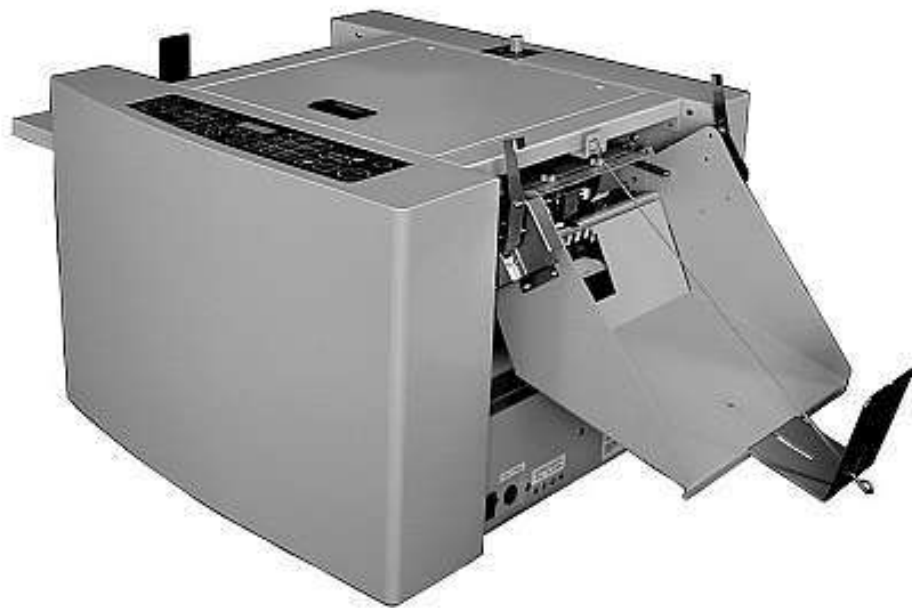


# Operation Manual

Perforation/Scoring Unit (Option)

for

**Paper Folding Machine**



Read this operation manual carefully before use. Keep this booklet handy for your reference anytime.



## Before use

Read this operation manual carefully before use.

Keep this booklet handy for your reference anytime.

Specifications are subject to change without notice for product improvement.

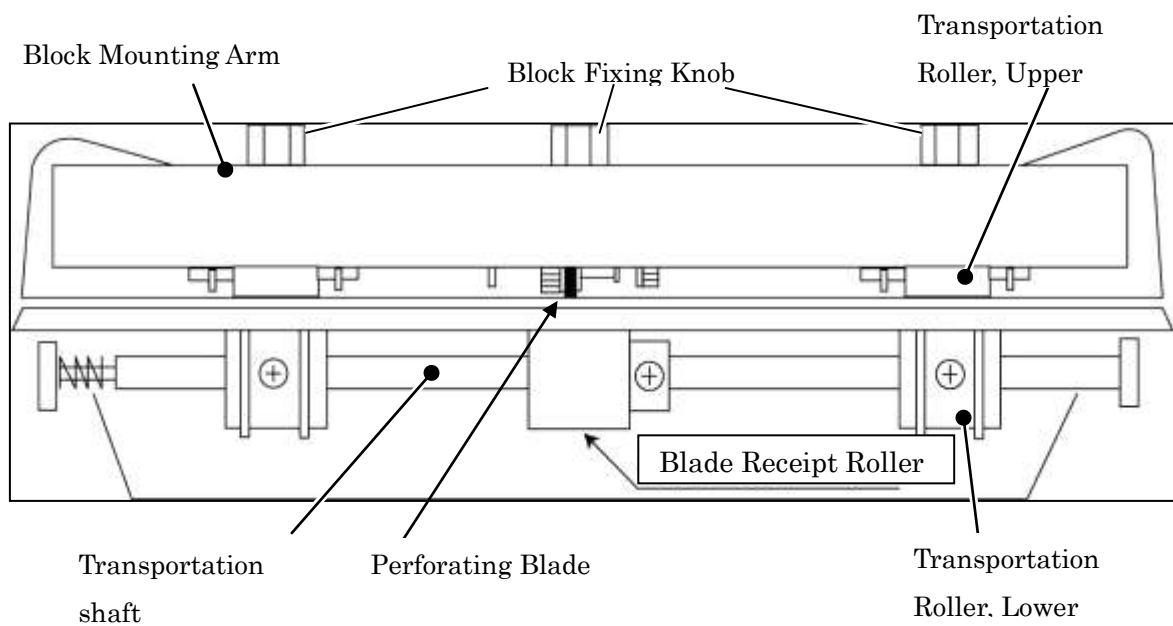
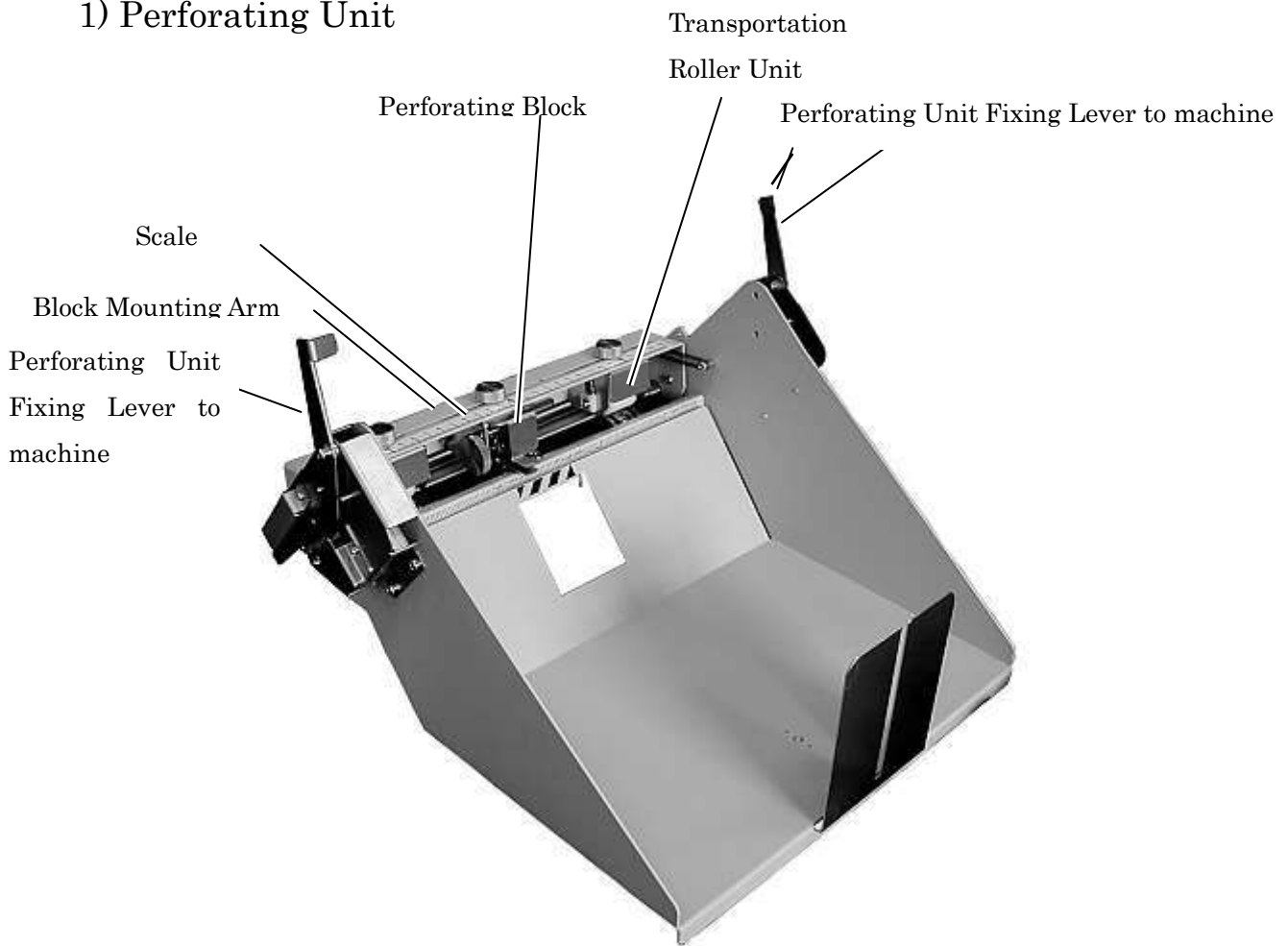
Always refer the original manual which came with the delivered unit.

