Booklet Finisher BK5000
(Machine Code: B836)

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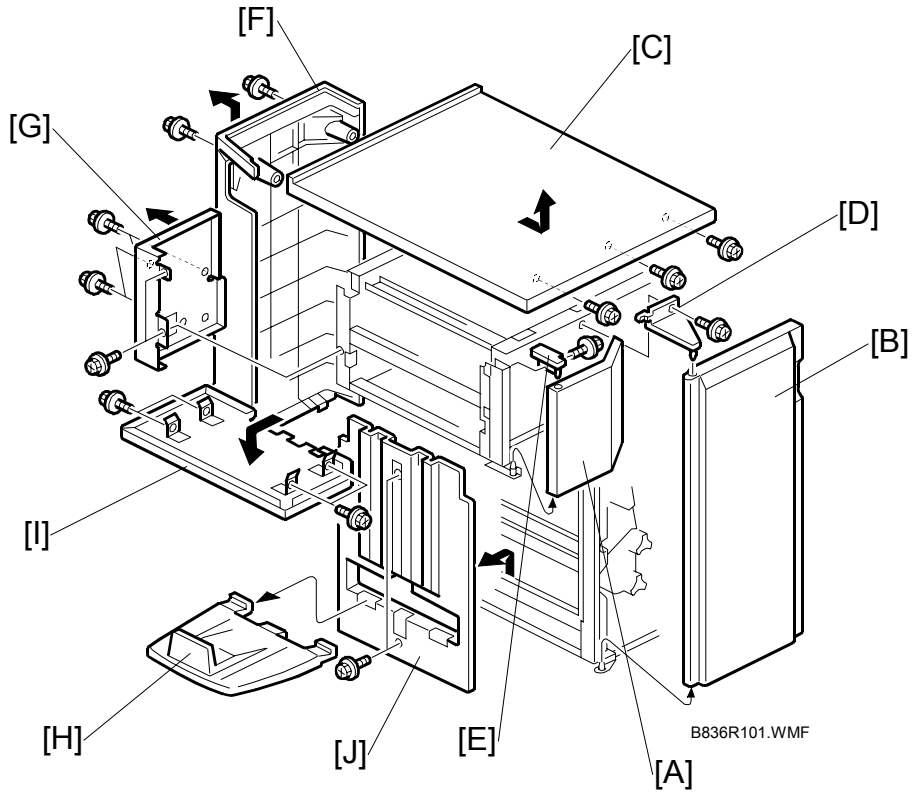
1. REPLACEMENT AND ADJUSTMENT

1.1 DOORS, COVERS, OUTPUT TRAY



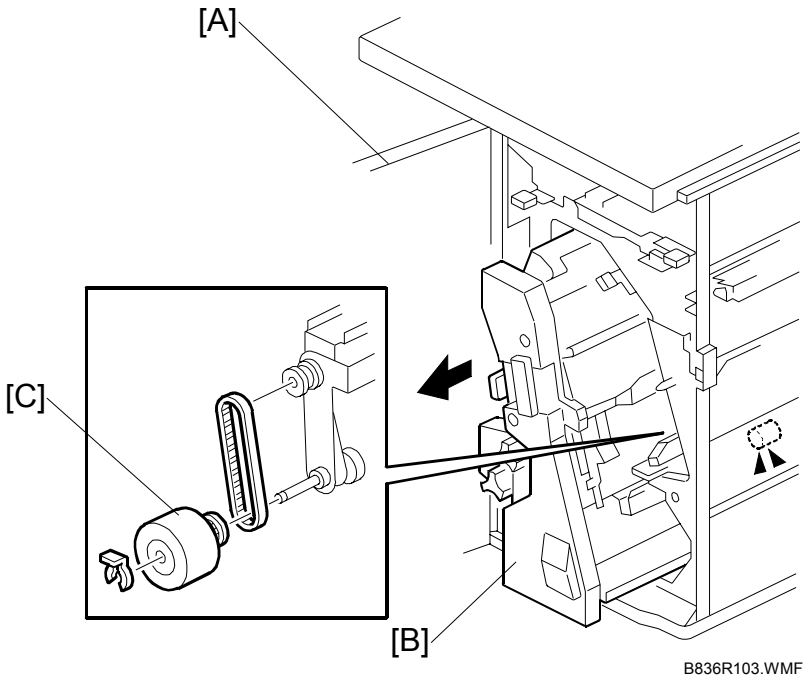
1. Open the left front door [A].
2. Open the right front door [B].

Remove:

[C] Top cover (☞ x3)
- Slide the top cover toward the front of the finisher and lift it off.

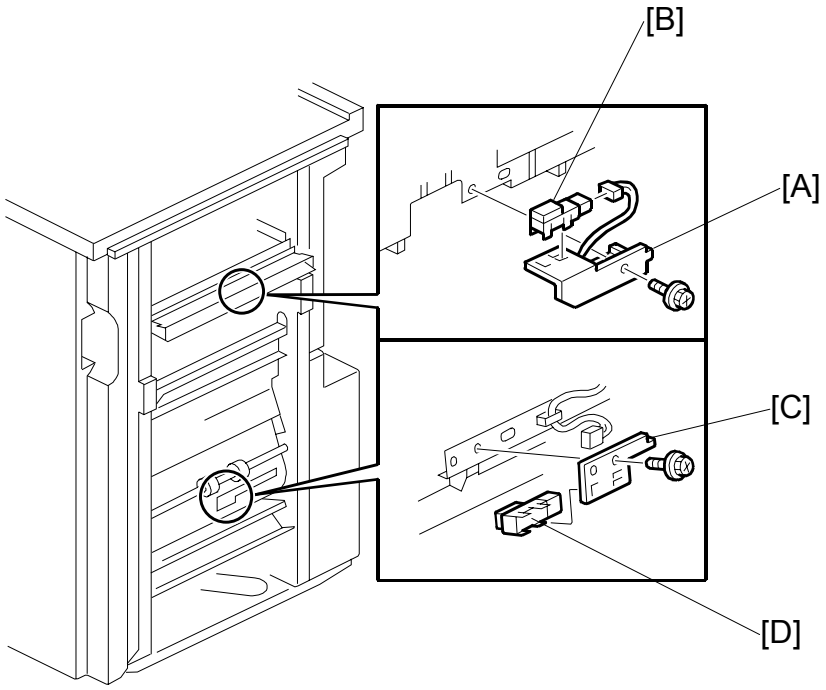
[D] Front right door bracket (☞ x1) and remove the door.
[E] Front left door bracket (☞ x1) and remove the door.
[F] Rear left cover (☞ x2)
[G] Rear right cover (☞ x6)
[H] Output tray
[I] Bottom cover (☞ x4)
[J] Left cover (☞ x2)

1.2 POSITIONING ROLLER



[A]: Open the front door.
[B]: Pull out the stapling unit.
[C]: Positioning roller (x1, timing belt x1)

1.3 ENTRANCE SENSOR, STACK TRAY EXIT SENSOR



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- Disconnect the finisher if it is connected to the copier.

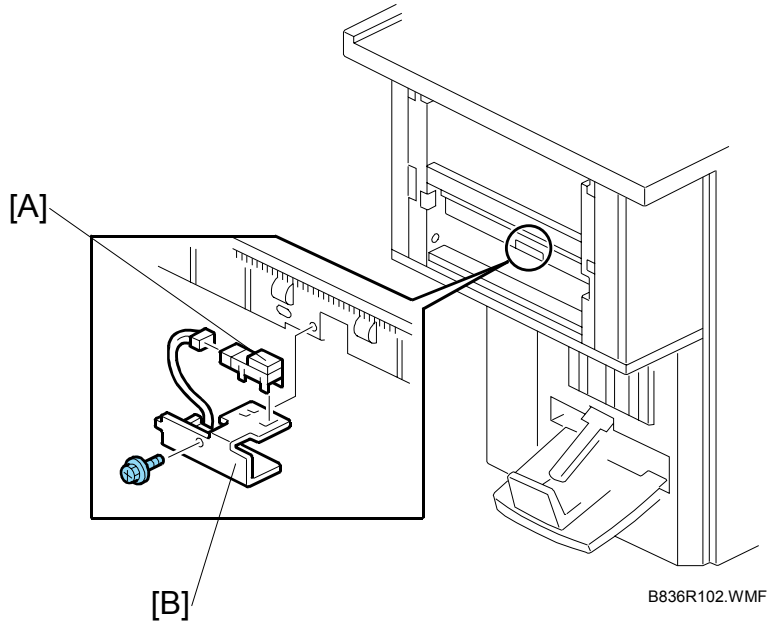
Finisher Entrance Sensor

[A]: Sensor bracket (x1)
[B]: Finisher entrance sensor (x1)

Stack Tray Exit Sensor

[C]: Sensor bracket (x1, x1)
[D]: Finisher entrance sensor

1.4 FINISHER EXIT SENSOR



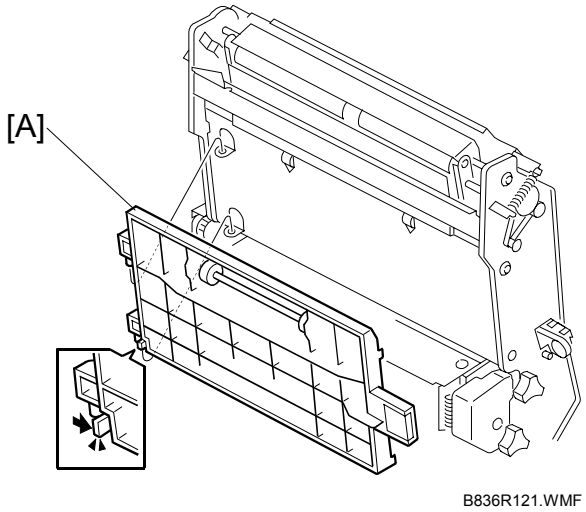
Remove:

[A]: Sensor bracket (x1)
[B]: Finisher exit sensor (x1)

1.5 FOLD UNIT EXIT SENSOR

- Open the front door.
- Pull out the stapling tray.

[A]: Fold unit vertical guide plate



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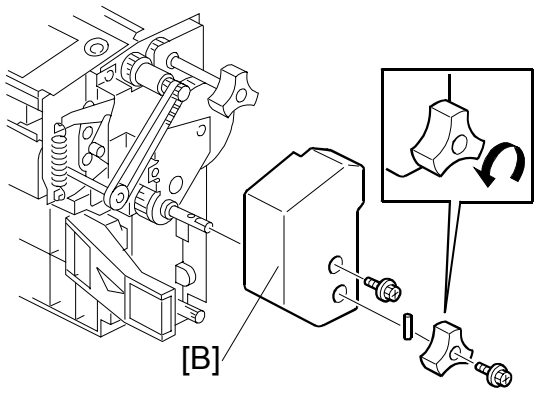
[B]: Fold unit inner cover
(☞ x2, Pin x1)



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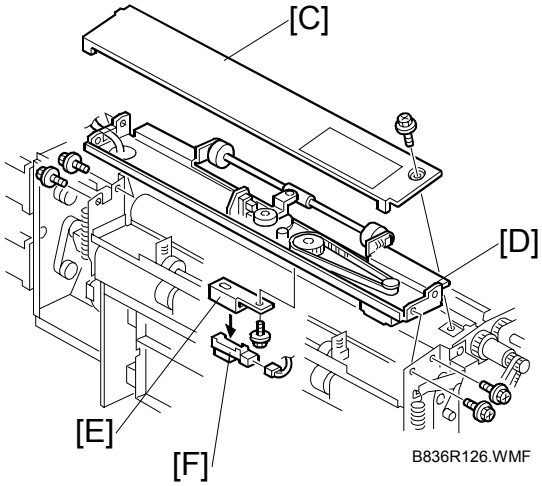
[C]: Fold unit upper cover (☞ x1)
[D]: Paper clamp unit (☞ x4)
[E]: Fold unit exit sensor bracket
(☞ x1, ☞ x1)
[F]: Fold unit exit sensor



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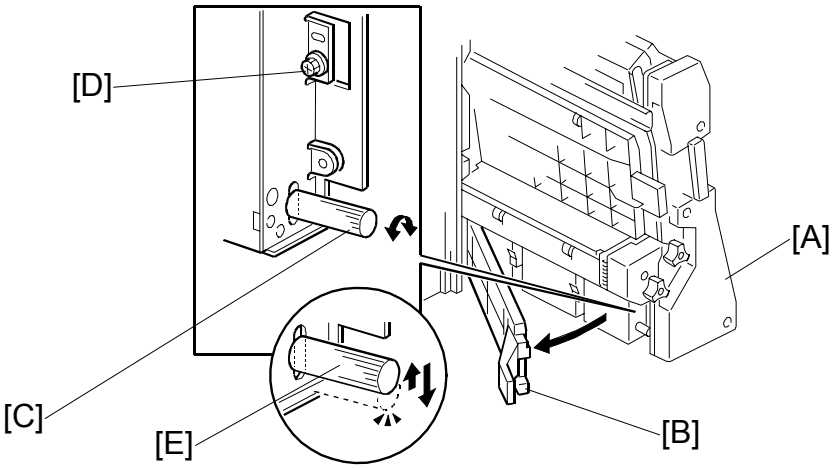
1.6 FOLD ADJUSTMENTS

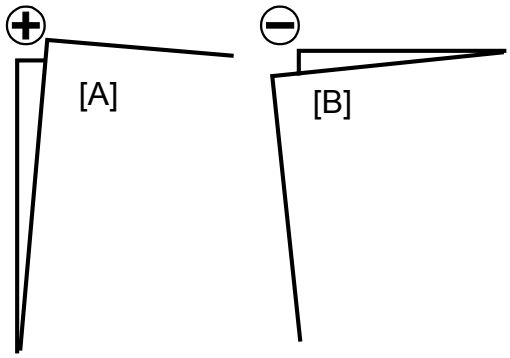
1.6.1 FOLDING HORIZONTAL SKEW ADJUSTMENT



Important

- The fold unit is adjusted for optimum performance before the finisher is shipped from the factory. Do this adjustment only if the edges of folded booklets are not even.

