## Trimmer Unit TR5020/TR5040 Machine Code: D455-17/D520

Field Service Manual

May 2015

## **Revision History**

This is the Revision History for the Trimmer Unit TR5040 service manual.

Version	Date	Changes
Ver. 1.1	31 Mar 2015	<b>Text, Illustrations</b> . In procedures the order of the text and illustrations has been reversed. For each step, the text description (action) is followed by the relevant illustration. The callouts [A], [B], [C] in text refer to the illustration below, not above.

## Symbols, Abbreviations and Trademarks

## Conventions

Symbol	What it means
\$	Binding screw (shoulder hexagonal head)
æ	Binding screw (round flathead)
*	Black screw (heavy, fusing unit, TCRU)
•	Bushing
Ô	C-ring
Ŵ	Clip
SF.	Connector
B	E-ring
\$\$\$	FFC (Flat Film Connector)
	FFC (Flat Film Connector)
	FFC (Flat Film Connector)
۲	Gear
ş	Harness clamp
40	Harness clamp: metal: fusing unit
<b>.</b>	Hook (or tab release: sensors)
*	Knob screw (black)
<b>1</b> 2	Knob screw (sliver)
A	Pivot screw
0)°	Screw: most common: silver
Ð	Shoulder screw

Symbol	What it means	
*	Shoulder screw (black)	
- CODS	Spring	
¢0	Standoff	
ø	Stud screw	
P	Tapping screw (for plastic)	
0	Timing belt	
Ø	Washer	



The notations "SEF" and "LEF" describe the direction of paper feed. The arrows indicate the direction of paper feed.



In this manual "Main Scan" means "Horizontal" and "Sub Scan" means "Vertical", both relative to the direction of paper feed.

### Warnings, Cautions, Notes

In this manual, the following important symbols and notations are used.

## **WARNING**

• A Warning indicates a potentially hazardous situation. Failure to obey a Warning could result in death or serious injury.

## 

• A Caution indicates a potentially hazardous situation. Failure to obey a Caution could result in minor or moderate injury or damage to the machine or other property.

#### Coloritant 🖸

• Obey these guidelines to avoid problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine.

Vote

• This information provides tips and advice about how to best service the machine.

#### Safety Label



1 To avoid serious injury, work carefully around the cutting blade when removing a paper jam.

#### **Commonly Used Terms and Abbreviations**

Here is a list of commonly used terms and abbreviations that are used throughout the Field Service Manual and Appendices.

Terms	Meaning	
(ccw)	Counter-clockwise rotation of a drum, roller, gear, etc.	
(cw)	Clockwise rotation of a drum, roller, gear, etc.	
BF	Booklet Finisher SR5060 (D734)*1	
BW	Black and white (monochrome) copying or printing	
Bank	Paper Bank (1st, 2nd, 3rd Tray of the main machine)	
CIT	Cover Interposer Tray CI5030 (D738)*1	
CIT-PB	Cover Interposer Tray for Perfect Binder Type S1 (D736-2)*1	
FIN	Finisher SR5050 (D735) (corner staple only, no booklets)*1	
ITB	Image Transfer Belt	
JG	Junction Gate	
LCIT	Large Capacity Input Tray. LCIT RT5080 (D732) or LCIT RT5070 (D733)* <sup>1</sup>	
LD	Laser Diode (Laser Unit)	
LE	Leading Edge	
LSDB	Laser Synchronization Detection Board (Laser Unit)	
MFU	Multi Folding Unit FD5020 (D740)* <sup>1</sup>	
PCDU	Photoconductor Development Unit	
РВ	Perfect Binder GB5010 (D736)* <sup>1</sup>	
PFU	Paper Feed Unit (Tray 1, Tray 2, Tray 3)	
РТВ	Paper Transport Belt (between PTR and fusing unit)	
PTR	Paper Transfer Roller	
RB	Ring Binder RB5020 (D737)	
TCRU	Trained Customer Replacement Units	
TE	Trailing Edge	

Terms	Meaning	
TM/P	ID sensor. "ID sensor" is used in this manual. However, you may see "TM/P" in the SP codes on the operation panel.	
TPU	Transit Path Unit for Perfect Binder Type S1 (D736)*1	
TRM	Trimmer Unit 5040 (D520)* <sup>1</sup>	
VTU	Vertical Transport Unit	
*1	Optional peripheral devices.	

