



SPANISH HORIZON TECHNICAL MANUAL FOR MACHINE GOLD STRIKE

ISSUE 1.0

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WARNING

This manual contains important information on the operation and safe use of the Horizon cabinet. The games housed in this cabinet employ several new features including serial coin / note handling. Many of the parts from the Genesis range of cabinets are not directly compatible with this equipment and need to be modified before they can be used.

CONTADORES ELECTRONICOS

ABRIR MAQUINA, APRETAR BOTON IZQUIERDO COBAR BANCO

GIRAR LLAVE, CERRADURA QUE ESTA FUERA DE LA

MAQUINA, SALTAR EN EL DISCO DE LA MAQUINA

LAS ENTRADAS Y SALIDAS DE LA MAQUINA



Introduction

The equipment to which this manual refers includes matters protected by patents in the United Kingdom and abroad.

The purpose of this manual is to assist on-site technical service. It is divided into sections: the first section provides information required about the game and the correct operation of the machine, whilst the remaining sections provide technical support in respect of understanding the operations carried out by the machine and, if necessary, being in a position to repair it should there be any kind of failure.

Please do not hesitate to call technical service for further information if, after having consulted the support manual, a failure should persist.

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Warning:

Some internal parts of the machine carry 220 volts. Servicing should only be carried out by qualified personnel. Disconnect the machine prior to touching the inside.

CE

2004/108/EC The EMC Directive
2006/95/EC The LVD Directive

Certain parts of these units generate high voltages during normal operation. Technical service should only be carried out by qualified persons. The prevention of electric shock is recommended: do not connect the machine until it has been inspected and properly earthed. The machines should only be connected to a single earth connector.

To prevent electric shock it is recommended that the machine be disconnected from the supply source prior to removing or repairing any part.



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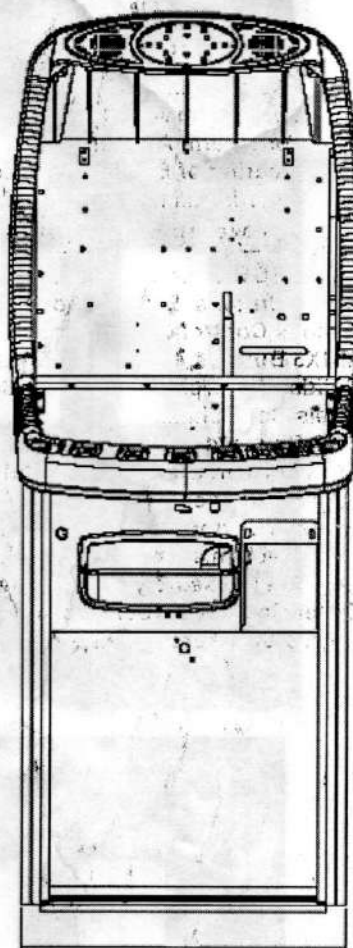
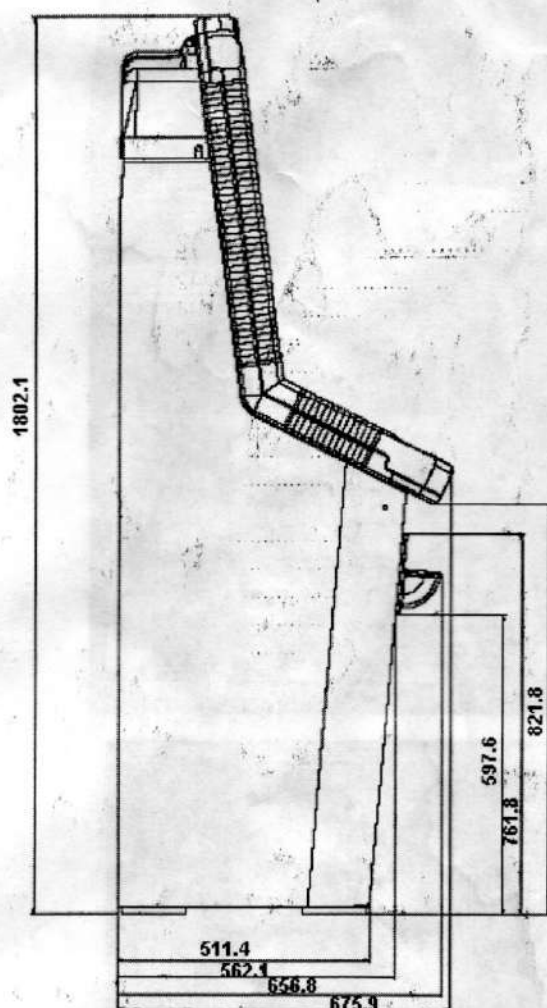
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Section 1: Game Description of Machine Gold Strike

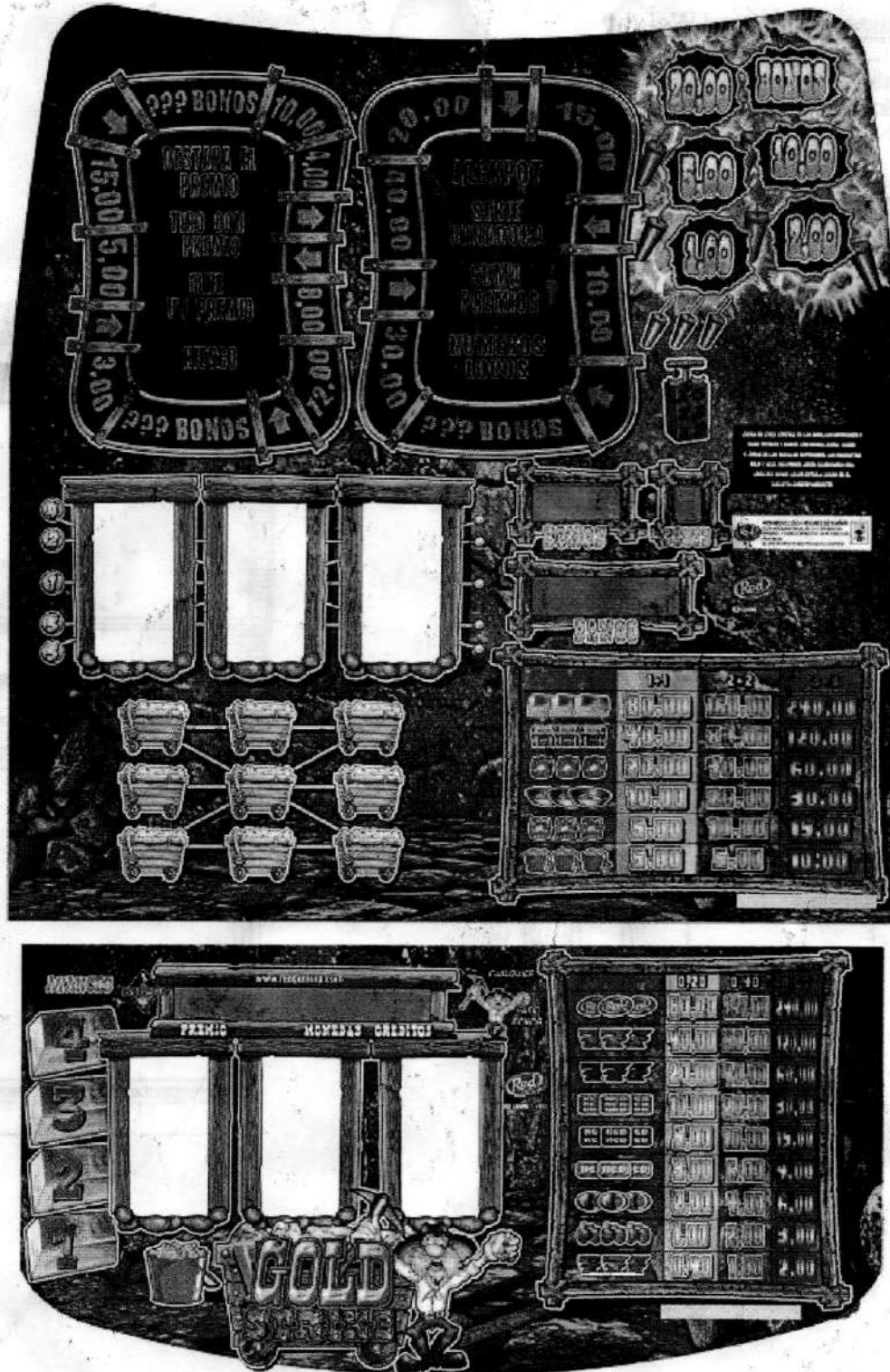
1.1 Dimensions and Weight

- ☐ Height: 1802mm.
- ☐ Width: 650mm.
- ☐ Depth: 675mm.
- ☐ Weight: 120kg. (Max.)





1.2 Spanish Gold Strike Machine Artwork





1.3 Spanish Gold Strike Reel Band Artwork

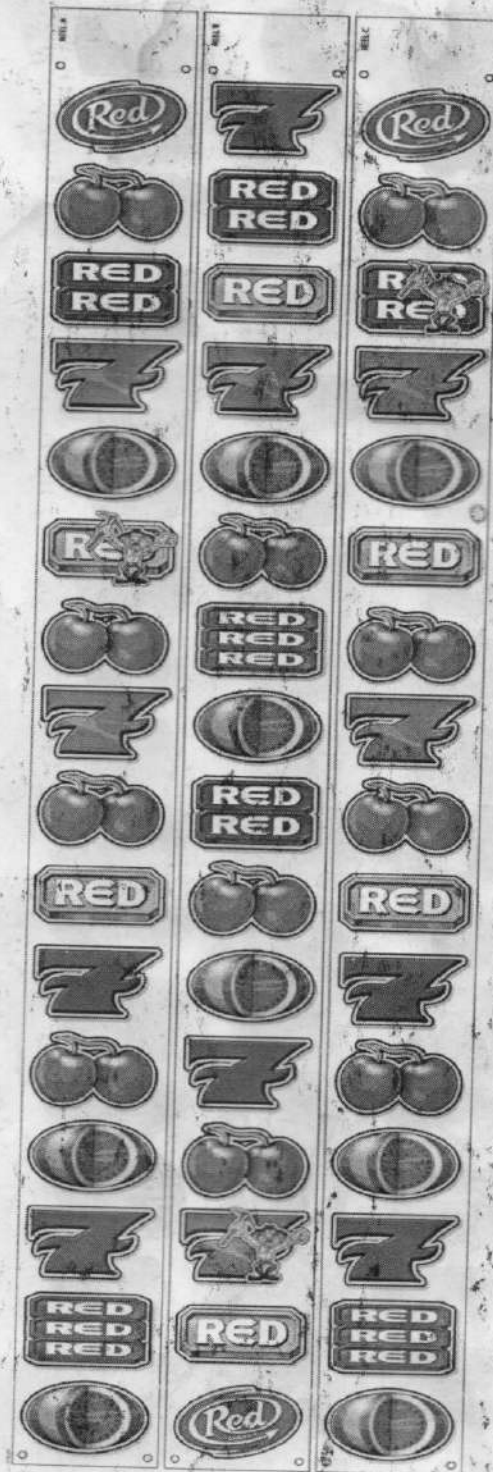
TOP REEL BANDS





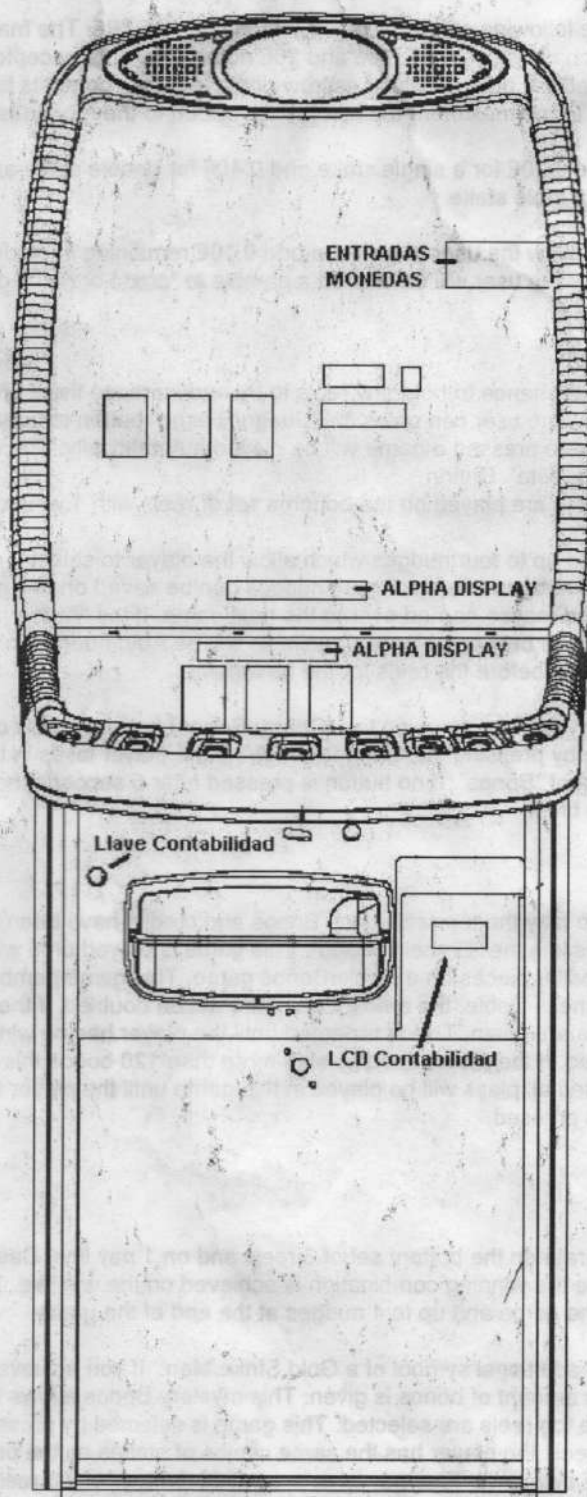
1.3 Spanish Gold Strike Reel Band Artwork

BTM REEL BANDS





1.4 Diagram showing coin mech, alpha display, LCD meters and refill lock





1.5 Game Description

1.5.1 General Description of "Gold Strike" Machine

The machine accepts the following coins: 0,10€ / 0,20€ / 0,50€ / 1€ / 2€. The machine can also be fitted with a note acceptor which can accept 5€, 10€ and 20€ notes. The note acceptor can have 2 modes of operation, where permitted the note is held in escrow until the player commits to play the machine, the credit is accumulated up to the maximum the rest is then added to the monedas.

