

MAINTENANCE TECHNICAL SUPPORT CENTER
HEADQUARTERS MAINTENANCE OPERATIONS
UNITED STATES POSTAL SERVICE



Maintenance Management Order

SUBJECT: Vertical Transfer Unit (VTU) - Nerak Lift
Preventive Maintenance Procedures

DATE: March 18, 2014

NO: MMO-113-13

TO: All Sites with VTU

FILE CODE: TM2

pmur:mm13053ag

Online change adds the vendor name for the Vertical Transfer Unit being maintained.

This Maintenance Management Order (MMO) provides Preventive Maintenance Guidelines for the Nerak Vertical Transfer Unit (VTU) System. This bulletin applies to Acronym VTU, Class Code AA.

The workhours indicated in the workload estimate (Attachment 1) reflect the *maximum* annual workhours required to maintain each system. Actual workhour requirements and the frequency of tasks are dependent on run time and pieces processed. Therefore, PM workhour requirements will vary day-to-day based on site-specific machine utilization. Management may modify task frequencies to address local conditions.

The minimum maintenance skill level required to perform each task is included in the Minimum Skill Level column of each checklist. This does not preclude higher-level employees from performing any of this work.

Preventive Maintenance (PM) guidelines provide maintenance employees with the recommended task based maintenance activities. The Electronic Conditioned Based Maintenance (eCBM) is an abbreviated task list that represents a portion of the PM checklist. The complete master PM checklist must be accessible to all maintenance employees when performing PM and eCBM task based maintenance activities.

WARNING

Various products requiring Material Safety Data Sheets (MSDS) may be utilized during the performance of the procedures in this bulletin. Ensure the current MSDS for each product used is on file and available to all employees. When reordering such a product, it is suggested that current MSDS be requested. Refer to MSDS for appropriate personal protective equipment.

WARNING

The use of compressed or blown air is prohibited. An alternative cleaning method such as a HEPA filtered vacuum cleaner, a damp rag, lint-free cloth, or brush must be used in place of compressed or blown air.

WARNING

Steps contained in this bulletin may require the use of Personal Protective Equipment (PPE). Refer to the current Electrical Work Plan (EWP) MMO for appropriate PPE requirements.

For questions or comments concerning this bulletin contact the MTSC HelpDesk, either online at **MTSC>HELPDESK>Create/Update Tickets** or call (800) 366-4123.



Robert E. Albert
Manager
Maintenance Technical Support Center
HQ Maintenance Operations

- Attachments:
1. Summary of Workload Estimate for VTU
 2. VTU Master Checklist 03-VTU-AA-001-M: Weekly
 3. VTU Master Checklist 03-VTU-AA-003-M: Monthly
 4. VTU Master Checklist 03-VTU-AA-005-M: Semi-Annually

ATTACHMENT 1

SUMMARY

WORKLOAD ESTIMATE

FOR VTU SYSTEM

THIS PAGE BLANK

**SUMMARY
WORKLOAD ESTIMATE
FOR VTU**

Operation	Routine Servicing (hrs/yr)	Repair* (hrs/yr)	Routine Servicing + Repair Time (hrs/yr)	Non-productive Time** (hrs/yr)	Total Servicing Per Machine (hrs/yr)
Weekly	6.07	1.82	7.89	0.79	8.68
Monthly	11.00	3.30	14.30	1.43	15.73
Bi-Annual	0.21	0.06	0.27	0.03	0.30
Totals	17.28	5.18	22.46	2.25	24.71

NOTES:

*Repair estimates based on 30% of servicing.

**Based on 10% of total servicing and repair.

NOTE

The time shown does not allow for multiple assemblies on any equipment. Should multiple assemblies exist, the time must be modified at the local level to account for those occurrences. Other unique site conditions that require additional time are also to be addressed at the local level.