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# 1. Replacement and Adjustment

## **Common Procedures**

## **Before You Begin**



d455r000

Remove the covers, door, and tray in this order for major maintenance and cleaning:

1	Rear cover (@%x3)
2	Left upper cover (@°x2)
3	Top cover (💱 x5)
4	Front door (@ <sup>2</sup> x4)
5	Left bottom cover (🕮x2)
6	Tray unit (🎯 x2, 🕼 x2)

## Covers, Tray Unit, Door

#### **Rear Cover**

- 1. Rear cover [A] (@x3)
- 2. Raise the bottom [B] to separate the metal tabs at the top.



d455r010

3. Pull I/F connector [A] through the hole.





#### **Re-installation**

1. Be sure to engage the tabs on the top edge of the rear cover before re-attaching the bottom screws.



d455r012

## Left Upper Cover

1. Left upper cover [A] (🕅 x2)



d455r013

2. Slowly pull the top away slowly and disengage the two tabs below.



d455r014

## Top Cover

### Preparation

- Rear cover (@°x3)
- 1. Remove six screws that hold the top cover [A].



d455r015

2. Remove screws at:

[A] Left (இx2)



d455r017

[B] Rear (@<sup>®</sup>x1)



d455018

[C] Front (@ x2)



d455r019

3. Lift the top cover off.



d455r020

#### Door

## Preparation (recommended)

- Rear cover (@x3)
- Top cover (இx6)
- 1. Open the front door.



d455r021

- 2. Remove top hinge [A] (🕅 x2).
- 3. Lift the door off the post of its bottom hinge.



d455r022

#### Left Lower Cover

Preparation

- Door (@ x2)
- Left upper cover (🕅 x2)
- 1. Left lower cover [A] ( x2)



d455r023

2. Slowly pull the cover away and disengage both tabs from the holes below.



d455r024

## Tray Unit

#### Preparation

- Left upper cover (@x2)
- Door (@ x2)
- Left lower cover (@x2)
- 1. Remove two connectors at the left rear corner ( $\Im x2$ ).



d455r025

2. Remove two screws below the tray [A] ( $\mathfrak{O}\hspace{-0.5mm}^{\circ}x2).$ 



d455r026

3. Grip both sides of the tray [A], lift it straight up to disengage the four metal hooks from their holes, then pull the tray away from the side of the trimmer unit.



d455r027

1

## Feed Unit

#### Preparation

- Rear cover (@x3)
- Top cover (@x5)
- 1. Rotate lever A1 [A] clockwise to lower the feed unit.
- 2. Disconnect feed motor [B] (🖾 x1, 🐺 x1)



d455r030

3. Disconnect arm [A] (@x2).



d455r031

- 4. Grip lever A1 [A] with your left hand, and place your right hand at [B] under the feed unit.
- 5. Under the feed unit, look at the front where the arm roller and swing plate [C] are connected.



d455r032

- 6. While slowly raising the transport plate with your right hand, rotate lever **A1** toward you until the roller is aligned with the gap at [A].
- 7. While still holding the feed unit, rotate lever A1 down to separate the roller and swing plate at [B]. This separates the rollers from the swing plates at the front and back.



d455r033

8. At the rear end of shaft [A], remove the e-ring ( A1).



### d455r034

- 9. At the front end of the shaft [A], remove the e-ring  $(\mathfrak{P}_{X1})$ .
- 10. Pull off the bushing [B].

#### Colored Important

• A harness is still connected below the feed unit. Do not try to pull the feed unit away from the trimmer unit.



d455r035

11. Slowly lift the feed unit [A] and set it down against the trimmer unit as shown.



d455r036

12. Disconnect and remove the sensor bracket [A] (Ox1).



d455r037

13. The feed unit [A] is now completely separated from the trimmer unit.



d455r038

## Trim Positioning Unit

#### Preparation

• Rear cover (@x3) (page 10)

- Top cover (@ x5)
- Door (@ x2)
- Left upper cover (@ x2)
- Left lower cover (@ x2)
- Tray unit (🌮 x2, 🕼 x2)
- 1. Disconnect sensor [A] and pull the harness out through the hole ( $\mathfrak{V} x$ 1).
- Press in the releases on both sides of sensor [B], push it through its hole, then do the same for sensor [C].



