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ES-5000

Service Manual

Table of Contents

1. Introduction

ES-5000 produces folded and sealed single mail pieces with cut-sheet Pressure Seal forms. Pressure activated adhesive applied forms provide and instantly secure seal on all sides of the form, whether use a "C", "V", "Z" or "Double" fold.

Names of each part

Pick up Roller

Paper Guide (L)

Paper Guide (R)

Pick up press adjust knob

Folding Position Lock Lever

Power switch

1st folding position Setting Lever

Counter

Folding Drum Unit

RESET

Folding Drum Handle

Folding unit Sliding handle

START/STOP

2nd folding position Setting Lever
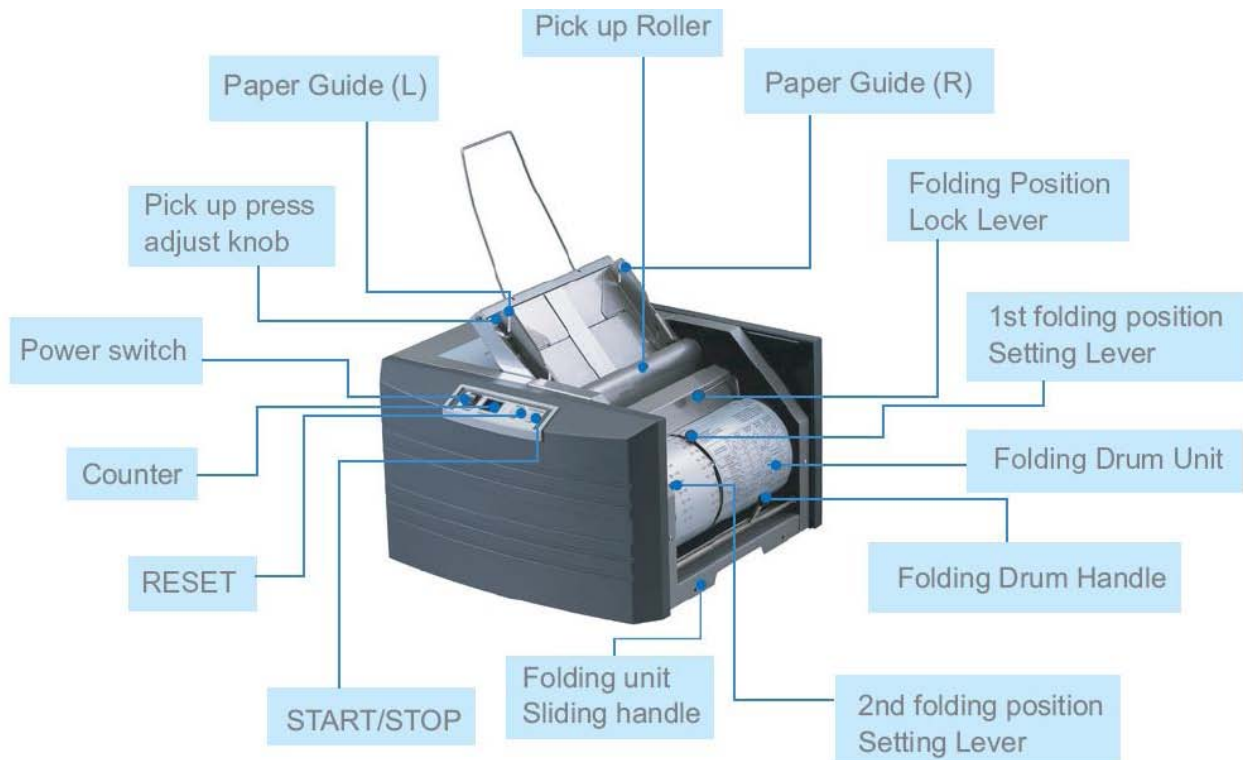
2. Installation

- Locate the box right next to the location where the machine will be set up and operate.
- Open Box, Remove the Operators Guide and set aside. Grasp the two Shipping Straps and remove the unit from the box.

- Remove all packing materials from around the unit and place the folder on a sturdy surface.

- Open Infeeder Chute and Pull out Paper Stopper

- Set up fold drum and run at least 50 documents through the machine. Show customer how to run the machine.
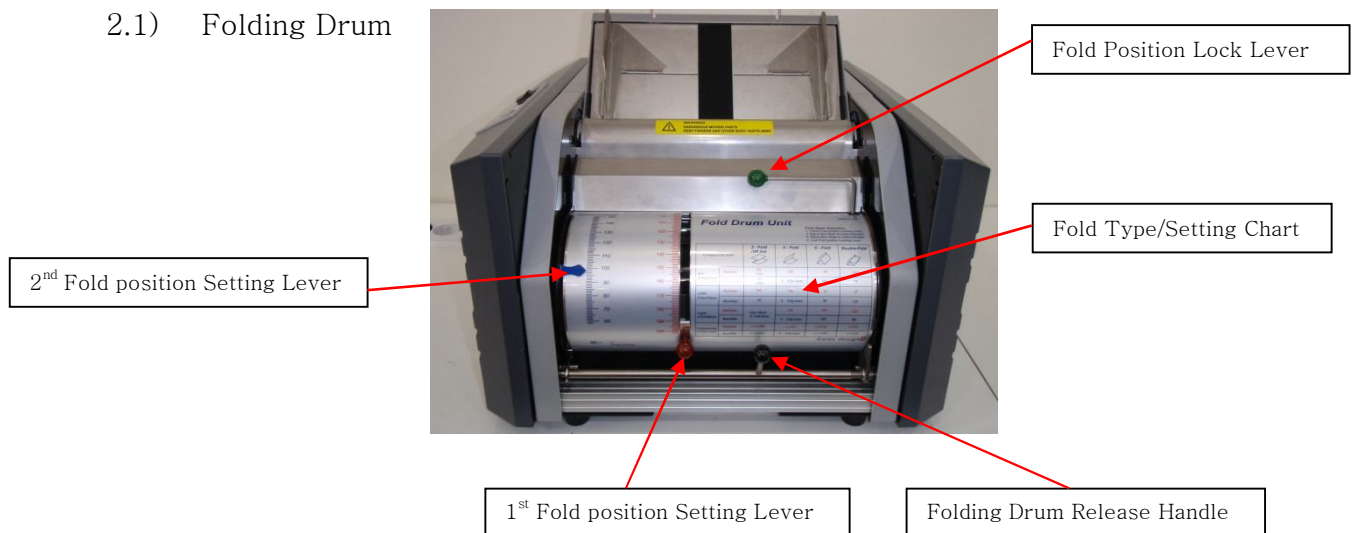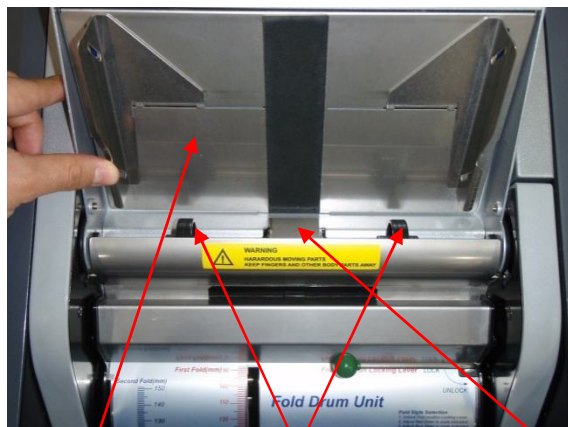
1) Features

