

BILLCON

D-202, D-204

MIXED CURRENCY COUNTER

Service Manual

Billcon Co., Ltd.

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1. Summary of the Electric Circuitry

The D-202 and D-204 mixed currency counters are counting devices that are able to count the total amount of money in bundles of mixed Japanese currency and display the total.

These counters have an additional function that identifies and totals the number of notes in each denomination of currency.

In the denomination identification method, the notes of paper currency are scanned for patterns in four locations or two locations. The CPU processes the signals and the denomination is identified.

The D-202 uses the RS232C interface method and the D-204 uses the RS422 interface method. The basic mechanisms, electronic circuits and operational methods are essentially the same.

2. Summary of the Circuit Boards

The overall diagram is shown in Connection Diagram No. 354-300. The following is a table showing the main printed circuit boards in the device.

Table 1. Printed Circuit Boards

<u>No.</u>	<u>Board No.</u>	<u>Board Name</u>	<u>Board Summary</u>
1	354-400-1	Control Board (1/2)	The main board that controls the entire device.
2	354-400-1	Control Board (2/2)	The main board that controls the entire device.
3	354-406-1	ROM-RAM Board	Attached directly to the control boards.
4	354-401-1	Sensor Amp Board	Amp for the counting and identifying sensors.
5	354-402-1	MG Sensor Amp Board	Amp of the magnetic sensor, stacker sensors and hopper sensor.
6	354-405	Power Board	Supplies direct current power to the components.
7	354-403	Display Panel Board	Attached in the center of the control panel. Has an LED display.
8	354-404	Left and Right Control Panel Boards	Switch board for operating the left and right control panels.
9	354-300	Overall Connection Diagram	Shows the overall connection pattern.

(These diagrams are attached.)

3. Counting and Identifying Sensors

The sensors used to count and identify currency notes are situated above the route traveled by the currency notes.

In these sensors, light sources (lamps) for various purposes are arranged on the bottom opposite the optical receivers.

The arrangement of these sensors is shown in FIG 1. In this drawing, PHS denotes the photosensors, and the magnetic sensors are denoted by MGS. Only these sensors are arranged on the bottom.

Route of Currency Notes



FIG 1

<u>Symbol</u>	<u>Sensor Name</u>		<u>Notes</u>
PHS AL	Entrance Sensor	Left Side	Phototransistor
PHS AR	Entrance Sensor	Right Side	Phototransistor
PHS BL	Pattern Detection Sensor	Center Left	Photocell
PHS BR	Pattern Detection Sensor	Center Right	Photocell
PHS CL	Pattern Detection Sensor	Left Side	Photocell
PHS CR	Pattern Detection Sensor	Right Side	Photocell
PHS DL	Exit Sensor	Left Side	Phototransistor
PHS DR	Exit Sensor	Right Side	Phototransistor
MGS L	Magnetic Sensor	Left Side	Arranged on the Bottom
MGS R	Magnetic Sensor	Right Side	Arranged on the Bottom

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4. Other Sensors

The following sensors are used in addition to the counting and identifying sensors.

4-1 Hopper Sensor

The hopper sensor is a reflected light sensor that is used to determine whether there are any notes of paper currency in the hopper.

4-2 Stacker Sensor

The stacker sensor is placed in the stacker where the counted notes of paper currency are stacked. This light transmission sensor has a light projecting unit in the stacker cover (non-visible light LED) and a receiving unit on the paper currency receiving plate.

4-3 Rotary Encoder

The rotary encoder is a conversion unit that accurately measures the length of the notes of paper currency. The rotation around a roller axis is converted into electric signals.

5. Amp Adjustment Method for Sensors

Amplification circuits amplify the signals from the aforementioned sensors.

The amp circuits have to be set at the proper level in order to obtain appropriate signals. (These are adjusted before shipment.) The adjustment methods and adjustment values are shown in Table 2 and Table 3.

