Puncher Unit-BE1/BF1/BG1/BH1
Service Manual

Product Outline
Function
Parts Replacing and Cleaning
Installation
Application
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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.

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="" alt="Check" /></td>
<td>Check.</td>
</tr>
<tr>
<td><img src="" alt="Check visually" /></td>
<td>Check visually.</td>
</tr>
<tr>
<td><img src="" alt="Check the noise" /></td>
<td>Check the noise.</td>
</tr>
<tr>
<td><img src="" alt="Disconnect the connector" /></td>
<td>Disconnect the connector.</td>
</tr>
<tr>
<td><img src="" alt="Connect the connector" /></td>
<td>Connect the connector.</td>
</tr>
<tr>
<td><img src="" 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>
</tr>
<tr>
<td><img src="" alt="Set the cable/wire to the cable guide or wire saddle" /></td>
<td>Set the cable/wire to the cable guide or wire saddle.</td>
</tr>
<tr>
<td><img src="" alt="Remove the screw" /></td>
<td>Remove the screw.</td>
</tr>
<tr>
<td><img src="" alt="Tighten the screw" /></td>
<td>Tighten the screw.</td>
</tr>
<tr>
<td><img src="" alt="Remove the claw" /></td>
<td>Remove the claw.</td>
</tr>
<tr>
<td><img src="" alt="Insert the claw" /></td>
<td>Insert the claw.</td>
</tr>
<tr>
<td><img src="" alt="Use the bundled part" /></td>
<td>Use the bundled part.</td>
</tr>
<tr>
<td><img src="" alt="Push the part" /></td>
<td>Push the part.</td>
</tr>
<tr>
<td><img src="" alt="Plug the power cable" /></td>
<td>Plug the power cable.</td>
</tr>
<tr>
<td><img src="" alt="Turn on the power" /></td>
<td>Turn on the power.</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, ![Mechanical Drive Path]() represents the path of mechanical drive; where a signal name accompanies the symbol, the arrow ![Electric Signal Direction]() 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.
Safety Precautions

Notes Before it Works Serving
Notes Before it Works Serving

⚠️ Caution:
When servicing, be sure to follow the specified procedure. Before starting the service work, be sure to turn off the host machine and finisher and unplug the finisher.

⚠️ Caution:
Never turn off the host machine or finisher during downloading. If you do so, this equipment may become inoperative.
1

Product Outline

- Features
- Specifications
- Names of Parts
Features

High-accuracy Punch Mode
Allows setting of punch hole position accuracy by selecting a user mode (normal mode or high-accuracy mode).

Compact Design
Installable in the finisher, requiring a small room.
## Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punching method</td>
<td>Spinning punching (Sequential punching)</td>
</tr>
<tr>
<td>Paper weight</td>
<td>52 g/m² to 256 g/m²</td>
</tr>
<tr>
<td>Paper size</td>
<td><img src="#" alt="Table" /></td>
</tr>
<tr>
<td></td>
<td><strong>&lt;2 or 3 holes (Puncher Unit-BF1)&gt;</strong></td>
</tr>
<tr>
<td></td>
<td>A3, A4, 11&quot; x 17&quot;, LGL<em>¹, LTR, LTRR</em>¹, EXEC</td>
</tr>
<tr>
<td></td>
<td>*¹: 2 holes only</td>
</tr>
<tr>
<td></td>
<td><strong>&lt;2 or 4 holes (Puncher Unit-BG1)&gt;</strong></td>
</tr>
<tr>
<td></td>
<td>A3, B4, A4, A4R, B5, B5R, 11&quot; x 17&quot;, LGL,</td>
</tr>
<tr>
<td></td>
<td>LTR, LTRR, EXEC, EXECR</td>
</tr>
<tr>
<td></td>
<td><strong>&lt;4 holes (Puncher Unit-BH1)&gt;</strong></td>
</tr>
<tr>
<td></td>
<td>A3, A4</td>
</tr>
<tr>
<td>Punched hole diameter</td>
<td>2 or 3 holes: 8.0 mm</td>
</tr>
<tr>
<td></td>
<td>2 or 4 holes: 6.5 mm</td>
</tr>
<tr>
<td></td>
<td>4 holes: 6.5 mm</td>
</tr>
<tr>
<td>Punch waste case capacity</td>
<td>2 or 3 holes: 4,500 sheets or more</td>
</tr>
<tr>
<td></td>
<td>2 or 4 holes: 5,000 sheets or more</td>
</tr>
<tr>
<td></td>
<td>4 holes: 5,000 sheets or more</td>
</tr>
<tr>
<td>Dimensions</td>
<td>95(W) x 715(D) x 392 (H) mm</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 4 kg</td>
</tr>
<tr>
<td>Power supply</td>
<td>Powered from finisher</td>
</tr>
</tbody>
</table>
Names of Parts

