Genesis / MPU5
Machine Manual

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CE

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- EN60335-1 / part 82 (Draft)

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Section 1 - Safety Notes

1.1 - General

We make use of a wide range of components in the manufacture of our product, which are in turn supplied by a large number of manufacturers.

Due to its limitations, it is not practical for this manual to contain all the relevant safety data for these products.

If required, the manufacturers data sheets can be supplied.

All parts used in our products are used within their specification limits and in accordance with sound engineering practice.

1.2 - Electrical Safety

1.2.1 - Risk of Electric Shock

240 Volts is present within the machine.

Only suitably qualified personnel should carry out servicing of the machine.

Disconnect from the mains supply before disconnecting, removing or touching any internal components.

1.2.2 - Safe Connection to Supply

To ensure the safe operation of this machine it must be connected to the mains supply using an approved power cord, which meets the requirements of IEC227

This cord must have an IEC approved connector at one end and an approved 13-amp plug fitted with a 5-amp fuse at the other.

1.2.3 - Insulation \ Earth Bond

Insulation and earth bond electrical safety checks are made on all our machines before despatch.

These tests should be then be undertaken annually, or whenever safety critical parts or connections are replaced.

Insulation \ earth bond specifications for our machines are as follows: -

Insulation > 9.9 Megohm @ 500V

Earth Bond < 0.1 ohm @ 25 amps

1.3 - Chemical Safety

Some component parts of our products contain small quantities of chemicals, which are to be considered hazardous should the components be accidentally damaged.

These are as follows: -

- Electrolytic capacitors
- Nickel Cadmium batteries
- Semiconductors containing Beryllium Oxide and Gallium Arsenide
- Opto-electronic devices using Gallium Phosphide

Because of the corrosive or flammable nature of these chemicals, particular care is required in the case of spillage. Where these chemicals do come into contact with the skin or eyes, the affected area must be flushed with cold running water, and medical advice sought.

1.4 - Fire Safety

The components used in our products are in the main, housed in a heat resistant material.

NB: Where component parts are replaced; only components of identical value must be used and that the correct polarity be observed during insertion.

Severe electrical overload conditions could create sufficient heat so as to ignite chemicals within components themselves, other components in close proximity, machine-wiring harnesses etc.

Materials used, which are in the fire hazard category, are:

Material	Hazard
Chipboard	If ignited, chipboard releases Formaldehyde vapour, which irritates the eyes and mucus membranes.
Plastic laminates	If ignited, wire insulation, rubber and plastic mouldings, etc. release noxious vapours, which may cause irritation if inhaled.
Glass	If exposed to extreme heat, glass will crack creating risk of injury.
Electrolytic Capacitors / Batteries	There is a risk of these components exploding if subjected to fire
Harnesses	If ignited, toxic fumes are released: carbon monoxide & hydrogen chloride.

1.5 - Component Disposal

Electronic components should not be incinerated due to the risk of explosion or release of noxious fumes

1.6 – Lithium batteries

Lithium batteries as used in our products must only be replaced with the same or an equivalent type as recommended by the manufacturer
There is a danger of explosion if the battery is incorrectly replaced.

Disposal
Lithium batteries must only be disposed of in a manner described by the battery manufacturer.

1.7 Installing and setting up the machine

1.7.1 - Installation

Positioning of the machine will normally be determined by site staff, however when installing the machine check the following conditions and if any one of them is likely to cause problems with machine operation they should be brought to the attention of the site staff and an alternate site suggested:

- The machine should be standing on a level, flat and stable floor
- Ensure there are no local sources of high temperatures such as fires or radiators
- Try to avoid nylon carpets to minimise problems with static
- Ensure there are no local sources of high levels of moisture
- Check that the mains supply socket is rated for 13 Amps and fitted with an on / off switch and is sited nearby to avoid a long mains lead and that the supply socket is in good condition and not showing any signs of overheating or damage
- Check that the mains socket is fitted with an earth connection and that the earth is correctly connected
- Machines look best in subdued lighting
- The machine should be positioned where site staff can supervise it.

When the machine is positioned check that it is stable and does not rock. Check that the mains cable is undamaged and that the mains plug is fitted with a 3A fuse. Connect the mains lead to the mains socket at the rear of the machine and to the site supply socket.

The machine requires a nominal supply of 240 V AC, 50 Hz but should easily tolerate a variation of plus or minus 10% (216 to 264 volts). If the supply is consistently low the transformer primary tap can be changed to 220 Volts. This change must be noted to ensure the tapping is returned to normal when the machine is re-sited.

1.7.2 - Setting Up

Carry out the following procedure after siting the machine

- Switch on the mains supplies to the machine and check that the machine initialises.
- Open the machine door and carry out the self-test routines. *(Section 4.2 refers)*
- Check that the option switch settings are as required. *(Section 1.7.5 refers)*
- Reset all the electronic meters to zero.
- If applicable check that the appropriate target payout percentage key is fitted to the machine (section 1.7.4 refers).
- Set the audio volume level to suit the site. *(Section 1.7.6 refers)*
- If required use the demonstration mode to show the site operators the basic operating features of the machine.
- Check that the hopper is full and if necessary refill. *(Section 6.1 refers)*
- Check that the correct jackpot key is fitted.
- Close and lock the door of the machine.

1.7.3 – Jackpot / Price Of Play Selection

The MPU5 program module has been fitted with 2 x 9 way D type connectors. The first being the percentage payout selection, as described in section 1.7.4. The second is for the selection of Jackpot level and Price Of Play option.

The keys available are colour coded, and fully labelled to avoid confusion. The keys are also of opposite gender to that of the percentage key, again to avoid conflicts.

Options when available are:-

Price of play	Jackpot	Body Colour	Part Number
5p	£5	Black	12497
10p	£5	Brown	12498
20p	£5	Purple	12487
25p	£5	Grey	12489
30p	£5	Green	12505
10p	£10	Brown	12434
20p	£10	Purple	12441
25p	£10	Grey	12448
20p	£15	Purple	12502
25p	£15	Grey	12503
30p	£15	Grey	12504

If a Jackpot selector key is not present or a key is fitted which is not in the range available for this machine, then the machine will lock up and an error 49 00 will be displayed (section 5.3 refers)

1.7.4 – Target Payout Percentage

Plugging in a percentage key, in the connector mounted on the program card normally sets the target payout percentages. This enables the target payout percentage to be set at anything between 70% and 98% in 2% steps.

Percentage	Key part no.	Key body colour
70%	92671	White
72%	92674	White
74%	92677	Red
76%	92680	White
78%	92683	Green
80%	92686	Blue
82%	92689	Yellow
84%	92692	Orange
86%	92695	White
90%	92698	White
92%	92701	White
94%	92707	White
96%	92710	White
98%	92713	White

If there is no key fitted to the connector the target payout percentage can also be set up using the option switches (section refers). Default for no key or option switches set = 80%

To increase percentage by 1%, refer to section 1.7.5 (option switch 2.7)

1.7.5 – Option Switches

Two sets of eight DIL selector switches are available for setting game options.
SW1 is found on the MPU5 unit and SW2 is on the program card.

Below is the Standard Red Gaming – Dil Switch options:-

Switch Bank 1			
No.	**Function**	**Left**	**Right**
1.8	% Switch	YES	NO
1.7	% Switch	YES	NO
1.6	% Switch	YES	NO
1.5	% Switch	YES	NO
1.4	Disable Clear Bank	YES	NO
1.3	D.H.L Refill	YES	NO
1.2	Low Bank Limit	YES	NO
1.1	Direct Payout	YES	NO

Switch Bank 2			
No.	**Function**	**Left**	**Right**
2.8	Not Used		
2.7	Odd Percent	YES	NO
2.6	Coin Alarm Inhibit	YES	NO
2.5	Not Used		
2.4	LBO	YES	NO
2.3	Not Used		
2.2	Not Used		
2.1	Not Used		

The function of each of the switches is as follows:-

SW 1.1 – With this switch selected all wins are paid out directly. Default is for all wins to be banked as normal.

SW 1.2 – With this switch selected the bank limit is set to £30. Default is £60

SW 1.3 – Display Hopper Levels in Refill – allows levels to be displayed in doors closed refill.

