SERVICE MANUAL

DIGITAL MULTIFUNCTIONAL SYSTEM OPTION INSERTER

MODEL MX-CF11

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Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

[1] SPECIFICATION

1. General

Form	Floor standing type	
Productivity	85-110 sheets/minute (A4 / 8.5”x11”), continuously transport inserted paper.	
Tray	2 Tray	
Paper Capacity	Upper tray: 200 sheets Lower tray: 200 sheets (80 g/m^2)	
Paper Weight (Feeder)	60-220 g/m^2	
Paper Weight (Through pass)	55-300 g/m^2	
Paper Size (Feeder)	Auto-AB*1 : 11x17", 8.5x14", 8.5x13.5", 8.5x13.4", 8.5x13", 8.5x11", A3W, A3, B4, A4W, A4, A4R, B5, B5R, A5R Auto-Inch*2 : 12x18", 11x17", 8.5x14", 8.5x13.5", 8.5x13.4", 8.5"x11", 8.5"x11"R, 7.25"x10.5"R, 5.5"x8.5"R, A3, B4, A4W, A4 Manual : SRA3 (320x450mm), SRA4, 8K, 16K, 16KR Custom size : Main scanning: 140-320 (5.5-12.5) Sub scanning: 148-457 (5.875-18) *1: Auto-AB: A4R, 8.5x13”, 8.5x13.4”, 8.5x13.5” is exclusion and auto detection. *2: Auto-Inch: 8.5x11”R, 8.5x13.4”, 8.5x13.5”, 8.5x14” is exclusion and auto detection.	
Paper size (Through pass)	A3W, A4W, A3, B4, A4, A4-R, B5, B5-R,A5-R, 8K, 16K, 16K-R, 11"x17", 8.5"x14", 8.5"x13.5", 8.5"x13.4", 8.5"x13", 8.5"x11", 8.5"x11"-R, 5.5"x8.5"-R, 7.25"x10.5"-R, SRA3, SRA4, Post Card, Monarch, COM10, DL, C5, Long No. 3, Long No. 4, Western No. 2, Western No. 4, Square No. 2, Square No. 3 Custom size: Main scanning: 90-320 (3.625-12) Sub scanning: 148-457 (5.875-18)	
Operation Key	No. Uses the operation panel.	
Reliability	MCBJ	in compliance with the main unit
	MCBF	in compliance with the main unit
Life	in compliance with the main unit	
Power Consumption	70W	
Power Source	DC24V (supplied by the main unit)	
Dimensions (W x D x H)	540mm x 760mm x 1276mm (Tray extended: 690mm x 595mm x 1050mm)	
Weight	23kg or less	

2. Paper Size/Type/Weight

			Inserter	
			Paper supply section	**Through pass section**
Minimum paper weight			60g/m^2	55g/m^2
Maximum paper weight			220g/m^2	300g/m^2
Paper type	Thin paper		No	Yes (Even 52g/m^2 is possible)
	Plain paper		Yes	Yes
	Recycled paper		Yes	Yes
	Colored paper		Yes	Yes
	Letter head		Yes	Yes
	Pre-printed paper		Yes	Yes
	Pre-punched paper		Yes	Yes
	Heavy paper1 (106-176g/m^2)		Yes	Yes
	Heavy paper2 (177-220g/m^2)		Yes	Yes
	Heavy paper3 (221-256g/m^2)		No	Yes
	Heavy paper4 (257-300g/m^2)		No	Yes
	Emboss paper		No	Yes
	Tab paper		No	Yes
	OHP paper		No	Yes
	Label paper		No	Yes
	Transparency paper		No	Yes
Paper size	12"x18" (A3W)	305 x457	Yes	Yes
	Ledger (11"x17")	279 x432	Yes	Yes
	Ledger (11"x17") Z folding	279 x216	No	-
	Legal (8.5"x14")	216 x356	Yes	Yes
	Legal (8.5"x14") Z folding	216 x178	No	-
	Asian Legal (8.5"x13.5")	216 x343	Yes	Yes
	Mexican Legal (8.5"x13.4")	216 x340	Yes	Yes
	Foolscap (8.5"x13")	216 x330	Yes	Yes
	Letter (8.5"x11")	279 x216	Yes	Yes
	Letter R (8.5"x11"R)	216 x279	Yes	Yes
	Letter R (8.5"x11"R) Z folding	216 x140	No	-
	Letter R (8.5"x11"R) 2-fold	216 x140	No	-
	Letter R 3-fold/ 4-fold	216 x93/70	No	-
	Invoice (5.5"x8.5")	216 x140	No	No
	Invoice R (5.5"x8.5"R)	140 x216	Yes	Yes
	Executive R (7.25"x10.5")	184 x266	Yes	Yes
	9x12 (A4W)	305 x229	Yes	Yes
	A3	297 x420	Yes	Yes

			Inserter	
			Paper supply section	Through pass section
Paper size	A3 Z folding	297 x210	-	-
	B4	257 x364	Yes	Yes
	B4 Z folding	257 x182	-	-
	A4	297 x210	Yes	Yes
	A4-R	210 x297	Yes	Yes
	A4-R Z folding	210 x148	No	-
	A4-R 2-fold/ Z-fold	210 x148	No	-
	A4-R 3-fold/ 4-fold	210 x99/74	No	-
	B5	257 x182	Yes	Yes
	B5-R	182 x257	Yes	Yes
	A5	210 x148	No	No
	A5-R	148 x210	Yes	Yes
	SRA3	320 x450	Yes	Yes
	SRA4	320 x225	Yes	Yes
	318x234.75mm		-	-
	312.5x220mm		-	-
	318x469.5mm		-	-
	312.5x440mm		-	-
	8K	270 x390	Yes	Yes
	16K	270 x195	Yes	Yes
	16K-R	195 x270	Yes	Yes
	Postcard	100 x148	No	Yes
	Monarch	98 x191	No	Yes
	COM10	105 x241	No	Yes
	DL	110 x220	No	Yes
	C5	229 x162	No	Yes
	Long No. 3	120 x235	No	Yes
	Long No. 4	90 x205	No	Yes
	Western No. 2	114 x162	No	Yes
	Western No. 4	105 x235	No	Yes
	Square No. 2	240 x332	No	Yes
	Square No. 3	216 x277	No	Yes
	Special-Custom size		Yes	Yes
	(Custom Range)	Min X (sub scan)	148 (5.875)	148 (5.875)
		Max X (sub scan)	457 (18)	457 (18)
		Min Y (main scan)	140 (5.5)	90 (3.625)
		Max Y (main scan)	320 (12.5)	320 (12)

			Inserter	
			Paper supply section	Through pass section
Paper size	Special-Size uncertain		Yes	Yes
	Long-scale paper	Width: 90-305, Length: 457-1200	Yes	No

[2] MAINTENANCE LIST

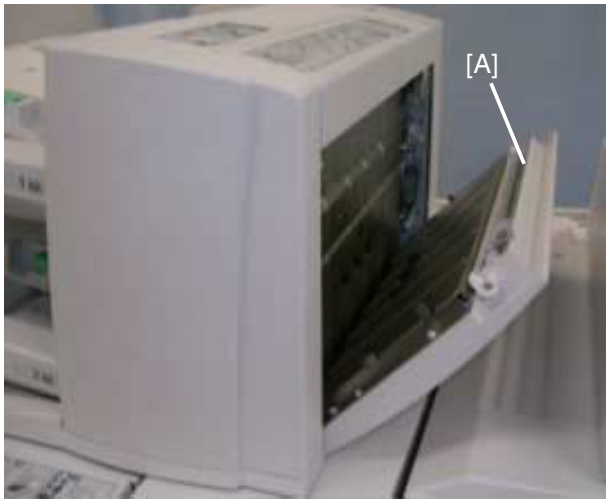
×: Check ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift position
(Clean, replace, or adjust as needed.)

No.	Part name	When calling	500K	1000K	1500K	2000K	2500K	3000K	Life judgement (Reference)	Tool, oil, chemicals Procedure Treatment after procedure
1	Drive roller	×	○	○	○	○	○	○		When there is dirt, wipe with wet cloth and water.
2	Follower roller	×	○	○	○	○	○	○		When there is dirt, wipe with wet cloth and water.
3	Paper feed belt	×	×	×	×	×	×	×	60K or 1 Year	Specified with the use ratio of 10%.
4	Reverse roller	×	×	×	×	×	×	×	60K or 1 Year	Specified with the use ratio of 10%.
5	Pick-up roller	×	×	×	×	×	×	×	60K or 1 Year	Specified with the use ratio of 10%.
6	Sensor	×	○	○	○	○	○	○		
7	Paper feed drive gear	×	×	×	×	×	×	×		6LS06283000
8	Punch hole horizontal resist adjustment	×	×	×	×	×	×	×		
9	Transport guide plate	×	○	○	○	○	○	○		
10	Torque limiter	×	×	×	×	×	×	×		

[3] REPLACEMENT AND ADJUSTMENT

1. COVERS

- Open the vertical feed cover [A].