The cost per game will be 0,20€ for a single stake and 0,40€ for double stake and as a option in regions where allowed 0,60€ for a triple stake.

The machine will always allow the user to collect a odd 0,10€ remaining in credit or in regions which permit, if there is no 0,10€ hopper the user will be offered a gamble to "credit or nothing".

Main game

The user may be offered a chance to hold any reels to try and increase there chance of wining (no more than 2 reels can be held). The user can press the "Juego/Riesgo" button to begin the game. If after 5 seconds no button has been pressed a game will be played automatically. The stake can be selected by pressing the "Cambia Apuesta" Button.

All stakes in the main game are played on the bottoms set of reels with 1 winline.

The player may be offered up to four nudges which allow the player to select a reel to move, this moves the reels up to the number of nudges offered. These nudges can be saved once if not used by pressing the "Juego/Riesgo" button and maybe carried over to the next game. If the "AutoAvances" button is pressed when nudges are offered the best combination available will be Auto nudged in. This game may also offer the chance to hold the reels before the reels for the next game.

The player can collect any wins by pressing the "Cobrar Banco" button or may choose to gamble any wins up to the maximum prize by pressing the "Juego/Riesgo". If the player loses in the gamble they maybe offered a random amount of "Bonos". If no button is pressed after 5 seconds the amount won will be automatically paid to the bank.

Top game

The player can choose to play the top reels once Bonos and credits have been gained. The player selects the top reel game by pressing the "Cambia Juego". This game is played on 5 win lines. Any wins from this game are gambled in smaller pieces on a Doble/Bonos game. This game gambles the amount shown on the display. If the out come is Doble, the amount gambled will be doubled, if the outcome is Bonos then a random amount of Bonos are given. This is repeated until the player has no winning's to play or the maximum prize is reached. If the player accumulates more than 120 bonos this gamble will not be offered. Once this game is selected all plays will be played in this game until the player has no more bonos or the "Juego/Riesgo" button is pressed.

Game Specification

Brief Game Description

The Basic game will operate on the bottom set of 3 reels and on 1 pay line. Cash Prizes will be awarded as per the award panel once the winning combination is achieved on the win line. The player may be offered reel hold at the start of the game and up to 4 nudges at the end of the game.

There is on each reel an additional symbol of a Gold Strike Man. If you achieve a Gold Strike Man symbol on the payline a mystery amount of bonos is given. This mystery Bonos allows the player to play the top reels and is held until the top reels are selected. This game is selected by pressing the "Cambia Juego" button. Once in the top reels the player has the same choice of stakes as the bottom reels (0,20/0,40 € old law and 0,20/0,40/0,60 € new law). Five pay lines are active during the top reel game.



Staking System

The player may select one of several stakes. Each stake has an associated winplan and cost per game. The player can only play a stake if they have enough credits and bonos to pay for it.
1 credit = 0,20 €.

The stake details are as follows:-

STAKE	Game
1 Credit	Bottom reels one pay line standard awards (20cent)
2 Credit's	Bottom reels one pay line 40 cent awards
3 Credit's (NEW LAW ONLY)	Bottom reels one pay line 60 cent awards
1 Credit + 1 Bonos	Top reels five pay lines top awards 1+1 stake
2 Credit + 2 Bonos	Top reels five pay lines top awards 2+2 stake
3 Credit + 3 Bonos (NEW LAW ONLY)	Top reels five pay lines top awards 3+3 stake

The "Cambia Juego" button changes between top reels and bottom reels.
The "Cambia Apuesta" button changes the amount of credit staked.



Winplan Inserts.

All awards in Euro units
Bottom Reels Winplan:

	Insert Awards1	
	0.20	0.40
3 x RED	80.00	120.00
3 x red 7	40.00	80.00
3 x Blue 7	20.00	40.00
3 x 3 Bar	10.00	20.00
3 x 2 Bar	5.00	10.00
3 x 1 bar	3.00	6.00
3 x Melon	2.00	4.00
3 x Cherry	1.00	2.00
3 x mixed 7	0.40	1.00

Insert Awards 2 (NEW LAW)		
0.20	0.40	0.60
80.00	160.00	240.00
40.00	80.00	120.00
20.00	40.00	60.00
10.00	20.00	30.00
5.00	10.00	15.00
3.00	6.00	9.00
2.00	4.00	6.00
1.00	2.00	3.00
0.40	1.00	2.00

Top reels Winplan

	Insert Awards1	
	1+1	2+2
3 x Gold Bar	80.00	120.00
3 x Chest	40.00	80.00
3 x Red Gem	20.00	40.00
3 x Gold Pan	10.00	20.00
3 x Green Gem	5.00	10.00
3 x Bucket	5.00	5.00

Insert Awards 2 (NEW LAW)		
1+1	2+2	3+3
80.00	160.00	240.00
40.00	80.00	120.00
20.00	40.00	60.00
10.00	20.00	30.00
5.00	10.00	15.00
5.00	5.00	10.00

Nudges

The Basic game can offer between 1 to 4 nudges to the player at the end of each spin. The player can press auto nudge and the machine will nudge in the best combination. If no win is available the best 2 of a kind is nudged in. If the nudges are not used they can be saved to the next game where if they are not used they will be lost.

Reel Hold

This is available to the player on a on a random basis. The best combination may be auto held if auto hold is enabled (see DIL switch options). The holds work on toggle hold basis. It is not possible to hold all three reels this will cancel all holds.

Bank Transfer (Basque region)

If the player has no credit left and money in the BANCO, pressing the start button will transfer 0.80€ to the credit.



Gambling wins

Bottom reels

All successful gambles move the player up the winplan. All wins up to and including 2 Bar symbol gamble up the winplan down to lose. If the player loses an amount of bonos is given. Wins above this are gambled on a one up one down basis, after 3 loses the win is automatically collected to the BANCO.

Top Reels

All wins are gambled on the display using a DOBLE/BONOS animation. The amount of the win gambled varies on the stake.

Maximum Gamble amount

Stake	Amount
0,20	5,00
0,40	10,00
0,60 NEW LAW	15,00

Wins bigger than gamble size are split up and gambled in the gamble size or smaller. If the animation stops on DOBLE then the gambled amount is doubled, then any larger amount than the gamble size is put back in the un gambled part of the winnings. If the animation stops on BONOS an amount of bonos are paid.

Top Reel Game

Five win lines are active during these games and operate on the simple themed award structure (see winplan inserts). Also on each reel there is a Red and Blue coloured Mine Car which when appears in the reel window adds the coloured Mine Car into the mine car grid. When one of the 5 win lines is completed in a single red or blue colour the mine car feature is started. Also Overlayed on the reel bands there are dynamite symbols when 3 are appear on one of the 5 win lines the dynamite Feature is started.



Feature Games

Gold Strike Feature

Is a single animation around the train track, once the animation stops the prize or feature is paid.

Red Track

20,00	Feature Arrow	15,00
		Feature Arrow
40,00		
Feature Arrow		10,00
30,00	??? Bonos	Feature Arrow

- 1) "20,00" Euro cash win.
- 2) Feature Arrow
- 3) "15,00" Euro cash win.
- 4) Feature Arrow
- 5) "10,00" Euro cash win.
- 6) Feature Arrow
- 7) "??? BONOS" Gives a mystery amount of Bonos.
- 8) "30,00" Euro cash win.
- 9) Feature Arrow
- 10) "40,00" Euro cash win.

RED "Feature Arrow" gives one of the following features

- "Jackpot" player is given the maximum prize from that stake.
- "Serie Ganadora" player is given a series of wins.
- "Suma Premios" player is given the Dynamite Feature.
- "Numerós Locos" player is offered a number of mathematical wins and the player selects a win.



Blue Track

Feature Arrow	??? Bonos	10,00	4,00
15,00			RED Board
5,00			Feature Arrow
Feature Arrow			8,00
3,00	??? Bonos	Feature Arrow	12,00

- 1) Feature Arrow
- 2) "??? BONOS" Gives a mystery amount of Bonos.
- 3) "10,00" Euro cash win.
- 4) "4,00" Euro cash win.
- 5) Arrow move in the red track.
- 6) Feature Arrow
- 7) "8,00" Euro cash win
- 8) "12,00" Euro cash win.
- 9) Feature Arrow
- 10) "??? BONOS" Gives a mystery amount of Bonos.
- 11) "3,00" Euro cash win.
- 12) Feature Arrow
- 13) "5,00" Euro cash win.
- 14) "15,00" Euro cash win.

Blue "Feature Arrow" gives one of the following features

"Destapa El Premio" 3 euro values shown on display then hidden and shuffled the player uses his skill to select the highest which is then paid to the player.

"Tiro Con Premio" pays a random award off the board.

"Elige Un Premio" player is offered a number of wins and chooses one.

"Riesgo" 2 euro values go up and down on alpha player skill stops the values and they are summed to give a win.

Dynamite Feature

This feature accumulates the prizes given by the number of shots stored in the Shots counter (1 to 9)

If playing on 0,40 stake all wins are multiplied by 2.

If playing on 0,60 stake all wins are multiplied by 3.

20,00	BONOS	
5,00	10,00	X3
1,00	2,00	X2



1.6 Switch options

Bank 1 (on MPU5)	OFF	ON	
Switch 1			Unused
Switch 2	Disable >10€ note	Accept 5€/10€ note	
Switch 3	Disable 20€ note	Accept 20€ note	Switch 3 has to be on
Switch 4	Escrow enable	Escrow Disabled	
Switch 5	Hopper Configurations see table below		
Switch 6			
Switch 7			
Switch 8			

Note: not all Hopper options available in certain modes.

Hoppers	50+ 10	50+ 20	100+ 10	100+ 20	200+ 10	200+ 20	200+100	100+100	200+200
Switch 5	Off	On	Off	On	Off	On	Off	On	Off
Switch 6	Off	Off	On	On	Off	Off	On	On	Off
Switch 7	Off	Off	Off	Off	On	On	On	On	Off
Switch 8	Off	Off	Off	Off	Off	Off	Off	Off	On

Bank 2 (program card)	OFF	ON	
Switch 1	Percentage see Table below		
Switch 2			
Switch 3			
Switch 4	Disable Show Mode	Enable Show Mode	Show Mode
Switch 5	Enable	disabled	Bank transfer
Switch 6			Reel Anim
Switch 7	Disable	Enable	Direct payout
Switch 8	Disable	Enable	Auto Hold

Percentage	70%	73%	76%	78%	80%	82%	84%	86%
Switch 1	Off	On	Off	On	Off	On	Off	On
Switch 2	Off	Off	On	On	Off	Off	On	On
Switch 3	Off	Off	Off	Off	On	On	On	On



Section 2: Installation Procedure

2.1 Inspection

1. Remove all fixing screws.
2. Inspect the exterior of the cabinet for damage.
3. Remove the keys from the bag located in the coin collection tray.
4. Release and open the front door and the door, which accesses the bins.
5. Check all assemblies inside the machine to ensure that they are correctly installed and that all connectors are properly assembled.
6. Fill the hoppers with the appropriate quantities of coins (see hoppers section).

2.2 Electrical Installation

Determine the mains voltage using a multimeter and verify that it is within the 210 to 230 volt range.

