiplier ×5
"	12	White-Brown	Fixed target A
"	13	Black-Green	Fixed target D
"	14	Blue-Brown	Lamp "E"
"	15	Blue-Red	Lamp "N"
"	16	Green-Blue	Fixed target F
"	17	Grey-Blue	Fixed target E
"	18	Black-Red	Fixed target B
"	19	Blue-Orange	Fixed target C
"	20	—	
CN21	1	—	—
"	2	Orange-Grey	Time bridge
"	3	Light green-Violet	Top fixed target 3
"	4	Pink-Brown	Top fixed target 6
"	5	—	—
"	6	—	—
"	7	—	—
"	8	Orange-White	Bonus 6 future
"	9	—	—
"	10	—	—
"	11	—	—
"	12	White-Red	Bonus 9 future
"	13	—	—
"	14	White-Violet	Bonus 1 past
"	15	Black-Grey	Bonus 7 future
"	16	Orange-Brown	Bonus 1 future
"	17	—	—
"	18	Red-Violet	Left bank
"	19	—	—
"	20	—	—
CN22	1	—	—
"	2	Blue-White	Wheel lamp 2
"	3	Violet-Brown	UP (game time bonus)
"	4	Orange-Black	Balls to play
"	5	Yellow-Red	Credit
"	6	Yellow-Black	Match
"	7	Violet-White	Wheel lamp 1
"	8	Green	Can play 1
"	9	Violet-Pink	Wheel lamp 3
"	10	White-Black	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	Highes score
"	19	Green-Blue	Bonus ball
"	20	—	—

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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**

N° 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	1			1			1			1			1			1			1			1		
37	—			—			—			—			—			—			—			—		

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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

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FIG.1

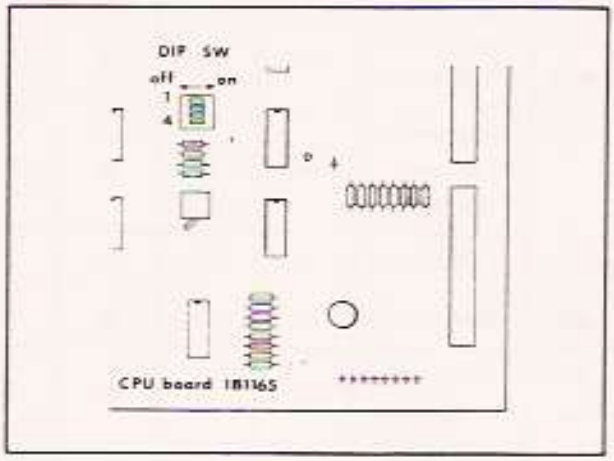
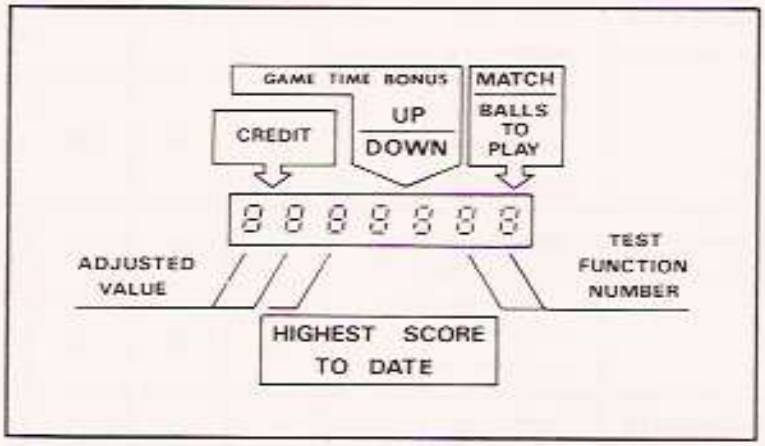


FIG.2



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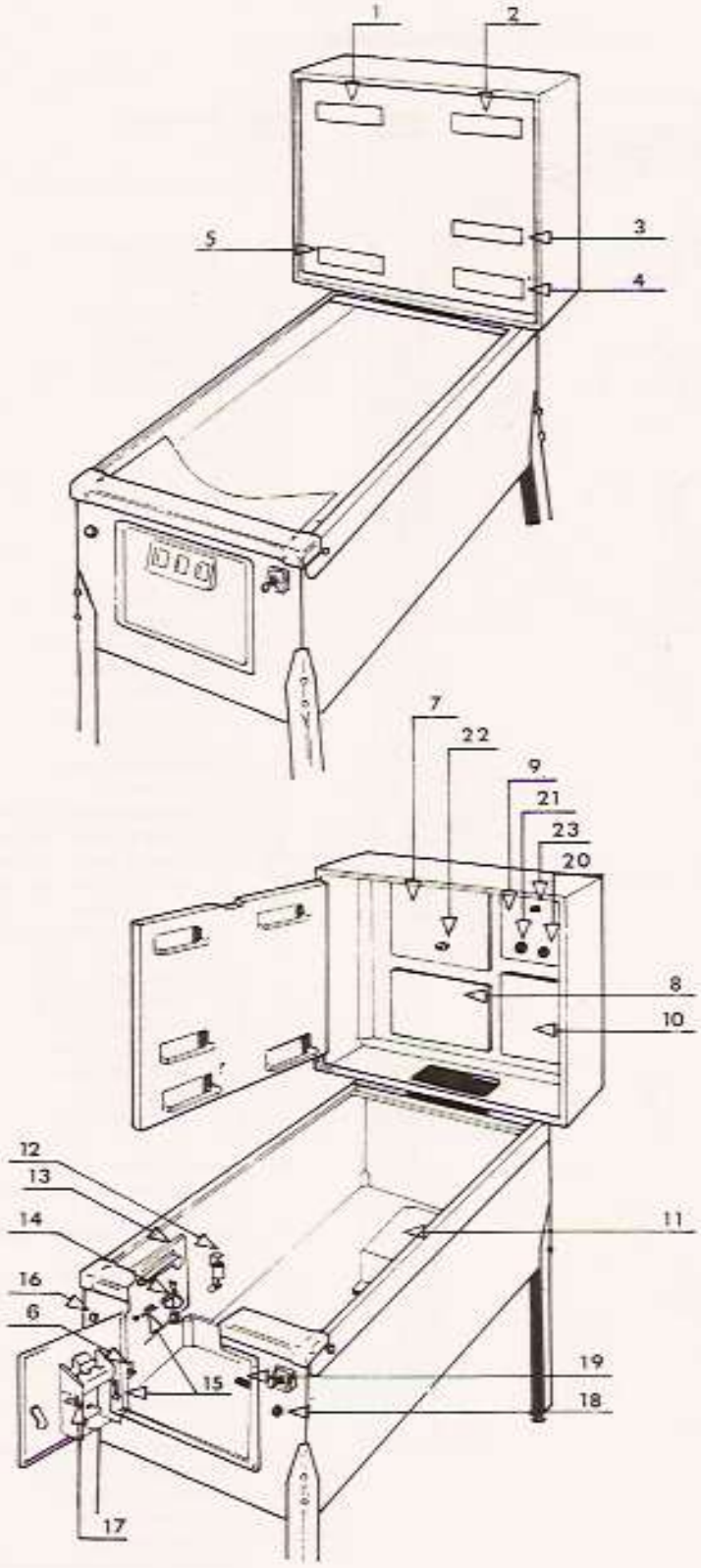
ASSEMBLY DRAWING



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 - Head phone jack

19 - General vol.

20 - Maximum speach vol.

21 - Maximum sound vol.

22 - Dip SWS

23 - Sound self-test button

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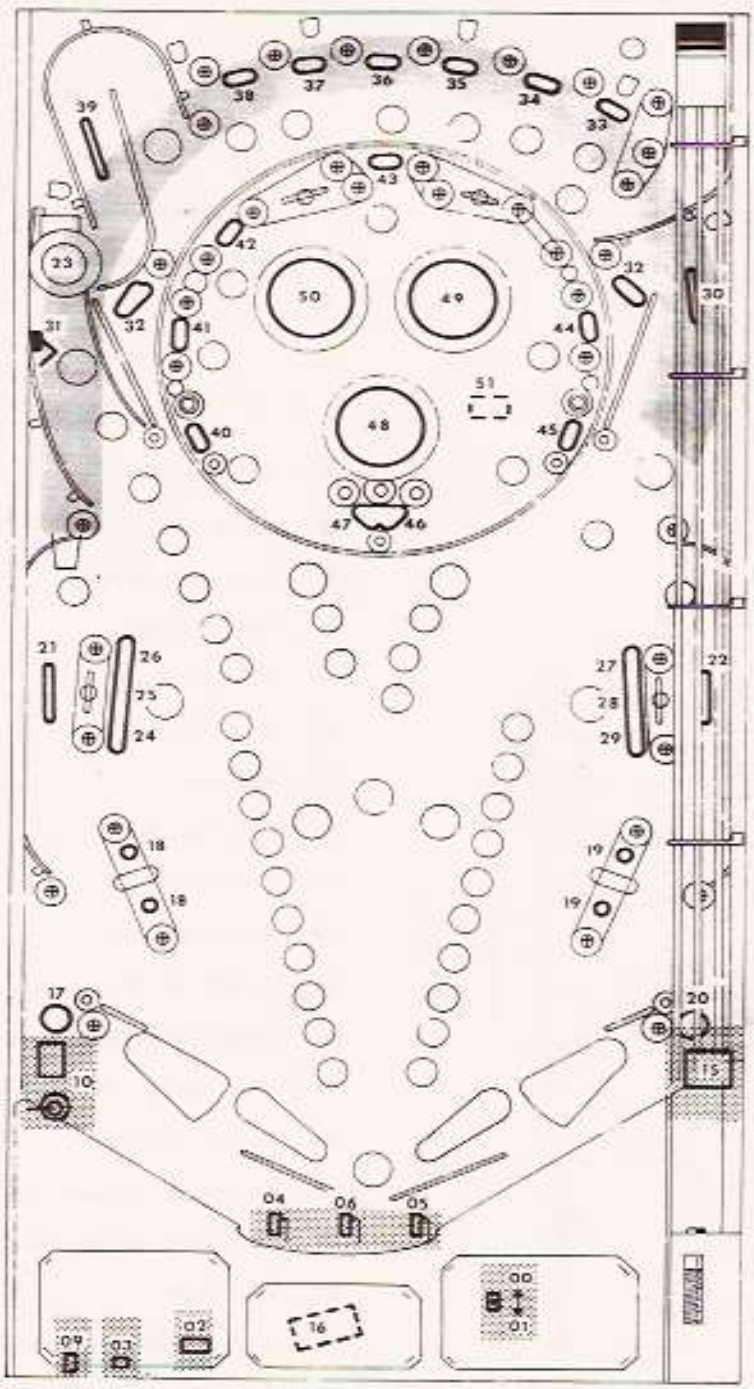
FIG. 4

CONTACT ARRANGEMENT



Contact Number	Description
00	Advancement test
01	Return test
02	Tilt 2
03	Credit Service
04	Coin Switch 1
05	Coin Switch 2
06	Coin Switch 3
07	—
08	—
09	Credit
10	Tilt
11	Factory burn test
12	—
13	—
14	—
15	Printer contact
16	Out hole
17	Left outer exit canal
18	Left flap contacts
19	Right flap contacts
20	Right outer exit canal
21	Left central canal
22	Right central canal
23	Hole machine
24	1st moving target left bank
25	2nd moving target left bank
26	3rd moving target left bank
27	3rd moving target right bank
28	2nd moving target right bank
29	1st moving target right bank
30	1st time bridge canal
31	2nd time bridge canal
32	"1" top fixed target
33	"2" top fixed target
34	"3" top fixed target
35	"4" top fixed target
36	"5" top fixed target
37	"6" top fixed target
38	"7" top fixed target
39	Contact green special
40	"A" Moving bumper assembly fixed target
41	"B" moving bumper assembly fixed target
42	"C" moving bumper assembly fixed target
43	"D" moving bumper assembly fixed target
44	"E" moving bumper assembly fixed target
45	"F" moving bumper assembly fixed target
46	Fixed special orange target
47	Fixed special red target
48	Central pop contact
49	Right pop contact
50	Left pop contact
51	Contact moving bumper assembly

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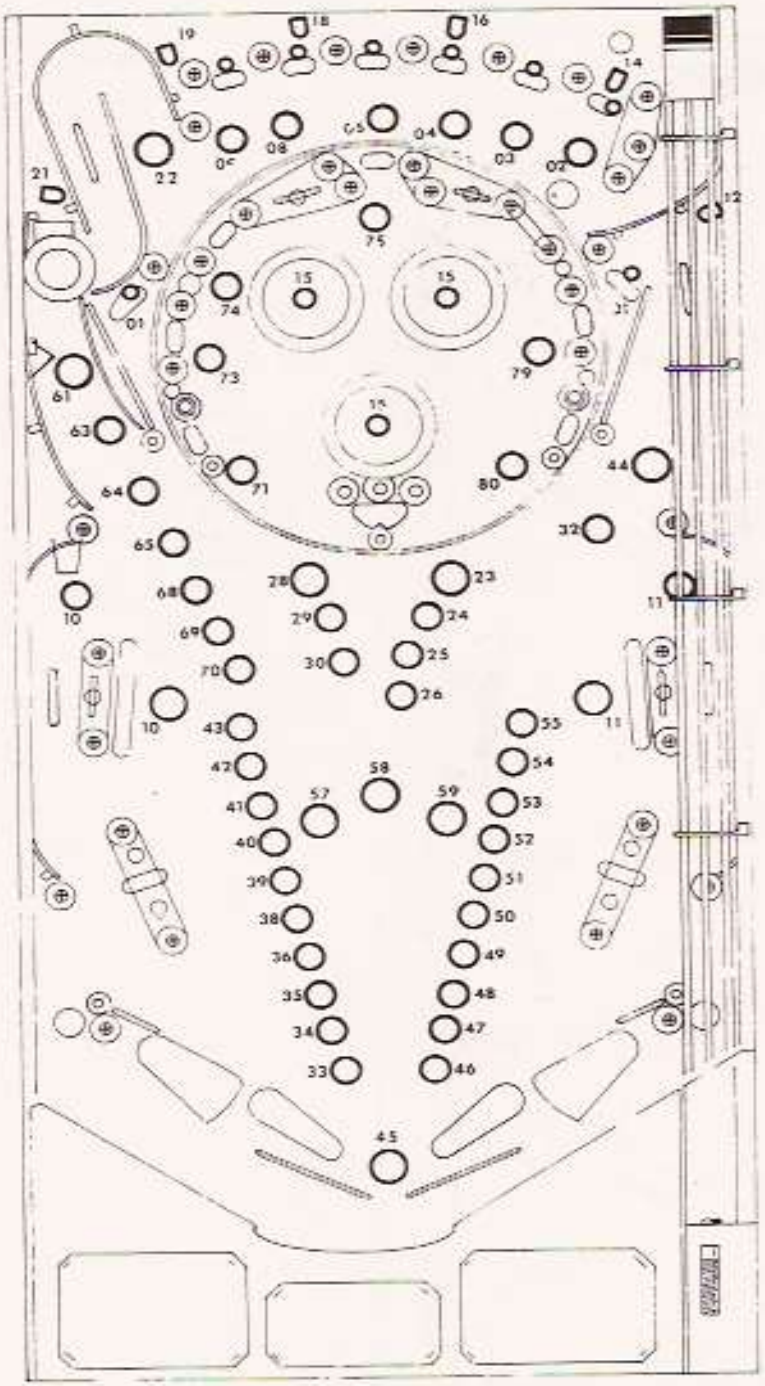
FIG. 5

