CASHFLOW®
690 series

MEI

Field Service Engineer's Handbook
722608044 G2

CashFlow® 690 Series Field Service Engineer's Handbook

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Contents

Safety

National & International Standards Conformance

CashFlow® 690 Series products operate at Safety Extra Low Voltage Level (SELV) as defined in IEC335/EN60335 *'Safety of Household and Similar Appliances'*. They may be designed into equipment complying with IEC335/EN60335 or IEC950/EN60950 *'Safety of Information Technology Equipment'* .

CashFlow® 690 Series products are of Class 2 construction.

Rated Operating Voltage

The operating voltage of a CashFlow® 690 Series changegiver is stated on the product. The changegiver must not be used with any power source other than that indicated.

Dangerous Environments

The CashFlow® 690 Series changegiver must not be operated in the presence of flammable gasses, fumes or water.

Product Disposal

Do not dispose of any part of a CashFlow® 690 Series changegiver by incineration.

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About This Handbook

The CashFlow® 690 Series changegiver incorporates the very latest developments in automatic payment systems technology. It provides high standards of security and reliability that have become the hallmark of MEI products.

This Field Service Engineer's Handbook compliments your product training and provides you with the information you need to support the servicing of the CashFlow® 690 Series changegiver.

The Handbook has eight sections:

Servicing Strategy – outlines a recommended servicing strategy.

Changegiver Overview – provides an overview of how the changegiver is configured and information about the modules with which you will be concerned.

Changegiver Replacement – explains how to replace a changegiver.

Module Replacement – explains how to replace modules.

Troubleshooting – explains how problems are automatically identified and tells you what corrective action you can take.

Cleaning - describes how to clean modules to ensure they function correctly.

Service Procedures - describes the how to carry out servicing procedures using the software Service mode.

Configuration Procedures – describes how to carry out configuration procedures using the software Setup mode.

There are four variants of the CashFlow® 690 Series changegiver. Various cabling arrangements are available to meet specific installation requirements, these being identified by a variation to the 690 number. The variants and the cabling options available with each of them are as follows:

❑ 690 Exec/MDB/BDV

❑ 691 MDB 1 price

❑ 694 MDB 4 price

Not all of the information in this Handbook applies to all the variants. Consequently, you need to know which one you are servicing. You can find this out by looking at the display just above the keypad (see pages 4 and 5). When the changegiver is switched on ready to use, included in the string of displayed text you will see the product version details.

The following CashFlow 690 Series changegiver documents are available from the Technical Service Manager:

❑ *Installation Guide*

❑ *Operator's Handbook*

❑ *Operator's Notice*

❑ *Field Service Engineer's Quick Reference Guide*

The contact address is given at the front of this Handbook.

Servicing Strategy

This section outlines a recommended approach to field servicing.

Minor Faults

Experience shows that the majority of call-outs are for minor faults, principally involving coin jams and coin routing problems. These faults invariably result from a lack of routine servicing, in particular that of cleaning. Problems of this nature can usually be rectified quite quickly with the minimum of dismantling and without the need for module replacement.

Complex Faults

When faults that are more complex occur, the recommended strategy is that you should replace the module rather than spend time attempting to repair it on site. You can then return the faulty module to your service centre where it can be serviced in conditions that are more favourable.

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Changegiver Overview

This section introduces the CashFlow® 690 Series changegiver and its principal components.

Configuration

Mechanical Configuration

The changegiver is modular in structure. Four modules are of particular interest to you because they can be serviced in the field. These modules are identified in the illustration below and are described later in this section.

1	Coin tube cassette
2	Acceptor/Separator
3	Keypad and display
4	Dispenser
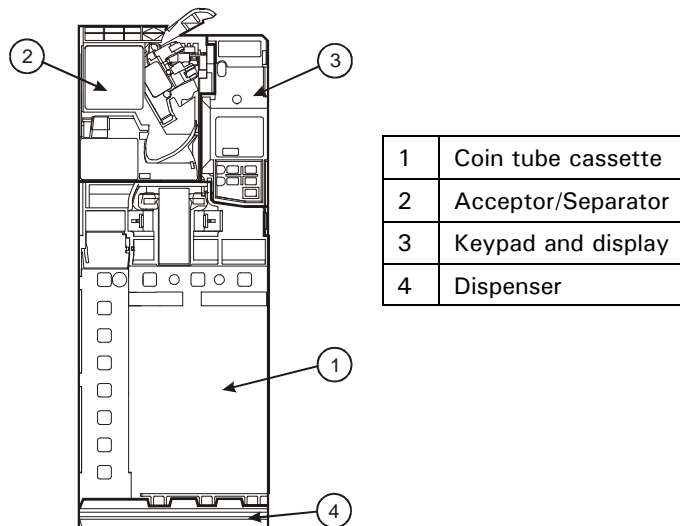
In addition to the modules identified above, other parts with which you need to be familiar are the:

❑   Transformer – this is located underneath the keypad

❑   Fuses – these are located in a recess underneath the acceptor/separator assembly and are then accessed by lowering a small hinged flap

Electronic Configuration

The changegiver is electronically configured before dispatch but changes can be made to the configuration on site as described in *Service Procedures* and *Configuration Procedures* later in this Handbook.

Keypad and Display

You use the keypad when you carry out servicing and configuration procedures. The principle features of the keypad assembly are identified in the illustration below.
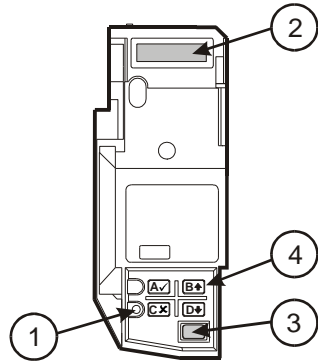
1	LED
2	Display
3	Mode key
4	Blue keys

LED (1)

The LED can be green, amber or red. Each colour indicates the status of the changegiver.

❑ **Red/Amber/Green (alternating)** – occurs briefly when the changegiver is first switched on or after resetting.

❑ **Green** – indicates that the changegiver is ready for use

❑ **Green (flashing)** – occurs when operating and configuration procedures are being carried out

❑ **Amber (steady)** – indicates coin acceptance inhibited by the vending machine (no blocker present on EM machine)

❑ **Amber (flashing)** – indicates there is a fault that can be rectified, the flashing sequence identifies the faulty module

❑ **Red** – indicates there is a fault with the acceptor module

❑ **Red/Green (alternating)** – indicates there is a serious hardware or software fault and that the changegiver must be replaced

More detailed information about the LED is given in
Troubleshooting which begins on page 25.

Display (2)

The one-line display indicates the status of the changegiver,
including displaying error messages when there is a fault. It
also works in conjunction with the keypad, displaying the
servicing or configuration options currently selected, and any
entries or selections you make in the course of carrying out
servicing or configuration procedures.

Mode Key (3)

The yellow **Mode** key is used to enter either the Service or
Configuration modes. If you press the **Mode** key quickly, you
enter a Service mode. If you press the key and hold it for more
than 1.5 seconds, you enter the Setup mode.

Blue Keys (4)

The four blue keys labelled **A✔**, **B↑**, **C✗** and **D↓** are used in
conjunction with the **Mode** key. Depending on the mode
selected, they have several functions: For example:

❑ Pressing each blue key intern will dispense coins from each
   of the coin tubes.

❑ When in the Service mode, each key enables you to select
   a particular Service function.

❑ When in the Setup mode:

   The **B↑** and **D↓** keys enable you to scroll up or down
   through lists of functions or options

   The **A✔** key enables you to select an option or toggle
   between options

   The **C✗** key enables you exit from a mode or option

Coin Tube Cassette

The function of the coin tube cassette is to provide a supply of coins for dispensing as change, thus enabling coins of high denomination to be accepted.

Acceptor/Separator

The acceptor and separator are assembled as one unit.

The acceptor has sensors that compare the characteristics of each coin or token inserted with those of a pre-programmed set.

If they conform to the pre-programmed set, they are accepted. They then pass, via the separator, into the change tubes or into the cashbox.

If they do not conform to the pre-programmed coin set, they are rejected and pass through a reject chute inside the changegiver and then into the return cup of the vending machine.

Dispenser

The dispenser dispenses coins being returned as change.

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Changegiver Replacement

This section tells you how to replace a changegiver.

Before You Begin

1   TURN OFF THE POWER SUPPLY TO THE VENDING MACHINE

2   Check the voltage of the replacement changegiver. Be sure that it is the same, as the vending machine will supply to the changegiver. You will find the information you need on the label attached to the side of the changegiver. Please refer to the vending machines documentation where necessary.

Fixing

The changegiver has three fixing keyholes as shown below.
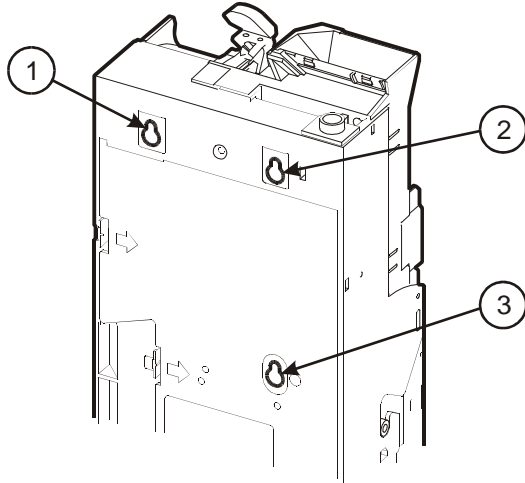
The vending machine is fitted with three screws in matching
locations. Alternatively, there may be two location studs and
one retaining screw, or a similar arrangement. Whatever the
arrangement, there must be a retaining screw in the upper
right-hand position.

1   Partly unscrew any screws fitted so that the distance
     between the underside of the screw head and the vending
     machine panel is approximately 4 mm

2   Locate the changegiver on the three screws, or on two
     studs and one screw, ensuring that it is flat against the
     vending machine

3   Tighten the upper right-hand screw (looking from the front). You can access the screw through the hole in the keypad assembly
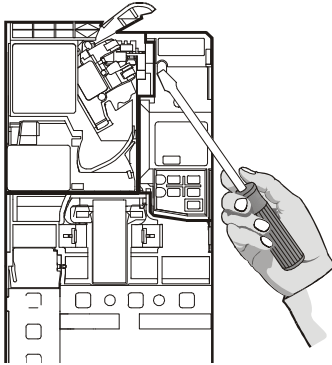
Removing

1   Disconnect the power cable connecting the changegiver to the vending machine. Also disconnect the comms cable and the display cable if they are fitted
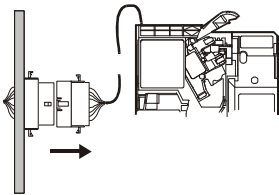
2   Loosen the upper right-hand retaining screw. You can access it through the hole in the keypad assembly – see illustration above

3   Lift the changegiver off the location screws or studs

Installing

1 Locate the changegiver on the screws fitted to the vending machine, making sure it is flat against the vending machine panel

2 Retighten the upper right-hand retaining screw

Installation Checks

1 Check that when the changegiver is idle there is a gap (dimension x) between the lever on the vending machine and the lever on the changegiver
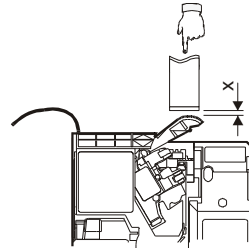
2 Check the alignment of the coin chutes. Insert two coins of each denomination into the vending machine and check that they cleanly enter the changegiver acceptor and exit from the changegiver into the coin return cup
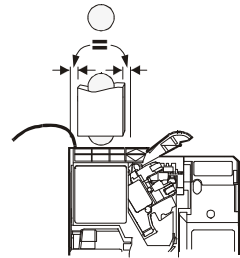
Connecting

1 Plug in the changegiver power lead (comms and display cables if applicable) to the vending machine, as shown here.
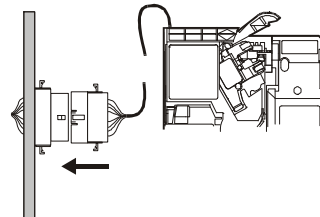
The changegiver is supplied fitted with up to six cables. Normally only one of the end connectors will match the power socket on the vending machine, this being the power lead

If the vending machine has a comms socket, or a display jack, there will cables attached to the changegiver with matching connectors which you must also plug in

2   Tuck the unused cables away tidily. Make sure they will not be trapped when the changegiver lever is pressed or when the vending machine door is closed

3   Switch on the power to the vending machine

4   Check that after an initial multi-colour flashing sequence the LED on the changegiver keypad settles to green. This will indicate the changegiver is functioning correctly and **the installation is then complete**

If the green LED does not come on, or is amber, refer to *Troubleshooting* on page 25.