THIS PAGE BLANK

ATTACHMENT 2

VTU MASTER CHECKLIST

WEEKLY

03-VTU-AA-001-M

Time Total: 7 minutes

U.S. Postal Service		IDENTIFICATION													
Maintenance Checklist		WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
		0	3	V	T	U				A	A	0	0	1	M
Equipment Nomenclature Vertical Transfer Unit		Equipment Model Nerak						Bulletin Filename mm13053ag			Occurrence Weekly				

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.

SAFETY STATEMENT	1	COMPLY WITH ALL SAFETY PRECAUTIONS. Disconnect power and apply lockouts when required by this instruction. Refer to current local lockout procedures to properly shutdown and lockout this machine. Open equipment and inspect dust conditions. Check for suspicious dust or unusual debris. If any unusual substance is found, notify supervisor prior to proceeding with any further action on the equipment. THE USE OF COMPRESSED OR BLOWN AIR IS PROHIBITED. When cleaning is required, an alternative cleaning method such as a HEPA filtered vacuum cleaner or a damp rag must be used in place of compressed or blown air. A lint-free cloth or brush may be used on optical equipment only when other cleaning methods cannot be used. Report safety deficiencies to your supervisor immediately upon detection. WARNING FOR EWP/PPE: Steps contained in this bulletin may require the use of Personal Protective Equipment (PPE). Refer to the current Electrical Work Plan (EWP) MMO for appropriate PPE requirements.	3	All			

U.S. Postal Service Maintenance Checklist		IDENTIFICATION													
		WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
		0	3	V	T	U				A	A	0	0	1	M
Equipment Nomenclature Vertical Transfer Unit		Equipment Model Nerak						Bulletin Filename mm13053ag			Occurrence Weekly				

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.

LIFTING PLATFORMS	2.	INSPECT VERTICAL LIFT UNIT PLATFORMS 1. Make sure the lifting platforms are running level, i.e. all four rubber chains are properly aligned. <p style="text-align: center;">NOTE</p> If platforms are not level, it means one or more of the rubber chains has jumped a tooth on the drive sprocket. If this happens, it must be fixed immediately. 2. Make sure the rubber chains are running true (down the center) of the pulleys and not rubbing the pulley edges or the belt guides. <p style="text-align: center;">NOTE</p> Indications of misalignment or incorrect tensioning should be fixed as soon as possible. 3. Make sure the rubber chains are tensioned correctly without excessive vibration.	2	9			
CLEAN-UP	3.	Report all deficiencies to your supervisor.	2	All			

U.S. Postal Service		IDENTIFICATION													
Maintenance Checklist		WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
		0	3	V	T	U				A	A	0	0	1	M
Equipment Nomenclature Vertical Transfer Unit		Equipment Model Nerak						Bulletin Filename mm13053ag			Occurrence Weekly				

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.

THIS PAGE BLANK

ATTACHMENT 3

VTU MASTER CHECKLIST

Monthly

03-VTU-AA-002-M

Time Total: 55 minutes

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		WORK CODE		EQUIPMENT ACRONYM				CLASS CODE		NUMBER		TYPE
		0	3	V	T	U		A	A	0	0	2
Equipment Nomenclature Vertical Transfer Unit		Equipment Model Nerak				Bulletin Filename mm13053ag				Occurrence Monthly		

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.

SAFETY STATEMENT	1	<p>COMPLY WITH ALL SAFETY PRECAUTIONS. Disconnect power and apply lockouts when required by this instruction. Refer to current local lockout procedures to properly shutdown and lockout this machine. Open equipment and inspect dust conditions. Check for suspicious dust or unusual debris. If any unusual substance is found, notify supervisor prior to proceeding with any further action on the equipment.</p> <p>THE USE OF COMPRESSED OR BLOWN AIR IS PROHIBITED. When cleaning is required, an alternative cleaning method such as a HEPA filtered vacuum cleaner or a damp rag must be used in place of compressed or blown air. A lint-free cloth or brush may be used on optical equipment only when other cleaning methods cannot be used. Report safety deficiencies to your supervisor immediately upon detection.</p> <p>WARNING FOR EWP/PPE: Steps contained in this bulletin may require the use of Personal Protective Equipment (PPE). Refer to the current Electrical Work Plan (EWP) MMO for appropriate PPE requirements.</p>	3	All			
	2.	<p>LOCKOUT POWER. Place appropriate PLC control panel "AUTO/MANUAL" switch in the "MANUAL" position. Lockout electrical power by placing the PLC disconnect lever in the "OFF" position and install a LOCKOUT/TAGOUT device.</p>	2	All			

