CASHFLOW®
690 series

mei™

Operator's Handbook
722611044 G3

CashFlow® 690 Series changegiver Operator's Handbook

Part No. 722611044
Version: G3
Product Software Revision: -

Publication date: August 2006

Published by:

MEI

Internet: http://www.meigroup.com

Contents

This page is intentionally blank

Safety

National and 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.

This page is intentionally blank

About This Handbook

The CashFlow® 690 Series changegiver fitted to your vending machine 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 Operator's Handbook compliments your product training and provides you with the information you need to support the day-to-day use of your CashFlow® 690 Series changegiver.

The Handbook has five sections:

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

Service Procedures – explains how to carry out servicing procedures such as changing prices.

Cleaning – describes the routine cleaning requirements.

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

Changegiver Replacement – explains how to replace a faulty changegiver with a new one.

There are three variations of the CashFlow® 690 Series changegiver:

- 690 Executive/MDB/BDV
- 690 MDB 1 price
- 690 MDB 4 price

You can find which version is fitted to your vending machine looking at the display just above the keypad (see pages 1 and 2). When the changegiver is switched on ready to use, included in the string of displayed text you will see the product version details.

This page is intentionally blank

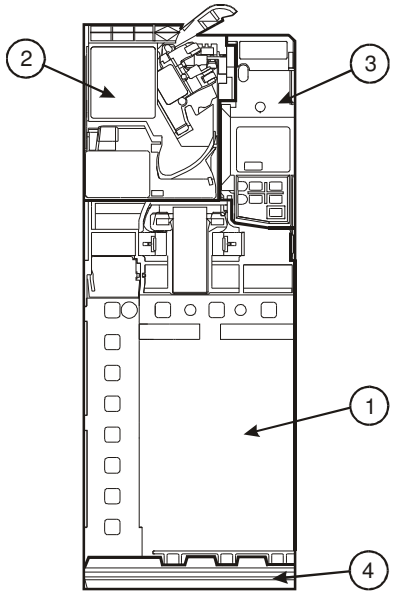
Changegiver Overview

This section provides a brief introduction to 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.



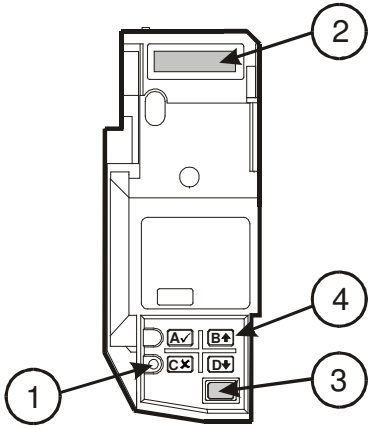
1	Coin tube cassette
2	Acceptor/Separator
3	Keypad and display
4	Dispenser

Electronic Configuration

The changegiver is electronically configured prior to dispatch but you can make changes to the configuration on site as described in *Service 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 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 current status of the changegiver.

- **Red/Amber/Green (alternating)** – occurs briefly when the changegiver is first switched on
- **Green** – indicates that the changegiver is ready for use
- **Green (flashing)** – occurs when you are carrying out the system Service procedures described later in this Handbook
- **Amber** – indicates there is a fault with the vending machine that can usually be rectified

- **Amber (flashing)** – indicates there is a fault that can be rectified, the flashing sequence identifying the faulty module
- **Red** – 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* on page 19.

Display (2)

The one-line display indicates the status of the changegiver, including displaying error messages if there is a fault. It also works in conjunction with the keypad, displaying the Service or Configuration options currently selected. It will also display any entries or selections you make in the course of carrying out the permitted Service procedures described later in this Handbook.

Mode Key (3)

The yellow **Mode** key is used to access either the Service or Configuration mode. For instance, you press the **Mode** key to enter the Service mode.

Blue Keys (4)

The four blue keys labelled **A✔**, **B↑**, **C✗** and **D↓** have several functions, depending on the mode selected. For example:

- In Service mode, you press **A✔** to enter the Float mode. Thereafter each key is used to carry out a specific float procedure (see page 5)
- In Configuration mode, you press the **B↑** and **D↓** keys to scroll up or down through lists of functions or options, **A✔** to select an option, and **C✗** to 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.

