



Maintenance Management Order

SUBJECT: Preventive and Operational Maintenance Guidelines
for Automated Flat Sorter Machine 100 (AFSM100)
with and without ATHS

DATE: May 19, 2008

NO: MMO-048-08

TO: All AFSM100 Offices

FILE CODE: H8A, H8B

cdav:mm06160ag

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

This MMO contains changes from MMO-057-10.

This Maintenance Management Order (MMO) provides Preventive and Operational Maintenance Guidelines for the AFSM100 and Automatic Tray Handling System (ATHS) as applicable. This MMO supersedes MMO-062-06.

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

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

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.

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.

Direct any questions or comments concerning this bulletin to the HelpDesk, Maintenance Technical Support Center, P.O. Box 1600, Norman OK 73070-1600; telephone FTS 2000 (405) 573-2123 or toll free (800) 366-4123.



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

MAINTENANCE MANAGEMENT ORDER

- Attachments:
1. Summary of Workload Estimate for AFSM100 with and without ATHS
 2. AFSM100 with and without ATHS Master Checklist: 03-AFSM-**-001-M: Daily
 3. AFSM100 with and without ATHS Master Checklist: 03-AFSM-**-002-M: Weekly
 4. AFSM100 with and without ATHS Master Checklist: 03-AFSM-**-003-M: Monthly
 5. AFSM100 with and without ATHS Master Checklist: 03-AFSM-**-004-M: Quarterly
 6. AFSM100 with and without ATHS Master Checklist: 03-AFSM-**-005-M: Semi-Annual
 7. AFSM100 with and without ATHS Master Checklist: 09-AFSM-**-001-M: Operational Maintenance
 8. AFSM100 with and without ATHS Master Checklist: 09-AFSM-**-002-M: Operational Maintenance (Prior to PM)

MAINTENANCE MANAGEMENT ORDER

ATTACHMENT 1

**SUMMARY OF
WORKLOAD ESTIMATE
FOR
AFSM 100
WITH AND WITHOUT ATHS**

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**SUMMARY OF
WORKLOAD ESTIMATE
FOR AFSM100 WITH AND WITHOUT ATHS**

System Configuration	Operation	Routine Servicing Per Machine (hrs/yr)	Repair Time* Per Machine (hrs/yr)	Total Servicing Time Per Machine (hrs/yr)	Operational Maintenance Time Per Machine (hrs/yr)	Non-Productive Time ** Per Machine (hrs/yr)	Total Time Per Machine (hrs/yr)
Non-ATHS 1 Tour	5 day	1090	327	1417	230	71	1718
Non-ATHS 2 Tour	5 day	1090	327	1417	373	71	1861
Non-ATHS 3 Tour	5 day	1090	327	1417	373	71	1861
Non-ATHS 1 Tour	6 day	1253	376	1629	276	81	1986
Non-ATHS 2 Tour	6 day	1253	376	1629	447	81	2158
Non-ATHS 3 Tour	6 day	1253	376	1629	447	81	2158
Non-ATHS 1 Tour	7 day	1416	425	1841	322	92	2255
Non-ATHS 2 Tour	7 day	1416	425	1841	522	92	2455
Non-ATHS 3 Tour	7 day	1416	425	1841	522	92	2455
With ATHS 1 Tour	5 day	1324	397	1721	238	86	2046
With ATHS 2 Tour	5 day	1324	397	1721	390	86	2197
With ATHS 3 Tour	5 day	1324	397	1721	390	86	2197
With ATHS 1 Tour	6 day	1530	459	1989	286	99	2375
With ATHS 2 Tour	6 day	1530	459	1989	468	99	2557
With ATHS 3 Tour	6 day	1530	459	1989	468	99	2557
With ATHS 1 Tour	7 day	1737	521	2258	334	113	2704
With ATHS 2 Tour	7 day	1737	521	2258	546	113	2916
With ATHS 3 Tour	7 day	1737	521	2258	546	113	2916

*Repair Time is 30% of machine Routine Servicing time. The repair time shown above is the minimum time allotted per site.

**Non-Productive Time is 5% of Total Service Time.

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ATTACHMENT 2

AFSM100 WITH AND WITHOUT ATHS MASTER CHECKLIST

03-AFSM-**-001-M

DAILY

Time Total: 188 Minutes Non-ATHS Machines

Time Total: 238 Minutes ATHS Machines

** = Class Codes AB, AC, AD, AE

IFS refers to infeed station.

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U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	1
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG			Frequency DAILY			

** Class Codes AB, AC, AD, AE

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

- 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.**

5 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, a damp cloth, lint-free cloth, or brush, must be used in place of compressed or blown air. Report safety deficiencies to your supervisor immediately upon detection.

MAIN MACHINE

- Perform system shutdown.** Shut down system computers in proper sequence and observe that all system computers shut down in an orderly manner. While performing system shutdown, observe Supervisor Station Uninterruptible Power Supply (UPS) for correct operation.

5 MIN 9

- Lock out power.** Power down the machine and lock out electrical power and compressed air as prescribed by the current local lockout instructions providing lockout/restore procedures.

1 MIN All

- Mail search sort modules/drive module.**

10 MIN 7

- Perform mail search of sort modules beginning at bin 1, working toward the drive module.
- Observe bucket assemblies, indicator lenses, E-Stop switches, mail damper strips, and tub present switch assemblies for visible damage or breakage.
- Remove any debris found on conveyor and/or conveyor photocells.
- Search for mail in mail chutes and on expanded metal guards under drive module at entrance to maintenance alley.
- Continue on left side of machine towards level

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change module ending at bin 120. During mail search, observe bucket assemblies, indicator lenses, E-Stop switches, mail damper strips, and tub present switch assemblies for visible damage or breakage.

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5. **Mail search level change, infeed stations, & tension module.** 6 7
MIN

1. Perform mail search beginning on the left side of the level change module next to bin 120 and work around the infeed station end.
2. Open all hinged covers and doors on each infeed module, perform mail search, and leave covers open.
3. Continue to the right (other) side of level change module by bin 1.
4. Check for mail on perforated screens on both sides of the level change module.

INFEED STATIONS

6. **Remove dust and debris.** Vacuum and clean any accumulation of dust or debris from the mail transport. 5 7
MIN PER IFS

Clean photosensors. Using a micro fiber glove or soft lint free rag, clean all photosensor emitters and reflectors.

