The

CASHFLOW® 340

REFERENCE SERIES

CREDITOR

PRODUCT MAINTENANCE HANDBOOK

MARS ELECTRONICS INTERNATIONAL

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This document does not necessarily imply product availability.

TABLE OF CONTENTS

SAFETY AND EMC

International & National Standards Conformance

When installed and operated according to the instructions for the particular unit, CashFlow® 340 products are designed to meet the applicable Safety and Electro Magnetic Compatibility standards for any country in which they are used.

Maximum Operating Voltages

Do not apply more than the indicated voltage.

Dangerous Environments

Do not operate in the presence of flammable gases, fumes or water.

Disposal of Product

Do not dispose of this product by incineration.

Warning: Before removing or replacing modules **SWITCH OFF or ISOLATE the ELECTRICITY SUPPLY** to the host machine.

THIS MANUAL IS PROVIDED FOR USE ONLY BY PERSONNEL TRAINED TO UNDERTAKE ELECTRICAL INSTALLATION.

GLOSSARY

Accept Gate	Control gate that routes coins/tokens to accept or reject route.
Acceptor	Discriminator assembled together with an accept gate and back cover.
Back Cover	Moulding that provides various mountings for the acceptor facilitating optional routing.
Coin entry	The point at which coins enter the throat of the acceptor.
Coin exits	Routing from the accept gate.
Coin set	Defines the coin types that the creditor will accept.
Coin type	Coin denomination, for example, a 20p piece.
Discriminator	A mechanism that accepts coin/tokens of different values and electronically compares their characteristics with a set of pre-programmed criteria. Those coins that meet the requirements are directed towards an accept route, and those that fail go to a reject route.
Flight deck	The main component of the discriminator, providing the initial path to be taken by coins.
Front Plate	Accessory facilitating the mounting of the product to the front of the host machine.
Inhibit lines	A set of electrical lines controlled by the host machine that stops acceptance of one or more coins.
Interface	The electrical or mechanical boundary between the creditor and the host machine.
Parallel Interface	Additional facilities and benefits accessed via range of optional customer interface PCB's.
Serial Interface	All standard interface functions made directly through host machine. Also called HI[2.]
Snubber	Facility used to absorb impact of coin entry and reduce impetus through flight deck.

OVERVIEW

The CashFlow® 340 product is available in a variety of configurations. These are for the Maxi front plate, the Mini front plate and the Midi front plate.

At the heart of all of these is the acceptor module which controls the discrimination and coin routing functions.

An optional 4 digit backlit LCD display for use in conjunction with the Mini and Midi front plate versions is available.

The operating voltage for all versions is 12v DC.

Acceptor Module

Mini Front Plate

Midi Front Plate
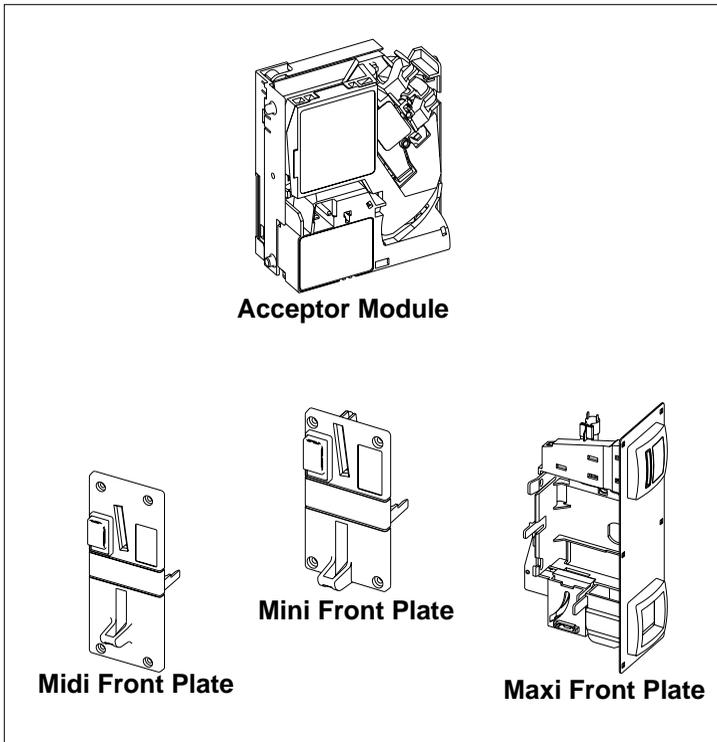
Maxi Front Plate

PRODUCT VARIANTS

MAXI FRONT PLATE
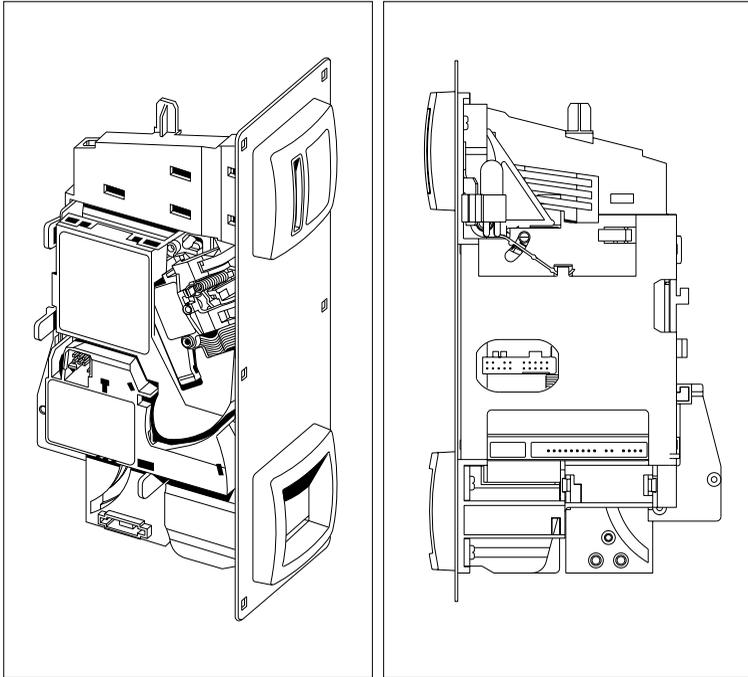
MOUNTING

In adaptor moulding/front plate assembly attached to face of the host machine

INTERFACE

External Interface
Serial
Parallel - Video Credit

Interface P.C.B.

Robust Video Credit Interface (RVCI)

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PRODUCT VARIANTS

MINI and MIDI FRONT PLATE

Mini Front Plate Version

Midi Front Plate Version
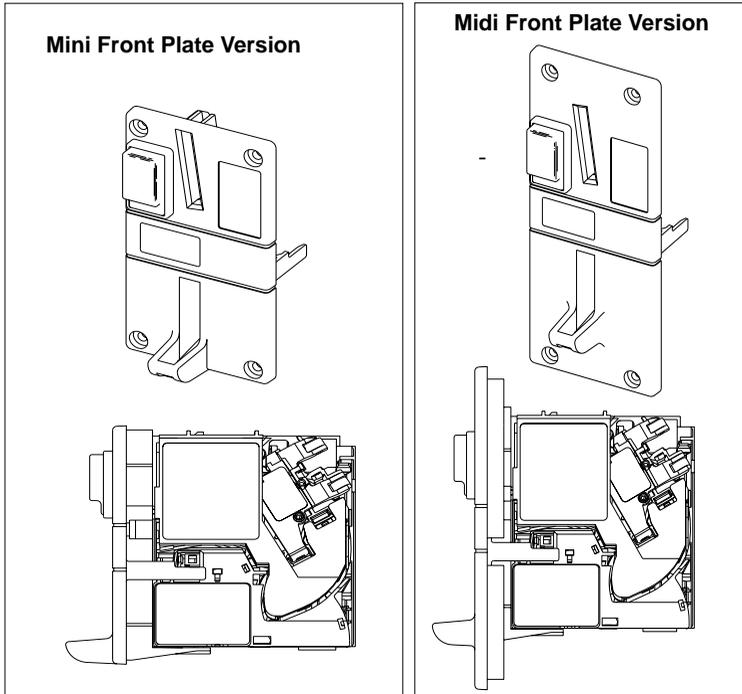
MOUNTING (for both versions)

In front plate assembly to the front of the host machine

INTERFACE

External Interface
Serial
Parallel - Video Credit

Interface P.C.B.

Robust Video Credit Interface (RVCI)

DISPLAY

A 4 digit backlit LCD credit display option is available for use with both Mini and Midi front plates.

INSTALLATION

The CashFlow® 340 Maxi, Midi and Mini front plate versions are comprised of an acceptor module and a front plate assembly. These will be supplied assembled and ready to be fitted into the machine.

The product is fitted into the aperture which must be provided on the front of the host machine and then connected to the interface loom from the machine.
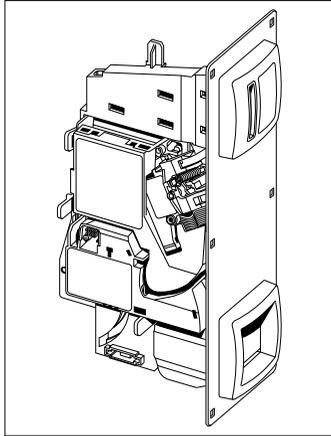
Side view of CashFlow® 340 Maxi front plate mounted product
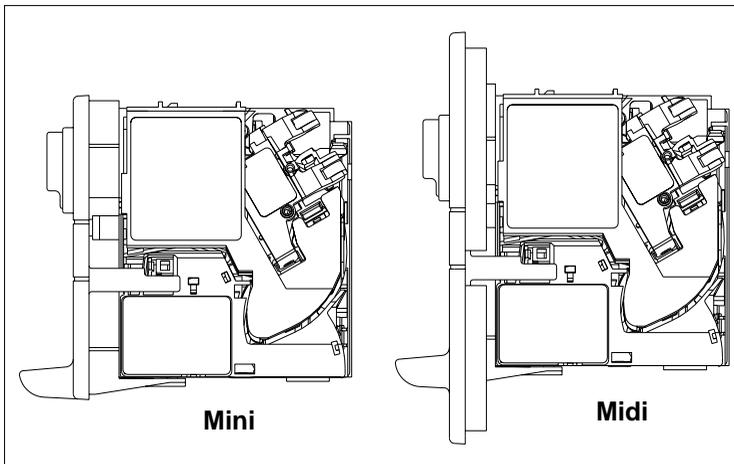
Mini

Midi

CashFlow®-Mini and Midi front plate mounted product

INSTALLATION (continued)

Should it be necessary to dis-assemble the CashFlow® 340 Maxi front plate mounted version the process below must be followed. To re-assemble reverse the process.