External View

- Punch motor
- Punch cover
- Jam operation lever
- Punch slide motor
- Panch waste case

Cross Section

- Punch blade
- Punch blade up/down support pin
- Rack gear
- Dies
- Photosensor PCB
- LED PCB
- Panch waste full detection PCB
Technology

- Basic Configuration
- Controls
Basic Configuration

Functional Configuration

This equipment mainly consists of a punch block, punch slide block, and punch waste case block.

2. Punch slide block [2] Moves the punch block to the punching position (rear end of paper) according to the paper size.
3. Punch waste case block [3] Collects the punch waste generated when punch holes are made at the rear end of paper.

MEMO:
This equipment does not incorporate a microcomputer. It is controlled by the finisher controller PCB incorporated in the finisher.

Overview of Electrical Circuitry

Electric control of this equipment is performed by the finisher (finisher controller PCB) and puncher driver PCB.

Finisher controller PCB

Motor driver

Motors

Sensors

Puncher driver PCB
Component Configuration

■ Sensor Layout

Only the optical sensors on the feed path are shown below.

Photosensor PCB (PT1, PT2, PT3, PT4, PT5)

LED PCB (LED1, LED2, LED3, LED4, LED5)

Drive Configuration

M101: Punch slide motor
M102: Punch motor
Basic Operation Outline

This equipment makes punch holes at the rear end of paper. This equipment is optionally available and installed in the feed path inside the finisher. The paper fed to the punch block stops at the punching position temporarily. After this, the rack gear is driven back and forth to move the punch blades vertically, making punch holes. These operations are controlled by the finisher controller PCB. Every part of the puncher is driven by the puncher driver PCB.
Overview

This unit is located in the feed path inside the finisher and sequentially punches holes once the media stops.

The media loaded from the host machine is fed by the inlet roller and feed roller of the finisher. When the trailing edge of the media reaches a prescribed location, the media is stopped for a moment and punched at the trailing edge.

The name and role of motors and sensors used for punching are shown below.

<table>
<thead>
<tr>
<th>Motor</th>
<th>Function</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punch slide motor (M101)</td>
<td>Drives the punch slide unit.</td>
<td>-</td>
</tr>
<tr>
<td>Punch motor (M102)</td>
<td>Drives the punch unit.</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motor</th>
<th>Function</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal registration HP sensor (S101)</td>
<td>Detects the punch slide unit home position.</td>
<td>-</td>
</tr>
<tr>
<td>Punch position sensor (S102)</td>
<td>Detects the punch blade position.</td>
<td>-</td>
</tr>
<tr>
<td>Punch 2-/3-hole sensor (S103)</td>
<td>Detects the punch hole change.</td>
<td>-</td>
</tr>
<tr>
<td>Punch HP sensor (S104)</td>
<td>Detects the punch blade home position.</td>
<td>-</td>
</tr>
<tr>
<td>Punch motor clock sensor (S105)</td>
<td>Detects the punch motor clock.</td>
<td>-</td>
</tr>
<tr>
<td>Inlet sensor (S106)</td>
<td>Detects the feeding of media.</td>
<td>-</td>
</tr>
<tr>
<td>Punch waste full detection sensor (LED1, PT1(PCB2))</td>
<td>Detects when punch waste is full.</td>
<td>-</td>
</tr>
<tr>
<td>Horizontal registration sensor (LED1 ~ LEDES(PCB3)/PT1 ~ PT5(PCB4))</td>
<td>Detects the media far side edge position.</td>
<td>-</td>
</tr>
</tbody>
</table>
Construction of the Control System

The puncher unit consists of a die and hole puncher (punch blade). The punch blade is driven by the punch motor (M102). The punch motor (M102) drives the rack gear back and forth. This moves the punch blade up and down with the punch blade up/down support pin to perform punching.

