Payazzo Casino

153

Manual

Version 1.0 (20.1.97) Korjattu versio 1.1

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1 Introduction

In this chapter you will find information about this model of Payazzo. It includes the following:

- Gate Numbering
- Layout of Machine Face
- Layout of Cabinet Modules and PCBs
- Layout of Cabinet PCBs

Specifications:

Depth: 190 mm

Width: 750 mm

Height: 1050 mm

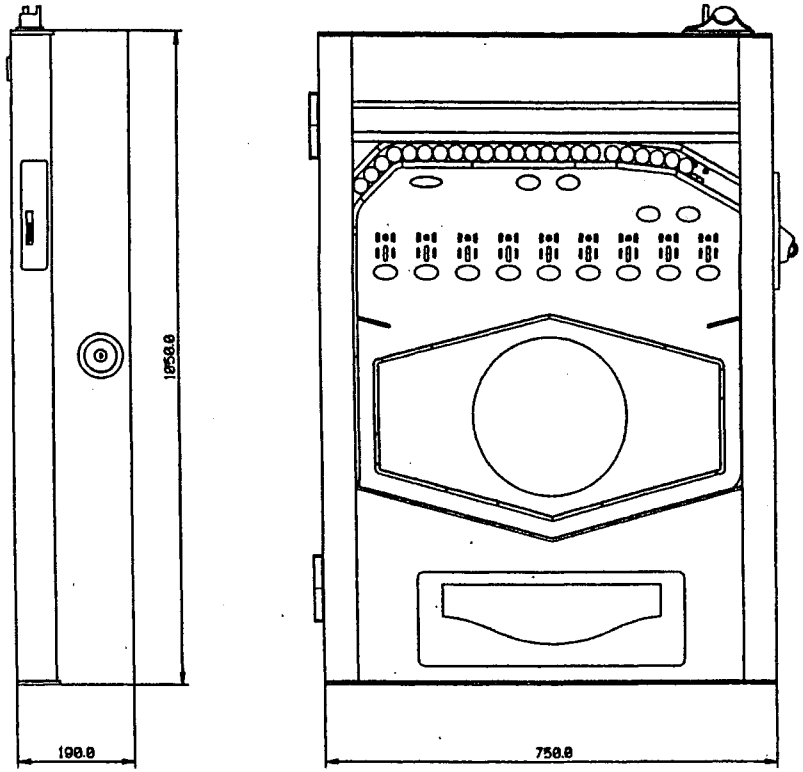
Weight: 60 kg

Voltage: 150-250 VAC ~ 50/60 Hz

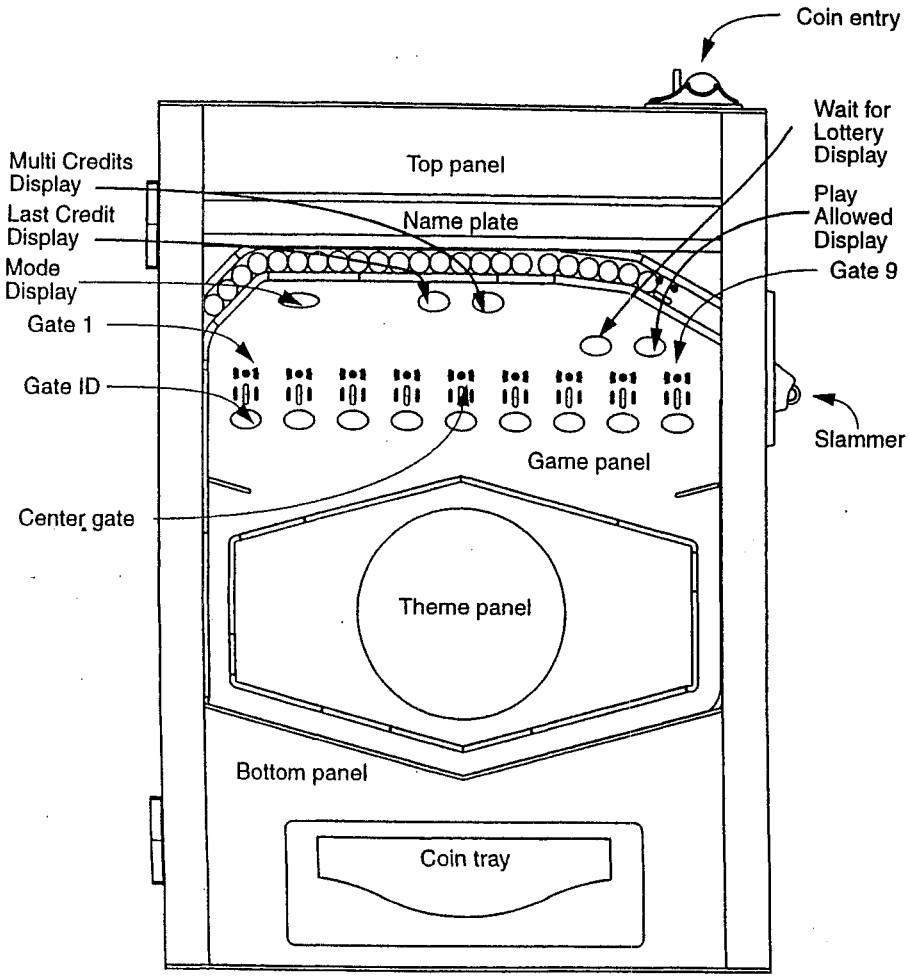
Power supply: 50 W

Maximum power supply: 80 W

1.1 Technical Data



1.2 Layout of Machine Face



Multi Credits Display = *Multi Crédito*

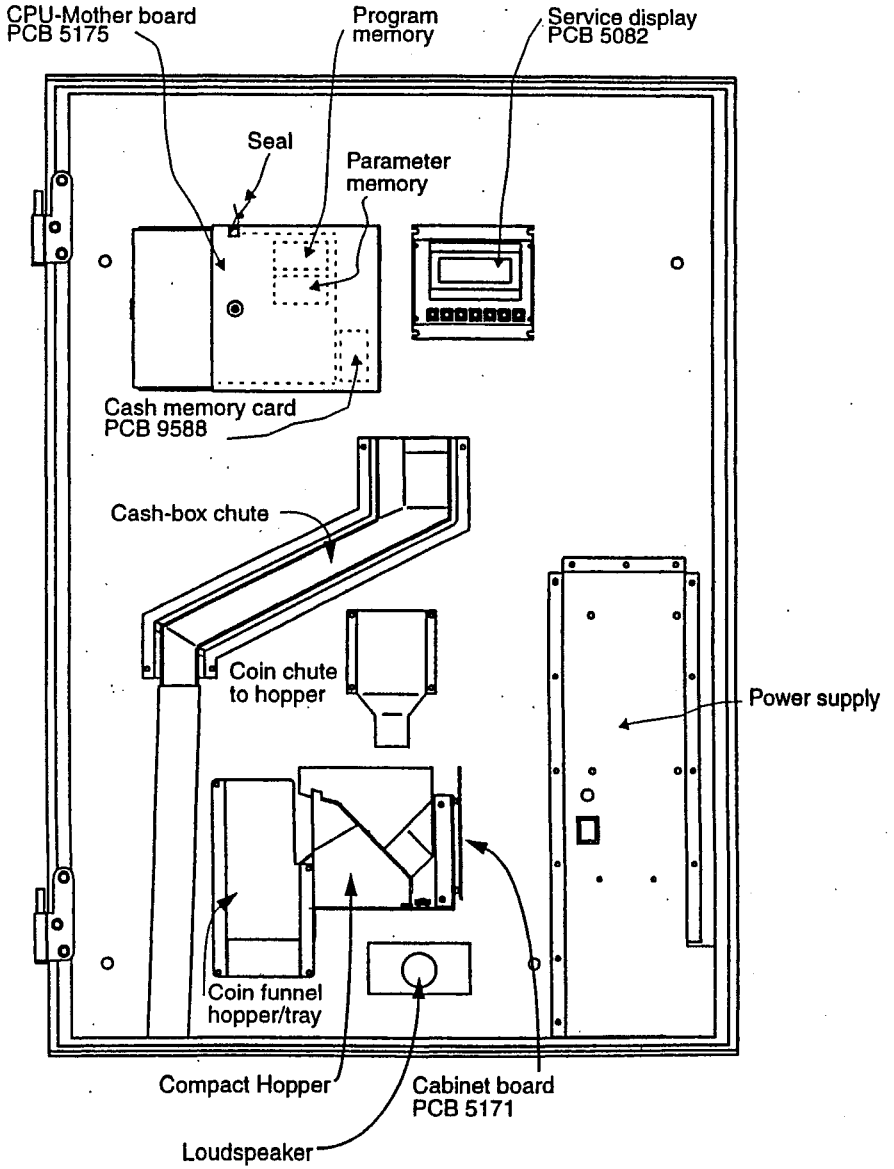
Last Credit Display = *Última Jugada*

Mode Display = *Averiado*

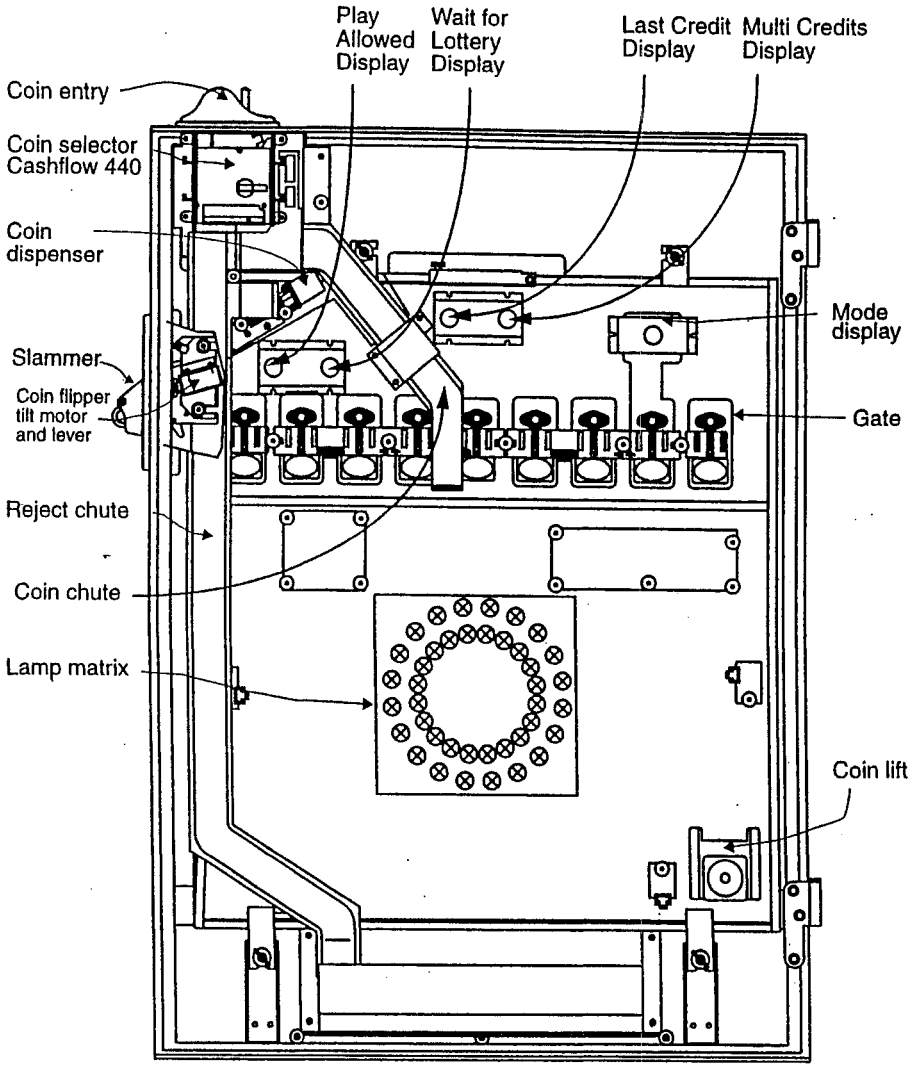
Wait for Lottery Display = *Espere la Ruleta*

