MAINTENANCE TECHNICAL SUPPORT CENTER / MAINTENANCE MANAGEMENT OFFICE

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SUBJECT: Revised PM Scheduling Procedure for Facer Cancelers and Edger Feeders DATE February 9, 1979

NO.: <u>MMO-15-79</u>

- TO: 1. Regional General Managers Maintenance Management Divisions
 - 2. District Managers
 - 3. Mark II Edger Feeder Offices

Recent investigation into the scheduling of Preventive Maintenance (PM) for Mark II Facer Cancelers have revealed instances where PM man-hours expended were excessive compared to operating hours for the equipment. A test of scheduling PM based upon actual running time of the machine rather than a fixed frequency was conducted. This test revealed no deterioration of machine performance as a result of the revised scheduling procedure.

This Maintenance Bulletin prescribes, in Attachment 1, a manual PM scheduling procedure for Facer Cancelers and Edger Feeders. PM criteria checklists for Facer Cancelers and Edger Feeders are provided as Attachment 2 and 3, respectively. For Class A maintenance offices this manual scheduling procedure is an interim measure until computer programs can be revised to permit computer scheduling of PM. Class B maintenance offices will utilize the revised scheduling procedure as given.

The scheduling procedure of Attachment 1 will be implemented beginning AP 9, FY79 (May 19, 1979).

This bulletin supersedes and replaces MMO-21-77 (Mark II), MMO-7-76, and MS-58, Appendix C (Model 50 and 500A).

Luso Aul UL PAUL A. CRAWFORD

Director Maintenance Technical Support Center Office of Maintenance Management

Attachments

PM SCHEDULING PROCEDURES

I. Class A Maintenance Offices (NMICS)

The manual scheduling procedure described below is an interim measure. When computer programs have been modified to provide automatic schedules, you will be given a description of the procedure and an implementation date.

Although scheduling of PM is manual, the reporting of the manpower can be done on an exception basis. To do this it will be necessary to input the routes into the NMICS computer system.

The route numbers assigned should be the same as the master checklist number. For example, the route number assigned for 3-FC-2M should be 0002. This standard numbering scheme will permit an easier transition to the automated scheduling system without any further input. See Figure 1 for route numbers and estimated times.

The assignment of frequency codes requires a careful evaluation of each machine to minimize reporting problems. An estimated operating schedule for each machine should be obtained from operations (refer to MMO-30-77). This schedule used in conjunction with the actual run-time of each machine during a previous 13 AP period will give an estimated weekly running time. Use this weekly run-time to calculate the number of weeks between each occurrence of the schedule time of each checklist and select the most appropriate frequency code from Appendix VII of MS-63. For example, for a machine scheduled 35 hours per week the 720 to 800 hour route would occur about once every 20 weeks. The most appropriate frequency code is S (Semi-annual).

For frequency codes of C and less frequent it will be necessary to assign an AP per paragraph 825 (p. 4) of MS-63. The AP is to be assigned as the beginning of the appropriate group based upon the first calculated occurrence after AP 07. For the example above, the first AP the 720 to 800 hour route occurs after AP07 is AP12. Therefore the AP assigned should be 06 to permit automatic scheduling in AP 12.

The following frequency codes are recommended for a machine operating 30 to 40 hours per week (1600 to 2100 hours per year):

Scheduled Time For Route	Frequency Code	<u>AP</u> R <u>emarks</u>
Daily	D,E or F	Depends on whether operations schedules the machine for 7, 6 or 5 days per week.
20 to 30 hours	W (1 time per week)	
120 to 150 hours	M (1 time per AP)	
240 to 300 hours	C (every other AP)	01
720 to 800 hours	S (2 times each year)	07

Scheduling of PM is to be accomplished by a combination of the Route Sheet Register, the operations schedule, and a worksheet showing accumulated running time. A typical worksheet to use for accumulating the run-time is shown in Figures 2 and 3.

The Route Sheet Register shows all routes scheduled for the accounting period based upon the frequency codes and AP's assigned. The operations schedule will give a forecast of the number of hours to be run during the week. The worksheet, giving the current run-time for each PM category, and the operations schedule will give a guide for scheduling the PM during the next week.

The worksheets are used as a reference for the current run-time 'since the last scheduled PM for each machine. The run-time should be recorded at the end of each daily operation. Each PM category should be updated to reflect cumulative run-time. When the run-time for a PM category is within one tour's operation of the scheduled time, the PM route should be scheduled for the next day's maintenance tour. During the maintenance tour that the PM is performed and after the run-time has been updated, the cumulative run-time column for that route and any superseded routes should be set to zero to show completion of the PM and the start of another scheduling sequence.

Some of the checklists are superseded by less frequent checklists. The following is a list of the superseding checklists:

Checklist	Superseded By
2-FC-1M	2-FC-2M
2-FC-2M	2-FC-3M

Checklist	Superseded By
3-FC-1M	3-C-2M
3-FC-3M	3-FC-4M
3-EF-1M	3-EF-2M
4-EF-1M	4-EF-2M

The coding structure discussed above does not allow for automatic superseding. The superseded routes will be scheduled at the same time and must be bypassed. If a superseding route cannot be scheduled (for example 2-FC-2M), the superseded route (2-FC-1M) should be performed. Under no circumstances will both routes be done.

The reporting of exceptions is done in accordance with MS-63, Maintenance Management Class A Offices. However, when the runtime of the machine causes the scheduling of a route more frequent than the schedule input to the computer, two methods can be used to report the additional man-hours.

- 1. The first method requires the completion of a PS Form 4805 identifying the route and man-hours required to perform the PM and other required data.
- 2. The second method requires the completion of a PS Form 4802 with MS Code 4. To accumulate the proper man-hours, the time reported on the 4802 must be the sum of the actual time used and the estimated time for the route.

The purpose of scheduling PM by machine run-time is to reduce the amount of maintenance performed. Therefore, the daily PM will not be performed when there is no accumulated run-time since the last performance of daily PM and will be reported as bypassed using MS Code 9.

II. Class B Maintenance Offices (Non-NMICS)

The reporting requirements for Class B offices are determined by the regions. Therefore, only the scheduling procedures will be discussed.

Figure 1 and 2 show a typical worksheet which should be used to assist in scheduling the PM. The worksheets are used as a reference for the current run-time since the last scheduled PM for each machine. The

run-time should be recorded at the end of each daily operation. Each PM category should be updated to reflect the cumulative run-time. When the run-time for a PM category is within one tour's operation of the scheduled time, the PM route should be scheduled for the next day's maintenance tour. During the maintenance tour that the PM is performed and after the run-time has been updated, the cumulative run-time column for that route and any superseded routes should be set to zero to show completion of the PM and the start of another scheduling sequence.

Some of the checklists are superseded by less frequent checklists. The following is a list of the superseding checklists:

Checklist	Superseded	By
2-FC-1M	2-FC-2M	
2-FC-2M	2-FC-3M	
3-FC-1M	3-FC-2M	
3-FC-3M	3-FC-4M	
3-EF-1M	3-EF-2M	
4-EF-1M	4 - EF - 2M	

The superseding structure means that two checklists will be scheduled at the same time. Under no circumstances are both checklists to be performed. If for some reason a superseding checklist cannot be performed (e.g., 2-FC-2M), the superseded checklist (2-FC-1M) should be performed.

The purpose of scheduling PM by machine run-time is to reduce the amount of maintenance performed. Therefore, the daily PM will not be performed when there is no accumulated run-time since the last performance of daily PM.

Checklist	Ass Work Code	igned Route Number	(Mc Estimated Time	odel 3501 Only) Estimated Time
2-FC-1M	02	0001	.5	.3
2-FC-2M	02	0002	.8	.5
2-FC-3M	02	0003	.9	.6
3-FC-1M	03	0001	.8	.5
3-FC-2M	03	0002	2.3	1.2
3-FC-3M	03	0003	2.0	1.1
3-FC-4M	04	0004	9.8	5.6
2-EF-1M	02	0001	1.8	
3-EF-1M	03	0001	.3	
3-EF-2M	03	0002	.8	
4-EF-1M	04	0001	.7	
4-EF-2M	04	0002	1.4	

Figure 1

SCHEDULING WORKSHEET - MARK II FACER CANCELER

		Checklist	3-FC-lM	3-FC-2M	3-FC-3M	3-FC-4M	2-FC-lM	2-FC-2M	2-FC-3M
A?	DAY	RUN-TIME	DAILY	20-30	240-300	720-800	20-30	120-150	240-300
8	1	4.1		4.1	4.1	4.1	4.1	4.1	4.1
	2	6.2		10.3	10.3	10.3	10.3	10.3	10.3
	3	5.8		16.1	16.1	16.1	16.1	16.1	16.1
	4	5.6		0	21.7	21.7	0	21.7	21.7
	9	4.2		16.4	117.8	117.8	16.4	117.8	117.8
	10	4.7		0	122.5	122.5	0	0	122.5
	11	3.8		3.8	126.8	126.3	3.8	3.8	126.3

Figure 2

SCHEDULING WORKSHEET - EDGER FEEDER 500

		Checklist	3-EF-1M	3-EF-2M	2-EF-1M	4-EF-lM	1 4-EF-2M
A?	DAY	RUN-TIME*	DAILY	20-30	720-800	720-800	1440-1600
8	1	4.1		4.1	4.1	4.1	4.1
	2	6.2		10.3	10.3	10.3	10.3
	3	5.8		16.1	16.1	16.1	16.1
	4	5.6		0	21.7	21.7	21.7
12	9	4.7		16.8	717.2	717.2	717.2
	10	3.8		0	0	0	721.0
	11	5.2		5.2	5.2	5.2	726.2

*Run-time for Edger Feeder is same as Mark II it is interfaced with.

Figure 3

ATTACHMENT 1

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Equipment: FC 1 G

Equipment: EF 1 A

	ection				
	er-Canceler	Equipment:	Type: 3500	Series Models	
ltem		Instructions		Frequency 20-30 Operating Hours	
1	circuit breal equipment run	ker OFF except when open nning. Report serious o	rations must	be performed with	
2	(Recognition	Test)			
	a. Obtain a	test deck consisting of	f two each of	f the following:	
	(2) Red (3) Gree (4) Gree (5) Fluc (6) Fluc	Phosphor No-Go en Phosphor Go en Phosphor No-Go prescent Go prescent No-Go	vity, High E	 Background	
b. Disable dies on both machines. Run a blank card to clear					
	c. With MODE cards to cards are	each of the four stacke accepted and No-Go car	rs. If RED	and GREEN Go	
	d. With MODE cards to are accep	switch in METERED, run each of the four stacke ted and No-Go cards are	rs. If FLUO	RESCENT Go cards	
	I. Timing Ch	necks/Adjustments			
	have beer	removed by modificatio	on, disregard	1 Step b. In	
-	3E c (2) Plac (3) Star	on electronics panel to be mode switch to STAMP of machine.	OFF. and METERED.	·	
	Vert Trig Trig Time	cical Volts/Div - 5 ger - AC, Internal, Neg ger Level - Adjust, Neg A/Div - 5 milliseconds	ative ative	-	
	2	 circuit break equipment run immediately u 2 (<u>Recognition</u> a. Obtain a (1) Red (2) Red (3) Great (4) Great (5) Fluct (6) Fluct (7) OEM b. Disable do logic. c. With MODE cards to cards are ment is r d. With MODE cards to are accep required. I. Timing Ch a. <u>General M</u> have been Step c, it (1) Disation (2) Plact (3) Start (4) Set Vertive Trigo Trigo Time 	 circuit breaker OFF except when open equipment running. Report serious of immediately upon detection. 2 (Recognition Test) a. Obtain a test deck consisting of (1) Red Phosphor Go (2) Red Phosphor No-Go (3) Green Phosphor No-Go (4) Green Phosphor No-Go (5) Fluorescent Go (6) Fluorescent No-Go (7) OEM 31040, Card #8, Sensiti b. Disable dies on both machines. logic. c. With MODE switch in STAMP, run R cards to each of the four stacke cards are accepted and No-Go car ment is required. d. With MODE switch in METERED, run cards to each of the four stacke are accepted and No-Go cards are required. I. Timing Checks/Adjustments a. General Note: If the lead and thave been removed by modification Step c, increase the gate timing (1) Disable cancelling dies by 3E on electronics panel to (2) Place mode switch to STAMP (3) Start machine. (4) Set up Tektronix 310A oscill Vertical Input - AC (use 10 Vertical Volts/Div - 5 Trigger - AC, Internal, Neg Trigger Level - Adjust, Neg Time/Div - 5 milliseconds 	 circuit breaker OFF except when operations must equipment running. Report serious deficiencies immediately upon detection. 2 (Recognition Test) a. Obtain a test deck consisting of two each or (1) Red Phosphor Go (2) Red Phosphor No-Go (3) Green Phosphor No-Go (4) Green Phosphor No-Go (5) Fluorescent Go (6) Fluorescent No-Go (7) OEM 31040, Card #8, Sensitivity, High E b. Disable dies on both machines. Run a blank logic. c. With MODE switch in STAMP, run RED and GREEM cards to each of the four stackers. If RED cards are accepted and No-Go cards are bypass ment is required. d. With MODE switch in METERED, run FLUORESCENT cards to each of the four stackers. If FLUC are accepted and No-Go cards are bypassed, n required. I. Timing Checks/Adjustments a. General Note: If the lead and trail scan or have been removed by modification, disregard Step c, increase the gate timing pulse to 73 (1) Disable cancelling dies by placing switt 3E on electronics panel to OFF. (2) Place mode switch to STAMP and METERED. (3) Start machine. (4) Set up Tektronix 310A oscilloscope: Vertical Input - AC (use 10X probe) Vertical Volts/Div - 5 Trigger - AC, Internal, Negative Trigger Level - Adjust, Negative 	