Mains cable colours: green/yellow (earth), brown (live) and blue (neutral).

The electrical operating parameters and specifications of this machine are as follows:

1. Voltage: voltage range 210 to 230 volts.
2. Frequency: 50 Hz \pm 0.3%. For example 49.85 Hz is acceptable for 50 Hz nominal. The machine must be able to supply 3 Amps.
3. Temperature: 14 to 140 degrees Fahrenheit, -10 to 60 degrees Celsius.
4. Humidity: maximum 95%.

2.3 Installation on the Premises

1. The machine must be installed on a firm floor.
2. Ensure that the machine is remote from any heat source (radiators, for example).
3. Avoid carpets with static electricity problems.
4. A good earth connection is required.
5. The machine must be positioned where it can be supervised by the premises' technical team.

2.4 Manual Handling / General Safety

Our machines can vary in weight and dimensions and should only be moved by persons adequately trained in manual handling skills. Where possible manual handling or lifting equipment should be utilised and additional care exercised when the centre of gravity is off centre or the machine top heavy.

Please refer to the warning label on the back of the machine for the weight of the specific model.

Persons required to work inside the cabinet should first remove loose wrist or neck jewellery, which could become snagged on internal mechanisms and cause injuries.

Care should be taken when opening and closing the front door of the machine to avoid the possibility of injury. Regular examination of the front glass gas struts is recommended as they can become damaged through misuse.

If it becomes necessary to exchange a gas strut only an approved replacement should be used. These can be obtained from the Barcrest's service department.



2.5 Service History

The machine may emit alarm sounds arising from various failure and out-of-service conditions which, depending on the type, can be deactivated by switching the machine off.

In order to facilitate servicing the last 16 alarms are stored in an alarm log. To access this facility it is only necessary to turn the electronic counters service key, then press the Play button as many times as required until reaching the Alarms Log, or by directly pressing the Advance Right button.



Section 3: Alarms

The machine stores the last 16 alarms produced by the system. Each alarm has its own identification code and, whenever possible, a message identifying the error is shown in the alphanumeric display.

Each alarm code has four digits: the first two indicate the error type, and the last two identify the alarm's Barcrest code. The third digit is the alarm class and the number of red flashes of the MPU5 board's status LED. The final digit is the alarm subclass and also the number of green flashes of the same status LED.

The alarms are classified in accordance with one of three levels of seriousness:

1. Ignore: the alarm is stored in the alarm log and operation continues normally.
2. Reset: the alarm is stored in the log and is reset in the PROM if it has been activated for more than 1 minute. Otherwise as per the fatal level.
3. Fatal: the alarm is stored in the log and the alarm manager is activated.

The alarms are grouped into classes in order to assist the service technician in localising a fault. All the alarms are described below, arranged by class.

3.1 Class 1 Alarms Processor Exceptions

Known as processor exceptions, these are errors detected by the CPU. They can be caused by hardware faults in components on the CPU bus, e.g. CPU, RAM, PROMs, DUART etc.

When shown on the display these alarms range from 11 - 1E.

STATUS LED FLASHES (RED - GREEN)	BACTA Code	BARCREST No.	SPANISH MESSAGE	MESSAGE
1 - 1	54	11	ERROR BUS CPU	CPU BUS ERROR
1 - 2	54	12	ERROR DIRECCIÓN	ADDRESS ERROR
1 - 3	54	13	INSTRUCCION ILEGAL	ILLEGAL INSTRUCT
1 - 4	54	14	DIVISION POR 0	DIVIDE BY 0
1 - 5	54	15	ERROR LIMITES	BOUNDS CHECK
1 - 6	54	16	TRAP OVERFLOW	OVERFLOW TRAP
1 - 7	54	17	INTERRUPCION NO VALIDA	BAD INTERRUPT
1 - 8	54	18	TRAP NO USADA	UNUSED TRAP
1 - 9	54	19	ERROR FORMATO DE PILA	BAD STACK FORMAT
1 - 10	54	1A	VECTOR NO INICIADO	UNINIT. IVECTOR
1 - 11	54	1B	VIOLACION PRIVILEGIO	PRIV VIOLATION
1 - 12	54	1C	EXCEPCION TRAZA	TRACE EXCEPTION
1 - 13	54	1D	BREAKPOINT	BREAKPOINT
1 - 14	54	1E	VECTOR RESERVADO	RESERVED VECTOR
1 - 15	54	1F	????????????????	WATCH DOG RESET



3.2 Class 2 Alarms MPU5 Board Hardware Failures

These are caused by hardware faults on the MPU5 board. Most alarms of this class are generated during power up self-test.

When shown on the display these alarms range from 21 - 2B.

STATUS LED FLASHES (RED - GREEN)	BACTA Code	BARCREST No.	SPANISH MESSAGE	MESSAGE
2 - 1	53	21	FALLO TEST RAM	RAM TEST FAILED
2 - 2	54	22	FALLO 68340 PIT	68340 PIT FAILED
2 - 2	54	22	FALLO 68340 TIMER	68340 TIMER FAIL
2 - 2	54	22	FALLO 68340 DMAC	68340 DMAC FAIL
2 - 2	54	22	FALLO 68340 SERIE	68340 SER FAIL
2 - 3	54	23	FALLO 68681 DUART	68681 DUART FAIL
2 - 3	54	23	FALLO 68681 TIMER	68681 TIMER FAIL
2 - 4	54	24	FALLO TEST ASIC	ASIC TEST FAILED
2 - 5	54	25	FALLO 89321 DSP	89321 DSP FAILED
2 - 6	32	26	FALLO TRANSISTOR DRIVE	DRIVE TR FAILED
2 - 7	31	27	FALLO TRANSISTOR ENABLE	ENABLE TR FAILED
2 - 8	54	28	FALLO 24/34 VOLT	NO 24V DRIVE
2 - 9	54	29	FALLO DETECCION 24 VOLTIOS	24V DRIVE SENSE FAULT
2 - 10	54	2A	NO DETECTA CONTADOR	METER SENSE FAIL
2 - 10	54	2A	FALLO EN LCD	LCD METER FAIL
2 - 10	54	2A	LCD CAMBIADO	LCD METER CHANGED
2 - 11	54	2B	FALLO EN RTC	RTC FAILED

3.3 Class 3 Alarms Program or Eprom card failures

These are caused by faults on the MPU5 program card.

When shown on the display these alarms range from 31 - 36.

STATUS LED FLASHES (RED - GREEN)	BACTA Code	BARCREST No.	SPANISH MESSAGE	MESSAGE
3 - 1	51	31	CHECKSUM PROM	PROM CHECKSUM
3 - 2	51	32	CHECKSUM PROM	PROM INTEGRITY NO DSP
3 - 2	51	32	FALTA PROM LOGICA	PROM MISSING
3 - 3	51	33	FALTA PROM APLICACION	MISSING APP PROM
3 - 4	51	34	PROMS ERRONEAS	PROMS MISPLACED
3 - 5	51	35	PROMS AL REVES	PROMS SWAPPED
3 - 6	52	36	FALTA CHIP SEGURIDAD	NO CHARACTERISER



3.4 Class 4 Alarms Software check failures

These alarms are the result of inconsistencies detected during software checks. They can be caused by software bugs or hardware problems with the memory.
When shown on the display these alarms range from 41 - 48.

STATUS LED FLASHES (RED - GREEN)	BACTA Code	BARCREST No.	SPANISH MESSAGE	MESSAGE
4 - 1	90	41	COMPROBACION SOFTWARE	SOFTWARE CHECK
4 - 2	90	42	ERROR DE PILA	STACK ERROR
4 - 3	90	43	PILA DESBORDADA	STACK OVERFLOW
4 - 4	53	44	RAM INSUFICIENTE	INSUFFICIENT RAM
4 - 5	90	45	AVISO SOFTWARE	SOFTWARE WARNING
4 - 6	90	46	ACTUALIZACION DE VERSION	VERSION UPDATE
4 - 7	90	47	COMPROBACION DE RANGO	RANGE CHECK
4 - 8	42	48	MEMORIA BORRADA	MEMORY CLEARED
4 - 9	48	49		TAMPER CHECK
4 - 10	45	4A		NEW SJ KEY
4 - 11	90	4B		FLASH UPDATE
4 - 11	90	4B		IRDA ACCESS
4 - 12	90	4C		BOUND ERROR
4 - 13	90	4D		UNUSED INPUT
4 - 14	90	4E		UNUSED MEMORY

3.5 Class 5 Alarms MUX5 Board failures

These alarms are caused by faults on the MUX5 board

STATUS LED FLASHES (RED - GREEN)	BACTA Code	BARCR EST No.	SPANISH MESSAGE	MESSAGE
5 - 1	30	51	FALTA UNIDAD MUX5	MUX UNIT MISSING
5 - 2	30	52	FALLO UNIDAD MUX5	MUX UNIT FAILED
5 - 3	30	53	RESET UNIDAD MUX5	MUX UNIT RESET
5 - 4	30	54	MUX5 NO RESETEADA	MUX NOT RESET
5 - 5	30	55	VERSION ANTIGUA MUX5	MUX UNIT OLD VER
5 - 6	32	56	FALLO MUX5 TRANSISTOR DRIVE	MUX DRV TR FAIL
5 - 7	31	57	FALLO MUX5 TRANSISTOR ENABLE	MUX ENB TR FAIL



3.6 Class 7 Alarms Coin Input Errors

These alarms are caused by coin input errors

Status LED flashes (Red - Green)	BACTA Code	BARCREST No.	SPANISH MESSAGE	Message
1-1	80	00	COIN JAM ERR	COIN JAM ERROR
1-1	81	00	COIN FAIL ERR	COIN FAIL ERROR
1-1	82	00	COIN TAMP ERR	COIN TAMP ERR
1-1	81	03	COIN TYPE NF	COIN TYPE NF

3.7 Class 8 Alarms Coin Output Errors

These alarms are caused by Hopper errors.

Status LED flashes (Red - Green)	BACTA Code	BARCREST No.	SPANISH MESSAGE	Message
1-1	83	00	HOP1 JAM ERR	HOP1 JAM ERR
1-1	84	00	HOP1 FAIL ERR	HOP1 FAIL ERR
1-1	85	00	HOP1 TAMP ERR	HOP1 TAMP ERR
1-1	83	01	HOP2 JAM ERR	HOP2 JAM ERR
1-1	84	01	HOP2 FAIL ERR	HOP2 FAIL ERR
1-1	84	01	HOP2 TAMP ERR	HOP2 TAMP ERR

3.8 Class 9 Alarms LCD Counter Failures

These alarms are caused by meter faults.

Status LED flashes (Red - Green)	BACTA Code	Barcrest No	SPANISH MESSAGE	Message
1 - 1	68	00	GEN LCD ERR	LCD ERROR
1 - 1	68	01	LCD RW ERR	READ WRITE ERROR
1 - 1	68	02	LCD FP ERR	LCD CHANGED
1 - 1	68	03	LCD FWCHK ERR	LCD ERROR
1 - 1	68	04	LCD BUS ERR	LCD ERROR
1 - 1	68	05	LCD CSUM ERR	LCD ERROR

3.9 Class A Alarms Reel Errors

These alarms are caused by reel assembly faults.

Status LED flashes (Red - Green)	BACTA Code	Barcrest No	SPANISH MESSAGE	Message
6 - 1	20	00	RODILLOS ERR	REEL SETUP
6 - 1	21	00	RODILLO 1 ERR	REEL A SPIN
6 - 1	22	00	RODILLO 2 ERR	REEL B SPIN
6 - 1	23	00	RODILLO 3 ERR	REEL C SPIN
6 - 1	24	00	RODILLO 4 ERR	REEL D SPIN
6 - 1	25	00	RODILLO 5 ERR	REEL E SPIN
6 - 1	26	00	RODILLO 6 ERR	REEL F SPIN



3.10 Class C Alarms Banknote Input Errors

These alarms are caused by note acceptor faults.

Status LED flashes (Red – Green)	BACTA Code	Barcrest No	SPANISH MESSAGE	Message
1 - 1	86	00	ERROR BILLETE	NOTE JAM ERROR
1 - 1	87	00	ERROR BILLETE	NOTE FAIL ERROR
1 - 1	88	00	BILL TAMP ERR	NOTE TAMPER ALARM



Section 4: Components Overview

The Barcrest Group Horizon cabinet uses a number of components that are different to its predecessor the Genesis cabinet. Briefly these are as follows:

- ☐ **Serial coin handling.** (The Coin Mech, Hopper, and Note Acceptor are set up for serial operation).
- ☐ **Note Acceptor Mounting.** (The design has been improved to give better access for maintenance).
- ☐ **Revised Alarm Codes.** (Due to the extra features of Serial Coin handling there are new alarms that the machine can generate).
- ☐ **Horizon Buttons & Switches.** (The buttons used on the panel of this cabinet are a unique design).
- ☐ **Reel Assembly.** (While the reels used are the same as the Genesis cabinet they are configured differently).
- ☐ **Locking Hasp.** (The machine has provision to fit a custom locking hasp).
- ☐ **Speakers.** (The cabinet is fitted with stereo speakers).

