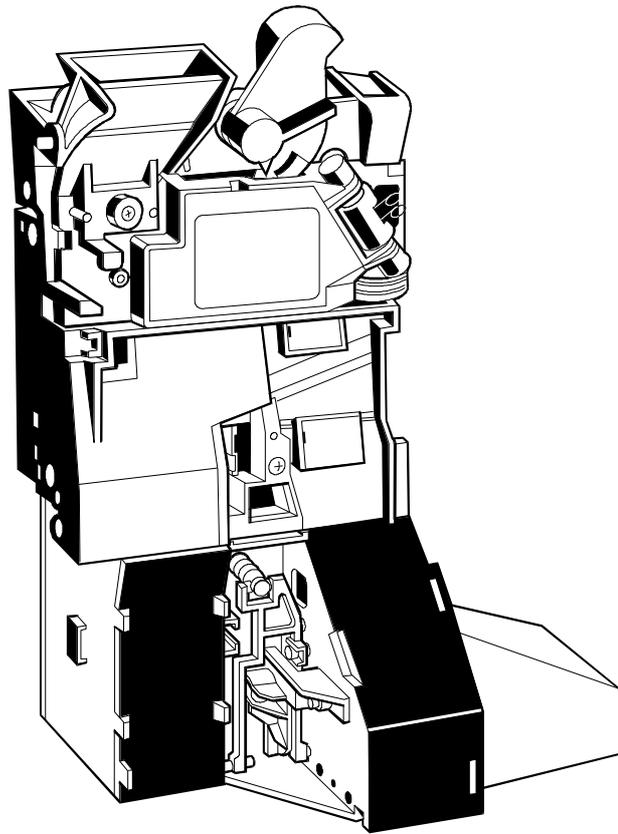

CASHFLOW[®] 126 and CASHFLOW[®] 129

4-WAY and 8-WAY SELECTORS

USER GUIDE



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CashFlow® 126 and CashFlow® 129 selectors User Guide

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SAFETY

Warning

Before cleaning, servicing, removing or replacing CashFlow® units, **ALWAYS SWITCH OFF** or **ISOLATE** the **ELECTRICITY SUPPLY** to the host machine.

Caution

This guide is recommended for use by personnel trained to carry out electrical installation.

Maximum Operating Voltage

Do not apply more than the voltage specified on the unit, and within the following;

Full Operating Voltage range:

+12V DC nominal +3V, -2V.

Supply Voltage Ripple:

Within V_{min} to V_{max} up to 100Hz, <250mV pk - pk for Frequency >100Hz

Current consumption:

Quiescent current: 35mA Max

Max current: 2.5A Max (4 solenoids active, CashFlow® 129)

Dangerous Environments

Do not operate the unit in the presence of flammable gasses or fumes, or after the entry of fluid into the machine.

Disposal of Product

If necessary, always dispose of defective units according to local regulations.

Conformance to International Standards

When installed and operated according to the instructions provided for the particular unit, CashFlow® products meet the applicable international and national safety standards for any country in which they are used.

SAFETY

All electrical connections to the product must be rated according to the requirements for "Accessible SELV" circuits as defined in EN60335-1. The product is therefore suitable for use in a class 2 (non-earthed or non-grounded) appliance.

Overcurrent protection is not included in the product and should be provided as part of the host machine. The recommended fuse value at the rated supply of 12V is:

3A Slow blow (to EN60127)

Other protection methods may be used providing their overcurrent characteristics remain within the overall operating characteristics of the above fuse.

DOCUMENT GUIDE

This document is for field engineers using the CashFlow® 126 and CashFlow® 129 products produced by Mars Electronics International (MEI).

As an aid to using this document a series of symbols are used in the text and have the following meanings:

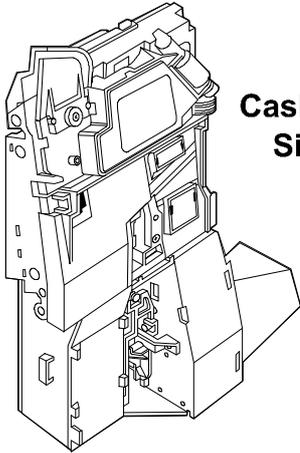
+ This indicates that a useful tip or word of advice is shown here.

□ Where this symbol is shown it indicates that a specific action is called for to ensure a successful installation or setup of the product.

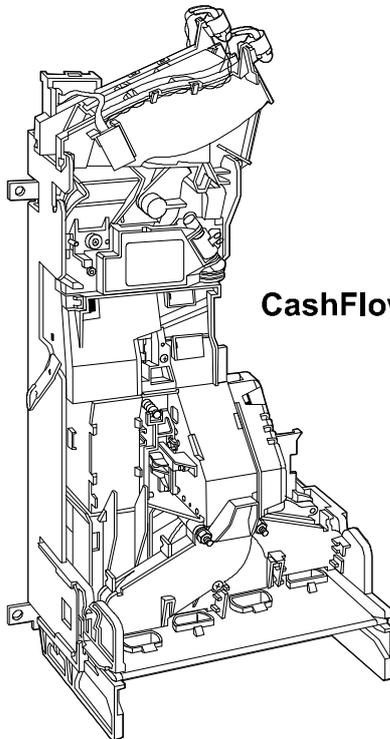
❖ A note regarding the function to be carried out will appear beside this symbol.

PRODUCT IDENTIFICATION

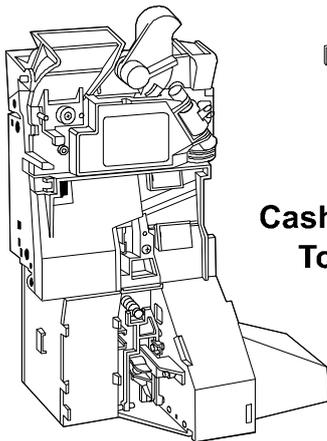
Mars Electronics International (MEI) has manufactured coin mechanisms compatible with gaming and amusement machines for a number of years. Over this time the functionality of the range has been enhanced to match your needs and still maintain mechanical compatibility. The product detailed in this book is the CashFlow series. Use the following pages to check you have the right product for your application.