Table 2. For 354-401 (Sensor Amp Board)

No.	Abbreviation and Name	Check Point Test Terminal and IC Pin No.	Voltage Adjustment Value (V)	Adjustment VR Signal	Check Conditions, Etc.
1	PHSAL Entrance Sensor (Left)	Test Terminal P2 *1 IC-2 Pin 5	0.9 ± 0.1 V 2.5 ± 0.1 V	VR2 VR3	<ul style="list-style-type: none"> • The test sheet (FPG 60) covers the sensors. The brightness of the LPAR sensor amp and the voltage are adjusted. • The threshold level is set. • The voltage level of the IC-2 pin 7 is set at "H" for paper and "L" for no paper.
2	PHSAR Entrance Sensor (Right)	Test Terminal P3 *1 IC-2 Pin 3	0.9 ± 0.1 V 2.5 ± 0.1 V	VR4 VR5	<ul style="list-style-type: none"> • The test sheet (same as above) covers the sensors. The brightness of the LPAR is adjusted. • The threshold level is set. • The voltage level of the IC-2 pin 1 is set at "H" for paper and "L" for no paper.
3	PHSDL Exit Sensor (Left)	Test Terminal P4 *1 IC-3 Pin 5	0.9 ± 0.1 V 2.5 ± 0.1 V	VR6 VR7	<ul style="list-style-type: none"> • The test sheet (same as above) covers the adjustment of sensors. • The threshold level is set. • The voltage level of the IC-3 pin 7 is set at "H" for paper and "L" for no paper.
4	PHSDR Exit Sensor (Right)	Test Terminal P5 *1 IC-3 Pin 3	0.9 ± 0.1 V 2.5 ± 0.1 V	VR8 VR9	<ul style="list-style-type: none"> • The test sheet (same as above) covers the adjustment of sensors. • The threshold level is set. • The voltage level of the IC-3 pin 1 is set at "H" for paper and "L" for no paper.

No.	Abbreviation and Name	Check Point Test Terminal and IC Pin No.	Voltage Adjustment Value (V)	Adjustment VR Signal	Check Conditions, Etc.
5	PHSCL Pattern Detection (Left)	Test Terminal P6	1.5 ± 0.1 V	VR10	<ul style="list-style-type: none"> The test sheet (same as above) covers the sensors. The brightness of the various amps is adjusted, and the sensor (photocell) output. Be careful not to stain the test sheet.
6	PHSBL Pattern Detection (Left Center)	Test Terminal P7	1.5 ± 0.1 V	VR11	(Same as Above)
7	PHSBR Pattern Detection (Right Center)	Test Terminal P8	1.5 ± 0.1 V	VR12	(Same as Above)
8	PHSCR Pattern Detection (Right)	Test Terminal P9	1.5 ± 0.1 V	VR13	(Same as Above)
9	ROTARY Rotary Encoder	Test Terminal P1 IC-1 Pin 3	Encoder Signal (triangular wave, AC)	- VR1	<ul style="list-style-type: none"> The device is operated, the encoder is rotated, and a voltage output above 4V P-P is detected. The threshold level at the center of the encoder signal (triangular wave).
10		*2 Test Terminal P10	2.3 ± 0.02 V	VR14	<ul style="list-style-type: none"> The AD converter threshold level is set.

Notes: *1 Four positions are not used with board 354-401-1.

*2 Only used with 354-401-1.

Table 3. 354-402 (MG Sensor Amp Board)

No.	Abbreviation and Name	Check Point Test Terminal and IC Pin No.	Voltage Adjustment Value (V)	Adjustment VR Signal	Check Conditions, Etc.
1	HOPPER Hopper Sensor	IC-9 Pin 8	1.2 ± 0.2 V	VR3	<ul style="list-style-type: none"> The test terminal TP2 voltage level is set for the hopper sensor. It is set at "H" for paper and "L" for no paper. A reflection sensor is used.
2	STACKER Stacker Sensor	IC-9 Pin 6	1.2 ± 0.2 V	VR4	<ul style="list-style-type: none"> The test terminal TP4 voltage level is set for the stacker sensor. It is set at "H" for paper and "L" for no paper. A reflection sensor is used.