    1   Dis-connect the machine interface loom.

    2   Release the retaining clip at the upper left side of the front plate assembly. Pivot and lift the acceptor forward to dis-engage it from the adaptor moulding.

Acceptor Retaining Clip

Acceptor Mounting Point
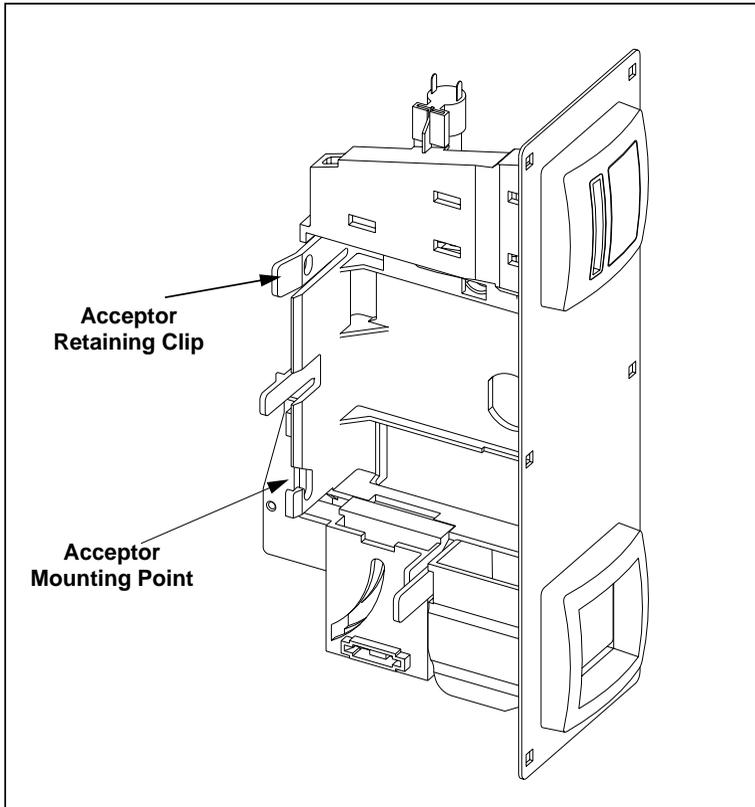
INSTALLATION (continued)

Should it be necessary to dis-assemble the CashFlow® **340 Mini or Midi front plate mounted versions the process below must be followed. To re-assemble reverse the process.**

1   Dis-connect the machine interface loom.

2   Release the retaining clip on each side of the acceptor module and roll the acceptor away from the front plate to release it from the boss at the bottom of it.

Retaining Clips
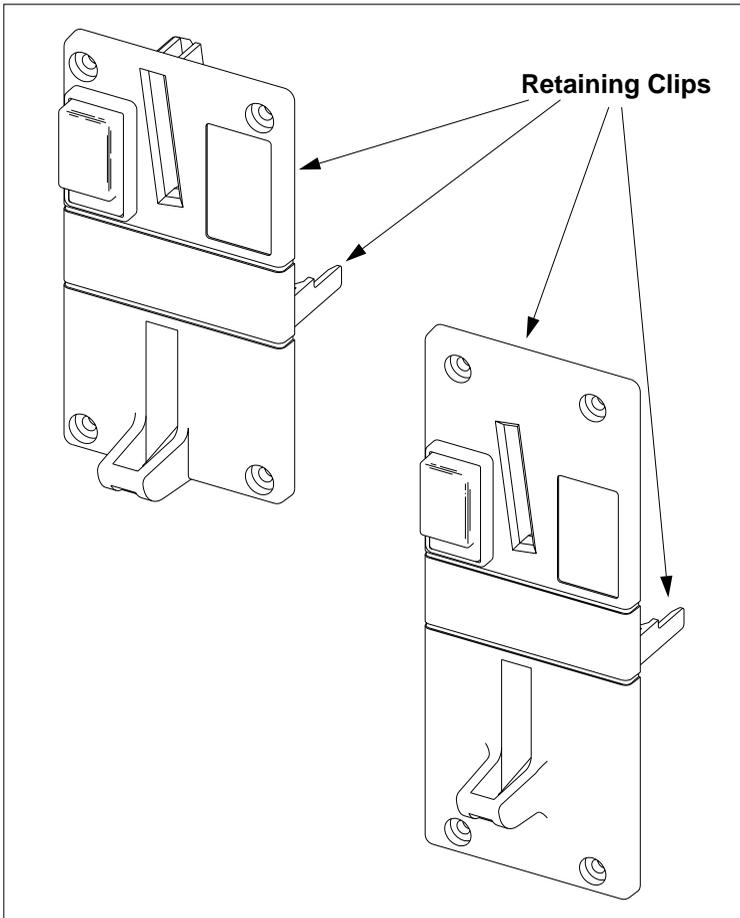
INITIALISING
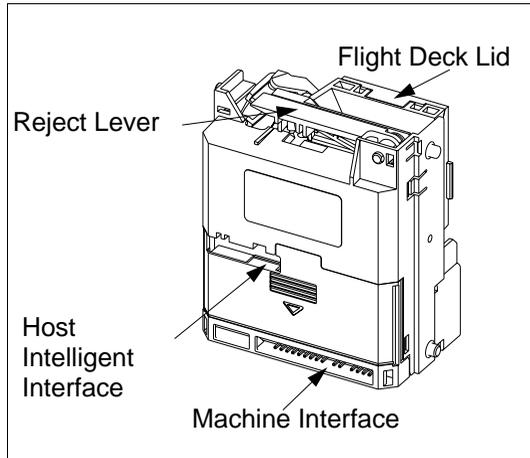
1   Testing the unit

Check that the loom is correctly connected.

Press the reject button on the front plate, mounted to the front of host machine, to ensure the reject lever moves freely, opening and closing the flight deck lid. Care should be taken that the flight deck lid is fully closed otherwise coins may be rejected.

2   Checking coin acceptance

Insert at least one of each coin/token that the creditor is programmed to accept.

Confirm that all inserted coins/tokens are accepted and routed to the required exit path.

If the unit does not work refer to the Fault Finding section.

ELECTRICAL INTERFACES

HOST INTELLIGENT INTERFACE (HI^2)

The HI^2 interface offers serial control of the following functions:

- Inhibiting Coins
- Enabling Coins
- Allocating Coin Values
- Defining Game Prices
- Specifying Bonus Levels
- Configuring Credit Modes
- Setting Test Credit Mode

The connections to the 10 way connector of the HI^2 are shown below.