SW 1.4 – With this switch selected, the bank and credits are not cleared when the service doors are opened.

SW 1.5 to SW 1.8 – Percentage payout adjust. These switches are used to set up the target payout percentage in machines which do not have a percentage key fitted.
The settings for the switches are as follows:-

Percentage	Switch 1.8	Switch 1.7	Switch 1.6	Switch 1.5
70%	OFF	OFF	OFF	ON
72%	OFF	OFF	ON	OFF
74%	OFF	OFF	ON	ON
76%	OFF	ON	OFF	OFF
78%	OFF	ON	OFF	ON
80%	OFF	ON	ON	OFF
82%	OFF	ON	ON	ON
84%	ON	OFF	OFF	OFF
86%	ON	OFF	OFF	ON
88%	ON	OFF	ON	OFF
90%	ON	OFF	ON	ON
92%	ON	ON	OFF	OFF
94%	ON	ON	OFF	ON
96%	ON	ON	ON	OFF
98%	ON	ON	ON	ON

SW 2.1 – Not Used
SW 2.2 – Not Used
SW 2.3 – Not Used

SW 2.4 – LBO – If a machine is sited in a location where the out of credit display is distracting, selecting this option reduces animation, dims the lamps and reduces the volume level.

SW 2.5 – Not Used

SW 2.6 – Coin Alarm Inhibit. – when this switch is selected the coin alarm software is disabled.

SW 2.7 – Odd Percent. – selecting this option adds 1% to the chosen payout percentage, regardless of whether the selection is by key or option switch.

SW 2.8 – Not Used

1.7.6 - Software Volume Control

This allows adjustment of the machines volume levels.

On entry, the display will show the volume level in the format:
"VOL MAIN {level}PC".
E.g. "VOL MAIN 50PC", volume set to 50 % of the full volume.

LH1 and LH2 is used to adjust the volume up and down respectively.

After the volume has been adjusted, pressing and holding LH1 and LH2 together will reset the volume to the level at entry to the test. The message "VOLS RESET" will be displayed until the buttons are released, when the current volume level will be once more displayed.

This setting is retained when the power is removed from the machine. The setting can be altered by entering the volume control mode again; or by clearing the memory of the MPU5, when the default setting (50PC), will be selected.

Section 2 - Game Information

2.1 - Credit Limits

The machine will accept up to £8.00 of credits. The number of credits is shown in the **CREDIT** section of the alphanumeric display.

2.2 - Payout System

All cash wins are banked in the savings display for payout when there is no credit left, or the bank limit exceeds £60.

If the bank limit exceeds £60, the machine will pay out any cash winnings until the bank is empty.

When there are no credits left the banked savings are paid out as follows:

The COLLECT push-button is offered and all cash wins held in the bank are paid out.

2.3 - Out Of Credit Display

When the machine is not being played and there are no credits registered, it is pre-programmed to produce an “attract” display showing various features of the machine.

Section 3 - Access to the Inside Of The Machine

3.1 - Access

Before moving the machine carry out a brief visual examination of the machine and surrounding area. Ensure that the machine outer casing or glass panels are not damaged and that there are no loose articles on the machine or supported by the machine which are likely to be displaced when the machine is moved.

Access to the interior of the machine is via a lockable front door, supported on gas struts when open.

Unlock the key lock at the bottom of the door and hinge the door open.

3.2 - Initialisation

When the door is opened interlock is operated which causes the machine to be re-initialised. This initialising process takes place whenever the power to the machine is switched on, or the door is opened or closed. The initialisation process resets the reel positions while displaying a code indicating the version of the machine software on the alphanumeric display.

3.3 - Operation with the Door Open

The machine can be operated with the door open for test, demonstration or maintenance purposes. When the machine has initialised with the door open a door status warning message is displayed on the alphanumeric display.

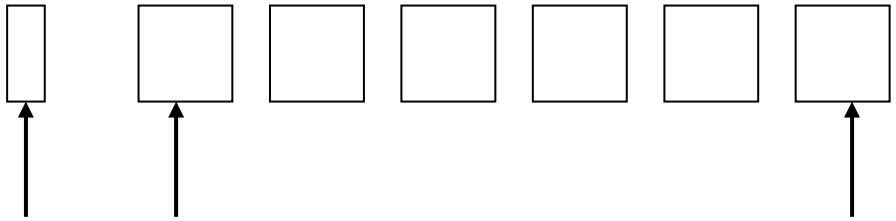
Whilst a door is open the operation of the hoppers is inhibited, there are no transactions recorded on the electronic or electro-mechanical meters and the prior status of the machine with regard to credits etc. will be preserved and restored when the door is closed.

Section 4 - Test and Information Display Modes

4.1 – Entry And Navigation

4.1.1 – Button Definitions

To cater for all styles of machine the button deck will be 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.

4.1.2 – Menu Navigation

RH1 is used to enter or exit the currently displayed test.
RH2 is used to increment the currently displayed test to the next available test.
RH3 is used to decrement the currently displayed test number to the previous test.

4.2 - Self-Test Routines

4.2.1 - General

To aid faultfinding and to provide a quick check of the operational functions of the machine a series of self-test routines are provided. Each self-test routine check's a particular aspect of machine operation and these checks can be carried out individually or one after the other.

4.2.2 - Entering the Self-Test Routines

To enter any of the self-test routines open the machine door, then press and release the two test push buttons, the 1st is located on the program module mounted at the centre of the MPU5 control unit and the 2nd is located below the Reel shelf (the exact location of the second test button varies from machine to machine for security purposes).

Turning the Refill key on entering the Self-Test routines will allow for the closure of the Top Door during the tests.

On entry “BACTA STD V1.0” will be displayed for 3 seconds.

The first test procedure will be displayed on initial entry, i.e. “TEST 1.1 COIN IN”. Buttons RH1, RH2 and RH3 will flash, to indicate the facility to action a test or navigate through the Test Mode Menu.

For button definitions see section 4.1.1

4.2.3 - “TEST 1.1 COIN IN”

On entry this test displays “1.1 COIN IN”. This test is used to verify the coin identification and routing.

4.2.3.1 - Coin Entry

In this test all the coin acceptors are enabled. When coins are fed into the coin slot and accepted by the coin mechanism the value of the coin is indicated on the LED’s or alphanumeric display in the format:

“1.1 {coin value} ACC”
E.g. If £1 is inserted then “1.1 1PND ACC” is displayed.

The coin input message will remain on the display for 2 seconds, then revert back to the coin in message.

4.2.3.2 - Coin Inhibit

LH1 is used to toggle all coin inhibit lines for the coin acceptors. When pressed the display will read “1.1 COIN IN INH” when the inhibit lines are enabled or “1.1 COIN IN” when the inhibit lines are disabled.

All coins entered through the coin acceptors when inhibits lines are enabled will be automatically rejected to the payout tray.

4.2.3.3 - Coin Divert

LH2 is used to toggle the current state of the coin divert outputs. When the state is set to divert the display will initially read “1.1COIN IN DIV”. A subsequent coin entry will result in the message changing to “1.1 {coin value} DIV”, e.g. “1.1 1PND DIV”. When LH2 is pressed again to turn off the coin diverts the display reverts to “1.1 COIN IN”.

Only coins that would normally be diverted will be affected by the divert test.

4.2.4 - “TEST 1.2 COIN OUT”

This test is used to verify coin pay out and coin counting.
On entry this test displays the denomination of the first pay out device, e.g. “1.2 1PND HOP”.
If there is more than one payout device then the buttons RH2 and RH3 will be used to navigate through the devices available.

4.2.4.1 - Single Coin Pay Out

If LH1 is pressed for less than 3 seconds and released the device will pay out one coin and display a message in the format:

“1.2 {coin value} HOP={coin count}”
E.g. If £1 is paid out then “1.2 1PND HOP=001” is displayed.

Repeatedly pressing and releasing LH1 can achieve rapid pay out.

This test will have no effect on the machine's coin count for the hopper float.