**CashFlow® 126
Side Entry**

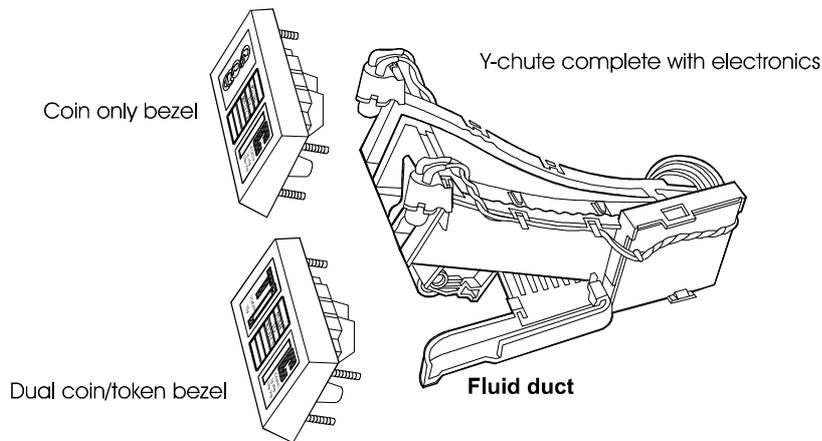


CashFlow® 129 System

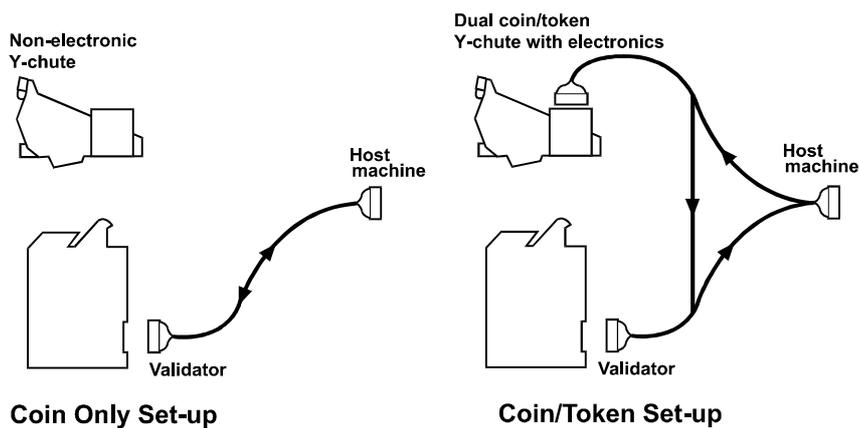


**CashFlow® 126
Top Entry**

The entry bezel and the Y-chute options can be used with either the CashFlow® 126 system or CashFlow® 129 system. The CashFlow® 126 can be supplied for fitting into a short channel, so long as the machine has suitable mounting points for the bezel and Y-chute.

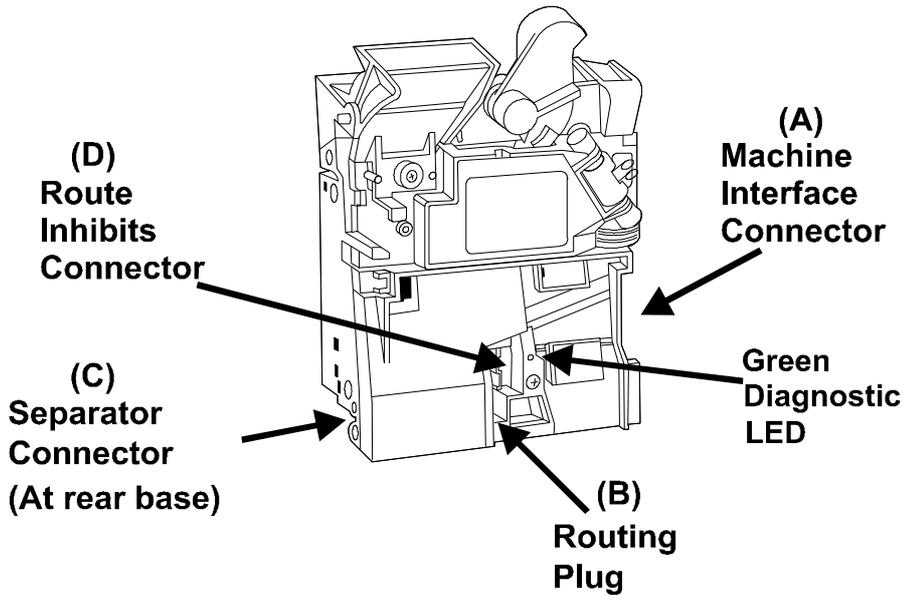


The Y-chute is available in two versions, the one shown above which includes electronics with back illumination of the dual coin/token bezel, and a version which has no electronics. This version is suitable for coin only applications.



In a coin only application the interface loom from the machine goes directly to the validator. The use of the dual coin/token application, however, requires a different loom, which connects as shown above.

The electrical connections and interfaces to each variant of CashFlow® 126 and CashFlow® 129 are identical, and are found in the same locations.



(A) Machine Interface - This provides power to the validator and carries the coin inhibit signals from the machine and coin outputs to the machine.

(B) Routing Plug - This comprises a series of links fitted to a route plug housing and is used to set up the primary coin exits and any specific overflow exits.

(C) Separator Connector - The separator interface connection must be made before physically attaching the validator and separator together. The separator will direct accepted coins/tokens to defined exits.