Remove:

[A] Top cover (x2)

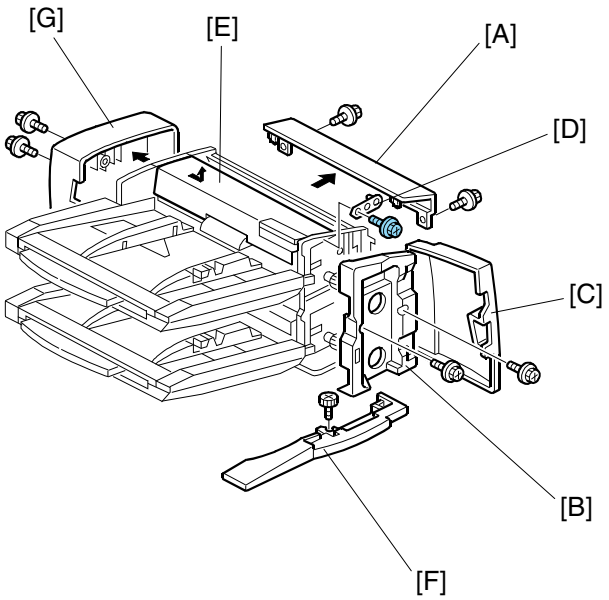
[B] Inner cover with front door [C] (x2)

[D] 1st tray cover holder (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 (x2)



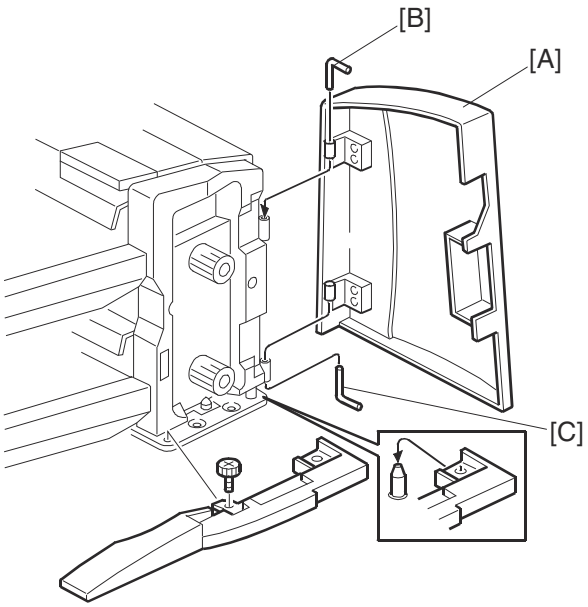
Remove:

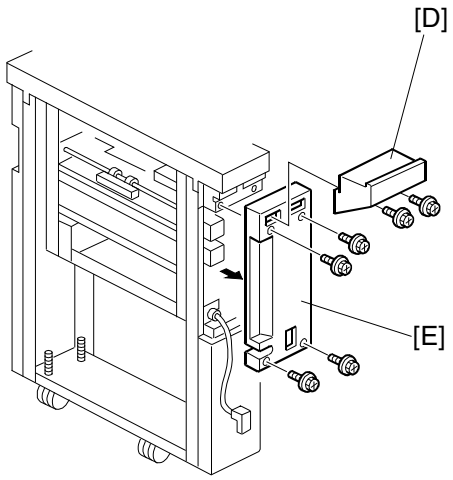
[A] Front door (L-pins x2)

- 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 (x2)

[E] Feed unit rear upper cover (x4)





2. 1ST, 2ND TRAYS

A. 1st Tray

Remove:

- Inner cover with tray unit front door (☛ 1. COVERS)
- Tray unit rear cover (☛ 1. COVERS)

[A] Disconnect:

- 1st lift motor (x1, x1)
- White connectors (x2)

[B] 1st tray (x5)

B. 2nd Tray

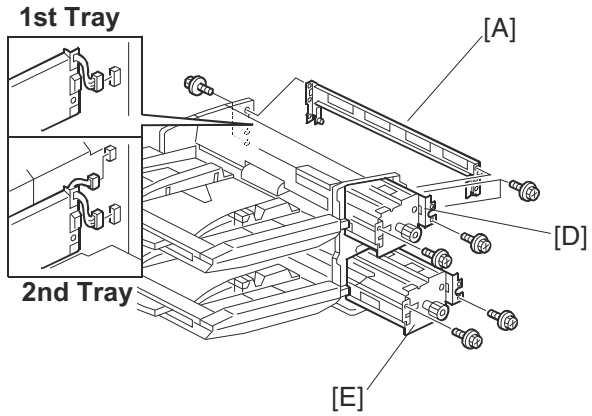
Remove:

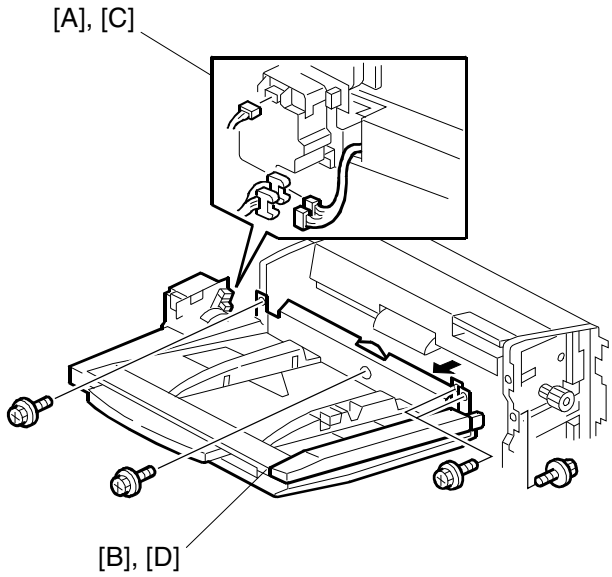
- Inner cover with tray unit front door (☛ 1. COVERS)
- Tray unit rear cover (☛ 1. COVERS)

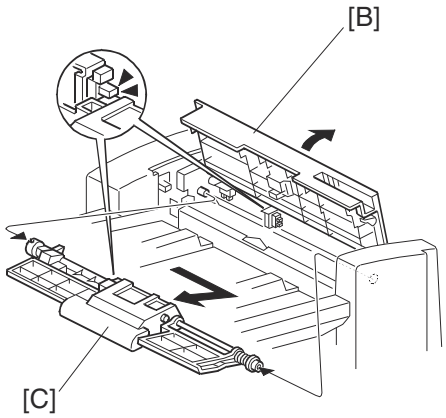
[C] Disconnect:

- 2nd lift motor (x1, x1)
- Red, blue connectors (x2)

[D] 2nd tray (x5)







3. FEED UNITS

A. 1st Feed Unit

Remove:

- Top cover (☛ 1. COVERS)
- Inner cover with front door (☛ 1. COVERS)
- Tray unit rear cover (☛ 1. COVERS)

[A] Stay (x5)

[B] Open the 1st tray cover and hold it open

[C] 1st feed belt unit

[D] 1st feed unit (x, x)

B. 2nd Feed Unit

- Open the vertical feed cover (☛ 1. COVERS)
- Remove inner cover with tray unit front door (☛ 1. COVERS)
- 2nd feed belt unit (same as [C])

[E] 2nd feed unit (x2, x2)

4. BOARDS

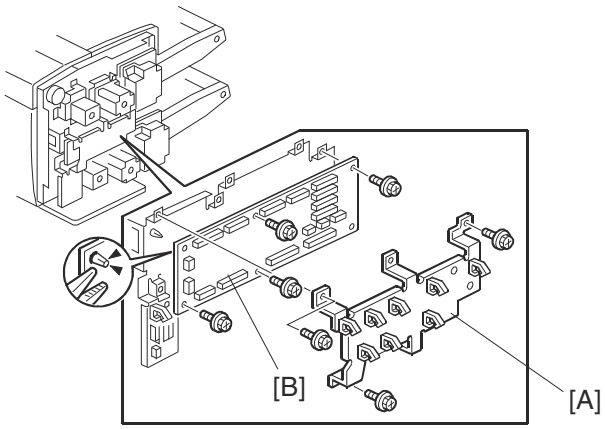
A. TRAY UNIT CONTROL BOARD

Remove:

- Tray unit rear cover (x2) (☛ 1. COVERS)

[A] Board cover (x3, x8)

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

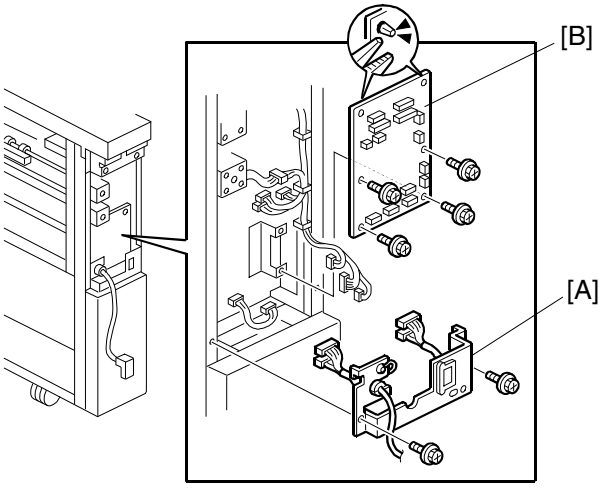


B. MAIN CONTROL BOARD

• Transport unit rear upper cover (☛ 1. COVERS)

[A] Connector bracket (x2)

[B] Main control board (x4, x2, x14, Standoff x2)



5. MOTORS

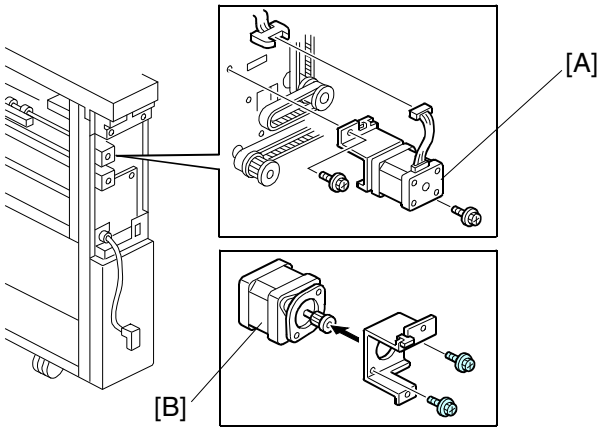
A. VERTICAL TRANSPORT MOTOR

Remove:

• Transport unit rear cover (☛ 1. COVERS)

[A] Motor unit (x2, x1, Timing belt x1)

[B] Vertical transport motor (x2)

