



maintenance management order

SUBJECT: PM Guidelines for Parcel Sorter (Carousel)
with Belt Drive Unit

DATE: October 30, 1998

NO: MMO-131-98

TO: Bulk Mail Centers

FILE CODE: Y

dewa:MM9584AD

Online Change Record		
Change #	Date	Description of Change
2	4/26/2022	Attachment 2, corrected skill level 4, no longer in use, to level 7.
1	2/17/2021	Attachment 2, Item 11, Added new Step 6 to replace latch pins. Attachment 2, Item 20, Added sentence to replace covers. Attachment 2, Item 21, Added new Step 5 to replace guard. Attachment 2, Item 25, Added new Step 4 to replace cover.

This Maintenance Management Order (MMO) provides Preventive Maintenance (PM) guidelines for Parcel Sorters (Carousel) that have a Belt Drive Unit.

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

WARNING

Various products which require 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 by all employees. When reordering such a product, it is suggested that a current MSDS be requested.

The attached master checklist provides tasks to be performed at periodic intervals (as noted in the frequency column), the time required per task, and the minimum skill level for each task.

The workhours represented in this MMO reflect the maximum workhours required to maintain the equipment. Given local conditions, management may modify task frequencies.

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

Rex M. Gallaher
Manager
Maintenance Technical Support Center
Maintenance Policies and Programs

- Attachments:
1. Summary of Revised Workload Estimate
 2. Parcel Sorters (Carousel) with Belt Drive Unit Master Checklist

ATTACHMENT 1**-SUMMARY-****REVISED WORKLOAD ESTIMATE****FOR****PARCEL SORTER (CAROUSEL) WITH BELT DRIVE UNIT**

Routine Servicing (hrs/yr)	Repair* (hrs/yr)	Total Servicing & Repair Time (hrs/yr)	Nonproductive Time ** (hrs/yr)	Total Servicing Per Machine (hrs/yr)
44.6	13.3	58.0	5.8	63.8

* Repair estimates based on 30% of servicing.

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

TIME TOTALS

<u>Weekly Time Total:</u>	0.4 Hrs. ***
<u>Monthly Time Total:</u>	0.9 Hrs. ***
<u>Quarterly Time Total:</u>	2.1 Hrs. ***
<u>Semi-Annual Time Total:</u>	1.6 Hrs. ***
<u>Annual Time Total:</u>	0.9 Hrs. ***

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 to be addressed at the local level.

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

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ATTACHMENT 2**PARCEL SORTER (CAROUSEL) WITH BELT DRIVE UNIT
MASTER CHECKLIST**

03-PSM-CA-002-M

The "Part or Component" column for each step on the Master Checklist provides a "Frequency Code" designation followed by a letter or series of letters. These letters correspond to the frequency codes as published in MS-63 and specify the frequency for which that instruction (step) must be performed. These frequency codes are in compliance with NMICS superseding route structure. The possible frequencies and their codes are given in the table below:

Table 2-1. MS-63 (NMICS) Frequency-Codes

<u>CODE</u>	<u>FREQUENCY</u>	<u>DESCRIPTION</u>
A	ANNUAL	Once every 13 APs.
B	BI-WEEKLY	Once every 2 weeks
C	BI-MONTHLY	Once every 2 APs.
D	DAILY	Once a day; 7 days a week.
E	DAILY	Once a day; 6 days a week.
F	DAILY	Once a day; 5 days a week.
G	DAILY	Once a day; 4 days a week.
H	DAILY	Once a day; 3 days a week.
J	SEMI-WEEKLY	2 days a week.
K	BI-ANNUAL	Once every 2 years.
L	TRI-ANNUAL	Once every 3 years.
M	MONTHLY	Once every AP.
N	QUAD-ANNUAL	Once every 4 years.
P	QUINT-ANNUAL	Once every 5 years.
Q	QUARTERLY	4 times every 13 APs.
S	SEMI-ANNUAL	Twice every 13 AP.
T	TOURLY	3 times a day; 7 days a week.
U	TOURLY	Twice a day; 7 days a week.
V	TOURLY	3 times a day; 6 days a week.
W	WEEKLY	Once a week.
X	TOURLY	Twice a day; 6 days a week.
Y	TOURLY	3 times a day; 5 days a week.
Z	TOURLY	Twice a day; 5 days a week.

