Portable Manual

Finisher, Sorter, DeliveryTray
Punch Unit-X1

Canon

Feb 7 2006

Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, installation, maintenance, and repair of products. This manual covers all localities where the products are sold. For this reason, there may be information in this manual that does not apply to your locality.

Corrections

This manual may contain technical inaccuracies or typographical errors due to improvements or changes in products. When changes occur in applicable products or in the contents of this manual, Canon will release technical information as the need arises. In the event of major changes in the contents of this manual over a long or short period, Canon will issue a new edition of this manual.

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Caution

Use of this manual should be strictly supervised to avoid disclosure of confidential information.

Symbols Used

This documentation uses the following symbols to indicate special information:

Symbol	Description
	Indicates an item of a non-specific nature, possibly classified as Note, Caution, or Warning.
	Indicates an item requiring care to avoid electric shocks.
	Indicates an item requiring care to avoid combustion (fire).
	Indicates an item prohibiting disassembly to avoid electric shocks or problems.
	Indicates an item requiring disconnection of the power plug from the electric outlet.
 Memo	Indicates an item intended to provide notes assisting the understanding of the topic in question.
 REF.	Indicates an item of reference assisting the understanding of the topic in question.
	Provides a description of a service mode.
	Provides a description of the nature of an error indication.

The following rules apply throughout this Service Manual:

1. Each chapter contains sections explaining the purpose of specific functions and the relationship between electrical and mechanical systems with reference to the timing of operation.
   In the diagrams, ▭▮▮▮▭ represents the path of mechanical drive; where a signal name accompanies the symbol , the arrow ⟶ indicates the direction of the electric signal.
   The expression "turn on the power" means flipping on the power switch, closing the front door, and closing the delivery unit door, which results in supplying the machine with power.
2. In the digital circuits, '1'is used to indicate that the voltage level of a given signal is "High", while '0' is used to indicate "Low".(The voltage value, however, differs from circuit to circuit.) In addition, the asterisk (*) as in "DRMD*" indicates that the DRMD signal goes on when '0'.
   In practically all cases, the internal mechanisms of a microprocessor cannot be checked in the field. Therefore, the operations of the microprocessors used in the machines are not discussed: they are explained in terms of from sensors to the input of the DC controller PCB and from the output of the DC controller PCB to the loads.

The descriptions in this Service Manual are subject to change without notice for product improvement or other purposes, and major changes will be communicated in the form of Service Information bulletins.
All service persons are expected to have a good understanding of the contents of this Service Manual and all relevant Service Information bulletins and be able to identify and isolate faults in the machine."

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Chapter 1 Maintenance and Inspection

Chapter 2 Standards and Adjustments

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Chapter 1 Maintenance and Inspection

1.1 Periodically Replaced Parts

1.1.1 Periodically Replaced Parts

The machine does not have parts that require replacement on a periodical basis.

1.2 Durables

1.2.1 Durables

Some parts of the machine may require replacement once or more over the period of product warranty. Replace them when necessary.

as of November 2005

No.	Parts name	Parts No.	Q'ty	Life	Remarks
1	punch waste disposal	FM2-6391	1	1,000,000 punching operations	100,000 operations if 10% of use is for 200 g/m2 paper
2	Punch unit (2-/3-hole)	FM2-6392	1		
3	Punch unit (4-hole; French)	FM2-6393	1		
4	Punch unit (4-hole; Sweden)	FM2-6394	1		

1.3 Periodical Servicing

1.3.1 Scheduled Servicing

Item	Interval	Task	Remarks
Punch waste case full sensor	1,000,000 prints	cleaning	dry wiping
prism	1,000,000 prints	cleaning	dry wiping

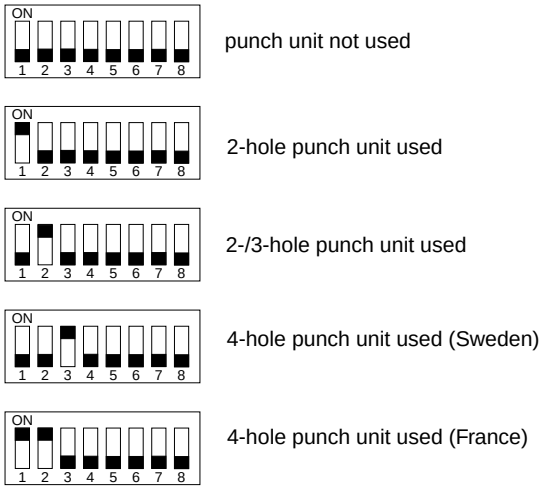
Chapter 2 Standards and Adjustments

2.1 Basic Adjustment

2.1.1 Setting Up the Punching Operation

The machine must be set to accommodate the punch unit in use by changing the setting of the DIP switch found on its switch PCB.