3. Remove the left cover plate:

[A] Left (இx7) [B] Front (இx2)



[C] Rear (@<sup>®</sup>x2)

[D] Remove the plate



- 4. Open the harness clamps and pull out the harnesses ( $\ensuremath{\$x5}\x5).$
- 5. Close the harness clamps to prevent entangling the loose harnesses when the unit is removed.
- 6. Disconnect the harnesses connectors (🌮 x4)



d455r044

7. Disconnect the unit:

[A] Front (@x2) [B] Rear (@x2)



d455r045

- 8. Pull the harnesses [A] out from behind the shaft.
- 9. Lift the trim position unit [B] straight up and remove it.



d455r046

## Transport Unit

#### Preparation

- Remove the trim positioning unit (page 20)
- 1. Connectors [A] and [B] (Sx2)



- 2. At the front [A], disconnect the swing frame shaft ( $\textcircled{O}^{p}x1$  ).
- 3. At the rear [B], while supporting the middle of the unit with your right hand, disconnect the shaft (@x1).



d455r051

- 4. Raise the unit [A] with both hands until it is level.
- 5. Look at the rear where the roller [B] is connected to the swing frame.
- 6. While holding lever A1 at the front, move the unit and pull the roller out of the gap at [B].



d455r052

7. Pull the transport unit away from the trimmer unit and set it on a flat surface.



d455r053

#### **Re-installation**

To set the transport unit on its rollers:

- At the **front**, set the roller in the cut-out in the swing frame [B].
- At the **rear**, set the roller in its cut-out [A].



d455r054

## Trimming Blade, Blade Cradle

## Trimming Blade Cover

#### Preparation (page 10)

- Rear cover (@x3)
- Left upper cover (@ x2)
- Top cover (@ x5)

The trimming blade [A] cover protects the trimming blade



d455r060

1. Disconnect the trimming blade cover in this order:

[A] Side, bottom screws



[A] Rear (@\*x1) [B] Front (@\*x2)



d455r062

- 2. Separate the arm [A] from the bracket while you remove the cover.
- 3. The cleaning blade [B] is exposed.

## **WARNING**

- The blade is extremely sharp.
- Work carefully around the edge [C] of the blade and handle it carefully after it has been removed.



d455r063

## **Trimming Blade**

#### Preparation

- Rear cover (@x3) (page 10)
- Left upper cover (@ x2)
- Top cover (@x5)
- Trimming blade cover (@x5) (page 27)
- 1. Look for the handle [A], which is attached to the frame of the trimmer unit.



d455r070

2. Remove the handle [A] (@x2)



d455r071

3. Open the feed unit [A].



d455r071a

4. Remove the screws of the guard plate [A] ( $\mathfrak{O}x2$ ).

#### 🔁 Important

- The guard plate is permanently attached to the blade; it will not come off after the screws have been removed.
- 5. Use the guard plate screws to attach the handle [B] to the side of the guard plate (🕮 x2).



d455r072

- 6. Use the Allen key (provided with the new blade) to remove the blade hex screws.
  - The blade is compressed by these screws and three very strong springs.
  - Insert the Allen key into the first hex screw [A].
  - Attach an adjustable wrench [B] as shown.
  - Raise the wrench to relieve tension on the springs.
  - Loosen each screw a full turn each to gradually relieve the tension on each screw.
  - Continue to loosen each screw in turns to remove them.



d455r073b

#### 🔁 Important

- The screws should be removed gradually.
- To avoid stripping the threads of the other holes or screws, never remove any screw completely before the others.
- 7. Grip the handle [A] and slowly lift the blade off the heads of the large hex bolts [B] and [C].



### Comportant 🔿

• Obey local laws and regulations regarding the disposal of items like the used trimming blade.

#### **Re-installation**

1. Grip the new blade by the handle [A] and set it on the heads [B] and [C] of the hex bolts.



d455r075

- 2. Position the screw [A] at the first hole.
- 3. Raise the plate with the wrench [B].



d455r073b

- 4. Insert the first screw in the hole, then turn it until the screw is firmly attached. Do not tighten it completely.
- 5. Start the other two screws in their holes while continuing to relieve tension on the springs with the wrench.
- 6. After all the screws have been attached, tighten them one by one by about one full turn until they are all tightened completely.
- 7. Attach the provided mylar to the new blade.