1. Switch the copier on and enter the SP mode.
2. Europe, Asia: Use **SP 6201 001** (this is for A3 paper).
   North America: Use **SP 6201 006** (this is for DLT paper).
   NOTE: If the original setting of **SP6201 001** or **006** is not 0, then you must do the vertical skew adjustment (☛1.6.2) after you finish this horizontal skew procedure.
3. Use the 10-key pad to input "**-2**" (mm) for the SP value.
   NOTE: (Press [・/✱] to enter the minus sign.)
4. Press [#] then exit the SP mode.
5. Open the front door and pull the stapling unit [A] out of the finisher.
6. Open the guide plate [B].
7. Loosen the adjustment screw [C] and then tighten until it stops. (Do not over tighten.)
8. Remove the lock screw [D].
9. Raise the tip [E] of the adjustment screw very slightly and allow it to descend under its own weight.



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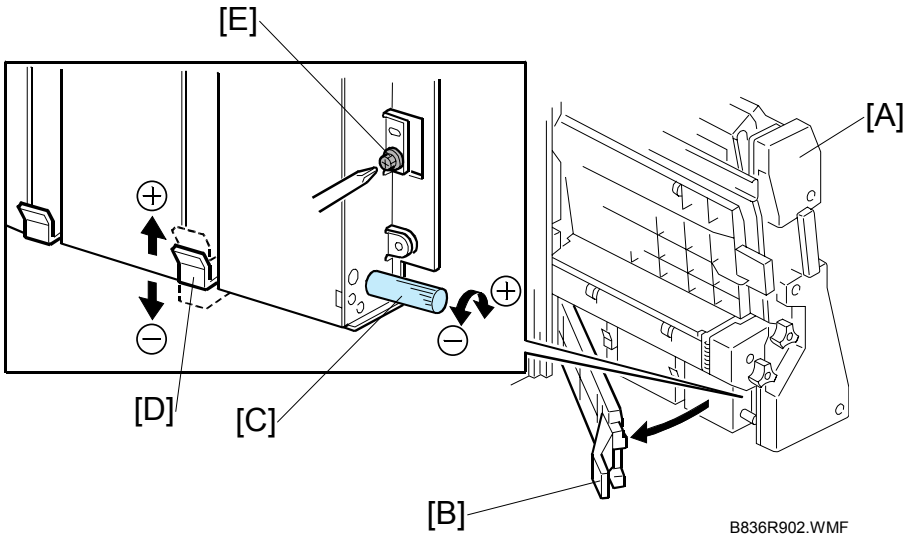
10. Push the stapling unit into the finisher and close the front door.
11. Do a folding test.
    - Switch the copier on.
    - Put one page of A3 or DLT paper in the ARDF.
    - On the copier operation panel, select booklet stapling.
    - Press [Start]. One sheet is folded.
12. Remove the sheet from the booklet output tray.
13. Hold the folded sheet with the creased side pointing down and face-up (the same way that it came out of the finisher).
14. Referring to the diagram, determine if the skew is **+** [A] or **–** [B].



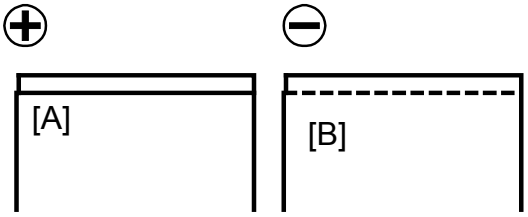
15. Open the front door of the finisher and pull the stapling unit [A] out.
16. Open the guide plate [B].
17. Turn the adjustment screw [C] to correct the amount of skew you measured from the test sheet.
    - For + skew ([A] on the previous page), turn the adjustment screw (clockwise).
    - For – skew ([B] on the previous page), turn the adjustment screw to the left (counter-clockwise).
    - Every click in the +/– direction adjusts the fold position by 0.1 mm by moving the bottom fence [D]
18. Raise the tip of the adjustment screw [C] and allow it to lower under its own weight.
19. Attach and tighten the lock screw [E].
20. Push the stapling unit into the machine, close the front door, then turn the copier on.
21. Europe, Asia: Do **SP 6201 001** (this is for A3 paper).
    North America: Do **SP 6201 006** (this is for DLT paper).
22. Reset it to "**0**".
23. Do the test again.
24. If the result is satisfactory, this completes the adjustment.
    -or-
    If some skew remains, repeat this adjustment.
    NOTE: After doing this adjustment, adjust for vertical skew, if necessary. (☛1.6.2).

1.6.2 FOLD VERTICAL SKEW ADJUSTMENT

Important

- The fold unit is adjusted for optimum performance before the finisher is shipped from the factory. Do this adjustment only if the edges of folded booklets are not even.

1. Switch the copier on.
2. Do a folding test.
   - Switch the copier on.
   - Put one page of A3 or DLT paper in the ARDF.
   - On the copier operation panel, select booklet stapling.
   - Press [Start]. One sheet is folded.
3. Hold the folded sheet with the creased side pointing down, and face-up (the same way that it came out of the finisher).
4. Referring to the diagram, determine if the skew is positive [A] or negative [B].



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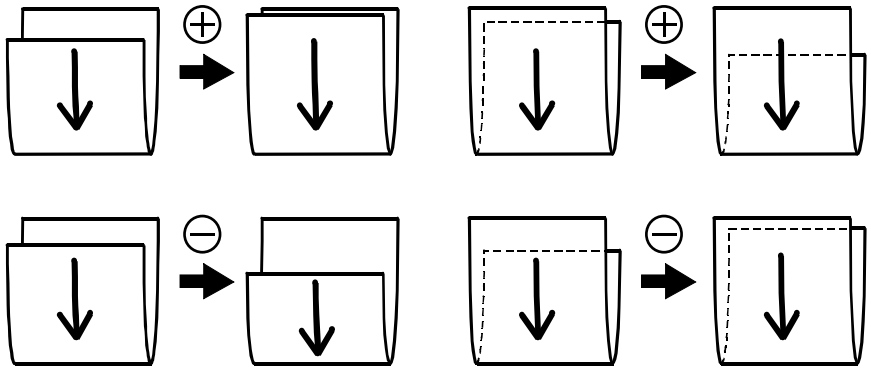
5. Measure the amount of skew.
6. Enter the SP mode
   - Europe, Asia: Use **SP 6201 001** (this is for A3 paper).
   - North America: Use **SP 6201 006** (this is for DLT paper).
7. Enter one-half the measured amount of skew.
   Example: If the measure amount of skew is -1.2 mm, enter -0.6 mm
   NOTE: The range for measurement is –3.0 mm to +3.0 mm in 0.2 mm steps for every notch adjustment.
8. Exit the SP mode and do the test again (steps 2 to 5).
9. Repeat this procedure until the skew is corrected.

   The illustration below shows the effects of +/- adjustment with **SP6201.** (The vertical arrows show the direction of paper feed.)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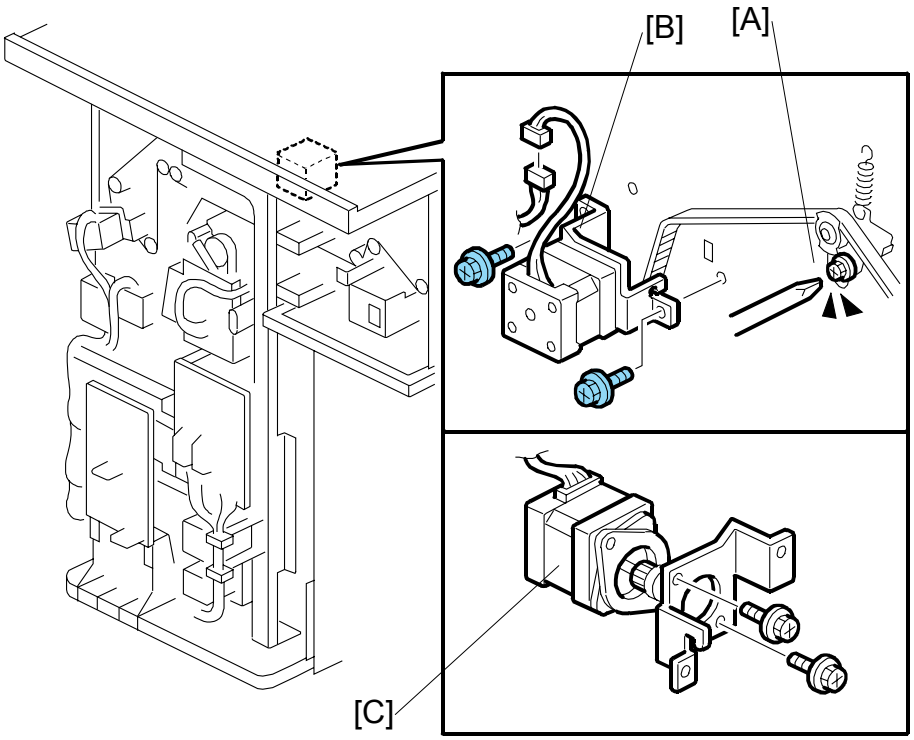
1.7 ENTRANCE MOTOR



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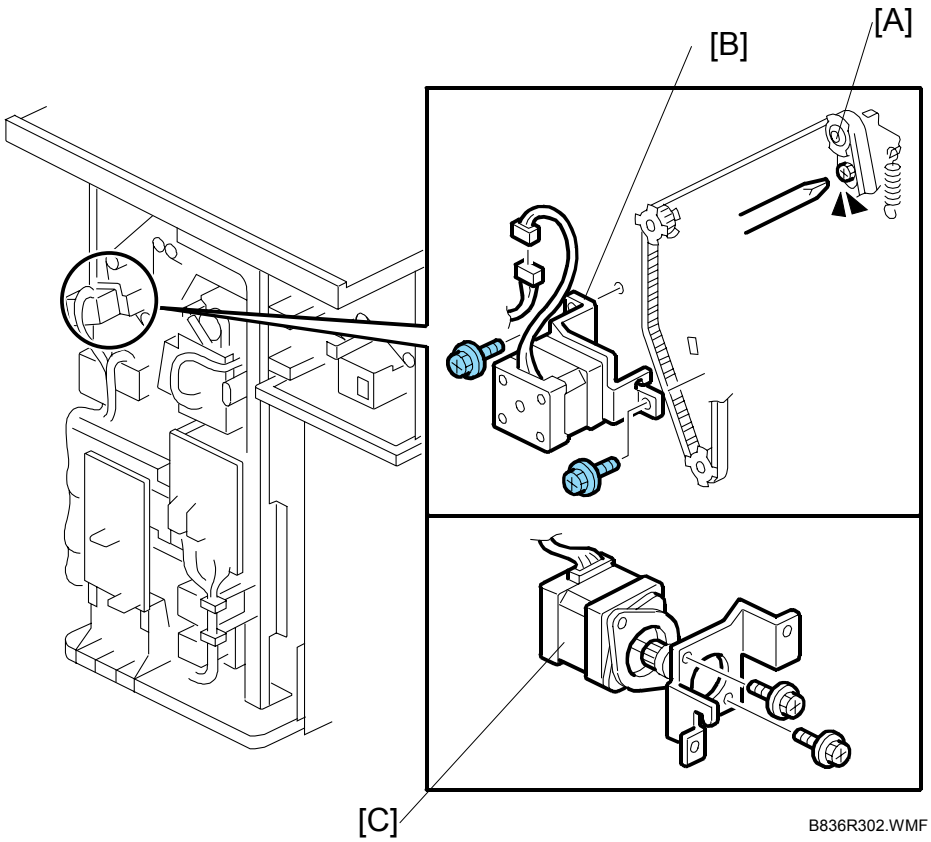
Remove:

- Rear left cover (☛1.1)
- Rear right cover (☛1.1)

[A] Loosen the screw to release the belt tension.
[B] Motor bracket (x2, x1, Timing belt x1)
[C] Entrance motor (x2)

1.8 UPPER TRANSPORT MOTOR

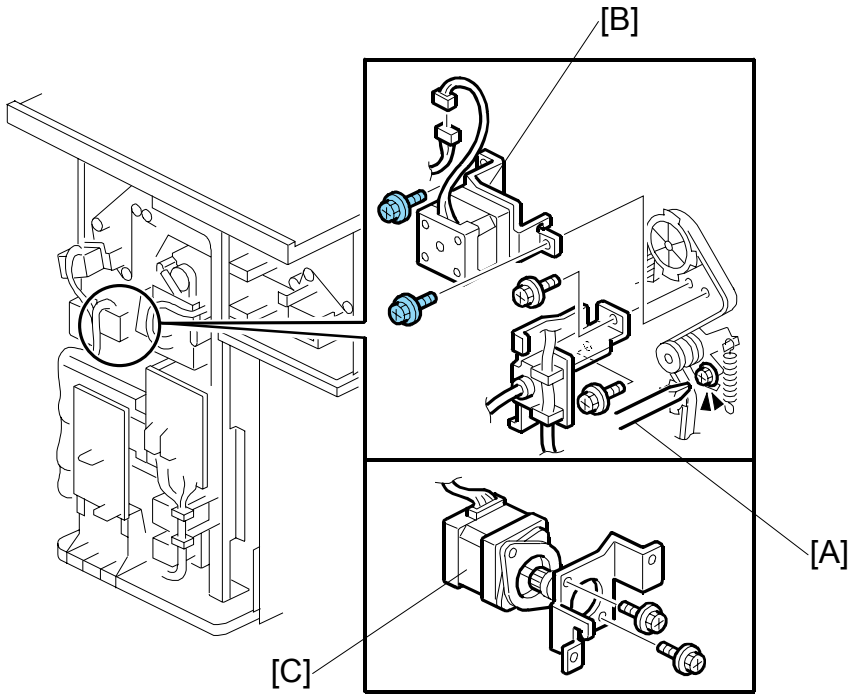


Remove:

- Rear left cover (☛1.1)
- Rear right cover (☛1.1)

[A] Loosen the screw to release the belt tension.
[B] Motor bracket (🔩 x2, 🖐 x1, Timing belt x1)
[C] Upper transport motor (🔩 x2)

1.9 LOWER TRANSPORT MOTOR



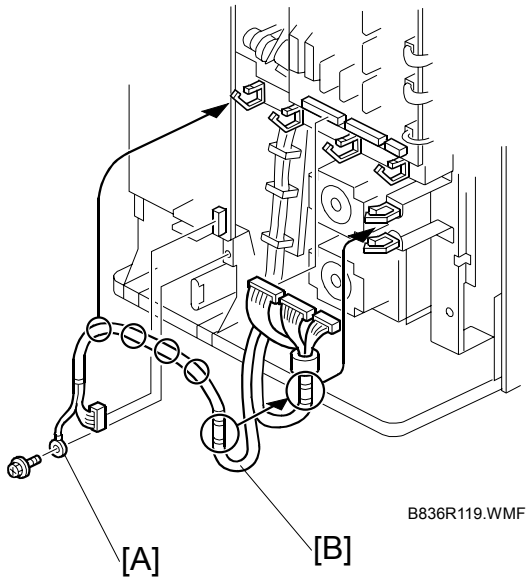
B836R303.WMF

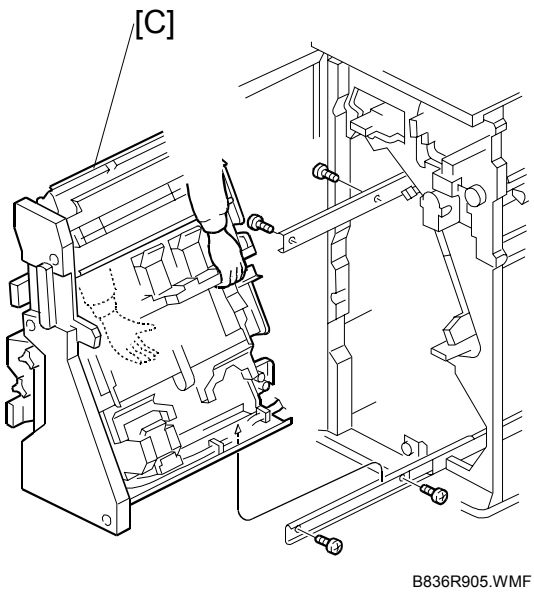
Remove:

- Rear left cover (☛1.1)
- Rear right cover (☛1.1)

[A] Loosen the screw to release the belt tension.
[B] Motor bracket (x2, x1, Timing belt x1)
[C] Lower transport motor (x2)

1.10 FOLD UNIT

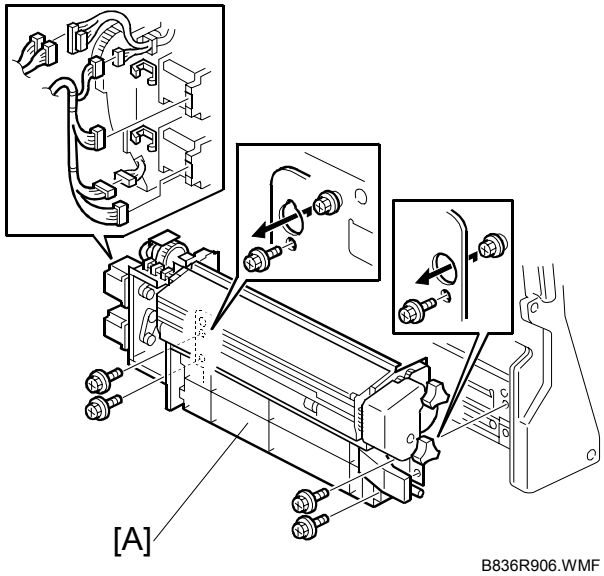




- Remove the back cover (☛1.1)
- Open the front door.

CAUTION: The stapling unit is heavy.

[A]: Ground screw (☞ x1)
[B]: Harness (☜ x6, ☞ x6)
[C]: Stapling unit (☞ x4)



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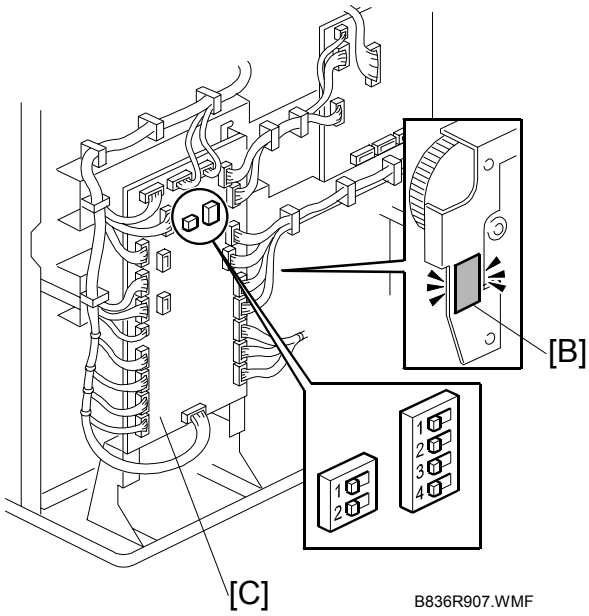


B836R907.WMF

Important: Support the fold unit with your hand to prevent it from falling.

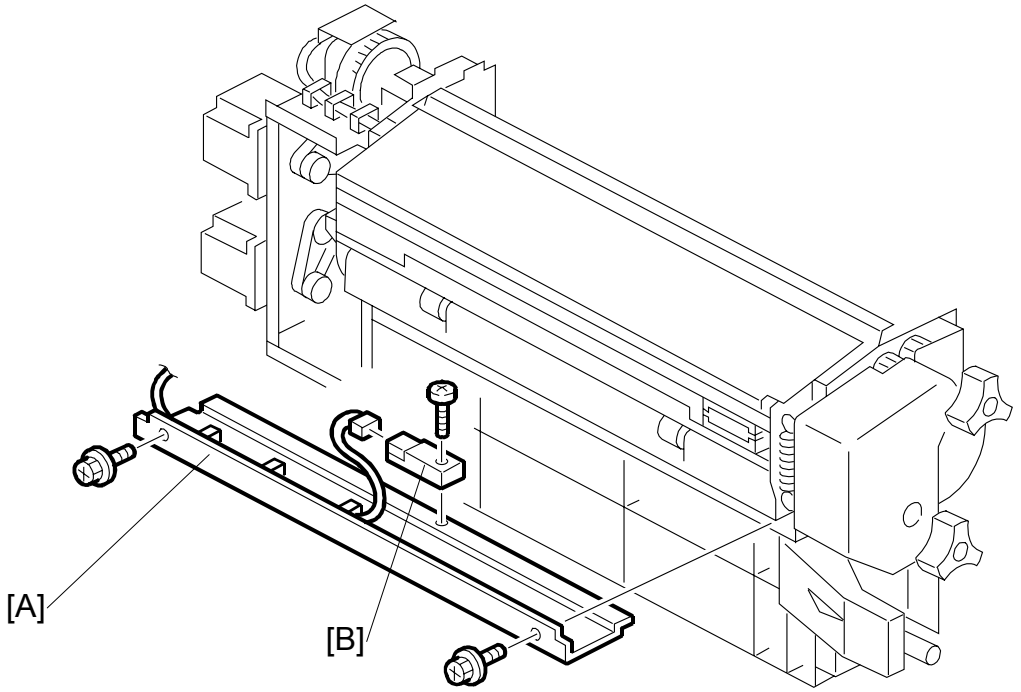
CAUTION: The fold unit is heavy.

[A]: Folding unit (x4, x2, x6)

If you have replaced the folding unit:

1. Read the DIP switch settings on the decal [B] attached to the back of the new folding unit.
2. Check the DIP switch settings on the main board [C] of the finisher.
3. If these settings are different, change these settings to match settings printed on the seal attached to the folding unit.
   NOTE: Set DIP switches 1 to 4 (the switch set on the right). Do not touch the other DIP switches.

1.11 FOLD UNIT ENTRANCE SENSOR



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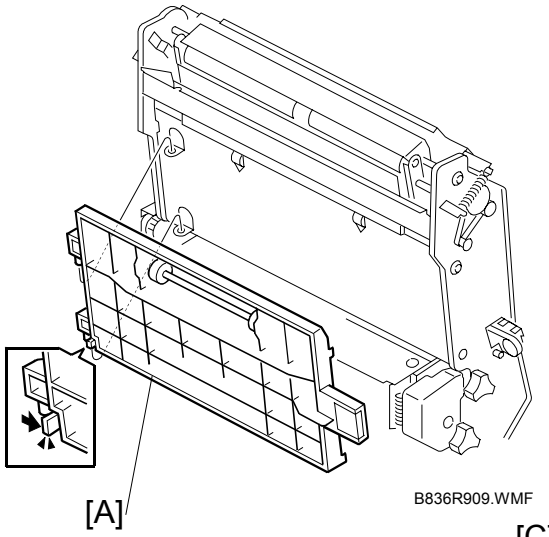
- Pull out the stapling unit.

[A]: Fold unit entrance sensor bracket (x2)
[B]: Fold unit entrance sensor (x1, x1)

1.12 STACK PRESENT SENSOR



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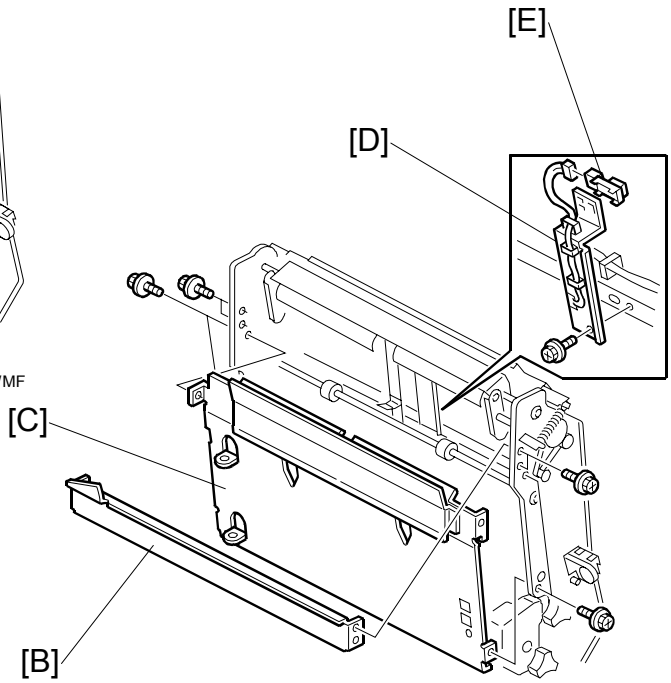


B836R910.WMF

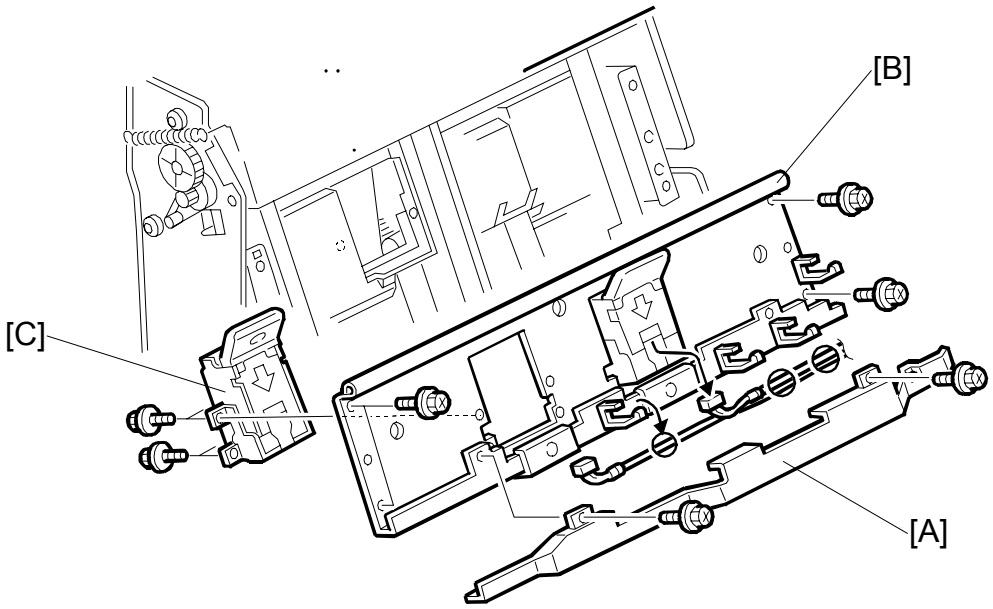
Important: If you intend to correct the horizontal and vertical skew for the fold unit at the same time, do those adjustments first, then replace the sensor. (☛1.6.1, 1.6.2)

- Remove the stapling unit (☛1.10)

[A]: Guide plate.
[B]: Stay (x4)
[C]: Left plate (x4)
[D]: Sensor bracket (x1)
[E]: Stack present sensor (x1)

1.13 BOOKLET STAPLER, BOOKLET STAPLER MOTOR

1.13.1 BOOKLET STAPLER



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- Open the front door.
- Pull out the stapling unit.

