



Maintenance Management Order

SUBJECT: PM Guidelines for Loose Mail System (LMS) 010
with Van der Graff Drives

DATE: June 6, 2008

NO: MMO-061-08

FILE CODE: J10

TO: All LMS 010 Offices

m1ot:mm07036ad

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

This Maintenance Management Order (MMO) provides Preventive Maintenance (PM) guidelines for LMS with Van der Graff drives. Class code for this system is AA.

The attached master checklist provides tasks to be performed at periodic intervals, the time required per task, and the minimum skill level for each task in the Minimum Skill Level column. This does not preclude higher level employees from performing any of this work.

The workhours represented in this MMO reflect the maximum workhours required to maintain the equipment. Post-operation mail search will be scheduled and workhours accounted for using a standing work order. Given local conditions, management may modify task frequencies.

WARNING

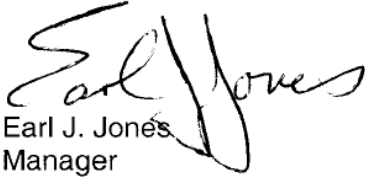
Various products requiring Material Safety Data Sheets (MSDS) may be utilized during the performance of the procedures in this bulletin. Ensure the current MSDS for each product used is on file and available to all employees. When reordering such a product, it is suggested that current MSDS be requested.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

WARNING

The use of compressed or blown air is prohibited. 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 only on optical equipment when other cleaning methods can not be used.

Maintenance Managers are to use these preventive maintenance guidelines when preparing the route sheets for local maintenance personnel. It is the responsibility of each Maintenance Manager to ensure all WARNINGS, CAUTIONS, and NOTES are included with each applicable task as part of the preparation of any local route sheets.

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



Earl J. Jones
Manager
Maintenance Technical Support Center
Maintenance Policies and Programs

Attachments:

1. Summary of Workload Estimate
2. LMS with Van der Graaf Drives Master Checklist: 03-LMS-AA-001-M: Monthly
3. LMS with Van der Graaf Drives Master Checklist: 03-LMS-AA-002-M: Quarterly
4. LMS with Van der Graaf Drives Master Checklist: 03-LMS-AA-003-M: Annual

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

ATTACHMENT 1

**SUMMARY
WORKLOAD ESTIMATE FOR
LMS WITH VAN DER GRAAF DRIVES**

# of Belt Sections	Routine Servicing (hrs/yr)	Repair* (hrs/yr)	Total Servicing & Repair Time (hrs/yr)	Non-productive Time ** (hrs/yr)	Total Servicing Per Machine (hrs/yr)
1	18.9	5.7	24.6	2.5	27.1
2	37.8	11.4	49.2	5	54.2
3	56.7	17.1	73.8	7.5	81.3
4	75.6	22.8	98.4	10	108.4
5	94.5	28.5	123	12.5	135.5
6	113.4	34.2	147.6	15	162.6
7	132.3	39.9	172.2	17.5	189.7
8	151.2	45.6	196.8	20	216.8
9	170.1	51.3	221.4	22.5	243.9
10	189.0	57	246	25	271
20	378.0	114	492	50	542
30	567.0	171	738	75	813
40	756.0	228	984	100	1084
50	945.0	285	1230	125	1355

- * Repair estimates based on 30% of servicing.
- ** Based on 10% of total servicing and repair.

TIME TOTALS

NOTE

The time shown is for an individual belt section. Total time is a multiple of the number of belt sections in the system. Other unique site conditions, that require additional time, are to be addressed at the local level.

Monthly Time Total: 1.3 Hrs. ***
Quarterly Time Total: 0.6 Hrs. ***
Annual Time Total: 0.7 Hrs. ***

*** These times are provided for data entry for the eMARS System.

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

THIS PAGE BLANK

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

ATTACHMENT 2

**LMS WITH VAN DER GRAAF DRIVES
MASTER CHECKLIST**

03-LMS-AA-001-M

MONTHLY

Time Total: 79.5 Minutes

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service Maintenance Checklist	IDENTIFICATION													
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
	0	3	L	M	S				A	A	0	0	1	M
Equipment Nomenclature LMS 010 With Van Der Graaf Drive		Equipment Model					Bulletin Filename MM07036AD			Frequency 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)	Weeks

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 shut down and lock out 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> | 3
MIN | All |
|----|--|----------|-----|

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 can not be used. Report safety deficiencies to your supervisor immediately upon detection.

WARNING

Be cautious when working around or on equipment when power has been applied.

SYSTEM

- | | | | |
|----|--|------------|---|
| 2. | <p>Check for mail. Look for stray mail while performing all activities.</p> | 2.5
MIN | 9 |
|----|--|------------|---|

CONVEYOR BELT

- | | | | |
|----|--|----------|---|
| 3. | <p>Check conveyor belt.</p> <ol style="list-style-type: none"> 1. Run conveyor belt. 2. Listen for bearing noise from head, tail, and snub rollers. 3. Listen for noise from the Van der Graaf drive for wear or damage to bearings and gears. Listen for any increase in sounds from drive. 4. Check for proper tracking and belt tensioning (slippage). | 5
MIN | 9 |
|----|--|----------|---|

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service Maintenance Checklist	IDENTIFICATION													
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
	0	3	L	M	S					A	A	0	0	1
Equipment Nomenclature LMS 010 With Van Der Graaf Drive		Equipment Model						Bulletin Filename MM07036AD			Frequency 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)	Weeks

WARNING

Damage to the battery from heating, recharging, voltage reversal, short circuits, or from mechanical abuse can damage the integrity of the casing and may result in chemical or thermal burns. Batteries should be stored in the original containers away from flammable materials in a cool and dry environment to prevent damage.

