Introduction

Important Notices

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.

Explanation of Symbols

The following symbols are used throughout this Service Manual.

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<th>Explanation</th>
<th>Symbols</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Check" /></td>
<td>Check.</td>
<td><img src="image" alt="Remove the claw" /></td>
<td>Remove the claw.</td>
</tr>
<tr>
<td><img src="image" alt="Check visually" /></td>
<td>Check visually.</td>
<td><img src="image" alt="Insert the claw" /></td>
<td>Insert the claw.</td>
</tr>
<tr>
<td><img src="image" alt="Check a sound" /></td>
<td>Check a sound.</td>
<td><img src="image" alt="Push the part" /></td>
<td>Push the part.</td>
</tr>
<tr>
<td>Symbols</td>
<td>Explanation</td>
<td>Symbols</td>
<td>Explanation</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td><img src="image1" alt="Connect the connector." /></td>
<td>Connect the connector.</td>
<td><img src="image2" alt="Disconnect the power cable." /></td>
<td>Disconnect the power cable.</td>
</tr>
<tr>
<td><img src="image3" alt="Remove the cable/wire from the cable guide or wire saddle." /></td>
<td>Remove the cable/wire from the cable guide or wire saddle.</td>
<td><img src="image4" alt="Turn on the power." /></td>
<td>Turn on the power.</td>
</tr>
<tr>
<td><img src="image5" alt="Install the cable/wire to the cable guide or wire saddle." /></td>
<td>Install the cable/wire to the cable guide or wire saddle.</td>
<td><img src="image6" alt="Turn off the power." /></td>
<td>Turn off the power.</td>
</tr>
<tr>
<td><img src="image7" alt="Remove the screw." /></td>
<td>Remove the screw.</td>
<td><img src="image8" alt="Loosen the screw." /></td>
<td>Loosen the screw.</td>
</tr>
<tr>
<td><img src="image9" alt="Install the screw." /></td>
<td>Install the screw.</td>
<td><img src="image10" alt="Tighten the screw." /></td>
<td>Tighten the screw.</td>
</tr>
<tr>
<td><img src="image11" alt="Cleaning is needed." /></td>
<td>Cleaning is needed.</td>
<td><img src="image12" alt="Measurement is needed." /></td>
<td>Measurement is needed.</td>
</tr>
</tbody>
</table>

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, \( \rightarrow \) 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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Notes Before Servicing

⚠️ CAUTION:
At servicing, be sure to turn off the power source according to the specified steps and disconnect the power plug.

⚠️ CAUTION:
Do not turn off the power switch when downloading is under way. Turning off the main power switch while downloading is under way can disable the machine.

Points to Note at Cleaning

⚠️ CAUTION:
When performing cleaning using organic solvent such as alcohol, be sure to check that the component of solvent is vaporized completely before assembling.

Notes On Assembly/Disassembly

Follow the items below to assemble/disassemble the device.

1. Disconnect the power plug to avoid any potential dangers during assembling/disassembling works.
2. If not specially instructed, reverse the order of disassembly to reinstall.
3. Ensure to use the right screw type (length, diameter, etc.) at the right position when assembling.
4. To keep electric conduction, binding screws with washers are used to attach the grounding wire and the varistor. Ensure to use the right screw type when assembling.
5. Unless it is specially needed, do not operate the device with some parts removed.
6. Never remove the paint-locked screws when disassembling.
7. During disassembly, reassembly or transportation of the printer, remove the cartridge if required. When the cartridge is out of the printer, put it in a protective bag even in a short period of time to prevent the adverse effect of light.
8. When you replace the part that the rating plate or the product code label is attached, be sure to remove the rating plate or the product code label and put it to the new part.
Product Overview