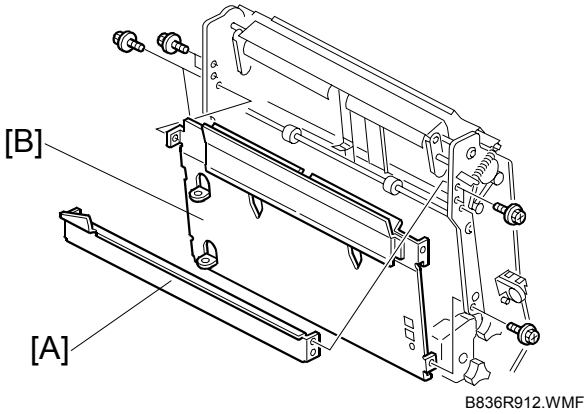
[A]: Harness cover (x2)
[B]: Booklet stapler support stay (x4, x2, x4)
[C]: Stapler (x4)

1.13.2 BOOKLET STAPLER MOTOR

- Open the front door.
- Remove the stapling unit. (☛1.10)

1. Remove:

[A]: Stay (☞ x4).
[B]: Left plate (☞ x4).



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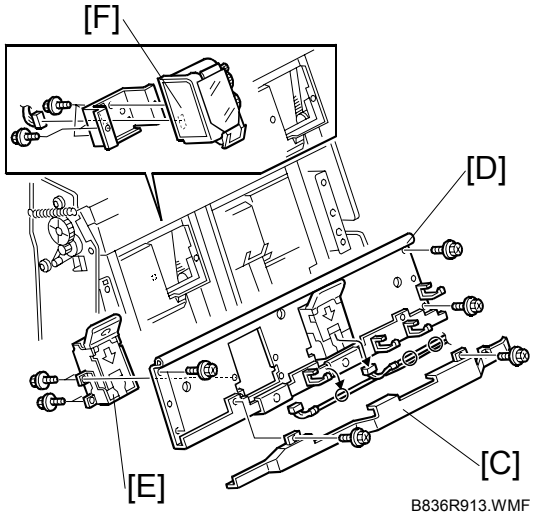
2. Remove:

[C]: Harness cover (☞ x2)
[D]: Booklet stapler support stay (☞ x4, ☞ x2, ☞ x4)
[E]: Booklet stapler (☞ x4)
[F]: Booklet stapler motor (☞ x2, ☞ x1)



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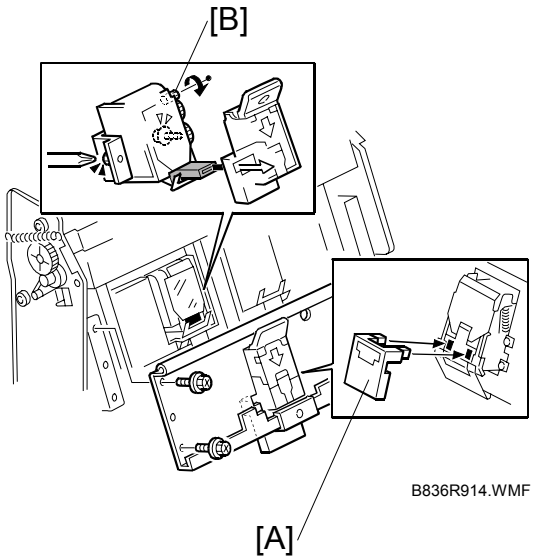
To Reattach the Booklet Stapler Motor

1. Reattach the booklet stapler motor.
   Important: Do not tighten the screws.
2. Attach the special tool [A] and reattach the booklet stapler stay.
   NOTE: This tool is included with the stapler spare part.
3. Turn the gear [B] with your finger until it stops.
4. Tighten the screws to attach to the booklet stapler motor.
5. Remove the stay again and remove the special tool.
6. Reattach the booklet stapler stay.
7. Push the stapling unit into the machine.



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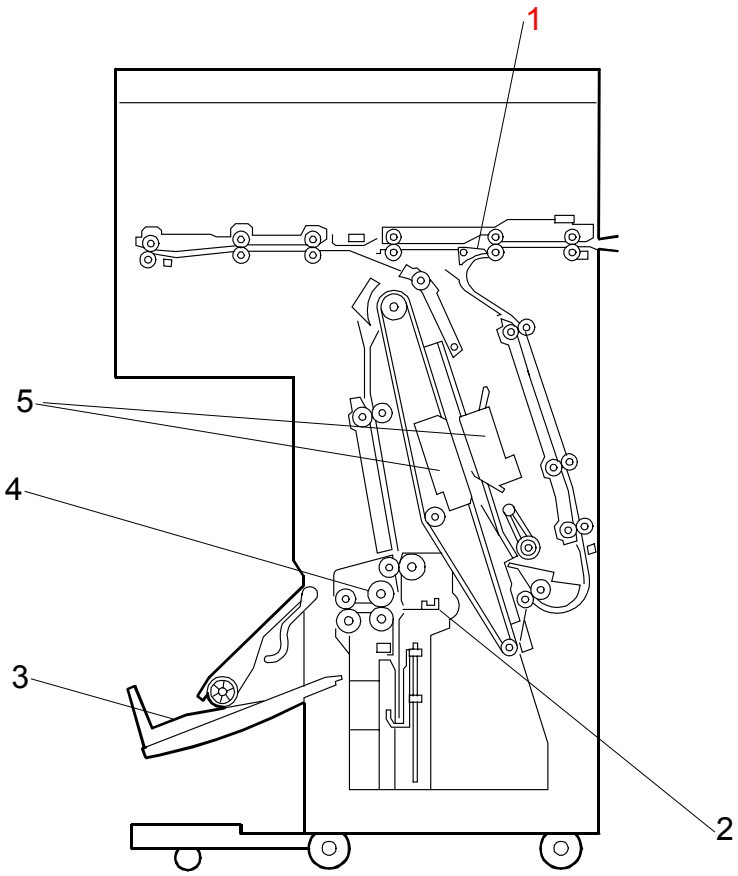
2. DETAILS

2.1 GENERAL LAYOUT



1. Stapling Tray Junction Gate
2. Folder Plate
3. Booklet Output Tray
4. Folder Rollers
5. Booklet Stapler

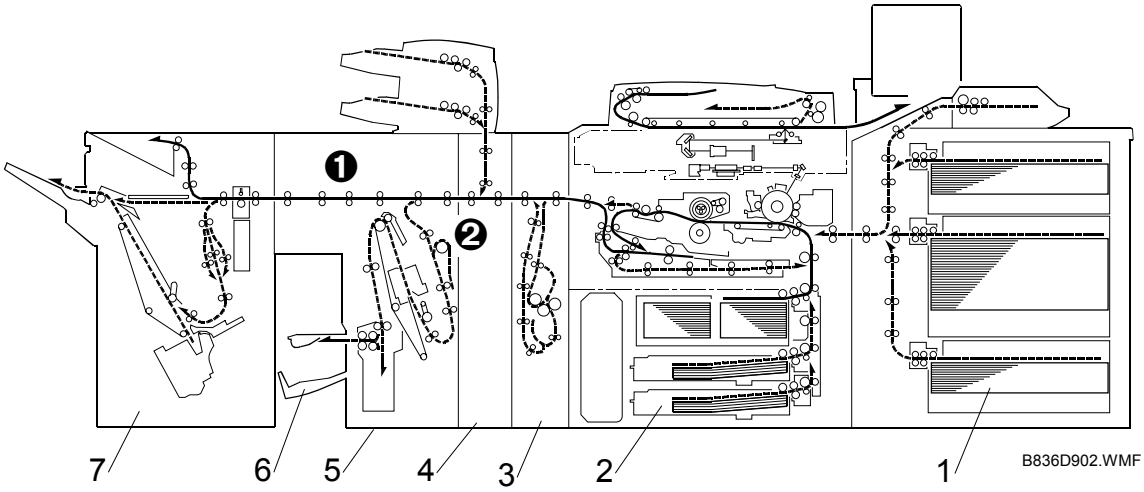
Paper direction

The operation of the stapling tray junction gate [1] (previous page) directs the paper once it enters the finisher:

Junction Gate	Paper Feeds
Closed	Paper feeds straight through ❶ (see below)
Open	Paper feds to the staple tray ❷ (see below)

Booklet output tray

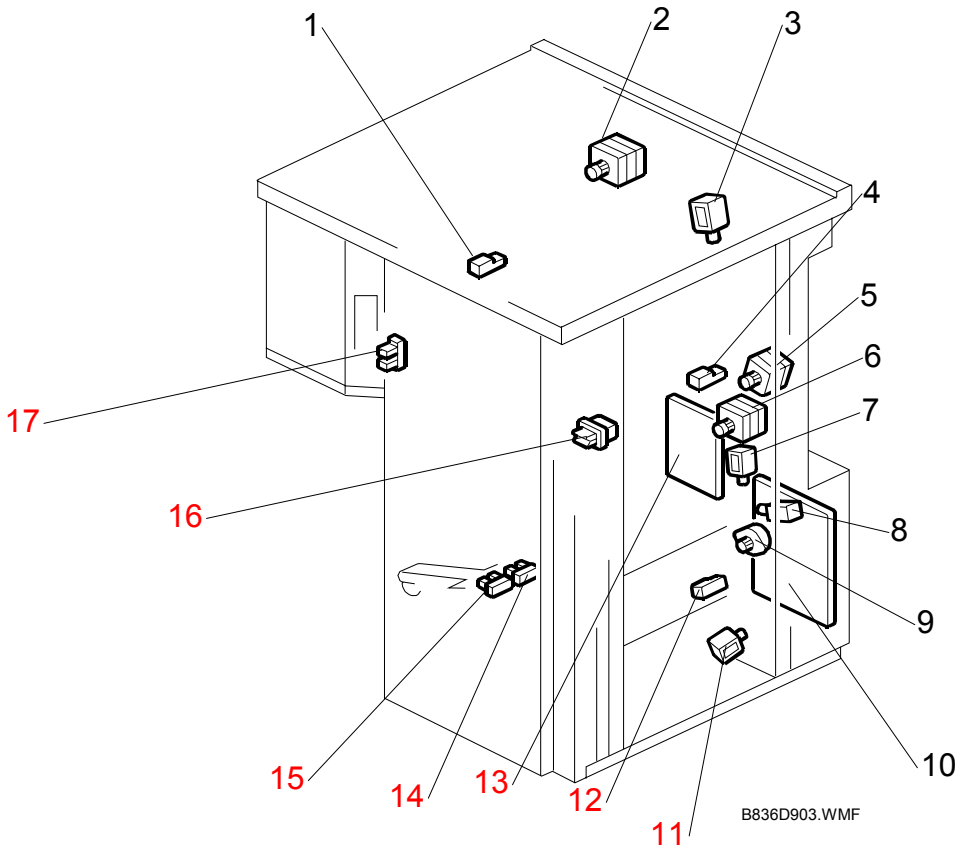
The booklet output tray [6] receives copies that have been center folded and stapled (booklet stapling).



1. Optional LCT (B832 or B834)
2. Copier (B234/B235/B236)
3. Z-Folder (B660)
4. Cover Interposer Tray (B835)
5. Booklet Finisher (B836)
6. Booklet Finisher Output Tray
7. Finisher (B830)

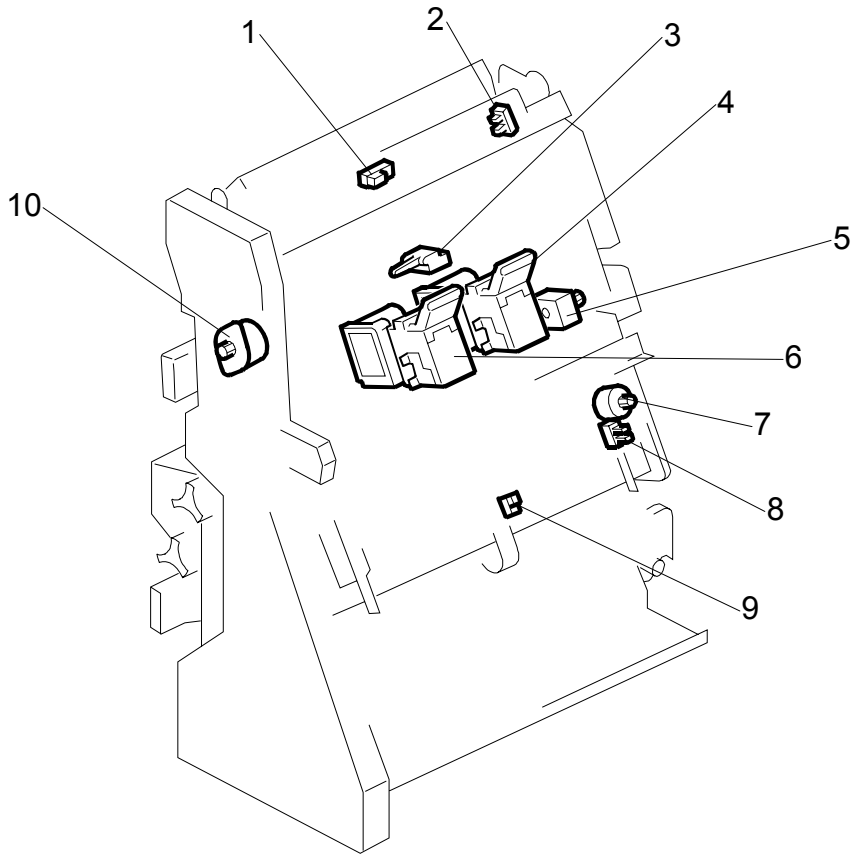
2.2 ELECTRICAL COMPONENTS

2.2.1 FEED PATH, PCBS



1. Horizontal Transport Sensor
2. Upper Transport Motor
3. Stapling Tray Junction Gate Solenoid
4. Finisher Entrance Sensor
5. Entrance Motor
6. Lower Transport Motor
7. Booklet Pressure Roller Solenoid
8. Positioning Roller Solenoid
9. Main Board (PCB)
10. Positioning Roller Motor
11. Edge Pressure Plate Solenoid
12. Stack Tray Exit Sensor
13. Booklet Stapler Board
14. Booklet Output Tray Full Sensor - Rear
15. Booklet Output Tray Full Sensor - Front
16. Front Door Safety Switch
17. Small Front Door Open Sensor

