



Preventative Maintenance NMD50 & NMD100

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¹ Based on NMD100 specification average monthly transactions as per below figure.

² This is subject to transaction rate, note quality, operational environment, and level of service, etc.

³ Based on four denominations.

Document Updates

November 19, 2014 Original

Introduction

The performance of regular maintenance on the NMD dispenser is essential in order to achieve optimal efficiency with minimal down time. Please ensure the completion of all maintenance tasks recommended within this document and update the service records as necessary (See Section 8).

Where possible, maintenance periods break down into monthly, bi-annual, and annual periods. Please adjust maintenance schedules according to local environmental conditions of the installation. For example, constant processing of very dirty currency requires more frequent cleaning of the mechanism.

Normal precautions concerning the handling of electronic components are applicable to minimise the risk of damage to these devices by static electrical discharge. Avoid contact with the device pins and ensure that the pins are strapped together with conductive tape or placed on a suitably earthed metal plate when removing them from a PCB, thus ensuring that all pins remain at the same potential.

Dust and Dirt Removal

In dusty environments there is a risk that contamination will build up in the mechanism this in combination with dust and ink from notes may degrade performance of the NMD.

We recommend that you check and clean the machine according to this document at every service visit.

Required Equipment/Tools:

- Water or cleaning fluid (isopropyl-alcohol)
- Pure compressed air i.e. no added fluid or gas that might leave residue or affect mechanism
- A clean soft brush
- A soft clean cloth
- Empty Note Cassette
- Standard engineering service tools
- NMD test program
- ESD wristband—Mandatory when conducting any type of repair or work to the dispenser
- Test notes

IMPORTANT

Be careful not to spread the dust in the machine when using compressed air, brush, or cloth. Do not use lubricants except when the service manual or a technical bulletin states otherwise.

Quick Check and Clean

During Service Call or every 62,500 notes fed

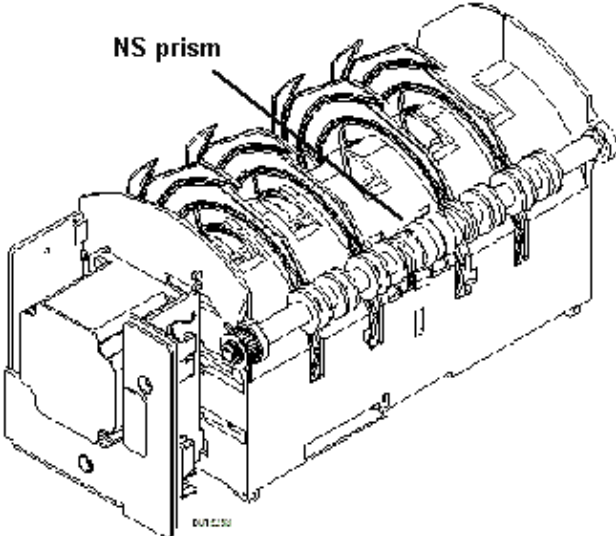
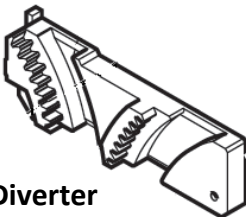
Routines	Module	Action	Time (minutes)
CC1	NC301	The cassette should be cleaned if dusty.	2
CC2	NC301	Inspect the gear quadrant for any obvious damage. If needed, please repair or replace the module.	2
CC3	NC301	Inspect the shutter package/locking plate for any obvious damage or skew. If needed, please repair or replace the module.	2
CC4	NC301	Inspect the clutch/clutch spring for damage and proper functionality. If needed, please repair or replace the module.	2
CC5	RV301	Inspect the shutter for any obvious damage. If needed, please repair or replace the module.	2
CC6	Machine	Inspect the remaining parts with the machine and clear any dust using a brush and soft cloth.	3
		Total:	13