1) Specifications

- Processing Speed 4,200 forms per hour
- Automatic jam recovery system
- No adjustment required for varying paper thickness
- Fold plate setting can be changed in seconds
- Manual feeder for single form processing
- Folding unit slides out for easy access and maintenance
- Digital reset counter
- Exceptionally quiet – approximately 45db
- Infeeder capacity-150(24#), 120(28#)
- Form Size: Letter, Legal(14" Z-fold available option)
- Z,C,V & double fold
- Paper Weights: 16 lb to 28 lb
- Counter: reset counter
- Jam Removal: folder unit slides out and opens
- Size: 17.3 x 16.5 x 19 inches (L x W x H)
- Weight: 80 lbs
- Power: 120V/60Hz

2) General Views

2.1) Folding Drum

Fold Position Lock Lever

Fold Type/Setting Chart

2nd Fold position Setting Lever

1st Fold position Setting Lever

Folding Drum Release Handle

2.2) Feeding Unit

Movable Paper Guide Rollers

Feed Roller

Spring-loaded Feed Table

Slide these Tab up or down to decrease or increase Feed Table spring lift tension to Aid in feeding documents. Factory Preset Value is right in the middle as shown above

2.3) Exit Tray

Stopper for Exit Tray
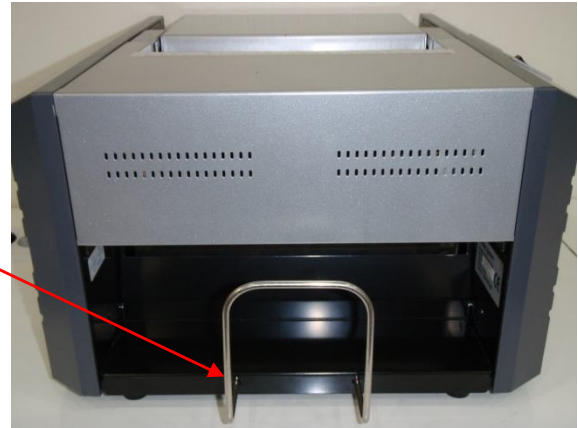
2.4) Label & Fuse

AC Socket

5 Amp 250V Mini Fuse in a 1/4 Turn Fuse Holder

Manufacturer's Label with Serial No.

2.5) How to Open the Fold Unit (Please follow the pictures below in order)
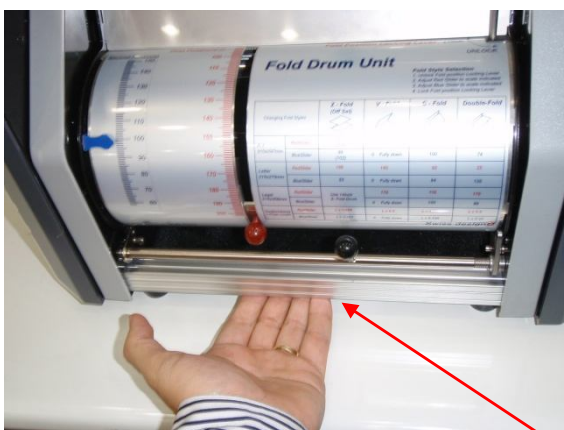
Folding Unit Pulls out by grasping the hand hold and pull out

2.6) How to open the Fold Drum (Please follow the pictures below in order)

Folding Drum handle in the Unlock(down) position

Folding Drum in the partially open position

Folding Drum in the open position.
Access the Folding Drum for clearing jams

3. How to operate

1) Form preparation
Forms must be fanned properly on both sides to separate and eliminate any static that may have been induced by the laser printer

2) Loading forms
Place the paper in the Paper tray in the correct orientation as indicated in the chart below. The Paper tray can hold up to about 120 sheets of pressure forms. To correctly place your forms in the Paper tray, jog the forms so the stack is neat, push the Paper tray back so the forms will rest on the solid plate and behind the feed roller. The Paper tray is spring-loaded to apply the correct amount of pressure for proper feeding.
It is always a good idea to fold one form to verify that the fold settings are OK and have not been changed. Adjust if necessary and then proceed to load your forms in the Paper tray.

Form	Load in Paper tray	Forms will deliver
Z-Fold	Address leading, Face Up	Address side will be face up and document sequence will be reversed from the sequence in the Paper tray
Z-Fold	Address Trailing, Face Down	Address side will be face down and document sequence will be reversed from the sequence in the Paper tray
C-Fold	Address Trailing, Face Down	Address side will be face up and document sequence will be the same as the sequence in the Paper tray
V-Fold	Address Trailing, Face Down	Address side will be face down and document sequence will be the same as the sequence in the Paper tray

3) Start (Press Start button to fold & seal)
3.1） If the output is acceptable, Run the job
3.2） If the folded position is not correct, reset the fold position by readjusting the fold guide.(Please use plain paper for a test run in order to find out more accurate the fold position and compare the folded position with the perforation line on the forms)

4) **Fold Setting**

    4.1)   Standard Folding Drum

4.1.1) Unlock the green release lever to set the fold position

4.1.2) Move the red arrow, First fold on the red knob to the fold position required according to the manual on the fold drum

4.1.3) Move blue arrow, Second fold according to the manual on the fold drum

4.1.4) **Once the f**old position properly is done, lock back the green release lever
(Red knob is the first fold setting, Blue know is the second fold setting)

Ex 1) **"Z" fold with** 8 1/2" x 11"
- Red knob "186"(First fold 186mm), blue knob "93"(Second fold 93mm)

Ex 2) **"C" fold with Letter**
- Red knob "92"(First fold 92mm), blue knob "94"(Second fold 94mm)

Ex 3) **"V" fold with** 8 1/2" x 11"
- Red knob "140"(First fold 140mm), blue knob "0"(Fully down, No Second fold)

Note: Please note that although we suggest that you follow the fold setting according to the manual, however the scale on the drum is NOT 100% accurate

5) Operator Panel

5.1) Power Switch: Power On/Off

5.2) Reset: Reset button will clear the display count

5.3) Start/Stop: Start/Stop button will start or stop the Feed cycle

5.4) Counter: Display will show the total page count/resettable as well as Firmware Rev. Level at Start-up, Fold unit open and Jam condition, please see the pictures as below for the details
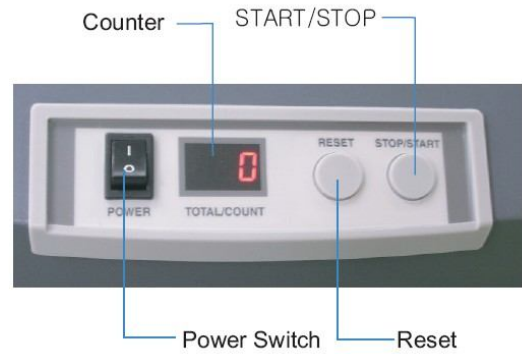
During operation the display will show the number of forms processed. This number can be reset to 0 by pressing the reset button on the op panel
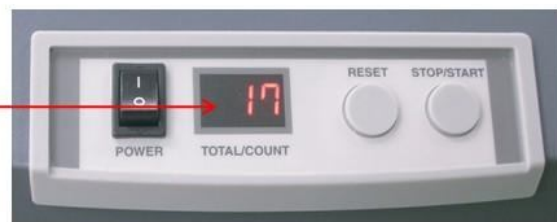
When the unit is separated the display will show OPN

