TOSHIBA

TOSHIBA Bar Code Printer

B-SX4 Series, B-SX5 Series

Key Operation Specification

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TOSHIBA TEC CORPORATION

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1. SCOPE

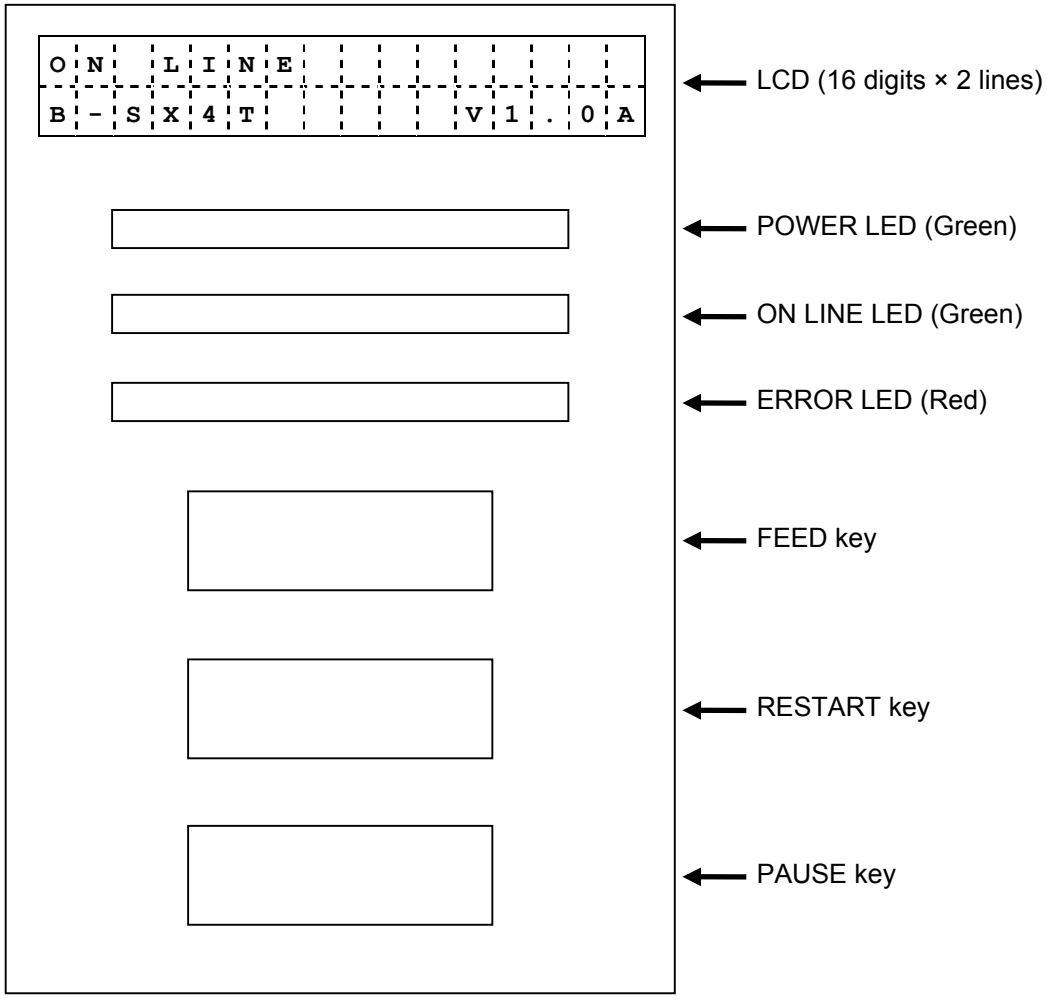
This specification describes key operations of the B-SX4T-GS10/20-QQ/QP/CN/QQ-US and B-SX4T-GS10-QQ-CCS (hereinafter collectively referred to as “B-SX4”) and the B-SX5T-TS12/22-QQ/QP/CN/QQ-US, TP-128, and B-SX5T-TS15 (hereinafter collectively referred to as “B-SX5”) high industrial general-purpose bar code printers using their keys and the LCD display.

2. OUTLINE

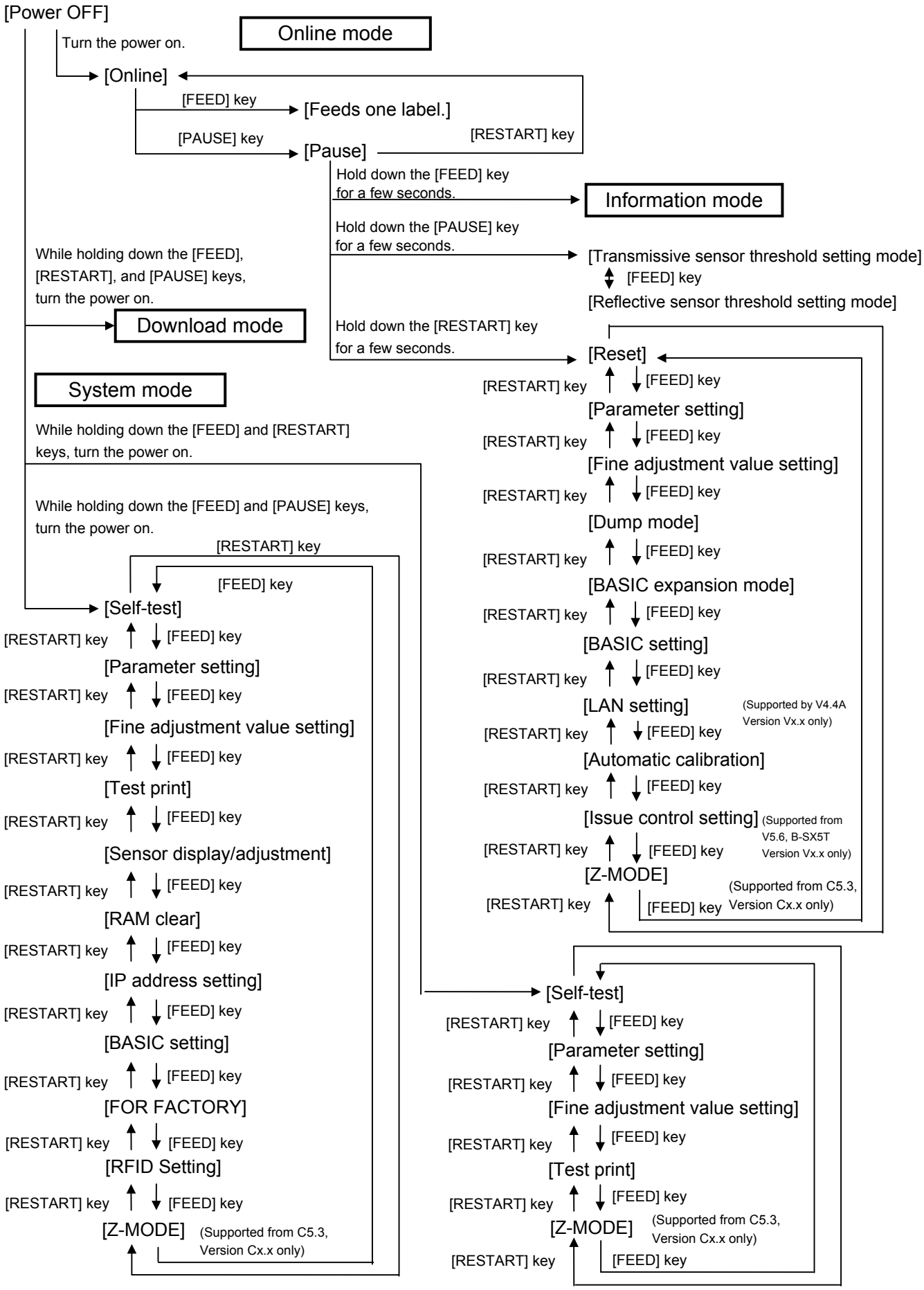
Keyboard operations are roughly classified into the online mode, in which a pause/restart is carried out and error messages are displayed when the printer is connected to the host such as a PC, and the system mode, in which the self-test and setting of various parameters are performed.