## Index

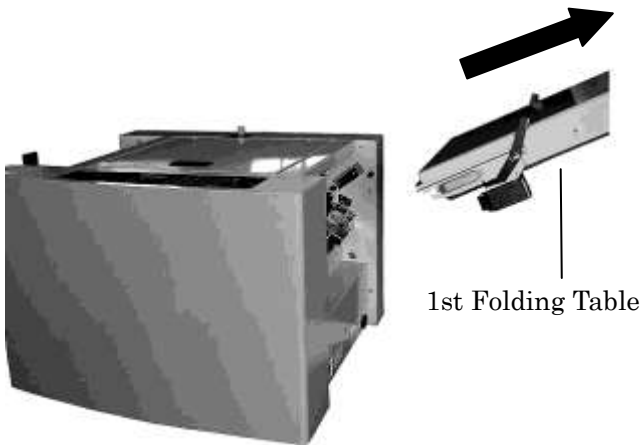
1. Names of Parts
2. Preparation before use
3. How to use
  - 1) Perforating Unit
    - 3-1-1 Setting Perforating Block
    - 3-1-2 Trial Perforation
    - 3-1-3 Fine Adjustment
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    - 3-2-1 Setting Scoring Block
    - 3-2-2 Trial Scoring
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4. Adding 2nd Perforating or Scoring Unit to the same mounting shaft (= transport shaft).
5. Installing Perforating Block in replacement of Scoring Block and vice versa
6. Replacing Transportation Rubber Ring
7. Troubleshooting
8. Product Specifications

# 1. Name of Parts

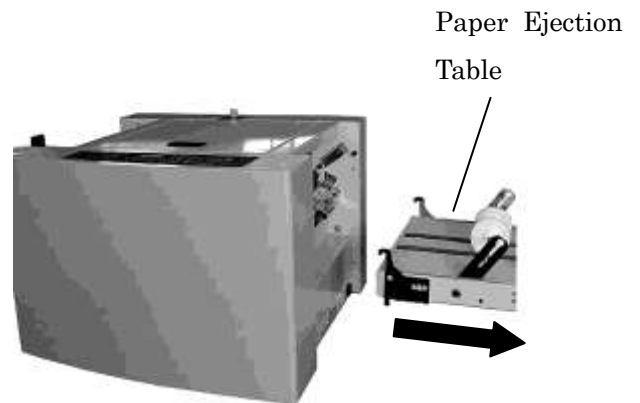
## 1) Perforating Unit



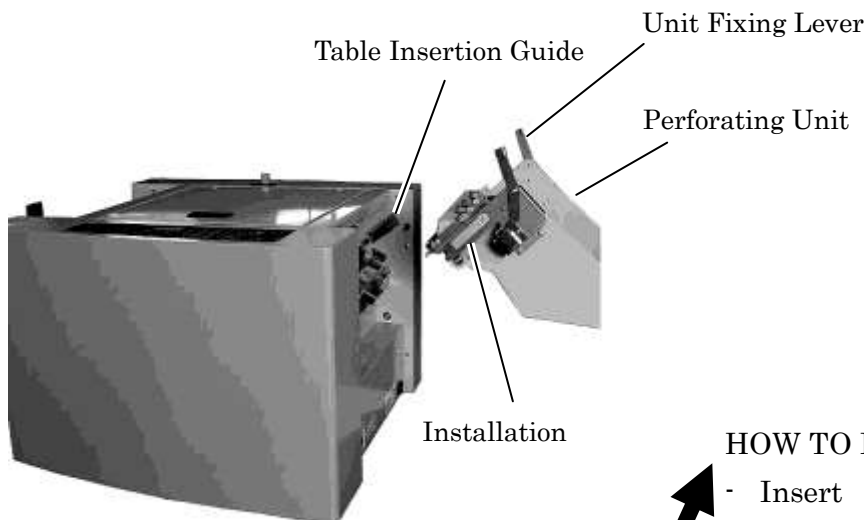
## 2. Preparation before use



(1) Remove 1st Folding Table to the direction of arrow.



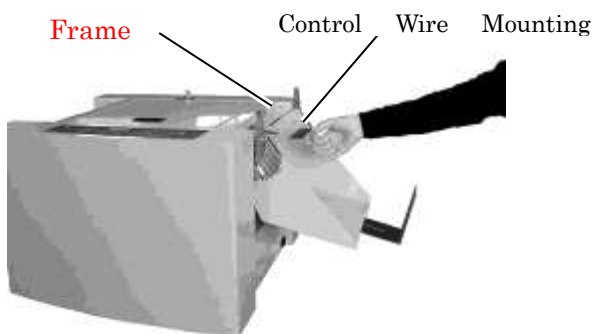
(2) Remove Paper Ejection Table



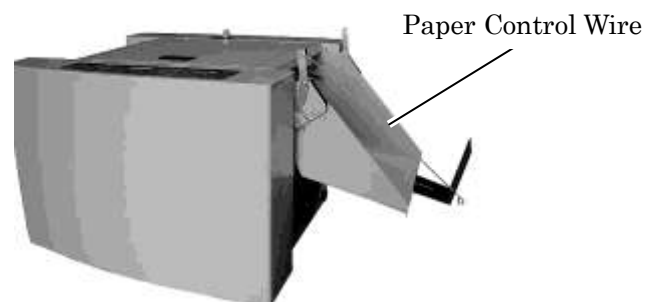
(3) Install Perforating / Scoring Unit to the place where 1st Folding Table was mounted.

### HOW TO INSTALL:

- Insert Installation brackets to Table Insertion Guides located both sides of the machine.
- After inserted till end, lock Fixing Lever on both sides.



(4) Install Wire Mounting Plate to the rear side of Frame. Then, install Paper Control Wire.