Floating the tubes with coins

Once the above procedure has been correctly carried out, the changegiver will then need to be filled with coins, this process is called "Float Up". This operation must be carried out when the changegiver is first installed. Thereafter it can be carried out as required, e.g. to replenish coin tubes if insufficient coins are held. For more information, refer to page 42

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Module Replacement

This section tells you how to remove and replace individual modules.

The section also tells you how to change a transformer assembly and replace fuses.

BEFORE YOU REMOVE ANY MODULE, TURN OFF THE POWER SUPPLY TO THE VENDING MACHINE.

Coin Tube Cassette

Removing

Press the blue tabs together, then lift the cassette outwards
and upwards – steps A, B and C below
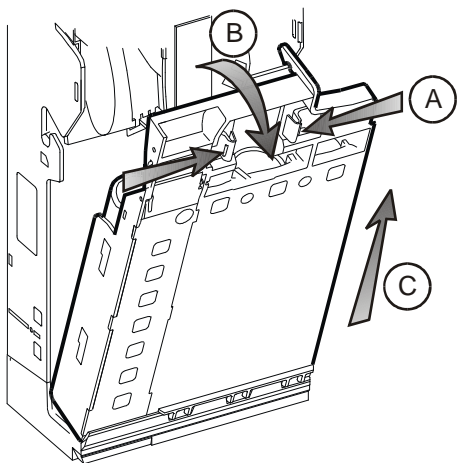
Installing

1 Check that the white dispense arms, A B C and D, at the
bottom of the
changegiver are fully
forward. If not, carefully
move them forward
manually

2 Locate the cassette in
the bottom of the
changegiver and then
gently push it at its
upper end until both clips
click into position
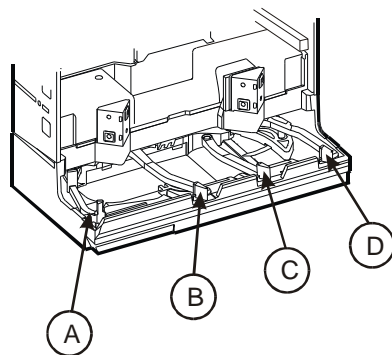
Acceptor/Separator

Removing

1   Remove the coin tube cassette – see page 16

2   Unlatch and lower the acceptor/separator. To do this, press the blue release tab at the top of the changegiver with a small screwdriver, and then pull the acceptor forward on its hinges until it comes to rest – steps A and B below
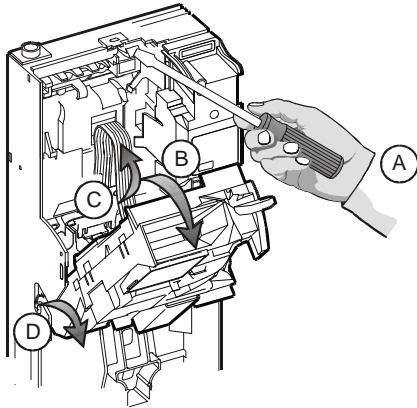
3   Disconnect the loom C at the rear of the acceptor

4   Lift the acceptor from its hinge slots – step D

Installing

1   Reposition the acceptor in the hinge slots

2   Plug in the loom to the back of the acceptor so that it loops vertically as shown in the diagram above

3   Push the acceptor back until it clicks and locks in position

4   Replace the coin tube cassette - see page 16

Keypad Assembly

Removing

1   Remove the coin tube cassette – see page 16

2   Remove the acceptor/separator – see page 17

3   Unplug the loom A connecting the keypad to the printed circuit board and remove the keypad fixing screw B
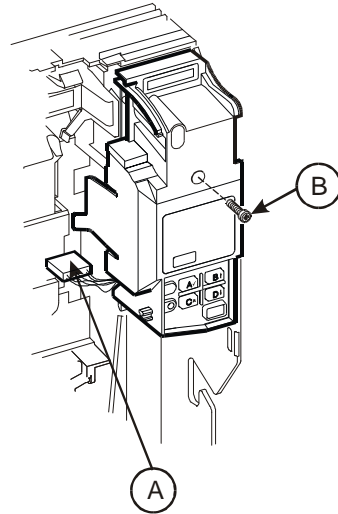
4   Tilt the keypad assembly outwards, unplug the display loom, and then lift upwards to unhook the lower retaining lugs from the spine – steps C, D and E
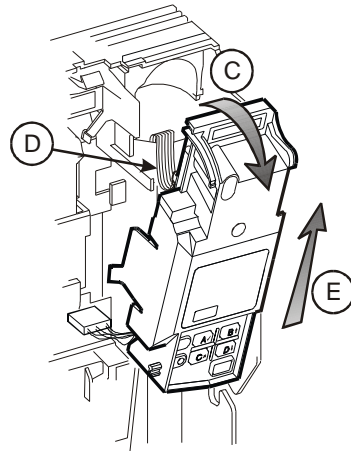
Installing

If required, refer to the diagrams in the previous section.

1   Connect the loom to the display PCB

2   Hook the lower end of the assembly into the recesses in the changegiver casing and then push it forward into position

3   Replace the retaining screw

4   Plug in the loom attached to the keypad assembly into the printed circuit board

5   Replace the acceptor/separator assembly - see page 17

6   Replace the coin tube cassette - see page 16

Transformer

Note: The following applies to Electro Mechanical changegivers only.

Removing

1 Remove the coin tube cassette – see page 16

2 Remove the acceptor/separator assembly – see page 17

3 Remove the keypad assembly – see page 18

4 Disconnect two looms, one connecting the transformer to the PCB alongside the transformer housing, the other to the PCB under the fuse cover – steps A and B below. Then lift the transformer C out from its housing. Note voltage label of transformer D and direction of placement.
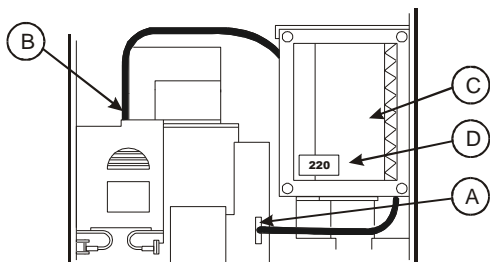
Installing

1 Replace the transformer (approved spare part)with the correct type and rating and place in its housing

2 Plug in the two looms – one to the PCB alongside the transformer housing and the other to the PCB under the fuse cover

3 Replace the keypad assembly – see page 19

4 Replace the acceptor/separator assembly - see page 17

5 Replace the coin tube cassette - see page 16

Dispenser

Removing

1   Remove the coin tube cassette – see page 16

2   Unplug the loom, 1, connecting the dispenser to the interface PCB
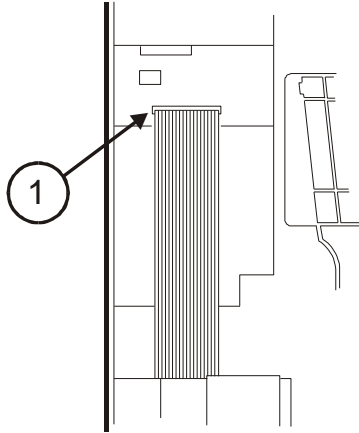
3   Carefully spring the sides of the changegiver slightly outwards to release the two lugs holding the dispenser in position, and then slide the dispenser out – steps A, B and C below
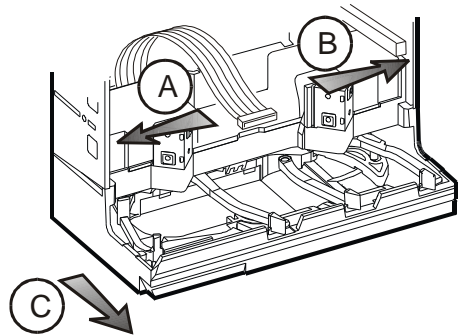
Installing

If required, refer to the diagrams in the previous section.

1 Locate the dispenser in the runners at the bottom of the spine, and press it gently forward until it clicks in position. Check that the lugs holding it are at each side are fully engaged

2 Connect the dispenser loom to the interface PCB

3 Check that the white dispenser arms A, B, C and D are engaged in their guides, as far forward as they will move. If not, carefully move them manually
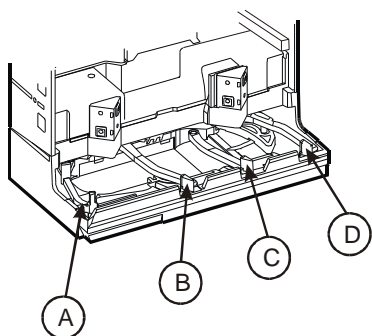
4 Switch on the power to the vending machine, wait until the changegiver start-up completes and the LED settles to green

5 On the keypad, press the yellow **Mode** key twice to park the dispenser arms. *

6 Replace the coin tube cassette - page 16

*When the dispenser arms are parked, they should be fully located in the coloured inserts at the bottom of the coin tube cassette

Replacing Fuses

1 Remove the coin tube cassette – see page 16

2 Release the retaining catch and lower the acceptor/separator – steps A and B below
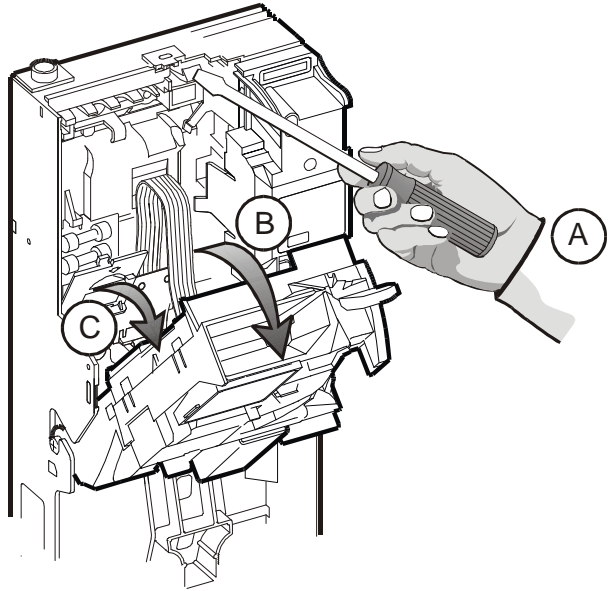
3 Push the fuse cover downwards to unlatch it and then pull it forward – step C above

4 Replace the blown fuse(s) with recommended type (see fuse cover label for rating)

5 Close the fuse cover – make sure it clicks into place

6 Reposition the acceptor/separator, pushing it gently until it clicks into place (ensure loom loops vertically)

7 Replace the coin tube cassette – see page 16

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Troubleshooting

This section describes how you can use the changegiver built-in diagnostic facilities.

Overview

The status of the changegiver is indicated by the colour of the LED on the keypad.