## **Blade Cradle**

#### Preparation

- Trimming blade cover (@x5) (page 27)
- Trimming blade (@x3) (page 28)
- 1. Use an Allen key to remove the hex bolts of the blade cradle [A] ( $\Im$  x8)



d455r080

2. Remove the cradle and set it on a flat surface.



d455r081

## Coloritant 🔁

• Obey local laws and regulations regarding the disposal of items like the blade cradle.

## Motors

**Cutter Motor** 

## **WARNING**

- Removing the cutter motor [A] is a dangerous procedure.
- Never attempt to remove the cutter motor.
- If the cutter motor fails, the trimmer unit must be replaced.



d455r925

## Feed Unit

#### Feed Motor

#### Preparation

- Remove the paper feed unit. (page 17)
- 1. Motor connector [A] ( x1)



d455r090

2. Motor [A] ( x2)



#### **Re-installation**

- 1. Position the motor behind the frame.
- 2. Align the Teflon tooth [A] with its notch.
- 3. Press the motor against the frame and re-fasten the screws (Mx2).


#### C Important

- The tooth must be seated properly in its notch, so that the motor mount is flat against the back of the frame.
- If the screws are re-attached while the tooth is out of the notch, the motor will not be straight and the gears will not mesh properly.

# **Trim Positioning Unit**

#### **Cut Position Motor**

- Trim positioning unit (page 20)
- 1. Motor connector [A] (🖾 x1)



2. Remove the screws on the other side, then remove the motor [A] ( $\mathfrak{O}\!\!\!^{\mathfrak{R}}x2).$ 



d455r101

# Press Stopper Motor

- Trim positioning unit (page 20)
- 1. The press stopper motor is under the trim positioning unit.

1. Turn over the trim positioning unit so that you can see the motor.



d455r110

- 2. Remove bracket screws (1) and (2). ((1) x2)
- 3. Pull away the bracket [A] with the motor.



d455r111

4. Disconnect the motor (🎯 x1).



d455r112

5. Remove the motor from the bracket ( $\mathfrak{O}x2$ ).



d455r113

### **Press Roller Motor**

- Trim positioning unit (page 20)
- 1. The press roller motor is visible from the top of the trim positioning unit, near the center.





d455r120

2. Move the stopper assembly [A] away from the motor [B].



d455r121

3. Remove the two standoffs (  $\overline{\clubsuit}$  ).



d455r122

4. Disconnect the motor (\$\$x1,\$\$x2).



d455r123

5. Remove the motor.



d455r124

#### **Re-installation**

- 1. Position the motor behind the frame.
- 2. Align the Teflon tooth [A] with its notch.
- 3. Press the motor against the frame and re-fasten the screws ( $\Im$ x2).



d455r125

#### C Important

- The tooth must be seated properly in its notch, so that the motor mount is flat against the back of the frame.
- If the screws are re-attached while the tooth is out of the notch, the motor will not be straight and the gears will not mesh properly.

# Transport Unit

#### **Exit Motor**

- Trim positioning unit (page 20)
- Transport unit page 24)
- 1. The exit motor is under the left, rear corner of the transport unit.



- 2. Turn the transport unit over so that you can see the motor [A].
- 3. Disconnect the motor at [B] (State x1).



d455r131

4. Remove the motor [A] (\$\$\vec{O}\$x2).



d455r132

### **Re-installation**

- 1. Position the motor behind the frame.
- 2. Align the Teflon tooth [A] with its notch.
- 3. Press the motor against the frame and re-fasten the screws (Ox2).

1



d455r133

Coloritant 🔁

- The tooth must be seated properly in its notch, so that the motor mount is flat against the back of the frame.
- If the screws are re-attached while the tooth is out of the notch, the motor will not be straight and the gears will not mesh properly.

# **Tray Unit**

### **Tray Motor**

- Left upper cover (@x2) page 10)
- Left lower cover (@x2)
- Tray unit (@x2,@x2)
- 1. The tray motor is on the bottom of the tray unit and covered by the bottom plate. (The photo above shows the tray unit with bottom plate removed.)



