



Maintenance Management Order

SUBJECT: PM Guidelines for Inline Scale

DATE: November 17, 2006

NO: MMO-122-06

TO: All Inline Scale Offices

FILE CODE: C4

dgay:mm06055ad

This Maintenance Management Order (MMO) provides Preventive Maintenance Guidelines for the Inline Scale System (SCALE_AB).

The workhours indicated in the workload estimate (Attachment 1) are based on a 16-hour operations window and 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.

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.

Maintenance Managers are to use these Preventive Maintenance guidelines when preparing the route sheets for local maintenance personnel.

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 Workload Estimate for Inline Scale System
 2. Inline Scale Daily Master Checklist 03-SCALE-AB-001-M
 3. Inline Scale Weekly Master Checklist 03-SCALE-AB-002-M
 4. Inline Scale Monthly Master Checklist 03-SCALE-AB-003-M
 5. Inline Scale Quarterly Master Checklist 03-SCALE-AB-004-M

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ATTACHMENT 1

SUMMARY

WORKLOAD ESTIMATE

FOR

INLINE SCALE SYSTEM

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**SUMMARY
WORKLOAD ESTIMATE
FOR
INLINE SCALE**

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)	Operational Maintenance + Total Servicing		
						1 Tour (hrs/yr) XX	2 Tours (hrs/yr) XX	3 Tours (hrs/yr) XX
5	91	27	118	12	130	0	0	0
6	106	32	138	14	152	0	0	0
7	121	36	157	16	173	0	0	0

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

ATTACHMENT 2

INLINE SCALE DAILY MASTER CHECKLIST

03-SCALE-AB-001-M

TIME TOTALS: 17 MINUTES

Refer to MS-246 if additional information is required.

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U.S. Postal Service Maintenance Checklist	IDENTIFICATION														
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE	
	0	3	S	C	A	L	E			A	B	0	0	1	M
Equipment Nomenclature INLINE SCALE	Equipment Model SCALE						Bulletin Filename MM06055				Frequency DAILY				

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.** 5 All
Min

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.

MAIN MACHINE

2. **POWER DOWN AND LOCKOUT POWER -** 1 All
Min
Power down the machine and lockout its electrical power as prescribed by the current local lockout instructions providing lockout/restore procedures.
3. **CLEAN THE 2 SCANNER WINDOWS -** 1 6
Min
Spray a lint free cloth with glass cleaner and gently wipe the scanner window.

CONVEYORS

4. **CLEANING AND MAIL SEARCH -** 3 6
Min
1. Vacuum each module of the Inline Scale.
2. Complete a mail search and return any found mail to the appropriate mail stream.

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	0	3	S	C	A	L	E				A	B	0	0	1	M
Equipment Nomenclature INLINE SCALE	Equipment Model SCALE						Bulletin Filename MM06055				Frequency DAILY					

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
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MAIN MACHINE

WARNING

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

- | | | | |
|----|---|----------|-----|
| 5. | RESTORE EQUIPMENT TO SERVICE –
Restore equipment to service as prescribed by current local procedure providing lockout/restore procedures. | 2
Min | 6 |
| 6. | START SYSTEM AND VERIFY OPERATION-
1. Press the green START button and listen for unusual conveyor noise or vibration.
2. Verify startup warning lamps and horns are working properly.
3. Run a few trays or tubs of mail to verify correct system operation. | 2
Min | 6 |
| 7. | CLEAN-UP -
Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to your supervisor. | 3
Min | All |

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U.S. Postal Service		IDENTIFICATION													
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Equipment Nomenclature INLINE SCALE		Equipment Model SCALE						Bulletin Filename MM06055			Frequency DAILY				

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ATTACHMENT 3

INLINE SCALE WEEKLY MASTER CHECKLIST

03-SCALE-AB-002-M

TIME TOTALS: 13 minutes

Refer to MS-246 if additional information is required.

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U.S. Postal Service Maintenance Checklist	IDENTIFICATION															
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE		
	0	3	S	C	A	L	E			A	B	0	0	2	M	
Equipment Nomenclature INLINE SCALE	Equipment Model SCALE						Bulletin Filename MM06055				Frequency 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)	Weeks

SAFETY STATEMENT

1. **COMPLY WITH ALL SAFETY PRECAUTIONS -** 5 All Min

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

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

MAIN MACHINE

2. **START SYSTEM AND VERIFY E-STOPS -** 1 6 Min
1. Press the green START button and listen for unusual conveyor noise or vibration.
 2. Verify startup warning lamps and horns are working properly.
 3. While the trays are processing stop the system by pressing the E-Stop on the main control panel.
 4. Verify the red stack lamp on top of the main control panel illuminates.
 5. Verify E-Stop message displays on LCD monitor and system immediately stops.
 6. Press the green START button and verify the machine does not start.
 7. Reset the E-Stop switch.

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U.S. Postal Service Maintenance Checklist	IDENTIFICATION															
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE		
	0	3	S	C	A	L	E				A	B	0	0	2	M
Equipment Nomenclature INLINE SCALE		Equipment Model SCALE						Bulletin Filename MM06055				Frequency WEEKLY				

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
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MAINTENANCE MANAGEMENT ORDER

- MAIN MACHINE
3.

REPEAT STEP 2 -
Repeat Step 2 for the two E-Stops located above the right angle transfer.

2
Min

6
4.

VERIFY SYSTEM OPERATION -
Verify system operation by running a few trays or tubs of mail.

2
Min

6
5.

CLEAN-UP. -
Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to your supervisor.

3
Min

All

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service		IDENTIFICATION													
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Equipment Nomenclature INLINE SCALE		Equipment Model SCALE						Bulletin Filename MM06055			Frequency WEEKLY				

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
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ATTACHMENT 4

INLINE SCALE MONTHLY MASTER CHECKLIST

03-SCALE-AB-003-M

TIME TOTAL: 23 MINUTES

Refer to MS-246 if additional information is required.

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U.S. Postal Service Maintenance Checklist	IDENTIFICATION															
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE		
	0	3	S	C	A	L	E			A	B	0	0	3	M	
Equipment Nomenclature INLINE SCALE	Equipment Model SCALE						Bulletin Filename MM06055				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

- COMPLY WITH ALL SAFETY PRECAUTIONS -** 5 All
Min
 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.

MAIN MACHINE

- POWER DOWN AND LOCKOUT POWER -** 1 All
Min
 Power down the machine and lock out its electrical power source as prescribed by the current local lockout/restore procedures.

CONVEYORS

- CLEAN ROLLER AND O-RINGS -** 5 6
Min
 Moisten a lint free cloth with an appropriate cleaning solution and clean the conveyor O-rings and rollers.
- PERFORM VISUAL CHECK -** 3 8
Min
 1. Visually check all rollers, belts and photo sensors for worn or defective parts.
 2. Verify master link is properly fastened on V-belts.
- CLEAN PHOTO SENSORS / REFLECTORS -** 2 6
Min
 1. Use a clean lint free cloth and wipe each photo-sensor and reflector.
 2. Clean V1 Photo-sensor and reflector in the Metering Zone.
 3. Clean V2 Photo-sensor and reflector in the Scanning zone.
 4. Clean V3 Photo-sensor and reflector in the Scale zone.

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	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE		
	0	3	S	C	A	L	E				A	B	0	0	3	M
Equipment Nomenclature INLINE SCALE	Equipment Model SCALE						Bulletin Filename MM06055				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		
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5. Clean V8 Photo-sensor and reflector in the Scale zone.
6. Clean V9 Photo-sensor and reflector in the Scale zone.
7. Clean V4 Photo-sensor and reflector in the Output zone.
8. Clean V7 Photo-sensor located in the Reject lane.

MAIN MACHINE

WARNING

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

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|----|--|----------|-----|
| 6. | RESTORE EQUIPMENT TO SERVICE -
Restore equipment to service as prescribed by current local procedure providing lockout/restore procedures. | 2
Min | 6 |
| 7. | START SYSTEM AND VERIFY OPERATION -
1. Press the green START button and listen for unusual conveyor noise or vibration.
2. Verify startup warning lamps and horns are working properly.
3. Run a few trays or tubs of mail to verify correct system operation. | 2
Min | 6 |
| 8. | CLEAN-UP -
Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to your supervisor. | 3
Min | All |

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ATTACHMENT 5

INLINE SCALE QUARTERLY MASTER CHECKLIST

03-SCALE-AB-004-M

TIME TOTAL: 28 MINUTES

Refer to MS-246 if additional information is required.

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U.S. Postal Service Maintenance Checklist	IDENTIFICATION														
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE	
	0	3	S	C	A	L	E				A	B	0	0	4
Equipment Nomenclature INLINE SCALE		Equipment Model SCALE						Bulletin Filename MM06055				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 -** 5 All Min

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SCALE

2. **CALIBRATE SCALE -** 1 8 Min
- Press an E-Stop on Inline Scale so the conveyors will not start.
 - Zero the scale by pressing <zero> key on scale controller.
 - Place a 25 pound test weight in the center of the scale conveyor deck.
 - Verify scale display reads 25 +/- 0.1 pounds.
 - Remove the weight and reset the E-Stop.

MAIN MACHINE

WARNING

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

3. **MEASURE VOLTAGE -** 2 8 Min
- Open Main Control Panel. Use caution while working inside Main Control Panel with power applied.
- Using a DVM, measure the output of the 5 volt DC power supply at terminals TB15 (+) and TB17 (-). The power supply should measure 5.18 +/- 0.1.

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	0	3	S	C	A	L	E				A	B	0	0	4
Equipment Nomenclature INLINE SCALE		Equipment Model SCALE						Bulletin Filename MM06055				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		
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CONVEYORS

2. Measure the output of the 24 volt DC power supply between terminals TB10 (+) and TB12 (-). The 24 volt power supply should measure 24.0 +/- 0.5.
3. Close the Main Control Panel.
4. **MEASURE ROLLER AND BELT SPEED -** 15 8
Min
 1. Lock out the input conveyor to the In-Line Scale so no mail trays or tubs will enter the system.
 2. Insert the USB mouse into J7 USB port on the side of the Main Control Panel. Wait 10 seconds.
 3. Click the diagnostic button to display the diagnostic screen.
 4. Find the Zone Motors section of the diagnostic display and click the ON button next to the zone to start the conveyors in the zone to be measured.
 5. Turn on the tachometer.
 6. Measure roller speed by placing the tachometer wheel firmly against the roller near the center of the conveyor zone to be measured. All Zones have a Plus/Minus 5 FPM tolerance.
 7. Compare measured speed to the following:
 - METERING ZONE 160 FPM
 - SCANNER ZONE 160 FPM
 - SCALE ZONE 180 FPM
 - OUTPUT ZONE 150 FPM.
 8. Click the OFF button next to the zone measured to turn off the conveyor.
 9. Repeat steps 6 through 10 for each conveyor zone.
 10. Under the Diverter section turn on Motor 1 by clicking the ON button next to Motor 1.
 11. Measure belt speed by placing the tachometer wheel firmly against one of the center diverter belts for motor 1.
 12. The diverter belt speed should be: 160 FPM +/- 5 FPM.
 13. Turn off diverter motors 1 by clicking the OFF button next to Motor 1
 14. Under the Diverter section turn on Motor 2 by clicking the ON button next to Motor 2.

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	0	3	S	C	A	L	E					A	B	0	0	4	M	
Equipment Nomenclature INLINE SCALE		Equipment Model SCALE								Bulletin Filename MM06055				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		
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|--------------|----|---|-----|-----|
| | | 15. Measure belt speed by placing the tachometer wheel firmly against one of the outer diverter belts for motor 2. | | |
| | | 16. The diverter belt speed should be: 160 FPM +/- 5 FPM. | | |
| | | 17. Turn off diverter motor 2 by clicking the OFF button next to Motor 2. | | |
| | | 18. Turn Main Disconnect Switch to OFF position. | | |
| | | 19. Remove the USB mouse from J7. | | |
| | | 20. Turn Main Disconnect Switch to ON. | | |
| MAIN MACHINE | 6. | START SYSTEM AND VERIFY OPERATION- | 2 | 6 |
| | | 1. Press the green START button and listen for unusual conveyor noise or vibration. | Min | |
| | | 2. Verify start up warning lamps and horns are working properly. | | |
| | | 3. Run a few trays or tubs of mail to verify correct system operation. | | |
| | 7. | CLEAN-UP - | 3 | All |
| | | Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to your supervisor. | Min | |