❑ **Red/Amber/Green (alternating)** – occurs briefly when the changegiver is first switched on, or after it has reset

❑ **Green** - the changegiver is working correctly

❑ **Green (flashing)** – occurs when the keypad is in either the Service or Setup mode and procedures are being carried out

❑ **Amber** – changegiver not operating due to a vending machine command error or fault –see page 27

❑ **Amber (flashing)** – the changegiver has a fault that can be rectified, possibly on site. The location of the fault is indicated by the number of flashes - see pages 28 to 30 and message on the changegiver display

❑ **Red (steady)** – there is a fault with the acceptor module

❑ **Red/Green (alternating)** – there is a serious hardware or software fault and the changegiver must be replaced

❑ **No LED on** – possible power supply problem - see page 31

Amber LED On or Flashing

When there is a fault, the amber LED comes on. It may be steady or flash in a sequence of one to four flashes. At the same time, an error message is shown on the display (A).

The number of flashes identifies the problem module as illustrated below.
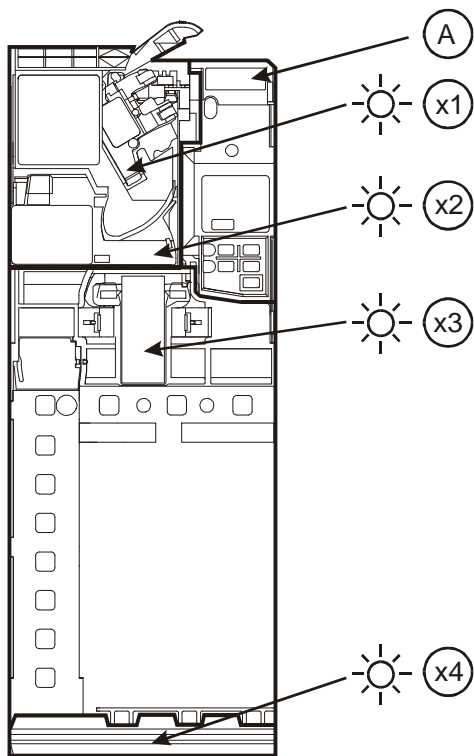
Each sequence, the likely cause of the problem and the action you must take are described in the following sub-sections.

After clearing an error, insert a coin in the changegiver to check that it is working properly.

Multiple errors are reported in sequence. The system requires you to clear one error before you can move on to the next.

Some errors may clear automatically after a short time delay when the changegiver is operated. If an error persists and you cannot clear it as described below, replace the faulty module or the complete changegiver.

Amber LED Steady

Displayed message: *"Inhibited by VMC"*

Problem: vending machine

Effect: no coins accepted

Possible causes:

1 Faulty connection to the vending machine; not communicating with the changegiver

2 No merchandise available

3 Jammed or faulty merchandise dispenser

4 Vending machine controller problem

Action to take:

1 Check the loom connecting the changegiver to the vending machine is secure

2 Check the comms lead, if fitted

3 Reset the power

4 If appropriate, advise the operator to replenish the vending machine

Amber Flash x 1

Four messages can appear as follows:

Displayed message: *"Coin Jam"*

Faulty module: discriminator

Effect: no coins are accepted

Possible cause: coin jam

Action to take:

1   Check for a coin jam

2   Check that the reject lever mechanism is functioning freely

3   Check there is clearance between the changegiver and
vending machine escrow levers – see page 12

Displayed message: *"Clean-Me"*

Faulty module: discriminator

Effect: coin acceptance decreased to below an acceptable level

Possible cause: dirty coin paths or high slug rejection

Action to take:

1. Clean the coin paths–see *Cleaning* page 34 On the keypad,
press **Mode A✓ Mode** to clear the fault report and return the
LED to green

2. Check the cashbox and coin tubes for slugs

3. Check coin acceptance threshold

Displayed message: *"Escrow pressed"*

Faulty module: discriminator

Effect: no coins accepted

Possible cause: escrow lever partially depressed or stuck

Action to take:

1 Check the flight deck

2 Check the changegiver escrow lever is functioning freely

3 Check the escrow lever on the vending machine is functioning freely

4 Check there is clearance between the changegiver and vending machine escrow levers – see page 12

5 Reset power to the changegiver

Displayed message: *"Coin Sensor Error"*

Faulty module: discriminator

Effect: no coins accepted

Possible cause: electronics error

Action to take: switch the power off and then on again. If the error fails to clear, replace the Discriminator

Amber Flashes x 2

Message: *"AGM error"*

Faulty module: accept gate module

Effect: coins not accepted

Possible cause: coin jam or debris in the accept gate area; accept gate failing to open

Action to take:

1 Open the acceptor (see page 36) and clear the jam

2 Check the acceptor gate mechanism is clean and there are no coins holding the gate

3 Close the flight deck – be sure to close it fully

Amber Flashes x 3

Error message: *"Separator error x"* (x can be A, B, C or D)

Problem module: separator

Possible cause: coin jam at the top of a coin tube; coin jam in a tube; cassette not fully installed; dirt on the top-level sensor; cassette not assembled correctly

Action to take:

If possible, remove the coin tube cassette as described on page 16, clear the jam and/or clean the top level sensor and prisms, then replace the cassette.

If you cannot remove the cassette, the cause is likely to be a coin jam at the top of a tube. To free the jam:

1   Remove the changegiver – see page 11

2   Lay the changegiver on its back until the jammed coin slides back into the separator. You can then remove the cassette to check there are no other jammed coins

3   Check the screws at the top of the coin tubes are fully tightened

4   Clean the top-level sensor if necessary

5   Reinstall the cassette – see page 16

6   Reinstall the changegiver –see page 12

Amber Flashes x 4

Error message: *"Dispenser error x"* (x can be A, B, C or D)

Problem module: dispenser

Effect: No change given from tube x

Possible cause: coin jam at the bottom of the indicated coin tube; loom not fitted correctly

Action to take:

1   Remove the coin tube cassette - see page 16

2   If there is a coin jam, free it, check that all coins are
    seated flat in the coin tubes

3   Check the loom is connected correctly

4   Press the **Mode** key twice to park the dispenser arms

5   Replace the cassette - see page 16

No LED On

If the LED on the keypad does not come on at all:

1   Visually check the power supply to the vending machine –
    there may be a power-on light or other indication

    If there appears to be a power supply problem, carry out
    the necessary steps to rectify this

2   Check the cable connection between the changegiver and
    the vending machine is secure

3   If the vending machine has power, the changegiver fuses
    may be blown. Replace the fuses – see page 23

Further Diagnostic Information

In addition to the amber LED sequences and the display messages to help diagnose problems, you can access further diagnostic information via the Setup mode. To do so:

1 Press the **Mode** key and hold it down for 1.5 seconds to access the Setup mode. The display will show the first Setup option, **Prices**

2 Press the **D↓** key once to access the **Errors** option

3 Press the **A✓** to access the **View current Errors** option

4 Press the **D↓** key to scroll down through the list of status messages. The meaning of the messages are listed in the table on page 33. In some instances, you can press **A✓** for more information.

5 To exit and return to normal operation, press the **Mode** key

Status Message	Description
View Current Errors	Enables you to access a list of error messages. Press the **D↓** key to scroll through the list: e.g. CM1110 = coin jam
View SW Version	Software Version Number. Press **A✓** to see which software version and chips are installed.
View VMC Type	VMC = Vending Machine Controller. Shows interface currently active. Can be BDV, MDB or EM.
Strobe Status	Status of accept gate strobes. Normal display reads DU PU, where D = Direction strobe (nearest the accept gate), P = past gate strobe (furthest from the accept gate), U = uncovered. C = covered, covered strobes (could indicate a coin jam in the acceptor module)
Battery Status	Status of the back-up battery. OK = normal reading. If Not OK, replace the discriminator and arrange for the battery to be replaced by an approved service centre.
Power Status	Percentage of power being supplied. Normal = 100%. If above or below 100% by more than 10%, check the VM voltage is correct.
Temperature (Min/ Max/ Reset)	Approximate temperature. – Normal temperature is 21°C (room Temp.) High or Low temperature can be a reason for poor coin acceptance
EA Line	For EM 1 price/4 price changegivers only. Normally used on can vending machines to indicate a failed vend. Active = escrow accept from VM is present. Inactive = escrow accept from VM is not present.
Blocker	For EM 1 price/4 price changegivers only. Normally used on vending machines to indicate an inhibit line. Active = blocker from VM is present. Inactive = blocker from VM is not present.
Printer CTS	Status of printer Clear To Send line. Active = printing Inactive = not printing or no printer detected
TLS Status	Status of the Top Level Sensors for the coin tubes A, B, C and D, which may be Uncovered (U) or Covered (C). Normal reading AU BU CU DU. (a covered sensor could indicate a coin jam/sensor error/dirt on the indicated tube or prism problem)
LLS Status	Status of the Low Level Sensors for the coin tubes A, B, C and D, which can be Uncovered (U) or Covered (C). Normal reading is AC BC CC DC, indicating there are coins in each tube. If the tubes are empty, the reading will be AU BU CU DU. (if there are no coins and the sensor shows covered, this can indicate sensor error or minor problem)

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Cleaning

This section describes the cleaning procedures you can carry out on site.

Requirements

Apart from general cleaning near the changegiver, the coin pathways, dispenser arms and guides must also be kept clean.

The operator is advised to do this on a regular basis, but dirt is a major cause of malfunctioning and therefore cleaning is a prominent aspect of field servicing.

Safety

BEFORE YOU BEGIN, SWITCH OFF THE POWER SUPPLY TO THE VENDING MACHINE

What to Use

Use only a soft damp cloth or a soft brush.

DO NOT USE SOLVENTS OR ABRASIVES

Use of any such chemicals will invalidate your warranty!!!

Acceptor

To clean the acceptor:

1 Switch off the power supply to the vending machine

2 Open the acceptor by pulling on the left-hand side and lifting upwards and to the right

3 Clean the shaded areas shown below, leaving the surfaces clean and dry
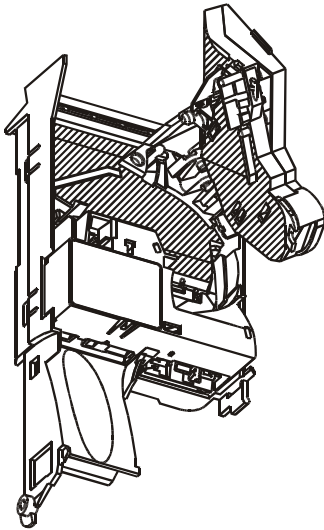
4 Close the acceptor. Make sure the lid is fully closed

5 Switch on the power

⚠️ **IF ANY DROPS OF WATER ENTERED THE CHANGEGIVER, DELAY SWITCHING ON UNTIL IT HAS DRIED OUT**

Dispenser Arms and Guides

To clean the dispenser arms and guides:

1   Switch off the power to the changegiver

2   Remove the coin tube cassette – see page 16

3   *Without removing the dispenser from the changegiver*, carefully clean the arms and guides using a soft brush. If the dispenser is excessively dirty, replace the module – see page 22

4   Switch on the power to the changegiver and wait for the start-up sequence to be completed

5   Press the **Mode** key twice quickly to park the dispense arms

6   Replace coin tube cassette – see page 16

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Service Procedures

This section describes procedures you can carry out, via the keypad, using the Service mode. It also includes one procedure, "emptying the coin tubes" that does not involve entering the Service mode.

Accessing the Service Mode

To access the Service mode, you press the yellow **Mode** key quickly, without holding it down for more than 1.5 seconds. The green LED will flash continually and the display will show that you are in the Service mode. If you do not press another key within 15 seconds the keypad automatically reverts to its normal operating state.

Service Mode Functions

Within the Service mode, there are five functions:

❑ Float

❑ Config

❑ Price Teach

❑ Cassette Set

❑ Audit

To access a service function, press the **Mode** key followed by a single press of a service function key listed below.

