SECTION 2

NV11
MANUAL SET

FIELD SERVICE
MANUAL

INTELLIGENCE IN VALIDATION

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NV11 MANUAL SET – SECTION 2

2. FIELD SERVICE MANUAL

This section is one part of a complete manual set: typically, a field service engineer who is maintaining the product would use this section.

This section contains the essential information that the field engineer needs to clean, maintain and fault find an NV11 validator that is installed in a host machine.

The NV11 validator has been designed to minimise any problems or performance variations over time. This has been achieved by careful hardware and software design; this attention to the design means there is very little user maintenance required.

2.1 Cleaning

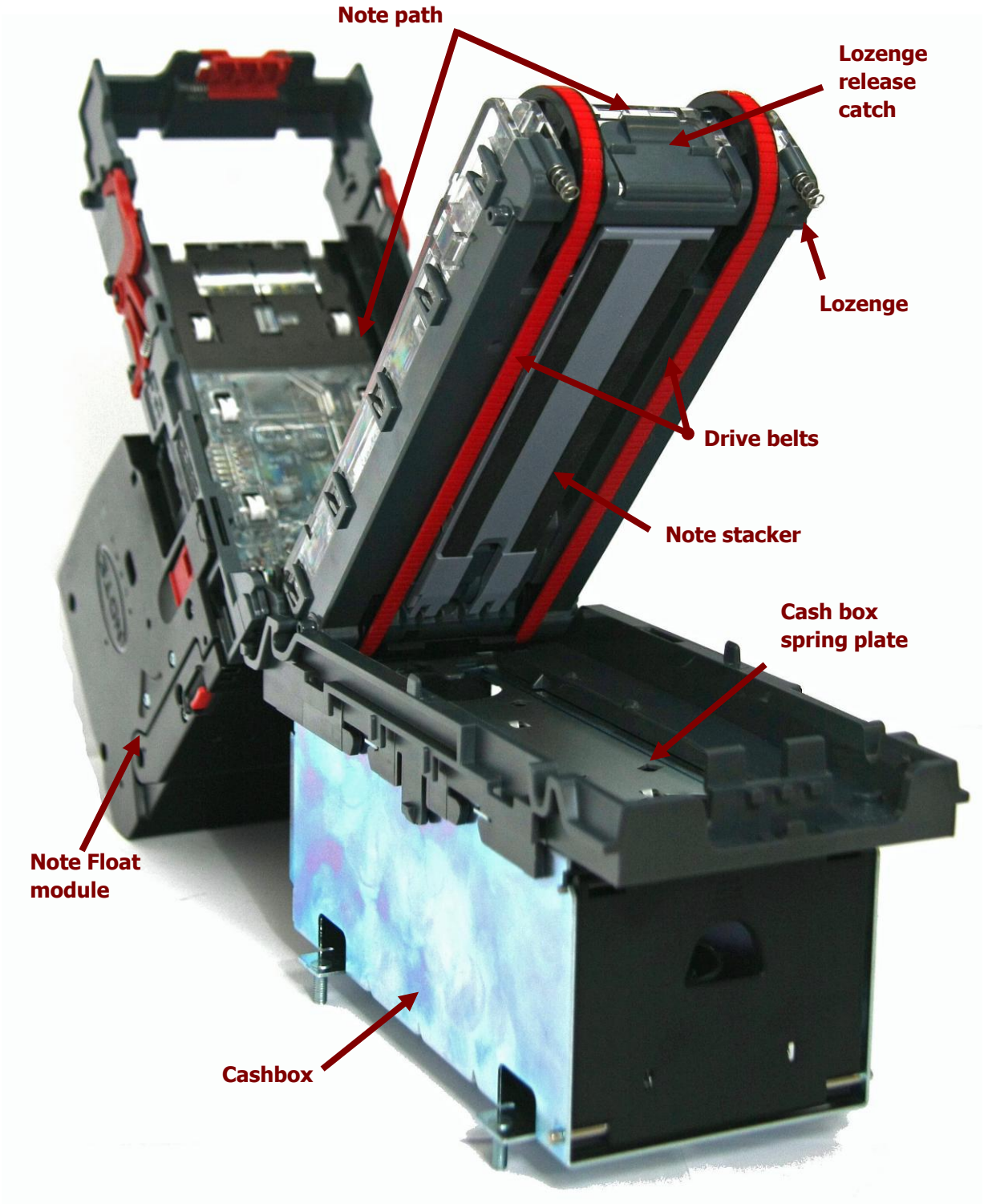
The NV11 validator has been designed in a way to prevent damage and airborne contamination reaching the optical sensors; however, depending upon the environment the NV11 may require occasional cleaning or belt changing.

Caution!

Do not use solvent based cleaners on any part of the NV11 unit.