LAMP ARRANGEMENT



Lamp	Description	Driver n° SCR
01	Top fixed target 1	80
02	Top fixed target 2	66
03	Top fixed target 3	67
04	Top fixed target 4	78
05	Top fixed target 5	70
+ 06	Game over	68
+ 07	Tilt	65
08	Top fixed target 6	72
09	Top fixed target 7	71
10	Left bank	76
11	Right bank	77
12	Time bridge 1	75
+ 13	Match	74
14	Time bridge 2	73
15	Pop	79
16	Time bridge 3	69
+ 17	Ball to play	8
18	Time bridge 4	45
19	Time bridge 5	35
20	Flipper relay	64
21	Time bridge 6	54
22	Lamp special green	44
23	Lamp special orange	26
24	80.000 pts	63
25	50.000 pts	18
26	30.000 pts	27
+ 27	Credit	9
28	Lamp special red	53
29	Advance multiplier	17
30	10.000 pts	62
+ 31	UP (game time bonus)	7
32	30.000 pts time bridge	36
33	Bonus 1 past	43
34	Bonus 2 past	61
35	Bonus 3 past	15
36	Bonus 4 past	16
+ 37	Wheel lamp 1	25
38	Bonus 5 past	33
39	Bonus 6 past	34
40	Bonus 7 past	52
41	Bonus 8 past	23
42	Bonus 9 past	24
43	Bonus 10 past	5
44	Multiplier time bridge	51
+ + 45	Bonus ball	6
46	Bonus 1 Future	41
47	Bonus 2 Future	59
48	Bonus 3 Future	13
49	Bonus 4 Future	31
50	Bonus 5 Future	14
51	Bonus 6 Future	60
52	Bonus 7 Future	42
53	Bonus 8 Future	32
54	Bonus 9 Future	50
55	Bonus 10 Future	49
+ 56	Super Bonus	3
57	Bonus multiplier × 5	21
58	Bonus multiplier × 10	4
59	Bonus multiplier × 20	40
+ 60	Can play 1	22
61	Lamp "M"	58
+ 62	Can play 2	12
63	Lamp "A"	30
64	Lamp "C"	39
65	Lamp "H"	57
+ 66	Can play 3	2
+ 67	Can play 4	11
68	Lamp "I"	48
69	Lamp "N"	20
70	Lamp "E"	38
71	Fixed target "A"	56
+ 72	Down (game time bonus)	10
73	Fixed target "B"	37
74	Fixed target "C"	29
75	Fixed target "D"	47
+ 76	Wheel lamp 2	28
+ 77	Wheel lamp 3	1
+ 78	Highest score	19
79	Fixed target "E"	46
80	Fixed target "F"	55

+ head lamps
+ + head and playfield lamps

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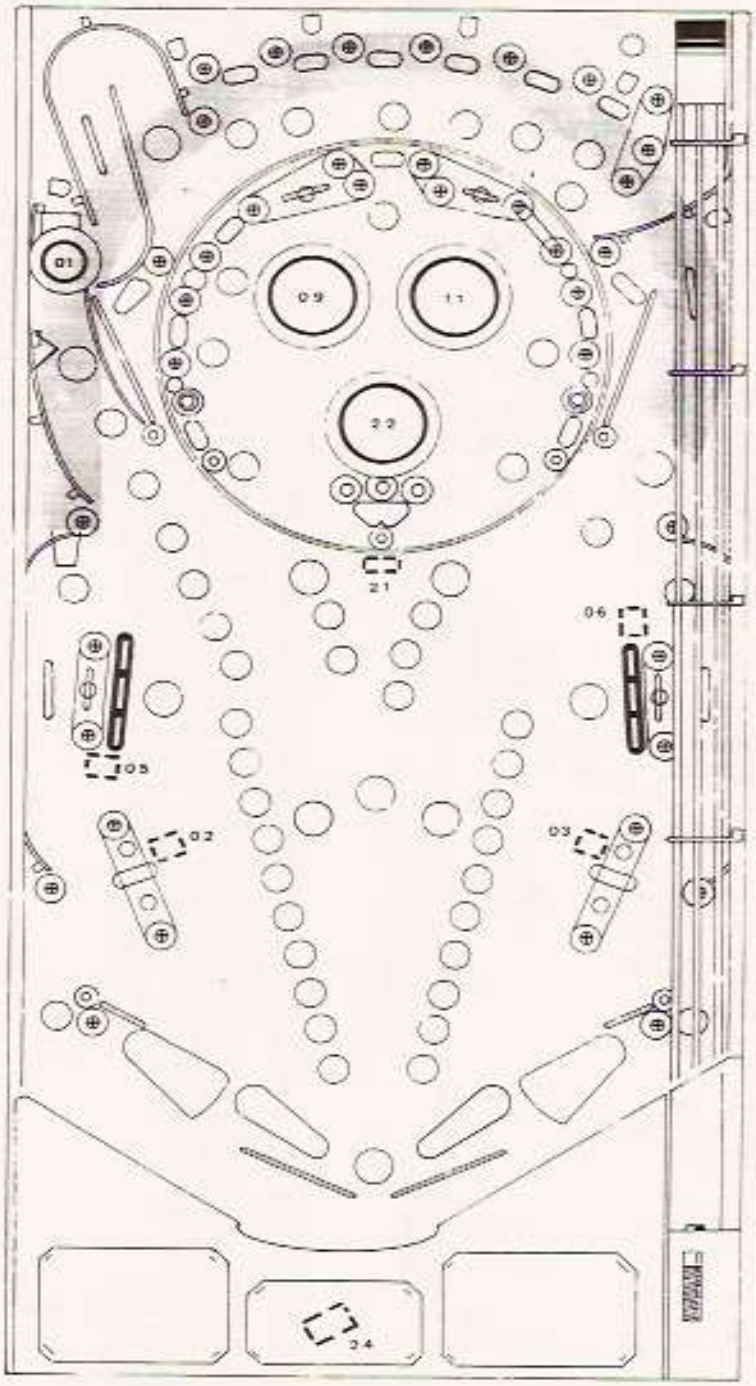
FIG. 6

SOLENOID ARRANGEMENT



Sol n°	Description	DRIVE (darlington)
01	Top hole	Q 5
02	Left flap	Q 14
03	Right flap	Q 9
04	Knocker	Q 20
05	Left bank	Q 4
06	Right bank	Q 13
07	Wheel lamp 4	Q 3
08	Coin mechanism coil	Q 15
09	Left pop	Q 19
10	Wheel lamp 5	Q 7
11	Right pop	Q 18
12	Crown 1	Q 8
13	Wheel lamp 6	Q 6
14	Wheel lamp 7	Q 17
15	Wheel lamp 8	Q 12
16	Wheel lamp 9	Q 2
17	Wheel lamp 10	Q 1
18	Back 1	Q 22
19	Back 2	Q 21
20	Crown 2	Q 11
21	Motor relay	Q 23
22	Central pop	Q 10
23	Crown 3	Q 16
24	Out hole	Q 24

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MECCANICA

catalogo
ricambi

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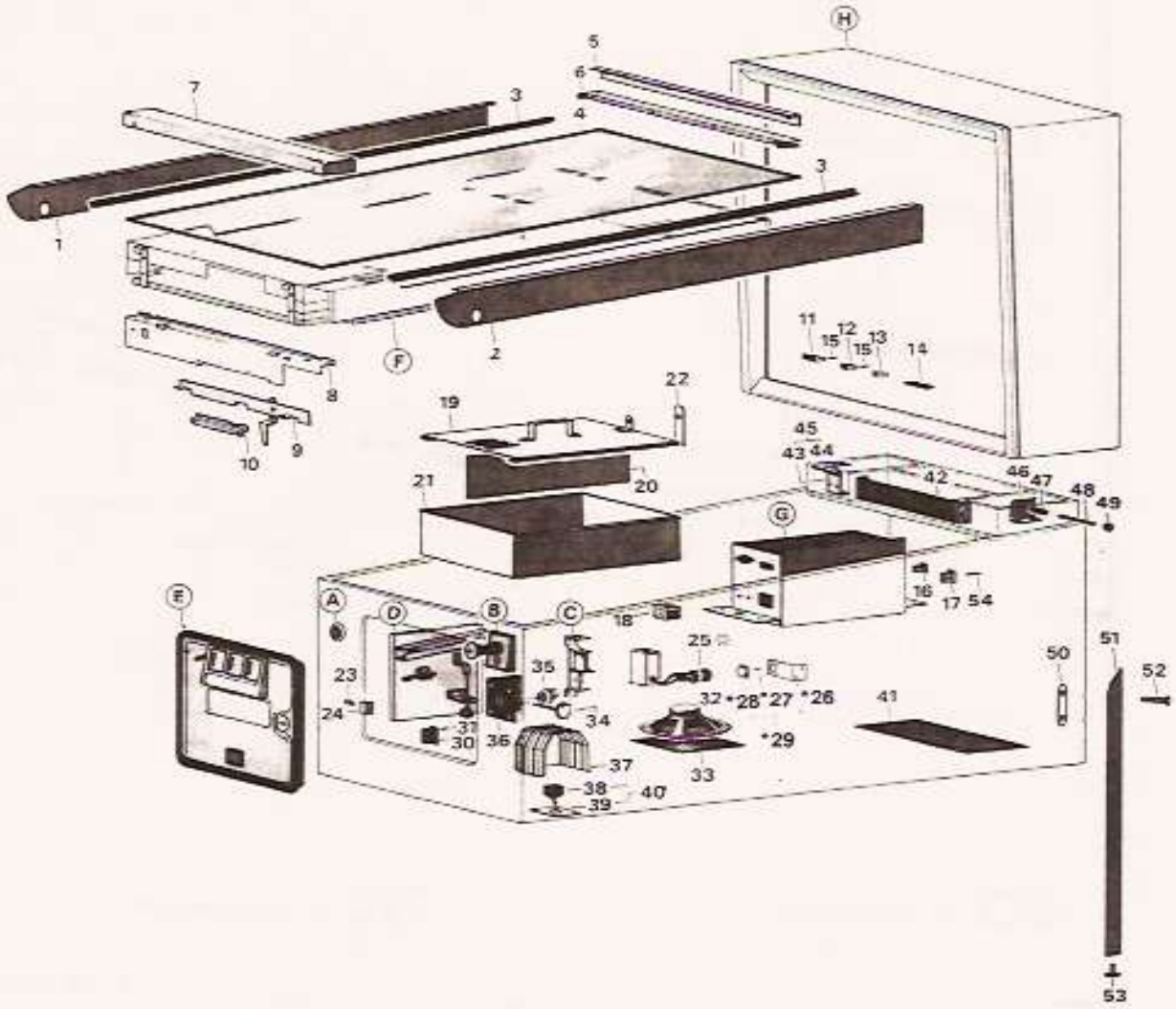
TAV. I



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 sinistro (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 1806	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 7219	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 femmina 2 x 8 MODU 2
31	CE 1340	Contatto femmina MODU 2
32	CE 2018	Altoparlante TW 4 Ω
33	A 7150	Rete protezione altoparlante
34	CE 1753	Potenziometro 100 Ω
35	CE 3082	Jack cuffia
36	A 7406	Staffa supporto potenziometro e Jack
37	A 7217	Protezione interruttore
38	A 4425	Interruttore
39	A 5112	Piastrina porta interruttore
40	B 7172	Interruttore montato
41	A 7386	Lamiera forata 320 x 160
42	A 7176	Rete protezione coletto 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 6259	Manopola zigrinata 5 MA
50	A 6106	Piastrina fissaggio bottoni
51	E 003	Gamba flipper
52	A 7047	Bullone
53	B 7045	Piedino
54	CE 1966	Connetto AMP maschio

*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. XII	pag. 18
H	Vedi:	TAV. XIV	pag. 19

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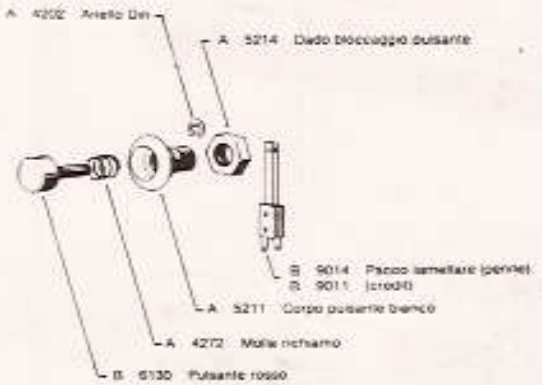
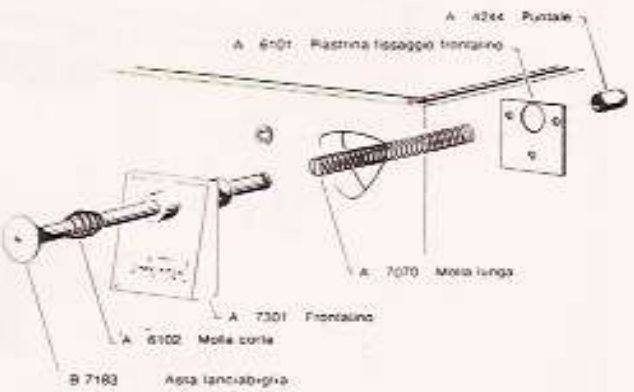
TAV. II

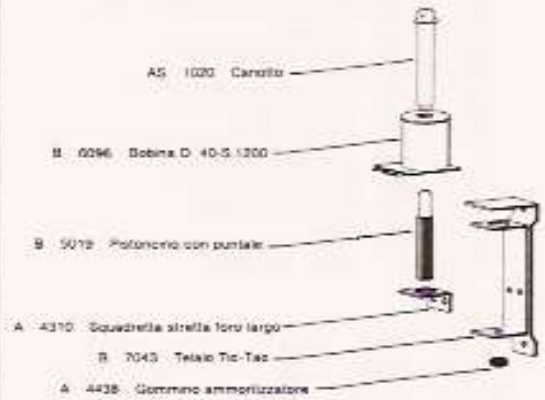
A PULSANTE



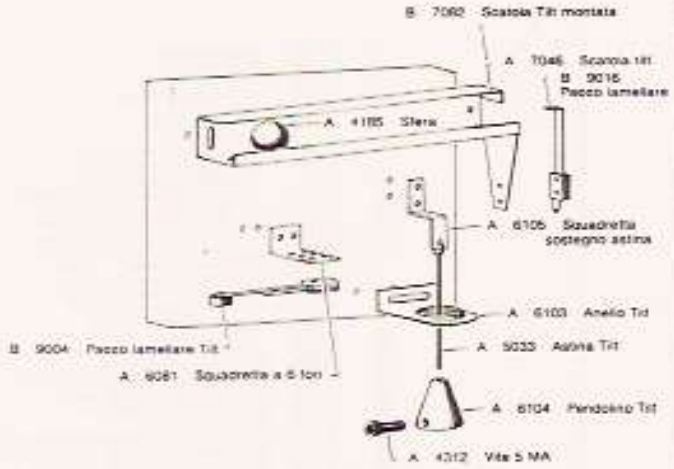
B C 8004 LANCIABIGLIA



C C 8091 TIC-TAC



D C 8006 TAVOLETTA TILT



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AUSTRALIA

AUSTRIA

BELGIO

DANIMARCA & SVEZIA

FRANCIA & SVIZZERA

GERMANIA

GIAPPONE

INGHILTERRA

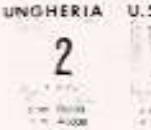
ITALIA

JUGOSLAVIJA

LIBANO

OLANDA

UNGHERIA



U.S.A. & CANADA

a = introduzione monete (in m.)
b = introduzione settigiatala (p.ser.)