- 2. Lay the tray unit upside down on a flat surface.
- 3. Remove bottom cover [A] ( Ox 6) so that you can see the motor [B].



d455r141

4. Remove side panel [A]



d455r142

5. Disconnect motor bracket [A] (🕅 x4).



d455r143

6. Remove bottom end cover [A] (@<sup>2</sup>x4).



d455r144

- 7. Remove screws , 1 2, 3 ( x3).
- 8. Disconnect sensor bracket [A] (🕅 x2)
- 9. Disconnect sensor [B] (State x 1)



- 10. Disconnect motor [A] (Stat).
- 11. Pull harness [B] through the hole.



d455r146

12. Remove the motor [A] ( $\mathfrak{O} x2$ ).



d455r147

### **Re-installation**

- 1. Position the motor behind the frame.
- 2. Align the Teflon tooth [A] with its notch.
- 3. Press the motor against the frame and re-fasten the screws ( $\Im$ x2).







- The tooth must be seated properly in its notch, so that the motor mount is flat against the back of the frame.
- If the screws are re-attached while the tooth is out of the notch, the motor will not be straight and the gears will not mesh properly.

# Sensors, Switches

# Feed Unit

### **Entrance Sensor**

#### Preparation

- Feed unit (page 17)
- 1. Disconnect and remove the sensor [A] (♣ x1, ☞ x1, ▼ x5)



d455r150

# **Trim Positioning Unit**

### **Stopper Assembly HP Sensor**

- Trim positioning unit (page 20)
- 1. The stopper assembly HP sensor is at the rear of the trim positioning unit.
- 2. Disconnect sensor [A] (☞x1, ▼x5).



# Press Stopper HP Sensor

- Trim positioning unit (page 20)
- 1. The press stopper HP sensor [A] is located near the left, rear corner of the trim positioning unit.



d455r170

2. Remove clamp screw [A] (<sup>(C)</sup>x1). This creates enough slack in the harness so that you can detach and re-attach the sensor connector.



d455r171

3. Disconnect the sensor ( $\Im x1$ ,  $\neg x5$ ).



# Press Roller HP Sensor

#### Preparation

- Trim positioning unit (page 20)
- 1. The press roller HP sensor [A] is on the side, facing down.



2. Free the harness [A] ( \$\$x2,\$\$x1). This creates enough slack in the harness so that you can detach and re-attach the sensor connector.



d455r181

3. Remove the sensor (☞x1,▼x5).



d455r182

# **Stopper Sensor**

- Trim positioning unit (page 20)
- 1. This sensor is on the right side of the trim positioning unit, below the center.



2. Turn the trim positioning unit over so that you can see the sensor [A].



d455r191

3. Free the harness [A] (₮ x2, ☞ x1). This creates enough slack in the harness so that you can disconnect and re-connect the sensor.



d455r192

- 4. Disconnect the sensor bracket [A] and sensor harness [B] (@x2, @x1).
- 5. Remove the sensor and actuator (**T** x5).



d455r193

# Trimming Unit

### Scrap Hopper Full Sensor

#### Preparation

- Feed unit (page 17)
- 1. The scrap hopper full sensor is visible on the right side of the trimmer unit, below the entrance.

56



2. Disconnect the plate [A] (\$\$\mathcal{P}\$x2).



d455r201

3. Disconnect the harness and remove plate [A] ( $\mathfrak{O}x1$ ).



d455r202

4. Disconnect sensor [A] (Stat).



d455r203

5. Remove the sensor and bracket [A] (SX2).



d455r203a

# Scrap Hopper HP Sensor

#### Preparation

• Rear cover (page 10)



1. Remove sensor bracket [A] (@Px2).



Disconnect and remove sensor [A] (<sup>3</sup>√x2,<sup>3</sup>√x1, <sup>¬</sup>x5).



# **Trimming Blade HP Sensor**

#### Preparation

- Trim position unit (page 20)
- Transport unit (page 24)
- 1. The trimming blade HP sensor is located inside the trimming motor box, next to the blade motor.



d455r220

2. Remove blade motor cover [A] (@x3).



d455r221

3. Remove sensor bracket [A] (ℬx1,x1)



d455r222

4. Disconnect and remove the sensor ( $\Im x1$ ,  $\neg x5$ )



d455r223

# Trimming Unit

### Exit Sensor

- Trim position unit (page 20)
- Transport unit (page 24)
- 1. The exit sensor is under the transport unit.



d455r230

- 2. Turn the transport unit over so that you can see the sensor.
- 3. Disconnect sensor bracket [A] (@x1).



