

Thomas

5002

Change Machine

***Operator
Guide***

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If you should require advice or information for servicing and maintaining your change machine please refer to the Warranty and Support Documentation supplied separately.

On Receiving Your New Change Machine

For protection during shipping, the Coin Mech unit may be packed separately within your 5002 and, if so, will need to be fitted before continuing with Switching On.

Coin Mech Installation

Please refer to the Figures, 1 and 2, on the following page.

Fitting

With the machine power switched off, the first step in fitting the Coin Mech is to connect the interface lead (already in place on the door) to the Coin Mech, plugging the lead into the socket located at the lower front side of the unit. (See **Fig 1.**) The Coin Mech can then be clipped into place on its Front Plate (already in place on the door) .

Please check the following:-

1. That the Front Plate clip has locked onto the Coin Mech at the point shown in **Fig. 2.**
2. On the Coin Mech Front Plate, just below the coin entry slot, press the jammed coin release button several times and make sure the coin entrance opens and closes.

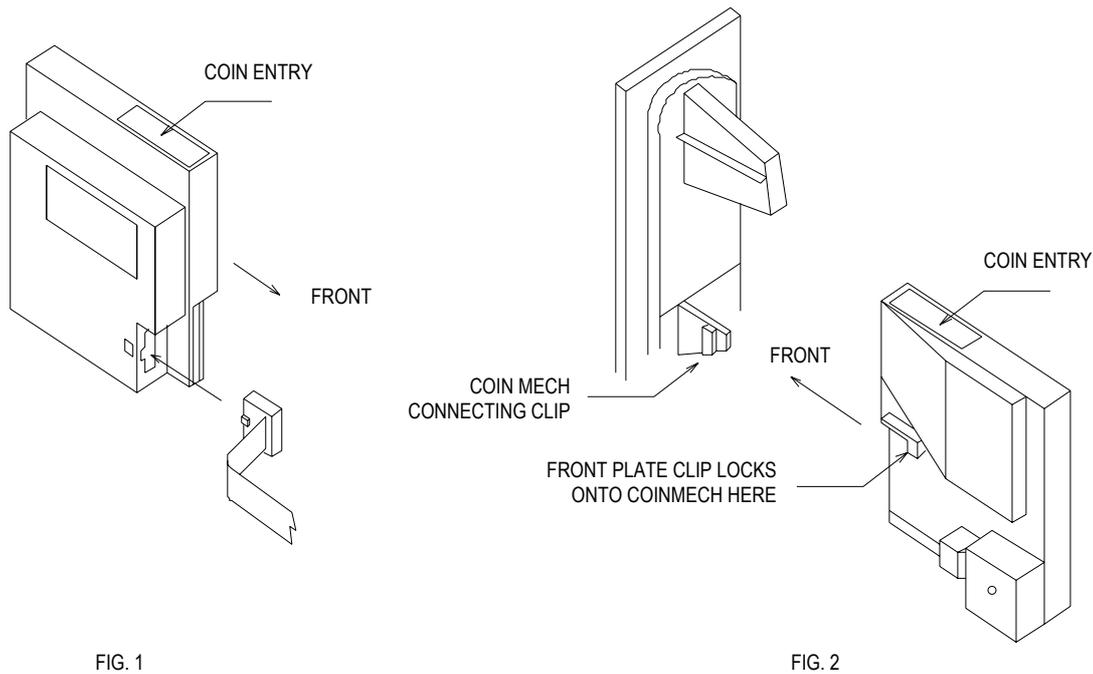
Removing

Removal of the Coin Mech should only be attempted when the machine is switched off.

1. Prise the Coin Mech connecting clip away from the side of the Coin Mech to release it from its locking point. (See **Fig 2.**)
2. Pull the Coin Mech straight backwards being careful not to pull too far while the connecting lead is still attached.
3. Unplug the connecting lead from the side of the Coin Mech, noting that the plug has a bump on its outer side, which locks into a cutout in the side of the Coin Mech. The Coin Mech side cover may need easing outwards to allow the plug to disconnect. (See **Fig 1.**)

Opening

1. With the Coin Mech removed from the door, opening the unit is achieved by pushing a finger into the coin entry (See **Fig 2.**) to push the spring loaded door open.
2. If any foreign objects are visible inside, these should be removed taking care not to damage the inside of the unit.
3. The Coin Mech automatically closes when the door is released.