4.2.4.2 - Hopper Dump

If LH1 is held down for 3 seconds or more then the machine will dump the contents of the hopper and update the machine's coin count for the hopper float. The dump will display a dynamic count of the coins dumped in the format:

"1.2 FLOAT={coin count}"
E.g. "1.2 FLOAT=125.00"

When there are no more coins to be dumped the float will be updated and the display will read, "1.2 FLOAT UPDATED", for 2 seconds. The display will then revert to the float value message.

4.2.5 – "TEST 2.1 REELS 1"

This test checks the operation and positioning of the four main reels.

When this test is selected the four main reels will spin and stop at position 1 (sync position). This position can be checked as the first symbol on the reel band will be positioned on the pay line and the joint in the reel band can be detected. The four reel illumination lamps associated with each reel should light to indicate that the interrupter flags are breaking the light to their corresponding photocell. The message "2.1 SYNC POSITION" will be displayed.

4.2.5.1 - Reel 1, 2 and 3

By pressing the associated HOLD push-button each reel can be moved by one position in a forward direction. The last reel to move will be displayed in the following format:

"2.1 {10 character description} {reel number}"

E.g. "2.1 ME 2 HD R1", melon with overlaid 2 and a hidden flash on reel 1.
"2.1 ∗3B ? R3", mystery win on treble bars, with a bonus on reel 3.

4.2.5.2 - Reel 4

For machines with more than three reels, LH1 is used to nudge the 4th reel.

4.2.5.3 - Identification Of Wins On The Pay Line

If LH1 is held down for more than 2 seconds the machine will display any win that is currently on the pay line. If no win or some other award is available then this will be displayed in the format:

"2.1 WIN{description}={value or description}"
E.g. "2.1 WINLINE=5.00" or
"2.1 WINFEAT=MIX"

4.2.6 – "TEST 2.2 REELS 2"

This is the same as test 2.1 but applies to a second set of up to four reels in a machine.
If a machine only has four or less reels, then this test will not be available.

4.2.7 – "TEST 2.3 SOAK"

On entry this test displays "2.3 SOAK TEST". All reels will begin to spin, each starting a fraction after the previous. As each vane passes through it's opto, the lights behind that reel will light and an audible sound will be played.

4.2.7.1 - Reel Fault Report

After 5 seconds the soak test message will be replaced by a rotating fault report. The report will sequence through all errors for all reels in the format:

"2.3 {reel number} FAULT={fault number}"
E.g. "2.3 R1 FAULT=0000"

RH2 can be used to display the next fault, if held the current message will remain until the button is released.

4.2.8 – "TEST 3.1 AUTO LMP"

On entry this test displays "3.1 CHECKING LMPS". This test automatically checks each lamp to determine whether or not it is faulty.

If all the lamps pass the test the display will read "3.1 ALL LAMPS OK".
If there are any lamp faults the first lamp found to be faulty will be displayed, e.g. "3.1 LMP 127 FAULT". RH2 and RH3 are used to navigate through the lamp faults, if more than one is found.

4.2.9 – "TEST 3.2 LAMPS"

This test flashes all the lamps and allows the lamps to be lit individually, including any single segment LED's.

4.2.9.1 - Lamp Flash

On entering this test the display will read, "3.2 FLASH". All lamps on the machine will flash. LH1 toggles between the lamp flash and the lamp step.

4.2.9.2 - Lamp Step

On entry to this test each lamp is switched on and off in sequence and displayed in the following format:

"3.2 {lamp number} {lamp name}"
E.g. "3.2 001 NUDGE1"

RH2 and RH3 can be used to step through the lamps forward and backwards respectively.
If LH1 is used to toggle to lamp flash and back again, the test will start at the same position.

4.2.10 – "TEST 4.1 INPUTS"

This test registers the change of state of any buttons, door switches and level switches.
On entry the display will read "4.1 INPUTS". When an input changes state a corresponding lamp will light, a short sound will be played and the display will show the new state, in the format:

"4.1 {input}{state}"
E.g. "4.1 HOLD 1 ON", when a button is held down.
"4.1 HOLD 1 OFF", when a button is released.

In order to acknowledge RH1, the test exit button, the test will display its current state only while pressed. The message will be cleared when the button is released and the test will exit.

4.2.11 – "TEST 4.2 DILS"

This test registers the change of state of the DIL inputs.
On entry the current state of the DIL switches will be displayed as two banks of 8 inputs, a 1 denotes the ON position and a 0 denotes the OFF position, e.g.

"1111111100000000", switch 1 bank 1 ON.
"0111111100000000", switch 1 bank 1 OFF.

It is important that the DIL switches are returned to their normal operating position after this test has been carried out.

4.2.12 – "TEST 5.1 ALPHA"

This test checks the operation of the alphanumeric display.
RH2 can be used to toggle between the following tests:

4.2.12.1 - Single Element Test

On entry to this test the display will clear. Each element on the alphanumeric display is stepped through with a single character.

4.2.12.2 - Entire Display Test

This test displays all elements of the alphanumeric simultaneously. The display cycles through a fixed set of characters, "O", "X" and "+".

4.2.13 – "TEST 5.2 7SEG LED"

This test checks the operation of all LED's (where fitted)
If the machine has no LED's fitted, then this test will not be available.
RH2 can be used to toggle between the following tests:

4.2.13.1 - Single Element Test

On entry to this test, all LED segments will clear. Each element on the LED bank is stepped through with a single character.

4.2.13.2 - Entire Display Test

This test displays all elements of the LED's simultaneously which cycles through a fixed set of characters.

4.2.14 – "TEST 6.1 METERS"

This test checks the operation of the electronic meter situated at the top right hand side of the top glass and where fitted the electromechanical meters.

On entry to this test, the display will read "6.1 METERS". For Mechanical meters remove the outer cash box door to view the meters. Pressing the LH1 button initiates the test. Each meter, in turn, will then be pulsed 5 times. LH1 will be inactive until all meters have been pulsed.
When the test is complete refit the outer cash door.

4.2.14.1 - Starpoint electronic meters

When selected this test now carries out the star point meter test as defined in the technical manual for the "SEC".

If this passes the MPU5 will display "METERS TESTED". If the test fails "METERS FAIL" will be displayed when the test is complete, followed by the relevant Starpoint error code.

4.2.15 – "TEST 7.1 COMMS"

This test checks the operation of the RS 232 link to the electronic data unit if one is fitted.

On entry to this test, the display will read "7.1 COMMS".

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 machine alphanumeric display i.e. "7.1 DPAK PASS".

If the same data signal is returned, then a loop back connector is fitted to the comms port and the port is in self test mode. The message "7.1 PORT PASS" is then displayed.
If neither of the above messages is received then the test has failed and the display will read "7.1 PORT FAIL".

4.2.16 – "TEST 8.1 AUDIO"

This test checks the operation of the sound generation channels of the machine.

The test consists of the audio signals from channel 1 followed by the audio signals from channel 2 and then the audio signals from both channels.

The current channel being tested is displayed in the format:

"8.1 SOUND CHAN{number}"
E.g. "8.1 SOUND CHAN1 ", sound being played on channel 1.
"8.1 SOUND CHAN1+2", sound being played on both channels.

4.2.17 – "TEST 8.2 VOLUME"

This test allows the volume control on the machine to be adjusted.

On entry to this test, the display will show the volume level in the format:
"8.2 VOL MAIN {level}PC".
E.g. "8.2 VOL MAIN 50PC", volume set to 50 % of the full volume.

LH1 and LH2 is used to adjust the volume up and down respectively.

After the volume has been adjusted, pressing and holding LH1 and LH2 together will reset the volume to the level at entry to the test. The message "8.2 VOLS RESET" will be displayed until the buttons are released, when the current default volume level will be displayed once more.

4.2.18 – "TEST 9.1 KEYS"

This test reads and displays the percentage and stakes and prizes key settings.

On entry to this test, the display will identify which configuration is used, in the format:

"{Percentage type} {stakes and prizes type}"
E.g. "PC FXD STK KEY", fixed percentage and stakes and prizes key used.
"PC DIL STK DIL", both percentage and stakes and prizes are selectable via DIL switches.

The current setting will then be displayed in the format:

"9.1 {%value}PC {price of play}P {max prize}"
E.g. "9.1 82PC 30P 15.0", 82 percent, 30p play and £15 Jackpot.