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 7238	Cornice in alluminio pressofuso
8	B 7196	Serratura
9	A 4460	Staffa fissaggio cornice
10	A 4051	Pulsante scarto moneta
11	A 4052	Componente per pulsante
12	A 5008	Asta per frontalino
13	B 5009	Porta lampada alto sportello
14	A 6001	Cavalletto 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 cavalletto sportello
19	A 5021	Ferretto porta chiave sportello
20	A 5205	Cartoncino isolatore sportello
21	B 9015	Piacco lamellare tit
22	A 7009	Scorrimonete maschio
23	A 7008	Scorrimonete femmina
24	B 6075	Scorrimonete assemblato
25	B 7006	Supporto gettoniera
26	A 5252	Forcellina fissaggio gettoniera
27	A 5014	Piastrina accoppiamento supporti
28	A 5206	Squadretta porta [illegible]
29	CE 3085	Deviatore con [illegible]
30	*B 7084	Gettoniera L. 100
	B 7175	Gettoniera L. 200
	B 7092	Gettoniera 25 C
	B 7096	Gettoniera 5 F
	B 7097	Gettoniera 10 F
	B 7098	Gettoniera 5 P
	B 7099	Gettoniera 10 P
	B 7147	Gettoniera 50 P
	B 7111	Gettoniera 0,50 prg
	B 7112	Gettoniera 1 DM
	B 7113	Gettoniera 2 DM
	B 7114	Gettoniera 5 DM
	B 7128	Gettoniera 1 FS
	B 7129	Gettoniera 2 FS
	B 7148	Gettoniera 10 Fr Belg
	B 7233	Gettoniera 5 Dinari
	B 7234	Gettoniera 10 Dinari
31	A 5114	Piastrina fissaggio gettoniera
32	B 6109	Piastra porta micro
33	*B 5093	Micro nero
	B 5094	Micro rosso
	B 5095	Micro bianco
34	B 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 6 vie MODU 2
40	CE 1348	Contatto maschio MODU 2
41	A 7002	Piastra supporto gettoniere
42	A 4325	Leva per serratura sportello anteriore
43	B 7143	Alloggiamento doppino
44	B 6101	Bobina D. 12+5, 6.000 con nucleo
45	B 7144	Puntina con componente in ottone
46	A 5002	Ferro barra arresto moneta
47	A 5001	Barra arresti moneta

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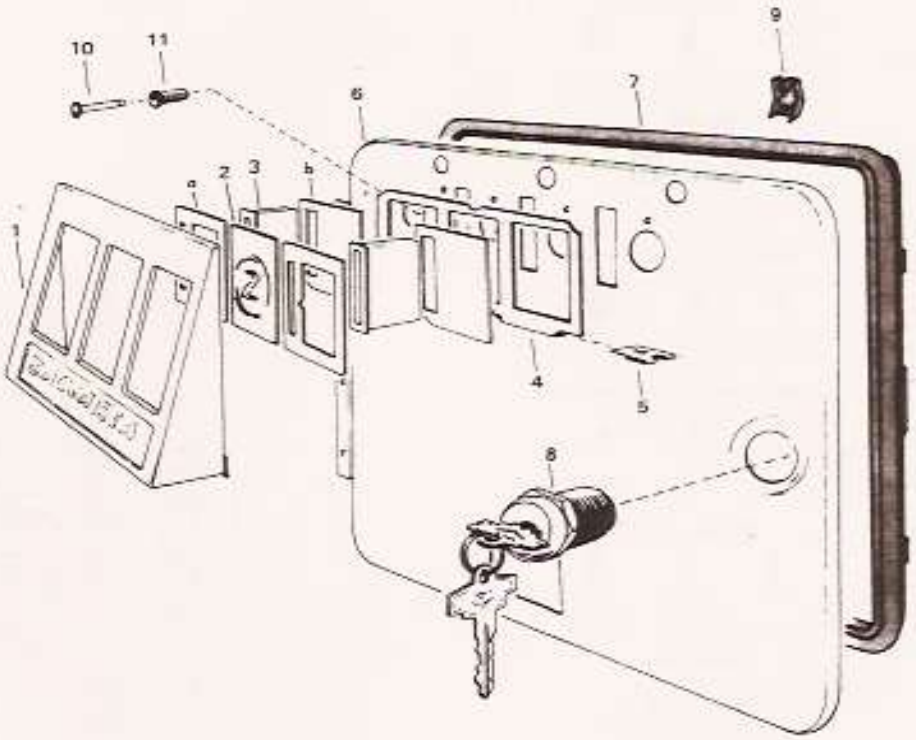
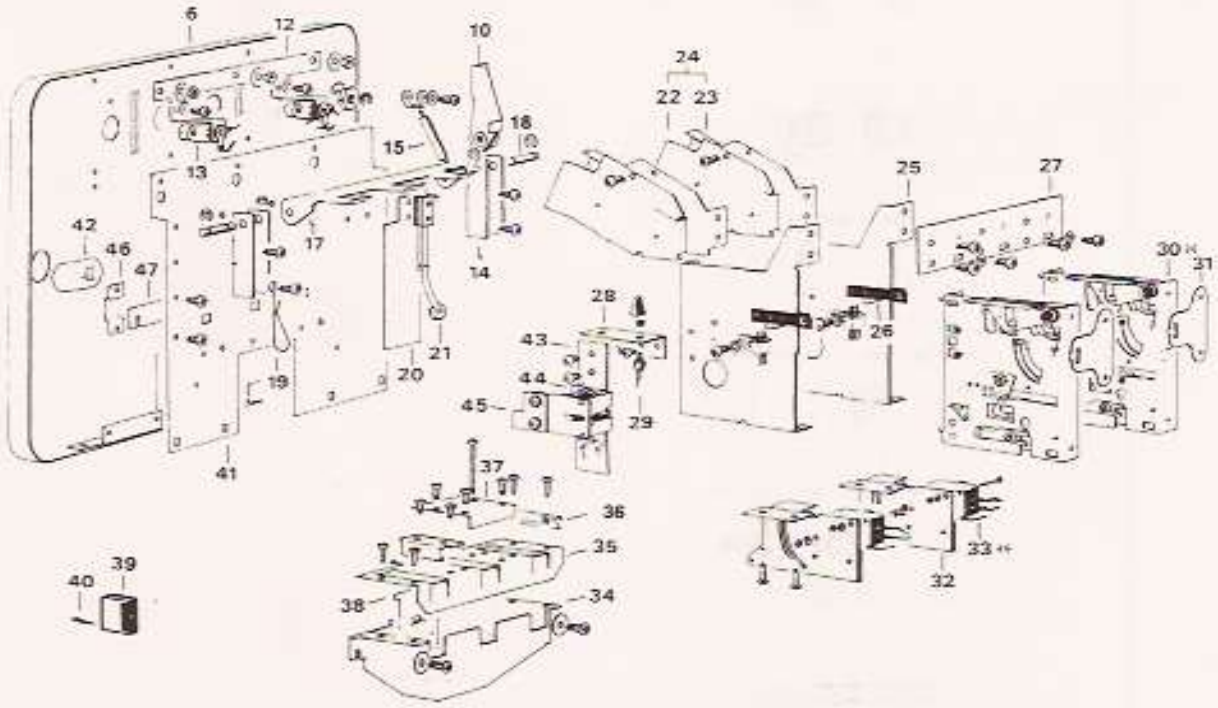
TAV. III

E

C 8140 SPORTELLO PORTA GETTONIERE





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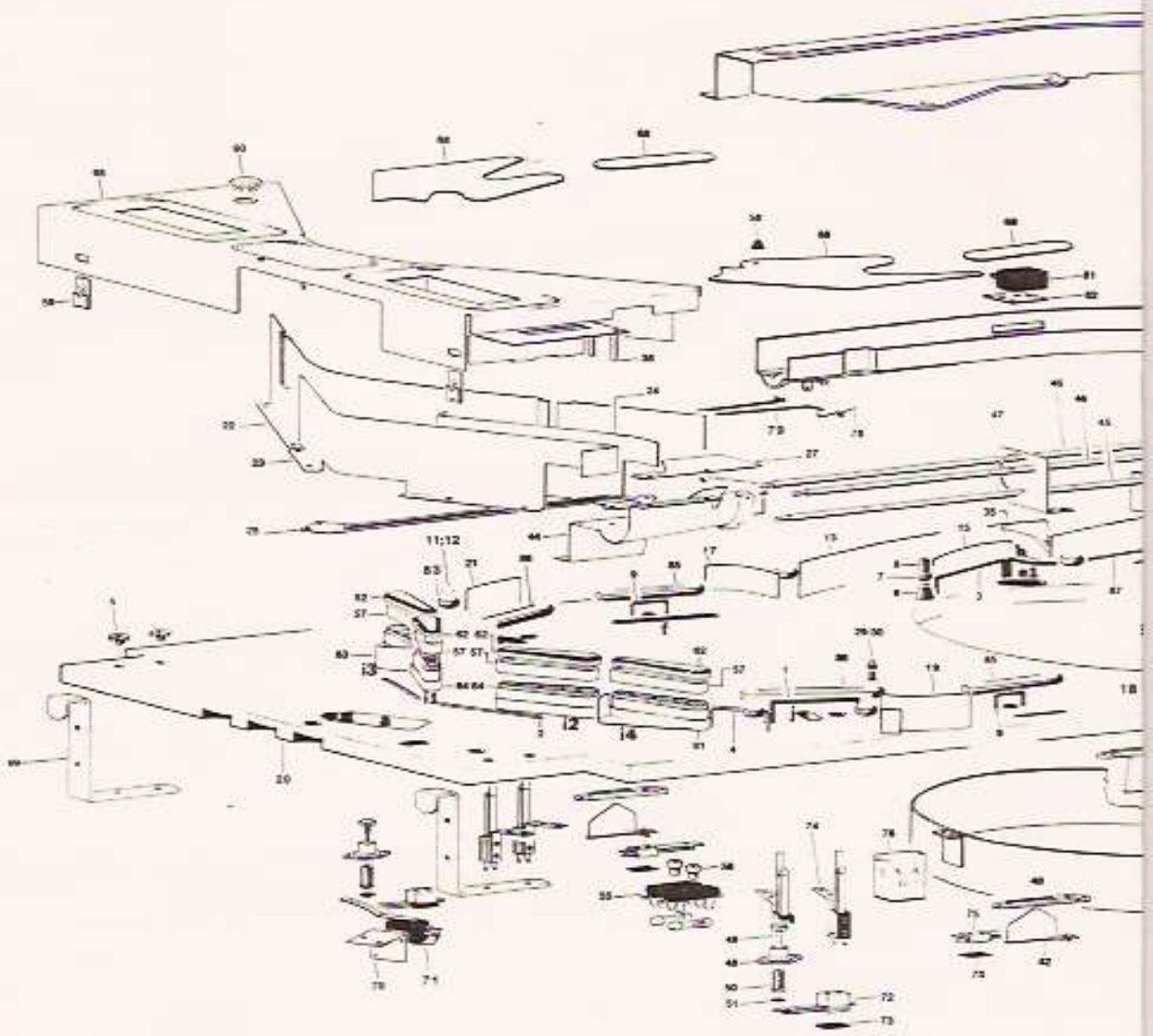
F PIANO DI GIOCO «TIME MACHINE»



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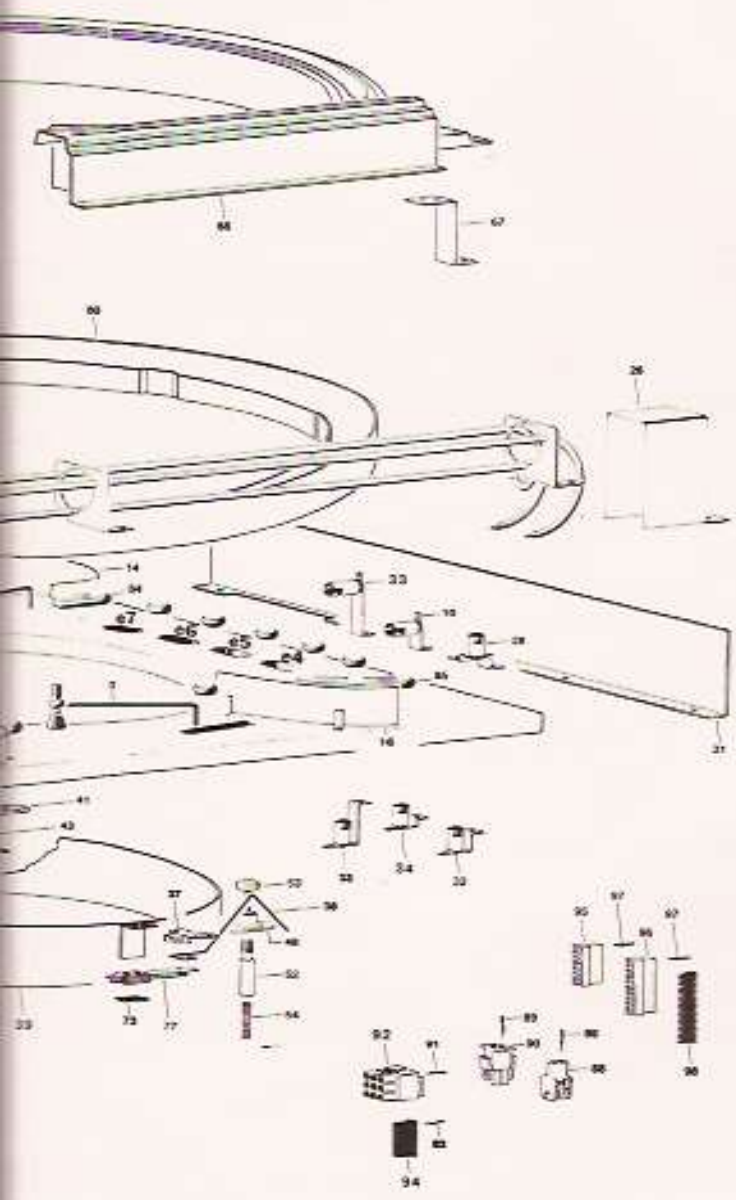