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## Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement</td>
<td>Center</td>
<td></td>
</tr>
<tr>
<td>Installation</td>
<td>Build-in type</td>
<td></td>
</tr>
<tr>
<td>Paper Type (Buffer pass delivery tray)</td>
<td>Thin paper, Plain paper, Heavy paper, Recycled paper, Transparency, Labels, Postcard</td>
<td>Transfer from the host machine</td>
</tr>
<tr>
<td>Stack Size (Buffer pass delivery tray)</td>
<td>Feed direction: 148.0 to 431.8mm Width direction: 98.0 to 297.0mm</td>
<td>Long original paper (630mm, 1200mm) is available to fed if jam is not occurred.</td>
</tr>
<tr>
<td>Stacking capacity (Buffer pass delivery tray)</td>
<td>Height 15mm or less (equivalent of 100 sheets)</td>
<td>• Transparency, Tracing Paper and Labels are 20 sheets or less. • Envelope are 4 sheets or less.</td>
</tr>
<tr>
<td>Dimensions</td>
<td>W: 489mm × D: 493mm × H: 184mm</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Approx 4.5Kg</td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
<td>Supplied by the Finisher</td>
<td></td>
</tr>
<tr>
<td>Option</td>
<td>Unavailable</td>
<td></td>
</tr>
</tbody>
</table>
## Name of Parts

### External View

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1]</td>
<td>Buffer pass feed outlet port</td>
</tr>
<tr>
<td>[2]</td>
<td>Buffer pass delivery tray</td>
</tr>
</tbody>
</table>

### Cross Section

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1]</td>
<td>Feed Roller</td>
</tr>
</tbody>
</table>
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Basic Configuration

Basic Constitution

The buffer unit consists of the following major components:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS401</td>
<td>Buffer Pass Inlet Sensor</td>
</tr>
<tr>
<td>PS402</td>
<td>Buffer Pass Exit Sensor</td>
</tr>
<tr>
<td>PS403</td>
<td>OPEN Detection Sensor</td>
</tr>
<tr>
<td>PCB401</td>
<td>Buffer Pass Controller PCB</td>
</tr>
<tr>
<td>M401</td>
<td>Buffer Pass Feed Motor</td>
</tr>
</tbody>
</table>

Overview of Electrical Circuitry

The buffer pass operation sequence is controlled by the buffer pass controller PCB. The buffer pass controller PCB has a 32-bit CPU that performs sequence control. The buffer pass controller PCB receives various commands through the communication cable from its host to drive the motors. It also sends sensor information to its host through the communication cable.

Related service mode

• (Lv.1) COPIER > DISPLAY > VERSION > BF-PASS

Related error code

• E503-0041: Error in communication between the Finisher and Buffer Pass
• E503-0042: Error in communication between the Finisher and Buffer Pass
## Controls

<table>
<thead>
<tr>
<th>Item</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Operation</td>
<td>“Basic Operation” on page 9</td>
</tr>
<tr>
<td>Jam Detection</td>
<td>“Jam Detection” on page 10</td>
</tr>
<tr>
<td>Upgrading</td>
<td>“Upgrading” on page 12</td>
</tr>
</tbody>
</table>
**Basic Operation**

The device feeds paper that is fed from the Staple Finisher / the Booklet Finisher.

**Drive Configuration**

The following is a diagram showing the drive system of the buffer path.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>M401</td>
<td>Buffer Pass Feed Motor</td>
</tr>
<tr>
<td>PS401</td>
<td>Buffer Pass Inlet Sensor</td>
</tr>
<tr>
<td>PS402</td>
<td>Buffer Pass Exit Sensor</td>
</tr>
</tbody>
</table>
Jam Detection

Overview

The following diagram shows the arrangement of sensors used to detect jams in the buffer pass.

![Diagram of sensors]

Jam Types

Jam sensors and jam codes are listed below.