SW381

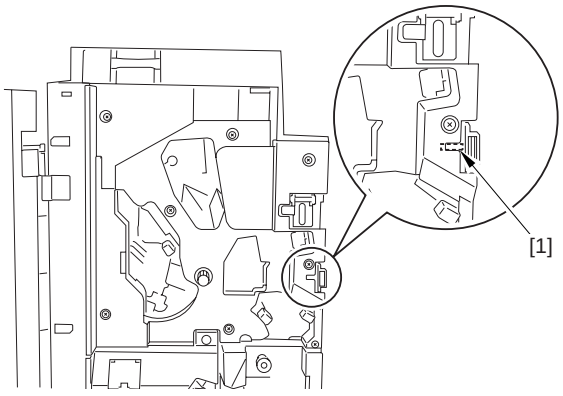


F-2-1

2.1.2 Adjusting the Sensor Light Intensity

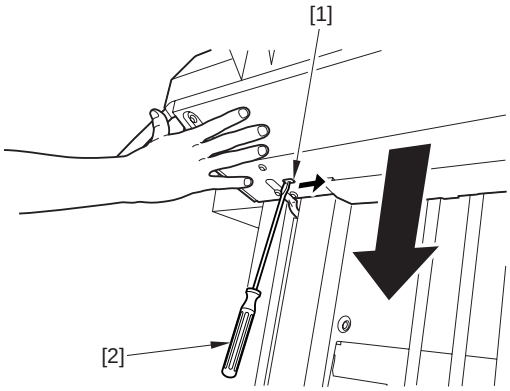
Go through the following steps when installing the punch unit or when replacing the punch waste case full sensor:

1) Turn on the finisher.
2) Turn on the power switch of the host machine so that it is in a standby state.
3) Open the front door, and insert the door switch actuator into the door switch [1].



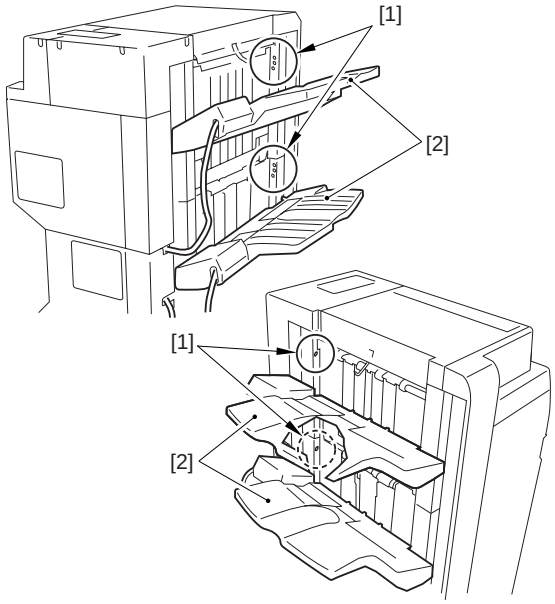
F-2-2

4) Insert a screwdriver [2] into the hole [1] in the bottom face of the tray, and release the tray in the direction of the arrow; then, lower the tray A/B in the direction of the arrow.



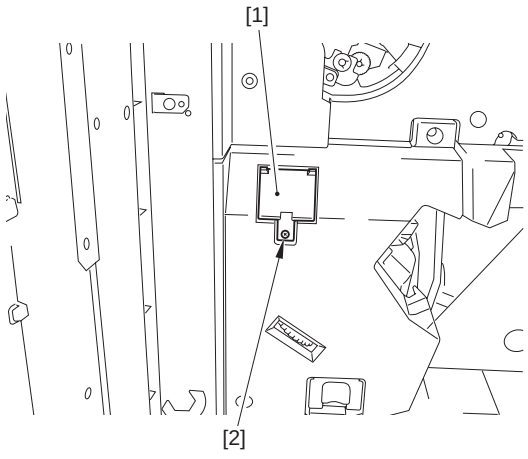
F-2-3

⚠ Be sure to move it until the tray sensor (front/rear) will not be blocked by the tray A/B [2].