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Type of Activity:		AINTENANCE CHECKLIST - SIDE on		2-FC-1M
System:		Equipment: Canceler	- ^{Type:} 3500	Series Models
Component	Item	Instructions		Frequency 20-30
Component Machine A & B	2 (Cont) c d I a b	Scan Timing(1) (Lead) Connect 10X procards or live mail. The 40 milliseconds. Adjust(2) (Trail) Connect 10X procards or live mail. The 25 to 26 milliseconds. necessary.Gate Timing - Connect 10X procards or live mail. The gate milliseconds. Adjust with proceeds or live mail. The gate milliseconds. Adjust with proceeds or live mail. The gate milliseconds. Adjust with proceeds or live mail. The gate milliseconds. Adjust with proceeds or live mail. The gate milliseconds. Adjust with proceeds or live mail. The gate milliseconds. Adjust with proceeds or live mail. The gate milliseconds. Adjust with proceeds or live mail. The gate milliseconds. Adjust with proceeds or live mail. The gate milliseconds. Adjust with proceeds or live mail. The gate milliseconds. Adjust with proceeds or live mail. The gate milliseconds. Adjust with the proceeds or live maximum reading is less than prosition new lamp for maximum is firmly seated in the sleep.I. Sensitivity Adjustments	he lead scan pul st with pot at 5 robe tip to 4G, he trail scan pu Adjust with po robe tip to 4E, te timing pulse pot at 3E if nec celling dies wit justment isually check to b the sensor tub If adjustment Figure B-4) and shown in figure. 9 Blak-Ray Meter directly in fro 14 or more. If obtain a maximu 14, replace th um reading. Be eve when adjustment s must be made, lowing order:	20-30 Operating Hours of 7 and run test se width should be be if necessary. pin 7 and run test should be 33-37 sessary. In switch at of see that the UV se window is just is necessary, rotate sleeve Tighten set in the letter in reading. If the sure the UV lamp is are complete they must be
		for which the UV lamp h (3) Switch power ON switch sensor amplifier covers	nas been replace to OFF, remove	d or adjusted. appropriate
		• · · ·		

MASTER PREVEN Type of Activity: Ins		NANCE CHECKLIST - SID	EA	Checklist Number: 2-FC-1M
System:	Facer-Cance	er Equipment:	- ^{Type:} 3500	Series Models
Component It	tem	Instructions	I	Frequency 20-30 Operating Hours
Machine A & B 2	ont) (5) (6) b. <u>Star</u> (1) (2) c. <u>Mete</u>	Allow UV lamps and cir before making adjustme imately equal to the t warm-up of 20 minutes. Insure that DIE ON/OFF on electronics panel i so that cancelling is	nts; time require ime power was of switch located a s off when runnin inhibited. e is started, run ar the logic circ <u>t</u> TAMP. nd No-Go cards to corresponding pho ease sensitivity sensitivity. Cor accepted and all <u>vity Adjustment</u> oscilloscope as f onnect 1X probe)	Operating Hours p and stabilize ed is approx- f up to a maximum at position 3E ng test cards n a blank card cuits. o appropriate osphor ampli- or counter- ntinue adjusting No-Go cards

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Type of Activity: I System:		-	Equipment:	Туре	: 3500	Series Models
Mark II F Component	ltem	anceler	Instructions	l		Frequency 20-30 Operating Hours
					innoha)	1
Machine A & B	2 Cont 2 Cont)	(2) S (3) C (3) C (3) T (4) P (4) P (4) S (5) A (6) A (7) N	ertical Input AC (c ertical Volts/Div - C rigger - AC, Interna rigger Level - Adjust ime/Div - 500 microso top machine onnect 1X probe tip P-2 (or top of R-19) ew version card, OEM lder version, OEM 31 igure B-1). Connect in E6 on meter ampli lace test card #8 (h elts in front of tra hield. djust oscilloscope t form at 1.76 ms/cycle djust trail balance amplitude ratio. fove test card #8 to cip to TP-1 (top of F	<pre>).02.34 APA), Negativ econds to trail m on meter 31038A, h 038, had r oscilloso fier card. igh backgr il sensor riggering (see Figu pot (R18) lead senso 5)</pre>	e e amplifi as test cope gro round) b window. for a r ure B-2 for com	plifier output, er card. Note: point pins added point pins (see ound to pin E3 or between transport Close light repetitive AC wave crect waveform ow and move probe
		(9) <u>Sensitivi</u> (1) (2)	tip to IP-1 (top of r Adjust lead balance p amplitude ratio. Remove test card #8 a amplifier card. ty Start machine and run circuitry. Run FLUORESCENT Go a stacker. Turn R21, to increase sensitiv decrease sensitivity Go cards are accepte bypassed.	nd discon n blank ca nd No-Go c Lead or R7 ity or cou Continu	nect os and to c ands to , Trail unterclo ue adjus	cilloscope from lear logic appropriate clockwise ockwise to sting until
Machine A & B	3	3E to ON for prope for good	tion Check) Enable position. Run mail or operation of dies, cancellation impress	gates, a sions.	nd ink	pumps. Check mai
						-

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MASTER PREVI Type of Activity:			CE CHECKLIST - S	IDE A		Checklist Number: 2-FC-1M
System: Mark I	I Face	r-Canceler	Equipment:		^{Type:} 3500	Series Models
Component	ltem		Instructions			Frequency 20-30 Operating Hours
Machine A & B	4	work area. plish schedu	Be sure all tools Initiate necessar Jled repairs. Rep foreman immediate	y work (ort ser	orders and i ious defici	t are removed from reports to accom- encies to
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	ER PREVENTIVE MAINTENANCE CHECK		Checklist Number: 2-FC-1M
System	Fauinmont:	Type: 3500 (Excl	Series Models uding Model 3501)
Item	Performance Time Criteria	Notes and Additional Informatio	n 20-30 Operating Hours
1 2 3 4	Safety Recognition Checks Cancellation Check Clean-up	<u>Total Time Required</u> 3 minutes 20 minutes 4 minutes 3 minutes	
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	MASTER PREVENTIVE MAINTENANCE CHECKLIST — SIDE B Type of Activity: Inspection					nber:
Systen	^{n:} Mark II Facer-Canceler	Equipment:		Type: Model	3501	
Item	Performance Time Criter	ia	Notes and Add	itional Information	Frequency 20-30 Operating	
1 2 3 4	Safety Recognition Checks Cancellation Check Clean-up		<u>Total Ti</u>	ime Required 3 minutes 10 minutes 2 minutes 3 minutes	· · ·	
					•	
					:	
				<u>_</u> `	:	
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Type of Activity:			E CHECKLIST - SIDE A		Checklist Number: 2-FC-2M	
System: Mark I	ystem: Mark II Facer-Canceler Equipment: Type: 3500				Series Models	
Component	ltem		Instructions	L	Frequency 120-150 Operating Hours	
General	1	circuit brea equipment ru	mply with all safety pre ker OFF except when oper nning. Report serious d upon detection.	ations must		
Machine A & B	2	(Shutdown De	vices)			
		Manual stop	switches:			
		"A" cont	hine running, manually d rol panel, on "B" contro ear bypass stacker) to i hine.	l panel, and	l Auxiliary Stop	
		Automatic Sh	utdown Devices:		•	
		Manually b. (Gate Jan Manually switch. c. (Motor Ja Rotate Ja wise. S machine counterc	Limit Switches) check proper operation of n Detector Switches) check proper operation of am Circuit) AM DETECTION SENSITIVITY tart machine and slowly p automatically stops. Ro lockwise. Sensitivity ma during operation to pres	of each gate control ful rotate contr tate control ay need to b	e jam detector ly counterclock- ol clockwise until about 1/8 turn pe decreased	
Machine A & B	3	check the edg small spot at 3/8" diameter and adjust ba	or Light Source) Using a ge detector light source t the center of the lette r spot on the edge detect arrel assembly to proper ght shield covers.	beam for co er track and tor window.	nvergence to a divergence to a Loosen locknut	
Machine A & B	4	(Recognition	Test)			
		a. Obtain a	test deck consisting of	two each of	the following:	
		(2) Red (3) Gree (4) Gree (5) Fluc (6) Fluc	Phosphor Go Phosphor No-Go en Phosphor Go en Phosphor No-Go prescent Go orescent No-Go 31040, Card #8, Sensitiv	vity High R	ackaround	

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MASTER PREV Type of Activity:		ection		E CHECKLIST — SIDE A		Checklist Number: 2-FC-2M
System: Mark II Facer-Canceler Equipment: Type: 3500					Series Models	
Component	item			Instructions		Frequency 120-150 Operating Hours
Machine A & B	4 (Cont)	<u> </u>	<u>Note:</u> I removed	hecks/Adjustments f the lead and trail s by modification, disre he gate timing pulse t	gard Step b.	In Step c, in-
		-	3E (2) Pla (3) Sta	able cancelling dies b on electronics panel t ce mode switch to STAM rt machine. up Tektronix 310A osc	O OFF. P & METERED.	tch at position
•			Ver Tri Tri Tim	tical Input - AC (use tical Volts/Div - 5 gger - AC, Internal, N gger Level - Adjust, N e/Div - 5 milliseconds und Connection - to ma	egative egative	
			car 40 (2) (Tr car be	ing ad) Connect 10X probe ds or live mail. The milliseconds. Adjust ail) Connect 10X prob ds or live mail. The 25 to 26 milliseconds. essary.	lead scan puls with pot at 50 e tip to 4Ğ, p trail scan pu	se width should b) if necessary. pin 7 and run tes lse width should
		d.	cards or nillisec	<u>ing</u> - Connect 10X prob live mail. The gate onds. Adjust with pot hine and enable cancel 3E.	timing pulse s at 3E if nec	should be 33-37 essary.
		II. (JV Lamp	and Sleeve Check/Adjus	tment	
		b. 1	sleeve i From dir screw (i position Place th track wi Check th	see Figure B-4) - Visu s positioned so the se ect UV light. If adju tem 6 in Figure B-4) a as shown in figure. e probe of the J-239 B th the probe window di at the meter reads 14 n 14, rotate the lamp	nsor tube wind stment is nece nd rotate slee Tighten set so lak-Ray Meter rectly in from or more. If t	dow is just shade essary, loosen se eve (4) to correc crew. in the letter it of the UV lamp the reading is

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Type of Activity: Inspection System: Mark II Facer-Cancel			Equipment:	- Type: - 350	O Series Models	
Component	ltem		Instructions		Frequency 120-150 Operating Hours	
Machine A & B	(Cont)	and lamp comp	the maximum reading is position new lamp for is firmly seated in t lete.	maximum readin	replace the UV lamp g. Be sure the UV	
		III. Sens a. Gene	itivity Adjustments			
		 (1) (2) (3) (4) (5) b. <u>Stan</u> (1) 	accomplished in the f Trail - Stamp, Metere Lead - Stamp, Metered Switch power ON switc amplifier covers, swi Allow lamps and circu before making adjustm imately equal to the maximum required warm Insure that DIE ON/OF 3E on electronics pan cards so that cancell After each time machi card through machine mp Sensitivity Adjustme Place MODE switch in	d - Stamp, Metered tch power ON switch to OFF, remove sensor lifier covers, switch power back on. ow lamps and circuitry to warm up and stabilize ore making adjustments; time required is approx- tely equal to the time power was off up to a imum required warm-up of 20 minutes. ure that DIE ON/OFF switch located at position on electronics panel is off when running test ds so that cancelling is inhibited. er each time machine is started, run a blank d through machine to clear the logic circuits.		
		(2)	Run RED and GREEN Go	and No-Go card d GREEN Go card oypassed, no ac nent is require amplifier cloc erclockwise to justing until a	is are accepted ijustments are ed, turn R44 on ckwise to increase decrease sensi- ill Go cards are	
		c. <u>Mete</u>	ered Balance and Sensit	tivity Adjustme	ent_	
·		(1)	Place MODE switch in	METERED.	-	

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MASTER PREV	Inspe	ction	CE CHECKLIST - SIDE		2-FC-2M
C		r-Canceler	Equipment:	Type: 350	O Series Models
Component	Item		Instructions		Frequency 120-150 Operating Hour
1achine A & B	4 (Cont)	(1) \$	Set up Tektronix 310A Vertical Input - AC (
		(2) (3) (4) (5)	Vertical Volts/Div - Trigger - AC, Interna Trigger Level - Adjus Time/Div - 500 micros Stop machine Connect 1X probe tip TP-2 (or top of R-19) New version card, OEN added; older version pins (see Figure B-1 to pin E3 or pin E6 of Place test card #8 (1 port belts in front of light shield. Adjust oscilloscope waveform at 1.76 ms/ Adjust trail balance amplitude ratio. Move test card #8 to probe tip to TP-1 (t Adjust lead balance amplitude ratio. Remove test card #8 from amplifier card.	0.02 1, Negative seconds to trail meter on meter ampl 1 31038A, has to 0EM 31038 had 0. Connect osconnect osconnect on meter amplific high background of trail senson triggering for cycle (see Figur pot (R18) for lead sensor w op of R5). pot (R4) for co and disconnect	amplifier output, ifier card. Note: est point pins no test point illoscope ground ier card. 1) between trans- window. Close a repetitive AC ure B-2). correct waveform indow and move orrect waveform
Sens		Sensitivit (1) (2)	Start machine and ru circuitry. Run FLUORESCENT Go a stackers. If Go car cards are bypassed, If adjustment is rec Trail clockwise to clockwise to decreas adjusting until Go o cards are bypassed.	nd No-Go cards ds are accepte no adjustments quired, turn R2 increase sensit	to all four d and No-Go are required. 1, Lead or R7, vivity or counter- Continue
		e. Swit	ch power ON switch t rs, switch power bac	o OFF, replace k on.	sensor amplifier

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MASTER PREVE Type of Activity:			CE CHECKLIST — SIDE A		Checklist Number: 2-FC-2M
System: Mark II	Face	r-Canceler	Equipment:	Type: 3500 S	Series Models
Component	Item		Instructions	<u></u>	Frequency 120-150 Operating Hours
Machine A & B	5	position 3E stackers and	on Check) Enable dies by to ON position. Run mai i check for proper operat ck mail for good cancella	il with stamp tion of dies	os to all gates, and ink
Machine A & B	6	removed from reports to a	Insure that all tools, t n work area. Initiate ne accomplish required major iciencies to maintenance	cessary worl repairs. F	c orders and
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	ER PREVENTIVE MAINTENAN		LIST - SIDE B		Checklist Nur	
	of Activity: Inspection			2500	2-FC-2M	and the second se
System	Mark II Facer-Canceler	Equipment:			Series Mode uding Model	
ltem	Performance Time Criteri	a	Notes and Add	litional Information	Frequency 120-150 Operating	
Item 1 2 3 4 5 6	Performance Time Criteri Safety Shutdown Devices Edge Detector Light Source Recognition Test (Adjustm Cancellation Check Clean-up	ce	·····	Time Required 3 minutes 2 minutes 30 minutes 5 minutes 3 minutes 3 minutes	120-150 Operating Per Event	