7. **Check condition and wear of infeed stations.** 10 9
MIN PER IFS

1. Check feeder paddle mechanical condition for general wear and damage.
2. Check anti-doubler assembly for binding, dragging, and general alignment and mechanical condition.
3. Check all presser arm assemblies for general alignment and mechanical condition.
4. Check all belts for fraying, damage, and wear.
5. Check all pulleys and rollers for damage and wear.
6. Check all photosensors, emitters, and reflectors for loose retaining hardware and bent and/or broken brackets.
7. Check all shock dampers for oil leakage and proper mechanical condition and operation.
8. Check for broken springs and worn hardware.

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- | | | | | |
|----------|-----|---|------------------------|---|
| | 9. | Check injector hardware, gantry, injector solenoids, springs, wheels, and rollers for general wear and mechanical condition. | | |
| | 10. | Check hinged covers while open, for damaged or leaking pneumatic cylinders. Replace worn or damaged pneumatic cylinders as necessary. | | |
| | 11. | Check all clutch/brake sensors for damage or missing components. | | |
| | 8. | Clean destacker module. On each infeed station, brush and vacuum the destacker low vacuum chamber exterior filter screen, and remove and clean the interior filter screen. Remove canister filter and clean by vacuuming. Replace canister filter when impacted dirt and debris can not be removed by vacuuming. | 4
MIN
PER
IFS | 7 |
| OCR/FICS | 9. | Clean OCR/FICS module. | 6
MIN
PER
IFS | 7 |

WARNING

Before performing any actions on OCR camera area, allow sufficient time for components to cool.

1. Using a micro fiber glove or clean cloth, wipe down each OCR camera and mounting plate.
2. Remove any accumulation of dust or debris from aperture plate and surrounding area.
3. Remove and clean AV1222 camera filters. Replace filter when impacted dirt and debris can not be removed by vacuuming.
4. Remove and clean FARC computer filter. Replace filter when impacted dirt and debris can not be removed by vacuuming.
5. Remove and clean CoBCR filters. Replace filter when impacted dirt and debris can not be removed by vacuuming.
6. Clean filter on Bell and Howell labeler. Replace filter when impacted dirt and debris can not be removed by vacuuming.
7. Using micro fiber glove, clean verifier lens.

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		0	3	A	F	S	M	*	*	0	0	1	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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	10.	Clean and check labeler.	2	9
		1. Clean Bell and Howell labeler cutting blades with silicone oil.	MIN	
		2. Check ink jet printer ink and make up ink. Replace as necessary.	PER	
			IFS	
INK JET PRINTER	11.	Clean and check IJP. Clean and check print head, sleeve, and back plate.	10	9
			MIN	
			PER	
			IFS	
LEVEL CHANGE MODULE	12.	Clean and check level change module.	2	7
		1. Check door closer wheel for damage.	MIN	
		2. Clean photocell array with micro fiber glove or cloth.	ATHS	
		3. Vacuum and clean label printer. Non-ATHS machines only.	MACH	
		4. Clean label printer print head using Q-tip lightly dampened with isopropyl alcohol or use thermal printer cleaning kit identified in MMO-004-03. Non-ATHS machines only.	4	
			MIN	
			NON-	
			ATHS	
			MACH	
SAR CABINET	13.	Vacuum and check Secondary Address Reader (SAR) cabinet. SAR cabinet air filter located in a slide tray under the cabinet. Replace when impacted dirt and debris can not be removed by vacuuming.	1	7
			MIN	
ATHS SYSTEM	14.	Check and clean ATHS.	15	9
		1. Check accumulation conveyor belts for wear, improper tracking, and damage. Using micro fiber glove, clean all photo eyes.	MIN	
		2. Check incline conveyor belts for wear, improper tracking, and damage. Using micro fiber glove, clean all photo eyes.	EACH	
		3. Check accumulation tub destacker belts for wear or damage. Using micro fiber glove, clean all photo eyes.	SIDE	
		4. Check transfer module conveyor belts for wear, improper tracking, and damage. Using micro fiber glove, clean all photo eyes.		

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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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5. Check automatic tray destacker puller springs. Ensure they are not stretched.
6. Clean camera lens at the transfer module using micro fiber glove.
7. Clean both scanner lenses using micro fiber glove.
8. Check lift rotate assembly belts and slide assembly for wear or damage.
9. Check labeler air filter condition. Replace filter if dirty or clogged.
10. Check labeler brush for wear or damage.
11. Use micro fiber glove to clean all photo eyes between conveyor rollers.
12. Check insert extract module for missing or damaged round belts.
13. Check discharge conveyor for missing or damaged round belts.
15. **Clean the ATHS label printer.**

10	9
MIN	
EACH	
SIDE	

 1. Remove air line from printer.
 2. Confirm that no air pressure registers on pressure gauge.
 3. Open label lid.
 4. Rotate head release arm until latch releases.
 5. Unlatch label hold-down by depressing thumb latch.
 6. Remove backing paper in stock path.
 7. Release brass nip roller hold-down.
 8. Clean nip roller, label pressure rollers, actuator roller, paper end switch, and platen. Use soft, lint-free cloth Scrubs in a Bucket to remove build up of gummy adhesive residue. Dispose of cloth when it becomes soiled.
 9. Replace backing paper in stock path.
 10. Re-install air line to printer.
 11. Close and latch label hold-down and head release arm.

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** Class Codes AB, AC, AD, AE

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12. Close label lid.

MAIN MACHINE	16.	Close all doors and covers.	4	7
			MIN	

WARNING

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

17.	Return to service.	Restore power to machine as prescribed by the local lockout procedure. Observe all indicators during power up for correct operation.	12	9
			MIN	

18.	Run Daily Test Deck.		24	9
			MIN	

Alternate between the MTSC EVEN and MTSC ODD sortplans daily.

1. Set up AFSM100 to run the daily test deck using the even or odd sortplan. Put the machine in BCR/OCR mode.
2. Load each 22 piece grouping on all three infeed stations and start the run.
3. Observe pick-off and vacuum gauge during destacking. Open maintenance access door. Observe that the vacuum gauge needle does not fluctuate more than 5 units as each mailpiece is fed, and that vacuum recovers to high vacuum with each mailpiece. Close maintenance access door.
4. Perform End of Run.
5. Collect test deck from mail tubs.
6. Review FICS label placement on template pieces for proper placement and remove FICS labels (approximately 33 labels to be removed).
7. For AHS Machines, verify tray label placement and remove labels.

