COVER INTERPOSER TRAY CI5000 (Machine Code: B835)

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1. REPLACEMENT AND ADJUSTMENT

1.1 COVERS



B835R901.BMP

1. Open the vertical feed cover [A].





2. Remove:

[A] Top cover (🖗 x2)

[B] Inner cover with front door [C] ($\hat{\beta}^2 x^2$)

- [D] 1st tray cover holder ($\beta x1$)
- [E] 1st tray cover. Slide the cover toward you to remove it from the inside pins.
- [F] Base cover (Knob 🖗 x1)
- [G] Tray unit rear cover ($\hat{\beta}$ x2)



B835R124.WMF

- 3. Remove:
- [A] Front door (L-pins x2)
 - Swing the upper L-pin [B] out of its groove and pull it up.
 - Swing the lower L-pin [C] out of its groove and pull it down.
- [D] Rear top cover of the feed unit ($\hat{\beta}^2 x^2$)
- [E] Feed unit rear upper cover (x4)



1.2 1ST, 2ND TRAYS



Remove:

- Inner cover with tray unit front door (-1.1)
- Tray unit rear cover (
 1.1)

1st Tray

- [A] Disconnect:
 - 1st lift motor (☆ 1x, ⊄ x1)
 - White connectors (⊑^{IJ} x2)
- [B] 1st tray (🕅 x5)

2nd Tray

- Inner cover with tray unit front door (
 1.1)
- Tray unit rear cover (
 1.1)
- [C] Disconnect:
 - 2nd lift motor (☆ 1x, ⊄ x1)
 - Red, blue connectors (⊑[⊥]x2)
- [D] 2nd tray (3 x5)

1.3 FEED UNITS

1st Tray





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1st Feed Unit

Remove:

- Top cover (**•**1.1)
- Inner cover with front door (
 1.1)
- Tray unit rear cover (-1.1)
- [A] Stay (🖗 x5)
- [B] Open the 1st tray cover and hold it open
- [C] 1st feed belt unit
- [D] 1st feed unit (斧 x, ⊑ x)

2nd Feed Unit

- Open the vertical feed cover (
 1.1)
- Remove inner cover with tray unit front door (1.1)
- 2nd feed belt unit (same as [C])

Peripherals

1.4 BOARDS

1.4.1 TRAY UNIT CONTROL BOARD



B835R110.WMF

- Tray unit rear cover (𝔅 x2) (☞1.1)
 [A] Board cover (𝔅 x3, x8)

 - [B] Tray unit control board ([™] x 17, x5, Standoff x1)

1.4.2 MAIN CONTROL BOARD



- Transport unit rear upper cover (€1.1)
 [A] Connector bracket (²/₈ x2)
 - [B] Main control board (ℰ x4, x2, ⅆ x14, Standoff x2)



1.5 MOTORS

1.5.1 VERTICAL TRANSPORT MOTOR



B835R125.WMF

- Transport unit rear cover (←1.1)
 [A] Motor unit (x2, w1, Timing belt x1)
- [B] Vertical transport motor (x2)



1.5.2 HORIZONTAL TRANSPORT MOTOR

- Transport unit rear cover (€1.1)
 [A] Motor unit (Â x2, I x1, Timing belt x1)
 [B] Horizontal transport motor (Â x2)



1.5.3 1ST, 2ND LIFT MOTORS



Tray unit rear cover (€1.1)
[A] 1st lift motor (Â x2, E x1)
[B] 2nd lift motor (Â x2, I x1)

1.5.4 1ST, 2ND FEED MOTORS



- Tray unit rear cover (•1.1)
 - [A] 1st feed motor unit ($\hat{\beta} \times 3$, $\hat{\boxplus} \times 2$, $\vec{\blacksquare} \times 1$) [B] 1st feed motor ($\hat{\beta} \times 2$, Timing belt x1)

 - [C] 2nd feed motor unit ($\hat{\beta}$ x3, $\exists \forall$ x1) [D] 2nd feed motor unit ($\hat{\beta}$ x2, Timing belt x1)



1.5.5 1ST, 2ND TRANSPORT MOTORS



B835R111.WMF

• Tray unit rear cover (**•**1.1)

1st Transport Motor

- [A] 1st transport motor unit (\$ x3, ⊑ x1)
- [B] 1st transport motor ($\hat{\beta}$ x2, Timing belt x1)

2nd Transport Motor

- Tray unit control board unit (Hooks, 🖗 x3, 🗊 x9 (Motor x8, CN216))
- [C] 2nd transport motor unit ($\hat{\beta}^2 x3$)
- [D] 2nd transport motor (x2, Timing belt x1)

