# MAINTENANCE TECHNICAL SUPPORT CENTER HEADQUARTERS MAINTENANCE OPERATIONS UNITED STATES POSTAL SERVICE

## Maintenance Management Order POSTAL SERVICETM

**SUBJECT:** Operational & Preventive Maintenance (PM)

Guidelines for the Robotic Containerization

System (RCS)

TO: All RCS Sites

**DATE:** June 2, 2015

**NO:** MMO-058-15

FILE CODE: TM4

dpen: mm14122ad

This Maintenance Management Order (MMO) provides Operational & Preventive Maintenance (PM) Guidelines for the Robotic Containerization System (RCS). **This MMO supersedes MMO-071-08 and MMO-120-13.** This bulletin applies to acronym RCS and Class Code AA.

The minimum maintenance skill level to perform each task on these 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.

The attached master checklists provides tasks to be performed at periodic intervals (Daily, Weekly, Monthly, Semi-Annual, and Operational Maintenance), time required per task, and the minimum skill level for each task.

### 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.

Web Access: http://mtsc.usps.gov/pdf

### 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.

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.

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

Andy L. Henderson

Manager (A)

Maintenance Technical Support Center

**HQ** Maintenance Operations

- 1. Summary, Workload Estimate for Robotic Containerization System
- 2. RCS Master Checklist: 03-RCS-AA-001-M: Daily
- 3. RCS Master Checklist: 03-RCS-AA-002-M: Weekly
- 4. RCS Master Checklist: 03-RCS-AA-003-M: Monthly
- 5. RCS Master Checklist: 03-RCS-AA-004-M: Quarterly
- 6. RCS Master Checklist: 03-RCS-AA-005-M: Annual
- 7. RCS Master Checklist: 03-RCS-AA-006-M: Two Year
- 8. RCS Master Checklist: 03-RCS-AA-007-M: Three Year
- 9. RCS Master Checklist: 09-RCS-AA-001-M: Operational

### **SUMMARY**

### **WORKLOAD ESTIMATE**

**FOR** 

### **ROBOTIC CONTAINERIZATION SYSTEM**

### SUMMARY WORKLOAD ESTIMATE FOR RCS

Days of Operation	Routine Servicing (Hrs/Yr)	Repair* (Hrs/Yr)	Total Servicing & Repair Time	Non- Productive Time **	Total Servicing Per Machine	Operation + Total S	nal Mainte ervicing	nance
			(Hrs/Yr)	(Hrs/Yr)	(Hrs/Yr)	1	2	3
						Tour	Tours	Tours
5 Day	339.39	67.88	407.27	40.73	447.99	556.33	664.66	
6 Day	396.59	79.32	475.91	47.59	523.50	653.50	783.50	
7 Day	453.79	90.76	544.55	54.45	599.00	750.67	902.34	

### **NOTES**

\*Repair estimates based on 20% of servicing.

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

ITEM	TASK TIME	MULTIPLIER FACTOR	TOTAL MINUTES
1	1	1	1
2	1	1	1
3	1	3	3
4	1	3	3
5	1	3	3
6	1	3	3
7	2	3	6
8	5	1	5
			25

CHECKLIST	TOTAL MINUTES
Daily	66.00
Weekly	35.00
Monthly	65.00
Quarterly	75.00
Annual	86.00
Two Years	321.00
Three Years	171.00

### **RCS MASTER CHECKLIST**

03-RCS-AA-001-M

**DAILY** 

Time Total: 66 Minutes

Refer to MS-192 if additional maintenance information is required.

U.S. Postal Service								IDI	ENTIF	ICAT	ION					
Maintenance Checklist	WC						MEN ONYM					ASS	N	UMBI	ER	TYPE
Maintenance Oncoknot	- 60	DE				ACRU	או ז מוכ					DE				
	0	3	R	С	S						Α	A	0	0	1	M
Equipment Nomenclature	Equ	ipmeı	nt Mo	del				E	Bulletir	n Filer	name	F	Frequency			
Robotic Containerization System									' '					٩ILY	•	

		T 1 2 1 1 1 1 1					
Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time	Min. Skill	Run	Threshold Pieces	s Weeks
Component	140	(Compry with all current salety presautions)	Req	Lev	Hours	Fed	VVCCKS
			(min)			(000)	
SAFETY	1.	COMPLY WITH ALL SAFETY PRECAUTIONS.	1	All	1		1
STATEMENT	١.			All			
STATEMENT		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.	1				
		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	1				
		vacuum cleaner or a damp rag must be used	1				
		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 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 for appropriate EWP					
		PPE and barricade requirements.					
		<u>_</u>					
		WARNING					
		WARNING					
		Ensure no one is standing in the					
		safeguarded space around the robot					
		and the motion settings for jogging are					
		correctly set. Carelessness can result					
		in personal injury or damage to the					
		equipment.					
		WARNING					
		Be cautious when working around or on					
		equipment when power has been					
		applied.					
SYSTEM	2.	Check the maintenance and failure log	3	10			
		reports.					
		1. Generate the reports from the Reports screen					
		Contrate the reporte from the respecte coron			_1	1	1

U.S. Postal Service								IDE	NTIF	ICATI	ON					
Maintenance Checklist	WORK CODE						MEN <sup>-</sup>				CLA CO		N	UMBE	ER	TYPE
	0	3	R	R C S							Α	Α	. 0 0 1		1	М
Equipment Nomenclature Robotic Containerization System	Equ	ipmer	nt Mo	del				В	ulletir <b>M</b> l		name 122AD		reque	,	AILY	