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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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ATHS	19.	Check labeler air pressure gauge for 45 - 50 PSI, adjust as necessary.	1 MIN EACH SIDE ATHS MACH ONLY	9
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CLEAN UP	20.	Clean up. Ensure all tools, lubricants, rags, etc., are removed from the work area. Annotate deficiencies found and repairs performed in the Maintenance logbook. Notify maintenance supervisor and/or generate work orders per local SOP to document/initiate corrective maintenance activity for deficiencies found.	5 MIN	All
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MAINTENANCE MANAGEMENT ORDER

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ATTACHMENT 3

AFSM100 WITH AND WITHOUT ATHS MASTER CHECKLIST

03-AFSM-**-002-M

WEEKLY

Time Total: 235 Minutes Non-ATHS Machines

Time Total: 255 Minutes ATHS Machines

** = Class Codes AB, AC, AD, AE

IFS refers to infeed station.

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Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	2
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency WEEKLY				

** Class Codes AB, AC, AD, AE

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.	<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> <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, a damp cloth, lint-free cloth, or brush, must be used in place of compressed or blown air. Report safety deficiencies to your supervisor immediately upon detection.</p>	5 MIN	All
	2.	<p>Perform system shutdown. Shut down system computers in proper sequence and observe that all system computers shut down in an orderly manner. While performing system shutdown, observe Supervisor Station Uninterruptible Power Supply (UPS) for correct operation.</p>	5 MIN	9
MAIN MACHINE	3.	<p>Lock out power. Power down the machine and lock out electrical power and compressed air as prescribed by the current local lockout instructions providing lockout/restore procedures.</p>	1 MIN	ALL
	4.	<p>Remove and clean filters. One filter is on each rear door, and one filter, on each computer. (MIS, USV, and RUI, [RUI is only located on one AFSM100]). Reinstall all filters. Replace filters when impacted dirt and debris can not be removed by vacuuming.</p>	5 MIN	7
SUPERVISOR WORK STATION	5.	<p>Check and clean labeler filters. Clean destacker/tilter module vacuum filters. Remove the filter element and clean using vacuum on the black high-vacuum pump, located on the lower rear of the tilter module. Replace filter when impacted dirt and debris can not be removed by vacuuming.</p>	2 MIN PER IFS	7

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		0	3	A	F	S	M	*	*	0	0	2
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG			Frequency WEEKLY			

** Class Codes AB, AC, AD, AE

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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INFEED STATION	6.	Remove, clean, and check labeler. 1. Remove and clean labeler cutting blades. 2. Check labeler wick for damage or residue. 3. Clean label application roller using Scrubs in a Bucket towelette. 4. Check labeler oil level and replenish as necessary.	10 MIN PER IFS	9
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LEVEL CHANGE MODULE	7.	Check condensate trap and filter. Check for oil and/or water presence in condensate trap. Drain if water or oil is present. Observe that filter indicator valve is green; red indicates filter replacement is necessary. Replace filter if red indicator is present.	1 MIN	7
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SORT MODULE	8.	Clean AHS insert/extract module outer guard rail. Use soft, lint-free cloth Scrubs in a Bucket to remove build-up of gummy adhesive residue. Dispose of cloth when it becomes soiled.	10 MIN EACH SIDE	7
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WARNING

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

SUPERVISOR WORK STATION	9.	Return to service. Restore power to machine as prescribed by the local lockout procedure. Observe all indicators during power up for correct operation.	12 MIN	9
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SUPERVISOR WORK STATION	10.	Perform database repair procedure.	5 MIN	10
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CAUTION

Do not interrupt recovery process. Database corruption or data loss could result.

1. Log in as Maintenance 1.
2. Exit AFSM100 software by clicking on System Administration.
3. Click on Exit. Click on Yes.
4. Start Windows NT Explorer by clicking on Start in lower left corner.

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5. Click on Programs.
6. Click on NT Explorer.
7. Click on MIS directory box.
8. Click on BIN directory box.
9. Double click on DBRepair.exe.
10. Use dropdown arrow to select database to be repaired or select All Databases to repair all databases. Press Rebuild Database button to start the repair process.

Procedure is completed in item 11.

SUPERVISOR WORK STATION	11.	Complete database repair procedure.	5 MIN	10
		1. After selected databases have been checked, a dialog box displays indicating length of time used to repair databases.		
		2. Exit DBRepair utility by pressing OK button.		
		3. Close NT Explorer by clicking on X in upper right hand corner.		
		4. Click on Start.		
		5. Click on Shutdown.		
		6. Click on Restart Computer.		
		7. Click on Yes.		
		8. After MIS software is fully functional, switch to the USV-PC screen.		
		9. Using Start menu, Shutdown and Restart Computer.		
		10. After USV PC is running, press reset button on the USV rack.		
		11. Cycle power to all 3 infeed stations.		
	12. Machine is ready to run.			
INFEED STATION OCR/FICS MODULE	12.	Check OCR/FICS.	17 MIN PER IFS	10
		1. Check the white level on each scanner. Observe white level graph for acceptable pattern and adjust the white level only if it is more than 5 units above or below average value of 199.		

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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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2. Check the Distance to Scanline on each scanner. Initiate action to correct shift in Distance to Scanline.
3. Start AFSM100 and infeed. Run camera alignment card and check for camera skew and clarity of image.
4. Annotate values and adjustments in equipment logbook.
5. Check that IJP vacuum gauge reads between 12 and 13 inches in vacuum.
6. Check IJP positive air with flow meter for 2.0 to 2.5 Standard Cubic Feet per Hour (SCFH).

INFEED STATION	13.	Test OCR module. Perform Norm Data Injection, 100% Diagnostic test, and Test Pattern, twice each, from the FARC computer diagnostics menu.	4 MIN PER IFS	10
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14.	Run stress deck. Get ready to run the 9-group stress deck by setting up test at MIS computer. Test each infeed station using stress deck provided with FEDR modification and view report.	21 MIN PER IFS	9
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SAR	15.	Perform Norm Data injection on each SAR computer.	4 MIN	10
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FICS SITE SERVER	16.	Clean FICS local site server cabinet filters (two per computer). Vacuum cabinet filters. Replace filter when impacted dirt and debris can not be removed by vacuuming.	4 MIN	7
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17.	FICS Server Reboot and Verification. (The following procedures should only be performed when all AFSM100 machines in the facility are not processing mail.)	20	10
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The following steps should be followed to ensure the proper operation of the FICS Servers:

1. **Reboot Primary Server:**
 - a. Log onto primary server as **FICSAdministrator** with the appropriate password.
 - b. Verify the server's time and time zone are current and set correctly. Make any necessary changes.
 - c. Click the **Start** button on the lower left hand corner

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Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency WEEKLY				

** Class Codes AB, AC, AD, AE

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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of the screen.