Play Allowed Display = *Puede Jugar*

1.3 Layout of Cabinet Modules and PCBs



1.4 Layout of Game Panel Modules



Multi Credits Display = *Multi Crédito*

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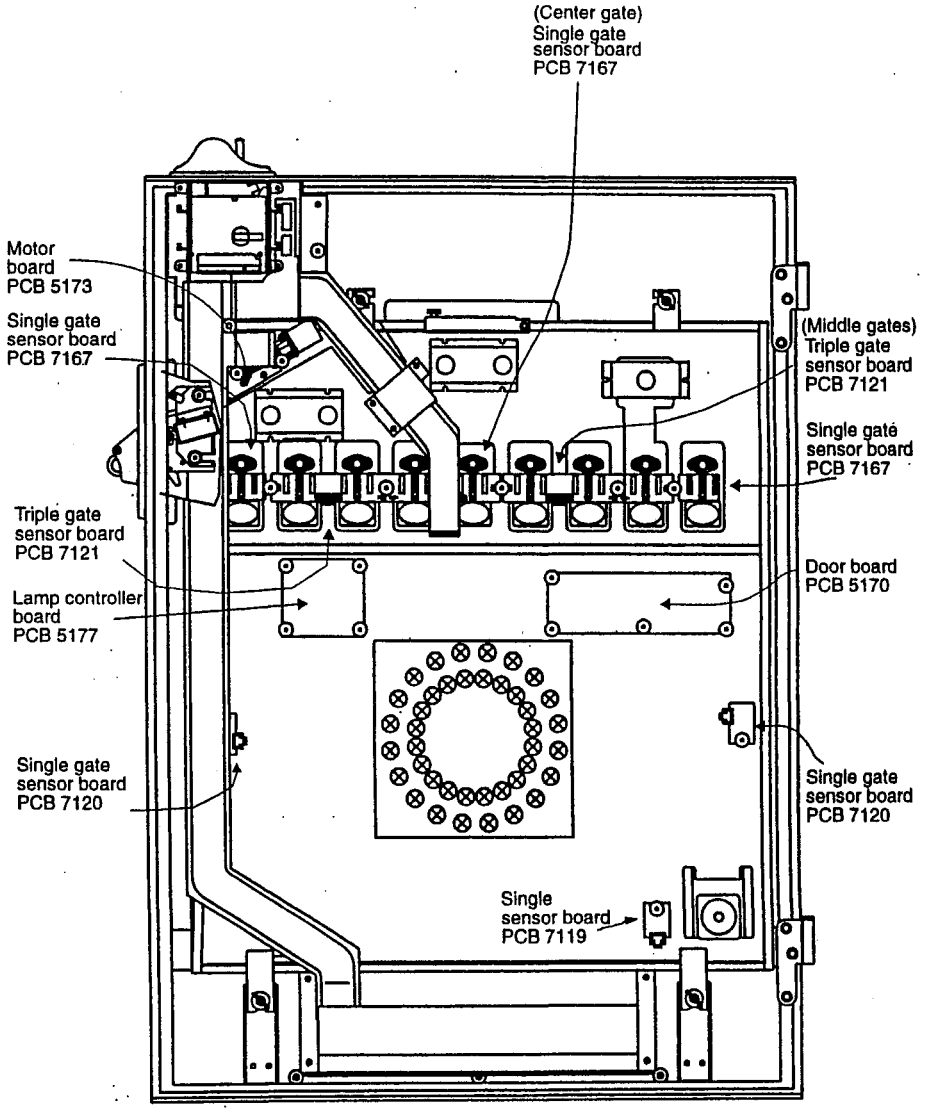
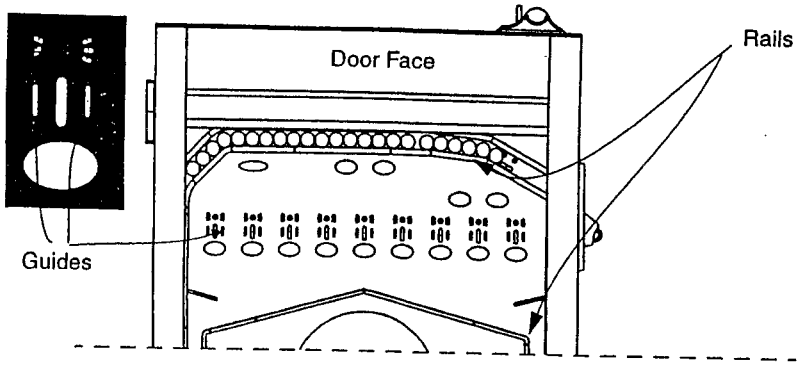
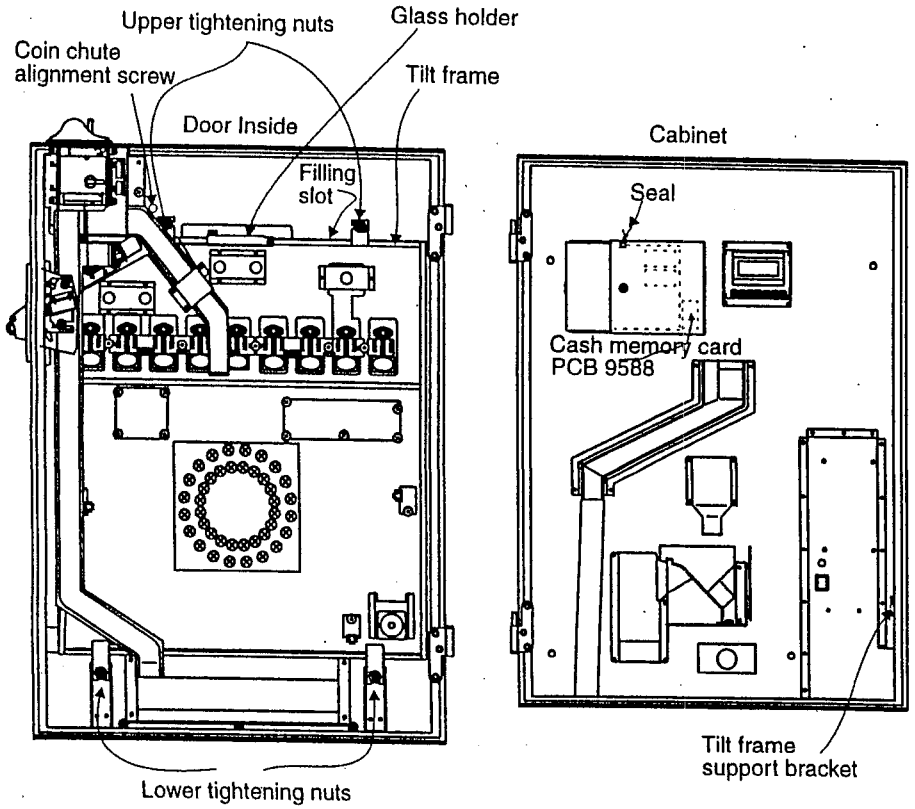
Play Allowed = *Puede Jugar* Display

1.5 Layout of Game Panel Circuit Boards



1.6 Some Parts Used in Service





2 Installation

In this chapter you will find detailed instructions on how to install your Payazzo machines. They include the following topics:

- How to Mount Stand and Cabinet
- How to Turn Power On
- How to Fill Coin Columns
- How to Fill Coin Cycle

2.1 Assembly of Payazzo

Installation of Payazzo has been divided into two parts: "Assembly of Payazzo" and "Power On Payazzo". All tasks before turning power on, from checking that all ordered parts have been delivered, to mounting the cabinet are described in "Assembly of Payazzo". Turning power on, filling hoppers and the coin cycles are handled in "Power On Payazzo".

2.1.1 Check All Payazzo Parts

During transportation, some parts of the machine — typically cables — may become loose, which might prevent the machine's normal operation. Therefore, it is essential to check all parts.

- ☞ Take a look at the parts you have got: have all the parts you ordered arrived with the machine or is something missing?
- ☞ Check also the condition of the parts you received: is something broken or damaged?
- ☞ Write down all things you find in unsatisfactory condition or missing. If the machine is inoperable because of damaged or missing parts, contact service personnel.

2.1.2 Find a Good Place for Payazzo

In an ideal place for the Payazzo there is enough room for the players to play and others to walk by. When you are looking for a good place for the machine, remember that the location of Payazzo is restricted by the length of the mains cable (2,5 m), if you do not intend to use an extension.

- Make sure there will be enough room for opening the door and servicing the machine. The players will also need room for playing **on the hitting mechanism side** of the machine.
- To ensure player and playing comfort, it is a good idea to make sure the machine glasses do not reflect any lights which could blind the player. Direct sunlight or bright spotlights may also make the glass hard to see through and also affect the operation of the game panel sensors.
- Keep in mind that Payazzo stand is mounted to wall or floor. For correct wall-mounting, follow mounting instructions.
- Follow general electrical safety regulations.

2.1.3 Mount Stand

Most often a Payazzo stand is mounted to the floor or to the wall. To guarantee safety to both player and machine, before mounting the Payazzo, find out the material of the wall or floor. Then, choose the appropriate mounting instruction.

NOTE! For safety reasons, we do not recommend mounting the Payazzo straight to the wall without a stand. RAY takes no responsibility for such mountings.

Mount Stand to Stone Wall or Floor

- ☞ Use 6x45 mm bolts and 8x40mm nylon plugs.
- ☞ Drill Ø 8 mm holes, depth 40 mm for the nylon plugs.
- ☞ Insert the plug.
- ☞ Tighten the bolts.

NOTE! In heavy duty mounting, use 6x65mm "Rawplug" cotter bolt. Drill starting holes of Ø 12 mm, depth 45 mm for the bolts.

Mount Stand to Wooden Wall

- Use 6x45 mm bolts.
- Drill starting holes of Ø 4 mm, depth 30 mm for the bolts.
- Tighten the bolts.

Mount Stand to Thin Wall

- Use a 6 S coach screw if the wall is less than 15 mm thick.
- Use a 6 L coach screw if the wall is between 15 mm to 25 mm thick.
- Drill starting holes of Ø 10 mm.
- Tighten the coach screws.

2.1.4 Mount Cabinet on Stand

When the stand is properly mounted, you can mount the cabinet.

- Open the door.
- Disconnect the door board and lamp board cables, from their respective connectors on the door. Place the cables inside the cabinet.
- Disconnect the door ground wires.
- Lift the door off of its hinges.
- Mount the cabinet to the stand. Use M6x40 lock screws, M6 nuts and A6 washers.
- Lift the door back to its hinges.
- Connect door ground wires.
- Connect the loose cables to their respective connectors and fasteners on the door.

2.1.5 Check before Power-up

- Take the mains cable out of the machine.
- Check that all machine parts, cables and devices are well connected and fastened.
- Plug the mains cable to the receptacle at the back of the machine.
- Plug the mains cable to a grounded power outlet.
- Close the machine doors.

2.2 Power On Payazzo

Complete the first part of the installation, the Assembly, before moving on. This second part, Power On, handles turning the power on, filling hoppers and the coin or cycle.

The tasks performed at this point require electricity. Therefore, for testing and filling the machine, turn the power on.

2.2.1 To Find Power Switches

There are two power switches in the machine — one outside, in the mains power supply in the bottom of the machine, and one inside, in the face of the power supply cover.

The two mains switches of the machine are serially connected and the internal switch is for disabling the external switch. In normal operation the internal switch should always be on.

- Make sure the mains cable has been plugged in to a grounded power outlet.
- Turn the internal switch on, if it already is not.
- Turn the machine power on with the external switch.

NOTE! If power does not instantly turn on, check that both power switches are ON (in position I).

After the power has been turned on, the machine asks you to wait, while a 15-second diagnostic test automatically begins.

2.2.2 Diagnostic Test and Operation Problems

The main task of the diagnostic test is to check the machine communication and set-up, for example, that devices needed exist or that the hopper or game panel sensors work. When the test does not find any faults, the machine is ready to run more tests, change settings, read statistics or let the players play.

In start-up, if the test finds non-fatal faults, like missing devices, the machine will operate but fault codes will be displayed. Should the test find fatal faults that prevent playing, the machine will not operate, but closes down and displays fault codes of the found faults.

If there are any problems with the machine operation or if the machine's diagnostic test found some fault, see "Troubleshooting" on page 4-1.

NOTE! The fault codes of all faults found in start-up diagnostic tests are usually displayed in dot-matrix display of the CPU-Mother board, not in the service display, in which only a message "start-up error" will be displayed. This applies only to start-up.

2.2.3 Fill Hoppers (First Time)

Some Payazzos have a hopper or hoppers. Hopper is a payout mechanism that pays out wins, coins or tokens, to the player. If your Payazzo has a hopper, it is very important to fill it before using the machine for the first time. Otherwise the hopper can not pay out and the machine will close itself.

Even though no coins or tokens have been put to the hopper at the factory, the hopper counters have already been set there.

- Feed coins straight to hopper. Fill it with as many coins as the factory setting requires. For the correct factory settings Appendix B. It is a good idea to compare the service display hopper counters with the correct factory settings, and if they do not match, then either increase or decrease the hopper counter.
- To increase or decrease the hopper counters, open the door and use service display. Choose **3. SETTINGS** from the main menu.

Now the setting is completed.

- Exit tests with the "ESC" button.

2.2.4 Fill Internal Coin Cycle

Internal coin cycle Payazzos cannot be operated before the coin cycle of the game is filled with coins or tokens. The cycle is filled by inserting coins via the filling slots until there are enough coins. A continuous chain of coins with a space of 1 to 2 coins in the cycle, below the right filling slot, is enough.

NOTE! Whenever coins are mentioned, it applies to tokens as well.

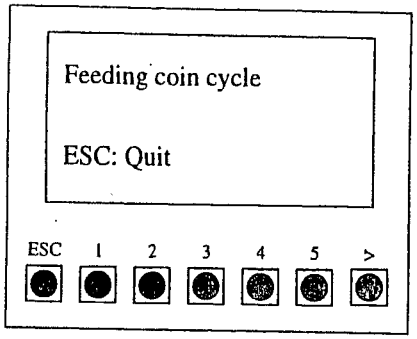
To fill the coin cycle, do the following:

- Open door.
- Make sure the machine power is on.
- Find filling slots located at the upper edge of the game panel and remove the filling slot covers. For the location of filling slot, see "Some Parts Used in Service" on page 1-6.
- Insert 2 to 5 coins through the filling slots.
- Look at the service display: you should be able to see the 4-item main menu. Should you *not see the menu*, wait a minute — the display may be warming up; then check that power has been turned on; if it still does not work, try to adjust service display contrast with button P1 on the service display PCB.
- Press button 2 once for **2. TESTS**. Now the first four tests will be displayed.
- Browse through the pages of the tests menu with the ">" -button until you see the menu entry: **3. FILL COIN CYCLE**.
- Push button number 3 to select **FILL COIN CYCLE**. The display changes to **FEEDING COIN CYCLE**. Simultaneously, the coin feeding mechanism is activated: it begins feeding coins, you inserted, to slammer.
- Tap now the slammer ring to feed the coins to the cycle. Do it as many times as there are coins.

NOTE! The feeding mechanism makes a clicking sound when it tries to feed non-existing coins to slammer; it will keep on trying as long as the **FEEDING COIN CYCLE** *is selected. It is nothing to worry about, just insert more coins or press ESC button to quit.*

- Then you can continue inserting coins to the coin cycle via filling slots. The machine will automatically feed the coins to the slammer, and you need to hit the coins to the cycle.
- Continue inserting and hitting until the coin cycle seems to be almost full. A good time to stop inserting the coins is when you see that there is still room for about 2 coins in the coin cycle.

☞ To stop filling the coin cycle, press ESC button in the service display or close the door.



2.3 Play Payazzo

Your Payazzo is ready for playing when it has been installed, its power is turned on, no faults are found in the diagnostic test and the cabinet door is closed.

But before you let the players take over, it is a good idea to play some games to make sure the machine operates. Should something have gone wrong during the installation, now is the best time to find the problem — and fix it.

To take full advantage of the information and data that can be received from the Payazzos various counters, it is also advisable to take a closer look at the existing counters.

When you have done all this, your Payazzo is ready for operation.

2.3.1 Play Some Games

Make sure the machine works properly:

☞ Switch the power on.

☞ Close the door.

☞ Play 10 to 20 games.

Make especially sure that the machine pays out correctly. When you are done with playing and the machine operates well, it is time to write down the counters. Should you find some problems, see "Troubleshooting" on page 4-1.

2.3.2 Write Down Counters

There are many counters in Payazzo. The counters tell about the all-round performance of the machine and gives detailed information about coins in and out.

Usually in the beginning of operation, when the machine is first in use, an operator selects some of the counters to be recorded. They are written down regularly, and from the changes in the counters the operator knows more about the machine, for example the number of inserted coins or payouts. Refer to Appendix B about which counters you need to keep track of.

For information about using the service display, see "To Use Service Display" on page 3-2.