<u>No.</u>	<u>Abbreviation and Name</u>	<u>Check Point</u> Test Terminal and IC Pin No.	<u>Voltage</u> Adjustment Value (V)	<u>Adjustment</u> <u>VR Signal</u>	<u>Check Conditions, Etc.</u>
3	MGS-R Magnetic Sensor (Right)	Test Terminal PMGS-1	0.2 V added to the noise level*	VR1	<ul style="list-style-type: none"> • Threshold level is set. • * Noise level: The voltage is set to the maximum value when there are no notes on the MG sensor and when test terminal PMGS1 has been measured.
4	MGS-L Magnetic Sensor (Left)	Test Terminal PMGS-2	0.2 V added to the noise level*	VR2	<ul style="list-style-type: none"> • (Same as Above) • Test terminal PMGS2

6. Positioning of Circuit Board Switches

Connection points for dip switches and jumpers are placed on the boards in order to change the function of the boards. These points are set before shipment.

6-1 Baud Rate Setting Switch SW1

Dipswitch SW1 on control board 354-400-1 is ON only at 2. Make sure two or more switches are not ON at the same time.

When SW1 "1" is ON ...	19,200 baud
When SW1 "2" is ON ...	9,600 baud
When SW1 "3" is ON ...	4,800 baud
When SW1 "4" is ON ...	2,400 baud

6-2 Interface Mode Setting Switch SW2

Dipswitch SW2 on control board 354-400-1 is set in the following manner.

- D-202 (RS232C)
Only 3, 4, 5 are turned ON. The others are turned OFF.
- D-204 (RS422)
Only 1, 2, 3 are turned ON. The others are turned OFF.

6-3 MG Sensor Amp Circuit Board 354-402-1

- Switch DSW is turned ON.
- 1, 3 and 5 on JMP2 are connected. (New lots are connected by pattern.)

6-4 ROM-RAM Circuit Board 354-406-1

The jumper (short bar) is connected in the following manner depending on the type of ROM used.

- 1 and 2 JMP 1 are set for ROM2764, and 3 and 4 are left open.
- 3 and 4 JMP 1 are set for ROM27128, and 1 and 2 are left open.

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7. Test Mode

When an alarm goes off during a normal counting operation, the D-202 and D-204 discontinue the count. At this time, the total amount display and total number of notes display begin to flash.

When the cause of the alarm is determined, an alarm code is shown on the display. The device can then be operated in test mode.

The following operations occur during test mode.

When the power switch is turned ON, the display flashes 8888888 for a short period of time (approximately 1.5 seconds). During this display, the CONTINUE button on the left control panel is pressed.

The following alarm codes are displayed when an alarm occurs during the normal operation of the device.

During the test mode, counting and other operations can be performed.

D-202 and D-204 Alarm Codes

<u>Alarm</u>	<u>Total Display</u>	<u>Notes Display</u>	<u>Alarm Code</u>	<u>Notes</u>
1. Jam	00XXX	0001	41H	
2. Double	00XXX	0002	48H	
3. Chain *	00XXX	0003	50H	0003 - 0009
4. Half Note	00XXX	00U0	44H	U is blank
5. Unidentifiable (1)	00XXX	0010	44H	¥1,000 or ¥10,000?
6. Slanted	00XXX	0020	48H	
7. Unspecified Note	00XXX	8830	42H	
8. Counterfeit	0055X	5540	44H	Old ¥500
9. Unidentifiable (2)	00XXX	0050	44H	¥5,000 - - ¥1,000
10. Old Note (¥1,000)	00XXX	0060	42H	Oil Stain: ¥1,000 to ¥10,000
11. Unidentifiable (3)	00XXX	0070	44H	Folded: ¥1,000
12. Unidentifiable (4)	00XXX	0090	44H	Folded: ¥5,000, ¥10,000

The X's in the total display are unspecified numbers.

