11. SERVICE MODE

11.1 List of SERVICE MODE

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11.2 Starting/Exiting

11.2.1 Starting procedure

1. Press the Menu/Select key.
2. Press the following keys in this order.
   Quick Settings → ◀ → ◀ → Quick Settings → ◀ → ▶
3. The SERVICE MODE menu screen will appear.

11.2.2 Exiting procedure

- Press the Back/Stop/Reset key as many times as it is required to display the initial screen.

11.2.3 Changing the setting value in SERVICE MODE functions

1. Select the desired item using [▲/▼/◀/▶] key.
2. Select the setting value using [▲/▼/◀/▶] key.
3. Validate the selection by pressing the Menu/Select key.
4. To go back to previous screen, press the Back/Stop/Reset key.

11.3 SERVICE'S CHOICE

11.3.1 SHIPMENT

A. Use

- To select the display of the fixed zoom ratios and paper sizes according to the applicable marketing area.
- If this setting is changed, the following items are also changed.
  - Default paper size (Inch/Metric)
  - Fixed zoom ratio
  - FLS paper size
  - UTILITY MODE settings (Language, Tray Priority, Custom Size memory)
  - Default zoom ration for 2in1/ 4in1 copy.
  - Initial value of Custom size

B. Procedure

- The default setting is METRIC.

  "METRIC"/INCH/TAIWAN/CHINA/L.AMERICA (METRIC)/L.AMERICA (INCH)

11.3.2 POWER SUPPLY

- Not used.

11.3.3 MAINTENANCE COUNT.

A. Use

- To enter an appropriate counter value (0 to 999999) as the tentative maintenance time.
- Specify the setting on maintenance counter to "1" or "2": If the maintenance life is reached, the maintenance call (M1) or service call [Call Service (M1)] will appear.
  "0" : Not counted
  1 : Counted (The maintenance call display is given when the counter reaches 0.)
  2 : Counted (The service call display is given and the initiation of any new copy cycle is inhibited when the counter reaches 0.)

NOTE

- **The counter value is decremented until it reaches -999999 even after it has counted 0.**

B. Procedure

- The default setting is 0.
- When "1" or "2" is selected, a screen will then appear to allow the counter value to be entered.

11.3.4 IU LIFE STOP MODE

A. Use

- When the supplies life count. reaches the life value, the IU life will be detected.
- The mode when the IU life is reached, is specified by this setting.
  CONTINUOUS : Enables copying. Maintenance call (M2) display is given.
  STOP : Disables copying. Service call [Call Service (M2)] display is given and the initiation of any new copy cycle is inhibited.

NOTE

- **When the drum reaches its life value, the image quality of subsequent prints is out of warranty.**

B. Procedure

- The default setting is STOP.

CONTINUOUS/"STOP"

11.3.5 ID ADJUST

A. Use

- To set the image density by varying Vg and Vb on the engine side.
- Used when the image density is high or low.

B. Procedure

- The default setting is 0.

-3 to +3 (1step: 20 V)

11.3.6 VG ADJUST

A. Use

- To adjust image density by varying Vg with changing sensitivities as the drum is used for an extended period of time.
- Used when image problems (fog, void) occur.
- Used when the drum unit has been replaced.
  Increase the setting value to eliminate void.
  Decrease the setting value to eliminate fog.

B. Procedure

- The default setting is 0.

-3 to +3 (1step: 20 V)

11.3.7 TRANSFER (PLAIN)

11.3.8 TRANSFER (RECYCLE)

11.3.9 TRANSFER (CARD1)

11.3.10 TRANSFER (CARD2)

A. Use

- Adjust the image transfer output value for each paper type.
- The output value determined by the transfer output control can be adjusted within the range of ± 30 %
- To use when the transfer failure occurs.

B. Procedure

- The default setting is 0.

-3 to +3 (1step: 10 %)

11.3.11 FUSER TEMP. (PLAIN)

A. Use

- To set the temperature of the fusing roller for each type of paper, thereby making up for fusing performance that changes with the operating environment or type of paper.
- Used when fusing failure occurs.
- Used when the type of paper is changed.

B. Procedure

- The default setting is 0.

-1 to +4

NOTE

- **If +2, +3, or +4 is selected, the productivity decreases due to the paper feed interval increased under the PPM control.**

<Temperature table for adjusting fusing temperature for plain/recycle paper>

Setting value	Difference from the target temperature determined by the fusing temperature control
+4	+20 °C
+3	+15 °C
+2	+10 °C
+1	+5 °C
0 (default value)	0 °C
-1	-10 °C

11.3.12 FUSER TEMP. (CARD1)

11.3.13 FUSER TEMP. (CARD2)

A. Use

- To set the temperature of the fusing roller for each type of paper, thereby making up for fusing performance that changes with the operating environment or type of paper.
- Used when fusing failure occurs.
- Used when the type of paper is changed.

B. Procedure

- The default setting is 0.

-1 to +4

<Temperature table for adjusting fusing temperature for card 1/card 2>

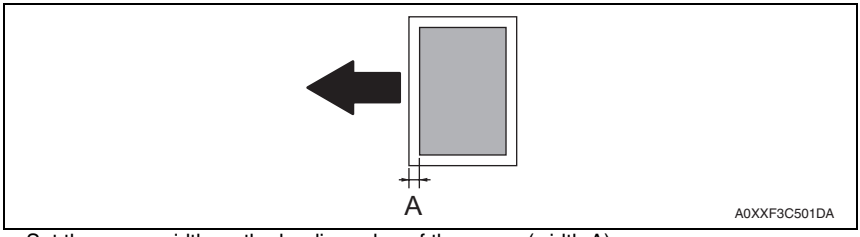
Setting value	Difference from the target temperature determined by the fusing temperature control
4	+20 °C
3	+15 °C
2	+10 °C
1	+5 °C
0 (default value)	0 °C
-1	-10 °C

11.3.14 LEADING EDGE

A. Use

- To adjust the erase width on the leading edge of the image by varying the laser emission timing.
- Used when the PH unit has been replaced.

B. Procedure



- Set the erase width on the leading edge of the paper (width A).
- The default setting is 4 mm.