1	A 4431	Ferretto alto mm. 80
2	A 4368	Ferretto basso mm. 80
3	A 4242	Ferretto alto mm. 114
4	A 4235	Ferretto alto mm. 90
5	A 4386	Dado sicuri ø M4
6	A 5433	Componentie minipost
7	A 4537	Gommino minipost
8	A 4570	Minipost
9	A 4629	Ferretto mm. 30 (interassi)
10	B 6222	Portalampada piatto alto mm. 15
11	AS 1096	Colonnetta mm. 27 azzurra
12	A 6301	Colonnetta mm. 27 rossa
13	XB 057	Guida pallina mm. 28 x 261,5
14	XB 058	Guida pallina mm. 28 x 270
15	XB 059	Guida pallina mm. 28 x 138,5
16	XB 060	Guida pallina mm. 28 x 125
17	XB 061	Guida pallina mm. 28 x 92,5 piedino sinistro
18	XB 062	Guida pallina mm. 28 x 92,5 piedino destro
19	XB 063	Guida pallina mm. 28 x 63 piedino destro
20	MRB 625	Piano di gioco serigrafato
21	XB 064	Guida pallina mm. 28 x 63 piedino sinistro
22	A 7361	Angolare rialzo carter
23	A 7359	Guida pallina lunga alta
24	A 7360	Guida pallina corta alta
25	A 7363	Sirtano pallina
26	A 7474	Scatola arresto guida traffile
27	A 6319	Copertura lancia biglie
28	B 6177	Portalampada piano lungo
29	A 7063	Vite portasole ø M4
30	A 7055	Vite portasole legno
31	A 7480	Angolare rinforzo piano di gioco
32	B 7003	Portalampada medio
33	B 7002	Portalampada alto
34	B 7029	Portalampada basso
35	A 7285	Squadretta arresto pallina
36	MRB 629	Graduatore serigrafato
37	A 6084	Farfalla passaggio sinistro
38	A 4683	Ferretto lungo per farfalla sinistra
39	B 7345	Cerchio con angolari
40	AS 1035	Passaggio grande
41	AS 1036	Passaggio piccolo
42	AS 1042	Bussetta in plastica grande
43	AS 1043	Bussetta in plastica piccola
44	B 7200	Staffa raccoglitore pallina P.C.
45	A 7478	Traffila centrale
46	A 7479	Traffila esterna
47	A 6289	Supporto traffila 90°
48	A 5189	Bussetta per pulsante
49	A 5337	Fioretto in mackrolon
50	A 5238	Inserto in ottone
51	A 4260	Quicklik
52	A 4680	Barretta in ottone guida pulsante
53	B 5078	Pulsante in metallo
54	A 4689	Molla cilindrica
55	B 7054	Portafusibile
56	A 4068	Gommino per minipost
57	A 4245	Fascetta flipper
58	A 4279	Coperchietto rose
59	A 4343	Piastrina semidoppia fissaggio carter
60	A 4362	Spia rossa
61	AS 1151	Corpo penna larga destra blue
62	AS 1152	Coperchio penna flipper blue
63	AS 1153	Corpo penna larga sinistra blue
64	AS 1154	Corpo penna smontabile
65	MRB 628	Carter serigrafato "Time Machine"
66	MRB 621	Copertura canale termoformato
67	A 4574	Staffa a "Z" supporto piano rialzato
68	MRB 623	Inserti piano "Time Machine"
69	A 7364	Supporto alto per piano di gioco
70	A 5298	Supporto micro della buca finale
71	B 6184	Micro interruttore della buca finale
72	B 9009	Pacco lamellare per pulsante a stella
73	A 6020	Piastrina copri pacco lamellare
74	B 9019	Pacco lamellare rigo
75	B 9008	Pacco lamellare passaggi
76	CEC 005	Relay RR 41 B 0048
77	B 9010	Pacco lamellare buca bassa
78	A 4564	Molla a torsione richiamo ferretto
79	A 4562	Ferretto discesa pallina
80	B 7348	Cursore illuminante assemblato
81	B 6155	Microinterruttore E 51408
82	A 4679	Piastrina 32 x 30 fissaggio micro
83	A 4246	Gommino n° 0
84	A 4250	Gommino n° 2
85	A 4252	Gommino n° 4
86	A 4253	Gommino n° 5
87	A 4694	Ferretto alto mm. 174
88	CE 1809	Connettore 2 vie AMP da pannello
89	CE 1966	Contatto AMP maschio
90	CE 1808	Connettore 2 vie AMP volante
91	CE 1965	Contatto AMP femmina
92	CE 1765	Connettore 9 vie AMP volante
93	CE 1940	Contatto MODU 2 femmina
94	CE 1592	Connettore 2 x 9 MODU 2 porta femmine
95	CE 1895	Connettore 7 vie AVG femmina, arancio
96	CE 1891	Connettore 10 vie AVG femmina, giallo
97	CE 1993	Chiavetta di polarizzazione
98	CE 1984	Connettore 20 vie AVG femmina, nero

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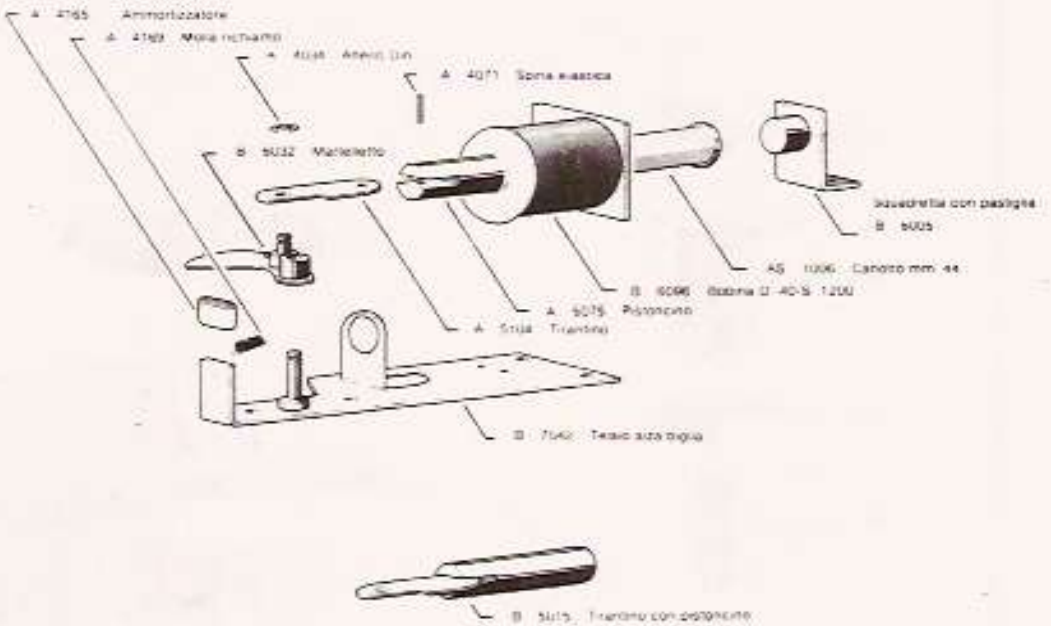
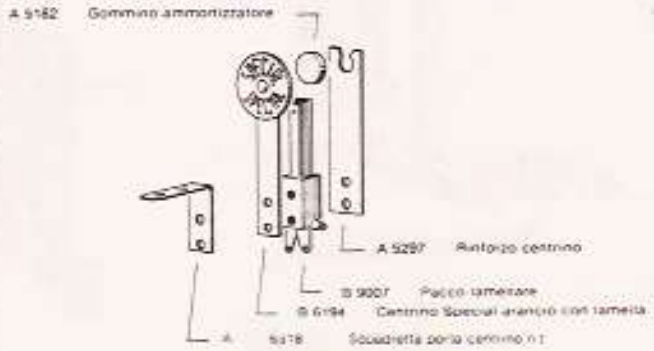
TAV. V

Fa C 8050 ALZA BIGLIA



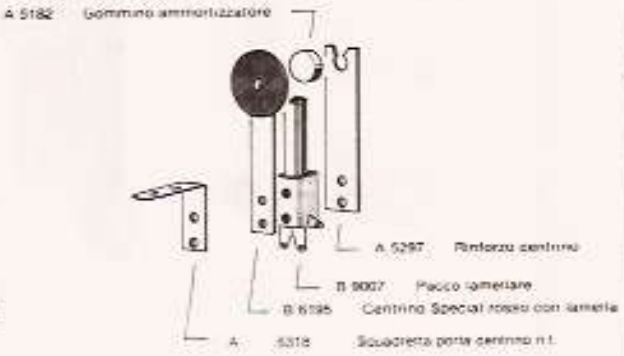
Fb

C 8224 CENTRINO FISSO «SPECIAL» ARANCIO ASSEMBLATO



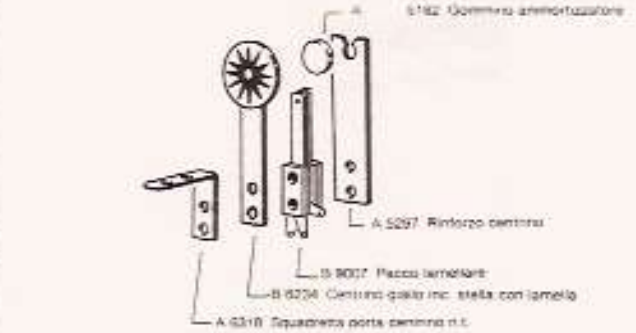
Fc

C 8225 CENTRINO FISSO «SPECIAL» ROSSO ASSEMBLATO



Fd

C 8310 CENTRINO FISSO GIALLO INC. STELLA ASSEMBLATO



Fe

Fe1 C 8311 Centrino trasparente n° 1 assemblato
Fe2 C 8312 Centrino trasparente n° 2 assemblato
Fe3 C 8313 Centrino trasparente n° 3 assemblato
Fe4 C 8314 Centrino trasparente n° 4 assemblato
Fe5 C 8315 Centrino trasparente n° 5 assemblato
Fe6 C 8316 Centrino trasparente n° 6 assemblato
Fe7 C 8317 Centrino trasparente n° 7 assemblato

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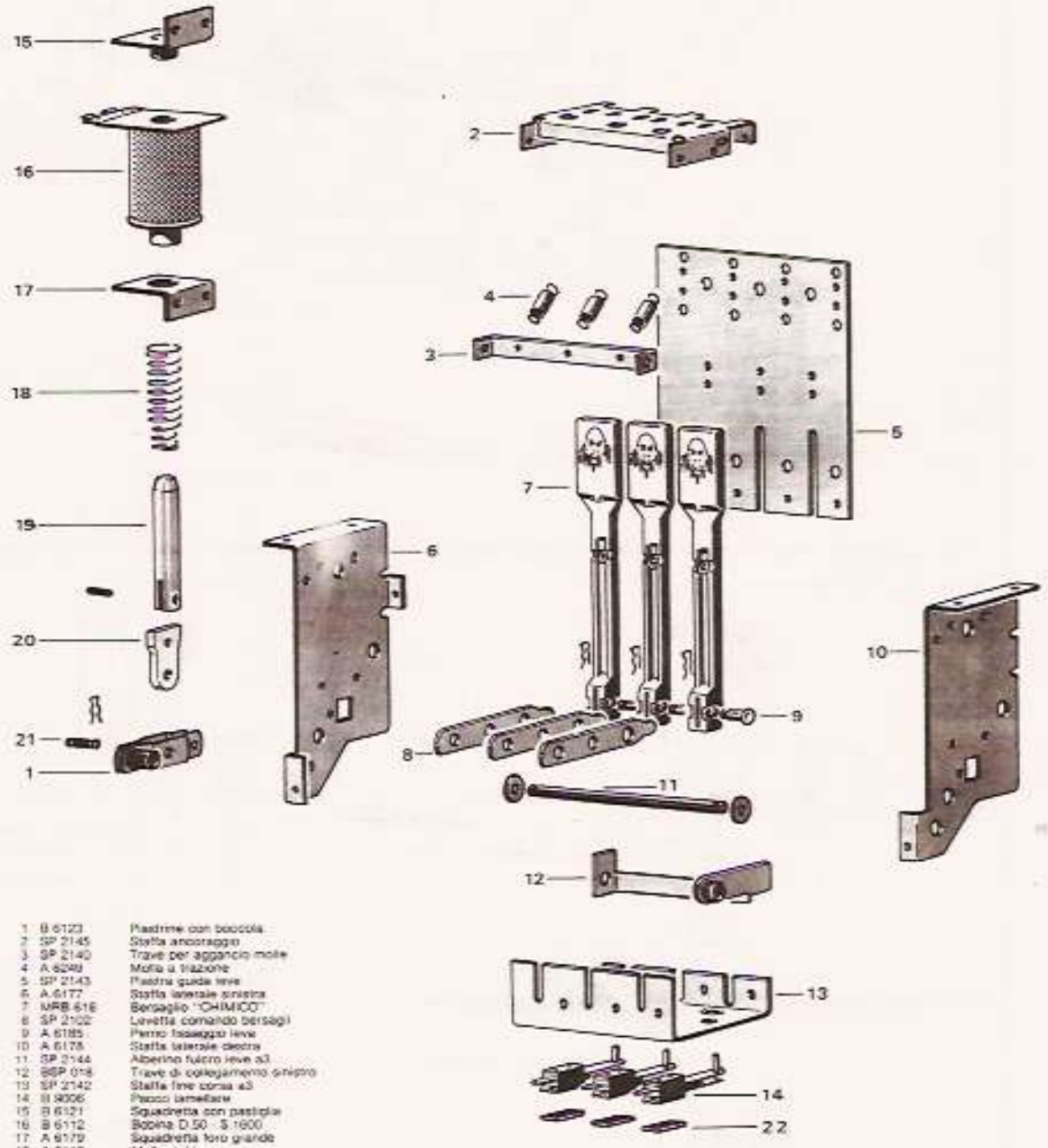
TAV. VI

Ff C 8309 BANCO BERSAGLI A TRE POSIZIONI SINISTRO T.M.



1	B 6123	Piastrina con boccola
2	SP 2145	Staffa ancoraggio
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 616	Bersaglio "CHIMICO"
8	SP 2102	Levetta comando bersagli
9	A 6185	Perno fissaggio leva
10	A 6178	Staffa laterale destra
11	SP 2144	Albero fulcro leve a3
12	BSP 016	Trave di collegamento sinistro
13	SP 2142	Staffa fine corsa a3
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

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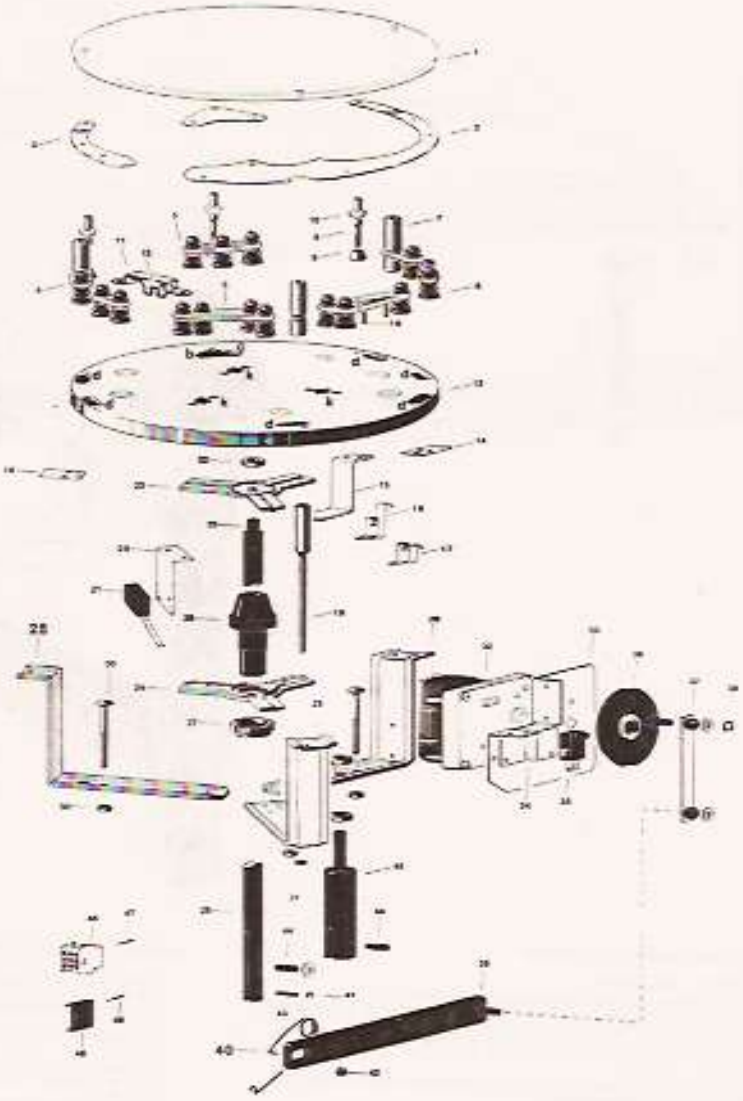
TAV. VII