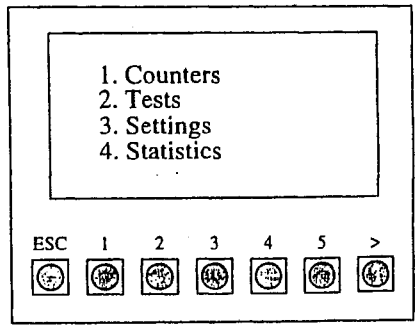
3 Operation

- Service Display
- Use of Push Buttons
- Counters, Tests, Settings and Statistics

3.1 Quick Look at Service Display Sub-Menus

Table 1: Service Functions in Service Display Payazzo Casino

1. Counters	2. Tests	3. Settings	4. Statistics
1-Counter 2-Counter 3-Counter	1. Test game 2. Column payout test 3. Lamp & button test 4. Count hopper	1. Hopper counter + 2. Hopper counter - 3. Set column counter 4. Set hopper limit	1. Fault codes 2. Rejected coins % 3. Debits paid 4. Payout %
4-Counter 5-Counter 6-Counter 7-Counter	1. Sensor test 2. Lift motor test 3. Fill coin cycle 4. Cashbox lock	1. Cashbox access 2. Setting fast-check 3. Set reject alarm % 4. Set nr of bags	1. Previous games 2. Hopper counter +ed 3. Hopper counter -ed 4. ID code list
8-Counter 9-Counter 10-Counter 11-Counter	1. Display test 2. Sound test 3. Debits to player	1. Set date and time 2. Reset cash memory 3. Set game options 4. Coin/note values	1. Changed PCBs & IDs 2. Old counter sets 3. Program version info 4. Double-up data
12-Counter 13-Counter 14-Counter 15-Counter		1. Set collect OK LED	
16-Counter 17-Counter 18-Counter 19-Counter			



3.2 To Use Service Display

Service display is a tool for managing machine functions and information. It is ready for use when the machine power is on, the machine door is opened and the main menu is displayed.

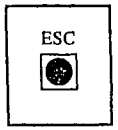
With this tool, you can look at machine counters, read operation statistics, test module functions, handle coin collection, clear occurred errors and a lot more.

NOTE! Should you not see the menu, wait a minute — the display may be warming up or the power might not have been turned on. If this does not help, try to adjust service display contrast with button P1 on the service display PCB.

3.2.1 Push Buttons

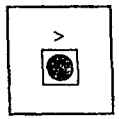
Service display is a display with service buttons. There are 7 push buttons: 5 numbered and 2 function buttons. With them you can select, confirm, change, move and quit. Usually these buttons have always the same function, a special function is given on the page of display.

The functions of each button are described below:



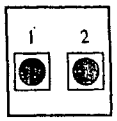
ESC Button Functions

- Go up in menu hierarchy.
- Quit a function.



> Arrow Button Function

- Move forward —MORE— in the same level of hierarchy from one page to another.



Number Button 1 - 5 Functions

- Select a numbered option displayed.
- Advance the numbers in settings.

3.2.2 Main Menu

The services are grouped into four functions displayed in the main menu: COUNTERS, TESTS, SETTINGS and STATISTICS. Below each item of the menu you will find all kinds of tasks.

1. Counters

Under the COUNTERS menu you will find 19 counters. You can look at them, but not change. Counters count the coins coming in or going out, keep track of coin handling and related events. This data you can also collect optically. All counters and their meaning can be found in the "Appendix E" on page E-5.

2. Test

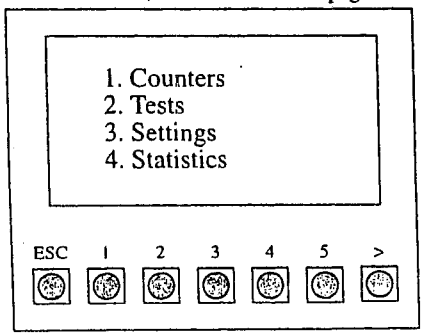
Test menu includes approximately 10 tests with which you can test the machine functions. For example, you can test the machine lamps, sensors, hopper payout and sounds. For all tests quick-listed, see "Quick Look at Service Display Sub-Menus" on page 3-1. For more detailed information, see "Tests" on page 3-4.

3. Settings

You can provide some of the machine's operational data in SETTINGS; some you can set ON or OFF, in some you set a number limit, in some a percent. The following is a good example of what you can do: change game options, increment or decrement hopper counter, give hopper a new limit. For all settings quick-listed, see "Quick Look at Service Display Sub-Menus" on page 3-1. For more detailed information, see "Settings" on page 3-5.

4. Statistics

Like counters, statistics are also to be viewed only: you cannot change the information seen in the STATISTICS. Here you will find error codes, program version info, just to mention a few. For more information, see "Statistics" on page 3-7.



3.2.3 Case: To Add The Hopper Counter

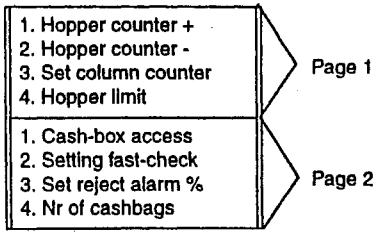
Let us imagine you would like to increment (= add) the hopper counter. It is usually done after you have put coins straight to hopper, passing the counter. Therefore, to make the hopper counter match the real number of coins in hopper, you have to increase the number in counter.

☞ **Select The Function from Main Menu:** Push button number 3. to select item number 3. SETTINGS.

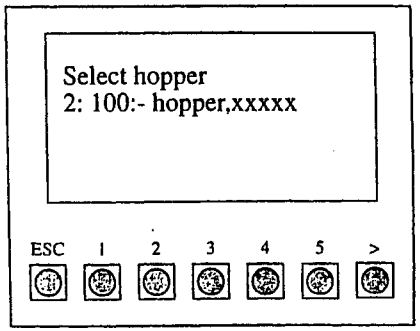
After selection, the first page of COUNTERS submenu will appear. You will see one menu page at a time, but you can browse through all the pages, if you like. You can also select 1. HOPPER COUNTER + at once.

☞ To browse the pages, push > button. To return to the main menu, push ESC button.

☞ Select The Task from a Sub-menu: Push button number 1. to select 1. HOPPER COUNTER + from this menu.

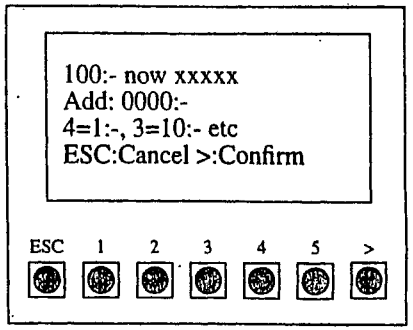


After having selected 1. HOPPER COUNTER +, a new page will open. You are expected to give the number of the hopper seen on display.



☞ Push button number 2. to select hopper.

The selection is followed by another display:



Enter now the new hopper counter, for example 3400 coins, each number separately. First enter number 3, then 4. Because tens and ones are not used (= both are zeroes), you do not have to set them.

NOTE! The maximum amount you can add at a time is 9900; the total maximum, from 0 to 32.700, is achieved in three successive additions (3 x 9900).

☞ Use the number buttons for entering data. Push the button until you reach the number you want.
Use button 1 to enter thousands, here 3.
Use button 2 to enter hundreds, here 4.
No need to use button 3, there is already 0.
No need to use button 4, there is already 0.
No need to use button 5, there is already 0

☞ When you have the correct number, confirm and OK it by pushing > button.

NOTE! If you do not want to accept anything, push ESC button, which will return you to the previous menu.

Now the counters are updated and the new counter value is displayed.

☞ Push ESC button to exit this page.

Now the counter number is correct. Pushing ESC will return you to the previous menu.

☞ To quit SETTING, push ESC or just close the door.

3.3 Tests

3.3.1 Test Games

Not available in this version.

3.3.2 Column Payout Test

Not available in this version.

3.3.3 Lamp and Button Test

The test, once started, will light the lamps of the roulette wheel one at a time. The test will go through all the 40 lamps in sequence as long as it is not stopped.

☞ To stop the test: push ESC or button 1, or close the cabinet door.

There are no buttons to test in this Payazzo version.

3.3.4 Hopper Contents

This test can be used for counting the hopper contents. The test does not affect the COUNTERS in any way, so remember to return the coins to the hopper.

NOTE! Before starting this test, place a suitable bag or box underneath the hopper payout channel so that the coins do not fall to the floor.

- **2. Empty H100,- (20000).**
  The number in parenthesis is the amount of money — pesetas (pts) in this example — that are supposed to be in the hopper according to the hopper counter.

☞ To start the test: push button number 2.

☞ To interrupt the test: push ESC button.

This test also shows the types of hoppers in the machine.

3.3.5 Sensor Test

All testable sensors are checked in this test.

NOTE! The optical sensors of the game panel should not be blocked when they are tested, otherwise the blocked sensors will be assumed faulty. Use COIN COLUMN PAYOUT TEST to remove the blocking coins.

- **1. All sensors.**
  Push button 1 is used to test all the sensors
- **2. Column motor PCB.**
  Not implemented since there are no column payout electronics in this device.
- **3. Door PCB.**
  Push button 3 starts a test for the Door board sensors.
- **4. Cabinet PCB.**
  Push button 4 starts a test for the Cabinet board sensors.

☞ To rerun the test: push > button.

☞ To terminate the test: push ESC button.

If the tests do not detect errors, the display will show: TEST OVER, >:RESTART. It will also indicate the boards that were tested by naming the boards and showing OK after each name.

If the test detects errors, the display will show the name of the failing sensor, for example DISPENSER SENSOR E.

3.3.6 Lift & Solenoid Test

This test is used for checking the operation of the coin eject solenoid and the lift motor.

- **1. Lift motor.**
  Push button 1 turns the lift motor on for a short time.
- **2. Coin ejector.**
  Push button 2 repeatedly turns on and off the coin eject solenoid.

3.3.7 Fill Coin Cycle

This test helps you in filling the internal coin cycle. After starting this test, you can enter coins or tokens into the cycle through the filling slots of the game panel. The filling slots are located in the top edge of the game panel and can be accessed only from the inside of the machine, see "Fill Internal Coin Cycle" on page 2-3.

☞ Enter coins to the cycle.
The dispenser solenoid will release the tokens to the slammer.

☞ Hit the coins out of the slammer.
The lift will move them up in the cycle.

☞ Repeat entering coins and hitting slammer.
Enter the amount of coins or tokens specified in Appendix B.

This feature is included in the tests, since it can also be used to check the operation of the Internal Coin Cycle.

3.3.8 Cashbox Lock Test

Not available in this version. This machine does not have an electronic cashbox lock.

3.3.9 Display Test

Not available in this version.

3.3.10 Sound Test

In this test you can check the operation of the sound generating circuitry of the electronics and adjust the playback level.

☞ To select the sound, use buttons 1 and 2.

☞ To play the sound, use push button >.

3.3.11 Debits to Player

Using this test you can pay the machine's "debt" to the player. The "debt" is paid from hopper.

"Debt to player" develops in a **machine malfunction situation**, when a player does not receive a correct win or does not get to play the games the player has originally paid for.

Usually these malfunctions are coin jams in the coin chutes, validator or hopper.

☞ To pay coins out from the hopper: push button 2.
The coins are paid one coin at a time.

NOTE! The coins paid out from the hopper will be recorded in the machine counters: HOPPER WITHDRAWALS and HOPPER CONTENTS.

3.4 Settings

3.4.1 Hopper counter +

3.4.2 Hopper counter -

These two settings are used to match the actual contents of the hopper to the value the hopper counter is showing.

The machine relies on the hopper counter when it decides if new credits can be accepted. If the actual hopper contents do not match the counter value, the game may try to pay out coins from an empty hopper — because the counter shows that there are coins. Or there may be coins in the hopper that the game can not use, since they are not registered by the counter.

To check that the hopper contents and the counter is equal, use the HOPPER CONTENTS test. Use it to count the coins and verify the result against the counter value. If they do not match, find out the cause of the difference and increase or decrease the hopper counter value to match the actual contents. Or add coins to the hopper to make the contents match the counter.

For more precise information about increasing the hopper counter, see "Case: To Add The Hopper Counter" on page 3-3. The hopper counter is decreased in the same way, but using the Hopper counter -.

NOTE! Incrementing or decrementing the hopper counter will be recorded in the machine counter: HOPPER WITHDRAWALS or HOPPER FILLINGS.

3.4.3 Set Column Counter

Not available in this version.

3.4.4 Set Hopper Limit

Sets the maximum limit for the hopper contents. When the hopper contents limit is reached, the next coins entered will be directed to the cashbox instead of the hopper. When coins are paid out from the hopper and the hopper contents go below the limit, the next coins entered will be directed to the hopper.

NOTE! This test allows you to set the limit of all three possible hoppers, even though only hopper 2 is in use. The limits for the other hoppers must be 0.

3.4.5 Cashbox Access

Not available in this version, since this requires a security cashbox with an electronic lock.

3.4.6 Setting Fast-check

There are many operational features, for example hopper limit, that can be modified on site by the operator. Use setting fast-check when you have two similar machines and would like to know if their settings are the same, without going through all of them.

- Compare the "model machine's" setting fast-check number with the other machine's fast-check number.

  If the fast-check sum is the same, both machines have the same settings.

  If the fast-check sum is different, the machines have different settings.
- To find out the differences: compare individual settings of both machines.

3.4.7 Set Reject Alarm %

Not available in this version. Payazzos do not have a coin-detecting sensor before the coin validator, which is needed for the alarm.

3.4.8 Set Nr of Bags

In this version of Payazzo only one cash bag can be used, therefore even though this test allows you to select multiple cashbags you should not select anything else than one cashbag.

3.4.9 Set Date and Time

For setting the machine date and time.

- Select date or time with buttons 1 and 2.
- Set the respective value with buttons 1, 2, 3 and 4.

3.4.10 Reset Cash Memory

Cash memory can be reset using this setting whenever needed if you have installed the factory parameters to the machine. However, normally the machine does not have the factory parameters, and cash memory resetting is allowed only if the cash memory is corrupted — machine closed due to fault code 500.

3.4.11 Set Game Options

With this setting you can alter some of the operational features of the machine. None of these options affect the payout ratio of the game or the current counter values. For available options refer to Appendix F.

- To start selecting and setting options, press the > push button.
- Set an option ON or OFF with push button 3.
- Select the number of the option with push buttons 1 and 2.

3.4.12 Coin / Note Values

This allows you to change the values of the accepted coins and bank notes. Since this machine is designed to work on one currency only and no bank note acceptor is fitted, there is no need of modifying these settings from the factory defaults.

3.4.13 Set Collect OK Led

This allows the operator to set the cashbox contents indicator LED used with security cashbox machines.

This setting is not available in this machine due to both the lack of security cashbox and an electronic lock.

3.5 Statistics

3.5.1 Fault Codes

Here you view and reset the machine fault codes. The faults that can occur in a machine have been divided into groups according to the fatality of the fault. Some faults cause an immediate shutdown of the machine and some fault codes just give more information about some particular situation. For more information about fault codes, see "List of Fault Codes" on page 4-3.