1	DATA	2	GND
3	BUSY	4	GND
5	RESET	6	POWER FAIL
7	VIN	8	VNEG
9	RESERVED	10	VSOL

```
        ┌──┐
 ┌──────┘  └──────┐
 │ •9  •7  •5  •3  •1 │
 │•10  •8  •6  •4  •2 │
 └────────────────┘
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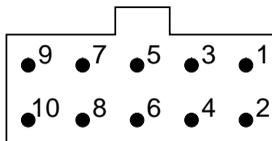
Viewed from loom end

Electrical Specifications

I/O Ports
Data and Busy

Input high voltage	Vih	8.0V min. max	VIN + 1.5V
Input low voltage	Vil	GND - 1.5V min	1.3V max.
Input impedance	Rp	4.7KΩ nom. to VIN	
Output high voltage	Voh	9.0Vmin.	VIN max.
Output low voltage	Vol	GND min.	0.5V max.
Output sink current	Iol	-------	25mA max.
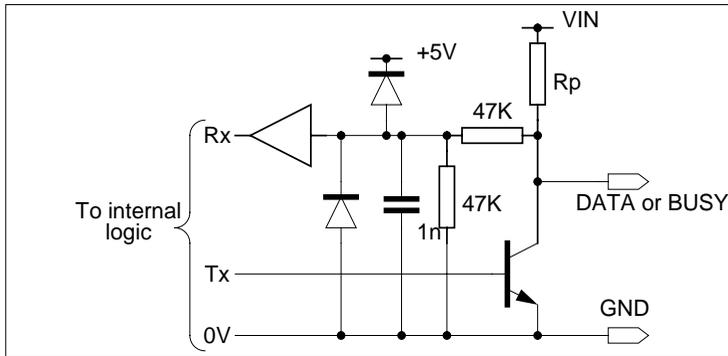
Data and Busy line equivalent circuit

The Data and Busy lines are active low signals and are designed to be wire-ORed with other HI^2 nodes. The selector represents an HI^2 system load of 3 units.

Reset

Input high voltage	Vih	Open circuit or > 3.5V (5.5V max.)
Input low voltage	Vil	(GND - 0.5V) min. 0.9Vmax.
Input impedance	Rp	47kΩ nom. to + 5V
Input capacitance	Cin	1.5μF nom.
Input series resist.	Rserl	56Ω nom.

In addition to the on-board power-on reset circuit, an external device

may reset the system by pulling RESET low. The RESET line is active low and is intended to be driven by an open collector transistor referenced to 0V. A series resistor is provided to limit the peak current drawn when the on-board reset capacitor is discharged by an external device.

PF (Power Fail)

Input high voltage	Vih	3.7V min.	5.5V max.
Input low voltage	Vil	(GND - 0.5V) min.	0.9Vmax.
Input impedance	Rp	4.7kΩ nom. to + 5V	

In addition to the on-board power fail circuit, there is an input on the host connector to allow an external device to warn of an impending power failure. The power fail input is active low and is intended to be driven by an open collector transistor referenced to 0V.

VIN (Power)

Input supply voltage	Vin	10V min.　　　　　15V max. (Abs.max. not operational 20V)
Supply voltage ripple	Vrip	Within Vin min. to max. up to 100Hz
		250mV pk-pk frequencies > 100Hz
Supply rise time	Trise	75ms max.
Input current	Iin	500mA max.

VIN is the input supply voltage referenced to the supply return, VNEG.

VNEG is connected to GND on the acceptor.

LOCAL EXPANSION INTERFACE

The local expansion interface is provided on the CashFlow® 340 creditor to allow connection of the interface PCB. The interface consists of two sets of staked pin connectors along the lower edge of the discrimination PCB, behind the interface PCB cover. The interface can only be used for connection to MEI supplied interface PCB's.

APPLICATIONS SUPPORT

The Host Intelligent Interface (HI^2) is a high functionality interface for point to point or multi node systems.

It is currently only available under licence and confidentiality agreements.

Applications support for HI^2 is in the form of documentation and support. These are all intended to make it straightforward to design-in the interface.

HI^2 Applications Support

Documentation

Library Software

Protocol Support Tools

Protocol Monitor

Implementors Guide

'C'   **6805**   **8051**
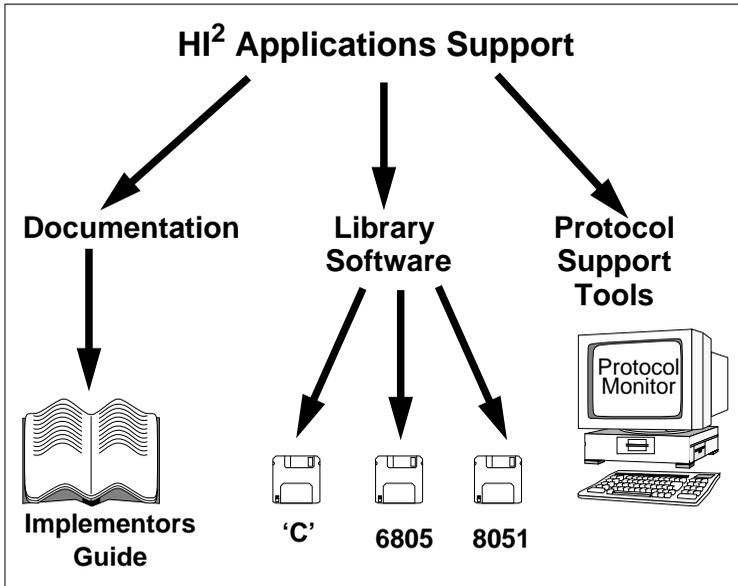
SUPPORT TOOLS

With the use of a HI^2 interface adaptor and with the aid of the special "Protocol Monitor" software application it is possible to connect a PC serial port to the HI^2 signals.

HI^2 Interface
Adaptor

Protocol
Monitor
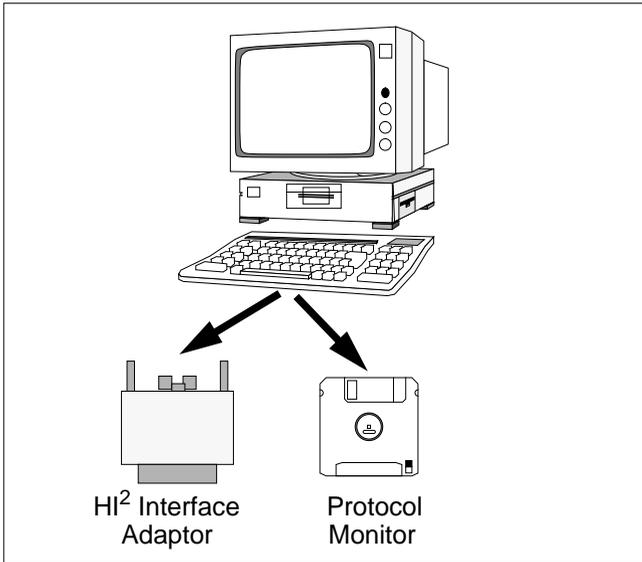
The adaptor should be plugged into the PC serial port and wired to the HI^2 bus as shown below.

10 Way
Product
Connector

1
2
3
4
5
6 — PF
7
8
9 — Reserved
10

10 Way HI^2
Adaptor
Connector

1
2
3
4
5
6
7
8
9
10

Reset Switch
(if required)

VIN
→ +12V (standard products)
→ 0V
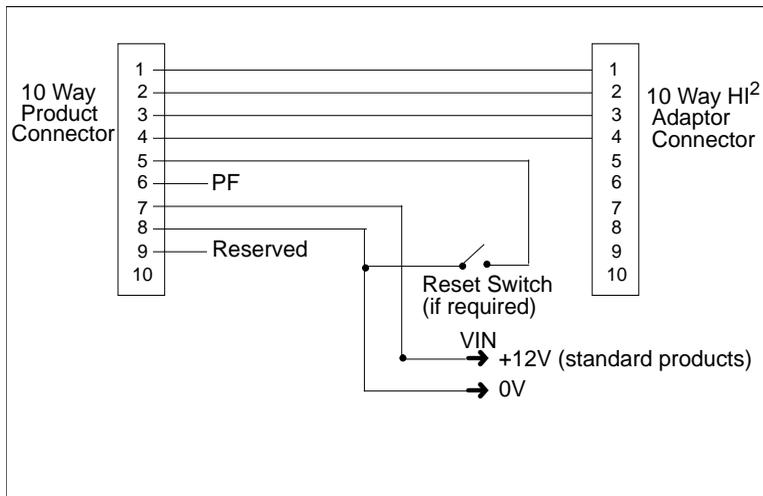
MACHINE INTERFACE PCB's

All CashFlow® coin products incorporate a serial machine interface called HI^2 which offers maximum configuration flexibility.

The video credit interface PCB is used to provide a parallel host interface.

The interface PCB is attached directly to the discrimination PCB and enclosed within the back cover of the acceptor.

The PCB contains a four-bit DIL switch known as the Man Machine Interface (MMI). This switch can be used to configure certain aspects of the product.
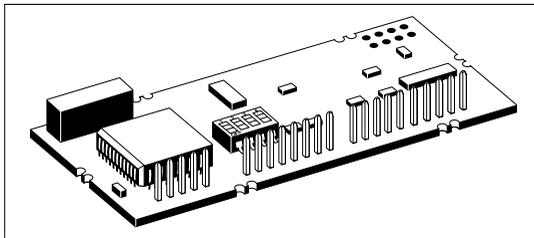
Robust Video Credit Interface PCB

The Robust Video Credit Interface (RVCI) is available in single player and 4 player versions with appropriate dispense inputs and outputs.

Both provide a player lamp output, an entry lamp output, a coin meter output and a secondary credit input.

Back Cover

Pin 1
Display
Connector

Pin 1
Interface
Connector
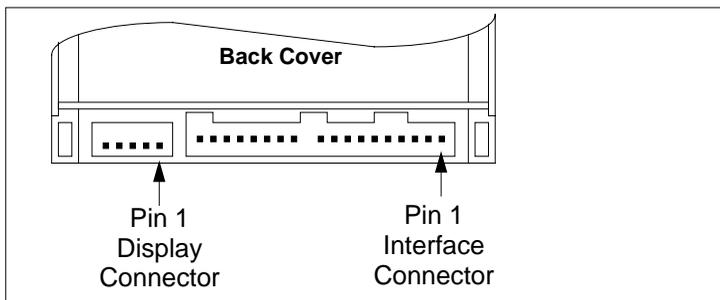
Connector locations - version RVCI

FUNCTIONALITY

The video credit interface PCB contains a masked microprocessor which performs the credit accumulation and host interface functions. The microprocessor communicates with the discrimination processor via the local expansion interface.

Profile specific set-up information is contained within the non-volatile memory on the discrimination PCB and is passed on at power-up. Credit is stored in volatile memory within the interface processor and will be lost if power is removed.

On receipt of a confirmed non-fraudulent payment, the interface processor assigns the appropriate value to the payment type accepted and adds this value to the accumulated credit. If the coin meter option is enabled, the processor will send an appropriate number of pulses, for the payment type accepted, to the coin meter output.

The creditor can be configured for either single or multi-player operation and for either automatic or manual credit dispense in the single player configuration. In automatic credit dispense mode, the appropriated number of game pulses will be dispensed when the accumulated credit exceeds the game price.