The MPU5, Multiplex Boards, Reel Back Boards and the Power Supply are identical to those used in the Genesis cabinet machines and fully interchangeable.

The following section explains how components are removed / refitted to the machine.



Section 4.1 Serial Coin Handling

4.1 Serial Implementation

This machine is fitted with serial coin handling. This provides increased operational and service information. Serial note handling also benefits by using a secure method of encrypted communications protocol.

Please be aware that due to the encrypted communications if a note acceptor is fitted to a non note-acceptor machine the engineer will need to enter the note acceptor's encryption key into the machine in order for it to work. This will also have to be done if the key is lost due to the MPU5, program card or note acceptor being changed. This operation is detailed in the section on **Serial Note Acceptor Encryption Keys**.

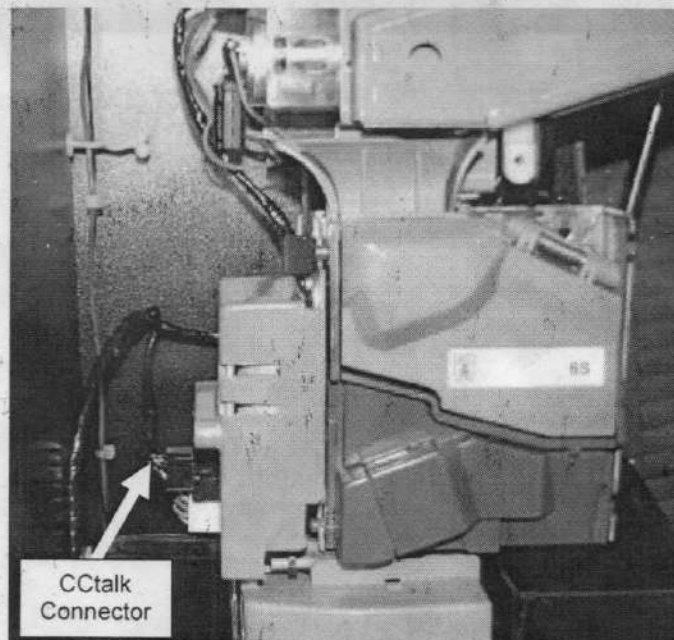
4.2 Serial Coin Mech's

The Horizon cabinet is fitted with the Azkoyen mechanism operating on the CCtalk serial protocol incorporating an Azkoyen X 6 coin acceptor-selector. The selector accepts all legal tender coins in Spain, i.e. coins of face values € 0.10, €0.20, €0.50, €1 and €2.

Coins which are accepted will be sent to the coin bin, with the exception of coin denominations € 0.10, €0.20 or €0.50, €1, €2 which will be guided to the various respective € 0.10, €0.20 or €0.50, €1 and €2 hoppers¹. The said hoppers will accumulate coins up to the maximum limit, in this manner being ready to pay out to the player the value of prizes won.

All of the information the mech needs about accepting and routing the coins is supplied serially down a single 10-way DIL connector.

The image below shows the location of the CCtalk serial connector that connects into the rear of the Azkoyen X6 coin mech.

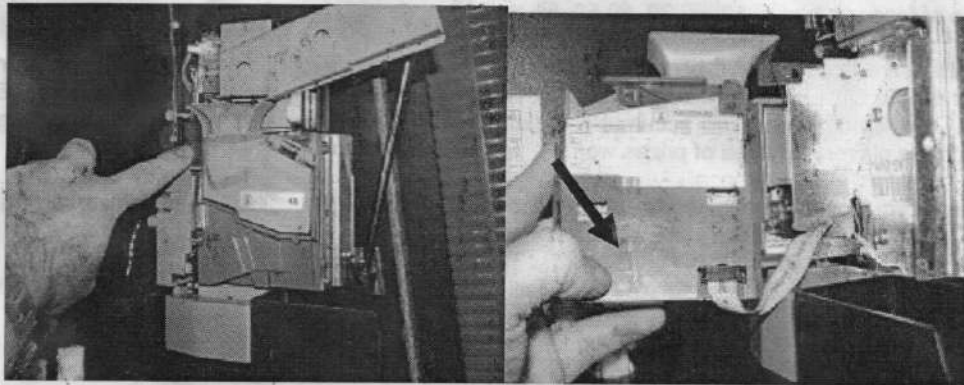




4.2.1 Coin Mech Replacement

In the event of having to replace the Azkoyen X6 Serial coin mech, it will be necessary to replace it with one of the same type.

1. Switch off and unplug the power to the machine.
2. To remove the mech from its bracket push the red release lever towards the rear of the cabinet as shown in the first image below and tilt the top of the mech to the left and lift off.
3. The mech can now be removed by unplugging the ribbon cable from the coin mech indicated in the second image below.
4. To reassemble the mech reverse the instructions above and retest the coin mech.





4.3 Hopper Information

This machine incorporates two Azkoyen hopper mechanisms, one for € 0.10 or € 0.20, and the other for € 0.50, €1 or €2, both of which are switch-configurable. These devices make it possible to pay out to players both any prizes won, the coins accumulated in Coins, together with giving change, which is optional and switch-configurable.

In terms of numbers or the value of sums to be paid, whenever possible payouts will be made in € 0.50, €1 or €2 coins, the balance being made up by € 0.10 or € 0.20 coins. This mechanism can be adjusted by means of switch selection.

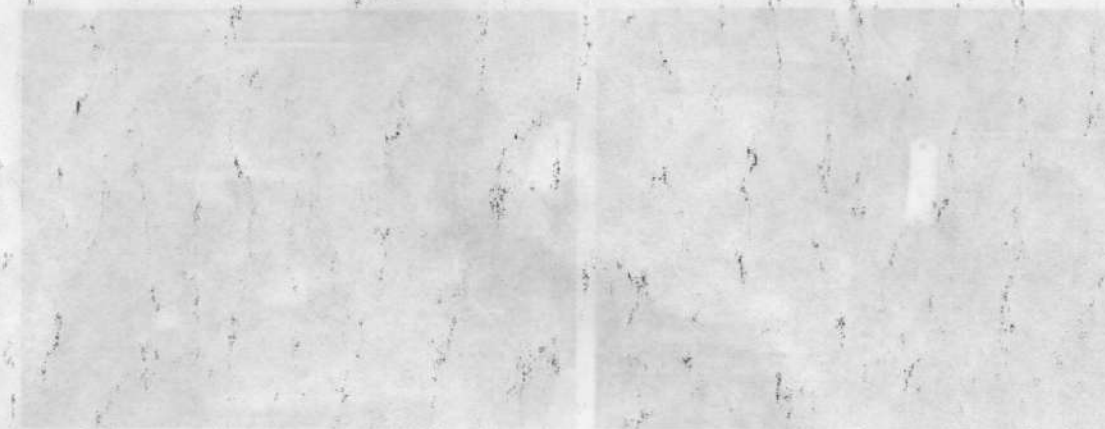
4.3.1 Empty Hoppers

Should one of the hoppers not contain any coins and thus not be able to continue paying out to the player, the succeeding hopper will come into operation to make up the amount not paid out by the previous hopper.

If the last hopper should also be empty, or is unable to make up the total amount pending payment, the machine will lock up emitting a sound signal plus a text in the alphanumeric display indicating which of the hopper/s is/are empty.

4.3.2 Refilling Hoppers

Hoppers are refilled manually. Once refilling is complete, the machine will cease to emit the hopper-empty signal and will continue from the point prior to the hopper/s becoming empty.





4.4 Note Acceptor Information

Where fitted the Horizon cabinet has a money Controls Lumina note acceptor that will accept € 5 banknotes. It will also accept € 10 and € 20 banknotes in those Autonomous Communities where this is permitted.

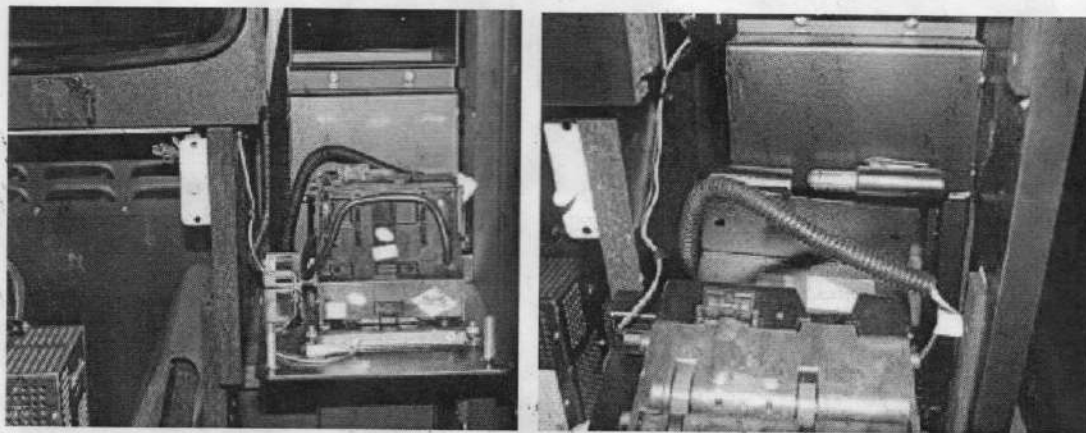
This is fitted in a panel on the right hand side of the machine below the button panel as shown in the first image below. Also a secure metal note box is provided as standard.

As with the coin mechanisms, only note acceptors set up to work in CCTalk serial mode are compatible with the Horizon cabinet.



The note acceptor panel can be hinged down to give better access for maintenance or removal of note jams by removing the retaining wing nuts as shown in the first image below.

The panel can also be disconnected and easily removed from the machine to allow the note acceptor to be changed or removed as shown in the second image below.





4.4.1 Money Controls Lumina Mech Serial Set up

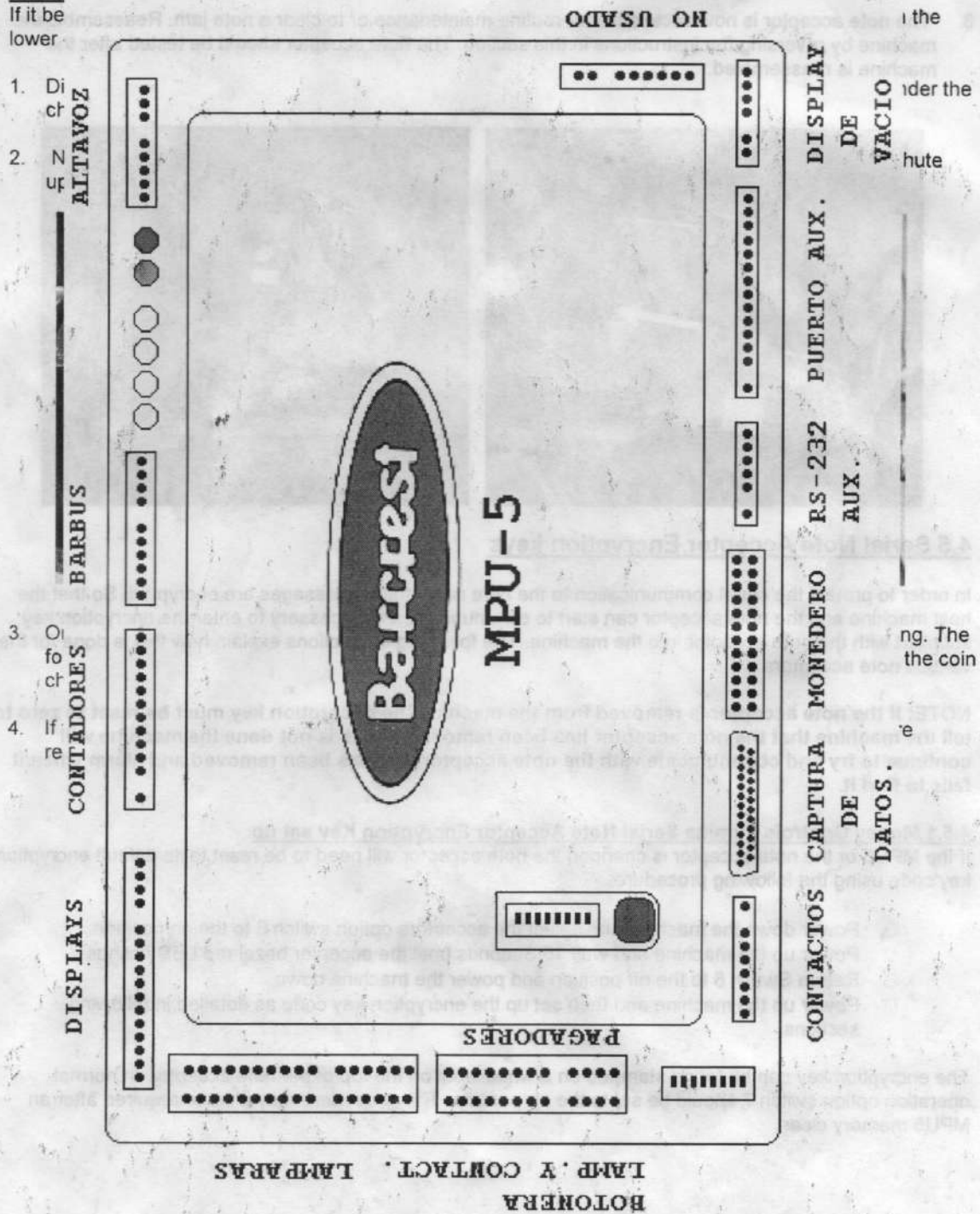
There is a bank of DIL switches on the side of the Lumina note acceptor.