U.S. Postal Service Maintenance Checklist		IDENTIFICATION													
		WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
		0	3	V	T	U				A	A	0	0	2	M
Equipment Nomenclature Vertical Transfer Unit		Equipment Model Nerak						Bulletin Filename mm13053ag			Occurrence Monthly				

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.

VERTICAL TRANSFER UNIT	3.	CLEAN AND INSPECT VERTICAL TRANSFER UNIT. <ol style="list-style-type: none"> Remove the lower vertical lift unit side screens and set them aside. Open in-feed access door. Starting from the top, remove foreign objects and dirt using a vacuum cleaner with extension wands, brooms, cleaning rags, or low-pressure compressed air from the traction system, platforms, screens, upper and lower photocells, and internal framework. Inspect vertical lift unit components (i.e. rubber chain, in-feed conveyor, and first section of takeaway conveyor) for damage and/or deterioration. Ensure platform rods are not bent. Ensure that the physical integrity of access barriers, door keyways, vertical lift unit feeder conveyor belt, and platform rod coating is maintained. Ensure that the rubber block chains are running true (down the center) of the pulleys, their tension is correct, and the platforms are level. <p style="text-align: center;">NOTE</p> <p>Unlevel platforms, rubber chain misalignment, or incorrect tensioning should be fixed immediately.</p> <ol style="list-style-type: none"> Ensure that the in-feed belt conveyor is running true. Track the belt if necessary. Check to ensure that the gearbox is not leaking oil. 	20	9			

U.S. Postal Service Maintenance Checklist		IDENTIFICATION													
		WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
		0	3	V	T	U				A	A	0	0	2	M
Equipment Nomenclature Vertical Transfer Unit		Equipment Model Nerak						Bulletin Filename mm13053ag			Occurrence Monthly				

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.

PHOTO SENSORS AND REFLECTORS	4.	CLEAN AND INSPECT PHOTO SENSORS, REFLECTORS, AND PROXIMITY SENSOR. NOTE A single VLU have six (6) photocell assemblies plus one proximity sensor. A double VLU has nine (9) photocell assemblies plus one proximity sensor. 1. Inspect the sensor exterior for physical damage. 2. Inspect the electrical connections for tightness. 3. Wipe the photo sensor emitter window and associated reflector or reflector tape with lens cleaner and a damp cloth to remove dust and dirt. 4. Inspect the mounting connections for tightness. If loose, align the photo sensor/reflector. 5. Reinstall the lower vertical lift unit screen access barriers or access panel door.	15	9			
	5.	RESTORE EQUIPMENT TO SERVICE. Restore electrical power by removing LOCKOUT/TAGOUT device and placing the PLC disconnect lever in the "ON" position.	2	All			
OPERATIONAL CHECK	6.	PERFORM OPERATIONAL CHECK. 1. Ensure the E-Stop on the PLC panel and the three E-Stop buttons on the VLU are pulled out. 2. Press the "Power On" push button and verify the "Power On" light comes on. 3. Place the "AUTO/MANUAL" switch to the "AUTO" position (the VLU system will run for 30 seconds). 4. Place five mail trays on the lead in Interroll conveyor to the VLU. The system will automatically induct the trays into the VLU. 5. Check for the following: a. The vertical lift unit does not vibrate excessively (excessive vibration indicates possible belt tension problems).	10	9			

U.S. Postal Service Maintenance Checklist		IDENTIFICATION													
		WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
		0	3	V	T	U				A	A	0	0	2	M
Equipment Nomenclature Vertical Transfer Unit		Equipment Model Nerak						Bulletin Filename mm13053ag			Occurrence Monthly				

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.

		b. The rubber block chains travel straight and do not jerk during operation. c. The unit does not operate with unusual noises. d. Mail trays do not jam at the vertical lift unit inlet or outlet. e. Ensure platforms are level and positioned horizontally.					
CLEAN-UP	7.	CLEAN-UP. Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to your supervisor.	3	All			

U.S. Postal Service		IDENTIFICATION													
Maintenance Checklist		WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
		0	3	V	T	U				A	A	0	0	2	M
Equipment Nomenclature Vertical Transfer Unit		Equipment Model Nerak						Bulletin Filename mm13053ag			Occurrence Monthly				

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.