For every 225,000 notes fed

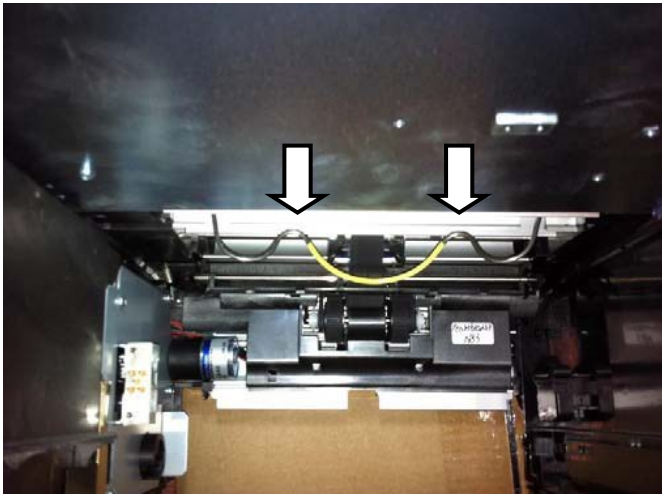
Perform this check and clean (CC7—CC19) in conjunction with the previous one (CC1—CC6).

Routines	Module	Action	Time (minutes)
CC7	ND200	The ND should be cleaned if dusty.	5
CC8	ND200	Inspect the diverter for any obvious damage, or note jam. Move the diverter blade by hand, it should move freely without any obstruction. If needed, please repair or replace the module.	3
CC9	NS200	Inspect the stacker wheels for any obvious damage, particularly at the edge of the stacker wheels where it is important to have an even and smooth surface to be able to stack up notes correctly.	2

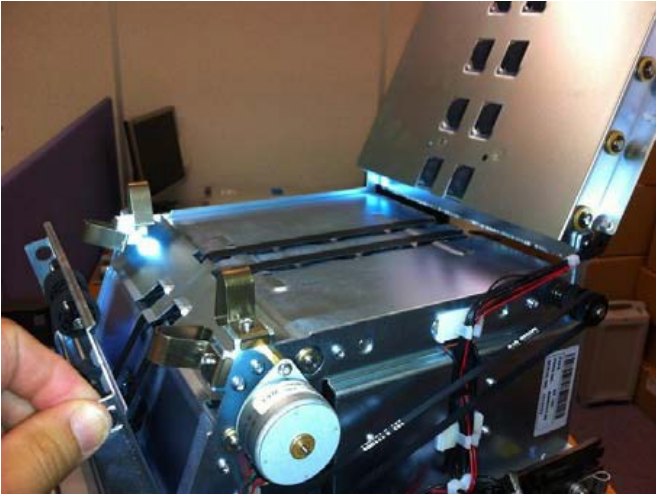
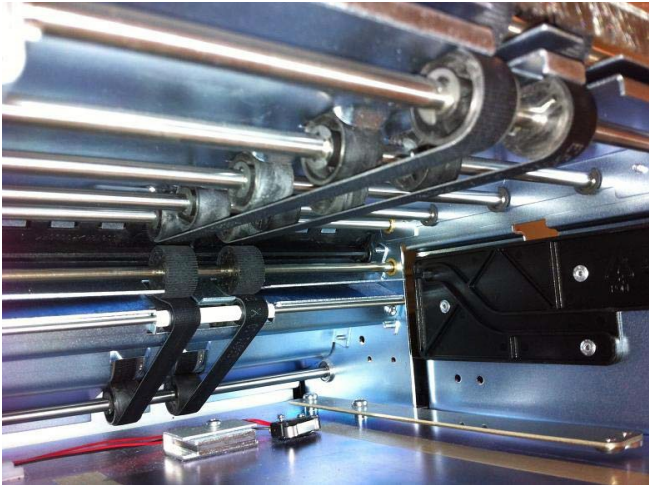
For every 225,000 notes fed (Continued...)

Routines	Module	Action	Time (minutes)
CC10	NC301	The Prism should be cleaned if dusty. The Prism is sensitive to scratches, therefore it is recommended not to touch it at all, but to gently blow away the dust. Do not use any cleaning liquids on any of the prisms. Turn the prism around, at the same time removing any dust, either by hand or by using the NMDW Test program and the command WD/217/1, which will start the transport for 20 seconds. 	10
CC11	SP200	Inspect the cog track in the stack presenter. Check that no part of the cog track is damaged or severely worn.  Particularly inspect the cog track area around the way switches/diverters.  	3

For every 225,000 notes fed (Continued...)