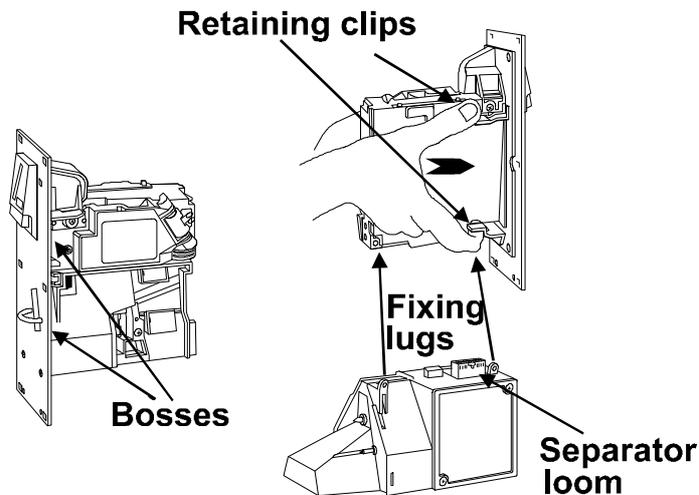
(D) Route Inhibits - This connector is used to signal that a particular exit has reached "full" status. Subsequent coins will be diverted to their defined overflow exits.

INSTALLATION

Installing or removing the CashFlow® product from your machine can be done by following these simple instructions.

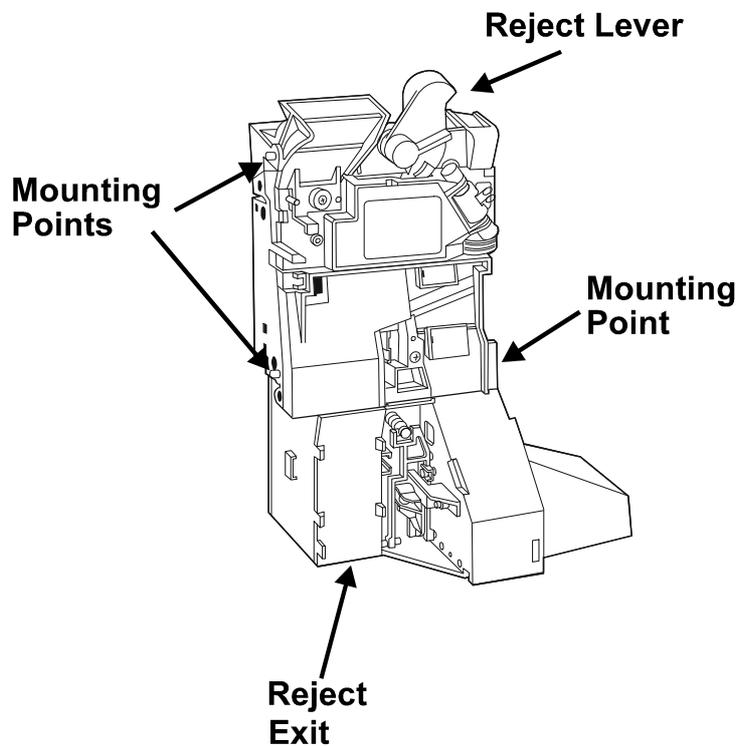
- + When installing the CashFlow® 126 Front Entry product it will be fitted to an MEI Front Plate and the following instructions will always apply.
- + The mounting channel for the CashFlow® 126 top entry product is supplied by the machine manufacturer, and therefore some variations may exist from machine to machine, however in principle these instructions still apply.

CF126 Front Entry Installation



- Connect the separator loom to the connector at the base of the validator and locate the rectangular boss on the top of the separator into the base of the validator.
- Firmly screw the separator fixing lugs onto the rear of the validator.
- Having ensured that the front plate has a firm location onto the front of the machine, insert the side of the validator onto the two round bosses at the rear of the front plate and push firmly together until the two retaining clips are fully engaged.

CF 126 Top Entry Installation



+ When mounted into a short channel the product must be fully assembled and ready for use, with only the machine interface loom to be connected.

- The mounting points indicated must be firmly seated into the channel and a gap of between 2-3 mm left between the reject lever and the reject arm from the machine. This small gap will ensure that the validator lid is able to fully close when the reject button on the machine has been pressed and released.

The two Y-chutes already referred to can both be used with the short channel version, but care must be taken to ensure that the gap mentioned above is maintained between the Y-chute reject arm link and the reject lever of the coin mechanism.

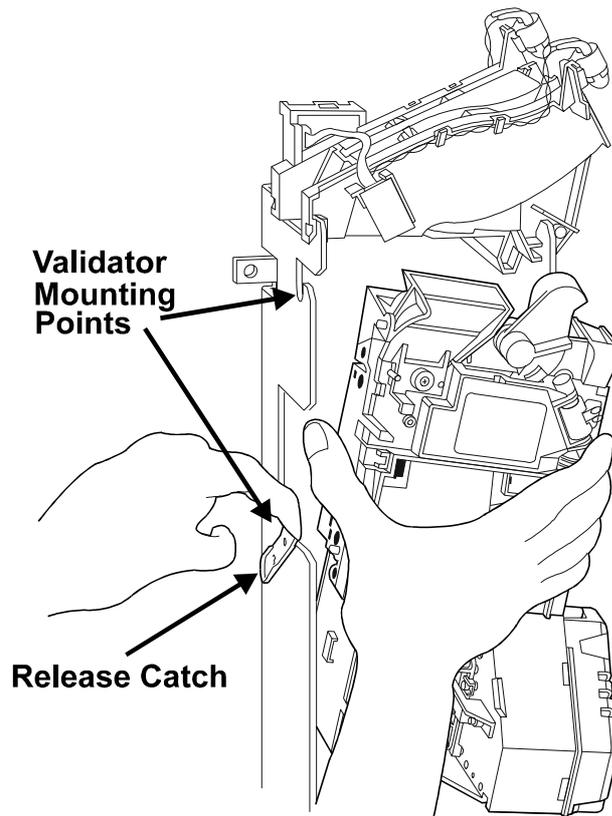
CashFlow® 129 System Installation

The system consists of a channel, Y-chute, CashFlow® 129 validator, 8-way separator, manifold and tube collar plate.

