CASHFLOW®
690 series

mei™

Engineer's Quick Ref. Guide

722773004 G4

**CashFlow® 690 Series Changegiver Field
Service Engineer's Quick Reference Guide**

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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 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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Fault Finding

Current Status

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
- ❏ **Amber** –there is a fault with the vending machine
- ❏ **Amber (flashing)** – the Changegiver has a fault that can be rectified, possibly on site
- ❏ **Red** – there is a fault with the changegiver acceptor module
- ❏ **Red/Green (alternating)** – there is a serious hardware or software fault and that the Changegiver must be replaced
- ❏ **No LED on** – possible power supply problem

Amber Light

The amber light may be steady or flash in a sequence of from one to four flashes. At the same time, an error message is displayed on the LCD display "A".

The number of flashes identifies the problem module as indicated below.
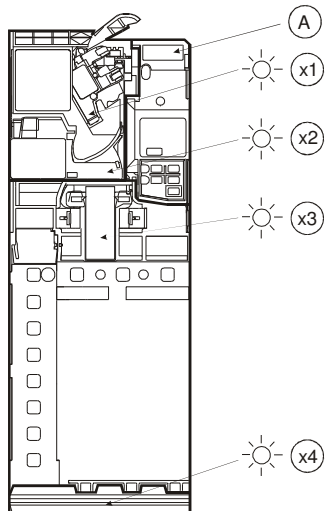
1	Discriminator	2	Acceptor
3	Separator	4	Dispenser
A	LCD Display		

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

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. 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

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

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

Action to take:

1   Open the acceptor 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 error 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, 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

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

6   Reinstall the Changegiver

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 incorrectly fitted

Action to take:

1 Remove the coin tube cassette

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, tell the operator to contact an electrical service engineer

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

If the vending machine has power, and the cable connection is satisfactory, the Changegiver fuses may be blown - see the following section.

Fuse Replacement

1 Remove the cassette

2 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
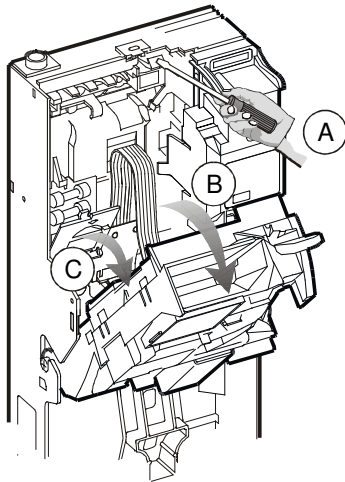
4 Replace the fuse(s)

5 Close the fuse cover

6 Replace the acceptor/separator

7 Replace the cassette

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Changegiver Replacement

Before You Begin

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

2 Check the voltage of the replacement Changegiver is the same as the vending machine voltage

Removing

1 Disconnect all the cables connecting the Changegiver to the vending machine – there may be comms and display cables as well as the electrical cable

2 Undo the single retaining screw, right-hand position

3 Lift the Changegiver off the location screws or studs

Installing

1 Locate the Changegiver on the screws or studs

2 Replace the retaining screw

Installation Checks

1 Check there is clearance at dimension X. The Changegiver lever must be able to lift to its fully open position

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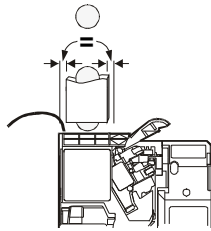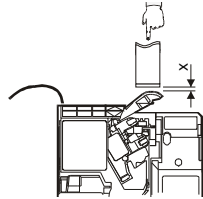
Connecting

1 Plug in the power cable. Only one of the end connectors will match the socket on the vending machine. If there are sockets for comms and display cables, there will be cables with matching connectors fitted to the Changegiver. Plug then in

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

3 Switch on the power and check that the keypad LED settles to green. If it does not, refer to *Fault Finding* on page 9.