1.5.6 1ST, 2ND PICK-UP MOTORS



B835R111.WMF

• Tray unit rear cover (•1.1)

1st Pick-up Motor

- [A] 1st pick-up motor unit (🗊 x1, 🖗 x3)
- [B] 1st pick-up motor ($\hat{\beta}$ x2, Timing belt x1)

2nd Pick-up Motor

- Tray unit control board unit (Hooks, 🖗 x3, 🗊 x9 (Motor x8, CN216))
- [C] 2nd pick-up motor unit (x1, \Re x3)
- [D] 2nd pick-up motor (\hat{F} x2, Timing belt x1)



1.6 SENSORS

1.6.1 PAPER WIDTH SWITCH, SET SENSORS, LENGTH SENSOR



- 1st or 2nd paper tray (←1.2)
 [A] Front cover (x1)
 [B] Rear cover (x1)
 [C] Bottom cover (x2)
 [D] Holder pin (x1, Spring x1)
 [E] Bottom plate (x1)
- Turn over the bottom plate so it is facing up.





B835R120.WMF

- [A] Harness cover (Hooks x2)
 [B] Paper width switch (Hooks x2, ☆ x4, v x1)
 [C] Paper set sensor (Hook x1, v x1)
 [D] Paper length sensor (Hooks x1, v x1)



1.6.2 TRAY COVER SENSORS



B835R902.BMP

1st Tray Cover Sensor

- Remove the tray unit rear cover (-1.1)
- Open the 1st tray cover

Remove:

- [A] Sensor unit (곍 x1, ☞ x1) [B] Tray cover sensor (Pawls x2)

2nd Tray Cover Sensor

Remove the tray unit control board unit (€1.5.5)

- [A] Sensor unit ($\hat{\beta}$ x1, \mathbb{Z} x1). Remove with the 2nd tray cover open.
- [B] Tray cover sensor (Pawls x2)

1.6.3 1ST TRANSPORT SENSOR



B835R117.WMF

- Top cover
- Vertical feed cover
- Stay (•1.5)

- [A] Upper paper guide (𝔅 x2)
 [B] Sensor unit (𝔅 x2, ⊑ x1, 🛱 x1)
 [C] 1st transport sensor (Pawls x2)



1.6.4 FEED UNIT SENSORS



B835R114.WMF



- [A] 1st feed unit (•1.3)
- [B] 2nd feed unit ($rac{1.3}$)
- [C] Sensor bracket (x1, ⊑ x1)
- [D] Pick-up roller HP sensor (Pawls x2)
- [F] Bottom plate position sensor (Pawls x2)
- [G] Sensor bracket (x1, 1 x1) (2nd feed unit only)
- [H] 1st Vertical transport sensor (Pawls x2) (2nd feed unit only)
- [I] Sensor bracket (x1, 🗊 x1, 🛱 x1)
- [J] Paper Feed sensor (Pawls x2)



1.6.5 2ND VERTICAL TRANSPORT, EXIT SENSORS

- [B] 2nd vertical transport sensor (Pawls x2)
- [C] Sensor unit (孑 x2, 彰 x1, 豪 x1)
- [D] Vertical exit sensor (Pawls x2)
- [E] Sensor unit (ℰ x2, ⅆ x1, 🗟 x1)
- [F] Exit sensor (Pawls x2)



1.6.6 ENTRANCE SENSOR



B835R122.WMF

- [A] Sensor unit (孑 x2, 彰 x1, 公 x1)
- [B] Entrance sensor (Pawls x2)

1.7 ROLLERS

1.7.1 SEPARATION ROLLER



- 1st (or 2nd) feed unit (•1.3)
- [A] Cover
- [B] Separation Roller (⑦ x1)



ESSR101.WMF

1.7.2 FEED BELT UNIT AND PICK-UP ROLLER

B835R102.WMF

• Open the 1st tray cover.

[A]: Feed belt unit

• The unit is spring loaded. Push it to the right to release it, then lift it out.

[B]: Pick-up roller $(\overline{(3)} \times 2, \text{ bushings x 2})$

1.7.3 FEED BELT



- Feed belt unit (
 1.7.2)
- [A]: Pick-up roller unit.
 - Pull the unit away from the bushings in the direction of the arrow.
- [B]: Feed belt holder
 - Hold the feed belt holder by the sides, then lift up to separate from the holder.
 - Pull slowly to avoid losing the springs.
- [C]: Feed belt.