❑ **A✔** for Float

❑ **B↑** for Config

❑ **C✗** for Price Teach

❑ **D↓** for Cassette Set

❑ **Mode** for Audit

Each function is independent. To move from one function to another, you must first press the **Mode** key to exit from the current function and begin again. You cannot step through the functions.

Options

Within some of the Service mode functions, there are servicing options. They are indicated by the clear boxes in the options overview diagram on page 41.

The procedures associated with each option are described on subsequent pages. In the descriptions, graphics are used to indicate the following:
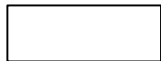
Press the **Mode** key *quickly*, to enter the Service mode and again at the end of a procedure to exit and return to normal operation
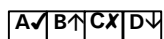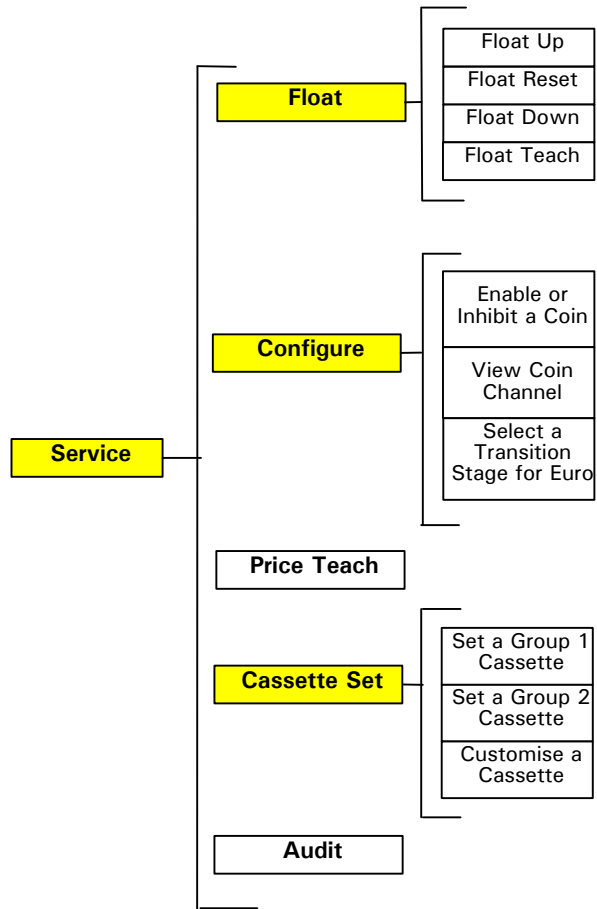
A✔ B↑ C✗ D↓   Press each key in turn

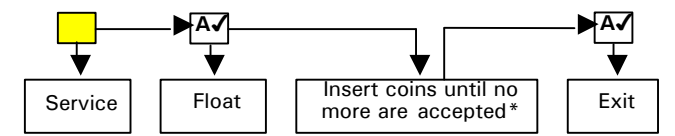⟶   Move to the next stage

↓   Mode or option selected/action to take

Options Overview

```
                              ┌─────────────┐
                              │  Float Up   │
                              ├─────────────┤
                    ┌───────┐ │ Float Reset │
                    │ Float ├─┤─────────────┤
                    └───────┘ │ Float Down  │
                              ├─────────────┤
                              │ Float Teach │
                              └─────────────┘

                              ┌─────────────┐
                              │  Enable or  │
                              │ Inhibit a Coin│
                              ├─────────────┤
                    ┌─────────┐│ View Coin  │
                    │Configure├┤  Channel   │
                    └─────────┘├─────────────┤
                              │  Select a   │
    ┌─────────┐               │ Transition  │
    │ Service ├──             │Stage for Euro│
    └─────────┘               └─────────────┘

                    ┌────────────┐
                    │ Price Teach│
                    └────────────┘

                              ┌──────────────┐
                              │ Set a Group 1│
                              │   Cassette   │
                    ┌────────────┐├──────────────┤
                    │Cassette Set├┤ Set a Group 2│
                    └────────────┘│   Cassette   │
                              ├──────────────┤
                              │ Customise a  │
                              │   Cassette   │
                              └──────────────┘

                    ┌────────┐
                    │ Audit  │
                    └────────┘
```
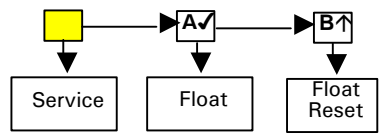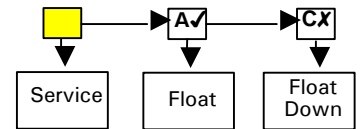
For more details, see Appendix A.

Float

Note: Exiting from "Float mode" clears any existing credit (EM variants) and resets the "*Clean Me*" errors message – see page 28.

Option	What it enables you to do
Float Up	To fill each tube (to the programmed float level) with coins. This operation must be carried out when the changegiver is first installed. Thereafter it can be carried out as required, e.g. to replenish coin tubes if insufficient coins are held.

* Check that the first two coins inserted in each tube are lying flat

Option	What it enables you to do
Float Reset	To reset the coin counters to float level after manually floating the changegiver. Note: - Ensure the number of coins in the tubes = programmed Float number.

Option	What it enables you to do
Float Down	To automatically dispensed coins from the tubes that are above the programmed, float level. **Note:** This option only works if coin tube(s) are configured to fill to maximum during normal operation (see page 70)

Option	What it enables you to do
Float Teach	To reconfigure the float level. This may be necessary if the coins in the coin tubes are more than is necessary or insufficient to meet trading needs.

Service	Float	Float Teach	Insert coins, or press each key in turn to release surplus coins, to reach the level required	Hold for 1.5 secs

If no coin is inserted or key pressed for 45 seconds, the changegiver returns to normal operation

Configure

Option	What it enables you to do
Enable or Inhibit a Coin	To enable or inhibit a specific coin or series of coins, e.g. all types of penny

Service	Config	Insert a coin to enable it	Insert a coin and press the escrow lever to inhibit it	Exit

Channel Details	To see a description of the channel and whether it is enabled or inhibited

Service	Config	Display first channel	Display the required channel	Exit

Option	What it enables you to do
Select a Euro Transition Stage (1 to 4	To select a transition stage for the Euro from the following options:
	Transition Stage 1 (accept national only, pay out in National only - **press key A**)
	Transition Stage 2 (accept national and Euro, pay out in National only – **press key B**)
	Transition Stage 3 (accept National and Euro, pay out in Euro only – **press key C**)
	Transition Stage 4 (accept Euro only, pay out in Euro only - **press key D**)

Service → Config → Show current stage → *If required,* press a key to select a different stage (see above) → Press escrow return

Price Teach

Option	What it enables you to do
Price Teach	To set or amend the price of merchandise. This procedure must be completed before the changegiver can be used
	This procedure is applicable to the EM variant, and to the EXEC variant when set to Price Hold only (see page 61)

Service → Price Teach → Enter coins to merchandise value → Press the machines vend button(s) → Exit*

*Alternatively, press escrow return to exit

Cassette Set

Option	What it enables you to do
Select a Group 1 Cassette	To select a Group 1 **(National)** cassette and make it active. The code you must enter is printed on the label, stuck on the side of the tube cassette. A list of all the available codes is given in Appendix E **NOTE:-Once a code is entered, previous configuration will be overwritten.**
	Install the new cassette → Enter the code shown on the cassette label → Press escrow return
Select a Group 2 Cassette	To select a Group 2 **(Euro)** cassette and make it active. The code you must enter is printed on the label, stuck on the side of the tube cassette. A list of all the available codes is given in Appendix E **NOTE:-Once a code is entered, previous configuration will be overwritten.**
	Install the new cassette → Enter the code shown on the cassette label → Press escrow return
Customise a Cassette	To change the combination of coins accepted into the cassette. You can set a different coin for each tube, or you can set a coin to be accepted by more than one tube. Once you have entered the configuration option, you should set-up all four tubes, otherwise the changegiver will only use the tube(s) you have configured and will disable any remaining. **IF A TUBE IS NOT TAUGHT, IT WILL NOT BE USED. Ensure the correct coin tubes and designators are fitted before configuring this option**
	Service	Cassette Set	Insert a coin and press the key for the tube(s) required to accept it.	Exit
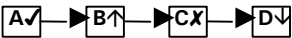
Audit

Option	What it enables you to do
Audit	Displays a quick audit that shows the total money value of the coins held in all the coin tubes, followed by the number of physical coins held in each tube. This information will not be displayed if the tube cassette is not fitted as this procedure will park the dispense arms.

Press mode key twice within 2 seconds → ▮ → ▮
↓ ↓
Service | Audit

This sequence is only available when the tube cassette is fitted to the Changegiver

Manually Filling Coin Tubes

Option	What it enables you to do
Manually Fill Coin Tubes	To replace the existing cassette with a manually filled cassette. This procedure can be used instead of floating up the coin tube counts automatically with the cassette in position, thus reducing on-site servicing time. **Before installing, fill the cassette to the float level**

Remove cassette → ▮ Service → ▮ Park the dispense arms → Install the new cassette → ▮ A✓B↑ → Reset the float

Emptying Coin Tubes

Option	What it enables you to do
Empty the Coin Tubes	To empty the coin tubes – for instance if the cassette is being replaced or simply to empty a coin tube Example:- If Key **A✓**is pressed coins will be dispensed from tube A

<div align="center">

A✓ ▶B↑ ▶C✗ ▶D↓

</div>

Press the key for the tube required to be emptied. If you hold this key pressed for at least 3 seconds, the dispenser will latch. To stop the automatic dispensing of coins, press the key again. If you do not press a key, the dispenser will automatically stop when the tube reaches the safe count. To dispense a single coin from a tube press and release the relevant key once. The changegiver display will always show the number of coins in the tube been activated.

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Configuration Procedures

This section provides an overview of the configuration procedures you can carry out using the Setup mode.

For an overview of the configuration options, see Appendix B.

Accessing Setup

To enter the Setup mode, you press the **Mode** key ☐ for 1.5 seconds. The green LED will flash and the display will show you have accessed the first of the Setup functions shown below.
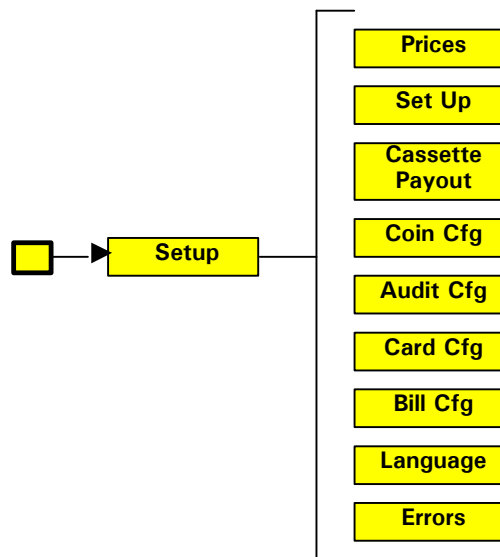
If you do not press another key within 15 seconds, the keypad reverts to its normal operating state.

After accessing the Config mode:

❑ Press **B↑** or **D↓** key to scroll up or down through the list of functions

❑ Press **A✔** to accept the displayed function

❑ Press **C✗** to cancel and exit without accepting the changes made

❑ Press **B↑** and **D↓** together to set any value to zero or any variant to its default value

Setup Options

Each Setup function includes configuration options. After you have selected a function, the first option is displayed. The options and the associated configuration procedures are described in subsequent sections. At the start of each section there is a graphic overview of the options available. In the descriptions, graphics are used to depict the following:

Press the Mode key for 1.5 seconds to access the Setup mode functions.