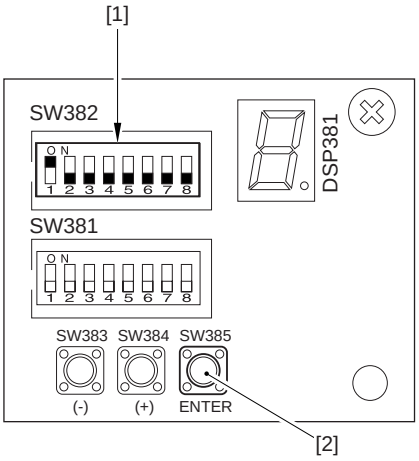
F-2-4

5) Remove the screw [2], and detach the switch cover [1].



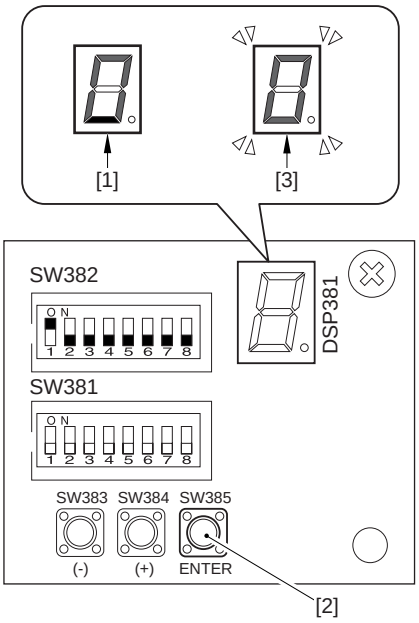
F-2-5

6) Set the bits of the DIP switch SW382 [1] found on the switch PCB as shown, and press the Enter button (SW385) [2] to start sensor light intensity adjustment.



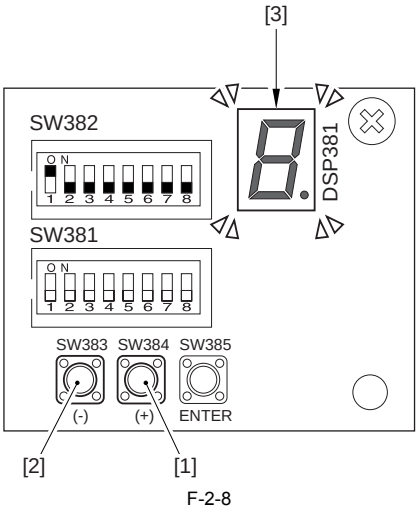
F-2-6

7) See if the LED [1] is '0', indicating that the adjustment has been successful; press the Enter button (SW385) [2] to end sensor light intensity adjustment. If the LED [3] flashes while indicating '0', the presence of a fault is likely.



F-2-7

8) If there is a faulty sensor (i.e., if the LED flashes while indicating '0'), press the + (SW384) [1]/- (SW383) [2] button to find out the code No. of the sensor in question, and clean the sensor; if the fault is not solved, replace the sensor.



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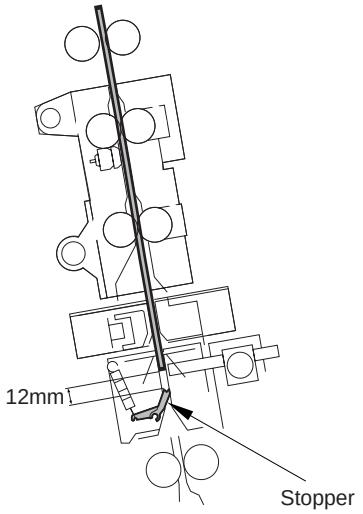
The sensors are identified by the following code No.:

Code No.	Sensor
1	buffer path 1 sensor PCB (UN13)
2	buffer path 2 sensor PCB (UN14)
3	lower path sensor PCB (UN24)
4	horizontal registration sensor PCB (UN12)
5	nch waste case full sensor PCB (UN21)
6 to 8	tray A paper surface sensor PCB (UN16)
9, A, b	tray B paper surface sensor PCB (UN18)

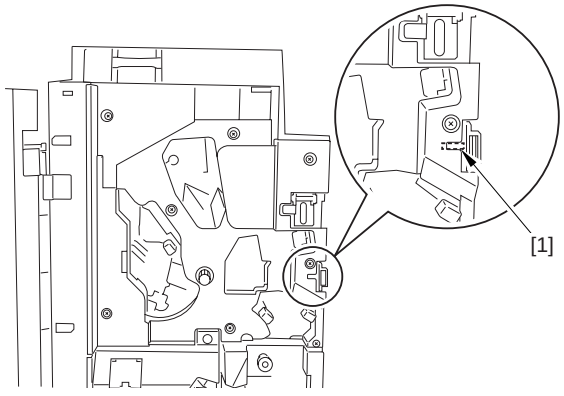
2.1.3 Adjusting the Paper Stop Position

Go through the following steps so that the distance from the center of the punch hole to the stopper is 12 mm, making sure that the paper edge angle is correct.