Module Replacement

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

Coin Tube Cassette

Removing

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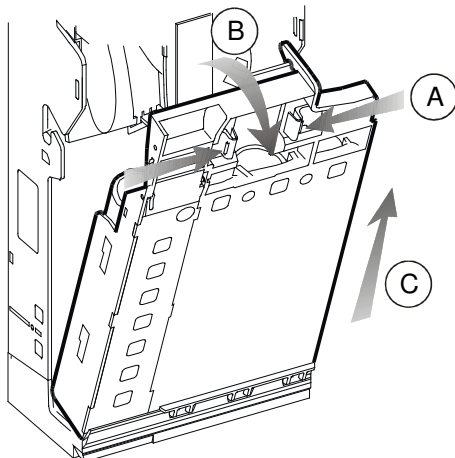
Installing

1   Check that the white dispense arms at the bottom of the Changegiver are

engaged in their guides, as far forward
as they will move. If they are not,
carefully ease them forward

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

2   Disconnect and remove the
acceptor/separator – steps A B C and D
below
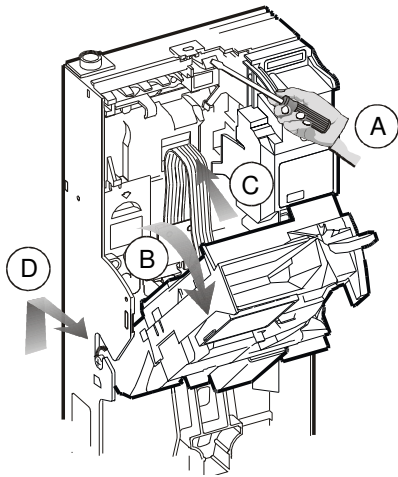
Installing

    1   Reposition the acceptor in the hinge slots

    2   Plug in the loom to the back of the acceptor

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

    4   Replace the coin tube cassette

Keypad Assembly

Removing

    1   Remove the coin tube cassette

    2   Remove the acceptor/separator

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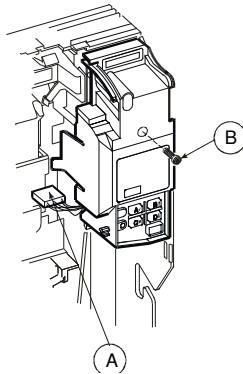
4   Tilt the keypad assembly outwards, unplug the display loom, and then lift upwards to unhook the lower retaining lugs from the spine – steps C D and E
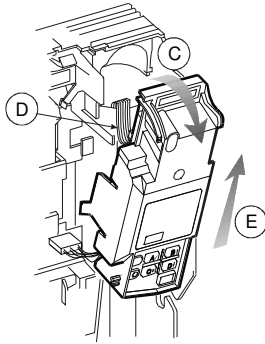
Installing

1   Connect the loom to the display PCB

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

3   Replace the retaining screw

4   Plug in the loom attached to the keypad assembly into the PCB

5   Replace the acceptor/separator

6   Replace the cassette

Transformer

Note: The following applies to Electro Mechanical Changegivers only..

Removing

1   Remove the coin tube cassette

2   Remove the acceptor/separator assembly

3   Remove the keypad assembly

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
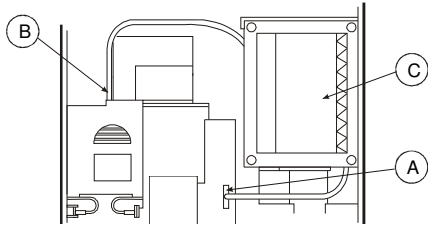
Installing

1   Place the transformer 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

4   Replace the acceptor/separator assembly

5   Replace the coin tube cassette

Dispenser

Removing

1   Remove the coin tube cassette

2   Unplug the
        loom A
        connecting
        the
        dispenser to
        the interface
        PCB
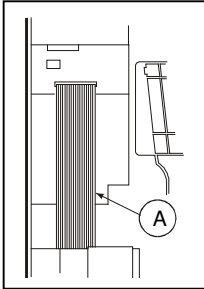
3   Carefully spring the spine moulding
        slightly outwards to release the two lugs
        holding the dispenser in position and
        slide the dispenser out – steps A B and C
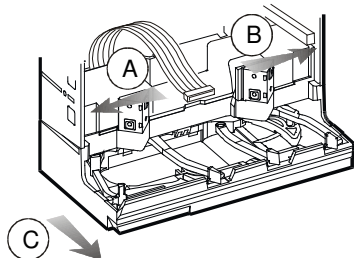
Installing

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 at the bottom of the Changegiver are engaged in their guides as far forward as they will move. If they are not, carefully move them forward