U.S. Postal Service Maintenance Checklist	IDENTIFICATION										
	Work Code		Equipment Acronym			Class Code		Number		Type	
	0	3	P	S	M	C	A	0	0	2	M
Equipment Nomenclature PARCEL SORTER (CAROUSEL) WITH BELT DRIVE UNIT	Equipment Model			Bulletin Filename MM9584AD			Frequency ALL				

Part or Component	Item No.	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req'd	Min. Skill Level
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SAFETY STATEMENT	1.	COMPLY WITH ALL SAFETY PRECAUTIONS. - Disconnect power and activate lockouts as appropriate while working on this equipment. Where air pressure is required for cleaning, use a low air pressure (30 psi or less) air source. Eye protection (goggles or face shield) must be used when utilizing compressed air for cleaning. Check to ensure all employees are clear of the machine. Report safety deficiencies to your supervisor immediately upon detection.	3 min	All
Frequency Code: -W-M-Q-S-A-				

SYSTEM	2.	CHECK FOR MAIL. - Look for loose mail while performing these activities.	3 min	7
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Frequency Code:
-W-M-Q-S-A-

-SYSTEM	3.	START EQUIPMENT. - Start equipment and check warning indicators for proper operation.	3 min	7
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Frequency Code:
-W-----

WARNING

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

DA DRIVE	4.	SORTER REDUCER STRAINER. -Turn sorter reducer strainer handle one full turn in either direction to scrape strainer plates.	3 min/ drive	7
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Frequency Code:
-W-----

Frequency Code: -W-----	5.	CHECK REDUCER OIL PRESSURE. - Record the reducer oil pressure. If below 12 psi, report to supervisor immediately.	3 min/ drive	7
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	0	3	P	S	M	C	A	0	0	2	M
Equipment Nomenclature PARCEL SORTER (CAROUSEL) WITH BELT DRIVE UNIT		Equipment Model			Bulletin Filename MM9584AD		Frequency ALL				

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DA DRIVE Frequency Code: -----Q-S-A-	6.	CHECK MOTOR AND GEAR HOUSING. - Check motor and gear housing as follows: <ol style="list-style-type: none"> 1. Feel motor and gear housings to detect vibration from bearings or gears and to detect excessive shock or vibration transmitted from the bearings and gears. 2. Check for excessive heat by placing back of hand on motor and reducer. 	6 min/ drive	7
-Frequency Code: -----Q-S-A-	7.	CHECK MAGNETIC BRAKE. - Check magnetic brake as follows: <ol style="list-style-type: none"> 1. Observe effectiveness of magnetic brake. 2. Check braking action on motor. 3. Feel motor for vibration when brake operates. 4. Listen for noisy brake operation. 	8 min/ drive	7
-CA1 CHAIN/ CARRIAGE Frequency Code: -W-----	8.	CHECK CARRIAGES. - Check chain carriages as follows: <ol style="list-style-type: none"> 1. Observe carriages at the tray straightener for smooth operation and proper latching. 2. Clearance between tray and straightener should be 1/2". 	0.03 min/ assy	7
Frequency Code: -W-----	9.	CHECK CHAIN/CARRIAGE ASSEMBLY - Check Chain/Carriage assembly as follows: <ol style="list-style-type: none"> 1. Look for proper chain lubrication. 2. Look for cracked trays, missing bumpers, and damaged wheels. 3. Look for mail caught in chain. 	0.12 min/ assy	7

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	0	3	P	S	M	C	A	0	0	2	M
Equipment Nomenclature PARCEL SORTER (CAROUSEL) WITH BELT DRIVE UNIT	Equipment Model			Bulletin Filename MM9584AD			Frequency ALL				

Part or Component	Item No.	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req'd	Min. Skill Level
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WARNING

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|------------------------------------|-----|---|----------------------|---|
| -CA1 CHAIN/
CARRIAGE
(Cont.) | 10. | CLEAN CARRIAGE ASSEMBLY. - Clean all dirt and build-up from carriage assembly and wheels. Jog as necessary. | 1
min/
assy | 7 |
| Frequency Code:
-----Q-S-A- | | | | |
| Frequency Code:
-----Q-S-A- | 11. | CHECK CARRIAGE ASSEMBLY. - Check each carriage assembly as follows:

<ol style="list-style-type: none"> 1. Remove latch pins and lower removable track. 2. Check trays for cracks and rough edges. 3. Check all wheels and guide rollers and index plates for wear and damage. 4. Check carriage for cracks and warpage. 5. Check for damaged bumpers. 6. Replace latch pins and lower removable track. 7. Replace latch pins and lower removable track | 2
min/
assy | 7 |
| Frequency Code:
-----Q-S-A- | | | | |
| Frequency Code:
-----Q-S-A- | 12. | CHECK CHAIN. - Observe chain (one complete revolution at slow speed) around one sprocket for indications of frozen or worn rollers and missing cotter pins. | 0.04
min/
assy | 7 |
| Frequency Code:
-----Q-S-A- | | | | |
| Frequency Code:
-W----- | 13. | CHECK OILER OIL LEVEL. - Check automatic oiler level. If required, add OL-3. | 5
min | 7 |
| Frequency Code:
-----Q-S-A- | | | | |

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	0	3	P	S	M		C	A	0	0	2	M
Equipment Nomenclature PARCEL SORTER (CAROUSEL) WITH BELT DRIVE UNIT		Equipment Model				Bulletin Filename MM9584AD		Frequency ALL				

Part or Component	Item No.	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req'd	Min. Skill Level
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|--|-----|--|------------------|-----|
| SYSTEM

Frequency Code:
----M-Q-S-A- | 13. | 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 min | All |
| Frequency Code:
---M-Q-S-A- | 14. | SERVICE OIL WIPER AND DRIP PAN. - Service chain oil wipers and oil drip pan as follows: <ol style="list-style-type: none"> 1. Check chain oil wipers. 2. Drain and clean oil drip pan. | 15 min | 7 |
| Frequency Code:
-----Q-S-A- | 16. | CHECK CHAIN TENSION. - Check the sorter chain tension using the approved method. Tension chain as necessary. | 60 min | 7 |
| - DA
SORTER
DRIVE

Frequency Code:
----M-Q-S-A- | 17. | CLEAN REDUCER OIL STRAINER. - Disassemble reducer oil strainer, clean and reassemble. | 15 min/
drive | 7 |
| Frequency Code:
-----S-A- | 18. | CHECK AND CLEAN MOTOR AND REDUCER HOUSINGS. - Clean the motor and reducer housings to insure that they are free from dirt accumulation. | 30 min/
unit | 7 |
| Frequency Code:
-----A- | 19. | LUBRICATE REDUCER. - Take oil Sample for lab test. If change is indicated, drain and refill reducer to the appropriate level. (Lubricant GL-5-EP.) | 15 min/
unit | 7 |

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	0	3	P	S	M	C	A	0	0	2	M	
Equipment Nomenclature PARCEL SORTER (CAROUSEL) WITH BELT DRIVE UNIT		Equipment Model				Bulletin Filename MM9584AD			Frequency ALL			

Part or Component	Item No.	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req'd	Min. Skill Level
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Frequency Code: -----A- 20. **CHECK MOTOR BRUSHES.** - Remove cover and check brushes for wear and proper seating. Look for indications of excessive arcing. Check brush length. If less the 50% of the original length, replace the brushes. Replace cover. 15 min/ unit 7

<u>MOTOR</u>	<u>BRUSH LENGTH (NEW)</u>
25 HP	1-1/2"
30 HP	1-1/2"
40 HP	2"

-DA V-BELT SORTER DRIVE ASSY 21. **SERVICE V-BELTS.** - Service V-belts as follows: 8 min 7

1. Remove guard from V-belt drive.
2. Clean dirt or other foreign material from belts, sheaves, or other power transmission parts.
3. Look for misalignment of sheaves and for excessive wear to V-belts and sheaves.
4. Feel V-belts (or measure sag between sheaves) to determine if tension is properly adjusted.
5. Replace guard onto V-belt drive.

Frequency Code: -----A- 22. **WRENCH-TEST BOLTS.** - Wrench test mounting bolts on output coupling. 5 min/ drive 7

WARNING

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	0	3	P	S	M	C	A	0	0	2	M
Equipment Nomenclature PARCEL SORTER (CAROUSEL) WITH BELT DRIVE UNIT		Equipment Model			Bulletin Filename MM9584AD		Frequency ALL				

Part or Component	Item No.	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req'd	Min. Skill Level
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|--|-----|--|----|---|
| -Frequency Code:
-----A- | 23. | CLEAN AND LUBRICATE DRIVE SHAFT BEARING. - Clean and lubricate drive shaft bearing as follows: <ol style="list-style-type: none"> 1. Wipe clean and lubricate the drive shaft bearing with (GR-2-EP) lubricant. 2. Lube until fresh lubricant appears at relief vent. 3. Clean off excess lubricant from bearing. | 6 | 7 |
| -DA V-BELT SORTER DRIVE ASSY (Cont.)