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	•
Component	No	(Comply with all current safety precautions)	Time Req (min)	Skill Lev	Run Hours	Pieces Fed (000)	Weeks
		on the Human Machine Interface (HMI).					
		Look for alarms and faults indicating problems with the machine operation.					
SYSTEM	3.	Check warning horns and lights for proper operation. Check warning horns and lights using the HMI lamp test.	3	9			
ROBOT	4.	Check the calibration of Robot 1. Check the calibration of Robot 1 by running the Calibration 840 Routine per instructions in MS-192, Volume B, Section 4.	5	9			
GRIPPER	5.	Jog Robot 1 gripper to an inspection position. Jog Robot 1 gripper to an inspection position per instructions in MS-192, Volume B, Section 4.	1	9			
	6.	Check Robot 1 gripper for proper operation. Check Robot 1 gripper for proper operation using the Griptest Routine per instructions in MS-192, Volume B, Section 4.		9			
ROBOT	7.	Check the calibration of Robot 2. Check the calibration of Robot 2 by running the Calibration 840 Routine per instructions in MS-192, Volume B, Section 4.	5	9			
GRIPPER	8.	Jog Robot 2 gripper to an inspection position. Jog Robot 2 gripper to an inspection position per instructions in MS-192, Volume B, Section 4.	1	9			
	9.	Check Robot 2 gripper for proper operation. Check Robot 2 gripper for proper operation using the Griptest Routine per instructions in MS-192, Volume B, Section 4.	2	9			
PNEUMATIC	10.	Check main pneumatic panel air pressure.	1	7			
SYSTEM		Check main pneumatic panel air pressure gauge for 75-80 PSI.					
		2. Report any deficiencies to supervisor.					
	11.	Check Robot 1 main conveyor air pressure.	1	7			
		Check Robot 1 main conveyor air pressure gauge for 60 ± 3 PSI.					
		2. Report any deficiencies to supervisor.					

U.S. Postal Service								ID	ENTIF	ICAT	ION					
Maintenance Checklist	WORK EQUIPMENT CODE ACRONY											ASS DE	N	UMBI	ΞR	TYPE
	0	3	R	С	S						A   A		0	0	1	М
Equipment Nomenclature Robotic Containerization System	Equ	ipmeı	nt Mo	del				I	Bulletir MI		name 122AD		reque	,	AILY	

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	S
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Weeks
			Req (min)	Lev	Hours	Fed (000)	
DAILIEMATIC	40	Observe Probated and a server of a server		-			
PNUEMATIC SYSTEM	12.	Check Robot 1 gripper air pressure	1	7			
OTOTEW		1. Check both gripper air gauges for 35 ± 2 PSI.					
		Report any deficiencies to supervisor.					
PNEUMATIC	13.	Check Robot 2 main conveyor air pressure.	1	7			
SYSTEM		<ol> <li>Check Robot 2 main conveyor air pressure gauge for 60 ± 3 PSI.</li> </ol>					
		2. Report any deficiencies to supervisor.					
PNUEMATIC	14.	Check Robot 2 gripper air pressure	1	7			
SYSTEM		1. Check both gripper air gauges for 35 <u>+</u> 2 PSI.					
		2. Report any deficiencies to supervisor.					
SYSTEM	15.	Power down and lock out power. Power down the machine and lock out its electrical power sources as prescribed by the current local lockout/restore procedures.		9			
GRIPPER	16.	Robot 1 gripper cleaning and check.	4	7			
		<ol> <li>Clean mail containment plate guide shafts using a clean lint free cloth. Do not lubricate shafts.</li> </ol>					
		<ol><li>Check for smooth operation of the mail containment plate by manually raising and lowering the plate.</li></ol>					
		<ol><li>Check gripper fingers for visible physical damage.</li></ol>					
		4. Check shelf lowering spring plunger for visible physical damage.					
		5. Check shelf lowering fingers for visible physical damage.					
		<ol><li>Check removable harness assembly for visible physical damage.</li></ol>					
CONVEYOR	17.	Check Robot 1 right angle transfer belts.	2	7			
		<ol> <li>Check both Robot 1 right angle transfers for visibly cracked, torn, or missing belts.</li> </ol>					
		2. Report any deficiencies to supervisor.					
GRIPPER	18.	Robot 2 gripper cleaning and check.	4	7			
		Clean mail containment plate guide shafts using a clean lint free cloth. Do not lubricate shafts.					

MMO-058-15

U.S. Postal Service								IDI	ENTIF	ICAT	ION					
Maintananaa Chaaklist		RK					MEN					ASS	N	UMBE	ΞR	TYPE
Maintenance Checklist	CC	DE				<u>ACRO</u>	NYNC	1				DE				
	0	0 3 R C S									Α	Α	0	0	1	М
Equipment Nomenclature	Equipment Model Bulletin Filenar							ename Frequency								
Robotic Containerization System									MM14122AD DAILY						•	

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	s
Component	No	(Comply with all current safety precautions)	Time Req (min)	Skill Lev	Run Hours	Pieces Fed (000)	Weeks
		Check for smooth operation of the mail containment plate by manually raising and lowering the plate.					
		3. Check gripper fingers for visible physical damage.					
		4. Check shelf lowering spring plunger for visible physical damage.					
		5. Check shelf lowering fingers for visible physical damage.					
		Check removable harness assembly for visible physical damage.					
CONVEYOR	19.	Check Robot 2 right angle transfer belts.	2	7			
		Check both Robot 2 right angle transfers for visibly cracked, torn, or missing belts.					
		2. Report any deficiencies to supervisor.					
MAIL SEARCH	20.	<b>Perform a mail search.</b> Search for mail pieces in and under machine.	6	7			
CLEAN UP	21.	<b>Clean up.</b> Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to supervisor.	1	All			
		WARNING					
		Be cautious when working around or on equipment when power has been applied.					
SYSTEM POWER	22.	<b>Restore power.</b> Remove lockouts, restore power, and return machine to operational status as prescribed by the current local lockout instructions providing lockout/restore procedures.		9			

U.S. Postal Service		IDEN'								ICAT	ION					
Maintenance Checklist	_	RK DE				QUIF ACRO						ASS DDE	N	UMBE	ER	TYPE
		שש				ACING	<i>)</i>						<u> </u>			
	0 3 R C			S						Α	A	0	0	1	М	
Equipment Nomenclature	Equipment Model Bu						ulletir	Filer	name	F	Frequency					
Robotic Containerization System	erization System								MM14122AD					DAILY		

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	S
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Weeks
			Req	Lev	Hours	Fed	
			(min)			(000)	

### THIS PAGE BLANK

### **RCS MASTER CHECKLIST**

03-RCS-AA-002-M

WEEKLY

Time Total: 35 Minutes

Refer to MS-192 if additional maintenance information is required.