This is supplied as a complete system, but should you need to replace any part of it do so only in a set sequence, starting from near the top.

- + The Y-chute can, of course, be removed first, but it is not necessary to do so just to access the other modules.

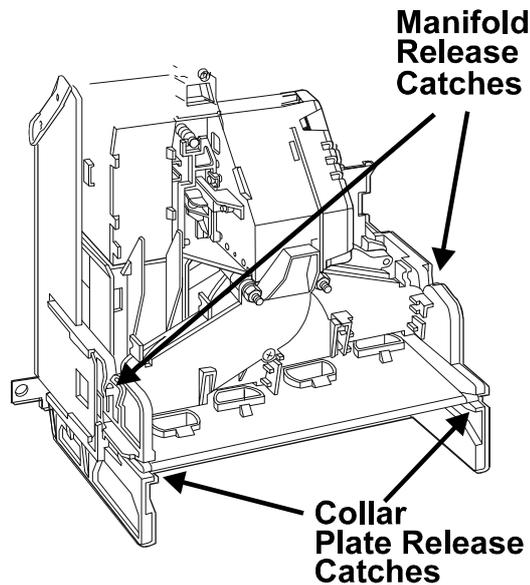
Removal of Validator and Separator



- Ensure that power is turned off, not only to the validator, but also to the Y-chute if live.
- Dis-connect machine interface loom, and the route inhibit connector.
- Dis-engage the release catch and lift the validator and separator upwards out of the mounting points. Pull the validator and separator forwards clear of channel.

Removal of Manifold and Collar Plate

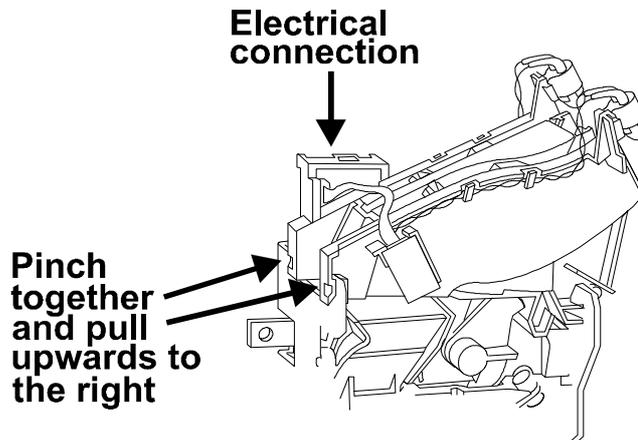
- The manifold is supported in position by four lugs which slot into the side plates of the channel. It is retained there by two catches, as is the collar plate at the bottom.



Bottom section of CashFlow® 129 system

Removal of Y-chute

- Always dis-connect the electrical connection first, if used, before removal of the Y-chute.
- Pinch together the bottom ends of the Y-chute and lift upwards and to the right from the channel.



Top section of CashFlow® 129 system

ACCEPTANCE AND ROUTING

When the product is successfully mounted you will need to confirm that it is set up correctly to accept good coins/tokens and direct them to where you want them to go.

First things first

- Press and release the reject button on the machine. Confirm that the lid on the front of the validator closes fully when the reject button is released. If it does not close fully the validator cannot function properly.
- Test that power is on by checking that the green LED on the front of the validator is illuminated, it will flash off once when the reject lever is pressed.

Testing for Acceptance

- Insert into the machine a selection of all the coins/tokens shown on the validator label. Acceptance of each one will be indicated by the LED flashing off once, and if the coin/token is outside of the programmed window it will flash off twice. If the LED flashes three times this indicates that the coin/token has been rejected by the validator 4th sensor. Should the LED flash off four times this indicates either a hardware or software inhibit is being applied.

Coin Routing

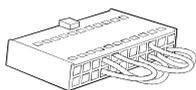
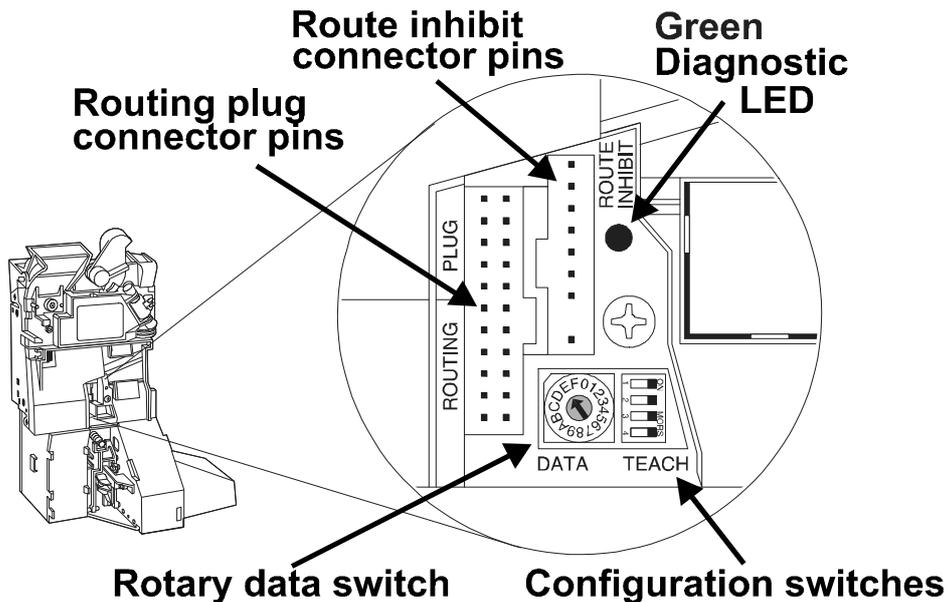
- Confirm that all coins and tokens are being routed to the required exits. If they are not refer to the Trouble Shooting section. Settings may have been made on the machine for hopper or tube limit switches, and these must be taken into account.
- If further help is required then consult the Operators Handbook for the product or contact either your distributor or local MEI office.

