Portable Manual

Finisher, Sorter, DeliveryTray
Puncher Unit-N1

Canon

Feb 21 2005

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

Chapter 3 Error Code

Chapter 4 Outline of Components

Chapter 5 System Construction

Chapter 1 Maintenance and Inspection

Contents

1.1 Periodically Replaced Parts

1.1.1 Periodically Replaced Parts

0003-4706

The Puncher unit does not have parts that must be replaced on a periodical basis.

1.2 Durables

1.2.1 Durables

0003-4707

There are no durables that require durables.

1.3 Periodical Servicing

1.3.1 Periodical Servicing

0003-4708

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Item	Interval	Description	Remark
Transmittance sensor	25 million sheets	Cleaning	Wipe with dry cloth

Chapter 2 Standards and Adjustments

Contents

2.1 Adjustment at Time of Parts Replacement

2.1.1 Adjusting the Punch Hole Position (feed direction) 0003-4709

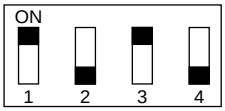
This adjustment is possible only with the host machine service mode.

2.1.2 Sensor Output Adjustment 0003-4710

Perform this adjustment when replacing the punch controller PCB, transmittance sensor (photosensor PCB/LED PCB), or deflection sensor (scrap full detector PCB unit).

1) Check that the power of the host machine is off and then remove the rear cover of the puncher.

2) Set SW601 on the punch controller PCB as shown below.



F-2-1

3) Turn on the power of the host machine.

4) Press SW602 on the punch controller PCB. Sensor output is adjusted automatically when the switch is pressed.

Adjustment is complete if LED601 and 602 on the punch controller PCB flashes alternately.

5) Press SW602 or 603 on the punch controller PCB to end the adjustment mode and set all bits of SW601 to OFF.

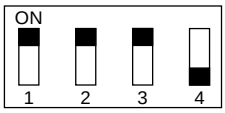
6) Turn off the power of the host machine.

2.1.3 Registering the Number of Punch Holes 0003-4711

This operation registers which puncher unit is attached to the IC on the punch driver PCB so that the puncher unit can be identified by the finisher. For this reason, this operation must be performed when the punch driver PCB has been replaced.

1) Check that the power of the host machine is off and then remove the rear cover of the puncher.

2) Set SW601 on the punch controller PCB as shown below.



F-2-2

3) Turn on the power of the host machine.

4) Press SW602 on the punch controller PCB to select the number of punch holes.

The items in the following table are displayed repeatedly from top to bottom each time SW602 is pressed.

T-2-1

Number of punch holes	**LED601/602**
2 hole(Puncher Unit-L1)	Flash 1 times per cycle
2/3 hole(Puncher Unit-M1)	Flash 2 times per cycle
4 hole(Puncher Unit-N1(FRA))	Flash 3 times per cycle

Number of punch holes	LED601/602
4 hole(Puncher Unit-P1(SWD))	Flash 4 times per cycle

5) Press SW603 on the punch controller PCB. The number of punch holes is registered to the punch controller PCB each time the switch is pressed.
Registration is complete if LED601 and 602 on the punch controller PCB flashes alternately.
6) Press SW602 or 603 on the punch controller PCB to end the adjustment mode and set all bits of SW601 to OFF.
7) Turn off the power of the host machine.

Chapter 3 Error Code

Contents

3.1 User Error Code

3.1.1 Punch scrap full

0003-4737

T-3-1

Error Description	Occurs when	Detection timing	Machine operation	Reset
Punch scrap full	The amount of punch scraps has reached the scrap container capacity.	During punching	Normal operation will continue.	Empty the scrap container.

3.1.2 Punch scrap overflow

0003-4738

T-3-2

Error Description	Occurs when	Detection timing	Machine operation	Reset
Punch scrap overflow	The amount of punch scraps has exceeded the scrap container capacity.	During punching	Punching will be disabled.	Empty the scrap container.

3.2 Service Error Code

3.2.1 E503

0003-4739

T-3-3

Code	Detail	Error Description	Detection timing
E503	0003	Communication error	The communication with the puncher unit is interrupted.

3.2.2 E505

0003-4740

T-3-4

Code	Detail	Error Description	Detection timing
E505	0002	Backup RAM	The checksum for the punch controller PCB has an error when the power is turned on.