0 mm/1 mm/2 mm/3 mm/“4 mm”/5 mm

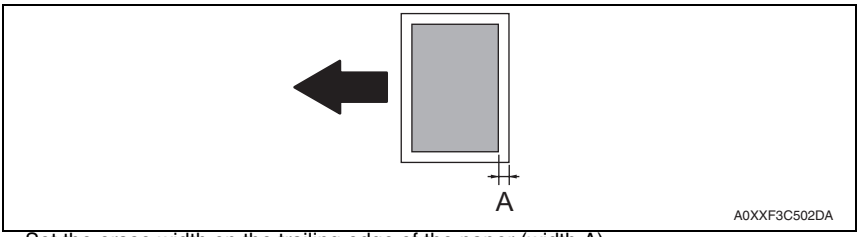
1. Call SERVICE’S CHOICE of SERVICE MODE to the screen.
2. Select [LEADING EDGE] and press the OK key.
3. Using [▲ / ▼] key, select the desired setting value.
   To make the erase width smaller, decrease the setting value.
   To make the erase width greater, increase the setting value.
4. Press the OK key to validate the setting value selected in step 3.

11.3.15 TRAILING EDGE

A. Use

- To adjust the erase width on the trailing edge of the image by varying the laser emission timing.
- Used when the PH Unit has been replaced.

B. Procedure



- Set the erase width on the trailing edge of the paper (width A).
- The default setting is 4 mm.

0 mm/1 mm/2 mm/3 mm/"4 mm"/5 mm

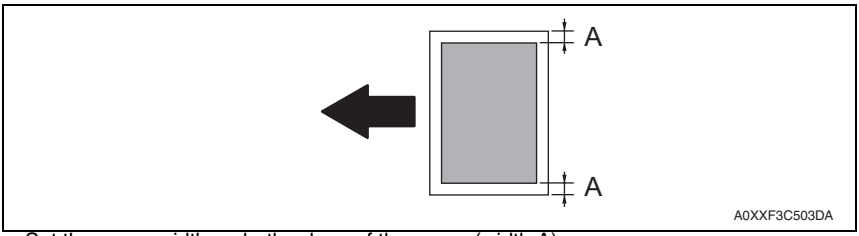
1. Call SERVICE'S CHOICE of SERVICE MODE to the screen.
2. Select [TRAILING EDGE] and press the OK key.
3. Using [▲ / ▼] key, select the desired setting value.
   To make the erase width smaller, decrease the setting value.
   To make the erase width greater, increase the setting value.
4. Press the OK key to validate the setting value selected in step 3.

11.3.16 VERTICAL EDGE

A. Use

- To adjust the erase width on both edges of the image (in CD direction) by varying the laser emission timing.
- Used when the PH Unit has been replaced.

B. Procedure



- Set the erase width on both edges of the paper (width A).
- The default setting is 4 mm.

0 mm/1 mm/2 mm/3 mm/"4 mm"/5 mm

1. Call SERVICE'S CHOICE of SERVICE MODE to the screen.
2. Select [VERTICAL EDGE] and press the OK key.
3. Using [▲ / ▼] key, select the desired setting value.
   To make the erase width smaller, decrease the setting value.
   To make the erase width greater, increase the setting value.
4. Press the OK key to validate the setting value selected in step 3.

11.3.17 LOOP Ad. (TRAY1)

A. Use

- To adjust the length of the loop formed in the paper feed from the tray1 before the synchronizing roller.
- Used when a skew feed, fold, or misfeed of paper occurs.
- Used when variations in the amount of void on the leading edge occurs.

B. Procedure

-3.234 to +3.234 mm (1 step: 0.462 mm)

1. Call SERVICE'S CHOICE of SERVICE MODE to the screen.
2. Select [LOOP Ad. (TRAY1)] and press the OK key.
3. Using [▲ / ▼] key, select the desired setting value.
4. Press the OK key to validate the setting value selected in step 3.

- Try a different setting value until there are no variations in the amount of void on the leading edge, and paper skew, fold, or misfeed.

11.3.18 LOOP Ad. (BYPASS)

A. Use

- To adjust the length of the loop formed in the paper feed from the manual bypass tray before the synchronizing roller.
- Used when a skew feed, fold, or misfeed of paper occurs.
- Used when variations in the amount of void on the leading edge occurs.

B. Procedure

-3.234 to +3.234 mm (1 step: 0.462 mm)

1. Call SERVICE'S CHOICE of SERVICE MODE to the screen.
2. Select [LOOP Ad. (BYPASS)] and press the OK key.
3. Using [▲ / ▼] key, select the desired setting value.
4. Press the OK key to validate the setting value selected in step 3.

- Try a different setting value until there are no variations in the amount of void on the leading edge, and paper skew, fold, or misfeed.

11.3.19 FLS PAPER SIZE

A. Use

- To select the paper size for FLS.
- Used when the FLS paper size is changed.
- Used at setup.

B. Procedure

- The default setting varies depending on the marketing area.

330✻203/330✻210/330✻216/330✻220/337✻206

11.3.20 GDI TIMEOUT

A. Use

- To specify the time for timeout when data from PC is interrupted during GDI printing.

B. Procedure

- The default setting is 60 sec.

5 sec/10 sec/20 sec/30 sec/40 sec/50 sec/"60 sec"

11.3.21 ERASER INSTALL

- Not used.

11.3.22 SUCTION FAN

A. Use

- To specify the length of time from when a print cycle is completed and until when the suction fan motor stops rotating.
- Used when image failure (while line etc.) occurs due to residual ozone that remains around the drum.

B. Procedure

- The default setting is 2 sec.

"2 sec"/20 sec/ 60 sec/600 sec

NOTE

- **Even when 20 sec. or more is selected in this setting, a higher priority is given to the shift to sleep mode.**

11.3.23 LANGUAGE GROUP

A. Use

- To select the language group applied to the firmware.
- To rewrite the firmware so that it can be used for a different marketing area.

B. Procedure

- The default setting varies depending on the marketing area.

TYPE 1/TYPE 2/TYPE 5/TYPE 6/TYPE7

- The new setting takes effect after the power switch is turned OFF/ON.