A fatal fault that shuts down the gaming operations of the machine must be fixed before operation can commence. Also, the fault code must be reset from the statistics prior to restarting.

3.5.2 Rejected Coins

Not available in this version of Payazzo.

3.5.3 Debits Paid

When the machine shuts down because of a fault, it clears the credits and wins the player has at the time. These values are stored into the statistics and can be viewed here. The debits can be paid to the player in the test mode, see "Debits to Player" on page 3-5.

3.5.4 Payout %

Here you can check the machine payout percentage and the gate hit statistics.

The payout percentage is given as two different values: long term and short term. The long term payout ratio is calculated over the entire lifetime of the machine. The short time ratio is calculated over the 1000 last games.

The hit statistics show how many times the players have hit each of the gates and on how many games the hit statistics is based on. The first 9 values show the hits of gates 1 to 9, respectively and the value 11 shows the respective game amount.

3.5.5 Previous Games

Not available in this version of Payazzo.

3.5.6 Hopper Counter +ed

How much money has been added into the hopper counter in Settings Hopper Counter +.

3.5.7 Hopper Counter -ed

How much money has been subtracted from the hopper counter in Settings Hopper Counter -.

3.5.8 ID Code List

All the critical electronic boards of the machine have ID chips that make the boards unique. Here you can view the IDs of the boards that are currently in the machine.

3.5.9 Changed PCBs & IDs

All the critical electronic boards of the machine have ID chips that make the boards unique. Here you can view the IDs of the boards that have been in the machine. If a critical board is replaced with another, the ID of the old board is stored into the statistics.

3.5.10 Old Counter Sets

Each time the cabinet door is opened while the power is on the current counter values are saved into statistics. There is room for 21 sets of old counters, from 21 last cabinet door openings.

The most recent 7 sets hold complete counter data, the next 7 hold partial data — 8 first counter values — and the last 7 only hold the cashbox counter value.

- To view the old counter set: select the set with the push buttons 1, 2, 3, 4 and >.
- Scroll through the counters of the selected set with the > push button.

3.5.11 Prog Version Info

Shows the program and parameter numbers, programming dates and the date they were installed into the machine.

3.5.12 Double-up data

Not available in this version of Payazzo.

4 Troubleshooting

This chapter helps you to understand how to deal with fault situations. Such things include:

- Problems in machine operation
- Fault code—what is it
- How to clear fault codes
- Fault level code—what is it
- DIL code—what is it
- Fault codes numerical list

4.1 Problems in Operation

A machine causing problems usually operates unreliably or does not operate at all. Below, find more about troubleshooting situations with unreliable machine operation and non-operating machines.

A Non-operating Machine

A non-operating machine can be recognized for these symptoms: it does not accept money and does not operate. If the machine has no lights, check the power supply; otherwise, use the following advice:

1. Write down the fault code the machine displays. To understand the nature of the problem, look the code up in the fault code list, found in this chapter. Read what is said about the fault. Act accordingly.
2. Take a look at the appropriate counters; counter values are very useful.
3. Run tests. They can be of great help in locating the fault.

Unreliable machine operation

The unreliablity of a machine is usually caused by harmless or short-time faults which usually are more difficult to notice, since a machine can continue operating in spite of the faults. However, short-time faults sometimes leave a mark in the memory of the machine—a fault code.

Read through the fault code statistics of a machine that malfunctions or is unreliable: it is possible that some non-fatal faults have occurred and they may be related to the current problem. Counter values and tests can be of great help in locating the fault.

Sometimes a certain machine suffers from faults that keep returning. Therefore, it is advisable to keep a fault log of all the faults that have occurred with each machine. In this way, typical faults are easy to spot.

4.1.1 Fault Codes Help

A fault code is a three digit number, for example 404, generated as a result of an external disturbance, an internal fault or malfunction.

The fault code is shown in the service display of the machine and stored in the fault statistics of the machine. If the machine is in working order, fault codes can be seen from the statistics — Service Display, STATISTICS, item 1: FAULT CODES.

With the help of fault codes the cause of the fault — for example a damaged circuit board or a device — can usually be identified. Then, the faulty part can be repaired or replaced. Sometimes the fault code only indicates a fault in the machine but can not indicate the failing unit.

The fault codes are listed further in this manual together with an explanation of the possible fault, likely causes for the faults and how to repair the fault.

4.1.2 Technical Support

If this manual and the fault codes do not help in locating the fault, you can always call your technical support personnel for assistance.

To assist you effectively, the people in technical support need to know the events that led to the fault as accurately as possible.

It would be very helpful if you knew the exact way the fault occurs and could generate the fault at will. Before calling, note at least the following: does the fault come during playing, what is the bet, how big a win.

4.1.3 Fault Code Levels

The machine faults can be of many kind: fatal, non-fatal or informative. A fatal fault closes down the machine. Non-fatal or harmless faults do not affect the playability of the machine but usually leave a fault code in the fault statistics.

The fault codes are divided into 5 levels according to the severity of the impact it has on the machine operation. The levels are listed in the order of least severity to fatal fault level.

1. **i = info**, informs about some harmless or short-time fault. Nothing to worry about unless the faults occur frequently; then, it is possible that a more serious fault lies behind this informative fault code level.

2. **W = program warm start**, starts up the machine from an operational state in which only some values have been reset.

3. **T or t = tilt**, tilt interrupts the machine operation for about 15 seconds and then resumes to normal play. It is used to slow down a player with dishonest intentions, for example, a player with yo-yo coins, or it implies a fault situation that has spontaneously changed to normal.

4. **R = resetting fault**, resets the machine for 1 second, then the machine starts-up again, runs diagnostic self-tests and resumes to normal operation.

5. **C or c = closing, fatal fault**, totally closes down the machine; an AVERIADO -mode display is shown. The machine cannot operate in this condition; the fault code requires to be cleared.

These level codes can be seen in the fault code statistics, where the level code is in parenthesis between a fault code and an internal status code.

4.1.4 To Clear a Fault Code

Fault codes can be cleared in service display step **4. STATISTICS**. Select **1. FAULT CODES**, then clear the code by pressing switch 1 of the service display. Each fault code must be cleared separately. Fault codes that are not cleared keep coming back, thus keeping the machine in non-operative mode.

4.1.5 Finding a Faulty Gate or Column

There are many gates and columns in the machine. When a gate or column fault occurs, fault codes 724, 729 and 730 suggest a gate problem, fault codes 726, 740, 741 and 744 a column problem. But none of these fault codes define exactly which of the gates or columns is faulty. Therefore, there is another code, a series of numbers in parenthesis, following the fault code level indicator, which shows the number of the gate or column. These codes can only be seen in the fault code statistics in the service display.

The code consists of three parts: beginning, middle and end. The middle one represents the faulty gate or column; for example code (2-6-11) identifies gate or column 6.

4.1.6 DIL Codes

DIL codes and DIL settings, mentioned in some fault descriptions, are used for three purposes in RAY's gaming machines:

1. **Setting the hopper coin type.** Each hopper can handle only one coin type, therefore the suitable coin type has to be selected with the DIL code.

2. **Numbering the reels.** (if reels exist)

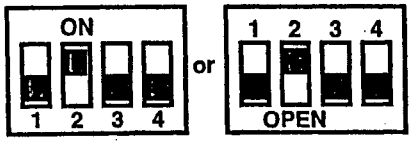
3. **Setting baud rates, character acknowledge logic usage and physical I/O cable selection of the service display.**

The DIL code is set with DIL switches on hopper, reel and service display boards.

The DIL switch case has four individual switches, numbered from 1 to 4. The switches are dual position switches: each can be either ON, upper position, or OFF, lower position. When you set the switch positions, remember that switches 1 - 3 must have an individual combination on each reel and hopper board. The position of the last switch can be ignored: it can be set either way. Inside the machine, next to each hopper and reel, there are clearly visible instruction labels on how the switches should be.

A DIL code corresponds to a certain DIL switch combination on the reel and hopper boards. For example DIL code 2, OFF-ON-OFF indicates, that the first DIL switch is OFF, the next is ON and the third is OFF.

DIL switch case
Switches1, 2, 3 and 4



DIL code 2: OFF-ON-OFF-X

DIL codes

DIL code 1: ON-OFF-OFF-X
DIL code 2: OFF-ON-OFF-X
DIL code 3: ON-ON-OFF-X
DIL code 4: OFF-OFF-ON-X
DIL code 5: ON-OFF-ON-X
DIL code 6: OFF-ON-ON-X
DIL code 7: ON-ON-ON-X

4.2 List of Fault Codes

Fault codes are listed in numerical order. Each code is followed by a short description of the fault, likely causes and instructions on how to repair the fault.

401 CPU RAM IC15 error; the fault code is shown during start-up in the dot-matrix display of the CPU board!

Cause: Possible soldering faults in SRAM or control circuit RAY5090. The SRAM can also be faulty. The program of the machine will not start.

How to fix: Check that IC14 and IC15 are soldered properly. Replace CPU if needed.

403 Program checksum error

Cause: The checksum calculated over the program memory of the machine is not the same as the checksum stored in the memory. The memory board is not connected properly to the CPU connector J1 or the memory board is faulty.

How to fix: Make sure the board is properly connected to J1. If that does not help, replace the memory board. If fault still exists, replace the CPU board.

404 Parameter checksum error

Cause: The checksum calculated over the parameter memory is not the same as the checksum stored in the memory. The memory board is not connected properly to the CPU connector J4 or the memory board is faulty. RAY7054 circuit solderings may also be faulty, since the parameter memory is accessed through the RAY7054.

How to fix: Ensure the board is properly connected to J4. Replace the parameter board. If that does not help, replace the CPU.

407 Watchdog reset

Cause: The internal watchdog circuit of the 68330 processor generated a reset. It is caused by unexpectedly slow execution of the program due to external disturbances (ESD, dirt, etc.) or a fault in the execution of the program.

How to fix: The program execution continues normally after the reset. If the fault occurs frequently, to find out the events leading to the reset, the operation of

the machine should be closely monitored. If the reset occurs during normal play, check the grounding of the machine. Contact technical support personnel, and specify the version numbers of the program and parameters.

408 CRT PCB RAM error

Cause: The memory of the CRT display is not working, due to bad soldering or a defective component. The most convenient way of locating the failing component is using a tester. This fault prevents playing.

How to fix: Check that the CRT board is properly fastened and that the bus connector is OK. If this does not help, replace the CRT board.

410 I/O cable connect error

Cause: One of the I/O cables has been connected or disconnected when power on.

How to fix: If the machine cannot function without the disconnected device, another, more helpful, fault code will be displayed.

If the 410 fault occurs repeatedly, and no cables have been connected or disconnected, it is very likely that one of the I/O cables or connectors is defective.

The code 410 is not stored in the Fault Statistics, it is displayed only when it happens.

411 Data transfer error. Door module.
This fault code is displayed in the CPU board dot-matrix display because the door dot matrix display does not work.

Cause: I/O cable connecting the door controller board PCB5078 to the Controller Unit may be loose. The communication buffer circuits may also be broken due to short circuits. The Door module is identified from the messages the door controller sends.

How to fix: Check the indicator LEDs in the door controller. They will show if the supply voltage, coming through the I/O cable, is present. If the cable is connected, you can test the communication by pressing the push-button of the player panel board and check from the indicator LEDs that the communication is successful. Also check the CPU dot matrix display, which shows communication from the CPU side. If the communication fault LED is lit, the cable or the communication buffer circuits may be faulty.

Turn the machine power off for at least 10s and then turn it on again. To check the communication buffers of the mother board, you can disconnect the I/O cable from its present connector and connect it to another I/O connector.

412 Data transfer error. Coin acceptor

Cause: The I/O cable from the coin acceptor controller board to the Control Unit may be loose. The communication buffer circuits may also be faulty.

How to fix: Check the coin acceptor controller board indicator LEDs for correct supply voltage presence. If the cable is connected, check the communication by pressing the service buttons on the coin acceptor controller board and, at the same time, look at the communication indicator LEDs. For locating the fault, please refer to methods described with fault code 411.

413 Data transfer error. Coin distributor

Cause: The I/O cable from the coin distributor controller board to the Controller Unit may be loose. The communication buffer circuits may also be faulty.

How to fix: Check the coin distribution board indicator LEDs for correct supply voltage presence. If the cable is connected, test the communication either by wetting the dew sensor on the board or rotate the motor until a green LED on the board is lit to indicate the place of the index pulse sensor. To locate the fault, refer to methods described with fault code 411.

414 Data transfer error. Cabinet board

Cause: The I/O cable from the cabinet board to the Controller Unit may be loose. The communication buffer circuits may also be faulty.

How to fix: Check the cabinet board indicator LEDs for correct supply voltage presence. Refer to methods described with error code 411.

415 Data transfer error. Reel module

Cause: The I/O cable from reel controller boards to Controller Unit may be loose. The communication buffer circuits may also be faulty or the DIL code of the reel is incorrect. It is also possible that one of the reels needed by the machine program is missing.

The DIL codes for the first four reels are:

- 1st reel: DIL code 1
- 2nd reel: DIL code 2
- 3rd reel: DIL code 4
- 4th (doubling reel): DIL code 3

How to fix: Check the reel controller board indicator LEDs for existing supply voltage. If the cable is connected, test communication by rotating the reel past the index pulse sensor. At the same time, look at the communication indicator LEDs. Check also that the DIL switch positions on the reel controller boards correspond to the DIL code and the number of the reel. To locate the fault, please refer to the same methods as described with fault 411.

416 Data transfer error. Note acceptor

Cause: The I/O cable from note acceptor controller board PCB 5097 to CPU may be loose. The communication buffer circuits may also be faulty.

How to fix: Turn the machine power off and while the machine powers-up, look at the note acceptor indicator LEDs.

- If the LEDs do not blink at all in the power-up, the communication is faulty, and you need to check whether the cables are properly connected or not. If they are connected, disconnect one connector and connect it to another connector in the mother board. Should this not help, replace the note acceptor controller board.
- If LEDs do blink but the fault 416 still occurs, replace the note acceptor controller board.

If fault 416 occurs even if the machine does not have a note acceptor nor a note acceptor controller board, then the machine has an unsuitable parameter memory.

417 Data transfer error. Payout module

Cause: The I/O cable from payout unit (hopper) controller to Controller Unit may be loose. The communication buffer circuits may also be faulty or the DIL codes are incorrect. To operate properly, the machine program always requires that the hopper with the coins of least value works; therefore, it is good to check that hopper particularly.

The DIL codes for the hoppers of the first three coins are the following:

- 1st coin: DIL code is 1
- 2nd coin: DIL code is 2
- 3rd coin: DIL code is 4

How to fix: Check the presence of the correct supply voltage in the hopper controller board indicator LEDs. Check also that the DIL switches on the controller board are correctly set to match the corresponding hopper. To find the fault, refer to methods of fault 411.