This specification describes the key operation procedures for the printer keys and the LCD panel.
The names of the keys and LCD messages used in this specification are written in English.

3. OPERATION PANEL



4. GENERAL VIEW OF KEY OPERATION



5. ONLINE MODE

5.1 KEY FUNCTION

[FEED] key:

(1) Feeds one sheet of paper. This key can be used to eject one sheet of paper. This key can also be used to adjust the paper to the proper position when the paper is not properly positioned. If printing is attempted when the paper is not properly positioned, printing is not performed at the proper position. One or two sheets of paper should be fed to adjust the paper position before printing.

(2) Prints the data in the image buffer on one label according to the system mode setting.

NOTE: *A clear command or a command for drawing should not be sent during printing by the [FEED] key. If it is sent, the correct layout wil be lost, and the label will not be printed properly. If an issue is performed by the [FEED] key while the data is being drawn in the image buffer, the correct layout may be lost.*

(3) Shifts the printer mode to the Information Mode (by holding down the [FEED] key for 3 sec. or more while the printer is in pause state.)

* For the following, refer to the parameter setting section.

- The procedure for using the label having a label pitch of less than 38 mm in the cut issue mode when the swing cutter is used
- The procedure for using the label having less than the min. label pitch for each issue speed in the cut issue mode when the rotary cutter is used.

[RESTART] key:

(1) Resumes printing after a temporary stop of label printing or after an error.
(2) Places the printer in the usual initial state which is obtained when the power is turned on.
(3) Programs various parameters.

[PAUSE] key:

(1) Stops label printing temporarily.
(2) Programs the threshold values.

5.2 LED FUNCTION

[POWER] LED: Indicates that the printer power is ON or OFF.

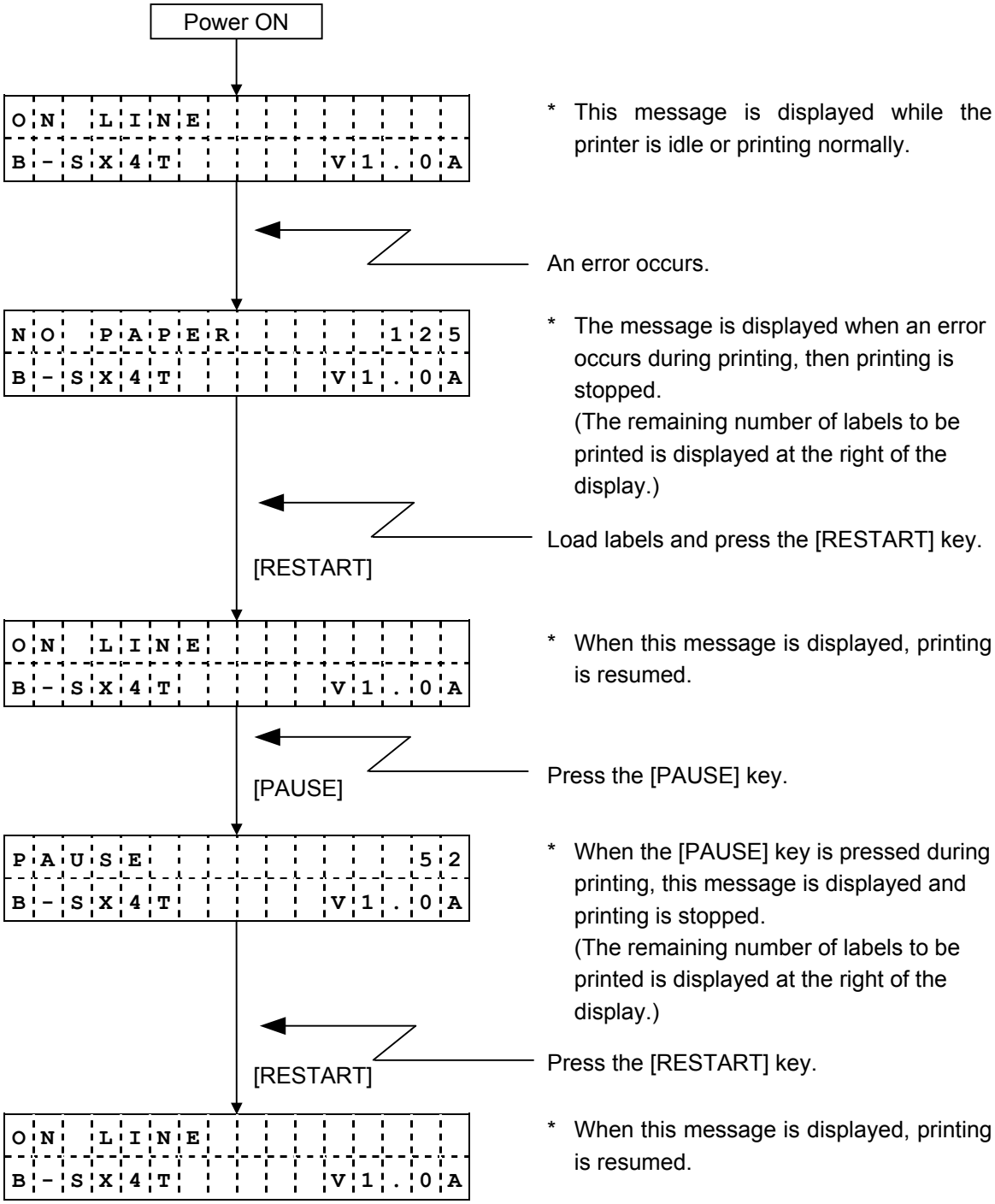
[ON LINE] LED: Indicates that the printer is ready for communication.

[ERROR] LED: Indicates that the printer is in an error state.

5.3 LCD FUNCTION

The LCD displays the message which indicates the printer status.
LCD Size: 16 digits × 2 lines

5.4 ONLINE MODE OPERATION EXAMPLE



NOTE: *[Remaining number of labels to be printed] = [Designated number of labels] - [Number of labels/tags normally printed before an error occurs or the printer stops temporarily]*