In case of a paper jam on the out-feed the display will flash repeatedly. Press the start / stop button to stop this after you have removed the paper jam
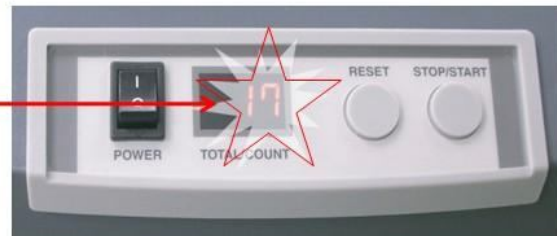
6) Manual Feed

6.1) Fold the form manually and insert the form to the manual feeder

6.2) Press Start button to run the machine

Note: This is ideal for the poorly sealed forms owing to evaporation of the glue

5.   Maintenance

1) General Cleaning
     Be sure that the room is well ventilated, Switch off the mains power and unplug or disconnect from the mains, Pull out the fold drum and the fold unit, Remove as much paper dust as possible using a soft brush

2) Paper Dust
     With general use, paper dust will build up inside the machine and can be cleared by suing an can of invertible Air Duster, which will apply a short burst of compressed air and clear any paper dust that may be present.

3) Cleaning Pick up and Fold rollers
     Clean the pickup roller, aluminum and rubber roller in the Fold unit with roller cleaning fluid such as an alcohol solution.
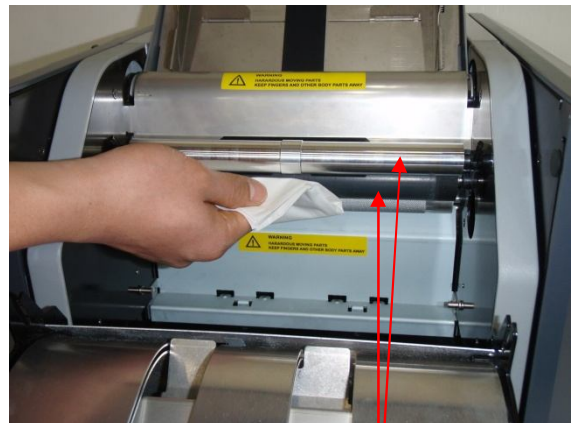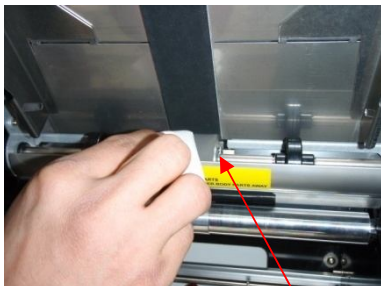
| Pickup roller in Gray color | Aluminum & Rubber rollers |

Caution:
Please do not use any gasolinic oils since it may damage the surface of the rubber rollers!
Avoid breathing the fumes or getting the solution in an open wound or other sensitive areas such as the eyes or mouth!

4) Cleaning Press Rollers

With general use, toner will build up on the Press rollers. Check the rollers for build up and clean on a regular basis with roller cleaning fluid. Depending on the type of laser printer, toner and fuser, the degree of build up will vary.

Clean both Upper & Lower Press

6.   Trouble Shooting

1) Paper Jam

1.1)   Feeding Unit Jam

Do not pull the document backward in the event of jam in the Infeeder.

Open the Fold Drum Unit by pushing down the Fold Drum handle as the direction of the red arrow in the picture on the right

Pull the paper to the direction of the red arrow as shown in the picture on the right

1.2)   Folding Unit Jam

Open the Fold Drum Unit by pushing down the Fold Drum handle as shown in the direction of the red arrow in the picture on the right

Remove the document from the Folding Drum as shown in the picture on the right

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1.3) Press Unit Jam
Fully extend the Folding Unit to the direction of the red arrow in the picture on the right

Use the Jam Removal Tool to rotate the rollers by placing the tool into the jam Removal holes as shown in the picture on the right

Turn it downward. Remove the jam as shown in the picture on the right
Tips: Correct any mis-folds and run the form through the manual feed (please refer to Chapter 4-6 for the details of the manual feed)

1.4) Out Feed Jam
In the event of jam in the Out-feed, the display blinks

Push down the lower plate (with the rollers) and remove the jam as shown in the picture on the right.

2) Double Feed

2.1) Clean the Pickup rollers and pad with an alcoholic solution(In case the problem persists, then go to 2.2)

2.2) Slide In-feed tray tension adjusters upwards (Manufacturer's default position: middle). Both tension adjusters must be in the same position as shown in the picture on the right(In case the problem persists, then go to 2.3)

2.3) Replace in-feed roller and or Separator(Pad Base)

3) Mis-Feed

3.1) Clean In-feed roller and pad with an alcoholic solution(In case the problem persists, then go to 3.2)

3.2) Move the In-feed tray tension adjusters downwards until miss-feeding is resolved as shown in the picture on the right(in case of no improvement, then go to 3.3)

3.3) Replace in-feed roller and/or Separator (Pad Base)

4) Skewed Fold

4.1) Clean the In-feed roller and pad with an alcoholic solution
4.2) Check to make sure the side guides are not bent in any ways
4.3) Insure that there shouldn't be too much gap between paper and the side guides as shown in the picture below

4.4) On adjustment screws are set correctly
4.5) Insure that the side guides are right up against the edge of the form but not compressing the form
4.6) Look for foreign materials in the folding drum assembly

4.7)   Clean the fold rollers with an alcoholic solution

4.8)   Examine and replace any folding roller with imperfections such as flat spots or swelling

4.9)   Replace or exchange from side to side the folding roller compression springs

2. Replacement and Assemblies

1) Folding Unit Side Covers

1.1) Fully extend the Fold Unit on its rails

1.2) Remove the circled 2 screws from the outside cover as shown in the picture on the right

1.3) Remove the circled 1 screw from the inside as shown in the picture on the right

1.4) Remove Cover
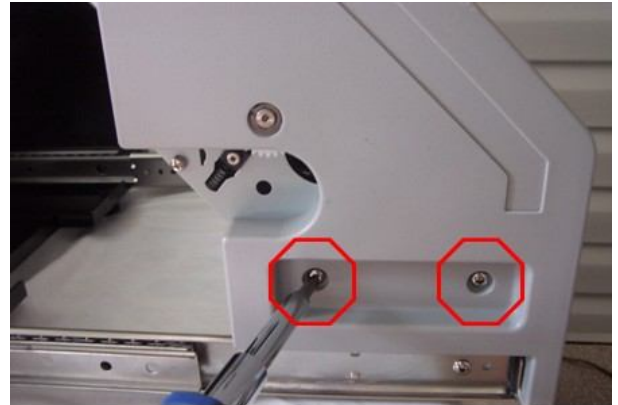
2) Removal of complete Folding Unit