- d. Select **Restart** and click **OK**.
 - e. Watch for errors as the server reboots.
 - f. Record the time of reboot in the maintenance log.
 - g. Wait for Login screen to appear. If the Login screen does not appear, contact MTSC.
2. **FicsClient Verification on Primary Server:**
- a. Log onto primary server as **FICSAdministrator** with the appropriate password.
 - b. Open Windows Explorer by right-clicking on **My Computer** and clicking on **Explore**.
 - c. Navigate to the **C:\Process** directory.
 - d. In the C:\Process directory, open the most current **FicsClient** log file by double-clicking on the file. The FicsClient log file name is formatted as follows:

<Computer Name>.FicsClient_<YY-MM-DD_seq#>.txt

The following example shows what the FicsClient log file name would look like on the Baltimore primary server on October 12, 2007: **BLTMMDMFP01.FicsClient_07-10-12_0.txt**.

- e. Make sure the FicsClient log file has an INFO <pullThread> entry with the time stamp after the server reboot time recorded in the previous reboot procedure. If not successful, contact the MTSC HelpDesk for further support. There may be error messages around the time of the reboot; these error messages are expected.
 - f. Close the FicsClient log file by clicking the **X** in the upper right hand corner of the window.
 - g. Close Windows Explorer by clicking the **X** in the upper right hand corner of the window.
3. **Start_Main_Process Verification on Primary Server:**
- a. Click the **Start** button on the loser left hand corner

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	2
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency WEEKLY				

** Class Codes AB, AC, AD, AE

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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MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

- of the screen.
 - b. Click **Settings**.
 - c. Click **Control Panel**.
 - d. When the Control Panel window appears, double-click the icon for **Scheduled Tasks**.
 - e. Check the **status** of Start_Main_Process scheduled task. If status is **Running**, skip to step h, otherwise continue with the next step.
 - f. Right mouse click on the **Start_Main_Process** task. A pop menu will open.
 - g. Click **Run** from the pop-up menu. The status of the task will change to **Running**.
 - h. Close Scheduled Tasks window by clicking the **X** in the upper right hand corner of the window.
 - i. Open Windows Explorer by right-clicking on **My Computer** and clicking on **Explore**.
 - j. Navigate to the **C:\Process** directory.
 - k. In the C:\Process directory, open the most current **start_main_process_YYMMDD.log** file by double-clicking the file.
 - l. Search for Starting Main Process text in the log file and verify the time stamp is after the server reboot time recorded in primary server reboot procedures above. If not successful, contact the MTSC HelpDesk for further support.
 - m. Scroll down in the log file and verify that start_main_process.log contains **Importing** entries. If not successful, contact the MTSC HelpDesk for further support.
 - n. Close start_main_process.log file by clicking on the **X** in the upper right hand corner.
 - o. Log out of the primary server by clicking on **Start** and **Logoff**.
4. Reboot Secondary Server:
- a. Press button **02** (for secondary server) on the KVM switch, if not already connected to the

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	2
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency WEEKLY				

** Class Codes AB, AC, AD, AE

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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secondary server.

- b. Log onto the secondary server as **FICSAdministrator** with the appropriate password.
 - c. Verify the server's time and time zone are current and set correctly. Make any changes necessary.
 - d. Click the **Start** button on the lower left hand corner of the screen.
 - e. Click **Shutdown**.
 - f. Click **Restart** and click **OK**.
 - g. Watch for errors as the server reboots.
 - h. Wait for Login screen to appear. If Login screen does not appear, contact the MTSC HelpDesk for further support.
5. Verify Replication:
- a. Log onto the secondary server as **FICSAdministrator** with the appropriate password.
 - b. Click the **Start** button on the lower left hand corner of the screen.
 - c. Click **Programs**.
 - d. Click **Oracle-OraHome92**.
 - e. Click on **Enterprise Manager Console**.
 - f. Check **Launch standalone** radio button and click **OK** button.
 - g. Click on **+** next to the **Database** treeview item on the left side of the Oracle Enterprise Manager (OEM) window.
 - h. Click on **+** next to the **M_ADMIN** treeview item on the left side of the OEM window.
 - i. Type in **ICS_USER** in the Username field then type **ICS_USER** in the Password field and click the **OK** button.
 - j. Click on **+** next to the **Distributed** treeview item on the left side of the OEM window.

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	2
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency WEEKLY				

** Class Codes AB, AC, AD, AE

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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- k. Click on **+** next to the **Advanced Replication** treeview item on the left side of the OEM window.
- l. Click on **Administration**. It may take several minutes for the Administration page to display.
- m. Verify that the Administration page displays a solid black arrow between two servers. This verifies that replication is okay. If not successful, contact the MTSC HelpDesk for further support.
- n. Close out of Enterprise Manager Console by selecting **File→Exit**.
- o. Log out of Secondary Server by clicking **Start** and **Logoff**.

FRES	18.	Clean FRES cabinet filter. Vacuum cabinet filter. Replace filter when impacted dirt and debris can not be removed by vacuuming.	1 MIN	7
CLEAN UP	19.	Clean up. Ensure all tools, lubricants, rags, etc., are removed from the work area. Annotate deficiencies found and repairs performed in the Maintenance logbook. Notify maintenance supervisor and initiate corrective action as required.	5 MIN	All

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

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ATTACHMENT 4

AFSM100 WITH AND WITHOUT ATHS MASTER CHECKLIST

03-AFSM-**-003-M

MONTHLY

Time Total: 224 Minutes Non-ATHS machines

Time Total: 226 Minutes ATHS machines

** = Class Codes AB, AC, AD, AE

IFS refers to infeed station.

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	3
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG			Frequency MONTHLY			

** Class Codes AB, AC, AD, AE

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 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.**

5 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, a damp cloth, lint-free cloth, or brush, must be used in place of compressed or blown air. Report safety deficiencies to your supervisor immediately upon detection.