Switching On

When power is available to the change machine and the machine is switched on using the switch on the control panel, you will see the following:-

- The mains switch will illuminate.
 - The credit display will light and show "Please Wait".
 - The top box and front display illumination will come on.
 - The attendant beacon will initially flash both blue and white lamps synchronously, but may replace this with other patterns after a few seconds - see the section Attendant Beacon for more details.
- e.g. The machine will check the hopper(s) for low float levels and indicate, via the Attendant Beacon, if a low level has been detected.

Machine Alarm and Alarm Keyswitch Functions

A keyswitch controlled alarm facility is available while the machine is operating. The keyswitch and a red indicator LED are positioned to the right side of the machine front at the same height as the credit display. With the machine ON and the alarm ON (red LED is OFF) the alarm will sound continuously if the door is opened or, subject to the position of Link 5 on the control board, will give a beeping tone, concurrently with the Attendant Beacon flashing, should the machine require attention. See the sections Door Open Mode, Diagnostic Mode and Attendant Beacon for more specific information. To silence the alarm under all conditions, turn the keyswitch OFF so that the red LED is ON, or turn off the machine.

A secondary feature of the alarm keyswitch is that when it is turned from ON to OFF, and the machine door is still closed, the credit display will show the value of the last coin accepted by the machine for several seconds before being replaced by the normal display messages. To view the value again, turn the keyswitch ON then OFF once more.

Operating Your Thomas 5002 Change Machine

Filling the Machine

The machine is filled, by first opening the main door and locating the release handle to the right hand side of the door aperture. When pulled down this will release the lid locking mechanism. You will see the lid rise slightly. Lift the lid to gain access to the top of the coin bins which each have their own metal flaps. These flaps are to prevent accidental spilling of coins into the wrong payout system where there are different values of coin in each system.

When filling with coins please bear in mind the following points:-

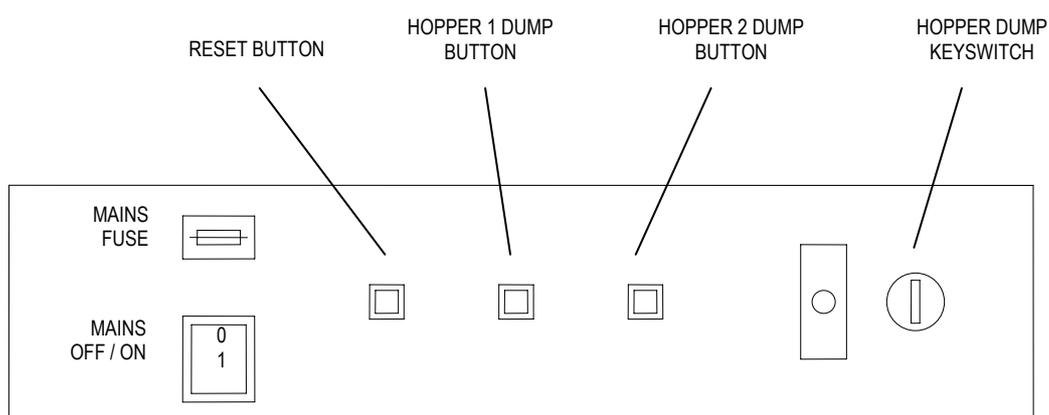
4. If different value coins are programmed to be paid from each hopper, make sure the coins added are put into the correct value coin bins.
5. If filling the machine from coin bags take care not to let items such as coin bags, pen tops and rubber bands fall into the coin bins as these will cause the hopper to jam up.

When the coin bins have been filled, close the flaps over each of the bins and pull the lid down until it rests on the locking mechanism. Raising the release handle will cause the locking mechanism to pull the lid down whilst locking it.

The main door can not be closed fully unless the release handle is fully raised.

Modes of Operating

The Thomas 5002 change machine has a variety of Modes of Operation, these are explained in more detail in the rest of this section of the guide. Please refer to the diagram below for the location of any buttons or switches typed in *italics>*. A legend identifying the controls also appears on the base of the cabinet; the buttons, switches, etc. are on the vertical face immediately behind the legend.