2.1) Fully extend the Folding Unit on its rails

2.2) Unscrew all four indicated screws to remove the older folder

2.3) Hold the folder while unscrewing, since the folder may drop

Unscrew all four screws on both sides on the rails
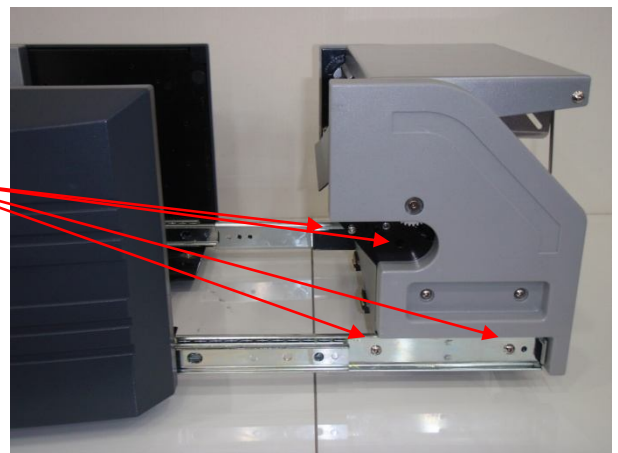
3) Main Side Cover

3.1)   Fully extend the Folding unit on its rails

3.2)   Remove the 2 screws as indicated in the picture on the right
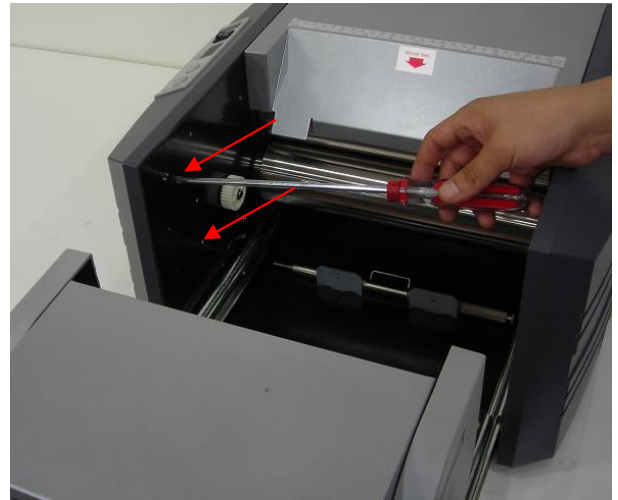
3.3)   Remove the 1 screw in the back of the unit as shown in the picture on the right

3.4)   Lift up on the cover to unlock the "Hidden" screw in keyway.

3.5)   Remove the Cover

3.1)   Fully extend the Folding unit on its rails

4) Top Cover

- 4.1) Remove the Main side covers as indicated in the Chapter 7-3
- 4.2) Remove the circled 4 screws on each side as shown in the picture on the right

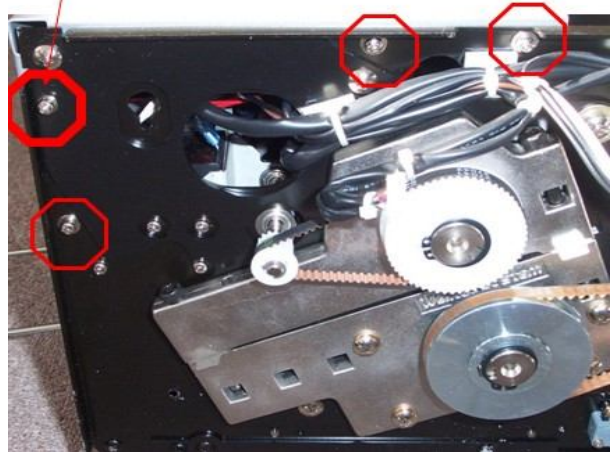 **Note: Screw in Upper Corner is longer as it has to pass through to layers of metal**

5) Main Drive Belt

- 5.1) To tighten the drive belt, use an allan wrench where indicated. Loosen them, a couple of turns each

- 5.2) Apply upwards pressure to motor drive shaft to tension belt.

- 5.3) Retighten Allen bolts while applying this tension

  Note: If you can rotate the upper and lower sealing rollers independently then the belt is loose.
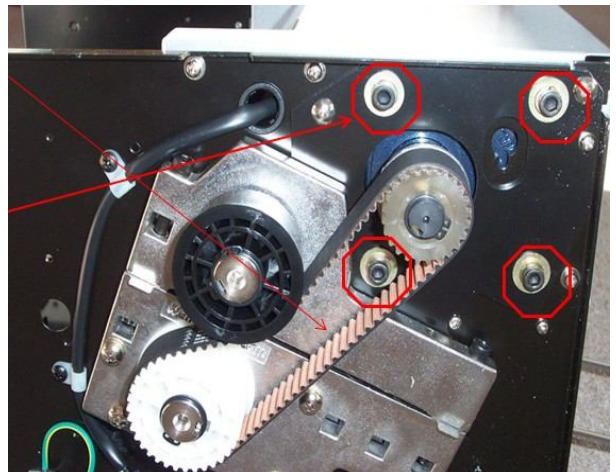
6) Feed Roller and Separator(Pad Base)

- 6.1) Fully extend the Folding unit on its rails

  Remove E-Ring from Left & Right after removing fold unit cover as shown in the picture
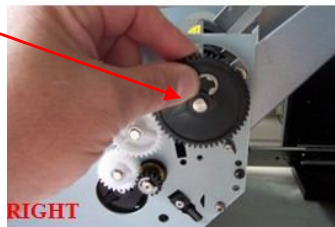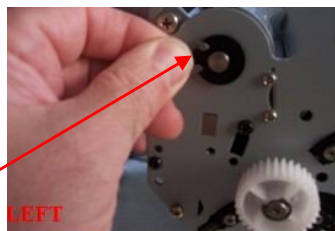
- 6.2) Remove the Folding Unit Side Covers
- 6.3) Remove the E-Clip from the left side of feed roller shaft
- 6.4) Remove the E-Clip and Gear from the right side of feed roller shaft

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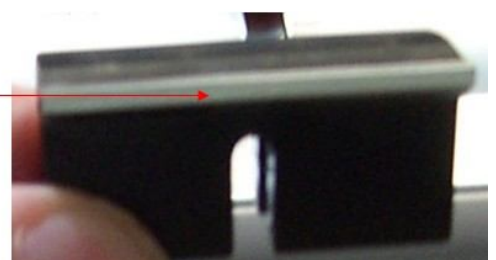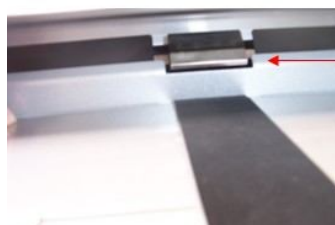
6.5)   Remove the Bushings from both ends of shaft

6.6)   Remove Shaft
        Note: The direction of Feed Roller Rotation (One Way Bearing) makes sure the new roller rotates in the same way direction

6.7)   With feed roller removed you can now remove the Separator(Pad Base)
        Note: it's orientation in the machine: Metal edge towards the In-feed Tray

7) **Folding Drum (Old Type)**

7.1)   Fully Extend the Folding Unit on its rails

7.2)   Unlock the Folding Drum Assembly

7.3)   Rotate the Folding Drum all the open

7.4)   Insert a flat head screwdriver in the right corner of the pivot point and pry the tab out of the hole as shown in the picture on the right

7.5)   Remove the Folding Drum(Please reverse the steps to put the Folding Drum back)