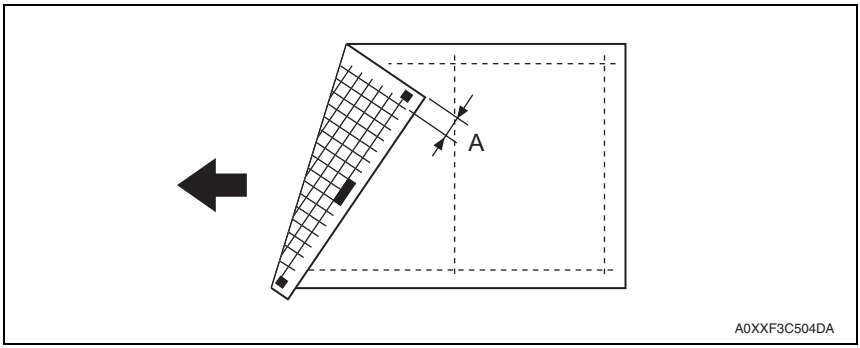
11.4 ADJUST

11.4.1 PRN MAIN (TRAY1)

A. Use

- To adjust by varying the starting position of image writing in the main scanning direction.
- Used when the image on the copy deviates in the main scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 20 ± 2.0 mm

80 (-3.08 mm) to 120 (+3.08 mm) (1 step: 0.154 mm)

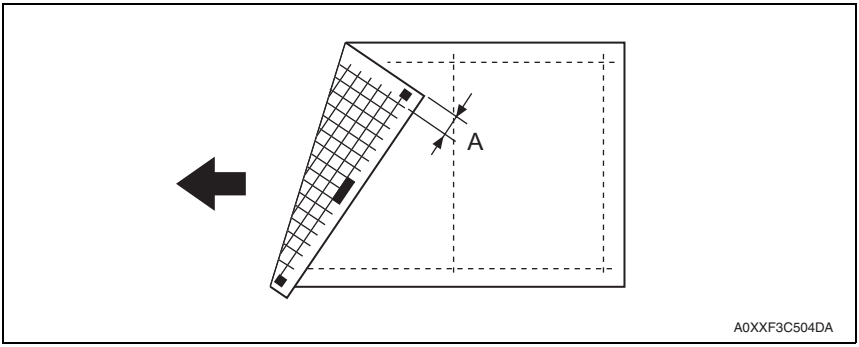
1. Load the tray 1 with A3/11 x 17 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN MAIN (TRAY1)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.2 PRN MAIN (BYPASS)

A. Use

- To adjust by varying the starting position of image writing in the main scanning direction.
- Used when the image on the copy deviates in the main scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 20 ± 2.0 mm

80 (-3.08 mm) to 120 (+3.08 mm) (1 step: 0.154 mm)

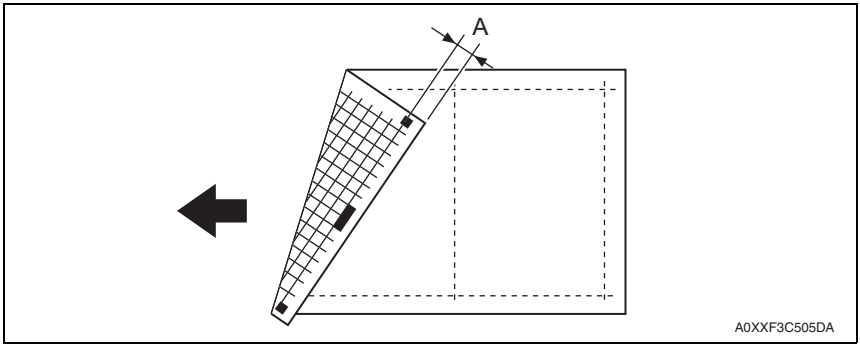
1. Load the bypass tray with A3/11 x 17 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN MAIN (BYPASS)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.3 PRN SUB (TRAY1-P)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

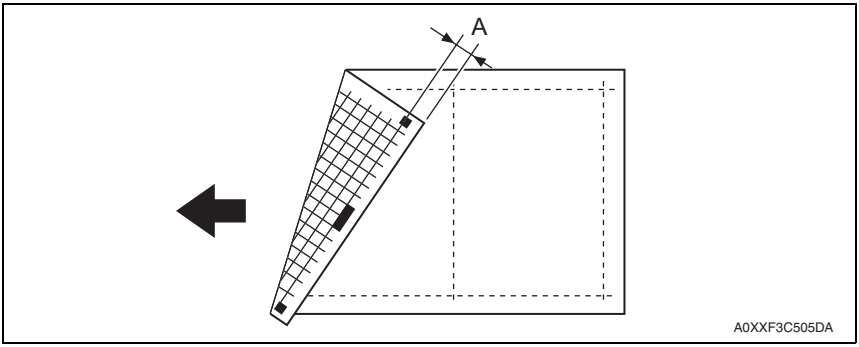
1. Load the tray 1 with A3/11 x 17 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (TRAY1-P)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.4 PRN SUB (TRAY1-R)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

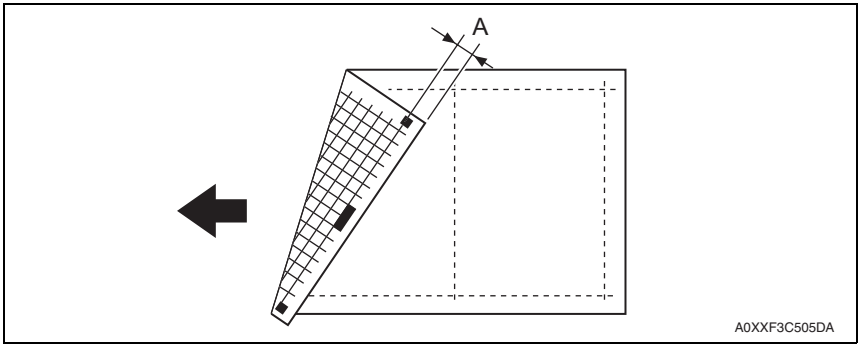
1. Load the tray 1 with A3/11 x 17 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (TRAY1-R)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.5 PRN SUB (TRAY1-C1)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

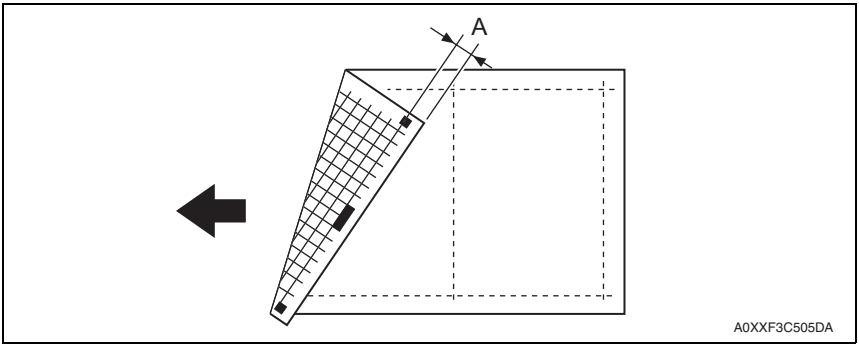
1. Load the tray 1 with A3/11 x 17 card 1 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (TRAY1-C1)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.6 PRN SUB (TRAY1-C2)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