PRODUCT FEATURES

The CashFlow® 126 and CashFlow® 129 products have the flexibility to change certain settings such as varying the coin-set that it handles, or new routing for some of the coins/tokens.

These changes can be carried out using the rotary data switch and the configuration switch which are fitted uniquely to the CashFlow® 126 and CashFlow® 129 products. The following pages show how, with the use of these switches, coins/tokens can be inhibited or enabled, either a new individual token or a group of tokens selected and the machine output mode changed.

In addition to these two switches there is a green diagnostic LED which signifies if any changes you make have been successfully actioned or not.



22-way Routing Plug

Changes can also be made to the coin routing with the use of a routing plug.

The routing plug is available in two forms, either ready-made for specific applications, or do-it-yourself kits, consisting of loose plugs and either wire links with crimps at each end or links incorporating a sleeved IN4148 diode with crimps at each end. The diode version is required to give protection from shorting where two separate coins are required to get to the same exit. An illustration of how these can be assembled is shown on the next page. Both versions are available from your distributor, who can assist you with assembly details.

A summary follows of the way in which you can use the above features. For greater detail of how to use all of these features you are advised to contact either your distributor or MEI office for technical assistance.

CONFIGURATION

Validator Interface Connector

The interface to the validator from the machine is exactly the same as those which apply to the MS/ME series validators, with the exception of pin 8 of the 17-way connector

Connector 1 can accept either 15 pin or 17 pin interface connectors.

17 Way Connector	15 Way Connector	Function Mars Compatible Definitions	Input or Output	PIN No.	Function BACTA Standard Definition
1	-	A Coin Output	O	1	Ident signal
2	1	B Coin Output	O	2	Accept Output 5
3	2	Coin Output Common	I	3	Accept Output Common
4	3	F Coin Output	O	4	Accept Output 1
5	4	Polarising Key 1	-	5	Polarising Key
6	5	E Coin Output	O	6	Accept Output 2
7	6	D Coin Output	O	7	Accept Output 3
8	7	Output Mode Input	I	8	Select Line
9	8	C Coin Output	O	9	Accept Output 4
10	9	C Coin Inhibit	I	10	Inhibit 4
11	10	+12V Supply	I	11	+12V Supply
12	11	0V Supply	I	12	0V Supply
13	12	D Coin Inhibit	I	13	Inhibit 3
14	13	E Coin Inhibit	I	14	Inhibit 2
15	14	F Coin Inhibit	I	15	Inhibit 1
16	15	B Coin Inhibit	I	16	Inhibit 5
17	-	A Coin Inhibit	I	17	Inhibit 6

Assembling a 22-Way Routing Plug

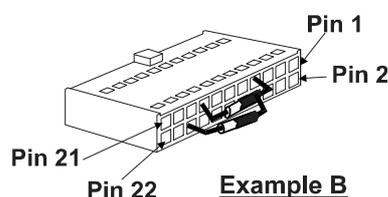
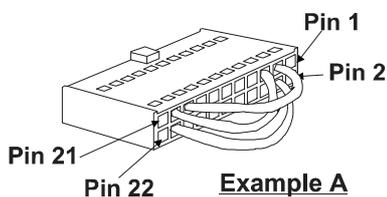
While the links are readily inserted into the routing plug by hand without specialist tools, care is needed to ensure that they are fitted the correct way round, particularly with the doide version, so that the barb in the pin engages with the recess in the plug. Having inserted a link give it a gentle tug to ensure that it has engaged with the recess.

126 Routing Plug Pin outs and Functions				129 Routing Plug Pinouts and Functions			
FUNCTION	PIN	PIN	FUNCTION	FUNCTION	PIN	PIN	FUNCTION
Coin H	22	21	Coin G	Coin H	22	21	Coin G
Coin F	20	19	Coin E	Coin F	20	19	Coin E
Coin D	18	17	Coin C	Coin D	18	17	Coin C
Coin B	16	15	Coin A	Coin B	16	15	Coin A
(Exit 'd')	14	13	(Exit 'd')	Route 1	14	13	Route 1
(Exit 'c')	12	11	(Exit 'c')	Route 2	12	11	Route 2
(Exit 'a')	10	9	(Exit 'a')	Route 3	10	9	Route 3
(Exit 'b')	8	7	(Exit 'b')	Route 4	8	7	Route 4
Exit C	6	5	Exit C	Route 5	6	5	Route 5
Exit D	4	3	Exit D	Route 6	4	3	Route 6
Exit B	2	1	Exit B	Route 7	2	1	Route 7

To assemble routing plugs which will route specified UK coins to the required exits see the examples shown.

In example A Coin C (10P) is being directed to Exit D, Coin E (50P old) to Coin Exit C and Coin F to Exit D.

Example B shows Coin B (Token) going to Exit B and Coin E (50p old) to Exit 'b'.