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

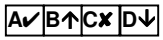
Each function is independent. To move from one function to another, you must first press the **Mode** key to exit from the current function and begin again. You cannot step through the functions.

Options

Within some of the Service mode functions, there are servicing options, and are indicated by the clear boxes in the options overview diagram on page 7

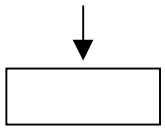
The procedures associated with each option are described on subsequent pages. In the descriptions, graphics are used to indicate the following:

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



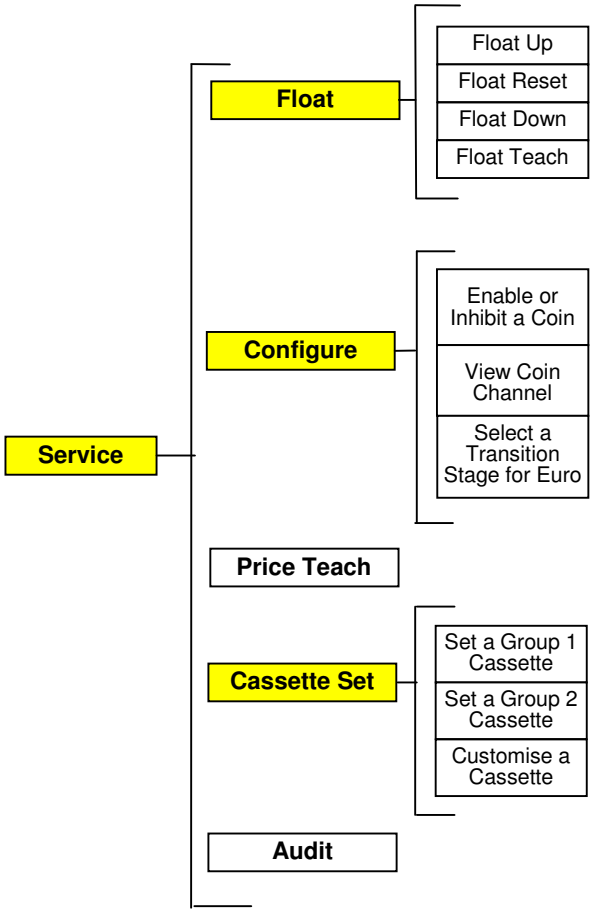
Press each key in turn

Move to the next stage



Mode or option selected/action to take

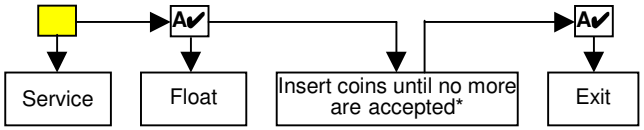
Options Overview



Float

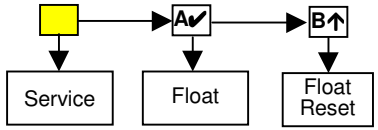
Note: Exiting from "Float mode" clears any existing credit (EM variants) and resets the "*Clean Me"* errors message – see page 26.

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

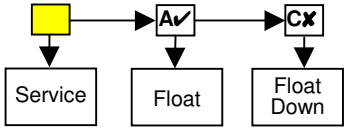


* Check that the first two coins inserted in each tube are lying flat

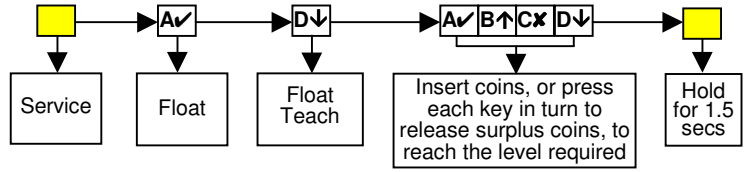
Float Reset	To reset the tube count to the programmed float level



Float Down	To remove coins in excess of the programmed float level. Coins are automatically dispensed **Note:** This option only works if coin tube(s) are configured to fill to maximum, otherwise they will not fill beyond the programmed float level



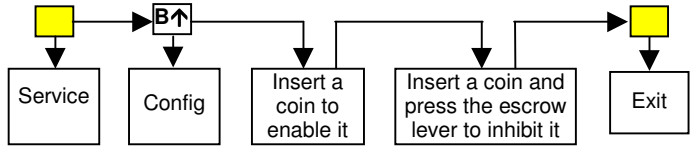
Option	What it enables you to do
Float Teach	To reconfigure the float level. This may be necessary if the coins in the coin tubes are more than is necessary or insufficient to meet trading needs.