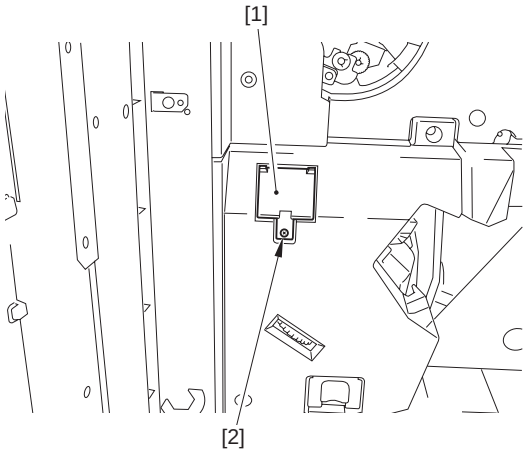
F-2-9

Go though the following for operation:
1) Turn on the finisher.
2) Turn on the power switch of the host machine so that it is in a standby state.
3) Open the front door, and insert the door switch actuator into the door switch [1].



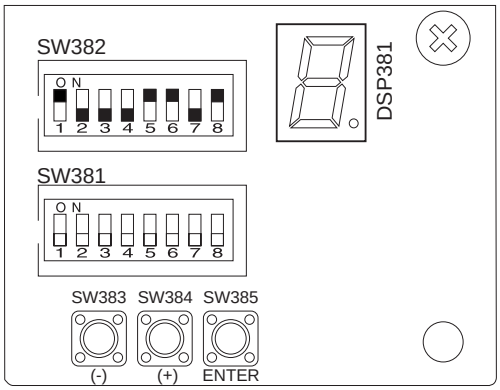
F-2-10

4) Remove the screw [2], and detach the switch cover [1].



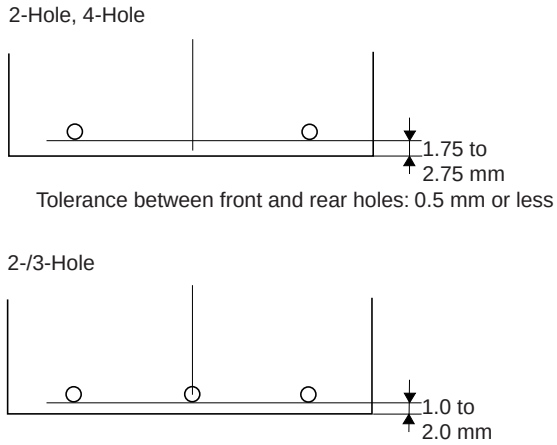
F-2-11

5) Set the DIP switch SW382 found on the switch PCB as shown, and press the Enter (SW385) button so that the LED indicates '0'.



F-2-12

6) Execute punching operation so that the machine will stop the paper and punch holes without switching it back.
7) Measure the distance between the punched hole and the edge of the paper, checking the paper stop position based on the result. Press the + (SW384)/ - (SW383) button so that the distance is as shown.



F-2-13

	Paper stop position	Adjustment value
+ (SW384)	raise	press once (0.4 mm)
- (SW383)	lower	

8) If the result is not good, repeat the steps until satisfactory. When done, press the Enter button to end adjustment mode.