2.2.2 STACKER/STAPLER



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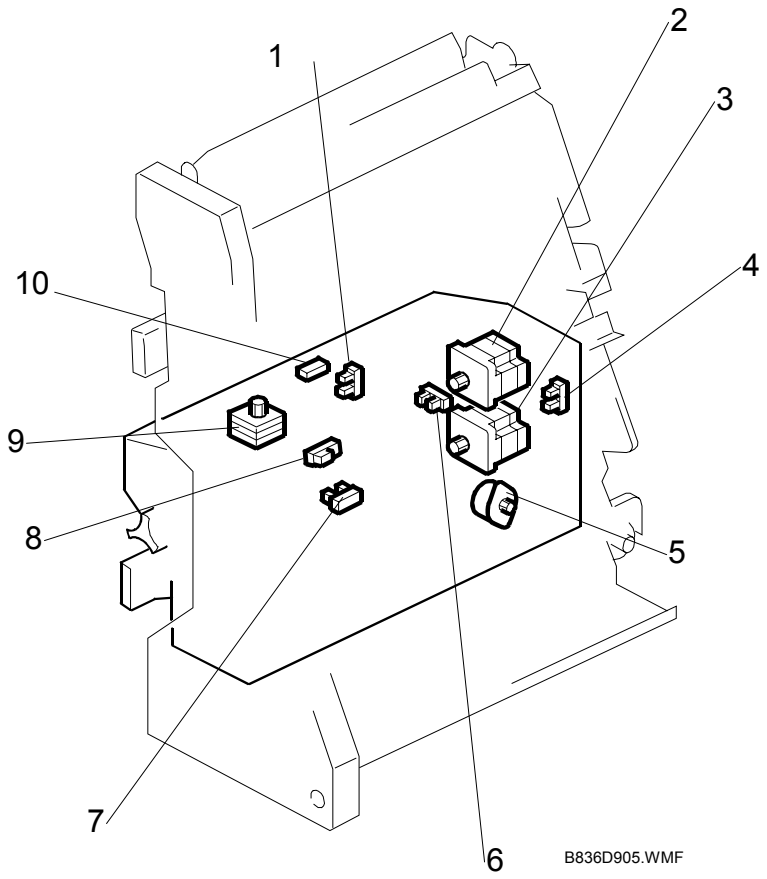
1. Stack Present Sensor
2. Stack Junction Gate HP Sensor
3. Stack Feed Out Belt HP Sensor
4. Booklet Stapler EH185R – Rear
5. Feed Out Belt Motor
6. Booklet Stapler EH185R – Front
7. Jogger Fence Motor
8. Jogger Fence HP Sensor
9. Stapling Tray Paper Sensor
10. Stack Junction Gate Motor

2.2.3 FOLD UNIT



1. Clamp Roller HP Sensor
2. Fold Roller Motor
3. Fold Plate Motor
4. Fold Plate HP Sensor
5. Fold Unit Bottom Fence Lift Motor
6. Fold Plate Cam HP Sensor
7. Fold Bottom Fence HP Sensor
8. Fold Unit Entrance Sensor
9. Clamp Roller Retraction Motor
10. Fold Unit Exit Sensor

2.2.4 ELECTRICAL COMPONENT SUMMARY

Here is a general summary of all the electrical components.

Motors		
No.	**Name**	**Description**
M1	Entrance Motor	Controls the rollers that feed paper into the booklet finisher.
M2	Upper Transport Motor	Controls the rollers that feed paper out of the booklet finisher.
M3	Clamp Roller Retraction Motor	Drives a large cam that alternately clamps and unclamps the clamp retraction roller, the idle roller of the clamp roller pair. When these rollers are clamped, they are part of the paper feed path and feed the stack toward the bottom fence of the fold unit. When the idle roller is retracted, the stacks falls a very short distance (3 mm) onto the fold unit bottom fence below. These rollers remain unclamped while the bottom fence positions the stack for folding and while the stack is folded by the fold rollers.
M4	Feed Out Belt Motor	Drives the feed out belt that moves the stapled stacks out of the stapling tray after stapling.
M5	Fold Plate Motor	Drives the fold plate that pushes the center of the stack into the nip of the fold rollers to start the fold.
M6	Fold Roller Motor	Rotates forward and drives the fold rollers that fold the stack and feed it out of the fold unit, reverses to feed the fold once more into the fold unit, and then rotates forward again to feed the fold out of the fold unit.
M7	Fold Unit Bottom Fence Lift Motor	Raises the bottom fence and stops when the center of the vertical stack is opposite the edge of the horizontal fold blade. The distance for raising the blade is prescribed as one-half the size of the paper selected for the job. For large paper, (A3, B4) the bottom fence first lowers the stack 10 mm below the fold position, and then raises it to the fold position.
M8	Jogger Fence Motor	Drives the jogger fences in the stapling tray to jog both sides of the stack before stapling.
M9	Lower Transport Motor	Drives paper feed rollers forward and reverse in the stack tray for the switchback, and drives the other rollers in the lower transport area.
M10	Positioning Roller Motor	Drives the positioning roller in the stapling tray.
M11	Stack Junction Gate Motor	Controls the junction gate at the entrance of the booklet finisher

PCBs		
No.	**Name**	**Description**
PCB1	Booklet Stapler Board	A separate board that controls booklet finishing.
PCB2	Main Board	The main board that controls the finisher

Sensors		
No.	**Name**	**Description**
S1	Booklet Output Tray Full Sensor – Front	This front sensor is the higher sensor of the booklet tray full sensor pair. Two actuators are attached to the actuator arm that touches the top of stapled and folded booklets as they feed out. The on/off combinations of the two sensors are used to detect when the tray is full and stop the job. (The booklet tray is stationary. At tray full, the job halts until booklets are removed from the booklet tray.)
S2	Booklet Output Tray Full Sensor – Rear	This rear sensor is the lower sensor of the booklet tray full sensor pair. Two actuators are attached to the actuator arm that touches the top of stapled and folded booklets as they feed out. The on/off combinations of the two sensors are used to detect when the tray is full and stop the job. (The booklet tray is stationary. At tray full, the job halts until booklets are removed from the booklet tray.)
S3	Clamp Roller HP Sensor	Controls the movement of the clamp retraction roller (the idle roller of the clamp roller pair).
S4	Finisher Entrance Sensor	Provides two functions: (1) Detects paper entering the finisher from the copier, and (2) Signals a jam if it detects paper at the entrance when the copier is switched on.
S5	Fold Bottom Fence HP Sensor	Controls the movement of the bottom fence in the folding unit using pulse counts based on the size of the paper selected for the job to position the stack correctly for feeding.
S6	Fold Plate Cam HP Sensor	Along with the fold plate HP sensor (S29), this sensor controls the movement of the fold plate. The actuator mounted on the end of the roller that drives the folder plate forward and back makes three full rotations, i.e. the actuator passes the sensor gap twice and stops on the 3rd rotation and reverses. This accounts for the left and right movement of fold plate.
S7	Fold Plate HP Sensor	Along with the fold plate cam HP sensor (S30) this sensor controls the movement of the fold plate. The fold plate has arrived at the home position when the edge of the plate enters the gap of this sensor.
S8	Fold Unit Entrance Sensor	Detects 1) the leading edge of the stack during booklet stapling, and 2) also used to signal an alarm if a paper is detected at the entrance of the fold unit when the copier is turned on.
S9	Fold Unit Exit Sensor	1) Detects the folded edge of the stack as it feeds out from the nip of the fold rollers, stops the rollers, and reverses them so the fold feeds back into the nip, 2) when the folded booklet finally emerges from the nip of the fold rollers, detects the leading and trailing edge of the booklet to make sure that it feeds out correctly.
S10	Jogger Fence HP Sensor	Detects the home position of the jogger fences. When the actuator on the jogger fence interrupts this sensor, the jogger fence is in its home position and the jogger fence motor (M15) stops.
S11	Stack Tray Exit Sensor	Detects 1) paper fed from the stack tray to the stapling tray, and detects 2) paper in the stack when the copier is switched on. (This sensor performs no timing function. The entire flow of paper through the stacking mechanism is controlled by motor pulse counts.)
S12	Stack Feed-Out Belt HP Sensor	Controls the position of the stack feed-out pawl on the stack feed-out belt. Once the actuator on the feed belt nudges the feeler of this sensor near the top of the stapling unit, the feed out belt motor (M5) remains on for the time prescribed to position the pawl at the home position to catch the next stack.
S13	Stack Junction Gate HP Sensor	Controls the opening and closing of the stack junction gate. Switches on when the stack junction gate is open and at the home position.
S14	Stack Present Sensor	This sensor determines whether a there is paper at the turn junction gate when the machine is turned on. If a stack is present, this triggers a jam alert. (This sensor performs no dynamic function such as pulse counting, etc. It only detects whether paper is at the top of the folding unit when power its turned on.)

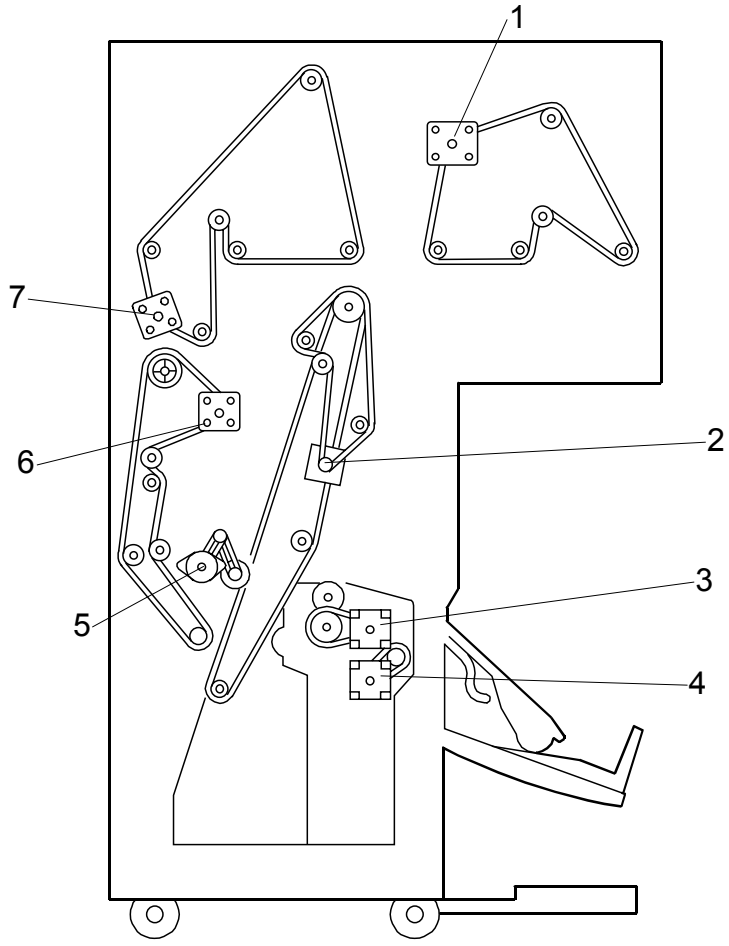
Sensors		
No.	**Name**	**Description**
S15	Stapling Tray Paper Sensor	A photo sensor that detects whether paper is in the stapling tray. When this sensor detects paper, the bottom fence motor raises or lowers the bottom fence to position the selected paper size for booklet stapling.
S16	Horizontal Transport Sensor	Monitors paper feed through the finisher
S17	Small Front Door Open Sensor	Detects when the small front door at the front left is open.

Solenoids		
No.	**Name**	**Description**
SOL1	Booklet Pressure Roller Solenoid	When the paper stack in the stapling tray feeds to the folding unit, this solenoid turns on and operates the roller that pushes on the surface of the stack to flatten it.
SOL2	Positioning Roller Solenoid	Engages the stapler transport motor and the positioning roller of the stapling tray. The positioning roller pushes each sheet down against the bottom fence to align the bottom the stack for stapling. (The jogger fences align the sides.)
SOL3	Edge Pressure Plate Solenoid	Operates the pressure plate of the stapling unit. The pressure plate presses down the edge of stack in the stapling tray so it is tight for stapling.
SOL4	Stapling Tray Junction Gate Solenoid	Directs paper to the stapling tray. When this solenoid is on, paper feeds straight through. When this solenoid is off, paper feeds to the stapling tray below.

Switches		
No.	**Name**	**Description**
SW1	Front Door Safety Switch	The safety switch that cuts the dc power when the front door is opened.

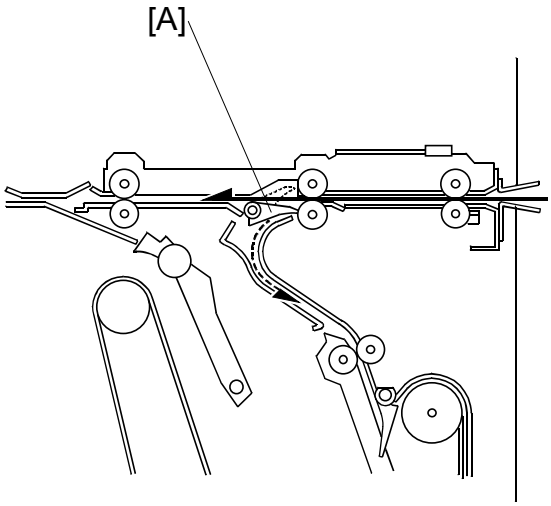
Other		
No.	**Name**	**Description**
ST1	Booklet Stapler - Front	Booklet stapler. Staples paper stacks in the center before they are folded.
ST2	Booklet Stapler - Rear	Booklet stapler. Staples paper stacks in the center before they are folded.