3.2.3 E590

0003-4741

T-3-5

Code	Detail	Error Description	Detection timing
E590	8001	Punch motor (M61)/ Punch motor clock sensor (PI62)/ Punch home position sensor (PI63)	The puncher does not detect the punch home position sensor when the puncher motor has been driven for 20 msec.
	8002		After the motor has been stopped at time of punch motor initialization, the puncher does not detect punch home position sensor.

3.2.4 E591

0003-8764

T-3-6

Code	Detail	Error Description	Detection timing
E591	8001	Scrap full detector sensor (LED6,PTR6)	The voltage of the light received is 3.0 V or less even when the light emitting duty of the scrap full detector sensor has been increased to 66% or more.
	8002		The voltage of the light received is 2.0 V or more even when the light emitting duty of the scrap full detector sensor has been decreased to 0%.

3.2.5 E592

0003-8767

Code	Detail	Error Description	Detection timing
E592	8001	Trailing edge sensor(LED5,PTR5)/ Horizontal registration sensor (LED1 to 4,PTR1 to 4)	The voltage of the light received is 2.5 V or less even when the light emitting duty of the trailing edge sensor has been increased to 66% or more.
	8002		The voltage of the light received is 2.0 V or more even when the light emitting duty of the trailing edge sensor has been decreased to 0%.
	8003		The voltage of the light received is 2.5 V or less even when the light emitting duty of the horizontal registration sensor 1 (LED1,PTR1) has been increased to 66% or more.
	8004		The voltage of the light received is 2.0 V or more even when the light emitting duty of the horizontal registration sensor 1 (LED1,PTR1) has been decreased to 0%.
	8005		The voltage of the light received is 2.5 V or less even when the light emitting duty of the horizontal registration sensor 2 (LED2,PTR2) has been increased to 66% or more.
	8006		The voltage of the light received is 2.0 V or more even when the light emitting duty of the horizontal registration sensor 2 (LED2,PTR2) has been decreased to 0%.
	8007		The voltage of the light received is 2.5 V or less even when the light emitting duty of the horizontal registration sensor 3 (LED3,PTR3) has been increased to 66% or more.
	8008		The voltage of the light received is 2.0 V or more even when the light emitting duty of the horizontal registration sensor 3 (LED3,PTR3) has been decreased to 0%.
	8009		The voltage of the light received is 2.5 V or less even when the light emitting duty of the horizontal registration sensor 4 (LED4,PTR4) has been increased to 66% or more.
	800A		The voltage of the light received is 2.0 V or more even when the light emitting duty of the horizontal registration sensor 4 (LED4,PTR4) has been decreased to 0%.

3.2.6 E593

0003-4742

T-3-8

Code	Detail	Error Description	Detection timing
E593	8001	Horizontal registration motor(M62)/ Horizontal registration home position sensor (PI61)	At time of horizontal registration motor initialization, the punch slide unit does not leave the horizontal home position sensor even when it has been driven for 9 mm.
	8002		At time of horizontal registration motor initialization, the punch slide unit does not return to the horizontal registration home position sensor even when the unit has been driven for 37 mm.

