

NOVA

SINGLE HOPPER MINI NOTE CHANGER



Operators Manual (Manual - A)

Contents

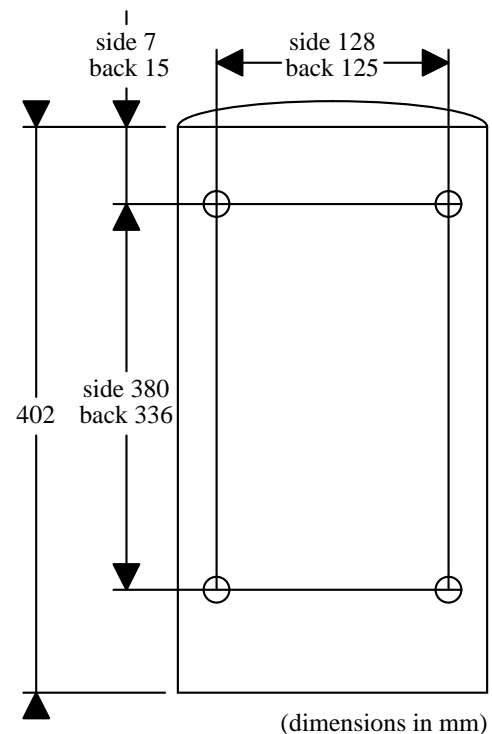
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A1 Scope

This manual (Manual-A) describes the mechanical details, user functions and operations specific to the Nova Single Hopper Mini Note Changer. This machine is fitted with the A47-026 logic board and so this manual should be read in conjunction with the A47-026 logic board manual (Manual-B) to gain details of the operation of the software and programming.

A2 Specifications

Height: 432 mm
Width: 150 mm
Depth: 250 mm
Empty Weight: 15 kg
Loaded Weight: about 32kg
Capacity: 1000 £1 coins
Power: 110/240V 1A AC 50Hz





A3 Installation

3.1 Unpacking and inspection

The Nova is supplied boxed for transport and should be carefully removed from its packaging and inspected. A small plastic bag containing two keys and this manual should be found within the box. All the packaging should be kept in case it is necessary to return the machine for service. Packing material may be used inside the Nova to protect the internal parts during transport. Ensure that all this material is removed.


3.2 Opening and removing the Door

To access the internal parts of the machine the door must be removed in the following way:

- 1 Insert the supplied key into the T-Bar lock and turn the key one quarter turn **clockwise**  to release the sprung T-Bar handle.
- 2 Turn the T-Bar handle one-quarter turn **anti-clockwise**  to release the door. The handle might be quite stiff because the locking mechanism is very positive and holds the door firmly.
- 3 The door releases from the top edge so allow the door to swing down as if hinged along its bottom edge and lift it away from the machine as it unhooks from the bottom edge.
- 4 Position the door safely while the Nova is being serviced.

WARNING:

After releasing the door it is free to fall from the machine. Use the collect outlet and T-Bar handle to hold the door so it does not drop.

- 5 To replace the door, locate the two hooks at the sides of the collect outlet on the inside of the door, into their slots in the inside of the main casing.
- 6 Using these lower hooks as a hinge locate the door back into position and hold it as the T-Bar handle is turned one quarter turn **clockwise**  to lock it.
- 7 Finally push the T-Bar home and turn the key to lock the T-Bar into position.

3.3 Internal Frame Removal

Many maintenance operations require the internal frame to be removed. After opening and removing the door this should be done in the following way:

- 1 Switch off power at the internal switch.
- 2 Locate the Finger Bar in the bottom section of the hopper, behind the Hopper Motor.
- 3 Holding the Finger Bar with one finger either side of the Hopper Motor pull gently but firmly until the entire internal frame is released. Once free, slide the internal frame forward until it can be lifted clear.
- 4 Refitting is the reverse of removal. Push the internal frame firmly back into place.

Do not hold the internal frame by holding the Hopper Motor.