In manual credit dispense mode, a single game pulse will be dispensed, to the appropriate player output, each time a dispense input becomes active and sufficient game credits exist.

If the creditor is configured for multi-player operation credit dispense mode is implied, but should in any case be enabled to ensure correct functioning of the product.

In manual credit dispense mode, the creditor will drive the player lamp output to indicate that there are game credits available. The lamp(s) will flash ON for 0.5 sec. and OFF for 0.5 sec. when game credits exist.

The creditor has a programmable maximum games limit which, if exceeded, will cause coin acceptance to be disabled.

The creditor can be configured to give additional games at two defined bonus credit levels. The number of additional games for each bonus level is programmable. The additional games will be given provided the bonus credit level is reached within a programmable time period.

The creditor can accept a credit input from an external device such as a mechanical coin mechanism or bill validator. The credit value associated with the input is programmable. Appropriate coin meter pulses will be generated in response to an external credit input.

DISPLAY FUNCTIONS

An optional external display may be connected to the creditor via the display interface. The type of information displayed can be any one of the following modes, but not nescessarily all of them:

Incrementing games.
Shows 0000 when idle, counts games as credit increases.

Decrementing credit.
Display shows game price when idle. Decrements to 0

Mixed Credit / Games
Display shows game price when idle, plus number of games, counts down to 0 as credit increases, then counts up number of games.

Display Options

	Single Line Output Normal mode	Single Line Output Credit Dispense	Four Line Pulse Output
Incrementing games	✘	✘	✘
Decrementing credit	✔	✘	✘
Mixed Credit/ Games	✘	✔	✔

Lamp ON continuously
Indicates that the creditor is functioning normally.

Lamp OFF
Indicates that the creditor detects an internal fault.

Lamp Flashing
(ON for 1.0 sec., OFF for 1.0 sec.) Indicates a fraud condition has been detected.

Conn Pin	Signal Name
1	CREDIT
2	VSUPPLY
3	ELAMP
4	VSUPPLY
5	CMETER
6	GND
7	PLAMP
8	VSUPPLY
9	PLAYER1HI
10	PLAYER1LO
11	POLARISING
12	GND
13	DISPENSE1
14	PLAYER2
15	DISPENSE2
16	PLAYER3
17	DISPENSE3
18	PLAYER4
19	DISPENSE4

RVCI custom connector pins and signals

The player 1 output is defined as outputs PLAYER1HI and PLAYER1LO, and all other player outputs as PLAYER2-4. The player lamp output is defined as PLAMP, the entry lamp as ELAMP and the coin meter output as CMETER. The dispense inputs are defined as DISP1-4 and the credit input as CREDIT

The PLAYER1HI and PLAYER1LO outputs consist of a floating npn transistor with the collector and emitter made available at the connector. The output transistor is driven from a pnp buffer transistor, from VSUPPLY, through a series resistor.

The other player outputs each consists of an open collector transistor referenced to GND. The output transistors, defined as PLAYER 2-4,are pulsed active to indicate a game output.

Both the player lamp and the entry lamp consist of paralleled darlington transistors, referenced to GND. Their output is active low to illuminate the player lamp(s).

The coin meter output is a darlington transistor referenced to GND, and is pulsed low to increment the coin meter.

The four dispense inputs are CMOS inputs with input protection and pull-up resistor. They are active low to dispense credit.

The credit input is a CMOS input with input protection and pull-down resistor, which is active high to input credit.

ELECTRICAL PARAMETERS

Display Parameters

All outputs	Voff Max	40V
	Von Max	0.5V
	Ion Max	20mA
	Fmax	250kHz (100kHz typical)

Typical Display
module input: CMOS i/p with pull-up resitor

Power

12V operation, VSUPPLY (pin 8) referenced to GND (pin12):

Input supply voltage	Vin	10V min. 15V max.
		(Abs. max. not operational 20V)
Supply voltage ripple	Vrip	Within Vin min. to max. up to 100Hz
		250mV pk-pk frequencies > 100Hz
Supply rise time	Trise	75ms max.
Input current.	Iin	500mA max. Creditor only

19156   G1   **19**

Outputs
Player 1 output: (PLAYER1HI, PLAYER1LO) pins 9 and 10

Off state voltage	Vceoff	+30V max.	
Leakage current	Iin	5µA	
On state voltage	Vcesat	0.5V max.	
On state current	Ic	30mA max.	
Emitter voltage	Ve	0V min.	(Vin -2V) max.
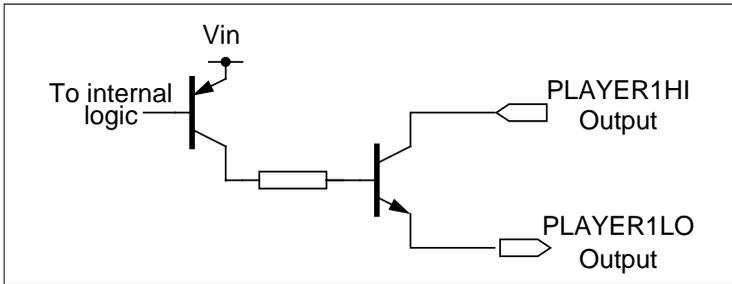
Player 1 output equivalent circuit

Player 2-4 outputs: (PLAYER2-4) pins14, 16 and 18

Off state voltage	Vceoff	+30V max.
Leakage current	Iin	5µA
On state voltage	Vcesat	0.5V max.
On state current	Ic	30mA max
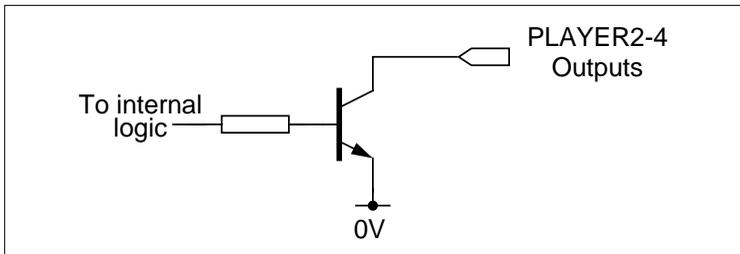
Player 2-4 output equivalent circuit

Player lamp output: (PLAMP) pin 7

Off state voltage	Vceoff	Vin max.
Leakage current	Iin	100μA
On state voltage	Vcesat	1.5V max. (transistor only)
Maximum load	Ic	750mA max. Output is designed to sink current of up to 4 off 12V 2.2W bulbs connected in parallel, to Vin
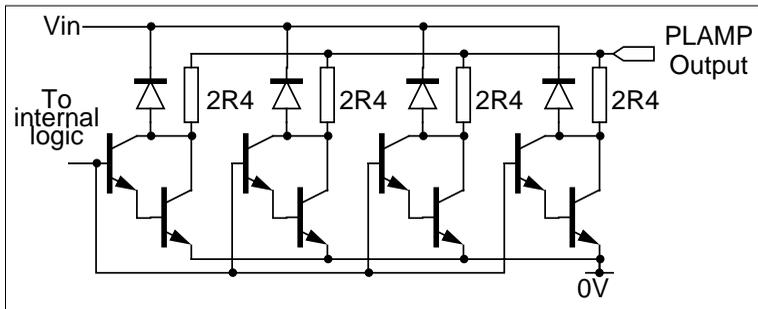
Player lamp output equivalent circuit

All other outputs: (SOL1, ELAMP/SOL2, CMETER) pins 1, 3 and 5

Off state voltage	Vceoff	Vin max.
Leakage current	Iin	100μA pins 3 and 5 3.2mA @ Vceoff = Vin max. pin 1 only
On state voltage	Vcesat	1.5V max. (transistor only)
Maximum load	Ic	500mA max. Output is designed to sink the current of one 12V 2.2W bulb connected to Vin

Inputs

Dispense inputs (DISPENSE1-4) pins 13, 15, 17, 19

Inactive	Vin	> +4 V (+30V max) or input open circuit
Active	Vin	between 0V and +1V
Input Impedance:	4k7Ω nom. to Vin	