Fg PIANO MOBILE



1	MRB 616	Piano in plexiglass sengrafato
2	MRB 604	bora termoformata sinistra
3	MRB 602	bora termoformata destra
4	A 4248	Gommino n° 1
5	A 4252	Gommino n° 4
6	AS 1090	Colonnetta mm. 27 azzurra
7	A 5360	Perno supporto plexiglass
8	A 4570	Minipost riletto 4MA x 51
9	A 4533	Componente per minipost
10	A 4537	Gommino per minipost
11	X 037	Pontaello mm. 48
12	X 035	Ferretto unidirezionale mm. 48
13	MRB 631	Piano mobile in legno sengrafato
14	A 4688	Piastrina mm. 35 x 20 a 3 fori
15	A 5366	Staffa a "Z" per pulsante
16	B 7002	Portalampada alto
17	B 7003	Portalampada medio
18	A 4628	Ferretto alto mm. 30
19	B 6220	Barretta con perno inserito
20	A 5364	Squadretta fissaggio micro 48 x 23
21	B 6164	Microinterruttore per buca finale
22	A 4585	Dado UNI 10 x 1 1/8
23	A 7507	Componente a stella superiore
24	A 7508	Componente a stella inferiore
25	A 7538	Albero gruppo ascensore
26	B 6221	Guida per albero con boccola
27	A 5367	Ghiera M25 x 1,5
28	A 7509	Staffa a "Z" gruppo ascensore
29	A 7510	Staffa a "Z" fissaggio motore
30	A 4570	Vite M6 x 60 con dado
31	A 4120	Boccola in plastica per staffa
32	B 7399	Motore 48 V con riduttore 10 g. min
33	A 7512	Piastra fissaggio motore
34	A 5358	Squadretta per micro 28 x 61 x 1
35	B 6158	Microinterruttore con rullino
36	B 6228	Disco a camme Ø 76 assemblato
37	B 6227	Asta con boccola assemblata
38	A 4212	Anello DIN Ø 4
39	B 7347	Leva gruppo ascensore assemblata
40	A 5368	Molla a torsione gruppo ascensore
41	A 4555	Anello DIN Ø 3,2
42	A 4673	Boccola Ø 9,5; Ø i 6,4; h 5,5
43	A 4661	Perno Ø 4 l. 22,5
44	A 4667	Perno Ø 6 l. 25
45	A 6340	Barra esagonale fulcro leva
46	CE 1744	Connettore 9 vie AMP da pannello
47	CE 1966	Contatto AMP maschio
48	CE 1591	Connettore MODU 2,2 x 9 porta maschi
49	CE 1348	Contatto MODU 2 maschio

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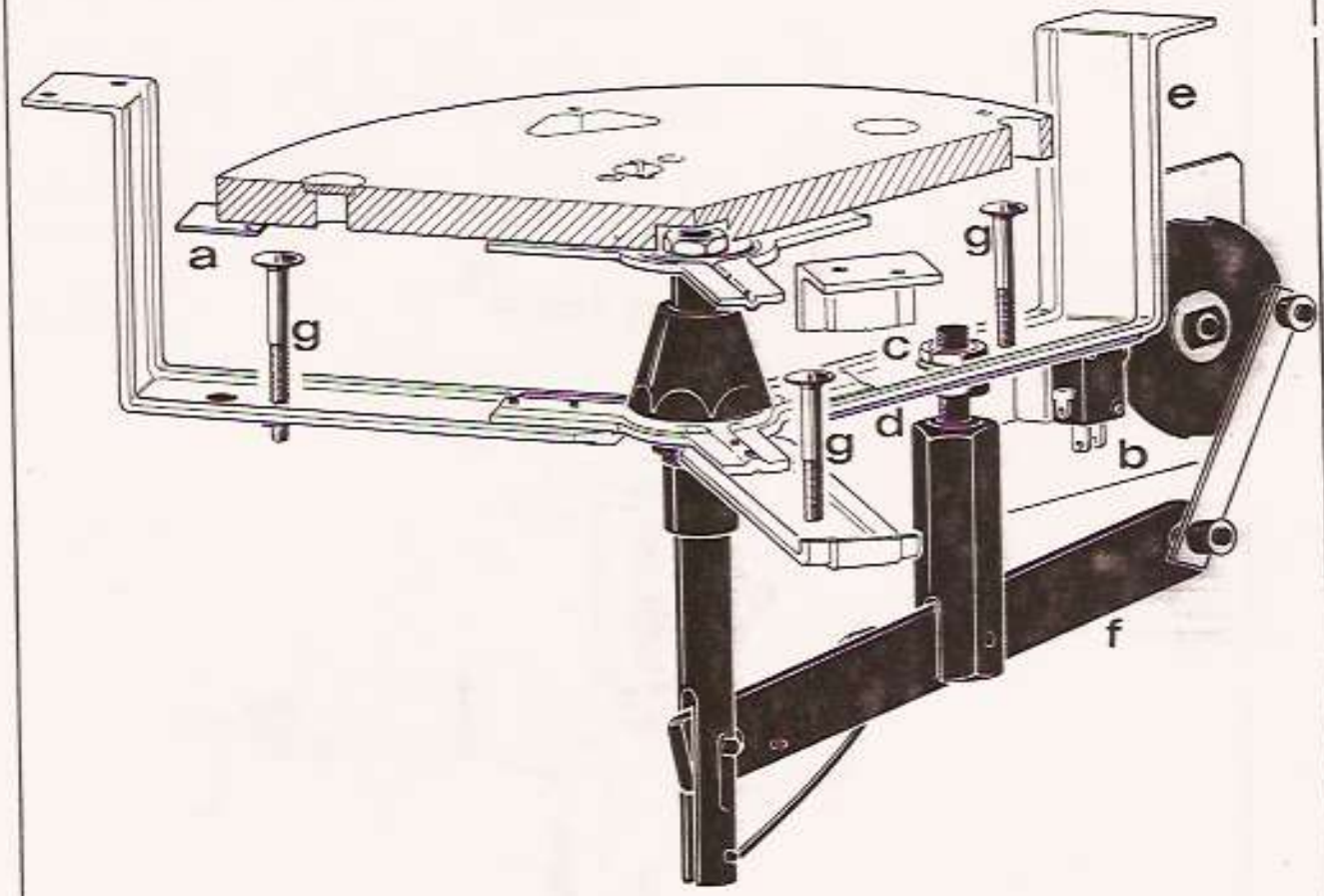

REGOLAZIONI GRUPPO ASCENSORE

1) Livellamento piano mobile
a) portare a battuta sul piano le piastrine di livellamento (a)
b) portare a fine corsa superiore la camma del motorino mediante il micro (b)
c) allentare il dado (c) fino a non avere pressioni sul dado stesso
d) portare a 1 mm la spazio tra il dado (d) e la staffa (e)
e) avvitare forte il dado (c) e controllare il parallelismo dell'asta (f) con la parete dell'asola
f) fare compiere alcuni movimenti al piano mobile e controllare che la pressione sulla piastrina (a) non sia eccessiva.

2) Livellamento plexiglass
a) portare la camma del motorino a fine corsa inferiore mediante il micro (b).
b) livellare il plexiglass mediante le viti (g) svitando i dadi delle viti stesse
c) bloccare di nuovo i dadi a operazione terminata

MOVING BUMPER ASSEMBLY ADJUSTMENT

1) Moving assembly leveling
a) Make levering plates (a) contact playfield
b) Lead motor cam to upper stop point by micro (b)
c) Loosen nut (c) until no pressure is exerted on the nut itself
d) Make distance between nut (d) and Z bracket (e) equal to 1 mm.
e) Tighten nut (c) as much as possible and make sure about parallelism between rod (f) and slot wall.
f) Make moving assembly accomplish some rising and falling movements and make sure that pressure exerted on plate (a) is not excessive.

2) Plexiglass leveling
a) Lead motor cam to lower stop point by micro (b)
b) By screws (g), level plexiglass by screwing out nuts of the same screws.
c) After that, retighten nuts.

REGLAGE DU GROUPE MONTANT

1) Nivelement du plateau mobile
a) Porter les plaquet de nivelement (a) jusqu'à toucher le plateau du jeu.
b) Porter la came du petit moteur jusqu' au point d'arrêt supérieur par le micro (b).
c) Desserrer le de (c) jusqu'à ce que aucune pression ne soit exercée sur le de même.
d) Rendre la distance entre le de (d) et l'étrier à Z (e) egale à 1 mm
e) Serrer le de (c) bien enroit et contrôler le parallélisme entre la tige (f) et la paroi du trou.
f) Faire accomplir quelques mouvements au plateau mobile et s'assurer que la pression sur la plaque (a) ne soit pas trop élevée.

2) Nivellement du plexiglass
a) Porter la came du petit moteur jusqu au point d'arrêt inférieur au moyen du micro (b).
b) Niveller le plexiglass au moyen des vis (g) en desserrant les dés des vis mêmes.
c) Après cette opération, bloquer les des à nouveau

EINSTELLUNG ER AUFZUGSGRUPPE

1) Horizontale ausrichtung der beweglichen platte
a) Man lege die ausrichtplattchen (a) auf die platte auf.
b) Man bringe die kurven des elektromotors mittels des mikroschalters in die position der obersten endlage.
c) Man lockere die mutter (c), bis dieser keinerlei druck mehr unterworfen ist.
d) Man regulierе den abstand zwischen der mutter (d) und der halterung (e) auf 1 mm ein.
e) Man schraube die mutter (c) fest zu, und kontrolliere, ob die stange (F) perfekt parallel ist mit der wand des schlitzes.
f) Man fuehre einige bewegungen der beweglichen platte aus, und kontrolliere, ob kein zu starker druck auf die plattchen (a) ausgeuebt wird.

2) Positionierung des plexiglases
a) Man bringe die kurven des elektromotors mittels des mikroschalters (b) in die untere endlage.
b) Man richte das plexiglas mittels der schrauben (g) aus indem man die muttern der schrauben selbst aufschraubt.
c) Man schraube die muttern nach beendigung dieser massnahme wieder fest.

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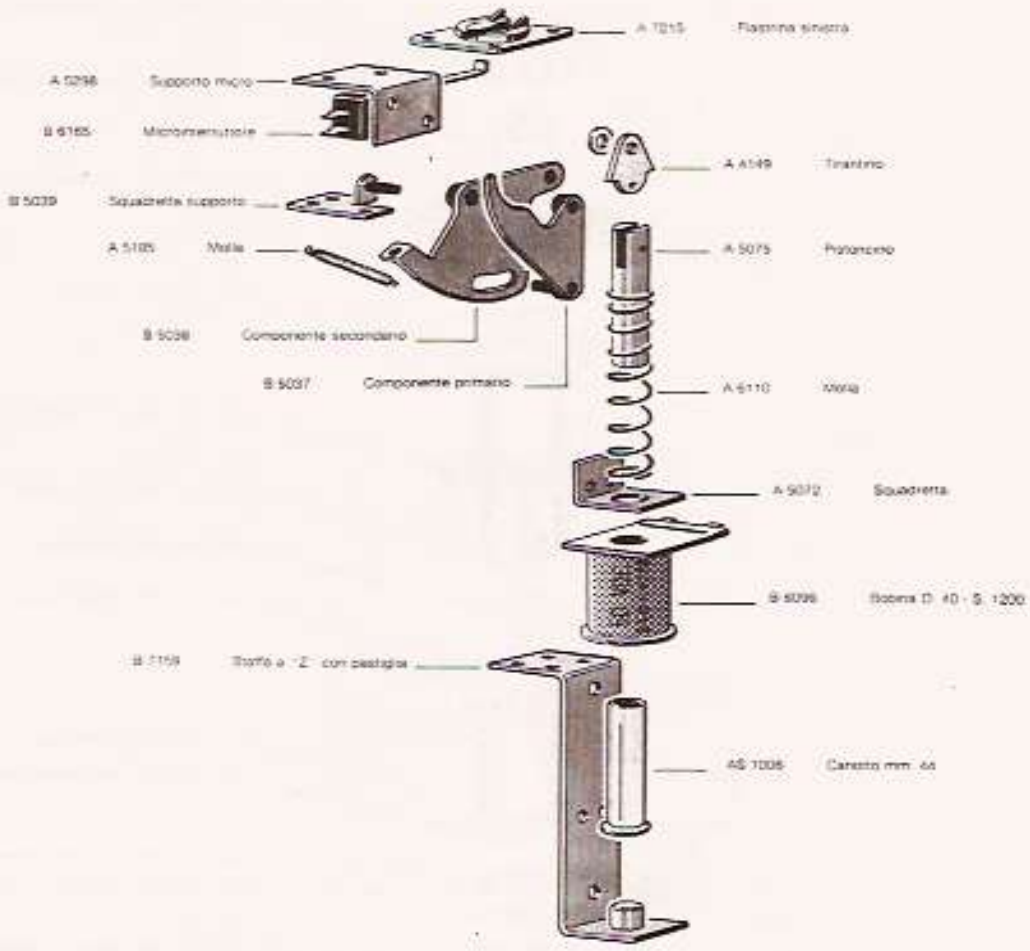
TAV. IX

Fh BUCA



C 8082 Staffa a "Z" montata

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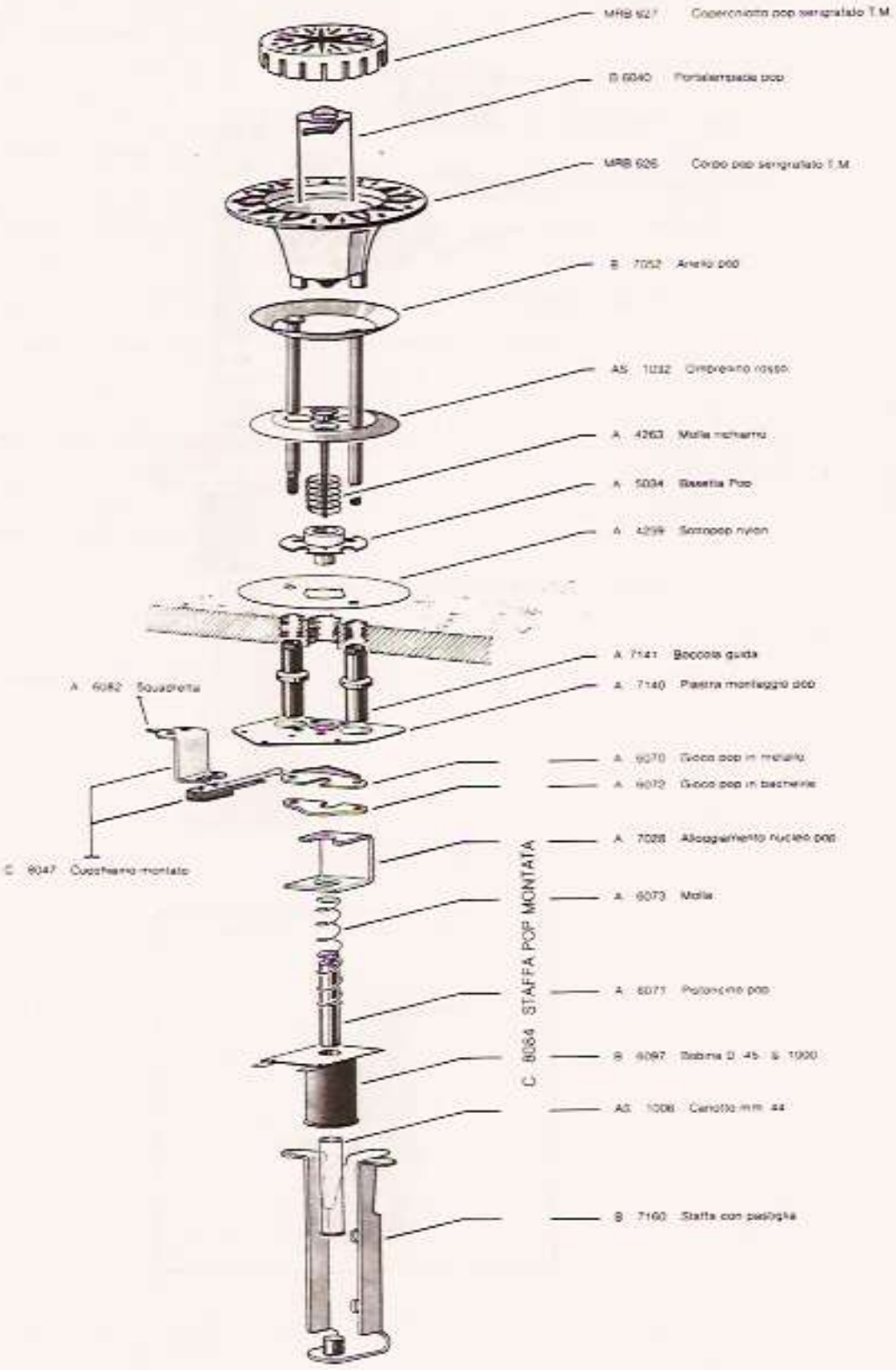
TAV. X