Routines	Module	Action	Time (minutes)
CC12	SP200	Use a brush or clean cloth to remove dust or small particles if needed.  Stack Presenter, top view w/o covers (RS configuration)	5
CC13	SP200	Inspect the PS base plate for damage. Particularly look around the area on the left hand side as indicated in the below photo. If needed, please repair or replace the module.	2
CC14	NQ200, NF200, NQ300, NF300	Dusty modules are cleaned with a brush and soft cloth. Generally inspect the module for obvious damaged parts; Open the lids for clearing note jams and ensure they can easily be opened and closed.	5
CC15	NQ200, NQ300	On the NQ, particularly check the lid underneath, and, when closing it, make sure it's properly closed on both sides. 	2

For every 225,000 notes fed (Continued...)

Routines	Module	Action	Time (minutes)
CC16	NQ200, NF200, NQ300, NF300	Inspect for dirt and dust with special attention to part in contact with bank notes. The rubber rollers and belts should be cleaned with either water or isopropyl-alcohol using a soft cotton cloth. DO NOT OVER-USE. Rollers and belts should not be soaked in liquid. Be advised that extensive cleaning also adds wear to the surface of belts and rollers and should be used sensibly.	5
CC17	NT100	Inspect the module for dust and clean with a brush and soft cloth. Open the jam clearance lids to access the top transport belts. 	3
CC18	NT100	Clean belts with water or isopropyl-alcohol. If belts are damaged or severely stretched, the module should be replaced. Inspect and clean the top transport belts accessible from opening the two top jam clearing lids, and the belts that can be reached from the inside after removing the Reject Cassette. 	5

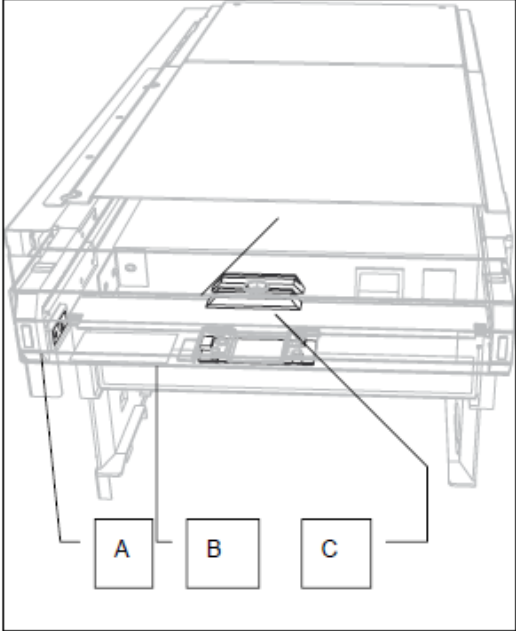
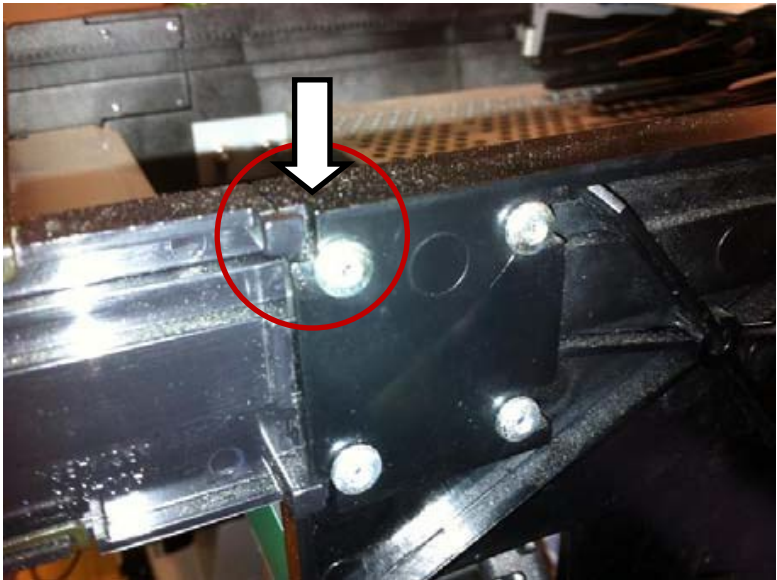
For every 225,000 notes fed (Continued...)