With switch 7 OFF and switch 8 ON the unit is in parallel mode for use on Genesis.

In order to enable serial mode make sure both switch 7 ON and 8 OFF are set to enable CC Talk serial mode for use on the Horizon cabinets.

4.4.2

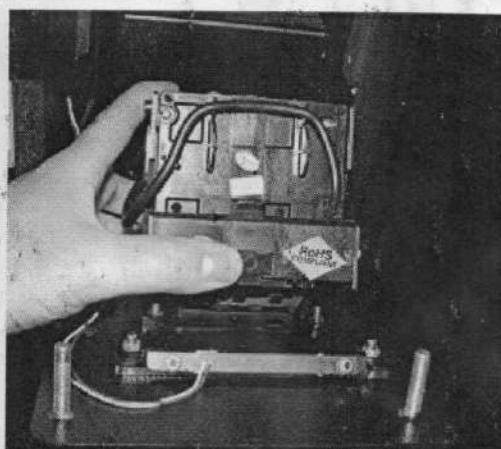
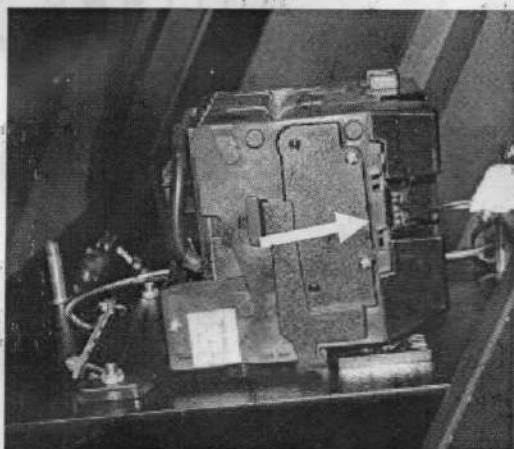
If it be
lower





4.4.3 Lumina Serial Note Acceptor Removal Instructions

1. Disconnect the black 10-way connector fitted to the right hand side of the note acceptor as indicated in the first image below.
2. Release the note acceptor from its bracket by pressing the red release button on the top of the acceptor as indicated in the second image below and then tilt it back to remove.
3. The note acceptor is now accessible for routine maintenance or to clear a note jam. Reassemble the machine by reversing the instructions in this section. The note acceptor should be tested after the machine is reassembled.



4.5 Serial Note Acceptor Encryption keys

In order to protect the serial communication to the note acceptor all messages are encrypted. So that the host machine and the note acceptor can start to communicate it is necessary to enter the encryption key supplied with the note acceptor into the machine. The following instructions explain how this is done for the various note acceptors.

NOTE: If the note acceptor is removed from the machine the encryption key must be reset to zero to tell the machine that the note acceptor has been removed. If this is not done the machine will continue to try and communicate with the note acceptor that has been removed and alarm when it fails to find it.

4.5.1 Money Controls Lumina Serial Note Acceptor Encryption Key set up

If the MPU5 or the note acceptor is changed the note acceptor will need to be reset to its default encryption key code using the following procedure:

- ☐ Power down the machine and select the acceptors option switch 6 to the on position.
- ☐ Power up the machine and wait 15 Seconds until the acceptor bezel red LED flashes.
- ☐ Return Switch 6 to the off position and power the machine down.
- ☐ Power up the machine and then set up the encryption key code as detailed in following sections.

The encryption key can be found stamped on a white label on the top of the note acceptor. In normal operation option switch 7 should be set to the up position. This procedure may also be required after an MPU5 memory clear.



4.5.2 Serial Note Acceptor Encryption Key Input

In order to improve note acceptor security the machine software requires an encryption key code to be set. This is necessary following replacement of either the MPU5 Unit or the acceptor, and after an MPU5 memory clear.

To install a note acceptor for the first time you should enter the machine test routine and select test 1.3. This will allow you to enter the encryption key for the serial note acceptor. This number is printed on the note acceptor body.

To remove a previously installed note acceptor the BNV code has to be set to 000000 as given below.

Power up the machine and enter the test routine by pressing both the test button on the program card and concealed button behind the reel assembly simultaneously. Once in the test routine use RH1 to increment till TEST BNV KEY then the RH2 button must be selected.

On entering this test, the following is displayed on the Alpha Display.

Key = 0 0 0 0 0 0

The first digit is automatically selected and will be flashing. The LH4 and RH4 buttons increment and decrement the first number of the encryption code.

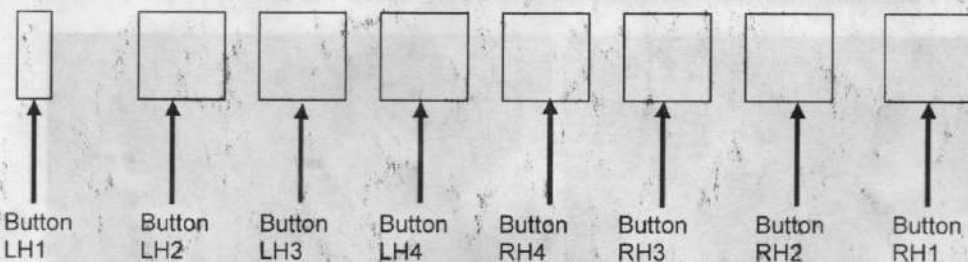
Selection of the LH2 button causes the selected digit to move from left to right once it reaches the last digit it will return back to the first.

Selection of the RH2 button causes the selected digit to increment up to 9 then back to 0.

Once the code has been entered the LH1 button should be selected to accept the code and one of the following messages will be displayed

- ☐ If the key code has been set up and is valid then the display indicates "KEY VALID".
- ☐ If the key code is incorrect then the display indicates "BNV NO RESPONSE".
- ☐ If the key code has been set to zero (000000) to indicate that the note acceptor has been removed then the display indicates "BNV NOT FITTED".

Button RH1 can be used to exit the test at any time. The button Layout for the above operations is shown in the layout below. To cater for all styles of machine the button deck is given the following generic format.



For example:

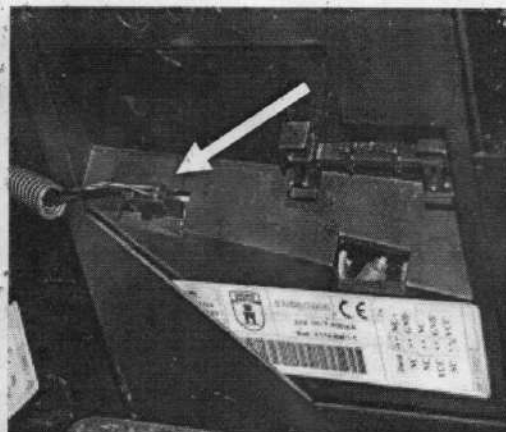
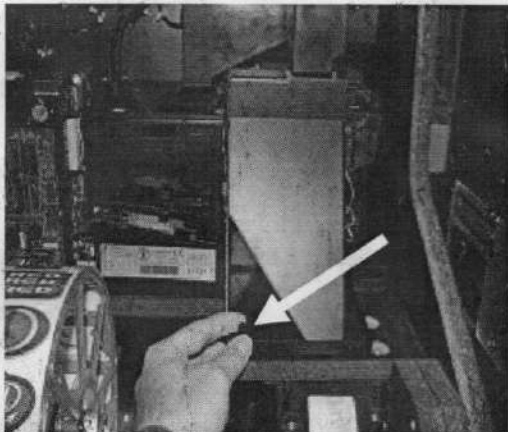
- ☐ LH1 refers to the next left most button.
- ☐ LH2 refers to the next left most button.
- ☐ RH1 refers to the right most button.



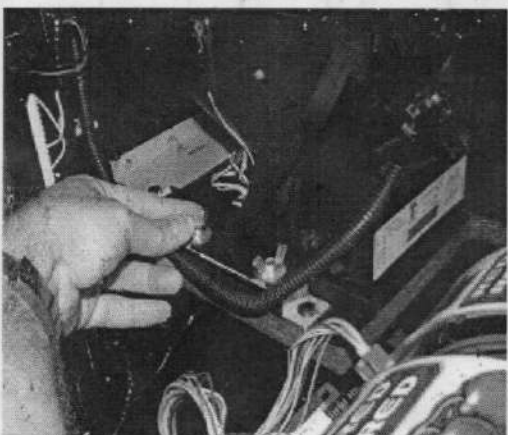
4.6 Serial Hopper Assembly Removal

The horizon cabinet is fitted with two Azkoyen hoppers, before removing it is essential that the right hand hopper is removed first using the following steps.

1. Switch off and unplug the power to the machine.
2. Locate the right hand hopper lead and remove it from the clips to provide enough slack on the lead to aid removal of the hopper.
3. Unscrew the right hand shelf retaining screw indicated in the first image below and withdraw the hopper partially towards the front of the machine to gain access to the 10-way CCtalk connector.
4. Disconnect the CCtalk 10-way connector from the hopper as shown in the second image below and withdraw the hopper shelf from the machine.



5. Remove the two wing nuts from the left hand hopper shelf as shown in the first image below and disconnect the 10-way CCtalk connector from the hopper as shown in the second image below.
6. Now withdraw the hopper by sliding the hopper shelf to the right hand side and withdraw from the machine. To re-assemble the hopper shelves then reverse instruction 1 to 5.





4.6.1 Hopper Emptying

Hoppers can be emptied by means of the Coin Test or by using the hopper-emptying switches.

Use of the hopper-emptying switches requires the door to be open. The hopper to be emptied will be selected by pressing the switch corresponding to the hopper, which is to be emptied, located in the bank of switches inside the machine. Once the desired hopper has been emptied the alphanumeric display will show the total sum emptied.

To empty another hopper the RH1 button is pressed, giving the message 'door open', and the process explained above is repeated.

4.6.2 Hopper Unjamming

In order to unjam a hopper, the hopper-emptying process must be carried out by using the emptying switches (explained in section 14d).

When emptying a jammed hopper, the machine will only expel the jammed coin and will not completely empty the hopper.





Section 5: Machine Test

5.1 Machine Test Description

To assist in fault-finding the machine is provided with a self-test facility of its basic operational functions. Each self-test routine verifies a particular aspect of the machine's operation.

The tests which the machine carries out are as follows:

1. Coin test & Note acceptor encryption mode
2. Reels test
3. Lights test
4. Contacts test
5. Displays test
6. LCD or mechanical counters test
7. RS232 test
8. Sound test
9. Switches test

5.2 Setting the Machine into Test Mode

It must be possible to always enter the test mode, regardless the current mode of the machine (e.g. requesting refill).

5.2.1 To Enter Test Mode

1. Open the top door.
2. Allow the machine to initialise, then press the test push-button on the program module.

The machine is now in test mode; with the alphanumeric display showing the first test on the test menu list. The LED display (if fitted) also shows the current test number (flashing).

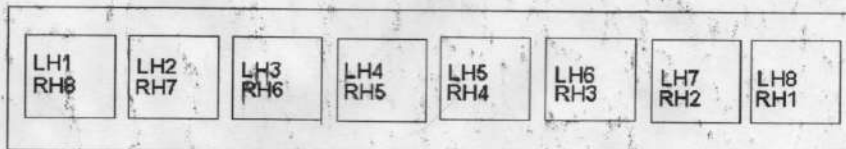
5.2.2 To Select a Test from the Menu

Press the RH1 button to step forward through the test menu list or the LH1 button to step backwards through the list. When the required test is displayed, press the RH2 button to select the test.

5.2.3 To Exit a Test

To exit a test and return to the test menu list press the RH1 button.

5.2.4 Button layout





5.3 Test Routines

5.3.1 Test 1.1 Coin Handling Test – "1.1 Test Monedas"

This test verifies the correct operation of the coin-handling devices in the machine: the coin acceptor, the banknote acceptor (if any), and the hoppers. It also includes a procedure for the individual emptying of hoppers.