Only keys and/or DIL switches permitted by the current machine EPROM will be read.

4.3 - Information display modes

4.3.1 - General

There are two sets of information display meters, a set of electro-mechanical meters and a set of electronic meters, which can be displayed on the machine's alphanumeric display.

4.3.2 - Electro-Mechanical Meters (optional)

Where applicable two electro-mechanical meters can be mounted on a meter plate behind the outer cash box door. These meters are 12V D.C. type and are mounted in the following order: -

METER 1	METER 2
Cash in	Cash out
10p units	10p Units

The meter information is stored and the meters are pulsed while the machine is in use so that the game cycle is not interrupted.

Disconnection or short-circuiting of any of these meters will cause an audio alarm (see Alarms).

A further REFILL (where applicable) meter is a 12 V D.C. type meter and is situated in the top right corner of the top glass. It is incremented in 10p units.

4.4 Electronic Meter operations – Starpoint ("SEC").

4.4.1 - Description

The "Starpoint Electronic Counter" is an electronic counter designed to replace all traditional mechanical meters in a gaming machine. It is located in the refill meter position near the coin entry bezel.

The main features are:

The "SEC" replaces up to 31 mechanical meters with individual counters stored electronically in EEPROM within the unit.
It is fitted with a 7 digit Liquid Crystal Display to show the contents of these counters.
The host machine controls the display of the various meters and text to explain which meter is being shown.
The electronic meter uses the existing mechanical "Meters" port on the MPU5 to interface to the machine.
The SEC interfaces to the host machine using secure protocol to reduce the risk of tampering.

4.4.2 - Information Display

The host machine controls the display and contents of each meter in sequence on the meters LCD.

Prior to showing each counter the meter will display the associated text message associated with that store for a short period of time.

On machines fitted with an alphanumeric display the meter readings will be duplicated on this.

4.5 - Operational Description

The Electronic Starpoint meter replaces all mechanical meters and provides the meter information as follow in 10p units:

REFILL:	Meter 1.
CASH IN:	Meter 2.
CASH OUT:	Meter 3.
TOKENS IN:	Meter 4. (Where Used).
TOKENS OUT:	Meter 5. (Where Used).
NOTES IN:	Meter 6. (Where Used).
PRIZES OUT:	Meter 7. (Where Used).

In normal operation the electronic meter will display meter 1 which is refill.

4.6 – Door Open Display Sequence

On opening any of the machines access doors the machine enters a door open state that shows:

The machine name.
The software options. (see 4.10 - Software Options)
The version number.
The jackpot setting.
The price of play.

E.g. "AS KD 001 15C30P", Aftershock, Arcade/Datapak, version 1, £15 Cash, 30P play.

This message is replaced after a few seconds with:

The door status. (Toggles)
The selected payout percentage.
The actual payout percentage.

E.g. "MD OPEN 78 78", top door open, 78% - selected, 78% - actual.
toggles "CD CLOSED 78 78", cash door closed

During door open mode the RH1 button is used to enter demonstration mode and LH1 is used to read the LCD meters (if fitted). (Section 4.8 refers)

4.7 – Doors Closed Display Sequence

On closing of all the machines access doors the machine enters a doors closed state that shows the following message for a few seconds:

The selected payout percentage.
The jackpot setting.
The price of play.

E.g. "78PC 15C 30P", 78% - selected, £15 Cash, 30P play.

4.8 - Collection Instructions For The Digital Meter

The new single Digital Meter replaces all the existing meters as one meter and will be fitted into the refill meter position next to the coin mechanism.
To read the new meter the collector should open the machine as normal and the alphanumeric display will show the door open message.

Press the **LH1** button once. The Alphanumeric display will show “READING METER”, followed by the value of the first meter **i.e. “REFILL 0001234” etc** (see table 1. for meter descriptions)

At the same time the machine will display the meter name in the digital meter for one second then the value of that meter for two seconds, before returning to the meter name. (See table 2. for LCD display text)

Press the **LH1** button again to move on to the next meter.

Pressing the **LH1** button will continue to advance the meters forward until the final one is displayed after which the first meter will be shown again.

Pressing the **LH2** button will step back to display the previous meter.

Pressing button **RH1** will return the machine to the door open message.

Note: During the normal closed operation of the machine the new Digital Meter will display reading for the refill meter.

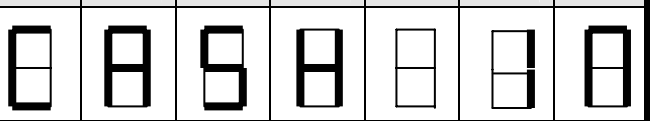
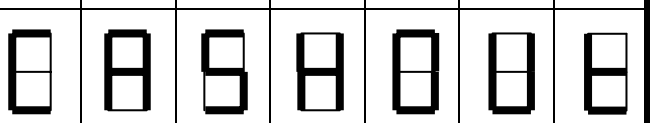
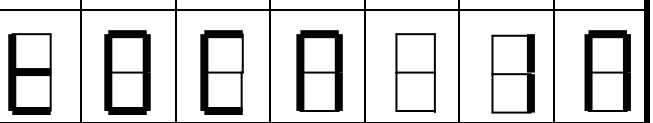
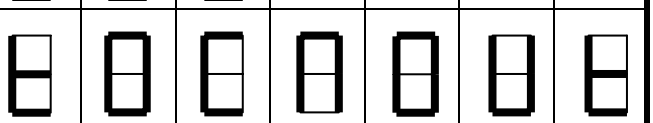
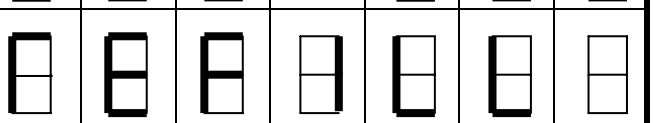
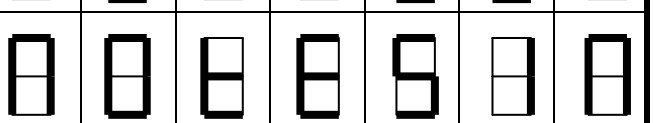
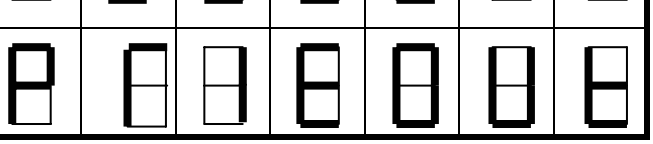
All meters will operate in units of 10p

Listed below is the electronic meter alphanumeric text digit position:

Table 1

		ALPHANUMERIC DISPLAY TEXT POSITION.															
Meter	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CASH IN:	Meter 2.	C	A	S	H			I	N		0	0	0	0	0	0	0
CASH OUT:	Meter 3.	C	A	S	H		O	U	T		0	0	0	0	0	0	0
TOKENS IN:	Meter 4. (Where Used).	T	O	K	N			I	N		0	0	0	0	0	0	0
TOKENS OUT:	Meter 5. (Where Used).	T	O	K	N		O	U	T		0	0	0	0	0	0	0
REFILL:	Meter 1.	R	E	F	I	L	L				0	0	0	0	0	0	0
NOTES IN:	Meter 6. (Where Used).	N	O	T	E	S		I	N		0	0	0	0	0	0	0
PRIZES OUT:	Meter 7. (Where Used).	P	R	I	Z	E	S				0	0	0	0	0	0	0

Table 2

		LCD DISPLAY TEXT						
Meter	Number	1	2	3	4	5	6	7
CASH IN:	Meter 2.							
CASH OUT:	Meter 3.							
TOKENS IN:	Meter 4. (Where Used).							
TOKENS OUT:	Meter 5. (Where Used).							
REFILL:	Meter 1.							
NOTES IN:	Meter 6. (Where Used).							
PRIZES OUT:	Meter 7. (Where Used).							

4.9 - Electronic Accounting and Service History Meters

There are 3 sets of electronic meters: -
Short-term accountancy (Bookkeeping)
Long-term accountancy (Bookkeeping)
Service history (Error Logs)

To display the electronic meters open the **Top Door**, then fit and turn the refill key. Using RH2 and RH3 to navigate through the menu.