3.4 Hopper Removal

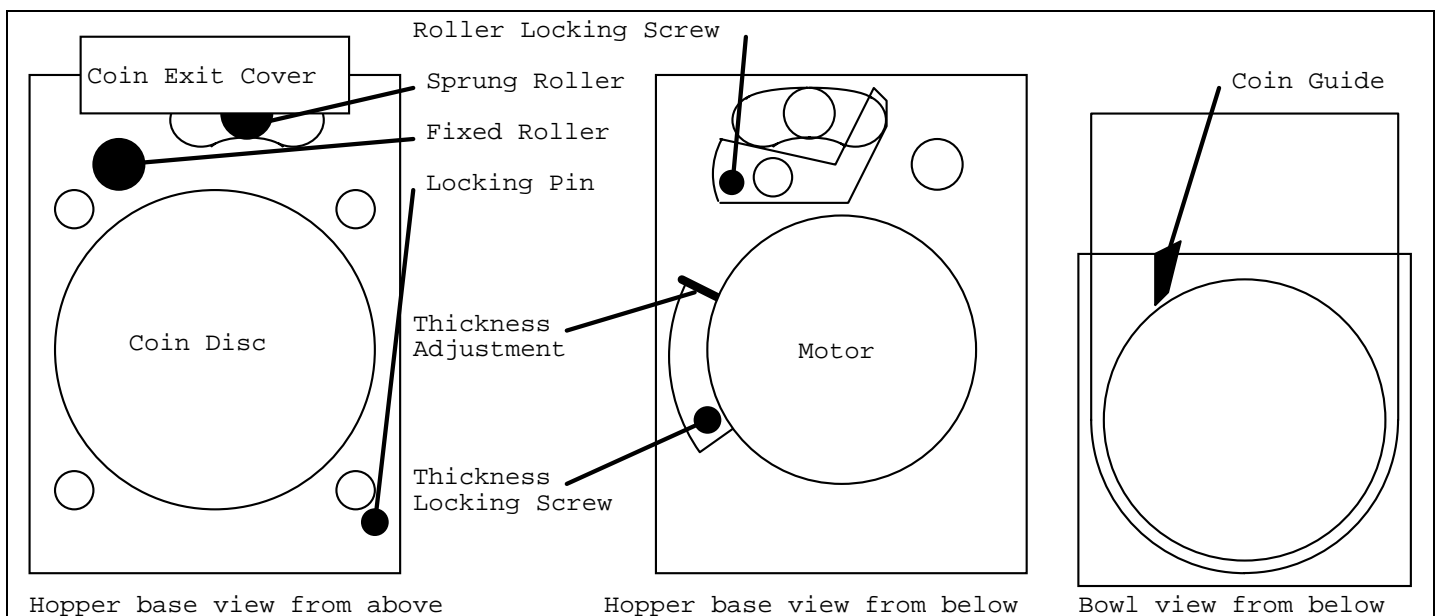
In order to service the hopper, change the coin disc or remove jammed coins it may be necessary to remove the hopper from the internal frame. After removing the internal frame from the machine the hopper should be removed in the following way:

- 1 Pull the black plastic bulb holder (if fitted) forward to release it from its metal support bracket.

- 2 Undo and remove the two M4 nuts that hold the front of the hopper to the bottom of the inner frame.
- 3 Carefully withdraw the hopper being careful to ensure that the bulb on its loom remains free and does not catch.
- 4 Remove the electrical connector at the back of the hopper and unplug the yellow wire from one of the coin sensor plates at the back of the hopper. Allow the bulb loom to feed out from the hopper base metal. The hopper will now be free from the internal frame.
- 5 To remove the black plastic bowl, first unplug the black wire that connects to one of the coin sensor plates and then locate the locking pin on the back left side of the hopper (as viewed from the front). Press the locking pin and turn the bowl clockwise by a few degrees to free it.
- 6 Refitting is the reverse of removal. Remember to reconnect the electrical connections to the coin sensor plates. Ensure that the bulb loom is fed through the hopper base metal above the finger bar and is pushed back onto its support bracket so that the wires are on the upper side.

3.5 Changing the Coin Disc

The SH400 hopper used in the Nova can be fitted with different discs for different diameter and thickness coins. To change the disc, first remove the hopper from the internal frame and then remove the bowl from the hopper.



With reference to the diagrams above proceed as follows:

- 1 Remove the screw from the centre of the coin disc, fit the new disc and replace the screw. Ensure that the new coin disc is locked properly onto the drive shaft and that the screw is tight.
- 2 If a metal coin guide is currently fitted to the underside of the bowl then it should be removed. A small hole is provided in the hopper bowl to give access to the coin guide fixing screw.
- 3 If a new metal coin guide has been supplied with the disc then fit it on the underside of the hopper bowl. A small hole is provided in the hopper bowl to give access to the coin guide fixing screw.
- 4 Check that the gap between the fixed and sprung rollers is 3.5mm less than the diameter of the coin. If necessary the sprung roller can be adjusted to make the gap correct.
- 5 To adjust the roller gap, locate and loosen the sprung roller locking screw on the inside of the hopper base. Adjust the position of the sprung roller and then retighten the sprung roller locking screw.