Press the **B↑** and **D↓** keys to scroll through the list of options and then press **A✔** to make a

Press each key in turn

Move to the next stage

Mode or option selected/action to take

Press, the **Mode** key *quickly*. (Do not hold it down) to exit and return to normal operation.
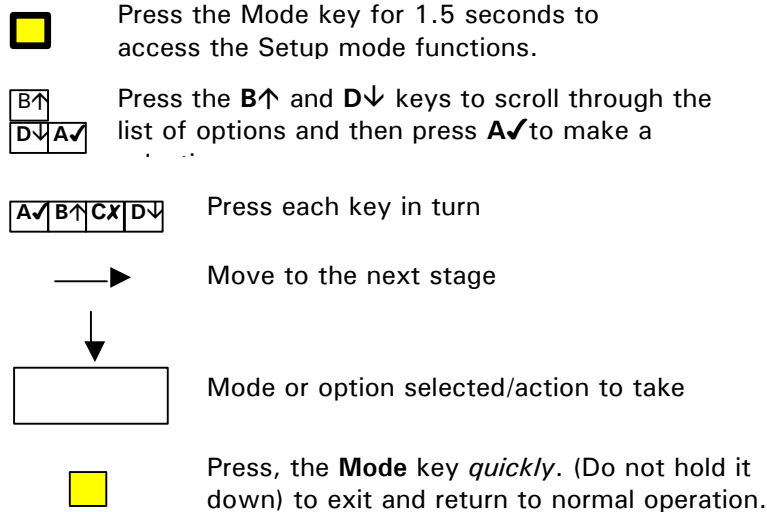
To exit without keeping the changes, you can press **CX** key at any time.

The following table lists all the configuration options in alphabetical order, together with the number of the page on which the procedure is described.

Option	Function	Page
Acceptance	Coin Cfg	75
Award Discount	Setup – BDV Config	62
Change Delay	Setup - EM, EXEC and BDV Config	57
Change Installation Date	Audit Cfg	81
Channel Configuration	Cassette Payout - Coin Cfg	76
Coin Scaling Factor	Setup -MDB Config	56
Coin Setup	Coin Cfg	75
Country	Setup	66
Credit Display Message	Setup	67
Currency Conversion Factor	Bill Cfg, Card Cfg	82,84
Currency Nat	Coin Cfg	74
Decimal Point Position	Setup	66
Diagnostic Display Message	Setup	68
Dispense To	Cassette Payout	73
Escrow Return	Setup - EM, EXEC and BDV Config	57
ExC. Algorithm	Setup - BDV Config	64
ExC. Coins	Setup - BDV Config	65
ExC. Equation	Setup - BDV Config	64
ExC. Offset	Setup - BDV Config	65
Fill To	Cassette Payout	72
Float Report	Setup - MDB Config	55
Fraud Timeout	Setup	66
Hardwire Protocol	Audit Cfg	81
Highest Value to Accept	Bill Cfg	85
ID 101 VMC Indent	Audit Cfg	79
Keypad	Setup	67

Option	Function	Page
Link Master ID	Setup - EM Config	63
Loom	Setup - EM Config	58
Maximum Card Credit	Card Cfg	83
Maximum Change	Setup - EM Config	63
Maximum Credit	Setup - EM, EXEC and BDV Config	58
Maximum Total Bill Credit	Bill Cfg	84
MDB Level	Setup - MDB Config	55
Mode	Coin Cfg	75
Overpay	Setup - EM, EXEC and BDV Config	57
Overpay Amount	Setup - EM, EXEC and BDV Config	58
Price Display	Setup - EM, EXEC and BDV Config	58
Price Hold	Setup - EM Config	61
Print Language	Audit Cfg	78
Print Logo	Audit Cfg	80
Report Style	Setup - MDB Config	55
Reset Audit Data	Audit Cfg	78
Reset Mode	Setup - EM Config	59
Reset Optical Password	Audit Cfg	80
Revalue	Card Cfg	82
Select Report	Audit Cfg	77
Set a Customised Cassette	Cassette Payout	72
Set Active Cassette	Cassette Payout	71
Set All Prices	Prices	53
Set Group	Cassette Payout	70
Set Price Line	Prices	53
Settings	Setup	67
Trigger Discount	Setup - BDV Config	63
Tube Configure	Cassette Payout	70
Vend Timeout	Setup	61
Vend Type	Setup - EM, EXEC and BDV Config	57

Prices

Options
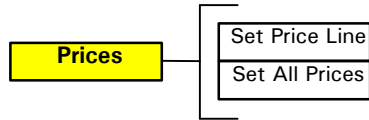
Procedures

Option	What it enables you to do
Set Price Line	To set or change a price
Set All Prices	To set all prices to one value

Setup

Options

MDB Cfg	MDB Lvl	Vend Type
	Report Style	Escrow Return
	Float Report	Chng Dly
	Coin Scaling Factor	Overpay
	Escrow Return	Opay Amnt
EM Cfg		Max credit
		Price Display
		Loom
	Vend Type	Reset Mode
	Escrow Return	
	Chng Dly	
	Overpay	Vend Type
	Opay Amnt	Escrow Return
Exec Cfg	Max Credit	Change Dly
	Price Display	Overpay
	Coin Scaling Factor	Opay Amnt
	Vend Timeout	Max Credit
	Price Hold	Price Display
Setup		Coin Scaling Factor
Bdv Cfg		Vend Timeout
		Award Discount
	Fraud Timeout	Trigger Discount
	DPP	Max Change
	Country	Link Master ID
	Keypad	ExC. Algorithm
	Settings	ExC. Equation
	Cred Display Message	ExC. Offset
	Diag Display Message	ExC. Coins

Note: Only one changegiver variant can be active at one time. The displayed message for the current variant includes the word 'Active', for example **MDB cfg: Active**

MDB Procedures
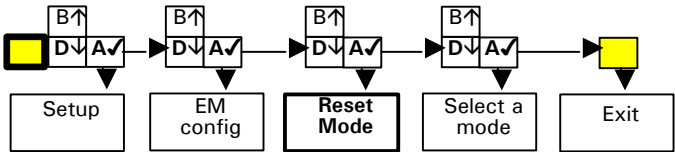
Option	What it enables you to do
MDB Lvl (MDB Level)	To select a level from the following options: **Lvl 2** **Lvl 3 No Feat** (no features, that is, as Lvl 2) **Lvl 3 All Feat** (all features, that is, it supports the MDB alternative payout - recommended setting)

Option	What it enables you to do
Report Style	To select a style in which the tube contents will be notified to the vending machine. The options are: **CF Hide Safe** (recommended option) **CF Inc Safe** **TRC Inc Safe** **TRC Hide Safe** Examples of reports are included in Appendix A

Option	What it enables you to do
Float Report	To set the float report option to On or Off Recommended setting = OFF

Option	What it enables you to do
CSF (Coin Scaling Factor)	To set a coin scaling factor, e.g. in the UK, 1 (for one penny). Options: **Recommended setting = 0. Auto** (will show "Auto (x)" where x is the value being used which is computed by the system. **Factor (in the range 0 −255)**

| Setup | MDB Config | **CSF** | Select Auto or a factor | Exit |

| **Escrow Return**
 (Yes or No) | Reports Escrow return (Reject Lever pressed) to the vending machine.

 Recommended setting = YES |

| Setup | EM Config | **Escrow Return** | Yes or No | Exit |

EM Procedures

Option	What it enables you to do
Vend Type	Set the changegiver to set as single vend or multiple vend

Setup → EM Config → **Vend Type** → Single or Multi → Exit

Option	What it enables you to do
Esc Return (Escrow Return)	Reports Escrow return (Reject Lever Pressed) to the vending machine. (Recommended setting = Yes)

Setup → EM Config → **Escrow Return** → Yes or No → Exit

Option	What it enables you to do
Cnge Dly (Change Delay)	Set the time that will elapse before change is dispensed from 1 to 250 sec in 1 sec increments, or to infinity, providing the changegiver is not configured to single vend (see above) Default = 0

Setup → EM Config → **Cnge Delay** → Enter a time → Exit

Option	What it enables you to do
Overpay	Set any overpayment made by the customer to be Retained or Cleared at the end of a vend after change has been paid out

Setup → EM Config → **Overpay** → Retained or Cleared → Exit

Option	What it enables you to do
Opay Amnt (Overpay Amount)	Set the maximum overpay allowed, that is, the amount that can be accepted over and above the price of the merchandise when the exact change mode is active. Thus if it was set to 5p, a 50p coin would be accepted for a 45p vend but not for a 40p vend

Setup	EM Config	**Opay Amnt**	Enter an amount	Exit

Max Cred (Maximum Credit)	To set the maximum amount of credit to be accumulated in a single transaction

Setup | EM Config | **Max Cred** | Enter an amount | Exit

Price Display	To display or hide the external display of the price of the merchandise when a selection button is pressed

Setup | EM Config | **Price Display** | Yes or No | Exit

Loom	To set the changegiver to work with a standard loom, or to make a T4 loom work as a T3 loom; that is, a 4-price Jones plug operates as a 1-price plug. Applies to 4 price changegiver only

Setup | EM Config | **Loom** | Standard or make T4 = T3 | Exit

Option	What it enables you to do
Reset Mode	To set the blocker reset. The options are: **Blk reset (EU) - Recommended for can machines** **30ms Delayed blocker reset (EU) (EU = European) - Recommended for the majority of machines** **200ms Delayed blocker reset (EU)** **Blk hold reset (EU) - Recommended for some snack machines** **Escrow accept (EU)** **US 1 Price (TRC6800)** (1-price pulsed output, ignores blocker and simulates permanent sense) - **Recommended for 1 price can machines** **MC5807 Blocker, 2s (US)** (not used in Europe)
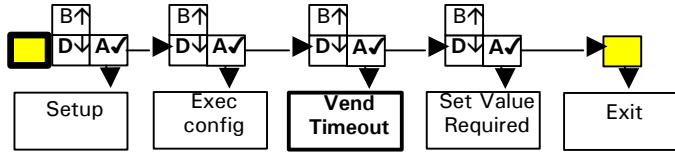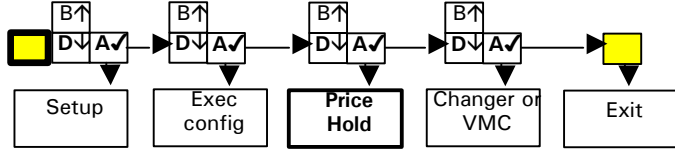
EXEC Procedures

For information on the following options, see EM Configuration beginning on page 57.

❑ Vend Type

❑ Escrow return

❑ Chng Dly

❑ Overpay

❑ Opay Amnt

❑ Max Credit

❑ Price Display

For information on Coin Scaling Factor, see MDB Configuration, page 55.

The procedures are the same for both variants with the exception that Exec Config must be selected instead of EM Config or MDB Config.

Option	What it enables you to do
Vend Timeout	Set the length of time the changegiver will wait for a vending machine to reply to a vend command. (in the event of a protocol error) Default = 180 seconds

Setup	Exec config	**Vend Timeout**	Set Value Required	Exit

Price Hold	To set the Changer or the VMC to hold the prices

Setup	Exec config	**Price Hold**	Changer or VMC	Exit

BDV Procedures

For information on the following options, see EM Configuration beginning on page 57.