Do not incinerate or dispose of lithium batteries in the trash. They may explode or rupture violently. Follow applicable Federal, State, and local regulations for recycling and disposal of lithium batteries. State and local regulations can vary therefore consult your Environmental Compliance Specialist if you have any questions regarding proper recycling or disposal procedures.

CAUTION

Check PLC Battery Fault light to ensure it is not illuminated prior to lock out. Loss of PLC program and automated use of belting system could occur. If fault light is illuminated, replace battery prior to locking out power.

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

- | | | | |
|----------------|--|-----------|---|
| SYSTEM (Cont.) | 4. Power down and lockout power. Power down the equipment and lock out its electrical power as prescribed by the procedures contained in, or locally developed in accordance with, the current Maintenance Management Order (MMO) providing lockout/restore procedures. | 3
MIN | 9 |
| CONVEYOR | 5. Clean conveyor unit.
1. Open all access panels.
2. Visually check for damage and/or debris.
3. Using vacuum and rags, clean entire interior, exterior, and belt of the unit. | 60
MIN | 9 |

U.S. Postal Service Maintenance Checklist	IDENTIFICATION													
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
	0	3	L	M	S				A	A	0	0	1	M
Equipment Nomenclature LMS 010 With Van Der Graaf Drive		Equipment Model					Bulletin Filename MM07036AD			Frequency 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)	Weeks

4. Clean and check drive pulley lagging.
5. Clean photocells with a lint-free cloth.
6. Re-install all covers and access panels.

WARNING

Be cautious when working around or on equipment when power has been applied.

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

SYSTEM	6. Restore equipment to service. Restore equipment to service as prescribed by the procedures contained in, or locally developed in accordance with, the current Maintenance Management Order (MMO) providing lockout/restore procedures.	3 MIN	9
CLEAN UP	7. Clean up. Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to supervisor in order to initiate any necessary work orders to make necessary repairs, or to remove excessive debris.	3 MIN	All

ATTACHMENT 3

**LMS WITH VAN DER GRAAF DRIVES
MASTER CHECKLIST**

03-LMS-AA-002-M

QUARTERLY

Time Total: 34.5 Minutes

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service Maintenance Checklist	IDENTIFICATION													
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
	0	3	L	M	S				A	A	0	0	2	M
Equipment Nomenclature LMS 010 With Van Der Graaf Drive		Equipment Model					Bulletin Filename MM07036AD			Frequency QUARTERLY				

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)	Weeks

SAFETY STATEMENT

1. **COMPLY WITH ALL SAFETY PRECAUTIONS.** 3 All
MIN

Disconnect power and apply lockouts when required by this instruction. Refer to current local lockout procedures to properly shut down and lock out 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 can not be used. Report safety deficiencies to your supervisor immediately upon detection.

WARNING

Be cautious when working around or on equipment when power has been applied.

2. **Check for mail.** Look for stray mail while performing all activities. 2.5 9
MIN

WARNING

Damage to the battery from heating, recharging, voltage reversal, short circuits, or from mechanical abuse can damage the integrity of the casing and may result in chemical or thermal burns. Batteries should be stored in the original containers away from flammable materials in a cool and dry environment to prevent damage.

Do not incinerate or dispose of lithium batteries in the trash. They may explode or rupture violently. Follow

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service Maintenance Checklist	IDENTIFICATION													
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER		TYPE	
	0	3	L	M	S					A	A	0	0	2
Equipment Nomenclature LMS 010 With Van Der Graaf Drive		Equipment Model				Bulletin Filename MM07036AD				Frequency QUARTERLY				

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)	Weeks

applicable Federal, State, and local regulations for recycling and disposal of lithium batteries. State and local regulations can vary therefore consult your Environmental Compliance Specialist if you have any questions regarding proper recycling or disposal procedures.

CAUTION

Check Battery Fault light to ensure it is not illuminated prior to lock out. Loss of PLC program and automated use of belting system could occur. If fault light is illuminated, replace battery prior to locking out power.

SYSTEM

- 3. **Power down and lockout power.** Power down the equipment and lockout its electrical power as prescribed by the procedures contained in, or locally developed in accordance with, the current Maintenance Management Order (MMO) providing lockout/restore procedures. 3 9
MIN

WARNING

Discard solvent soaked materials according to local procedures to prevent spontaneous combustion.

VAN DER GRAAF DRIVE

- 4. **Check Van der Graaf drive.** 20 9
MIN
 - 1. Remove inspection covers.
 - 2. Check all mounting bolts, taper locks, and shaft set-screws on drive for tightness.
 - 3. Re-tighten hardware as needed.
 - 4. Check drive for oil leaks.