Re-assembly

- 1. Position the pick-up roller unit [A] and feed belt holder [B] as shown above.
- 2. On the rear side, slide out the bushing, and rotate guide plate [D] until its stepped side attaches at [E] as shown above, then snap the guide plate on.
- 3. On the front side, rotate guide plate [F] until its flat side is parallel with [D], then snap it on. Viewed from the bottom, the plates must be aligned.

Peripherals

B835R104.WMF

2. DETAILS

2.1 PAPER PATH



- 1. 1st Paper Feed Motor
- 2. 1st Paper Feed Sensor
- 3. 1st Transport Motor
- 4. 1st Transport Sensor
- 5. 1st Vertical Transport Sensor
- 6. 2nd Paper Feed Motor
- 7. 2nd Paper Feed Sensor
- 8. 2nd Transport Motor

- 9. 2nd Transport Sensor
- 10. 2nd Vertical Transport Sensor
- 11. Vertical Transport Motor
- 12. Vertical Exit Sensor
- 13. Interposer Exit Sensor
- 14. Interposer Entrance Sensor
- 15. Horizontal Transport Motor

2.2 PAPER FEED

2.2.1 FEED MECHANISM



When paper is placed on the tray, the 1st paper set sensor in the tray actuates and switches on the 1st tray lift motor. The pick-up roller unit drops and the top of the stack in the tray pushes up the pick-up roller unit until its actuator actuates the 1st bottom plate position sensor [A] and switches the motor 1st tray lift motor off.

The 1st pick-up roller HP sensor [B] controls the operation of the 1st pick-up motor [C]. The 1st pick-up motor is off when the actuator is up and there is no paper in the tray. This is the pick-up roller home position. When the actuator de-actuates the sensor after the tray lifts, this switches on the 1st pick-up roller motor. At the end of the job, the actuator descends with the bottom plate and switches the motor off.

The pick-up roller [D] picks up the sheet, and the feed belt [E] feeds the sheet to the paper feed roller [F]. The separation roller [G] reverses if more than one sheet is fed. This is a standard FFR device.

The paper feed sensor [H] detects the timing of the feed and signals a jam if the paper does not arrive or if the paper stops.

As sheets feed from the top of the stack:

- The pick-up roller unit descends until the actuator on the pick-up roller unit drops out of the 1st bottom plate position sensor [A]. This activates the 1st tray lift motor.
- The 1st tray lift motor switches on to raise the stack until the actuator enters the pick-up roller unit position sensor again and switches the lift motor off.
- This cycle repeats until the end of the job or until paper runs out.

2.2.2 PAPER NEAR END/PAPER END



B835D106.WMF

When feed starts with a full tray, the actuator [A] on the rotating shaft of the bottom plate lift arm [B] is at the 1st tray lower limit sensor [C].

As paper feeds and the stack grows smaller, the lift arm rises and the actuator descends until the actuator reaches the 1st tray upper limit sensor [D]. At this time the operation panel signals near-end for the 1st tray.

When the last sheet feeds, the paper feed sensor, a photosensor (not shown) signals that paper has run out.

2.2.3 PAPER SIZE DETECTION



B835D105.WMF

The side fences ${\bf 0}$ and ${\bf 2}$ can be adjusted to standard and non-standard paper sizes.

When the side fences are moved to match the paper width, a feeler [A] slides along the wiring patterns on the paper width switch terminal plate [B].

The combination of the following two factors determines the paper size:

- The position where the feeler activates the terminal
- The status of the paper length sensor [C] (ON or OFF).

The paper end sensor [D] de-activates when the last sheet is fed and reports that the paper tray is empty.



Paper Size Detection Bits						Area			
Pape	er Size	W1	W2	W3	W4	W5	L1	NA	EU
Large Size	12×18 in.	Н	Н	Н	Н	L	L	YES	YES
Large Size	13×19 in.	Н	Н	Η	Н	Г	L	*	*
Large Size	320×450 mm	Н	Н	Н	Н	L	L	*	*
A3 SEF	297×420 mm	Н	Н	Н	L	L	L	YES	YES
A4 LEF	297×210 mm	Н	Н	Н	L	L	Н	YES	YES
DLT SEF	11×17 in.	Н	Н	Н	L	Н	L	YES	YES
LT LEF	11×8½ in.	Н	Н	Н	L	Н	Н	YES	YES
B4 SEF	257×364 mm	Н	Н	L	L	Н	L	YES	YES
B5 LEF	257×182 mm	Н	Н	L	L	Н	Н	YES	YES
A4 SEF	210×297 mm	Н	Н	L	Н	Н	L	YES	YES
LT SEF	8½×11 in.	Н	Н	L	Н	Н	L	YES	*
A5 LEF	210×148 mm	Н	Н	L	Н	Н	Н	*	YES
HLT LEF	81⁄2×51⁄2 in.	Н	Н	L	Н	Н	Н	YES	*
B5 SEF	182×257 mm	Н	L	L	Н	Н	L	*	*
F SEF	8×13 in.	Н	L	L	Н	Н	L	YES	YES
A5 SEF	148×210 mm	Н	L	Н	Н	Н	Н	YES	YES
HLT SEF	5½×8½ in.	L	L	Н	Н	Н	Н	YES	YES