The home position of the punch blade is detected by Punch 2-/3-hole sensor (S103) and punch HP sensor (S104), and the lowering position of the punch blade is detected by the punch position sensor (S102).

The punch motor (M102) is a DC motor. In order to accurately stop the punch motor (M102) at home position, the punch motor clock sensor (S105) counts the prescribed number of clocks and stops the punch motor.

There is an inlet sensor (S106) at the entrance of the puncher unit to detect the leading and trailing edge of the media. The inlet media feed path of the puncher unit has 5 photo receiving transistors (photosensor PCB) on the upper side and five sets of LEDs (LED PCB) on the lower side to function as 5 sensors. These are horizontal registration sensor used to detect the media far side position to determine the position to punch holes.

The punch motor, punch unit, and above sensors form the punch slide unit which moves back and forth according to the media size. The back and forth movement is driven by the punch slide motor (M101).

The home position of the punch slide unit is detected by the horizontal registration HP sensor (S101). The punch slide motor (M101) is a 2 phase stepping motor.

Punch motor and punch slide motor are driven by the puncher driver PCB with control signal from the finisher controller PCB.

The punch waste generated by punching operation is collected in the punch waste case. The filling of punch waste is detected by a reflective type sensor (LED1/PT1 on punch waste full detection PCB).
The hole puncher is driven by the punch motor (M102). The home position of the hole puncher is detected by the punch position sensor (S102) and punch HP sensor (S104). Home position is reached when the two sensors both detect the sensor flag.

Punch operation is performed by driving the rack gear back and forth with the punch motor (M102) and lifting the hole puncher through the punch lifter pin. The rack gear has sensor flags and the punch operation is detected by the combination of these sensor flags and 3 sensors (punch position sensor (S102), punch 2-/3-hole sensor (S103), and punch HP sensor (S104)).

The items controlled by the combination of sensor flags and sensors are shown below.

If 2 hole type/2 hole type Puncher Unit-BF1/2 hole type Puncher Unit-BG1/Puncher Unit-BH1.

<table>
<thead>
<tr>
<th>Hole puncher condition</th>
<th>Punch HP sensor (S104)</th>
<th>Punch position sensor (S102)</th>
<th>Punch 2-/3-hole sensor (S103)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home position (raised position)</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>Lowered position</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Raised position</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

- If 3 hole type Puncher Unit-BF1/4 hole type Puncher Unit-BG1. The rack gear of the puncher unit that punches two types of holes is driven back and forth from the home position in the range opposite to the above.

<table>
<thead>
<tr>
<th>Hole puncher condition</th>
<th>Punch HP sensor (S104)</th>
<th>Punch position sensor (S102)</th>
<th>Punch 2-/3-hole sensor (S103)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home position (raised position)</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>Lowered position</td>
<td>OFF</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>Raised position</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
</tr>
</tbody>
</table>
Horizontal registration operation

The punch slide unit is driven by the punch slide motor (M101) to perform horizontal registration. The home position of the punch slide unit is detected by the horizontal registration HP sensor (S101). The punch slide unit detects the leading edge of the media with the inlet sensor (S106) and horizontal registration sensor (LED1 to 5 on the LED PCB, PT1 to 5 on the photosensor PCB) and moves to the trailing edge of the media according to the media size. The horizontal registration operation is as follows:

1) When the leading edge of the media is detected by the inlet sensor (S106) of the puncher unit, the punch slide motor (M101) starts to move the punch slide unit to the front side.

2) After the horizontal registration sensor (LED1 to 5, PT1 to 5) detects the far end of the media with the size signal sent from the host machine, the punch slide motor (M101) drives further to the front side prescribed position and stops the punch slide unit.
3) Feeding of media is stopped when the inlet sensor (S106) detects the trailing edge of the media and the media is switched back and bumped to the stopper and registered. Then the punch motor (M102) is driven to punch the media.

4) When punching ends, the punch slide motor (M101) is reversed to return the punch slide unit to home position and stopped.