View after Wire is mounted

## 3. How to use

### - PERFORATION UNIT

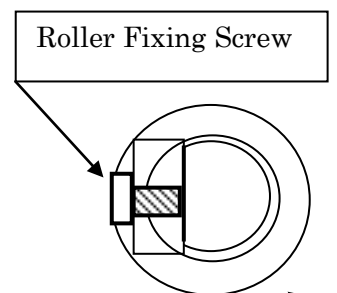
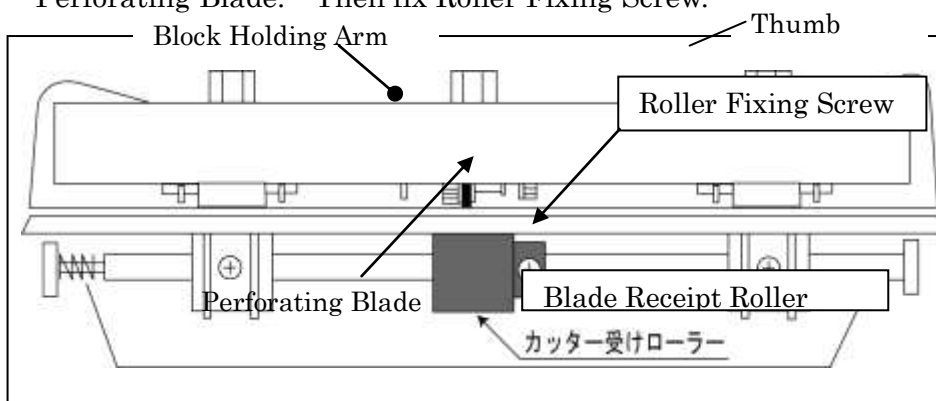
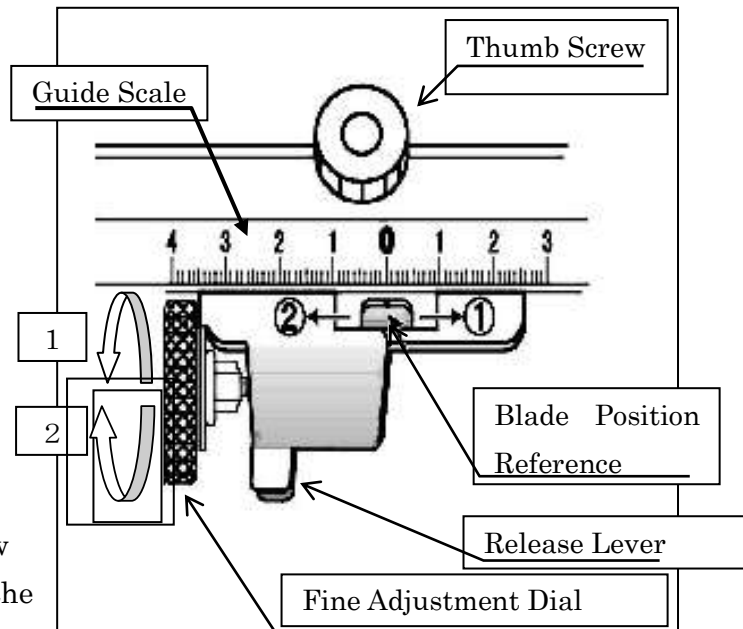
#### 3.1 Setting Perforating Block

- ((1) Loose Thumb Screw and squeeze Release Levers by fingers to slide Perforating Block right or left. Refer guide scale.

**NOTE:**

Before setting Perforating Block, make sure to place Blade Position Reference at center position so that fine adjustment may be possible after the Block is installed. Refer 3.3.1 Fine Adj. Dial

- ((2) Fitting and fixing Blade Receipt Roller
- Loosen Roller Fixing Screw by Phillips Screw Driver and place Blade Receipt Roller fit to the Perforating Blade. Then fix Roller Fixing Screw.



**CAUTION:**

While fixing Thumb Screw, press Thumb Screw towards Block Mounting Arm so that Perforating Block sets square to Block Mounting Arm. This helps the paper to be fed straight.

**CAUTION:**

Perforating Blade is designed always to be pressed against Blade Receipt Roller. Do not move the Roller without squeezing Release Levers. When Levers are squeezed, they give distance between Blade and Roller.

**CAUTION:**

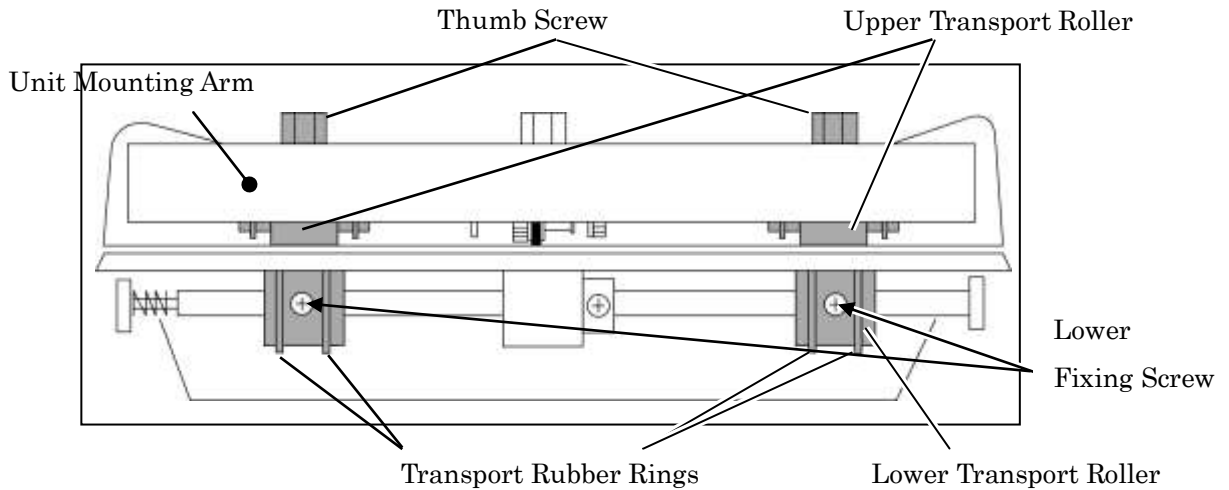
Roller Fixing Screw must be fixed at the position where Transport Shaft has flat cut. Otherwise, the Blade Receipt Roller will not be fixed to the Shaft and the Roller may be damaged.

(3) Setting Paper Transport Rollers, Upper and Lower, at proper position

Place the Paper Transport Roller where they can grip paper positively.

Firstly, loosen Lower Philips Fixing Screws on both sides. Slide and position them to the appropriate location and fix them.

Then, loosen Thumb Screws of Upper Transport Rollers on both sides. Slide and position them so that Upper Transport Rollers ride on the Lower Transport Rubber Rings.



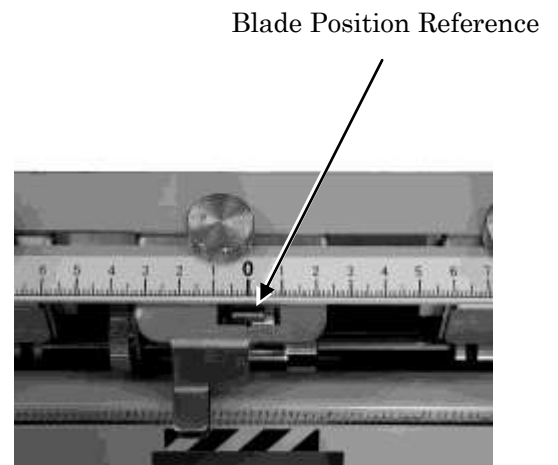
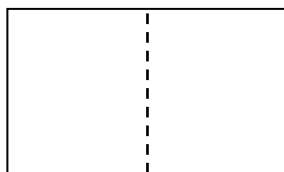
**CAUTION:**  
Press Thumb Screw to Unit Mounting Arm when fixing the Perforating Block. This helps the paper to be fed straightly.

**CAUTION:**  
Depending location of perforating line, it may not always be possible to place Upper Transport Roller riding on the two Rubber Rings. In this case, we have to live with single Rubber Ring. However, as much as possible, try to use two Rubber Rings at both sides for stable paper feeding.