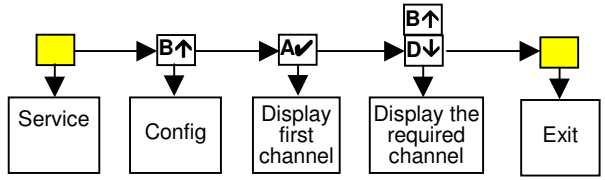
If no coin is inserted or key pressed for 45 seconds, the changegiver returns to normal operation

Configure

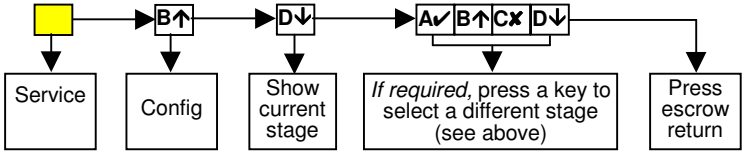
Option	What it enables you to do
Enable or Inhibit a Coin	To enable or inhibit a specific coin or series of coins, e.g. all types of penny



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

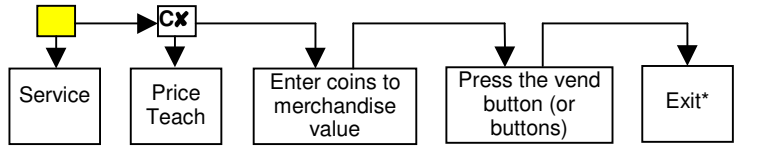


Option	What it enables you to do
Select a Euro Transition Stage (1 to 4)	To select a transition stage for the Euro from the following options: **Transition Stage 1** (accept national only, pay out in National only - **press key A**) **Transition Stage 2** (accept national and Euro, pay out in National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



Price Teach

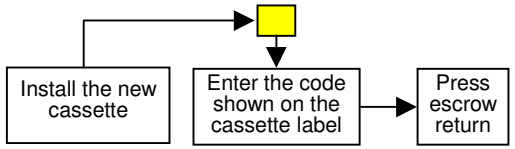
Option	What it enables you to do
Price Teach	To set or amend the price of merchandise. This procedure must be completed before the changegiver can be used **This procedure is applicable to the EM variant, and to the EXEC variants when set to Price Hold only**



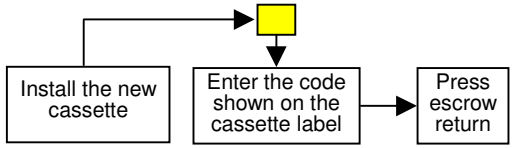
*Alternatively, press the escrow return

Cassette Set

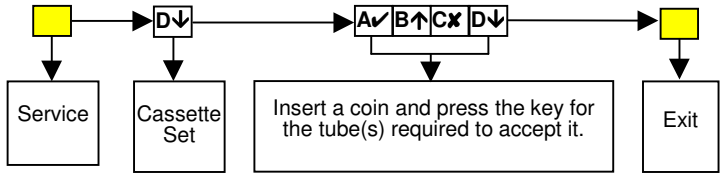
Option	What it enables you to do
Select a Group 1 Cassette	To select a Group 1 **(National)** cassette and make it active. The code you must enter is printed on the label, stuck on the side of the tube cassette.



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.



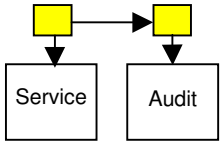
Customise a Cassette	To change the combination of coins accepted into the cassette. You can set a different coin for each tube, or you can set a coin to be accepted by more than one tube. Once you have entered the configuration option, you should set-up all four tubes, otherwise the changegiver will 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**



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.