<table>
<thead>
<tr>
<th>Jam type</th>
<th>Sensor</th>
<th>Jam description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet sensor delay Jams</td>
<td>PS401</td>
<td>When the inlet sensor (PS401) does not detect the paper even when the paper is fed the specified distance after receiving a paper delivery signal from the host machine.</td>
</tr>
<tr>
<td>Exit sensor delay Jams</td>
<td>PS402</td>
<td>When the exit sensor (PS402) does not detect the paper even when the paper is fed the specified distance after the inlet sensor (PS401) detects the paper.</td>
</tr>
<tr>
<td>Inlet sensor stationary Jams</td>
<td>PS401</td>
<td>When the paper does not pass through the inlet sensor (PS401) even when the paper is fed the specified distance after the sensor detects the paper.</td>
</tr>
<tr>
<td>Exit sensor stationary Jams</td>
<td>PS402</td>
<td>When the paper does not pass through the exit sensor (PS402) even when the paper is fed the specified distance after the sensor detects the paper.</td>
</tr>
<tr>
<td>Early timing jam</td>
<td>PS401</td>
<td>When the Inlet Sensor (PS401) detect the paper before feed speed is changed.</td>
</tr>
<tr>
<td>Inlet sensor power-on jam</td>
<td>PS401</td>
<td>When the inlet sensor (PS401) detects paper during power-on.</td>
</tr>
<tr>
<td>Exit sensor power-on jam</td>
<td>PS402</td>
<td>When the exit sensor (PS402) detects paper during power-on.</td>
</tr>
<tr>
<td>Door open jam</td>
<td>PS403</td>
<td>When it is detected that the upper unit has been opened during operation.</td>
</tr>
<tr>
<td>Sequence jam</td>
<td>-</td>
<td>When the replay from the finisher is not detected for 500 msec after sent the signal from the buffer pass to the finisher.</td>
</tr>
</tbody>
</table>
Power Supply

Power Supply Route

When a host machine is turned on, 24V and 5V are supplied in buffer pass controller PCB by a finisher. The 5V is converted into 3.3V by the regulator IC on the buffer pass controller PCB. The 5V is used to drive the sensors and logic.

Protection Function

The power input circuit of buffer pass controller PCB is also provided with a fuse which is blown when an excessive current flows. The 24V circuits (used to drive the motors) are provided with the fuses or the motor drivers with an overcurrent protective function to provide protection from the over current.
When upgrading the firmware of the buffer pass controller PCB, upgrade from the host machine.
(Refer to the service manual for the host machine as to the detail.)
Periodical Service Operation Item

Periodically Replaced Parts
There are no parts that need to be periodically replaced on the buffer pass unit.

Consumable Parts
There is no consumable parts on the buffer pass unit.
Disassembly/Assembly

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PCB.................................................................................27
Removing this Machine from the Host Machine

Removing this Machine

1. Open the Front Cover [1].

2. Remove the 1 Screw [1].

3. Detach the Finisher from the host machine.
4. Disconnect the Interface Cable [1].

5. Remove the metal fixture [1].
   - 4 screws [2]

6. Remove the Rear Relay Cover [1].
   - 1 Screw [2]
7. Open the Front Cover.

8. Open the Front Upper Cover.

9. Remove the Left Upper Cover Unit [1].
   • 1 Screw [2]

10. Remove the Left Cover [1].
    • 3 Screws [2]
11. Disconnect the 2 connectors [1].
   • 1 Reuse Band [2]

12. Remove the Reversal Guide [1].
13. Remove the 2 screws [1].

14. Remove the Buffer Pass Unit.
   - 2 Hooks [1]
### List of Parts

**Sensors, Motor, PCB**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Name</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS401</td>
<td>Buffer Pass Inlet Sensor</td>
<td>“Removing the Buffer Pass Inlet Sensor (M401)” on page 24</td>
</tr>
<tr>
<td>PS402</td>
<td>Buffer Pass Exit Sensor</td>
<td>“Removing the Buffer Pass Outlet Sensor (M402)” on page 25</td>
</tr>
<tr>
<td>PS403</td>
<td>OPEN Detection Sensor</td>
<td>“Removing the OPEN Detection Sensor (M403)” on page 26</td>
</tr>
<tr>
<td>PCB401</td>
<td>Buffer Pass Controller PCB</td>
<td>“Removing the Buffer Pass Controller PCB (PCB401)” on page 27</td>
</tr>
<tr>
<td>M401</td>
<td>Buffer Pass Feed Motor</td>
<td>“Removing the Buffer Pass Motor (M401)” on page 23</td>
</tr>
</tbody>
</table>