**(Perforation Examples )**

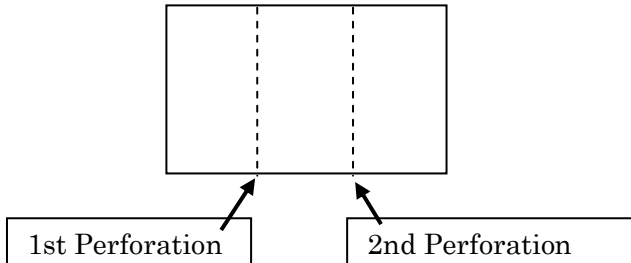
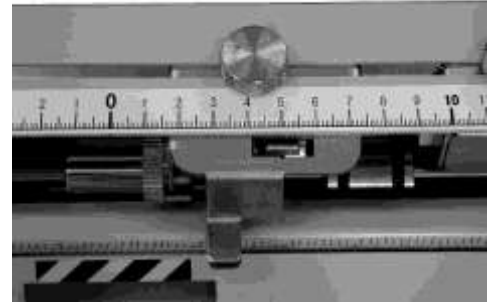
**(1) Perforating at the center of a sheet**

Place Blade Position Reference to 0 (Zero) position of the scale



(2) Perforating two lines on a sheet by single perforation block.

- Place Blade Position Reference to adequate position and perforate.
- After first perforation done, reload the sheet to Paper Feed Tray reversing the paper position. Then perforate 2nd line again.



Further information:

If desired to perforate two lines by one operation, add one additional perforating block (optional) to the transport shaft. Note due to frame size of perforating block, perforating too closed lines or too far apart lines may be limited.

Refer page 13, how to add another perforating unit.

NOTE:

Scale graduation and Blade Position Reference are for guidance only. To perforate at the accurate position, use fine adjustment mechanism. Refer page 8, fine adjustment of perforating blade location.

### 3.2 Trial Perforation

- (1) To activate Perforation Unit, turn on the Power Switch while pressing the SELECT Key. Release the Key as “PERFORATION MODE LAMP” is illuminated.

To operate with normal Folding Mode, Turn power switch off. Install Folding

CAUTION:

When the machine is turned on, it automatically sets for medium running speed. Use the machine middle to lower speed. For perforation/scoring, machine is designed to be used at middle to lower speed to avoid possibility of tearing the perforating paper.

- (2) Set papers on Paper Feed Tray, set Counter to “1” and press “START” Key.
- (3) Evaluate if the perforation is done properly as desired.



### 3.3 Fine Adjustment of Perforating Line

#### 3.3.1 Adjusting line location

- If the line is extremely out of desired location, Perforating Unit must be relocated.
- If the line is away for approximately 5mm or less from desired position, fine adjustment may be possible without changing Perforating Block set up.

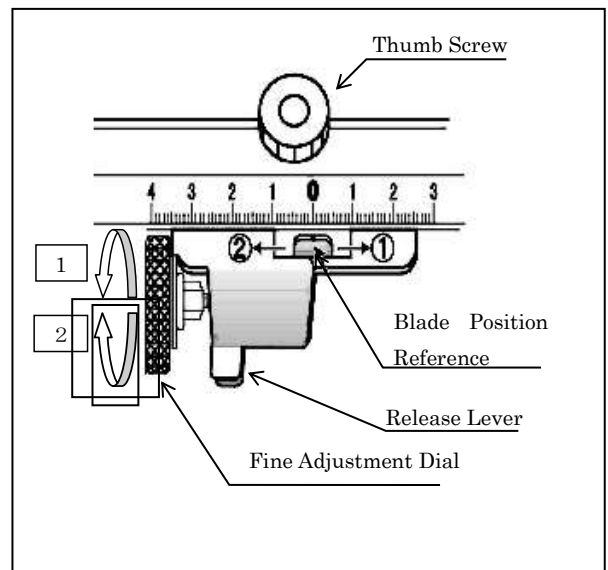
**NOTE:**

Before fixing Perforating Block, make sure to place Blade Position Reference to center position so that fine adjustment may be possible after the Block is fixed.

**Fine Adjustment Dial:**

While squeezing release levers, turn Fine Adjustment Dial to direction (1) and Perforation position moves to right.

When it is turned towards direction (2), Perforator position moves to left.



#### 3.3.2 Adjustment of perforating angle

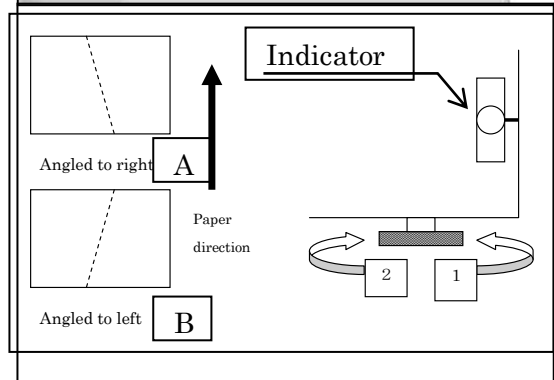
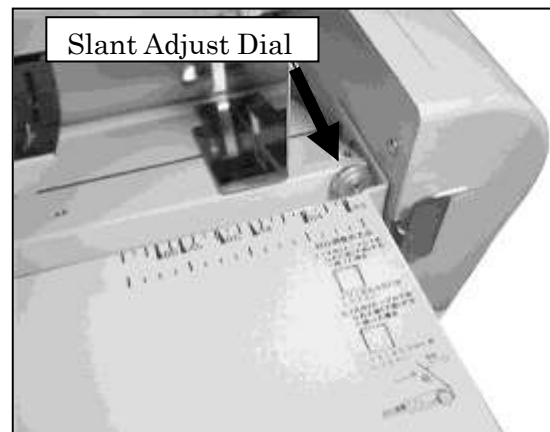
**CAUTION:**

Before making any adjustment, make sure that the paper is tightly placed without play between the Paper Guides in the Paper Feed Tray of Folder.

Otherwise, right angle of perforation is not available in any event.

In case perforation is not performed in the right angle, adjustment of angle may be possible.

- In case finishing of perforation is angled to right A, turn Slant Adjustment Dial to the direction of 1.
- In case finishing of perforation is angled to left B, turn Slant Adjustment Dial to the direction of 2.