4.9.1- Bookkeeping

Press RH1 to enter Bookkeeping. RH2 and RH3 can be used to step through the short-term meters, forwards and backwards respectively.

Pressing the LH1 button can clear the short term accountancy metering. Whilst the button is held pressed the machine displays “W A R N I N G”, as well as a 10 second countdown timer. When the timer reaches zero the message “CLEARING METERS” is displayed and an alarm sounds to indicate that the metering has been cleared.

4.9.1.1 - Short Term Accounting

The Short term accounting electronic meters are as follows (in order of appearance).
The letter ‘S’ prefixes the short-term electronic accounting meters, when displayed on the alphanumeric.

METER NO	FUNCTION
1	Game No
2	£20 In
3	£10 In
4	£5 In
5	£2 In
6	£1 In
7	50p In
8	20p In
9	10p In
10	5p In
11	Tokens In
12	£1 Out
13	Tokens Out

4.9.1.2 - Long Term Accounting

The letter ‘L’ prefixes the long-term electronic accounting meters when displayed on the alphanumeric.

If the LH2 button is pressed and held the corresponding long-term meter is displayed, when released the display returns to the short-term meters.

4.9.2 - Service History

The machine may sound an audio alarm for several fault conditions (see Section 5.3 – Alarm Codes), which can only be cleared by turning the machine off then on again. To aid the Service Engineer the last 30 alarms are recorded in an **Error Logs**.

4.9.2.1 – Error Logs

The error log can be viewed in door open refill.
The display will show the error log in the following format:

"ERR {log number} {error code}{sup code}"
E.g. "ERR 0 0144", error 0, non-payout 100p cash.

If the error log is empty, the message "NO ERRORS" will be displayed.
When LH1 is pressed and held the full error message is displayed.

E.g. "PAY 100P ALM"

The alarms are displayed in chronological order with the latest first. RH2 and RH3 can be used to step through the errors forwards and backwards respectively.

N.B
Where a machine is not fitted with an alphanumeric display, the information is still transmitted to that output port of the MPU 5 and therefore can still be read by connecting a spare display.

4.9.2.2 – Reset Error Logs

When LH2 is pressed and held down for 2 seconds, the error log will be cleared and the message "ERR LOG CLEARED" will be displayed for 2 seconds, followed by "NO ERRORS".

4.10 - Software Options

Several different software options are available for this machine. The software is supplied in a program module, which is plugged into the MPU5 unit of the machine. The following options are available:

Option	Title
S	Standard version
T	Test version
B	Bingo version
A	Gala version
R	Top Rank bingo version
K	Arcade version
D	Version with Datapak interface option active
Y	Percentage key operation enabled
H	Scrolling Message Version

Option S - Standard version. - When fitted with this software version the machine target payout percentage can be set up using either the DIL option switches or a percentage key. Without a percentage key being fitted the default value is 80%. If the hopper(s) go empty the machine will display 'Call Manager' for refill.

Option T - Test software. - This software program is only used during testing of the machine.

Option B - Bingo version. - When fitted with this software version, the machine will lock-up and call for refill when the hopper(s) are empty. The default payout percentage is 84%.

Option A - Gala version. - This version is similar to option B software with the added features that the default percentage payout is 86% and the machine will accept % payout keys in the range 80% - 86%. The machine will 'Call Manager' for refill when the hopper(s) are empty.

Option R - Top Rank version. - This version is similar to option B software with the added features that it locks the target percentage payout at 86%. The machine will 'Call Manager' for refill when the hopper(s) are empty.

Option K - Arcade version. - When fitted with this software version, the machine will lock-up and call for refill when the hopper(s) are empty.

Option D - Datapak protocol version. - This version of the software includes the Datapak protocol software and is designed for use in machines where an electronic data capture device is fitted in the machine. Machines fitted with this version of software will not operate with the door closed unless the data capture device unit is fitted.

Option Y - Percentage key version. - When fitted with software version, the machine will not operate with the door closed unless a percentage key is fitted. If the key is not fitted the machine will lock up and the alphanumeric display will indicate," NO % KEY ERR".

Option H - Scrolling message version. - When fitted with this software version the machine is able to display a message on the alphanumeric display, as the machine goes into out of credit mode. See section 2.3

Section 5 - Alarms

This section contains information to help the service engineer to isolate faulty machine modules.

5.1 - Alarm Messages

When an alarm occurs during normal operation a message is shown on the alphanumeric display in the format:

"{alarm message} {type} {BACTA alarm code}"

E.g. "COIN MECH ALM 10", general coin mech error, non-critical, code 10.

5.2 - Type of alarm

These are split into two categories listed below

5.2.1 – Critical alarms

Operational alarms, which produce an audible alarm and corresponding message on the display and lock the machine until reset.

E.g. "REEL 1 ERR 21"

5.2.2 - Non Critical alarms

General alarms, which produce an audible alarm and corresponding message on the display for a set period of time and allow continued use of the machine.

E.g. "STRIM ALM 19"

5.3 - Alarm Codes

Code	Sup	Description	Message
00	00	Unknown Error	UNKNOWN ALM
01	00	Non Payout of Other	PAY OTHER ALM
01	40	Non Payout 5p Cash	PAY 5P ALM
01	41	Non Payout 10p Cash	PAY 10P ALM
01	42	Non Payout 20p Cash	PAY 20P ALM
01	43	Non Payout 50p Cash	PAY 50P ALM
01	44	Non Payout 100p Cash	PAY 100P ALM
01	4A	Non Payout 20p Token	PAY 20T ALM
01	60	Opto Other Error (5p)	OPT OTHER ALM
01	61	Opto 10p Error	OPT 10P ALM
01	62	Opto 20P Error	OPT 20P ALM
01	63	Opto 50p Error	OPT 50P ALM
01	64	Opto 100p Error	OPT 100P ALM
01	6A	Opto 20 Token Error	OPT 20T ALM
10	00	General Coin Mech. Error	COIN MECH ERR
11	00	£1 Coin Mech. Fault	MECH 100P ERR
12	00	50p Coin Mech. Fault	MECH 50P ERR
13	00	20p Coin Mech. Fault	MECH 20P ERR
14	00	10p Coin Mech. Fault	MECH 10P ERR
15	00	20p Token Coin Mech. Fault	MECH 20T ERR
16	00	General Note Acceptor Error	MECH NOTE ERR
16	01	Note Jammed Error	NOTE JAM ERR
16	02	Note Tamper Error	NOTE TMPR ERR
19	00	Strim Alarm	STRIM ALM
20	00	General Reel Errors	GEN REEL ERR
21	00	Reel 1 Fault	REEL 1 ERR
22	00	Reel 2 Fault	REEL 2 ERR
23	00	Reel 3 Fault	REEL 3 ERR
24	00	Reel 4 Fault	REEL 4 ERR
25	00	Reel 5 Fault	REEL 5 ERR
26	00	Reel 6 Fault	REEL 6 ERR
27	00	Reel 7 Fault	REEL 7 ERR
28	00	Reel 8 Fault	REEL 8 ERR
29	00	Reel 9 Fault	REEL 9 ERR
2A	00	Reel 10 Fault	REEL 10 ERR
30	00	General Lamp Failure	GEN LAMP ERR
31	00	Multiplexor Alarm – Row	MUX ROW ERR
32	00	Multiplexor Alarm – Column	MUX COL ERR
40	00	General Operational Errors	GEN OPER ERR
42	00	Memory Cleared	MEM RESET ALM
43	00	Button Stuck	STUCK BUT ERR
44	00	No % Key	NO % KEY ERR
45	00	Options or % changed	NEW OPTS ALM