5.5 THRESHOLD SETTING

5.5.1 Outline of Threshold Setting

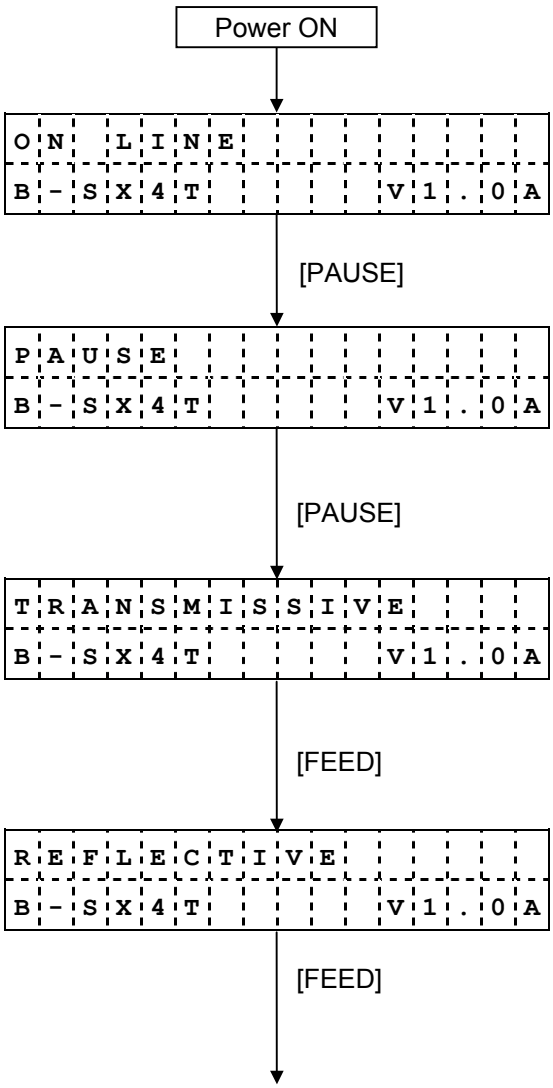
When a label is printed, the printer detects the gap between the labels using the transmissive sensor, and corrects the print position automatically to obtain a constant print position. However, when a preprinted label is used, some inks may prevent proper positioning correction. In this case, determine the transmissive sensor threshold manually by key operation and store the value in the non-volatile memory (EEPROM).

A constant print position can also be obtained when printing on a preprinted label since the print position is always corrected using the threshold stored in the non-volatile memory (EEPROM) by selecting “3: Transmissive Sensor (when using the preprinted label)” for the sensor type of the Issue Command.

When a label is printed by detecting the black mark on the back of the label, the reflective rate variation of a place other than the black mark may prevent the proper positioning correction. In this case, determine the reflective sensor threshold manually by key operation and store the value in the non-volatile memory (EEPROM).

A constant print position can also be obtained when printing on a tag since the print position is always corrected using the threshold stored in the non-volatile memory (EEPROM) by selecting “4: Reflective Sensor (when using a manual threshold value)” for the sensor type of the Issue Command.

5.5.2 Threshold Setting Operation Example



(1) Idle

(2) Load the preprinted label.
(No particular positioning is required.)

(3) Press the [PAUSE] key.

(4) The printer is in a pause state.

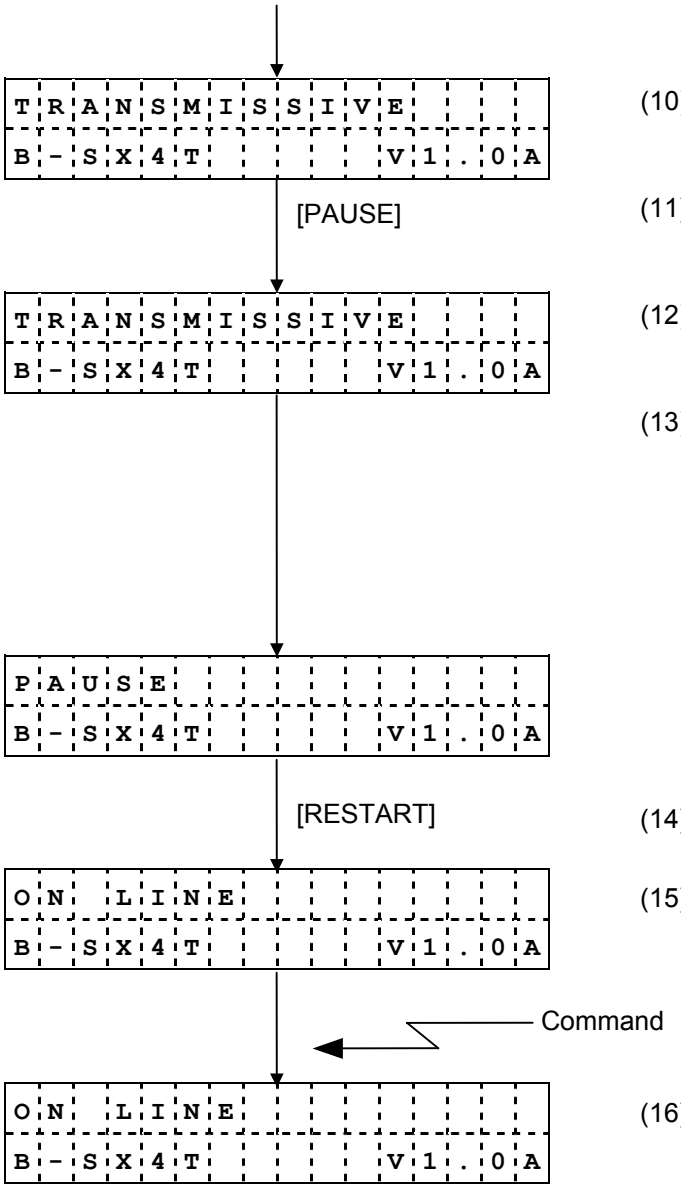
(5) Hold down the [PAUSE] key for 3 seconds or more while the printer is paused.

(6) The sensor selection to set the threshold manually is displayed.
The transmissive sensor designation is displayed.

(7) Press the [FEED] key.

(8) The reflective sensor designation is displayed.

(9) Press the [FEED] key.



(10) The transmissive sensor designation is displayed.

(11) Continue holding down the [PAUSE] key.

(12) The printer feeds the label until the [PAUSE] key is released.

(13) When the [PAUSE] key is released after 1.5 sheets or more of the label are fed, the printer stops feeding the label.
(Threshold setting for the selected sensor is completed.)

(14) Press the [RESTART] key.

(15) Idle

(16) The label is printed according to the command issued from the PC.

<Supplementary Explanation>

(1) When the [PAUSE] key is released within 3 seconds while the printer is paused, the [PAUSE] key is invalid.

(2) To program the threshold, 1.5 sheets or more of the label should be fed. (If the label is not fed by the above amount, the threshold may not be properly programmed. In this case, reprogramming is required.)

(3) Even if the [PAUSE] key is held down for 3 seconds or more when the head is lifted, the [PAUSE] key is invalid.

(4) While the printer is feeding a label to program the threshold, an error detection including the paper end or cutter error is not performed.

(5) When the proper print position is not obtained after threshold programming, the sensor may be improperly adjusted. In this case, readjust the sensor in system mode, and program the threshold.
When the backing paper of the label is too thick, the transmissive sensor should be readjusted.
In addition, make sure that “3: Transmissive sensor (when using the preprinted label)” or “4: Reflective sensor (when using a manual threshold value)” is selected for sensor type of the Feed Command and the Issue Command.

5.6 INFORMATION MODE

5.6.1 Outline of the Information Mode

In the information mode, the total feed amount (*1) counted during feed and printing operations is displayed on the LCD or printed in units of centimeter and inch on request. The feed amount is counted at the end of feed or printing, and saved in the non-volatile memory.

NOTES:

1. The effective range of the feed amount (*1) is as follows. When the feed amount exceeds the maximum, the maximum value will be saved.