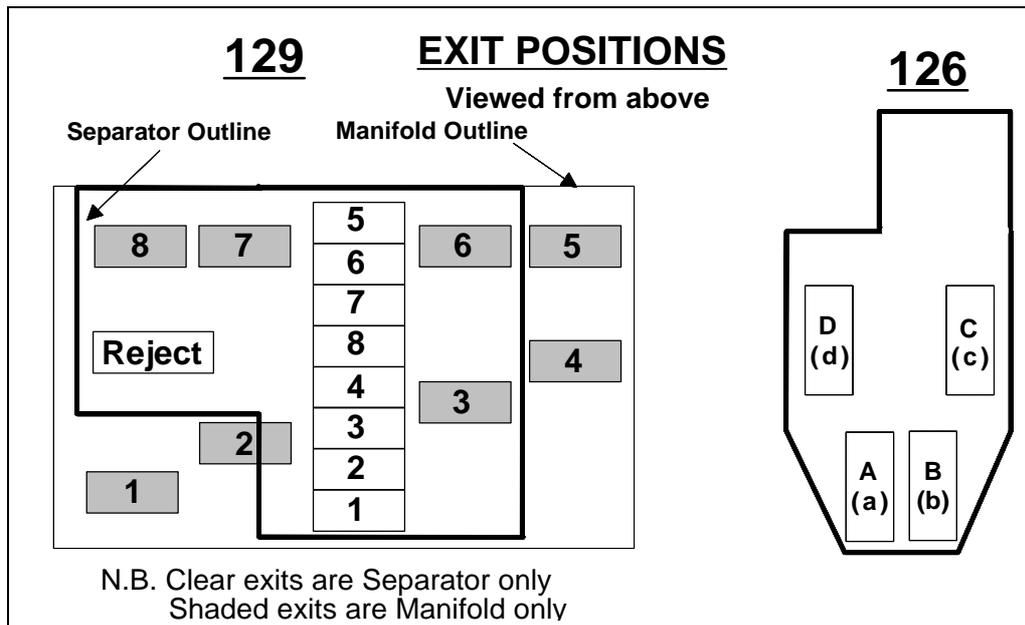


Coin and token values as shown on the coin set label are expressed in the following text as channels. The relative positions of these channels and coins/tokens are shown on the table below.



 Position	Coin Channel/ Label Position	Channel/Coin Value
0	0	Token 1
1	1	Token 2
2	2	5p
3	3	10p
4	4	20p
5	5	50p old Tight
6	6	50p old
7	7	50p New
8	8	£1
9	9	£1
A	10	£2 Tight
B	11	£2
C	12	-
D	13	-
E	14	-
F	15	-

Separator Exits



Route Inhibit Connector

The function of the route Inhibit Connector is to signal when specific exits, external to the product, are in a "Full" condition. Signals from the machine ensure that, while the "Full" condition continues, further coins/tokens directed to that exit will be re-routed to an alternative exit. The instruction as to which alternative exits can be used will normally come from the routing plug.

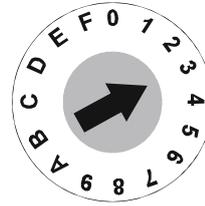
- + In order to inhibit a particular route, 0V must be applied to its respective pin.
- + An alternative route must always be of a lower priority

PIN	129	126	Priority
1	Divert route 1	(d)	Highest  Lowest
2	Divert route 2	(c)	
3	Divert route 3	(a)	
4	Divert route 4	(b)	
5	Divert route 5	C	
6	Divert route 6	D	
7	Divert route 7	B	
8	Not defined	Not defined	
9	0v	0v	

Using the Rotary Data Switch and Configuration Switches

Rotary Data Switch

The rotary data switch is used in conjunction with the configuration switches. By pointing the arrow in the middle of the switch, using a fine screwdriver, data can be entered into the product. In Normal Operation mode the position of the arrow is not critical to correct operation.



Configuration Teach Switches

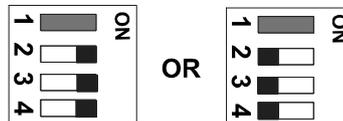
These switches can be set to a series of positions which enable the product configuration to be changed.

When teach modes are to be entered first **SWITCH POWER OFF** to the unit, or an un-intended action could be set.

The example given here, with both the rotary data switch and the configuration switch settings, is to enable channel 3 in the coin set.

+ Wherever in the examples that follow the switch is shown as hatched grey (usually switch 1) it indicates that it does not matter if the switch is in the ON or OFF position. Switch 1 only features in the settings for Alarm Enable when it must be in the ON position. When it is in the OFF position the Alarm function is NOT active.

- After making any changes to the configuration switches 2, 3, and 4 **MUST** always return to either of the Normal Operation positions shown here.



Diagnostic LED

- The LED will illuminate to indicate that the product is powered up, and in addition will give various sequences of flashes to confirm the acceptance or rejection status of coins/tokens.

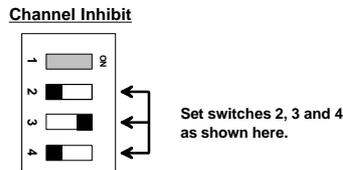


+ **Flash Sequence:** Constantly ON Validator Power On

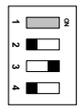
1 Flash	Coin accepted / Reject lever pressed
2 Flashes	Coin not recognised and rejected
3 Flashes	Coin rejected by validator 4th sensor.
4 Flashes	Coin recognised but not accepted due to inhibit setting

Product Configuration - Inhibiting coins or tokens

Example:- To inhibit channel 2 (the 5p coin) on your validator follow these simple steps.

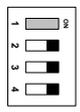


1.  Switch Validator Power OFF.

2.  Set 4 Way Switches to Inhibit Teach.

3.  Set Rotary Switch Dial to the appropriate channel.
(Channel No.2 for the 5p In this instance).

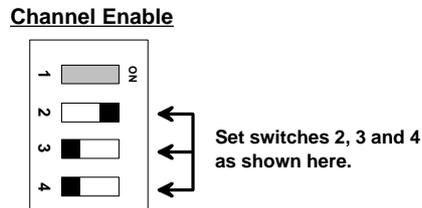
4.  Switch Validator Power ON (LED will flash).