- 6 Check that the gap under the disc is sufficient for the coin to fit comfortably. If it is necessary to adjust the gap under the coin disc for the thickness of the coin then locate and loosen the thickness locking screw on the inside of the hopper base.
- 7 To adjust the gap under the coin disc use the thickness adjustment to lift and lower the coin disc against the hopper base plate.


3.6 Installation

The Nova has mounting holes on the back, both sides and underneath. The machine can be mounted on a wall, on the sides of other equipment, pillars etc., or on top of a rigid surface such as a worktop. When choosing a location for mounting it is important to remember that, when full, the Nova can weigh in excess of 32 kg. Care should be taken that the structure and mounting points are robust enough to support the weight. All installations will be different and this manual can only give general guidance.

- 1 Remove the door and the internal frame from the machine in order to expose the various mounting holes in the cabinet.
- 2 Using the cabinet as a template, or the diagram, mark four holes out to mount the Nova as required.
- 3 When mounting to the back or underside, use a fixing appropriate for the mounting surface and weight and value of a fully loaded Nova. The back fixing holes are 8mm diameter. When bottom or side mounting the machine note that the mounting holes are pre-drilled with M8 threads to ease the fixing of the Nova to the sides of games machines cabinets and worktop surfaces. **If M8 bolts are used into the Nova ensure that they do not penetrate more than 10mm inside the machine.** When bolting the Nova to wood panels (especially chipboard and other composites) use large washers to spread the load from the bolts evenly into the wood.
- 4 The mains lead is fixed to the Nova cabinet and should be routed so that it is not trapped between the Nova and its mounting support.
- 5 Ensure that the cabinet is secure and then refit the internal frame and door.

3.7 Electrical Connections

For installation in the United Kingdom the Nova is fitted with a standard BS1363 plug fused at 3 Amps. For other countries observe all local rules and the following wiring colours:

- Brown - to the terminal marked L or Live or coloured Red
- Blue - to the terminal marked N or Neutral or coloured Black
- Yellow/Green - to the terminal marked  or E or Earth or coloured Green

This equipment must be earthed

3.8 Initial test of machine

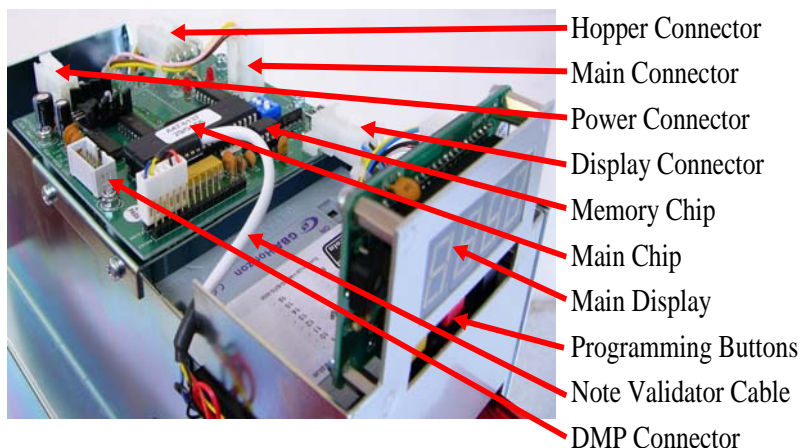
After installation and connection of the Nova to mains power (but before switching the power on) proceed as follows:

- 1) Open the door and perform a visual check of the internal parts, check the internal frame is fully home and the extension bins, coin box and top cover are in position. Ensure that no foreign bodies or packing material are present.
- 2) Switch on the mains power to the Nova and then switch the Nova on at its main switch, which should illuminate.
- 3) The door illumination will come on and noises should be heard from the Note Validator as it tests itself. The main display will cycle through its test sequence and after a few moments the machine will go silent. The main display will show `Pro 4701` to indicate that the door is open. 4701 is an example software program number and may differ for different machines. The control board has several red power indicator LEDs on it. These should illuminate.
- 4) Fill the hopper as detailed in the relevant section of this manual and close the door.
- 6) The display will show `CASH HERE` (or local variations) and the note path entrance will illuminate. If the machine is fitted with a real-time clock and the clock display is enabled then the time in hours and minutes will appear on the display. It is now ready for use.
- 7) Confirm the payout settings, operating mode and currency selections are correct by testing the Nova with a range of different notes. Confirm that the payouts are as required.