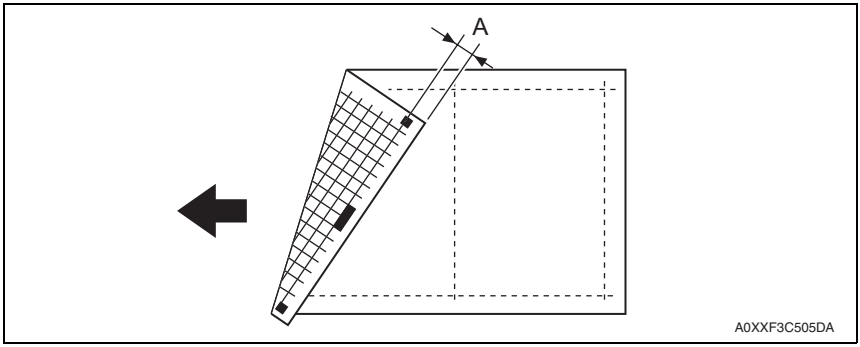
1. Load the tray 1 with A3/11 x 17 card 2 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (TRAY1-C2)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.7 PRN SUB (BYPASS-P)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

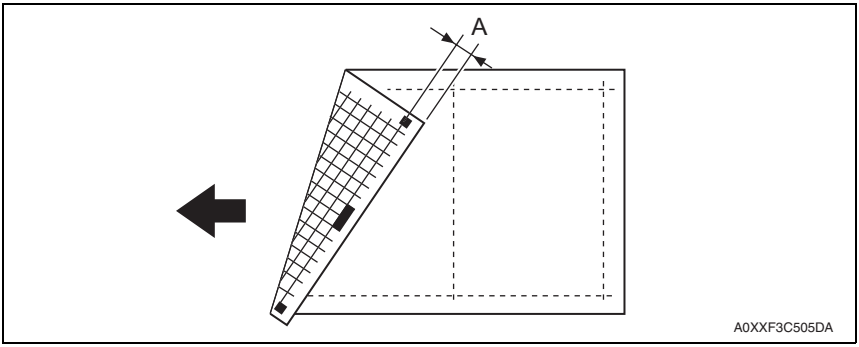
1. Load the bypass tray with A3/11 x 17 plain paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (BYPASS-P)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.8 PRN SUB (BYPASS-R)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

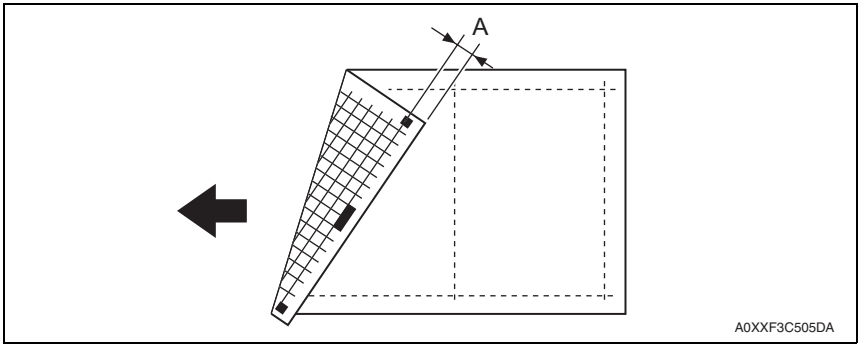
1. Load the bypass tray with A3/11 x 17 recycle paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (BYPASS-R)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.9 PRN SUB (BYPASS-C1)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

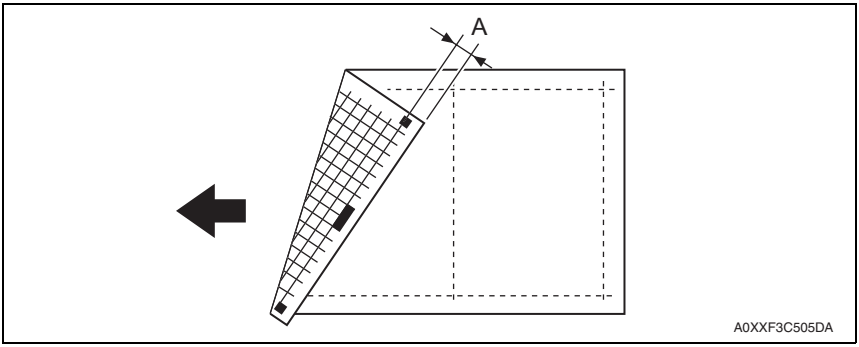
1. Load the bypass tray with A3/11 x 17 card 1 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (BYPASS-C1)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.10 PRN SUB (BYPASS-C2)

A. Use

- To adjust by varying the starting position of image writing in the sub scanning direction.
- Used when the image on the copy deviates in the sub scanning direction.
- Used when the PH unit has been replaced.

B. Procedure



- Adjust so that width A on the test pattern produced falls within the specified range.
- Specifications: 10 ± 1.5 mm

70 (-4.62 mm) to 130 (+4.62 mm) (1 step: 0.154 mm)

1. Load the bypass tray with A3/11 x 17 card 2 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment.
5. Select [PRN SUB (BYPASS-C2)] of [ADJUST].
6. Using [▲ / ▼] key, select the appropriate setting value. If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
7. Press the OK key to validate the setting value selected in step 6.
8. If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

11.4.11 CIS MAIN ZOOM

A. Use

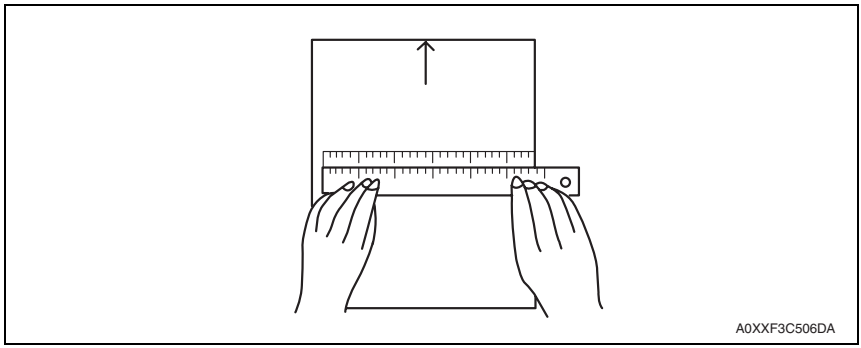
- To adjust variations in machining and installation accuracy of different scanner parts by varying the scanning zoom ratio in the main scanning direction.
- Used when the CIS module has been replaced. (After the CIS module has been adjusted for correct position)

B. Procedure

- Adjust so that the amount of error falls within ±1.0% of the length to be measured.
- Adjust so that the following specifications are met when the length of the scale is 200 mm.
- Zoom Ratio/Specifications
- Zoom Ratio: Full size (× 1.00)
- Specifications: 200 ± 2.0 mm
- The default setting is 100.