* Note: Chains

<u>Notes Display</u>	<u>Notes</u>
0003	Note > 95 mm detected in flow direction
4404	Note too wide, could not be detected by detector
0005	Chain 1: sensor set off by next note
0006	Chain 2: width between notes is < 10 mm
0007	Processing error
0008	Test mode error
0009	Unspecified note detected during test mode

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8. Components

8-1 Names of Components

FIG 2 is a perspective view from the front. FIG 3 is a perspective view from the rear. FIG 6 is a cross-sectional view from the left. FIG 7 is a cross-sectional view from the right.

FIG-2

[clockwise from top]

Hopper
Hopper Guide
Right Control Panel
Left Control Panel
Stacker
Power Switch
Gap-Adjusting Dial

FIG-3

Back Panel

FIG-4

Middle Control Panel
Total Amount of Money Display
1,000,000 100,000 10,000 1,000
Count Mode
▲ Mixed ▲ 10,000 ▲ 5,000 ▲ 1,000
Display Content
▼ Total ▼ 10,000 ▼ 5,000 ▼ 1,000
Total Number of Notes Display
Number of Notes

FIG -5

Left Control Panel
Preset Display Lights
Continuous 100 10
Preset
Add
Clear Preset
Continue

Right Control Panel
Count Mode
Items Displayed
Start Stop

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FIG 6 Components on the Left Side

[clockwise from noon]

- A. draw-out drum shaft
- B. take-in roller shaft
- C. tension pulley
- D. roller shaft
- E. deceleration pulley
- F. stacker shaft
- G. motor
- H. motor rotation direction
- I. encoder
- J. left side plate

[center from top]

- K. brake
- L. clutch

- 1. V belt
- 2. angular belt
- 3. V belt
- 4. angular belt
- 5. angular belt

- take-in roller pulley (left)
- encoder pulley
- motor pulley
- motor pulley
- deceleration pulley

- tension pulley
- tension pulley

- clutch pulley
- pulley
- roller pulley
- deceleration pulley
- gear pulley

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FIG 7 Components on the Right Side

[clockwise from noon]

- A. tension pulley
- B. draw-out drum shaft
- C. control plate
- D. right side plate
- E. take-in roller shaft

1. V belt take-in roller pulley (right) tension pulley drum shaft pulley

8-2 Disassembly and Reassembly of Components

The components are to be disassembled in the following order and reassembled in the reverse order.

8-2-1 Rear Cover

FIG 8 Rear Cover

[clockwise from noon]

- A. rear cover (top)
- B. left cover
- C. P4 x 8SPW
- D. power fuse
- E. power receptor
- F. rear cover
- G. right side cover

1. Open the top of the rear cover, stop the stay, and unscrew (A) P3x6SPW in two places.

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8-2-2 Rear Cover

1. Open the cover and unscrew the two F3x6 screws.

FIG 9

8-2-3 Left Cover, Right Cover, Top Front Cover

1. Loosen the four P3x8SPW screws.

FIG 10

[clockwise from noon]

- A. left side cover
- B. 4-P3x8SPW
- C. four feet
- D. direction towards front
- E. right side cover
- F. direction towards rear

2. Lower the top rear stay and unscrew the two F3x6 screws.

FIG 11

[clockwise from noon]

- A. top rear stay
- B. left side cover
- C. 2-F3x6
- D. right side cover

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3. Remove the (black) F3x10s holding the left and right plates on the bottom of the hopper, and then remove the cover.

FIG 12

[clockwise from noon]

- A. right side cover
- B. F3x10 (one on left and right side)

4. Remove the three topping screws P3x10TP (one on the left and two on the right) on the top of the left and right plates, and then remove the top front cover.

FIG 13

[clockwise from noon]

- A. 3-P3x10TP screw
- B. top front cover.

8-2-4 Front Cover

Stacker Cover

1. Remove the two (A) F3x6 screws attaching the stacker cover to the front cover. Lift the stacker cover and pull it forward gently. The cover and main body of the device are attached to a ground. Remove the P3x6SPW screw on the earth terminal on the main body side. * Note: Be careful of the stacker [pan] and receiving plate when the stacker cover is removed from the main body.
2. Remove the (B) P3x6SPW attached to the bottom of the main body and remove the front cover.