WARNING

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

CAROUSEL

2. **Check operation of carousel safety hoods, drive module brake, & torque limiter.**
1. Ensure there is no mail in carrier buckets.
 2. Insert a pliable piece of cardboard in a carrier bucket at chute #30. The cardboard should stick up above the top of the bucket sufficiently to actuate the safety hood at the entry to the drive module.
 3. With safety hood in normal operating position, make two marks on safety hood drawer slide assembly: one mark 8" and another mark 11" from the frame to establish acceptable travel distance limits of the safety hood.
 4. Start carousel. When cardboard strikes safety hood, observe that the carousel stops. The cardboard should move the safety hood between 8" and 11".

5 9
MIN

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	3
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG			Frequency MONTHLY			

** Class Codes AB, AC, AD, AE

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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MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

		5. Repeat items 2.1 through 2.4 for the level change module safety hood. If carousel does not stop within prescribed limits, or if excessive backlash is observed, initiate action to check main drive brake and torque-limiter adjustments.		
EMERGENCY STOPS	3.	Check carousel and infeed station E-Stops. 1. Start the carousel and each infeed station. 2. Actuate E-Stop switch on operator control panel at Infeed Station #1. 3. Observe that the carousel and all infeed stations stop. 4. Observe that the lamp inside the E-Stop switch illuminates. 5. Observe that the control panel E-Stop light illuminates and the LCD display reports an E-Stop. 6. Observe that the sort module Minitron displays the appropriate E-Stop message. 7. Observe that red lights on the light stacks illuminate. 8. Repeat actuating each of the following E-Stop switches, and observing that carousel and infeed stations stop, and all indicators function properly: a. Infeed Station #2 - control panel E-Stop switch. b. Infeed Station #3 - control panel E-Stop switch. c. Level Change - right side E-Stop switch. d. Sort Module - right side - module #1-12 E-Stop switches. e. Sort Module - left side - module #1-12 E-Stop switches.	8 MIN	7
INTERLOCK SWITCHES	4.	Start the machine and each infeed; test each interlock switch. 1. Open each cover and door, one at a time, and check interlocks. 2. Observe that infeed stops and the carousel continues to run for each infeed interlock switch. Check that all associated lamps and messages on the operator	10 MIN	9

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	3
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG			Frequency MONTHLY			

** Class Codes AB, AC, AD, AE

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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control panel LCD display and Minitron display properly report each interlock switch actuation.

- Observe that the carousel stops when any transport covers or doors are opened. Check that all associated lamps and messages on the operator control panel LCD display and Minitron display properly report each interlock switch actuation.

- On ATHS equipped machines, open and close each tub destacker door and level change module access door. Check that all associated lamps and messages on the operator control panel LCD display and Minitron display properly report each interlock switch actuation.

ATHS
ADD
2 MIN

MAIN
MACHINE

- Check infeed station injector.** Refer to MS-178 Volume B Maintenance Information, Section 4 Alignment & Adjustment Procedures, Injector sub-sections. Press local E-Stop switch and remove bucket assemblies to provide access for infeed station injector check. Restore E-Stop switch after bucket assemblies have been removed.

3
7
MIN

At the sort module on the left side, starting at the level change unit and working toward the drive module:

- Remove six bucket modules.
- Skip six bucket modules.
- Remove six more bucket modules.
- Skip six bucket modules.
- Remove six bucket modules.

CAROUSEL

- Position carousel chain.** Run carousel until spaces from missing bucket assemblies are under the three infeed station injector modules. Press E-Stop switch when spaces from missing bucket assemblies are under the three infeed injection modules.

2
7
MIN

MAIN
MACHINE

- Perform system shutdown.** Shut down system computers in proper sequence and observe that all system computers shut down in an orderly manner. While performing system shutdown, observe Supervisor Station Uninterruptible Power Supply (UPS) for correct operation.

5
9
MIN

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	3
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG			Frequency MONTHLY			

** Class Codes AB, AC, AD, AE

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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	8.	Lock out power. Power down the machine and lock out electrical power and compressed air as prescribed by the current local lockout instructions providing lockout/restore procedures.	1 MIN	ALL
TENSION MODULE	9.	Remove top center covers on tension module.	3 MIN	7
	10.	Check the GIO tachometer belt for damage. Check for debris on the pulleys.	1 MIN	7

CAUTION

If carousel chain tension is not within specification and adjustment is performed, initiate action to check alignment of level change and infeed station proximity switches. Use procedures and specifications published in handbook MS-178.

CAUTION

When tension adjustment for the main carousel chain reaches its limit, main carousel chain can be shortened by removing a bucket assembly. No more than two bucket assemblies can be removed throughout life of chain. Initiate corrective action to replace main carousel chain when second bucket is replaced, to allow ample lead time for acquiring a replacement chain and planning of work.

CAROUSEL	11.	Check main carousel chain tension. Using procedures and specifications published in handbook MS-178, check main carousel chain tension.	38 MIN	9
	12.	Check the main drive motor gearbox for visible lubricant leaks. Notify supervisor of lubricant leaks.	1 MIN	7

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service		IDENTIFICATION									
Maintenance Checklist		Work Code		Equipment Acronym			Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100			Bulletin Filename MM06160AG			Frequency MONTHLY			

** Class Codes AB, AC, AD, AE

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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	13.	Check main drive motor brake. Check main drive motor brake solenoid air gap and friction disc thickness using procedures and specifications in handbook MS-178.	12 MIN	9
INFEED STATION	14.	Check infeed station. 1. Injector area. Check for wear and debris. Check shock absorber pads, polyethylene bucket guide, and guide rail assembly for wear and damage. 2. Replace IJP vacuum filter.	5 MIN PER IFS	9
SORT MODULE	15.	Clean photosensors and check for damaged components. 1. Clean all photosensors and reflectors in each bin and on conveyor assemblies using micro fiber glove or soft lint free rag. 2. Check for broken or hanging carrier bracket and bucket assembly components while cleaning. 3. Check tub full switch assembly/actuator for damage or breakage. 4. Check tub present switch assemblies for damage or breakage. 5. Clean all photosensors on the AHS insert/extract conveyors.	30 MIN	7
TENSION MODULE	16.	Install tension module covers removed in item number 9. Install top covers on tension module.	3 MIN	7

WARNING

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

MAIN MACHINE	17.	Return to service. Restore power to machine as prescribed by the local lockout procedure. Observe all indicators during power up for correct operation.	12 MIN	9
FRES	18.	Perform disk defragment. At the FRES Server, use Windows disk defragmenter by doing the following: 1. Click on the Windows Start button.	5 MIN	10

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service Maintenance Checklist		IDENTIFICATION											
		Work Code		Equipment Acronym				Class Code		Number			Type
		0	3	A	F	S	M	*	*	0	0	3	M
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG			Frequency MONTHLY				

** Class Codes AB, AC, AD, AE

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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MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

2. Select All Programs.
 3. Select Accessories.
 4. Select System Tools.
 5. Select Disk Defragmenter.
 6. Select the defragment button to start disk defragmenter.
- Completed at item 20.