Do not use solvent based cleaners such as alcohol, petrol, methylated spirits, white spirit or PCB cleaner. Using these solvents can cause permanent damage to the unit; only use a mild detergent solution as directed below.

To clean the NV11, open the note path by sliding the red release catch on the front of the validator to the left (as indicated in the picture) - this will allow access to the lozenge and note path



WARNING!

Disconnect power BEFORE any cleaning operation

Unless stated otherwise, you should disconnect the power BEFORE carrying out any cleaning operations to avoid the risk of causing damage to the validator.

Ideally, you should also remove the Note Float module prior to cleaning the sensors. Removal is a very straightforward task:

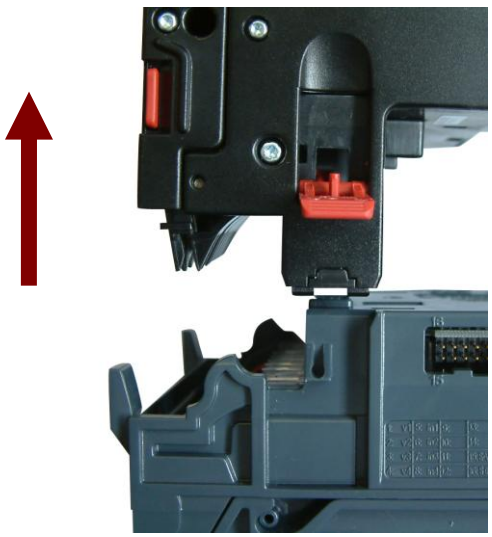
WARNING!

Do not try to disassemble

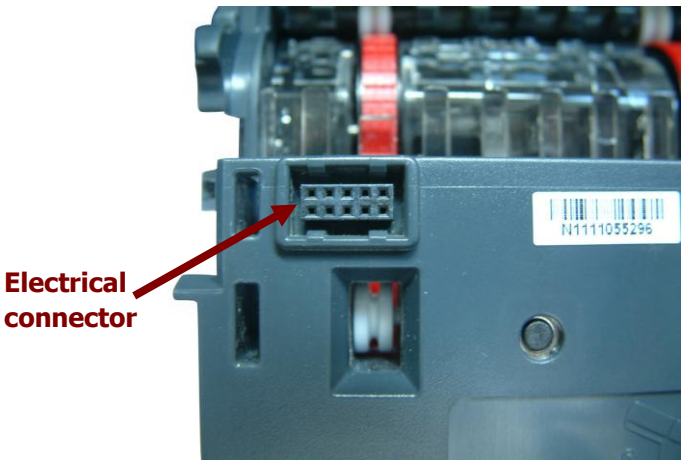
Do not attempt to disassemble the Note Float module – there are no user serviceable parts inside and trying to disassemble the module could cause personal injury and will also damage the unit beyond repair.

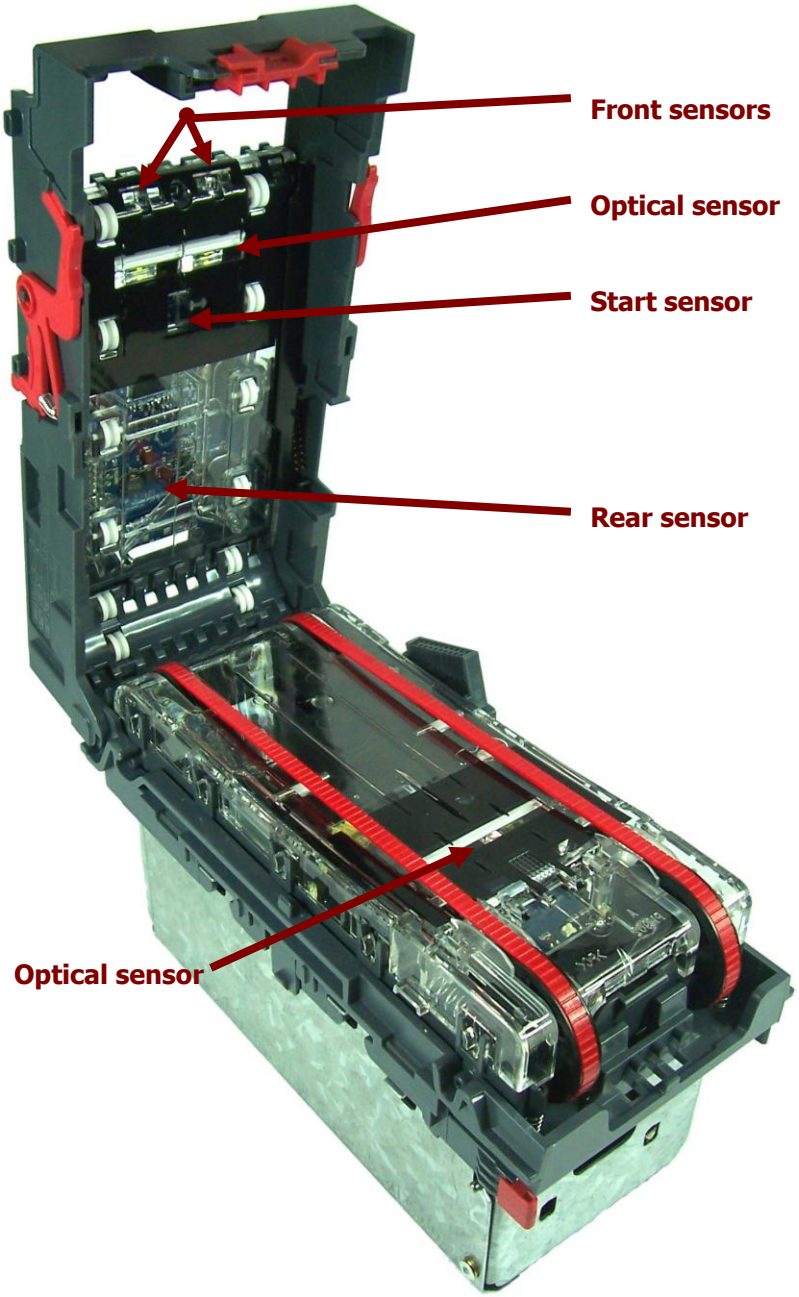
1. Open both the Note Float side latches as shown