Code	Sup	Description	Message
48	00	On/Off Tamper Alarm	ON/OFF ALM
49	00	No stakes/prizes key	STAKE KEY ERR
50	00	General Electronic Problems	GEN ELEC ERR
51	00	EPROM Failure	EPROM ERR
52	00	PAL Error	PAL ERR
53	00	Ram Check Fail	RAM ERR
54	00	General Hardware Error	H/W ERR
54	01	DSP Hardware Failure	H/W DSP ERR
54	02	PIC Hardware Failure	H/W PIC ERR
54	03	Multiplexor 1 Failure	MUX1 FAIL ERR
54	04	Multiplexor 2 Failure	MUX2 FAIL ERR
55	00	ESD / Sparking detected	SPARKING ALM
56	00	Power supply fail	PSU ERR
60	00	General Meter Fault	GEN METER ERR
61	00	Meter 1 – (Cash In) Fault	MET1 CIN ERR
62	00	Meter 2 – (Cash Out) Fault	MET2 COUT ERR
63	00	Meter 3 – (Token In) Fault	MET3 TIN ERR
64	00	Meter 4 – (Token Out) Fault	MET4 TOUT ERR
65	00	Meter 5 – (Token Out) Fault	MET5 REF ERR
66	00	Meter 6 – (Prizes Out) Fault	MET6 PRIZ ERR
68	00	General LCD Meter Fault	GEN LCD ERR
68	01	LCD Meter Read Write Error	LCD R/W ERR
68	02	LCD Meter Fingerprint Fault	LCD FP ERR
68	03	LCD Meter Firmware Checksum Failure	LCD FWCHK ERR
68	04	LCD Meter EPROM Bus Failure	LCD BUS ERR
68	05	LCD Meter Transmission Checksum Corrupt	LCD CSUM ERR
70	00	General Comms Failure	GEN COMMS ERR
70	01	Datapak NAK Received	DP NAK RX ERR
70	02	Datapak Locked Up Error	DP LOCKED ERR
70	03	Datapak Buffer Full Error	DP BUF FL ERR
71	00	Waiting For Dataport	DATAPORT ERR
72	00	Fault Comms Link	COMMS LNK ERR
90	00	General Software Error	S/W GEN ALM
90	01	Software Divide by 0	S/W DIV 0 ALM
90	02	Software Bus Error	S/W BUS ALM
90	03	Software Address Error	S/W ADD ALM
90	04	Software Illegal Instruction	S/W INSTR ALM
90	05	Software Watchdog	S/W WDOG ALM
91	00	Control Illegal Mode	ILL MODE ERR
91	01	Control No Mode Matched	MODE MACH ERR
91	02	Control Mode Changed	MODE CHNG ALM
92	00	Access Cover	ACC COVER ALM
92	01	Negative Credit	NEG CRD ALM
92	03	PIC Security Error	PIC SEC ERR
92	04	Invalid PIC Error	PIC INVLD ERR

Section 6 - Other machine features

6.1 - Hopper Procedures

6.1.1 - Installation procedures

In order for the active diversion of coins to operate correctly, it is important that the machine has a clear picture on installation of the number of coins in the hoppers. The software maintains a count of the number of coins held by the hopper; therefore it needs to know the initial number of coins inserted in the hopper as float.

METHOD

Take £1 coins from the machine to be removed and insert in the hopper on the machine being installed.

If the machine is operating as all cash then: -

1) Enter the engineers test routine by pressing the **TEST SWITCH**. This is located inside the machine on the MPU5 program card.

2) Press the **RH2** button to go to "TEST 1.2 COIN OUT", Press **RH1** to enter this test.

3) Press **LH1** for 3 seconds and the machine will dump the contents of the hopper and update the machine's coin count for the hopper float. *(See 4.2.4.2 - Hopper Dump for further details).*

Read the alpha display to determine next action.

4) If the display shows an amount of less than £125, return £1 coins to hopper. This sets the amount as the £1 hopper float.

5) If the display shows an amount of more than £125. Remove excess coins from payout tray and transfer to the cashbox. Replace £125 to the hopper. Close Top Door to re-initialise the machine. Open **Top Door, turn refill key** and press the **"Hopper Topped Up Switch".**

Verifying hopper float.

6) Open the Top Door and insert and turn refill key. The display will show the refill menu. Press **RH2** until "HOPPER LEVELS" is displayed. Press **RH1** to verify the hopper balance.

7) Remove the refill key and ensure all doors are securely locked. The machine is now ready for operation.

6.1.2 - Engineers Operating Guide

When attending site for coin payout faults, the following options are available.

8) Open the Top Door and insert and turn refill key. The display will show the refill menu. Press **RH2** until "HOPPER LEVELS" is displayed. Press **RH1** to verify the hopper balance. Remove refill key.

1) Enter the engineers test routine by pressing the **TEST SWITCH**. This is located inside the machine on the MPU5 program card. Press the **RH2** button to go to "TEST 1.2 COIN OUT", press **RH1** to enter this test.

2) To test payout 1 coin only
Press **LH1** for less than 3 seconds, the hopper will pay out one coin and display a count on the display.

Repeatedly pressing and releasing **LH1** can achieve rapid pay out.
This test will have no effect on the machine's coin count for the hopper float.
Return coins to hopper.

3) To payout hopper contents
Follow step 2 above.
Press **LH1** for 3 seconds and the machine will dump the contents of the hopper and update the machine's coin count for the hopper float. *(See 4.2.4.2 - Hopper Dump for further details).*

4) Read the alpha display to determine next action.

5) If **DUMP PND BALANCE** there are more £1 coins in the hopper. Put the £125 to one side. Press right hand player button again to "dump" excess coins and add to cash box, then return the £125 to hopper.

6) If an amount of less than £125 is shown, return these coins to hopper.

When attending site for coin mechanism related faults, to obtain coins for use, use step 3 above. Returning these coins through the mechanism rather than directly into the hopper.

Warning

If attending site to replace the MPU5 control unit, then to confirm the hopper balance, follow steps 4 - 7 above to verify cash.

6.1.3 - Procedure for Clearing Coin Jams

It may be possible to clear the jam using a screwdriver or similar to agitate the coins in the hopper if this is not successful removal of the hopper from the machine is necessary.

The hopper is accessed by opening the machine door, slide the payout shelf forwards and disconnect the plug from the MPU5, remove the shelf.

Access to the hopper is by removal of the two screws in each of the coin chute.
Lift off the coin chute and remove the hopper cover.

- Remove all coins from bowl and remove bowl
- Remove the disc bed assembly from base and disconnect 4-way connector. (Refer to technical manual for further information on disassembly).
- Clear the jammed coin by either:-

a) Rotating the disc manually first anti-clockwise then clockwise to free the coin
Or
b) Grip the trapped coin with pliers or similar, and pull free
Or
c) Push the coin back in by using the edge of a similar coin

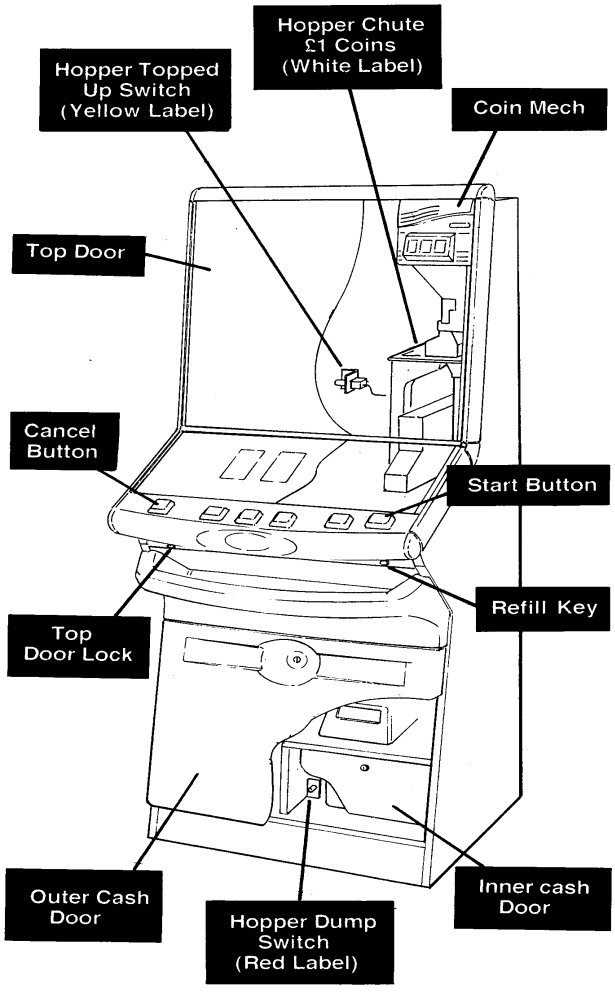
- **NB. Common cause is damaged or bent coins. Beware not to return damaged coins to the bowl.**
- Inspect the eject fingers for obvious damage and replace if necessary.
- Remove any debris from the disc bed assembly
- Clean the exit window opto with a clean dry cloth.
- Reassemble, refill and test the hopper, ensure that all hopper-retaining brackets are securely and correctly fitted.