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MAST Type o	Checklist Number: 2-FC-2M		
System	······································	Type: Model	3501
Item	Performance Time Criteria	Notes and Additional Informatic	Frequency n 120-150 Operating Hours
1 2 3 4 5 6	Safety Shutdown Devices Edge Detector Light Source Recognition Test (Adjustments) Cancellation Check Clean-up	<u>Total Time Required</u> 3 minutes 1 minute 2 minutes 15 minutes 3 minutes 3 minutes	<u>Per Event</u>
	· · ·		

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		MAINTENANCE CHECKLIST - SIDE A	Checklist Number:
Type of Activity:	Inspe		2-FC-3M
System: Mark I	I Face	r-Canceler 3500	Series Models
Component	ltem	Instructions	Frequency 240-300 Operating Hours
General	1	(Safety) Comply with all safety precautions. circuit breaker OFF except when operations mus equipment running. Report serious deficiencie immediately upon detection.	st be performed wi
Electronic Cabinet	2	(LID DC Power Supplies) Measure the following voltages between the indicated pins of J-3 (or (pin k of J-3 or J-4) using a Simpson 260 VOM	r J-4) and ground
		 a. +28 VDC at pin e. b28 VDC at pin f. c. +12 VDC at pin g. d12 VDC at pin h. e8 VDC at pin j. 	
		Voltages should be \pm 10% of the indicated value	les.
Machine A & B	3	(Filament Supplies) Measure the following AC at the indicated points on each electronic par 260 VOM or equivalent:	filament voltages nel using a Simpso
		a. 6.3 VAC between pins 1 and 4 of 1A36TB11.b. 6.3 VAC between pins 6 and 7 of 1A36TB11.	
		Voltages should be $\pm 10\%$ of the indicated value	25.
Machine A & B	4	(DC Power Supplies) Press START MOTORS switch 260 VOM or equivalent, measure the following D electronics panel:	n. Using a Simpso OC voltages on the
		a. +250 VDC, pin 8 of 1A36TB11 to machine group. b20 VDC, pin 5 of 1A36TB11 to machine grou	ound. Ind.
		Voltages a and b should be $\pm 10\%$ of indicated v	values.
		c. +200 VDC, center terminal of switch 1A6S3 position 2E to machine ground. Adjust + 2 potentiometer located at position 5I if ne	200 VOLT ADJUSTMEN
Machine A & B	5	(Shutdown Devices)	
		Manual stop switches:	
		With machine running, manually depress ead (on "A" control panel, on "B" control pane Stop switch near bypass stacker) to insure will stop machine.	el, and Auxiliary

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	MASTER PREVENTIVE MAINTENANCE CHECKLIST — SIDE A Type of Activity: Inspection						
System:	tush	Equipment:	Type:	2-FC-3M			
Mark 1	Mark II Facer-Canceler 3500						
Component	ltem	Instructions		Frequency 240-300 Operating Hours			
Machine A & B	5 (Cont)	 Automatic Shutdown Devices: Automatic Shutdown Devices: Automatic Shutdown Devices: Manually check proper operation of each stacker limit (Gate Jam Detector Switches) Manually check proper operation of each gate jam deterswitch. (Motor Jam Circuit) Rotate JAM DETECTION SENSITIVITY control fully counterwise. Start machine and slowly rotate control clockw machine automatically stops. Rotate control about 1/ counterclockwise. Sensitivity may need to be decreas slightly during operation to prevent unnecessary jam 					
Machine A & B	6	(Edge Detector Light Source) Using a card or piece of paper, check the edge detector light source beam for convergence to a small spot at the center of the letter yrack and divergence to a 3/8" diameter spot on the edge detector window. Loosen locknut and adjust barrel assembly to properly focus beam if required. Reinstall light shield covers.					
Machine A & B	7	(<u>Recognition Test</u>)					
		a. Obtain a test deck consisting o	f two each o	f the following:			
		 Red Phosphor Go Red Phosphor No-Go Green Phosphor Go Green Phosphor No-Go Fluorescent Go Fluorescent No-Go OEM 31040, Card #8, Sensit 	ivity, High	Background			
	-	I. Timing Checks/Adjustments <u>Note</u> : If the lead and trail sc removed by modification, disreg crease the gate timing pulse to	ard Step b.	In Step c, in-			
		a. <u>General</u>					
		 Disable cancelling dies by 3E on electronics panel to Place mode switch to STAMP Start machine. Set up Tektronix 310A osci Vertical Input - AC (use 1 Vertical Volts/Div - 5 	OFF. & METERED. lloscope:	tch at position			

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Type of Activity: Ins		E CHECKLIST - SIDE A		Checklist Number: 2-FC-3M
System: Mark II Fa	Series Models			
· ·	em	Instructions		Frequency 240-300 Operating Hour
	ont) Trin Grow b. <u>Scan Tim</u> (1) (Le car 40 (2) (Tr car 25 nec c. <u>Gate Tim</u> cards or millised d. Stop mac position II. UV Lamp a. <u>Sleeve</u> (sleeve i from dir screw (i position b. Place tr track wi Check tr than 14, maximum position is firml III.Sensitiv a. General (1) Adj Tra Lea (2) Swi	ad) Connect 10X probe ds or live mail. The milliseconds. Adjust ail) Connect 10X prob ds or live mail. The to 26 milliseconds. A essary. <u>ning</u> - Connect 10X prob live mail. The gate conds. Adjust with pot hine and enable cancel	e tip to 4D, p lead scan pul with pot at 5 be tip to 4G, trail scan pu djust with po e tip to 4E, timing pulse at 3E if nec ling dies wit tment ally check to nsor tube win stment is nec nd rotate sle Tighten set s lak-Ray Meter rectly in fro or more. If tain a maximu 4, replace th reading. Be when adjustm	oin 7 and run tes se width should D if necessary. pin 7 and run te lse width should of at 5G if pin 7 and run te should be 33-37 essary. h switch at posi essary. h switch at posi essary, loosen s eve (4) to corre crew. in the letter nt of the UV lam the reading is 1 m reading. If t e UV lamp and sure the UV lamp ents are complet e following orde

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MASTER PREV Type of Activity:			ENAN	CE CHECKLIST - SIDE A		Checklist Number: 2-FC-3M
System: Mark	II Fac	er-Cano	celer	Equipment:	^{туре:} 3500	Series Models
Component	ltem			Instructions		Frequency 240-300 Operating Hours
Machine A & B	7		ma 4) In el th 5) Af	proximately equal to the ximum required warm-up o sure that DIE ON/OFF swi ectronics panel is off w at cancelling is inhibite ter each time machine is rough machine to clear t	at position 3E on test cards so In a blank card	
		b. <u>St</u>	tamp S	ensitivity Adjustment		
			2) Ru st No If ph co ad	ace MODE switch in STAMP n RED and GREEN Go and No ackers. If RED and GREE -Go cards are bypassed, n adjustment is required, osphor amplifier clockwis unterclockwise to decreas justing until all Go card rds are bypassed.	are accepted and ots are required. a appropriate ase sensitivity or ity. Continue	
		с. <u>М</u> е	etered	Balance and Sensitivity	Adjustment	
		(1	1) P1	ace MODE switch in METER	ED.	
		Balanc	ce			
		(1	1) Se	t up Tektronix 310A Osci	lloscope as	follows:
			Ve Tr Ti 2) St 3) Co TP Ne ad (s	rtical Input - AC (connec rtical Volts/Div - 0.02 igger - AC, Internal, Neg igger Level - Adjust, Neg me/Div - 500 microseconds op machine nnect 1X probe tip to tra -2 (or top of R-19) on me w version card, OEM 31038 ded; older version OEM 33 ee Figure B-1). Connect or pin E6 on meter ample	gative gative s ail meter an eter amplifi BA, has test 1038 had no oscilloscop	mplifier output, ier card. Note: point pins test point pins
						Page 4 of 7 Page

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MASTER PREV Type of Activity:	ENTIVE Inspe		CE CHECKLIST - SIDE A		Checklist Number: 2-FC-3M
System: Mark 1	II Face	er-Canceler	Equipment:	^{Type:} 3500 S	Series Models
Component Item Instructions					Frequency 240-300 Operating Hours
Machine A & B	7 (Cont)	bel shi (5) Adj wav (6) Adj for (7) Mov pro (8) Adj amp (9) Ren fro Sensitivity (1) Sta cir (2) Rur sta car If Tra cou Cor and	ace test card #8 (high ba ts in front of trail sen ield. just oscilloscope trigger veform at 1.76 ms/cycle (just trail balance pot (R m amplitude ratio. ve test card #8 to lead s obe tip to TP-1 (top of R just lead balance pot (R4 blitude ratio. nove test card #8 and dis om amplifier card. art machine and run blank cuitry. n FLUORESCENT Go and No-G ackers. If Go cards are rds are bypassed, no adju adjustment is required, ail clockwise to increase interclockwise to decreas stinue adjusting until Go I No-Go cards are bypasse	sor window. ing for a reserve Figure E 18) for correct ensor window 5).) for correct connect osci card to cle o cards to a accepted and stments are turn R21, Les sensitivity e sensitivity cards are a d.	Close light epetitive AC B-2). ect wave- and move t waveform loscope ar logic ll four No-Go required. ead or R7, or y. ccepted
Machine A & B	8	covers, (Cancellatic	ower ON switch to OFF, r switch power back on. <u>n_Check)</u> Enable dies by	placing DIE	ON/OFF at
		and check fo	to ON position. Run mai or proper operation of di for good cancellation imp	es, gates, a	
Machine A & B	9	removed from reports to a	Insure that all tools, t work area. Initiate ne accomplish required major ciencies to maintenance	cessary work repairs. R	orders and
				1	

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	TER PREVENTIVE MAINTENAN	Checklist Num	ber:			
	of Activity: Inspection				2-FC-3M	
Syster		Equipment:		Type: 3500 (Excl	Series Models uding Model 3	501)
Item	Performance Time Criteria		Notes and Add	litional Information	Frequency 240-300 Operating	Hours
1 2 3 4 5 6 7 8 9	Safety LID DC Power Supplies Filament Supplies DC Power Supplies Shutdown Devices Edge Detector Light Sourc Recognition Test (Adjustm Cancellation Check Clean-up	e ients)	<u>Total T</u>	ime Required 3 minutes 3 minutes 2 minutes 3 minutes 2 minutes 4 minutes 30 minutes 5 minutes 3 minutes		
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						2.4

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	ER PREVENTIVE MAINTENAN f Activity: Inspection	ICE CHECK	LIST - SIDE B		Checklist Number: 2-FC-3M
System	[:] Mark II Facer-Canceler	Equipment:		Type: Model 3	501
Item	Performance Time Criteri	a	Notes and Add	fitional Information	Frequency
1 2 3 4 5 6 7 8 9	Safety LID DC Power Supplies Filament Supplies DC Power Supplies Shutdown Devices Edge Detector Light Sourc Recognition Test (Adjust Cancellation Check Clean-up	ce ments)	<u>Total T</u>	ime Required 3 minutes 3 minutes 1 minute 2 minutes 1 minute 2 minutes 15 minutes 3 minutes 3 minutes	<u>Per Event</u>
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MASTER PREV Type of Activity:			CE CHECKLIST — SIDE A e Maintenance	Checklist Number: 3-FC-1M		
System: Letter	Mail	Preparation	Equipment: Mark II Mark II	^{ype:} 3500 Series Models		
Component	ltem			Frequency Daily		
General	1	circuit brea with equipme visor immedi for cleaning protection (omply with all safety preca aker OFF except when operat ent running. Report seriou iately upon detection. Whe g, use a low pressure (30 p (goggles or face masks) mus air for cleaning.	ions must be performed s deficiencies to super- re air pressure is required si or less) air source. Ey		
Machine A & B	2	for and remo transport pa	n) Remove associated equips ove all mail in stackers, b arts. Open front and rear ove and set aside the die h	rush section, and other hinged access panels and		
Machine A & B	3		General Cleaning) Remove foreign material from exposed surfaces f machine by blowing, vacuuming and wiping as appropriate.			
Machine A & B	4	plate by blo and sensor t Use extreme	Sensor Mounting Plate) Remove dust on exposed area of sensor late by blowing with low pressure air stream. Wipe lamp windows nd sensor tube windows with "Q" tip immersed in alcohol. (Note: se extreme care not to damage UV lamps. Do not use any solvents scept alcohol on sensor plate.)			
Machine A & B	5	(Lubrication lubrication	 Apply one drop of light points. 	machine oil at following		
		Machine A:				
		b. Rocker a c. Reverse d. Wear com	on roller pivots. Irm pivots and universals. roller pivots and universa pensator pivot and rod. essible bearings and bushing			
		Machine B:				
		b. Rocker a	on roller pivots. Irm pivots and universals. Issible bearings and bushing	gś.		
Machine A & B	6	Change type	emblies) Clean lead and tu as appropriate. Reinstall elt rollers.			
Machine A & B	7	<u>(Ink Tanks)</u> both machine	Stir ink and fill tanks to s.	o a level 1/2" from the top		
Electronic 🦾 Cabinet	2 8,∛					