2. Carefully lift the Note Float module upwards and clear of the validator head



3. To refit the Note Float module, reverse the procedure – make sure that the electrical connectors and latches are lined up correctly





Examine the note paths, lozenge and note stacker for any dirt or debris, and carefully clear and wipe the surfaces of the note paths and lozenge with a soft lint free cloth that has been dampened with a water and mild detergent solution (i.e. household washing up liquid.) - be very careful when cleaning around the sensor lenses and make sure they are clean and dry before closing the cover and restarting the unit. Do not try to polish the sensor lenses – if a lens is badly scratched, contact ITL technical support for advice.

Also check that the note stacker and cash box spring plate are not jammed.

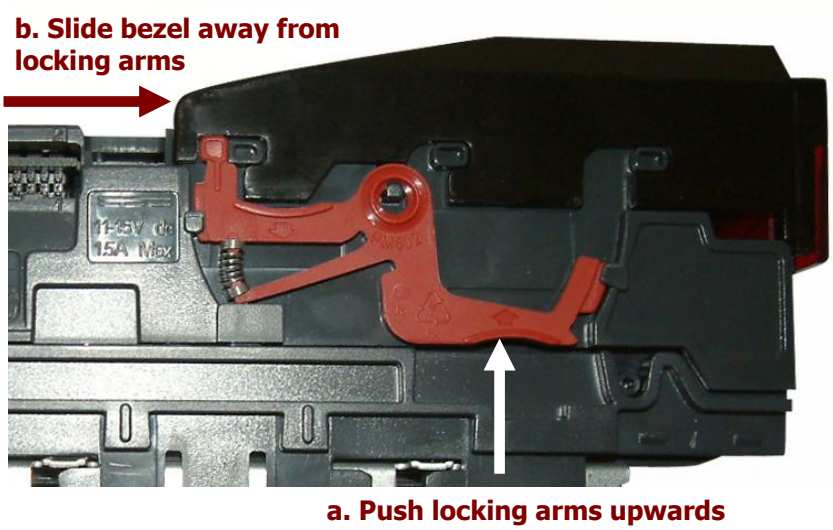
Caution!

Be careful cleaning sensors.

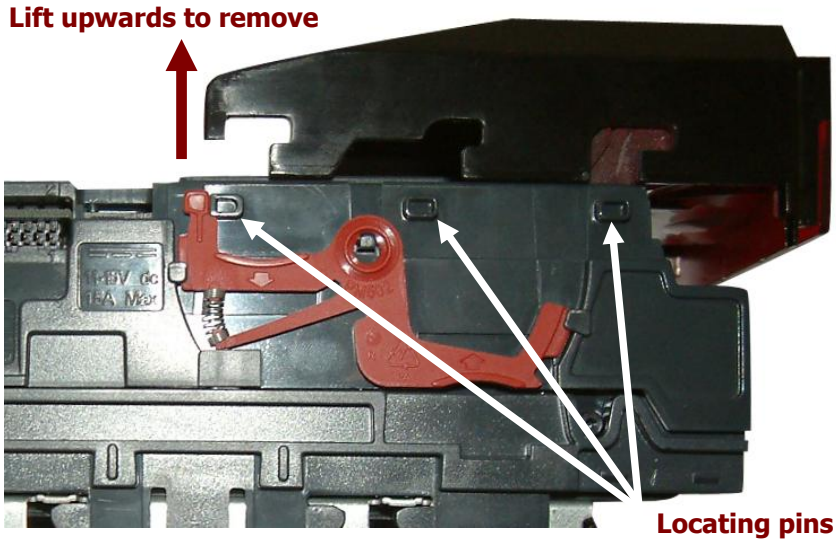
When cleaning the recessed front sensor, use a small soft brush or cotton bud – do not use anything sharp or abrasive.