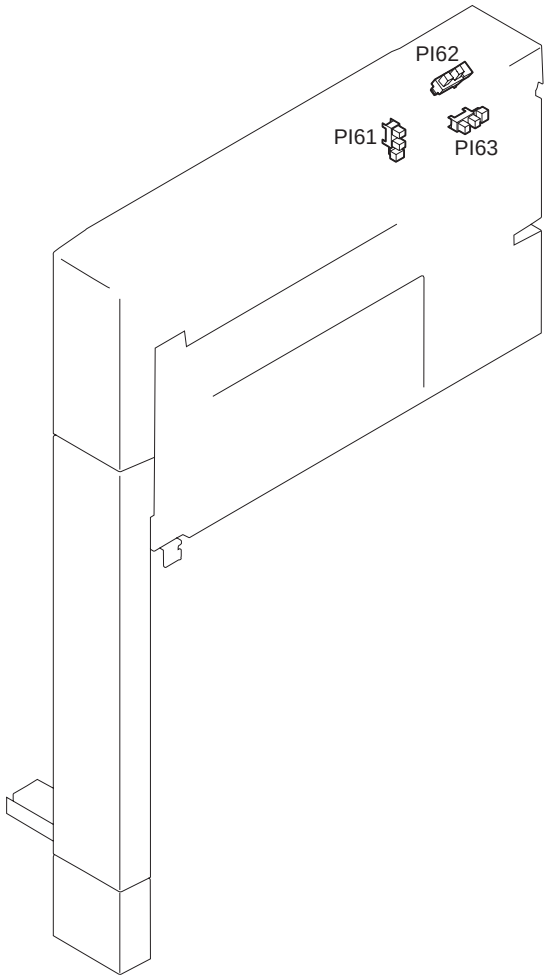
Chapter 4 Outline of Components

Contents

4.1 Outline of Electrical Components

4.1.1 Sensors

0005-8426



F-4-1

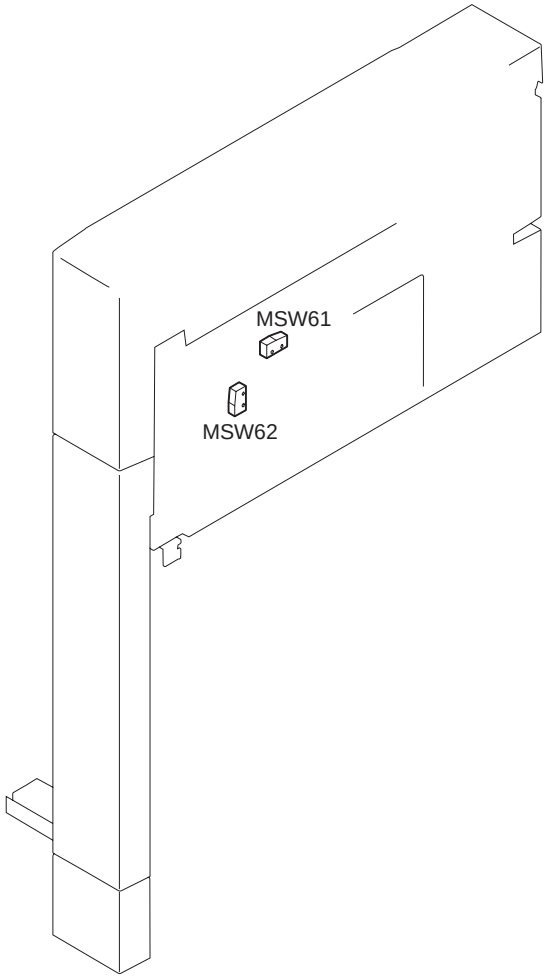
T-4-1

Ref.	Name	Parts number	Punch controller PCB	JAM	Error
PI61	Horizontal registration home position sensor	WG8-5593	J605		E593
PI62	Punch motor clock sensor	FK2-0149	J605		E590

Ref.	Name	Parts number	Punch controller PCB	JAM	Error
PI63	Punch home position sensor	FK2-0149	J605	1644	E590

4.1.2 Microswitches

0005-8427



F-4-2

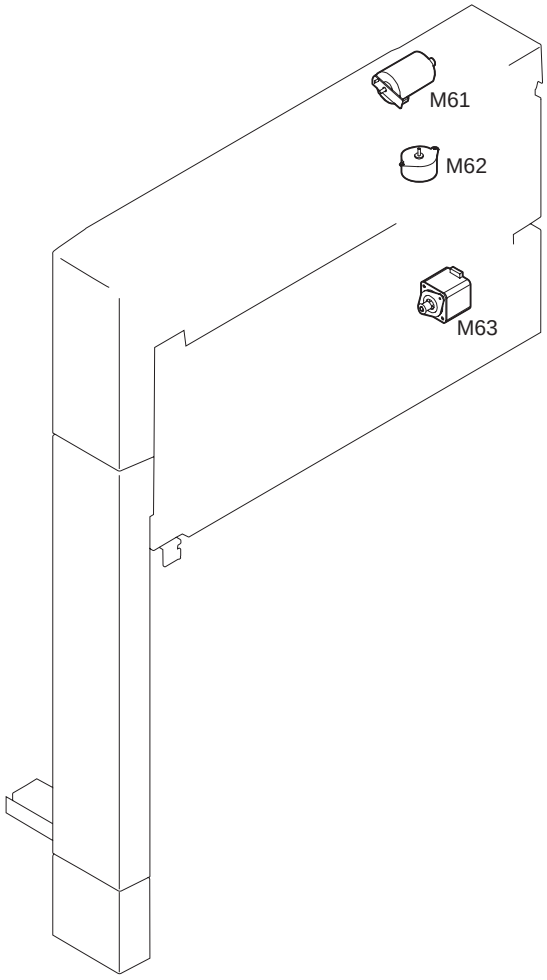
T-4-2

Ref.	Name	Parts number	Punch controller PCB
MSW 61	Upper door switch	WC4-5128	J602