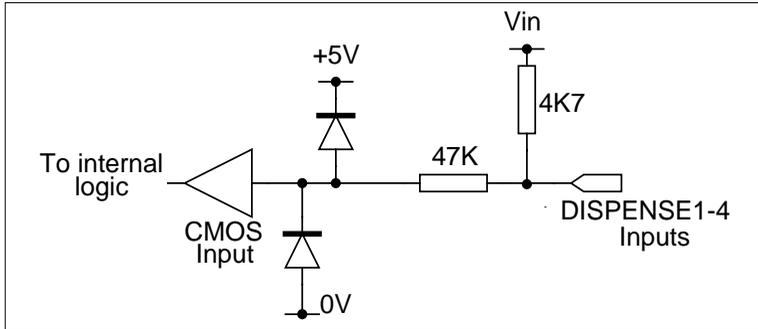
Dispense 1-4 input equivalent circuit

Credit input: (CREDIT) Pin 1

Active	Vin	> +4 V (+30V max)
Inactive	Vin	between 0V and +1V or input open circuit
Input Impedance:	4k7Ω nom. to +0V	
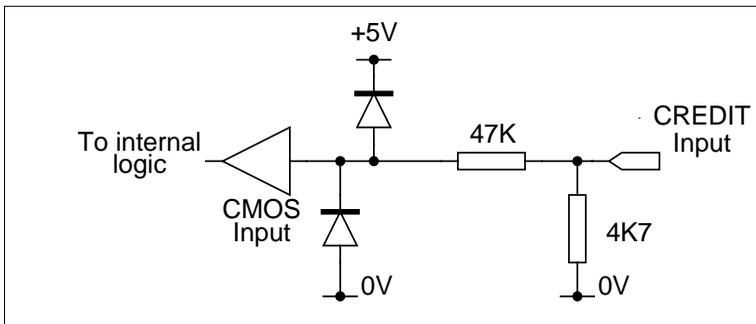
Credit input equivalent circui

CONFIGURATION

The configuration of the creditor can be divided into two areas; Factory Configuration and Field Configuration, these are defined in the following sections. The table below summarises which aspects are factory or field configurable.

Configuration item	Factory Configuration	Field Configuration		
		Mars® Route Alpha 250 Terminal	MMI Switches (when fitted)	Serial Interface
Coin Parameters	✓			
Coin Enable/Inhibit	✓	✓	✓	✓
Coin Values	✓	✓		✓
Game Price	✓	✓	✓	✓
Bonus Settings	✓	✓	✓	✓
Creditor Mode	✓	✓		✓
Test Credit	✓	✓	✓	✓

Coin parameters

Parameters are defined for each coin to determine the limits for the validation of a payment.

Coin enables/inhibits

Each of the coins may be individually enabled or inhibited. An enabled coin will be accepted unless it is inhibited by the interface processor.

Coin value

Each coin is allocated a value which may is used by the interface processor.

Game price

The game price defines the credit level at which a game pulse is sent to the host machine.

Bonus settings

Up to two bonus levels can be defined at which a specified number of additional games are given.

Credit Dispense mode

A single player creditor can be configured to automatically dispense games once a game price has been reached, or to wait for a dispense credit input before dispensing a game pulse.

Test credit

In the test credit mode the creditor will dispense a game pulse each time the reject lever is actuated (within a 10 second time-out period).

FACTORY CONFIGURATION

The CashFlow® 340 creditor is configured for:

- Single Player

- Multiple Players (4 maximum)

Specific Coinsets

The acceptor is pre-programmed to accept a specific range of coins and/or tokens from the following countries.

This list does not preclude any other coinsets not specifically listed.

|		
Australia	Hungary	Singapore
Austria	India	South Africa
Bahrain	Israel	South Korea
Belgium	Italy	Spain
Canada	Japan	Sweden
Colombia	Kuwait	Switzerland
Cyprus	Malta	Taiwan
Denmark	Mexico	Turkey
Eire	Netherlands	UAE
Finland	New Zealand	UK
France	Norway	USA
Germany	Portugal	
Greece	Saudi Arabia	

FIELD CONFIGURATION

The CashFlow® 340 creditor product offers various field configuration options. There are two methods available; via an interface PCB (MMI) or a Mars® Route Alpha 250 hand held terminal.

VIA MAN MACHINE INTERFACE (MMI)

The Man Machine Interface is designed to provide a simple stand-alone interface which allows frequently used functions to be accessed and varied by an operator or route person without the use of a Mars® Route Alpha 250 terminal. The interface consists of a 4-bit DIL switch on the Machine Interface PCB. The following functions are available:

- Inhibit a specific Coin
- Enable a specific Coin
- Set a Game Price
- Set a Bonus level
- Set a Bonus Award level
- Enter Test Credit mode

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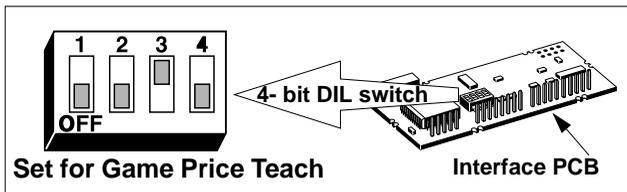
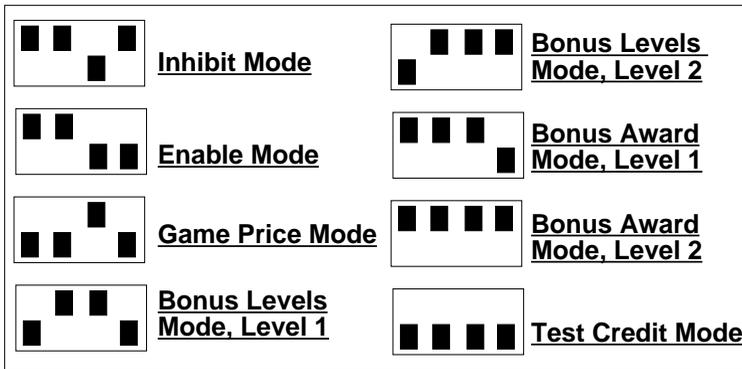To change the function of the product there is a sequence of events that must be followed **in order**:

1 Switch off power and remove the acceptor module from the machine.

2 Dis-connect the loom(s).

3 Remove the interface PCB cover by pressing downwards in the direction of the arrow on the cover.

4 Re-connect the loom(s).

5 Switch on power to the acceptor module.

6 Adjust the switch positions on the 4-bit DIL switch.

7   Replace the acceptor module back into machine.

8   Press the reject lever within a 20 second time-out period.

9   Insert coins until desired function has been achieved.

10   Press the reject lever.

Important points to remember

•   The acceptor module must be powered up before changing the switch positions.

•   The reject lever must be pressed within the 20 second timeout period to return to the normal operational mode.

Care should be taken while the creditor is not mounted in the machine.

Inhibit Mode

Bonus Levels Mode, Level 2

Enable Mode

Bonus Award Mode, Level 1

Game Price Mode

Bonus Award Mode, Level 2

Bonus Levels Mode, Level 1

Test Credit Mode

Switch positions for MMI modes

To set Inhibit Specific Coins mode

1   Adjust slide switches to: 1=ON, 2=ON, 3=OFF, 4=ON.

2   Press the reject lever.

3   Insert specific coins to be inhibited and check that they are accepted.

4   Press the reject lever to return to operational mode.

To set Enable Specific Coins mode

1   Adjust slide switches to: 1=ON, 2=ON, 3=OFF, 4=OFF.

2   Press the reject lever.

3   Insert specific coins to be enabled and check that they are accepted.

4   Press the reject lever to return to operational mode.

To set Game Price mode

1   Adjust slide switches to: 1=OFF, 2=OFF, 3=ON, 4=OFF.

2   Press the reject lever.

3   Insert coins to the value of the game and check that they are accepted.

4   The display (if fitted) will show the game price.

5   Press the reject lever to return to operational mode.

To set Bonus Levels mode, level 1

1   Adjust slide switches to: 1=OFF, 2=ON, 3=ON, 4=OFF.

2   Press the reject lever.

3   Insert coins to the value of the required bonus level and check that they are accepted.

4   The display (if fitted) will show the bonus price, level 1.

5   Press the reject lever to return to operational mode.

To set Bonus Levels mode, level 2

1   Adjust slide switches to: 1=OFF, 2=ON, 3=ON, 4=ON.

2   Press the reject lever.