Cleaning the belts is a simple operation. Ensure the validator is enabled (i.e. bezel lights are illuminated), then remove the bezel:

- The bezel is removed by pushing the red locking arms on both sides of the validator upwards, and sliding the bezel away from the locking arms

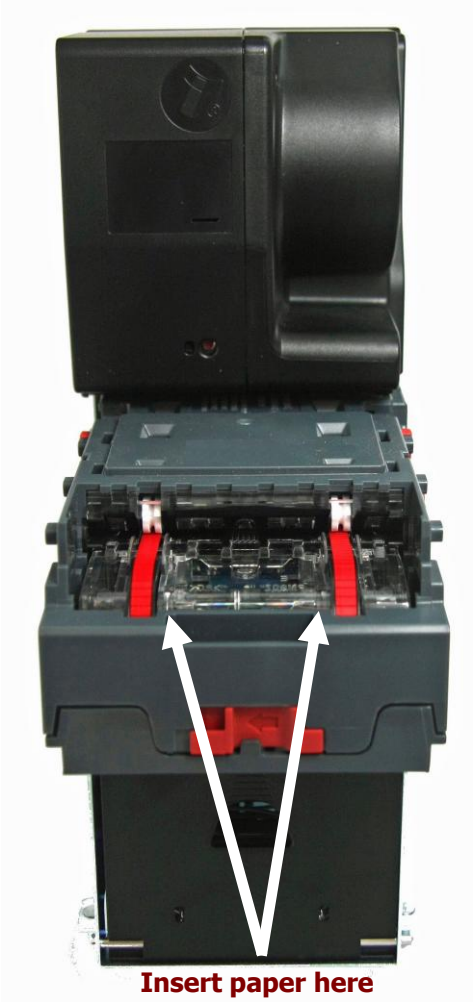


- Lift the bezel off once the bezel has been slid fully across and is clear of the locating pins



- Insert a piece of paper (which is narrower than the width between the two belts) in the centre of the note path to activate the drive motor

- Use a lint free cloth dampened with water and containing a mild detergent (such as dish detergent) and hold against each drive belt as is turns.



Repeat this procedure until all dust and debris has been removed from both belts. Finally, use a DRY lint free cloth to remove any excess moisture and refit the bezel. The bezel is refitted by pushing the bezel back onto the locating pins and sliding backwards until all six pins are engaged in the slots. The locking arms will then spring back and locate into the bezel.

Caution!

Check locking arms.

Always make sure that **BOTH** locking arms are fully located in the bezel – trying to operate the validator if they are not correctly located can cause unit damage.

Caution!

Do not use any lubricants.

Do not lubricate any of the note transport mechanism, belts or any part of the note path, as this can affect the operation of the validator.