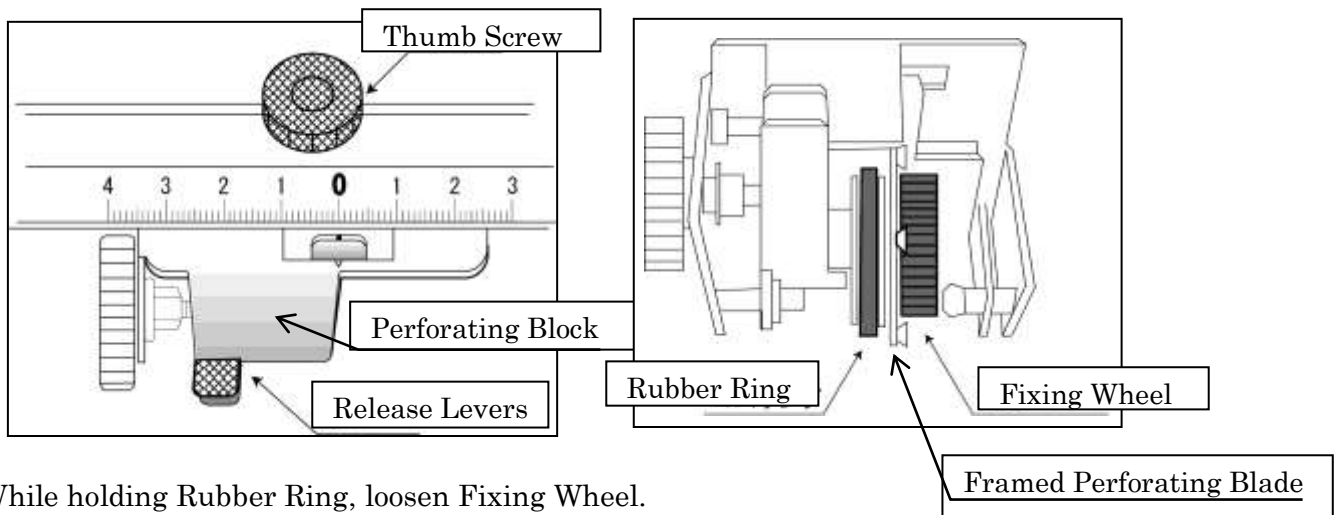


### 3.4 Perforation, continuous

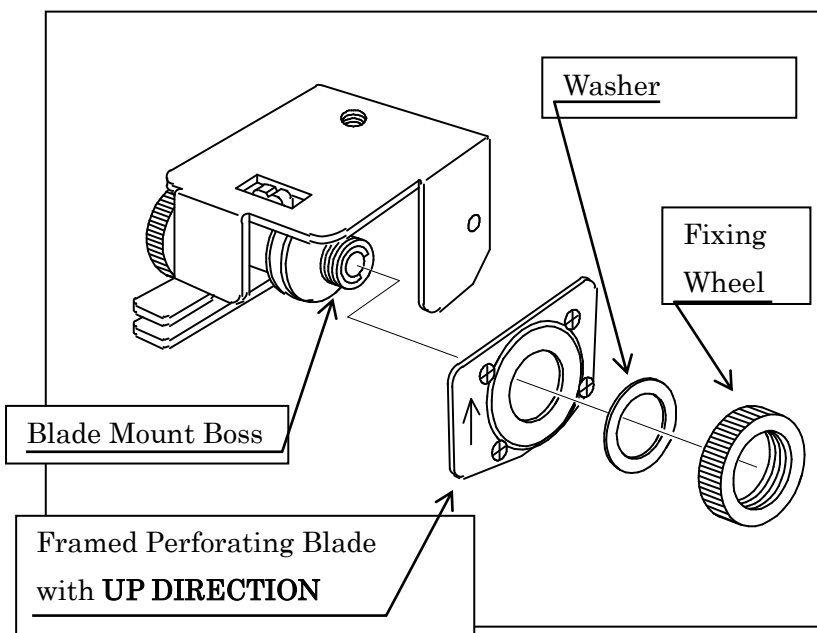
- (1) Press “C” Key and clear the counter setting to “0 (Zero)”.
- (2) Perforate all the sheets loaded:  
Load paper to Paper Feed Tray and press “START” Key.  
Machine perforates up to the end of paper stack.
- (3) Perforate designated number of sheets:  
Load paper to Paper Feed Tray and preset quantity of sheet desired to perforate.  
Then, press “START”.  
Machine perforates up to the designated quantity of sheet and stops.

### 3.5 Replacing Perforating Blade (with frame)

- (1) While squeezing levers, loosen Thumb Screw and remove Perforating Block.



- (2) While holding Rubber Ring, loosen Fixing Wheel.
- (3) Remove Fixing Wheel, Washer and framed Perforating Blade.
- (4) Replace the Framed Perforating Blade with new one and fix the parts in order.

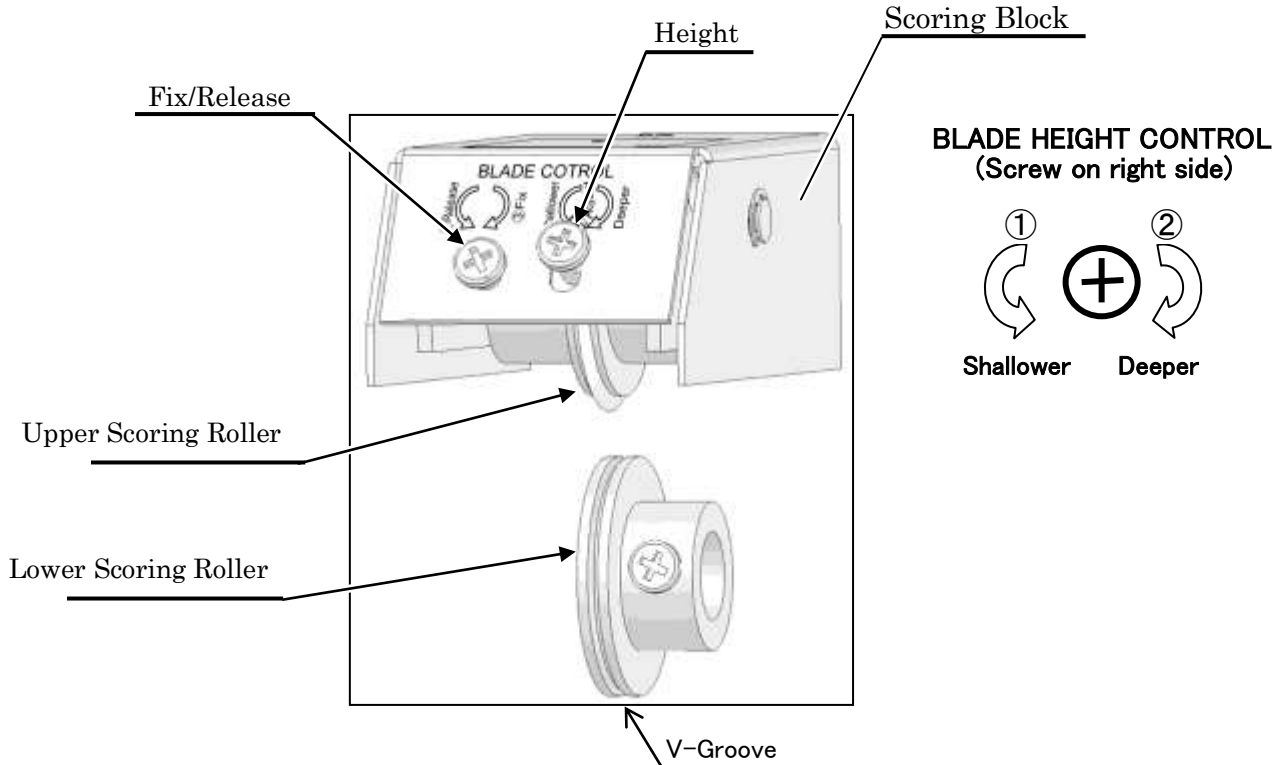


#### CAUTION:

- 1) Fit Blade Hole to Blade Mount Boss when setting Framed Perforating Blade.
- 2) Also make sure that UP DIRECTION indicated on Frame of Perforating Blade directs upward.
- 3) While tighten Fixing Wheel, hold Rubber Ring so that the Framed Perforating Blade is fixed tightly.

# SCORING UNIT

## 3.6 Setting Scoring Block



### (1) Scoring Position

Move V-Groove of Lower Scoring Roller to the place where scoring. Then, fix the Roller by Philips Screw Driver. Press "Test" Key as leading edge of paper comes close to Lower Scoring Roller so that scoring position is determined. Do not feed paper yet to the rollers.