- CONTROL PANEL -
MOUNTED VERTICALLY BELOW THE PAYOUT HOPPERS

Door Closed Mode (Normal Change Operation)

The *hopper dump keyswitch* must be in the off position and the main door should be closed for this mode to operate.

If the *hopper dump keyswitch* is left on when the main door is closed the machine will indicate Out of Service and the **E96** Diagnostic Code will be shown on opening the main door. This can only be cleared by turning the *hopper dump keyswitch* off (reset will not clear this alarm).

Note that when the main door is closed the display will show an out of order message (e.g. "Empty") if the machine is not operational for any reason (see the section on Diagnostic Codes). Any outstanding credit will be shown along with this message.

Door Open Mode

Open the main door to access the Audit, Hopper Dump and Reset Modes. If the alarm keyswitch (located above and to the right of the main door) is on (the adjacent red LED is lit when the alarm is turned off), the alarm will sound making a continuous tone and the blue attendant beacon will flash rapidly. This alarm and the flashing blue lamp can only be turned off by turning the alarm keyswitch to the off position (reset will not clear this condition).

If the alarm keyswitch is turned off, the blue lamp will flash rapidly only while the main door is open. No alarm will sound.

If the change machine is not fully operational then the display will show the appropriate Diagnostic Code (see the section on Diagnostic Codes) along with any outstanding credit.

If there are no higher priority codes and any of the hoppers are low on coins, the display will show an **E21** code along with the number of the affected hopper(s). This provides a means of establishing which hopper needs to be refilled. Note that whilst the change machine may only indicate that one hopper is low, the other hopper maybe be close to being low, but not enough to be detected by the machine. This facility does not affect access to the audit, hopper dump or reset modes and is cleared when the main door is closed.

Auditing

Auditing of the change machine is by software meters. These are viewed on the credit display. All new machines are also equipped with an Audit Printing facility requiring the optional Handheld plug-in printer.

Audit Display Mode

The Audit Display shows 3 different sets of resettable meters:-

- The quantities of each denomination of coin that has been accepted by the change machine since the meters were last cleared.
- The quantities of coins paid out from each hopper since the meters were last cleared.
- The quantities of coins dumped from each hopper during Hopper Dump Mode since the meters were last cleared.

Open the main door and ensure that the *hopper dump keyswitch* is in the off position.

Press the ***hopper 2 dump button***. This will enter the Audit Display Mode, which will display the first meter. Press the ***hopper 2 dump button*** again to exit the Audit Display Mode.

Press the ***hopper 1 dump button*** to cycle through all of the meters available on the Audit Display and view the quantities recorded since they were last cleared:-

- Coin 1 In (e.g. 10p) x Quantity accepted.
- Coin 2 In (e.g. 20p) x Quantity accepted.
- Coin 3 In (e.g. 50p) x Quantity accepted.
- etc.
- Out 1 x Quantity paid. (Figure alternates with coin value)
- Out 2 x Quantity paid. (Figure alternates with coin value)
- Dump 1 x Quantity dumped. (Figure alternates with coin value)
- Dump 2 x Quantity dumped. (Figure alternates with coin value)

After viewing Dump 2 a further press of the ***hopper 1 dump button*** will cause the first meter to be shown again.

To clear all of the resettable audit meters, enter into the Audit Display Mode, press and hold the ***hopper 2 dump button*** as if to exit the Display Mode, but then press and hold the ***reset button*** until the machine identification (5002..) appears on the display, before releasing both buttons. The machine will then reset and the meters will have been cleared.

NB: The Audit Display Mode is only accessible during the following Out of Service conditions, providing no outstanding credit remains:

- E21 (hopper low)

Audit Printing (Optional)

With the change machine switched on, connect the printer to its socket in the machine.

Press and release the "Printer" button that is next to the printer socket.

Wait for printing to stop before disconnecting the printer or attempting any other operations on the machine.

The machine should not be in any of its operating modes such as Hopper Dump Mode or Audit Mode etc., for this facility to work, it will however operate if any Diagnostic Codes are outstanding.