Fk POP



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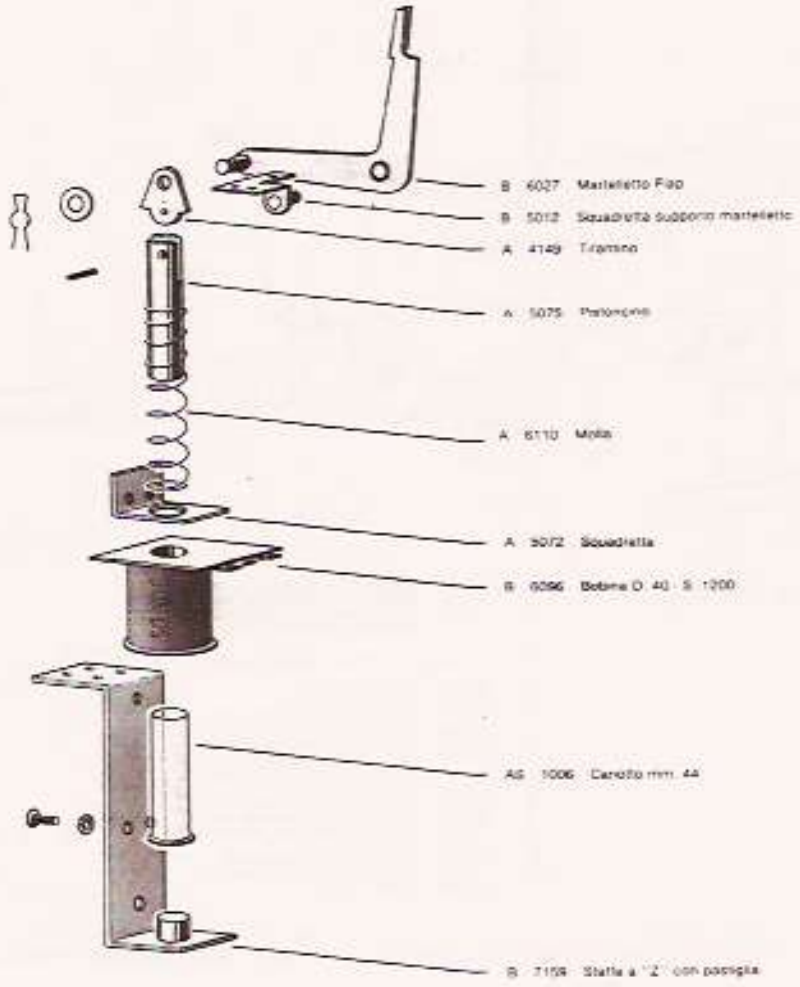
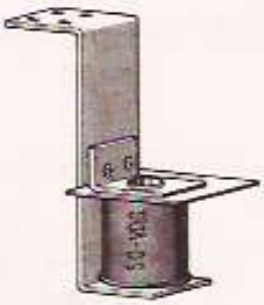
TAV. XI

Fj FLAP



C 8040 Martelletto Flap montato

C 8082 Staffa a "Z" montata



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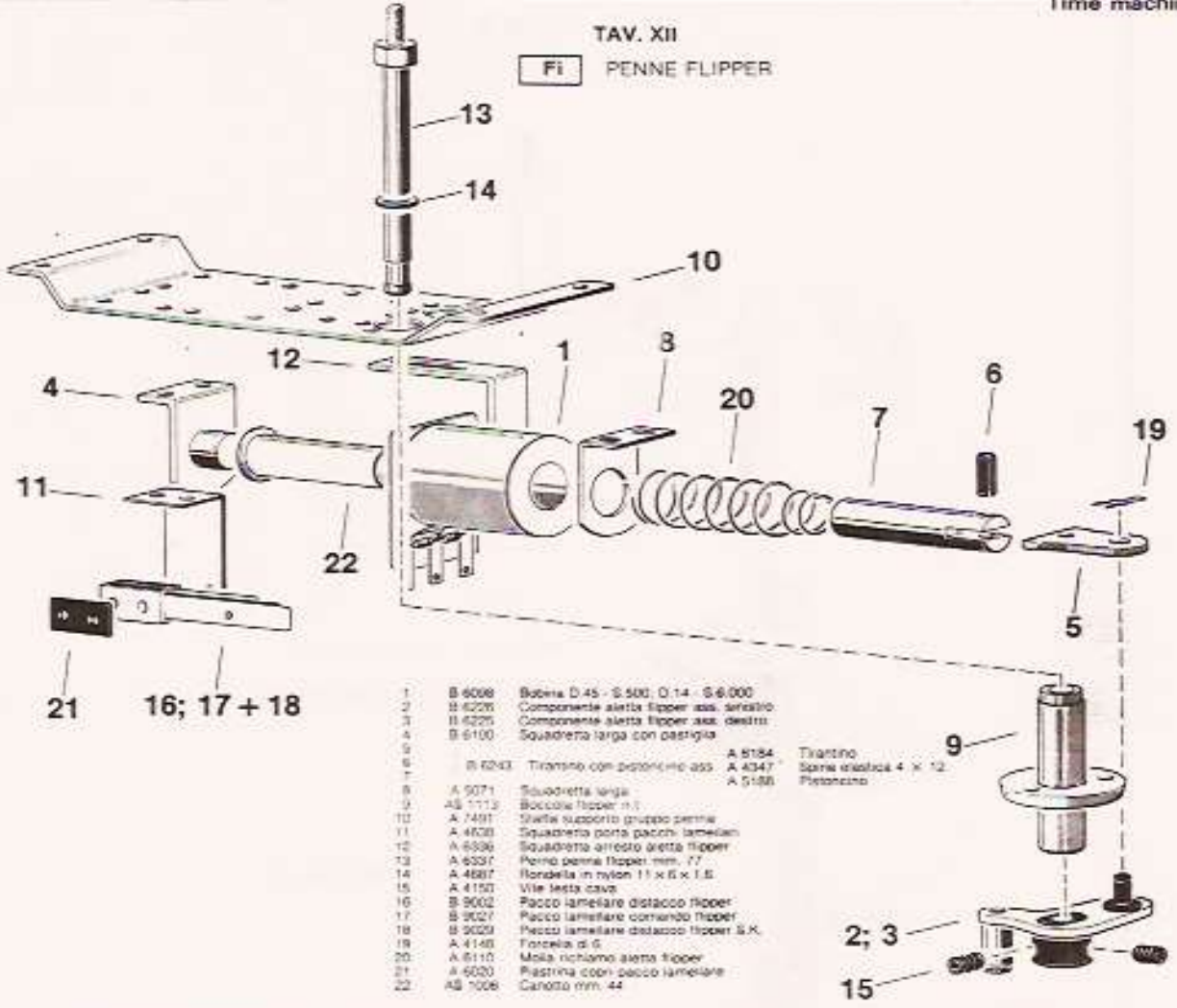
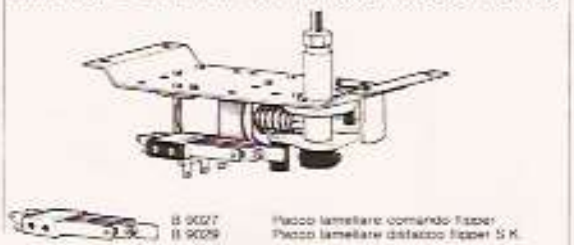
TAV. XII

Fi PENNE FLIPPER



1	B 6008	Bobina D.45 - S.500; D.14 - S.6.000		
2	B 6226	Componente aletta flipper ass. sinistro		
3	B 6225	Componente aletta flipper ass. destro		
4	B 6100	Squadretta larga con pastiglia		
5			A 6184	Tirantino
6	B 6243	Tirantino con pistoncino ass	A 4347	Spina elastica 4 x 12
7			A 5188	Pistoncino
8	A 9071	Squadretta larga		
9	AB 1113	Boccola flipper n.1		
10	A 7491	Staffa supporto gruppo penne		
11	A 4638	Squadretta porta pacchi lamellari		
12	A 6336	Squadretta arresto aletta flipper		
13	A 6337	Perno penna flipper mm. 77		
14	A 4687	Rondella in nylon 11 x 6 x 1.5		
15	A 4150	Vite testa cava		
16	B 9002	Pacco lamellare distacco flipper		
17	B 9027	Pacco lamellare comando flipper		
18	B 9029	Pacco lamellare distacco flipper S.K.		
19	A 4146	Forcella di G		
20	A 6110	Molla richiamo aletta flipper		
21	A 6020	Piastrina copri pacco lamellare		
22	AB 1006	Canotto mm. 44		

Fi 1 8322 GRUPPO FLIPPER COMANDO SINISTRO



B 9027 Pacco lamellare comando flipper
B 9029 Pacco lamellare distacco flipper S.K.

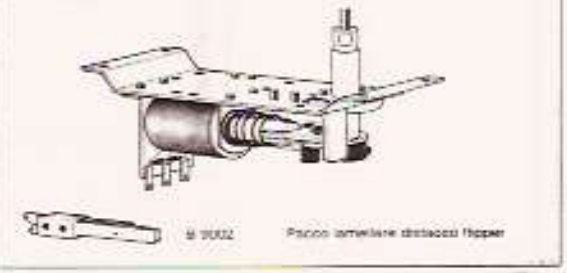
Fi 2 C 8321 GRUPPO FLIPPER COMANDO DESTRO

B 9027 Pacco lamellare comando flipper
B 9029 Pacco lamellare distacco flipper S.K.

Fi 3 C 8320 GRUPPO FLIPPER SINISTRO

B 9002 Pacco lamellare distacco flipper

Fi 4 C 8319 GRUPPO FLIPPER DESTRO



B 9002 Pacco lamellare distacco flipper

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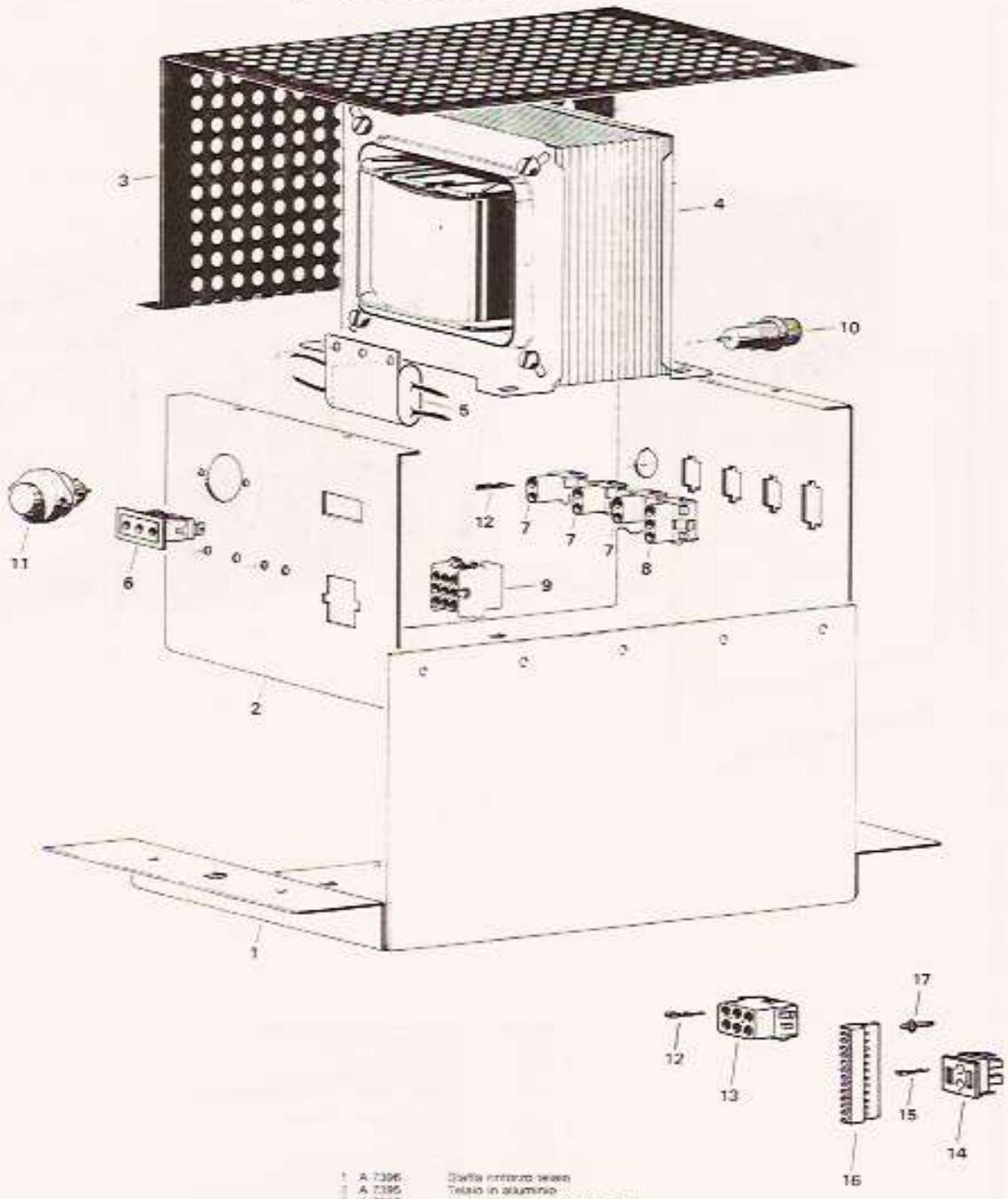
TAV. XIII

G CEC 262 TELAIO ALIMENTAZIONI



1	A 7396	Staffa rinforzo telaio
2	A 7395	Telaio in alluminio
3	A 7397	Lamiera forata protezione telaio
4	C 9188	Trasformatore 2C 1019
5	C 8065	Filtro di rete 5A
6	A 6231	Presa bipolare con massa
7	CE 1803	Connettore AMP 2 vie da pannello
8	CE 1736	Connettore AMP 3 vie da pannello
9	CE 1744	Connettore AMP 6 vie da pannello
10	CE 1758	Portafusibile 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 1965	Connettore AWG 33 vie femmina, grande
17	CE 1960	Chiave di polarizzazione