   In unit of centimeter: 0 to 320000000
   In unit of inch: 0.0 to 125984251.9

2. The information mode is supported from the following firmware versions:

   B-SX4T: C5.8
   B-SX5T: C5.8

3. In the following cases, feed or printing is not counted in this feed amount (*1).

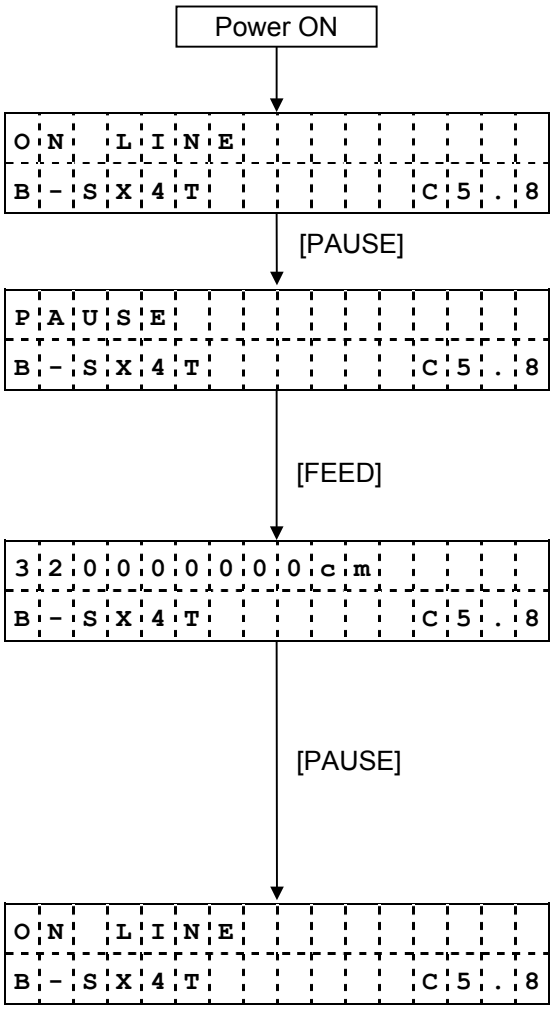
   Reverse feed, Forward feed to the strip position, Pre-strip feed, Auto forward feed, Void printing on RFID media, RFID tag position adjustment command (@003 command), Pre-reverse feed when an expansion I/O device is connected, Printing in offline (Diag. test print, maintenance counter print, test print, dump), printing in the information mode, manual threshold, and automatic calibration

3. Since the feed amount (*1) is counted based on the label pitch specified by the command, a large margin of error may be generated if the command-specified label pitch differs from the actually-measured label pitch.

4. Since the counted feed amount is saved in the non-volatile memory (EEPROM), replacement of the EEPROM is prohibited. (Except for the case the Main PC board is replaced with a service part.)

(*1): Feed amount counted in the information mode

5.6.2 Information Mode Operation Example



(1) Idle

(2) Press the [PAUSE] key.

(3) The printer enters Pause state.

(4) Hold down the [FEED] key for 3 seconds or more while the printer is in pause state.

(5-1) Counted feed amount is displayed on the LCD (in units of cm).

(5-2) The unit of measure is switched between centimeter and inch by pressing the [RESTART] key.

(6-1) Press the [FEED] key to return to the idle state (1).

(6-2) Press the [PAUSE] key to print the feed amount.

(7) The printer is reset.

(8) The printer returns to the idle state (1).

(Supplementary Explanation)

(1) When printing is performed in this mode, a quick reset is performed.

Performing a quick reset causes the print count (number of labels issued) to be reset to zero and the image buffer to be cleared. When the automatic calibration is enabled, a calibration is performed after a quick reset. When the automatic call at power on parameter is enabled in the Saved data call command, saved data will be called after a quick reset.

(2) Previous print conditions are applied to the printing performed in this mode, except:

- Printing direction

When the mirror printing has been specified, only the mirror printing is not performed. Therefore, the bottom first mirror printing and top first mirror printing will be changed to bottom first printing and top first printing, respectively.

- Effective print width and X-coordinate fine adjustment

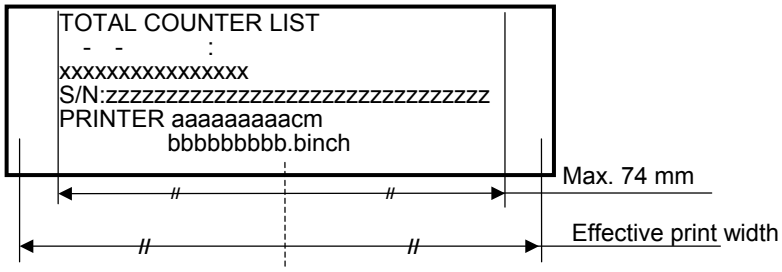
When the number of digits of the feed amount reaches the max. number of digits (74 mm), the print position is centered.

(3) Before shifting to the Information mode, make sure that the printer has not received any commands related to feed or drawing. If the printer has received such commands, printing will not be performed and the printer will return to the normal state. At this time, a quick reset will not be performed.

(4) Do not send a command to the printer while in the information mode.

5.6.3 Information Mode Print Sample

<Print sample>

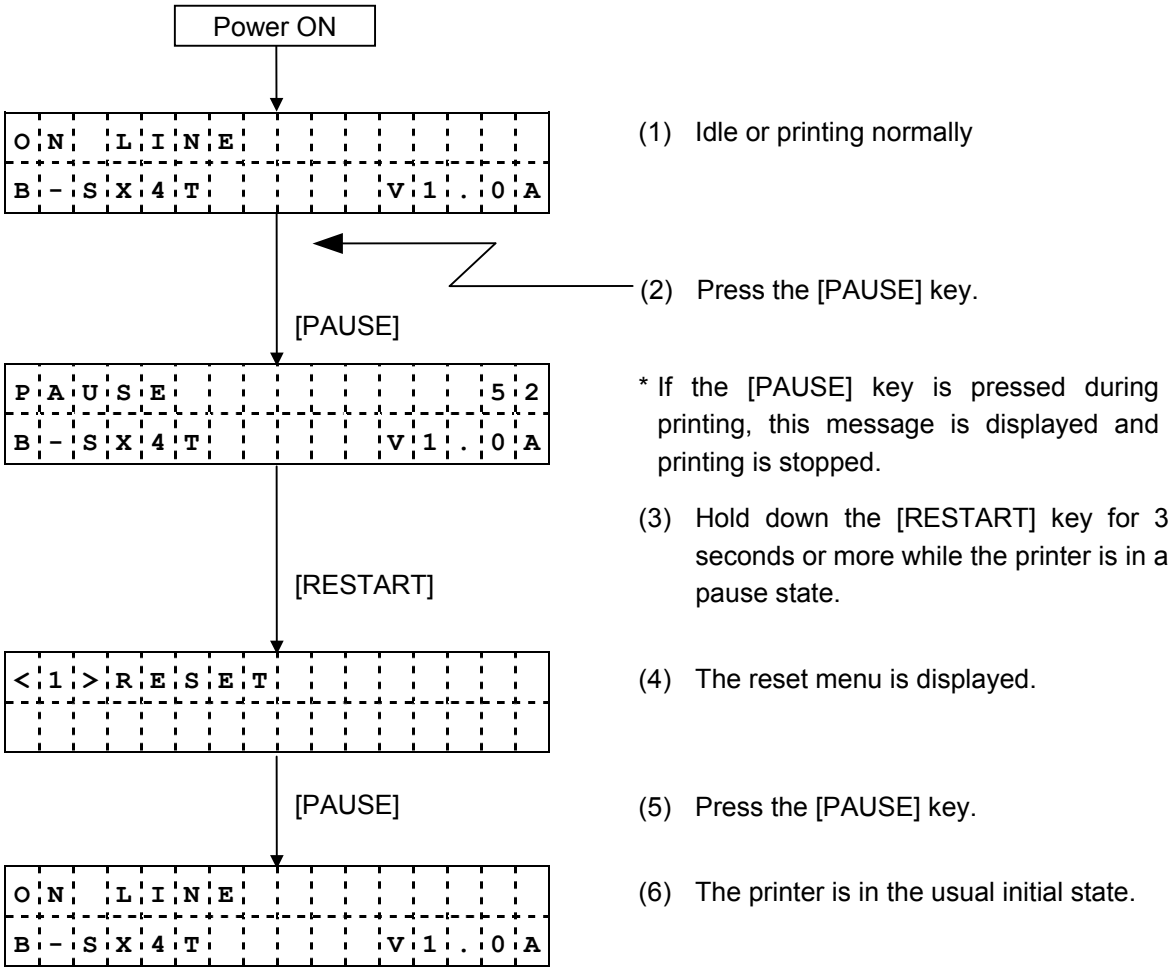


<Print data>

Item	Information		Range
1st line	Title		TOTAL COUNTER LIST
2nd line	Fixed value		- - :
3rd line	Model	B-SX4T	B-SX4T
		B-SX5T	B-SX5T
4th line	Serial No. (*1)		11 to 32-digit half-size alpha-numeric (A to Z, a to z, 0 to 9, space, hyphen
5th line	Feed amount in information mode (unit: cm)		0 to 320000000
6th line	Feed amount in information mode (unit: inch)		0 to 125984251.9