A4 Anatomy of the Machine

All the working parts of the Nova change machine are in a single unit, the internal frame, that is easily removed from the casing for service or storage. The Nova's internal frame is divided internally into two regions:

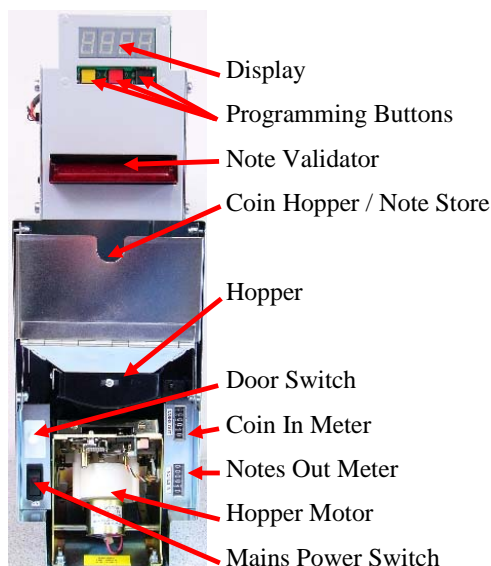
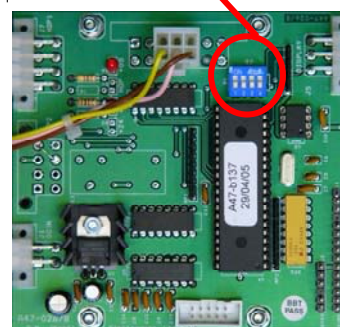
1) Top Electronics Region



The top of the internal frame is where most of the control electronics and the Note Validator is mounted. The main circuit board has a bank of 4 switches, with functions as shown below.

Switch bank

Pole	Function
1	Unused
2	ON Validator Enable
3	OFF Hopper Low Detected ON Hopper Low ignored
4	Unused



2) Hopper

The hopper is mounted into the lower part of the internal frame. The hopper is referred to as hopper 1 in programming and engineering modes. To the left of the hopper are the white door switch and the black illuminated mains switch. To the right of the hopper are the Coins Out meter and the Notes In meter.

A5 Normal Operations

The Nova needs no special servicing or maintenance. It may be switched off and on whenever necessary and will retain all settings and configuration. If power is removed during a payout that payout will not be restarted when the power is reconnected.

The operator controls the functions of the Nova through the buttons mounted on the display board that is located on the front of the internal frame, above the Note Validator. Using these buttons the operator can:

- 1) Change the currency setting to enable different currencies to be accepted. Note that the Note Validator may need to be reprogrammed separately in order for it to accept other currencies;
- 2) Test the Note Validator;
- 3) Change the way notes are accepted and routed within the machine;
- 4) Test and configure the hopper;
- 5) Determine the cause of machine faults;
- 6) Change the payments system to alter the coins that are paid out;
- 7) Read and reset audits;
- 8) Control the machine environment

The Nova is fully programmable on site and gives the operator considerable flexibility in setting how many coins will be paid out under different circumstances.

A6 Filling The Hopper

The hopper used in the Nova uses a pair of shorting plates to detect the presence of coins. When sufficient metal coins are placed in the hopper the coins connect the two plates together electrically and the Nova detects the current that flows. As coins are paid out from the hopper a time will occur where there are not enough coins to bridge the gap between the plates and the logic board will indicate a "hopper low" error. It is possible to disable the hopper low sensing system for the hopper, see section 10 of this manual for details. This coin sensing technique means that:

1. In order for the Nova to detect coins in the hopper they must be made from a conductive material. If non-conductive tokens are to be dispensed, the Nova hopper low detectors must be disabled, please contact the factory for advice about using non-conductive tokens with the Nova.
2. In order for the Nova to detect coins in the hopper there must be sufficient to cover the plates. 40 to 50 coins are usually the minimum.

To refill a hopper proceed as follows after the door has been removed:

3. If the Nova has stopped during a payout and indicated a hopper-timeout (error code 13) or hopper-low (error code 12) error **DO NOT TURN THE POWER OFF**. If the Nova has indicated a hopper-low error at switch on, or some other time when no payout is in progress, or if the hoppers are being topped up without being empty first then it is recommended that the power be switched off at the main switch inside the Nova before filling.
4. Pull the filling door open and empty the note bin. Remove the plastic hopper cover located at the base of the extension bin.
5. Be certain that the correct coins are being used to fill the hopper. The Nova will pay out correctly only if the hopper contains the correct coins. Fill the hopper slowly with coins, being careful to ensure that no coins fall behind the internal frame where they may interfere with the electrical connections to the hopper. If the hopper is being filled from bagged coins it is vital that no bags fall into the hopper. The Nova cannot protect itself against objects placed inside the hopper that will jam the mechanism. A maximum of 1000 coins should be used and levelled out by hand.
6. Replace the plastic hopper cover that will sit on the levelled out coins or in the base of the extension bin depending upon how many coins are used. Close the filling door.
7. Record the values shown on each of the meters for auditing purposes.
8. If necessary switch the Nova back on.
9. The A47-026D logic board used in the Nova records audits electronically. If audits are being maintained then follow the instructions given in the section "Filling the Dispensers" in the Manual B that accompanies this manual.
10. When the door is closed any partial payout will be completed and the Nova is ready for use.