In order to check the coin acceptor and the banknote acceptor, coins and banknotes are input into the machine. Check that the coin or banknote type and value is shown on the alphanumeric display, together with the sum of money which has been input up to that moment during the test. A beep is also heard when a coin or banknote is input and accepted.

This test checks the complete coin handling system:

1. coin acceptance
2. pay out &
3. coin diversion.

To carry out the test:

Select the coin handling test "1.1 Test HOPPER" and press the RH2 button.

To test the hopper payout,

1. Press the LH2 button to select dumping of €0.10 coins out of the hopper.
2. Press the LH3 button to select dumping of €0.50 cent coins out of the hopper.
3. Press the RH1 button to dump selected hopper, at end message show how much dumped, e.g. SALIDA = 0.00€

5.3.1.1 Test 1.3 Note Acceptor Configuration – "1.3 TEST BNV KEY"

This sets up the note acceptor encryption key, the BNV number if found on the note acceptor.

This must be setup before the note acceptor will work.

To set BNV key:

1. Press the LH1 button to select number to edit.
2. Press the LH2 button to select number to edit.
3. Press the RH2 button to change number up.
4. Press the RH3 button to change number down.
5. Press the RH4 button to test BNV key.
6. Press the RH1 button to exit.

Once the key is entered RH4 tests the BNV key if the correct key is entered "KEY VALID " will be displayed the note acceptor can then be tested in "1.0 coin handling test"



5.3.2 Test 2.1 Reel Test – “2.1 TEST RODILL. I.”

This test verifies the correct operation of the machine's lower reels and band symbols.

To carry out the test:

1. Select test “2 Test de rodillos inferiores” and press the RH2 button. All the reels spin and stop at position 1 and the reel lamps are extinguished.
2. Check that the first symbol on each reel is positioned on the pay line (the first symbol on a reel is immediately below the joint line in the reel band).
3. Press the Avances buttons to step the reels
4. The name of the symbol is displayed on the alpha
5. Press the RH1 button to return to the test menu

5.3.2.1 Test 2.2 Upper Reels test – “2.2 TEST RODILL. S”

This test verifies the correct functioning of the machine's upper reels and their corresponding symbols. The operation of this test is identical to that as described under the Lower Reels Test.

5.3.3 Test 3.1 Lamps Test – “3.1 TEST LUCES”

This test verifies the correct functioning of the machine's lights. It detects the presence of short circuits or open circuits and locates the fault.

Each lamp will be rapidly individually illuminated and switched off in sequence. When all lamps have been run through they will all flash simultaneously.

To carry out the test:

1. Select test “3 Test de luces” and press the RH2 button.
2. Each lamp in the machine is switched on and off in sequence.
3. If a faulty lamp is detected the test sequence halts and the faulty lamp is indicated by an audio alarm and the lamps either side flashing alternately. The bulb number is also.
4. Record the position of the faulty lamp.
5. Press the RH1 button to continue the test.
6. When the test is completed, all the lamps flash simultaneously.
7. Press the RH1 button to return to the test menu.

There are a number of additional features to control the lamp test sequence as follows:

While the test sequence is in progress:

1. Press the RH3 button to skip to the end of the test (all lamps flash simultaneously).
2. Press the RH3 button again to start a slow step test procedure. This illuminates each of the lamps in sequence allowing them to be viewed.
3. Press the RH1 button to pause or restart the slow test step.

5.3.4 Test 4.1 – Input Test – “4.1 TEST CONTACTOS”

This test verifies the correct functioning of the machine's buttons and contacts. In addition to the buttons, the other contacts are those of the upper and lower doors, of the service key, enter test, hopper-emptying switches, and hopper contacts. When a contact is pressed a sound signal is emitted and its light (if any) is illuminated, and when the contact is released a different sound signal is emitted.

To carry out the test:

1. Select test “4 Test de contactos” and press the RH2 button.
2. Press each of the buttons and switches, except the RH1 button (exits the test), in turn. When a button is pressed it is illuminated, an audible beep sounds and the button identity is displayed.

Note: If both the top door and outer cash door switches are made simultaneously, the machine will reset.



5.3.4.1 Test 4.2 – Switch Test – “4.2 TEST SWITCHES”

This test verifies the correct functioning of the machine's option switches. There are two banks of switches, bank 1 on the MPU5 board, and bank 2 on the EPROM card, alongside the enter test button.

The bank number and switch number are shown on the alphanumeric display (for example: 1.8 for switch 8 of bank 1), together with its status (ON, OFF or N/A when inapplicable).

To carry out the test:

1. Select test 8 Test Switches and press the RH2 button. The alphanumeric display shows the dip switch status 1.8 (OFF or ON)
2. Pressing LH2 moves backward through the switch list
3. Pressing LH4 shows the full name of the switch.

5.3.5 Test 5.1 – Display Tests – “5.1 TEST DISPLAYS”

This test verifies the correct functioning of the machine's alphanumeric and 7-segment displays. The alphanumeric display shows a range of letters, numbers and symbols cyclically from its character set. The 7-segment displays show a pattern which tests every segment.

To carry out the test:

1. Select test “5 Test de displays” and press the RH2 button.
2. The Alphanumeric will show a scrolling pattern of all the displayable characters whilst the LED display will illuminate all of the 7 segments on each block in turn, followed by all each LED segment on all blocks.
3. On completion of the test, press the RH1 button to return to the test menu.

5.3.6 Test 6.1 – LCD Meter Tests – “6.1 TEST LCD”

This test checks the operation of the LCD meter.

To carry out the test:

1. Select test 6.0 'LCD TEST' and press the RH2 button.
2. Successful completion of the test will be indicated by the message “LCD Test Passed”.
3. Failure of the test will be indicated by the message “LCD Test Failed”.
4. Press the RH1 button to return to the test menu.

Note 1: If the LCD meter is detected, the communication of that meter is tested.

5.3.7 - Test 7.1 - “7.1 TEST RS232 ”

This test checks the operation of the RS 232 link

To start the test, press the RH2 button. In the test a data signal is sent to the data unit and the RS 232 link procedures tested. An indication of the result of the test will be given on the machines alphanumeric display i.e. PASS / FAIL.

5.3.8 Test 8.1 – Audio Test – “8.1 TEST SONIDO”

This test verifies the correct functioning of each of the channels of the machine's sound generator. A sound signal is emitted by channel 1, then another signal by channel 2 and, finally, another by both channels simultaneously.

To carry out the test:

1. Select test 7.0 'SOUND TEST' and press the RH2 button. The alphanumeric display shows the audio sample number.
2. Channel A/B and Both are tested individually with a simple VOX announcement.
3. On completion of the test press the RH1 button to return to the test menu.



5.4 Volume Control

Holding "RH1" button down and turning the metering key, enters the volume control mode. The alphanumeric display now shows the volume as a % of its maximum and plays a continuous tune at the current level setting.

1. By pressing LH4 the volume level will be increased.
2. By pressing LH2 the volume level will be decreased.

Once the required setting has been determined, turning the metering key back will exit the mode and save the new setting. This setting is retained when the power is removed from the machine. The default setting after a memory clear down is 15.

5.5 Real Time Clock Setting

This option sets the RTC. It should be used when the machine is powered up and the machines alphanumeric display shows the message "SET RTC".

RTC setting format: dd.mm.aaaa hh.mm.ss (día.mes.año hora.minutos.segundos).

The settings of day, month, year, hour and minutes can now be set as follows:

1. Turn Metering key whilst pressing LH2 button to enter setting mode
2. Use LH1 to step through the day, month, year, hour and settings
3. Use RH1 to select the option, and
4. LH2 to decrement the setting
5. LH3 to increment the setting
6. Pressing RH1 again confirms the setting.

5.6 Electronic Metering

The machine maintains the following logs and accountancy metering:

1. Short term meters
2. Long term meters
3. LCD meters
4. Alarm Log
5. Ministry Meters

Note that all meters EXCEPT the ministry meters may be cleared on a program update / change.

5.7 To Display Meters

Turn the metering key during either OCD or game mode. Meters are shown as follows (Doors Closed):

- ☐ Key turned **ONLY** allows viewing of "CONTES PARCIALES" & "CONTES TOTALES" & "REG ALARMAS"
- ☐ The machine automatically enters CONTES PARCIALES

Once in this mode:

- ☐ LH2 selects CONTES PARCIALES
- ☐ LH3 selects CONTADS TOTALES
- ☐ LH4 selects REG ALARMAS

In all of the above modes use the RH1 button to step forwards and RH2 to step backwards through the contents of each meter / log entry. RH3 exits the mode.

The following special menus can also be entered by:

- ☐ Key turned with LH1 Pressed allows viewing of Ministry Meters.
- ☐ Key turned with LH2 Pressed allows setting of RTC



- ☐ Key turned with RH2 Pressed allows viewing of LCD Meters
- ☐ Key turned with RH1 Pressed allows setting of VOLUME

In all of the above modes use the RH2 button to step forwards and RH3 to step backwards through the contents of each meter / log entry. RH1 exits the mode.

Section 6: Ministry Metering Information

6.1 Meter Detail

The ministry accountancy contains the following information

Message	Name	Units	Description
TO ENT	Entradas totales (Total Games Played)	Credits	Total number of games played
TO SAL	Salidas totales (Total Coin Out)	Credits	Total number of coins paid out.
TO TES	Test totales	N/A	N/A - Total pulses given in test to the electro-mechanical meters.



6.1.1 Short Term Accountancy Metering (CONTES PARCIALES)

The short term accountancy metering contains the following information:

Message	Units	Description
PORCENT	%	Actual percentage of the machine.
TEORICO	%	Theoretical minimum percentage of the machine.(according to switches).
PART 1AP	Count	Number of games at 1 credit.
PART 2AP	Count	Number of games at 2 credits.
PART 3AP	Count	Number of games at 3 credits.
ENT 10C	Count	Number of 10 cent coins inserted
ENT 20C	Count	Number of 20 cent coins inserted
ENT 50C	Count	Number of 50 cent coins inserted
ENT 1EUR	Count	Number of 1 Euro coins inserted
ENT 2EUR	Count	Number of 2 Euro coins inserted
ENT 5EUR	Count	Number of 5 Euro notes inserted
ENT 10EUR	Count	Number of 10 Euro notes inserted
ENT 20EUR	Count	Number of 20 Euro notes inserted
ENTRADAS	Credits	VTP – Number of credits played
SALIDAS	Credits	WIN – Number of credits won
SAL 10C	Count	Number of 10 cent coins paid out
SAL 20C	Count	Number of 20 cent coins paid out
SAL 50C	Count	Number of 50 cent coins paid out
SAL 1EUR	Count	Number of 1 Euro coins paid out
SAL 2EUR	Count	Number of 2 Euro coins paid out

6.1.2 Long Term Accountancy Metering (CONTES TOTALES)

The long term accountancy metering contains the following information:

Message	Units	Description
PORCENT L	%	Real percentage
PART 1AP.L	Count	Number of games at 1 credit
PART 2AP.L	Count	Number of games at 2 credits
PART 3AP.L	Count	Number of games at 3 credits
ENTRADAS.L	Credits	VTP – Number of credits played
SALIDAS.L	Credits	WIN – Number of credits won
JUG: 10C.L	Count	10 cent games played
GAN: 10C.L	Count	Winning games played at 10 cents
PER: 10C.L	Count	Losing games played at 10 cents



6.1.3 Clearing of Electronic Accountancy and Alarm Log

The Short Term Accountancy and Alarm Logs can not be cleared, other than by clearing the complete memory.

6.2 LCD Metering

The accounting information is stored in a single 7 digit electronic meter with LCD display.

To display the meters either:

1. Open the BOTTOM DOOR the meter values will be displayed in order according to the following table.
2. Enter Key Metering mode with RH2 pressed, use LH2 & LH4 to step thru the meters according to the following table.

Message	Meter	Units	Description
ENT BIL	Notes In	Euros	Total value of notes inserted.
ENT TOT	Cash In	Credits	VTP – Number of credits played
SAL TOT	Cash Out	Credits	WIN – Number of credits won

Disconnecting (or faulty) LCD meters will cause the machine to alarm in normal play mode.