4. Switch on the power to the vending machine

5. On the keypad, press the yellow **Mode** key twice to park the dispenser arms. When they are parked they should be fully located in the coloured inserts at the bottom of the coin tube cassette

6. Replace the coin tube cassette

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Service Procedures

In the following procedure diagrams:

▮ = the Mode key

Float

Float Up

Service	Float	Insert coins until no more are accepted	Exit

Float Down

Service	Float	Dispense	Press each key in turn to release surplus coins	Exit

Float Teach

Service	Float	Float Teach	Insert coins, or press each key to release coins	Hold for 1.5 sec.
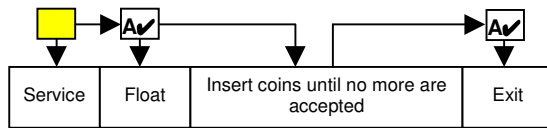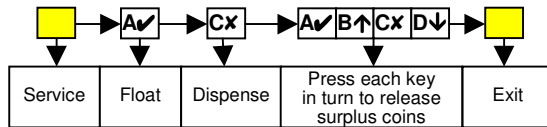
Float Reset
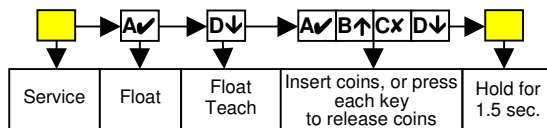
Service	Float	Float Reset
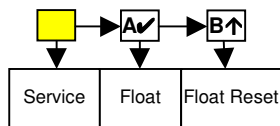
Configure

Enable or Inhibit a Coin

		Insert coin to enable	or	Insert coin and press escrow lever to inhibit
Service	Config			

Show Channel Details

		Display first channel	Display required channel	Exit
Service	Config			
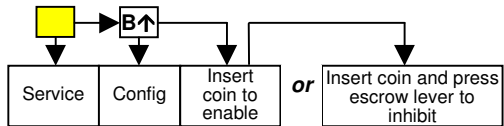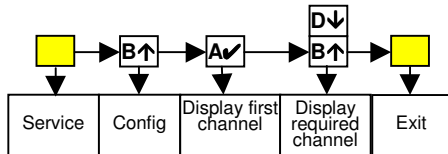
Select a Euro Transition Stage (1 to 4)

		Show current stage	Display a stage	Select the Stage	Press Escrow return
Service	Config				

Price Teach
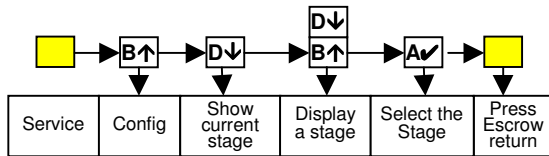
		Enter coins to merchandise value	Press the machines vend button(s)	Exit*
Service	Price Teach			
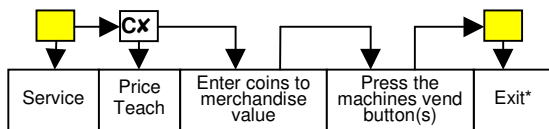
Alternatively, press escrow return to exit

Cassette Set

Group 1 Cassette

```
                          [yellow]
                             │
                             ▼
┌──────────────┐   ┌──────────────┐   ┌──────────┐
│ Install the new│  │ Enter the code │  │  Press   │
│   cassette    │──▶│ shown on the  │─▶│  escrow  │
│              │   │ cassette side │  │  return  │
└──────────────┘   └──────────────┘   └──────────┘
```

Group 2 Cassette

```
                          [yellow]
                             │
                             ▼
┌──────────────┐   ┌──────────────┐   ┌──────────┐
│ Install the new│  │ Enter the code │  │  Press   │
│   cassette    │──▶│ shown on the  │─▶│  escrow  │
│              │   │ cassette side │  │  return  │
└──────────────┘   └──────────────┘   └──────────┘
```

Customise a Cassette

```
[yellow] ─▶ [D↓] ─▶ [A✔ B↑ C✘ D↓] ─▶ [yellow]
   │         │              │              │
   ▼         ▼              ▼              ▼
┌───────┐ ┌────────┐ ┌──────────────────┐ ┌──────┐
│Service│ │Cassette│ │Insert a coin and press the key│ │ Exit │
│       │ │  Set   │ │for the tube(s) required to│ │      │
│       │ │        │ │     accept it    │ │      │
└───────┘ └────────┘ └──────────────────┘ └──────┘
```