95 (-2.0%) to 105 (+2.0%) (1 step: 0.4%)

1. Place a scale on the original glass in parallel with the original width scale and make a copy.



2. Measure the length of the scale on the copy. If the amount of error falls outside the specified range, perform the following steps to make an adjustment.
3. Enter adjust of the SERVICE MODE.
4. Select [CIS MAIN ZOOM] of [ADJUST].
5. Using [▲ / ▼] key, select the appropriate setting value.
   If the length on the copy is longer than the actual one, decrease the setting value.
   If the length on the copy is shorter than the actual one, increase the setting value.
6. Press the OK key to validate the setting value selected in step 5.
7. If a single adjustment procedure does not successfully bring the amount of error into the specified range, repeat steps 3 through 6.

11.4.12 CIS SUB ZOOM

A. Use

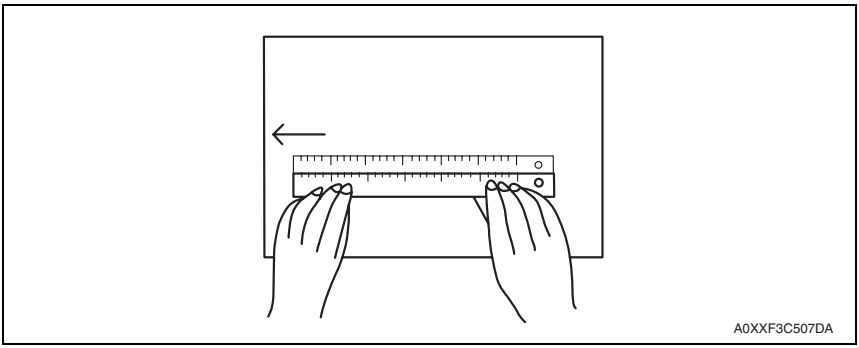
- To adjust variations in machining and installation accuracy of different scanner parts by varying the scanning zoom ratio in the sub scanning direction.
- Used when the CIS module have been replaced.

B. Procedure

- Adjust so that the amount of error falls within ±1.0% of the length to be measured.
- Adjust so that the following specifications are met when the length of the scale is 300 mm.
- Zoom Ratio/Specifications
- Zoom Ratio: Full size (× 1.00)
- Specifications: 300 ± 3.0 mm
- The default setting is 100.

95 (-2.0%) to 105 (+2.0%) (1 step: 0.4%)

1. Place a scale so that it is at right angles to the original width scale, and copy it.



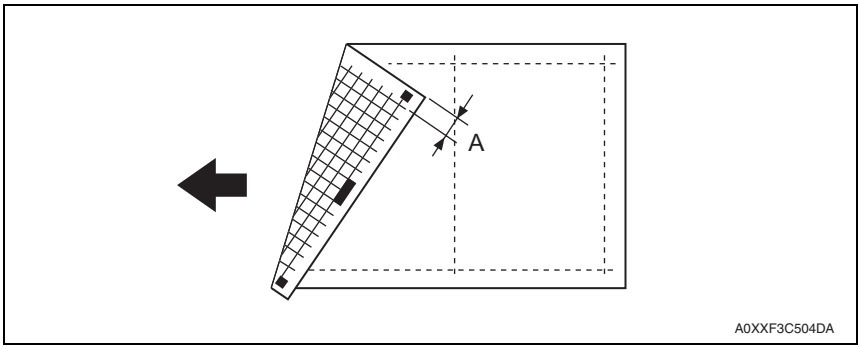
2. Measure the length of the scale on the copy. If the amount of error falls outside the specified range, perform the following steps to make an adjustment.
3. Enter adjust of the SERVICE MODE.
4. Select [CIS SUB ZOOM] of [ADJUST].
5. Using [▲ / ▼] key, select the appropriate setting value.
   If the length on the copy is longer than the actual one, decrease the setting value.
   If the length on the copy is shorter than the actual one, increase the setting value.
6. Press the OK key to validate the setting value selected in step 5.
7. If a single adjustment procedure does not successfully bring the amount of error into the specified range, repeat steps 3 through 6.

11.4.13 CIS MAIN REGIST

A. Use

- To adjust variations in machining and installation accuracy of different IR parts by varying the starting position of image scanning in the main scanning direction.
- Used when the PH unit has been replaced.
  (After PRN MAIN REGIST, PRN SUB REGIST, and CIS MAIN ZOOM have been adjusted)
- Used when the CIS module has been replaced. (After the CIS module has been adjusted for correct position)

B. Procedure



- Adjust so that deviation between width A on the test pattern produced and that on the copy produced falls within the specified range.
- Specifications: 0 ± 2.0 mm

20 (-8.0 mm) to 180 (+8.0 mm) (1 step: 0.1 mm)

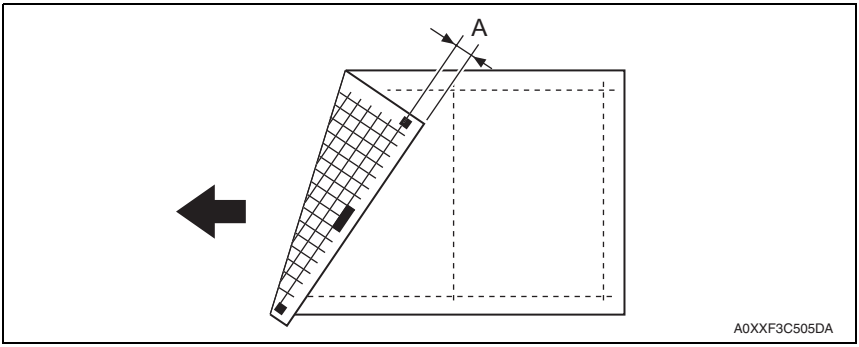
1. Load the tray 1 with A3/11 x 17 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Place the test pattern produced in step 3 on the original glass and make a copy of it.
5. Place the test pattern (original) on top of the copy and check for deviation in width A. If the deviation in width A falls outside the specified range, perform the following steps to make an adjustment.
6. Select [CIS MAIN REGIST] of [ADJUST].
7. Using [▲ / ▼] key, select the appropriate setting value.
   If the deviation is longer than the specifications, increase the setting value.
   If the deviation is shorter than the specifications, decrease the setting value.
8. Press the OK key to validate the setting value selected in step 7.
9. If a single adjustment procedure does not successfully bring the deviation into the specified range, repeat steps 5 through 7.