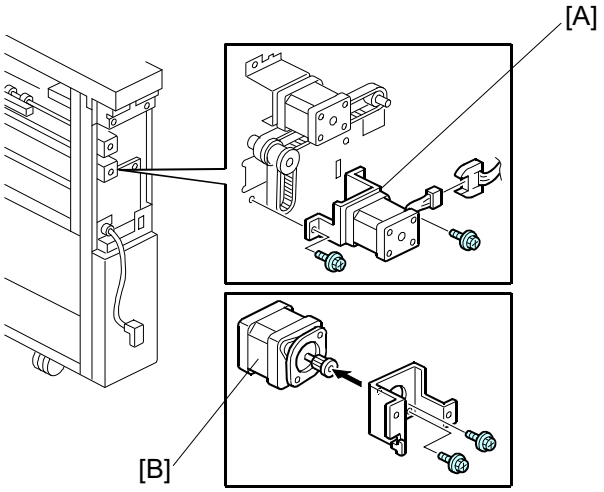


B. HORIZONTAL TRANSPORT MOTOR

• Transport unit rear cover (☛ 1. COVERS)

[A] Motor unit (x2, x1, Timing belt x1)

[B] Horizontal transport motor (x2)

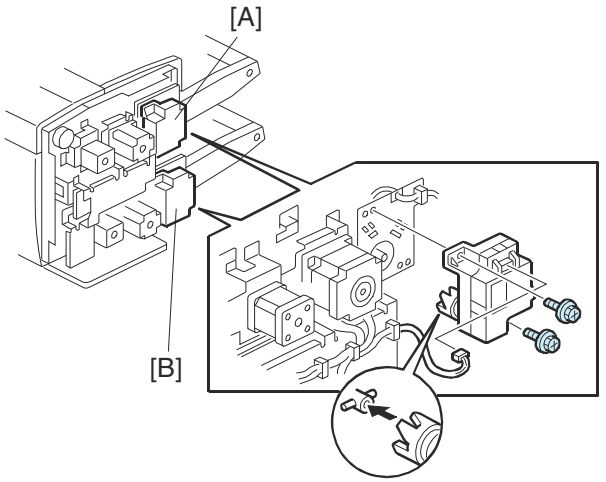


C. 1ST, 2ND LIFT MOTORS

• Tray unit rear cover (☛ 1. COVERS)

[A] 1st lift motor (x2, x1)

[B] 2nd lift motor (x2, x1)



D. 1ST, 2ND FEED MOTORS

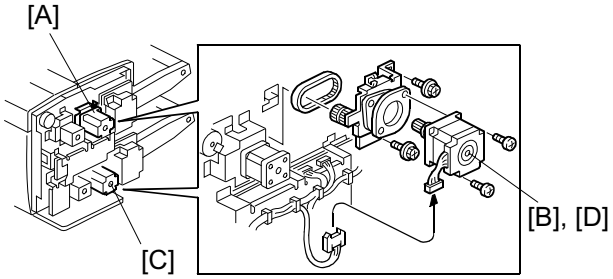
• Tray unit rear cover (☛ 1. COVERS)

[A] 1st feed motor unit (x3, x2, x1)

[B] 1st feed motor (x2, Timing belt x1)

[C] 2nd feed motor unit (x3, x1)

[D] 2nd feed motor unit (x2, Timing belt x1)



E. 1ST, 2ND TRANSPORT MOTORS

- Tray unit rear cover (☛ 1. COVERS)

(1) 1st Transport Motor

[A] 1st transport motor unit (x3, x1)

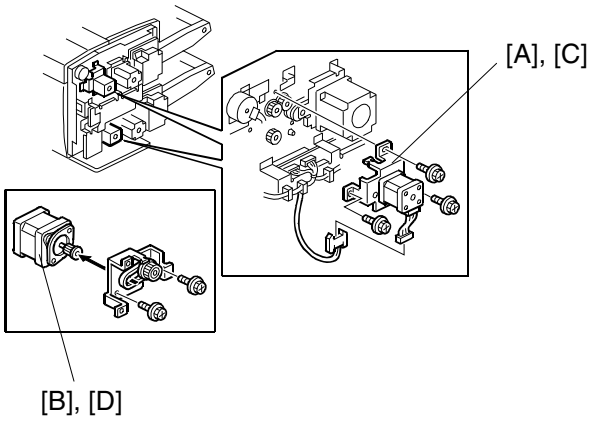
[B] 1st transport motor (x2, Timing belt x1)

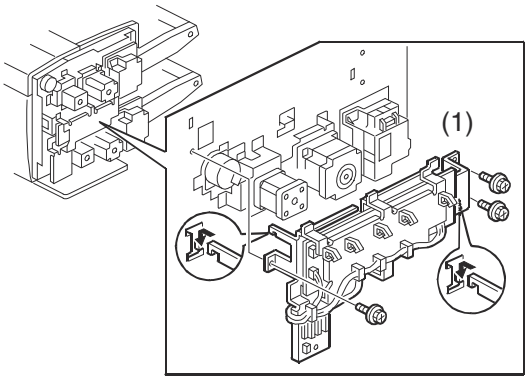
(2) 2nd Transport Motor

- (1) Tray unit control board unit (Hooks, x3, x9 (Motor x8, CN216))

[C] 2nd transport motor unit (x3)

[D] 2nd transport motor (x2, Timing belt x1)





F. 1ST, 2ND PICK-UP MOTORS

- Tray unit rear cover (☛ 1. COVERS)

(1) 1st Pick-up Motor

[A] 1st pick-up motor unit (x3, x1)

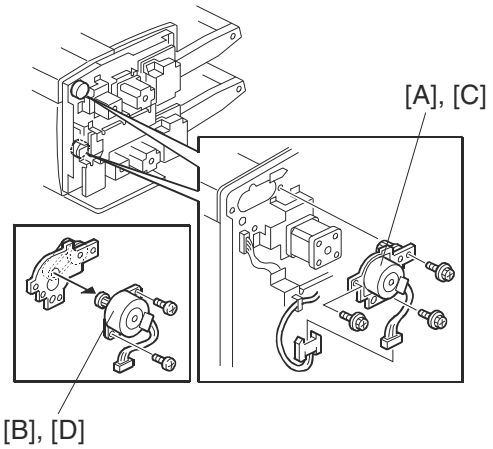
[B] 1st pick-up motor (x2, Timing belt x1)

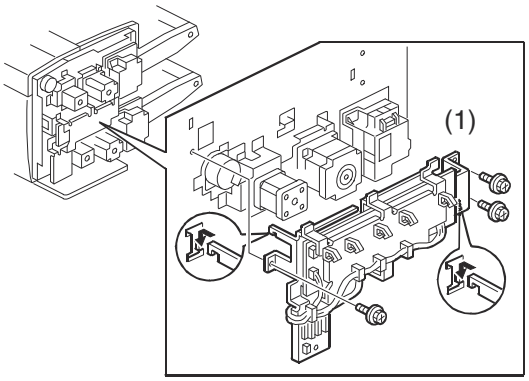
(2) 2nd Pick-up Motor

- (1) Tray unit control board unit (Hooks, x3, x9 (Motor x8, CN216))

[C] 2nd pick-up motor unit (x3, x1)

[D] 2nd pick-up motor (x2, Timing belt x1)





6. SENSORS

A. PAPER WIDTH SWITCH, SET SENSORS, LENGTH SENSOR

Remove:

- 1st or 2nd paper tray (☛ 2. 1ST, 2ND TRAYS)

[A] Front cover (x1)

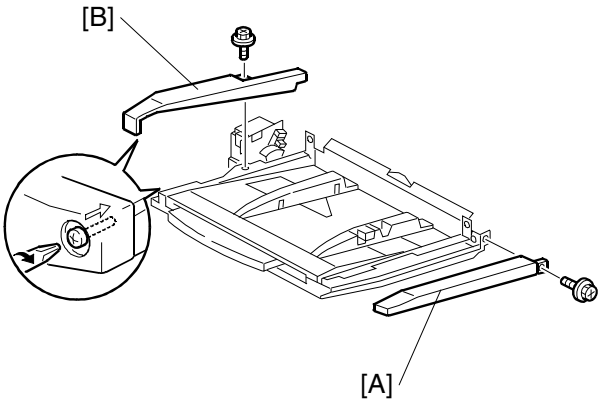
[B] Rear cover (x1)

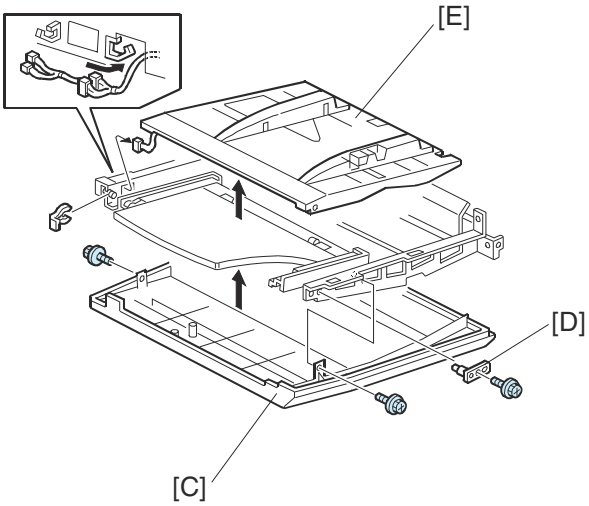
[C] Bottom cover (x2)

[D] Holder pin (x1, Spring x1)

[E] Bottom plate (x1)

- Turn over the bottom plate so it is facing up.