5) The punch slide unit returns to the home position after punching each sheet and repeats the above procedure even if the media is fed continuously.
Servicing Work

■ Scheduled Servicing

<table>
<thead>
<tr>
<th>Item</th>
<th>Part name</th>
<th>Expected service life</th>
<th>Qty</th>
<th>Operation</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Periodically replaced parts</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumable parts</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Periodically serviced parts</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

■ Upgrade

Since this equipment does not incorporate a CPU, upgrade is not required. Carry out upgrade on the finisher side.
Parts Replacement and Cleaning Procedure

- Removing this Equipment
- List of Parts
- Motors
- Sensors
- PCBs
Removing this Equipment

Removing from the finisher

1) Open the finisher front door.
2) Remove the finisher rear center cover with a flat head screwdriver.
3) Remove 4 screws and remove the finisher rear cover.
4) Remove the punch controller PCB connector (CN4) and remove the punch waste full sensor cable from the cable guide.

5) Remove the 2 finisher controller PCB connectors (CN127, CN128). Remove the punch unit cable from 7 locations of the cable guide and remove the reuse band.

6) Pull out the punch unit cable connector.
7) Remove 1 screw and remove the punch unit securing pin.

Note:
- Hold the punch unit at the locations shown below.
- Do not hold the motor gear.

8) Remove the punch unit from the finisher.
Removing from the saddle finisher

1) Open the finisher front door.

2) Remove 4 screws and remove the inner top cover.

3) Remove the finisher rear center cover with a flat head screwdriver.
4) Remove 4 screws and remove the finisher rear cover.

5) Remove the punch controller PCB connector (CN4) and remove the punch waste full sensor cable from the cable guide.

6) Remove the 2 finisher controller PCB connectors (CN127, CN128). Remove the punch unit cable from 7 locations of the cable guide and remove the reuse band.

7) Pull out the punch unit cable connector.
5) Remove 1 screw and remove the punch unit lock pin.

Note:
- Hold the punch unit at the locations shown below.
- The punch front cover is not attached when removing the punch unit from the saddle finisher, but the punch unit holding location is the same.
- Do not hold the motor gear.

9) Remove the punch unit from the finisher.
### Motors

<table>
<thead>
<tr>
<th>No.</th>
<th>Parts name</th>
<th>Parts number</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>M101</td>
<td>Punch slide motor</td>
<td>FK2-8196</td>
<td>3-11</td>
</tr>
<tr>
<td>M102</td>
<td>Punch motor</td>
<td>FK2-8197</td>
<td>3-10</td>
</tr>
</tbody>
</table>

### Sensors

<table>
<thead>
<tr>
<th>No.</th>
<th>Parts name</th>
<th>Parts number</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>S101</td>
<td>Horizontal registration HP sensor</td>
<td>WG8-5823</td>
<td>-</td>
</tr>
<tr>
<td>S102</td>
<td>Punch position sensor</td>
<td>WG8-5823</td>
<td>-</td>
</tr>
<tr>
<td>S103</td>
<td>Punch 2-/3-hole sensor</td>
<td>WG8-5823</td>
<td>-</td>
</tr>
<tr>
<td>S104</td>
<td>Punch HP sensor</td>
<td>WG8-5823</td>
<td>-</td>
</tr>
<tr>
<td>S105</td>
<td>Punch motor clock sensor</td>
<td>WG8-5823</td>
<td>-</td>
</tr>
<tr>
<td>S106</td>
<td>Inlet sensor</td>
<td>WG8-5854</td>
<td>-</td>
</tr>
<tr>
<td>No.</td>
<td>Parts name</td>
<td>Parts number</td>
<td>Reference</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------</td>
<td>--------------</td>
<td>-----------</td>
</tr>
<tr>
<td>PCB1</td>
<td>Puncher driver PCB</td>
<td>FM4-0310</td>
<td>3-14</td>
</tr>
<tr>
<td>PCB2</td>
<td>Panch waste full detection PCB</td>
<td>FM4-0311</td>
<td>3-13</td>
</tr>
<tr>
<td>PCB3</td>
<td>LED PCB</td>
<td>FM4-0312</td>
<td>3-16</td>
</tr>
<tr>
<td>PCB4</td>
<td>Photosensor PCB</td>
<td>FM4-0313</td>
<td>3-18</td>
</tr>
</tbody>
</table>
MEMO:
The figure for this procedure has the punch front cover attached, but the procedure is the same even if the punch front cover is removed.