Section 7: MPU5 Connection and Lamp I/O

7.1 MPU5 PCB Connections

MPU5 Board

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

AUX RS-232 (marrón)

- 1
- | | |
|---|---------|
| ● | - 12 V. |
| ● | TX |
| ● | RX |
| ● | RTB |
| ● | CTS |
| ● | 0 V. |

PAGADURES (gris)

- * VCC (4 V.) HOPPERS
 * MICROHOPPER (2) 0.50/12 EUROS
 * SERIAL JE CARGA INFERIOR HOPPER (2)
 * MICRO-HOPPER (1) 0.10/20 EUROS
 * SERIAL JE CARGA INFERIOR HOPPER (1)
 * GND (0 V.) HOPPERS

DISPLAYS (amarillo)

PUERTO AUX. (blanco)

- BILLETE 5 EUROS
- BILLETE 10 EUROS
- BILLETE 20 EUROS
- INHIBICION BILLETES
- ALARMA BILLETERO
- CV
- RECHAZO BILLETE
- 45 V
- +12 V
- 0 V

MONEDERO Y HOPPELS (marrón)

- DISPLAY VACfo

- | | |
|--------|----------|
| • CLK | NO USADO |
| • DATA | |
| • RES | |
| • 0 V | |
| • 0 V | |
| • 12 V | |



7.2 MPU5 Buttons, Lamps and Switches.

Esquemas Electricos

LÁMPARAS(verde)

H0	LUZ 7	LUZ 15	LUZ 23	LUZ 31	LUZ 39	LUZ 47	LUZ 55	LUZ 63
H1	LUZ 6	LUZ 14	LUZ 22	LUZ 30	LUZ 38	LUZ 46	LUZ 54	LUZ 62
H2	LUZ 5	LUZ 13	LUZ 21	LUZ 29	LUZ 37	LUZ 45	LUZ 53	LUZ 61
H3	LUZ 4	LUZ 12	LUZ 20	LUZ 28	LUZ 36	LUZ 44	LUZ 52	LUZ 60
H4	LUZ 3	LUZ 11	LUZ 19	LUZ 27	LUZ 35	LUZ 43	LUZ 51	LUZ 59
H5	LUZ 2	LUZ 10	LUZ 18	LUZ 26	LUZ 34	LUZ 42	LUZ 50	LUZ 58
H6	LUZ 1	LUZ 9	LUZ 17	LUZ 25	LUZ 33	LUZ 41	LUZ 49	LUZ 57
H7	LUZ 0	LUZ 8	LUZ 16	LUZ 24	LUZ 32	LUZ 40	LUZ 48	LUZ 56
L0								
L1								
L2								
L3								
L4								
L5								
L6								
L7								

84 SALIDAS DE LAMPARAS MULTIPLEXADAS

L = LOW (color azul)
H = HIGH (color verde)

BOTONES(gris)

H3	LUZ 26	LUZ 20	LUZ 12	LUZ 4
H2	LUZ 28	LUZ 21	LUZ 13	LUZ 5
H1	LUZ 30	LUZ 22	LUZ 14	LUZ 6
H0	LUZ 31	LUZ 23	LUZ 15	LUZ 7
L3				
L2				
L1				
L0				
SW0	C. Puerta Inferior			
SW1				C. Llave Servicio
SW2				C. Puerta Superior
SW3				

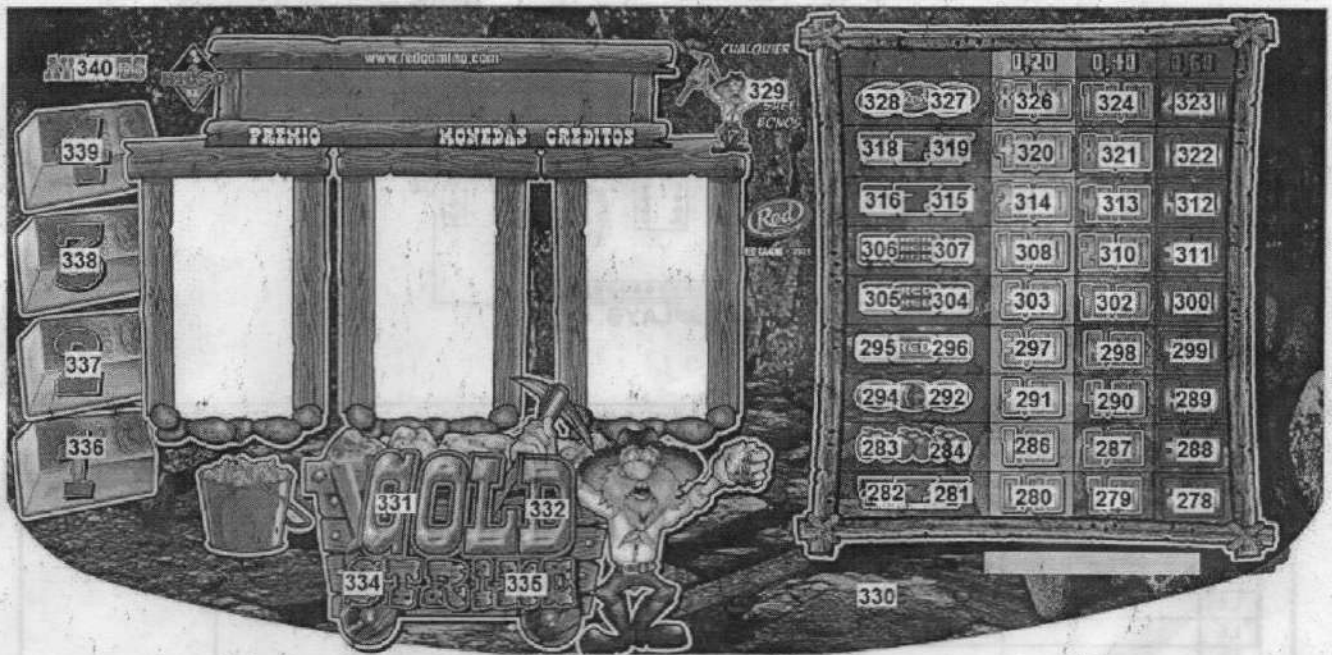
16 SALIDAS DE LAMPARAS MULTIPLEXADAS (COMPARTIDAS CON LAS DEL CONECTOR DE LAMPARAS)
16 ENTRADAS DE CONTACTOS MULTIPLEXADOS

CONTACTOS(NARANJA)

SW0				
SW1				
SW2				VACIADO HOPPER (3)
SW3				VACIADO HOPPER (3)
L7				
L6				
L5				
L4				

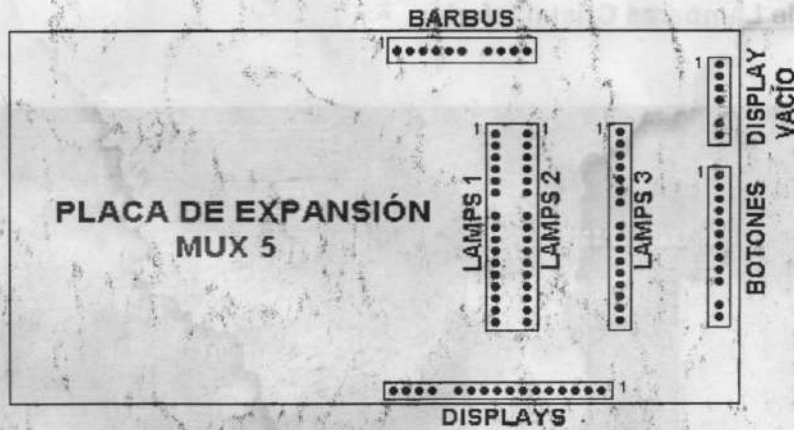


7.3 Salidas Control de Lamparas Cristal Interior

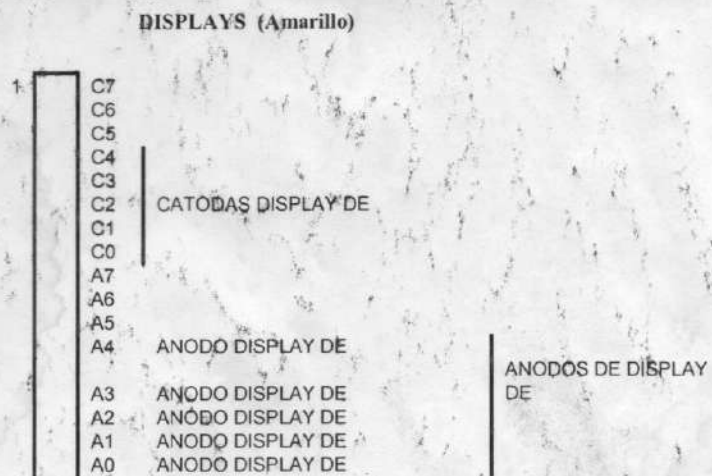
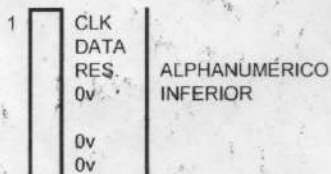
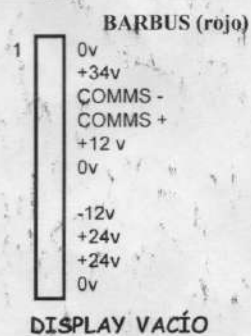




7.4 MUX5 Buttons, Lamps and Switches



S0	C. Juégame / Riesgo	C. Cambia / Apuesta	C. Cambia / Juego	C. Auto Avances	C. Avance / Retenga	C. Avance / Retenga	C. Avance / Retenga
S1							C. Cobrar / Banco
L0							
L1							
L2							
L3							
L4							
L5							
L6							
L7							
H0	Luz Juégame / Riesgo	Luz Cambia / Apuesta	Luz Cambia / Juego	Luz Auto Avances	Luz Avance / Retenga	Luz Avance / Retenga	Luz Avance / Retenga
H1							Luz. Cobrar / Banco





LAMPS1 LAMPS2

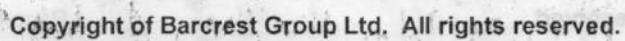
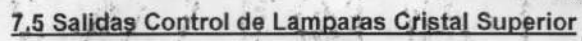
H0	LUZ 285	LUZ 289	LUZ 291	LUZ 299	LUZ 317	LUZ 325	LUZ 333	LUZ 341
H1	LUZ 284	LUZ 293	LUZ 290	LUZ 298	LUZ 316	LUZ 324	LUZ 332	LUZ 340
H2	LUZ 283	LUZ 291	LUZ 296	LUZ 307	LUZ 315	LUZ 323	LUZ 331	LUZ 339
H3	LUZ 282	LUZ 290	LUZ 298	LUZ 308	LUZ 314	LUZ 322	LUZ 330	LUZ 338
H4	LUZ 281	LUZ 289	LUZ 297	LUZ 306	LUZ 313	LUZ 321	LUZ 329	LUZ 337
H5	LUZ 280	LUZ 288	LUZ 296	LUZ 304	LUZ 312	LUZ 320	LUZ 328	LUZ 336
H6	LUZ 279	LUZ 287	LUZ 295	LUZ 303	LUZ 311	LUZ 319	LUZ 327	LUZ 335
H7	LUZ 278	LUZ 286	LUZ 294	LUZ 302	LUZ 310	LUZ 318	LUZ 326	LUZ 334
L0								
L1								
L2								
L3								
L4								
L5								
L6								
L7								

64 SALIDAS DE LÁMPARAS MULTIPLEXADAS
L = LOW
H = HIGH

LAMPS3

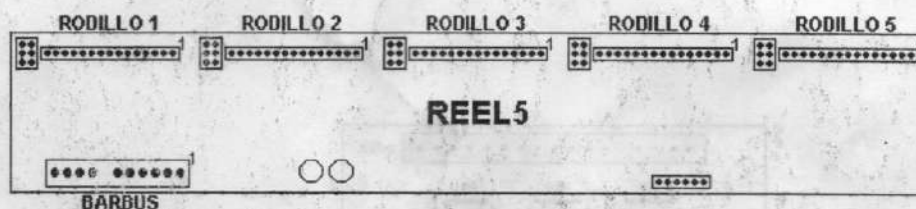
H0	LUZ 368	LUZ 379	LUZ 384	LUZ 392	LUZ 400	LUZ 409	LUZ 416	LUZ 424
H1	LUZ 367	LUZ 378	LUZ 383	LUZ 391	LUZ 399	LUZ 407	LUZ 415	LUZ 423
H2	LUZ 366	LUZ 374	LUZ 382	LUZ 390	LUZ 398	LUZ 405	LUZ 414	LUZ 422
H3	LUZ 365	LUZ 373	LUZ 381	LUZ 389	LUZ 397	LUZ 404	LUZ 413	LUZ 421
H4	LUZ 364	LUZ 372	LUZ 380	LUZ 388	LUZ 396	LUZ 403	LUZ 412	LUZ 420
H5	LUZ 363	LUZ 371	LUZ 379	LUZ 387	LUZ 395	LUZ 402	LUZ 411	LUZ 419
H6	LUZ 362	LUZ 370	LUZ 378	LUZ 386	LUZ 394	LUZ 401	LUZ 410	LUZ 418
H7	LUZ 361	LUZ 369	LUZ 377	LUZ 385	LUZ 393	LUZ 401	LUZ 409	LUZ 417
L0								
L1								
L2								
L3								
L4								
L5								
L6								
L7								