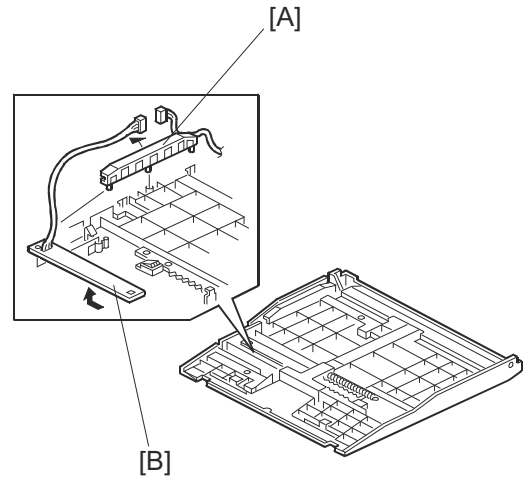
Remove:

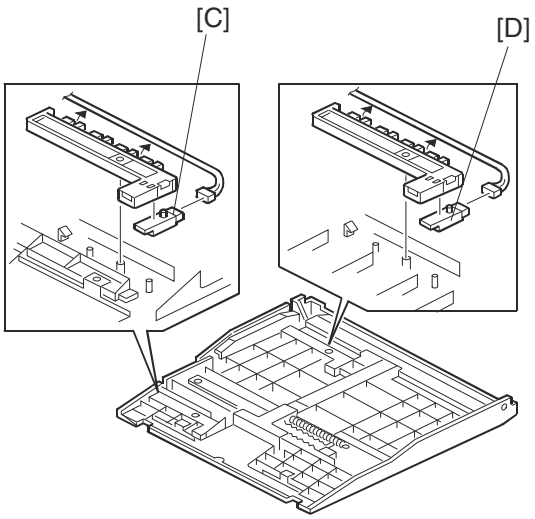
[A] Harness cover (Hooks x2)

[B] Paper width switch (Hooks x2, x4, x1)

[C] Paper set sensor (Hook x1, x1)

[D] Paper length sensor (Hooks x1, x1)





B. TRAY COVER SENSORS

(1) 1st Tray Cover Sensor

- Remove the tray unit rear cover (☛ 1. COVERS)
- Open the 1st tray cover

Remove:

[A] Sensor unit (x1, x1)

[B] Tray cover sensor (Pawls x2)

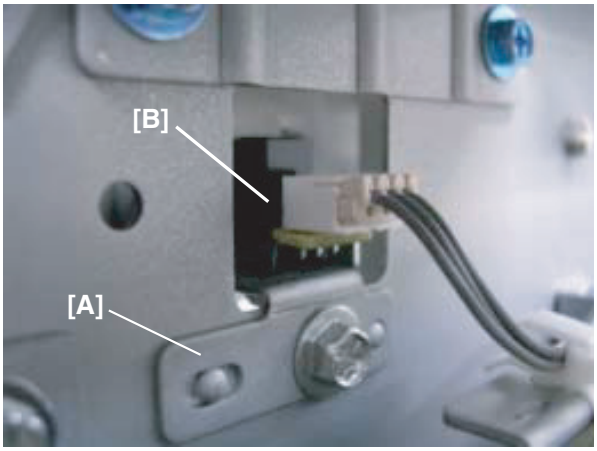
(2) 2nd Tray Cover Sensor

- Remove the tray unit control board unit (☛ 5. MOTORS)

Remove:

[A] Sensor unit (x1, x1). Remove with the 2nd tray cover open.

[B] Tray cover sensor (Pawls x2)



C. 1ST TRANSPORT SENSOR

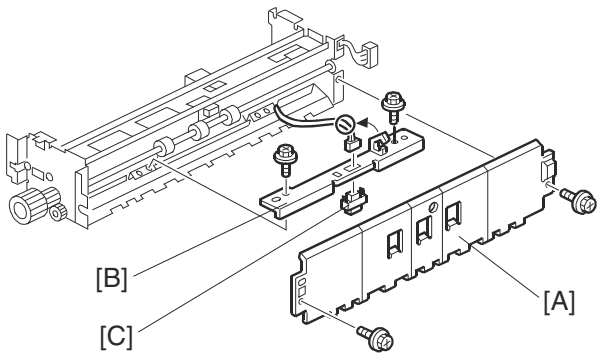
- Top cover
- Vertical feed cover
- Stay (☛ 5. MOTORS)

Remove:

[A] Upper paper guide (x2)

[B] Sensor unit (x2, x1, x1)

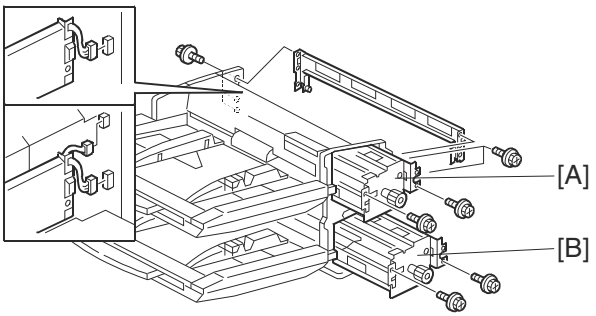
[C] 1st transport sensor (Pawls x2)

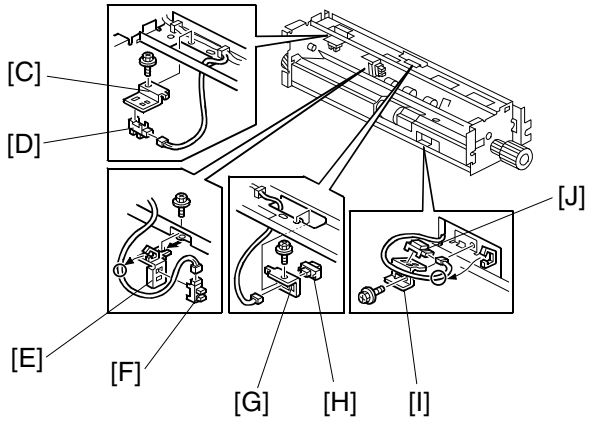


D. FEED UNIT SENSORS

Remove:

[A] 1st feed unit (☛ 3.FEED UNITS)
[B] 2nd feed unit (☛ 3.FEED UNITS)
[C] Sensor bracket (x1, x1)
[D] Pick-up roller HP sensor (Pawls x2)
[E] Sensor bracket (x1, x1, x1)
[F] Bottom plate position sensor (Pawls x2)
[G] Sensor bracket (x1, 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)

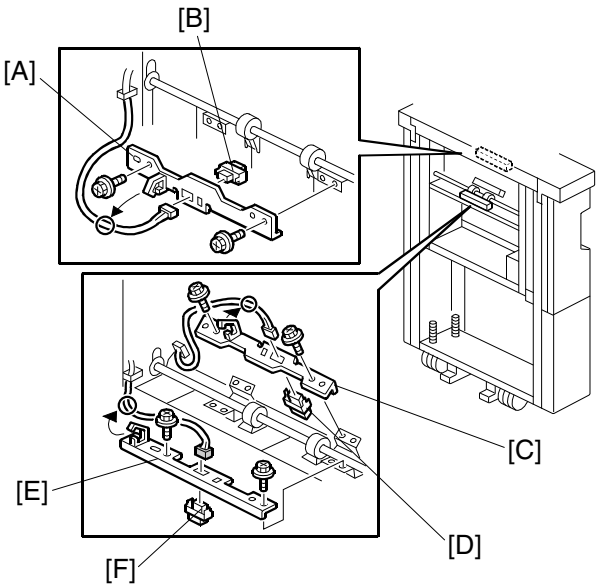




E. 2ND VERTICAL TRANSPORT, EXIT SENSORS

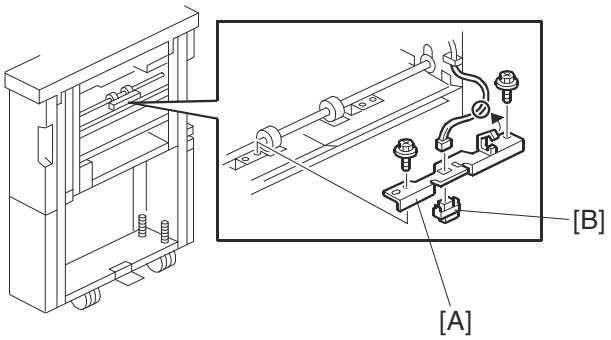
Remove:

[A] Sensor unit (x1, x1, x1)
[B] 2nd vertical transport sensor (Pawls x2)
[C] Sensor unit (x2, x1, x1)
[D] Vertical exit sensor (Pawls x2)
[E] Sensor unit (x2, x1, x1)
[F] Exit sensor (Pawls x2)



F. ENTRANCE SENSOR

[A] Sensor unit (x2, x1, x1)
[B] Entrance sensor (Pawls x2)



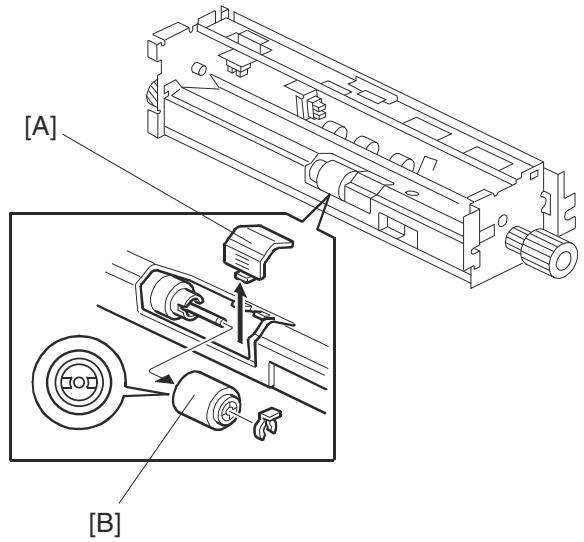
7. ROLLERS

A. SEPARATION ROLLER

• 1st (or 2nd) feed unit (☛ 3.FEED UNITS)

[A] Cover

[B] Separation Roller (⟲ x1)



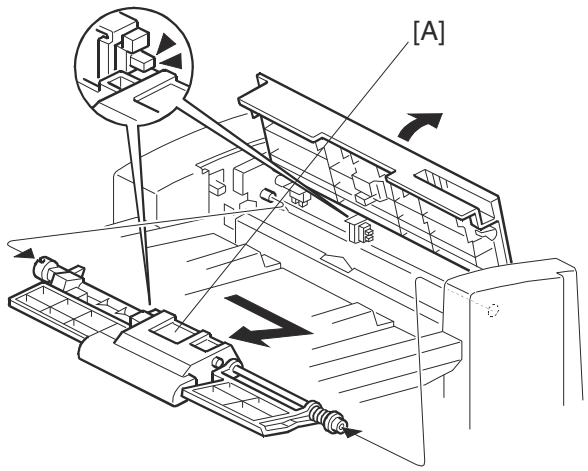
B. FEED BELT UNIT AND PICK-UP ROLLER

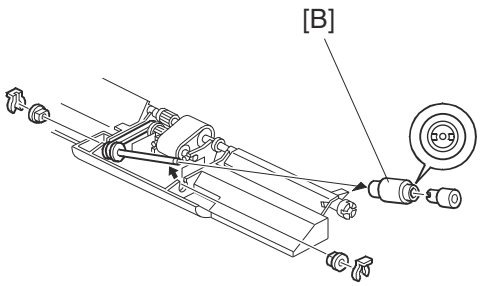
• Open the 1st tray cover.