For a more detailed description of the Audit Printing facility please refer to the Audit Printer User Guide RV754.

Emptying

During a hopper dump the quantity of coins paid from each hopper is added to separate software meters. The quantities recorded by these meters can be viewed using the Audit Display Mode as described above. Dump 1 shows the figures for hopper 1 (the left hand hopper) while Dump 2 shows the figures for hopper 2.

Additionally, the value of coins dumped is always shown on the credit display.

For detailed information about Hopper Dump Mode see the following section.

Hopper Dump Mode

Open the main door and ensure that the *hopper dump keyswitch* is in the on position.

Press the *hopper 1 dump button* to start a coin dump from hopper 1 (the left hopper as seen from the front of the machine). The hopper running in dump mode will stop a few seconds after all coins have been paid out. If the *hopper 1 dump button* is pressed again this will stop the procedure when the *next* coin is paid out. If there are no coins to be paid when the Dump button is pressed to stop the hopper, the hopper will continue to run until the "Empty" timeout occurs. Further presses of the *dump button* will have no effect until the hopper has stopped. The amount dumped so far will be shown on the display for a further 8 seconds. If the *dump button* is pressed again within this 8 second period, the value shown on the display is kept and should any further coins be dumped these will be added to the displayed value.

The *hopper 2 dump button* works in the same way for hopper 2 as described above for hopper 1.

Note that both hoppers can dump their coins at the same time and that the coins from both hoppers are added to the value shown on the display.

If the *hopper dump keyswitch* is turned off or the main door is closed the hopper dump is stopped when the *next* coin is paid out. If there are no coins to be paid, the hopper(s) will continue to run until the "Empty" timeout occurs.

In order to support the weight of coins in the high capacity 5002 coin bins a system of feed ramps is employed. If the hopper dump is in order to audit the machine a few coins may remain sitting on these inner bin surfaces, a sharp blow on the side of the bin with the flat of the hand should displace the coins so that they can be dumped normally.

NB: Hopper Dump Mode is only accessible during the following Out of Service conditions, providing no outstanding credit remains:

- E21 (hopper low)

Other Modes

Reset Mode

Any situation, which has stopped operation of the change machine, can only be cleared by use of the *reset button* after attending to the cause. Switching off and on does not clear the condition. See the subsection on Problem Solving in Diagnostic Codes later in this guide.

NB: If credit remained on the machine when a problem occurred and you wish the machine to pay back this credit, so that the audit cash in / cash out figures balance, then see the subsection Resume Payout Mode.

To reset the machine; open the main door and press and hold the *reset button* until the machine identification (5002..) appears on the display. The machine will then reset itself. It will also clear any outstanding credit and any Diagnostic Codes shown on the display at the time of reset. If a Diagnostic Code condition exists after resetting the machine, it will be displayed.

Resume Payout Mode

If the machine runs empty, or a situation occurs, leaving an outstanding credit; this can be paid back using the Resume Payout Mode so that the machines cash in / cash out figures remain balanced. To enter the Resume Payout Mode the *reset button* is used as follows:

Press and hold the *reset button* until the outstanding credit figure starts flashing on the display, at this point LET GO OF THE *RESET* BUTTON. The credit figure will continue to flash until it has been flashing for about 1.5 seconds, when the display will change to show the machine identification (5002..) as in the normal reset process. However, once the machine reset is complete the display will return to flashing the outstanding credit indicating that payout can be resumed (assuming the original failure condition has been cleared) by pressing either *hopper dump button*.

Should power to the change machine fail during a transaction, when the machine is next powered up it will automatically enter the Resume Payout Mode (assuming no other warnings exist). The Diagnostic Code **E93** will be shown on the display as well to indicate that credit was outstanding at the time of power failure. Payout is resumed by pressing either *hopper dump button*. If the payout is not required, perform a full reset of the machine (see the subsection Reset Mode).

Emergency Stop

If you wish to suddenly stop a Resumed Payout, or an ordinary customer payout (during a hopper dump use the hopper dump buttons), then press the *reset button* firmly but quickly. This will immediately cancel all operations, including meter counting and coin counting, and may therefore lead to false audit information - it should only be used in emergencies.