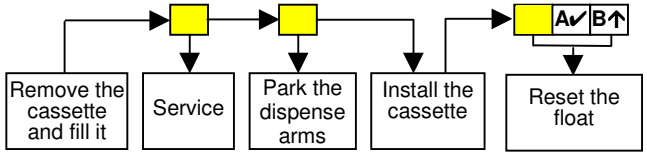
Press both keys within 2 seconds



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

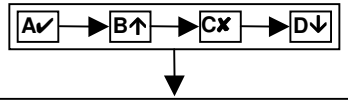
Manually Filling Coin Tubes

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**



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



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 and you may then depress the key. 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.

This page is intentionally blank

Cleaning

This section describes the cleaning procedures you are advised to carry out on a regular basis.

Requirements

Apart from general cleaning near the changegiver, the coin pathways, dispenser arms and guides must also be kept clean. You must do this on a regular basis as a build-up of dirt can cause the changegiver to malfunction.

The frequency with which you do this depends on the operating environment. Recommended frequencies are:

- Clean office environment - every three months
- Shop floor environment – every month

The need for cleaning is also indicated when coins are increasingly not accepted.

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

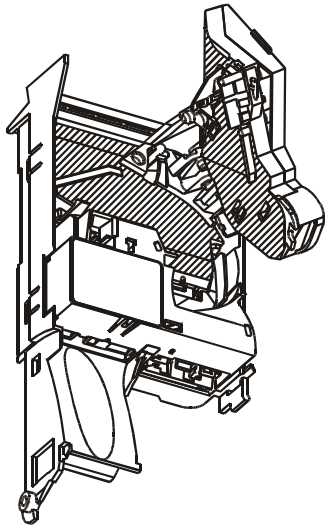
Acceptor

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

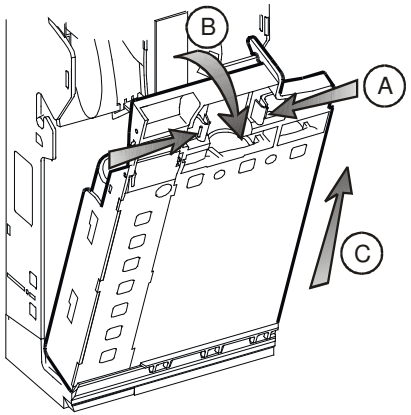
5 Switch on the power

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

Cassette, Dispenser Arms and Guides

To clean the coin tube cassette, dispenser arms and guides:

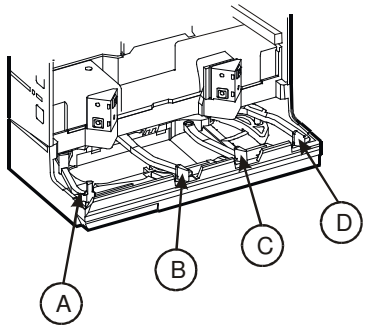
1 Remove the coin tube cassette by pressing the blue tabs together and then lifting the cassette outwards and upwards – steps A B and C below



2 Clean the upper and lower ends of the coin tubes

3 *Without removing the dispenser from the changegiver*, carefully clean the arms and guides using a soft brush. If the dispenser is excessively dirty, it will need to be replaced – call an Approved Service Centre