*1: In the case a serial number has never been registered to the printer, MAC address of wired LAN is printed without delimiters. If the MAC address of wired LAN cannot be obtained (when a LAN interface board is not installed in the printer), this line will be blank.

5.7 RESET



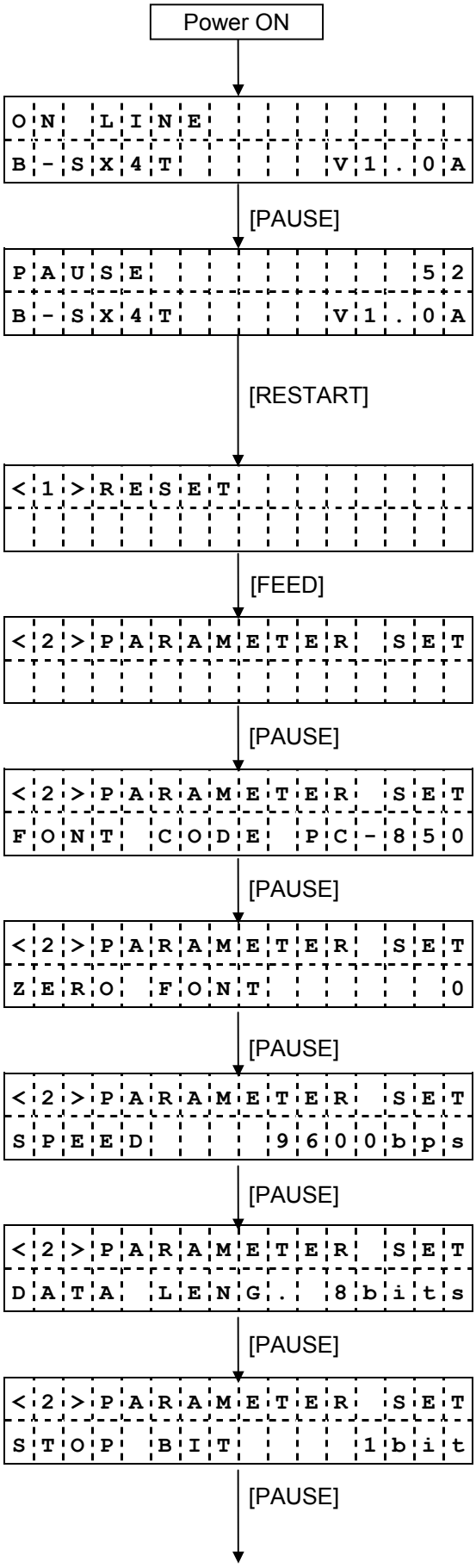
<Supplementary Explanation>

(1) If the [RESTART] key is held down for 3 seconds or more when the printer is in an error state from which it can resume printing (the state of “Restoration by the [RESTART] key”), the reset menu is displayed.

(2) If the [RESTART] key is released within 3 seconds when the [RESTART] key is held down during an error or a pause, the printer resumes printing a label. (The reset menu is not displayed.) However, if a communication error or command error has occurred, the printer enters the usual initial state when the [RESTART] key is pressed. (Even if the [RESTART] key is released within 3 seconds, the printer is reset.)

5.8 PARAMETER SETTING

5.8.1 Parameter Setting Operation Example



(1) Idle or printing normally

(2) Press the [PAUSE] key.

(3) “PAUSE” is displayed.

(4) Hold down the [RESTART] key for 3 seconds or more while the printer is in a pause state.

(5) The reset menu is displayed.

(6) Press the [FEED] key.

(7) System mode menu display (Parameter setting)

(8) Press the [PAUSE] key.

(9) Character code selection:
Select the character code using the [FEED] and [RESTART] keys.

(10) Press the [PAUSE] key.

(11) Font 0 selection:
Select the font using the [FEED] and [RESTART] keys.

(12) Press the [PAUSE] key.

(13) Communication speed selection:
Select the communication speed using the [FEED] and [RESTART] keys.

(14) Press the [PAUSE] key.

(15) Data length selection:
Select the data length using the [FEED] and [RESTART] keys.

(16) Press the [PAUSE] key.

(17) Stop bit length selection:
Select the stop bit length using the [FEED] and [RESTART] keys.

(18) Press the [PAUSE] key.

```
<2>PARAMETER SET
PARITY     EVEN
```

[PAUSE]

(19) Parity selection:
Select the parity using the [FEED] and [RESTART] keys.

(20) Press the [PAUSE] key.

```
<2>PARAMETER SET
XON+READY   AUTO
```

[PAUSE]

(21) Transmission control method selection:
Select the transmission control method using the [FEED] and [RESTART] keys.

(22) Press the [PAUSE] key.

```
<2>PARAMETER SET
LCD     ENGLISH
```

[PAUSE]

(23) Language selection for LCD messages:
Select the language for LCD messages using the [FEED] and [RESTART] keys.

(24) Press the [PAUSE] key.

```
<2>PARAMETER SET
FORWARD WAIT OFF
```

[PAUSE]

(25) Setting for forward feed standby in cut issue mode:
Make the forward feed standby setting using the [FEED] and [RESTART] keys.

(26) Press the [PAUSE] key.

```
<2>PARAMETER SET
FW/BK ACT. MODE1
```

[PAUSE]

(27) Setting for forward feed standby action:
When the forward feed standby is set to ON, select the action of the forward feed standby using the [FEED] and [RESTART] keys.

(28) Press the [PAUSE] key.

```
<2>PARAMETER SET
HU CUT/RWD.  OFF
```

[PAUSE]

(29) Setting for head-up operation in cut issue mode, or for using the rewinder in batch issue mode:
Make the head-up operation setting/the rewinder use setting using the [FEED] and [RESTART] keys.

(30) Press the [PAUSE] key.

```
<2>PARAMETER SET
SOLENOID   TYPE2
```

[PAUSE]

(31) Installed solenoid type setting: Set which type of solenoid is installed, TYPE 1 or TYPE 2 with the [FEED] and [RESTART] keys.

(32) Press the [PAUSE] key.

```
<2>PARAMETER SET
RBN SAVE ON(TAG)
```

[PAUSE]

(33) Ribbon saving system setting:
Determine whether or not the ribbon saving system is used with the [FEED] and [RESTART] keys.

(34) Press the [PAUSE] key.

```
<2>PARAMETER SET
CODE  ESC,LF,NUL
```

[PAUSE]

(35) Control code selection:
Select the control code using the [FEED] and [RESTART] keys.

(36) Press the [PAUSE] key.

```
<2>PARAMETER SET
PEEL OFF  STS OFF
```

[PAUSE]

(37) Peel-off wait status selection:
Set the peel-off wait status selection using the [FEED] and [RESTART] keys.