**NOTE:**
Check the operation of the part in the following service mode:
Service Mode > SITUATION > Parts Check

**NOTE:**
Check the operation of the part in the following service mode:
Service Mode > SITUATION > Sensor Check
Removing the Buffer Pass Upper Unit

Procedure

1. Remove the Buffer Pass Upper Unit Retainer [1].
   • 1 Screw [2]

2. Remove the Buffer Pass Upper Unit.
Removing the Buffer Pass Motor (M401)

Procedure

1. Remove the Buffer Pass Motor Unit [1].
   - 3 Screws [2]
   - 1 Connector [3]

2. Remove the Buffer Pass Motor [1].
   - 2 Screws [2]
Removing the Buffer Pass Inlet Sensor (M401)

Procedure

1. Turn over the Buffer Pass Unit.

2. Remove the Buffer Pass Inlet Sensor [1].
   - 1 Connector [2]
Removing the Buffer Pass Outlet Sensor (M402)

Procedure

1. Turn over the Buffer Pass Unit.

2. Remove the Buffer Pass Outlet Sensor [2].
   - 1 Connector [1]
Removing the OPEN Detection Sensor (M403)

Procedure

1. Remove the Buffer Pass Upper Unit. “Removing the Buffer Pass Upper Unit” on page 22
2. Remove the OPEN Detection Sensor [2].
   • 1 Connector [1]
Removing the Buffer Pass Controller PCB (PCB401)

**Procedure**

1. Remove the Buffer Pass Controller PCB [1].
   - 1 Screw [2]
   - 5 Connectors [3]
   - 1 Locking Support [4]
5 Adjustment

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Basic Adjustment

Basic Adjustments

Buffer pass unit does not have adjustment work.
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Checking Before Installation

Points to Note on Installation

Install this Equipment after installing the Host Machine.

Product Name

Safety regulations require the product's name to be registered. In some regions where this product is sold, the following names may be registered instead.

• F280762

Check Items When Turning OFF the Main Power

Check that the main power switch is OFF.

1. Turn OFF the main power switch of the Host Machine.
2. Be sure that control panel display and main power lamp are both turned OFF, and then disconnect the power plug.
Unpacking

Unpacking Procedure

1. Open the container box, and then take out the included parts and cushioning materials.

2. Open the plastic sheet. Take out the Buffer Pass Unit by holding its both sides as shown in the figure, and then remove all the tapes and the cushioning materials.
Checking the Contents

Check that none of the included parts is missing.

[2] Screw (Binding; M4x8) 3pcs.
[4] Screw (RS tightening; M3x8) 2pcs.
[5] Screw (Binding; M4x14) 2pcs.

<Others>
Including guides
CAUTION:
Make sure that the Host Machine is turned off and the power plug is disconnected from the outlet.

1. When the Reversal Guide has been installed to the host machine, remove it.
   - 2 Claws

2. Remove the Delivery Rear Cover (Upper/Lower).
   - 1 Screw
   - 1 Hook

3. Remove the Sensor Flag of the Delivery Tray Full Detection Sensor 1 (the lower sensor flag in the figure).

4. Install the Delivery Rear Cover (Upper/Lower).
   - 2 Bosses
   - 1 Hook
   - 1 Screw
5. Remove the Inner Cover (Upper/Lower).
   • 2 Screws

**CAUTION:**
Be careful not to forget to remove the Inner Cover (Upper/Lower), if it is forgotten to remove the cover, the Buffer Pass is not grounded, so that the controller of the Host Machine may be damaged by an electro static noise.

