

MAINTENANCE TECHNICAL SUPPORT CENTER
HEADQUARTERS MAINTENANCE OPERATIONS
UNITED STATES POSTAL SERVICE



Maintenance Management Order

SUBJECT: Preventive Maintenance Guidelines for
Daifuku Automated Guided Vehicle (AGV)
System Automation Manager (SAM) Server

DATE: November 9, 2023

TO: All Daifuku AGV Sites

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This Maintenance Management Order (MMO) provides Preventive Maintenance Guidelines for the Daifuku Autonomous Guided Vehicle System (AGV) System Automation Manager (SAM) Server. This bulletin applies to Acronym AGV, Class Code UZ.

The workhours indicated in the workload estimate (Attachment 1) are a calendar-based schedule to reflect the maximum annual workhours required to maintain each system. 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.

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

WARNING

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

WARNING

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

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



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- Attachments
1. Summary of Workload Estimate For AGV_UZ System
 2. Master Checklist 03-AGV-UZ-001-M – AGV_UZ Preventive Maintenance (PM)

ATTACHMENT 1

**SUMMARY WORKLOAD ESTIMATE
FOR AGV_UZ SYSTEM**

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
7	6.17	1.85	8.02	0.80	8.82	NA	NA	NA

NOTES:

*Repair estimates based on 30% of servicing.

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

Frequency Codes (1 AP = 4 Weeks)					
Code	Frequency	Description	Code	Frequency	Description
A	ANNUAL	Once every 13 APs	B	BI-WEEKLY	Once every half AP
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 26 APs
L	tdl-ANNUAL	Once every 39 APs	M	MONTHLY	Once every AP
N	QUAD-ANNUAL	Once every 52 APs	P	QUINT-ANNUAL	Once every 65 APs
Q	QUARTERLY	4 times every 13 Aps	S	SEMI-ANNUAL	Twice every 13 APs
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 1/4 AP (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			
WI(*)	WEEKS INTERVAL	Perform a task once every # weeks e.g. WI(60) = Once every 60 weeks			
		# = number of weeks			

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ATTACHMENT 2**AGV_UZ MASTER CHECKLIST****03-AGV-UZ-001-M****PREVENTIVE MAINTENANCE (PM)**

U.S. Postal Service Maintenance Checklist	IDENTIFICATION													
	WORK CODE		EQUIPMENT ACRONYM						CLASS CODE		NUMBER			TYPE
	0	3	A	G	V				U	Z	0	0	1	M
Equipment Nomenclature Automated Guided Vehicle			Equipment Model Daifuku AGV System Automation Manager Server						Bulletin Filename mm23006			Occurrence Calendar		

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.
SAFETY STATEMENT	1	<p>COMPLY WITH ALL SAFETY PRECAUTIONS. Disconnect power and apply lockouts when required by this instruction. Refer to current local lockout procedures to properly shut down and lock out this machine. Check for suspicious dust or unusual debris. If any unusual substance is found, notify supervisor prior to proceeding with any further action on the equipment.</p> <p>THE USE OF COMPRESSED OR BLOWN AIR IS PROHIBITED. When cleaning is required, an alternative cleaning method such as a HEPA filtered vacuum cleaner or a damp rag must be used in place of compressed or blown air. A lint-free cloth or brush may be used on optical equipment only when other cleaning methods cannot be used. Report safety deficiencies to your supervisor immediately upon detection.</p> <p>WARNING FOR EWP/PPE: Steps contained in this bulletin may require the use of Electrical Work Plan (EWP) Personal Protective Equipment (PPE). Refer to the current EWP MMO or appropriate EWP PPE and barricade requirements.</p> <p>WARNING FOR SDS: Various products requiring Safety Data Sheets (SDS) may be utilized during the performance of the procedures in this bulletin. Ensure the current SDS for each product used is on file and available to all employees. When reordering such a product, it is suggested that current SDS be requested. Refer to SDS for appropriate personal protective equipment.</p>	1	ALL			

Tasks marked with one asterisk after the time required are per unit tasks.
Tasks marked with two asterisks after the item number are critical tasks.

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.
SAM SERVER CABINET PRIMARY SERVER SECONDARY SERVER	2**	Perform Backup of SAM Servers. 1. **Perform Backup of Server. 2. Return encrypted external USB hard drive and Veritas Recovery disk to storage per local procedures. *15 minutes per server **Reference MMO-008-23 Daifuku Backup and Restore from Backup Procedures.	30	10			Q
SAM SERVER CABINET UPS	3**	Perform Self-Test of the Server(s) UPS The Daifuku Server UPS conducts a self-test automatically every 14 days. 1. Press RETURN key to select Main Menu: Status. 2. Press down arrow key twice to select Test & Diags. a. Press RETURN key to enter. b. Press RETURN key on UPS Self-Test prompt. c. Press up arrow key to display Yes. d. Press RETURN key to start Self-Test. e. Self-test performs and displays "Passed". 3. Press the ESC key twice to return to Load/Battery level display. 4. Create a work order to address any deficiencies.	4	9			Q

Tasks marked with one asterisk after the time required are per unit tasks.

Tasks marked with two asterisks after the item number are critical tasks.

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Thresholds		
					Run Hours	Pieces Fed (000)	Freq.
SAM SERVER CABINET PRIMARY SERVER SECONDARY SERVER	4**	Clean Server Cabinet and Server Chassis. 1. Open SAM cabinet front and rear access doors. 2. *Perform shutdown of SAM server. CAUTION Extreme care should be taken to strictly follow all rules regarding electrostatic discharge (ESD) when handling all printed circuit boards, including those in logic racks, system computers, etc. This includes using wrist straps and ESD pads. 3. Disconnect outlet power strip from facility outlet. 4. Remove dust and debris from inside and outside of computer cabinet using an approved HEPA filter shop vacuum. 5. Clean dust debris from both computer chassis using an approved HEPA filter shop vacuum. 6. Reconnect outlet power strip to facility outlet. 7. *Perform startup of SAM server. *Reference KB0021127 Daifuku SAM Server Startup/Shutdown Procedures.	20	10			A
FINAL-CLEANUP	5	Clean Up 1. Ensure all tools, lubricants, rags, etc., are removed from the work area. 2. Note any deficiencies found in the SAM Log Book. 3. Notify Management and/or generate work orders per local SOP to document/initiate corrective maintenance action for deficiencies.	5	ALL			

Tasks marked with one asterisk after the time required are per unit tasks.
 Tasks marked with two asterisks after the item number are critical tasks.