The paper size is detected by six sensors whose combined readings are used to detect the following paper sizes.

Yes: Width and length sensors can detect paper sizes automatically.

*: Accurate paper size detection requires setting with the "Tray Paper Setting" key on the operation panel.

H: 5V

L: 0V

3. OVERALL MACHINE INFROMATION

3.1 MAIN LAYOUT



- 1. 1st Pick-up Motor
- 2. 1st Transport Motor
- 3. 1st Paper Feed Motor
- 4. 1st Lift Motor
- 5. Driver Board
- 6. 2nd Pick-up Motor
- 7. 2nd Transport Motor

- 8. 2nd Paper Feed Motor
- 9. 2nd Lift Motor
- 10. Control Board
- 11. Door Open Switch (Interlock)
- 12. Horizontal Transport Motor
- 13. Vertical Transport Motor

3.2 DRIVE LAYOUT



- 1. 1st Transport roller
- 2. 2nd Transport roller
- 3. Vertical Transport Motor
- 4. Horizontal Transport Motor

The 1st transport roller [1] (driven by the 1st transport motor) pulls the paper from the 1st tray and feeds it into the vertical paper path.

The 2nd transport roller [2] (driven by the 2nd transport motor) pulls the paper from the 2nd tray and feeds it into the vertical path.

The vertical transport motor [3] drives the vertical transport rollers **1** and **2** that feed the sheets into the horizontal feed path.

The horizontal transport motor [4] drives the horizontal transport rollers ③ and ④ that feed the covers (and paper passing straight through) out of the cover interposer tray.

3.3 ELECTRICAL COMPONENTS

3.3.1 FEED MOTORS, PCB



- 1. 1st Paper Feed Motor
- 2. 1st Transport motor
- 3. 1st Pick-Up Motor
- 4. 2nd Pick-Up Motor
- 5. 2nd Transport motor
- 6. 2nd Paper Feed Motor
- 7. Tray Unit Control Board

Peripherals



3.3.2 LIFT MOTORS, TRAY SENSORS

- 1. 1st Paper Length Sensor
- 2. 1st paper upper limit sensor
- 3. 1st Lift Motor
- 4. 1st Lower Limit Sensor
- 5. 1st paper set sensor
- 6. 1st Paper Width Sensor

- 7. 2nd Lower Limit Sensor
- 8. 2nd paper set sensor
- 9. 2nd Paper Width Sensor
- 10. 2nd Paper Length Sensor
- 11. 2nd paper upper limit sensor
- 12. 2nd Lift Motor



3.3.3 PAPER PATH SENSORS 1

- 1. 1st Tray Cover Sensor
- 2. 1st Pick-Up Roller HP Sensor
- 3. 1st bottom plate position sensor
- 4. 1st Transport Sensor
- 5. 1st Paper Feed Sensor
- 6. Vertical Feed Cover Switch

- 7. 1st Vertical Transport Sensor
- 8. 2nd Transport Sensor
- 9. 2nd Paper Feed Sensor
- 10. 2nd bottom plate position sensor
- 11. 2nd Pick-Up Roller HP Sensor
- 12. 2nd Tray Cover Sensor

3.3.4 PAPER PATH SENSORS 2, PCB

- 1. 2nd Vertical Transport Sensor
- 2. Entrance Sensor
- 3. Vertical Exit Sensor
- 4. Exit Sensor
- 5. Feed Unit Front Door Safety Switch
- 6. Main Control Board
- 7. Horizontal Transport Motor
- 8. Vertical Transport Motor