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MASTER PREVE	NTIVE	MAINTENANC	E CHECKLIST - SIDE A		Checklist Number:
Type of Activity:			e Maintenance		3-FC-1M
System *		-Canceler	Equipment: Mark II Facer Canceler	Туре: 3500) Series Models
Component	Item		Instructions		Frequency Daily
Electronic Cabinet and Machine A & B	8	stream throu Replace air		normal dire	
Machine A & B	9	shields. Si impression i brushes, in turning. So evidence of	<u>Check)</u> Reinstall light tart machine, see that r rollers, take-away rolle verter belt, main feed be ee that blower motors an wear or damage to bear	nain feed rol ers, starwhee belt and vert re operating. ings and gear	ls, stacker belts, ical feed belt are Listen for
Machine A & B	10	from work a	Be sure all tools, lub rea. Initiate necessar scheduled repairs. Rep foreman immediately up	ort serious of	leficiencies to
			-	~	·
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MAST Type o	ER PREVENTIVE MAINTENAM of Activity: Routine Preventi	VCE CHECH ve Mainter	<pre>KLIST — SIDE B nance</pre>		Checklist Numb 3-FC-1M	ber:
System	Letter Mail Preparation	Equipment:	Mark II Facer Canceler	Type: 3500	Seriés Model	S
liem	Performance Time Criter	ia	Notes and Addi	itional Information	Frequency Daily	
1 2 3 4 5 6 7 8 9 10	Safety Preparation General Cleaning Sensor Mounting Plate Lubrication Die Hub Assemblies Ink Tanks Air Filters Operating Check Clean-up		<u>TOTAL TI</u>	ME REQUIRED 3 minutes 2 minutes 3 minutes 3 minutes 4 minutes 5 minutes 5 minutes 5 minutes 5 minutes 3 minutes 3 minutes	PER EVENT	
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	n: Letter Mail Preparation	Equipment:	Mark II acer Canceler	Type: 3500-	Series Model	s -
llem	Performance Time Criteria			J	Frequency Daily	
			TOTAL T	IME REQUIRED	PER EVENT	
1 2 3 4 5 6 7 8 9 10	Safety Preparation General Cleaning Sensor Mounting Plate Lubrication Die Hub Assemblies Ink Tanks Air Filters Operating Check Clean-up			3 minutes 2 minutes 3 minutes 4 minutes 2 minutes 2 minutes 3 minutes 3 minutes 3 minutes 3 minutes	·	
		•		•		

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Type of Activity:			E CHECKLIST — SIDE A		3-FC-2M
System:	NUULI		Equipment:		5-FU-2M
Mark I	I Face	r Canceler		^{Туре:} 3500	Series Models
Component	Item		Instructions	<u> </u>	Frequency 20-30 Operating Hour:
General	1	circuit brea equipment ru immediately cleaning, us protection (mply with all safety pre ker OFF except when oper nning. Report serious o upon detection. Where a e a low pressure (30 psi goggles or face masks) m ir for cleaning.	rations must deficiencies air pressure i or less) a	be performed with to supervisor is required for ir source. Eye
Machine A & B	2	for and remo transport pa) Remove associated equive all mail in stackers, rts. Open front and rea ve and set aside the fol chines:	, brush sect ar hinged ac	ion, and other cess panels and
		a. Control b. Vertical c. Take-awa d. Gate dec e. Die hubs f. Inker arr g. Spring te h. Transpor i. Metal tra	feed fence y covers k assemblies ns ension bars t belts	· · ·	
Machine A & B	3		aning) Remove foreign m / blowing, vacuuming and		
Machine A & B	4	plate by blow and sensor to Use extreme of	ting Plate) Remove dust ving with low pressure a ube windows with "Q" tip care not to damage UV la ol on sensor plate.)	ir stream. immersed i	Wipe lamp window n alcohol. (Note
Machine A & B	5	lead and trai loose or dama adjusting scr and check rat	ive Assemblies) Without il ink pump drive assemb aged solenoids, linkages rew, locknuts, and wirin tchet reverse stop pawl, for proper adjustment.	lies. Look , pins, pin g. Operate	and feel for retainers, sprin pump actuator ar
Machine A & B	6	lubrication p	_ Apply one drop of lig points.	ht machine d	oil at following
		Machine A:			
			on roller pivots. m pivots and universals		

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MASTER PREV	ENTIVE	MAINTENANCE CHECKLIST - SIDE A		Checklis: Number:	
Type of Activity:	Routi	ne Preventive Maintenance		3-FC-2M	
System: Mark I	I Face	er Canceler Equipment:	Туре: 3500	Series Models	
Component	item	Instructions		Frequency 20-30 Operating Hours	
Machine A & B (Cont'd)	6 (Cont)	 c. Reverse roller pivots and univer d. Wear compensator pivot and rod. e. All accessible bearings and bush 			
		Machine B:			
		a. Impression roller pivots. b. Rocker arm pivots and universals c. All accessible bearings and bush			
Machine A & B	7	(Inker Arm Assemblies) Disassemble assemblies. Lift out ink felts but assemblies. Clean inker arms and co covers and felt rollers for wear or trail inker arm assemblies and reins arm assembly and replace retaining c belts and spring tension bars.	keep with re vers. Check damage. Rea tall. Reins	espective arm < inker arms, assemble lead and	
Machine A & B	8	(Gate Assembly) Clean gate assembly, by blowing and wiping with solvent. Look and feel for binding or sticking plungers and for wear or damage to pins, linkage, bushings, bearings, shafts, flag flags, and springs. Check flag tip clearance (approximately 3/16"). Reinstall gate assembly. Wipe and reinstall take-away covers.			
Machine A & B	9	(Access) Wipe and close front acces front cabinet doors. Wipe inside of		Inlock and open	
Machine A & B	10	<u>(Die Hub Assemblies)</u> Clean lead and Change type as appropriate. Reinsta adjust ink felt rollers.	trail die h 11 die hub a	nub assemblies. Assemblies and	
Machine A & B	11	(Control Panels) Clean control paneland wiping. Look for damage to wirin Clean vertical feed fence by wiping. fence and control panel A. Reinstal	ng, switches Reinstall	, and relays. vertical feed	
Machine A	12	(Reverse and Feed Rollers) Check runicks or gouges. Check compensator material and freedom of rotation. Au adjusting screw so that 1/64" to 1/33 exposed through the separator shield reverse and main feed rubbers to 0.00	roller or bu djust the se 2" of the re . Set the g	ild up of foreign eparator shield everse rubber is	
Machine B		(Brush Assembly) Remove string and or wrapped in brush bristles. Blow of foreign material from brushes, guides Ch. Such as for looseness on shafts	or vacuum du s, and insic	ist and other le of brush cover.	

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		MAINTENANCE CHECKLIST — SIDE A		Checklist Number: 3-FC-2M
System		er Canceler	^{Type:} 3500	Series Models
Component	Item	' Instructions		Frequency 20-30 Operating Hours
Machines A & E	14	<u>(Ink Tanks)</u> Stir ink and fill tanks both machines.	to a level	1/2" from the top
Machines A & B	15	(Access) Wipe and close rear hinged dust cover. Unlock and open rear cal doors and shelf. Clean interior of c	oinet doors.	
	16	(Exterior Cleaning) Spot-clean extension by wiping. Use solvent or detergent		
Electronic Cabinet and Machine A & B	17	(Air Filters (3) Remove and clean a stream through filter in reverse of r Replace air filter.		
Machine A & B	18	(Operating Check) Reinstall light sh shields. Start machine, see that ma- impression rollers, take-away rollers brushes, inverter belt, main feed be turning. See that blower motors are evidence of wear or damage to bearing	in feed roll , starwheel t and verti operating.	er, reverse rolle s, stacker belts, cal feed belt are Listen for
Machine A & B Machine A & B		<u>(Clean-up)</u> Be sure all tools, lubric from work area. Initiate necessary w accomplish scheduled repairs. Report maintenance foreman immediately upon	vork orders ; serious de	and reports to
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MASTER PREVENTIVE MAINTENANCE CHECKLIST — SIDE B Type of Activity: Routine Preventive Maintenance					Checklist Number: 3-FC-2M
System: Mark II Facer-Canceler			3500 Series Models		
ltem	Performance Time Criteria		Notes and Additional Information		Frequency n 20-30 Operating Hour
ltem 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19		ia	<u>TOTAL 1</u>	Itional Information TIME REQUIRE 3 minutes 12 minutes 30 minutes 8 minutes 10 minutes 16 minutes 16 minutes 16 minutes 2 minutes 2 minutes 4 minutes 5 minutes 7 m	n 20-30 Operating Hour D PER EVENT

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	TER PREVENTIVE MAINTENAL of Activity: Routine Prevent				Checklist Nur 3-FC-2M	1
Syster	^{n:} Mark II Facer-Canceler	Equipment:		^{Type:} 3500 Se	ries Models	
ltem	Performance Time Criter	ia	Notes and Add	litional Information	Frequency 20-30 Operating	
1 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 18 19	Safety Preparation General Cleaning Sensor Mounting Plate Ink Pump Drive Assembly Lubrication Inker Arm Assembly Gate Assembly Access Die Hub Assemblies Control Panels Reverse and Feed Rollers Ink Tanks Access Exterior Cleaning Air Filters Operating Check Clean-up		<u>TOTAL</u> 1	IME REQUIRED 3 minutes 6 minutes 15 minutes 4 minutes 2 minutes 2 minutes 2 minutes 2 minutes 2 minutes 2 minutes 3 minutes 3 minutes 3 minutes 3 minutes 3 minutes 3 minutes		

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		MAINTENANCE CHECKLIST — SIDE A		Checklist Number:
Type of Activity:	Rout	ine Preventive Maintenance	,	3-FC-3M
System: Mark II	I Face	r-Canceler Equipment:	т _{уре:} 3500 S	Series Models
Component	item	Instructions		Frequency 240-300 Operating Hours
General	1	(Safety) Comply with all safety pre circuit breaker OFF except when oper equipment running. Report serious d immediately upon detection. Where a cleaning, use a low pressure (30 psi protection (goggles or face masks) m compressed air for cleaning.	ations must eficiencies ir pressure or less) ai	be performed with to supervisor is required for ir source. Eye
Machine A & B	2	(Preparation) Remove associated equ for and remove all mail in stackers, transport parts. Open front and rea doors. Remove and set aside the fol from both machines.	brush secti r hinged acc	on, and other cess panels and
Machine A	3	 a. Light shield covers b. Metal tray shelves c. Control panels d. Vertical feed fence e. Take-away covers f. Inverter belt guards g. Brush housing cover h. Inverter belt i. Ink pump assemblies j. Gate deck assemblies (Relays 1K1(K3) and 1K2(K4) (Relays 1K1(K3) and 1K2(K4) (Relays 1K1(K3) and 1K2(K4) Remove of foreign material from relay contacts contacts and damaged wiring. Repair Replace covers. 	and wiring.	relays. Blow Check for pitted as necessary.
Machine B		<u>(Brush Assembly)</u> Clean all exposed a blowing and wiping. Check castings, pulleys, belts, belt take-ups, and be and wear. Check for proper brush adj sary. Brush adjustments:	gears, brus earings for	hes, shafts, looseness, damage,
		 a. Right pair - vertical position or bottom of brush to casting. b. Left pair - vertical position is clears letter track. c. Right pair - gap - bristles just d. Left pair - gap - 1/32"-1/16". 	where botto	
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MASTER PREV	ENTIVE	MAINTENANCE CHECKLIST - SIDE A		Checklist Number:		
Type of Activity:	Routi	ne Preventive Maintenance	·····	3-FC-3M		
System: Mark II	Facer	-Canceler Equipment:	Туре: 3500	Series Models		
Component	Item	Instructions		Frequency 240-300 Operating Hours		
Machine B	5	<u>(Inverter Section)</u> Check for exce belts, bearings, shafts, and guide place inverter belt, brush cover,	s. Repair as	necessary. Re-		
Machine A & B	6	(Sensor Mounting Plate) Install P-101 onto mating connector in sensor mounting plate with two retaining screws. Place sensor plate in position on machine and install the four mounting bolts. Replace ground wire and check for zero resistance between sensor plate and machine frame with a VOM.				
Machine A & B	7	(Spring Tension Adjustments) Chec given below at transport belt roll spring gauge. Adjust if necessary	ers and revers			
		 a. At feed end - 16 pounds b. At gate end - 8 pounds c. At intermediate roller - 5 pounds d. At reverse roller - 3 to 3-1/2 		· ·		
Machine A & B	8	(Rocker Arm Stops) Check the follo adjust if necessary.	owing stop ad:	justments and		
		 a. Machine A, right front and rear - 1/64" gap between stop screws and stops when transport belts are touching and aligned with pinch point of reverse and feed rubbers. b. Machine B, right front and rear - 1/16" gap between transport belts at rollers when belts are aligned with left front and rear brushes. c. Both machines, left front and rear - Transport belts should barely touch at center line of letter track. d. (Letter guide springs) Gap between springs should be 1/16" with springs aligned with center line of letter track. 				
Machine A & B	9	(Ink Pump Assemblies) Clean and or drive mechanisms. Install ink pump reconnect solenoid wires.				
Machine A & B	10	(Control Panels - Vertical Feed Fervertical feed fence on Machine "A". Machine "B". Reconnect power wiring breakers ON. Place power ON-OFF sy circuitry to warm up for later elect	Install cor g and place m witch in ON po	ntrol panel on main circuit psition to allow		
Machine A & B	11	(Gate Assemblies)				
	-	a. Clean entire gate assembly by bl	owing and wip	ping.		