11.4.14 CIS SUB REGIST

A. Use

- To adjust variations in machining and installation accuracy of different scanner parts by varying the starting position of image scanning in the sub scanning direction.
- Used when the PH unit has been replaced.
  (After PRN MAIN REGIST, PRN SUB REGIST, and CIS MAIN ZOOM have been adjusted)
- Used when the CIS module has been replaced. (After the CIS module has been adjusted for correct position)

B. Procedure



- Adjust so that deviation between width A on the test pattern produced and that on the copy produced falls within the specified range.
- Specifications: 0 ± 1.5 mm

60 (-4.0 mm) to 140 (+4.0 mm) (1 step: 0.1 mm)

1. Load the tray 1 with A3/11 x 17 paper.
2. Enter function of the SERVICE MODE.
3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern.
4. Place the test pattern produced in step 3 on the original glass and make a copy of it.
5. Place the test pattern (original) on top of the copy and check for deviation in width A. If the deviation in width A falls outside the specified range, perform the following steps to make an adjustment.
6. Select [CIS SUB REGIST] of [ADJUST].
7. Using [▲ / ▼] key, select the appropriate setting value.
   If the deviation is longer than the specifications, increase the setting value.
   If the deviation is shorter than the specifications, decrease the setting value.
8. Press the OK key to validate the setting value selected in step 7.
9. If a single adjustment procedure does not successfully bring the deviation into the specified range, repeat steps 5 through 7.

11.4.15 TCR GAIN

A. Use

- To manually adjust the TCR sensor voltage.
- To set the TCR sensor control voltage again if the voltage determined by TCR AUTO ADJUST is cleared due to the replacement of the printer control board or memory clear.

B. Procedure

- The default setting is 140 (3.624 V).

90 (2.329 V) to 190 (4.917 V) (1 step: 0.026 V)

- The adjusted value of the TCR auto adjust is the setting value.

11.4.16 MODEL SETTING

NOTE

- **Never change this setting.**
- **If it is changed, the Tech. Rep. call (C03FF) will appear.**

- Default setting depend on the marketing area setting.

18 ppm/16 ppm

11.4.17 CUSTOMER ID

NOTE

- **Never change this setting.**

- The default setting is 0.

11.5 COUNTER

11.5.1 TOTAL COUNTER

A. Use

- To display the total count value of the selected mode.
- To check total count value in each mode.
- Counting method is different depending on the settings of [SECURITY] → [TOTAL COUNTER COUNT] in the service mode.
See P.117

B. Procedure

COPY	: Total count value in copy mode
PRINT	: Total count value in PC print mode

11.5.2 SIZE COUNTER

A. Use

- To display the count of the size counter.
- Paper sizes on which counting can be made are different depending on the setting of [SECURITY] → [SIZE COUNTER] in the service mode.
- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.5.3 PM COUNTER

A. Use

- To display the count of the number of times each of different parts of the machine has been used.
- This function is used at the time of maintenance work for the main body and options.
- The count should be cleared when the corresponding PM part is replaced.

B. Procedure

BYPASS : Each time a page is printed with paper from the bypass tray, the counter increases by one.

TRAY1 : Each time a page is printed with paper from the tray 1, the counter increases by one.

IR : Each time a page is copied with the use of the scanner, the counter increases by one.

OZONE : If the paper length in the sub scanning direction is 216 mm or less, each time a page is printed, the counter increases by one. If the paper length in the sub scanning direction is over 216 mm, each time a page is printed, the counter increases by two.

FUSING : If the paper length in the sub scanning direction is 216 mm or less, each time a page is printed, the counter increases by one. If the paper length in the sub scanning direction is over 216 mm, each time a page is printed, the counter increases by two.

TRANSFER : If the paper length in the sub scanning direction is 216 mm or less, each time a page is printed, the counter increases by one. If the paper length in the sub scanning direction is over 216 mm, each time a page is printed, the counter increases by two.

- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.5.4 MAINTENANCE COUNT.

A. Use

- To display the count of the maintenance counter.
- When the counter reaches “0”, maintenance call M1 or the service call will appear, according to the setting on MAINTENANCE COUNT. of SERVICE’S CHOISE.
See P.84
- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.5.5 SUPPLIES COUNTER

A. Use

- To display the count of the supplies life counter.
- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

B. Procedure

I/U Life : The value that corresponds to the amount of time for which the PC drum has rotated is calculated and the value is subtracted from the initial counter value of 55,000.

PH Start : Each time the polygon motor is started, the counter increases by one.

PH Turn : The amount of time for which the polygon motor has rotated is monitored and the counter increases by one for every given period of time.

11.5.6 APPLICATION COUNTER

A. Use

- To display the count of the number of sheets of paper used for each of different applications.
  COPY PRINT : Number of copies made
  PC PRINT : Number of printed pages produced from PC
- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.5.7 PAPER SIZE COUNTER

A. Use

- To display the count of the number of sheets of paper used for each following size and type.
  A3/B4/A4 SEF/A4 LEF/B5/FLS/11 x 17/LEGAL/LETTER SEF/LETTER LEF/INVOICE/OTHER/PLAIN/RECYCLE/CARD1/CARD2/PLAIN-R (2-sided)/RECYCLE-R (2-sided)/CARD1-R (2-sided)/CARD2-R (2-sided)

NOTE

- **8K size is counted as B4.**
- **16K size is counted as B5.**
- **Special paper is counted as PLAIN.**
- **A5, custom size is counted as OTHER.**

- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.5.8 MISFEED COUNTER

A. Use

- To display the count of the number of paper misfeeds that have occurred at different parts of the machine.
  BYPASS/TRAY1/FUSER/SEPARATOR
- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.5.9 TROUBLE COUNTER

A. Use

- To display the count of the number of malfunctions detected according to the malfunction code.
- To clear the count, use [CLEAR DATA] of the SERVICE MODE.