4 Check that the white dispense arms, A B C and D, at the bottom of the changegiver are fully forward



5 Switch on the power

6 On the keypad, press the yellow **Mode** key twice to park the dispense arms

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

This page is intentionally blank

Troubleshooting

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

Overview

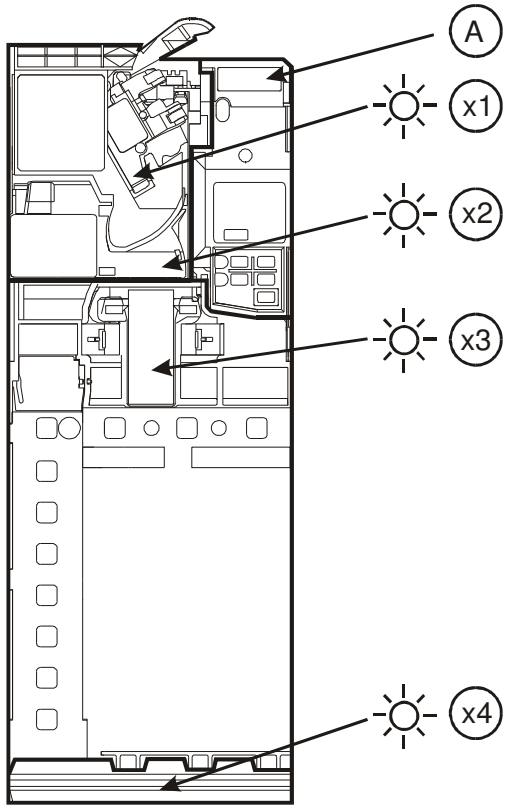
The current status of the changegiver is indicated by the colour of the LED on the keypad.

- **Red/Amber/Green (alternating)** – occurs briefly when the changegiver is first switched on
- **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** – there is a fault with the vending machine - see page 21
- **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 22 to 24
- **Red** – there is a fault with the acceptor module. Call an Approved Service Centre for support
- **Red/Green (alternating)** – there is a serious hardware or software fault and that the changegiver must be replaced. Return the faulty changegiver to an Approved Service Centre
- **No LED on** – possible power supply problem - see page 25

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 changegiver and return the faulty one to an Approved Service Centre for service.

Amber LED Steady

Displayed message: *"Inhibited by VMC"*

Problem: vending machine not communicating with the changegiver

Effect: no coins accepted

Possible causes:

1 Faulty connection to the vending machine

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 Reset the power

3 If appropriate, 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 32

Displayed message: *"Clean-Me"*

Faulty module: discriminator

Effect: coin acceptance decreased to below an acceptable level

Possible cause: dirty coin paths

Action to take: clean the coin paths – see *Cleaning* on page 15. On the keypad, press **Mode A✔ Mode** to stop the LED flashing

Displayed message: *"Escrow pressed"*

Faulty module: discriminator

Effect: No coins accepted

Possible cause: Escrow jammed open; reject lever stuck

Action to take:

1 Check flight deck

2 Check changegiver escrow lever is functioning freely

3 Check escrow mechanics of the vending machine are functioning freely

4 Check there is clearance between the escrow lever on the changegiver and the lever on the vending machine – see page 32

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 fault does not clear, replace the changegiver and return the faulty one to an Approved Service Centre for servicing

Amber Flashes x 2

Message: *"AGM error"*

Faulty module: acceptor (accept gate)

Effect: coins not accepted

Possible cause: coin jam or debris in the accept gate area

Corrective action:

1 Open the acceptor (see page 16) and clear the jam

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

3 Close the acceptor – be sure to close it fully

Amber Flashes x 3

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

Problem module: separator

Possible causes: coin jam at the top of a coin tube; dirty cassette; cassette not properly in place; dirt on the top-level sensor; cassette not assembled correctly

Action to take:

If possible, remove the coin tube cassette as described on page 17, clear the jam and/or clean the sensor, and 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 31
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 17
6. Reinstall the changegiver –see page 30

Amber Flashes x 4

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

Problem module: dispenser

Effect: no change given; faulty tube is usually disabled

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 17

2 Free the jam

3 Check the loom is fitted correctly

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

5 Replace the cassette

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, contact your electrical service engineer

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. Call an Approved Service Centre for support

Error Messages

In addition to the amber LED sequences, to help diagnose problems you can access a list of error messages 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 Errors** option
4. Press the **D↓** key to scroll down through the list of error messages. In some instances, you can press **A✔** for more information. The meaning of the messages are listed in the following table
5. To exit and return to normal operation, press the **Mode** key

Error Message	Description
View Errors	Enables you to access a list of error messages. Press the **D↓** key to scroll through the list: 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 E/M.
Strobe Status	Status of the 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.
Battery Status	Status of the back-up battery. OK = normal reading. If not OK, replace the changegiver.
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	Approximate temperature. For reference only.
EA Line	Active = escrow accept from VM is present. Inactive = escrow accept from VM is not present. For EM 1 price/4 price changegiver s only.
Blocker	Active = blocker from VM is present. Inactive = blocker from VM is not present. For EM 1 price/4 price changegiver s only.
Printer CTS	Status of the printer Clear To Send line.
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.
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.