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		MAINTENANCE CHECKLIST — SIDE A ne Preventive Maintenance		Checklist Number: 3-FC-3M	
System:		r-Canceler Equipment:	Type:		
Component Item		Instructions	3500) Series Models Frequency 240-300 Operating Hours	
Machine A & B		(Gate Assemblies) (Cont'd)			
	(Cont)	 b. Check operation of flag mechanism binding or wear in bearings. c. Check gate flag adjustments as in appropriate solenoid as necessary 	ndicated and	reposition	
		 Reset condition - Reset sole bottomed when both gate flag (aligned with notches on gat (2) Set condition - Set solenoid bottomed when the flag is in 3/16" from other flag held 	gs are in <u>Re</u> ce deck). d plungers s n Set positi	<u>set</u> position hould be on (flag tip	
• •		 d. Connect an ohmmeter to the gate to see that the switch closes whe pounds is applied downward on eit if necessary. e. Install the gate deck assemblies the take-away covers. Reinstall 	n a pressur her gate fl into the ma	e of about 1 to 2 ag tip. Adjust chine and replace	
Machine A & B	12	<u>(Cancellation Check)</u> Enable dies by 3E to ON position. Run mail with sta for proper operation of dies, gates, for good cancellation impressions.	mps to all :	stackers and check	
Machine A & B		(Final Close-up) Wipe inside and out covers, and cabinet doors with a rag ink, and grease. Close front and rea ink tank covers. Close and lock fron	and solvent r hinged ac	to remove dirt, cess panels and	
1achine A & B	14	(Tray Shelves) Reinstall metal tray	shelves on r	nachine.	
1achine A & B		(Clean-up) Insure that all tools, lu ment, etc., are removed from work are orders and reports to accomplish requ all serious deficiencies to maintenan	a. Initiate ired major m	e necessary work	
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ype of Activity: Routine Preventive Maintenance System: Equipment: Type: For a construction of the system:						
Mark II Facer-Canceler	equipment.		.3500	Series Mode	ls	
Performance Time Crite	ia	Notes and Ac	ditional Information	Frequency 240-300 Operating	Hour	
		<u>Total</u>	Time Required	<u>Per Event</u>		
Brush Assembly Inverter Section Sensor Mounting Plates Spring Tension Adjustmer Rocker Arm Stops Ink Pump Assemblies	nts		3 minutes 10 minutes 10 minutes 8 minutes 5 minutes 20 minutes 8 minutes 10 minutes 3 minutes 20 minutes 5 minutes 8 minutes 2 minutes 3 minutes 3 minutes			
	Mark II Facer-Canceler Performance Time Criter Preparation Relays 1K1(K3) and 1K2(H Brush Assembly Inverter Section Sensor Mounting Plates Spring Tension Adjustmer Rocker Arm Stops Ink Pump Assemblies Control Panels - Vertica Feed Fence Gate Assemblies Cancellation Check Final Close-up Tray Shelves	Mark II Facer-Canceler Performance Time Criteria Safety Preparation Relays 1K1(K3) and 1K2(K4) Brush Assembly Inverter Section Sensor Mounting Plates Spring Tension Adjustments Rocker Arm Stops Ink Pump Assemblies Control Panels - Vertical Feed Fence Gate Assemblies Cancellation Check Final Close-up - Tray Shelves	Mark II Facer-CancelerPerformance Time CriteriaNotes and AdSafetyTotalPreparationTotalRelays 1K1(K3) and 1K2(K4)TotalBrush AssemblyInverter SectionSensor Mounting PlatesSpring Tension AdjustmentsRocker Arm StopsInk Pump AssembliesControl Panels - VerticalFeed FenceGate AssembliesCancellation CheckFinal Close-upTray Shelves	Mark II Facer-Canceler3500Performance Time CriteriaNotes and Additional InformationSafetyTotal Time RequiredSafety3 minutesPreparation10 minutesRelays 1K1(K3) and 1K2(K4)10 minutesBrush Assembly8 minutesInverter Section5 minutesSensor Mounting Plates20 minutesSpring Tension Adjustments8 minutesRocker Arm Stops10 minutesInk Pump Assemblies10 minutesControl Panels - Vertical3 minutesFeed Fence3 minutesGate Assemblies20 minutesCancellation Check5 minutesFinal Close-up -8 minutesTray Shelves2 minutes	Mark II Facer-Canceler3500 Series: ModePerformance Time CriteriaNotes and Additional InformationFrequency 240-300 OperatingSafety Preparation Relays 1K1(K3) and 1K2(K4)Total Time Required Per EventSafety Preparation Relays 1K1(K3) and 1K2(K4)3 minutes 10 minutes 8 minutes 20 minutesSensor Mounting Plates Spring Tension Adjustments Rocker Arm Stops Ink Pump Assemblies Control Panels - Vertical Feed Fence Gate Assemblies Cancellation Check Final Close-up Tray ShelvesSeries: Mode Preparation Notes and Additional Information 240-300 OperatingMark II Facer-Canceler Performance Time Criteria3 minutes 8 minutes 8 minutes 8 minutes 8 minutes 8 minutes 8 minutes 8 minutes 9 minutes	

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f Activity: Routine Preventive Mai	
Mark II Facer-Canceler	3500 Sries Models
Performance Time Criteria	Notes and Additional Information 240-300 Operating Hours
	Total Time Required Per Event
Safety Preparation Relays 1K1(K3) and 1K2(K4) Sensor Mounting Plates Spring Tension Adjustments Rocker Arm Stops Ink Pump Assemblies Control Panels - Vertical Feed Fence Gate Assemblies Cancellation Check Final Close-up Tray Shelves Clean-up	3 minutes 5 minutes 10 minutes 10 minutes 4 minutes 4 minutes 5 minutes 2 minutes 3 minutes 4 minutes 1 minute 3 minutes
	· · ·
	Mark II Facer-Canceler Performance Time Criteria Safety Preparation Relays 1K1(K3) and 1K2(K4) Sensor Mounting Plates Spring Tension Adjustments Rocker Arm Stops Ink Pump Assemblies Control Panels - Vertical Feed Fence Gate Assemblies Cancellation Check Final Close-up Tray Shelves

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MASTER PREV		MAINTENANCE CH	ECKLIST — SIDE A		Checklist Number: · 3-FC-4M
System:		Equip	oment:	Туре: огоо	
Mark I	[Face	-Canceler		3500	Series Models
Component	ltem		Instructions		Frequency 720-800 Operating Hours
General	1	circuit breaker (equipment running immediately upon cleaning, use a	with all safety pre DFF except when oper g. Report serious d detection. Where a low pressure (30 psi les or face masks) m or cleaning.	ations must eficiencies ir pressure or less) a [.]	be performed with to supervisor is required for ir source. Eye
Machine A & B	2	for and remove a transport parts.	emove associated equ 11 mail in stackers, Open front and rea nd set aside the fol es.	brush secti r hinged acc	ion, and other cess panels and
		o. "A" control p. Right and le	nelves ls i fence vers t guards g cover t emblies semblies on bars	bracket rocker arms	
Machine A & B	3 .	a. Remove sensor b. Remove screws c. Disconnect gr d. Remove sensor e. Check shock r Disassembly, chec Note: Use only solvents v	isopropyl alchol as will damage optical om top and bottom of	sconnect plu e. m machine. cleaning sol windows and	ıg. İvent. Other UV lamp.

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System: Mark I	I Facer-	Canceler Equipment:	^{Type:} 3500 Se	ries Models
Component	Item	Instructions	1	Frequency 720-800 Operating Ho
Machine A & B	4 4 4 4 5 7 7 8 7 8 7 9 7 9 7 9 7 9 7 9 7 9 7 9 7	 bottom 3/16" after tripping. Check clutch stop actuating arm between actuating arm and stop a from home position. Adjust if a Drain oil from sump and clean su machine. Close petcock and ref Mobil Velocite #6 or equivalent. Reinstall main drive and clutche timing belts on machine. Install inker arms onto assembly connectors. 	covers. , evidence of Repair any def circuit cards aged connector ; disassemble isopropyl alch e and outside e detector win amps. , edge detecto ail connector detector lamp ady to reinsta off main drive s assembly, al y using approp e and excessive /4" to 3/8" ga just if necessive /4" to 3/8" ga just if necessive /4" to 3/8" ga just if necessive /4" to insure .00 screw when die necessary. ump and surroum ill oil sump w oil. es assembly and	belt rubbing, ects found. from sockets pins; reinst and clean. ol, clean sol of windows); dows; clean e r assemblies, covers. s are tight. ll. and timing b lowing oil to riate degreas e wear. Chec p between dea ary. unger should 5" to .010" g is rotated 3 nding area on ith 9 pints o d main drive
Machine A	5 <u>(</u> a b	assembly and disengage horizont belt. Remove assembly from mac	al feed belt an nine. aged parts. Cl ve wear and lul	nd main drive heck bushings pricate. Lub

	-		E CHECKLIST - SIDE A		Checklist Number:	
Type of Activity:			e Maintenance		3-FC-4M	
System: Mark II	Facer	r-Canceler Equipment: 3500			Series Models	
Component	ltem		Instructions		Frequency 720-800 Operating Hours	
Machine A	6	petcock Velocite d. Reinstal horizont (Relays 1K1(<pre>1 from sump; clean sump and refill oil sump with #6 or equivalent. 1 feed gear train assemb al feed belts. Replace K3) and 1K2(K4)) Remove rial from relay contacts</pre>	1 pint, 5 o ly, engaging cover plate covers from	ounces of Mobil g main drive and and belt guards. m relays. Blow	
Machine B	7	contacts and Replace cove (Brush Assem blowing and pulleys, bel and wear. C	damaged wiring. Repair	or replace areas of bru gears, brus earings for	as necessary. ush assembly by shes, shafts, looseness, damage,	
		bottom o b. Left pai clears l c. Right pa	ir - vertical position o f brush to casting. r - vertical position is etter track. ir - gap - brisles just r - gap - 1/32" - 1/16".	where botto		
Machine B	8	belts, beari	<u>ction)</u> Check for excess ngs, shafts, and guides. er belt, brush cover, an	Repair as	necessary. Re-	
Machine A & B	9	sensor mount plate in pos Replace grou	ting Plate) Install P-1 ing plate with two retai ition on machine and ins nd wire and check for ze chine frame with a VOM.	ning screws. tall the fou	Place sensor Ir mounting bolts.	
Machine A & B	10		ssemblies) Remove cover or excessive wear and da			
Machine A & B	11	assemblies. chains, and Lubricate ch	<u>e-Away Motors)</u> Remove s Clean stacker take-away pulleys. Check parts for ain and motor with 10W o ssemblies onto machine.	motors, spr r excessive	rockets, drive wear and damage.	
Machine A & B	.12	rollers, and	emblies) Check stacker shafts for excessive we for proper tension. Rep s.	ar and damag	je. Check stacker	

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Type of Activity:	Routi	ne Preventiv	e Maintenance		3-FC-4M
System: Mark II	Facer	-Canceler	Equipment:	Type: 3500 S	Series Models
Component	ltem		Instructions		Frequency 720-800 Operating Ho
Machine A & B	13	adjustment a high point o spring gauge	<u>Rollers)</u> Check impress and adjust if necessary. of the die hub and the re e, insure that impression and 21 pounds measured a	The cleara oller should n roller spr	nce between th be 0.006". U ing tension is
Machine A & B	14		ors) Remove blower motor te with 10W oil. Replace		
Machine A & B	15	<u>(Interior Cleaning)</u> Wipe rear cabinet doors and shelf. Spray front and rear panels with solvent and blow dry. Wipe front fac of panels with clean rag. Check wiring for damage or deterior- ation.			
Electronic Cabinet	16	blow chassis	<u>Chassis)</u> Remove electro clean. Wipe inside of under chassis for tight	cabinet. Cl	
Electronic Cabinet	17	(Blower Motor) Remove blower motor from cabinet, clean and lubricate with 10W oil, and reinstall motor.			
Electronic Cabinet	18	<u>(Electronic Chassis)</u> Check printed circuit cards for proper seating in edge connectors. Check chassis wiring for damage. Reinstall chassis in electronic cabinet.			
Electronic Cabinet	19	(Air Filter) Remove air filter from rear of cabinet and replace with new filter.			
Machine A & B	20	rocker arm a	s and Rocker Arm Assemblissemblies clean using a prior was a second or was a second second second second second	rag and solv	
		a. Spring g b. Castings c. Pulleys d. Bearings e. Bushings f. Shafts g. Nylon an		• .	
		arm and shie front and re Install "A"	t front and rear rocker Id assembly, front and r ar rocker arm assemblies machine control panel le o 1/64" to 1/32" of the shield.	ear transpor . Install s ft mounting	rt belts, and ispring tension bracket. Adju

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MASTER PREV	ENTIVE	MAINTENANC	E CHECKLIST - SIDE A		Checklist Number:
Type of Activity:	Rout	ine Preventiv	e Maintenance		3-FC-4M
System: Mark I	I Face	r-Canceler	Equipment:	туре: 3500	Series Models
Component	Item		Instructions		Frequency 720-800 Operating Hours
Machine A & B	21	given below	<u>ion Adjustments)</u> Check at transport belt roller . Adjust if necessary.	spring tens s and rever	ion adjustments se roller using
		b. At gate c. At inter	end - 16 pounds end - 8 pounds mediate roller - 5 pound se roller - 3 to 3-1/2 p		
Machine A & B	22	<u>(Rocker Arms</u> adjust if ne	<u>Stops)</u> Check the follo cessary.	wing stop a	djustments and
		screws a aligned b. Machine port bel front an c. Both mac barely t d. (Letter	A, right front and rear nd stops when transport with pinch point of reve B, right front and rear ts at rollers when belts d rear brushes. hines, left front and re ouch at center line of l guide springs) Gap betw ings aligned with center	belts are t erse and fee - 1/16" gap are aligne err - Transp etter track een springs	ouching and d rubbers. between trans- d with left ort belts should should be 1/16"
Machine A & B	23	drive mechan	<u>semblies)</u> Clean and oil isms. Install ink pump lenoid wires.	(10W machi assemblies	ne oil) ink pump onto machine and
Machine A & B	24	(Control Panels - Vertical Feed Fence) Install control panel ar and vertical feed fence on Machine "A". Install control panel of Machine "B". Reconnect power wiring and place main circuit breakers ON. Place power ON-OFF switch in ON position to allow circuitry to warm up for later electronic adjustments.			
Machine A & B	25	blade bearin blowing. Re spring, and	des) Remove stacker bla gs by picking out compac install blades making su nylon insert are properl rew so there is a slight rod.	ted dirt and re that adj y assembled	d lint and by usting screw, . Adjust
Machine A & B	26	(Air Filters new filters.) Remove air filters fr	om machine	and replace with
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		ne Preventive Maintenance		3-FC-4M	
System: Mark II	Facer	cer-Canceler Equipment: Type: 350) Series Models	
Component	ltem	Instructions		Frequency 720-800 Operating Hour	
Machine A & B	27	<u>(Gate Assemblies)</u>			
		 a. Clean entire gate assembly by bl b. Check operation of flag mechanis binding or wear in bearings. c. Check gate flag adjustments as i appropriate solenoid as necessar 	m for signs ndicated an	of excessive	
:		 Reset condition - Reset sol bottomed when both gate fla (aligned with notches on ga Set condition - Set solenoi when the flag is in <u>Set</u> pos other flag held in Reset po 	gs are in R te deck). d plungers ition (flag	eset position should be bottom	
		 d. Connect an ohmmeter to the gate to see that the switch closes wh pounds is applied downward on ei if necessary. e. Install the gate deck assemblies the take-away covers. Reinstall 	en a pressu ther gate f into the m	re of about 1 to lag tip. Adjust achine and repla	
Machine A & B	28	<u>(Cancellation Check)</u> Enable dies by position 3E to ON position. Run mai and check for proper operation of di Check mail for good cancellation imp	l with stam es, gates,	ps to all stacke	
Machine A & B	29	<u>(Final Close-up)</u> Wipe inside and ou covers, and cabinet doors with a rag ink, and grease. Close front and re ink tank covers. Close and lock fro	and solven ar hinged a	t to remove dirt ccess panels and	
Machine A & B	30	(Tray Shelves) Reinstall metal tray	shelves on	machine.	
Machine A & B	31	(Clean-up) Insure that all tools, I ment, etc., are removed from work ar orders and reports to accomplish req all serious deficiencies to maintena	ea. Initia uired major	te necessary wor repairs. Repor	