Audit

```
Press both keys
within 2 seconds

[yellow] ──▶ [yellow]
   │            │
   ▼            ▼
┌───────┐   ┌───────┐   ┌──────────────────┐
│Service│   │ Audit │   │This sequence is only│
│       │   │       │   │available when the tube│
│       │   │       │   │cassette is fitted to the│
└───────┘   └───────┘   │Changegiver       │
                        └──────────────────┘
```

Manually Filled Coin Tube

Remove existing cassette	Service	Park the dispense arms	Install the new cassette	Reset the float

A✔ B✘
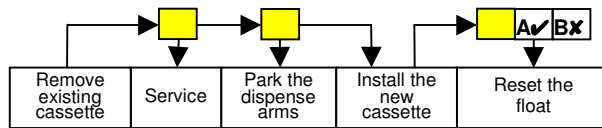
Empty the Coin Tubes

A✔ B↑ C✘ D↓
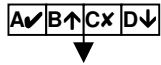
Press and hold each key in turn for at least 3 seconds to latch the key and start dispensing coins. All the coins with the exception of the 'safe count' will be dispensed. Press each key again to unlatch them. To dispense the safe count, press all the keys again. To dispense a single coin, press the key once, quickly. The coin count is shown on the Changegiver display

Setup Procedures

This section includes an overview of the configuration changes you can carry out using the Setup mode.

Procedural Overview

The following generally applies.

1   Enter the **Setup** mode – press the **Mode** key for at least 1.5 seconds

2   Select a Changegiver variant (when applicable) – press **B↑** and **D↓** to scroll through the list and then press **A✔** to make a selection

3   Select a function - press **B↑** and **D↓** to scroll through the list and then press **A✔** to make a selection

4   Choose an option or select a value - press **B↑** and **D↓** to scroll through the list and then press **A✔** to make a selection

5   **Exit** – press the **Mode** key

Setup Configuration Options

Functions and Variants

The following table lists the Setup mode configuration options in alphabetical order and for each one shows the variant(s) and configuration function to which it applies.

Setup Option	Function/Variant
Acceptance	
Award Discount	Setup – BDV Config
Change Configuration	Cassette Payout - Coin Cfg
Change Delay	Setup - EM, EXEC and BDV Config
Change Installation Date	Audit Cfg
Change Configuration	Cassette Payout
Coin Scaling Factor	Setup - MDB Config
Coin Setup	Coin Cfg
Country	Setup
Currency Conversion Factor	Bill Cfg, Card Cfg
Currency National	Coin Cfg
Decimal Point Position	Setup
Dispense To	Cassette Payout
Escrow Return	Setup - EM, EXEC and BDV Config
ExC Algorithm	Setup - EM Config
ExC Equation	Setup - EM Config
ExC Inhibits	Setup - EM Config
ExC. Offset	Setup – EM Config
Fill To	Cassette Payout
Float Report	Setup - MDB Config
Hardwire Protocol	Audit Cfg
Highest Value to Accept	Bill Cfg

Setup Option	Function/Variant
ID 101 VMC Indent	Audit Cfg
Keypad	Setup
Link Master ID	Setup - EM Config
Loom	Setup - EM Config
Maximum Card Credit	Card Cfg
Maximum Change	Setup - EM Config
Maximum Credit	Setup - EM, EXEC and BDV Config
Maximum Total Bill Credit	Bill Cfg
MDB Level	Setup - MDB Config
Reset Mode	Setup – EM Config
Overpay	Setup - EM, EXEC and BDV Config
Overpay Amount	Setup - EM, EXEC and BDV Config
Price Display	Setup - EM, EXEC and BDV Config
Price Hold	Setup - EM Config
Print Language	Audit Cfg
Print Logo	Audit Cfg
Report Style	Setup - MDB Config
Reset Audit Data	Audit Cfg
Mode	Coin Cfg
Reset Optical Password	Audit Cfg
Revaluation	Card Cfg
Select Report	Audit Cfg
Set Active Cassette	Cassette Payout
Set All Prices	Prices
Set Custom Cassette	Cassette Payout
Set Group	Cassette Payout