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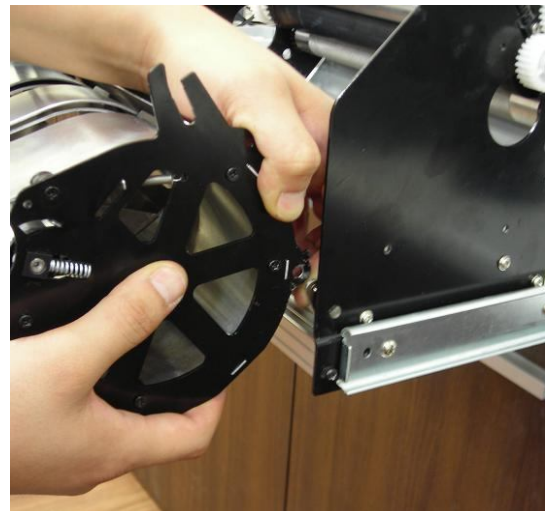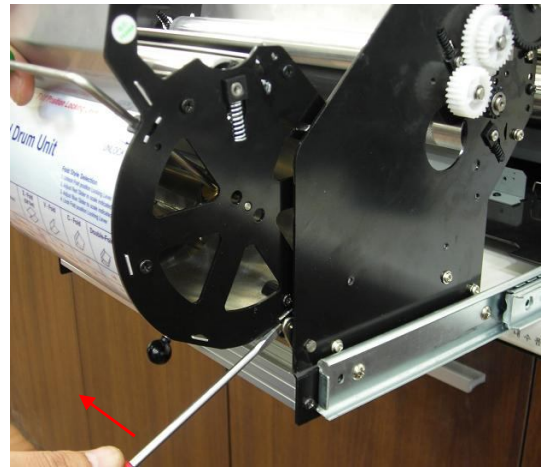
8) Folding Unit Drum (New type)

8.1) Fully Extend the Folding Unit on its rails

8.2) Unlock the Folding Drum Assembly

8.3) Rotate the Folding Drum all the open

8.4) By moving the release catch towards the left (direction of arrow) as shown in the picture on the right. The Drum should release from its housing. Use both hands to support the Drum.

8.5) To refit the drum, offer the left side up to its bracket first.

9) Checking of Folding Drum Position

9.1) There are 4 studs locating the Drum into its final position when housed within the machine. If the machine has been in the field more than 12 months it is a good idea to check these to see if they have become loose.
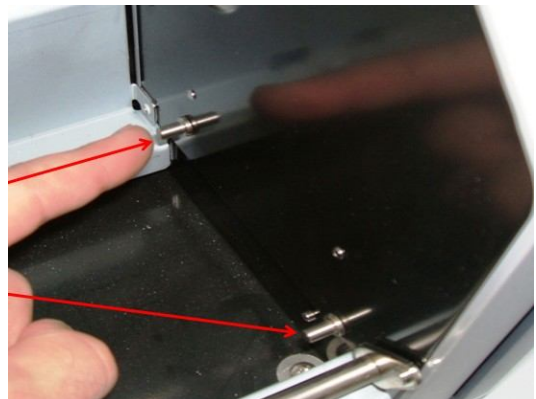
10)   Folding Rollers & Rubber roller replacement
   10.1)   Remove the White gear from the side as well as the black gear on the back side

   10.2)   After removing the bearing on the front side, push down the main rubber roller and take the roller out through the large hole as shown in the picture below. Follow the same method in placing the new roller.

11) Solid State Relay
   11.1)   Remove operator side of main cover

   11.2)   Remove the circled four screws indicated in the picture on the right

   11.3)   Remove the four wires attached to relay
   Note: Please write down the order in which they are attached

   11.4)   Remove Relay

   11.5)   Reinstall in reverse order

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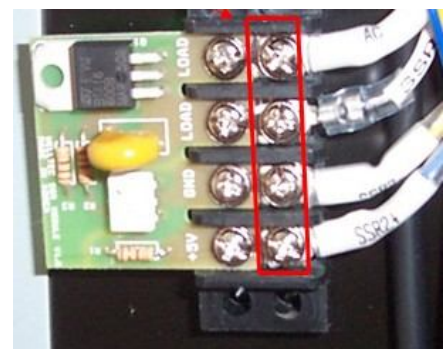
12) Operator panel PCB replacement

    12.1) Remove Operator side of main cover

    12.2) Remove the circled six screws that hold PCB in place as shown in the picture on the right

    12.3) Remove PCB

    12.4) Reinstall in reverse order

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8. Diagram & Part list

1) Infeed Tray
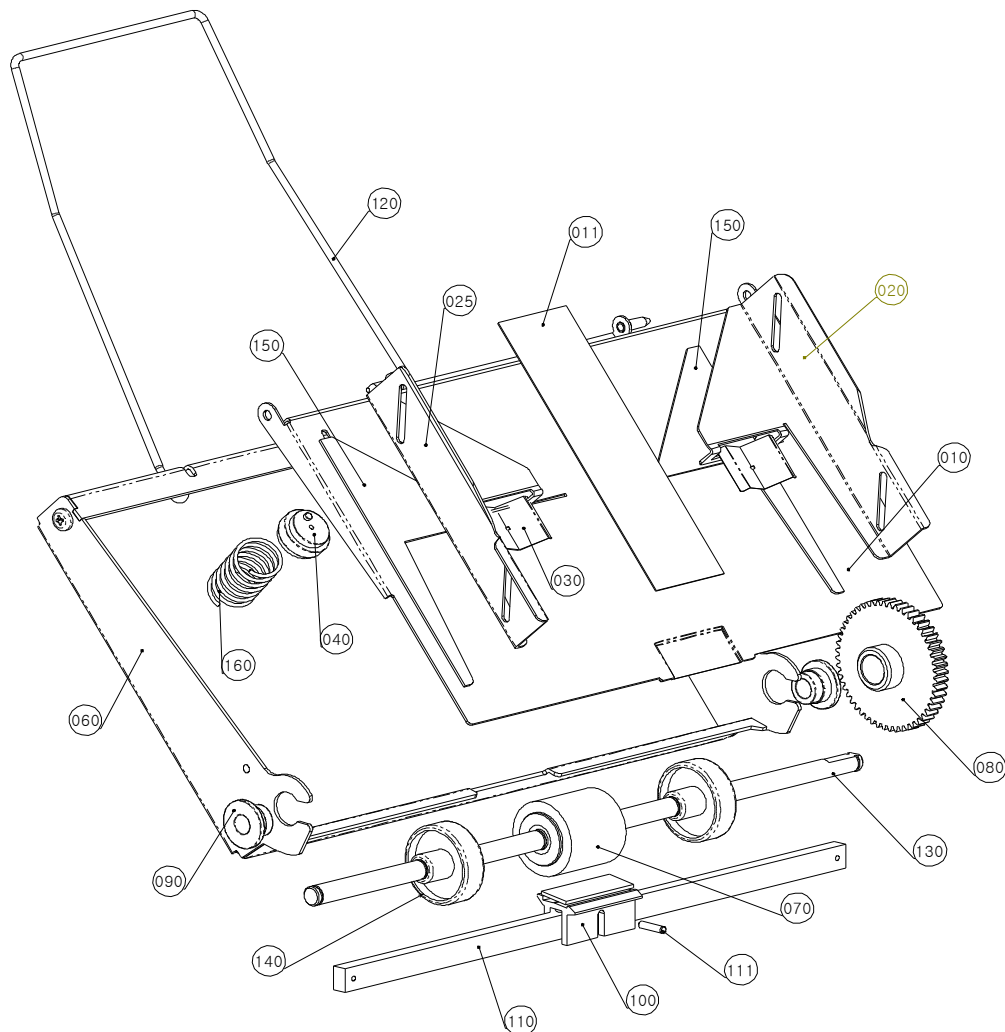
NO	Part Number	Part Name	UNIT	Remark
10	WEL-B250-00	ASSY:TRAY PLATE	1	
11	WEL-F200-00	TRAY:CIGAL PLATE	1	
20	ADN-C048-01	GUIDE:RIGHT	1	
25	ADN-C048-00	GUIDE:LEFT	1	
30	WEL-B271-00	PLATE SPRING	2	
40	ADN-C081-00	HUB:SPRING	2	
60	ADN-D047-01	TRAY BASE	1	
70	ADN-D024-00	ASSY:MAIN ROLL	1	
80	ADN-C041-00	GEAR: 52T	1	
90	ADN-C003-00	BUSHING:PHI 8	2	
100	ADN-C017-00	PAD BASE	1	
110	ADN-C027-00	SHAFT:SQUARE	1	
111	WEL-C027-00	PIN Φ3x12	1	
120	ADN-C064-00	WIRE TRAY	1	
130	ADN-D024-01	SHAFT:FEED	1	
140	WEL-B262-00	ROLLER:IDLE	2	
150	ADN-C048-02	TRAY GUIDE:MYLAR:L/R	1	
160	AND-C052-00	SPRING:COMPRESSION	2	