419 I/O cable reset error

Cause: One of the I/O cables is faulty or loose.

How to fix: Find the faulty cable and replace it. Check that all the I/O cables are well connected.

420 Short payout pulse

Cause: Hopper sent a too short sensor pulse; this may have caused an abnormal counter reading.

How to fix: Check that hopper sensors and cables are well connected. If needed, count the coins in hoppers and compare that figure with the one given by the cash memory. Unfortunately, the fault code does not give the hopper number; therefore, the most likely faulty hopper is the one which contents clearly differ from the figure in the cash memory. Should the fault be repeated, replace the hopper.

421 Hopper 1 long pulse
422 Hopper 2 long pulse
423 Hopper 3 long pulse
424 Hopper 4 long pulse
425 Hopper 5 long pulse
426 Hopper 6 long pulse
427 Hopper 7 long pulse

Cause: (Faults 421-427) Hopper sent a too long sensor pulse; this may have caused an abnormal counter reading. A loose cable or sensor may have caused the fault. A hopper rotating unusually slowly because of etc. dirt may also have caused it. Wrong coin type; a payout or pay to cash box interrupted by a power failure can be the cause for this fault.

How to fix: Make sure the hopper sensors and the cables are well connected. If needed, count the coins in hoppers and compare that figure with the one given by the cash memory. Clean the hopper if it is dirty. If the fault is repeated, replace the hopper.

429 Coin accept pulse error

Cause: Coin acceptor sent a too long sensor pulse; this may have caused an abnormal counter reading. The fault may be caused by a faulty coin acceptor, an external fault or a loose cable between coin acceptor and coin controller board.

How to fix: Make sure the coin acceptor cables are well connected. Clean dirt and dust from the coin acceptor. If needed, count the coins in hoppers and compare that figure with the one given by the cash memory. If the fault is repeated and the cash memory figures are faulty, replace the coin acceptor.

430 Router sensor error

Cause: Direction sensor on coin acceptor controller board sends a too long pulse. A coin has probably stopped at the sensor and possibly caused a coin jam.

How to fix: Make sure the coin acceptor is well locked into its place. Check also that the coin tubes to hopper are in their proper places. Make sure the coin distributor sensor is tightly fastened. Clean the sensor if necessary.

431 Hopper 1 pulse error
432 Hopper 2 pulse error
433 Hopper 3 pulse error
434 Hopper 4 pulse error
435 Hopper 5 pulse error
436 Hopper 6 pulse error
437 Hopper 7 pulse error

Cause: (Faults 431-437) Hopper sent a too long sensor pulse; this may have caused an abnormal counter reading. A loose cable or sensor. A hopper rotating unusually slowly because of etc. dirt may also have caused it. A jammed sensor or hopper disc can be the cause for this fault.

How to fix: Make sure the hopper sensors and the cables are well connected. If needed, count the coins in hoppers and compare that figure with the one given by the cash memory. Clean the hopper if it is dirty. If the fault is repeated, replace the hopper.

438 Coin entry blocked 1
439 Coin entry blocked 2

Cause: (Faults 438-439) There are two sensors (1 and 2) in the coin channel, of which either one may cause this fault. Sensor in coin channel sent a too long sensor pulse. There may be a coin jammed in the sensor; the sensor itself is faulty or the sensor cable is loose.

How to fix: Clean the coin channel and the upper part of the coin acceptor. Make sure the sensor is positioned and fastened so that it does not cause the coin to jam or slow down; check also that the cable is properly fastened. If the fault occurs immediately after the power has been switched on but before any coins have been fed into the coin channel, the sensor is faulty or the cable is loose.

440 Coin entry pulse error 1
441 Coin entry pulse error 2

Cause: (Faults 440-441): A coin has caused a longer than usual sensor pulse in the coin slot coin channel. The coin slot is either dirty or tight.

How to fix: Clean the coin slot and the sensors. Make sure the sensors and cables are tightly fastened.

442 Hopper missing!

Cause: Program has not received a signal from a hopper that, according to program, should exist. The hopper is faulty; the DIL switches on the hopper controller board are wrongly set; the hopper cable is loose. If the fault was fatal, causing the machine to non-operative mode, the missing hopper was the one taking the coins of least value, a.k.a hopper 1; in other case hopper 2 or 3.

How to fix: Make sure the hopper cables are properly connected. Then, turn power on again. When power is turned on, the green LED of the hopper should flash. If instead of green LED a red LED flashes, check that the DIL switch settings are correct. If required, replace the hopper.

443 Coin acceptor PCB error

Cause: The program has detected a fault or faults in the coin acceptor control board.

How to fix: Replace the coin acceptor control board.

444 Note accept pulse error

Cause: One of the bank note accepted lines of a bank note acceptor has sent an unacceptable signal because it does not fill the conditions set in parameters. The pulse has been either too short or too long, or there have been too many pulses. The possible causes of this are, e.g a faulty note acceptor control board, a faulty cable, a faulty or incorrectly programmed note acceptor. The parameters may also be incompatible with the existing note acceptor.

How to fix: Make sure the note acceptor board functions properly and the cable is connected. Check also the note acceptor itself. Assure that the parameters are compatible with the existing note acceptor.

445 Note accept pulse error

Cause: One of the fault lines of a bank note acceptor has sent an unacceptable signal because it does not fill the conditions set in parameters. The pulse has been either too short or too long, or there have been too many pulses. The possible causes of this are, e.g a faulty note acceptor control board, a faulty cable, a faulty or incorrectly programmed note acceptor. The parameters may also be incompatible with the existing note acceptor.

How to fix: Make sure the note acceptor board functions properly and the cable is connected. Check also the note acceptor itself. Assure that the parameters are compatible with the existing note acceptor.

451 Hopper 1 extra pulse
452 Hopper 2 extra pulse
453 Hopper 3 extra pulse
454 Hopper 4 extra pulse
455 Hopper 5 extra pulse
456 Hopper 6 extra pulse
457 Hopper 7 extra pulse

Cause: (Faults 451-457)A payout pulse from a hopper that should not have paid out, or existed, has been received. The cause may be an external error or disturbance. Hopper brake may also be faulty.

How to fix: Put the power on again and run the payout test. In case you find the hopper brake faulty, replace the hopper. Should the fault be repeated, write down the program version number and contact technical support.

458 Coin distributor error

Cause: The coin distributor below the hoppers is stuck; the sensor cable is faulty or loose.

How to fix: Check that the coin distributor sensor cable and sensor functions properly: rotate the coin distributor manually and see if the sensor pulse indicator LED will be lit when the distributor passes the sensor. If the sensor pulse indicator LED is constantly lit the sensor is broken or the cable is loose. If the sensor functions normally, the fault is in a badly rotating distributor. To feel how the distributor rotates, remove the coin distributor module and manually rotate the inside of the distributor. Observe how the coin distributor works, and if does not work properly, replace it.

459 Dew sensor warning!

Cause: Either of the two dew sensors— the upper on coin acceptor control board, the lower on coin distributor control board— alarms. The alarm sounds when water or other liquid conducts electricity from one sensor conductor on border of the PCB to the other. The alarm may also sound when the conductors are dirty. Check the state of the dew sensor using the sensor indicator LEDs.

How to fix: Dry and clean the dew sensor conductors on the PCB surface. The indicator LED will be lit when humidity or dirt causes a fault. If there are no signs of excess humidity and the fault is removed by cleaning the PCB, the whole machine might be in need of cleaning! Check also the coin acceptor and distributor boards.

460 Block sensor warning

Cause: The short payout tube below coin distributor is blocked or the optosensor in the tube is faulty. If the tube is empty (no blockage to be seen) and the fault does not disappear, the sensor is either broken or dirty.

How to fix: Look for what blocked the tube. Remove it and the fault disappears. If no blockage can be seen, replace the broken sensor or clean the dirty one.

461 Hopper 1 empty
462 Hopper 2 empty
463 Hopper 3 empty
464 Hopper 4 empty
465 Hopper 5 empty
466 Hopper 6 empty
467 Hopper 7 empty

Cause: (Faults 461-467) The hopper has tried to pay out coins, but there are no coins coming out. The hopper contents counter tell that there should be coins left in the hopper.

How to fix: Fill the hopper. For correct procedure, refer to instructions in Test Check that there are no foreign coins in the hopper blocking it.

471 I/O 1 data transfer error
472 I/O 2 data transfer error
473 I/O 3 data transfer error
474 I/O 4 data transfer error
475 I/O 5 data transfer error
476 I/O 6 data transfer error
477 I/O 7 data transfer error

Cause: (Faults 471-477) There are seven I/O channels on the mother board into which the device modules are connected. Each device can be connected to any of the seven channels available. The fault code tells that more than 15 successive communication faults have occurred with the device using the channel (channel number) in question. The fault also occurs if the CPU program has not read the last 85 messages sent by the I/O module. A faulty mother board, cable or device module PCB can cause these fault codes. Because the internal communication of the machine has failed, the cash-box contents counters may show unnormal figures. Check the counters.

How to fix: The program tends to fix the fault automatically. Looking at the dot matrix display on the CPU, see if the communication fault indicator LEDs have died. Check also to which device the channel causing the fault has been connected to. First, turn the power off for about 10 seconds, then restart the machine. During power up, observe the indicator LEDs of the I/O module. Should the fault be repeated, disconnect the I/O cable used and connect it to another I/O channel; this way you will know whether the mother board, the cable or the device module is faulty. To rule out the possibility of a faulty cable, replace the cables.

487 Unknown note accepted

Cause: Note acceptor has accepted a bank note; however, the program parameters do not know the value of the note.

How to fix: Write down the program parameter version number and tell it to technical support personnel when you contact them. If it is possible to teach, by programming, the note acceptor to accept different bank notes, unlearn the unwanted note from the note acceptor.

489 Imperfect parameters

Cause: The program can not find required information from the parameter board. The parameter board may be improperly inserted or faulty. If replacing the card does not help, the CPU should be replaced.

How to fix: Take the CPU out and ensure that the parameter board is tightly connected to the CPU. If the fault occurs repeatedly, replace the parameter board or the CPU.

490 Cash-box full

Cause: There are too many coins in the cash-box. This limit is defined in parameters.

How to fix: Clear the fault code. Collect coins according to instructions. If the cash-box was not full and there was no cause for the error, write down the parameter version number and tell it to RAYs technical support when you contact them.

491 Wrong win table

Cause: Either the win table is in the parameters but in an old form or it is missing from the parameters.

How to fix: Replace the old parameter memory board with the latest version.

500 Cash memory error

Cause: The cash memory is used for storing counter information and statistics. The correctness of the information is ensured with checksums and there are back-ups for this information. In spite of these safety measures, the contents are corrupted and can not be reliably restored. The cash memory component of the CPU, an EEPROM device, has a limited life span, whereas the cash memory of the mother board has an internal battery ensuring data retention for 10 years.

How to fix: Check the solderings of IC7 and IC8 of the CPU board and that the CPU cash memory IC12 is properly inserted to its socket. Replace the CPU, if needed. ***Always* replace one cash memory component at a time; *never* change both cash memory components simultaneously!** Before attempting to fix the cash memory, first read or write down the available counter figures. If service is needed, it is a good idea to also collect coins from the cash-box.

Change the cash memory according to instructions in *appendix G* and initialize it according to *appendix A*!

501 CPU was replaced?

Cause: Every CPU board has an electrical ID code which the machine uses to identify CPU boards. Fault code 501 is given when a new CPU board is put into the machine, usually as a part of ordinary service or troubleshooting, and identified as a board not having been in this particular machine before. The fault is mainly a warning and indicates a situation, where the cash memory contents may have been changed.

How to fix: Since this is not a fault, there is no need to fix anything. If it is certain that the CPU has not been replaced, the ID circuit may be faulty and then the CPU board really has to be replaced.

502 Mother was replaced?

Cause: The mother board has its own electrical ID code used for identifying the board. The ID code of the current mother board indicates, that it has not been in the current machine before. The replacement has probably been part of ordinary service or troubleshooting. This code mainly indicates a situation, where the cash memory contents may have been changed.

How to fix: Since this is not an error, there is no need to fix anything. If it is certain that the mother has not been replaced, the ID circuit may be faulty and then the mother board really has to be replaced.

503 Cash memory replaced

Cause: One cash memory component is on the mother board, the other is on the CPU board. The program has determined, according to the information on the cash memories and the ID codes of the boards, that the cash memory of the mother board has been replaced. It is also possible that the internal battery of the cash memory of the mother board has failed. Normally the component should retain data for over 10 years.

How to fix: This is not an error normally, it serves only as a warning that the counters of the machine may have been accidentally altered. If it is absolutely certain that the memory component has not been changed, then it really needs to be replaced.

505 Counters 1 replaced

Cause: The counter values — primary counters — are normally stored in the cash memory of the CPU. The correctness of the counters is ensured with checksums and two back-ups. One of the back-up copies is stored in the same component as the primary counters, the other back-up is in the cash memory of the mother board. This fault code means that the primary counters have been replaced by one of the back-up copies due to incorrect store operation of the primary counters. This error code usually comes with error codes 506 or 507.

How to fix: No need to fix anything, since the software was able to correct the counter information.

506 Counters 2 replaced

Cause: A back-up copy of the primary counters is stored in the cash memory component of the CPU — same component where the primary counters are. The back-up copy is constantly updated and thus always identical to the primary counters. This fault code indicates that one of the back-up copies of the CPU cash memory has been replaced with the primary counters or the other back-up copy due to incorrect store operation of the back-up copy. This error code usually comes with error codes 505 or 507.

How to fix: No need to fix anything, since the program was able to correct the counter information.

507 Counters 3 replaced

Cause: A back-up copy of the primary counters is stored in the cash memory of the mother board. The back-up copy is always kept identical to the primary counters. This fault code indicates that the back-up copy of the CPU cash memory has been replaced with the primary counters or the other back-up copy due to incorrect store operation of the back-up copy. This error code usually comes with error codes 505 or 506.

How to fix: No need to fix anything, since the program was able to correct the counter information.

508 Cash memory write error

Cause: The cash memory component of the CPU is defective and the program can not write new information to it.

How to fix: Replace the CPU.

510 Cash memory write error

Cause: The cash memory component of the mother board is defective and the software can not write new information to it.

How to fix: Replace the cash memory of the mother board.

511 Reel 1 not spinning
512 Reel 2 not spinning
513 Reel 3 not spinning
514 Reel 4 not spinning
515 Reel 5 not spinning
516 Reel 6 not spinning
517 Reel 7 not spinning

Cause: (Faults511-517) The reel is stuck or the index pulse sensor is broken. The DIL switch setting may have been changed and incorrect.

How to fix: See how the reel rotates, e.g by opening and closing the door. Should the reels rotate but the fault still repeat, the sensor is obviously broken. To replace the sensor, change the whole PCB. Check also the setting of the DIL switches.