U.S. Postal Service							IDI	ENTIF	ICAT	ION					
Maintenance Checklist	WC	)RK )DE				 MEN.					ASS DE	Ν	UMBE	ĒR	TYPE
	0	3	R	С	S					Α	Α	0	0	2	М
Equipment Nomenclature Robotic Containerization System	Equ	ipmeı	nt Mo	del			E	Bulletir MI		name 122AD		reque	,	EKL	Y

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Weeks
·			Req (min)	Lev	Hours	Fed (000)	
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.  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 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 for appropriate EWP PPE and barricade requirements.	1	All			
		WARNING  Be cautious when working around or on equipment when power has been applied.					
SYSTEM	2.	Power down and lock out power. Power down the machine and lock out its electrical and pneumatic power sources as prescribed by the current local lockout/restore procedures.	15	9			
CAMERA	3.	Infeed and robot cameras.	6	7			
		Clean infeed and robot windows with a clean lint-free cloth.					
CONVEYOR	4.	Clean SMM tray storage stand photo eyes. Clean SMM tray storage stand photo eyes with a clean lint-free cloth.	8	7			

MMO-058-15

U.S. Postal Service								ID	ENTIF	ICAT	ION					
Maintenance Checklist	WC	RK DE					MEN ONYN				CLAS COE		N	UMBE	ER	TYPE
	0	3	R	С	S	ACINO					A	A	0	0	2	М
Equipment Nomenclature Robotic Containerization System	Equ	ipmer	nt Mo	del	1	1		I	Bulletir MI		name 122AD	F	reque	,	EKL	Y

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	s
Component	No	(Comply with all current safety precautions)	Time Req (min)	Skill Lev	Run Hours	Pieces Fed (000)	Weeks
CLEAN UP	5.	<b>Clean up.</b> Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to supervisor.	1	All			
		WARNING  Be cautious when working around or on equipment when power has been applied.					
SYSTEM	6.	<b>Restore power.</b> Remove lockouts, restore power, and return machine to operational status as prescribed by the current local lockout instructions providing lockout/restore procedures.		9			

U.S. Postal Service								IDE	NTIF	ICAT	ION					
Maintanana Chacklist	_	RK				QUIF						ASS	N	UMBI	ΞR	TYPE
Maintenance Checklist	CO	DE				ACRO	NYM				CO	DE				
	0	3	R	С	S						Α	Α	0	0	2	М
Equipment Nomenclature	Equipment Model								ulletir	File	name	F	reque	ency		•
Robotic Containerization System									MI	M14	122AD	)	-	WE	EKL	Y

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	ls
Component	No	(Comply with all current safety precautions)	Time Req	Skill Lev	Run Hours	Pieces Fed	Weeks
			(min)			(000)	

### THIS PAGE BLANK

### **RCS MASTER CHECKLIST**

03-RCS-AA-003-M

MONTHLY

Time Total: 65 Minutes

Refer to MS-192 if additional maintenance information is required.

U.S. Postal Service								IDE	NTIF	ICAT	ION					
Maintanana Obsaldist		RK			_		MEN.	-				ASS	N	UMBE	ΕR	TYPE
Maintenance Checklist	CC	DE				ACR(	MYNC				CO	DE				
	0	3	R	С	S						Α	A	0	0	3	M
Equipment Nomenclature	Equ	ipmer	nt Mo	del				В	ulletir	n Filer	name		Freque	ency		
Robotic Containerization System									MI	M14	122AD	)	-	1ÔM	<u>IHT</u>	_Y

Dort	14.0.00	Took Statement and Instruction	□C+	NA:		Throckeld	
Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time	Min. Skill	Run	Threshold Pieces	s Weeks
Component	'*	(Somply with all saliety procautions)	Req	Lev	Hours	Fed	AACCV2
			(min)			(000)	
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	1	All			
		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 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 for appropriate EWP PPE and barricade requirements.					
		WARNING  Be cautious when working around or on equipment when power has been applied.					
SYSTEM	2.	Operate all emergency stops and emergency stop pull cords to check for proper operation. Verify correct operation of emergency stops and emergency pull cords by:	8	7			
		<ol> <li>Ensuring machine stops when the emergency stop is pressed or the emergency stop pull cord is pulled.</li> </ol>					
		<ol><li>Observing emergency stop indicator lamp on the emergency stop switch illuminates when the emergency stop is pressed or emergency stop pull cord is pulled.</li></ol>					

I I																
U.S. Postal Service								IDE	NTIF	ICAT	ION					
	WC	RK			Е	QUIF	MEN	Т			CLA	ASS	N	UMBI	ER	TYPE
Maintenance Checklist	CC	DE				ACR(	NYNC	1			CC	DE				
	0	3	R	С	S						Α	Α	0	0	3	M
Equipment Nomenclature	Equipment Model							В	ulletir	r Filer	name		Freque	ency		•
Robotic Containerization System	m								MI	M14	122AD	)		10M	NTH	LY

Part or	Itom	Task Statement and Instruction	Est.	Min.		Threshold	0
Component	Item No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Weeks
·			Req	Lev	Hours	Fed	
			(min)			(000)	
		3. Observing emergency stop indicator on the					
		Human Machine Interface (HMI) Main screen					
		graphic display. A red indicator will appear at					
		the location of emergency stop or pull cord as					
		represented on HMI Main screen graphic display when emergency stop is pressed or					
		emergency stop pull cord is pulled.					
		Report any deficiencies to supervisor.					
	3.	Operate the Lexan door safety interlocks.	4	7			
	0.	Verify correct operation of the Lexan door safety interlocks by:	7	,			
		Observing Lexan door interlock indicator on					
		the HMI Main screen graphic display. A red					
		indicator box will appear at the location of the					
		Lexan safety door as represented on the HMI Main screen graphic display when the Lexan					
		door safety interlock is operated by opening					
		the Lexan safety door.					
		2. Report any deficiencies to supervisor.					
CONVEYOR	4.	Check the conveyor drive rollers for proper	12	9			
		speed setting. Check conveyor drive rollers for					
		proper speed setting per instructions in MS-192, Volume B, Section 4.					
		,					
SYSTEM	5.	Power down and lock out power. Power down	15	9			
		the machine and lock out its electrical and pneumatic power sources as prescribed by the					
		current local lockout/restore procedures.					
CONVEYOR	6.	Clean conveyor photo eyes. Clean all main	8	7			
CONVETOR	0.	conveyor photo eyes. Clean an main conveyor photo eye sensors and reflectors with a	J	′			
		clean lint-free cloth.					
	7.	Check all main conveyor system roller drive	12	7			
		belts.					
		1. Observe if any belts are damaged or missing.					
		2. Report any deficiencies to supervisor.					
CLEAN UP	8.	Clean up. Ensure all tools, lubricants, rags, etc.,	2	All			
		are removed from the work area. Report all					
		deficiencies to supervisor.					
·	-						