THIS PAGE BLANK

ATTACHMENT 4

VTU MASTER CHECKLIST

Bi-Annual

03-VTU-AA-003-M

Time Total: 25 minutes

U.S. Postal Service Maintenance Checklist		IDENTIFICATION													
		WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
		0	3	V	T	U				A	A	0	0	3	M
Equipment Nomenclature Vertical Transfer Unit		Equipment Model Nerak						Bulletin Filename mm13053ag			Occurrence Biannual				

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.

SAFETY STATEMENT	1	COMPLY WITH ALL SAFETY PRECAUTIONS. Disconnect power and apply lockouts when required by this instruction. Refer to current local lockout procedures to properly shutdown and lockout this machine. Open equipment and inspect dust conditions. Check for suspicious dust or unusual debris. If any unusual substance is found, notify supervisor prior to proceeding with any further action on the equipment. THE USE OF COMPRESSED OR BLOWN AIR IS PROHIBITED. When cleaning is required, an alternative cleaning method such as a HEPA filtered vacuum cleaner or a damp rag must be used in place of compressed or blown air. A lint-free cloth or brush may be used on optical equipment only when other cleaning methods cannot be used. Report safety deficiencies to your supervisor immediately upon detection. WARNING FOR EWP/PPE: Steps contained in this bulletin may require the use of Personal Protective Equipment (PPE). Refer to the current Electrical Work Plan (EWP) MMO for appropriate PPE requirements.	3	All			
	2.	LOCKOUT POWER. Place appropriate PLC control panel "AUTO/MANUAL" switch in the "MANUAL" position. Lockout electrical power by placing the PLC disconnect lever in the "OFF" position and install a LOCKOUT/TAGOUT device.	2	All			

U.S. Postal Service Maintenance Checklist		IDENTIFICATION												
		WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER		TYPE
		0	3	V	T	U				A	A	0	0	3 M
Equipment Nomenclature Vertical Transfer Unit		Equipment Model Nerak						Bulletin Filename mm13053ag			Occurrence Biannual			

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.

GEAR MOTOR OIL	3.	CHANGE GEAR MOTOR OIL FOR ALL MOTORS. <div style="border: 1px solid black; padding: 5px; text-align: center;">CAUTION</div> <p>Handling of oil and waste oil should be in accordance with the MSDS (Material Safety Data Sheet) for that specific product. In addition, all local, state, and federal regulations should be observed when storing and disposing of oil and associated waste.</p> <p>Supplies Needed:</p> <ol style="list-style-type: none"> Mobil Gear 630 (mineral oil), or equivalent Mobil Glygoyle 30 (synthetic oil) , or equivalent <div style="border: 1px solid black; padding: 5px; text-align: center;">CAUTION</div> <p>Do not mix synthetic lubricant with mineral based lubricant.</p> <ol style="list-style-type: none"> Remove the top vent plug on top of the gearbox. Remove the bottom drain plug and drain the gear oil into an approved container. Replace the bottom drain plug. Remove the fill level plug. Fill gearbox to manufacturer's recommended level. Replace the fill level plug. Replace the top vent plug. 	15	7			
	4.	RESTORE EQUIPMENT TO SERVICE. Restore electrical power by removing your LOCKOUT/TAGOUT device and placing the PLC disconnect lever in the "ON" position. Place the PLC control panel "AUTO/MANUAL" switch in the "AUTO" position.	2	All			
CLEAN-UP	5.	CLEAN-UP. Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to your supervisor.	3	All			