[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 (⟲ x 2, bushings x 2)





C. FEED BELT

• Feed belt unit (☛ 7. ROLLERS - B.)

[A] Pick-up roller unit.

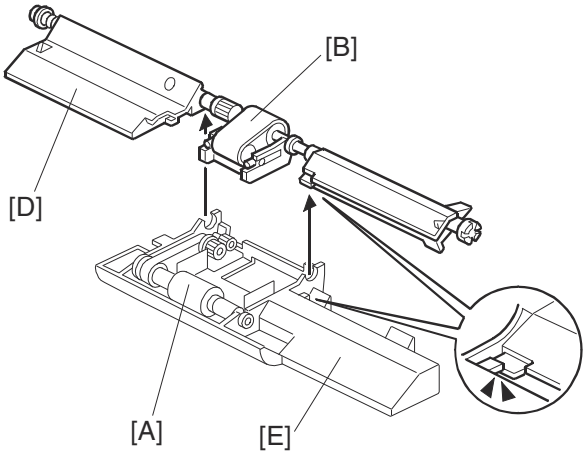
• Pull the unit away from the bushings in the direction of the arrow.

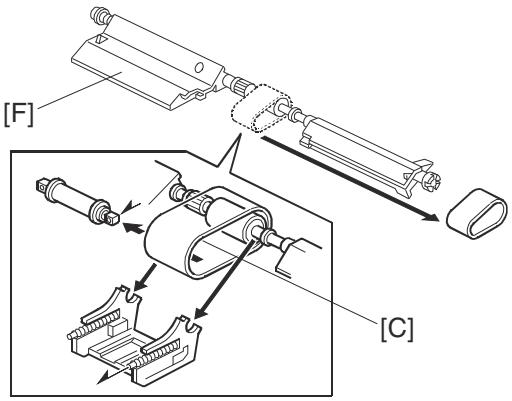
[B] Feed belt holder

• 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.



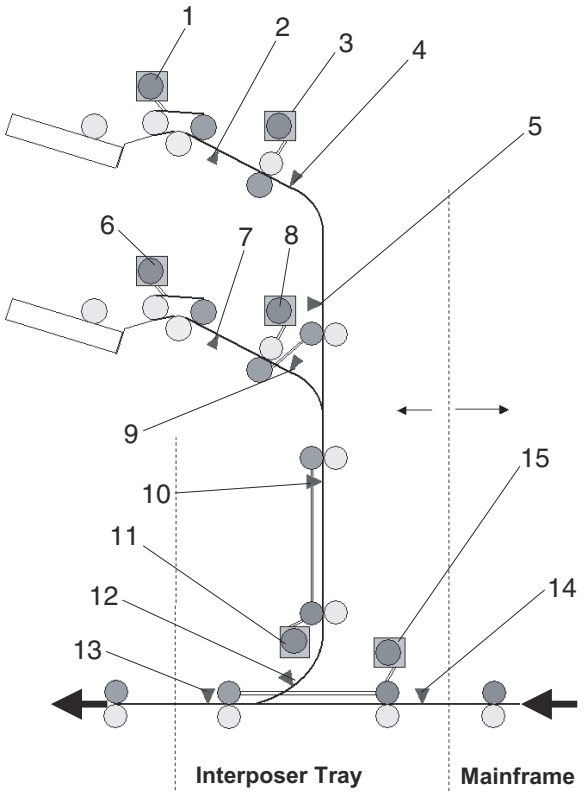


Re-assembly

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.

[4] DETAILS

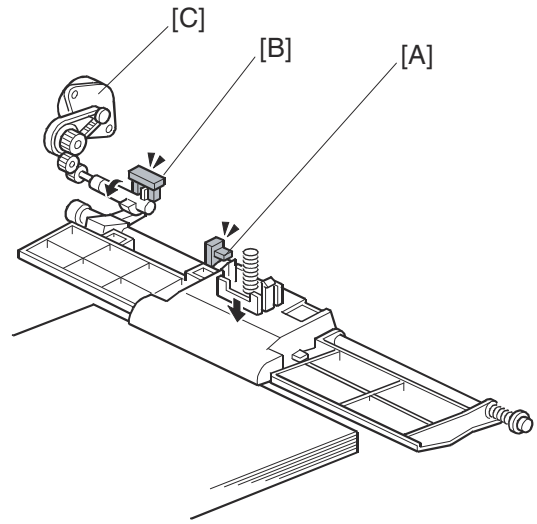
1. PAPER PATH

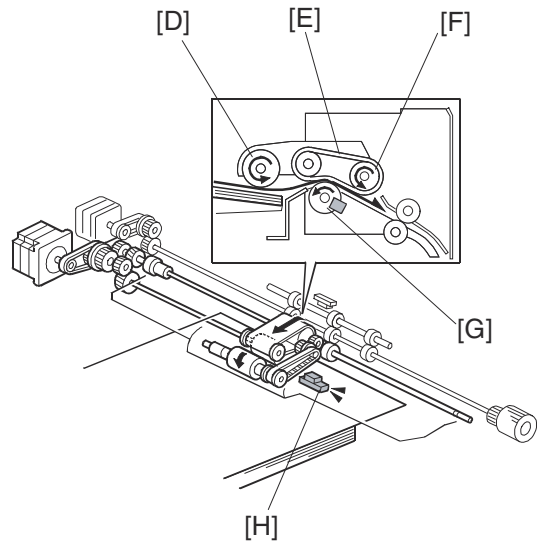


1	1st Paper Feed Motor
2	1st Paper Feed Sensor
3	1st Transport Motor
4	1st Transport Sensor
5	1st Vertical Transport Sensor
6	2nd Paper Feed Motor
7	2nd Paper Feed Sensor
8	2nd Transport Motor
9	2nd Transport Sensor
10	2nd Vertical Transport Sensor
11	Vertical Transport Motor
12	Vertical Exit Sensor
13	Interposer Exit Sensor
14	Interposer Entrance Sensor
15	Horizontal Transport Motor

2. PAPER FEED

A. 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

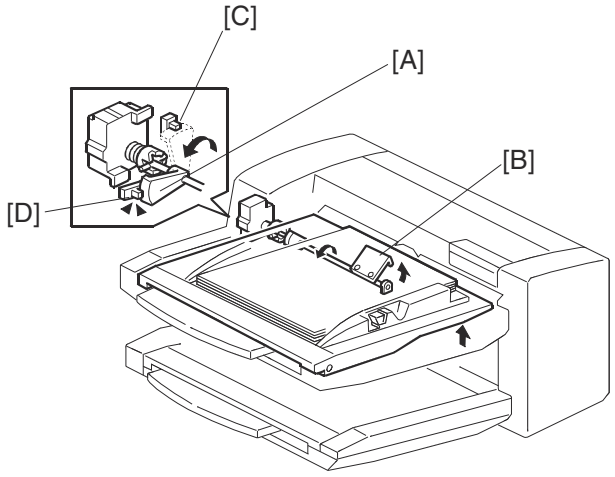
The paper feed sensor [H] detects the timing of the feed and signals a jam if the paper does not arrive or if the paper stops.

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.

B. PAPER NEAR END/PAPER END

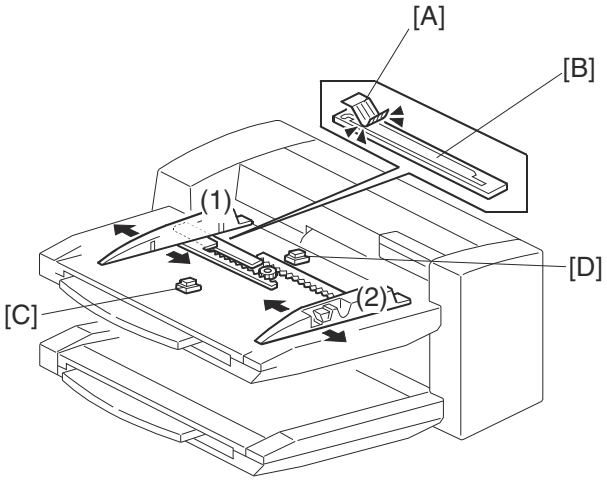


When feed starts with a full tray, the actuator [A] on the rotating shaft of the bottom plate lift arm [B] is at the 1st tray lower limit sensor [C].

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.

C. PAPER SIZE DETECTION



The side fences (1) and (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.

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

Paper Size Detection Bits								Area	
Paper Size		W1	W2	W3	W4	W5	L1	NA	EU
Large Size	12×18 in.	H	H	H	H	L	L	YES	YES
Large Size	13×19 in.	H	H	H	H	L	L	*	*
Large Size	320×450 mm	H	H	H	H	L	L	*	*
A3 SEF	297×420 mm	H	H	H	L	L	L	YES	YES
A4LEF	297×210 mm	H	H	H	L	L	H	YES	YES
DLT SEF	11×17 in.	H	H	H	L	H	L	YES	YES
LT LEF	11×8 $^1/_2$ in.	H	H	H	L	H	H	YES	YES
B4 SEF	257×364 mm	H	H	L	L	H	L	YES	YES
B5 LEF	257×182 mm	H	H	L	L	H	H	YES	YES
A4 SEF	210×297 mm	H	H	L	H	H	L	YES	YES
LT SEF	8 $^1/_2$×11 in.	H	H	L	H	H	L	YES	*
A5LEF	210×148 mm	H	H	L	H	H	H	*	YES
HLT LEF	8 $^1/_2$×5 $^1/_2$ in.	H	H	L	H	H	H	YES	*
B5 SEF	182×257 mm	H	L	L	H	H	L	*	*
F SEF	8×13 in.	H	L	L	H	H	L	YES	YES
A5 SEF	148×210 mm	H	L	H	H	H	H	YES	YES
HLT SEF	5 $^1/_2$×8 $^1/_2$ in.	L	L	H	H	H	H	YES	YES

(Yes) Width and length sensors can detect paper sizes automatically.