Routines	Module	Action	Time (minutes)
CC19	NT100	Inspect the diverter for any obvious damage, or note jam. Move the diverter blade by hand. It should move freely without any obstruction. If needed, please repair or replace the module. 	3
		Total:	51

Preventative Maintenance

Quarterly, or every 450,000 notes fed

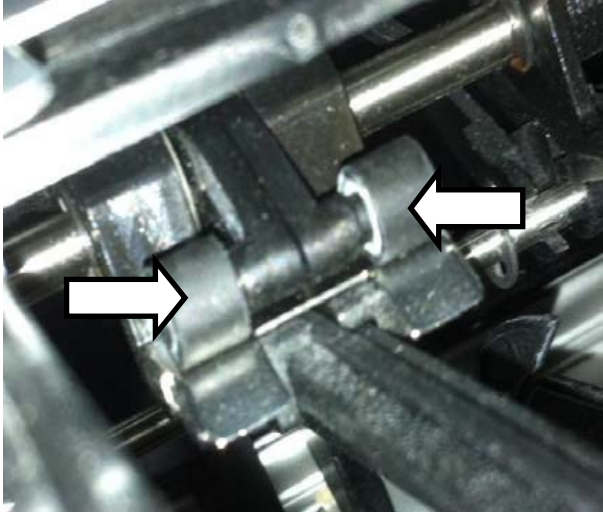
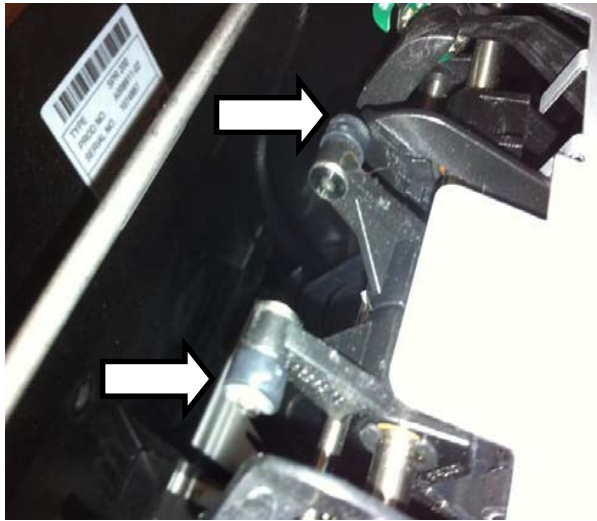
Perform this preventive maintenance in conjunction with previous check and clean.

Routines	Module	Action	Time (minutes)
PM1	BOU101	BOU hold/delivery (A), exit and empty (B) sensors: - Clean the BOU empty receiver and transmitter LED's (B) using a soft brush and cloth. - Clean the BOU prisms (C) using a soft clean cloth and also check for visible damages such as scratches or cracks.  - Check that the BOU is correctly fitted and snapped in on both sides. 	10

Preventative Maintenance *(Continued...)*

Routines	Module	Action	Time (minutes)
PM2	BCU101	Inspect the alignment of the BCU when mounted into the Stack Presenter, verify that it is correctly mounted without being skewed. This is verified by comparing the location of the left and right hand side of the BCU when placed in the same position in the stacker presenter. Please note, before the BCU can be manually moved inside the SP, the cable attached to the CMC200 board has to be disconnected to avoid a backwards current potentially damaging the CMC board. This risk is very low, but still exists nevertheless. Any misaligned BCU has to be removed from the SP unit and reinserted, at the same time verifying alignment. Either pull the BCU to the location of the SP way switches or to the output (BOU). In the below photos the BCU is pulled up from its home position to the RS way switches. Compare left and right hand side, these should be at the same level. Verify the alignment of the BCU according to above.  The photos above and to the right show a BCU at the position of the way switches, where both left and right hand sides are correctly aligned. 	10