(38) Press the [PAUSE] key.

```
<2>PARAMETER SET
FEED KEY    FEED
```

[PAUSE]

(39) [FEED] key function setting:
Make the setting for the function of the [FEED] key using the [FEED] and [RESTART] keys.

(40) Press the [PAUSE] key.

```
<2>PARAMETER SET
KANJI CODE TYPE1
```

[PAUSE]

(41) Kanji code selection:
Select the Kanji code using the [FEED] and [RESTART] keys.

(42) Press the [PAUSE] key.

```
<2>PARAMETER SET
EURO CODE   B0
```

[PAUSE]

(43) Euro code setting:
Set the Euro code using the [FEED] and [RESTART] keys.

(44) Press the [PAUSE] key.

```
<2>PARAMETER SET
AUTO HD CHK  OFF
```

[PAUSE]

(45) Automatic head broken dots check setting:
Set the automatic head broken dots check using the [FEED] and [RESTART] keys.

(46) Press the [PAUSE] key.

```
<2>PARAMETER SET
ACK/BUSY   TYPE1
```

[PAUSE]

(47) Centronics ACK/BUSY timing setting:
Set the ACK/BUSY timing using the [FEED] and [RESTART] keys.

(48) Press the [PAUSE] key.

```
<2>PARAMETER SET
WEB PRINTER  OFF
```

[PAUSE]

(49) Web printer function setting:
Set the function for a web printer using the [FEED] and [RESTART] keys.

(50) Press the [PAUSE] key.

```
<2>PARAMETER SET
INPUT PRIME  ON
```

[PAUSE]

(51) Reset process when the nInit signal is ON:
Set the reset process using the [FEED] and [RESTART] keys.

(52) Press the [PAUSE] key.

```
<2>PARAMETER SET
RBN NEAR END 70m
```

[PAUSE]

(53) Ribbon near end detection setting:
Select the remaining ribbon length to be detected as a ribbon near end state using the [FEED] and [RESTART] keys.

(54) Press the [PAUSE] key.

```
<2>PARAMETER SET
EX.I/O    TYPE1
```

(55) Expansion I/O operation mode setting:
Select the expansion I/O operation mode using the [FEED] and [RESTART] keys.

[PAUSE]

(56) Press the [PAUSE] key.

```
<2>PARAMETER SET
CENTRO.MODE  SPP
```

(57) Centronics operation mode setting:
Select the Centoronics operation mode using the [FEED] and [RESTART] keys.

[PAUSE]

(58) Press the [PAUSE] key.

```
<2>PARAMETER SET
PLUG & PLAY  OFF
```

(59) Plug-and-play operation setting:
Set the plug-and-play operation using the [FEED] and [RESTART] keys.

[PAUSE]

(60) Press the [PAUSE] key.

```
<2>PARAMETER SET
LBL/RBN END TYP1
```

(61) Label end/ribbon end process setting:
Select the label/ribbon end process using the [FEED] and [RESTART] keys.

[PAUSE]

(62) Press the [PAUSE] key.

```
<2>PARAMETER SET
PRE PEEL OFF OFF
```

(63) Pre-peel-off process setting:
Set the pre-peel-off process using the [FEED] and [RESTART] keys.

[PAUSE]

(64) Press the [PAUSE] key.

```
<2>PARAMETER SET
BACK SPEED   STD
```

(65) Back feed speed setting:
Select the back feed speed using the [FEED] and [RESTART] keys.

[PAUSE]

(66) Press the [PAUSE] key.

```
<2>PARAMETER SET
MAXI CODE    TYP1
```

(67) MaxiCode specification setting:
Select the MaxiCode specification using the [FEED] and [RESTART] keys.

[PAUSE]

(68) Press the [PAUSE] key.

```
<2>PARAMETER SET
THERMAL HEAD  V2
```

(69) Print head type setting:
Select the print head type that is actually installed, using the [FEED] and [RESTART] keys.

[PAUSE]

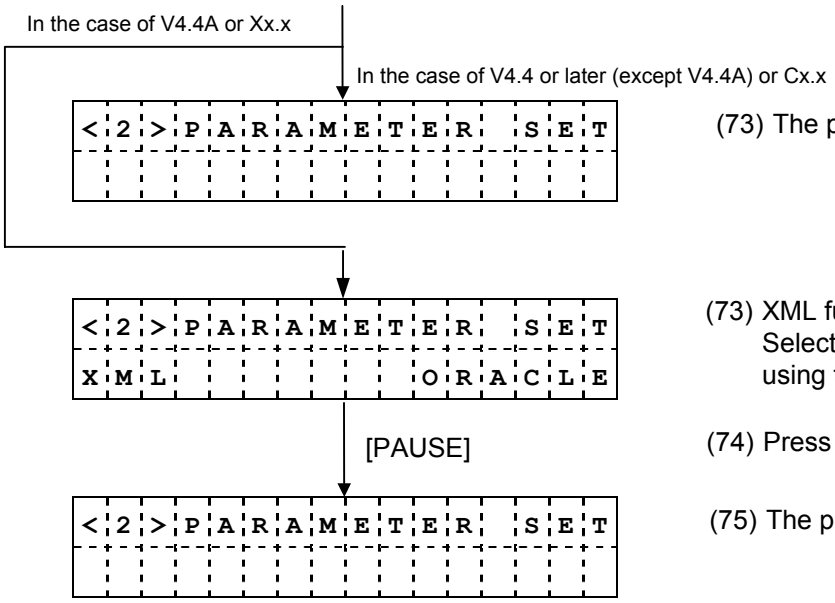
(70) Press the [PAUSE] key.

```
<2>PARAMETER SET
PASSWORD OFF----
```

(71) System mode password operation setting:
Select the system mode password operation using the [FEED] and [RESTART] keys.

[PAUSE]

(72) Press the [PAUSE] key.



(73) The parameter setting menu is displayed.

(73) XML function setting:
Select the specification of the XML function, using the [FEED] or [RESTART] key.

(74) Press the [PAUSE] key.

(75) The parameter setting menu is displayed.

5.8.2 Setting Contents

For details, refer to section 6.3 “Various Parameters Setting” in chapter 6 “System Mode”.

(1) Character code selection (FONT CODE)

- PC-850
- PC-852
- PC-857
- PC-8
- PC-851
- PC-855
- PC-1250
- PC-1251
- PC-1252
- PC-1253
- PC-1254
- PC-1257
- LATIN9
- Arabic
- UTF-8 (V4.4A, C5.3 to C5.7A, and Version Xx.x only)

(2) Font 0 selection (ZERO FONT)

- 0 (No slash used)
- Ø (Slash used)

(3) RS-232C communication speed selection (SPEED)

- 2400 bps
- 4800 bps
- 9600 bps
- 19200 bps
- 38400 bps
- 115200 bps

(4) RS-232C data length selection (DATA LENG.)