U.S. Postal Service								IDE	NTIF	ICATI	ON					
Maintenance Checklist		DRK DDE					MEN ONYN					ASS DE	N	UMBI	ER	TYPE
Mantenance encoknot	0	3	R	С	S	ACRI	<u>או ז אוכ</u>				A	A	0	0	3	М
Equipment Nomenclature Robotic Containerization System								В	Bulletir MI		name 122AD		Freque	,	NTH	_Y

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	s
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Weeks
			Req	Lev	Hours	Fed	
1			(min)			(000)	
		WARNING					
		Be cautious when working around or on					
		equipment when power has been					
		applied.					
SYSTEM	9.	Restore power. Remove lockouts, restore	3	9			
OTOTEW		power, and return machine to operational status	O				
		•					
		as prescribed by the current local lockout					
		instructions providing lockout/restore procedures.					ĺ

### **RCS MASTER CHECKLIST**

03-RCS-AA-004-M

QUARTERLY

Time Total: 75 Minutes

Refer to MS-192 if additional maintenance information is required.

U.S. Postal Service								IDE	NTIF	ICAT	ION					
	WC	RK			Е	QUIF	MEN	•			CLA	ASS	N	UMBE	₽R	TYPE
Maintenance Checklist	CC	DE				ACRO	MYNC				CC	DE				
	0	3	R	С	S						Α	A	0	0	4	M
Equipment Nomenclature	Equ	ipmeı	nt Mo	del				В	ulletir	Filer	name		Freque	ency		
Robotic Containerization System									MI	M14	122AD	)	C	(UAF	RTEF	RLY

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	c
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Weeks
'			Req (min)	Lev	Hours	Fed	
			(111111)			(000)	
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		All			
		down and lock out this machine. Open equipment and inspect dust conditions. Check for suspicious dust or unusual debris. If any unusual substance is found, notify supervisor prior to proceeding with any further action on the equipment.					
		THE USE OF COMPRESSED OR BLOWN AIR IS PROHIBITED. When cleaning is required, an alternative cleaning method such as a HEPA filtered vacuum cleaner or a damp rag must be used in place of compressed or blown air. A lint-free cloth or brush may be used on optical equipment only when other cleaning methods cannot be used. Report safety deficiencies to your supervisor immediately upon detection.					
		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 for appropriate EWP PPE and barricade requirements.					
		WARNING					
		Be cautious when working around or on equipment when power has been applied.					
SYSTEM CONSOLE	2.	Check uninterruptible power supply. Check uninterruptible power supply by verifying the Battery OK green LED is lit.	1	7			
	3.	Check system console cabinet fans. Check system console cabinet fans for proper operation by testing for airflow. Test airflow by feeling for air movement.		9			
CONVEYOR	4.	Check MCP 1 fans for proper operation. Check MCP 1 fans for proper operation by testing for airflow. Test airflow by feeling for air movement.		9			

MMO-058-15

U.S. Postal Service								IDE	ENTIF	ICAT	ION					
Maintenance Checklist	WC	RK DE					MEN <sup>-</sup>				CL/	ASS DE	N	UMBE	ER	TYPE
	0	3	R	С	s		714 1 101		1		A	A	0	0	4	М
Equipment Nomenclature Robotic Containerization System	Equipment Model							E	Bulletir MI		name 122AD	- 1	reque	,	RTE	' RLY

Part or Item Task Statement and Instruction Est. Min. Component No (Comply with all current safety precautions) Time Skill Run													
						Thresholds							
Component	No	(Comply with all current safety precautions)				Pieces	Weeks						
			Req	Lev	Hours	Fed							
			(min)			(000)							
ROBOT	5.	Check Robot 1 S4C Robot Controller fans for	1	9	1								
ROBOT	5.		1	9									
		proper operation. Check Robot 1 S4C Robot											
		Controller fans for proper operation by testing for											
		airflow. Test airflow by feeling for air movement.											
CONVEYOR	6.	Check MCP 2 fans for proper operation. Check	1	9	+								
CONVETOR	0.			9									
		MCP 2 fans for proper operation by testing for											
		airflow. Test airflow by feeling for air movement.											
ROBOT	7.	Check Robot 2 S4C Robot Controller fans for	1	9									
1.1020.		proper operation. Check Robot 2 S4C Robot	1										
		Controller fans for proper operation by testing for											
		airflow. Test airflow by feeling for air movement.											
PNEUMATIC	8.	Conduct ultrasonic scan of pneumatic system.	8	9									
SYSTEM		Conduct ultrasonic scan of pneumatic system to											
		identify any air leaks.											
SYSTEM	9.	Power down and lockout power. Power down	15	9									
		the machine and lock out its electrical power											
		source as prescribed by the current local											
		lockout/restore procedures.											
		·											
SYSTEM	10.	Clean system console cabinet air filters. Clean	2	7									
CONSOLE		by vacuuming system console cabinet air filters.											
CONVEYOR	11.	Clean MCP 1 air filters. Clean by vacuuming	2	7									
CONVETOR	11.	MCP 1 air filters. Clean by vacuuming	2	/									
		MICP I air lillers.											
ROBOT	12.	Clean Robot 1 S4C Robot Controller air filters.	2	7									
		Clean by vacuuming Robot 1 S4C Robot											
		Controller air filters.											
		Controller dil filtero.											
CONVEYOR	13.	Clean MCP 2 air filters. Clean by vacuuming	2	7									
		MCP 2 air filters.											
DODOT	4.4		_	-									
ROBOT	14.	Clean Robot 2 S4C Robot Controller air filters.		7									
		Clean by vacuuming Robot 2 S4C Robot											
		Controller air filters.											
ROBOT	15.	Verify MEMOLUB automatic lubricators are	10	7									
IVODO I	13.			'									
		operating. Verify the MEMOLUB automatic											
		lubricators are operating by using the indicator											
		labels to confirm the level of grease has changed											
		since the last reading.											
CONVEYOR	16.	Lubricate the right angle transfer linear guide	8	7									
CONVETOR	10.	<b>bearings</b> . Lubricate the right angle transfer linear	_	'									
		guide bearings at all four transfer stations. Apply											
		two strokes (3 gm) of Klüber Microlube GL261 at											
		each of the four (4) grease manifold fittings.											
							<u> </u>						