This page is intentionally blank

Replacing a Changegiver

This section tells you how to replace a changegiver.

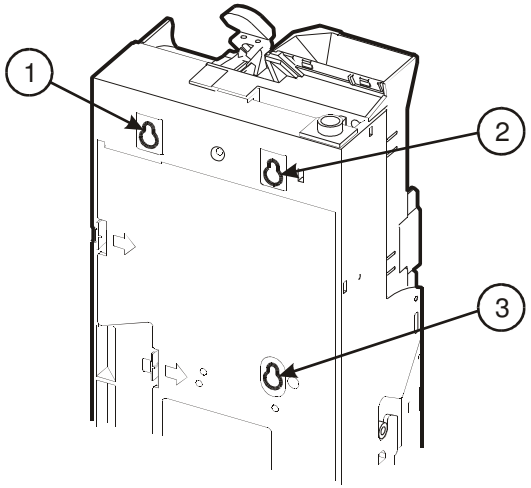
Before You Begin

1 **TURN OFF THE POWER SUPPLY TO THE VENDING MACHINE**

2 Check the voltage of the replacement changegiver. Be sure that it is compatible with the voltage supplied by the vending machine. You will find the information you need on the label attached to the side of the changegiver

Fixing Arrangements

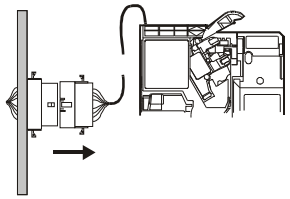
The changegiver has three fixing keyholes as shown below.



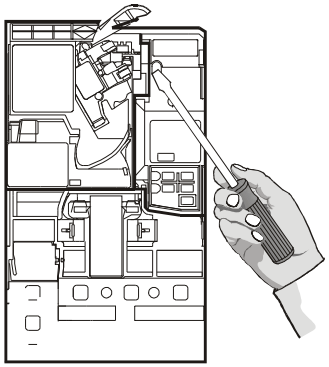
The vending machine is fitted with three screws in matching locations. Alternatively, there may be two location studs and one retaining screw, or a similar arrangement.

Removing

1 Disconnect the power cable connecting the changegiver to the vending machine. Also disconnect the comms and display cables if they are fitted



2 Loosen any the upper right-hand retaining screw. You can access it through the hole in the keypad assembly



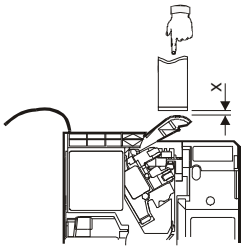
3 Lift the changegiver off the location screws or studs

Installing

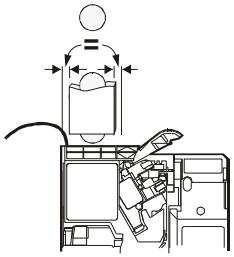
1. Locate the changegiver on the screws or studs fitted to the vending machine, making sure it is flat against the vending machine panel
2. Retighten the upper right-hand retaining screw

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

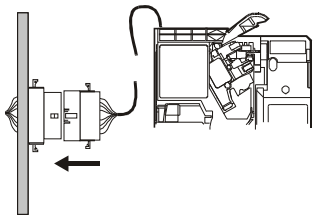


2. Check the alignment of the coin chutes. Insert two coins of each denomination into the vending machine and check that they cleanly enter the changegiver acceptor and exit from the changegiver into the cash return cup



Connecting

1. Plug in the changegiver power lead to the vending machine (and also any comms or display cable if applicable – see below)



The changegiver is supplied fitted with up to six cables. One of the end connectors will match the power socket on the vending machine

If the vending machine has a comms socket or display jack, there will be 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 19.

This page is intentionally blank

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.

WWW.MEIGROUP.COM

Index

S