FIG 14

[clockwise from noon]

- A. stacker cover
- B. front cover
- C. 2-P3x6SPW (bottom)
- D. forward direction

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8-2-5 Control Plate

1. Remove the right side cover.
 2. Remove the connectors on the control plate.
 3. Remove the three P3x40 screws and the one P3x35 screw.
- * Note: Place the P3x35 screw in a safe place once removed. Do not drop it inside the stacker.

FIG 15

[clockwise from noon]

- A. right side plate
- B. P3x35
- C. control plate

8-2-6 Stacker Drum

FIG 16

[clockwise from noon]

- A. stacker shaft
- B. space
- C. right side plate
- D. brake
- E. armature hose
- F. stacker drum
- G. collar
- H. clutch
- I. gear
- J. gear pulley
- K. deceleration pulley
- L. left side plate
- M. flange

1. Remove left and right covers.
2. Remove the stacker cover.
3. Remove the control plate.
4. Remove the two angular belts. (Small motor pulley-deceleration pulley) (deceleration pulley-gear pulley)
5. Remove the deceleration pulley. (one P3x4SPW) (A)
6. Remove the gear pulley. (one P3x4SPW) (B)
7. Loosen the set pieces on the flange, collar, and armature hose.
8. Loosen the HSS4x5 set piece on the stacker drum.
9. Loosen the stacker shaft in the direction of the arrow.

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8-2-7 Take-In Roller

FIG 17

[clockwise from noon]

- A. take-in roller
- B. take-in roller shaft
- C. take-in roller pulley (right)
- D. right side plate
- E. direction of extraction
- F. left side plate
- G. take-in roller pulley (left)

1. Remove the left and right covers.
2. Remove the front cover.
3. Remove the control plate.
4. Loosen the left and right tension pulleys.
5. Remove the left and right V belts.
6. Loosen the three HSS4x8 in the left side take-in roller pulley.
7. Loosen the HSS3x4 in the right side take-in roller pulley.
8. Pull out the take-in roller shaft in the direction of the arrow.

8-2-8 Draw-out Drum

Drum Side Roller

FIG 18

[clockwise from noon]

- A. draw-out drum
- B. drum side roller
- C. right side plate
- D. drum shaft pulley
- E. direction of extraction
- F. drum shaft
- G. right side plate
- H. brake
- I. space
- J. shim
- K. armature hose

1. Remove the left and right cover.
2. Remove the control plate.
3. Remove the right side tension bracket, and remove the V belt.
4. Open the top rear cover, and lower the apron guide and the lower guide plate.
5. Loosen the HSS4x4 in the draw-out drum and drum side roller.
6. Loosen the two HSS3x4 in the armature hose.
7. Remove the drum shaft in the direction of the arrow.

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8-2-9 Take-In Roller

FIG 19

[clockwise from noon]

- A. MG roller
- B. take-in roller
- C. right side plate
- D. stop collar
- E. take-in roller shaft
- F. extraction direction
- G. take-in roller pulley
- H. clutch pulley
- I. clutch
- J. encoder
- K. encoder pulley
- L. bracket
- M. thrust washer
- N. pulley

1. Remove the left and right cover.
2. Remove the front cover.
3. Remove the control plate.
4. Remove the upper guide cover.
5. Remove the angular belt on the encoder pulley, loosen the HSS3x4 set piece on the clutch pulley, and remove the pulley and trust washer.
6. Remove the bracket attached to the encoder and stator (clutch).
7. Remove the angular pulley on the motor pulley (small) and deceleration pulley.
8. Remove the V belt in order to loosen the tension bracket on the clutch pulley and take-in roller pulley on the left side.
9. Remove the V belt in order to loosen the tension bracket on the motor pulley (large) and take-in roller pulley on the left side.
10. Loosen the take-in roller and MG roller set piece.
11. Loosen and remove the HSS3x4 set piece of the $\phi 8$ step collar on the right side.
12. Remove the take-in roller shaft in the direction of the arrow.