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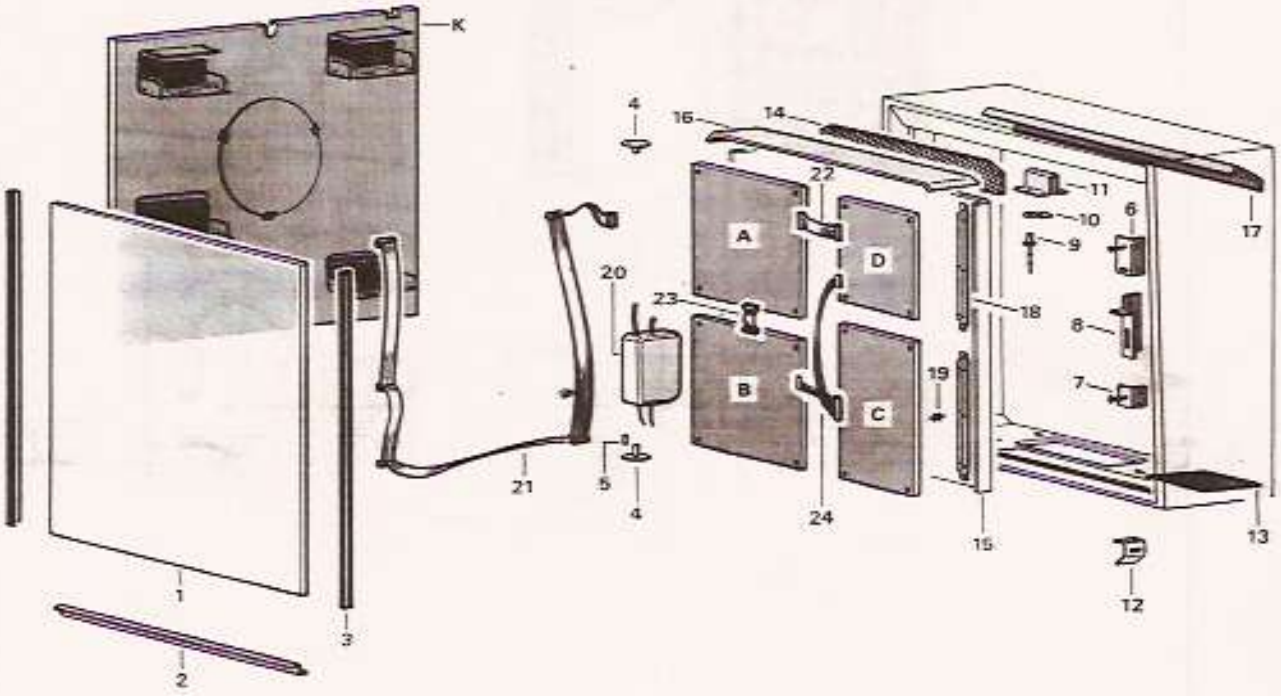
TAV. XIV

H TESTATA



1	MRB 630	Vetro serigrafato "TIME MACHINE"
2	A 7205	Asta sostegno vetro mm. 695
3	MV 009	Cornice vetro
4	B 6186	Piastrina ritegno testina
5	A 4568	Distanziale in metallo 4,8 x 8 x 14
6	A 6282	Squadretta grande riscontro calamaccio con foro
7	A 6255	Squadretta riscontro calamaccio
8	A 6242	Staffa a 3 assole
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 x 130
14	A 7401	Lamiera protezione aerazione
15	A 7322	Lamiera schermo testata
16	A 7207	Plastra parte superiore mm. 600 x 86
17	A 7400	Bandella protezione liquidi
18	A 7399	Staffa supporto schede
19	A 4111	Supporto per C.S.
20	C 8804	Trasformatore per neon
21	CEB 142	Flat Cable a 6 connettori 20 vie femm.
22	CEB 141	Flat Cable a 2 connettori 20 vie femm. C.P.U.-SOUND
23	CEB 006	Flat Cable a 2 connettori 20 vie femm. C.P.U.-INTERFACE
24	CEB 196	Cablaggio alimentazione schede

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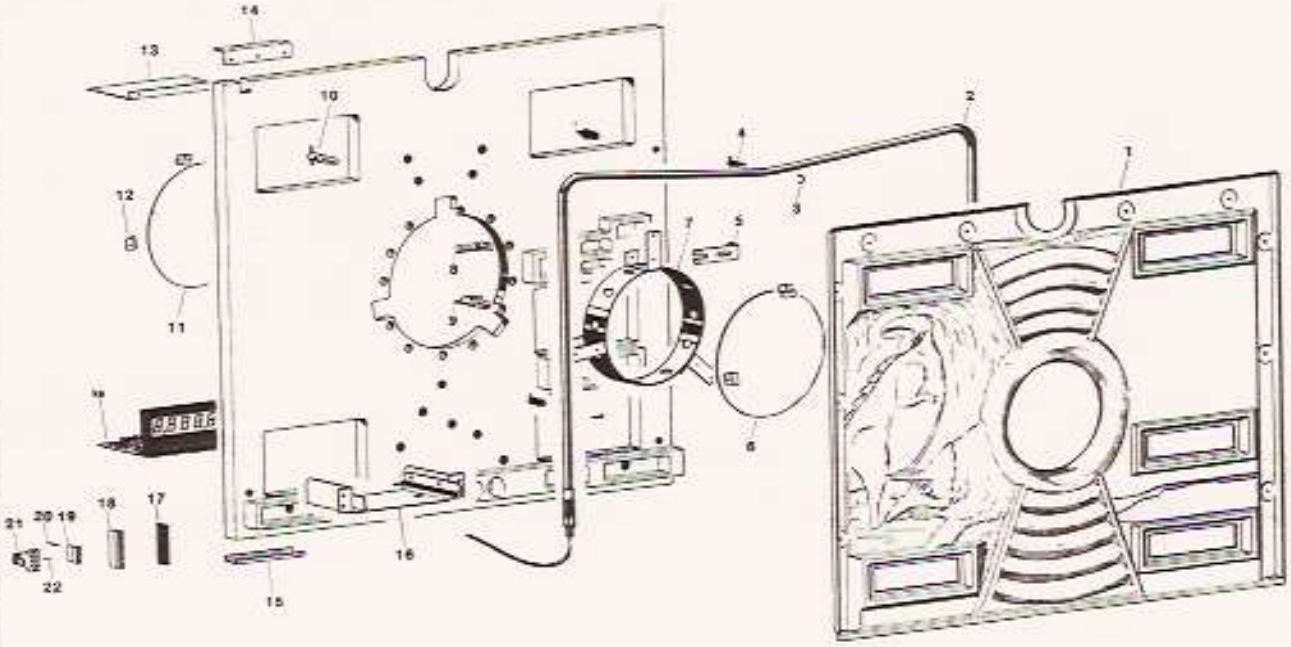
TAV. XV

K TESTINA



1	MRB 617	Termoformatura serigrafata
2	B 7346	Tubo neon sagomato in vari colori
3	A 4685	Molla ancoraggio neon
4	A 4686	Molla a compressione fissaggio neon
5	A 6251	Calamaccio chiusura testina
6	MV 086	Disco in vetro serrorifiettente mm. 3 x 172
7	B 7341	Cerchio forato con staffe ad "U"
8	B 6042	Portalampada piatto
9	B 6043	Portalampada basso
10	B 6041	Portalampada testina
11	MRB 615	Disco a specchio serrigrafato mm. 3 x 172
12	A 4679	Staffa a "Z" fissaggio dischi
13	A 6171	Tettoia protezione display
14	A 6261	Rinforzo a "L" testata superiore
15	A 6252	Rinforzo a "U" testata inferiore
16	B 7137	Staffa supporto display
17	CE 1984	Connettore 20 vie AVG femm. nero
18	CE 1990	Connettore 12 vie AVG femm. giallo
19	CE 1987	Connettore 5 vie AVG femm. arancio
20	CE 1993	Chiavetta di polarizzazione
21	CE 1871	Connettore AMP 6 vie volanti
22	CE 1966	Contatto AMP maschio

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ELETTRONICA

catalogo
ricambi

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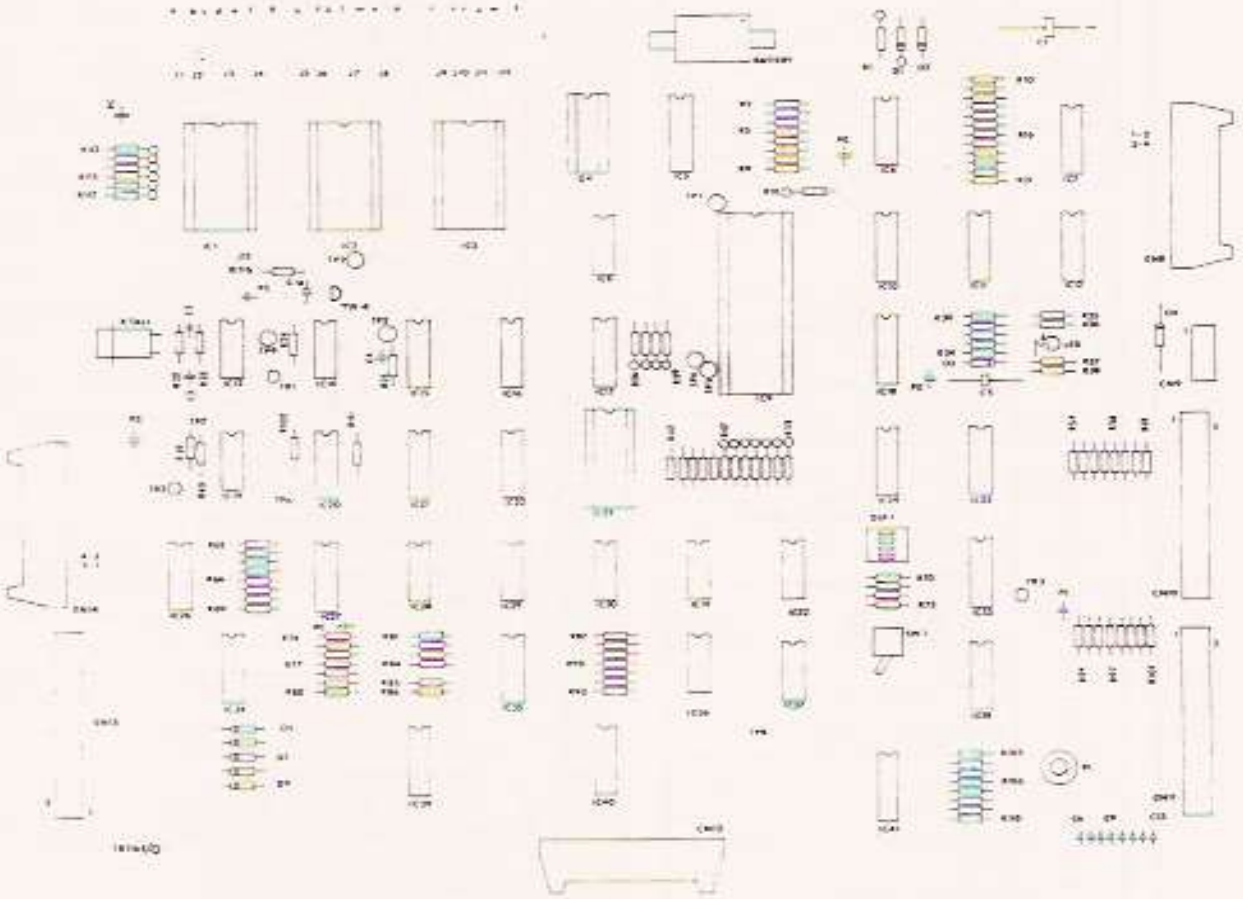
TAV. XVI

Ha CEB 175 C.P.U. BOARD ASSEMBLY WITHOUT MEMERIES
CEC 268 C.P.U. BOARD ASSEMBLY WITH MEMORIES



	IC1	RE 345	B2532 MOS IC4096 × 8 EPROM (Tipe Time Machine N. 1)
	IC2	RE 346	B2532 MOS IC4096 × 8 EPROM (Tipe Time Machine N.2)
	IC3	RE 347	B2532 MOS IC4096 × 8 EPROM (Type Time Machine N. 3)

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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. MTAS4-828379-0
4	CN6 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 x 4 RAM
7	Ic5	CE 1661	2114 L MOS Ic 1K x 4 ram
8	Ic4	CE 3004	6414 -9 CMOS Ic 1K x 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 1226	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 3881 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 Ic3	CE 1152	24 pin IC socket (524 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 Ic3	CE 1962	B2532 MOS IC 4096 x 8 EPROM

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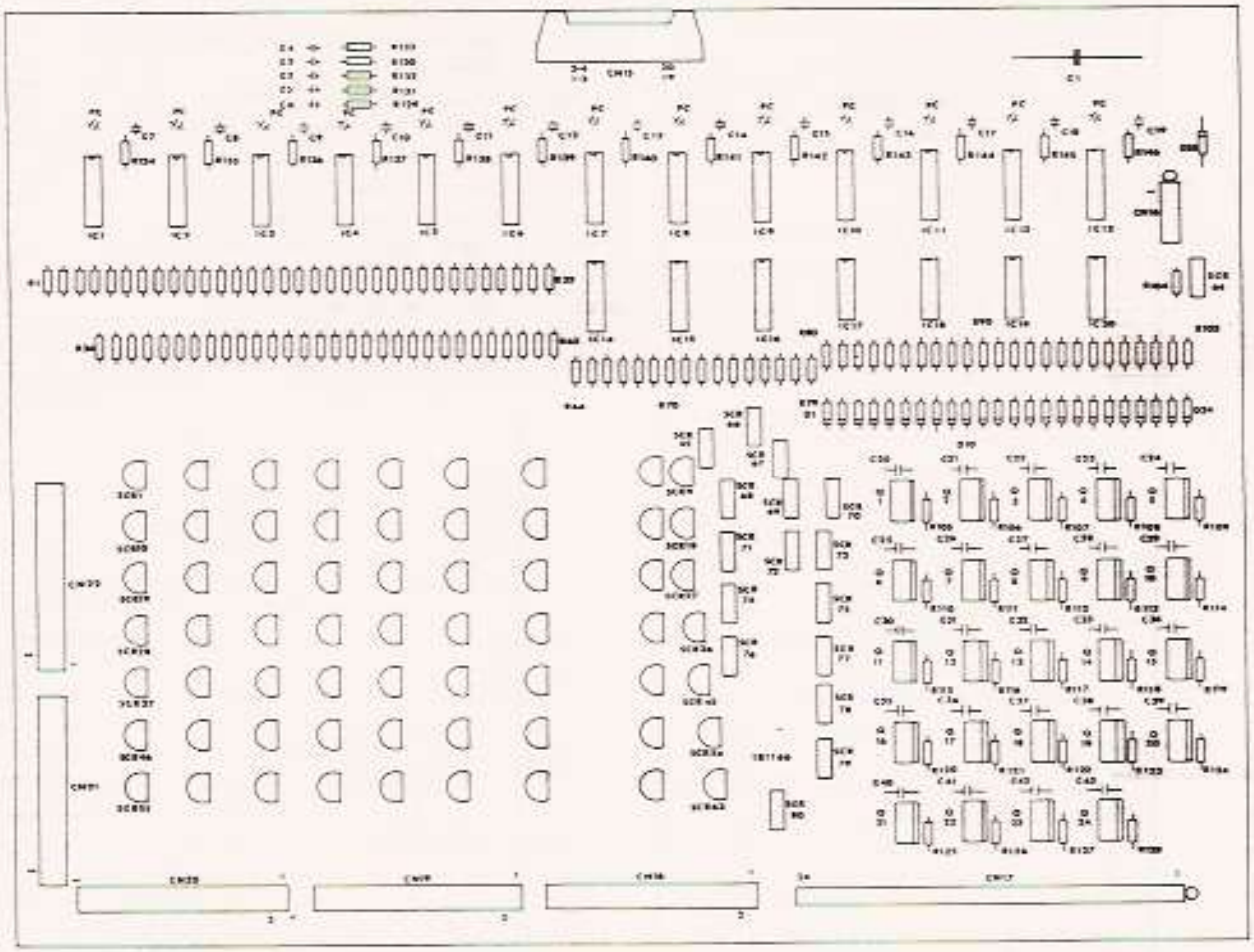
Time machine

TAV. XVII

Hb CEC 181 INTERFACE BOARD ASSEMBLY



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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)
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