3   Insert coins to the value of the required bonus level and check that they are accepted.

4   The display (if fitted) will show the bonus price, level 2.

5   Press the reject lever to return to operational mode.

To set Bonus Award mode, level 1

1   Adjust slide switches to: 1=ON, 2=ON, 3=ON, 4=OFF.

2   Press the reject lever.

3   Insert coins equal to number of bonus awards required and check that they are accepted.

4   The display (if fitted) will show number of bonus awards.

5   Press the reject lever to return to operational mode.

To set Bonus Award mode, level 2

1   Adjust slide switches to: 1=ON, 2=ON, 3=ON, 4=ON.

2   Press the reject lever.

3   Insert a number of coins to the value of the required bonus level.

4   The display (if fitted) will show the bonus price, level 1.

5   Press the reject lever to return to operational mode.

To enter Test Credit mode

1   Adjust slide switches to: 1=OFF, 2=OFF, 3=OFF, 4=OFF.

2   Press the reject lever.

3   If credit dispense mode is enabled then the test credits will be accunulated by the creditor each time the reject lever is pressed. The display will show the number of games in credit.

    If not in credit dispense mode then the teset credits will be issued to the host machine each time the reject lever is pressed. The display will show 0000.

4   The display (if fitted, and the creditor in manual dispense mode) will show the number of games in credit.

5   Allow full time-out to occur for return to operational mode.

When you have completed configuring the acceptor module the interface PCB cover needs to be replaced. To do this follow the instructions below:

1   Switch off power and remove the acceptor module from the machine.

2   Dis-connect the loom(s). When dis-connecting hold down the interface PCB before pulling on the loom.

3   Replace the interface PCB cover.

4   Re-connect the loom(s).

5   Place the acceptor module back into the machine.

6   Switch on power.

7   Test the unit to ensure it is working correctly.

VIA MARS® ROUTE ALPHA 250 TERMINAL

Mars® **Route Alpha 250 Terminal**



CashFlow® **340 creditor connections to Terminal**
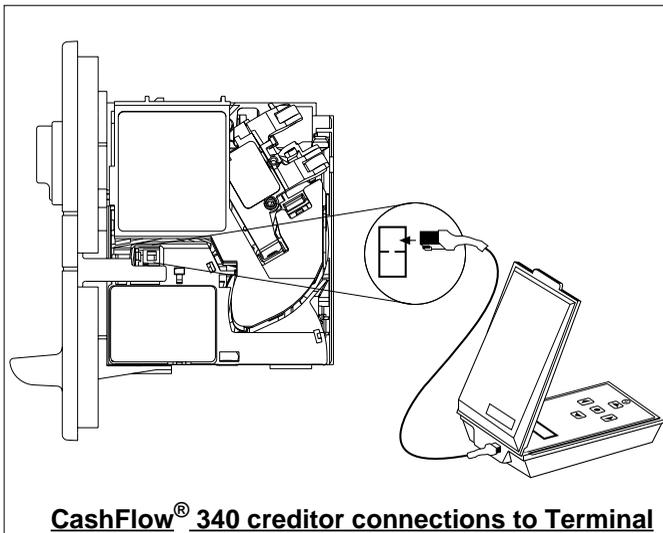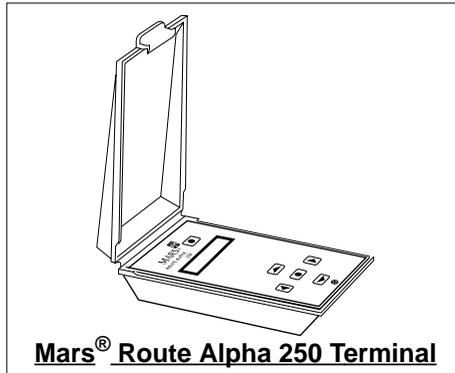
The Mars® Route Alpha 250 terminal is used to check or change certain data which affects the way the creditor operates. The data is held in addresses. Each address has a unique number which identifies the feature you wish to read or change.

The following pages will explain how to access and change the data in certain addresses. At the end of this section there is a list of addresses and the relevant values.

The terminal is connected to the CashFlow® 340 creditor via a six way terminal connector at the front of the acceptor module.

Key Functions
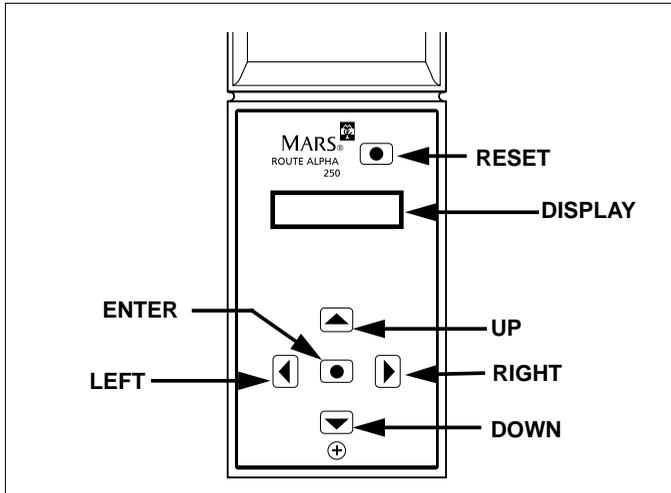
Reset Key: used to reset all modes and to initialise any settings that you have changed. If the reset key is pressed while an address is being updated then the address may not be updated. The reset key must be pressed to store the changes that you have made.

Up Key: used to increase the value displayed on the screen.

Down Key: used to decrease the value displayed on the screen.

Left Key: used to scroll the display to the left when a large number is being accessed that cannot be fully displayed on the screen.

Right Key: used to scroll the display to the right when a large number is being accessed that cannot be fully displayed on the screen.

Enter Key: used to change between the address and data displays.

Other Facilities Of The Terminal

The terminal has built-in features to speed up its use, including the ability to scan at a higher speed with the keys auto repeating, to automatically roll over from its highest to lowest address and to inform the operator should a communication error occur.

Auto Repeating Keys

If either the UP or DOWN keys are kept pressed they automatically repeat. The repeat speed of the key increases the longer the key is held down.

Double Click Hotkeying

If a key is doubled clicked (pressed twice in quick succession) then this causes the address number to increment by a larger amount. e.g. if the user starts at address number 1 then double clicks the UP key, the address will jump to 40, double click again the address will jump to address 100 etc. You can also double click the DOWN key to decrement by larger amounts.
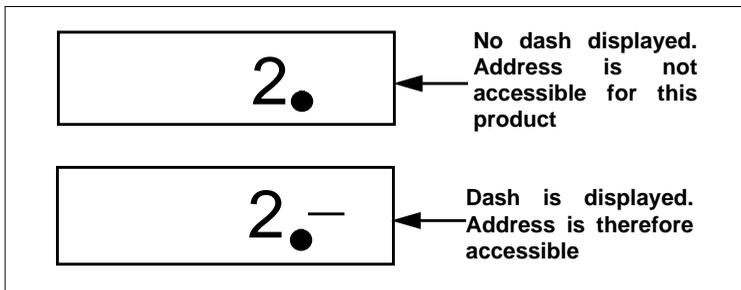
Using The Terminal

As soon as the terminal is connected to a creditor it powers up and interrogates the product.

The terminal display will clear and briefly show a message that indicates the version of software in the terminal. A display of [0 1.0] means software with a version number of 1.0 is fitted in the terminal.

Power up message   Software version = 1.0
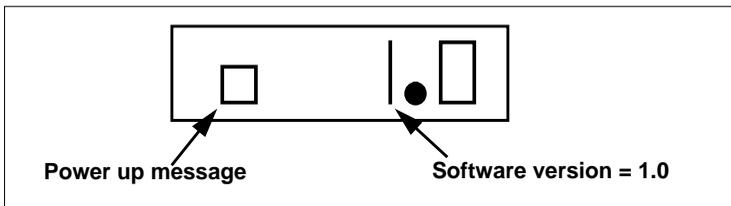
After a few seconds the display will show the number [1.] or [1.-]. Not all configuration items are applicable to every product but all the address values are shown on the display. If the value for the address is applicable to the product a dash will be present at the far right position on the display. The value can then be accessed and changed if required

.

2. ← No dash displayed. Address is not accessible for this product

2.– ← Dash is displayed. Address is therefore accessible

The basic operation to alter the information held in an address is:

1   Connect the terminal to the CashFlow® acceptor module.

2   Wait for the terminal to power up correctly.

3   Select the address by using the UP and DOWN keys.

4   Examine the data by pressing the ENTER key.

5   Alter the data value by pressing the UP or DOWN keys until the new value has been reached.

6   Press the ENTER key to return to displaying addresses.