8-2-10 Stop Roller

FIG 20

[clockwise from noon]

- A. stop roller holder
- B. auxiliary roller holder
- C. right side plate
- D. stop roller shaft
- E. spacer
- F. roller stop
- G. auxiliary roller shaft
- H. auxiliary roller
- I. stop roller
- J. left side plate
- K. auxiliary roller shaft support flash
- L. spring cover
- M. auxiliary roller shaft

[Page 18]

1. Remove the left and right covers.
2. Open the top rear cover and remove the upper control panel.
3. Remove the control plate.
4. Remove the auxiliary roller shaft springs attached to the spring hanger on the right and left side.
5. Remove the auxiliary roller spring attached to the auxiliary roller holder.
6. Remove the P3x16SPW on the right and left attached to the auxiliary roller shaft, remove the auxiliary roller shaft support flash, and then remove the auxiliary roller shaft from the main body of the device.
7. Loosen the HSS4x5 set piece.
8. Loosen the two HSS4x5 set pieces on the stop roller.
9. Remove the stop roller shaft on the right and left side.

8-2-11 Lower Guide Plate and Apron Guide

1. Remove the left and right cover.
2. Remove the control plate.
3. Open the top rear cover and lower the apron guide and lower guide.
4. Remove the F4x10 set piece on the bottom of the take-in roller shaft on the left and right plates.
5. Remove the lower guide plate and apron guide.

8-2-12 Bottom Guide Plate and Apron Guide

Center Roller (Sponge Roller)

Lamp Holder

FIG 21

[clockwise from noon]

- A. center roller
- B. center roller shaft
- C. lamp holder
- D. lower guide plate
- E. spring
- F. pressure roller shaft
- G. lamp holder
- H. nut
- I. pressure roller
- J. pressure arm (for the take-in roller)
- K. spring, spring
- L. pressure arm (for the center roller)
- M. E-ring
- N. pressure lever support shaft

1. Remove the left and right cover.
2. Remove the control plate.
3. Open the top rear cover and remove the apron guide and the lower guide plate.
4. Remove the pressure arm spring (one on the left and right for the center roller) and the pressure arm spring (one on the left and right for the take-in roller).
5. Loosen the HSS3x3 set piece for the $\phi 6$ stop collar on the left and right of the pressure lever support shaft.
6. Slide the left and right $\phi 6$ stop collar and pressure arm (for the center roller) in the direction of the arrows and remove the center roller shaft.
7. Remove the 2 E-rings attached to the center roller shaft and remove the center roller.
8. Slide the pressure arm (for the take-in roller) in the direction of the arrow and remove the pressure roller shaft.
9. Remove the pressure roller in order to loosen the HSS3x4 set pieces on the pressure roller.
10. Remove the nut attached to the lamp holder and remove the lamp holder.

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8-2-13 Motor Pulley (Large), Motor Pulley (Small)

FIG 22

[clockwise from noon]

- A. motor
- B. motor pulley (large)
- C. motor pulley (small)
- D. fuse attachment plate
- E. fuse
- F. electric component attachment plate

1. Remove the left and right cover.
2. Remove the angular pullet on the motor pulley (small) and deceleration pulley.
3. Remove the V belt to loosen the tension bracket motor pulley (large) and take-in roller pulley.
4. Remove the F3x6 piece attached to the fuse attachment plate and remove the fuse attachment plate.
5. Remove the $\phi 2 \times 14$ spring pin on the motor pulley (small) and motor pulley (large), and remove the small and large motor pulleys.

8-2-14 Base

1. Remove the left and right cover.
2. Remove the rear cover. * Note: Remove the P4x8SPW attached to the left side plate.
3. Remove the stacker cover and the front cover.
4. Remove the control plate.
5. Remove the power switch attachment plate.
6. Remove the angular belt on the motor pulley (small) and deceleration pulley.
7. Remove the V belt from the motor pulley (large) and take-in roller pulley.
8. Remove the two P4x8SPW pieces attached to the lower portion of the left side plate.
9. Remove the three P4x8SPW pieces attached to the lower portion of the right side plate.
10. Remove the base and main body portion from the top and bottom.