1) Remove the punch unit from the finisher.

2) Remove 1 stepped screw, 1 screw and remove the punch upper cover.

3) Remove the cable from 3 locations of the cable guide. Remove 2 connectors and 3 screws and remove the punch motor together with the mount.
<Finisher>

1) Separate the finisher from the host machine.

2) Remove the finisher rear center cover with a flat head screwdriver.

3) Remove 4 screws and remove the finisher rear cover.

4) Remove 1 connector and 2 screws, and remove the punch slide motor.
### <Saddle finisher>

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Separate the finisher from the host machine.</td>
</tr>
<tr>
<td>2)</td>
<td>Remove the finisher rear center cover with a flat head screwdriver.</td>
</tr>
<tr>
<td>3)</td>
<td>Remove 4 screws and remove the finisher rear cover.</td>
</tr>
<tr>
<td>4)</td>
<td>Remove 1 connector and 2 screws, and remove the punch slide motor.</td>
</tr>
</tbody>
</table>

![Diagram showing steps 1 and 2](image1.png)

![Diagram showing steps 3 and 4](image2.png)
Sensors

Removing the punch waste full detection sensor (LED1, PT1(PCB2))

<Finisher>
1) Separate the finisher from the host machine.
2) Remove 1 screw and remove the punch waste full detection sensor together with the mount.
3) Remove 1 connector and 2 hooks, and remove the punch waste full detection sensor.

<Saddle finisher>
1) Separate the finisher from the host machine.
2) Pull out the saddle unit.
3) Remove 1 screw and remove the punch waste full detection sensor together with the mount.
4) Remove 1 connector and 2 hooks, and remove the punch waste full detection sensor.
Removing the puncher driver PCB (PCB1)

1) Remove the finisher rear center cover with a flat head screwdriver.

2) Remove 4 screws and remove the finisher rear cover.

3) Remove all connectors (9) on the puncher driver PCB.

4) Remove 2 screws and remove the puncher driver PCB.
<Saddle finisher>

1) Remove the finisher rear center cover with a flat head screwdriver.

2) Remove 4 screws and remove the finisher rear cover.

3) Remove all connectors (9) on the puncher driver PCB.

4) Remove 2 screws and remove the puncher driver PCB.
Removing the LED PCB (PCB3)

MEMO:
The figure for this procedure has the punch front cover attached, but the procedure is the same even if the punch front cover is removed.

1) Remove the punch unit from the finisher.
2) Remove 1 stepped screw, 1 screw and remove the punch upper cover.
3) Remove 2 screws and 1 connector, and remove the feed guide (upper).
4) Remove 2 stepped screws, 1 screw and remove the feed guide (lower).

5) Remove 2 screws and remove the LED PCB.
Removing the photosensor PCB (PCB4)

**MEMO:**
The figure for this procedure has the punch front cover attached, but the procedure is the same even if the punch front cover is removed.

1. Remove the punch unit from the finisher.

2. Remove 1 stepped screw, 1 screw and remove the punch upper cover.

3. Remove 2 screws and 1 connector, and remove the photosensor PCB.
Installation

- Checking the Contents
- Installation Procedure
# How to Utilize This Installation Procedure

## Description Used in This Procedure

- In this procedure, Finisher and Staple Finisher are inclusively called the finisher.
- In this procedure, Saddle Finisher and Booklet Finisher are inclusively called the saddle finisher.

## When Using the Parts Included in the Package

A symbol is described on the illustration in the case of using the parts included in the package of this product.

## Symbols in the Illustration

The frequently-performed operations are described with symbols in this procedure.

- **Screw**
  - Tighten
  - Remove

- **Connector**
  - Connect
  - Disconnect

- **Harness**
  - Secure
  - Free

- **Claw**
  - Insert
  - Remove
  - Push
  - Plug in
  - Turn on

- **Checking instruction**
  - Check
  - Visual Check
  - Sound Check

---

# Product Name

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

- F280260

---

# Making Pre-installation Checks

## Cautions at the Installation

1. Check that the main power switch is OFF.
2) Turn OFF the main power switch of the Host Machine.
2) Be sure that the Control Panel Display and the Main Power Lamp are both turned OFF, and then disconnect the power plug.
Unpacking and Checking the Contents

Checking the Contents

Open the container box and check that none of the included parts is missing.