7   Press the RESET key to initialise the new value.

When the terminal is displaying values stored at addresses, no decimal point will be displayed.

If an error occurs with the communication between the terminal and the creditor the display will show an error message of four half height zeroes.
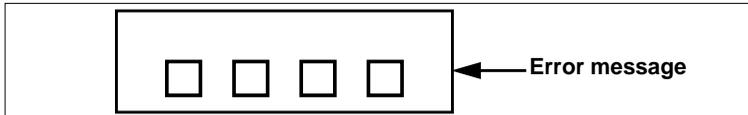
Error message

This message will stay on the display. Pressing the RESET key may clear the fault. The display will then revert to showing the current address. If the error occurred while updating an address then the value of that address should be checked as it may not have been updated correctly. If, after pressing the RESET key, the fault remains the error message will stay and you need to return the terminal for repair.

As the screen is capable of only displaying four digits at any one time the number displayed on the screen can be scrolled if it is greater than 9999 by using the Left Key LEFT and RIGHT keys. The outside left or right digit will flash indicating an extra digit or digits can be examined by use of the scrolling keys. E.g. value is 12345
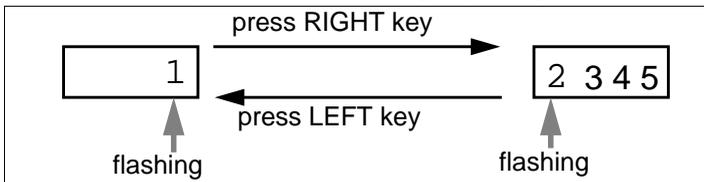
The tables below show you how the addresses for the creditor can be reconfigured and their possible values.

Address	Parameter	Range	Meaning
1	Coin 1 inhibit	0-1	0 = coin allowed,1 = inhibited
2	Coin 2 inhibit	0-1	0 = coin allowed,1 = inhibited
3	Coin 3 inhibit	0-1	0 = coin allowed,1 = inhibited
4	Coin 4 inhibit	0-1	0 = coin allowed,1 = inhibited
5	Coin 5 inhibit	0-1	0 = coin allowed,1 = inhibited
6	Coin 6 inhibit	0-1	0 = coin allowed,1 = inhibited
7	Coin 7 inhibit	0-1	0 = coin allowed,1 = inhibited
8	Coin 8 inhibit	0-1	0 = coin allowed,1 = inhibited
9	Coin 9 inhibit	0-1	0 = coin allowed,1 = inhibited
10	Coin 10 inhibit	0-1	0 = coin allowed,1 = inhibited
11	Coin 11 inhibit	0-1	0 = coin allowed,1 = inhibited
12	Coin 12 inhibit	0-1	0 = coin allowed,1 = inhibited
15	Accept direction	0-1	0 = left,1 = right
16	Strobes	0-15	Value = sum of codes 1 = direction strobe left 2 = direction strobe right 4 = post gate left, 8 = post gate right
21	Coin 1 type	0-2	0 = coin 1 = value token 2 = vend token
22	Coin 2 type	0-2	0 = coin 1 = value token 2 = vend token
23	Coin 3 type	0-2	0 = coin 1 = value token 2 = vend token
24	Coin 4 type	0-2	0 = coin 1 = value token 2 = vend token

Address	Parameter	Range	Meaning
25	Coin 5 type	0-2	0 = coin 1 = value token 2 = vend token
26	Coin 6 type	0-2	0 = coin 1 = value token 2 = vend token
27	Coin 7 type	0-2	0 = coin 1 = value token 2 = vend token
28	Coin 8 type	0-2	0 = coin 1 = value token 2 = vend token
29	Coin 9 type	0-2	0 = coin 1 = value token 2 = vend token
30	Coin 10 type	0-2	0 = coin 1 = value token 2 = vend token
31	Coin 11 type	0-2	0 = coin 1 = value token 2 = vend token
32	Coin 12 type	0-2	0 = coin 1 = value token 2 = vend token
41	Price	0-65,535	Required credit for game output
43	Display mode	0-3	0 = incrementing credit 1 = decrementing credit 2 = number of games 3 = number of games and Decrementing credit
44	Display shift	0-2	0 = nil shift 1 = shift to right by one move 2 = shift to right by two moves

Address	Parameter	Range	Meaning
45	Decimal point position	0-4	0 = retain point at right side 1 = move point to left once 2 = move point to left twice 3 = move point left three times 4 = no decimal point
60	Bonus credit mode	0-1	0 = dis-able 1 = enable
61	Coin meter output enable	0-1	0 = dis-able 1 = enable
62	Auxiliary credit input enable	0-1	0 = dis-able 1 = enable
63	Credit dispense mode	0-1	0 = dis-able 1 = enable
64	Test credit mode enable	0-1	0 = dis-able 1 = enable
65	Separator drive enable	0-1	0 = dis-able 1 = enable
66	Game pulse width	0-5	0 = 75ms ON 75ms OFF 1 = 75ms ON 200ms OFF 2 = 100ms ON 200ms OFF 3 = 100ms ON 330ms OFF 4 = 150ms ON 330ms OFF 5 = 330ms ON 330ms OFF
67	Coin meter pulse width	0-3	0 = 50ms ON 50ms OFF 1 = 100ms ON 100ms OFF 2 = 150ms ON 150ms OFF 3 = 200ms ON 200ms OFF
68	Bonus time width	0-15	Time in steps of 2.5secs.
69	Auxiliary credit input units	0- 255	Value divided by payment scaling factor
70	Trigger level 1 award	0-127	Games awarded at trigger level 1
71	Trigger level 1	0-65,535	Credit trigger level 1

Address	Parameter	Range	Meaning
72	Trigger level 2 award	0-127	Games awarded at trigger level 2
73	Trigger level 2	0-65,535	Credit trigger level 2
74	Maximum game limit	0-127	Maximum number of games limit
75	Coin meter value scalar	0-255	Number of pulses = credit/coin meter scalar
80	Payment scaling factor	0-255	Scalar applied to coin/auxiliary value
81	Value of coin 1	0-255	Real coin value divided by payment scaling factor
82	Value of coin 2	0-255	Real coin value divided by payment scaling factor
83	Value of coin 3	0-255	Real coin value divided by payment scaling factor
84	Value of coin 4	0-255	Real coin value divided by payment scaling factor
85	Value of coin 5	0-255	Real coin value divided by payment scaling factor
86	Value of coin 6	0-255	Real coin value divided by payment scaling factor
87	Value of coin 7	0-255	Real coin value divided by payment scaling factor
88	Value of coin 8	0-255	Real coin value divided by payment scaling factor
89	Value of coin 9	0-255	Real coin value divided by payment scaling factor
90	Value of coin 10	0-255	Real coin value divided by payment scaling factor
91	Value of coin 11	0-255	Real coin value divided by payment scaling factor
92	Value of coin 12	0-255	Real coin value divided by payment scaling factor

CLEANING THE ACCEPTOR

In order to ensure maximum efficiency from this product it is essential to pay regular attention to the cleaning of the coin pathway. Before attempting to clean or remove the acceptor the machine should be **switched off.** The shaded areas shown in the diagram below should always be kept free from dirt, grease, etc. Any cleaning should be carried out by using a soft damp cloth.The surface should always be left clean and dry after any such cleaning.