Disconnect and remove sensor [A] (<sup>3</sup>√x1, <sup>√</sup>x5)



d455r232

# Tray Unit

# **Booklet Sensor 1**

- Left upper cover (@x2) (page 10)
- 1. Disconnect sensor bracket [A] (@<sup>2</sup>x1).



d455r240

2. Disconnect and remove sensor [A] (𝒱x1, ▼x5)



d455r241

### **Booklet Sensor 3**

- Left upper cover (@x2) (page 10)
- Left lower cover (@x2)
- Tray unit (@x2,@x2)
- 1. This sensor is under the bottom end plate of the tray unit.



d455r250

2. Remove the bottom end cover [A] ( $\mathfrak{O}x4$ ).



d455r251

- 3. Disconnect sensor bracket [A] (@<sup>2</sup>x2).
- 4. Remove harness clamp screws (1), (2), (3) ((x3).



d455r252

5. Remove the sensor [A] ( $\Im x1$ ,  $\neg x5$ ).



d455r253

# **Exit Sensor**

- Left upper cover (🕅 x2) (page 10)
- Left lower cover (🕅 x2)
- Tray unit (@x2, @x2)
- 1. The exit sensor is located under the bottom cover of the tray unit.



d455r260

- 2. Lay the tray unit upside down on a flat surface.
- 3. Remove bottom cover [A] (@x6) so that you can see the sensor [B].



d455r261

4. Disconnect sensor bracket [A] and sensor [B] ( $\mathfrak{Gr}x1$ ,  $\mathfrak{Gr}x1$ ).



d455r262

5. Remove the sensor (**T** x5)



# Switches

### Door Switch

1. Open the front door and locate the switch [A].



d455r270

2. Remove switch bracket [A] (S<sup>P</sup>x2).



- 3. On the side, pull out three standoffs (\$\$) to free the harness [A]. This creates enough slack in the harness so that you can disconnect and reconnect the harness connectors.
- 4. Disconnect the switch [B] ( $\Im x2$ ).



d455r272

5. Remove switch cover [A] (SPx2).



d455r273

- 6. Press in on both sides of the switch [A].
- 7. Push the switch through the bracket and remove it.



d455r274

8. This completes removal of the switch.



d455r275

# **Breaker Switch**

### Preparation

- Rear cover page 10
- 1. Locate the breaker switch [A] at the rear.
- 2. Disconnect the switch bracket [B] (@\*x2).



d455r280

3. Disconnect breaker switch [A] ( x4).


d455r281

4. At each corner, press down the release and push the corner out.



d455r282

5. Pull the switch out of the bracket.



d455r283

## Boards

## Main Board

### Preparation

- Rear cover (page 10)
- 1. The main board [A] is on the left.



d455r290

2. Remove the main board ( $\mathfrak{Sr}_{x14}, \mathfrak{Sr}_{x4}$ ).



d455r291

3. Lay the board on a flat, clean surface.



d455r292

## Voltage Regulator

### Preparation

- Rear cover (page 10)
- 1. The voltage regulator [A] is the board on the right, covered by the wire mesh.



d455r300

2. Disconnect the board:

[A] Top (☞ x2) [B] Bottom (☞ x1)



- 3. Detach the board bracket:
  - [A] Top (ြာx3)
  - [B] Bottom (@x2)



d455r302

4. Lay the screen on a flat surface.



d455r303

5. Remove the screen:

[A] Left side (@<sup>®</sup>x2)

[B] Right side (@x2).



d455r304

6. Remove the board (🕅 x1).



d455r305

# 2. Details

## Overview



### 1 Feed Unit

Sends the stack from the upstream unit to the transport unit.

### 2 Trim Positioning Unit

Determines the cutting position for the paper.

#### 3. Trimming Unit

Trims the edge of the stack.

### 4 Paper Scrap Hopper

Holds the paper trimmed by the cutter blade from the edge of the stack.

### **5 Transport Unit**

Takes the paper from the feed unit and sends it to the cut position unit.

### 6 Tray Unit

Collects and holds the stacks after trimming.

The trimmer unit receives folded and stapled booklets from the Booklet Finisher SR5020 D434-17 and trims their fore edges.