5.  Set switches 2, 3 & 4 to ON.
(LED will stop flashing and stay on).
The Rotary Switch settings can be left unchanged.

6. **END** The chosen coin is now inhibited and the product is ready for normal operation. For each additional channel to be inhibited repeat process from 1 above.

Product Configuration - Enabling coins or tokens

Example:- To enable channel 2 (the 5p coin in this instance) on your validator follow these simple steps.

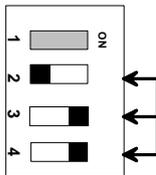


1.  Switch Validator Power OFF.
2.  Set 4 Way switches to Enable Teach.
3.  Set Rotary Switch Dial to the appropriate channel.
(Channel No.2 for the 5p In this instance)
4.  Switch Validator Power ON (LED will flash).
5.  Set switches 2, 3 & 4 to ON.
(LED will stop flashing and stay on).
The Rotary Switch settings can be left unchanged.
6. **END** The chosen coin is now enabled and the product is ready for normal operation. For each additional channel to be inhibited repeat process from 1 above.

Product Configuration - teaching a new token, channel 0

Example:- To Teach a Token (with standard window limits) into channel 0 follow these simple steps.

Channel Enable



Set switches 2, 3 and 4 as shown here.

LED Flash Codes for Tokens:

2 flashes = No activity detected (for last 30 seconds)

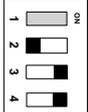
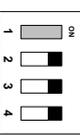
3 flashes = Insufficient Tokens (10 min.)

4 flashes = Invalid Rotary Switch (setting E or F)

5 flashes = Token thickness outside allowable limits

6 flashes = Token diameter outside allowable limits

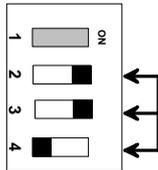
7 or 8 flashes = Token material outside allowable limits

1.  Switch Validator Power OFF.
2.  Set 4 Way switches to Token Teach.
3.  Set Rotary Switch Dial to position F (standard window limits).
(Position E will teach tight token window limits)
4.  Switch Validator Power ON (LED will Flash).
- +5.  Drop between 10 and 20 Tokens.
6.  Return switches to Normal Operation. (LED should stop flashing and stay on to indicate a successful change). If the LED continues to flash this indicates a failure to teach the token. If needed repeat the process from step 1.
7.  Token successfully taught & programmed into Channel 0.

Product Configuration - teaching a new token, channel 1

Example:- To Teach a Token (with standard window limits) into channel 1 follow these simple steps.

Channel Enable



Set switches 2, 3 and 4 as shown here.

LED Flash Codes for Tokens:

2 flashes = No activity detected (for last 30 seconds)

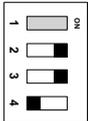
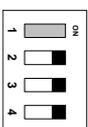
3 flashes = Insufficient Tokens (10 min.)

4 flashes = Invalid Rotary Switch (setting E or F)

5 flashes = Token thickness outside allowable limits

6 flashes = Token diameter outside allowable limits

7 or 8 flashes = Token material outside allowable limits

1.  Switch Validator Power OFF.
2.  Set 4 Way switches to Token Teach.
3.  Set Rotary Switch Dial to position F ((standard window limits).).
(Position E will teach narrow slug windows)
4.  Switch Validator Power ON (LED will Flash).
5.  Drop between 10 and 20 Tokens.
6.  Return switches to Normal Operation. (LED should stop flashing and stay on to indicate a successful change). If the LED continues to flash this indicates a failure to teach the token. If needed repeat the process from step 1.
7. **END** Token successfully taught & programmed into Channel 1.

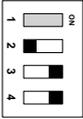
Product Configuration -

Selecting a pre-programmed token group to be used in channel 0

14 token groups are already programmed into the product. This feature allows a defined token group to be accepted.

- ❖ **NOTE:** Each token group selected is automatically copied to channel 0. Refer to the Appendix at the end of the book for further details of token groupings.
-

Example:- To select Token Group 7 on your validator follow these simple steps.

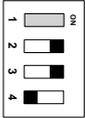
-  1. Switch Validator Power OFF.
-  2. Set 4 Way Switches to Select Token Group.
-  3. Set Rotary Switch Dial to the appropriate Channel. (Token group 7 in this example).
-  4. Switch Validator Power ON (LED will flash).
-  5. Return Switches to Normal Operation (LED stops flashing and stays on to indicate successful change. Token Group 7 successfully selected and programmed into Channel 0.

Product Configuration - Selecting a pre-programmed token group to be used in channel 1

14 token groups are already programmed into the product. This feature allows a defined token group to be accepted.

- ❖ **NOTE:** Each token group selected is automatically copied to channel 1. Refer to the Appendix at the end of the book for further details of token groupings.
-

Example:- To select Token Group 7 on your validator follow these simple steps.

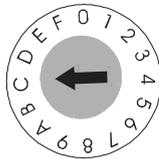
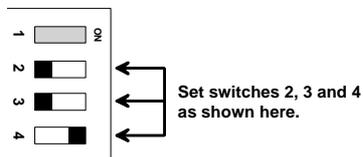
-  1. Switch Validator Power OFF.
-  2. Set 4 Way Switches to Select Token Group.
-  3. Setting Rotary Switch Dial to position 7 selects MHG token group
-  4. Switch Validator Power ON (LED will flash).
-  5. Return Switches to Normal Operation (LED stops flashing and stays on to indicate successful change. Token Group 7 successfully selected and programmed into Channel 1.

Product Configuration - Changing the machine output mode

To change the coin output interface to Fixed Binary Coded Output (BCO) use these simple steps. For BCO mode set the rotary data switch to position C , to D for Fixed Parallel mode and F for Automatic mode.