### (2) Positioning of Upper Scoring Roller

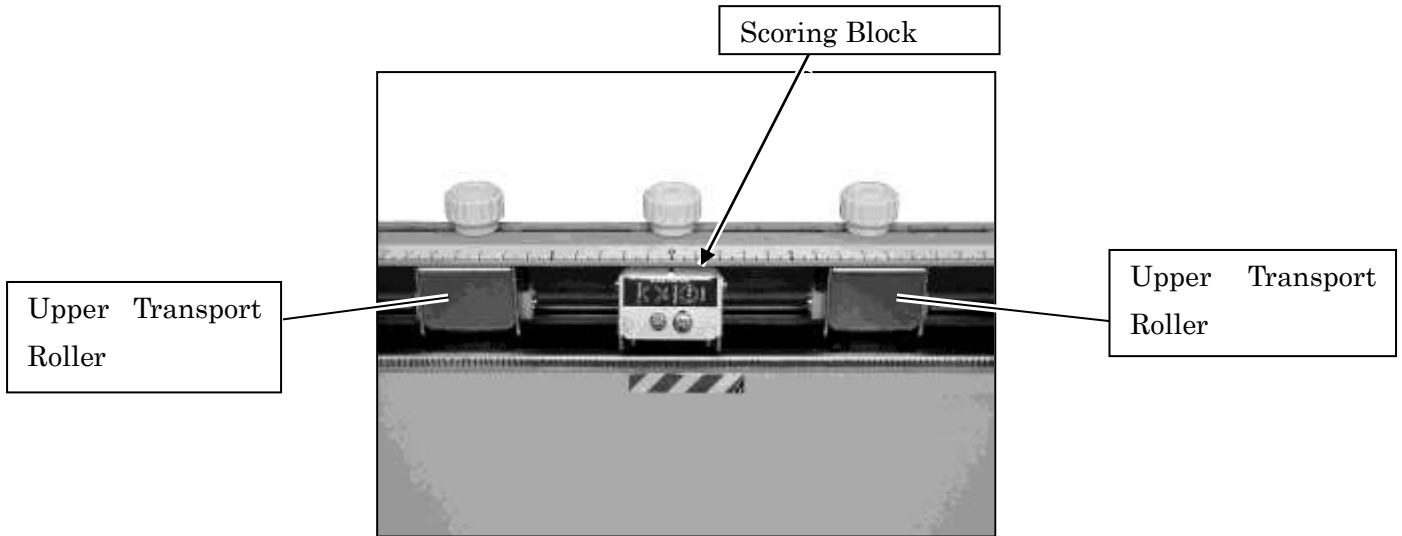
Loosen (turn) Release/Fix screw (left) on the left side for 2 to 3 rounds. Turn Shallow/Deeper screw counterclockwise 2 to 3 rounds. Slide the Upper Scoring Roller right above the lower V-Groove. Turn Shallow/Deeper screw clockwise till Roller comes down in to the bottom of V-Groove. Then, Fix the Scoring Block turning Release/Fix screw clockwise. Now, Upper Blade and Lower Groove position is mechanically matched.

### (3) Adjusting shallowness/depth of Upper Scoring Roller

Turn Shallower/Deeper screw counterclockwise for 2 to 3 turns. Then, fix the height by Fix/Release screw.

#### (4) Adjusting positions of Feed Rollers

Place Lower Transport Rollers to the positions where both of them stay on the paper positively. Then, fix Upper Transport Rollers by Phillips Screw Driver where Upper Rollers fit on the 2 Rubber Bands of Lower Transport Rollers.



### 3.7 Trial Scoring

- (1) To activate Scoring Unit, turn on the Power Switch while pressing the SELECT Key. Release the Key as "PERFORATION MODE LAMP" is illuminated.  
To operate with normal Folding Mode, Turn power switch off. Install Folding Table and connect Folding Table Plug to Machine. Then, turn on Power Switch.

#### CAUTION:

When the machine is turned on, it automatically sets for medium running speed. Use the machine middle to lower speed. For scoring/perforating, machine is designed to be used at middle to lower speed to avoid possibility of tearing the scoring paper.

- (2) Set papers on Paper Feed Tray, set Counter to "1" and press "START" Key.
- (3) Evaluate if the scoring is done properly as desired.

### 3.8 Fine Adjustment of Scoring Line

#### 3.8.1 Shallower/Deeper Fine Adjustment

By turning Shallower/Deeper Screw, scoring depth is adjustable. Loosen Release/Fix Screw first and make shallower/deeper adjustment. After adjustment, fix it by Release/Fix Screw.

### **3.8.2 Adjusting scoring line location**

Slide and move Lower Scoring Roller first, then slide Upper Scoring Roller. Make sure to fix both Rollers by Phillips Screw Driver after moved.

### **Adjusting scoring Angle**

In case scoring is not made in square, refer 3.3.2 Adjustment of perforating angle,

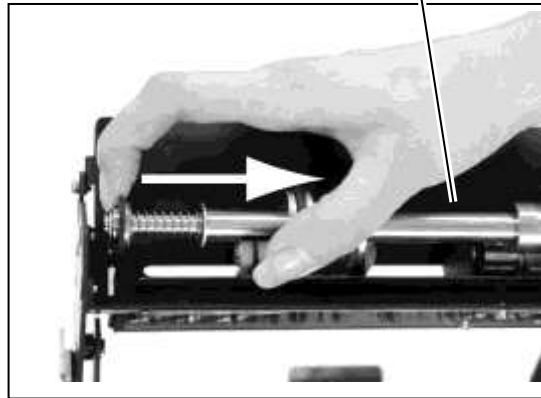
## **3.9 Scoring, continuous**

- (1) Press “C” Key and clear the counter setting to “0 (Zero)”.
- (2) Perforate all the sheets loaded:  
Load paper to Paper Feed Tray and press “START” Key.  
Machine scores up to the end of paper stack.
- (3) Perforate designated number of sheets:  
Load paper to Paper Feed Tray and preset quantity of sheet desired to scores.  
Then, press “START”.  
Machine scores up to the designated quantity of sheets and stops.

# Adding Perforation Unit

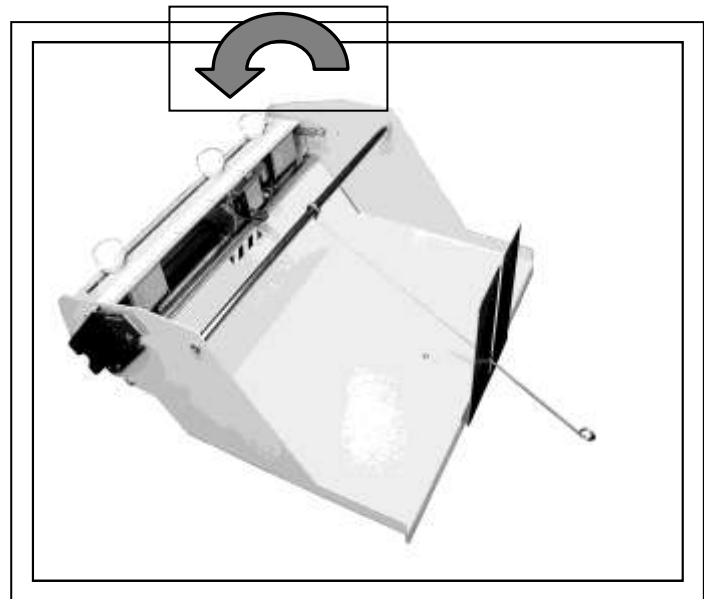
(1) Remove Transportation Shaft from Perforation Unit