❑ Vend Type

❑ Escrow return

❑ Chng Dly

❑ Overpay

❑ Opay Amnt

❑ Max Credit

❑ Price Display
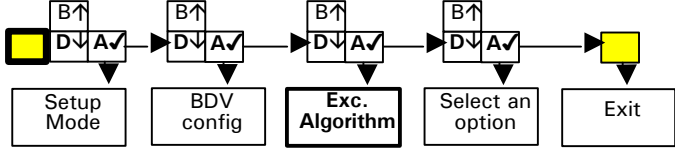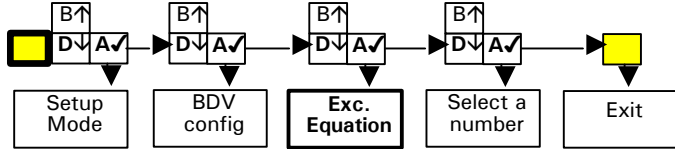
For information on Coin Scaling Factor, see MDB Procedures, page 55.
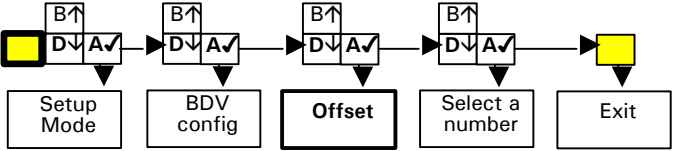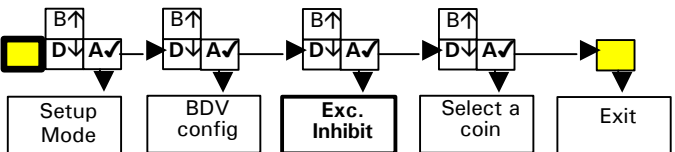
For information on Vend Timeout, see Exec Procedures, page 61.

The procedures are the same for both variants with the exception that BDV Config must be selected instead of EM Config or MDB Config.

Option	What it enables you to do
Award Discount	To set a discount (value, not percentage) on the price of the merchandise awarded when the trigger level is reached (see the following procedure)

Option	What it enables you to do
Trigger Discount	To set the value at which the discount will be awarded (see the previous procedure)

B↑ D↓ A✓ → B↑ D↓ A✓ → B↑ D↓ A✓ → B↑ D↓ A✓ →

| Setup Mode | BDV config | **Trigger Discount** | Select zero or a value | Exit |

Option	What it enables you to do
Max Change	To set the maximum change limit in the range of 0 - 65535 Default = 65535

B↑ D↓ A✓ → B↑ D↓ A✓ → B↑ D↓ A✓ → B↑ D↓ A✓ →

| Setup Mode | BDV config | **Max Change** | Set Value Required | Exit |

Option	What it enables you to do
Link Master ID	To select a link master in the range 0 – 65535. Normally a default value of 30 is used

B↑ D↓ A✓ → B↑ D↓ A✓ → B↑ D↓ A✓ → B↑ D↓ A✓ →

| Setup Mode | BDV config | **Link Master ID** | Select a number | Exit |

Option	What it enables you to do
ExC. Algorithm (Exact Change Algorithm)	To select an exact change algorithm. There two options: **BDV** (details are set manually) **CF690** (recommended – automatically calculated) **NOTE: - If the CF690 is set, Overpay must be set to an appropriate value**

| Setup Mode | BDV config | **Exc. Algorithm** | Select an option | Exit |

| **ExC. Equation** (Exact Change Equation) | To select an exact change equation in the range 0 – 255, usually 236 and 237. These two addresses set two change tube combinations from which change is dispensed if the quantity of coins in a specific tube falls below the low-level sensor level. The exact change equation ensures the optimum combination of change coins are dispensed by using coins from other tubes for the minimum amount of time possible

Only applicable if ExC. Algorithm is set to BDV – see page previous procedure |

| Setup Mode | BDV config | **Exc. Equation** | Select a number | Exit |

Option	What it enables you to do
ExC. Offset	To select an offset in the range 0 – 255
	The offset is the value added to the low count at which the exact change condition is triggered. Thus is the low coin count is 12 and the offset is 3, the exact change condition is triggered when the coin count drops to 15
	Only applicable if ExC. Algorithm is set to BDV – see page 65

Option	What it enables you to do
ExC. Coins (Exact Change Inhibits)	To select the coins you want to inhibit being dispensed as change
	Scroll through the list and select all the coins you wish to inhibit before you exit
	Only applicable if ExC. Algorithm is set to BDV – see page 64

Common Procedures

The following procedures are applicable to all changegiver variants.

Option	What it enables you to do
Fraud Timeout	To set a time that will disable the acceptance of all coins if a fraud attempt has been detected. Default value = 0

Option	What it enables you to do
DPP (Decimal Point Position)	To set the decimal point position, in terms of places from the right (for example, DPP of 2 = 1.23) to meet the national currency and Euro pricing requirements. There are two options: **Nat** **Euro**

Option	What it enables you to do
Country	To select the dialling code for the country, e.g. 44 for the UK. For reference purposes only, there is no phone connection

Option	What it enables you to do
Keypad	To enable or inhibit the following keypad options: **Basic (Dispense, Float)** **Mode B (Changer Options)** **Mode C (Price Teach)** **Mode D (Cass Teach)** **Soft Option Menu**

Option	What it enables you to do
Settings	To select settings. The options are: **Save = Save current memory settings to flash memory.** **Restore = Restore flash memory settings to RAM memory. (not normally used)** **If Save has not been used, Restore will load "Factory Default Setting" to memory.**

Option	What it enables you to do
Cred Display Message	To allow the user to input a string of characters (max.31) e.g. company name that will be displayed on the vending machines credit display.

Option	What it enables you to do
Diag Display Message	To allow the user to input a string of characters (max.31) e.g. company name that will be displayed on the changegiver diagnostic display.

Cassette Payout

Options

```
                                      ┌──────────────┐
                                      │   Tube Cfg   │
                                      ├──────────────┤
                                      │  Set Group   │
                                      ├──────────────┤
                                      │  Set Active  │
                                      │     Cass     │
   ┌──────────────────┐               ├──────────────┤
   │ Cassette Payout  │───────────────│  Set Custom  │
   └──────────────────┘               │     Cass     │
                                      ├──────────────┤
                                      │   Fill To    │
                                      ├──────────────┤
                                      │   Disp To    │
                                      └──────────────┘
```

Procedures

Option	What it enables you to do
Tube Cfg (coin routed) (Tube Configuration)	Set the following for each coin tube: **Full** – the number of coins that can be stored before the top level sensor is covered and coin tube registers as being full, e.g. 72 **Max** – the maximum number of coins that will be routed to a tube, e.g. 69 **Flt** – the number of coins to be held as a float **Low** – the number of coins in coin tube when the low level sensor becomes uncovered **Safe** – the number of coins that must always remain in coin tube, e.g. 2, to ensure correct dispense operation **Weight** – the number of coins left in a tube that will trigger the software to look for alternative payout coins, e.g. 15 **Designator** – the designator allocated to coin tube A, B, C or D (for information only) **Tube Type** – for information only, no setting required

Cassette Payout → **Tube cfg** → Enter values → Exit

Set Group	To select a Group and make it active

Cassette Payout → **Set Group** → Select a group → Exit

Option	What it enables you to do
Set Active Cass (Set Active Cassette)	Select a standard cassette and make it active. There are two methods: 1. Select a cassette number from the changegiver display 2. Use the Service mode and enter the code printed on the side of the cassette. A list of codes for standard cassettes is given in Appendix B Both methods are shown below

Option	What it enables you to do
Set Custom Cass (Set Customised Cassette)	To programme two cassettes (in addition to the pre-set cassette) with payout combinations If required, after a cassette is selected for use, the payout combination can be changed – see recommended method for Customise a Cassette on page 45

*You can also select No Set or Delete

Fill To	Set the level to which a tube fills. The options are: **Float level** – tubes fill to float level number selected **Maximum fill level** – tubes fill to the max fill number

Option	What it enables you to do
Disp To (Dispense To)	Set the level to which coins will be dispensed from a tube. The options are: **Empty level** **Safe level** Setting to the safe level is recommended to ensure correct operation of the dispenser
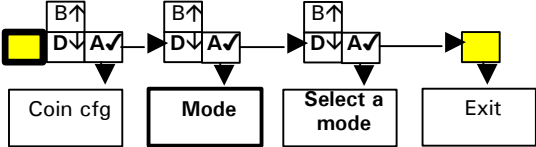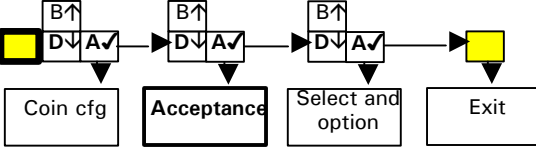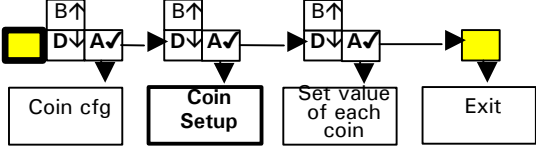
Coin Configuration
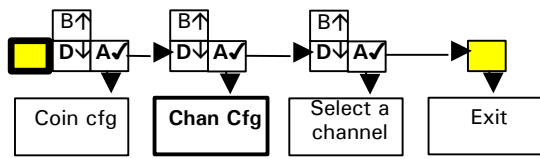
Options

Procedures

Option	What it enables you to do
Curr Nat (Currency National)	Set up the currency to be accepted. This configuration is linked to the Cassette Payout. A Euro Transition Stage can also be set using the recommended Service Mode

Option	What it enables you to do
Mode	To set the operating mode as either a High Acceptance or High Security. (For when tight or normal coin limits are used)

Acceptance	To set the currency to be accepted from the options listed below. The type of cassette that must be fitted to the changegiver is shown in brackets. **Nat** – National currency (National) **Nat+EU** – National currency and the Euro **EU** – Euro (Euro)

Coin Setup	Set up the value of each numbered coin, e.g. Coin 1: 1p **Scroll through the list and enter the value of all coins before you exit**

Option	What it enables you to do
Chan Cfg (Channel Configuration)	To link a channel to a specific coin type. The channel can then be made active or inhibited

Audit Configuration

Options

```
                        ┌──────────────────────┐
                        │    Select Report     │
                        ├──────────────────────┤
                        │     Print Lang       │
                        ├──────────────────────┤
                        │  Reset Audit Data    │
                        ├──────────────────────┤
                        │  ID 101 VMC Ident    │
    ┌───────────┐       ├──────────────────────┤
    │ Audit Cfg │───────│      Prt Logo        │
    └───────────┘       ├──────────────────────┤
                        │   Reset Optical      │
                        │     Password         │
                        ├──────────────────────┤
                        │      Change          │
                        │  Installation Date   │
                        ├──────────────────────┤
                        │  Hardwire Protocol   │
                        └──────────────────────┘
```
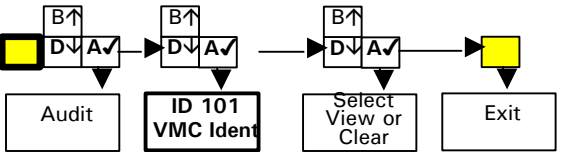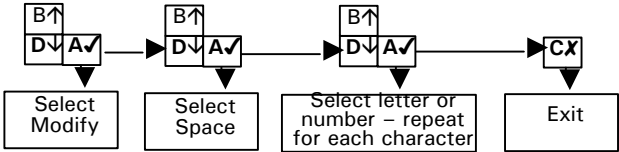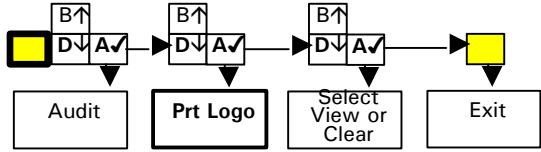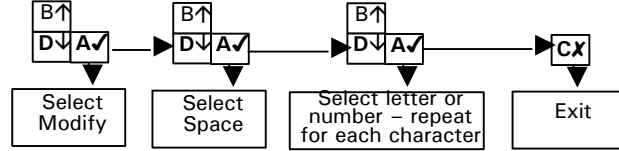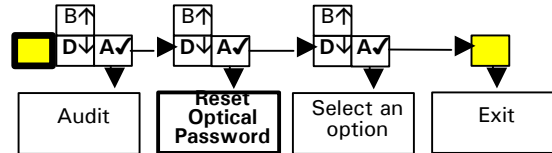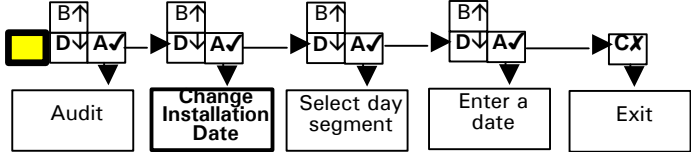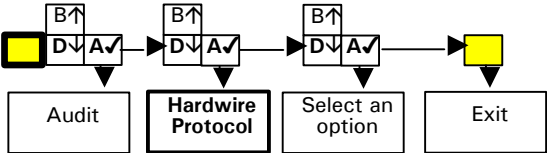
Procedures