- The trimmer unit can be connected only to the Booklet Finisher D434-17.
- The trimmer unit handles stapled booklets only.
- Due to its length and configuration, the trimmer unit must be installed as the last peripheral downstream of the main machine and Booklet Finisher D434-17.

## **Motors and Sensors**



15. Trimming Blade HP Sensor

d455d002

No.	Part	Function	
1.	Cut Position Motor	Positions the stack for trimming.	
2.	Stopper assembly HP Sensor	Detects when the trim unit is in or out of its home position.	
3.	Press Stopper HP Sensor	Detects when the stopper and pressure plate are in and out of their home positions.	
4.	Press Stopper Motor	The motor that raises and lowers the stopper plate to the prescribed position where the plate applies pressure to the folded leading edge of the stack.	
5.	Main Board	The PCB that controls the operation of the unit.	
6.	Press Roller Motor	Raises and lowers the press roller at the entrance of the cut position unit to set the trimming position.	

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No.	Part	Function		
7.	Feed Motor	Drives the rollers at the entrance of the unit that feed paper sent from the upstream unit.		
8.	Press Roller HP Sensor	Detects when the press roller is in and out of its home positions.		
9.	Entrance Sensor	Detects the paper and confirms that it has entered the paper path of the unit.		
10.	Stopper Sensor	Detects the leading edge of the stack before the stack touches the stopper.		
11.	Scrap Hopper Full Sensor	Detects when the paper scrap hopper is full.		
12.	Door Switch	Detects when the front door is opened or closed, and switches off the DC24V power supply to the unit when the door is opened and restores it when it is closed.		
13.	Scrap Hopper HP Sensor	Detects when the scrap hopper is in or out of its home position.		
14.	Trimming Blade Motor	Drives the operation of the cutter unit.		
15.	Trimming Blade HP Sensor	Detects when the cutter unit blade is in and out of its home positions.		
16.	Booklet Sensor 2	The 2nd switch that detects when the output tray is full (2).		
17.	Booklet Sensor 3	The 3rd switch that detects when the output tray is full (3).		
18.	Tray Motor	Drives the tray transport belt.		
19.	Power Inlet	Connection point for AC power cord.		
20.	Breaker Switch	Trips and immediately cuts the power supply to the unit if a short circuit occurs in the unit.		
21.	Voltage Regulator	The power of stable voltage supplied to the main control board after AC to DC conversion.		
22.	Exit Sensor	The sensor that confirms the exit of each trimmed stack from the unit.		
23.	Exit Motor	The motor that drives the rollers that send the trimmed stacks out of the unit onto the output tray.		
24.	Booklet Sensor 1	The 1st switch that detects when the output tray is full (1).		

## Operation

Layout



1	Press Stopper Motor	16	Trimming Unit
2	Press Stopper HP Sensor	17	Trimming Blade HP Sensor
3	Stopper assembly HP Sensor	18	Trimming Blade Motor
4	Press Roller Motor	19	Exit Motor
5	Press Roller HP Sensor	20	Booklet Sensor 2
6	Upper Feed Guide	21	Tray Unit
7	Feed Unit	22	Tray Motor
8	Entrance Sensor	23	Booklet Sensor 3
9	Lower Feed Guide	24	Cut Positioning Unit
10	Entrance Guide	25	Exit Sensor
11	Feed Motor	26	Stopper Sensor
12	Scrap Hopper Full Sensor	27	Booklet Sensor 1 Arm
13	Door Switch	28	Booklet Sensor 1

2

14	Scrap Hopper	29	Cut Position Motor
15	Scrap Hopper HP Sensor		

## **Operation Flow**

### General



d455i901

The trimmer is installed on the left side of the Booklet Finisher (D434).

- [1] Trimmer unit
- [2] Front door
- [3] Output tray



d455d902

Front door open shows:

- [1] Door switch
- [2] Trimming scrap hopper
- [3] Feed unit plate handle
- [4] Transport unit plate handle





d455d903

For jam removal:

- The feed unit plate handle [1] lowers to the feed plate.
- The transport plate handle [2] lowers the transport plate.



d455d904

The operator removes the hopper [1] to empty it when it becomes full of paper scraps trimmed from the booklets.



d455d905

There are two hopper sensors:

- Hopper full sensor [1] (a photo-sensor) detects when the hopper is full.
- Hopper set sensor [2] detects when the hopper is set.



d455d906

A breaker switch [1] is on the rear cover next to the power connection point.