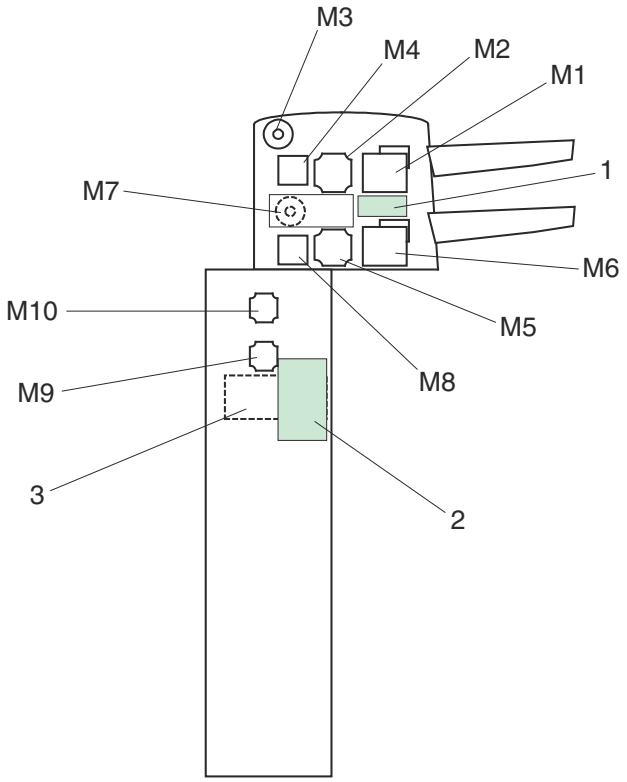
(*) Accurate paper size detection requires setting with the "Tray Paper Setting" key on the operation panel.

(H) 5V

(L) 0V

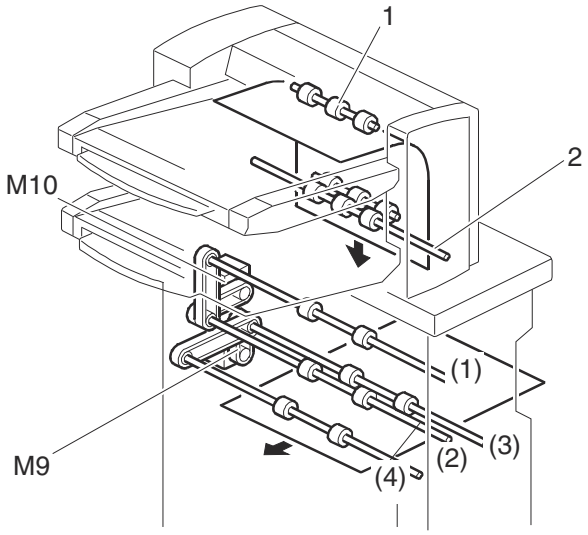
[5] OVERALL MACHINE INFROMATION

1. MAIN LAYOUT



1	Driver Board
2	Control Board
3	Door Open Switch (Interlock)
M1	1st Lift Motor
M2	1st Paper Feed Motor
M3	1st Pick-up Motor
M4	1st Transport Motor
M5	2nd Paper Feed Motor
M6	2nd Lift Motor
M7	2nd Pick-up Motor
M8	2nd Transport Motor
M9	Horizontal Transport Motor
M10	Vertical Transport Motor

2. DRIVE LAYOUT



1	1st Transport roller
2	2nd Transport roller
M9	Horizontal Transport Motor
M10	Vertical 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.

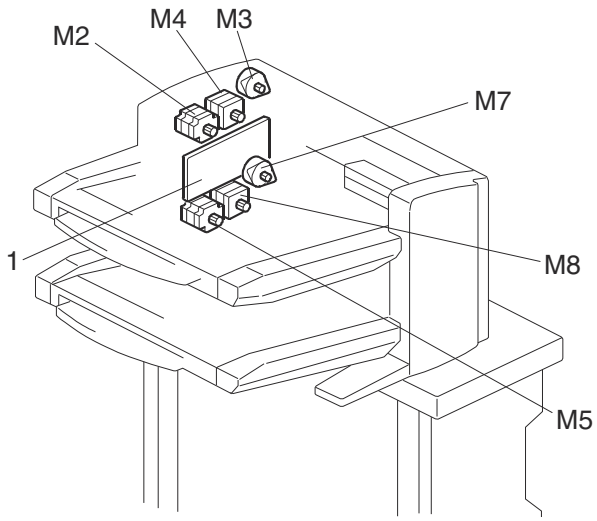
The vertical transport motor [3] drives the vertical transport rollers (1) and (2) that feed the sheets into the horizontal feed path.

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. ELECTRICAL COMPONENTS

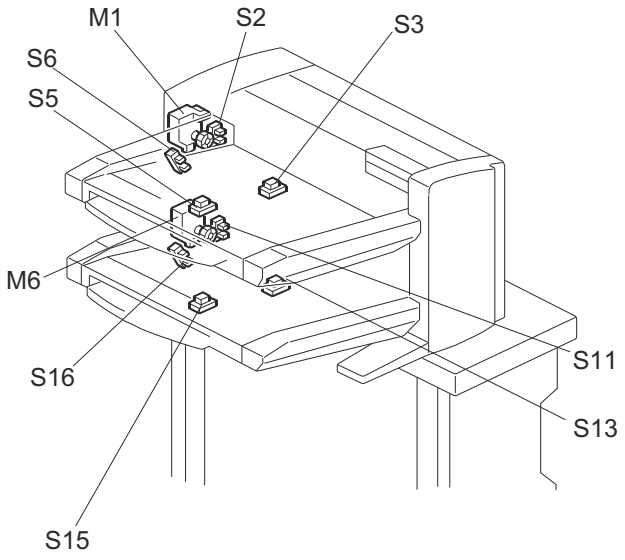
A. OVERVIEW

(1) FEED MOTORS, PCB



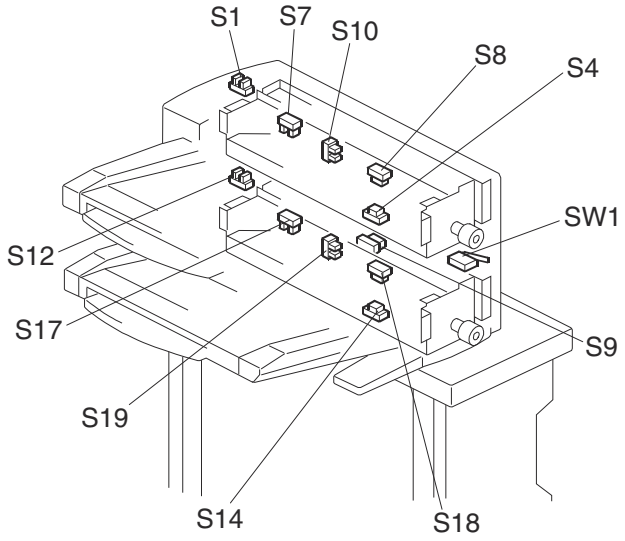
1	Tray Unit Control Board
M2	1st Paper Feed Motor
M3	1st Pick-Up Motor
M4	1st Transport motor
M5	2nd Paper Feed Motor
M7	2nd Pick-Up Motor
M8	2nd Transport motor

(2) LIFT MOTORS, TRAY SENSORS



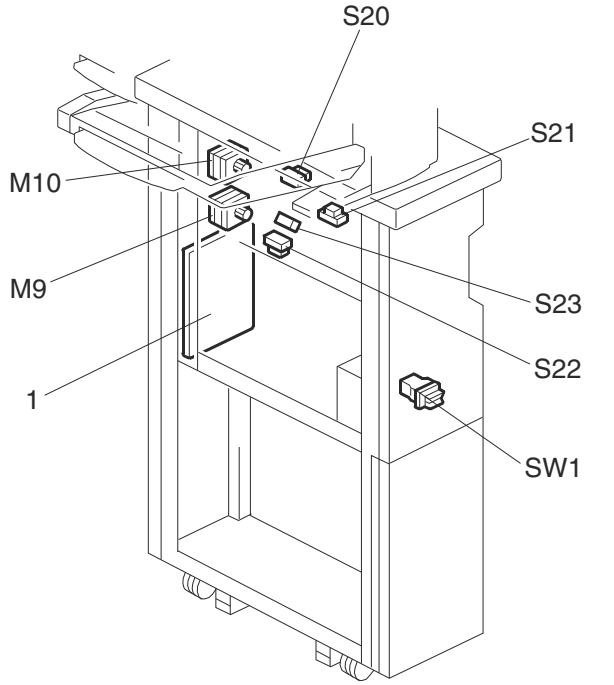
M1	1st Lift Motor
M6	2nd Lift Motor
S2	1st Lower Limit Sensor
S3	1st paper set sensor
S5	1st Paper Length Sensor
S6	1st paper upper limit sensor
S11	2nd Lower Limit Sensor
S13	2nd paper set sensor
S15	2nd Paper Length Sensor
S16	2nd paper upper limit sensor

(3) PAPER PATH SENSORS 1



S1	1st Tray Cover Sensor
S4	1st Paper Feed Sensor
S7	1st Pick-Up Roller HP Sensor
S8	1st Transport Sensor
S9	1st Vertical Transport Sensor
S10	1st bottom plate position sensor
S12	2nd Tray Cover Sensor
S14	2nd Paper Feed Sensor
S17	2nd Pick-Up Roller HP Sensor
S18	2nd Transport Sensor
S19	2nd bottom plate position sensor
SW1	Vertical Feed Cover Switch