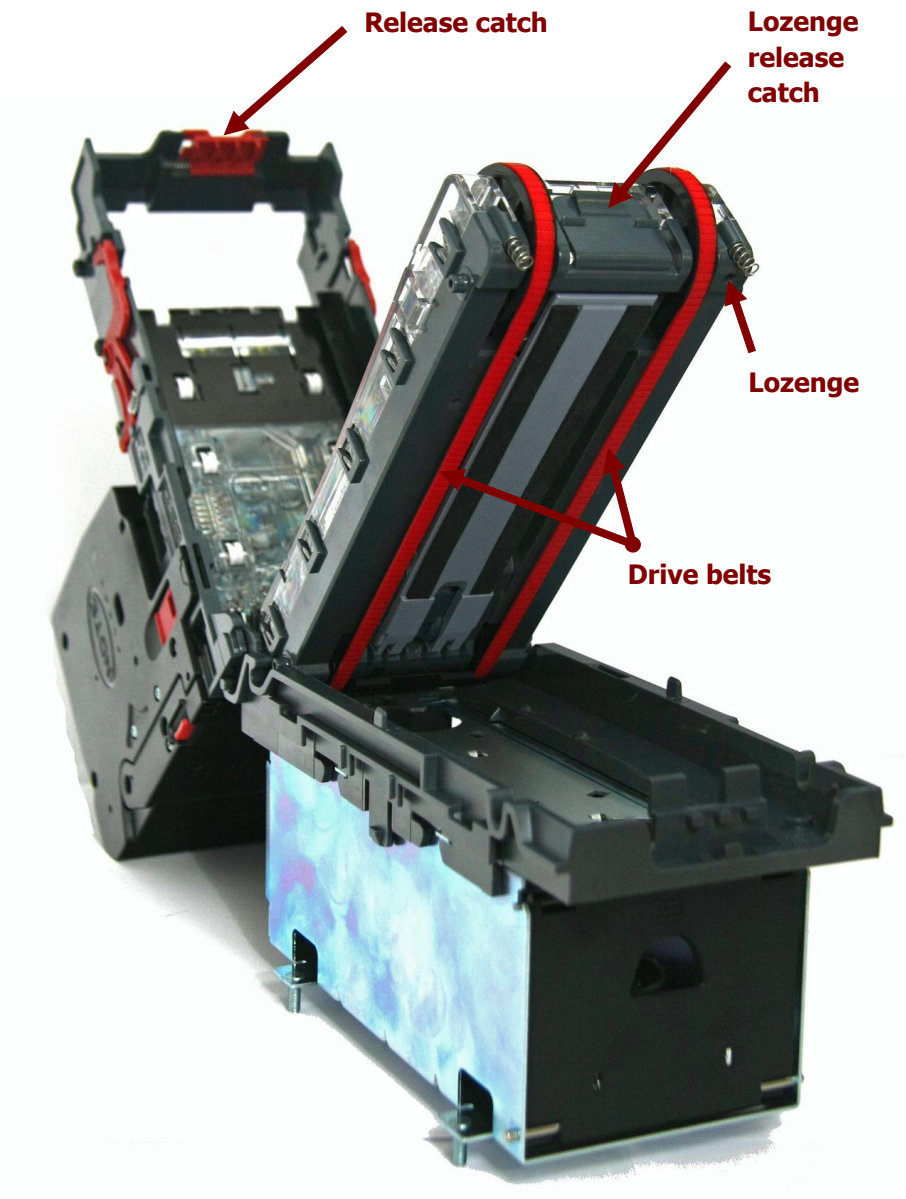
If the belts are worn or damaged, they should be replaced. This is a simple procedure, and is carried out as follows:

WARNING!

Do not try to disassemble

Do not attempt to disassemble the validator head or Note Float module – trying to do this could cause personal injury and will damage the unit beyond repair.

- Open the top of the unit using the Release catch
- Release the lozenge by gently pressing the Lozenge release catch
- Remove and place the lozenge on a clean dry surface
- Press in the large wheels to release the belt tension and then remove the belts, sliding them off the smallest wheels first
- Replace the belts by fitting them over the lozenge, largest wheels first
- Reassemble and close the unit



2.2 Fault Finding - Flash Codes

The NV11 validator has inbuilt fault detection facilities. If there is a configuration or other error either the Note Float module status LED, or the NV9USB validator head front bezel will flash in a particular sequence; a summary of the Flash Codes for both units is shown below:

NV9USB Bezel Flash Codes:

Flashes		Indicated Error	Comments
Long	Short		
0	0	None	
1	2	Note path obstructed	Remove obstruction and follow the cleaning procedure in Section 2 of this manual set
	3	Unit not initialised	Contact ITL technical support
2	2	Cash box problem	Check that the cash box note plate is free to move and the stacker mechanism is in the home position
3	1	Firmware checksum error	Download new firmware
	2	Interface checksum error or unable to set programmed interface	
	3	EEPROM checksum error	
	4	Dataset checksum error	
	5	Incompatible firmware	Check the validator firmware is compatible with the Note Float module
4	1	Power supply too low	Check power supply
	2	Power supply too high	

Note Float Module Flash Codes:

Flashes	Indicated Error	Comments
0	None	
Constant flash (1 every second)	Note transport error	Remove trapped note from the Note Float module and press the configuration button once
2	Software error	Download new dataset / firmware
3	Calibration error	Return to service centre for repair
4	Diverter error	Check for trapped notes stopping the diverter returning to the home position
5	Motor timeout	Check for trapped notes stopping the Note Float module tape from moving

2.3 Technical Specifications

The full technical specifications for the NV11 validator can be found in Section 6, Appendix B of this manual set. A brief summary is given here:

DC Voltage	Minimum	Nominal	Maximum
Absolute limits	10.8 V	12 V	13.2 V
Supply ripple voltage	0 V	0V	0.25 V @ 100 Hz
Supply Current			
Standby			350 mA
Running			3 A
Peak (motor stall)			3.5 A

Interface Logic Levels	Logic Low	Logic High
Inputs	0 V to +0.5 V	+3.7 V to +12 V
Outputs (2.2 kΩ pull-up)	+0.6 V	Pull-up voltage of host interface
Maximum current sink	50 mA per output	

WARNING!