Option	What it enables you to do
Sel Report (Select Report)	To select the type of audit to be gathered which can be: **Free Vnd** **Interims** **Basic** **Examples of the above reports are included in Appendix C**

Option	What it enables you to do
Print Lang (Print Language)	To select the language in which an audit report will be printed. Options: **Spanish** **Dutch** **German** **French** **English**
	 Audit Cfg → **Print Lang** → Select a language → Exit
Reset Audit Data	To reset audit data from the following options: **No Reset** – all data is retained **Interims Reset** – interim data is cleared **Totals Reset** – totals are cleared **Int and Tot Reset** – interim data and totals are cleared Reset takes place immediately an option is selected
	 Audit → **Reset Audit Data** → Select an option

Option	What it enables you to do
ID 101 VMC Ident (changegiver identity)	To select from the following options: **View** **Clear** **Modify** The changegiver identity is printed on the audit report and on the DEX or DDCMP reports

View and Clear

Modify

Option	What it enables you to do
Prt Logo (Print Logo)	To select from the following options: **View** **Clear** **Modify** The Print Logo is printed at the top of the audit report and is the same as the changegiver identity – see previous procedure

View and Clear

Modify

Reset Optical Password	To reset the optical password used in DDCMP comms. There are two options: **Confirm** - the password is reset and can be used **Cancel** – password is not reset

Option	What it enables you to do
Change Installation Date	To change the installation date. The description below is for setting the day. After you enter a day, scroll through the list and **repeat the process for the month and year before you exit**
	If a change is made to the day, month or year, some audit values are reset to zero

Audit	**Change Installation Date**	Select day segment	Enter a date	Exit

Hardwire Protocol	To select a protocol to be used by the 1/4-inch socket option (normally set to DEX)

| Audit | **Hardwire Protocol** | Select an option | Exit |
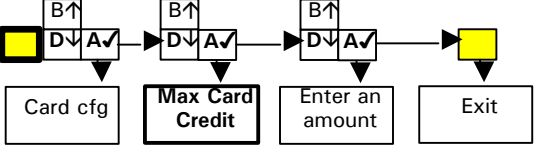
Card Configuration

Options

Procedures

Option	What it enables you to do
CCF – Currency Conversion Factor	To set a currency conversion factor. (Normally this is set to 100. Thus the displayed value = CCF x value of the card
Reval (Revaluation)	To allow or prohibit a credit addition on a card **Note:** Even if this option is selected, not all card readers allow this feature

Option	What it enables you to do
Max Card Credit	To set the maximum credit reported by a card

Bill Configuration

Options

```
                              ┌─────────────────────┐
                              │ CCF – Currency      │
                              │ Conversion Factor   │
        ┌──────────┐          ├─────────────────────┤
        │ Bill Cfg │──────────┤ Max Total           │
        └──────────┘          ├─────────────────────┤
                              │ Highest Value to    │
                              │ Accept              │
                              └─────────────────────┘
```

Procedures

Option	What it enables you to do
CCF – Currency Conversion Factor	To set a currency conversion factor This is normally set to 100. Thus the displayed value = CCF x value of the bill
	 Bill cfg → CCF → Enter a factor → Exit
Max Total Bill Credit	To enter the maximum bill credit allowed
	 Bill cfg → Max Total Bill Credit → Enter an amount → Exit

Option	What it enables you to do
Highest Value to Accept	To set the highest value bill that can be accepted, e.g. £10 in the UK, shown as 10

Errors

For information about Errors, see *Troubleshooting – Displayed Errors* on page 32.

Appendix A: Service Procedures Overview

```
                                                          ┌─────────┐     ┌──────────────┐
                                                          │   B↑    │────▶│ Float Reset  │
                                                          └─────────┘     └──────────────┘

                              ┌──────────────┐            ┌─────────┐     ┌──────────────┐
                   ┌─────┐    │ Float        │            │   C✗    │────▶│ Float Down (in│
                   │ A✔  │───▶│ Resets Clean Me│──────────┤         │     │ Fill to Max) │
                   └─────┘    │ Clears Credit │            └─────────┘     └──────────────┘

                                                          ┌─────────┐     ┌──────────────┐
                                                          │   D↓    │────▶│ Float Teach  │
                                                          └─────────┘     └──────────────┘


                                                          ┌─────────┐     ┌──────────────┐
                                                          │   A✔    │────▶│ Show Channels│
                                                          └─────────┘     └──────────────┘

┌─────────┐    ┌─────────┐    ┌──────────────┐            ┌─────────┐     ┌─────────────────────┐
│ Quick   │    │ Service │    │ Configure    │            │   D↓    │────▶│ Select Transition   │
│ Press   │───▶│ Mode    │───▶│ B↑ (coin inhibit│─────────┤         │     │ Stage for Euro:     │
└─────────┘    └─────────┘    │ teach)       │            └─────────┘     │ A✔ = 1 Nat          │
                              └──────────────┘                            │ B↑ = 2 Nat+Eu       │
                                                                          │ C✗ = 3 Eu+Nat       │
                              ┌──────────────┐                            │ D↓ = 4 Eu+Eu        │
                   ┌─────┐    │              │                            └─────────────────────┘
                   │ C✗  │───▶│ Price Teach  │
                   └─────┘    └──────────────┘
```

Float
Resets Clean Me
Clears Credit

Configure
(coin inhibit teach)

Price Teach

Cassette Set
Group 1 Cassette – Select (national) using short code AA, AA >> CC

Alternatively:
Cassette teach by inserting coins

Cassette Set
Group 2 Cassette – Select (Euro) using short code AA, AA >> CC

Appendix B: SetUp Mode - Menu Overview

```
                                    ┌──────────┐
                                    │ Cassette │
                                    │ Payout   │
                                    └──────────┘
                         ┌────────┐              ┌──────────┐
                         │ Set Up │              │ Coin Cfg │
                         └────────┘              └──────────┘
              ┌────┐
              │ B↑ │
              └────┘
┌──────────┐  ┌──────────┐  ┌────────┐          ┌───────────┐
│  Hold    │  │  Set Up  │  │ Prices │          │ Audit Cfg │
│ 1.5 sec  │  │  Mode    │  └────────┘          └───────────┘
└──────────┘  └──────────┘
              ┌────┐
              │ D↓ │
              └────┘
                         ┌────────┐              ┌──────────┐
                         │ Errors │              │ Card Cfg │
                         └────────┘              └──────────┘

                  ┌──────────┐      ┌──────────┐
                  │ Language │      │ Bill Cfg │
                  └──────────┘      └──────────┘
```

Setup Mode

Appendix C: Configuration Procedures Overview

Prices | Set Price Line | Set All Prices

Menu list for V1.02 Software Versions

Setup | MDB Cfg | EM Cfg | Exec Cfg | BDV Cfg | Fraud Timeout | DPP | Country | Keypad | Settings

MDB Cfg

MDB Level
Lvl 2
Lvl 3 No Feat
Lvl 3 All Feat
Report Style
CF Hide Safe
TRC Inc Safe
TTRC Hide Safe
CF Inc Safe
Float Report
On / Off
Coin Scaling Factor
Auto (10)
Settable (1-255)
Escrow Return
Yes / No

EM Cfg

Vend Type
Single / Multi
Escrow Return
Yes / No
Chng Delay
Infinite
Settable (0-254)
Overpay
Retained / Cleared
Opay Amnt
(0 - 65534)
Max Cred
(0 - 65534)
Price Display
Yes / No
Loom
Standard / Make T4 as a T3
Reset Mode
Blk reset (EU)
30ms Delayed blocker reset (EU)
200ms Delayed blocker reset (EU)
Blk hold reset (EU)
Escrow accept (EU)
US 1 Price (TRC6800)
MC5805D No blocker, ER (US)
MC5807 Blocker, 2s (US)

Exec Cfg

Vend Type
Single / Multi
Escrow Return
Yes / No
Chng Delay
Infinite
Settable (0-254)
Overpay
Retained / Cleared
Opay Amnt
(0 - 65534)
Max Cred
(0 - 65534)
Price Display
Yes / No
Coin Scaling Factor
Auto (10)
Settable (1-255)
Vend Timeout
Default (180)
Settable (0-1275)
Price Hold
VMC holds prices
Changer holds prices

BDV Cfg

Vend Type
Single / Multi
Escrow Return
Yes / No
Change Dly
Infinite
Settable (0-254)
OverPay
Retained / Cleared
Opay Amt
(0 - 65534)
Max Credit
(0 - 65534)
Price Display
Yes / No
Coin Scaling Factor
Auto (10)
Settable (1-255)
Vend Timeout
Default (180)
Settable (0-1275)
Award Discount
(0 - 65534)
Trigger Discount
(0 - 65534)
Max Change
(0 - 65534)
Link Master ID
(0 - 65534)
ExC. Algorithm
BDV
CF690
ExC. Equation
(0 - 254)
ExC. Offset
(0 - 254)
ExC. Coins
Cn 1 - 14

Fraud Timeout
Settable (0 -1275)

DPP
Nat
(0 - 5)
Euro
(0 - 5)

Country
Settable (0 -9999)

Keypad

Basic Dispense.Float
Enabled
Inhibited
Mode B Changer Options
Enabled
Inhibited
Mode C Price Teach
Enabled
Inhibited
Mode D
Enabled
Inhibited
Soft Options
Enabled
Inhibited

Settings
Restore
Yes / No
Save
Yes / No

Cred Display Message
View
Clear
Modify

Diag Display Message
View
Clear
Modify

Setup Mode (cont.)