521 Coin 1 lost
522 Coin 2 lost
523 Coin 3 lost
524 Coin 4 lost
525 Coin 5 lost
526 Coin 6 lost
527 Coin 7 lost

Cause: (Faults 521-527) A coin has been inserted in the machine, but there is no information of its whereabouts. The fault is caused either by a faulty sensor in coin distributor (below coin acceptor) or a coin jam in the distributor.

How to fix: Clear the coin jam; clean the sensors and see that they are well fastened. Collect all coins that can be found laying around the machine or coins that may cause jamming. To ensure the operation of the hoppers, check their contents and take off all unsuitable coin types.

531 Coin 1: Wrong hopper
532 Coin 2: Wrong hopper
533 Coin 3: Wrong hopper
534 Coin 4: Wrong hopper
535 Coin 5: Wrong hopper
536 Coin 6: Wrong hopper
537 Coin 7: Wrong hopper

Cause: (Faults 531-537) The inserted coin has landed in a wrong hopper. The coin acceptor is faulty (router controller solenoid) or a faulty cable between coin acceptor and coin acceptor controller board).

How to fix: Take out unsuitable coin from the hopper. Check the cables between coin acceptor and coin acceptor controller board. Insert all coin types into the coin slot, then check that coin acceptor and router route the coins to the right hopper or

cash box. Ensure the operation of hoppers and count the hopper contents—remove the unsuitable coin types.

541 Coin 1: Wrong cashbag
542 Coin 2: Wrong cashbag
543 Coin 3: Wrong cashbag
544 Coin 4: Wrong cashbag
545 Coin 5: Wrong cashbag
546 Coin 6: Wrong cashbag
547 Coin 7: Wrong cashbag

Cause: (Faults 541-547) The inserted coin has gone astray and landed in wrong cash bag. The coin acceptor is faulty (router controller solenoid) or a faulty cable between coin acceptor and coin acceptor controller board). This fault can occur only in models with a direct connection between coin acceptor and cash box.

How to fix: Take out unsuitable coin from the cash box. Check the cables between coin acceptor and coin acceptor controller board. Insert all coin types used into the coin slot, then check that coin acceptor and router route the coins to the right hopper or cash box.

549 Payout stopped
550 Pay to cash-box stopped

Cause: (Error codes 549-550): Probable cause is that someone is playing with the mains switch during pay operations.

How to fix: This is an informing fault code, not an indication of a fault. Power failure can cause inaccuracy of up to three coins in counters. The fault code helps in finding the reason for the counter inaccuracy. If the power failure occurs during payout, the player will lose up to three coins from the original win; the same coins are missing from the counters! If the black-out occurs during coin transfers to cash box, the coins will be missing from the cash box. In both cases the missing coins will be found in the hopper. Check that actual hopper contents match the hopper counter value.

551 Out of printer paper

Cause: There is very little paper in the machine's printer.

How to fix: Replace the paper roll with a new one; clear the fault code. Should the fault code occur in spite of this procedure, the low-paper-level sensor may be broken or in need of adjustment.

602 Internal error. Bus error
603 Internal error. Address error
604 Internal error. Illegal instruction
605 Internal error. Zero division error
608 Internal error. Privilege violation
609 Internal error. Trace error
610 Internal error. Line1010 emulation error
611 Internal error. Line1111 emulation error
612 Internal error. Hardware breakpoint error
613 Internal error. Spurious interrupt
614 Internal error. Format error
615 Internal error. Uninitialized interrupt

Cause: (Error codes 602-605, 608-815): 68330 processor exception processing. An unexpected event has been detected by the 68330 and exception processing has been done. A possible cause is a program fault.

How to fix: If the error occurs repeatedly, monitor the error statistics for other faults. If you need to report to technical support, specify the software and parameter version numbers.

620 - 626

Internal software error. Buffer overflow.

Cause: (Faults 620-626) There is a lot of communication between game module and the other modules. A software bug or a faulty device which does not stop sending messages.

How to fix: See if any of the devices is faulty. A faulty device may send other fault codes that can help in finding the fault.

627 Negative credits

Cause: It is very likely that fault codes 505, 506 or 507, indicating the replacement of cash memory copies, are displayed with this code. A copy of the cash memory has been corrupted and the data replaced with other data just in the middle of charging the credits; the result of the charge may be negative which will be displayed as an abnormally high figure. In this case, the figure transferred to reset wins and credits counter is very high.

How to fix: Check the correctness of counters and game settings. Are there very high coin values? If yes, the cash memory needs to be formatted. Contact technical support personnel for formatting the cash memory.

If fault codes 505, 506 or 507 are not displayed together with fault code 627, refer the situation to technical support personnel; tell them also the program and parameter version numbers.

628 Negative wins

Cause: It is very likely that fault codes 505, 506 or 507, indicating the replacement of cash memory copies, are displayed together with this code. A copy of the cash memory has been corrupted and the data replaced with other data just in the middle of charging the wins; the result of the charge may be negative which will be displayed as an abnormally high figure. In this case, the figure transferred to reset credits and wins counter is very high.

How to fix: If fault codes 505, 506 or 507 are not displayed together with fault code 628, refer the situation to service personnel; tell them also the program and parameter version numbers.

629 Win increment error

Cause: Program fault.

How to fix: Contact technical support personnel; tell them also the program and parameter version numbers.

630 Address error: Hopper
631 Address error: Coin distributor
632 Address error: Coin Acceptor
633 Address error: Reels

Cause: (Faults 630-633) Program tries to send a message to unacceptable address. Program or parameter fault.

How to fix: Check that DIL switches have correct settings. Write down the parameter version number; tell it to technical support personnel when you contact them.

634 Configuration error

Cause: The program tries to send a message to a device the location of which it does not know.

How to fix: Check that all devices are correctly connected. If the fault does reoccur, contact technical support personnel.

635 Extra hopper?
636 Extra distributor?
637 Extra coin acceptor?
638 Extra reel?

Cause: (Faults 635-638) The program has received a message from a circuit unknown to the parameters. If this fault occurs after the machine has been in operation for a long time, the PCB of the device is likely to be faulty.

How to fix: Replace the PCB in question. If the fault reoccurs, write down the parameter version number; tell it to technical support personnel when you contact them.

639 - 646 Internal software error

Cause: Error in the way the program operates. Try to locate a faulty board, broken cable or broken coin handling device. Usually, however, if the error occurs in some specific game phase it can only be fixed by repairing the program.

How to fix: Try to find out how the fault occurred. Describe how the fault happened, what is the situation now, write down all the fault codes, program and parameter memory version numbers and contact technical support.

649 Parameter error

Cause: The parameter board is faulty and all parameters can not be found or the parameter card should have been updated when the gaming software was.

How to fix: Check the parameter board. Replace if needed.

650 Internal software error

Cause: Error in the way the program operates. Try to locate a faulty board, broken cable or broken coin handling device. Usually, however, if the error occurs in some specific game phase it can only be fixed by repairing the program.

How to fix: Try to find out how the fault occurred. Describe how the fault happened, what is the situation now, write down all the fault codes, program and parameter memory version numbers and contact technical support.

651 Hopper 1 overpay
652 Hopper 2 overpay
653 Hopper 3 overpay
654 Hopper 4 overpay
655 Hopper 5 overpay
656 Hopper 6 overpay
657 Hopper 7 overpay
658 Overpay to cash-box, hopper: 1
659 Overpay to cash-box, hopper: 2
660 Overpay to cash-box, hopper: 3
661 Overpay to cash-box, hopper: 4
662 Overpay to cash-box, hopper: 5
663 Overpay to cash-box, hopper: 6
664 Overpay to cash-box, hopper: 7

Cause: (Faults 651-664) Because of software bug at least one extra coin has been paid out or paid to cash-box. (Refer to codes 451-457 which are caused by a faulty hopper or an external disturbance.)

How to fix: Write down program version number; contact technical support personnel.

665 - 718 Internal software error

Cause: Error in the way the program operates. Try to locate a faulty board, broken cable or broken coin handling device. Usually, however, if the error occurs in some specific game phase it can only be fixed by repairing the program.

How to fix: Try to find out how the fault occurred. Describe how the fault happened, what is the situation now, write down all the fault codes, program and parameter memory version numbers and contact technical support.

721 Old program version

Cause: There are properties in the parameters which the program cannot properly run, therefore the machine is out of order. If no fault code were displayed, and machine put in non-operative mode, it could be really difficult to find the faulty functions. The fault code prevents the use of the defective programs.

A requirement of a certain program version is set in the parameters; therefore, this fault occurs if the parameter version has been changed into an updated version but the program version has not.

Please note that the requirement of the program version is set in parameters only when there really is a reason for it. So the introduction of a new parameter version does not automatically mean you have to get also a new program version.

How to fix: Replace the old program version with an updated one.

723 Fault Anime - side (+ situation) sensor

724 Too many gate pulses

Cause: The gate sensor is oscillating or has not been properly fastened. To find the exact problem gate, see "Finding a Faulty Gate or Column" on page 2. It may also be that somebody is using the yo-yo coin or an another type of way of cheating.

How to fix: Test the gate sensors in Sensors test. If the sensor does not work, replace it. Make sure the gate sensor is tightly fastened.

725 Internal software error

Cause: Error in the way the program operates. Try to locate a faulty board, broken cable or broken coin handling device. Usually, however, if the error occurs in some specific game phase it can only be fixed by repairing the program.

How to fix: Try to find out how the fault occurred. Describe how the fault happened, what is the situation now, write down all the fault codes, program and parameter memory version numbers and contact technical support.

726 Column sensor block

Cause: The sensor below the column is broken or a coin is stuck in sensor. To find out, which column sensor exactly is broken see "Finding a Faulty Gate or Column" on page 2.

How to fix: Find and remove the stuck coin. Test the column sensor in sensor test. If the sensor does not work, replace it.

727 Distributor error

Cause: The coin distributor flap has been switched to wrong state. If the flap has been switched during pay to cash-box, the machine goes into non-operative mode. Otherwise the fault code will only be displayed in the fault statistics.

How to fix: Test the coin distribution in solenoid test. If the distributor does not work, replace it. If the distributor operates in a normal way an still the fault is repeated, it may be that somebody has switched the flap on purpose.

728 Free play error

Cause: Gates have paid wins out, but no money has been inserted in the machine. The gates may have paid out wins as the result of cheating.

How to fix: Test the gate sensors by sensor test. If a sensor does not work, replace it. Make sure the sensors are tightly fastened.

729 Coin stuck in gate

Cause: There is a coin jam in the game panel; the light rail below the gate is not in its place; a twisted or irregular coin has managed to get in the game panel. The gate sensor may also be broken or too loose. To find the exact problem gate, see "Finding a Faulty Gate or Column" on page 2.

How to fix: Remove coins causing coin jam and test the gate sensor by sensor test. If a sensor does not work, replace it. Make sure the light rails and sensors are tightly fastened.

730 Gate pulse error

Cause: The gate sensor oscillates or it is not well-fastened. To find the exact problem gate, see "Finding a Faulty Gate or Column" on page 2.

How to fix: Test the gate sensors by sensor test. If a sensor does not work, replace it. Make sure the sensors are tightly fastened.

731 Column payout stopped

Cause: The door has been opened or the machine power switched off while it is paying out coins from the coin columns. It may cause a counter error equal to the value of coins paid out; this is because the coins are assumed to have gone out.

How to fix: If the error occurs frequently and no-one has been playing with the mains switch, the error may be caused by a program fault. Contact RAYs technical support personnel.

732 Hopper payout stopped

Cause: The door has been opened or the machine power switched off while it is paying out coins from the hopper. It may cause an error in counters equal to the value of coins paid out, this is because the coins are assumed to have gone out.

How to fix: If the error occurs frequently and no-one has been playing with the mains switch, the error may be caused by a program fault. Contact RAYs technical support personnel

733 Column counter error

Cause: The sum of the coin column counters does not match counter 13 (game panel coin counter).

How to fix: The software fixes the error internally. Check in test Filling the Game Panel that the real situation corresponds to the coin column counter values. Fix if needed.

734 Exchange counter error

Cause: In a Payazzo, where the Game Panel contains two kinds of coins either one of the columns for exchange coins has unexpectedly filled.

How to fix: Make sure that counter 16 and counters for columns 7 and 8 correspond to the actual situation. Fix if needed.

735 Payout control PCB error

Cause: The IC, RAY 5092, used for controlling column payout in a column payout board, PCB 5172, is broken.

How to fix: Replace the column payout board if the error occurs frequently.

736 Internal software error

Cause: Error in the way the program operates. Try to locate a faulty board, broken cable or broken coin handling device. Usually, however, if the error occurs in some specific game phase it can only be fixed by repairing the program.

How to fix: Try to find out how the fault occurred. Describe how the fault happened, what is the situation now, write down all the fault codes, program and parameter memory version numbers and contact technical support.

737 Coin distributor error

Cause: The coin distributor below the hopper has not changed its position.

How to fix: Test the operation of the distributor. If it works in tests but not in normal operation, report to RAYs technical support personnel. If the distributor does not work in test either, replace it. If that does not help, replace the cabinet board.

738 Coin stuck: Hopper 1
739 Coin stuck: Hopper 2

Cause: (Fault codes 738-739): A coin is stuck in the hopper coin exit slot.

How to fix: Remove the jammed coin. If there is no jammed coin and the fault is repeated, report to RAYs technical support.

740 Column overpay error

Cause: An extra coin or some extra coins have gone out from a column.

How to fix: Test the operation of the columns and check that the column payout mechanisms are properly fastened. The column pins should hold the coins in the columns.

741 Column pulse missing

Cause: Payout has been attempted from an empty column.

How to fix: Fill the empty columns using service display's 2.Tests.

Cause: The sensor for that column is broken.

How to fix: Count the coins in the game panel. If it is less than the counter indicates, at least one of the sensors is broken. Use the sensor test to locate the faulty sensor. Replace the column payout board for that column.

742 No coins for payout

Cause: The software could not distribute the sum to be paid out to the available devices.

How to fix: If both hopper and coin columns are empty, there are no coins to pay out; then, fill the hopper and columns. If, however, the counters show that enough coins are available, report the error to RAYs technical support personnel.

743 Column payout error

Cause: Payout from coin columns did not succeed.

How to fix: Test the coin column payout mechanisms. If everything works fine and the game panel is not empty the error may have been caused by a program fault. In such case, contact technical support personnel.

744 Column payout error

Cause: One of the columns has repeatedly failed in payout. The column payout mechanism is defective or coins fall through the column.

How to fix: Make sure the column payout mechanisms are securely fastened. Test the mechanisms. Replace defective units.