Setup Option	Function/Variant
Set Price Line	Prices
Settings	Setup
Trigger Discount	Setup - BDV Config
Tube Configure	Cassette Payout
Vend Type	Setup - EM, EXEC and BDV Config

Configuration Options

The following table provides an overview of the options associated with each configuration option

Setup Option	Configuration Options
Acceptance	Nat – National currency (National)
	Nat+EU – National currency and the Euro
	EU – Euro (Euro)
Award Discount	Zero or a value
Change Configuration	Select a channel
Change Delay	Time of 1 to 250 sec 1 to 250 sec in 1 sec increments,
Change Installation Date	Enter a date
Channel Configuration	Select a channel and then make active or inhibit
Coin Scaling Factor	Auto (will show "Auto (x)" where x is the value being used which is computed by the system. This is the recommended setup)
	Factor (in the range 0 –255)
Coin Setup	Set value of each coin
Country	Enter a telephone code

Setup Option	Configuration Options
Currency National	Mode BDA – National currency only (Cassette Payout must be Euro)
	Mode BDB – National currency plus the Euro; credit in national currency (Cassette Payout must be Euro)
	Mode BDC – National currency plus the Euro; credit in Euro (Cassette Payout must be national)
	Mode BDD – Euro only (Cassette Payout must be national)
Currency Conversion Factor	Normally this is set to 1. Thus the displayed value = CCF x value of the card or bill
Decimal Point Position	Nat
	Euro
Dispense To	Empty level
	Safe level
Escrow Return	Yes or No
ExC Algorithm	BDV (details are set manually)
	CF690 (recommended – automatically calculated)
ExC Equation	Select a number in the range 0 – 255
ExC Inhibits	Select a coin(s)
ExC. Offset	Select a number in the range 0 – 255
Fill To	Max Fill Level or Float Level
Float Report	On or Off
Hardwire Protocol	Select an option
Highest Value to Accept	Enter the highest value bill that can be accepted, eg £10 in the UK, shown as 10
ID 101 VMC Indent	View. Clear, Modify

Setup Option	Configuration Options
Keypad	Enable or inhibit the following options:
	Basic (Dispense, Float)
	Mode B (Changer Options)
	Mode C (Price Teach)
	Mode D (Cass Teach)
	Soft Option Menu
Link Master ID	Select a number in the range 0 – 65534
Loom	Standard or make T4 = T3
Maximum Card Credit	Enter an amount
Maximum Change	Enter an amount
Maximum Credit	Enter an amount
Maximum Total Bill Credit	Enter an amount
MDB Level	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)
Mode	High Acceptance or High Security
Overpay	Retained or Cleared
Overpay Amount	Enter an amount
Price Display	Yes or No
Price Hold	Changer or VMC
Print Language	Spanish, Dutch, German, French, English
Print Logo	View, Clear, Modify

Setup Option	Configuration Options
Report Style	CF Inc Safe
	CF Hide Safe (recommended option)
	TRC Inc Safe
	TRC Hide Safe
Reset Audit Data	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 Mode	Blk reset (EU)
	30ms Delayed blocker reset (EU) (EU = European)
	200ms Delayed blocker reset (EU)
	Blk hold reset (EU)
	Escrow accept (EU)
	US 1 Price (TRC6800) (1-price pulsed output, ignores blocker and simulates permanent sense)
	MC5807 Blocker, 2s (US) (not used in Europe)
Reset Optical Password	Confirm - the password is reset and can be used Cancel – password is not reset
Revaluation	Yes or No
Select Report	Free Vnd
	Interims
	Basic
Set Active Cassette	Select a cassette or enter a code
Set All Prices	Enter a price
Set Custom Cassette	See Engineer's Handbook

Setup Option	Configuration Options
Set Group	Select a group
Set Price Line	Enter a price
Settings	Save or Restore
Trigger Discount	Zero or a value
Tube Configure	Full – the number of coins that can be stored before the top level sensor is covered and coin tube registers as being full, eg 100
	Max – the maximum number of coins that will be saved to a tube, eg 100
	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, eg 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, eg 50
	Designator – the designator allocated to coin tube A, B, C or D (for information only)
	Tube Type – for information only, no setting required
	Scroll through the options and complete all the configuration before you exit
Vend Type	Single or Multi

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