Should any drops of water enter the product leave machine switched off for sufficient time to dry out before switching on again.

Never use solvents to clean this product as this will damage the surfaces.

Note: Failure to switch the machine off before cleaning could result in a possible delay in accepting coins.

The acceptor calibrates itself at power up and re-calibrates every 4 minutes, 5 seconds after a coin has been rejected, or 5 seconds after the deck is closed. If you switch on with the lid open it will calibrate itself incorrectly and, if a coin is inserted within 5 seconds of the deck being closed, it will be rejected. Subsequent coins will follow the normal process of validation <u>provided</u> that the lid is firmly closed.
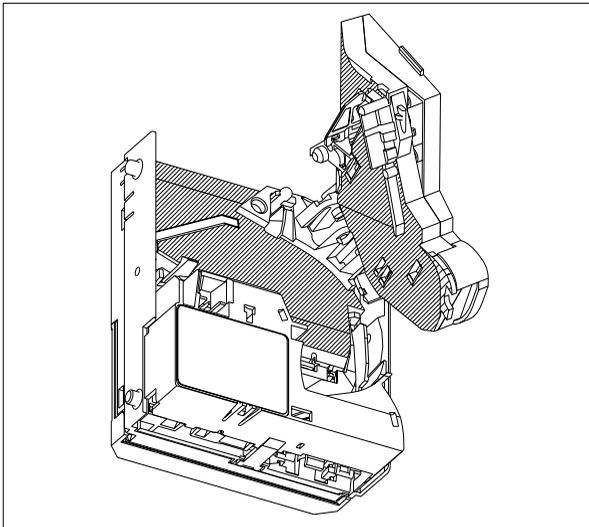
REPLACING MODULES

REPLACING THE BACK COVER

1 Remove the Interface PCB cover.

2 Remove the customer interface PCB if fitted.

3 Release the retaining clips where shown on diagram. You will find it easier if you use a small screwdriver.

4 Gently ease out the discriminator module from the back cover.

**For re-assembly reverse the above instructions.**

Clip 2

Clip 4

Clip 1

Clip 3
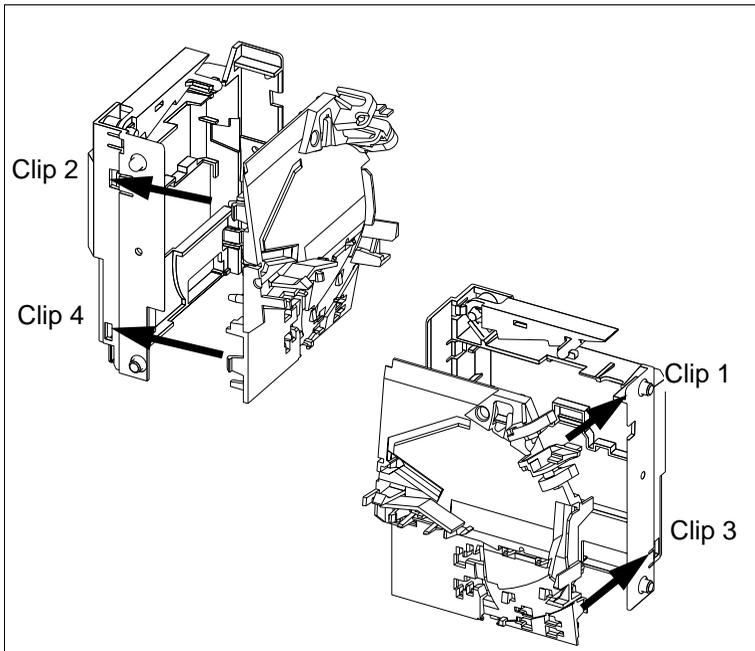
Left and Right Hand Clip Positions

Please note: While the above diagram shows the detail for the top entry version, the same procedure is followed for the front entry version.

REMOVING THE ACCEPT GATE

1   Remove the acceptor module.

2   Remove the back cover, observing the earlier instructions on removing the discriminator, from the back cover.

3   Dis-engage the PCB at the rear by releasing the retaining clip on the upper left hand side of it. Extreme care should be taken not to damage the flexi-circuit leading to the PCB while it is dis-engaged.

The accept gate is held in the discriminator via three clips
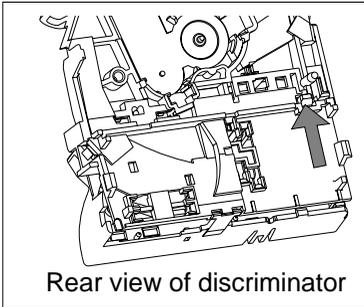
Rear view of discriminator

Release the clip at the point shown in direction of arrow.
Gently ease accept gate module outwards away from discriminator.

Dis-engage the clip at the base of the accept gate and separate gently the two parts in the direction of the arrow.
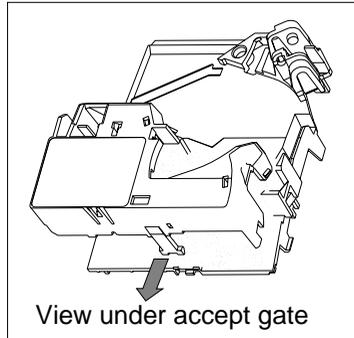
View under accept gate
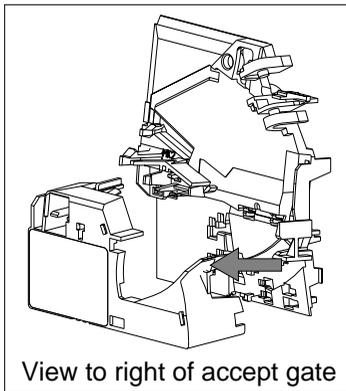
View to right of accept gate

Pressing the side of the accept gate at the point indicated, and keeping the accept gate parallel to the discriminator, pull it free from its electrical connections, taking care not to bend the pins.

To replace the accept gate the discriminator lid must be opened. Great care must be taken because the spring will become disengaged if the lid, (which is normally restrained by the back cover), is taken further back than 100˚.

When replacing the accept gate make sure that all three clips are correctly aligned before pushing back into place. At all times the flexi-circuit must be treated with care to ensure no damage results from rough handling.

Should the spring require re-fitting the guides and pivot points forming the physical link between the deck and lid must be first be correctly located, and the spring connected at both ends. The two parts should be pulled apart and pivoted into the correct position. At no time should undue force be used as this will cause irreparable damage to the mouldings and make the discriminator unusable.

Check for correct functionality after re-assembling.
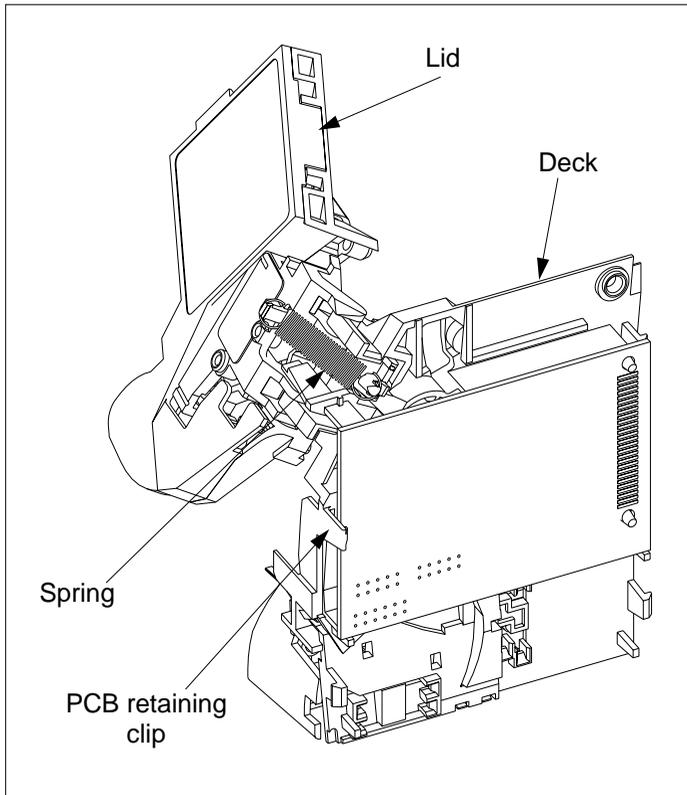
CHANGING THE INTERFACE PCB

1   Unplug the acceptor module from any looms that are attached.

2   Remove the acceptor module from the front plate.

3   Slide off the removable back cover by pressing and pushing downwards in direction of arrows (Fig 1).

Fig 1

Press & Push Down Here

Removable PCB Cover
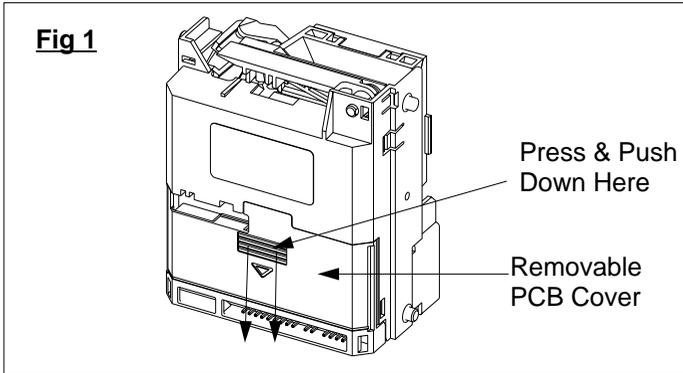
4   Carefully lift and remove the Interface PCB (fig.2) taking care not to bend the connector pins.

Fig 2
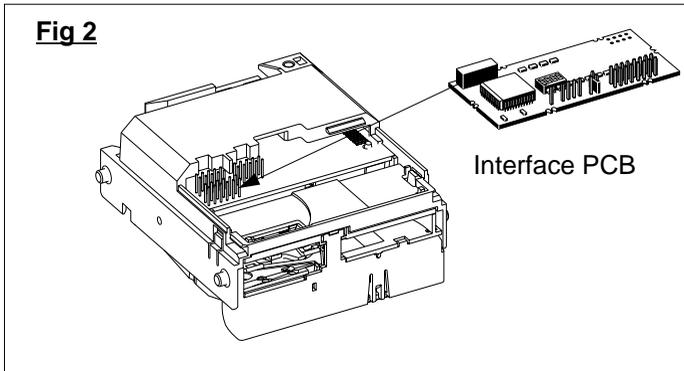
Interface PCB

5   Place the new interface PCB on to the correct pin
     connections and push gently but firmly home (fig.3).

Fig 3   12 Pin Connector

Interface PCB

12 Pins
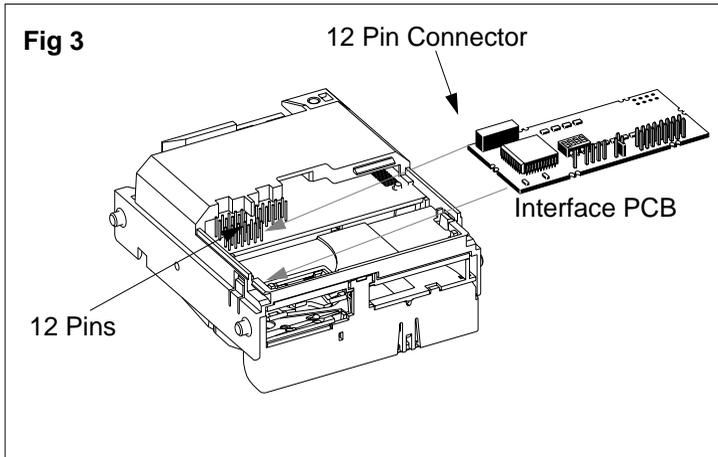
6   Replace the PCB cover.

7   Fit the acceptor module back into the front plate.

8   Replace any loom/s, ensuring a firm connection.

9   Switch on mains power and follow the initialisation
   procedure to check the unit is working and pricing as
     required.

SPARE PARTS

BACK COVER

The reject lever assembly forms part of the back cover assembly and is located at the top. Mounting pins at the sides provide the points at which the back cover is located into the adaptor moulding.

Reject Lever Assembly

Mounting Pins
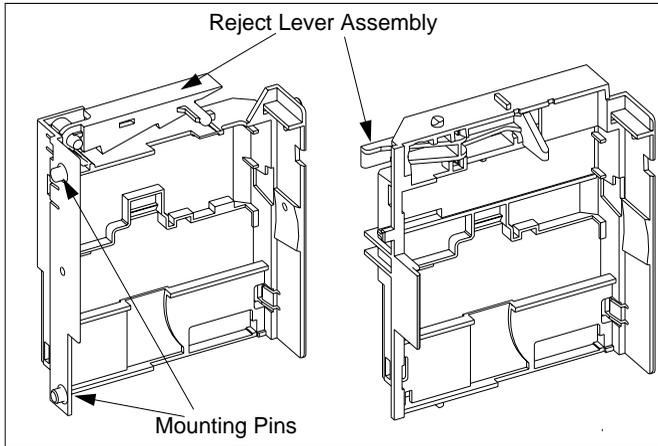
ACCEPT GATE MODULE

The Accept Gate module contains a solenoid-operated gate, optical coin strobes and coin routing components. The module clips and plugs onto the flight deck. The coin exits for both accepted and rejected coins are defined by the Accept Gate
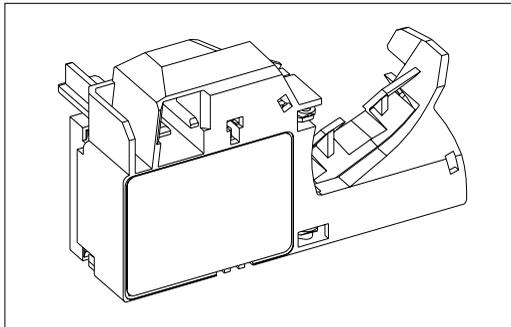
FRONT PLATES

The front plates provide the mounting facility for the acceptor module to the front of the host machine, as well as an external contact point for the reject lever, and the point of return for rejected coins.
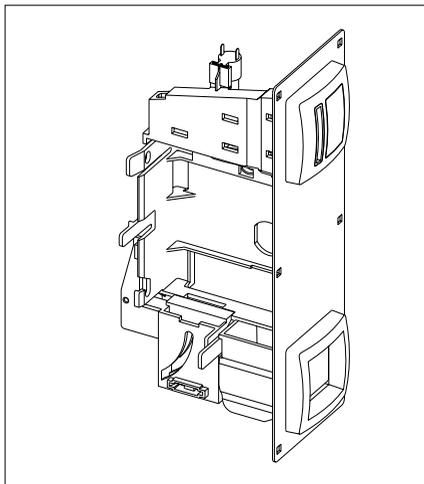

Maxi front plate
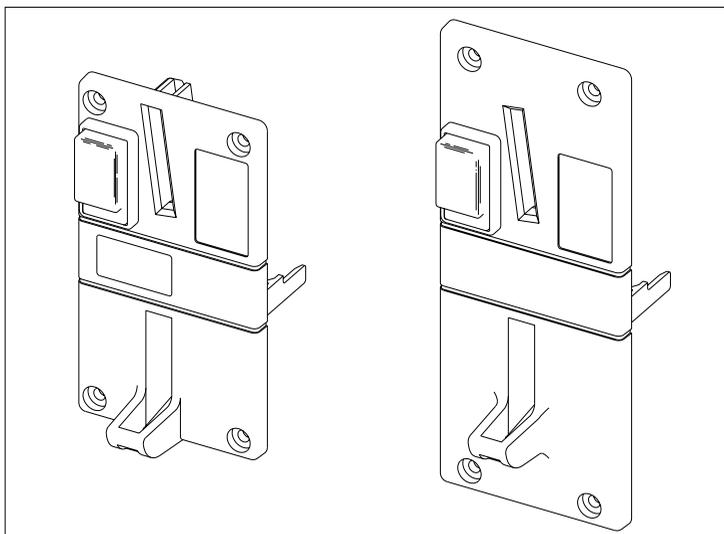
Mini and Midi front plates

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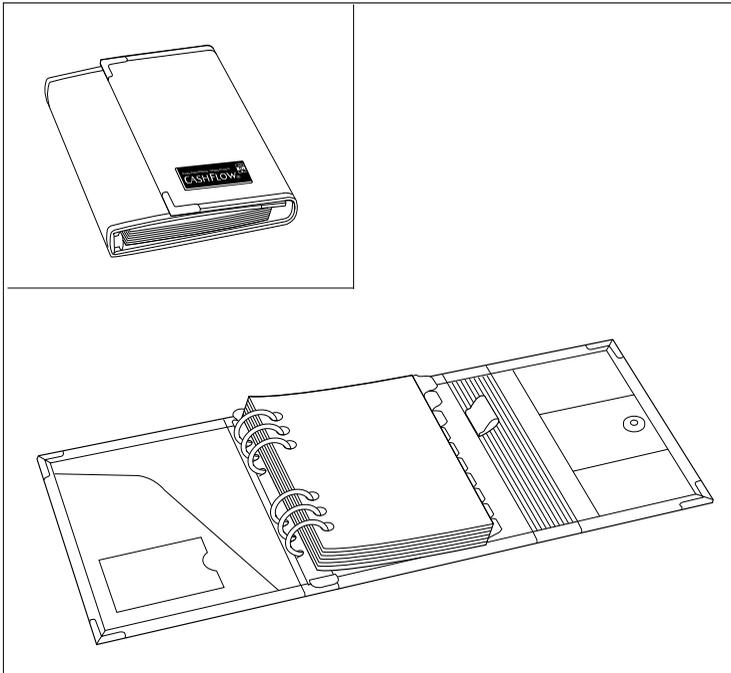
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