Ref.	Name	Parts number	Punch controller PCB
MSW 62	Front door switch	WC4-5128	J602

4.1.3 Motors

0005-8428



F-4-3

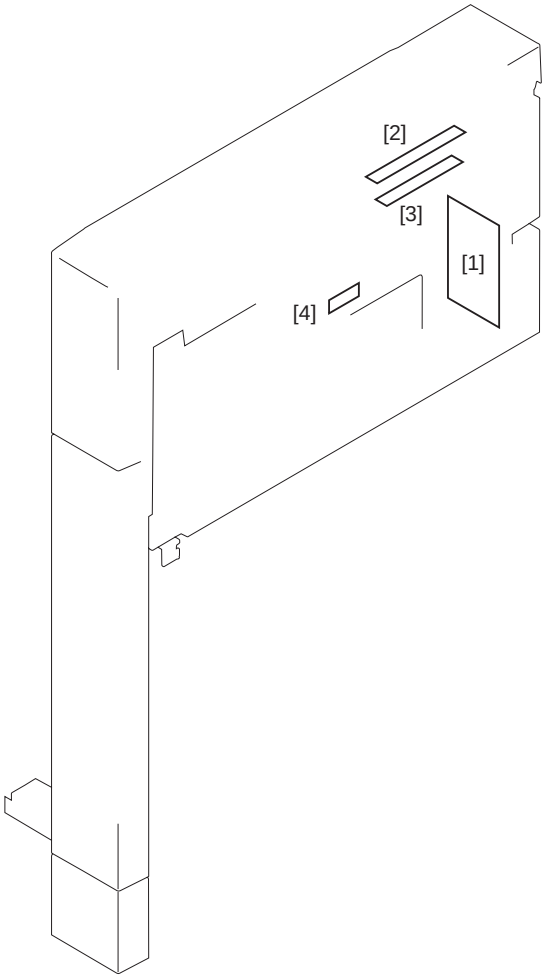
T-4-3

Ref.	Name	Parts number	Punch controller PCB	Error
M61	Punch motor	FH5-1074	J603	E590
M62	Horizontal registration motor	FH5-1075	J605	E593

Ref.	Name	Parts number	Punch controller PCB	Error
M63	Punch feed motor	FH5-1043	J604	

4.1.4 PCBs

0005-8429



F-4-4

T-4-4

Ref.	Name	Parts number	Punch controller PCB	JAM	Error
[1]	Punch controller PCB	FG3-2885			E505

Ref.	Name	Parts number	Punch controller PCB	JAM	Error
[2]	Photosensor PCB	FG3-3108	J605	1002,1102,1645	E592
[3]	LED PCB	FG3-3107	J605		E592
[4]	Scrap full detector PCB	FM2-1521	J606		E591

4.2 Variable Resistors (VR), Light-Emitting Diodes (LED), and Check Pins by PCB

4.2.1 Overview

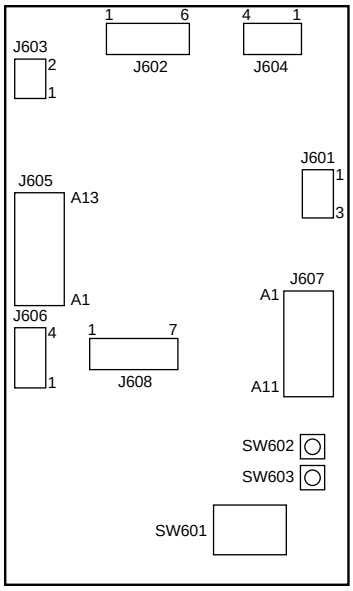
0003-4721

Of the LEDs and check pins used in the machine, those needed during servicing in the field are discussed.

⚠Do not touch the check pins not found in the list herein. They are exclusively for factory use, and require special tools and a high degree of accuracy.

4.2.2 Punch Controller PCB

0003-4722



F-4-5

T-4-5

Switch	Function
SW601	Used to set various adjustment mode settings.
SW602	Used to make adjustments, start input, and store the input.
SW603	Used to store input.