745 Fatal start-up error

Cause: A fatal fault is found during initial self tests. This fault prevents the starting of normal game operations.

How to fix: Check all cables, also make sure that the memory boards are properly placed.

746 Slammer: Coin error

Cause: The software has detected an improper coin in the slammer.

How to fix: Try to find the faulty coin, either in the game panel or in the slammer, and remove it. Check also the coin acceptor and its cables.

747 Dispenser error

Cause: The dispenser is empty and the machine could not give playing coins for the player. The dispenser sensor did not detect a dispensed coin.

How to fix: Check, that the elevator works and coins are not stuck somewhere along the internal coin cycle. Check also the operation of the dispenser sensor.

748 Column counter error

Cause: The software has unexpected difficulties in placing the coin in column coin counters.

How to fix: Fill the game panel.

7 Maintenance & Replacement

In this chapter you will find instructions for

- maintenance.
- replacing devices.
- replacing PCBs.

7.1 Three-Level Service Method

The three-level service method is based on **regular maintenace with the idea to prevent malfunctions before they occur.** It is known that usually lamp bulbs last X weeks, therefore, all lamp bulbs — also the ones that still work— of a site are replaced every Xth week. Should the lamp break down before the regular maintenance time, it has to be replaced.

It is also a good idea to service all machines of the same site during one visit.

The 1st Level Service

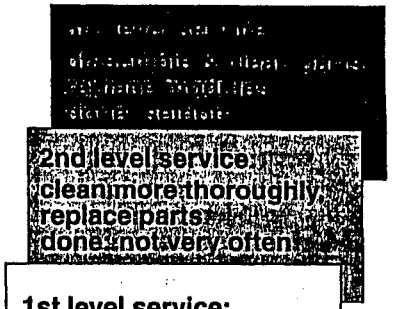
is general in its nature and done in intervals of about 30 000 games. All areas and parts are checked, but nothing very time-consuming is done. Some examples: surface cleaning, testing of wearing parts and parts that are in constant use, for example, coin acceptors.

The 2nd Level Service

is more thorough and extensive than the 1st, it is performed in intervals of about 100 000 games. All tasks of the 1st level are included in the 2nd level and some more are added.

The 3rd Level Service

is very thorough and done in intervals of about 300 000 games. Large modules are replaced, even when they are not broken. It includes all procedures of the lower levels.



7.1.1 1st level service (30 000 games)

- Clean the coin acceptor and test its functions. Always remove coin acceptor before cleaning.
- Examine hopper's condition and check the approximate number of coins in hopper. Compare the number with hopper counter.
- Clean cabinet from the outside; wash the glass from the outside. For detailed information about cleaning and washing, see "Clean the Cabinet" on page 7-3.
- Check the safety of electrical appliances and connections: make sure the connectors, cables and mains cable are in good condition and the machine is well-grounded and fitted to the wall or floor.
- Run sensor test; see "Sensor Test" on page 3-4.
- If you wish to test hopper you must use the hopper contents test for it, because there is no separate payout test; see "Hopper Contents" on page 3-4.
- Check that the door locks well.

7.1.2 2nd level service (100 000 games)

- Clean and wax the game panel.
- Clean slammer.
- Replace coin acceptor.
- Empty and clean the hopper; count the coins in hopper, do not dissemble it. To count the coins, you can use hopper contents test, see "Hopper Contents" on page 3-4. Compare the number of coins in hopper you get in this test with hopper counter. If there are too many or too few coins in hopper, correct the situation using hopper counter settings (+ and -) in menu; see "Hopper counter +" on page 3-5.
- Clean the cabinet both from the inside and outside.

7.1.3 3rd level service (300 000 games)

- Carefully check the hopper's condition. Is it worn out? The average life-time of hopper is about 500 000 coins paid out.
- Replace the hopper, if necessary.
- Replace the tokens when they are worn-out.

7.2 Some Service Procedures

7.2.1 Clear Coin Jams

Coin jams are usually found in these places:

- coin entry,
- coin acceptor
- the space between coin acceptor and coin chute,
- hopper.

Coin Chute Alignment Screw

A coin chute alignment screw has been added to support the coin chutes and to prevent coin jams. To find coin chute alignment screw, see "Some Parts Used in Service" on page 1-6.

Jam in Coin Acceptor, Router or Coin Chute

To clear coin jams, try the following:

- Remove reject chute.
- Remove coin acceptor with router. If the coins are jammed between the router and the coin chute, first remove the coin chute to hopper and cash-box.

NOTE! Coins may fall to floor when coin chute is removed.

- Knock acceptor/router gently with finger to loosen coins jammed inside.
- Turn the acceptor/router upside down or shake it. If this does not loosen the coins, separate acceptor from router.
- Try shaking the acceptor/router again.

7.2.2 Tilt the Tilt Frame

NOTE! Do not open the glass holder before tilting the frame (follow instructions!). Otherwise all tokens may fall out of their places.

- Open the door.
- Switch power off!
- Remove the reject chute, see "Reject Chute" on page 7-4.
- Remove the slammer, see "Slammer" on page 7-5.
- Disconnect the coin acceptor cables from Door PCB. Then put them on top of the cabinet to get them out of way.
- A flat cable comes from CPU-Mother PCB. That cable is fastened with two clamps: one on the door and one on the cabinet side; the cabinet side clamp also fastens a black modular cable. Open both clamps.
- Unconnect the flat cable from PCBs on the door side and put it in the cabinet for protection. The black modular cable does not have to be unconnected, it should be enough to open the clamp on the cabinet side (it should

be open by now).

- On the right side of cabinet, turn the tilt support bracket down, for locating tilt support bracket, see "Some Parts Used in Service" on page 1-6.
- Open the lower tightening nuts so much as to allow the screws drop from the slots and hang loosely.
- With one hand, hold the game panel and frame in upright position; open the upper tightening nuts so much as to allow turning the screws aside, either left or right, out of slots.
- Slowly lower the frame to rest against the tilt support bracket. Make sure the corner of tilt frame places itself in the slot of tilt support bracket.
- Raise tilt frame to upright position in reverse order.

7.3 Clean the Payazzo

7.3.1 Clean and Wax the Game Panel

NOTE! About the wax to be used: use one-purpose polishing wax or multipurpose cleaning and conditioning wax that suits stainless steel, chromium and anodized surfaces — the game panel is anodized.

- Turn the tilt frame with game panel down to service position and remove glass according to instructions, see "Glass" on page 7-6.
- Remove tokens from the coin cycle.
- Remove all plastic rails from the panel, also remove guides below gates; see "Some Parts Used in Service" on page 1-6. Take them out in such an order that you will remember how to put them back.
- If the game panel is very dirty and you are about to use a non-cleaning polishing wax, first clean the panel with a cloth dampened in cleaning detergent.
- When the surface of the panel is clean and dry, rub in with a waxing cloth an even, thin layer of wax.
- Polish the face of the panel with clean cloth.
- Clean the rails and place them back.
- Place the guides.

7.3.2 Wash the Glass

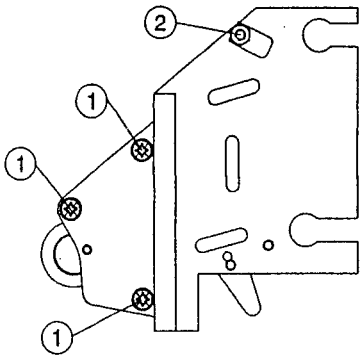
- Remove the glass according to instructions; see "Glass" on page 7-6.
- Wash both sides with washing liquid (for cleaning windows) by spraying it on the surface of the glass.
- Dry the glass with an absorbent cloth.

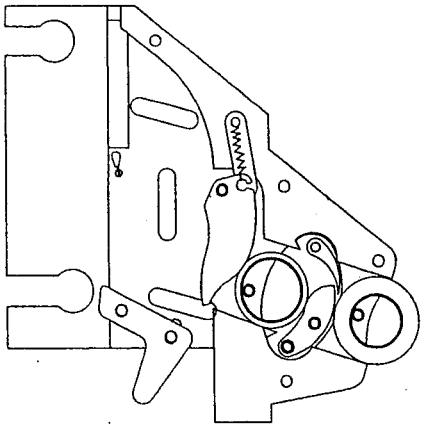
7.3.3 Clean the Cabinet

NOTE! Do not use any liquids to clean the inside of the cabinet.

- Outside: Dampen a cloth in window cleaner liquid and clean the outside of the cabinet. Wax and polish the parts that easily get dirty.
- Inside: Clean the cabinet with a vacuum cleaner. Put a dusting brush in the mouth of the extension pipe of the vacuum cleaner.

7.3.4 Cleaning the Slammer





- Remove the slammer from cabinet, see "Slammer" on page 7-5.
- Open the screws that keep the slammer parts together: parts number 1 ja part number 2.
- Open the slammer.
- Clean all loose parts, replace if necessary.
- Clean and wax the coin route. For cleaning the edges, use, for example, a clean wooden stick. Polish with clean cloth.
- Assemble the slammer. Look at the figure above.
- Make sure coins go through it.

7.4 Replace a Device, Part or PCB

Before you begin replacing a device or a PCB, remember to use electrostatic discharge (ESD) protection.

Remember also to switch the power off before replacing anything.

NOTE! It is a good idea to use a grounding bracelet each time you open the door and are about to handle the machine parts. If there are no bracelets, discharge your body's electric charge by touching a grounded metal part. Do this especially before touching a PCB, since they are so easily damaged with ESD.

7.4.1 Reject Chute

To Remove the Reject Chute

- Open the door.
- Switch power off!
- Open the screw tightening the chute.
- Remove the chute.

To Mount the Reject Chute

- Set the reject chute into its place, put bottom end first.
- Attach the chute into the tilt frame with a screw.
- Turn the power on.
- Close and lock the door.
- Make sure the game can be played normally.

7.4.2 Coin Acceptor

The coin acceptor module is an entity meant to be replaced all at once. It includes a coin acceptor, a router, a plastic holder for the acceptor and a mounting plate into which the acceptor module is nested.

To Remove Coin Acceptor

- Open the door.
- Switch power off!
- Remove the reject chute, see "Reject Chute" on page 7-4.
- From PCB side, unconnect the cables connected with coin acceptor.
- Find a large screw fastening the coin acceptor mounting plate on the right hand side of the coin acceptor. Open it with hands.
- Pull the mounting plate towards yourself and turn it to left; the plate will open like a door on its hinges.
- Lift the plate out of its hinges.

To Mount the Coin Acceptor

- Make sure the coin acceptor module is fully assembled and no parts are missing.
- Connect the cable to door board, PCB 5170.
- Put the mounting plate into its place so that the metal protrusions go into the slots on the left, close the plate like a door and make sure it is in its place.
- Attach the plate into the cabinet with the screw.
- Mount the reject chute; see "Reject Chute" on page 7-4.
- Turn the power on.
- Close and lock the door.
- Make sure the game can be played normally.

7.4.3 Coin Entry

To Remove Coin Entry

- Open the door.
- Switch power off!
- Remove the reject chute, see "Reject Chute" on page 7-4.
- Remove the coin acceptor from door, see "Coin Acceptor" on page 7-4.
- Open the screws that fasten the coin entry.
- Remove coin entry.

To Mount Coin Entry

- Put coin entry into its place above the door.
- Fix the coin entry with two screws. Make sure you put the ground wire under the other screw.
- Put the coin acceptor into its place, see "Coin Acceptor" on page 7-4.
- Mount the reject chute to its place, see "Reject Chute" on page 7-4.
- Turn the power on.
- Close and lock the door.
- Make sure the game can be played normally.

7.4.4 Slammer

To Remove the Slammer

- Open the door.
- Switch power off!
- Remove the reject chute, see "Reject Chute" on page 7-4.
- Pull out the locking plate as far as it goes, about 1 cm; it will not come out. It is used to fasten the slammer shield by locking the shield lock screws. Pull hard enough to release the lock screws.
- From the cabinet side, with fingers, push the shield lock screws out of the holes in the door.
- Take away the shield fastening the slammer.
- Open the nuts holding the slammer.
- Remove the slammer from door. You probably will have to hold the solenoid with one hand to help get the slammer out. To prevent it hanging loose, you may want to hang the solenoid mounting bracket in some wires in the door.

To Mount the Slammer

- Put the slammer in its place. You probably will have to hold the solenoid with one hand to help get the slammer in.
- With fingers, tighten the two nuts holding the slammer.
- Put the slammer shield lock screws through the holes in door and push the shield into its place.
- Push the locking plate to lock the shield lock screws.
- Mount the reject chute to its place, see "Reject Chute" on page 7-4.
- Turn the power on.
- Close and lock the door.
- Check that the slammer works by playing some test games.
- Make sure the game can be played normally.

7.4.5 Glass

NOTE! To avoid damages caused by, perhaps broken, glass, always handle it with care.

To Remove Glass

NOTE! Do not open the glass holder before tilting the frame (follow instructions!). Otherwise all tokens may fall out of their places.

- Open the door.
- Switch power off!
- Remove the reject chute, see "Reject Chute" on page 7-4.
- Remove the slammer, see "Slammer" on page 7-5.
- Disconnect the coin acceptor cables from Door PCB. Then put them on top of the cabinet to get them out of way.
- A flat cable comes from CPU-Mother PCB. That cable is fastened with two clamps: one on the door and one on the cabinet side; the cabinet side clamp also fastens a black modular cable. Open both clamps.
- Unconnect the flat cable from PCBs on the door side and put it in the cabinet for protection. The black modular cable does not have to be unconnected, it should be enough to open the clamp on the cabinet side (it should be open by now).
- On the right side of cabinet, turn the tilt support bracket down.
- Open the lower tightening nuts so much as to allow the screws drop from the slots and hang loosely.
- With one hand, hold the game board and frame in upright position; open the upper tightening nuts so much as to allow turning the screws aside, either left or right, out of slots.
- Slowly lower the frame to rest against the tilt support bracket. Make sure the corner of tilt frame places itself in the slot of tilt support bracket.
- Open the nut on the glass holder bracket on top of the tilt frame.
- Swing the bracket from top of the glass.
- Remove the glass by carefully lifting it.

To Mount Glass

Before placing the glass, make sure that:

- all rails are on places
- the mounting tags of the plastic rails are in the respective holes.