Use suitable power supply

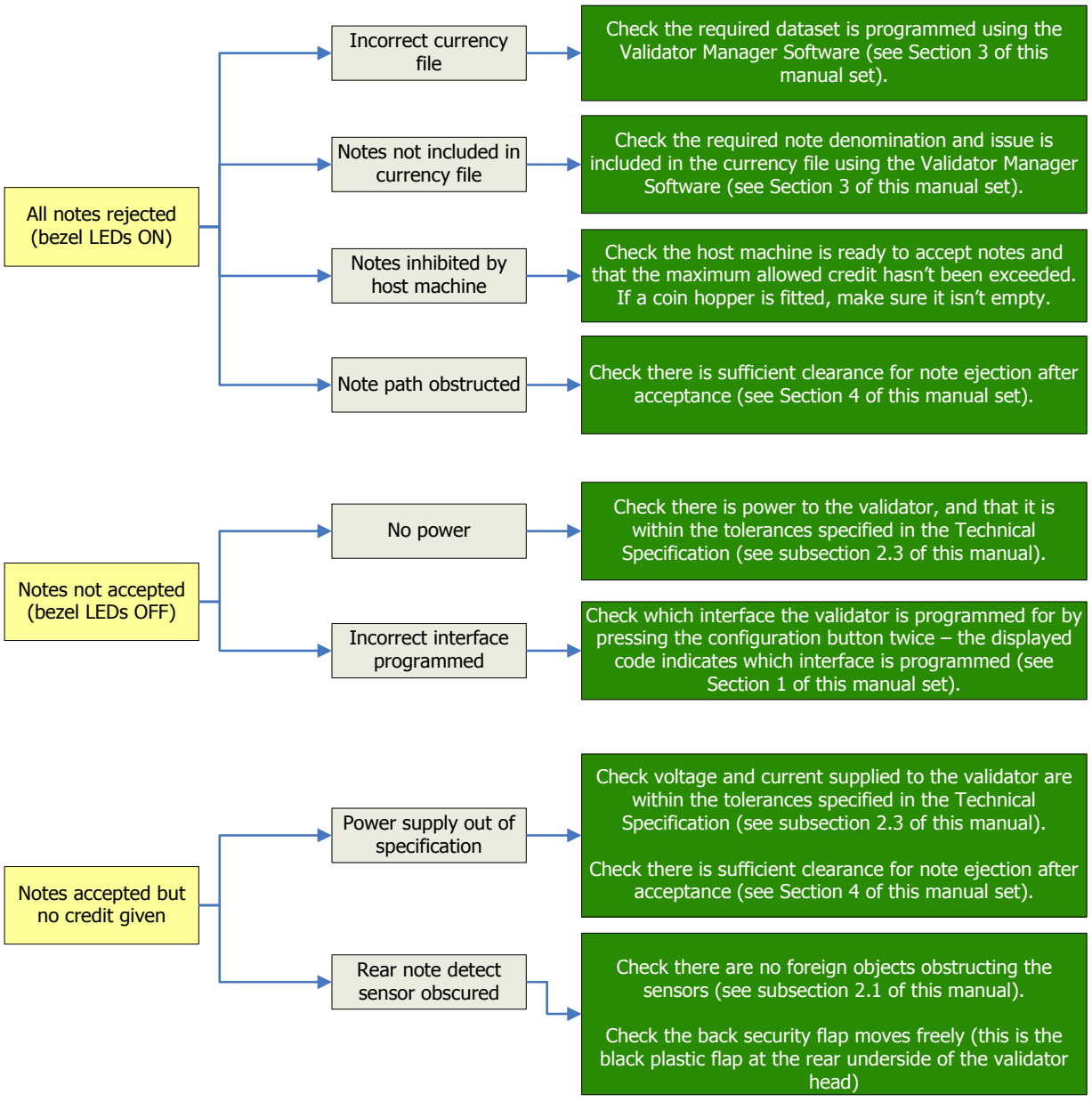
Ensure that the supply voltage to the NV11 is not lower than 10.8 V and that the power supply can provide sufficient current to avoid incorrect operation and excessive note rejects.