Chapter 5 System Construction

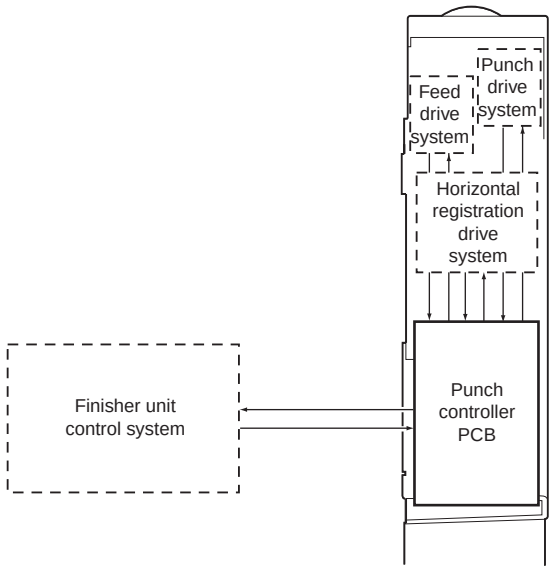
Contents

5.1 Basic Construction

5.1.1 Functional Construction

0003-8735

The puncher unit is optionally installed in the delivery path between the host machine and the finisher.
When the paper delivered from the host machine reaches the puncher unit, it is fed by the punch feed roller. Then when the trailing edge of the paper is detected, the paper is tempo-rarily stopped and the punch axis rotates to punch holes in the trailing edge of the paper. These operations are controlled by the finisher controller PCB and the punch controller PCB drives each puncher component.



F-5-1

5.2 Product Specifications

5.2.1 Specifications

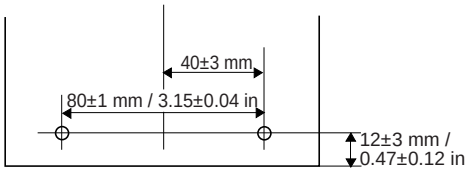
0003-4694

T-5-1

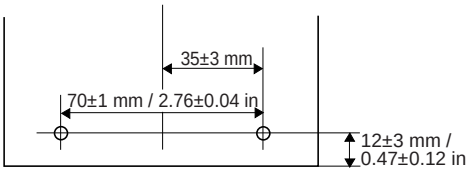
Item	Specifications	Remarks
Punching method	Reciprocating punching (Sequential punch-ing)	
Paper size	2 holes (Puncher Unit-L1): A3, A4, A4R, B4, B5, B5R 2 or 3 holes (Puncher Unit-M1): 2 holes/LGL, LTRR 3 holes/279mm x 432mm (11 x 17), LTR 4 holes (FRA)(Puncher Unit-N1): A3, A4 4 holes (SWD)(Puncher Unit-P1): A3, A4	
Paper weight	64g/m2 to 250g/m2	Transparenies not allowed
Punched hole diameter	2 holes : 6.5mm 2 or 3 holes : 8mm 4 holes : 6.5mm	
Punched scrap capacity	2 holes: 10,000 sheets or more 2 or 3 holes: 3,000 sheets or more 4 holes: 5,000 sheets or more	80 g/m2 or equivalent
Dimensions	107 x 615 x 378mm (W x D x H)	
Weight	Approx. 7.2 kg	
Power supply	From finisher unit (24 VDC / 5 VDC)	

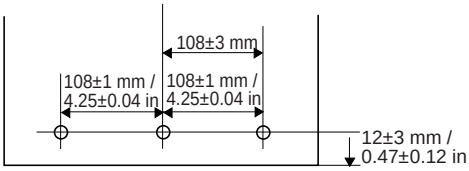
Hole position

[1] Puncher unit-L1 (2-Hole)

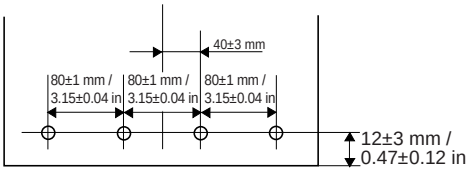


[2] Puncher unit-M1 (2-/3-Hole)

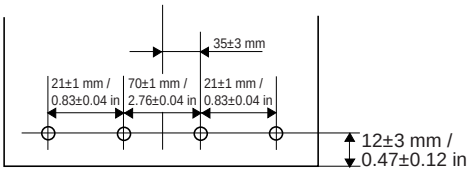




[3] Puncher unit-N1 (4-Hole (FRA))



[4] Puncher unit-P1 (4-Hole (SWD))



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