U.S. Postal Service								IDE	NTIF	ICAT	ION					
Maintenance Checklist	WC	RK DE					MEN					ASS DE	N	UMBE	ΞR	TYPE
	0	3	R	С	S						A	A	0	0	4	М
Equipment Nomenclature Robotic Containerization System	Equipment Model							E	Bulletir MI		name 122AD		reque	ency UAF	RTE	RLY

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	s
Component	No	(Comply with all current safety precautions)	Time Req (min)	Skill Lev	Run Hours	Pieces Fed (000)	Weeks
	17.	Lubricate the tray tub lift linear guide bearings. Lubricate the tray tub lift linear guide bearings at both lift stations. Apply 1 ml of ISO VG 10 to 20 weight oil at each of the two (2) oil fittings.		7			
CLEAN UP	18.	<b>Clean up.</b> Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to supervisor.		All			
		WARNING  Be cautious when working around or on equipment when power has been applied.					
SYSTEM	19.	<b>Restore power.</b> Remove lockouts, restore power, and return machine to operational status as prescribed by the current local lockout instructions providing lockout/restore procedures.		9			

### **RCS MASTER CHECKLIST**

03-RCS-AA-005-M

#### ANNUAL

Time Total: 86 Minutes

Refer to MS-192 if additional maintenance information is required.

U.S. Postal Service								IDI	ENTIF	ICAT	ION					
Maintenance Checklist	WC	RK DE					MEN ONYN					ASS DE	N	UMBE	ΞR	TYPE
	0	3	R	С	S						Α	A	0	0	5	М
Equipment Nomenclature Robotic Containerization System	ipmer	nt Mo	del		•		E	Bulletir Ml		name 122AD		reque	,	NUA	L	

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Weeks
- '		, , ,	Req	Lev	Hours	Fed	
			(min)			(000)	
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.  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 FOR EWP/PPE:	1	All			
		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.					
		WARNING  Ensure no one is standing in the safeguarded space around the robot and that the motion settings for jogging are correctly set. Carelessness can result in personal injury or damage to the equipment.					
		WARNING  Be cautious when working around or on equipment when power has been applied.					
SYSTEM	2.	Conduct thermal scan of the power distribution panel.	14	9			
		1. Don PPE as required by current EWP MMO.					

MMO-058-15

U.S. Postal Service							IDE	ENTIF	ICAT	ION					
Maintenance Checklist	CO	RK DE				 MEN'					ASS DE	N	UMBE	ER	TYPE
	0	3	R	С	S					Α	Α	0	0	5	М
Equipment Nomenclature	Equ	ipmer	nt Mo	del			E	Bulletir	n Filer	name	F	reque	ency		
Robotic Containerization System								MI	M14	122AD	·		ΑN	NUA	L

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Weeks
			Req (min)	Lev	Hours	Fed (000)	
		2. Power down the machine.					
		Open the power distribution panel.					
		4. Restore power and return machine to operational status.					
		5. Scan the interior of the power distribution panel using a thermal imaging camera.					
		Look for anomalies indicating a high resistance connection or other problem.					
		7. Close power distribution panel.					
SYSTEM	3.	Power Down And Lockout Power.  Power down the machine and lockout its power as prescribed by the current local lockout instructions providing lockout/restore procedures.	14	9			
ROBOT	4.	Check Robot 1 axis 1 belts.	10	9			
		Check for dirt and grease buildup.					
		2. Check for wear or damage.					
		3. Check for proper alignment and tracking.					
	5.	Check Robot 1 axis 2 belts.	4	9			
		Check for dirt and grease buildup.					
		2. Check for wear or damage.					
		3. Check for proper alignment and tracking.					
	6.	Check Robot 1 axis 3 belts.	4	9			
		Check for dirt and grease buildup.					
		2. Check for wear or damage.					
		3. Check for proper alignment and tracking.					
	7.	Check Robot 2 axis 1 belts.	10	9			
		Check for dirt and grease buildup.					
		2. Check for wear or damage.					
		3. Check for proper alignment and tracking.					
	8.	Check Robot 2 axis 2 belts.	4	9			
		Check for dirt and grease buildup.					
		2. Check for wear or damage.					
		2. Check for wear or dalliage.					

U.S. Postal Service								IDE	NTIF	ICAT	ION					
	WC	RK			Е	QUIF	MEN	•			CL/	ASS	N	UMBI	ΞR	TYPE
Maintenance Checklist	CC	DE				ACRO	MYNC				CC	DE				
	0	3	R	С	S						Α	A	0	0	5	М
Equipment Nomenclature	Equ	ipmeı	nt Mo	del				В	ulletir	Filer	name		Freque	ency		
Robotic Containerization System									MI	M14	122AD	)		AN	NUA	L

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	s
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Weeks
			Req (min)	Lev	Hours	Fed (000)	
		Check for proper alignment and tracking.					
			4				
	9.	Check Robot 2 axis 3 belts.	4	9			
		Check for dirt and grease buildup.					
		Check for wear or damage.					
		Check for proper alignment and tracking.					
		WARNING					
		Discard solvent soaked materials according to local procedures to prevent spontaneous combustion.					
ROBOT	10.	Check Robot 1, axis 1, gearbox for proper oil level.	4	7			
		Clean immediate area around the axis 1 gearbox oil level plug.					
		Loosen and remove axis 1 gearbox oil level plug.					
		Ensure the oil is at the level of the plug opening threads.					
		4. Fill as needed with Shell Tivela S-220 or Klüber GH 6-220 lubricant.					
		5. Replace plug and tighten securely.					
		6. Clean up any spilled oil.					
	11.	Check Robot 1, axis 2, gearbox for proper oil level.	4	7			
		Clean immediate area around the axis 2 gearbox oil level plug.					
		Loosen and remove axis 2 gearbox oil level plug.					
		<ol><li>Ensure the oil is at the level of the plug opening threads.</li></ol>					
		<ol> <li>Fill as needed with Shell Tivela S-220 or Klüber GH 6-220 lubricant.</li> </ol>					
		5. Replace plug and tighten securely.					
		6. Clean up any spilled oil.					

U.S. Postal Service							IDE	ENTIF	ICAT	ION					
Maintenance Checklist	CO	RK DE				 MEN'					ASS DE	N	UMBE	ER	TYPE
	0	3	R	С	S					Α	Α	0	0	5	М
Equipment Nomenclature		ipmer	nt Mo	del			E	Bulletir	n Filer	name	F	reque	ency		
Robotic Containerization System								MI	M14	122AD	·		ΑN	NUA	L

Dant an	lá a ma	Tools Chahamaanh and Inshmishian	F-4	NA: I		[]	. 1
Part or	Item	Task Statement and Instruction	Est.	Min.		<u>Fhreshold</u>	
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Weeks
			Req (min)	Lev	Hours	Fed (000)	
			(111111)			(000)	
	12.	Check Robot 2, axis 1, gearbox for proper oil	4	7			
		level.		'			
		1. Clean immediate area around the axis 1					
		gearbox oil level plug.					
		2. Loosen and remove axis 1 gearbox oil level					
		plug.					
		3. Ensure the oil is at the level of the plug					
		opening threads.					
		4. Fill as needed with Shell Tivela S-220 or					
		Klüber GH 6-220 lubricant.					
		5. Replace plug and tighten securely.					
		6. Clean up any spilled oil.					
		WARNING					
		Discard solvent seeked meterials					
		Discard solvent soaked materials					
		according to local procedures to					
		prevent spontaneous combustion.					
	13.	Check Robot 2, axis 2, gearbox for proper oil	4	7			
		level.					
		1. Clean immediate area around the axis 2					
		gearbox oil level plug.					
		2. Loosen and remove axis 2 gearbox oil level					
		plug.					
		3. Ensure the oil is at the level of the plug					
		opening threads.					
		, •					
		4. Fill as needed with Shell Tivela S-220 or					
		Klüber GH 6-220 lubricant.					
		5. Replace plug and tighten securely.					
		6. Clean up any spilled oil.					
CLEANTID	4.4	, , ,	2	V 11			
CLEAN UP	14.	Clean up. Ensure all tools, lubricants, rags,	2	All			
		etc., are removed from the work area. Report					
		all deficiencies to supervisor.					
		WARNING					
		Do coutious when werking around are ar-					
		Be cautious when working around or on					
		equipment when power has been					
		applied.					

U.S. Postal Service								IDE	NTIF	ICATI	ON					
Maintanana Obsaldiat		DRK			_	QUIF		-				ASS	N	UMBE	ΞR	TYPE
Maintenance Checklist	CC	DE				ACRO	<u>MYM</u>				CO	DE				
	0	3	R	С	S						Α	Α	0	0	5	М
Equipment Nomenclature	Equ	ipmer	nt Mo	del				В	ulletir	Filer	name	F	Freque	ncy		
Robotic Containerization System									MI	M14	122AD	)		AN	NUA	L

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	S
Component	No	(Comply with all current safety precautions)	Time Req (min)	Skill Lev	Run Hours	Pieces Fed (000)	Weeks
SYSTEM		Restore power. Remove lockouts, restore power, and return machine to operational status as prescribed by the current local lockout instructions providing lockout/restore procedures.	3	9			

### **RCS MASTER CHECKLIST**

03-RCS-AA-006-M

TWO YEAR

Time Total: 321 Minutes

Refer to MS-192 if additional maintenance information is required.

U.S. Postal Service							IDI	ENTIF	ICAT	ION					
Maintenance Checklist	WC	RK DE				 MEN ONYN					ASS DDE	N	UMBE	ΞR	TYPE
	0	3	R	С	S					A	A	0	0	6	М
Equipment Nomenclature Robotic Containerization System	Equ	ipmeı	nt Mo	del			E	Bulletir MI		name 122AD		reque	ncy TWC	YE.	AR

Dant an	lá a ma	Tools Obstance and an all materials in	F-4	Min		Thus als als	
Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est.   Time	Min. Skill	Run	Threshold Pieces	s Weeks
Component		(comply man am canonical stypical and in	Req (min)	Lev	Hours	Fed (000)	WOOKO
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.  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 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 for appropriate EWP PPE and barricade requirements.	1	All			
SYSTEM	2.	Ensure no one is standing in the safeguarded space around the robot and that the motion settings for jogging are correctly set. Carelessness can result in personal injury or damage to the equipment.  Power down and lock out power. Power down the machine and lock out its electrical and pneumatic power sources as prescribed by the current local lockout/restore procedures.		9			
		WARNING  Discard or dispose of chemical soaked materials according to MSDS and in accordance with local procedures.					

U.S. Postal Service							IDE	ENTIF	ICAT	ION					
Maintenance Checklist	WC CO	RK DE			_	 MEN MYMC	-				ASS DE	N	UMBE	ER	TYPE
	0	3	R	С	S					Α	Α	0	0	6	М
Equipment Nomenclature		ipmer	nt Mo	del			E	Bulletir				reque	,		
Robotic Containerization System								MI	VI14	122AD	)	-	ΓWC	YE,	٩R

Dord on	14	Tools Obstanced and bushnessing	F-4	NA:		There is the state	
Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est.   Time	Min. Skill	Run	Threshold Pieces	s Weeks
Component	110	(Comply Will all current salety prosauliency	Req	Lev	Hours	Fed	VVCCK3
			(min)			(000)	
ROBOT	2	Lubricata Dabat 4 avia 2 75mm halt unnar	60	9			
RUBUT	3.	Lubricate Robot 1, axis 3, 75mm belt upper	1	9			
		roller bearing. Lubricate Robot 1, axis 3, 75mm					
		belt upper roller bearing per instructions in Axis 3 Lube Point Maintenance placard or MS-192,					
		Volume B, Section 3. Use Shell Albida LC2					
		grease.					
	4.	Lubricate Robot 1, axis 3, bearing blocks, and	60	9			
		Front Lubrication Units (FLUs). Lubricate	1				
		Robot 1, axis 3, bearing blocks, and FLUs per					
		instructions in Axis 3 Lube Point Maintenance					
		placard or MS-192, Volume B, Section 3. Use	1				
		Mobile SHC639 oil and Optimal Longtime PD2					
		grease.					
	5.	Lubricate Robot 2, axis 3, 75mm belt upper	60	9			
	J.	roller bearing. Lubricate Robot 2, axis 3, 75mm					
		belt upper roller bearing per instructions in Axis 3	1				
		Lube Point Maintenance placard or MS-192,					
		Volume B, Section 3. Use Shell Albida LC2					
		grease.					
	6		60	9	_		
	6.	Lubricate Robot 2, axis 3, bearing blocks, and FLUs. Lubricate Robot 2, axis 3, bearing blocks,		9			
		and FLUs per instructions in Axis 3 Lube Point					
		Maintenance placard or MS-192, Volume B,					
		Section 3. Use Mobile SHC639 oil and Optimal					
		Longtime PD2 grease.					
	7.	Replace MEMOLUB automatic lubricator	1	9			
		pouches and batteries. Replace MEMOLUB					
		automatic lubricator pouches and batteries per					
		instructions in MS-192, Volume B, Section 3. Use MEMOLUB Refill Kit, GIGA 480, PSN 4730-					
		06-000-9841 (8 required for each RCS) and					
		MEMOLUB Refill Kit, MEGA 240, PSN 4730-06-					
		000-9842 (2 required for each RCS).					
OLEAN LIE		, , ,	_				1
CLEAN UP	8.	Clean up. Ensure all tools, lubricants, rags, etc.,		All			
		are removed from the work area. Report all					
		deficiencies to supervisor.					<u> </u>
		Tura sussa					
		WARNING					
		Be cautious when working around or on					
		equipment when power has been					
		applied.					
		~ Abbuon					
	1	<u> </u>			1	_1	1

U.S. Postal Service								IDE	ENTIF	CATI	ON					
Maintanana Chasklist		PK			_		MENT					ASS	N	UMB	ER	TYPE
Maintenance Checklist	CC	DE				ACRO	MYM				CC	DE				
	0	3	R	С	S						Α	A	0	0	6	М
Equipment Nomenclature Robotic Containerization System	Equipment Model							E	Bulletin		ame		Freque	,	) YE	۸D
Robotic Containerization System									IVII	/114	IZZAD			IVVC	) I 🗆	AIN

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	S
Component	No	(Comply with all current safety precautions)	Time Req (min)	Skill Lev	Run Hours	Pieces Fed (000)	Weeks
SYSTEM	9.	Restore power. Remove lockouts, restore power, and return machine to operational status as prescribed by the current local lockout instructions providing lockout/restore procedures.		9			

### **RCS MASTER CHECKLIST**

03-RCS-AA-007-M

THREE YEAR

Time Total: 171 Minutes

Refer to MS-192 if additional maintenance information is required.

U.S. Postal Service							IDE	NTIF	ICAT	ION					
Maintenance Checklist		RK DE			_	 MEN <sup>-</sup>	-				ASS DE	N	UMBI	ΞR	TYPE
	0	3	R	С	S	7141111				A	A	0	0	7	М
Equipment Nomenclature	Equ	ipmer	nt Mo	del		•	В	ulletir	Filer	name	I	Freque	ency		
Robotic Containerization System								M	M14	122AD		TI	HRE	E Y	EAR

Dort	lte	Took Ctotomont and Instrument		Mira		Throcket			
Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time	Min. Skill	Run	Threshold Pieces			
		(* 1)	Req (min)	Lev	Hours	Fed (000)			
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.  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 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 for appropriate EWP PPE and barricade requirements.	1	All					
SYSTEM	2.	Power down and lock out power. Power down the machine and lock out its electrical and pneumatic power sources as prescribed by the current local lockout/restore procedures.		9					
PNUEMATIC SYSTEM	3.	Replace coalescing filter.  1. Turn filter holder clockwise to remove.  2. Unscrew filter and remove.  3. Screw new filter in place to secure it.  4. Install filter holder. Turn counterclockwise to lock in place.	2	7					
SYSTEM CONSOLE	4.	Replace uninterrupted power supply (UPS) battery. Replace UPS battery per instructions in MS-192, Volume B, Section 5.	1	9					
	5.	Replace computer BIOS battery. Replace computer BIOS battery per instructions in MS-192, Volume B, Section 5.		10					

U.S. Postal Service		IDENTIFICATION														
Maintenance Checklist	_	WORK CODE					MEN <sup>-</sup>					ASS DE	_			TYPE
	0	3	R	С	S	ACK!	JIN T IVI				A	A	0	0	7	М
Equipment Nomenclature Robotic Containerization System	Equipment Model					E	Bulletin Filename MM14122AD					Frequency THREE YI				