Diagnostic Codes

When a situation occurs that causes the Attendant Beacon to flash and the main door is closed an Out of Service message (e.g. "Empty") will be displayed to the customer. If the alarm keyswitch is turned on, the alarm will also start to sound, making a continuously beeping tone. To turn the alarm off, simply turn the alarm keyswitch to the off position.

On turning the keyswitch off, the credit display will first show the value of the most recent note input before being replaced by the normal display messages. If the last note value needs to be displayed again, turn the alarm keyswitch on and off again.

To identify the cause of the alarm open the main door and the Diagnostic Code number will be shown on the left hand side of the display, with any outstanding credit (if applicable) shown on the right hand side.

Permanent Codes

An event that takes the machine permanently out of service can only be cleared by resetting the machine. Note that if the original cause of the Out of Service message is not cleared the message will be given again after the reset. The following permanent codes are possible:

Error Number	Description
E21-1	Hopper 1 empty or low
E21-2	Hopper 2 empty or low
E22-1	Hopper 1 security failure (hopper not attached)
E22-2	Hopper 2 security failure (hopper not attached)
E24-1	Coin paid out of hopper 1 at wrong time
E24-2	Coin paid out of hopper 2 at wrong time
E41	Coin mech pulse invalid
E42	Coin mech "alarm" signal
E43	Coin inserted for which no value has been defined
E92	Counter overflow
E93	Power failure during transaction (see Resume Payout Mode)
E96	Door shut while in hopper dump mode

Transient Codes

These events take the machine out of order for 30 seconds, before automatically clearing. The following transient codes are possible:

Diagnostic Codes	Description
E23-1	Coin pulse from hopper 1 invalid
E23-2	Coin pulse from hopper 2 invalid

Diagnostic Code Explanations / Problem Solving

Where appropriate, the code given will identify which hopper caused the display to occur.

E21-1 Hopper 1 empty or low.

The change machine has detected either that the level of coins in hopper 1 has fallen below the low level sensors within the hopper itself, or, if a credit amount is also being displayed with the Diagnostic Code, the machine was unable to pay sufficient coins from the hopper indicated for the transaction to be completed.

The code will also be displayed if the hopper is run empty during Hopper Dump Mode however, in this situation only, this status is not retained after switching the machine off and on.

The (optional) hopper low detection system is provided to prevent the machine completely running out of coins during a transaction, leaving a customer with credit outstanding. The hopper low state is therefore detected when there are still a significant number of coins in the bottom of the hopper. This will be in the order of 50 coins in each hopper, it varies due to coin sizes, how the coins lie and how the coins paid out in the last transaction.

Where both hoppers have the same value coins the machine will continue to operate until both hoppers are detected as being "low".

Action: Refill the hopper and use either Resume Payout Mode or Reset Mode as appropriate to put the machine back into order. If the hopper has been reported as empty but still contains coins there may be an obstruction such as a coin bag preventing the coins from being paid.

E21-2 Hopper 2 empty or low.

As for E21-1 above but for hopper 2.

E22-1 Hopper 1 security failure.

The change machine has detected either that hopper 1 is missing, is incorrectly connected, or that the hopper has detected that one of its coin sensors has become blocked.

Action: Check the coin exit area of the hopper for obstructions and ensure that it is correctly plugged into its mounting plate.

E22-2 Hopper 2 security failure.

As for E22-1 above but for hopper 2.

E23-1 Coin pulse from hopper 1 invalid.

A coin signal received was outside of timing limits. This was possibly due to a coin sticking whilst paying out, or a foreign object being ejected by the hopper.

Action: If this is noted frequently the hopper may need cleaning or servicing. Contact the Thomas Service Hotline.

E23-2 Coin pulse from hopper 2 invalid.

As for E23-1 above but for hopper 2.

E24-1 Coin paid from hopper 1 at the wrong time.

A coin has been paid from hopper 1 when no coin should have paid. The change machine has removed all hopper power.

Action: Contact the Thomas Service Hotline.

E24-2 Coin paid from hopper 2 at the wrong time.

As for E24-1 above but for hopper 2.

E41 Coin Mech pulse invalid.

The duration of a coin pulse received from the Coin Mech is outside of the permissible range.

Action: Contact the Thomas Service Hotline.