6. Remove the Inner Face Seal.

7. Remove the Face Cover.
   • 1 Claw

8. Remove the Face Cover.
   • 1 Claw

---

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9. Open the Front Cover.

10. Open the Front Upper Cover.

11. Remove the Left Upper Cover Unit.
   • 1 Screw

12. Remove the Left Cover.
   • 3 Screws

13. Remove the Subtray.
   • 1 Hook
   • 2 Claws
14. Set the Inner Buffer Pass Unit to the host machine as shown in the figure carefully so that the host machine can not be damaged.
   - 2 Projections
   - 2 Hooks

**NOTE:**
Confirm that the 2 projections at rear and 2 hooks at front of the Buffer Pass Unit are inserted securely.

15. Connect the connector of the Buffer Pass Unit to the Host Machine.
   - 2 Connectors
   - 1 Reuse Band

**NOTE:**
Surely insert the Reversal Guide till a gap disappears.

16. Fix the Buffer Pass Unit to the Host Machine.
   - 2 Screws (Binding: 4x8)

17. Install the Reversal Guide.
   - 2 Claws
18. Remove the Left Upper Cover, which excluded in procedure 11.
   - 1 Screw
   - 3 Hooks

19. Install the Buffer Pass Left Upper Cover to the Left Upper Cover Unit.

   NOTE:
   Protection Sheet of Buffer Pass Left Upper Cove is removed at later procedure.

   - 3 Hooks
   - 1 Screw (P Tightening; M4x10)

20. Install the Left Cover.
   - 3 Screw (RS Tightening; M3x8)

21. Install the Left Upper Cover Unit.
   - 4 Claws
   - 1 Screw (RS Tightening; M3x8)
22. Remove the Protection Sheet from the Buffer Pass Left Upper Cover.

23. Close the Front Upper Cover.

24. Close the Front Cover.

25. Install the Rear Relay Cover.
   - 3 Hooks
   - 1 Screw (Binding; M4x8)

26. Remove the 2 Face Seals (White) from Left Cover.
27. Install the Grounding Plate.
   • 2 Screws (Binding ; M4x14)
   • 2 Screws (RS Tightening ; M3x8)
Disposal Parts Check

1. Following disposal parts are remained after completion of the installation work.
   - [5] Inner Cover (Upper) 1pc.
   - [6] Inner Cover (Lower) 1pc.
   - [7] Inner Face Seal 1pc.
   - [8] Screw (RS Tightening ; M3x8) 2pcs.
   - [9] Left Upper Cover 1pc.
   - [10] Protection Sheet 1pc.

Operation Check

1. Turn ON the main power of the Host Machine after installing the Finisher.

2. Check the operation such as paper feed to make sure that problems such as a jam or malfunction do not occur.
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General Circuit Diagram.................................44
## Solvents and Oils

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Uses</th>
<th>Composition</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| 1   | Alcohol             | Cleaning; e.g., plastic, rubber parts, external covers. | Fluoride-family hydrocarbon Alcohol Surface activating agent Water | • Do not bring near fire  
    |                     |                                              |                                          |   • Procure locally  
    |                     |                                              |                                          |   • Substitute: IPA (isopropyl alcohol) |
| 2   | Solvent             | Cleaning; e.g., metal, oil or toner stain    | Fluoride-family hydrocarbon Chlorine-family hydrocarbon Alcohol | • Do not bring near fire  
    |                     |                                              |                                          |   • Procure locally  
    |                     |                                              |                                          |   • Substitute: MEK |
| 3   | Lubricating oil(EM-50L) | Lubrication; friction areas.                      | Special oil Special solid lubricating agent Lithium soap | • Tool No.:HY9-0007 |

## Special Tools

None