- 7 bits
- 8 bits

(5) RS-232C stop bit length selection (STOP BIT)

- 1 bit
- 2 bits

(6) RS-232C parity selection (PARITY)

- NONE
- EVEN
- ODD

(7) RS-232C transmission control method selection (XON+READY)

- XON/XOFF protocol (An XON is not output when the power is on and an XOFF is not output when the power is off)
- READY/BUSY (DTR) protocol (An XON is not output when the power is on and an XOFF is not output when the power is off)
- XON/XOFF + READY/BUSY (DTR) protocol (An XON is output when the power is on and an XOFF is output when the power is off)
- XON/XOFF protocol (An XON is output when the power is on and an XOFF is output when the power is off)
- RTS protocol (An XON is not output when the power is on and an XOFF is not output when the power is off)

(8) Language selection for LCD messages (LCD)

- ENGLISH
- GERMAN
- FRENCH
- DUTCH
- SPANISH
- JAPANESE
- ITALIAN

NOTE: *When Japanese is selected, one part of the character codes is different. For details, refer to the External Equipment Interface Specification (TAA-1380).*

(9) Setting for forward feed standby (FORWARD WAIT)

- ON (with automatic feed standby)
- POSITION (Fine adjustment value setting for the stop position after a forward feed)
- OFF (without automatic feed standby)

NOTE: *When it is set to ON, if the printer is in the idle state for 1 second or more after a label is issued, the printer automatically performs an approximately 13.7-mm forward feed, then stops.*

(10) Setting for the forward feed standby action (FW/BK ACT.)

- MODE 1 (Stops after 13.7-mm forward feed.)
- MODE 2 (Stops after 6-mm back feed and 3-mm forward feed.
  (Only when the cut mode, thermal transfer, and feed gap sensor are selected.) In other cases, the printer stops after 13.7-mm forward feed.)

(11) Setting for head-up operation in cut issue mode, or for using the rewinder in batch issue mode (HU CUT/RWD.)

- ON (The head is lifted, or the rewinder is used.)
- OFF (The head is not lifted, or the rewinder is not used.)

(12) Installed solenoid type setting

- TYPE 1
- TYPE 2 (Stronger pull force type)

(13) Ribbon saving system setting (RBN SAVE)

- ON (TAG) (The ribbon saving system is used.: When the head lever position is “TAG”.)
- ON (LBL) (The ribbon saving system is used.: When the head lever position is “LABEL”.)
- OFF (The ribbon saving system is not used.)

(14) Control code selection (CODE)

- Automatic selection (ESC, LF, NUL/{ | })
- Manual selection (ESC, LF, NUL method)
- Manual selection ({ | } method)
- Any set code

(15) Peel-off wait status selection (PEEL OFF STS)

- OFF (No peel-off wait status selection)
- ON (Peel-off wait status selection)

(16) [FEED] key function setting (FEED KEY)

- FEED: One label is fed.
- PRINT: Data in the image buffer is printed on one label.

(17) Kanji code selection (KANJI CODE)

- TYPE1
- TYPE2

(18) Euro code setting (EURO CODE)

20H to FFH

(19) Automatic head broken dots check setting (AUTO HD CHK)

- ON: Head broken dots check is automatically performed when the power is turned on.
- OFF: Head broken dots check is not automatically performed if the power is turned on.

(20) Centronics ACK/BUSY timing setting (ACK/BUSY)

- TYPE1 The ACK signal is sent to match the rising edge of ACK signal and the falling edge of the BUSY signal.
- TYPE2 The ACK signal is sent to match the falling edge of ACK signal and the falling edge of the BUSY signal.

(21) Web printer function setting (WEB PRINTER)

- ON: Web printer function is enabled.
- OFF: Web printer function is disabled.

(22) Reset process when the nInit signal is ON (INPUT PRIME)

- ON: Reset process is performed.
- OFF: Reset process is not performed.

(23) Ribbon near end detection setting (RBN NEAR END)

- OFF: The ribbon near end state is not detected.
- 30 m: The ribbon near end state is when the remaining ribbon length is 30 m.
- 70 m: The ribbon near end state is when the remaining ribbon length is 70 m.

(24) Expansion I/O operation mode setting (EX. I/O)

- TYPE1: Standard mode
- TYPE2: In-line mode

(25) Centronics operation mode setting (CENTRO. MODE)

- SPP: Compatibility mode
- ECP: ECP mode

(26) Plug-and-play operation setting (PLUG & PLAY)

- ON: Plug-and-play operation is enabled.
- OFF: Plug-and-play operation is disabled.

(27) Label end/ribbon end process setting (LBL/RBN END)

- TYPE1: When a label end or ribbon end state is detected, the printer stops even if it is printing a label.
- TYPE2: When a label end or ribbon end state is detected, the printer prints the current label as far as possible, then stops.

(28) Pre-peel-off process setting (PRE PEEL OFF)

- OFF: Pre-peel-off operation is not performed.
- ON: Pre-peel-off operation is performed.

(29) Back feed speed setting (BACK SPEED)

- STD: 3 ips
- LOW: 2 ips

(30) MaxiCode specification setting (MAXI CODE)

- TYPE1: Compatible with the current version
- TYPE2: Special specification

(31) Print head type setting (THERMAL HEAD)

- V1: Current type print head (B-SX4: TPH104R2/B-SX5: TPH128R4)
- V2: Enhanced type print head (B-SX4: TPH104R7 or equivalent,
  B-SX5: TPH128R5 or equivalent)

(32) System mode password operation setting (PASSWORD)

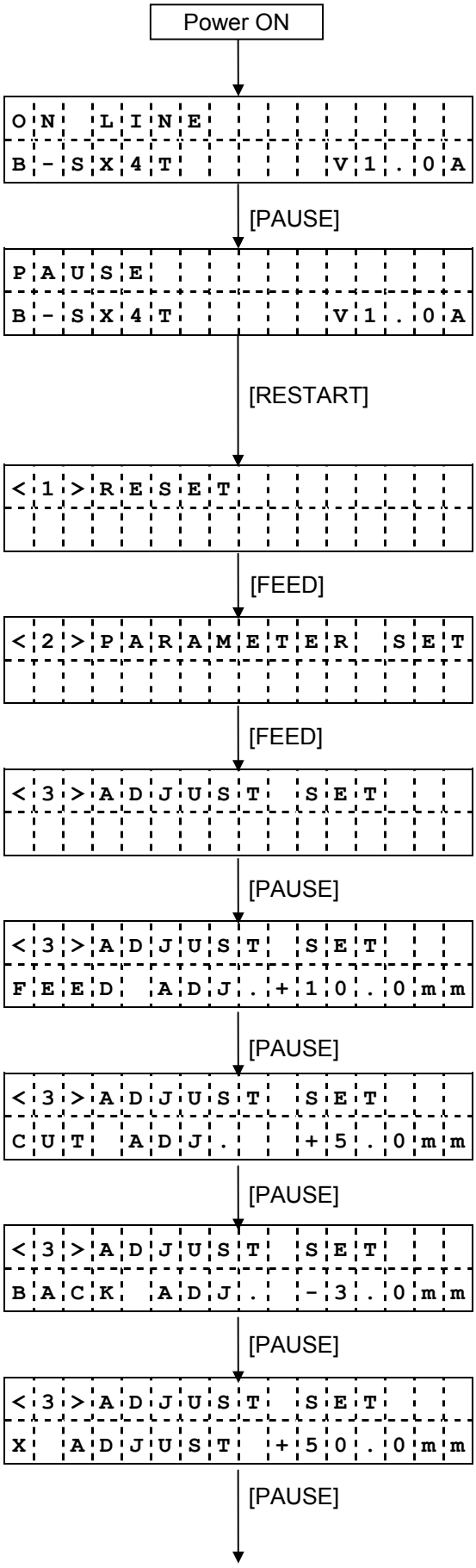
- OFF: Password is not asked to enter the system mode.
- ON: Password is asked to enter the system mode.
  Password: 4-digit hex value

(33) XML function setting (XML) Note: This function is supported only by V4.4A and Xx.x.

- STD: Standard specification
- ORACLE: Specification for Oracle

5.9 FINE ADJUSTMENT VALUE SETTING

5.9.1 Fine Adjustment Value Setting Operation Example



(1) Idle

(2) Press the [PAUSE] key.

(3) “PAUSE” is displayed.