Transportation Shaft

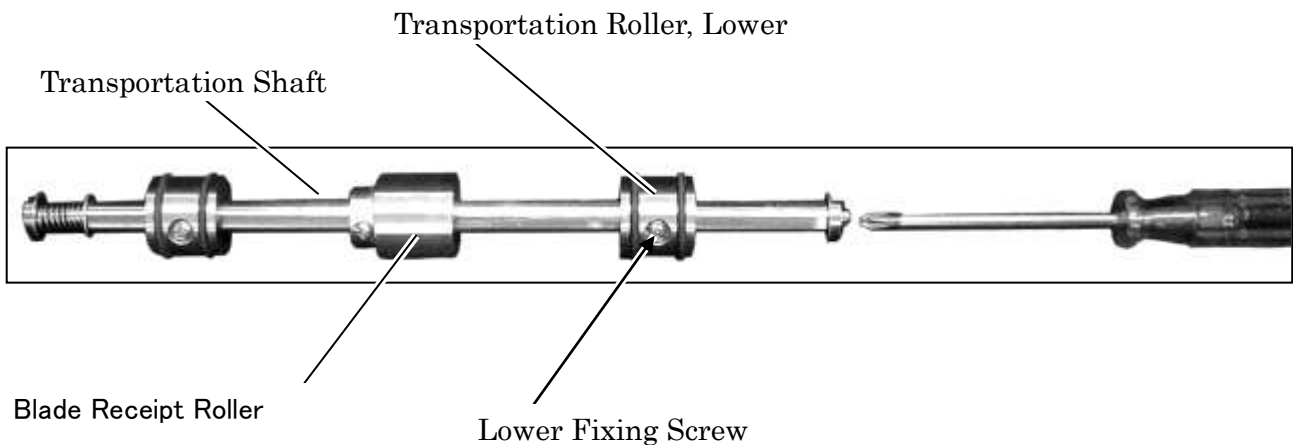


## NOTE

When removing Transportation Shaft, rotate Block Mounting Arm toward the direction of arrow. It makes wider opening and easier to take out Transportation Shaft.



(2) Remove a Phillips screw from the end of Transportation Shaft.



- (3) Remove Lower Transportation Roller from the Shaft after loosening Lower Fixing Screw.
- (4) Add another Blade Receipt Roller to the Shaft and re-mount Lower Transportation Roller. Then, fix Rollers by screws. Fix the Phillips Screw at end of the Shaft.



**Seen as two Perforation Units are mounted.**

- (5) Add another Perforation Unit to the Block Mounting Arm and fix by Thumb Screw.
- (6) Place Transportation Rollers where they grip perforating sheet positively. The two Perforation Units should not touch each other.

**Note:**

**Position where perforation can be done is only between the two Lower Transportation Rollers.**



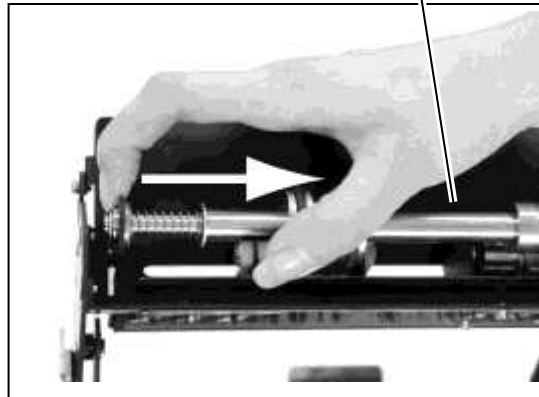
**Seen as two Perforation Units are mounted.**

## 5. Exchanging Perforation Unit to Scoring Unit.

Perforation Unit can be exchanged to Scoring Unit and Scoring Unit can be exchanged to Perforating Unit.

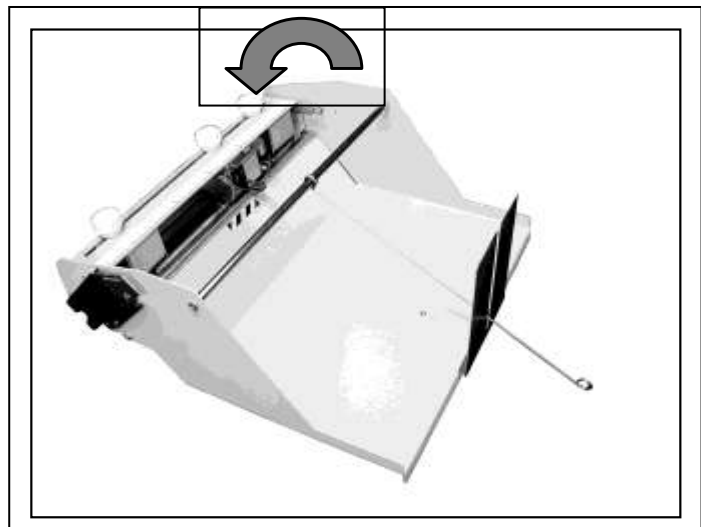
(1) Remove Transportation Shaft from Perforation Unit

Transportation Shaft

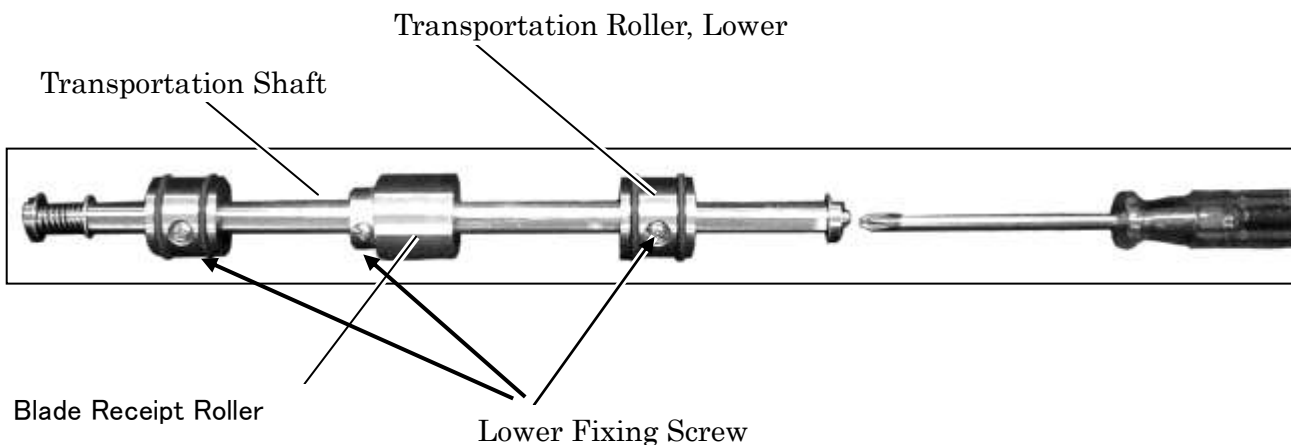


### NOTE

When removing Transportation Shaft, rotate Block Mounting Arm toward the direction of arrow. It makes wider opening and easier to take out Transportation Shaft.



(2) Remove a Phillips screw from the end of Transportation Shaft.





- (3) Remove Lower Transportation Roller from the Shaft after loosening Lower Fixing Screw.
- (4) Replace with Lower Transportation Roller, Blade Receipt Roller, etc. Fix the Phillips screw at end of the Shaft.



**Seen as two Perforation Units are mounted.**

- (5) Mount Lower Transportation Roller and fix it. Then, re-mount Transportation Shaft to the Perforation Unit.
- (6) Place Scoring Block or Perforating Block as desired.  
The two Perforation Units, if any, should not touch each other.
- (7) Refer 3 How to use, Page 5.