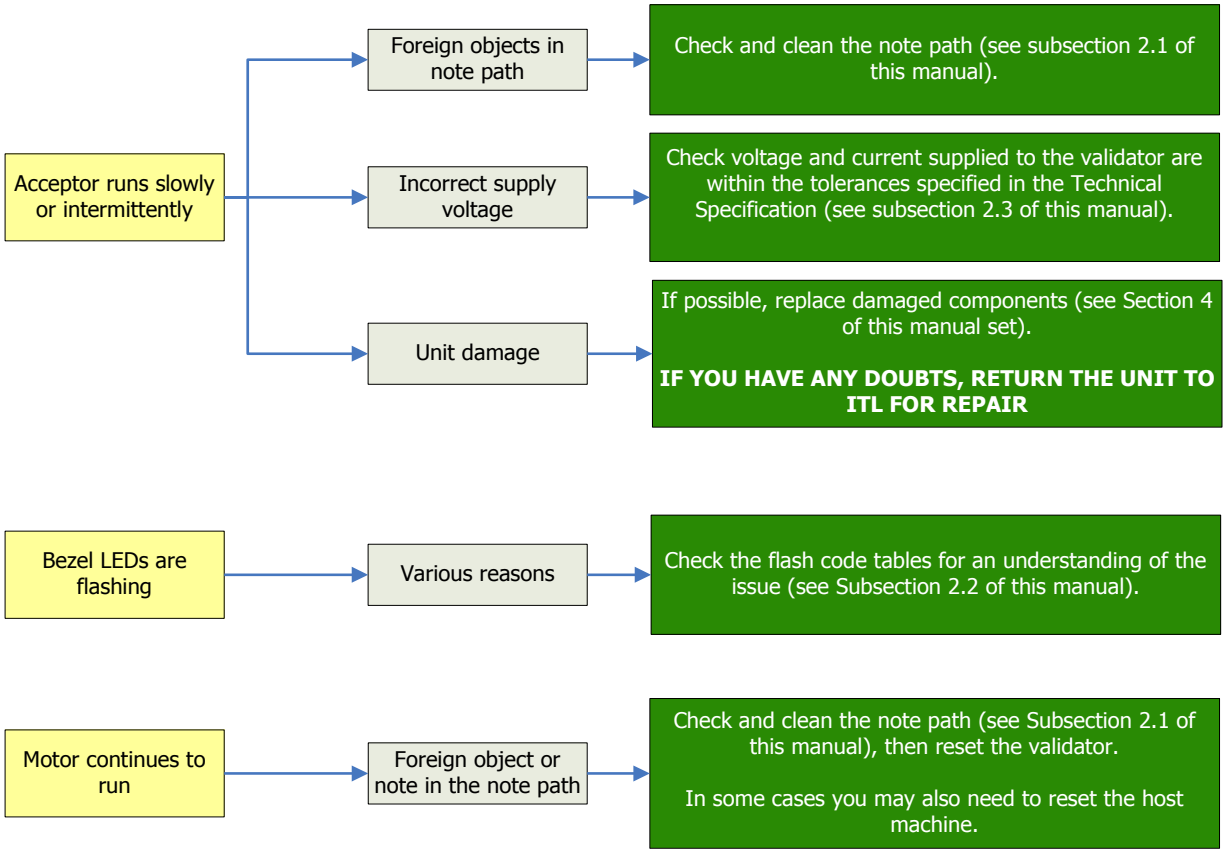
We recommend that your power supply is capable of supplying 12V DC at 4 A.

- For 12V operation, use TDK Lambda model SWS50-12. This power supply is available from a variety of suppliers including Farnell (stock code 1184645) and RS (stock code 466-5869).

2.4 Fault Finding Flow Chart

Please use this flow chart with the Flash Codes in subsection 2.2 as an aid to help resolve any configuration or start up problems you might have after installing the NV11 validator





If you are unsure about the cause or how to resolve the problem, please contact ITL's technical support department. Support contact details can be found on the ITL website (www.innovative-technology.co.uk), or on the last page of this section.

2.5 Frequently Asked Questions

a. Why are there no DIP switches on the unit?

- The NV11 has no dipswitches. Configuring the unit is carried out using a configuration button mounted on the front of the Note Float module – see Section 1, subsection 1.5 of this manual set for more information.

b. In what orientation can I use the NV11 validator?

- The NV11 can only be mounted horizontally - see Section 1, subsection 1.1 of this manual for more information on mounting the validator. Please check the ITL website to see the currently available range of cashboxes and bezels.

c. Some or all notes are not accepted

- Check that no inhibits are set in the Validator Manager software (see Section 3 of this manual set). If the problem persists, contact ITL Support for further assistance.

d. How do I clean the validator?

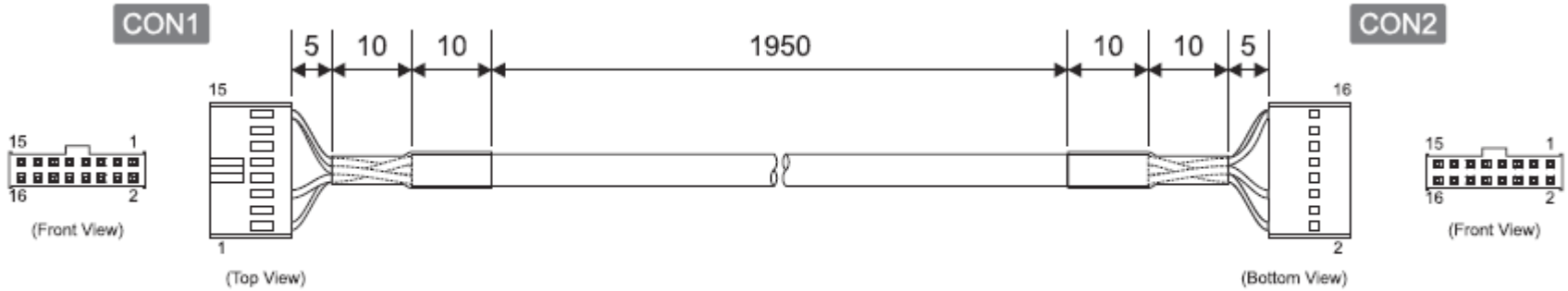
- Follow the instructions given in subsection 2.1 of this manual.