2.3 DRIVE LAYOUT



1. Upper Transport Motor
2. Feed Out Belt Motor
3. Fold Roller Motor
4. Folder Plate Motor
5. Positioning Roller Motor
6. Lower Transport Motor
7. Entrance Motor

2.4 JUNCTION GATE



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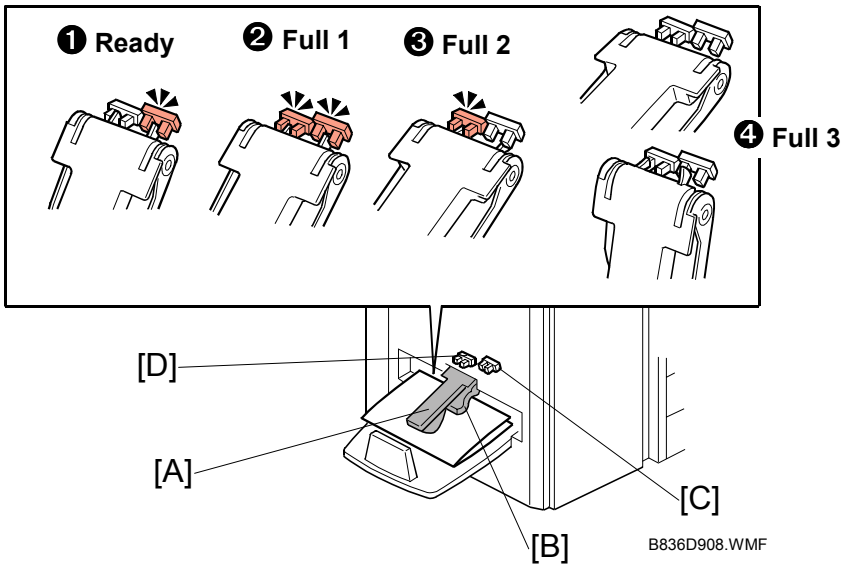
The position of the junction gate [A] determines the direction of paper feed after paper enters the finisher.

The junction gate remains closed when booklet stapling is not selected for the job. The paper passes over the junction gate and straight through the finisher.

The junction gate opens and guides the paper down to the staple tray when booklet stapling is selected for the job.

2.5 BOOKLET OUTPUT TRAY



The booklet output tray sensor actuator arm [A] rests on the top of the stack of stapled booklets as they are output to the booklet output tray. A flap depressor [B] keeps the open ends of the booklets down.

The front booklet output tray full sensor [C] and rear booklet output tray full sensor [D] detect when the booklet output tray is full of booklets.

Important

- The front booklet output tray full sensor is mounted higher than the rear booklet output tray full sensor.
- The booklet output tray is stationary. When it becomes full, the stapling and folding job stops until booklets are removed from the tray.
- If the booklet output tray is not installed (this is detected if the front and rear sensors remain OFF), the machine will not operate in the booklet staple and fold mode. When booklet mode is selected, the tray full message appears on the operation panel.

The combinations of the two actuators and two sensors as the actuator arm rises determines the number of booklets that the booklet output tray can hold before the job stops.

The tray full detection depends on the size of the paper and the number of sheets in one stapled and folded booklet.

In the table below, the conditions (❶ Ready ❷ Full 1, ❸ Full 2 ❹ Full 3: See the illustration on the previous page) refer to the states of the sensors described on the previous page.

Condition	Front Sensor	Rear Sensor
Ready	ON	OFF
Full 1	ON	ON
Full 2	OFF	ON
Full 3 (or booklet output tray not installed)	OFF	OFF

In the tables below:

- "Sht" denotes "sheets in a stack".
- "Cnt" denotes "Count" (see below for an explanation).

After a booklet is feed out, the fold roller motor stops the exit roller. The machine then monitors the tray full sensors every 100 ms. The machine checks for a certain condition, based on the size of the paper and the number of sheets in the booklet.

An example is shown below. Tell the operators that the number of sheets that the booklet output tray can hold will vary greatly.

Booklet Output Tray Full Condition Table

A3 (DLT)

	1 Sht	2 Sht	3 Sht	4 Sht	5 Sht	6 Sht	7 Sth	8 Sht	9 Sht	…
Full 1	3 Cnt	—	—	—	—	—	—	—	—	…
Full 2	—	5 Cnt	15 Cnt	—	—	—	—	—	—	…
Full 3	—	—	—	7 Cnt	13 Cnt	4 Cnt	2 Cnt	2 Cnt	2 Cnt	…

A4 (LT)

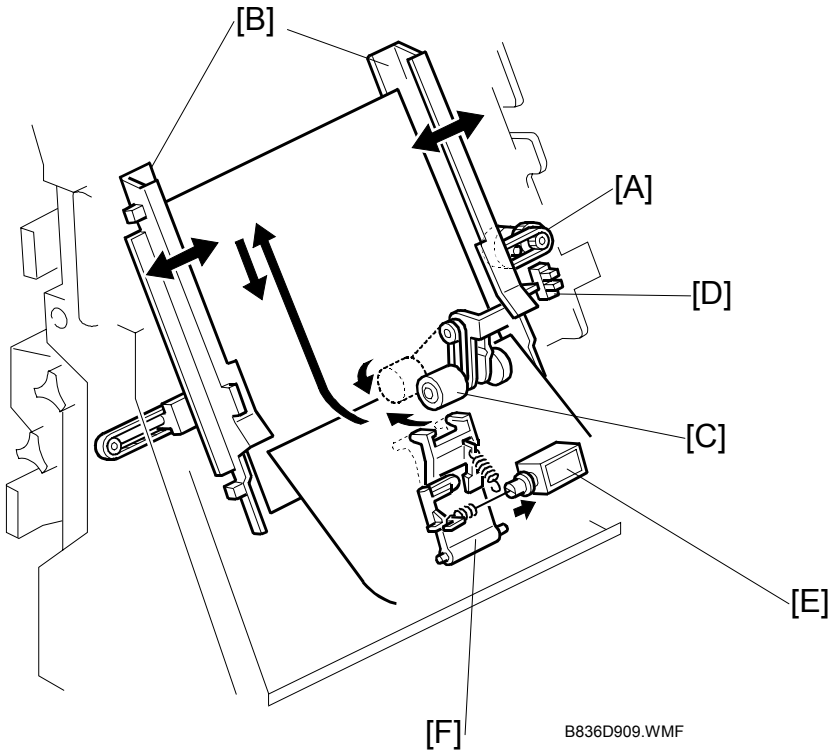
	1 Sht	2 Sht	3 Sht	4 Sht	5 Sht	6 Sht	7 Sth	8 Sht	9 Sht	…
Full1	16 Cnt	—	—	—	—	—	—	—	—	…
Full 2	—	10 Cnt	10 Cnt	15 Cnt	20 Cnt	15 Cnt	10 Cnt	8 Cnt	8 Cnt	…
Full 3	—	—	—							…

Examples

After the copier makes a booklet with 1 sheet of A3/DLT paper, the machine checks every 100 ms for the ‘Full 1’ condition. If the Full 1 condition occurs 3 times (shaded block in the table above), the machine detects that the tray is full.

After the copier makes a booklet with 5 sheets of A4/LT paper, the machine checks every 100 ms for the ‘Full 2’ condition. If the Full 2 condition occurs 20 times (shaded block in the table above), the machine detects that the tray is full.

2.6 STACKING AND JOGGING



[A]: Jogger Fence Motor
[B]: Jogger Fences
[C]: Positioning Roller
[D]: Jogger Fence HP Sensor
[E]: Edge Pressure Plate Solenoid
[F]: Pressure Plate

At the beginning of the job, the jogger fence motor [A] switches on and moves the jogger fences [B] to the standby position (7.5 mm from the sides of the selected paper size).

When each sheet enters the stapling tray:

- The jogger fence motor switches on and moves the jogger fences to within 5.5 mm of the sides of the selected paper size.
- The positioning roller solenoid switches on for the time prescribed for the paper size. This pushes the positioning roller [C] onto the sheet and pushes it down onto bottom fence. This aligns the edge of the stack.

Next, the jogger fence motor:

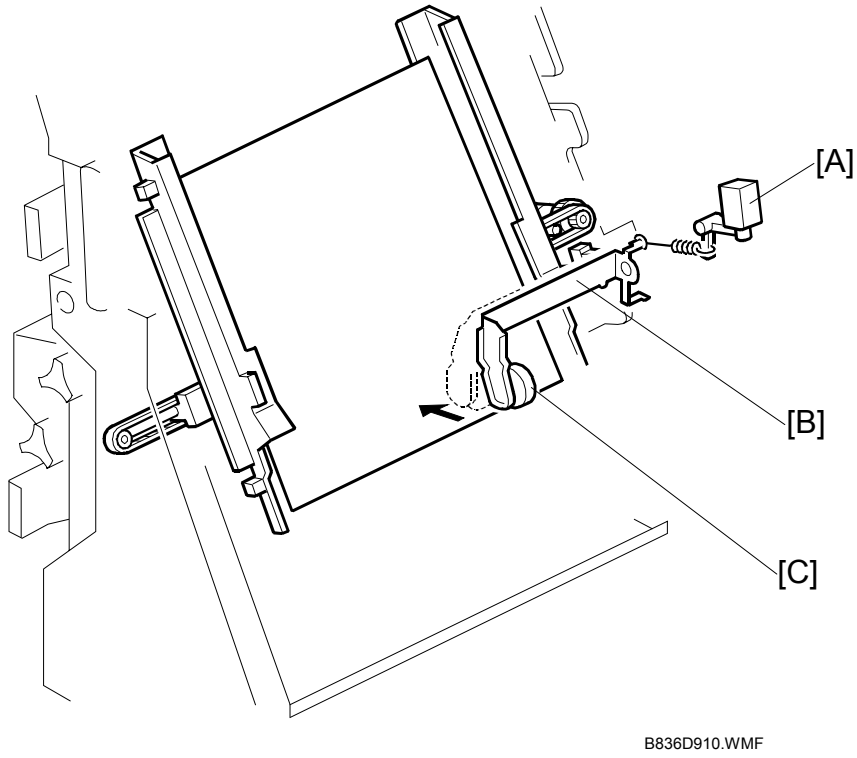
- Switches on again and moves the jogger fences to within 2.6 mm of the sides of the stack to align the sides of the stack.
- Reverses and moves the fences to the standby position (7.5 mm away for the sides) and waits for the next sheet.
- The jogger fence HP sensor [D] switches off the jogger motor at the end of the job.

After the last sheet feeds:

- The edge pressure plate solenoid [E] switches on and pushes the pressure plate [F] onto the stack to press down the edge for stapling.

2.7 BOOKLET STAPLING

2.7.1 BOOKLET PRESSURE MECHANISM



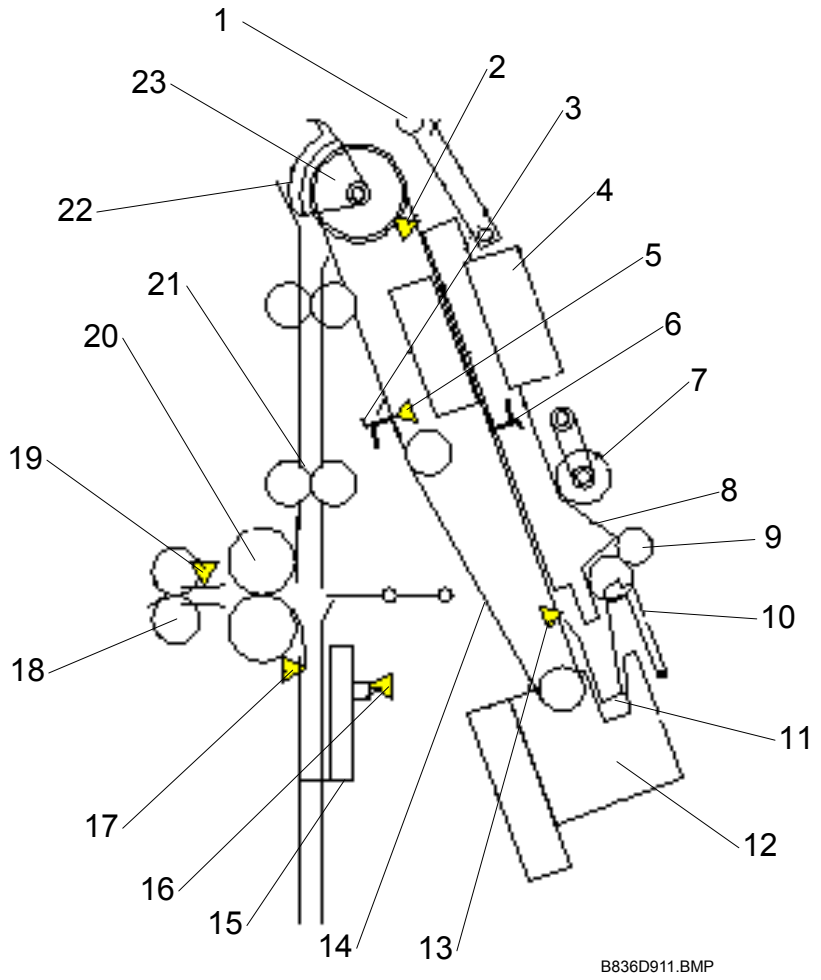
[A]: Booklet Pressure Roller Solenoid
[B]: Booklet Pressure Roller Arm
[C]: Booklet Pressure Roller

As soon as the edges are aligned by the positioning roller and the jogger fences, the stack feed out belt moves.