Cassette Payout

Tube Cfg	Set Group	Set Active Cass	Set Cust. Cass	Fill To	Disp To
Full	**1, 2 or 3**	**No Cass**	**Cust 1 / Cust 2**	*Flt Lvl*	*Empty*
Max	*Set Active*	**Pred (1-10)**	*A,B,C or D*	*Max Fill*	*Safe*
Flt		**Cust (1-2)**	*NOTSET / Value*		
Low					
Safe					
Desig					
Tube					

Coin Cfg

Curr Nat	Mode	Acceptance	Coin Setup	Chan Cfg	Acceptance Threshold
National	*High Acceptance*	*Nat*	*Cn1 to Cn32*	*Ch1 to Ch32*	*0 (0%)*
Euro	*High Security*	*Nat + Eu*			*64 (100%)*
		Eu			

Audit Cfg

Sel Report	Print Lang	Protocol	Reset Audit Data	ID101 VMC Ident	Prt Logo	Reset Optical Password	Change Installation Date
Free Vnd	*Spanish*	*DEX via wire or*	*No Reset*	*View*	*View*	*Confirm reset*	*--/--/--*
Interims	*Dutch*	*DDCMP via IR pod*	*Interims Reset*	*Clear*	*Clear*	*Cancel*	
Basic	*German*		*Totals Reset*	*Modify*	*Modify*		
	French	*DDCMP via wire*	*Int and Tot Reset*				
	English						
		DEX (master/slave) via wire					

Card Cfg

CCF- Currency Conversion Factor	Reval	Max Card Credit
Settable (0 - 65534)	*Yes / No*	*Settable (0 - 65534)*

Bill Cfg

CCF- Currency Conversion Factor	Max Bill Credit	Highest Value to Accept
Settable (0 - 65534)	*Settable (0 - 65534)*	*Settable (0 - 65534)*

Language

Select Language

Errors

View Current Errors
View Log of Errors
View sw Version
View VMC Type
Strobe Status
Battery Status
Power Status
Temperature
EA Line
Blocker
Printer CTS
TLS Status
LLS Status

Appendix D: Example Audit Printouts

English

```
=========================
MARS ELECTRONICS.
CASHFLOW AUDIT DATA
DATE-TIME\
MACHIN MEI-------------
PRINTOUT NO.              1
PAY VENDS TOT         0.00
NO. OF VENDS TOT        0
TUBE CONTENTS        0.00
POWER INTERRUPTIONS  1
ON-TIME            0-00:00
-------------------------
SINCE INSTALLATION
DATE              00/00/00
PRINTOUT INST           1
PAY VENDS VAL        0.00
NUMBER OF VENDS         0
-------------------------
INTERIM MONEY REPORT
SINCE PRINTOUT NO.      0

TO CASHBOX           0.00
TO TUBES             0.00
CHANGE               0.00
MANUAL FILL          0.00
MANUAL DISPENSED     0.00
PAY VENDS VAL        0.00
NUMBER OF VENDS         0
OVERPAY              0.00
TOKENS               0.00
NOTES                0.00
-------------------------
INTERIM VENDS REPORT
  NO   SALES PRICE
VALUE
   1    0    1.00     0.00
   2    0    1.00     0.00
   3    0    1.00     0.00
   4    0    1.00     0.00
   5    0    1.00     0.00
   6    0    1.00     0.00
   7    0    1.00     0.00
   8    0    1.00     0.00
   9    0    1.00     0.00
  10    0    1.00     0.00
  11    0    1.00     0.00
  12    0    1.00     0.00
   -
   -
   -
  97    0    1.00     0.00
  98    0    1.00     0.00
  99    0    1.00     0.00
 100    0    1.00     0.00
-------------------------
PRICES ALTERED         NO
=========================

INTERIMS WILL BE CLEARED

24
```

French

```
=========================
MARS ELECTRONICS.
AUDIT CASHFLOW
DATE-HEURE\
NO MAC MEI-------------
NO RELEVE                2
CA TOT VENTES        0.00
NO TOT VENTES           0
CONTENU TUBES        0.00
MISE HORS TENS          1
DUREE SOUS TENS. 0-00:06
-------------------------
DEPUIS MODIF NO MACHINE
DATE              00/00/00
RELEVE MODIF            2
CH. AFFAIRE          0.00
NOMBRE VENTES           0
-------------------------
 MONTANTS
DEPUIS RELEVE NO.       0

EN CAISSE            0.00
VERS TUBES           0.00
RENDU CLIENT         0.00
REMPLISSAGE TUBE     0.00
ESSAIS TUBES         0.00
CH. AFFAIRE          0.00
NOMBRE VENTES           0
SURPAIEMENT          0.00
JETONS               0.00
BILLETS              0.00
-------------------------
VENTES INTERIMS
NO VENTES   PRIX   CH. AFF
   1    0    1.00     0.00
   2    0    1.00     0.00
   3    0    1.00     0.00
   4    0    1.00     0.00
   5    0    1.00     0.00
   6    0    1.00     0.00
   7    0    1.00     0.00
   8    0    1.00     0.00
   9    0    1.00     0.00
  10    0    1.00     0.00
  11    0    1.00     0.00
  12    -
   -
   -
  97    0    1.00     0.00
  98    0    1.00     0.00
  99    0    1.00     0.00
 100    0    1.00     0.00
-------------------------
PRIX MODIFIES         NON
=========================

INTERIMS SERONT EFFACES

81
```

Appendix D: Example Audit Printouts

German

```
========================
MARS ELECTRONICS.
CASHFLOW VERKAUFS-
DATEN
DATUM-ZEIT\
A U T O M A  M E I-------------
AUSDRUCK-NR              3
VK.-WERT  GES.       0.00
VK.-ANZAHL              0
TUBENINHALT          0.00
NETZAUSFALL             1
BETRIEBSZEIT       0-00:18
- - - - - - - - - - - - - - - - - - - -
SEIT INBETRIEBNAHME
DATUM              00/00/00
AUSDRUCK-NR SEIT INST.  3
VK.-BETRAG SEIT INS   0.00
VK.-ANZAHL SEIT INST.   0
- - - - - - - - - - - - - - - - - - - -
ZWISCHENBETRAG
SEIT AUSDRUCK-NR.       0

GELD ZUR KASSE       0.00
ZU DEN TUBEN         0.00
AUSGEZ. RESTGELD     0.00
MANUELLE FLLUNG      0.00
MAN. AUSZAHLUNG      0.00
VK.-BETRAG           0.00
VK.-ANZAHL             0
BERZAHLUNG           0.00
TOKEN                0.00
BANKNOTEN            0.00
- - - - - - - - - - - - - - - - - - - -
VK.-ZWISCHENBERICHT
 NR   ANZ. PREIS BETRAG
  1    0   1.00   0.00
  2    0   1.00   0.00
  3    0   1.00   0.00
  4    0   1.00   0.00
  5    0   1.00   0.00
  6    0   1.00   0.00
  7    0   1.00   0.00
  8    0   1.00   0.00
  9    0   1.00   0.00
 10    0   1.00   0.00
 11    0   1.00   0.00
 12    0   1.00   0.00
        -
        -
        -
 97    0   1.00   0.00
 98    0   1.00   0.00
 99    0   1.00   0.00
100    0   1.00   0.00
- - - - - - - - - - - - - - - - - - - -
PREISNDERUNG        NEIN
========================

WERTE WERDEN GELSCHT

97
```

Spanish

```
==========================
MARS ELECTRONICS.
DATOS CONTABLES CASHFLOW
FECHA-HORA\
N U M E R O  M E I-------------
IMPRESION  NUMERO       4
VALOR  VENTAS        0.00
NUMERO  DE  VENTAS      0
DINERO  EN  TUBOS    0.00
N  DEXCONEXIONES ALI    1
TIEMPO  CONEXION  0-00:24
- - - - - - - - - - - - - - - - - - - - -
DESDE INSTALACION
FECHA              00/00/00
IMPRESION  NUMERO       4
VALOR  DE  VENTAS    0.00
NUMERO  DE  VENTAS      0
- - - - - - - - - - - - - - - - - - - - -
VALORES PARCIALES MONEDA
DESDE  IMPRESION NO.    0

DINERO  A  HUCHA     0.00
DINERO  A  TUBOS     0.00
CAMBIO  DEVUELTO     0.00
LLENADO  MANUAL      0.00
DISP.MANUALMENTE     0.00
VALOR  DE  VENTAS    0.00
NUMERO  DE  VENTAS      0
SOBREPAGO           0.00
FICHAS              0.00
BILLETES            0.00
- - - - - - - - - - - - - - - - - - - - -
VALORES PARCIALES VENTAS
NO   VENTAS PRECIO  VALOR
  1    0   1.00    0.00
  2    0   1.00    0.00
  3    0   1.00    0.00
  4    0   1.00    0.00
  5    0   1.00    0.00
  6    0   1.00    0.00
  7    0   1.00    0.00
  8    0   1.00    0.00
  9    0   1.00    0.00
 10    0   1.00    0.00
 11    0   1.00    0.00
 12    0   1.00    0.00
        -
        -
        -
 97    0   1.00    0.00
 98    0   1.00    0.00
 99    0   1.00    0.00
100    0   1.00    0.00
- - - - - - - - - - - - - - - - - - - - -
PRECIOS  ALTERADOS     NO
==========================

SE  BORRARA  LOS  PARCIALES

43
```

Appendix E: Cassette Codes

National Currency		Specified Cassette Configurations					Euro Currency		EU
No	Cassette Code Mode	GB	ES	FR	AU	DE	No	Cassette Code Mode	Specified Cassette Configuration
1	DAA	1,2,5,20	5,25,5,100	0.5,1,5,2	0.5,1,5,1	50,10,IDM,10	13	DDAA	5,10,50,20
2	DAB	5,10,50,20	5,25,25,100	0.5,0.1,5,1	1,5,20,10	50,1DM,5DM,2DM	14	DDAB	1,5,50,10
3	DAC	5,1,2,20	5,25,500,100	0.1,0.2,5,1		50,10,2DM,1DM	15	DDAC	1,2,50,10
4	DAD	5,20,50,10	100,25,500,25	0.5,1,1,5		10,10,1DM,10	16	DDAD	5,10,50,10
5	DBA	5,20,20,10	100,25,500,200	1,1,5,2		50,2DM,2DM,1DM	17	DDBA	10,10,50,20
6	DBB	5,20,2,1		0.5,1,2,1		10,10,50,1DM	18	DDBB	5,10,20,10
7	DBC	10,20,50,£1		0.5,0.5,5,1			19	DDBC	5,5,50,10
8	DBD	1,20,2,10		0.5,0.1,0.2,1			20	DDBD	1,5,2,10
9	DCA			0.5,0.1,2,1			21	DDCA	1,5,20,10
10	DCB			0.5,1,2,5			22	DDCB	10,20,50,1EU

Currency units (unless stated)
GB = p   Es = Pts   FR = F
AU = Sch   DE pf

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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.

For more information of our products and services, contact you local MEI regional Office.

MEI Regional Offices

GREAT BRITAIN MEI ESKDALE ROAD WINNERSH TRIANGLE WOKINGHAM BERKSHIRE, RG41 5AQ TELEPHONE: +44 (0)118 - 9697700 FACSIMILE: +44 (0)118 - 9446412	UNITED STATES MEI 1301 WILSON DRIVE WEST CHESTER PA 19380 TELEPHONE: +1 610 – 4302500 FACSIMILE: +1 610 – 4302694
AUSTRALIA MEI SUITE A 302 PARRAMATTA ROAD AUBURN NEW SOUTH WALES, 2144 TELEPHONE: +61 (0) 2 973 75390 FACSIMILE: +61 (0) 2 973 75399	ITALY MEI 27011 BELGIOIOSO (PV) VIALE DANTE, 40 TELEPHONE: +39 (0) 382 - 979313 FACSIMILE: +39 (0) 382 - 970790
CANADA MEI 37, HOLLAND DRIVE BOLTON ONTARIO, L7E 5S4 TELEPHONE: +416 - 239 - 2782 FACSIMILE: +416 - 239 - 3322	JAPAN MEI A DIVISION OF MASTER FOODS LTD. 3F MUSASHI-KOSUGI TOWER PLACE 403 KOSUGIMACHI 1-CHOME NAKAHARA-KU, KAWASAKI-SHI KANAGAWA-KEN 211 TELEPHONE: +81 44 - 712 - 1315 FACSIMILE: +81 44 - 712 - 1439
FRANCE MEI BOULEVARD DES CHENATS - BP 7 45550 ST. DENIS DE L'HOTEL TELEPHONE: +33 2 - 38 - 59 - 6534 FACSIMILE: +33 2 - 38 - 59 - 6838	SPAIN MEI EDIFICIO ALBA C/ROSA DE LIMA, 1 BIS-1A 28290 LAS MATAS MADRID TELEPHONE: +34 91 - 590 - 8782 FACSIMILE: +34 91 - 590 - 8755
GERMANY MEI INDUSTRIERING 17 A 41751 VIERSEN TELEPHONE: +49 (0) 2162 - 9560 FACSIMILE: +49 (0) 2162 - 41544	SWITZERLAND MEI CH. PONT-DU-CENTENAIRE 109 PLAN-LES-OUATES P.O. BOX 2650 1211 GENEVA 2 TELEPHONE: +41 22 - 8840505 FACSIMILE: +41 22 - 8840504

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