- Hold the glass from both sides and put it on the game board. Try not to make any fingerprints.
- Align the glass with the board. All edges of the glass should fit within the board. Make sure that the glass stays under the board even on the slammer side.
- Check that the glass and the game board are centered with regard to the tilt frame.
- Also check that the rails are set.
- Turn the glass holder on. This should be easy and done without violence. If you think the holder does not go on the glass, make sure the rails are on their places and no coins are jammed between the board and glass.
- Tighten the screw of the glass holder with fingers.
- Carefully lift the frame to upright position.
- With one hand, hold the game board and frame in upright position; turn the upper screws into slots. Tighten the nuts just enough to hold them in place.
- Turn the lower tightening nuts in the tilt frame slots and tighten them.
- Finish tightening the upper nuts.
- Turn the tilt support bracket up on the right side of cabinet.
- Fasten the flat cable coming from CPU-Mother Board to Door Board.
- Put the flat cable and the black modular cable in clamps and fasten the clamps.
- Mount the slammer to its place, see "Slammer" on page 7-5.
- Connect coin acceptor cables to door board.
- Mount the reject chute to its place, see "Reject Chute" on page 7-4.
- Turn the power on.
- Close and lock the door.
- Make sure the game can be played normally.

7.4.6 CPU-Mother Board

To Remove CPU-Mother Board

- Open the door.
- Switch power off!
- Unconnect all cables and wires to CPU-Mother PCB.
- Break the seal according to instructions.
- Open the door of CPU-Mother board box by pulling the screw.
- Open the screw fastening CPU-Mother board to box.
- Turn the guides open on the left corners of the PCB.
- Unconnect the PCB from the cash memory connector on the left by sliding the board to left. Slide it just enough to align the PCB slots on top of the board with the white guide rails.
- Carefully pull the board out of the box.

To Mount CPU-Mother Board

- Carefully put the CPU-Mother PCB to the box. First, set the board to guide rails on the bottom of the box, then, align the top edge slots of the board with the white guide rails. Finally, slide the board and connect it with the cash memory card's connector on the right. The place is correct when the board is connected to the cash memory card and the place of the screw aligns with the board's slot.
- Tighten the board to box with screw.
- Connect cables and wires to board. See cable layout.
- Close the box door.
- Turn the power on.
- Close the door.
- Test the board. If no faults are found during testing, the box can be sealed.

NOTE! Test the CPU-Mother PCB before sealing the box.

- Seal the box according to instructions.
- Close and lock the door.
- Make sure the game can be played normally.

7.4.7 Cash Memory Board

To Remove Cash Memory Board

- Open the door.
- Switch power off!
- Unconnect all cables and wires to CPU-Mother PCB.
- Break the seal according to instructions.
- Open the door of CPU-Mother board box by

pulling the screw.

- Open the screw fastening CPU-Mother board to box.
- Turn the guides open on the left corners of the PCB.
- Unconnect the PCB from the cash memory connector on the left by sliding the board to left. Slide it just enough to align the PCB slots on top of the board with the white guide rails.
- Carefully pull the board out of the box.
- Open the four (4) nuts fastening the cash memory board to box.
- Remove cash memory board.

To Mount Cash Memory Board

- Put the cash memory card in its place.
- Fasten it with nuts.
- Carefully put the CPU-Mother PCB to the box. First, set the board to guide rails on the bottom of the box, then, align the top edge slots of the board with the white guide rails. Finally, slide the board and connect it with the cash memory card's connector on the right. The place is correct when the board is connected to the cash memory card and the place of the screw aligns with the board's slot.
- Tighten the board to box with screw.
- Connect cables and wires to board. See cable layout.
- Close the box door.
- Turn the power on.
- Close the door.
- Test the board. If no faults are found during testing, the board can be sealed.

NOTE! Test the CPU-Mother PCB before sealing the board.

- Seal the board according to instructions.
- Close and lock the door.
- Make sure the game can be played normally.

Appendices

Appendix A Cash Memory Reset

The machine allows you to reset the cash memory circuits only if the machine is out of order because of fault code 500, Cash memory corrupted. Then you are allowed to run the RESET CASH MEMORY under SETTINGS in the Service Display.

To reset cash memory:

1. **Write down the counters or collect money.**

Use the optical reader, if possible, for taking in counter data; otherwise, just write the counters down with pen and paper.

Collect the money from the machine.

2. **Write down the following values and settings:**

- coin denominations in SETTINGS/MONEY VALUES,
- settings checksum in SETTINGS/CHECKSUM,
- game options (option bits) in SETTINGS/CHECKSUM.

Look at the values, do they make sense, because they can also be corrupted. That may have been caused by storing the values in a corrupted cash memory.

3. **Reset cash memory in** SETTINGS/RESET CASH MEM.

4. **Make sure that the cash memory values are now correct and uncorrupted. Correct the values, if needed.**

- hopper limit in SETTINGS/HOPPER LIMIT.
- coin denomination values in SETTINGS/MONEY VALUES.
- settings checksum in SETTINGS/CHECKSUM.
- game options (option bits) in SETTINGS/CHECKSUM. If the value is incorrect or corrupted, go to SETTINGS/GAME OPTIONS. There you can change all game option values. The most important options can be set separately.

5. **Increase or decrease hopper counter setting**

6. **Collect money again.**

Use the optical reader, if possible. Collect the money from the cash box, if it has not been done yet.

Appendix B Coin Flow

Table 1: Game Panel Tokens (ICC)

Token	Amount
1	53 tokens

Table 2: Hopper contents

Hopper	Initial fill = initial value
100 pts	200 x 100 pts = 200 coins

Initial values

Take down values of Counters 1 - 4 as initial values.

Counters in Payazzo

The Counters are explained in Appendix E.

Appendix C To Collect Coins

Before Collecting Coins — All Cases

- Switch on the machine power to be able to read the electronic counters.

Collection with Optical Reader

1. Open cabinet door.
2. Push button 1 of the service display to display the first three counter values. The optical transmitter will start sending counter data.
3. Read counter data with the optical reader. This data includes machine identification number (ID) and counter values.
4. Read the cash bag identification number with the reader.
5. Replace the cash bags.
6. We suggest you put the ticket or paper you use for cash bag identification in the cash bag. It is also a good idea to lock the bags.

NOTE! Should problems occur in optical reading, follow the instructions for collection without an optical reader. Where possible, use the reader instead of pen and paper and enter data using reader buttons.

Collection without Optical Reader

1. Open the cabinet door.
2. Write down the machine ID number.
3. Look at the counters with the Service Display.
4. Write down all counters displayed or at least counters 1 - 4.
5. Empty the cash-box into a bag.
6. We suggest you put the ticket or paper you use for cash bag identification and writing down the counters into the cash bag. It is also a good idea to lock the bags.

After Collecting Coins — All Cases

To ensure profitable operation of the machine, remember to:

- Close and lock the doors.
- Make sure that after collection the machine operates normally and can be normally played.

Appendix D Optical link

Counter data, sent from the optical connection, has the following format (one data block):

```
>>>>A1C01A0BA281A@A
:Aut: Atun 12346;OVI 9;SYY 14;PVM
200594;KLO 1119
:Aut:La 1 1530-9
:Aut:La 2 30-1
:Aut:La 3 0-0
:Aut:La 4 0-0
:Aut:La 5 0-0
:Aut:La 6 0-0
:Aut:La 7 1500-8
:Aut:La 8 0-0
3B8B
```

The same data block is transmitted again and again until you close the door or the machine is no more in the Read Counters Mode.

Counter history data, sent from the optical connection, has the following format (38 data block):

```
>>>>A1C01A0BA281A@@
:Aut: Atun 12346;OVI 10;SYY 8;PVM
200594;KLO 1149
:Aut:La 1 1530-9
:Aut:La 2 30-1
:Aut:La 3 0-0
:Aut:La 4 0-0
:Aut:La 5 0-0
:Aut:La 6 0-0
:Aut:La 7 1500-8
:Aut:La 8 0-0
17DB
```

(1.) BLOCK

```
>>>>A1C01A0C15C1AA@
:Aut: Atun 12346;OVI 10;SYY 8;PVM
200594;KLO 1149
:Aut:La 9 500-5
:Aut:La 10 0-0
:Aut:La 11 0-0
:Aut:La 12 0-0
:Aut:La 13 630-5
:Aut:La 14 30-1
:Aut:La 15 0-0
:Aut:La 16 400-6
E516
```

(2.) BLOCK

:etc:

```
>>>>A1C01A0496A3CfA
:Aut: Atun 12346;OVI 1;SYY 8;PVM
160594;KLO 1410
:Aut:La 4 0-0
04AB
```

(38.) BLOCK

The data blocks are transmitted every less than a second until the last block is transmitted. After this the transmissions automatically begin from the beginning. Close the door or exit from the Read Counters Mode to stop the data transmission.

The opening identifier of the transmission consists of the following fields:

```
     A    B  C  D E
>>>>A1C01A0B90A1A@@
```

A: Initial characters
B: Length of the block (from C till the end without the crc counted over whole block)
C: Initial crc
D:Block identifier
(@=first,A,B,C, etc.)
E: Block type
(@=normal block, A=last block)

After each counter, divided by a hyphen, there is checksum of the counter.

A crc checksum, counted over the whole block, is the last in the transmission block. The checksum counting includes opening identifiers's fields D and E.

If the machine is in local collection mode, the text *vip* is displayed in the data field:

```
>>>>A1C01A0BD2BDA@@
:Aut:vip;Atun 12346;OVI 11;SYY 8;PVM
200594;KLO 1229
```


Appendix E Counters

Counter	Description	Unit	type
1	Total money in hoppers	pts	current
2	Total money in	pts	cumulative
3	Total money out	pts	cumulative
4	Total coins to cashbox	pts	cumulative
5	25 pts coins in	pts	cumulative
6	Total money in hopper 1 (100 pts hopper)	pts	current
7	100 pts coins in	pts	cumulative
8	100 pts coins out	pts	cumulative
9	100 pts coins to cashbox	pts	cumulative
10	Total hopper fillings	pts	cumulative
11	Total hopper withdrawals	pts	cumulative
12	Total money played	pts	cumulative
13	Total wins	pts	cumulative
14	Total number of played games	pcs	cumulative
15	Door openings	pcs	cumulative
16	Credits cleared due to malfunctions	pts	cumulative
17	Long term payout ratio	%	
18	Short term payout ratio	%	
19	Minimum hopper contents (H1)	pts	0

Appendix F Game Options

Table 3: Game Options

Option	Option OFF	Option ON
1	X	
2	X	
3	X	
4	X	
5	X	
6	X	
7	X	
8	X	
9	X	
10	X	
11	X	
12	X	
13	X	
14	X	
15	X	
16	X	
17	X	
18	X	
19	X	
20	X	
21	X	
22	X	
23	X	
24	X	
25	X	
26	X	
27	X	
28	X	

Table 3: Game Options

Option	Option OFF	Option ON
29	X	
30	X	
31	Must be OFF. Defines the availability of LCF Link.	
32	Operator cash flow. Collection mode in which the operator collects the money from the cash-box.	Local coin flow. Collection mode in which the site owner collects the money from the cash-box. Using this mode requires that the cashbox is located outside the main cabinet.
33	Different coin types are distributed from hoppers to different cash bags.	All coins—whether they are of same or different coin type—are distributed from hoppers to the same cash bag.
34	X	
35	X	
36	X	
37	Block sensor alarm is heard as a howling noise, the machine tilts or goes into Non-operative Mode.	Block sensor alarm is not heard as a howling noise, but is displayed as a fault code of info level. The machine stays in Normal Play Mode.
38	Dew sensor alarm is heard as a howling noise, the machine tilts or goes into Non-operative Mode.	Dew sensor alarm is not heard as a howling noise, but is displayed as a fault code of info level. The machine stays in Normal Play Mode.
39	Main menu is displayed as usual.	Coin reject % is always displayed with the main menu.
40	Option must definitely be OFF when a printer which does not work after **paper end signal** is used. When paper runs out, the machine will immediately go into Non-operative Mode. At the same time, it will store all players credits and wins into Debits.	
41	X	
42	X	
43	X	

Table 3: Game Options

Option	Option OFF	Option ON
44	X	
45	The fault level of fault codes 430, 438 and 439 is TILT (T or t in service display).	The fault level of fault codes 430, 438 and 439 is INFO (i in service display).
46	The possible note acceptor in the machine is SMILEY's 4-note model.	The possible note acceptor in the machine is SMILEY's 5-note model.
47	X	
48	X	
49	X	
50	X	
51	Machine hopper type is Seiko WH-2X.	Machine hopper type is Compact.
52	X	
53	X	
54	X	
55	X	
56	X	
57	X	
58	X	
59	X	
60	X	
61	X	
62	X	
63	X	
64	X	

Appendix G Replacing CPU-Mother Board, Cash Memory Board or Cash Memory Integrated Circuit

The CPU-mother board and the cash memory board have memory circuits (ICs) in which the cash box counters of the machine are stored. For the security of the important counter data, it is essential to replace these boards very carefully and according to these instructions.

NOTE! During the same power off, only one board must be replaced at a time.

Before replacing any of these boards, make sure the appropriate fault code suggests replacing the board. Faults found in the surface mounted boards can usually be repaired only with special tools; do not attempt to repair boards on site.

NOTE! Before you can change any of these components, you need to break the seal that ensures the integrity of the software and counters. The authorizations and procedures involved in breaking and replacing the seal are beyond the scope of this document.

How to Replace the CPU-Mother Board

- Open the service door. Turn the power off!
- Extract and insert the CPU board according to this manual, see "CPU-Mother Board" on page 7-7.
- After the replacement, turn the power on.
- **Wait until the machine is in Normal Play Mode.** The wait is essential because the processor needs enough time for copying the contents of the cash memory circuit to the new CPU-mother board.

How to Replace the Cash Memory Board

- Open the service door. Turn the power off!
- Extract and insert the cash memory board according to this manual, see "Cash Memory Board" on page 7-7.
- Extract the ***cash memory circuit*** of it's socket on the old cash memory board. Refer to How to Replace the Cash Memory Circuit below.
- Insert it in the new cash memory board. If there is a new memory circuit on the board, remove it first. The old counters of the machines are stored in the old cash memory circuit, therefore the old cash memory circuit must be used in the new board.
- After the replacement, turn the power on.
- **Wait until the machine is in Normal Play Mode.** The wait is essential because the processor needs enough time for copying the contents of the cash memory circuit to the new CPU-mother board.

How to Replace the Cash Memory Circuit

The cash memory integrated circuit (IC) of the cash memory board can be replaced only if during the same power off no CPU-mother board or cash memory board is replaced.

For removing the cash memory integrated circuit you need ***an IC extractor and inserter***, a special tool designed to simplify the extration and insertion of the circuits without damaging boards.

NOTE! Using wrong tools can damage the cash memory board.

We suggest you to remove the cash memory circuit in the following way:

- Open the service door. Turn the power off!
- Open the cover of the CPU-mother board box.
- Grab the old cash memory circuit with the extractor and pull it out ***carefully***.
- Replace the old cash memory IC with a new cash memory circuit.
- Close the CPU-mother board box cover.
- Turn the power on.
- **Wait until the machine is in Normal Play Mode.** The wait is essential because the processor needs enough time for copying the contents of the cash memory circuit to the new CPU-mother board.