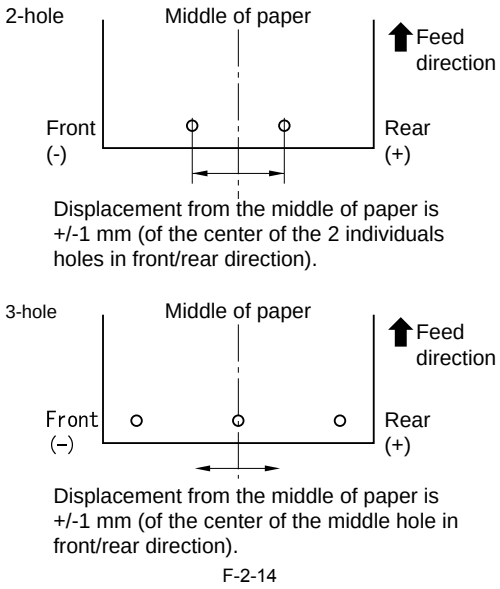
2.2 Auxiliary Adjustmant

2.2.1 Adjusting the Punch Hole Position (in the direction of horizontal registration)

Perform the following if the punch hole position is displaced in the direction of horizontal registration, possibly by paper moving askew. In the adjustment, the distance over which the horizontal registration unit and the shift roller unit moves will be adjusted.

1) Measure the position of the punched hole, and use service mode to make adjustments.

SERVICE MODE:
- CODIER> ADJUST> PNCH-Y
range of adjustment: -5 to 5 (unit: 0.45 mm)

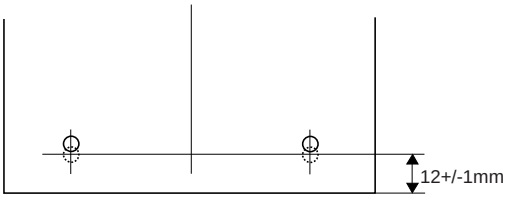


F-2-14

2) If the results are not good, repeat the foregoing step until they are satisfactory.

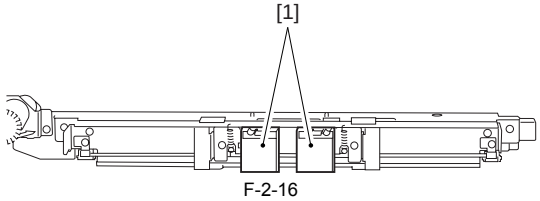
2.2.2 Adjusting the Punch Hole Position (in the direction of paper movement)

Go through the following steps when raising the position of the punch hole from the standard position:



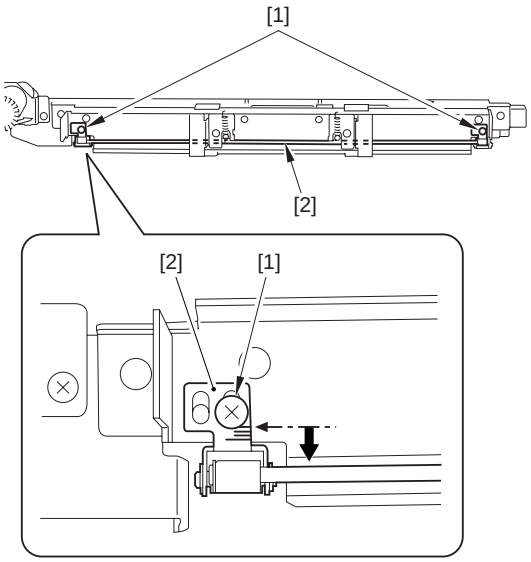
F-2-15

Go though the following for operation:
1) Turn off the host machine.
2) Turn off the finisher.
3) Detach the punch unit from the finisher.
4) Remove the punch dust guide [1].



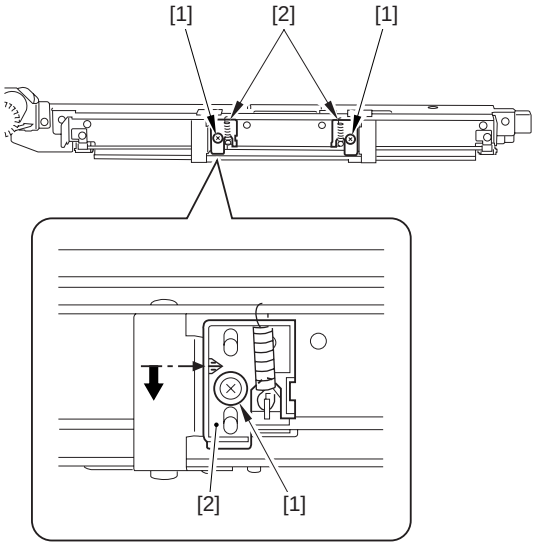
F-2-16

5) Loosen the 2 outside screws [1], and lower the 2 rear stopper support plates [2].