(4) PAPER PATH SENSORS 2, PCB



1	Main Control Board
M9	Horizontal Transport Motor
M10	Vertical Transport Motor
S20	2nd Vertical Transport Sensor
S21	Entrance Sensor
S22	Exit Sensor
S23	Vertical Exit Sensor
SW1	Feed Unit Front Door Safety Switch

(5) ELECTRICAL COMPONENT SUMMARY

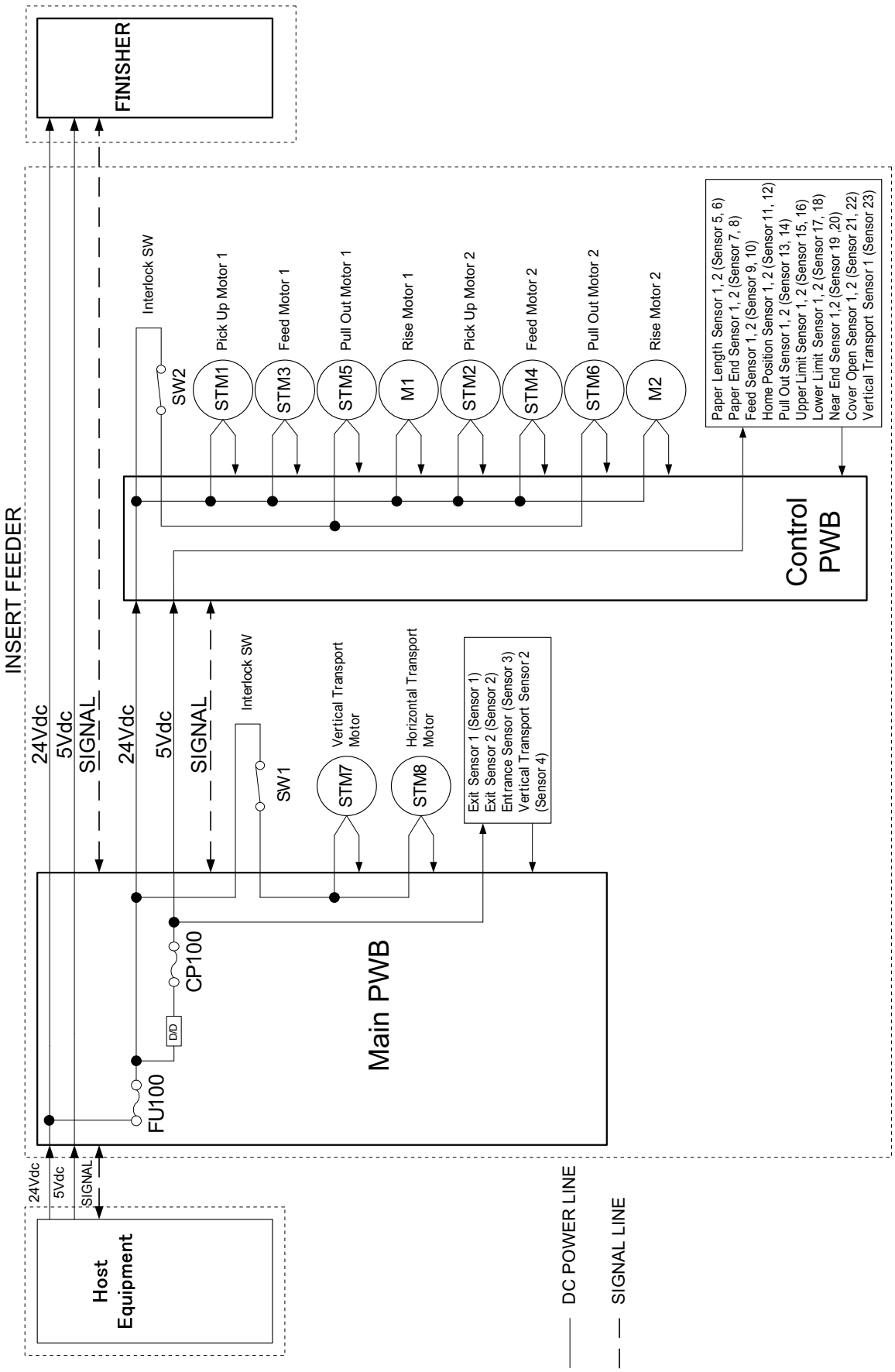
Motors		
No.	**Name**	**Description**
M1 TRYLFT1M	1st Lift Motor	Drives the bottom plate of the 1st tray up and down.
M2 FEED1_M	1st Paper Feed Motor	Rotates the feed rollers that feed paper from the 1st tray.
M3 PIKUP1_M	1st Pick-up Motor	Moves the 1st pick-up roller up and down.
M4 PLOUT1_M	1st Transport Motor	Drives the 1st Transport roller that takes the paper fed from the 1st feed roller and feeds it to the vertical path.
M5 FEED2_M	2nd Feed Motor	Rotates the feed rollers that feed paper from the 2nd tray.
M6 TRYLFT2M	2nd Lift Motor	Drives the bottom plate of the 2nd tray up and down.
M7 PIKUP2_M	2nd Pick-up Motor	Moves the 2nd pick-up roller up and down.
M8 PLOUT2_M	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 TRSH_M	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 TRSV_M	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	

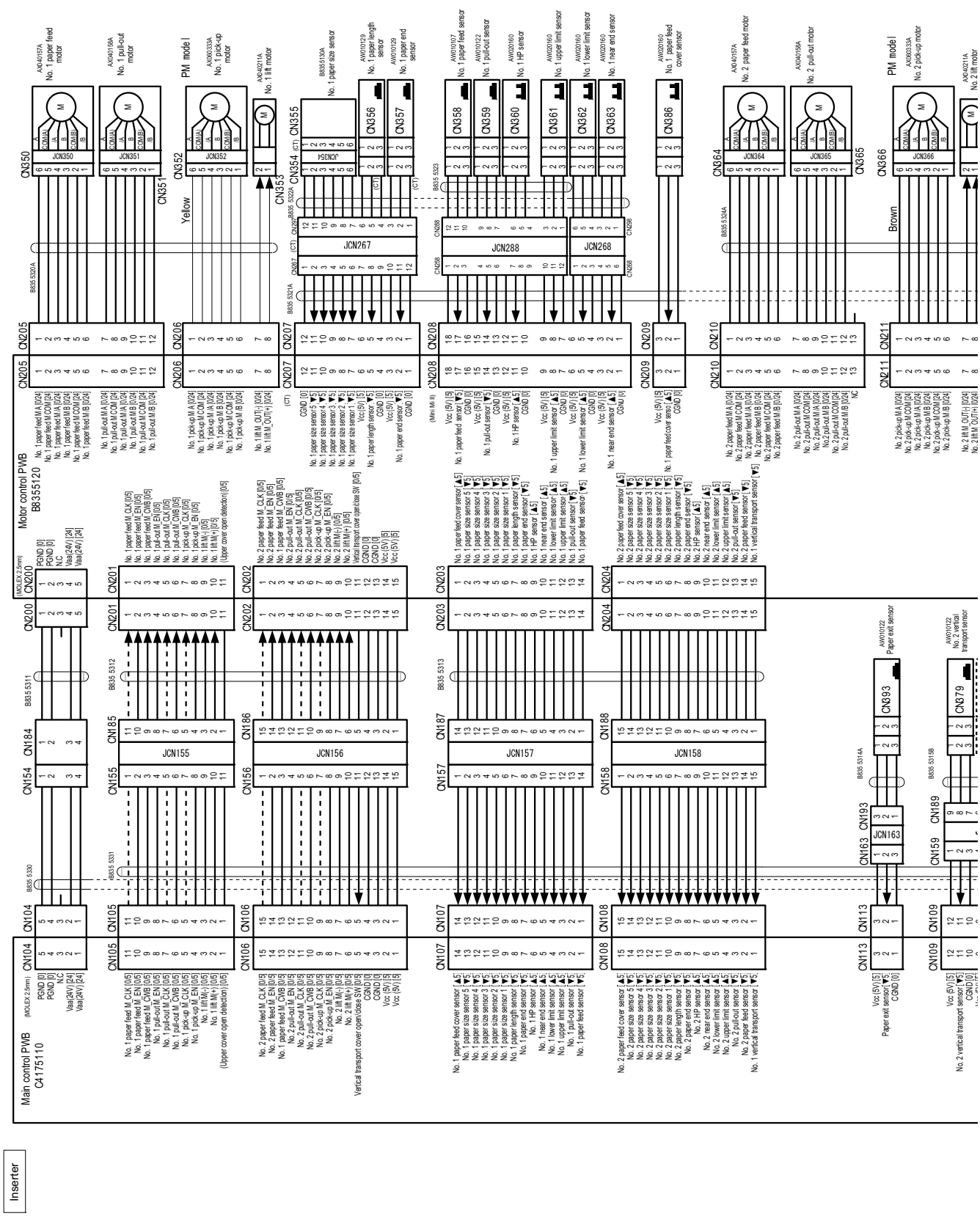
Sensors		
No.	**Name**	**Description**
S1 FECVROP1	1st Tray Cover Sensor	Detects when the 1st tray cover is open/closed.
S2 LWRLMT1	1st Lower Limit Sensor	Detects 1) whether the 1st tray is down or not when the tray is not operating, and 2) detects when the tray is full when the 1st tray is operating.
S3 PPREND1	1st paper set sensor	Detects paper end after the last sheet feeds from the 1st tray.
S4 INSFEED1	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 PPRLNG1	1st Paper Length Sensors	Used in combination with 1st tray width sensors to determine the size of paper in the 1st tray.
S6 NEREND1	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 INSHP1	1st Pick-up Roller HP Sensor	Detects whether the 1st pick-up roller is up or not.
S8 PLOUT1	1st Transport Sensor	Detects jams at the point where the 1st Transport roller pulls paper from the 1st tray.
S9 VTRS1	1st Transport Sensor	Detects jams in the path of the 1st tray.
S10 UPRLMT1	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 LWRLMT2	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 FECVROP2	2nd tray cover sensor	Detects when the 2nd tray cover is open/closed.
S13 PPREND2	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 INSFEED2	2nd Paper Feed Sensor	Detects jams when the feed roller feeds paper from the 2nd tray.
S15 PPRLNG2	2nd Paper Length Sensor	Used in combination with 1st tray width sensors to determine the size of paper in the 1st tray.
S16 NEREND2	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 INSFEED2	2nd Pick-up Roller HP Sensor	Detects whether the 2nd pick-up roller is up or not.
S18 PLOUT2	2nd Transport Sensor	Detects jams at the point where the 2nd Transport roller pulls paper from the 1st tray.
S19 UPRLMT2	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 VTRS2	2nd Vertical Transport Sensor	Detects jams in the vertical path after a sheet is fed from the 2nd tray.
S21 INSENT	Entrance Sensor	Detects paper jams where paper from the copier enters the unit in the horizontal feed path.
S22 INSEXT	Exit Sensor	Detects jams where through-paper and covers exit the unit.
S23 INSOUT	Vertical Exit Sensor	Detects jams where through-paper and covers exit the vertical feed path.