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	TER PREVENTIVE MAINTENANCE CHECK	
Systen		^{Type:} 3500 Series Models
Item	Performance Time Criteria	(Excluding Model 3501) Frequency Notes and Additional Information 720-800 Operating Hours
1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16 17 18 9 20 21 223 24 25 27 28 9 30 31	Safety Preparation Sensor Mounting Plates Main Drive and Clutches Assembly Feed Gear Train Assembly Relays 1K1(K3) and 1K2(K4) Brush Assembly Inverter Section Sensor Mounting Plates Starwheel Assemblies Stacker Take-Away Motors Stacker Assemblies Impression Rollers Blower Motors Interior Cleaning Electronic Chassis Blower Motor Electronic Chassis Air Filter Tension Bars and Rocker Arm Assemblies Spring Tension Adjustments Rocker Arm Stops Ink Pump Assemblies Control Panels - Vertical Feed Fence Stacker Blades Air Filter Gate Assemblies Cancellation Check Final Close-up Tray Shelves Clean-up	Total Time Required Per Event3 minutes20 minutes60 minutes150 minutes50 minutes10 minutes8 minutes20 minutes10 minutes10 minutes10 minutes10 minutes10 minutes10 minutes20 minutes10 minutes10 minutes10 minutes20 minutes20 minutes20 minutes20 minutes20 minutes3 minutes10 minutes3 minutes20 minutes3 minutes10 minutes3 minutes2 minutes3 minutes

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	ER PREVENTIVE MAINTENAN (Activity: Routine Preventi	VE CHECKL ve Maintena	IST - SIDE B nce		Checklist Number: 3-FC-4M
System		Equipment:		^{Type:} Model	
Item	Performance Time Criter	ia	Notes and Ad	ditional Information	Frequency 720-800 Operating Hour
1 2 3 4 5 6 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	Safety Preparation Sensor Mounting Plates Main Drive and Clutches Feed Gear Train Assembly Relays 1K1(K3) and 1K2(1 Sensor Mounting Plates Starwheel Assemblies Stacker Take-Away Motors Stacker Assemblies Impression Rollers Blower Motors Interior Cleaning Electronic Chassis Blower Motor Electronic Chassis Air Filter Tension Bars and Rocker Assemblies Spring Tension Adjustme Rocker Arm Stops Ink Pump Assemblies Control Panels - Vertice Feed Fence Stacker Blades Air Filter Gate Assemblies Cancellation Check Final Close-up Tray Shelves Clean-up	(4) s Arm nts	<u>Total</u>	Time Required 3 minutes 10 minutes 30 minutes 50 minutes 50 minutes 10 minutes 50 minutes 50 minutes 50 minutes 50 minutes 10 minutes 10 minutes 10 minutes 10 minutes 10 minutes 10 minutes 2 minutes 2 minutes 2 minutes 10 minutes 3 minutes 10 minut	5 5 5

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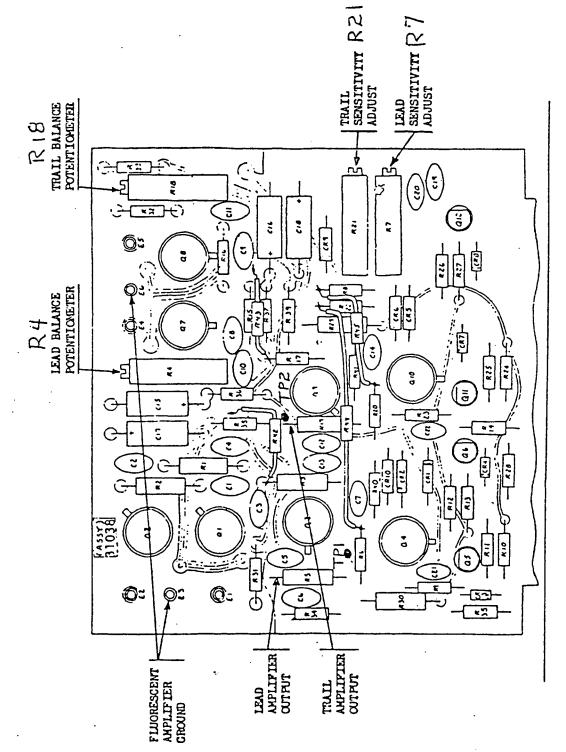
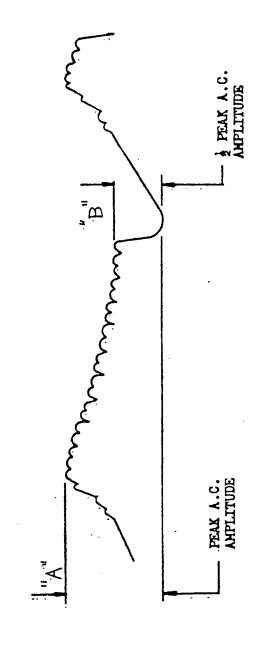


Figure B-1. Oscilloscope Connections FLUORESCENT AMPLIFIER 0EM 31038 (31038A has Test Points 1 & 2 added

ied)

NOTE: Adjust R18 or R4 on 31038/A so that amplitude "B" is 1/2 of amplitude "A".



Waveform obtained at TP-1 and TP-2 of Fluorescent Amplifier Card, OEM 31038/A

Figure B-2. Proper Balance Waveform

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TRAIL KUGE Detector Amplifier Detector Senaitivit Detector Senoitivit LEAD - RECULAR TAG LEAD - AIRHAIL TAG Adjustizent SELISOR PLATS (Tep View) I | | | Sensor Amplifier Locations 11 11 11 2211111111 1911194400 A PARTY AND A P Figure B-3. Letd - Bottom Trail - Top Detector Sensitivity TEALL - AIKIAIL TAG Detector Sensitivity Detector Sensitivity <u>Mo</u> adjustment should be made to potentioucters on the METER TAG amplifier that are inaccessible with housing cover in position unless a Balance adjustment is required. TRAIL - REGULAR TAG LEAD EDGE Detector Amplifier Adjustmont Ad Justment Adjustment NETER TAG CAUTION

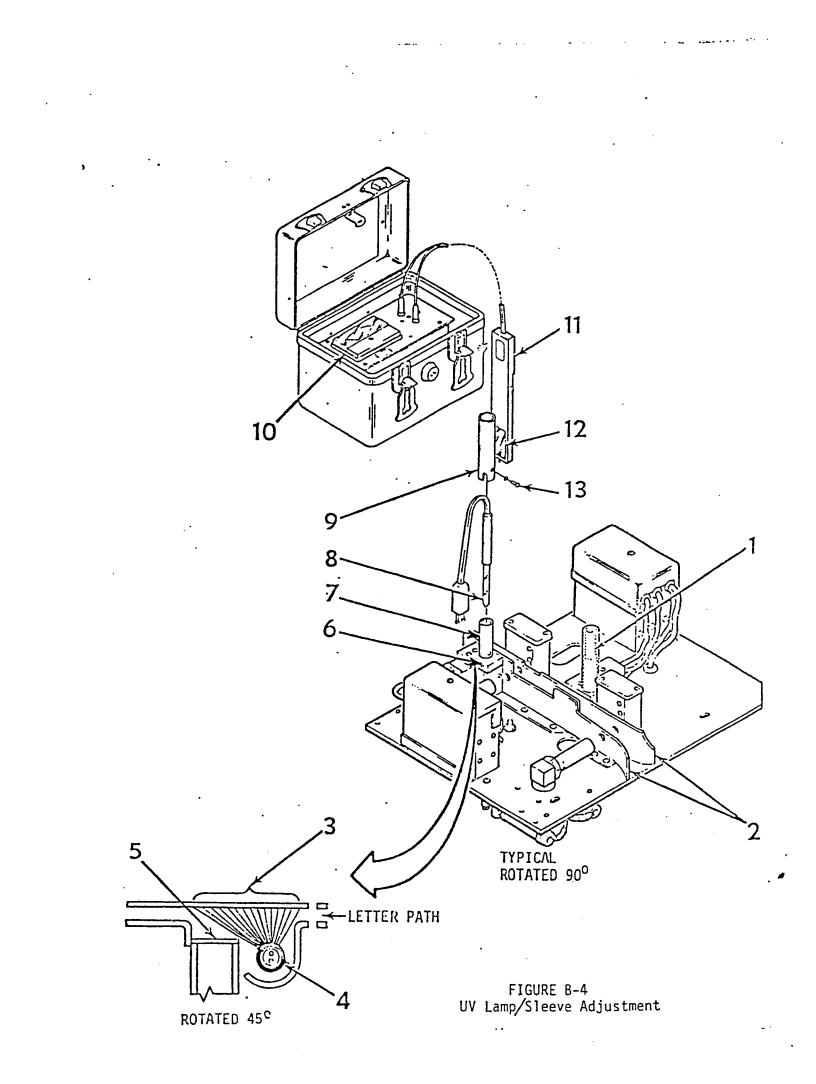


TABLE 2

MAINTENANCE STAFFING*

FACER CANCELER MODEL 3501

HOURS OPERATED PER YEAR	PREVENTIVE MAINTENANCE HOURS/YEAR	REPAIR MAINTENANCE HOURS/YEAR	NON-PRODUCTIVE HOURS/YEAR	TOTAL MAINTENANCE HOURS/YEAR	MAINTENANCE PERSONNEL MEN/MACHINE
500	184	92	28	304	.172
600	189	95	28	312	.176
700	194	97	29	320	.181
800	205	103	31	339	.192
900	211	106	32	349	.197
1000	217	109	33	359	.203
1100	222	111	33	366	.207
1200	229	115	34	378	.214
1300	234	117	35	386	.218
1400	239	120	36	395	.223
1500	250	125	38	413	.234
1600	255	128	38	421	.238
1700	261	131	39	431	.244
1800	266	133	40	439	.248
1900	271	135	41	448	.253
2000	278	139	42	458	.259
2100	283	142	42	467	.264
2200	294	147	44	485	.274
2300	299	150	45	494	.279
2400	306	153	46	505	.286
2500	311	156	47	514	.291
2600	316	158	47	521	.295
2700	322	161	48	531	.300
2800	327	164	49	540	.305
2900	338	169	51	558	.316
3000	344	172	52	568	.321

*For the purposes of calculating PM criteria, a six-day operation is assumed for this table. To arrive at a Total Maintenance Hours/Year for a five-day or sevenday operation, subtract 43 hours for a five-day operation or add 43 hours for a seven-day operation.

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MASTER PREV Type of Activity:			CE CHECKLIST — SIDE A		Checklist Number: 2-EF-1M
System: Letter	- Mail	Preparation	Equipment: Edger Feeder	Type: Model	500 and 500A
Component	Item		Instructions		Frequency 720-800 Operating Hours
General .	1	breaker OFF ment running ly upon dete use a low pr	nply with all safety pred except when operations m g. Report serious deficie ection. Where air pressu ressure (30 psi or less) face masks) must be used g.	nust be perf encies to su re is requi air source.	ormed with equip- pervisor immediat red for cleaning, Eye protection
Shingler	2	Shingler Fee	eder		
Feeder		V-belts, and buil ments ar measure	ingler feeder access gril , sheaves, and other driv ld-up of dirt of foreign nd excessive wear of belt sag for correct tension and feel keys to insure s	e parts for material. s and sheav adjustment.	corrosion, damag Look for misalign es. Feel belts o Wrench test set
		fretting	pulley and flange bearin g corrosion in bearings. rough bearings. Examine ning.	Feel pulle	y shafts for loos
		hands, t	drive motors for securit wist both halves of the ons, feeling for excessiv	flexible cou	
Edger	3	Edger Convey	vor Assembly		
Conveyor Assembly			conveyor belt and lacing per belt tension.	for damage	and wear. Feel
			e conveyor belt and spin eedom of rotation.	each return	roller to deter-
			all drive, idler, and ta ting corrosion and other		
		pulleys	e pulley guard covering t and examine the drive be Wrench test all pulley	lts and pul	
		for wear	all roller channel assem , dirt, and fretting cor binding or looseness th	rosion in th	ne bearings and
			rubberized surfaces of a hannel assembly. Look f		

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MASTER PREVE	ENTIVE	MAINTENANCE CHECKLIST - SIDE A	Checklist Number:
Type of Activity:	Inspe		2-EF-1M
System: Letter	Mail	Preparation Equipment: Edger Feeder Type: Mode	1 500 and 500A
Component	ltem	Instructions	Frequency 720-800 Operating Hours
Edger Convey Assembly (Cont'd)	4	 Flats Extractor a. Check for proper adjustment of the flats exit that the contact or "nipping" point of the swheels is set at 5-3/4 inches above the edge surface. b. Loosen and raise belt guard on flats extract for wear or damage to the belt and sheaves. belt tension. Examine the nip roller rubber face damage and misalignment. c. Examine flats extractor pillow block bearing assemblies. Look for wear, dirt, and frettibearings. Feel shafts for binding or looser bearings. Examine bearing stops/collars for positioning. d. Wrench test flats extractor set screws and p screws for tightness. Reposition belt guard retaining fastener. 	flats extractor er conveyor belt tor unit and look Feel for proper wheels for sur- as and shaft ing corrosion in tess through correct
Inclined Conveyor Assembly	5 6	Inclined Conveyor. Examine conveyor belt drive. guard and examine the pulleys and belt for wear, and alignment. Wrench test set screws and feel tightness. Metering Wheels. Examine metering wheels assemb	, proper tension, shaft keys for bly for damage and
Electrical Wiring and Control Panels	7	 misalignment. Check drive belt for proper tensi <u>Wiring and Control Panels</u> a. Examine machine general wiring for chafing o improper or faulty terminal connections. Se cables are off the floor and clamped to fram b. Examine electrical control panels. Blow dir exterior of panel. Open panel door. Blow dir interior of panel. Look for burnt or damage bare or burnt wiring and loose connections. plug-in relays are tight in sockets and that in sockets. Close panel. 	f insulation and e that connecting me. t and dust off irt and dust from d components, Be sure that