In the event of severe damage caused by either debris or bent coins which results in continual jamming, it is recommended that the complete disc bed assembly is changed.

IMPORTANT

The gear retaining (posi headed) screw is critically set at the factory and must not be adjusted. Breaking of the paint seal invalidates the product warranty

6.1.4 - Collection Guide



Collecting Cash, Verifying Hopper floats: -

1. Ensure machine is powered up

2. Open **Cash Doors** and turn **Refill Key**.

3. Press the **"Hopper Dump"** switch (confirmed by a sound).

4. Press **RH1** button to commence dump, or **LH1** to abort.

5. The £1 coin float is dumped out of the hopper into the payout tray.

6. If the amount dumped is £125, there may be **EXCESS** coins in the hopper. Press the flashing **RH1** button these will be now be dumped to the payout tray. The number of **EXCESS** coins will be shown on the display. If there are **NO EXCESS** coins (the hopper turns but no further coins are dumped). After 8 seconds the hopper stops and the **Start** button light goes out.

7. If the amount dumped is **LESS** than £125 the Display shows you the amount you are **"Short by..."**

8. If you intend to refill the hopper with £125 see **A.**

9. If you intend to refill the hopper with less than £125 see **B.**

A. Refilling Hopper with £125

a) Open **Top Door** and re-place £125 into **Hopper Chute** labelled **"£1 COINS"** (white label).

b) Press the **"Hopper Topped Up Switch"** (A "sound" confirms that the machine knows that £125 float has been placed in the hopper and "FLOAT TOPPED UP" will be displayed on the alphanumeric for 2 seconds.)

c) Remove **Refill Key**, close and lock the **Top Door**. Remove cash from cash boxes, close and lock Cash Doors. Machine re-initialises.

d) See **FINAL CHECK** to confirm float is at expected level.

B. Refilling Hopper with Less than £125

a) Open **Top Door** and replace coins from 7 above back into **Hopper Chute** labelled **"£1 COINS"** (white label)

DO NOT PRESS "**Hopper Topped Up Switch**".

b) Remove the **Refill Key,** close and lock the **Top Door.** Remove cash from cash boxes, close and lock **Cash Doors.** Machine re-initialises.

c) See **FINAL CHECK** to confirm float is at expected level.

Collecting cash, Topping up hopper float

1. Ensure machine is powered up
2. Open **Cash Doors** and turn **Refill Key**
3. The display will show the refill menu. Press **RH2** until "HOPPER LEVELS" is displayed. Press **RH1** to verify the hopper balance.
4. Collect cash from cash boxes as normal.
5. Remove **Refill Key**, close and lock **Cash Doors.** Machine re-initialises.
6. See **Final Check** to confirm float is at expected level.

FINAL CHECK:

Open the Top Door and insert and turn refill key. The display will show the refill menu. Press RH2 until "HOPPER LEVELS" is displayed. Press RH1 to verify the hopper balance.

6.1.5 - Collections on High Risk Sites

Where it is appropriate collections may be made by: -

(Assuming the machine has been correctly set up.)

1) With the outer cash door open, fit and turn the refill key to establish the hopper balances.

2) The £1 hopper may be increased to £125 by taking coins from the cash box and inserting them through the mech. When full all extra coins inserted will be rejected back to the cash tray.

3) Once the hopper is filled to the correct level the collection can proceed as normal without emptying the hopper.

6.1.6 - Refilling & Topping Up (Doors Closed Refill)

1) If the machine runs out of coins during pay out it will stop and call for refill. The machine shows the amount paid so far and what is required to complete the pay out. The refill routine will operate as follows:

2) Turn the refill key. “BACTA STD V1.0” is displayed for 3 seconds.

3) The Refill Mode menu is entered, displaying the first option, “REFILL COINS”.

4) The hopper is then refilled with coins via the coin mech. The float level is shown on the bank display in the following format:

“REFILL {denomination}={number of coins refilled}”
E.g. “REFILL 1PND=001”

5) Once the £1 hopper is full further coins are rejected.

6) Coins refilled are recorded on the electronic and mechanical refill meters. Remove the refill key. The machine then continues its pay out then returns to normal play.

6.1.6.1 - Last Bank Recall

The last pay out is recorded and may be viewed by entering the last bank recall. The information is displayed in the format:

“LAST BANK = {last bank value collected}”
E.g “LAST BANK = 10.00”

6.1.6.2 – Last Win Recall

The last win is recorded and may be viewed by entering the last win recall. The information is displayed in the format:

“LAST WIN = {last win awarded}”
E.g “LAST WIN = 10.00”

6.2 - Bank Settings

The machine offers a range of banking options that are selected via the option switches on the MPU5 as follows:

SWITCH BANK 1 SW 1	**OFF Wins banked as normal**
	ON Wins paid out direct
SWITCH BANK 1 SW 2	**OFF Bank limited to £60**
	ON Bank limited to £30

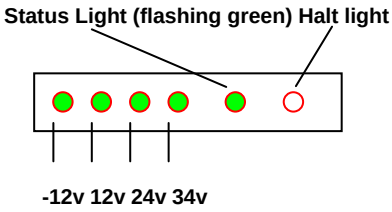
6.3 - Data capture

This requires the fitting of a 'D' version of the software. Provision is made for the fitting of the DATAPAK data capture unit, above the meter panel behind the outer cash door. The cable from the data capture unit is fed from the unit through the holes provided and connected to the RS232 port of the MPU5 unit. The door switch harness from the data capture unit is connected to the spade connections provided adjacent to the front door switch. The actual door switches are pre-wired during manufacture.

Section 7 Engineering Information

7.1 MPU5 Status LED's

The MPU5 has in the bottom left hand corner a row of status LED's. These are provided to give an indication of the processor condition and the voltages present in the Barbus.

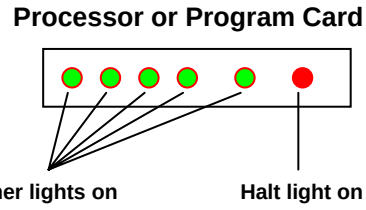


In the normal condition (with the processor in operation and all voltages present).

- The Halt light should be off
- The Status light should be flashing green
- The voltage indicators should all be solid green

If a fault condition is detected by the MPU5 the status LED's will give an indication of the fault. The following examples should help diagnose the possible fault conditions

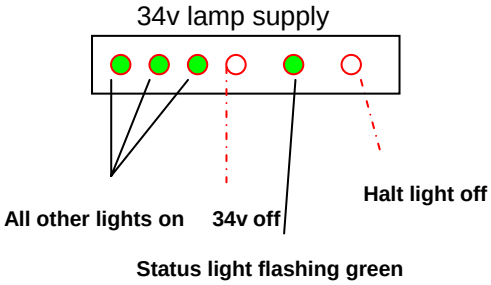
7.1.1 Light On



Fault reported Machine Dead

Action Check program card
Replace MPU5

7.1.2 34v LED off

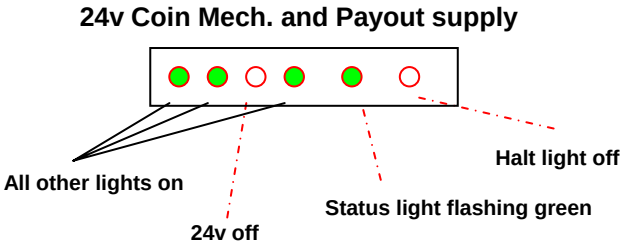


Fault reported No Lights

Action Check 34v fuse on transformer
(34v LED's on Reel and MUX5 boards would also be off)

The MPU5, reel board and MUX5 board each have their own 34v-fused inputs.