When installing to the finisher

- Punch unit ............................................................................1 pc.
- Punched waste paper full sensor unit ..................................1 pc.
- Punched waste paper box ...................................................1 pc.
- Punched waste paper box stopper ....................................1 pc.
- Screw (Bind, M3 x 6)...........................................................1 pc.
- Punch unit fixing pin (for finisher)........................................1 pc.
- Punch unit fixing pin (for saddle finisher).............................1 pc.
- Punch latch unit ...............................................................1 pc.

*1: These are used only when installing this unit to the finisher.
*2: These are used only when installing this unit to the saddle finisher.

When installing to the saddle finisher

- Screw (Bind, M4 x 7) .............................................................3 pcs.
- Screw (TP, M3 x 6) ..............................................................3 pcs.
- Punch jam label ...................................................................1 pc.
- Punch lever caution label .....................................................1 pc.

*1: These are used only when installing this unit to the finisher.
*2: These are used only when installing this unit to the saddle finisher.
*3: Only two screws are used when installing this unit to the finisher, and three screws are used when installing this unit to the saddle finisher.
Installation Procedure

When installing to the finisher

MEMO:
- The equipment is secured with packaging tapes and cushioning materials to protect it against vibration and shock during transportation. Remove all packaging tapes and cushioning materials before installing the equipment.
- When installing to the saddle finisher, refer to “When installing to the saddle finisher”.

1) Open the front cover of the finisher.

2) Remove two screws, and then remove the right inner cover of the finisher.
3) Using the nipper, cut out the face cover of the punched waste paper box from the right inner cover.

4) Release the hook with the flat head screwdriver, and then remove the PCB cover of the finisher.

5) Remove four screws, and then remove the rear cover of the finisher.

6) Disconnect a connector and remove three screws, and then remove the feed unit. (The removed feed unit and screws are no longer required.)
7) Remove two screws, and then remove the magnet unit. (The removed magnet unit and screws are no longer required.)

8) Using two supplied screws (Bind, M4 x 7), attach the included punch latch unit.

9) Using a supplied screw (Bind, M3 x 6), attach the included punched waste paper full sensor unit.
10) Using two supplied screws (TP, M3 x 6), attach the included punched waste paper box stopper.

**Caution:**
If the attached location of the stopper is wrong, the punched waste paper box will be not secured by the stopper. This may result in the alarm of “Punched chips full or No waste paper box”.

**Caution:**
Hold the punch unit as shown by the following illustration. Do not hold the motor gear assembly.
11) Attach the supplied punch unit to the finisher by matching the hole on the front side of the punch unit with the pin on the finisher.

12) Attach the supplied punch unit fixing pin (for finisher), and then secure it with the supplied screw (Bind, M4 x 7).

13) Connect a connector of the punch unit.

14) Put the harness of the punch unit in the harness guides, and then attach the re-use band.

Connect two connectors of the punch unit to the two connectors (CN127 and CN128) on the finisher controller PCB.
15) Connect a connector of the punched waste paper full sensor to the connector (CN4) on the puncher driver PCB.

16) Using four screws, attach the rear cover of the finisher removed in step 5).

17) Attach the PCB cover of the finisher removed in step 4).

18) Using two screws, attach the right inner cover of the finisher removed in step 2).

19) Attach the supplied punch waste paper box.

20) Raise the puncher unit, and then affix the supplied labels at the positions shown by the following illustration.

- Affix the punch jam label that “A” is printed on the label sheet to the left inner cover of the finisher.
- Affix the punch lever caution label of the user specified language under the puncher unit.

21) Close the front cover of the finisher.
22) The following parts will be no longer needed once the puncher unit has been installed.
   < Included parts >
   - Punch unit fixing pin (for saddle finisher): 1 pc.
   - Screw (TP, M3 x 6): 1 pc.

   < Removed parts from the finisher >
   - Screw: 5 pcs.
   - Magnet unit: 1 pc.
   - Feed unit: 1 pc.
   - Face cover of the right inner cover: 1 pc.
Adjusting the Output Level of the Punch Waste Full Sensor

After installing this unit, adjust the output level of the punched waste paper full sensor unit as follows.

1) Perform the following item in the Service mode.
   - Service mode > SORTER > FUNCTION > FN-SENS2      Press the OK button on the screen.