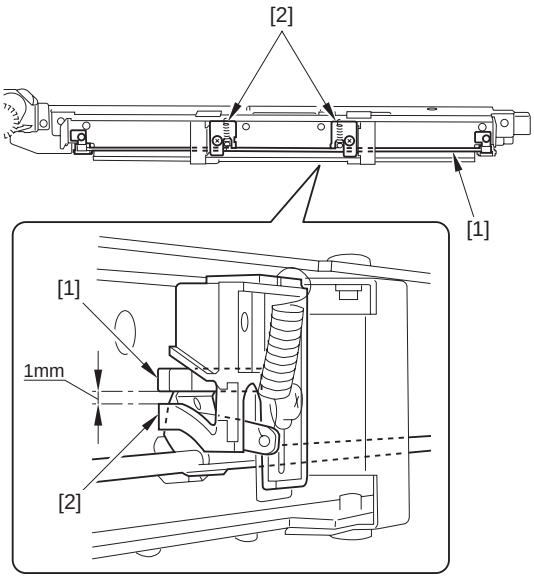
F-2-17

6) Loosen the 2 rear screws [1], and lower the 2 stopper stays [2].



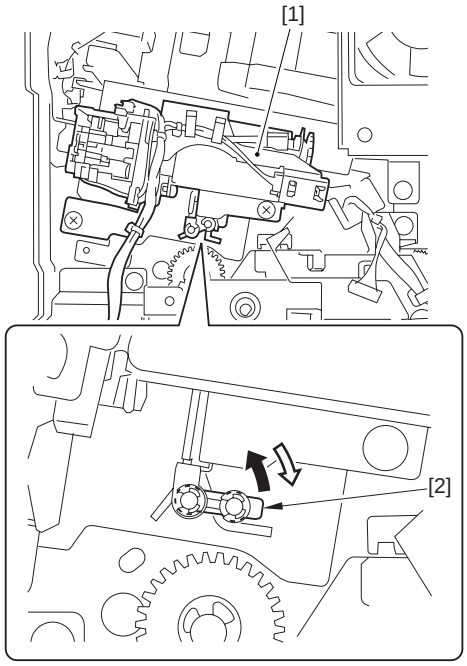
F-2-18

7) Check to see if the distance between the rear stopper support [1] and the stopper stay [2] is 1 mm or less when the punch unit is held as when it is fitted to the finisher.



F-2-19

When done, check to make sure the rear stopper moves smoothly.



F-2-20

8) Fit the puncher unit back on the finisher, and execute punching to be sure that the punch hole position is correct.

Adjust the paper stop position in keeping with the change you made to the position of the rear stopper.

Chapter 3 Error Code

3.1 Overview

3.1.1 Overview

The machine's finisher controller PCB is equipped with a mechanism that checks the machine condition. The PCB runs a check at such times as needed, and communicates to the host machine upon detection of a fault in the form of a code and a detail code.
The host machine indicates the code in its control panel (detail code in service mode).

3.2 Service Error Code

3.2.1 E503

Code	Detail	Item	Description	Remedial action
E503	0003	finisher internal communication error	There is an error in the communication between the finisher and the punch unit.	1. Check the cable connection between the finisher controller PCB and the punch unit. 2. Replace the punch unit. 3. Replace the finisher controller PCB.

3.2.2 E590

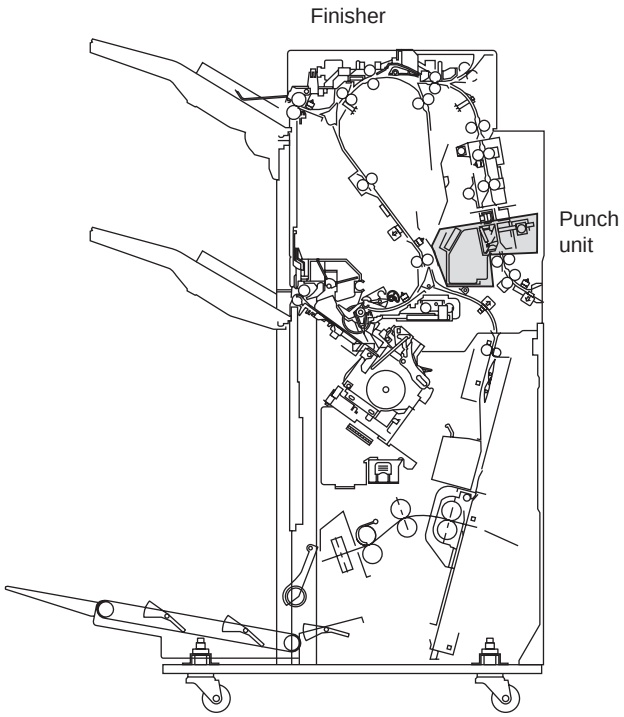
Code	Detail	Item	Description	Remedial action
E590	8001	punch motor (M24) error	The punch home position sensor (PS36) is not detected even when the punch motor has been driven for 200 msec.	1. Check the punch motor. 2. Check the punch motor clock sensor (PS38). 3. Replace the punch motor. 4. Replace the finisher controller PCB.
	8002		The punch home position sensor (PS36) is detected even after the punch motor has been driven for 200 msec.	
	8004		At the time of a 2-hole/3-hole operation switch-over, the punch motor home position sensor (PS36) is not detected.	