Preventative Maintenance *(Continued...)*

Routines	Module	Action	Time (minutes)
PM3	BCU101	Check the rubber rollers/gripping fingers—verify they are in place and not missing or damaged. If needed, please repair or replace the module. 	5
PM4	BCU101	Inspect roller 7 on the rear side of the BCU. Rollers should be able to rotate freely. Also check for wear or damage, correct roller should be round. If needed, please repair or replace the module. 	5
PM5	BCU101	Use a soft cloth and a brush to clean from dust and dirt.	5
PM6	Remaining Modules	Inspect the remaining modules in the NMD. Any damages need to be addressed. Dirt and dust to be removed using either a soft cloth or brush.	10
		Total:	40

Corrective Maintenance

Only when found faulty

Complete the preventative maintenance inspections as part of corrective maintenance to reduce the potential downtime experienced by the customer.

The table below shows some examples of common faults based on customer feedback.

Routines	Module	Action (When found faulty)	Part Number
CMI	BCU101	Replace BCU flat cable	A003277—Cable BCU Motor
CM2	BCU101	Replace BCU rollers and bearings	A021910—BCU101 Gable Assy Kit Left/Right
CM3	NS200	Replace NS rollers and bearings	A021932—NS200 Stacker Wheel Assy Kit A021933—NS200 Base Assy Kit
CM4	Others	Replace transport rollers and belts	Please refer to NMD100 L2 part list

Log File

Clearing statistical counters

We recommend pulling the logs and saving the data for each machine worked on. To do this, use the NMDW test program to upload a script file to the dispenser and save the result. The script file is the 'NMD_STATS_2_0.TDL' that comes with the NMDW Test program. Before you begin, make sure logging is enabled under Setup/Options in the test program. By default, a log file labelled 'NMD.LOG' will be created. We recommend that you change the file name to the serial number of the machine, e.g. "12345.LOG".

Once the data is saved and the machine is ready for return, we recommend that the statistical counters are cleared.

Description	Command
Clear Statistics	WD/310/0
Clear the Error Log	WD/311/0
Clear the NQ Table	WD/392/0

By doing so, the trip counters are zeroed, the error log is cleared, and the NQ table is cleared, which means a new learning cycle will be triggered automatically the next time the machine is used. The latter is good, as a new self-learning cycle on the intended media means risk of a slightly higher reject rate, if thought on test notes is eliminated.

Firmware Update

Our recommendation around NMD firmware is always to use the latest available version. Please note that due to compatibility, not all versions of hardware and firmware are allowed. To eliminate any doubt before any firmware update, this has to be verified by reading the release note (Technical Bulletin) for the relevant firmware.

Maintenance Log

Below is a check box of maintenance as a reference.

Maintenance	Done	Remarks
Quick Check and Clean during service Call <i>or every 62,500 notes fed (15,625 notes fed per feeder)</i>		
CC1		
CC2		
CC3		
CC4		
CC5		
Quick Check and Clean during service call <i>or every 225,000 notes fed (56,250 notes fed per feeder)</i>		
CC5		
CC6		
CC7		
CC8		
CC9		
CC10		
CC11		
CC12		
CC13		
CC14		
CC15		
CC16		
CC17		NMD050 Only
CC18		NMD050 Only
CC19		NMD050 Only
Preventative Maintenance Quarterly, or every 450,000 notes fed (112,500 notes fed per feeder)		
PM1		
PM2		
PM3		
PM4		

Maintenance Log *(Continued...)*

Maintenance	Done	Remarks
Preventative Maintenance (Continued...)		
PM4		
PM5		
PM6		
Corrective Maintenance <i>Only when found faulty</i>		
CM1		
CM2		
CM3		
CM4		
Others		
Log File		
Firmware Update		