2) Fold Drum
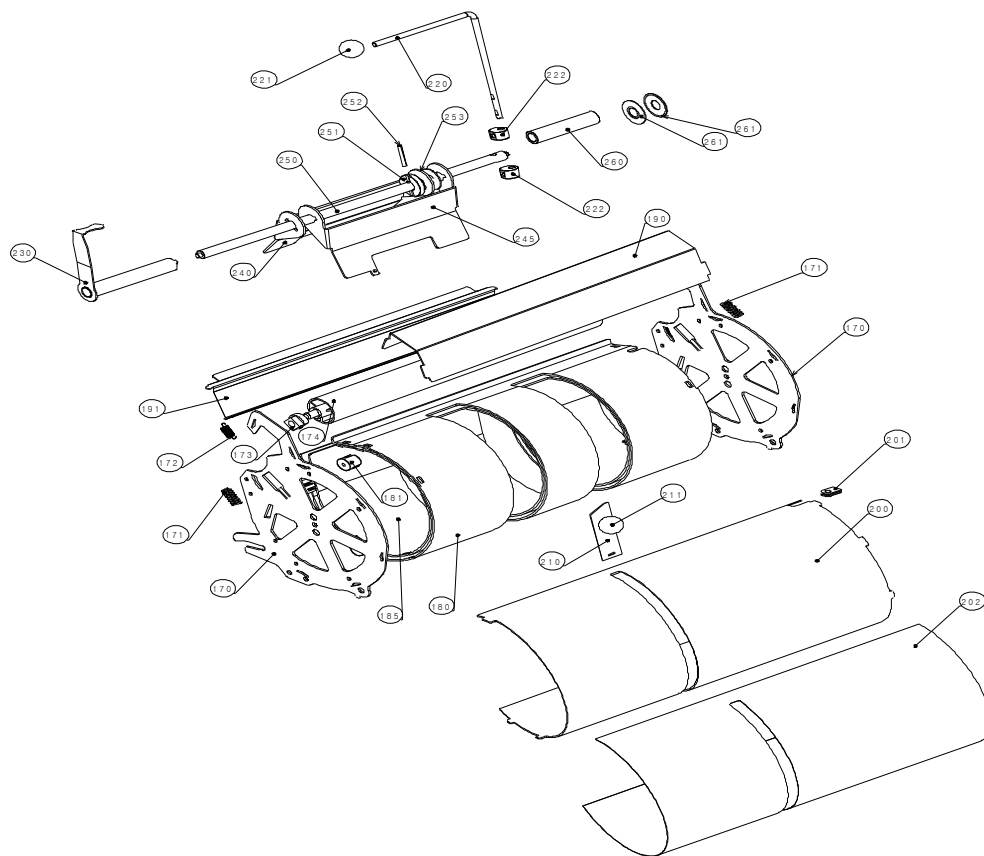
NO	Part Number	Part Name	Unit	Remark
170	ADN-D200-01	FRAME:CASSETTE	2	
171	WEL-S110-00	SPRING:V-FOLD	2	
172	WEL-S120-00	SPRING:PRESSURE	2	
173	ADN-C001-00	BUSHING:PHI 6	2	
174	ADN-B002-00	ASS'Y:IDLE ROLLER:CST	1	
180	ADN-C037-00	OUTER GUIDE	1	
181	ADN-C004-00	DRUM HOLDER	9	
185	ADN-C036-00	GUIDE:INSIDE	1	
190	ADN-C034-00	COVER:CAS:UPPER	1	
191	ADN-D007-01	V-GUIDE	1	
200	ADN-D017-00	COVER:CASSETTE	1	
201	WEL-C200-00	SPACER	1	
202	WEL-F170-00	DECAL:CASSETTE	1	
210	ADN-C110-00	STOPPER TENSION	1	
211	WEL-C240-05	BALL-RED	1	
220	ADN-C061-00	BRAKE LEVER	1	
221	WEL-C240-01	BALL(GREEN)	1	
222	ADN-C060-00	PRESSURE CAM	2	
230	WEL-A100-00	ASSY:TUBE	1	
240	ADN-C045-01	STOPPER:LOWER	1	
245	ADN-C045-00	STOPPER:UPPER	1	
250	ADN-C011-00	SHAFT:STOPPER	1	
251	ADN-C072-00	SPACER	1	
252	WEL-C011-00	SPRING PIN Φ4x20	1	
253	ADN-C113-00	BREAK DISK	1	
260	ADN-C059-00	TUBE	1	
261	WEL-C211-00	DISH SPRING	4	