2) When completing the output level adjustment successfully, indicate the "OK" show up on the screen. When indicated "OK" on the screen, adjustment is finished.

MEMO:
If "NG" shows up on the screen at the step 2), retry the adjustment repeating the step 1). Should "NG" be still indicated though retrying the adjustment, check the relative parts of the punched waste full sensor such as its attaching or connectors, etc.

Operation Check

After completion of installation, check whether punch unit operates normally by performing the punch operation from the operation panel of the host machine.
When installing to the saddle finisher

**MEMO:**
The equipment is secured with packaging tapes and cushioning materials to protect it against vibration and shock during transportation. Remove all packaging tapes and cushioning materials before installing the equipment.

1) Open the front cover of the saddle finisher.

2) Remove four screws, and then remove the right inner cover of the saddle finisher.

3) Using the nipper, cut out two face cover from the right inner cover.

4) Release the hook with the flat head screwdriver, and then remove the PCB cover of the saddle finisher.
5) Remove four screws, and then remove the rear cover of the saddle finisher.

6) Disconnect a connector and remove three screws, and then remove the feed unit. (The removed feed unit and screws are no longer required.)

7) Gripping the hook of the handle, pull out the saddle stitcher unit gently until it stops.
8) Using a supplied screw (Bind, M3 x 6), attach the included punched waste paper full sensor unit.

9) Using two supplied screws (TP, M3 x 6), attach the included punched waste paper box stopper.

Caution:
If the attached location of the stopper is wrong, the punched waste paper box will be not secured by the stopper. This may result in the alarm of "Punched chips full or No waste paper box".
10) Push back the saddle stitcher unit gently into the finisher until it stops.

Caution:
Hold the punch unit as shown by the following illustration. Do not hold the motor gear assembly.

11) Remove the two screws of the supplied punch unit, and then remove the punch front cover. (The removed screws and the punch front cover are no longer required.)

12) Attach the supplied punch unit to the saddle finisher by matching the hole on the front side of the punch unit with the pin on the finisher.

13) Attach the supplied punch unit fixing pin (for saddle finisher), and then secure it with the supplied screw (TP, M3 x 6).
14) Connect a connector of the punch unit.

15) Put the harness of the punch unit in the harness guides, and then attach the re-use band. Connect two connectors of the punch unit to the two connectors (CN127 and CN128) on the finisher controller PCB.

16) Connect a connector of the punched waste paper full sensor to the connector (CN4) on the puncher driver PCB.

17) Using four screws, attach the rear cover of the saddle finisher removed in step 5). 18) Attach the PCB cover of the saddle finisher removed in step 4). 19) Using four screws, attach the right inner cover of the saddle finisher removed in step 2).

20) Attach the supplied punch waste paper box.
21) Affix the supplied punch jam label that “B” is printed on the label sheet to the left inner cover of the saddle finisher as shown by the following illustration.

22) Close the front cover of the saddle finisher.

23) The following parts will be no longer needed once the puncher unit has been installed.

<Included parts>
- Punch unit fixing pin (for finisher): 1 pc.
- Punch latch unit: 1 pc.
- Screw (Bind, M4 x 7): 3 pcs.
- Punch lever caution label: 1 pc.
- Punch front cover and two screws removed from punch unit

<Removed parts from the saddle finisher>
- Screw: 3 pcs.
- Feed unit: 1 pc.
- Face cover of the right inner cover: 1 pc.
Adjusting the Output Level of the Punch Waste Full Sensor

After installing this unit, adjust the output level of the punched waste paper full sensor unit as follows.

1) Perform the following item in the Service mode.
   - Service mode > SORTER > FUNCTION > FN-SENS2 Press the OK button on the screen.
2) When completing the output level adjustment successfully, indicate the "OK" show up on the screen. When indicated "OK" on the screen, adjustment is finished.

MEMO:
If "NG" shows up on the screen at the step 2), retry the adjustment repeating the step 1). Should "NG" be still indicated though retrying the adjustment, check the relative parts of the punched waste full sensor such as its attaching or connectors, etc.

Operation Check

After completion of installation, check whether punch unit operates normally by performing the punch operation from the operation panel of the host machine.
5 Appendix

■ General Circuit Diagram