11.6 DISPLAY

11.6.1 TONER DENSITY

A. Use

- To display the current output value of TCR sensor.
- Refer to the following table for actual T/C values.
- Used to check the T/C ratio when the image density is defective.

Display	T/C
⋮	⋮
80	8.0%~8.4%
⋮	⋮
100	10.0%~10.4%
⋮	⋮
130	13.0%~13.4%
135	13.5%~13.9%
140	14.0%~14.4%
145	14.5%~14.9%
⋮	⋮

11.6.2 FUSER TEMPERATURE

A. Use

- To display the temperature of the fusing unit.

11.6.3 TRANSCRIPT CURRENT

A. Use

- To display the transfer current output value.

11.6.4 TCR GAIN

A. Use

- To display the TCR gain value determined by TCR AUTO ADJUST.

<Conversion formula of TCR gain value to voltage>
TCR control voltage (V) =3.3 x 2 x [TCR gain value] / 256

11.6.5 PROCESS CONTROL

A. Use

- To display the Vg (Grid V.) and Vb (Bias V.) values.

11.6.6 MAIN F/W VER.

A. Use

- To display the main firmware (MFPB) version information.

11.6.7 ENGINE F/W VER.

A. Use

- To display the engine firmware (PRCB) version information.

11.6.8 MAIN RAM SIZE

A. Use

- To display the main memory size.

11.6.9 SERIAL NO.

A. Use

- To display the serial number of the machine.

11.6.10 CUSTOMER ID

A. Use

- To display the customer ID of the machine.

11.7 FUNCTION

11.7.1 PAPER FEED TEST

A. Use

- To check for correct paper passage of the paper feed and transport system by letting the machine consecutively take up and feed paper without involving actual printing action.
- Here are the details of operation involved in the paper passage motion.
  The scanner does not make any scan motion.
  Paper is fed until the corresponding paper source runs out of paper.
  No counters are activated.
  (Except PM counter, maintenance counter, supplies counter)
  It cannot be operated at the time of warming up.
  A printing paper source can select on the screen of the function mode.
- Used when a paper misfeed occurs

B. Procedure

1. Select the paper source.
   TRAY1/BYPASS
2. Press the OK key to start the paper feed test.
3. Press the Stop key to stop the paper feed test.

11.7.2 PROCESS CHECK

- HV output (for factory setting only) *Should not be used

11.7.3 TCR AUTO ADJUST

A. Use

- To make an automatic adjustment of the TCR sensor.
- Used at setup.
- Used when developer has been changed.
- Used when IU has been replaced.

B. Procedure

NOTE

- **Before starting this adjustment, the toner bottle must be removed.**

1. Press the OK key to start the adjustment.
2. The adjustment sequence automatically stops as soon as the adjustment is made, and TCR gain value is displayed.

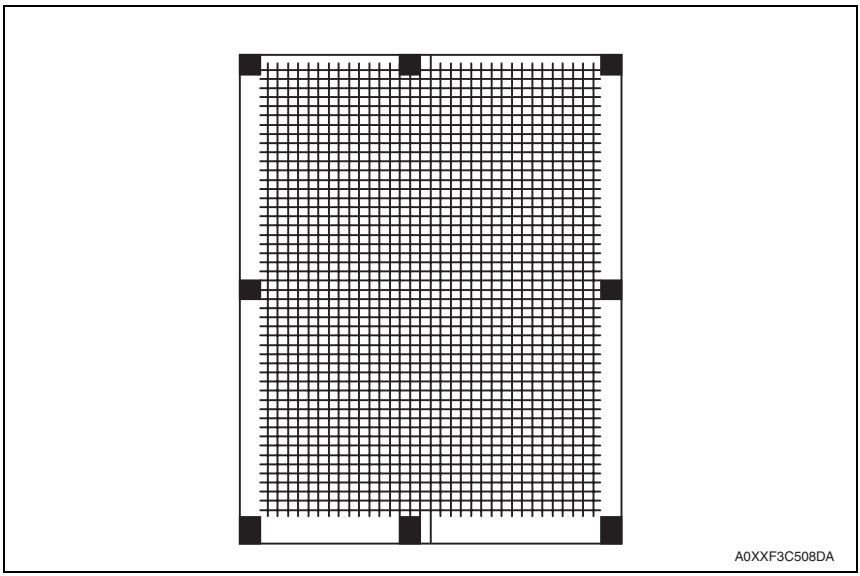
<Conversion formula of TCR gain value to voltage>
TCR control voltage (V) =3.3 x 2 x [TCR gain value] / 256

11.7.4 PRN TEST PATTERN

A. PATTERN1

(1) Use

- To produce a test pattern for image adjustments.
- When skew, registration, or zoom ratio has been adjusted.
- Here are the details of operation involved in the paper passage motion.
  The scanner does not make any scan motion.
  No counters are activated. (Except PM counter, maintenance counter, supplies counter)
  It cannot be operated at the time of warming up.
  A printing paper source can select on the screen of the function mode.
  The writing to a photo conductor is made as A3 size to every paper.
  The erasing of circumference of paper is effective. (Leading edge/trailing edge/vertical edge)



(2) Procedure

1. Load the A3 or 11 x 17 paper, and select the paper source.

NOTE

- **To produce a test pattern, be sure to use the paper of A3 or 11 x 17 sizes. Using paper that is smaller than A3 or 11 x 17 may cause smear on the back side of paper ejected on the output tray. If this problem occurs, feed several sheets of paper through the machine to resolve the problem.**

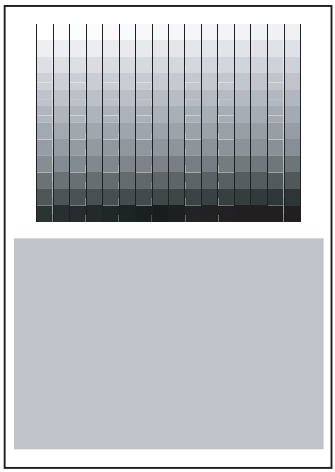
2. Select the type of test pattern.