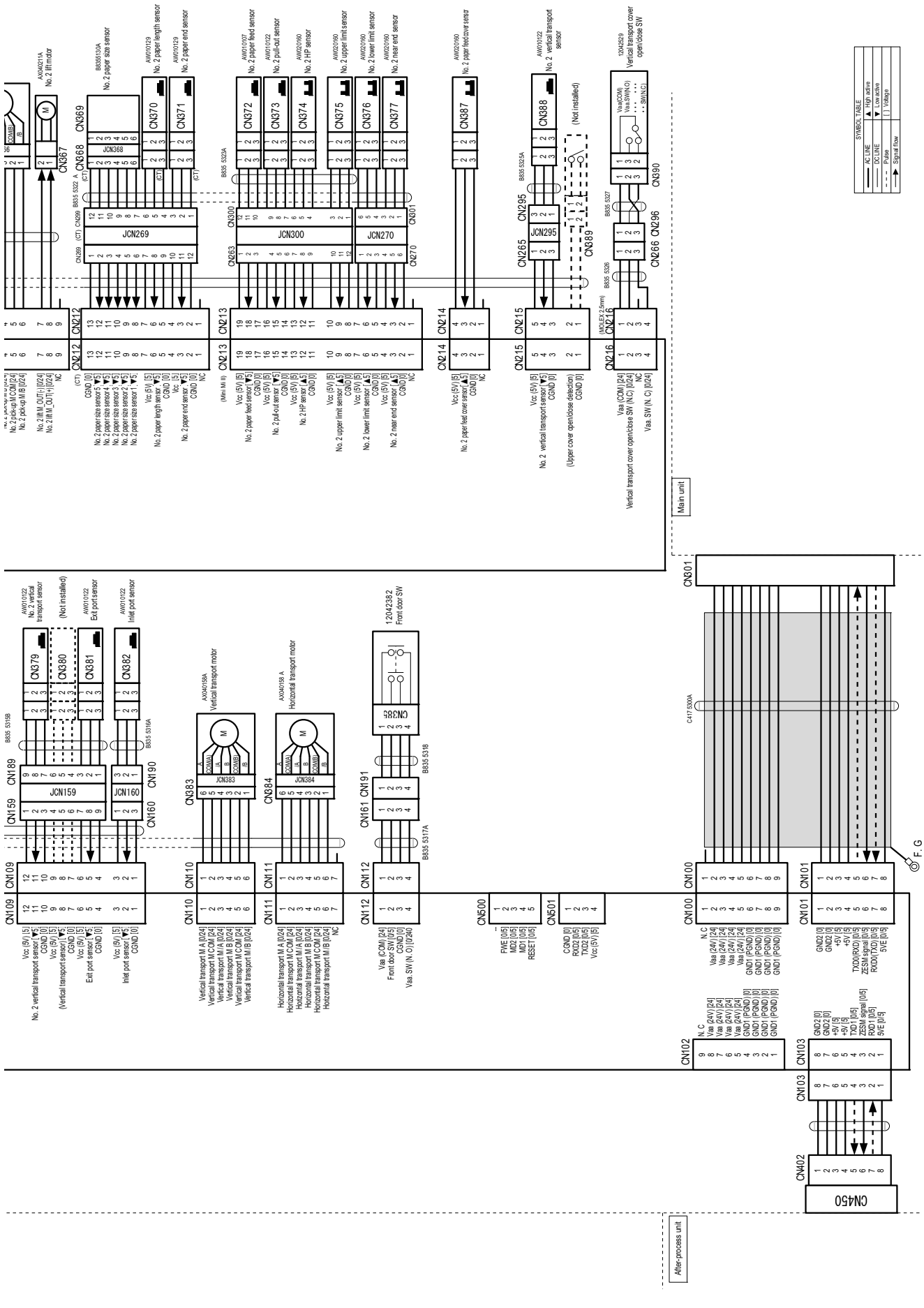
Switches		
No.	**Name**	**Description**
SW1	Front Door Switch	Detects whether the front door is properly closed. The unit will not operate when the front door is open.
SW2	Transport Cover Switch	This is the cover on the right side of the tray unit. Detects whether the cover is opened or closed.
SW3	1st 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.

B. BLOCK DIAGRAM



C. ACTUAL WIRING CHART

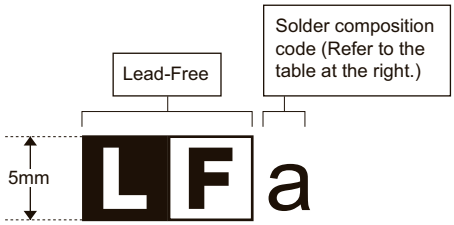



Main unit
After-process unit
SYMBOL TABLE
AC LINE
DC LINE
Pulse
Signal flow
High active
Low active
( ) Voltage
No. 2 pick-up M COM [0/24]
No. 2 pick-up M B [0/24]
No. 2 lift M_OUT(-) [0/24]
No. 2 lift M_OUT(+) [0/24]
NC
No. 2 paper size sensor 5 [▼5]
No. 2 paper size sensor 4 [▼5]
No. 2 paper size sensor 3 [▼5]
No. 2 paper size sensor 2 [▼5]
No. 2 paper size sensor 1 [▼5]
No. 2 paper length sensor [▼5]
No. 2 paper end sensor [▼5]
No. 2 paper feed sensor [▼5]
No. 2 pull-out sensor [▼5]
No. 2 HP sensor [▲5]
No. 2 upper limit sensor [▲5]
No. 2 lower limit sensor [▲5]
No. 2 near end sensor [▲5]
No. 2 paper feed cover sensor [▲5]
No. 2 vertical transport sensor [▼5]
(Upper cover open/close detection)
Vertical transport cover open/close SW (N.O) [0/24]
Vaa.SW(N.C) [0/24]
Vertical transport motor
Horizontal transport motor
Front door SW [0/5]
Vaa. SW (N. O) [0/240]
FWE [0/5]
MD2 [0/5]
MD1 [0/5]
RESET [0/5]
C.GND [0]
RXD2 [0/5]
TXD2 [0/5]
Vcc (5V) [5]
N.C
Vaa (24V) [24]
GND1 (PGND) [0]
GND2 [0]
+5V [5]
TXD0 (RXD) [0/5]
ZESM signal [0/5]
RXD0 (TXD) [0/5]
5VE [0/5]
F. G

LEAD-FREE SOLDER

The PWB's of this model employs lead-free solder. The "LF" marks indicated on the PWB's and the Service Manual mean "Lead-Free" solder.
The alphabet following the LF mark shows the kind of lead-free solder.

Example:



<Solder composition code of lead-free solder>

Solder composition	Solder composition code
Sn-Ag-Cu	a
Sn-Ag-Bi Sn-Ag-Bi-Cu	b
Sn-Zn-Bi	z
Sn-In-Ag-Bi	i
Sn-Cu-Ni	n
Sn-Ag-Sb	s
Bi-Sn-Ag-P Bi-Sn-Ag	p

(1) NOTE FOR THE USE OF LEAD-FREE SOLDER THREAD

When repairing a lead-free solder PWB, use lead-free solder thread.

Never use conventional lead solder thread, which may cause a breakdown or an accident.

Since the melting point of lead-free solder thread is about 40°C higher than that of conventional lead solder thread, the use of the exclusive-use soldering iron is recommended.

(2) NOTE FOR SOLDERING WORK

Since the melting point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.

If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine file.

CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !
Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the manufacturer.
Dispose of used batteries according to manufacturer's instructions.

(Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

(French) ATTENTION
Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type équivalent recommandé par
le constructeur.
Mettre au rebut les batteries usagées conformément aux
instructions du fabricant.

(Swedish) VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

(German) Achtung
Explosionsgefahr bei Verwendung inkorrekter Batterien.
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder
vom Hersteller empfohlene Batterien verwendet werden.
Entsorgung der gebrauchten Batterien nur nach den vom
Hersteller angegebenen Anweisungen.

CAUTION FOR BATTERY DISPOSAL

(For USA, CANADA)
"BATTERY DISPOSAL"
THIS PRODUCT CONTAINS A LITHIUM PRIMARY (MANGANESS DIOXIDE) MEMORY BACK-UP BATTERY THAT MUST BE DISPOSED OF PROPERLY. REMOVE THE BATTERY FROM THE PRODUCT AND CONTACT YOUR LOCAL ENVIRONMENTAL AGENCIES FOR INFORMATION ON RECYCLING AND DISPOSAL OPTIONS.

"TRAITEMENT DES PILES USAGÉES"
CE PRODUIT CONTIENT UNE PILE DE SAUVEGARDE DE MÉMOIRE LITHIUM PRIMAIRE (DIOXYDE DE MANGANÈSE) QUI DOIT ÊTRE TRAITÉE CORRECTEMENT. ENLEVEZ LA PILE DU PRODUIT ET PRENEZ CONTACT AVEC VOTRE AGENCE ENVIRONNEMENTALE LOCALE POUR DES INFORMATIONS SUR LES MÉTHODES DE RECYCLAGE ET DE TRAITEMENT.