3) Folder Unit
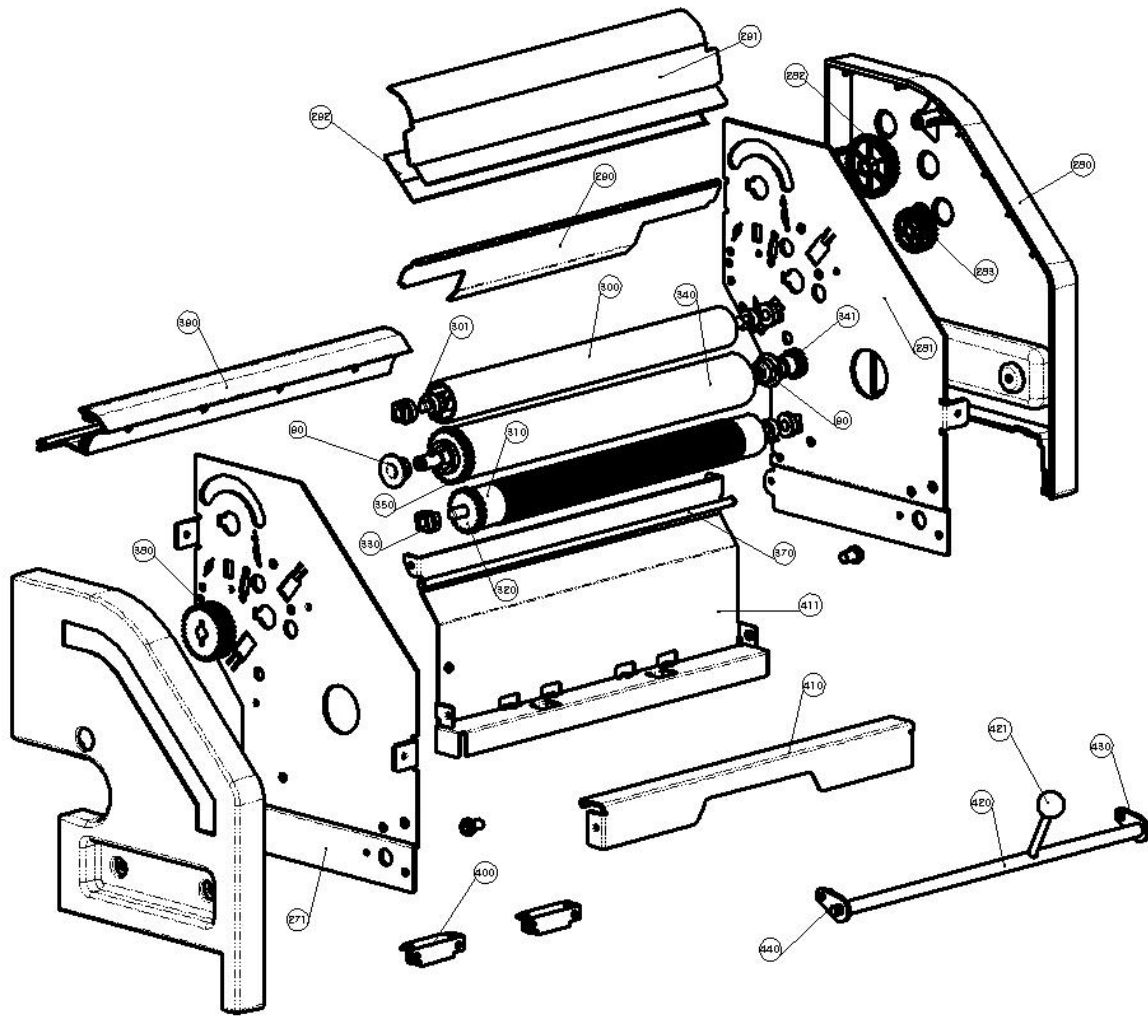
NO	Part Number	Part Name	Unit	Remark
270	EZ5-1127	COVER:FRONT:FOLDER	1	
271	PM5-1125	FOLDER FRAME:FRONT	1	
280	EZ5-1128	COVER:REAR:FOLDER	1	
281	PM5-1116	ASSY:FOLDER FRAME:REAR	1	
282	WEL-F488-01	GEAR:DOUBLE	1	
283	WEL-F489-00	GEAR:24T	1	
290	PM5-1446	GUIDE:FOLDER:ENT	1	
291	ADN-D019-01	ASSY:COVER:ENT	1	
292	ADN-C054-00	MYLAR:ENTERENCE	1	
300	WEL-B002-00	ASSY:IDLE ROLLER:CST	1	
	ADN-C078-00	CLIP RING	3	
310	ADN-B001-03	ASSY:KNURL ROLLER	1	
320	ADN-C115-00	GEAR:20T:M1.25	1	
330	ADN-C001-00	BUSHING:PHI 6	4	
340	PM5-4460	MAIN ROLLER:PM-5	1	
341	ADN-C043-00	GEAR:15T	1	
350	WEL-C116-00	GEAR:25T:M1.25	1	
370	PM5-7217	STUD:FOR LEGAL	1	
380	PM5-1332	GEAR:32T:M1	1	
390	PM5-1138	NEW FRAME:EXIT	1	
400	LCA-0028	MAGNET	4	
410	PM5-1130	BASE:CASSETTE	1	
411	PM5-1129	BASE:CASSETTE:MAGNET	1	
420	ADN-D201-00	ASSY:SHAFT:KNOB	1	
421	WEL-C240-00	BALL(BLACK)	1	
430	ADN-D204-02	ASSY:HINGE:SHORT	1	
440	ADN-D204-01	ASSY:HINGE:LONG	1	

4) Frame
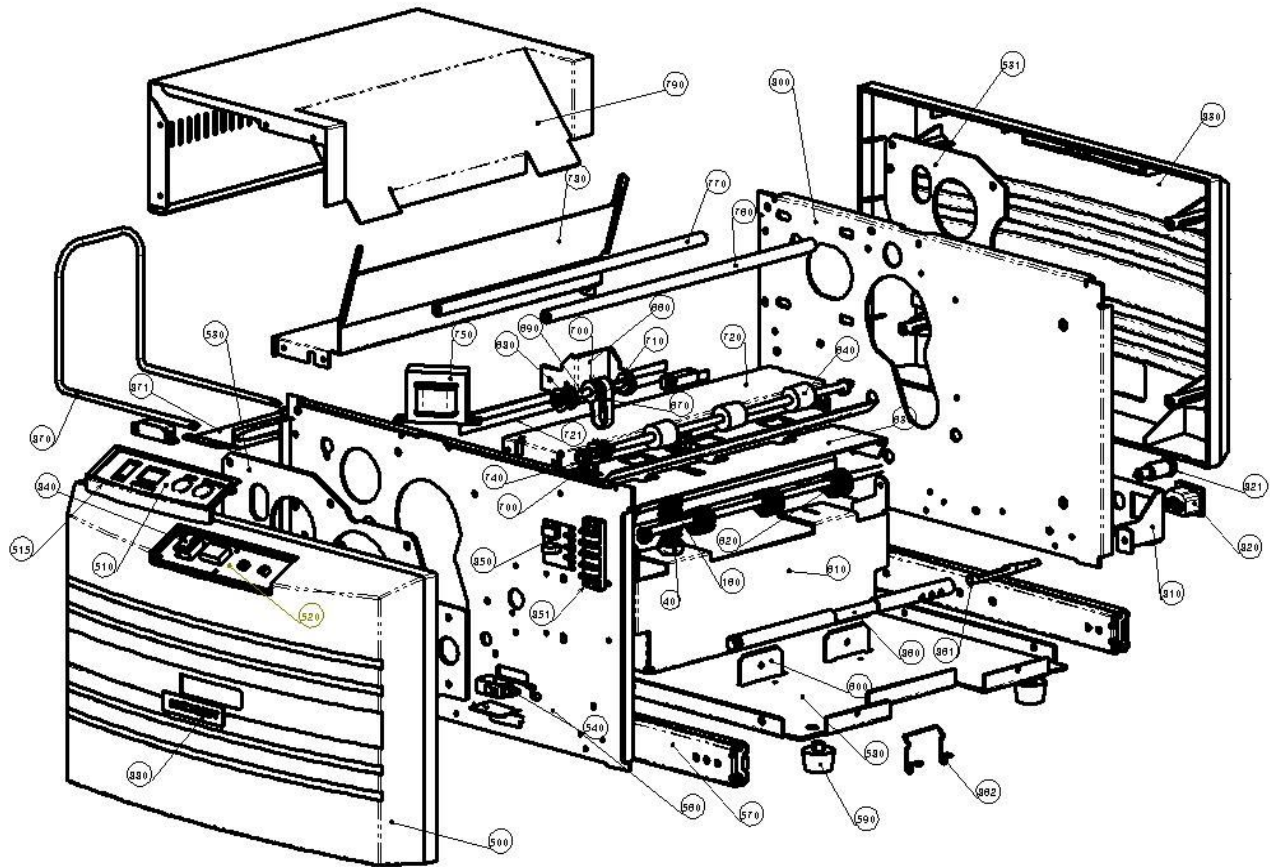
NO	Part Number	Part Name	Unit	Remark
500	PM5-1105	COVER:FRONT	1	
510	PM5-1201	LABEL:OP:PM-5	1	
515	PM5-1202	OP COVER	1	
520	PM5-5000	PWB:OP	1	
530	PM5-1123	SUPPORT FRAME:FRONT	1	
531	PM5-1124	SUPPORT FRAME:REAR	1	
540	PM5-5526	MICRO S/W	1	
550	LCA-0010	B/K:I/L:2ND FOLDER	1	
560	PM5-1331	ASSY:FRAME:FRONT	1	
570	PM5-1239	SLIDE RAIL	2	
580	PM5-1101	FRAME:BASE	1	
590	FRA-0024	FOOT(LA1626)	4	
600	FRA-0004	BKT:Frame	2	
610	PM5-1121	FIX PLATE:LOWER GUIDE	1	
620	PM5-9333	ASSY:ROLLER:IDLE	1	
630	PM5-1207	GUIDE:LOWER:EXIT	1	
640	PM5-1208	EXIT ROLLER ASSY	1	
650	UCA-0020	Photo senser : R50	1	
660	PM5-1204	BRKT:IDLE PULLEY	1	
670	PM5-1303	TIMING BELT:B80S2M98	1	
680	PM5-1302	PULLEY:S3M16T	1	
690	PM5-1209	SHAFT:TRANSFER	1	
700	PM5-1301	PULLEY:S2M25T	1	
710	TRN-6478	BEARING:BALL(F696)	2	
720	PM5-1206	GUIDE:UPPER:EXIT	1	
721	WEL-D018-00	ANTI BRUSH(JC67-00014A)	1	
740	LCA-0029	Bushing:φ6	4	
750	PM5-5100	TRANS(PA-090300T)-230V	1	
	PM5-5101	TRANS(PA-090300U)-110V	1	