3. Press the OK key to let the machine produce the test pattern.

B. PATTERN2

(1) Use

- To produce halftone and gradation test patterns.
- Used when checking for uneven density or uneven pitch.
- Used when checking for gradation reproducibility.
- Here are the details of operation involved in the paper passage motion.
  The scanner does not make any scan motion.
  No counters are activated. (Except PM counter, maintenance counter, supplies counter)
  It cannot be operated at the time of warming up.
  A printing paper source can select on the screen of the function mode.
  The writing to a photo conductor is made as A3 size to every paper.
  The erasing of circumference of paper is effective. (Leading edge/trailing edge/vertical edge)



A0XXF3C509DA

(2) Procedure

1. Load the A3 or 11 x 17 paper, and select the paper source.

NOTE

- **To produce a test pattern, be sure to use the paper of A3 or 11 x 17 sizes. Using paper that is smaller than A3 or 11 x 17 may cause smear on the back side of paper ejected on the output tray. If this problem occurs, feed several sheets of paper through the machine to resolve the problem.**

2. Select the type of test pattern.

3. Press the OK key to let the machine produce the test pattern.

11.7.5 SCAN TEST

A. Use

- To check that the exposure lamp turns ON properly and the scanner moves properly.
- Used when the scan motion is faulty.

B. Procedure

1. Press the OK key to start the scan test.
2. Pressing the Stop key will stop the scan test.

11.7.6 TONER SUPPLY

A. Use

- To adjust the set T/C level by replenishing an auxiliary supply of toner when a low ID occurs due to a lowered T/C after large numbers of prints have been made of originals having a high image density.

B. Procedure

1. Press the OK key to start the toner supply function.
2. When the toner density returns to normal or a given period of time elapses after the toner supply is started, the machine automatically stops supplying toner.

11.8 REPORT

11.8.1 SETTING DATA LIST

A. Use

- To produce an output of a list of setting values, adjustment values, counter values and others.
- Used at the end of setup or when a malfunction occurs.
- The printing paper size of A3, A4S, A4, B4S, 8KS, 11x17S, LegalS, LetterS, Letter should be set.
- No counters are activated. (Except PM counter, maintenance counter, supplies counter)
- The following items are recorded;

  UTILITY

  MACHINE SETTING/CUSTOM SIZE MEMORY/JOB SETTING/COPY SETTING

  SERVICE MODE

  SERVICE'S CHOICE/ADJUST/COUNTER/TOTAL COUNTER COUNT MODE/DISPLAY

11.9 FIXED ZOOM CHANGE

A. Use

- FIXED ZOOM CHANGE is used to change the fixed zoom ratios.

B. Procedure

1. Select the particular fixed zoom ratio to be changed.
2. Using the 10-key pad, enter the desired fixed zoom ratio.

C. Default values and setting range of fixed zoom ratios

(1) Metric

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	70%	51% to 70%
REDUCTION1	81%	71% to 99%
EXPANSION1	115%	101% to 140%
EXPANSION2	141%	141% to 199%

(2) Taiwan

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	70%	51% to 70%
REDUCTION1	81%	71% to 99%
EXPANSION1	122%	101% to 140%
EXPANSION2	141%	141% to 199%

(3) Inch

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	64%	51% to 64%
REDUCTION1	78%	65% to 99%
EXPANSION1	121%	101% to 128%
EXPANSION2	129%	129% to 199%

(4) China

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	70%	51% to 70%
REDUCTION1	81%	71% to 99%
EXPANSION1	115%	101% to 140%
EXPANSION2	141%	141% to 199%

(5) Latin America (Metric)

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	70%	51% to 70%
REDUCTION1	78%	71% to 99%
EXPANSION1	115%	101% to 140%
EXPANSION2	141%	141% to 199%

(6) Latin America (Inch)

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	64%	51% to 64%
REDUCTION1	78%	65% to 99%
EXPANSION1	121%	101% to 128%
EXPANSION2	129%	129% to 199%

11.10 FACTORY TEST

11.10.1 PANEL TEST

A. Use

- To test the LCD, LEDs and switches on the operation panel for operation.
- When the machine is set into this mode, all LEDs light up 5 sec. and the message "PANEL SWITCH TEST PRESS ANY SWITCH!" appears on the LCD, indicating that the machine has entered the switch test standby state.
- Pressing a key on the operation panel in the switch test standby state causes the LCD to show the name of key pressed.
- Press the Stop key twice to return to the standby screen.

11.10.2 RAM TEST

A. Use

- Write or read data to/from RAM memory to make sure of normal operation.
- When test finishes and everything is okay, it will display "RAM CHIP IS OK" and automatically clear DRAM.
  After DRAM clear finish, LCD will display "DRAM IS CLEAR!."

B. Procedure

- Pressing the OK key will start the check.
- After approx. 30 seconds, "RAM CHIP IS OK" will appear.

11.11 CLEAR DATA

11.11.1 MEMORY CLEAR

A. Use

- To clear the setting values listed on the right, resetting them to the default values.
- The following items are initialized;
  UTILITY
  SERVICE MODE - SERVICE'S CHOICE
  SERVICE MODE - ADJUST
  SERVICE MODE - FIXED ZOOM CHANGE
  SERVICE MODE - SECURITY
  Copy function information
  Copy program registration.

NOTE

- **After memory clear has been executed, be sure to turn OFF and ON the power switch.**

11.11.2 TOTAL CLEAR

A. Use

- To clear the all electronic counters.
- The following counters are cleared;
  SIZE COUNTER
  PM COUNTER
  MAINTENANCE COUNTER
  SUPPLIES COUNTER
  APPLICATION COUNT.
  SCAN COUNTER
  PAPER SIZE COUNTER
  MISFEED COUNTER
  TROUBLE COUNTER

11.11.3 PM COUNTER

A. Use

- To clear each of the counts of the PM counter.

11.11.4 MAINTENANCE COUNTER

A. Use

- To clear the count of the maintenance counter.

11.11.5 SUPPLIES COUNTER

A. Use

- To clear the count of the supplies life counter.

11.11.6 APPLICATION COUNT.

A. Use

- To clear each of the counts of the application counter.

11.11.7 SCAN COUNTER

A. Use

- To clear the count of the scan counter.

11.11.8 PAPER SIZE COUNTER

A. Use

- To clear each of the counts of the paper size counter.

11.11.9 MISFEED COUNTER

A. Use

- To clear each of the counts of the misfeed counter.

11.11.10 TROUBLE COUNTER

A. Use

- To clear each of the counts of the trouble counter.