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System:			Equipment:	Type:				
Letter	Mail	Preparation	Edger Feeder	Model	500 and 500A			
Component	ltem		Instructions		720-800 Operating Hours			
Electrical Wiring and Control Panels (Cont'd)		dust off and open panel an bare or see that	and clean ratiotrol mot exterior of panel. Se panel door. Blow dirt d louvers. Look for bu burnt wiring and loose fuses are tightly clam oggle switch to ON posi	e that toggle and dust fro rnt or damage terminal conr ped in clips.	e switch is OFF om interior of ed components, nections. Feel to			
General	8	Listen for u	urn Electrical Disconnect switch ON and start Edger Feeder 500. isten for unusual noises, feel for excessive vibrations and look or slippage of V-belts.					
Edger Conveyor	9	Edger Convey	or Assembly					
Assembly		a. Observe Edger Conveyor Belt for tracking and look for belt damage. Listen for unusual noises.						
		Look for	running actions of the t extractor wheel bounce and slippage of V-belt.	(indicating	or assembly. out-of-round			
		for eccei	running action of the ro ntricity or "wobble" of ts and slippage of belts	knock-down r	assembly. Look oller pulleys			
Fine Cull Assembly	10	Fine Cull As:	<u>sembly</u>					
nsselle i y		excessive	or unusual noises, feel e vibration, and look ar pulleys and sheaves.					
		b. Observe t	the fine cull unit conve	eyor belt for	proper tracking.			
Inclined Conveyor	11	Inclined Conv	/eyor					
Assembly		through t	ratiotrol controller. the full range of belt s ed with changes in contr	peeds. Obse	rve change in			
			inclined conveyor belt w age, excessive wear, pro slippage.					
Vibrator Hopper		control syste	per. Examine the vibrat em. Inspect for proper iners and reflective dis	alignment of	the two photo-			

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MASTER PREV Type of Activity:			E CHECKLIST - SIDE A		Checklist Number: 2-EF-1M
System:	Insp	ection	Equipment:	Туре:	2-EF-1M
Letter	Mail	Preparation	Edger Feeder	Mode	1 500 and 500A
Component	Item		Instructions		Frequency 720-800 Operating Hours
Vibrator Hopper (Cont'd)		When both li ment feeding preset time	k for proper operation of ght beams are simultaned the hopper, usually a (interval. When either equipment will restart. and OFF. mode	ously interru C89 conveyor light beam be	upted, the equip , will stop after ecomes unblocked
Edger	13	Edger Feeder			
Feeder			n the equipment and turn al disconnect switch OFF		controller/
		examined	lined Conveyor Belt in a . Examine conveyor belt eel belt for proper tens	t and lacing	
		c. Close Sh	ingler Feeder Assembly a	access grille	25.
		d. Reinstal	l belt guards on Fine Cu	ull Assembly.	
		e. Replace	Edger Conveyor and Rolle	er Channel gu	ards and covers.
		f. Reinstal	l the Inclined Conveyor	Assembly bel	t guard.
	14	from work ar	ook to be sure all maint ea. Initiate necessary ules repairs. Report se Foreman.	work orders	and reports to
		1			

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	MASTER PREVENTIVE MAINTENANCE CHECKLIST — SIDE BChecklistType of Activity:Inspection2-EF-I									
System	Letter Mail Preparation	Edger Feeder	Type: Model	500 and 500A						
Item	Performance Time Criteria	Notes and Add	itional Information	Frequency 720-800 Operating Hours						
1.	Safety	5 minutes								
2.	Shingler Feeder	12 minutes								
3.	Edger Conveyor Assembly	20 minutes								
4.	Flats Extractor	8 minutes								
5.	Inclined Conveyor	5 minutes								
6.	Metering Wheels	1 minute								
7.	Wiring and Control Panels	15 minutes								
8.	General	1 minute								
9.	Edger Conveyor Assembly	10 minutes								
10.	Fine Cull Assembly	3 minutes								
11.	Inclined Conveyor	10 minutes								
12.	Vibrator Hopper	4 minutes								
13.	Edger Feeder	6 minutes								
14.	Clean-Up	5 minutes								
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System: Letter	Mail	Preparation Equipment: Type: M	odel 500 and 500A
Component	Item	Instructions	Frequency Daily
General	1	<u>Safety</u> . Comply with all safety precautions breaker OFF except when operations must be ment running. Report serious deficiencies iately upon detection. Where air pressure ing, use a low pressure (30 psi or less) ai tion (goggles or face masks) must be used w air for cleaning.	performed with equip- to supervisor immed- is required for clean r source. Eye protec
Edger	2	Edger Conveyor.	
Conveyor Assembly		a. Using compressed air, blow dirt and deb conveyor trough and chute areas.	ris from edger
		b. Using a clean lint-free cloth or lens t lens of the roller channel jam detectin surface of its reflecting disc.	
		c. Check edger conveyor belt tension. Example for damage.	mine belt and lacing
Vibrator	3	Vibrator Hopper.	
Hopper Assembly		a. Check vibrator hopper compressed air sy sure air pressure is set at 40 psi. Op to drain accumulated moisture, then clo oil level in lubricator.	en filter drain cock
		b. Using a clean lint-free cloth or lens t vibrator hopper mail level photocell le surfaces.	
General Sustem	4	General System Operation.	
System Operation		a. Turn motor controller/electrical disconsistant equipment. Listen for unusual no for slippage of belts, and look for proing on the edger conveyor, fine cull un conveyor, as applicable.	ises, look and lister per tracking of belt-
General	5	Shut down the equipment and turn the motor disconnect switch OFF.	controller/electrical
Clean-Up	6	<u>Clean-Up</u> . Look to be sure all maintenance from work area. Initiate necessary work or effect scheduled repairs. Report serious d Maintenance Foreman.	ders and reports to

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MAST Type o	ER PREVENTIVE MAINTENANCE CHECK f Activity: Routine Preventive Mainter	KLIST — SIDE B nance		Checklist Number: 3-EF-1M
System	Equipment:		Type: Model	500 and 500A
	Letter Mail Preparation	Edger Feeder		Frequency
ltem	Performance Time Criteria	Notes and Add	itional Information	Daily
1	Safety	5 minutes		
2	Edger Conveyor	2 minutes		
3	Vibrator Hopper	3 minutes		
4	General	3 minutes		
5	General	1 minute		
6	Clean-Up	5 minutes		·
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MASTER PREV	ENTIV	E MAINTENA	NCE CHECKLIST - SIDE A	ι	Checklist Number:		
-	Routi	ne Preventi	ve Maintenance		3-EF-2M		
System: Letter	Mail	Preparation	Equipment: Edger Feeder	r Type: Model	500 and 500A		
Component	ltem		Instructions		Frequency 20-30 Operating Hours		
General	1	breaker OF ment runni iately upo ing, use a tion (gogg	afety. Comply with all safety precautions. Keep machine circu reaker OFF except when operations must be performed with equip- ent running. Report serious deficiencies to supervisor immed- ately upon detection. Where air pressure is required for clean ng, use a low pressure (30 psi or less) air source. Eye protec ion (goggles or face masks) must be used when using compressed ir for cleaning.				
Shingler Feeder Assembly	2		<u>ssembly</u> . Visually check idler roller rubber for				
Assembly	3		Assembly. Check and adjustment as follow		Assembly. Check		
			n should rotate freely w	•	-		
		b. Cleara vertic	nce between the toe of t al feed belt surface is	the pivoting sl 1/16 to 1/8 in	hoe and the nch.		
			nce between the shoe and ch, at the pivot point o		feed belt is		
		the she	2 arm switch should ac be and the vertical feed pivot point of the shoe	belt is 1-1/4			
		e. Adjust	as necessary using the	following proc	cedures:		
		(1) Fi to	ree Rotation. Loosen st pivot shaft until cap	op nut securin spins freely.	ng arm cap		
		ac be fe	oe Clearance. Loosen l ljust limiting screw for etween the pivot point o eed belt surface. Loose '16 to 1/8 inch clearanc ertical feed belt. Tigh	1/2 inch clea f the shoe and n jam nut and e between toe	arance 1 the vertical adjust for		
		(i ac re ur pi se 1- th	pring Tension. Loosen p peneath mounting plate). Ijustment disc until a f equired to move the arm. red by attaching a pull- voting shoe limit screw curing tension spring b 1/2 to 2 ounces of forc he shoe. This force val g a pull-type spring ga	Turn knurled our to five-ou This force w type spring ga bracket. Loo racket and ad e is required ue is measured	tension unce force is value is meas- auge to the osen screws just until to pivot by attach-		

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MASTER PREV			CE CHECKLIST - SIDE A		Checklist Number:
Type of Activity:			e Maintenance	·	3-EF-2M
System: Letter	Mail F	reparation	Equipment: Edger Feeder	Type: Model	500 and 500A
Component	ltem		Instructions		Frequency 20-30 Operating Hours
Shinger Feeder Assembly (Cont'd)	3	(4) Swi swi and	<u>sembly (Cont'd)</u> tch Actuation Adjustment tch channel to switch mo channel assembly up or uired gap of 1-1/4 to 1-	ounting angle down to obta	e. Slide switch in actuation at
	4	Check for 1/ that switch split-hub cl	ssembly. Check and adju 4 inch clearance betweer actuates when gate is 3, amp on gate spring rod cessary using these prod	n gate and sh '8 inch from is clamped at	ingler belts and belts. Check that
		limit sc	arance. Loosen jam nut rew to obtain 1/4 inch o belts. Tighten jam nut	learance bet	
			ension Setting. Loosen tion to center of rod.		
		actuatin	ctuation Adjustment. Lo g arm. Adjust set screw e is 3/8 inch from shing	1 so that swi	tch actuates
	5	that clearan	ssembly. Check and adjuct ce between gate and shind s been fixed so it does procedures.	ngler belts i	s 1/2 inch. Chec
		post and	arance. Loosen jam nut adjust limit screw to g gate and shingler belts.	obtain 1/2 ir	ch clearance
		position	etting. Loosen set scre clamp to compress sprin position.		
	6	shingler bel	ssembly. Check that cle ts is 1/8 inch and that ading rod. Adjust as ne	spring clamp	is set to center
		adjust 1	arance. Loosen jam nut imit screw to obtain 1/8 shingler belts. Tighte	3 inch cleara	
			etting. Loosen set scre enter of spring loading		

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	Routi	ne Preventive	Maintenance		3-EF-2M			
System: Letter	Mail	Preparation	Equipment: Edger Feeder	Type: Model	500 and 500A			
Component	Item		Instructions		Frequency 20-30 Operating Hours			
Shingler Feeder Assembly (Cont'd)		using compre motors, bear slips, and o	<u>Shingler Assembly</u> . Open access panels on shingler assembly ar using compressed air, blow off all underneath areas, pulleys, motors, bearings, etc. Look for mail, rubber bands and facing slips, and other debris that may have fallen into lower shing areas. Blow off upper deck areas and close access panels.					
		the flats ex	tor. Check that the cor tractor wheels is set at t surface. Adjust as ne	5-3/4 inch	es above the edger			
		driven s shafts u	tractor Height Adjustmer heave and four shaft col p or down to set contact 5-3/4 inches above edge	Tars on whe point of f	el shafts. Adjust lats extractor			
Edger	9	Edger Convey	or.	·				
Conveyor Assembly			mpressed air, blow dirt trough and chute areas.		from edger			
		of the r	clean lint-free cloth or oller channel jam detect eflecting disc.	lens tissu ing photoce	e, wipe the lens ll and the surface			
		c. Check ed for dama	ger conveyor belt tensic ge.	n. Examine	belt and lacing			
Fine Cull	10	<u>Gauge Drum</u> .			•			
Assembly		gauge (1 cull bel using "N	tating gauge drum by har /4 inch thick) passes be t across the full length O-GO" gauge (5/16 inch t es not pass between gaug	tween gauge of the gaughick) and in	roller and fine ge drum. Repeat . nsure that "NO-GO"			
		and posi	um Height Adjustment. L tion gauge drum up or do sses and "NO-GO" gauge i	wn as neces	sary so that "GO"			
		c. Without proper t deterior	removing belt guards, fe ension. Visually examin ation.	el drive mo e V-belts fo	tor V-belts for or damage and			
			fine cull unit belt and er belt tension.	lacing for o	damage. Check			

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		Preparation	Maintenance ^{Equipment:} Edger Feeder	Type: Model	500 and 500A
Component	Item		Instructions		Frequency 20-30 Operating Hours
ine Cull Assembly (Cont'd)	10	security	gauge drum belting for		
Inclined Conveyor Assembly	11	Inclined Cor a. Examine for prop	nveyor. inclined conveyor belt per belt tension.	and lacing f	or damage. Check
		page on follow t	ail processing begins, c inclined belt. If exce the procedures below:	ssive slippa	ge 13 hours
		ind	eck for proper clearance clined conveyor frame. nove possible glazing fr	om helt surf	ace following
		st	andard preventive mainte	enance clean	ing procedures.
		ar	e unsuccessful.		
·	12	<u>Metering Wh</u> and misalig	eels. Examine metering nment. Check drive belt	wheels assen t for proper	nbly for damage tension.
Vibrator	13	<u>Vibrator Ho</u>	-		
Hopper Assembly		air pre drain a oil lev	ibrator hopper compress ssure is set at 40 psi. ccumulated moisture, th el in lubricator.	en close it.	Look for proper
		b. Using a vibrato surface	clean lint-free cloth or hopper mail level pho es.	or lens tiss tocell lense	ue, wipe the s and the disc
General System Operation	14	a. Turn mo start e for sli on the	item Operation. otor controller/electric equipment. Listen for u ippage of belts, and loo edger conveyor, fine cu licable.	husual noise	tracking of belti