Frequency Code:
-----S-A- | 24. | SERVICE SPROCKET TEETH. - Service sprocket teeth as follows: <ol style="list-style-type: none"> 1. Check sprocket teeth for wear. 2. Remove build-up of foreign material. 3. Check sprocket teeth mounting bolts. 4. Tighten if required. Set SAE-8 bolts and lock nuts to 15 ft/lb torque. | 12 | 7 |
| Frequency Code:
-----A- | 25. | CHECK ENCODER MODULE. - Check encoder module as follows: <ol style="list-style-type: none"> 1. Remove cover on encoder module; check for damage to belt. 2. Check top and bottom covers for wear, scuffs, gouging, strapping, cracking swells or ply separation. 3. Check for build-up of foreign material on top and bottom belt surfaces. 4. Replace cover on encoder module. | 10 | 7 |

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Part or Component	Item No.	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req'd	Min. Skill Level
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Frequency Code: -----Q-S-A- 26. **CLEAN AND LUBRICATE BEARING.** - Clean and lubricate encoder module drive shaft bearing (located on top of the main drive sprocket) as follows: 4 min 7

1. Wipe clean and lubricate bearing on the drive shaft.
2. Clean excess lubricant from bearing.

TR1 TRIPPER ASSY 27. **SERVICE TRIPPER ASSEMBLY.** - Service tripper assembly as follows: 4 min/assy 7

Frequency Code: -----Q-S-A-

1. Remove foreign material from tripper assembly, power cables, solenoids, and air hoses.
2. Check air hose connectors and look for damaged air hoses.
3. Listen for air leaks.
4. Look for damage to electrical cable, solenoid valves, and connector.
5. Check trippers for proper position.
6. Wrench test all mounting bolts. Check for excess wear.
7. Check bumpers for wear or damage. Rotate tripper roller for ease of rotation.
8. Look for damaged or worn linkage.
9. Check pivot points for ease of operation.

SA1 STRUCTURE 28. **CHECK CONDUIT AND WIRING.** - Check for damage to conduit and wiring between control panel and motor panels, limit switches, photocells, and other control devices associated with this group panel. Look for conduit being used for handhold or steps. 10 min/panel 7

Frequency Code: -----S-A-

U.S. Postal Service Maintenance Checklist	IDENTIFICATION											
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	0	3	P	S	M		C	A	0	0	2	M
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Part or Component	Item No.	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req'd	Min. Skill Level
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-SA1 STRUCTURE 29. **CLEAN AND CHECK LIMIT SWITCH.** - Clean and check limit switch as follows: 3 min/assy 7

- Frequency Code: -----Q-S-A-
1. Remove dust from housing and tripper arm of removable track switch.
 2. Look for damaged or worn linkage.
 3. Check pivot points for ease of operation.
 4. Wrench test switch mounting bolts for tightness.
 5. Look for damage to conduit and wiring.

-SA1 STRUCTURE (Cont.) 30. **CHECK STRUCTURE.** - Check structure as follows: 40 min 7

- Frequency Code: -----S-A-
1. Look for damage to supporting and structural members of equipment, misalignment at joints between equipment sections, and loose connecting bolts.
 2. Look and feel for loose anchor bolts, hanger rods, and tie rods.
 3. Look for cracked or broken welds.

Frequency Code: -----Q-S-A- 31. **CENTERING DEVICE.** Check parcel centering device for mounting and loose hardware. 10 min/assy 7

STATIC DEVICE 32. **CHECK STATIC DISCHARGE DEVICE.** - Check condition and contact of static discharge device. 5 min/assy 7

Frequency Code: -----Q-S-A-

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STABILIZER	33.	CHECK STABILIZER. - Check tray stabilization bar for secure mounting, damage, and 1/2" clearance.	15 min/assy	7
Frequency Code:				
-----Q-S-A-				

WARNING

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SYSTEM	34.	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	All
Frequency Code:				
----M-Q-S-A-				
CLEAN-UP	35.	CLEAN-UP. - Remove maintenance materials and equipment from the work area. Report all deficiencies to your supervisor. Initiate any necessary work orders to make necessary repairs.	2 min	All
Frequency Code:				
----M-Q-S-A-				
START-UP	36.	START-UP. - Perform normal start-up procedures as follows:	5 min	All
Frequency Code:				
----M-Q-S-A-				
		1. Start or preset equipment.		
		2. Check for proper operation.		
		3. Report all deficiencies to your supervisor in order to initiate any necessary work orders to make necessary repairs, or to remove excessive debris.		