INFEED MODULE	19.	<p>Check infeed module. With infeed module covers and doors open, start carousel and infeed module. Using Ultra Probe and Airborne Probe, listen for:</p> <ol style="list-style-type: none"> 1. Abnormal bearing noise on each deck assembly along the top of the infeed module. 2. Abnormal bearing noise on the bottom of each deck plate on the infeed module. 3. Air leaking on each MAC valve assembly. 4. Air leakage in the pneumatic system piping and components. 5. Vacuum pump bearings. Vacuum leakage. 6. Vacuum turbine motor bearings. Vacuum leakage. 7. IJP pneumatics for air leakage. 8. Labeler pneumatics for air leakage. <p>Document all defective components for replacement. Close all covers and doors.</p>	15 MIN PER IFS	9
FRES	20.	<p>Close disk defragmenter. Select File. Exit from Windows pull down menu to close.</p>	5 MIN	10
MAIN MACHINE	21.	<p>Start carousel and position carousel chain so spaces are accessible in sort module. Press E-Stop switch when all missing bucket assembly spaces are visible on one side of the sort modules.</p>	2 MIN	7
	22.	<p>With local E-Stop switch pressed, install bucket assemblies removed earlier to prepare for PM. Restore E-Stop switch when all bucket assemblies have been installed.</p>	3 MIN	7

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	3
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG			Frequency MONTHLY			

** Class Codes AB, AC, AD, AE

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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CAROUSEL	23.	Start carousel and using Ultra Probe and Airborne Probe, listen for:	5 MIN	9
		<ol style="list-style-type: none"> Upper and lower bearings on the carousel idler shaft in the tension module. Upper and lower bearings on the carousel drive shaft in the drive module. Main drive motor on the drive module. Air leakage in the pneumatic system at the level change module. 		
CLEAN UP	24.	Clean up. Ensure all tools, lubricants, rags, etc., are removed from the work area. Annotate deficiencies found and repairs performed in the Maintenance logbook. Notify maintenance supervisor and/or generate work orders per local SOP to document/initiate corrective maintenance activity for deficiencies found.	5 MIN	All

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

ATTACHMENT 5

AFSM100 WITH AND WITHOUT ATHS MASTER CHECKLIST

03-AFSM-**-004-M

QUARTERLY

Time Total: 304 Minutes Non-ATHS Machines

Time Total: 304 Minutes ATHS Machines

** = Class Codes AB, AC, AD, AE

IFS refers to infeed station.

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	4
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency QUARTERLY				

** Class Codes AB, AC, AD, AE

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

- 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.

5 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, a damp cloth, lint-free cloth, or brush, must be used in place of compressed or blown air. Report safety deficiencies to your supervisor immediately upon detection.

MAIN MACHINE

- Perform system shutdown.** Shut down system computers in proper sequence and observe that all system computers shut down in an orderly manner. While performing system shutdown observe Supervisor Station Uninterruptible Power Supply (UPS) for correct operation.

5 9
MIN

WARNING

Hazardous electrical energy is present at the input to the main power switch S1 in the main electrical cabinet. Isolate and lock out facility electrical power to the AFSM100 at building electrical distribution panel prior to performing item 4.

- Lock out power.** Power down the machine and lock out electrical power and compressed air as prescribed by the current local lockout instructions providing lockout/restore procedures. **Isolate and lock out facility electrical power to the AFSM100 at building electrical distribution panel.**

1 ALL
MIN

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	4
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG			Frequency QUARTERLY			

** Class Codes AB, AC, AD, AE

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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MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

MAIN ELECTRICAL CABINET	4.	Vacuum main electrical cabinet. Vacuum any accumulation of dust or debris.	any 2 MIN	7
	5.	Check general condition of wiring. Observe for signs of overheating and ensure all wiring is properly secured in raceways.	1 MIN	9
SORT MODULE	6.	Remove dust and debris. Vacuum any accumulation of dust and/or debris outside and inside of sorter module (maintenance alley) including floor.	120 MIN	7
TAKE-AWAY CONVEYORS	7.	From each conveyor, remove side access cover. Check drive belt condition and tension using procedures and specifications in handbook MS-178. Observe motor gearbox for leaking lubricant. Tension and track belts when necessary.	18 MIN	9

WARNING

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

MAIN MACHINE	8.	Return to service. Restore facility electrical power to the AFSM100. Restore power to machine as prescribed by local lockout procedure. Observe all indicators during power-up for correct operation.	12 MIN	9
INFEED MODULE	9.	With infeed module covers and doors open, start carousel and infeed modules. Using Ultra Probe and contact probe, listen for: <ol style="list-style-type: none"> 1. Abnormal bearing noise on each deck assembly along the top of the infeed module. 2. Abnormal bearing noise on the bottom of each deck plate on the infeed module. Document all defective components for replacement. Close all covers and doors.	45 MIN PER IFS	9

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	4
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency QUARTERLY				

** Class Codes AB, AC, AD, AE

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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CLEAN UP	10.	Clean up. Ensure all tools, lubricants, rags, etc., are removed from the work area. Annotate deficiencies found and repairs performed in the Maintenance logbook. Notify maintenance supervisor and/or generate work orders per local SOP to document/initiate corrective maintenance activity for deficiencies found.	5 MIN	All
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MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

ATTACHMENT 6

AFSM100 WITH AND WITHOUT ATHS MASTER CHECKLIST

03-AFSM-**-005-M

SEMI-ANNUAL

Time Total: 208 Minutes Non-ATHS Machines

Time Total: 188 Minutes ATHS Machines

** = Class Codes AB, AC, AD, AE

IFS refers to infeed station.