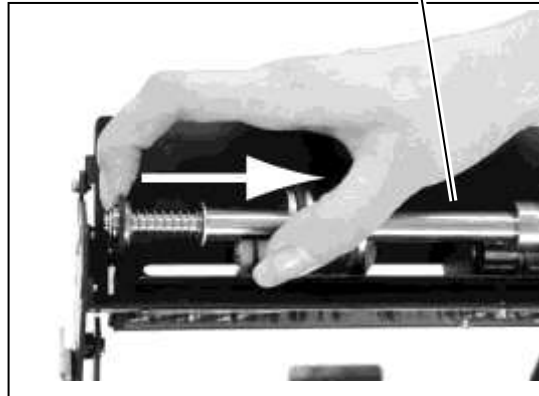
**Note:**

**Position where perforation can be done is only between the two Lower Transportation Rollers.**

## 6. Replacing Transport Rubber Ring

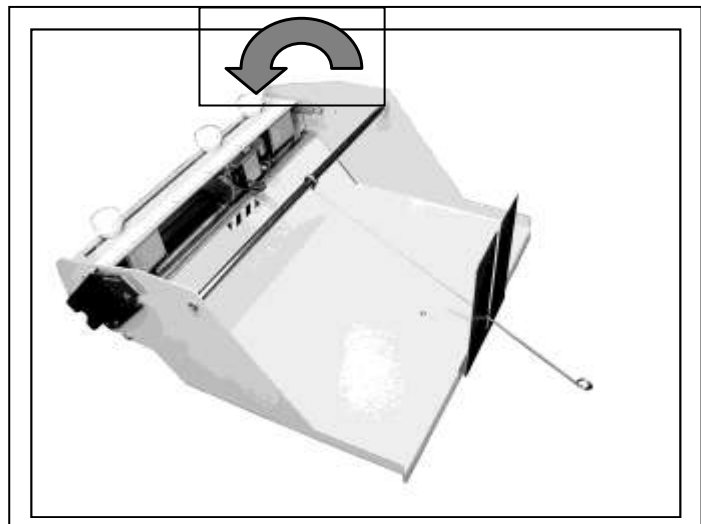
(1) Remove Transportation Shaft from Perforation/Scoring Unit

Transportation Shaft

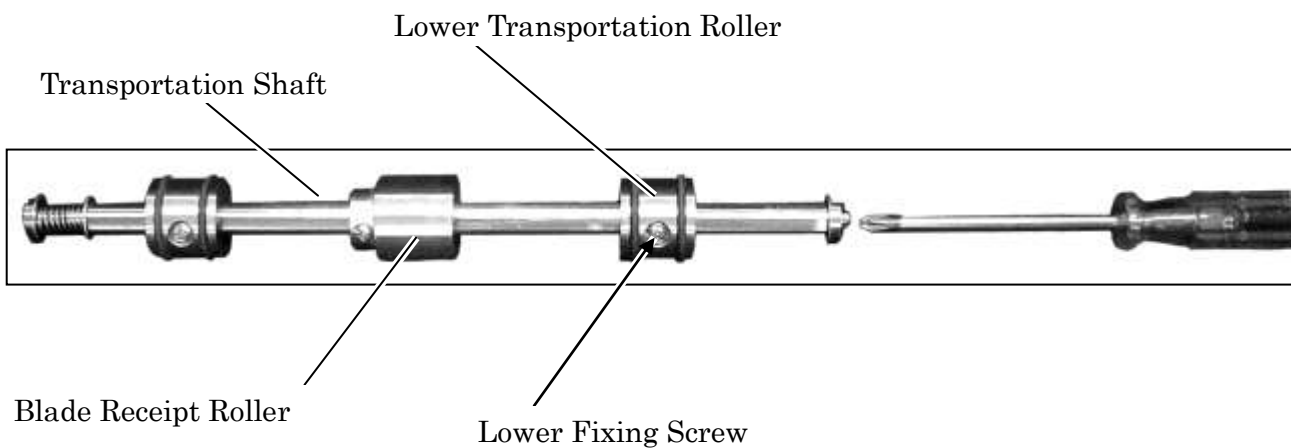


### NOTE

When removing Transportation Shaft, rotate Block Mounting Arm toward the direction of arrow. It makes wider opening and easier to take out Transportation Shaft.

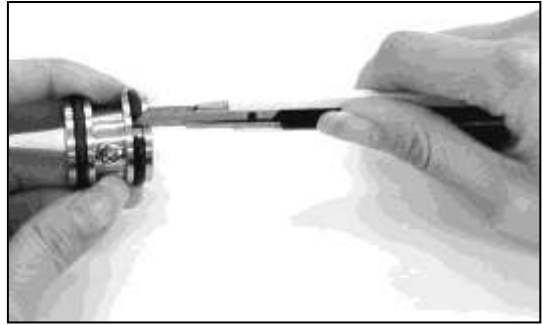


(2) Remove a Phillips screw from the end of Transportation



(3) Remove Lower Transportation Roller from the Shaft after loosening Lower Fixing Screw.

(4) Cut weared/old Rubber Ring and remove from the Transport Roller.



(5) Mount new Rubber Ring



(6) Re-mount Lower Transport Roller in the reversed procedures.

## 7. Troubleshooting

Symptom	Remedy
Paper Slippage	- Replace Paper Separator. - Replace Paper Feed Roller.
Paper Jam	- Remove jammed paper by removing Perforation/Scoring Unit from Folding Machine. - Remove jammed paper. Then adjust mounting location of Roller. Make the Transport Rollers grip perforating/scoring paper at the both sides. - Slow down running speed.
Slanting	- Make no play to the paper placed between the Paper Guides in the Paper Feed Tray of the Folding Machine. - Adjust by Slant Adjustment Dial. - Adjust mounting location of Transport Roller. Make the Transport Rollers grip perforating/scoring paper at the both sides. - Re-mount Perforating/Scoring Unit firmly to Block Mounting Arm.
Not sufficient perforation	- Make sure to ride Perforating Blade on Blade Receipt Roller. - Replace used/old Framed Perforating Blade to new one.
Torn scoring	- Upper Scoring Roller is too deep. Lift the Scoring Roller by Shallower/Deeper Adjustment Screw. - Upper Scoring Roller is not matching with V-Grooved Lower Scoring Roller. Match the Upper Scoring Roller to V-Groove by Fine Adjustment Dial.
Not sufficient scoring	- Upper Scoring Roller is too shallow against V-Grooved Lower Scoring Roller. Lower the Scoring Roller by Height Adjustment Screw.

## 8. Specifications

Paper Weight	Perforation: g/m <sup>2</sup>	lbs (Bond)
	Scoring: g/m <sup>2</sup>	lbs (Bond)
Paper Quality		
Running speed	60 to 85 sheets/minute (3600 to 5100 sheets/hour)	A4 landscape
Location of perforation and scoring line	Centering	In case A4 paper, landscape, + or - 50mm (1.96") when transportation rollers are placed at paper sides.
Perforating pitch	0.35mm(perforation), 0.20mm(non-perforation), continuous	0.014"(perforation), 0.008"(non-perforation), continuous
Machine Dimensions (Both Perforation and Scoring Units)	W480 x D380 x H200 mm (In Use) W380 x D380 x H200 mm (Not in Use)	W18.9 x D15.0 x H7.9" (In Use) W15.0 x D15.0 x H7.9" (Not in Use)
Unit Weight (Both Perforation and Scoring Units)	Approx. 4.8 kg	Approx. 10.6 lbs

End