			E CHECKLIST - SIDE A		Checklist Number:
Type of Activity:	Rout	ine Preventiv	e Maintenance	- <u></u>	3-EF-2M
System: Letter	Mail	Preparation	Preparation Equipment: Edger Feeder Mode		
Component	ltem		Instructions		Frequency 20-30 Operating Hours
Shingle^ Feeder Assembly	15	With machine idler roller procedure be Loosen a to obtai	Assembly. Check and a running, visually chec and shingler belts. A low: djustment plate screw a n 1/16 inch clearance b Tighten screw.	k for 1/16 i djust as nec nd adjust pl	nch gap between essary using ate position
Edger Conveyor Assembly	16	detector wit beam and obs is blocked. <u>Jam Deter</u> photocel and cover increase assemble Block lig	or Jam Detector. Check h machine running, bloc erve that inclined belt Adjust as necessary us ctor Time Delay Adjustm l unit from mounting br r. Adjust potentiomete or decrease time delay photocell and reinstal ght beam with machine r nd delay. Repeat as ne	k jam detect stops two so ing the follo ent. Remove acket and rem r in photoce , as appropr l on mounting unning and rem	or photocell light econds after beam owing procedures: detector move lens Il unit to iate. Re- g bracket.
Inclined Conveyor Assembly	17	<pre>the machine n shaft by rais Check that a touching, ind inclined belt one foot, and are lowered. a. Pivot Sha bearings b. Clearance limit scr outside m touching. c. Inching M switch ac mode. Th back to " turn.</pre>	lode Switch Adjustment. tuator screw until incl en adjust screw until ' continuous" mode and ro	ding in meter positioned cl hen metering econd, move a ode operation sing the foll self-locking ring. hine running, tering wheel e to belt as With machin lined belt go inclined belt otate screw a	ing wheel pivot inclined belt. ose to, but not wheels are raised pproximately n until wheels owing procedures: nuts on rod-end adjust lower frame to position possible without e running, adjust es into "inching" just switches n additional 1/4
		d. Time Dela	y Relay Adjustments. 1	lith machine	running, raise

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MASTER PREV			E CHECKLIST - SIDE A		Checklist Number:	
Type of Activity:	Rout	ine Preventiv	e Maintenance		3-EF-2M	
System: Letter	Mail	Preparation	Edger Feeder	Type: Model	500 and 500A	
Component	Item		Instructions		Frequency 20-30	
·					Operating Hours	
Inclined Conveyor	17	Metering Whe	els (Cont'd)			
Assembly (Cont'd)		adjust T adjust T	ing" mode. While observ DR2 for one second "stop DR3 for approximately on run" time.	" time of th	ne belt, then	
	18 <u>Feed Regulator</u> . Check that feed regulator counterweigh the center of the counter-balance arm. With machine ru check for 1/16 inch clearance between lowest fork eleme inclined conveyor belt surface and that switch opens an stops when feed regulator forks are raised more than 3/ above belt surface. Raise and lower fork assembly seve and check that vibrator starts and stops reliably. Adj necessary using procedures below:					
			eight Adjustment. Loose counterweight to center w.			
		screw fo	arance Adjustment. Adju r 1/16 inch clearance be ined belt surface.			
		c. Feed Regulator Switch Adjustment. Adjust switch actuator screw so that switch actuates when forks are raised 3/16 inch off belt surface.				
General	19	Shut down th disconnect s	e equipment and turn the witch OFF.	motor contr	oller/electrical	
Clean-Up	20	from work ar	ook to be sure all maint ea. Initiate necessary uled repairs. Report se Foreman.	work orders	and reports to	

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	ER PREVENTIVE MAINTENANCE CHEC			Checklist Number:
Type of System			Type:	3-EF-2M
System	Letter Mail Preparation	Edger Feeder		500 and 500A
Item	Performance Time Criteria	Notes and Add	itional Information	Frequency 20-30 Operating Hours
1	Safety	5 minutes		
2	Top Deck Assembly	2 minutes		
3	No. 2 Arm Assembly	2 minutes		
4	No. 1 Gate Assembly	2 minutes		
5	No. 2 Gate Assembly	1 minute		
6	No. 3 Gate Assembly	1 minute		
7	Shingler Assembly	5 minutes		
8	Flats Extractor	1 minute		
9	Edger Conveyor	2 minutes		
10	Gauge Drum	3 minutes		
11	Inclined Conveyor	5 minutes		
12	Metering Wheels	1 minute		
13	Vibrator Hopper	3 minutes		•
14	General	3 minutes		
15	Idler Roller Assembly	1 minute		
16	Edger Conveyor Jam Detector	1 minute		
17	Metering Wheels	2 minutes		
18	Feed Regulator	2 minutes		
19	General	1 minute		
20	Clean-Up	5 minutes		· · ·
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VASTER PRE		E MAINTENANC	CE CHECKLIST - SIDE A		Checklist Number: 4-EF-1M
System:	<u> </u>		Equipment: Edger Feeder	Type: Madal	500 and 500A
Component	1tem	Preparation	Instructions	Moder	Frequency 720-800
					Operating Hours
Safety	1	breaker OFF running. Re upon detecti a low pressu	ply with all safety pred except when operations r port serious deficiencie on. Where air pressure re (30 psi or less) air face masks) must be used	nust be perfo es to superv is required source. Eye	ormed with equipm isor immediately for cleaning, us e protection
Shingler Feeder	2	and using co motors, bear and other de Wipe dirt an cate fitting lubricant fr	der Assembly. Open accompressed air blow off a ings, etc. Look for ma bris that may have falle d foreign material from s located under the ship om bearings and fittings per deck areas and close	l underneat il, rubber ba en into lowe exterior of ngler top de . (LUBRICA	h areas, pulleys, ands, facing slip r shingler areas. bearings and lub ck. Wipe excess NT:
Edger	. 3	Edger Convey	vor Assembly		
Conveyor Assembly		take-awa	t and foreign matter from y pulley frame and bear icate bearings. Wipe av NT:)	ings. Wipe (off grease fitti
		drive as of flats	a and open the belt guard sembly. Wipe dirt and extractor motor, drive actor wheels. Close and	foreign mater pulleys, pi	rial from exterio llow block areas
Fine Cull Assembly	4	surfaces of and pillow b	sembly. Wipe dirt and the gauge drum and conve lock bearings. Wipe of lipe away excess lubrica	eyor belt dr F grease fit	ive motor, pulle tings and lubric
Inclined	5	Inclined Con	veyor Assembly		
Conveyor Assembly		inclined necessar	Dug and check oil level conveyor. Remove fill y. Replace oil level p er cap and replace. (Ll	er cap and a lug. Clean	dd lubricant as
	-	and take	t and foreign matter fro e-up pulley bearings. W te bearings. Wipe away o NT:	ipe off grea	se fittings and

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		E MAINTENANC	······	- SIDE A		Checklist Number: 4-EF-1M
System: Letter Mail Preparation Equipment: Edger Feeder Model					500 and 500A	
Component	ltem		Instructions			Frequency 720-800 Operating Hours
Inclined Conveyor Assembly (Cont'd)	5 6	c. Using a gripping the surf solvent with a b <u>Metering Whe</u> surfaces of lubricant le	ace as require to remove gumm rush, using a <u>els</u> . Wipe dir the metering w	or compre e inclined d using a y residue detergent t and fore heels asse bricant if	conveyor b non-flammab and follow and water s ign matter mbly motor	elt. Spot clean le, non-toxic by scrubbing olution.
Clean-Up	7	<u>Clean-Up</u> . L from work ar	ook to be sure ea. Initiate uled repairs.	all maint necessary	work orders	pment is removed and reports to epancies to
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	ER PREVENTIVE MAINTENAN		LIST - SIDE B		Ch	ecklist Nur	
Type o System	f Activity: Cleaning and Lub	Equipment:		Туре:	<u> </u>	4-EF-1M	
	Letter Mail Preparation		Edger Feeder	Model	500	and 500	
ltem	Performance Time Criteria	a	Notes and Add	itional Information		Frequency 720-800 perating	
1	Safety		5 minutes				
2	Shingler Feeder Assembly		10 minutes				
3	Edger Conveyor Assembly		4 minutes				
4	Fine Cull Assembly		3 minutes				
5	Inclined Conveyor Assembl	У	10 minutes				
6	Metering Wheels		2 minutes				
7	Clean-Up		5 minutes				
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MASTER PREV	ENTIVE	MAINTENANC	E CHECKLIST - SIDE A		Checklist Number:				
Type of Activity:		ning and Lubri			4-EF-2M				
System: Letter	Mail F	Equipment: Type: Preparation Edger Feeder Model 50		500 and 500A					
Component	Item		Instructions		Frequency 1440-1600 Operating Hours				
Safety	1	breaker OFF ment running iately upon ing, use a l tion (goggle	<u>Safety</u> . Comply with all safety precautions. Keep machine circ breaker OFF except when operations must be performed with equip ment running. Report serious deficiencies to supervisor immed- iately upon detection. Where air pressure is required for clea ing, use a low pressure (30 psi or less) air source. Eye prote tion (goggles or face masks) must be used when using compressed air for cleaning.						
Shingler Feeder Assembly	2	and using co motors, bear and otherdeb Wipe dirt ar ricate fitti lubricant fr	eder Assembly. Open accompressed air blow off a rings, etc. Look for ma oris that may have falle ad foreign material from ings located under the s rom bearings and fitting per deck areas and close	11 underneat il, rubber b n into lower a exterior of hingler top s. (LUBRICA	h areas, pulleys, ands, facing slips, shingler areas. bearings and lub- deck. Wipe excess NT:)				
Edger Conveyor Assembly	3	a. Wipe dir take-up and lubr (LUBRICA b. Unfasten	or Assembly t and foreign matter fr pulley frame and bearin icate bearings. Wipe a NT: and open the belt guar sembly. Wipe dirt and	gs. Wipe of way excess 1) d covering t	f grease fittings ubricant. he flats extractor				
		of flats	extractor motor, drive actor wheels. Close an	pulleys, pi	llów block areas,				
Fine Cull Assembly	4	surfaces of leys, and pi	Fine Cull Assembly. Wipe dirt and foreign matter from exterior surfaces of the gauge drum and conveyor belt drive motors, pulleys, and pillow block bearings. Wipe off grease fittings and lubricate bearings. Wipe away excess lubricant. (LUBRICANT (LUBRICANT:						
Inclined Conveyor Assembly	5	a. Remove f a pipe c drain ol add fres plug ope exterior	veyor Assembly iller cap from gear red leaner or wire. Remove d lubricant from gear of h lubricant to reducer ning. Replace level pl of motor and reducer t ted dirt. (LUBRICANT:	the level a ase. Replac until oil fl ug and fille	nd drain plugs and e drain plug and ows from the level r cap and wipe				

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Type of Activity:	Clean	ing and Lubr		. <u></u>	4-EF-2M
System: Letter	Mail	Preparation	Equipment: Edger Feeder	Type: Model	500 and 500A
Component	ltem		Instructions		Frequency 1440-1600 Operating Hou
Inclined Conveyor Assembly (Cont'd)	5	b. Remove to surface. toxic so using a roller to dirt and examine with its direction. Metering Whe surfaces of the surfaces	the inclined conveyor be Spot clean as require of vent and brush scrub t detergent and water sol agging for wear and sep for damage and freedom top surface reversed t on, i.e., turn belt "end the metering wheels ass ant level and add lubri	lt and stret d using a no he entire gr ution. Exam aration from turn and tak of rotation. o travel in -for-end". eign matter embly motor	n-flammable, r ipping surface ine the drive roller. Wipe e-up rollers, Reinstall be the opposite from exterior and reducer.
Air System	7	Air System C components. bowl and lub side of filt free cloth.	er motor. (LUBRICANT: <u>Components</u> . Wipe exteri Close the shut-off val pricator reservoirs. Di er bowl and lubricator Refill reservoir to pr Reinstall air filter	ve and remove scard old lu reservoirs w oper oil leve	e the air filt bricant. Wipe ith a clean, l el and reinsta
Clean-Up	8	from work ar	ook to be sure all main ea. Initiate necessary uled repairs. Report s Foreman.	work orders	and reports t

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	ER PREVENTIVE MAINTENANCE CHECH of Activity: Cleaning and Lubrication			Checklist Numb 4-EF-2M	er:
System	Equipment: Letter Mail Preparation	Edger Feeder	Type: Model	500 and 500A	
Item	Performance Time Criteria	Notes and Add	itional Information	Frequency 1440-1600 Operating Ho	ours
1	Safety	5 minutes			
2	Shingler Feeder Assembly	10 minutes	· .		
3	Edger Conveyor Assembly	4 minutes		•	
4	Fine Cull Assembly	3 minutes			
5	Inclined Conveyor Assembly	50 minutes			
6	Metering Wheels	2 minutes			
7	Air System Components	5 minutes			
8	Clean-Up	5 minutes			
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TABLE 1

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MAINTENANCE STAFFING * EDGER FEEDER MODEL 500

HOURS OPERATED PER YEAR	PREVENTIVE MAINTENANCE HOURS/YEAR	REPAIR MAINTENANCE HOURS/YEAR	NON-PRODUCTIVE HOURS/YEAR	TOTAL MAINTENANCE HOURS/YEAR	MAINTENANCE PERSONNEL MEN/MACHINE
500	106	53	16	175	.099
600	109	54	16	179	.101
700	111	55	17	183	.103
800	116	58	17	191	.108
900	119	59	18	196	.111
1000	121	60	18	199	.113
1100	124	62	19	205	.116
1200	126	63	19	208	.118
1300	129	64	19	212	.120
1400	131	65	20	216	.122
1500	137	68	21	226	.128
1600	139	69	21	229	.130
1700	142	71	21	234	.132
1800	144	72	22	238	.135
1900	147	73	22	242	.137
2000	149	74	22	245	.139
2100	152	76	23	251	.142
2200	157	78	24	259	.146
2300	159	79	24	262	.148
2400	162	81	24	267	.151
2500	164	82	25	272	.154
2600	167	83	25	275	.156
2700	169	84	25	278	.157
2800	172	86	26	284	.161
2900	178	89	27	294	.166
3000	180	90	27	297	.168

*For purpose of calculating PM criteria, a six-day operation is assumed for all machines. To obtain Total Maintenance Hours/Year for machines operating five or seven days per week, subtract 26 hours from the Total Hours/Year for a five-day operation and add 26 hours for a seven-day operation.

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