### **Booklet Feed**



d455d907

Booklets are fed one at a time. When a booklet enters the trimmer:

- The entrance sensor [1] actuator is pushed down by the leading edge of the booklet..
- The entrance motor [2] turns on and rotates the feed rollers [3].



The feed roller assembly is mounted on a shaft [2] so the rollers can swing freely up and down to accommodate the thickness of the booklet.

The rollers of the 1st feed roller [3] will not contact the surface of the booklet unless it is very thick.



2

### Positioning the Booklet for Trimming



## Stopper Assembly HP Sensor

d455d909

The stopper assembly [1] (shown at the home position) is mounted on two rails and driven by two belts. The cut positioning motor drives the belts.



d455d910

When the entrance sensor goes ON:

- The cut positioning motor [1] switches on and moves the stopper assembly [2] to the left.
- The press roller motor [3] goes ON and lowers two rollers [4] onto the transport belt
- The exit motor (not shown) below the transport belt goes ON and drives the transport belts ① and ②.



d455d911

The stopper sensor [1] goes ON when the leading edge of the booklet trips the actuator of the stopper sensor on the bottom of the stopper assembly.



Next, the press stopper motor [1] goes ON and lowers the stopper [2] then the stopper plate [3] onto the leading edge of the booklet.

- The stopper plate [1] goes down first. This stops the booklet aligns the booklet when the leading edge of the booklet hits it. The exit motor switches off and stops the transport belts.
- The stopper plate [3] goes down next. This clamps the leading edge for moving to the cut position and trimming.
- The press roller motor switches on and raises the press rollers on the right (see previous illustration).



d455d913

Next, the cut positioning motor [1] goes ON and moves the stopper assembly [2] to the trimming position on the right (the position is prescribed by the size of the paper selected for the job) and stops.



d455d914

The press roller motor [1] goes ON and lowers the press rollers [2] onto the booklet. The press rollers compress the trailing edge of the booklet for trimming.

### Trimming

When the cut positioning motor goes OFF, the trimming motor goes ON and drives the trimming blade down.





The trimming blade [1] (a guillotine blade) descends, trims the edge, and the scraps fall into the hopper below.





The trimming blade motor [1] reverses. The trimming blade HP sensor [2] detects the blade actuator at its home position and switches off the trimming blade motor.



d455d917

After the trimming blade returns to its home position, the press stopper motor [1] goes ON, raises the stopper and plate to their home positions.

The press/stopper HP sensor [2] detects the home position and switches off the motor. This clears the feed path so the booklet can exit the trimmer.



d455d918

The press rollers ① and ② remain down for feed out. They will function as feed rollers opposing the booklet and transport belt below.

### **Booklet Feed-out**



d455d919

The exit motor [1] switches on, drives the transport belts, and starts to feed the booklet out of the trimmer.



d455d920

The leading edge of the booklet [1] depresses the exit sensor actuator [2].





The press roller motor [1] switches on and raises the press rollers to their home positions. The press roller HP sensor [2] detects the home position and switches off the motor.



d455d922

The cut position motor [1] switches on and returns the stopper assembly [2] to its home position. The stopper assembly HP sensor (not shown) detects the home position and switches off the motor.



d455d923

The booklet exits the trimmer.

## **Output Tray**



d455d924

[1] is booklet sensor 2. When the booklet [2] exits it depresses booklet sensor 2.



The tray motor inside the tray switches on and moves each booklet slightly to the left as each booklet exits the trimmer.





When the leading edge of the first booklet reaches left end of the tray this activates booklet sensor 3 [1].



d455d928

The trimmer will continue to feed booklets until there are enough booklets at the trimmer exit to raise the actuators [1] and activate booklet sensor 1.

When all three booklet sensors are activated, this signals that the tray is full and stops the trimmer. The booklets on the tray must be removed for the operation to continue.

### **Limitless Output**

The trimmer can be set up for limitless output.



d455d929

1. First, remove the end stopper from the output tray.



- 2. Next, disable booklet sensor 3. This requires a service call by a trained service technician to disconnect the sensor.
  - With booklet sensor 3 disabled, the trimmer will not detect tray full.
  - The trimmer will operate continuously without interruption. The booklets will fall off the end of the tray into a container placed at the end of the tray.

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