- ❖ NOTE: The product will normally be supplied in Automatic mode. This will automatically configure to most machines through the Mode Select feature. Some gaming machines have pre-BACTA standard Binary code software and in this case the coin mechanism should be set to fixed Parallel mode.

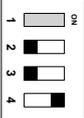
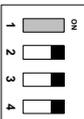
Example:- To set mode to Binary Coded Output



Position C = Fixed B.C.O. mode.

Position D = Fixed Parallel mode

Position F = Automatic mode

1.  Switch Validator Power OFF.
2.  Set 4 Way switches to Output Mode Teach.
3.  Set Rotary Switch Dial to appropriate position. (Position C in this example).
4.  Switch Validator Power ON (LED will Flash).
5.  Set switches 2, 3 & 4 to ON. (LED will stop flashing and stay on).
Leave the Rotary Switch settings as they are.
6. **END** Product is now ready for use with the chosen machine interface.

MAINTENANCE

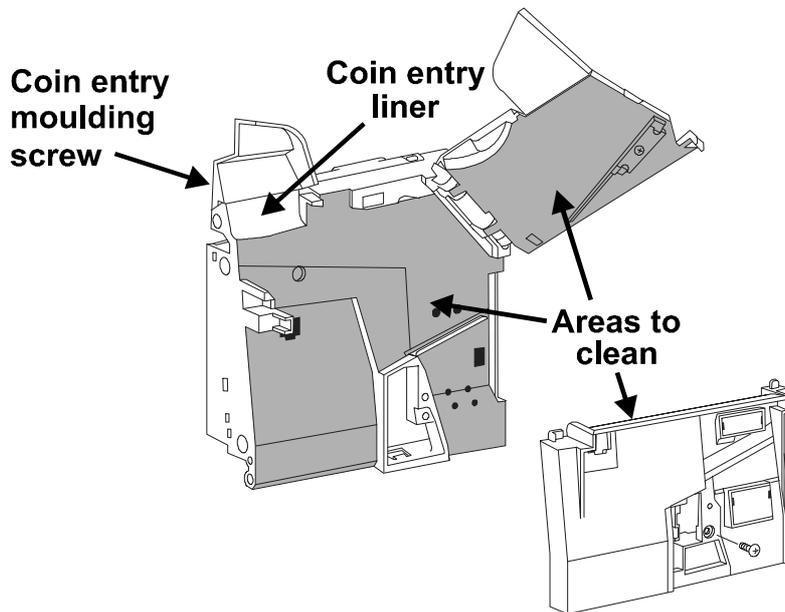
- + The practical maintenance that can be carried out is limited to cleaning the areas of the validator that the coins travel through, and the replacement of the coin entry liner if it becomes worn. All other servicing is carried out through your distributor.

The cleaning should be carried out on a regular basis of at least once a month, but, if you have to visit the validator outside of that routine, it is worth while doing it then as well.

The shaded areas shown below, plus the back of the reject cover, are those to be cared for.

The coin entry liner is accessed by unscrewing the coin entry moulding at the top of the validator. The coin entry liner can then be eased off with the aid of a fine screwdriver, and a replacement slid into place.

- Cleaning and maintenance must only be carried out by suitably trained personnel.
- Cleaning must only be carried out after power has been removed from the product.
- Never use a cleaner containing solvents, scrapers or abrasive materials.
- Never apply water or cleansers directly onto the product. Always apply them to a clean cloth first, and not too liberally, so that the cloth used is only moist.



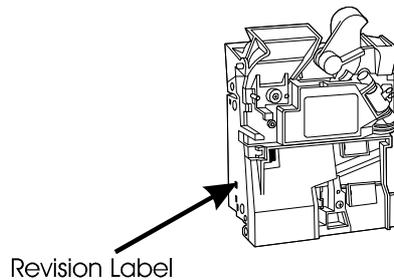
APPENDIX

Product Revision

The revision level of the 126/129 product can be confirmed from a label on the left side of the product. There are two levels of digits and bar-code markings on the label, and the fifth and sixth digits on the lower numbers indicate the product level.

For example; if the label read 1773G322580 the revision level would be G3.

Do not use the label on the right side of the product for reference of the revision level.



Token Grouping Compatibility						
ME Token groups	ME token group LINK settings (links inserted = 3)				Token Type or Operator	CF126/129 token group Rotary switch position
	A	B	C	E		
1		3	3	3	Rank Leisure	1
2	3				BFS	2
3	3	3	3		Ralin & Thomas	3
4	3	3		3	LMS	4
6	3		3		Stretton Leisure	6
7		3	3		MHG	7
8	3			3	Paymaster	8
10		3			Oversized Token	A
11	3	3	3	3	Default (Brass-Wide)	B
12			3		Brass & N-Plate Brass	C
13					N-P Brass & Oversized	D
14	3		3	3	N-Plate Steel	E
15			3	3	N-Plate Steel	F
16				3	Reserved	0

PRODUCT SUPPORT

In addition to the MEI offices around the world an international network of Distributors and Approved Service Centres can offer you technical support and other services as well.

These services include repairs, re-programming of your CashFlow® products with new coinsets, replacing damaged modules, and the supply of a range of spare parts.

In the U.K. these can be obtained from the following:

BRENT LEISURE SPARES LTD.
Unit 5, Acton Vale Industrial Estate
The Vale, Acton
London W3 7QE
Contact: Steve Ansell
Telephone: 0181 - 324 - 6000

EUROCOIN LTD
Fortune House
Moxon Street
Barnet
Herts
Contact: Ray Moore
Telephone: 0181 - 449 - 0077

MICRO ELECTRONIC SERVICES (M.E.S.)
7 Aircraft Esplanade
Farnborough
Hampshire GU14 6TG
Contact: Mike Clokie
Telephone: 01252 375302
(Service Centre only)

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