E42 Coin Mech “Alarm” signal.

The control system has received simultaneous coin pulses on more than 1 input circuit, indicating that there may have been an attempt to defraud (strim) the coin mech.

Action: Check that the coin path and exit area of the coin mech. are clear of obstructions. Reset the machine. If the code re-appears then contact the Thomas Service Hotline.

E43 Coin inserted for which no value has been defined.

A coin has been accepted which has no payout defined within the control chip.

Action: Contact the Thomas Service Hotline.

E92 Counter overflow.

This may happen during a hopper dump if there are many coins of high value being dumped. The accumulated value on the display may become larger than the space available to show it. The machine will stop as the display overflows to zero so that the operator is alerted.

Action: Reset the machine to clear the code and resume the hopper dump if required.

E93 Power failure during transaction.

If power is removed from the machine when a payout is in progress the credit remaining will be shown with this code.

Action: Complete the payout using Resume Payout Mode.

E96 Door shut while in hopper dump mode.

The *hopper dump keyswitch* was in Hopper Dump Mode when the machine door was closed.

Action: Turn the keyswitch to exit Hopper Dump Mode and clear the Diagnostic Code.

Attendant Beacon

The attendant beacon gives a visual warning of certain conditions that could exist on the change machine. These conditions are as follows, in order of priority:-

Blue Lamp Flashing

Machine out of order - a Permanent Diagnostic Code will be shown on the display when the main door is opened. If the alarm keyswitch is turned on, the alarm will also sound (continuous beeping tone).

Blue Lamp Flashing Quickly

The main door has been opened.

If the alarm keyswitch is turned on the alarm will sound as well (continuous tone). This condition can only be cleared by turning the alarm keyswitch to the off position. Note that this condition will override any other lamp condition.

If the alarm keyswitch is already off the lamp will only flash rapidly whilst the main door is open.

White Lamp Flashing

One or both hoppers are low on coins. Open the main door to find out which hopper is low (see the subsection Door Open Mode).

Blue and White Lamp Flashing Synchronously

This can occur as described below:-

1. Both hoppers are low on coins. (Optional hopper low level sensing turned on.)
2. Both hoppers are empty (hopper low level sensing turned off).
3. The machine has just been switched on or reset. - Both blue and white lamps should flash synchronously several times before flashing alternately. Failure of one or both lamps to flash during these periods is indicative of a faulty bulb (assuming the rest of the machine is fully functional). It is necessary to replace the faulty bulb to ensure the correct visual operation of the attendant beacon.

Notes :-

1. If the alarm keyswitch is turned on, the alarm will also sound (continuous beeping tone).
2. The blue and white lamps will flash synchronously if the machine is Out of Service. Open the main door and check the display to identify the Diagnostic Code.

Blue and White Lamp Flashing Alternately

A transient code condition (will clear itself after 30 seconds). Open the main door and check the display to identify the cause. If the alarm keyswitch is turned on, the alarm will also sound (continuous beeping tone).

Fuses

Note: Only applicable to machines equipped with an RP385 control board.

Location	Value	Size	Covers
Mains plug	5 A	25mm	Machine lead
Control panel	3.15 A(T)	20mm	Fluorescent lighting, power supply transformer
PCB - F1	1 A(T)	20mm	Power supply transformer
PCB - F2	3.15 A(T)	20mm	Hopper motors. Note / coin acceptor. LEDs: DG1, DG2.
PCB - F3	2 A(T)	20mm	Logic supplies. Lamps - where fitted. LEDs: DG3, DG4.

Lamps

The lighting requirements of the 5002 are as follows:

Location	Value	Type
Attendant Beacon	2 at 12v / 2.2W	Wedge or MBC
Hinged lid	2 at 8W	12" Fluorescent
Artwork panel	1 at 8W	12" Fluorescent

Cleaning the Coin Flight Path

The Coin Mech. should be cleaned at least once a year to maintain its performance, or much more frequently if high levels of smoke, dust or nicotine are present.

Having removed the Coin Mech. as described on page 3, open the door to access the coin "flight path".

Using a soft lint free cloth dampened with an alcohol based cleaner, clean all internal surfaces. Remove any debris found in the opto sensors using a soft brush or air spray.