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	5
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency SEMI-ANNUAL				

** Class Codes AB, AC, AD, AE

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 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.**

5 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, a damp cloth, lint-free cloth, or brush, must be used in place of compressed or blown air. 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. **Remove 10 consecutive bucket assemblies.** Press E-Stop switch in sort module. On the right side of the sort module, remove 10 consecutive bucket assemblies starting at the safety hood and working toward the level change unit. Restore E-Stop switch after bucket assemblies have been removed.
3. **Position carousel chain.** Run carousel and press E-Stop switch when spaces from missing bucket assemblies are at the tension module turn-end. This will enable an unobstructed view of the drive module Teflon wear strip later in the PM. Perform this step for the drive module Teflon strip check also.
4. **Perform system shutdown.** Shut down system computers in proper sequence and observe that all system computers shut down in an orderly manner. While performing system shutdown, observe Supervisor Station Uninterruptible Power Supply (UPS) for correct operation.

3 7
MIN

2 7
MIN

5 9
MIN

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	3	A	F	S	M	*	*	0	0	5
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency SEMI-ANNUAL				

** Class Codes AB, AC, AD, AE

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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MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

	5.	Lock out power. Power down the machine and lock out electrical power and compressed air as prescribed by the current local lockout instructions providing lockout/restore procedures.	1 MIN	ALL
DRIVE MODULE	6.	Remove, clean, lubricate, and install the 96-link main drive chain. Refer to MS-178 Section 5.8.5 Removing and Replacing the Drive Module 96 Link Drive Chain.	45 MIN	7
TAKE AWAY CONVEYORS ON NON-ATHS AFSM100 MACHINES	7.	Lubricate and check take away conveyor. 1. Lubricate take away conveyor roller pillow block bearings (2 each per side). Lubricate via grease fittings using lithium base #2 grease (Shell Avania or equivalent). 2. Check take away conveyor drive motor gear box for visible lubrication leaks. Notify supervisor of any lubrication leaks.	20 MIN	7
LEVEL CHANGE MODULE - LEFT SIDE	8.	Check level change module Teflon strips. 1. Remove panels from the top left side of the level change module. 2. Remove bucket assemblies to enable visual check of the Teflon wear strips. 3. Check visible portion of Teflon strips for damage or breakage. Notify supervisor if any damage or breakage is observed. 4. Replace bucket assemblies. 5. Replace covers.	17 MIN	7
TENSION MODULE	9.	Check tension module Teflon strip. 1. Remove top center covers on tension module. 2. Check visible portion of Teflon strip for damage or breakage. Notify supervisor if any damage or breakage is observed. 3. Replace covers.	7 MIN	7
LEVEL CHANGE MODULE	10.	Check level change module Teflon strips. 1. Remove panels from right side of level change module.	17 MIN	7

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Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG			Frequency SEMI-ANNUAL			

** Class Codes AB, AC, AD, AE

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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RIGHT SIDE		2. Remove bucket assemblies to enable visual check of the Teflon wear strips.		
		3. Check Teflon strips for damage or breakage. Notify supervisor if any damage or breakage is observed.		
		4. Replace bucket assemblies.		
		5. Replace panels.		
DRIVE MODULE	11.	Check drive module Teflon strip.	18 MIN	7
		1. Remove top left cover, center rear side cover, and right side cover from drive module.		
		2. Check Teflon strips for damage or breakage. Notify supervisor if any damage or breakage is observed.		
		3. Replace covers.		
OCR/FICS MODULE IJP	12.	Replace OCR/FICS module IJP filter tube and primary ink filter.	10 MIN PER IFS	9
		1. Replace IJP filter tube assembly.		
		2. Replace primary ink filter.		
WARNING				
Be cautious when working around or on equipment when power has been applied.				
MAIN MACHINE	13.	Return to service. Restore power to machine as prescribed by the local lockout procedure. Observe all indicators during power up for correct operation.	12 MIN	9
	14.	Start carousel and position carousel chain so spaces are accessible in sort module.	2 MIN	7
	15.	Install bucket assemblies. Press local E-Stop switch and install bucket assemblies removed earlier to prepare for PM. Restore E-Stop switch when all bucket assemblies have been installed.	3 MIN	7
MAIN MACHINE	16.	Observe the sort module alignment. Start the carousel and observe bucket motion at each module connection for smooth transition between modules. Buckets should not	10 MIN	7

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

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		0	3	A	F	S	M	*	*	0	0	5
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency SEMI-ANNUAL				

** Class Codes AB, AC, AD, AE

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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bounce between modules or while running. If individual buckets are continuously bouncing while running along sort module, it indicates damaged guide wheels. Notate bucket number. Notify supervisor of buckets containing damaged guide wheels or module transitions that are causing bouncing buckets.

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|--|-----|--|----------|---|
| | 17. | Observe carrier bracket alignment. Start the carousel, enter the maintenance alley, and observe the alignment of carrier brackets. All carrier bracket wheels should make contact with the rail. Adjust or replace carrier brackets that are not properly aligned or defective. | 6
MIN | 9 |
|--|-----|--|----------|---|

- | | | | | |
|----------|-----|---|----------|-----|
| CLEAN UP | 18. | Clean up. Ensure all tools, lubricants, rags, etc., are removed from the work area. Annotate deficiencies found and repairs performed in the Maintenance logbook. Notify maintenance supervisor and/or generate work orders per local SOP to document/initiate corrective maintenance activity for deficiencies found. | 5
MIN | All |
|----------|-----|---|----------|-----|

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

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		0	3	A	F	S	M	*	*	0	0	5	M
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG			Frequency SEMI-ANNUAL				

** Class Codes AB, AC, AD, AE

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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MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

ATTACHMENT 7

AFSM100 WITH AND WITHOUT ATHS MASTER CHECKLIST

09-AFSM-**-001-M

Operational Maintenance

(Performed during operational tours, two tours per day.)

Time Total: 33 Minutes Non-ATHS machine

Time Total: 35 Minutes ATHS machine

** = Class Codes AB, AC, AD, AE

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service		IDENTIFICATION										
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	9	A	F	S	M	*	*	0	0	1
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency Operational Tour				

** Class Codes AB, AC, AD, AE

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 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.	5 MIN	All
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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.