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service Maintenance Checklist	IDENTIFICATION													
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
	0	3	L	M	S					A	A	0	0	2
Equipment Nomenclature LMS 010 With Van Der Graaf Drive		Equipment Model					Bulletin Filename MM07036AD			Frequency QUARTERLY				

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)	Weeks

WARNING

Do not loosen or remove drive roller mounting side plates to access the oil fill/inspection plug. Serious injury may result from drive roller falling due to lack of support. Do not check oil level if mounting side plate removal is the only way to access the fill/inspection plug for oil level check.

5. Clean area around fill/inspection plug.
6. Check drive oil level and fill with oil (Sunoco SUNE100 or equivalent) as needed. The fill/inspection plug is on the roller end cap without electrical connections. Proper roller position for oil level check is with the inscribed arrow pointing up with the fill/inspection plug at the 4 o'clock position.
7. Look for damage to drive and roller lagging.
8. Install inspection covers.

WARNING

Be cautious when working around or on equipment when power has been applied.

- | | | | |
|----------|--|----------|-----|
| SYSTEM | 5. Restore equipment to service. Restore equipment to service as prescribed by the procedures contained in, or locally developed in accordance with, the current Maintenance Management Order (MMO) providing lockout/restore procedures. | 3
MIN | 9 |
| CLEAN UP | 6. Clean up. Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to supervisor in order to initiate any necessary work orders to make necessary repairs, or to remove excessive debris. | 3
MIN | All |

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

ATTACHMENT 4

**LMS WITH VAN DER GRAAF DRIVES
MASTER CHECKLIST**

03-LMS-AA-003-M

ANNUAL

Time Total: 39.5 Minutes

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service Maintenance Checklist	IDENTIFICATION													
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
	0	3	L	M	S				A	A	0	0	3	M
Equipment Nomenclature LMS 010 With Van Der Graaf Drive		Equipment Model					Bulletin Filename MM07036AD			Frequency ANNUAL				

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)	Weeks

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 shut down and lock out 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. 3 All
MIN

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 can not be used. Report safety deficiencies to your supervisor immediately upon detection.

WARNING

Be cautious when working around or on equipment when power has been applied.

SYSTEM

2. **Check for mail.** Look for stray mail while performing all activities. 2.5 9
MIN

WARNING

Damage to the battery from heating, recharging, voltage reversal, short circuits, or from mechanical abuse can damage the integrity of the casing and may result in chemical or thermal burns. Batteries should be stored in the original containers away from flammable materials in a cool and dry environment to prevent damage.

Do not incinerate or dispose of lithium batteries in the trash. They may explode or rupture violently. Follow applicable

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service Maintenance Checklist	IDENTIFICATION													
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
	0	3	L	M	S				A	A	0	0	3	M
Equipment Nomenclature LMS 010 With Van Der Graaf Drive		Equipment Model					Bulletin Filename MM07036AD			Frequency ANNUAL				

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)	Weeks

Federal, State, and local regulations for recycling and disposal of lithium batteries. State and local regulations can vary therefore consult your Environmental Compliance Specialist if you have any questions regarding proper recycling or disposal procedures.

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

- | | | | | |
|----------------------|----|---|-----------|---|
| MAIN CONTROL CABINET | 3. | Check PLC processor battery status. Check PLC Processor Battery Fault light. If illuminated, replace with appropriate battery suggested by manufacturer.

Allen-Bradley Processors
PLC 5 – 1770-XYC/A
SLC 500 – 1747-BA | 5
MIN | 9 |
| SYSTEM | 4. | Power down and lockout power. Power down the equipment and lock out its electrical power as prescribed by the procedures contained in, or locally developed in accordance with, the current Maintenance Management Order (MMO) providing lockout/restore procedures. | 3
MIN | 9 |
| MOTOR CONTROL PANEL | 5. | Check Motor Control Panel (MCP). Open and check cabinets as follows:

1. Check for damage to panel exterior switches and indicator lamps.

2. Check for loose components and loose connections in panels.

3. Close cabinets. | 10
MIN | 9 |
| SYSTEM | 6. | Check wiring cables. Check for damage to wiring cables between control panel and components. | 10
MIN | 9 |

WARNING

Be cautious when working around or on equipment when power has been applied.

U.S. Postal Service		IDENTIFICATION													
Maintenance Checklist		WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
		0	3	L	M	S					A	A	0	0	3
Equipment Nomenclature LMS 010 With Van Der Graaf Drive		Equipment Model						Bulletin Filename MM07036AD			Frequency ANNUAL				

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)	Weeks

- | | | | | |
|----------|----|---|----------|-----|
| SYSTEM | 7. | Restore equipment to service. Restore equipment to service as prescribed by the procedures contained in, or locally developed in accordance with, the current Maintenance Management Order (MMO) providing lockout/restore procedures. | 3
MIN | 9 |
| CLEAN UP | 8. | Clean up. Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to supervisor in order to initiate any necessary work orders to make necessary repairs, or to remove excessive debris. | 3
MIN | All |

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER