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



## Maintenance Management Order

**SUBJECT:** Cross Belt Sorter (CBS) Operational and **DATE:** March 5, 2015

**Preventive Maintenance** 

**NO:** MMO-093-14

TO: Manager Maintenance, All Rapistan CBS FILE CODE: Y10

Sites

pmur:mm14028ae

		Online Change Record
Change #	Date	Description of Change
1	2/09/2021	Attachment 2, Item 3, Added Step 6 to close induction station covers and panels.
		Attachment 3, Item 3, Added Step to Replace the cover to the underside of all incline belts.

This Maintenance Management Order (MMO) provides Operational and Preventive Maintenance Guidelines for the Rapistan Cross Belt Sorter (CBS). The acronym is CBS and the class code is AA.

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.

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

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

### WARNING

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

### **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

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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 MTSC HelpDesk, online at https://tickets.mtsc.usps.gov/login.php or call (800) 366-4123 or (405) 573-2123.

Robert E. Albert

Manager

Maintenance Technical Support Center

**HQ** Maintenance Operations

- Attachments 1. Summary Workload Estimate for CBS
  - 2. Master Checklist: 03-CBS-AA-001-M: Daily PM
  - 3. Master Checklist: 03-CBS-AA-002-M: Weekly PM
  - 4. Master Checklist: 03-CBS-AA-003-M: Monthly PM
  - 5. Master Checklist: 03-CBS-AA-004-M: Quarterly PM
  - 6. Master Checklist: 03-CBS-AA-005-M: Semi-Annual PM
  - 7. Master Checklist: 09-CBS-AA-001-M: Operational Maintenance

### **SUMMARY**

### **WORKLOAD ESTIMATE**

### **FOR CBS**

Site Name	Induction Stations	LIM Modules	Days/ Week	Routine Servicing Time (Hrs/Yr)	Repair Time (Hrs/Yr)	Total Servicing Time (Hrs/Yr)	Non- Productive Time (Hrs/Yr)	Operational Maintenance Time (Hrs/Yr)	Total Time Time (Hrs/Yr)
Greater Newark	10	26	6	2391.59	717.48	3109.07	310.91	1422.72	4842.70
P&DC #1	10	20	7	2616.92	785.08	3402.00	340.20	1659.84	5402.04
Greater Newark	8	10	6	1778.90	533.67	2312.57	231.26	1060.80	3604.63
P&DC #2	0	10	7	1944.43	583.33	2527.76	252.78	1237.60	4018.14
Bethpage NY	8	20	6	2002.63	600.79	2603.42	260.34	1248.00	4111.76
P&DC #1	0	20	7	2189.83	656.95	2846.78	284.68	1456.00	4587.46
Bethpage NY	8	10	6	1778.90	533.67	2312.57	231.26	1060.80	3604.63
P&DC #2	0	10	7	1944.43	583.33	2527.76	252.78	1237.60	4018.14
Nashua NH	8	24	6	2092.13	627.64	2719.77	271.98	1322.88	4314.63
P&DC #1	8	24	7	2287.99	686.40	2974.39	297.44	1543.36	4815.19

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### **CBS MASTER CHECKLIST**

03-CBS-AA-001-M

### Multipliers:

- \* Items are multiplied by the number of induction stations
- \*\* Items are multiplied by the number of LIM Modules

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Maintenance Checklist		WORK EQUIPMENT CODE ACRONYN											NUMBER			TYPE
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Equipment Nomenclature Rapistan Cross Belt Sorter	Equ	ipmeı	nt Mo	del		•	•	Е	Bulletin <b>n</b>		name 4028		Occurr		aily	
Dort or Itom		Took	Ctoto	mont	and	lootru	tion				Eat	Min		Thr	achala	40

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	S
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Freq.
			Req	Lev	Hours	Fed	1
			(min)			(000)	

SAFETY STATEMENT	Disco requi local down equip for so unus prior	PLY WITH ALL SAFETY PRECAUTIONS. onnect power and apply lockouts when red by this instruction. Refer to current lockout procedures to properly shut and lock out this machine. Open oment and inspect dust conditions. Check uspicious dust or unusual debris. If any ual substance is found, notify supervisor to proceeding with any further action on quipment.		ALL		
	PROH When clean vacuu place cloth equip canno	USE OF COMPRESSED OR BLOWN AIR IS HIBITED.  In cleaning is required, an alternative ing method such as a HEPA filtered am cleaner or a damp rag must be used in of compressed or blown air. A lint-free or brush may be used on optical ament only when other cleaning methods of the used. Report safety deficiencies to rvisor immediately upon detection.				
	Steps use o Refer MMO	NING FOR EWP/PPE. s contained in this bulletin may require the f Personal Protective Equipment (PPE). to the current Electrical Work Plan (EWP) for appropriate PPE and barricade rements.				
SYSTEM	St the Ec Ele ap	quipment (PPE). Refer to the current ectrical Work Plan (EWP) for propriate PPE and barricade quirements.	25	07		
	the cu	r down and lock out power as prescribed by urrent local lockout instructions providing ut/restore procedures.				

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Equipment Nomenclature	Equi	pmer	nt Mo	del			-	Bulle	in Filer	name		Occurrence			
Rapistan Cross Belt Sorter	mm140												D	aily	

Part or	Item	Task Statement and Instruction	Est.	Min.		Thresholds	S
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Freq.
			Req (min)	Lev	Hours	Fed (000)	
MAIL OF A DOLL	_	Desfans well accust on the industion stations	40*	0.7		· · · · · ·	-
MAIL SEARCH	3.	Perform mail search on the induction stations.	10*	07			
		Open induction station covers and panels.					
		<ol><li>Perform mail search; return all recovered mail pieces to the proper operation.</li></ol>					
		<ol> <li>Report any excessive dust or debris build up or defective belts observed during mail search to supervisor.</li> </ol>					
		4. Close all induction station covers and panels.					
		<ol><li>Check for mail between induction stations and on platform.</li></ol>					
		6. Close induction station covers and panels.					
	4.	Perform mail search on the main sorter.	2.5**	07			
		Walk entire sorter to:					
		Clear nets of debris and parcels.					
		Clear chutes of debris and parcels.					
		<ol> <li>Visually check sorter for any damage (i.e. photo eyes, re-centering station, carrier test station, E-Stops, stack lights, encoder, etc).</li> </ol>					
INDUCTION	5.	Check induction stations.	4*	07			
STATIONS		Clean rollers and bearings of debris.					
		2. Wipe down all photo eyes using lint free cloth.					
SYSTEM	6.	Clean up.	3	07			
		Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to supervisor.					
	7.	Restore power.	20	07			
		Restore equipment to service as prescribed by the current local procedure providing lockout/restore procedures.					

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Part or	Item							Instru					Est.	Min			Thre	eshold	s
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	8.	Perform	checks prior to operational start up.										3+.5*	09	)				
		1. With	the s	sorte	r pov	were	id-n	n but	not	rui	nninc	ղ.							
		actua																	
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		2. Rese	et the	syst	tem	to cl	ear	the E	E-Sto	p.									
		3. Start	sorte	er, ei	nsur	ing 1	hat	all a	udible	e a	and								
				sorter, ensuring that all audible and I safety alarms are operational.															
				•															
		4. Ched							ensu	re									
		oper	ation	. Un	eac	n st	.ลเเด	n:											
		a.	The	Opei	rator	Dis	play	Par	el sh	οι	ıld								
				The Operator Display Panel should ndicate:															
l .	1	1												1			1		1

Place Auto/Manual switch in Auto mode.

Induction unit belts should sequentially

The Operator Display Panel should now

Check belt tracking on all belts. Ensure belt is

Restore equipment to operational service. Report

3

07

1)

start.

indicate:1) IU Running

b.

f.

9.

IU Stopped Sorter Running

Activate the Reset button.

Activate the Run button.

Sorter Running

centered and does not wander.

Restore equipment to service.

all deficiencies to supervisor.

### **CBS WEEKLY MASTER CHECKLIST**

03-CBS-AA-002-M

### Multipliers:

- \* Items are multiplied by the number of induction stations
- \*\* Items are multiplied by the number of LIM Modules

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Maintenance Checklist		ORK ODE			_		MENT NYM				_	ASS DE	N	JMBI	ĒR	TYPE	
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Equipment Nomenclature Rapistan Cross Belt Sorter	Equ	Equipment Model								Bulletin Filename mm14028				Occurrence Weekly			

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

SAFETY	1. COMPLY WITH ALL SAFETY PRECAUTIONS.	1	ALL		
STATEMENT	Disconnect power and apply lockouts when				
	required by this instruction. Refer to curren				
	local lockout procedures to properly shu				
	down and lock out this machine. Oper				
	equipment and inspect dust conditions. Checl				
	for suspicious dust or unusual debris. If any				
	unusual substance is found, notify superviso prior to proceeding with any further action or				
	the equipment.	1			
	THE USE OF COMPRESSED OR BLOWN AIR IS	5			
	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 optica				
	equipment only when other cleaning methods				
	cannot be used. Report safety deficiencies to				
	supervisor immediately upon detection.				
	WARNING FOR EWP/PPE.				
	Steps contained in this bulletin may require the				
	use of Personal Protective Equipment (PPE)				
	Refer to the current Electrical Work Plan (EWP	)			
	MMO for appropriate PPE and barricade	•			
	requirements.				
SYSTEM	Power down and lock out power.	25	07		
OTOTEM			0,		
	WARNING				
	Steps contained in this bulletin require				
	the use of Personal Protective				
	Equipment (PPE). Refer to the current				
	Electrical Work Plan (EWP) for				
	appropriate PPE and barricade				
	requirements.				
	Power down and lock out power as prescribed by				
	the current local lockout instructions providing				
	lockout/restore procedures.				
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Equipment Nomenclature	Equ	ipmer	nt Mo	Model					Bulletin Filename			Occurrence			
Rapistan Cross Belt Sorter									mm1	4028			W	eekly	/

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	
Component	No	(Comply with all current safety precautions)	Time Req	Skill Lev	Run Hours	Pieces Fed	Freq.
			(min)			(000)	
INDUCTION	3.	Clean induction station incline belts.	36*	07			
STATIONS		Remove the cover from the underside of all incline					
		belts. Completely clean the area inside, remove					
		any build up or foreign objects such as string from					
		rollers and bearings. Replace the cover to the underside of all incline belts.					
			30	07			
		Chute cleaning.	30	07			
		Clean one section of chutes using HEPA filter vacuum (Example: 100 Section, 200 Section, etc.).					
SYSTEM			20	07			
SYSTEM		Restore equipment to service.	20	07			
		Restore equipment to service as prescribed by the current local procedure providing lockout/restore					
		procedures.					
MAIN SORTER	6.	E-Stop checks.	3**	07			
		With the sorter powered up but not running,					
		actuate all E-Stops one at a time and verify					
		actuation on the FMPCS Graphical System					
		Interface or the System E-Stop indicator light on the Cross Belt Power Management Panel.					
		Perform inspection on and clean 15 carrier	150	09			
		cells.	130	03			
		Visually inspect the following for wear, cracks,					
		damage, or defects:					
		Belt tracking					
		2. Motor connections					
		3. Ground wire					
		4. Inspect and clean wheels					
		5. Belts and pulleys					
		6. Shields					
		7. Wipe down cell reflectors					
		8. Truck					
		9. On master cells:					
		a. Check collector brushes					
		c. Cell servo controller bracket					

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Equipment Nomenclature Rapistan Cross Belt Sorter	Equi	pmer	nt Mo	del			В			name 4028	(	Occurr		eekly	,

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Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time	Min. Skill	Run	Threshold Pieces	s Freq.
			Req (min)	Lev	Hours	Fed (000)	
						1	
		10. Clean carrier cell load belt					
		Scrub belt using soft bristle brush and so water; wipe dry	рару				
	8.	Indicator lights.	3+.5**	09			
		Check all indicator lights using the lamp test command in FMPCS					
	9.	Chute stack lights.	1.2**	09			
		Activate the Chute Disable switch for each cl and ensure the appropriate stack light comes Return the switch to the Enabled position.					
	10.	Proximity switch.	1**	09			
		Check Equipment Present Proximity Switch of each chute. Ensure the indicator light on the sensor changes state as the proximity switch blocked and unblocked.	•				
SYSTEM	11.	Clean up.	3	07			
		Ensure all tools, lubricants, rags, etc., are reform the work area. Report all deficiencies to supervisor.					
	12.	Perform checks prior to operational start	<b>up.</b> 3+.5*	09			
		<ol> <li>With the sorter powered up but not runni actuate any E-Stop and verify actuation FMPCS Graphical System Interface.</li> </ol>					
		2. Reset the system to clear the E-Stop.					
		<ol><li>Start sorter, ensuring that all audible and visual safety alarms are operational.</li></ol>	ı				
		Check all induction stations to ensure operation. On each station:					
		a. The Operator Display Panel should indicate:					
		1) IU Stopped					
		2) Sorter Running					
		b. Place Auto/Manual switch in Auto m	node.				
		c. Activate the Reset button.					
		d. Activate the Run button.					

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Rapistan Cross Belt Sorter								r	mm1	4028			W	eekly	/

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	S
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Freq.
			Req	Lev	Hours	Fed	
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		e. Induction unit belts should sequentially start.					
		f. The Operator Display Panel should now indicate:					
		1) IU Running					
		2) Sorter Running					
		<ol><li>Check belt tracking on all belts. Ensure belt is centered and does not wander.</li></ol>					
	13.	Restore equipment to service.	3	07			
		Restore equipment to operational service. Report all deficiencies to supervisor.					

MMO-093-14		Maintenance	i ecnnicai	Support C	enter
U.S. Postal Service		IDENTIFICAT	ION		
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Maintenance Checklist	CC	DE				ACRO	NYM				CO	DE				
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Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	ls
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### **CBS MONTHLY MASTER CHECKLIST**

03-CBS-AA-003-M

### Multipliers:

- \* Items are multiplied by the number of induction stations
- \*\* Items are multiplied by the number of LIM Modules

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Equipment Nomenclature Rapistan Cross Belt Sorter					Equipment Model						Bulletin Filename mm14028			ence Mc	y	

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	S
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Freq.
			Req	Lev	Hours	Fed	1
			(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	1	ALL		
	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 supervisor immediately upon detection.  WARNING FOR EWP/PPE.  Steps contained in this bulletin may require the use of Personal Protective Equipment (PPE). Refer to the current Electrical Work Plan (EWP) MMO for appropriate PPE and barricade requirements.				
SYSTEM	2. Power down and lock out power.  WARNING  Steps contained in this bulletin require the use of Personal Protective Equipment (PPE). Refer to the current Electrical Work Plan (EWP) for appropriate PPE and barricade requirements.  Power down and lock out power as prescribed by the current local lockout instructions providing lockout/restore procedures.	25	07		

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Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req (min)	Min. Skill Lev	Run Hours	Threshold Pieces Fed (000)	s Freq.
	3.	Encoder.  Wipe clean encoder window using a dry, clean, lint free cloth. Do not use any cleaners or chemicals	60	07			
	4.	on the window.  Cell test station.  Verify proper spacing of the cell test station antenna. Gap between carrier cell and antenna should be 9.9mm.	2	09			
		See Rapistan Systems Functional Description page FD 28 for additional information.					
	5.	<ol> <li>Clean and check induction stations.</li> <li>Remove side covers and clean internal areas using HEPA filter vacuum.</li> <li>Clean induction station belts using a HEPA filter vacuum and brush to remove accumulated dirt and debris.</li> <li>Clean between and under induction stations.</li> <li>Scrub all induction belts with soft bristle brush and soapy water; wipe dry.</li> <li>Drive belt tension and alignment (all belts except 45 degree belt):         <ol> <li>Remove the drive cover.</li> <li>Check the alignment of the drive and driven sprockets using a straight edge. Loosen the set screws on the taper-lock bushings, align sprockets, and re-tighten set screws as required.</li> <li>Check the tension on the drive belt. When properly tensioned, the belt will deflect 3/16-inch (+/-1/32-inch) when 3 to 4 pounds of force is applied perpendicular to the belt at the midpoint of the span between the sprockets.</li> </ol> </li> <li>NOTE         <ol> <li>The deflecting device must be at least as wide as the belt.</li> </ol> </li> </ol>	75*	07			

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Equipment Nomenclature Rapistan Cross Belt Sorter	Equipment		nt Mo	del			E	Bulletir r		name 4028	Occurrence Monthly			/	

Part or	Itam	Task Statement and Instruction	Est.	Min.		Threshold	•
Component	Item No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Freq.
		(22   )	Req	Lev	Hours	Fed	
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		NOTE					
		Over-tensioning the drive belt will cause excessive belt stretching, wear, and					
		possible belt failure.					
		See the Rapistan Systems Preventive					
		Maintenance Manual for adjustment procedures if					
		necessary.					
		6. Replace/Secure all covers.					
	6.	45-Degree belt tension and alignment.	15*	09			
		Check the 45-degree belt alignment using the					
		procedure from the Rapistan Systems Preventive					
		Maintenance Manual, page PM 07.					
	7.	Clean up.	3	07			
		Ensure all tools, lubricants, rags, etc., are removed					
		from the work area.					
SYSTEM	8.	Restore equipment to service.	20	07			
		Restore equipment to service as prescribed by the					
		current local procedure providing lockout/restore					
		procedures.					
MAIN SORTER	9.	Enroute Encoding Scanning System (EESS).	2	09			
		Perform a restart of the EESS.					
	10.	Perform checks prior to operational start up.	3+.5*	09			
		With the sorter powered up but not running,					
		actuate any E-Stop and verify actuation on the					
		FMPCS Graphical System Interface.					
		Reset the system to clear the E-Stop.					
		3. Start sorter, ensuring that all audible and					
		visual safety alarms are operational.					
		Check all induction stations to ensure operation. On each station :					
		<ul> <li>a. The Operator Display Panel should indicate:</li> </ul>					
		1) IU Stopped					
		2) Sorter Running					
		b. Place Auto/Manual switch in Auto mode.					
					<u> </u>		

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Maintenance Checklist	WC CO				_	 MEN <sup>-</sup> NYM	-			CL/ CO	ASS DE	N	UMBI	ΞR	TYPE
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Equipment Nomenclature Rapistan Cross Belt Sorter	Equi	ipmer	nt Mo	del			В		n Filer nm1	name 4028		Occurr		onthly	/

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	c
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Freq.
·			Req	Lev	Hours	Fed	- 1
			(min)			(000)	
		c. Activate the Reset button.					
		c. Activate the Reset button.					
		d. Activate the Run button.					
		e. Induction unit belts should sequentially start.					
		f. The Operator Display Panel should now indicate:					
		1) IU Running					
		2) Sorter Running					
		<ol><li>Check belt tracking on all belts. Ensure belt is centered and does not wander.</li></ol>					
	11.	Restore equipment to service.	3	07			
		Restore equipment to operational service. Report all deficiencies to supervisor.					

MMO-093-14		Maintenance	i ecnnicai	Support C	enter
U.S. Postal Service		IDENTIFICAT	ION		
Maintananaa Chaaldiat	WORK	EQUIPMENT	CLASS	NUMBER	TYPE
Maintenance Checklist	CODE	ACRONYM	CODE		

Maintenance Checklist	CC	DE				ACRO	MYM				CO	DE					
	0	3	С	В	S						Α	Α	-	0	0	3	М
Equipment Nomenclature	Equ	ipmer	nt Mo	del				Е	Bulletir	n Filer	name		Occ	urre	ence		
Rapistan Cross Belt Sorter									r	nm1	4028				Mo	nthly	/

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

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### **CBS QUARTERLY MASTER CHECKLIST**

03-CBS-AA-004-M

### Multipliers:

- \* Items are multiplied by the number of induction stations
- \*\* Items are multiplied by the number of LIM Modules

U.S. Postal Service								IDE	NTIF	ICATI	ON					
Maintenance Checklist	_	ORK ODE					MENT MYM	•				ASS DE	NI	JMBI	ĒR	TYPE
	0	3	С	В	S						Α	Α	0	0	4	М
Equipment Nomenclature Rapistan Cross Belt Sorter	Equipment Model								Bulletin Filename mm14028				Occurr	ly		

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

SAFETY STATEMENT	1. COMPLY WITH ALL SAFETY PRECAUTIONS. Disconnect power and apply lockouts wher required by this instruction. Refer to current local lockout procedures to properly shurdown 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 or 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 supervisor immediately upon detection.  WARNING FOR EWP/PPE.  Steps contained in this bulletin may require the use of Personal Protective Equipment (PPE). Refer to the current Electrical Work Plan (EWP) MMO for appropriate PPE and barricade requirements.		ALL		
SYSTEM	2. Power down and lock out power.	25	07		
O T C T E IVI	WARNING  Steps contained in this bulletin require the use of Personal Protective Equipment (PPE). Refer to the current Electrical Work Plan (EWP) for appropriate PPE and barricade requirements.  Power down and lock out power as prescribed by the current local lockout instructions providing lockout/restore procedures.	20	3,		

U.S. Postal Service								IDENTI	FICAT	ION					
Maintananaa Obaaldiat		RK			_		MENT				ASS	Ν	UMBI	≣R	TYPE
Maintenance Checklist	CO	DE				ACR(	MYNC			CC	DE				
	0	3	С	В	S					Α	Α	0	0	4	M
Equipment Nomenclature	Equ	ipmer	nt Mo	del				Bulle	in File	name	(	Occuri	rence		
Rapistan Cross Belt Sorter	elt Sorter			Equipment Model Bulletin Filename Occurre mm14028							Qua	arter	ly		

_			r _				
Part or Component	Item No	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time	Min. Skill	Run	Threshold Pieces	Freq.
Component	INO	(Comply with all current salety precautions)	Reg	Lev	Hours	Fed	rieq.
			(min)			(000)	
INDUCTION	3.	Inspect and lubricate.	10*	07			
STATION	٥.	•	10	07			
		Perform this step in conjunction with the					
		Monthly Induction Station Clean and Inspect task.					
		2. Check all grease fittings, add grease if					
		necessary. Do not apply grease to sealed bearings.					
MAIN SORTER	4.	Clean cabinets.	180	09			
		Clean inside of CC cabinets.					
		Clean inside of TVD cabinets.					
		Clean inside of LIM cabinets.					
		4. Clean inside of DCP cabinets.					
		<ol><li>Remove and replace filters from all DCP boxes and LIM boxes.</li></ol>					
		6. Vacuum dirty filters with HEPA filter vacuum.					
		7. Clean FMPCS computer filter.					
	5.	Linear induction motor (LIM).	20**	09			
		Clean LIM cooling fans and heat sinks.					
	6.	Clean up.	3	07			
		Ensure all tools, lubricants, rags, etc., are removed					
		from the work area. Report all deficiencies to					
		supervisor.					
	7.	Restore power.	20	07			
		Restore equipment to service as prescribed by the					
		current local procedure providing lockout/restore					
		procedures.					
	8.	Re-centering.	30	09			
		Perform re-centering alignment in accordance with					
		the Rapistan Systems Diagnostic Manual page 34.					
FMPCS	9.	FMPCS backup.	10	10			
		Perform a backup of FMPCS Site Data.					
			<u> </u>	<u> </u>	<del></del>	1	

U.S. Postal Service

Maintenance Technical Support Center

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07

IDENTIFICATION

Maintenance	e Check	list		WORI					EQUIP ACRO					LASS ODE	١	NUMB	ER	TYPE
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Equipment Nomenclatu Rapistan Cros		Orto		Equipn	nent	Mod€	el	_			В	Bulletin Fil mm	lename 14028		Occur		e larter	lv
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Part or	Item	T							Instruc		`		Est.	Min.			esholo	
Component	No		(C	omply	with :	all cu	ırrer	nt sai	ety pr	ecaut	ions)	1	Time Req	Skill Lev	Run Hours		ieces Fed	Freq.
		$\perp$											(min)			-	000)	
SYSTEM	10.	Per	rform c	heck	s pr	or t	to c		ratio	nal s	tart	t up.	3+.5*	09	$\overline{T}$	$\top$		
		1.	With th															
			actuate	e any	E-S	top	and	d ve	erify a	actua	ation	on the						
			FMPC		•		•											
		2.	Reset		•						•	_						
		3.	Start s visual									nd						
		4.	Check operat							∍nsu	re							
				he Op		tor [	Disį	play	Pan	el sh	oulc	d						
			1)	ı IU	J Sto	ppe	•d											
			2)	So	orter	Rui	nni	ng										
			b. P	ace A	4uto	′Ma	nua	al sv	vitch	in A	uto i	mode.						
			c. A	ctivat	e the	Re	ese:	t bu	tton.									
			d. A	ctivat	e the	≀Rı	ın t	butto	on.									
				duction	on u	nit t	celt	s sł	nould	seq	uent	tially						
			f. TI		perat		Dis	play	<sup>-</sup> Pan	el sh	oulc	d now						
			1)	IU	J Rui	nin	ıg											
			2)	Sc.	orter	Rııı	nnii	na										

Attachment 5 4

5. Check belt tracking on all belts. Ensure belt is

Restore equipment to operational service. Report

centered and does not wander.

11. Restore equipment to service.

all deficiencies to supervisor.

### **CBS SEMIANNUAL MASTER CHECKLIST**

03-CBS-AA-005-M

### Multipliers:

- \* Items are multiplied by the number of induction stations
- \*\* Items are multiplied by the number of LIM Modules

U.S. Postal Service								IDENT	IFICAT	ION					
Maintenance Checklist	WORK EQUIPMENT ACRONYM							-		ASS DDE	N	NUMBER		TYPE	
	0	3	С	В	S					Α	Α	0	0	5	М
Equipment Nomenclature Rapistan Cross Belt Sorter		Equipment Model							Bulletin Filename mm14028				ence Semi	nual	

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	S
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Freq.
			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.		07		
	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 supervisor immediately upon detection.				
	WARNING FOR EWP/PPE. Steps contained in this bulletin may require the use of Personal Protective Equipment (PPE). Refer to the current Electrical Work Plan (EWP) MMO for appropriate PPE and barricade requirements.				
SYSTEM	WARNING  Steps contained in this bulletin require the use of Personal Protective Equipment (PPE). Refer to the current Electrical Work Plan (EWP) for appropriate PPE and barricade requirements.  Power down and lock out power as prescribed by the current local lockout instructions providing lockout/restore procedures.	25	07		

U.S. Postal Service								IDENT	FICAT	ION					
Maintananaa Obaaldiat		RK			_		PMENT				ASS	N	UMBI	≣R	TYPE
Maintenance Checklist	CO	DE				ACR(	MYNC			CC	DE				
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Equipment Nomenclature	Equ	ipmer	nt Mo	del				Bulle	tin File	name	(	Occuri	ence		
Rapistan Cross Belt Sorter									mm1	4028		5	Semi	-Anr	iual

rapidan orde					····· / ·····	G. G
Part or	Item	Task Statement and Instruction	Es		Threshold	
Component	No	(Comply with all current safety precautions)	Tin Re	q Lev	Pieces Fed	Freq.
			(mi	n)	(000)	
MAIN SORTER	3.	Carrier pitch.	18	0 10		
		Inspect the carrier pitch with sorter stopped. M	Лake			
		sure that the carrier train is straight and not zigzagging. Check this on a straight track sect	tion			
		Observe the carrier cells on a curve. If carrier				
		guide wheels are running against outside of cu	ırve,			
		adjust (shorten) the carrier pitch as required. Refer to Crossbelt Sortation System Training				
		Manual, Preventive Maintenance, pages PM24	4-25.			
	4.	LIM clearance.	72	0 09		
		Inspect the clearances between the LIM drive	units			
		(Primary) and the lowest carrier (Secondary). Identify this carrier as the Reference Carrier (R	RC).			
		If the clearance between each LIM Primary and				
		RC LIM Secondary is not between 0.100 and 0.140 inches (2.5 to 3.5 mm), adjust the height	t of			
		the appropriate LIM drive unit. Refer to Crossl	belt			
		Sortation System Training Manual, Preventive Maintenance, pages PM26-27.				
	5.	LIM safety device flag - clearance.	18	** 09		
	5.			08		
		Inspect the clearances between each LIM safe device flag and the RC LIM Secondary. If the	ety			
		clearance is not .050+/01 inches (1.25+/-	t the			
		.025mm) across the width of the carrier, adjust height of the flag. Refer to Crossbelt Sortation				
		System Training Manual, Preventive Maintena				
		pages PM27-28.				
			_			
	6.	Inspect power rails / clean sorter belly pans		**   09		
		Remove four support screws from belly pa				
		<ol><li>Remove the pan. Inspect for broken brush or other components or metal shavings. C pan with vacuum.</li></ol>				
		<ol> <li>Inspect area above pan for any foreign obj</li> </ol>	iects			
		or damage.	,			
		4. Inspect the Power Rails.				
		5. Inspect Rail Holders for cracks or damage				
	L	I	1		 1	1

U.S. Postal Service								IDE	NTIF	ICATI	ON					
Maintenance Checklist	WORK EQUIPMENT CODE ACRONYM						•	CLASS CODE				NUMBER			TYPE	
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Equipment Nomenclature Rapistan Cross Belt Sorter		Equipment Model							Bulletin Filename mm14028				Occurrence Semi-Anr			ıual

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

		NOTE				
		Spacing between holders should be no more than 40" in straight sections, 20" – 40" in curves and no more than 8" from each side of Isolator.				
		6. Inspect Isolators				
		7. Inspect visible Carrier Cell brushes.				
		8. Reinstall pan and support screws.				
SYSTEM	7.	Clean up.	3	07		
		Ensure all tools, lubricants, rags, etc., are removed from the work area. Report all deficiencies to supervisor.				
	8.	Restore power.	20	07		
		Restore equipment to service as prescribed by the current local procedure providing lockout/restore procedures.				
	9.	Perform checks prior to operational start up.	3+.5*	09		
		<ol> <li>With the sorter powered-up but not running, actuate any E-Stop and verify actuation on the FMPCS Graphical System Interface.</li> </ol>				
		2. Reset the system to clear the E-Stop.				
		<ol><li>Start sorter, ensuring that all audible and visual safety alarms are operational.</li></ol>				
		Check all induction stations to ensure operation. On each station :				
		a. The Operator Display Panel should indicate:				
		1) IU Stopped				
		2) Sorter Running				
		b. Place Auto/Manual switch in Auto mode.				
		c. Activate the Reset button.				
		d. Activate the Run button.				
		e. Induction Unit Belts should sequentially start.				

U.S. Postal Service							IDE	NTIF	ICATI	ION					
Maintenance Checklist	WC CO	RK DE			_	 MENT DNYM					ASS DE	N	UMBI	ĒR	TYPE
	0	3	С	В	S					Α	Α	0	0	5	M
Equipment Nomenclature Rapistan Cross Belt Sorter	Equipment I		nt Mo	del			В	Sulletin r		name 4028		Occuri	rence Semi	-Ann	ıual

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)	Freq.
		f. The Operator Display Panel should now indicate:  1) IU Running 2) Sorter Running 5. Check belt tracking on all belts. Ensure belt is centered and does not wander.					
		Restore equipment to service.  Restore equipment to operational service. Report all deficiencies to supervisor.	3	07			

MMO-093-14 Maintenance Technical Support Center												
U.S. Postal Service		IDENTIFICATION										
	WORK	EQUIPMENT	CLASS	NUMBER	TYPE							
Maintenance Checklist	CODE	ACRONYM	CODE									

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Equipment Nomenclature	Equ	ipmeı	nt Mo	del			В	ulletir	n Filei	name		Occi	urre	ence		
Rapistan Cross Belt Sorter								r	nm1	4028			S	emi-	-Ann	iual

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

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### **CBS OPERATIONAL MAINTENANCE CHECKLIST**

09-CBS-AA-001-M

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Maintenance Checklist	_	WORK CODE					MENT	•	CLASS CODE				NUMBER			TYPE
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Equipment Nomenclature Rapistan Cross Belt Sorter	Equ	Equipment Model					Bulletin Filename mm14028					Occurr				

Part or	Item	Task Statement and Instruction	Est.	Min.		S	
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Freq.
			Req (min)	Lev	Hours	Fed (000)	
			(111111)			(000)	
ODEDATIONAL	1	COMPLY WITH ALL SAFETY PRECAUTIONS.	4	A 11			
OPERATIONAL MAINTENANCE				All			
MAINTENANCE		Disconnect power and apply lockouts when					
		required by this instruction. Refer to current					
		local lockout procedures to properly shutdown					
		and lockout this machine. Open equipment					
		and inspect dust conditions. Check for					
		suspicious dust or unusual debris. If any					
		unusual substance is found, notify supervisor					
		prior to proceeding with any further action on					
		the equipment.					
		THE USE OF COMPRESSED OR BLOWN AIR IS					
		PROHIBITED.					
		When cleaning is required, an alternative					
		cleaning method such as a HEPA filtered					
		vacuum cleaner or a damp rag must be used in					
		place of compressed or blown air. A lint-free					
		cloth or brush may be used on optical					
		equipment only when other cleaning methods					
		cannot be used. Report safety deficiencies to					
		supervisor immediately upon detection.					
		WARNING FOR EWP/PPE:					
		Steps contained in this bulletin may require the					
		use of Personal Protective Equipment (PPE).					
		Refer to the current Electrical Work Plan (EWP)					
		MMO for appropriate PPE and barricade					
		requirements.					
EL 1000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_		•		1		
FMPCS REPORTS:		Generate and review reports. Analyze data	30	10			
		provided on the following reports to determine if					
		any areas of the machine are degrading or need					
		attention. Reports can be selected through the					
		FMPCS menu system or requested at the					
		command line.					
		1. Review Volume Report. Look for high number					
		occurrences of Induction failure, Missent,					
		Induction Unit Problems, or Discharge					
		Problems or failures.					
		2. Review Tray Status Report. Look for stranded					
		loads, Out of Service cells, or Right/Left					
		movement problems.					
		3. Review Condition Report. Look for Not					
		Operational, Out of Service, Failing, or Down					
		equipment.					
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U.S. Postal Service		IDENTIFICATION														
Maintananaa Obaaldiat		RK			EQUIPMENT						CL	N	UMBI	TYPE		
Maintenance Checklist	CO	DE				ACR(	MYNC				CC	DE				
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Equipment Nomenclature	Equ	ipmer	nt Mo	del				В	ulletir	Filer	name		Occuri	ence		
Rapistan Cross Belt Sorter		- 1 - F						r	nm1	4028						

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)	Freq.
		Review Maintenance Report. Look for high number occurrences of problems or failures.     Review current message log.					
SENSOR: TRACKING (DVS, IVS, LVS)	3.	Run FMPCS maintenance sensor tests.  Run sensor test for each sorter tracking sensor (observe test results on message log). The location of mail on the trays or tray state must be known to determine correct test results.	5	10			
DISCHARGE:	4.	Run FMPCS maintenance discharge tests.  Run discharge unit test for any discharge showing a high failure rate in the maintenance report.	10	10			
INDUCTION UNIT:	5.	Check induction unit.  Observe condition of the induction unit (belting, controls).	1*	09			
	6.	Check induction.  Observe induction of parcel onto the sorter; ensure parcel is hitting the correct carrier cell.	1*	09			
INDUCTION UNIT: SCANNER	7.	Check scanner. Verify scanners ability to read bar code.	1*	09			
RE-CENTERING STATION	8.	Check re-centering stations. Verify re-centering stations are functional.	2	09			
SORTER	9.	Package loading.  Observe the inductions of packages onto the carrier cells from one induction station for three revolutions of the sorter. Packages not inducted onto the belt of the carrier cell or significant changes in the package placement onto the cell may indicate a sorter pitch problem, which requires further investigation.	.6**	09			

U.S. Postal Service		. IDI							IDENTIFICATION								
Maintananaa Chaaklist	work cklist Code						MEN					ASS	Ν	TYPE			
Maintenance Checklist	CO	DE				ACR(	MYNC				CO	DE					
	0	9	С	В	S						Α	Α	0	0	1	M	
Equipment Nomenclature	Equ	ipmer	nt Mo	del				В	ulletir	Filer	name	(	Occuri	ence			
Rapistan Cross Belt Sorter									r	nm1	4028						

Part or	Item	Task Statement and Instruction	Est.	Min.		Threshold	S
Component	No	(Comply with all current safety precautions)	Time	Skill	Run	Pieces	Freq.
			Req (min)	Lev	Hours	Fed (000)	
				ı	1	(000)	
	10.	Check sorter.	1.2**	09			
		Walk entire length of the machine under the					
		sorter and around the chutes. Ensure proper					
		operation of all components; listen for unusual noises, pay special attention to the area of the					
		LIM motors and fans.					
		2. Clear nets of debris and parcels; return mail to					
		the appropriate mail stream for processing.					
		3. Ensure nets are attached to the support					
		cables.					
		4. Verify that net support cables are attached to					
		brackets and the brackets are not bent or					
		damaged.					
	11.	Carrier cell test station.	3	09			
		Verify proper operation of the cell test station.					
		Display should change as carrier cell tests are performed.					
		1					
	12.	Enroute Encoding Scanning System (EESS).	3	07			
		While the machine is operating, check the display on the EESS E-Box to ensure:					
		1. The Date/Time is correct.					
		2. DCS is connected.					
		3. Counter is incrementing as packages pass by.					
	13.	Package Sorter Overhead Camera (PSOC).	3	10			
		Ensure PSOC is on line and functioning					
		properly. Display should indicate:					
		"Ready, FMPCS Connected"					
		2. Check the read rate and ensure it matches the					
		expected read rate of the mail being					
		processed.					
REPORT	14.	Report deficiencies.	3	07			
		Report all deficiencies to supervisor.					
			l	<u> </u>	1	I.	