GENERAL	2.	Monitor equipment condition.	5 MIN	9
		<ol style="list-style-type: none"> 1. Check maintenance logbook for any outstanding issues. 2. Ask operators (feeders and sweepers) and operations supervisor if they are aware of any equipment problems. Investigate reported problems. 		

MIS COMPUTER	3.	Check MIS computer.	5 MIN	9
		<ol style="list-style-type: none"> 1. Evaluate MIS computer sort status screen and interim EOR report production totals and rejects to identify abnormal performance such as low read rate, excessive VCS timeouts, excessive jams, low throughput, high occupancy, etc. 2. Check for warnings on AFSM100 diagram and the bottom of the MIS computer screen such as photocell low gain warnings, red or yellow indicators, and low VAC warnings. 3. Observe bucket screen on MIS computer to identify malfunctions and mail stuck in buckets. 		

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

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		0	9	A	F	S	M	*	*	0	0	1
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency Operational Tour				

** Class Codes AB, AC, AD, AE

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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INFEED STATIONS

4. **Check in-feed stations.**

3 9
MIN

1. Observe warning lamps, warning horns, and startup delay operate properly.
2. Observe feeder module operation for proper paddle motion, belt motion, mail piece presentation, and pickoff. Listen for unusual noise and observe for excessive vibration.
3. Observe mail as it is processed in the destacker. Observe for excessive double feeds. Mail destacking and transport should be smooth and mail should start and stop promptly at each staging point in the mail path. Presser assemblies should not bounce excessively.
4. Observe mail as it is transported through the buffer and accelerator. Mail transport should be smooth and mail should start and stop promptly at each staging point in the mail path.
5. Check for excessive mail under the injectors.
6. Observe buckets through the clear Lexan cover near each infeed station injector. Observe that carts transition smoothly out of the injector section, and at infeed station one, for a smooth transition into the tension module.

LEVEL CHANGE MODULE

5. **Check level change module.**

2 9
MIN

1. Label printer label quality check. Randomly select labels from each label printer and observe for acceptable print quality for non-ATHS machines.
2. Observe for proper operation of label cutter and stacker during normal label printer operation for non-ATHS machines.
3. Observe compressed air pressure (level change module). Regulator gauge for incoming air should display 90 ± 5 PSI. Regulator gauge for infeed supply air should display 85 ± 5 PSI.

MAINTENANCE MANAGEMENT ORDER

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		0	9	A	F	S	M	*	*	0	0
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100			Bulletin Filename MM06160AG			Frequency Operational Tour			

** Class Codes AB, AC, AD, AE

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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SORT
MODULES6. **Check sort modules.**

1. During operational break, use maintenance diagnostic bucket screen to identify and remove mail stuck in and on top of buckets.
2. Observe that warning lamps, warning horns, and startup delay operate properly.
3. Observe that bin indicators and tub present switches function properly.
4. Observe take-away belts on each side of machine for condition and tracking. Listen for unusual noises emanating from take-away belt drive modules.
5. Check general condition of powered roller and skate wheel conveyors at end of machine.
6. Observe bucket assemblies for loose and missing hardware and doors that open prematurely.
7. Randomly select mail from tubs and check FICS label position and clarity of IJP sprayed bar code.
8. Check random bin tub labels on ATHS equipped machines for clarity.

7 9
MINDRIVE
MODULE7. **Check drive module.**

1. Observe power factor controller operation. The power factor controller should be set to achieve unity power factor, signified by a display of 0.95 to 1.00 in the display. Observe that capacitors are switched into the circuit when there is an inductive load, and switched out when there is a capacitive load.
2. Observe for excessive voltage fluctuation at the power factor controller panel.
3. Listen for unusual noises emanating from drive module.

1 9
MIN

ATHS

8. **Check ATHS.**

1. Observe general operation of the ATHS system.
2. Observe the tracking of all ATHS belts starting at the accumulation module and work around to the discharge module.

2 9
MIN

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

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Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	9	A	F	S	M	*	*	0	0	1
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** Class Codes AB, AC, AD, AE

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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3. Observe the ATHS printer apply labels and verify the labels are applied properly.

SYSTEM

9. **Annotate deficiencies found and repairs performed in the Maintenance logbook.** Notify supervisor and/or generate work orders per local SOP to document/ initiate corrective maintenance activity for deficiencies found. 5 9
MIN

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

U.S. Postal Service		IDENTIFICATION											
Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type	
		0	9	A	F	S	M	*	*	0	0	1	M
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG			Frequency Operational Tour				

** Class Codes AB, AC, AD, AE

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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MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

ATTACHMENT 8

AFSM100 WITH AND WITHOUT AHS MASTER CHECKLIST

09-AFSM-**-002-M

Operational Maintenance

(Performed during operational tour, 1 hour prior to AFSM100 shutdown for preventive maintenance.)

Operational Maintenance Time: 20 Minutes per Operational Tour

** = Class Codes AB, AC, AD, AE

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER

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Maintenance Checklist		Work Code		Equipment Acronym				Class Code		Number		Type
		0	9	A	F	S	M	*	*	0	0	2
Equipment Nomenclature Automated Flat Sorter Machine 100		Equipment Model AFSM100				Bulletin Filename MM06160AG		Frequency Operational Tour				

** Class Codes AB, AC, AD, AE

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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GENERAL

The intent of this checklist is to analyze equipment performance and identify and document corrective actions required during the next PM window to optimize equipment reliability.

WARNING

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

SUPERVISOR WORK STATION MIS COMPUTER	1.	Generate and print End of Run and End of Day reports. Compile and analyze reports. Check for read rates, throughputs, jam rates and locations, reject rates, and maintenance functions.	10 MIN	10
	2.	Perform trend analysis at the MIS computer. Perform trend analysis at the MIS computer, using maintenance bus information, to identify signs of degraded equipment performance. Check for and record all real-time errors reported on the AFSM100 graphical display for red or yellow indicators and lower portion of the MIS screen for maintenance log messages indicating error conditions (photocell low gain warnings, etc.).	10 MIN	10
	1.	Observe bucket screen on MIS computer. Identify malfunctions and mail stuck in buckets.		
	2.	Check equipment logbook for entries. Investigate problems. Initiate corrective action to address deficiencies in accordance with local SOP.		

MAINTENANCE MANAGEMENT ORDER

MAINTENANCE MANAGEMENT ORDER