A7 Note Acceptor Maintenance

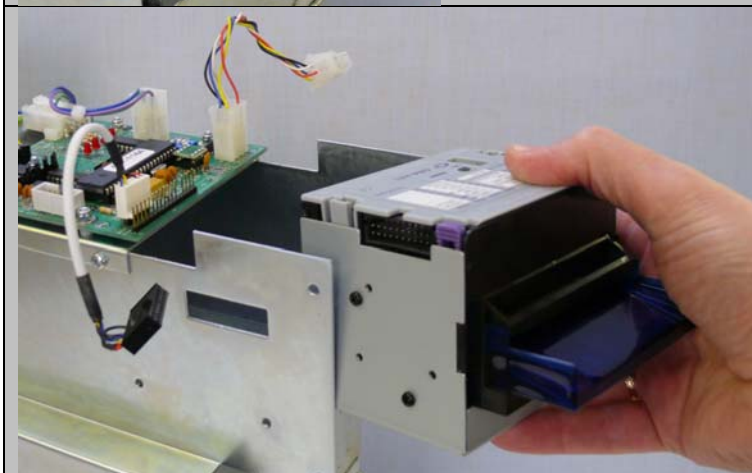
7.1 Servicing Astro-Systems GBA note acceptors



This picture shows a GBA note acceptor in position in a Nova. Before removing the acceptor, switch the mains power off at the machine's main switch, remove the Nova internal frame and unplug the note acceptor's connecting cable and the display's connecting cable.



Remove the four M4 bolts (two each side) that hold the front plate in position. Carefully remove the front plate.

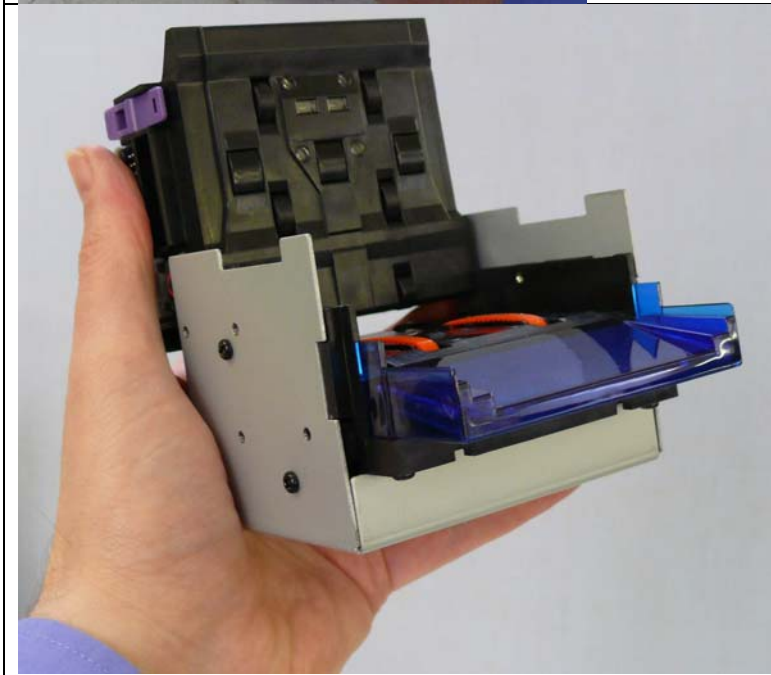


Finally remove the four M3 bolts (two each side) that hold the note acceptor in place. Pull the acceptor forward and out of the frame. The acceptor is a tight fit and has several small screws on its sides that may interfere. It may be necessary to bend the frame slightly to free the acceptor.

It will sometimes be necessary to clean the note path within the GBA note acceptor. Access to the note path is easily gained after the acceptor has been removed from the machine. Liquids should not be used when cleaning the note path. A dry cloth or blower brush can be used to remove dust and deposits. If the note path parts are damaged or scratched then the acceptor should be returned for service.



Locate the two purple coloured release buttons and press them together as indicated in the picture.



The GBA hinges open along its back edge to reveal the note path.