Chapter 4 System Construction

4.1 Basic Construction

4.1.1 Overview

The machine is fitted in the paper path of a finisher.
When paper arrives from the host machine, the shift roller starts to move it ahead; the shift transport motor then moves the paper back to the puncher unit and forces its trail edge against the stopper to remove the skew to prepare for punching operation.
The finisher controller PCB is used to drive the punch unit.



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4.2 Product Specifications

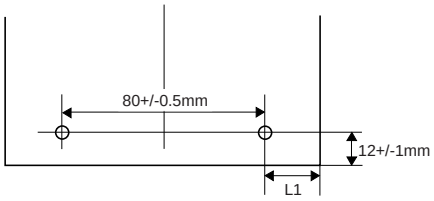
4.2.1 Specifications

T-4-1

Item	Description	Remarks
Punching method	reciprocating (consecutive processing)	
Paper size	2-hole (Punch Unit-U1): A3, A4, A4R, B4, B5, B5R 2-/3-hole (Punch Unit-V1): 2-hole/LGL, LTRR 3-hole/279mm x 432mm (11 x 17), LTR 4-hole (FR; Punch Unit-W1): A3, A4 4-hole (SE; Punch Unit-X1): A3, A4	
Paper weight	64g/m2 to 200g/m2	no transparency; no paper 200 g/m2 or more in weight
Punch hole diameter	2-hole: 6.5 mm 2-/3-hole: 8 mm 4-hole: 6.5 mm	
Punch chip case	equivalent of 5,000 sheets	equivalent of 80 g/m2 paper
Dimensions	78mm x 655mm x 131xmm (WxDxH)	
Weight	3 kg (approx.)	
Power supply	24/5 VDC from finisher	

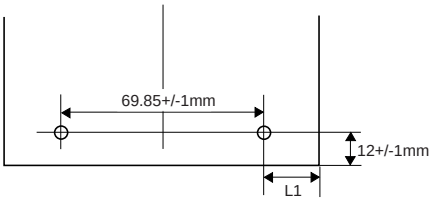
Hole Locations

[1]Puncher unit-U1(2-hole)

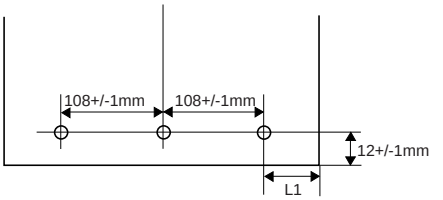


A4/A3:108.5+/-1mm
B4/B5:88.5+/-1mm
A4R:65+/-1mm
B5R:51+/-1mm

[2]Puncher unit-V1(2/3-hole)

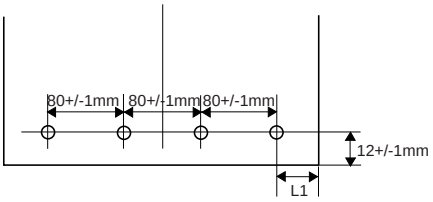


LGL/LTRR:73+/-1mm



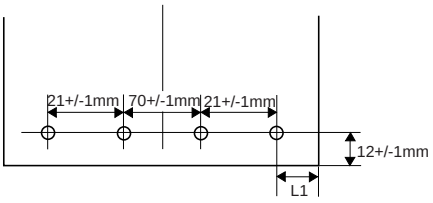
LTR/11"x17":31.5+/-1mm

[3]Puncher unit-W1(4-hole; FR)



A4/A3:28.5+/-1mm

[4]Puncher unit-X1(4-hole; SE)



A4/A3:92.5+/-1mm

F-4-2

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