8-2-15 Note Receiver

1. Remove the left side cover.
2. Remove connector 6N from the restart sensor cover.
3. Remove the stacker cover.
4. Remove the two P3x65W pieces from the bottom of the base plate and remove the note receiver from the base.

FIG 22

[clockwise from noon]

- A. front

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8-3 Adjustment of Components

The components are to be adjusted in the following manner.

8-3-1 Adjustment of the Clutch Gap

FIG 24

[clockwise from noon]

- A. 0.1 (shim)
- B. roller shaft
- C. rotor
- D. stator
- E. bracket
- F. thrust washer
- G. pulley

1. Remove the belt, loosen set piece HSS3x4, and remove the pulley and thrust washer.
2. Remove the bracket attached to the stator.
3. Loosen the two HSS3x3 set pieces attached to the roller, remove the roller, and adjust the gap to 0.1 mm using a thickness gauge.

8-3-2 Adjustment of the Brake Gap

FIG 25

[clockwise from noon]

- A. drum shaft
- B. spacer
- C. brake
- D. (shim)
- E. armature hose

1. Loosen the two HSS3x4 set pieces attached to the armature hose, remove the armature hose, and adjust the gap to 0.2 mm using a thickness gauge.

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8-3-3 Adjustment of the Gap Between the Draw-out Drum and the Stop Roller

FIG 26

[clockwise from noon]

- A. stop roller
- B. draw-out drum

FIG 27 [left]

[clockwise from noon]

- A. wide - gap - narrow
- B. stopper
- C. gap-adjusting dial
- D. arrow A
- E. stay
- F. adjustment screw
- G. gap-adjusting plate

FIG 27 [right]

[clockwise from noon]

- A. arrow A
- B. red area

1. Loosen nut 4 attached to the gap-adjustment plate, rotate set piece HSS4-10, and adjust the gap between the draw-out drum and the stop roller to 1 mm.
2. Set the gap to 1 mm and tighten the nut 4.
3. Loosen set piece HSS4x5 on the gap-adjustment dial and place it inside the red area (i.e. the triangle on the control panel).

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8-3-4 Magnet Sensor (MG Sensor) and MG Roller

The MG sensor and MG roller are to be set as follows.

1. The four-piece HS3x8 attached to the MG sensor and main body of the device is to be moved at the same rate as the bracket when in motion.
2. The space between the MG sensor and MG roller is to be narrowed.
3. Space gauges (t 0.15 and t 0.2) are to be used on the space. The space is to be set for t 0.15 and not t 0.2.

FIG 28

[clockwise from noon]

- A. MG Sensor Bracket
- B. Magnet Sensor
- C. MG Roller

9. Inspections and Servicing

9-1 Daily Inspection

The surfaces of the count sensor and count lamp are to be wiped with a brush or a dry cloth. The frequency of the wiping varies depending on the number of notes counted and the relatively cleanliness of the notes, but at least twice a week is recommended.

9-2 Regular Inspections

9-2-1 The following components should be cleaned every three months or every million notes counted.

- a) The count sensor, lamp, hopper sensor, stacker sensor, and magnet sensor should be wiped down.
- b) The draw-out drum, side roller (FIG 18), take-in roller (FIG 19), pressure roller (FIG 21) and MG roller should be cleaned with alcohol.
- c) The belts should also be cleaned with alcohol if dirty.

9-2-2 The following components should be inspected every 12 months.

- a) The components in Section 5-2-1 should be cleaned.
- b) The brake and clutch gaps should be checked. The surfaces should be cleaned if dirty. The belts should be checked to see if they are in gear.
- c) The voltage in the electric circuits at the measurement locations should be checked.
- d) Dust, dirt and debris inside the device should be removed.