		T 1 0 1 1 1 1 1	1				
Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est.   Time	Min. Skill	Run	Threshold Pieces	s Weeks
Component	NO	(Comply with all current salety precautions)	Req (min)	Lev	Hours	Fed (000)	vveeks
ROBOT	6.	Replace Robot 1 S4C batteries. Replace Robot 1 S4C batteries with cable per instructions in MS-192, Volume B, Section 5.		10			
	7.	Replace Robot 1 serial measurement board lithium battery pack. Replace Robot 1 serial measurement board lithium battery pack per instructions in MS-192, Volume B, Section 5.		10			
	8.	Replace Robot 2 S4C batteries. Replace Robot 2 S4C batteries with cable per instructions in MS-192, Volume B, Section 5.		10			
	9.	Replace Robot 2 serial measurement board lithium battery pack. Replace Robot 2 serial measurement board lithium battery pack per instructions in MS-192, Volume B, Section 5.		10			
		WARNING					
		Discard or dispose of chemical soaked materials according to MSDS and in accordance with local procedures.					
	10.	Change Robot 1, axis 1, gearbox oil. Change Robot 1, axis 1, gearbox oil per instructions in MMO-026-06 or MS-192, Volume B, Section 3. Use Shell Tivela S-220 or Klüber GH 6-220 lubricant.		9			
	11.	Change Robot 1, axis 2, gearbox oil. Change Robot 1, axis 2, gearbox oil per instructions in MMO-026-06 or MS-192, Volume B, Section 3. Use Shell Tivela S-220 or Klüber GH 6-220 lubricant.		9			
	12.	Change Robot 2, axis 1, gearbox oil. Change Robot 2, axis 1, gearbox oil per instructions in MMO-026-06 or MS-192, Volume B, Section 3. Use Shell Tivela S-220 or Klüber GH 6-220 lubricant.		9			
	13.	Change Robot 2, axis 2, gearbox oil. Change Robot 2, axis 2, gearbox oil per instructions in MMO-026-06 or MS-192, Volume B, Section 3. Use Shell Tivela S-220 or Klüber GH 6-220 lubricant.		9			

U.S. Postal Service	IDENTIFICATION															
Maintanana Obsaldiat		WORK EQUIPMENT						-	CLASS					UMBE	TYPE	
Maintenance Checklist	CODE ACRONYM									CO	DE					
	0	3	R	С	S						Α	A	0	0	7	М
Equipment Nomenclature	Equ	Equipment Model						В	ulletir	Filer	ame		Freque			
Robotic Containerization System									MI	M141	122AD	)	T	HRE	E YE	EAR

Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time	Min. Skill	Run	Threshold Pieces	s Weeks
			Req (min)	Lev	Hours	Fed (000)	
CLEAN UP	14.	<b>Clean up.</b> Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to supervisor.	1	All			
		WARNING  Be cautious when working around or on equipment when power has been applied.					
SYSTEM	15.	Restore power. Remove lockouts, restore power, and return machine to operational status as prescribed by the current local lockout instructions providing lockout/restore procedures.		9			

### **RCS MASTER CHECKLIST**

09-RCS-AA-001-M

### OPERATIONAL MAINTENANCE TWO TOURS PER DAY

Time Total: 25 Minutes

Refer to MS-192 if additional maintenance information is required.

ITEM	TASK	MULTIPLIER	TOTAL
	TIME	FACTOR	MINUTES
1	1	1	1
2	1	1	1
3	1	3	3
4	1	3	3
5	1	3	3
6	1	3	3
7	2	3	6
8	5	1	5
	_		25

U.S. Postal Service	IDENTIFICATION															
Matatanana Obaatii at	WC	PK	EQUIPMENT							CLA	ASS	N	UMBI	TYPE		
Maintenance Checklist	CO	DE				ACR(	MYNC		CODE							
	0	9	R	С	S						A	A	0	0	1	М
Equipment Nomenclature	Equ	ipmeı	nt Mo	del				Е	Bulletir	Filer	name		Frequ	ency		
Robotic Containerization System									MI	M14	122AD	)		T	OUR	

Dord or	14	Tools Obstanced and Instruction	F-4	N 45		Thursday Island	
Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est.   Time	Min. Skill	Run	Threshold Pieces	s Weeks
Сотроноле	110	(comply with all carrons calcity procedure to	Req (min)	Lev	Hours	Fed (000)	VVCCR3
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.  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 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 for appropriate EWP PPE and barricade requirements.	1	All			
MACHINE LOG	2.	At the beginning of the tour examine machine log. Examine log and bring forward any unresolved problems from the previous tour.  NOTE  Operational checks must be made with machine processing mail in a normal operating mode.		9			
SYSTEM GENERAL	3.	<b>Every two hours check for unusual sounds, odors.</b> Be alert for unusual sounds, odors, or other indication of potential failure of the RCS.		9			
SYSTEM SAFETY INDICATORS	4.	Every two hours check warning horn and beacons. Check for proper operation of warning horns and beacons on start-ups.		9			

MMO-058-15

U.S. Postal Service		IDENTIFICATION														
Maintenance Checklist	WC	RK DE					MEN					ASS DE	NUMBER			TYPE
ac.	0	9	R	С	S	ACIN	JIN I IV				A	A	0	0	1	М
Equipment Nomenclature Robotic Containerization System	Equ	ipmer	nt Model					E	Bulletir MI		name 122AD		Frequency TOUR			

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	s
Component	No	(Comply with all current safety precautions)	Time Req (min)	Skill Lev	Run Hours	Pieces Fed (000)	Weeks
SYSTEM INDICATORS	5.	<b>Every two hours check lamps.</b> Watch for proper functionality of all indicator lamps during normal machine operations. Correct deficiencies as soon as practical.		9			
REJECTS	6.	<b>Every two hours check rejects.</b> Check the RCS for rejects. Determine if they are due to tray/label hygiene or scan issues. Take appropriate action as practical.		9			
ACE COMPUTER	7.	<b>Every two hours check MPEWatch.</b> Check to ensure RCS is connected, transmitting Unit Load Transactions (ULX), and read rate is acceptable.		9			
ADMINISTRATIVE	8.	At the end of tour compile the following information:  • Any work orders generated  • Make entries in Machine Logbook of any discrepancies found during the tour  Turn this information into Maintenance Supervision. Brief personnel coming on duty		9			