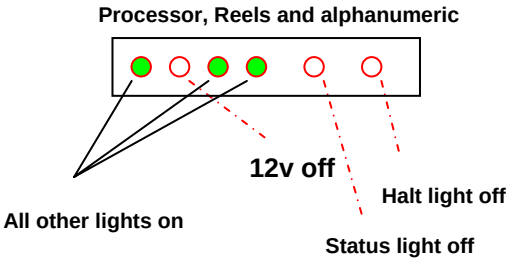
7.1.3 24v LED off



Fault Reported Not accepting coins or No payout

Action Check 22v fuse on transformer
Check 24v fuse on power supply interface board.

7.1.4 12v LED off

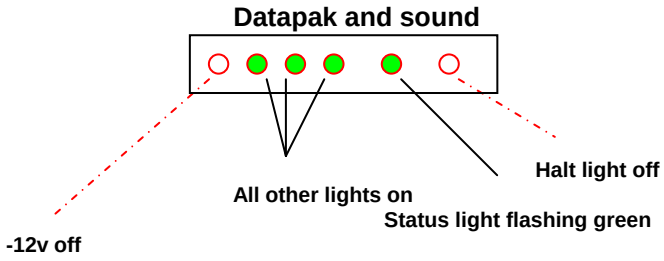


All other lights on

Fault reported Machine Dead

Action Check 12v fuse on transformer
(Status LED's on Reel board and on MUX5 board would also be off)
Check 12v fuse on MPU5

7.1.5 -12v LED off



Fault reported No DP communication or No sound

Action Check -12v on transformer

7.2 Reel Driver \ MUX5 LED's

The Reel Driver Board and MUX5 board both contain status Leeds, 34v indicator and a board status indicator.

34v LED	34v supply, ON "Green" in normal condition or OFF "White" in fault condition.
Fault reported	No lights
Action	Check 34v fuse on transformer
Status LED	**Board state, ON "Green" in normal condition or OFF "Red" in some fault conditions.**
Fault reported	No reels (in the case of reel board) No top lights alphanumeric or LED display (in case of MUX5 board)
Action	Replace relevant board

Please note!

Fuses must be replaced by a fuse of the same value and time rating.

7.3 - Note acceptor information

7.3.1 - Operation

The machine will accept £5, £10 or £20 notes for change when in the out of credit mode or while waiting to start a game and in credit.

Float:
On this machine the hopper float level has been is increased from £125 to £250 in order to cope with the extra demand for coins.

The acceptance of notes is inhibited when the float falls below £50 so that some coins are retained to pay out any winnings and banked savings.

Collectors, Engineers and Installers Please Note: The machine operates the standard Genesis hopper refill procedure but the hopper topped up button sets the hopper balance to £250.

If the £1 hopper balance falls below £50-

- The note acceptor illumination is switched off.
- The note acceptor will stop accepting notes.

The machine displays cash dispensed on the alphanumeric display. Any short payout will lock up the machine, and cause "**IOU**" to be flashed with the amount to pay shown on the display.

Last Note Recall:
Open the **Top Door** and insert and turn refill key. The display will show the refill menu. Press RH2 until "LAST NOTE IN" is displayed. Press RH1 to verify the last note accepted.

Note Accountancy (Mechanical):
On machines equipped with note acceptors for change an extra mechanical meter is fitted in the cash box area. This means the meters are as follows:

- Cash In (10p Units).
- Cash Out (10p Units).
- Notes In (10p Units).

The value of any notes accepted for change is added to the CASH IN and NOTES IN meters. The amount paid out as change is added to the CASH OUT meter.
The percentage payout can be calculated by taking:

$$\frac{\textbf{(Cash Out – Notes In)}}{\textbf{(Cash In – Notes In)}}$$

Note Accountancy (Electronic):
In order to track activity of the note acceptor the machine maintains extra electronic meters as follows:

5 PND IN	Total value of £5 Notes in for change.
10 PND IN	Total value of £10 Notes in for change.
20 PND IN	Total value of £20 Notes in for change.
NOTES IN	Total value of Notes in for change.
PND CHANGE	Total value of coins paid out for change.

Note Accountancy (Electronic Data Capture):
The machine also reports the activity of the note acceptor to the Dataport interface so that it can be recorded by an EDC system such as Datapak.

- Notes in for change are sent to the EDC as £5, £10, or £20 in.
  (NB at present the £20 is generated by sending 2 x £10 codes since there is no code for £20)
- Coins out as change are sent to the EDC in £1 codes as normal.
- No VTP codes are generated for this transaction.

The percentage is calculated as:

$$\frac{\textbf{Cash Out – (Cash In – VTP)}}{\textbf{VTP}}$$

For Example: £50 in for games, £20 for change, and £40 won gives:
Recorded Cash In = £50 + £20 = £70,
Recorded Cash Out = £40 + £20 = £60,
VTP = £50.

This makes the percentage: (50 – (70 – 60)) / 50 = 40/50 = 80%.

7.3.2 - Access or Removal of acceptor unit.

The genesis 98 cabinet has been designed to take the following note acceptors: -

- The Japan Cash Machines. EBA. (European Bill Acceptor).
- The Astra Systems Inc GBA (Global Bill Acceptor).
- The Ardak acceptor AWAC (Ardak World Acceptor).
- The new compact Innovative Technology acceptor NV4

NB. In accordance with section 12.3.1 of our general conditions of sale and supply, We cannot accept liability for any loss resulting from the fraudulent use or malfunction of any of these note acceptors.
The following steps are to be taken to gain access to the note acceptor and once access has been gained each of the of note acceptors types are secured differently.

1. Remove the reels to a safe place noting the positions (reel A, B or C) if Starpoint or Gamesman reels fitted.

2. Remove the payout unit by disconnecting the “12 way plug”, unclip and slide the payout tray fully forward and remove it from the machine to a safe place.

3. Drop down the cash tray by removing the three wing nuts located under the locking bar.

4. Unplug the wires leading to note acceptor cover. This is a “Red 12-way plug” located on the left-hand side of the cabinet just above the reel shelf.

5. Remove the note acceptor cover by removing the two screws located in the locking bar on the left-hand side of the cabinet. Feed the wires through the hole on the front left-hand corner of the reel shelf allowing the cover to be fully removed.

6. You now have access to the note acceptor. As previously stated each of the note acceptors is secured slightly differently.

- **The Innovative NV4 has four screws securing it to the frame.**
- **The Astra note acceptor is secured by two M4 nuts.**

When replacing the note acceptor ensure all the fixings are returned to ensure the security of the structure
The note acceptor should be cleaned every 2-3 months according to the manufacturers recommendations.

7.4 Machine Alarm Wiring

Our machines are fitted with additional wiring to support customer alarms systems.

Please consult your alarm manual to ensure that the alarm system to be fitted may be safely run from a 12v DC supply. Also that the making any of the following connections will not damage the alarm system.

We will not accept any responsibility for damage to any part of the alarm system, or the machine caused by the alarm system being incorrectly installed to the machine.

The alarm should be fitted so as to cover the Alarm Installation Label.

Locate the six wires at the bottom left hand side of the machine, as viewed from the front. These are 1 x Black, 1 x Red, 2 x Yellow, 1 x Blue and 1 x Orange and connect them as follows:

Red – connects to the +12v DC rail of the alarm system
Black – connects to the 0v rail of the alarm system
Yellow – connect to the door switch inputs

At this point the extra 2 door switches should be installed.
These should be mounted next to the existing door switches by screwing the door switch mounting brackets into the pilot holes adjacent to the existing door switches and the new switches fitted into the brackets.

Within the machine harness, and adjacent to the existing door switch wiring are 2 yellow wires with connectors fitted. These should now be connected to the new door switches with one wire connecting to the Common connector, and the second to the Normally Open or Normally Closed connector as your alarm system requires.

The remaining two wires power the LED, which is mounted at the front of the machine as follows:
Blue is connected to the LED –
Orange is connected to the LED +

Please note that this LED is NOT fitted with a series resistor.

Genesis / MPU5
Machine Manual

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