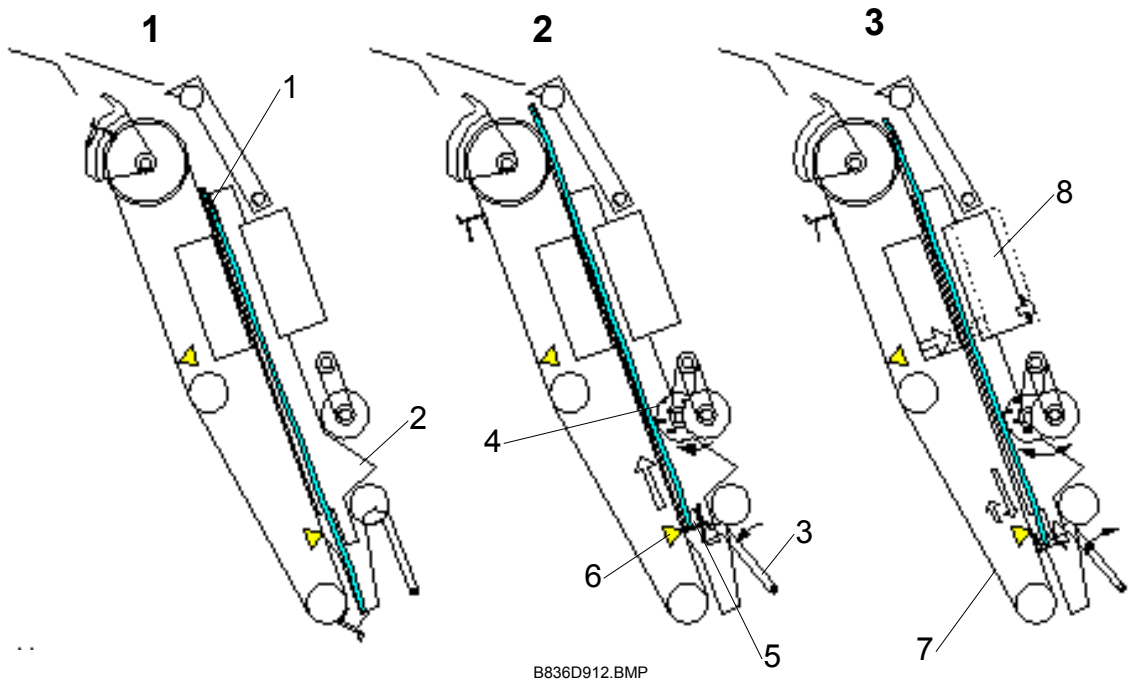
In booklet mode, immediately after the edges are aligned by the positioning roller and jogger fences, the booklet pressure solenoid switches on and the booklet pressure roller presses down on the stack until booklet stapling is finished. This prevents the stack from shifting during stapling.

2.7.2 BOOKLET STAPLING AND FOLDING

Overview



1. Leading Edge Pressure Roller
2. Stack Present Sensor
3. Feed Out Belt Pawl 1
4. Booklet Staplers x2
5. Stack Feed Out Belt HP Sensor
6. Feed Out Belt Pawl 2
7. Positioning Roller
8. Jogger Fences x2
9. Stack Exit Roller
10. Pressure Plate
11. Stapling Tray Bottom Fence
12. Corner Stapler
13. Stapling Tray Paper Sensor
14. Feed Out Belt
15. Fold Unit Bottom Fence
16. Fold Bottom Fence HP Sensor
17. Fold Unit Entrance Sensor
18. Fold Unit Exit Rollers x2
19. Fold Unit Exit Sensor
20. Fold Rollers x2
21. Clamp Rollers x2
22. Stack Junction Gate
23. Stack Transport Roller



1

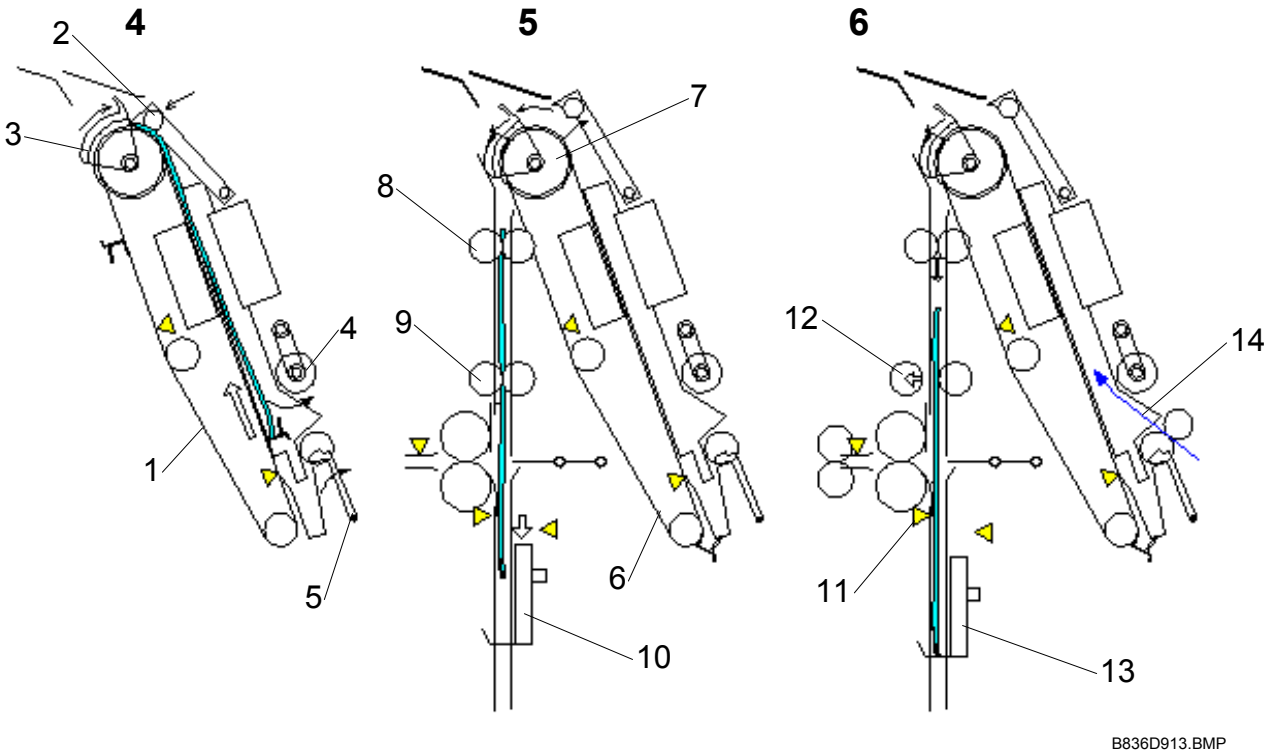
The last sheet of the stack [1] enters the stapling tray. The jogger fences [2] jog the last sheet into position (based on the width of the selected paper size) and then retract and stop 1 mm away from the sides of the stack.

2

The pressure plate [3] and booklet pressure roller [4] press down on the sheet. The stack feed out belt switches on and the pawl [5] on the feed out belt catches the bottom of the stack and raises it. The stapling tray sensor [6] detects the trailing edge of the paper stack.

3

The feed out belt [7] raises the stack to the prescribed stapling position and stops. The jogger fences move to the sides of the stack and the booklet staplers [8] staple the stack.



4

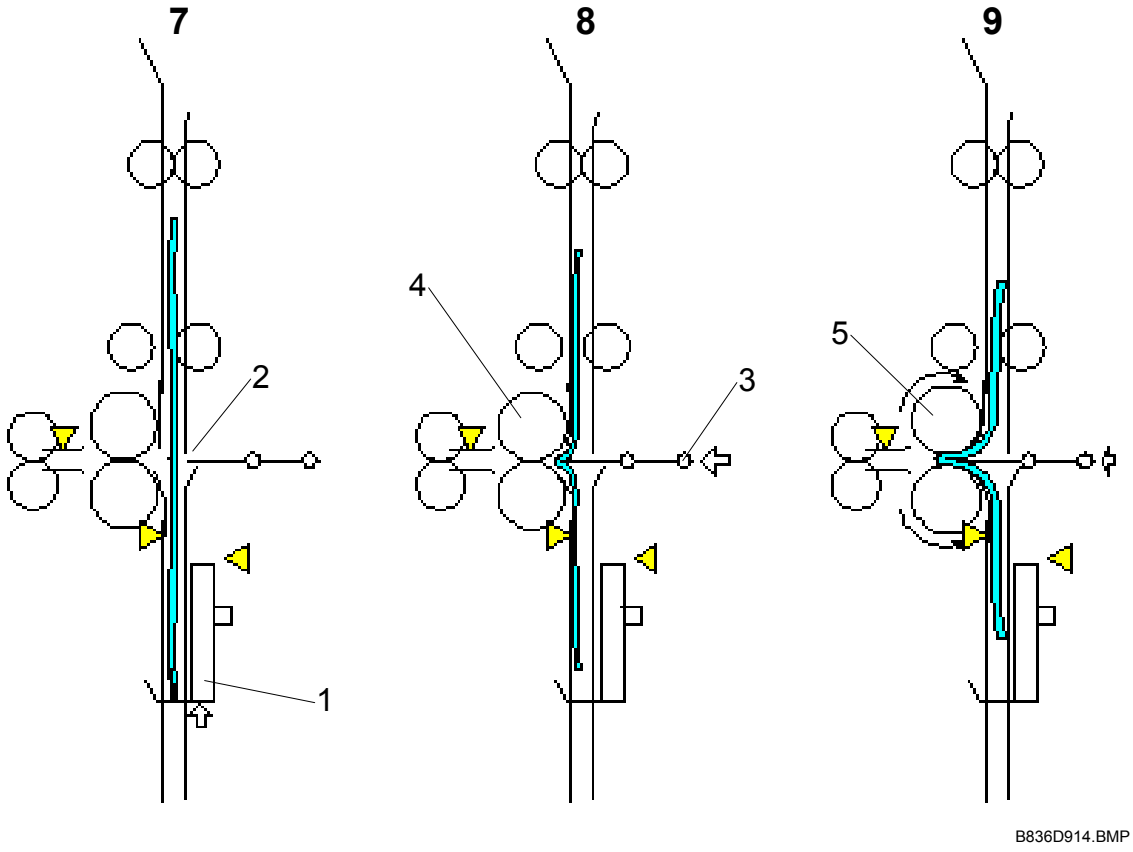
The jogger fences remain 1 mm away from the sides of the stack. The feed out belt [1] raises the stack until the top of the stack is 10 mm past the leading edge pressure roller [2] and stops. The leading edge pressure roller descends and applies pressure to the top of the stack. The stack junction gate [3] (normally open) closes. The pressure roller [4] and pressure plate [5] retract.

5

The feed out belt [6], transport rollers [7], [8], and clamp rollers [9] rotate and feed the stack past the closed stack junction, over the top and down toward the bottom fence [10]. At the same time, the fold unit bottom fence descends from its home position and stops 10 mm below the fold position.

6

The rollers feed the leading edge of the stack to within 3 mm of the stack stopper of the bottom fence [13]. The fold unit entrance sensor [11] detects the stack and opens the clamp rollers [12]. The stack drops 3 mm onto the fold unit bottom fence [13]. At this time, the first sheet [14] of the next stack feeds to the stapling tray.



7

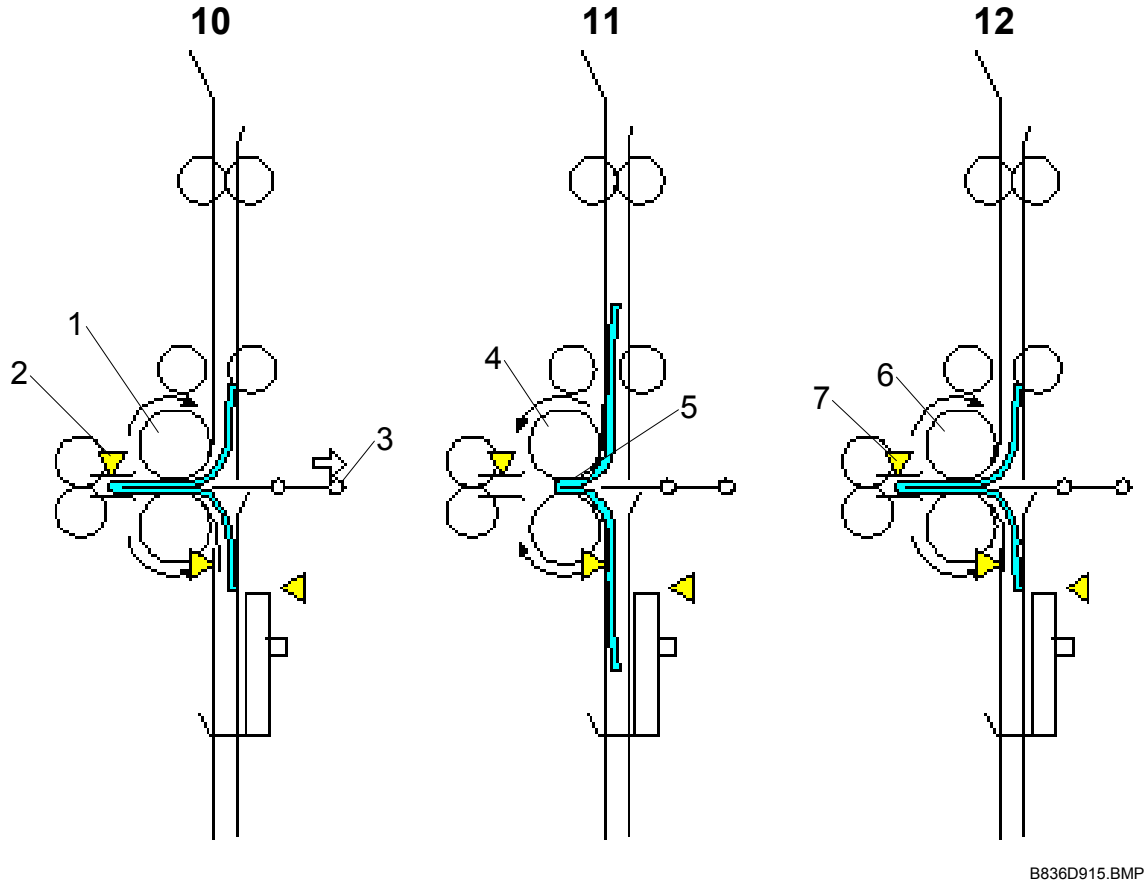
The bottom fence [1] raises the stack to the prescribed fold position [2].