2.6 Spare Parts

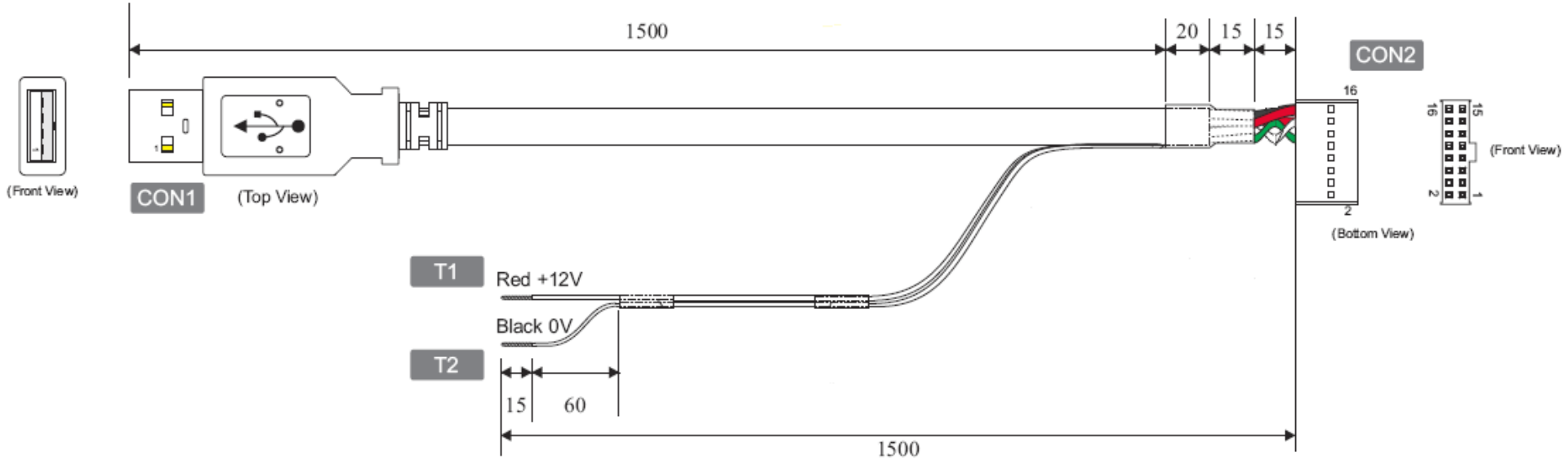
Full details of the interface cable connector pinouts, connector types / makes and other related information can be found in Section 4 of this manual set. The user can obtain the following parts for the NV11 validator:

ITL Part Number	Description	Details
CN00215	Ribbon interface cable	Provides connection between DA2 and NV11

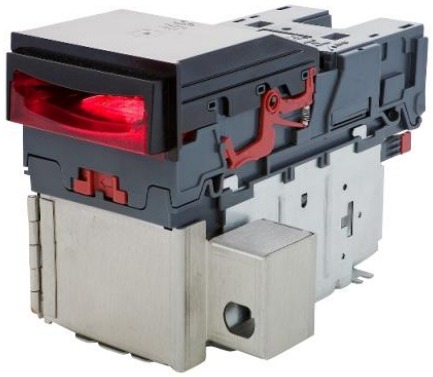
ITL Part Number	Description	Details
CN00292	Interface cable	Provides connection between DA2 and NV11



ITL Part Number	Description	Details
CN00392	Power and USB Communication Cable	USB 2.0 Compliant Type A to 16 way header cable



Bezels		
ITL Part Number	**Description**	
PA00189	Horizontal Bezel Assembly	
PA00268	69mm Fixed Width Horizontal Bezel	No image available
PA00896	Horizontal Bezel Assembly	

Cashboxes		
PA00186	Locking Cashbox Assembly (300L)	
PA00192	Slide-on Cashbox Assembly (300S)	
PA00898	Standard Cashbox Assembly	

Information

Check website for options.

There are many variants of bezel and cashbox type available for the NV11 validator. Please check the ITL website (www.innovative-technology.co.uk) for up to date information on the options available.

Drive Belts		
FD00106	NV9USB Red Drive Belt