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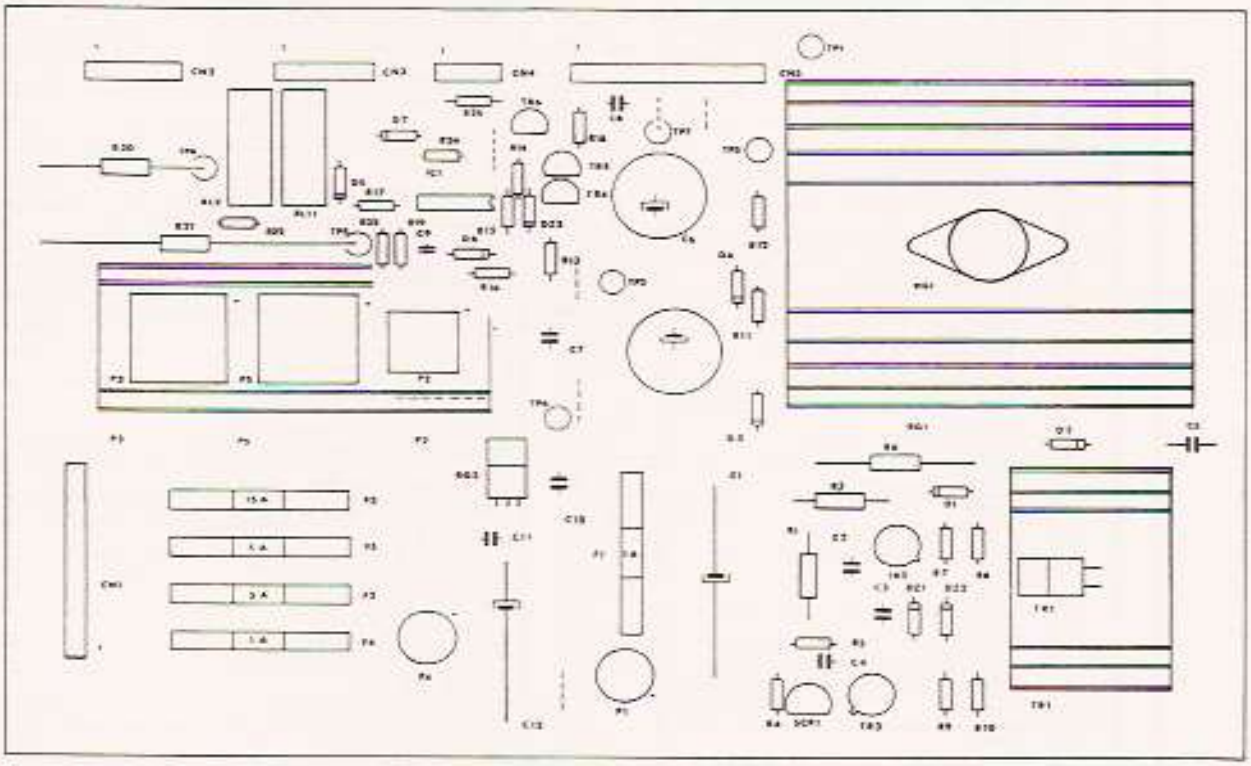
TAV. XVIII

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



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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 male 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 (KBPL 25005)
10	P2	CE 1471	50V 8A Rectifier Bridge (KBPL 8005)
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 1290	BC 337 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 x 79c75)
19	D23	CE 1966	5,6 0,4W zener diodes (Bz x 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	F1 – F5	CE 1401	Clips for P.C.B. for 6 x 30 fuse
44	F1 F4	CE 1368	Fuse 6,3 x 32 1A
45	F2 F5	CE 1439	Fuse 6,3 x 32 5A
46	F3	CE 1441	Fuse 6,3 x 32 20A
47	RG1	CE 1278	Heat sink 41/100/B
48	TR1	CE 1279	Heat sink 17/40/C
49	P2 P3 P5	CE 1110	Heat sink 19/100/D
50	TR3	CE 1280	HL61 TO5
51	RL1 RL2	CEC 155	Relay V 23027 B13 A101

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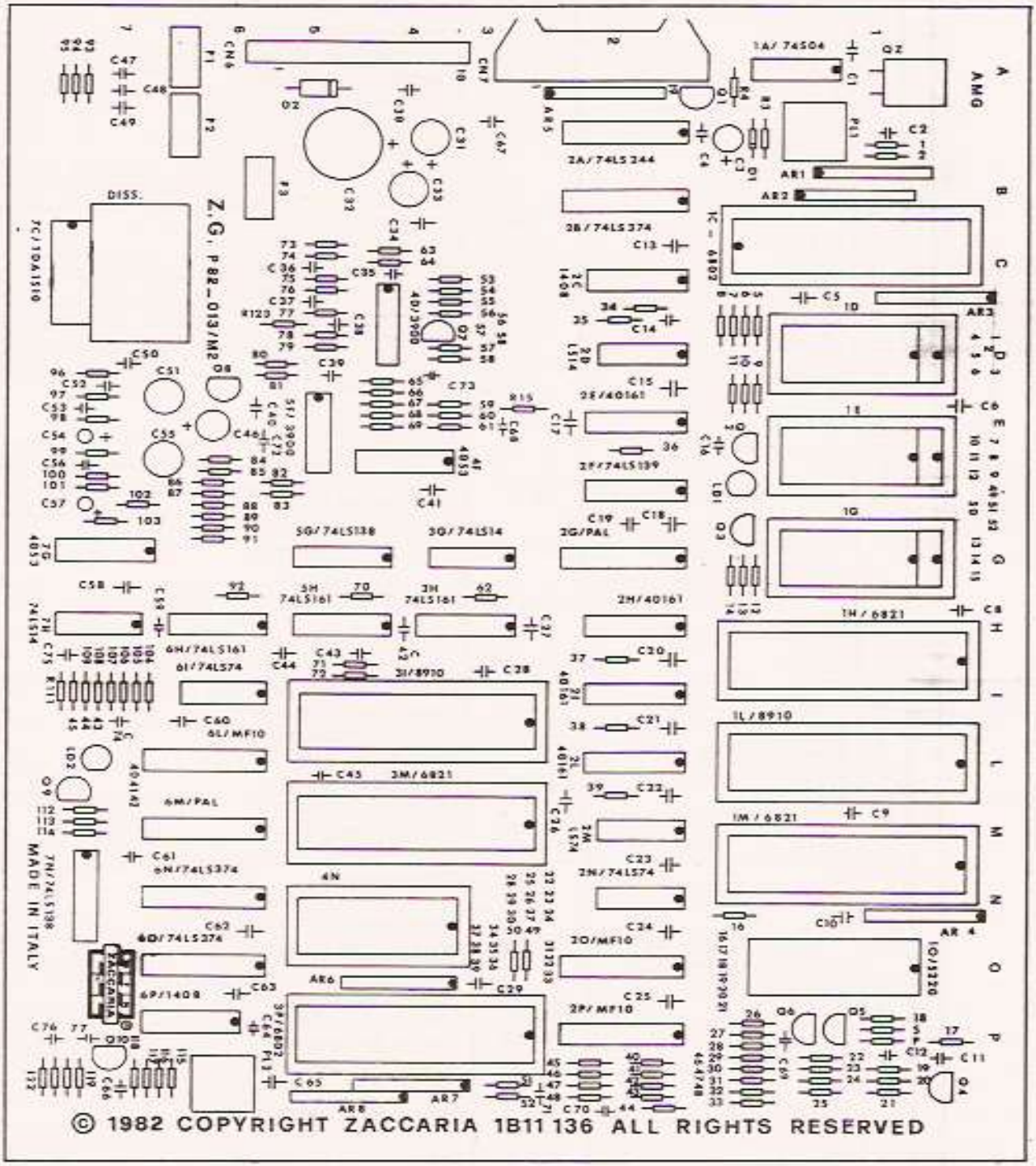
TAV. XIX

Hd CEB 197 SOUND & SPEECH BOARD ASSEMBLY WITHOUT MEMORIES

CEC 264 SOUND & SPEECH BOARD ASSEMBLY WITH MEMORIES «ITALIANO»
CEC 265 SOUND & SPEECH BOARD ASSEMBLY WITH MEMORIES «FRANCESE»
CEC 266 SOUND & SPEECH BOARD ASSEMBLY WITH MEMORIES «INGLESE»
CEC 267 SOUND & SPEECH BOARD ASSEMBLY WITH MEMORIES «TEDESCO»



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ITEM No	PART DESIGNATION	CODE PART No	DESCRIPTION
1	P.C 1B11 136	CE 2242	Printed circuit PB2-013/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 1998	Integrated circuit TMS 5200NL Speach
10	IC2A	CE 1589	Integrated circuit 74LS244
11	IC 2B	CE 1843	Integrated circuit 74LS374
12	IC 2C	CE 1730	Integrated circuit MC 1408L8 (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 1/4W
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 – 76-R123	CE 1034	Carbon Resistor 820K 1/4W
37	R66	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 1116	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

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Time machine

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 Tantalum
56	P2 P3	CE 1596	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	Lewd 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 x 8 TC
72		A 4023	Vite 3MA x 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 348 B 2764 MOS IC 8192 x 8 EPROM (Type Italiano n. 1)
1E RE 349 B 2532 MOS IC 4096 x 8 EPROM (Type Italiano n. 2)
1G RE 350 B 2764 MOS IC 8192 x 8 EPROM (Type Italiano n. 3)

1D RE 351 B 2764 MOS IC 8192 x 8 EPROM (Type Inglese n. 1)
1E RE 352 B 2532 MOS IC 4096 x 8 EPROM (Type Inglese n. 2)
1G RE 353 B 2764 MOS IC 8192 x 8 EPROM (Type Inglese n. 3)

1D RE 354 B 2764 MOS IC 8192 x 8 EPROM (Type Tedesco n. 1)
1E RE 355 B 2532 MOS IC 4096 x 8 EPROM (Type Tedesco n. 2)
1G RE 356 B 2764 MOS IC 8192 x 8 EPROM (Type Tedesco n. 3)

1D RE 357 B 2764 MOS IC 8192 x 8 EPROM (Type Francese n. 1)
1E RE 358 B 2532 MOS IC 4096 x 8 EPROM (Type Francese n. 2)
1G RE 359 B 2764 MOS IC 8192 x 8 EPROM (Type Francese n. 3)

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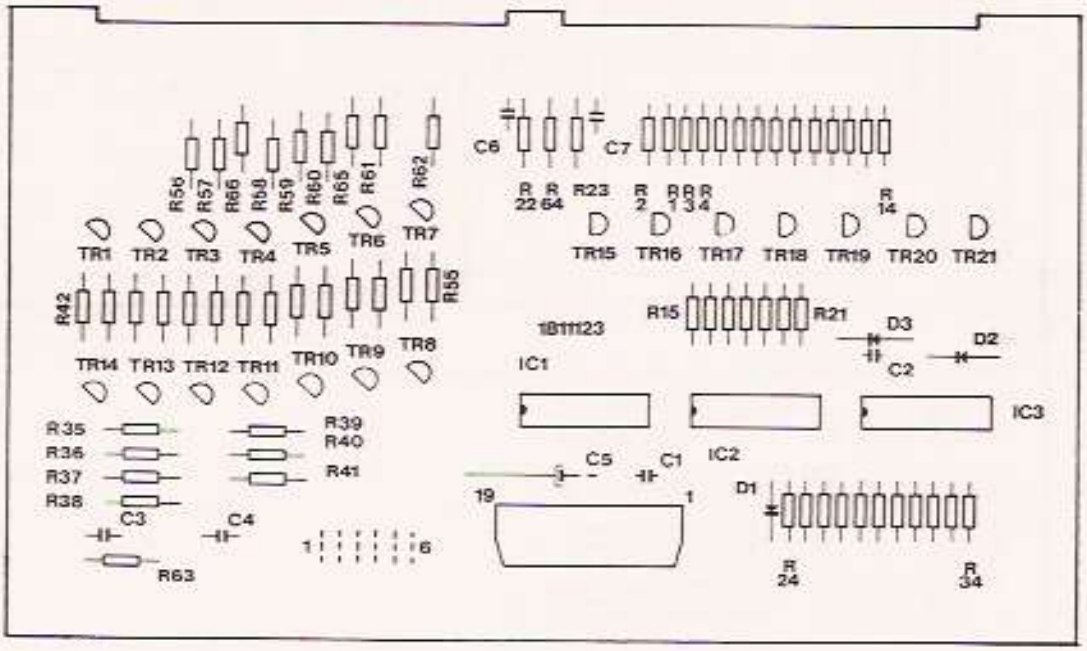
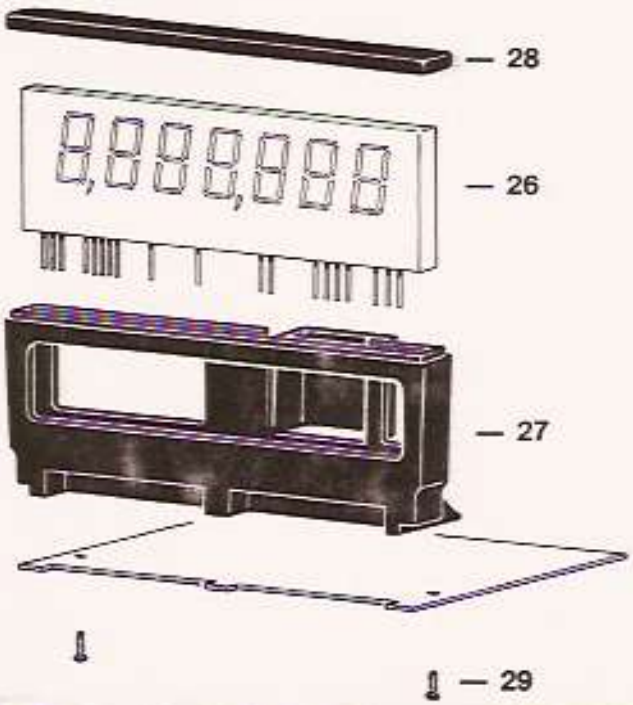
TAV. XX

KA CEC 247 DISPLAY BOARD ASSEMBLY 7 DIGIT





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Time machine

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 SURROUGHS
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

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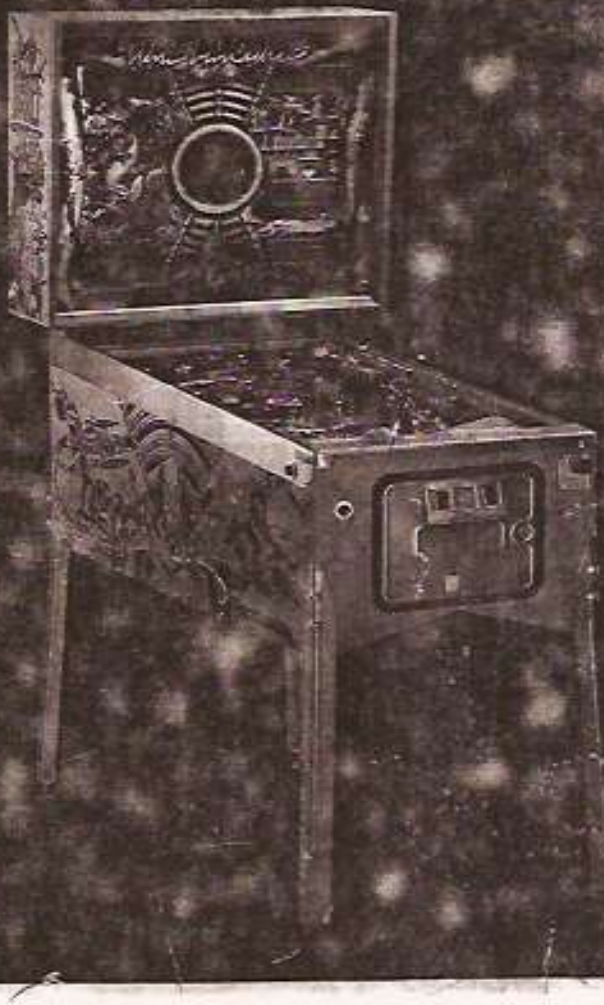

TIME MACHINE

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