8

The fold plate [3] moves to the left and advances 1/3 its maximum horizontal stroke and exerts 20 kg (44 lb.) of pressure at the fold rollers [4].

9

With the fold plate pushing the stack into nip of the fold rollers [5], the fold rollers begin to rotate and fold the stack as it feeds out.



10

When the fold rollers [1] feed the stack 10 mm past the nip, the fold plate retracts until it no longer touches the stack. The fold unit exit sensor [2] detects the folded edge of the stack and stops the fold rollers.

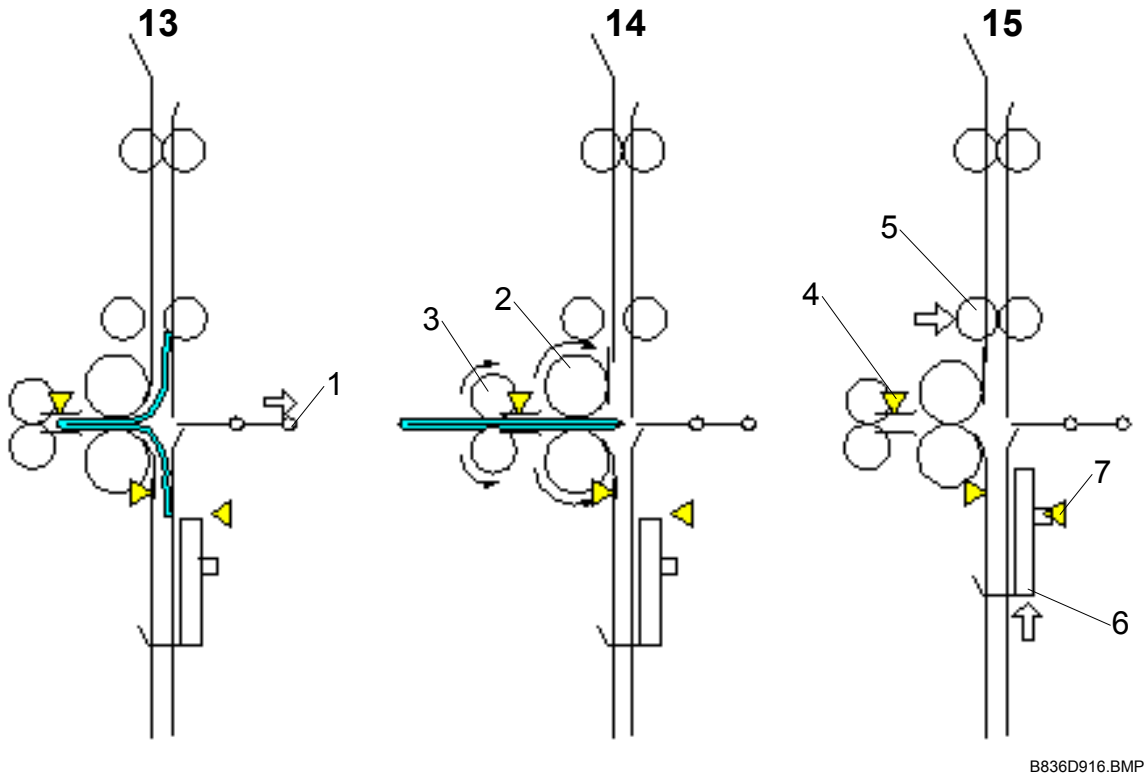
11

The rotation of the fold rollers [4] reverses and feeds the folded edge back until only 3 mm of the fold [5] remains at the nip.

12

The fold rollers [6] rotate forward once again feed out. The fold unit exit sensor [7] once again detects the edge of the fold.

NOTE: You can do **SP6203 001** to increase the sharpness of the fold. The number of forward and reverse feeds of the fold rollers can be set in the range of -1 to +28. The machine repeats Steps **11** and **12.** For more, please refer to Section "5 Service Tables*.
0 (default, as explained above): The rollers rotate forward and in reverse one time, then forward to feed out the booklet.
1: The rollers rotate forward and in reverse two times (default plus 1)
-1: The rollers rotate forward but not in reverse



13

With the feed of the stack halted, the fold plate [1] retracts. The fold plate HP sensor (not shown) detects the fold plate and stops it at its home position.

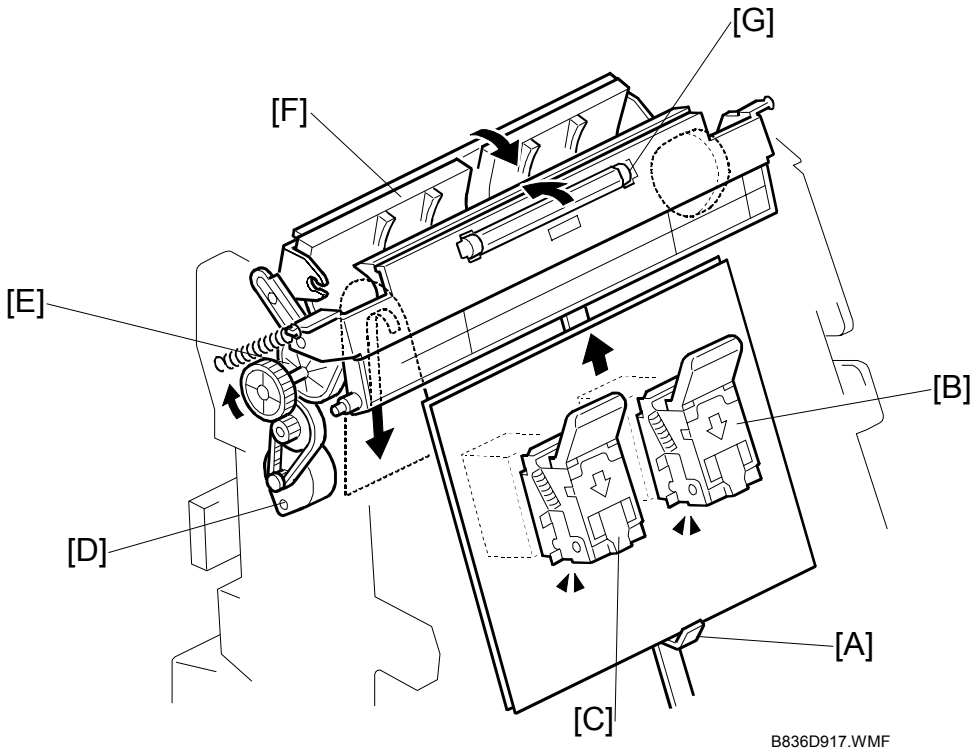
14

The fold rollers [2] and fold unit exit rollers [3] begin to rotate together and feed out the folded booklet to the booklet output tray.

15

Once the trailing edge of the stack passes the fold unit exit sensor [4], the clamp rollers [5] close to be ready to feed the next stack. The fold unit bottom fence [6] descends. The bottom fence HP sensor [7] stops the bottom fence when it detects the actuator on the bottom fence.

Booklet Stapling and Folding Mechanisms

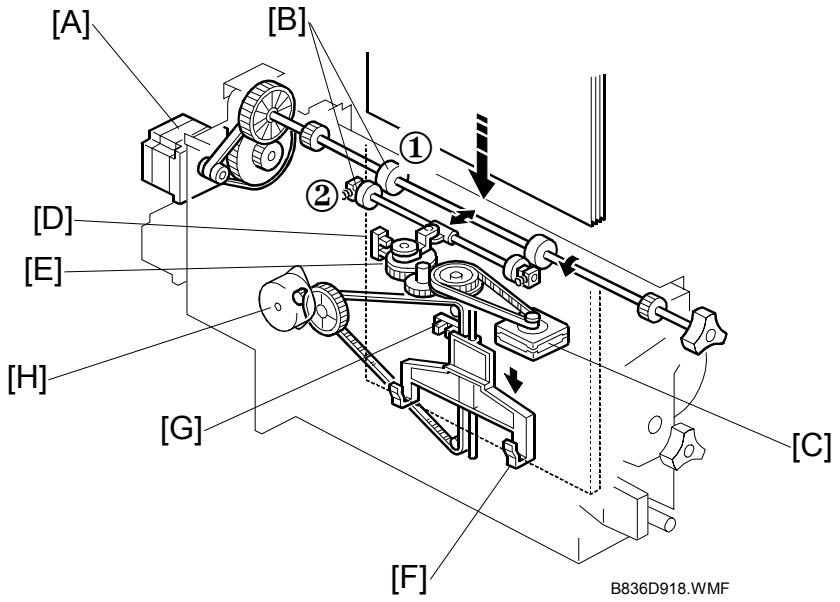


Booklet Stapler

[A]: Feed Out Belt Pawl. Raises the stack to stapling position.
[B]: Booklet Stapler EH185R – Rear
[C]: Booklet Stapler EH185R – Front

Stack Junction Gate

[D]: Stack Junction Gate Motor. Drives a timing belt and stack junction gate cam.
[E]: Stack Junction Gate Cam. Opens and closes the stack junction gate.
[F]: Stack Junction Gate. The stack junction gate motor and stack junction gate cam close the stack junction gate. The feed out belt pawl raises the stapled stack and sends it over the top and down to the fold unit.
[G]: Leading Edge Pressure Roller. Presses down on the leading edge of the stack after booklet stapling.



Clamp Roller

[A]: Fold Roller Motor. Drives the stationary clamp drive roller ① as well as the fold rollers (see next page).

[B]: Clamp Rollers.

① Clamp Roller – Drive. Rotated by the fold roller motor, this stationary roller feeds the stack down with the retracting roller closed.

② Clamp Roller – Retracting. Opened and closed by the retraction motor [C].

[C]: Clamp Roller Retraction Motor. Operates the clamp roller cam that retracts the retracting clamp roller. The clamp rollers feed the stack to within 3 mm of the bottom fence when closed and then open to drop the stack onto the bottom fence.

[D]: Clamp Roller HP Sensor. Controls the rotation of the clamp roller retraction motor and cam that open and close the retracting clamp roller.

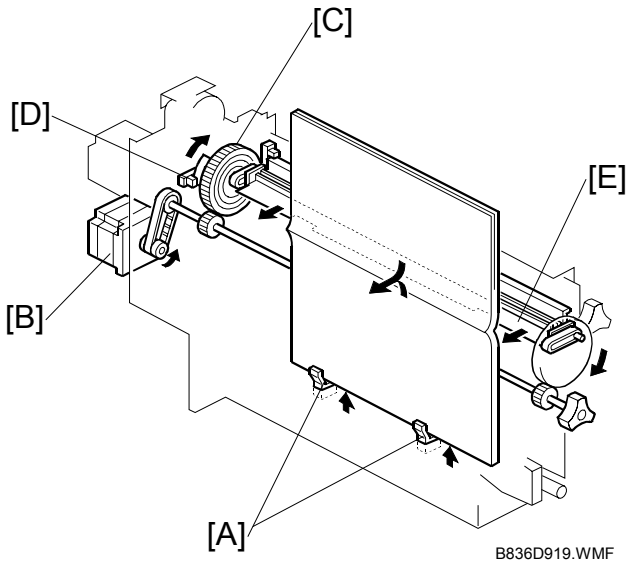
[E]: Clamp Roller Cam. Forces open the spring loaded retracting clamp roller.

Bottom Fence

[F]: Bottom Fence. Raises the booklet stapled stack to the fold position.

[G]: Bottom Fence HP Sensor. Detects the actuator on the bottom fence and stops it at the home position after folding.

[H]: Bottom Fence Lift Motor. Raises the bottom fence and stapled stack to the fold position prescribed for the paper size.



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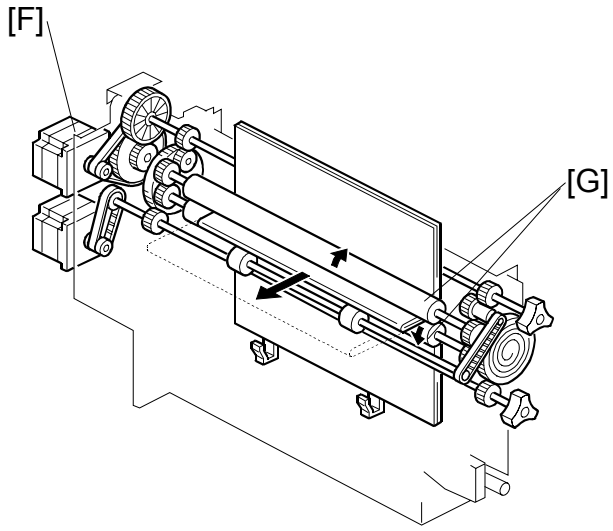

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Fold Plate

[A]: Bottom Fence Stack Stoppers. Catches the stack after it is released by the clamp rollers.

[B]: Fold Plate Motor. Drives the timing belt and gears that move the fold plate.

[C]: Fold Plate Cam. Controls the movement of the fold plate to the left (into the nip of the fold rollers) and right (toward the fold plate home position).

[D]: Fold Plate HP Sensor. Controls operation of the fold plate motor.

[E]: Fold Plate. Moves left and pushes the stack into the nip of the fold rollers and then moves right to retract.

Fold Rollers

[F]: Fold Roller Motor. Drives forward to feed out the stack at the fold and then reverses to feed the fold in to sharpen the crease, and then drives forward again to feed out the folded stack. This reverse/forward cycle is done once.

NOTE: This cycle can be repeated by changing the setting of **SP6203.**

[G]: Fold Rollers. Driven by the fold roller motor, this roller pair feeds out the stack at its fold, reverses to feed in the stack to, and then feeds forward again (assisted by the fold unit exit rollers – not shown) to feed out the stack to the booklet output tray.