64 SALIDAS DE LÁMPARAS MULTIPLEXADAS
L = LOW
H = HIGH





7.6 Reels Control

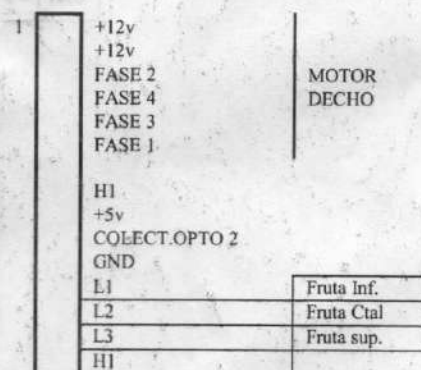
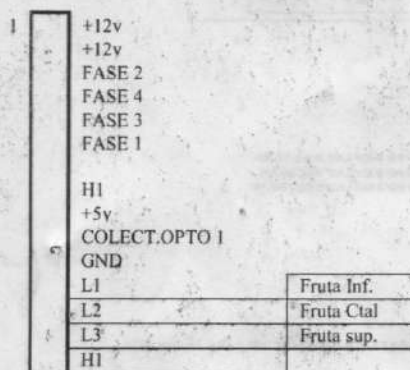
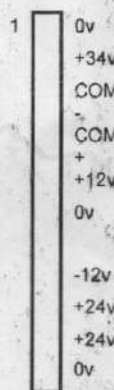


BARBUS

RODILLO 1

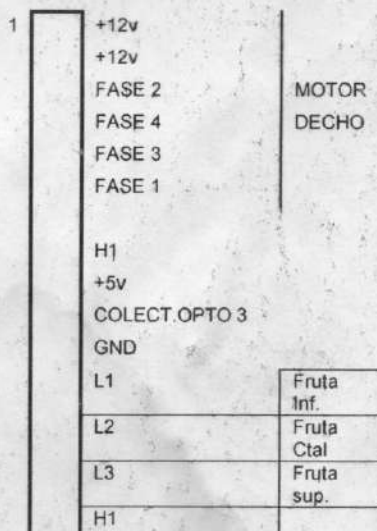
RODILLO 2

RODILLO DE INFERIOR

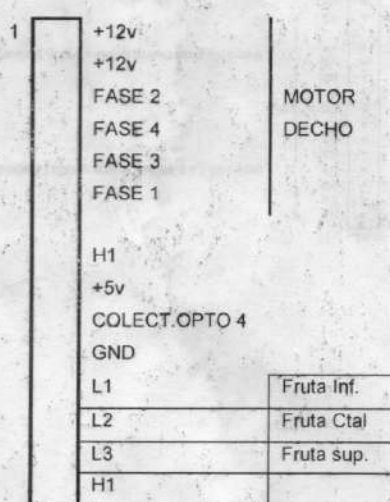


MOTOR
DECHO

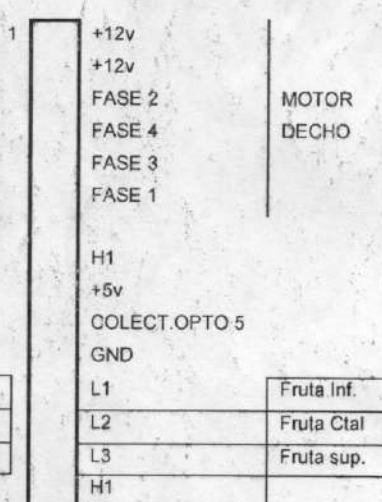
RODILLO 3



MOTOR
DECHO



MOTOR
DECHO

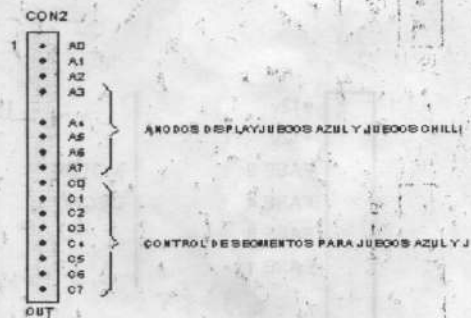
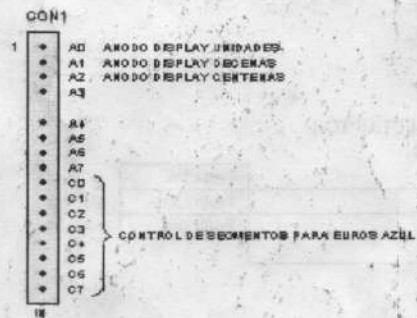
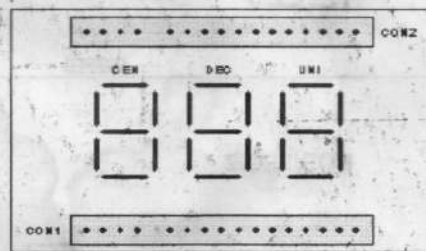


MOTOR
DECHO



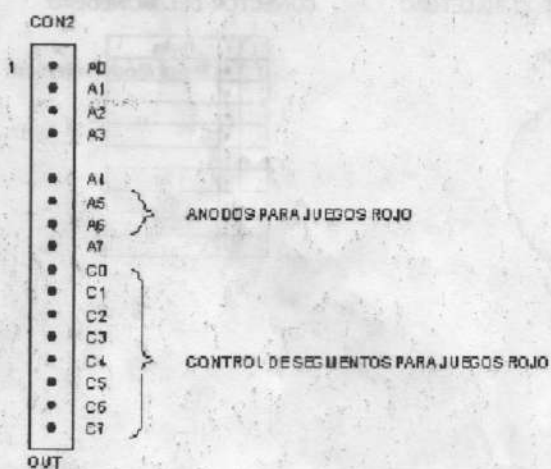
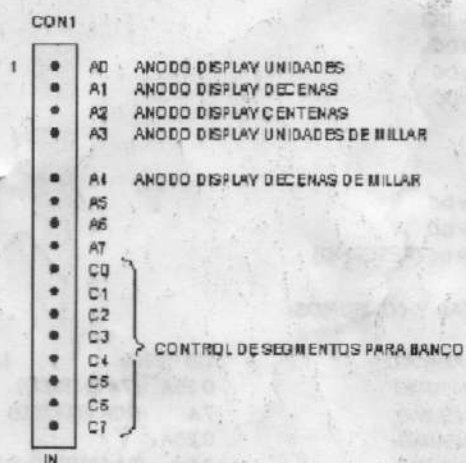
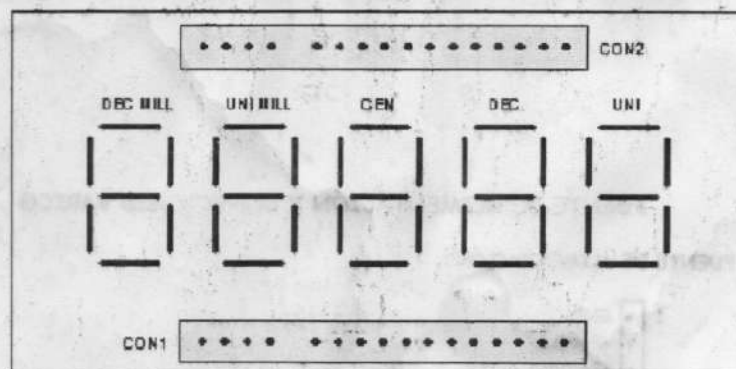
7.7 LED Displays

Display de Bonus





Display de Banco





FUENTE DE ALIMENTACIÓN

- GND
- +24v DC
- +24V dc
- GND
- GND
- GND
- GND
- GND
- +13 v DC
- +13v DC
- +13v DC
- -12v DC
-
-
-
- +37v DC
- +37v DC
- - 12v DC (RETORNO)

CARACTERÍSTICAS Y CONSUMOS:

RANGO DE ENTRADA A.C.

+24v DC MAX CONSUMO

+13v DC MAX CONSUMO

-12v DC MAX CONSUMO

+37v DC MAX CONSUMO

110 - 230v

1.9 - 3.3 a

0.25A (7A EN PICO)

7A (10A EN PICO)

0.25A

3.5A (8A EN PICO A 110v AC)

5A (8A EN PICO A 230V AC)

CONECTOR BILLETRO



CONECTOR DEL MONEDERO

1	•	Data
	•	Serial Mode Selected
	•	
	•	
	•	
	•	12V
	•	0V
	•	0V
	•	

CONECTOR LCD

- LCD_DOUT
- LCD_CLK
- LCD_SENSE
- LCD_RESET
- +12v
- 0V



7.9 Hopper Connector

CONECTOR HOPPER



Other connections not used



Section 8: Other Parts

8.0 Horizon Buttons and Switches

The new Horizon cabinet uses a Gamesman button that is unique to this type of cabinet. There are three types, the left hand corner button, the central buttons, and the right hand corner button. **Other types of buttons cannot be used as a replacement and are not compatible due to the size, internal layout and type of wiring connector used.**



The wiring for the button assembly is crimped into a single in-line 6 way IDC connector that snaps into position when fitted. Diodes are fitted internally within the Red (was yellow) button assembly for the lamp and switch functionality.



All the buttons fitted to the panel are equipped with yellow locking nuts. However on the glass the locking nuts are colour coded by button when the game is manufactured. The 6 way IDC connectors that fit onto these are colour coded to match the nuts. This is to aid the engineer if it becomes necessary to disconnect the glass buttons and it is not clear which one goes back where. By matching the connector to the coloured nut the correct wiring sequence will be achieved.



8.1 Reel Mechanisms

This machine incorporates three reel mechanisms in the lower part (Starpoint 17RM or Gamesman 1000 model), and three reel mechanisms in the upper part (Starpoint 17RM or Gamesman 1000 model), around which revolve screen-printed bands of the same model, each of the lower and upper bands carrying sixteen symbols or figures.

Each of the reel mechanisms has a red LED diode (Starpoint models only) indicating the status of the photoelectric sensor. The LED should be continuously illuminated except when the tab incorporated into each band cuts the beam of the photoelectric sensor which should be switched off.

If one or more reel mechanisms become slightly out of adjustment, their readjustment will be automatically effected by the machine. If the maladjustment exceeds one half of a symbol or figure, the machine will indicate the corresponding fault by means of a sound signal and a text.

8.1.1 Reel Assembly Replacement

The main reel assembly used in the Horizon cabinet is not interchangeable with the reels from the Genesis machine. The reel motor and light box are set at different angles.

When replacing the main reel assembly we recommend that you use the following reel assembly part numbers to ensure correct parts are ordered through our service department

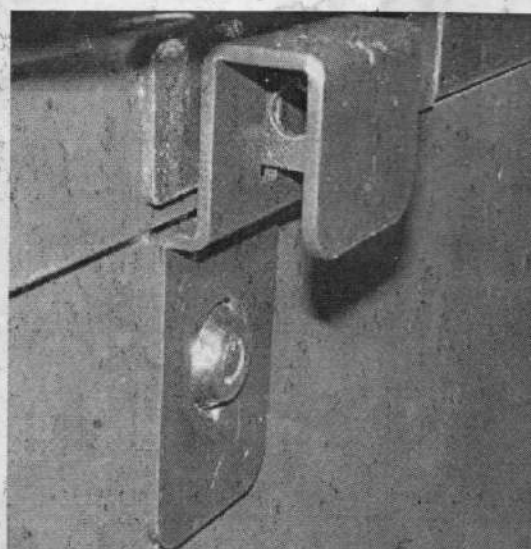
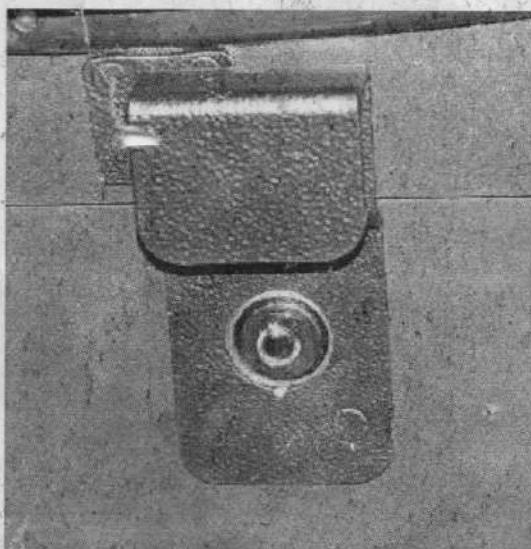
- ☐ For the full set of 3 shelf mounted reels order part number RE37202.
- ☐ For each of the individual shelf mounted reels order part number RE37173.

The glass-mounted reels are the same as the Genesis cabinet and are interchangeable with Horizon.

8.2 Outer Cash Box Door Locking Hasp and Staple

The Horizon machine is equipped with the fittings to carry the Barcrest outer cash box door-locking hasp as shown below. When fitted this protects the door lock and allows the user to fit a padlock of their choice to secure the door.

These hasp and staple brackets are available from the Barcrest service department.





6.3 Stereo Speakers

The Horizon cabinet is fitted with two speakers giving stereo sound. These are located in the top left and right hand side of the doorframe. These are the same speaker as fitted to the Genesis cabinet and are interchangeable between the two products.