770	PM5-1203	SHAFT:SUPPORT	2	
780	PM5-1109	SHIELD;LEFT	1	
790	PM5-1104	COVER:TOP	1	
800	PM5-1103	FRAME:REAR	1	
810	PM5-1205	CORD BRACKET	1	
820	FRA-0003	Power:Inlet	1	
821	PM5-5524	FUSE HOLDER(R3-11)	1	
830	PM5-1106	REAR COVER	1	
840	PM5-5522	S/W (R9D2KKFT00F1-R19-2)	1	
850	PM5-5523	SSR(240VAC 15A)	2	
851	PM5-5525	TERMINAL BLOCK(950S 4P)	2	
860	PM5-4465	PAPER JAM REMOVAR HANDLE	1	
861	SEL-0022	JAM REMOVAL TIP	1	
862	PM5-1242	WIRE SPRING	1	
870	PM5-1243	PROTECT WIRE	1	
871	LCT-0038	BRAKET:WIRE	1	
880	PM5-1210	LOGO:PM5	1	

5) Press Unit
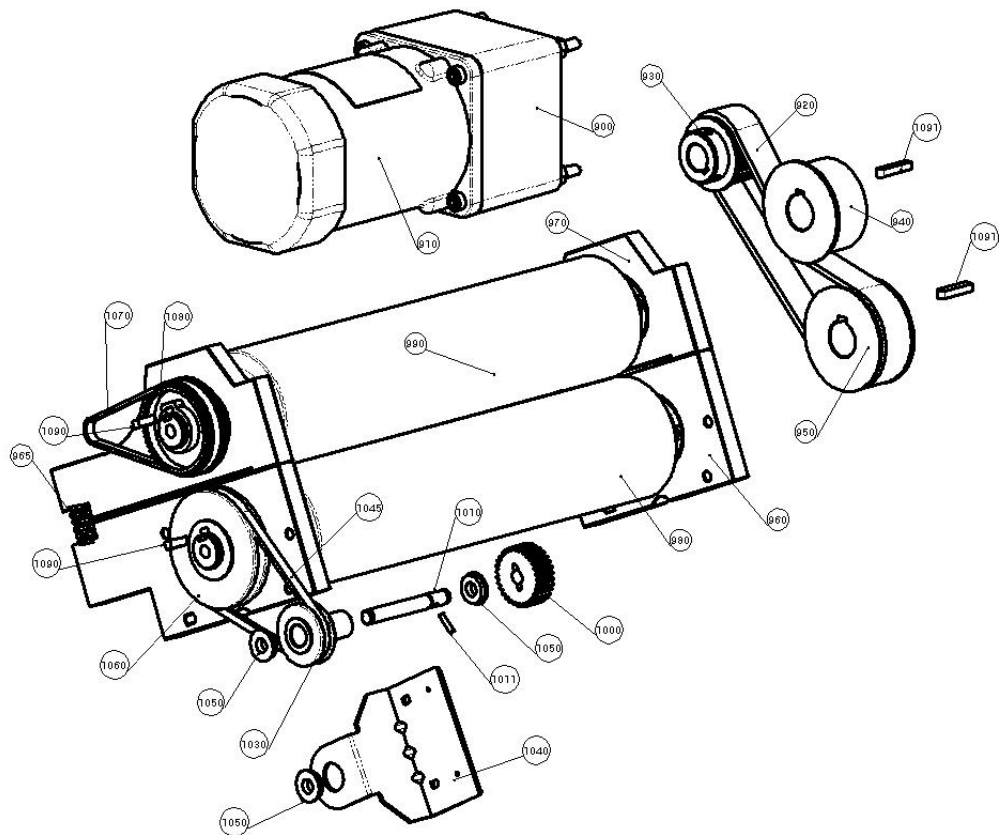
NO	Part Number	Part Name	Unit	Remark
900	PM5-5410	GEAR BOX 6:1	1	
910	PM5-5401	AC MOTOR:90W CE	1	
	PM5-5402	AC MOTOR:90W UL	1	
920	PM5-6210	TIMING BELT:B200S5M435	1	
930	PM5-4420	PULLEY:S5M24T	1	
940	PM5-4440	FRICTION WHEEL	1	
950	PM5-4430	PULLEY:S5M35T	1	
960	SEL-0005	Lower Block	1	
965	SEL-0011	SPRING:SH16X25	2	
970	SEL-0004	Upper Block	1	
980	PM5-4410	PRESS ROLL:PM-5(L)	1	
990	PM5-4411	PRESS ROLL:PM-5(U)	1	
1000	PM5-1332-1	GEAR:32T:M1(DURACON SW-11)	1	
1010	PM5-1307	SHAFT:TRANS:FOLDER	1	
1011	PM5-6221	PARALLEL PIN ø3X12	1	
1030	PM5-1306	PULLEY:V-Belt:SMALL	1	
1040	EZ5-1234	BRKT:FIX:V-PULLEY	1	

1045	PM5-1217	MB BELT:320MB	1	
1050	BEN010DJ	Bearing:F688	3	
1060	PM5-4455	PULLEY:V-Belt:Large	1	
1070	PM5-1215	TIMING BELT:B60S3M252	1	
1080	PM5-4450	PULLEY:S3M56T	1	
1090	PM5-6223	KEY:6 X 6 X 12	1	
1091	PM5-6222	KEY:6 X 6 X 25	2	