3.3.5 ELECTRICAL COMPONENT SUMMARY

Motors					
No.	Name	Description			
M1	1st Lift Motor	Drives the bottom plate of the 1st tray up and			
		down.			
M2	1st Paper Feed Motor	Rotates the feed rollers that feed paper from the			
		1st tray.			
M3	1st Pick-up Motor	Moves the 1st pick-up roller up and down.			
M4	1st Transport Motor	Drives the 1st Transport roller that takes the paper			
		fed from the 1st feed roller and feeds it to the			
		vertical path.			
M5	2nd Feed Motor	Rotates the feed rollers that feed paper from the			
		2nd tray.			
M6	2nd Lift Motor	Drives the bottom plate of the 2nd tray up and			
		down.			
M7	2nd Pick-up Motor	Moves the 2nd pick-up roller up and down.			
M8	2nd Transport Motor	Drives the 2nd Transport roller that takes the			
		paper fed from the 1st feed roller and feeds it to			
		the vertical path.			
M9	Horizontal Transport Motor	Drives the rollers in the horizontal path that feed			
		paper from the copier and covers from the vertical			
		path out of the cover interposer tray.			
M10	Vertical Transport Motor	Drives the rollers in the vertical path that feed the			
		covers down to the horizontal path.			

PCBs		
No.	Name	Description
PCB1	Driver Board	Controls operation of the unit. (All DIP SWs should be set to OFF.)
PCB2	Main Control Board	

Sensors				
No.	Name	Description		
S1	1st Tray Cover Sensor	Detects when the 1st tray cover is open/closed.		
S2	1st Lower Limit Sensor	Detects 1) whether the 1st tray is down or not when the tray is not operating, and 2) detects when the tray is full when the 1st tray is operating.		
S3	1st paper set sensor	Detects paper end after the last sheet feeds from the 1st tray.		
S4	1st Paper Feed Sensor	Detects paper placed on the tray and starts the 1st lift motor to raise the bottom plate. This sensor also detects a jam if the paper stops and does not leave the 1st tray		
S5	1st Paper Length Sensors	Used in combination with 1st tray width sensors to determine the size of paper in the 1st tray.		
S6	1st paper upper limit sensor	When an actuator falls into the gap of this sensor, this signals paper near end in the 1st tray.		
S7	1st Pick-up Roller HP Sensor	Detects whether the 1st pick-up roller is up or not.		
S8	1st Transport Sensor	Detects jams at the point where the 1st Transport roller pulls paper from the 1st tray.		
S9	1st Transport Sensor	Detects jams in the path of the 1st tray.		

OVERALL MACHINE INFROMATION

Sensors		
No.	Name	Description
S10	1st bottom plate position sensor	Detects the top of the paper stack in the 1st tray when it is at the proper height for feeding and stops the 1st lift motor.
S11	2nd Lower Limit Sensor	Detects 1) whether the 2nd tray is down or not when the tray is not operating, and 2) detects when the tray is full when the 2nd tray is operating.
S12	2nd tray cover sensor	Detects when the 2nd tray cover is open/closed.
S13	2nd paper set sensor	Detects paper placed on the tray and starts the 2nd lift motor to raise the bottom plate. This sensor also detects a jam if the paper stops and does not leave the 2nd tray
S14	2nd Paper Feed Sensor	Detects jams when the feed roller feeds paper from the 2nd tray.
S15	2nd Paper Length Sensor	Used in combination with 1st tray width sensors to determine the size of paper in the 1st tray.
S16	2nd paper upper limit sensor	When an actuator falls into the gap of this sensor, this signals paper near end in the 2nd tray.
S17	2nd Pick-up Roller HP Sensor	Detects whether the 2nd pick-up roller is up or not.
S18	2nd Transport Sensor	Detects jams at the point where the 2nd Transport roller pulls paper from the 1st tray.
S19	2nd bottom plate position sensor	Detects the top of the paper stack in the 2nd tray when it is at the proper height for feeding and stops the 2nd lift motor.
S20	2nd Vertical Transport Sensor	Detects jams in the vertical path after a sheet is fed from the 2nd tray.
S21	Entrance Sensor	Detects paper jams where paper from the copier enters the unit in the horizontal feed path.
S22	Exit Sensor	Detects jams where through-paper and covers exit the unit.
S23	Vertical Exit Sensor	Detects jams where through-paper and covers exit the vertical feed path.

Switches		
No.	Name	Description
SW1	Front Door Switch	Detects whether the front door is properly closed. The unit will not operate when the front door is open.
SW2	Transport Cover Switch	This is the cover on the right side of the tray unit. Detects whether the cover is opened or closed.
SW3	1st Paper Width Switch	Used in combination with the length sensors to determine the size of paper in the 1st tray.
SW4	2nd Paper Width Switch	Used in combination with the length sensors to determine the size of paper in the 2nd tray.