(4) Hold down the [RESTART] key for 3 seconds or more while the printer is in a pause state.

(5) The reset menu is displayed.

(6) Press the [FEED] key.

(7) System mode menu display (Parameter setting)

(8) Press the [FEED] key.

(9) System mode menu display (Fine adjustment value setting)

(10) Press the [PAUSE] key.

(11) Feed fine adjustment:
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(12) Press the [PAUSE] key.

(13) Cut (strip) position fine adjustment:
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(14) Press the [PAUSE] key.

(15) Back feed fine adjustment:
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(16) Press the [PAUSE] key.

(17) X-coordinate fine adjustment:
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(18) Press the [PAUSE] key.

```
<3>ADJUST SET
TONE ADJ.<T>  +3
```

[PAUSE]

```
<3>ADJUST SET
TONE ADJ.<D>  -2
```

[PAUSE]

```
<3>ADJUST SET
RBN ADJ <FW>  -10
```

[PAUSE]

```
<3>ADJUST SET
RBN ADJ <BK>  -5
```

[PAUSE]

```
<3>ADJUST SET
THRESHOLD<R>1.0V
```

[PAUSE]

```
<3>ADJUST SET
THRESHOLD<T>1.4V
```

[PAUSE]

```
<3>ADJUST SET
```

[RESTART]

```
<2>PARAMETER SET
```

[RESTART]

(19) Print density fine adjustment (Thermal transfer print mode):
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(20) Press the [PAUSE] key.

(21) Print density fine adjustment (Direct thermal print mode):
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(22) Press the [PAUSE] key.

(23) Ribbon motor drive voltage fine adjustment (Rewind):
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(24) Press the [PAUSE] key.

(25) Ribbon motor drive voltage fine adjustment (Back tension):
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(26) Press the [PAUSE] key.

(27) Reflective sensor manual threshold fine adjustment:
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(28) Press the [PAUSE] key.

(29) Transmissive sensor manual threshold fine adjustment:
Set the fine adjustment value using the [FEED] and [RESTART] keys.

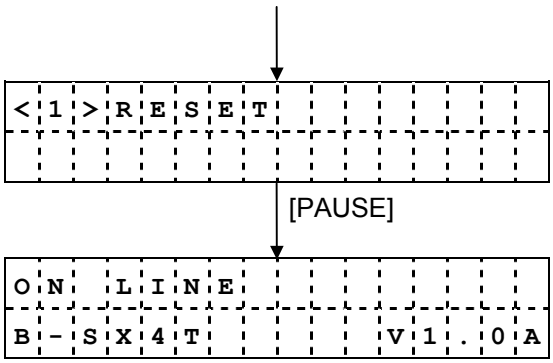
(30) Press the [PAUSE] key.

(31) The find adjustment value setting menu is displayed.

(32) Press the [RESTART] key.

(33) The parameter setting menu is displayed.

(34) Press the [RESTART] key.



(35) The reset menu is displayed.

(36) Press the [PAUSE] key.

(37) The display is returned to the state obtained when the power is turned on.

5.9.2 Setting Contents

For details, refer to section 6.4 “Various Fine Adjustment Values Setting” in chapter 6 “System Mode”.

(1) Feed fine adjustment (FEED ADJ.)
-50.0 mm to +50.0 mm (in 0.5 mm units)

(2) Cut (strip) position fine adjustment (CUT ADJ.)
-50.0 mm to +50.0 mm (in 0.5 mm units)

(3) Back feed fine adjustment (BACK ADJ.)
-9.5 mm to +9.5 mm (in 0.5 mm units)

(4) X-coordinate fine adjustment (X ADJUST)
-99.5 mm to +99.5 mm (in 0.5 mm units)

(5) Print density fine adjustment (Thermal transfer print mode) (TONE ADJ.<T>)
-10 step to +10 step (in units of step)

(6) Print density fine adjustment (Direct thermal print mode) (TONE ADJ.<D>)
-10 step to +10 step (in units of step)

(7) Ribbon motor drive voltage fine adjustment (Rewind) (RBN ADJ <FW>)
-15 step to +0 step (in units of step)

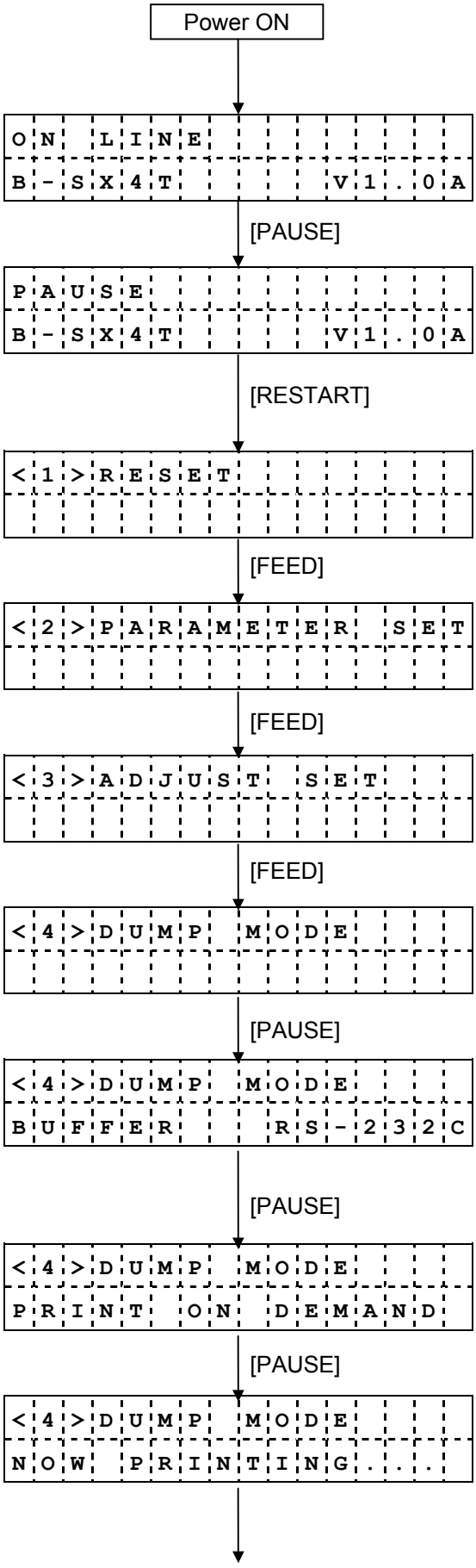
(8) Ribbon motor drive voltage fine adjustment (Back tension) (RBN ADJ <BK>)
-15 step to +0 step (in units of step)

(9) Reflective sensor manual threshold fine adjustment (THRESHOLD <R>)
0.0 V to 4.0 V (in 0.1 V units)

(10) Transmissive sensor manual threshold fine adjustment (THRESHOLD <T>)
0.0 V to 4.0 V (in 0.1 V units)

5.10 DUMPING OF RECEIVE BUFFER

5.10.1 Operation Example of Receive Buffer Dumping



(1) Idle

(2) Press the [PAUSE] key.

(3) “PAUSE” is displayed.

(4) Hold down the [RESTART] key for 3 seconds or more while the printer is in a pause state.

(5) The reset menu is displayed.

(6) Press the [FEED] key.

(7) System mode menu display (Parameter setting)

(8) Press the [FEED] key.

(9) System mode menu display (Fine adjustment value setting)

(10) Press the [FEED] key.

(11) The receive buffer dumping menu is displayed.

(12) Press the [PAUSE] key.

(13) Selection mode display for receive buffer to be dumped:
Select the receive buffer to be dumped using the [FEED] and [RESTART] keys.

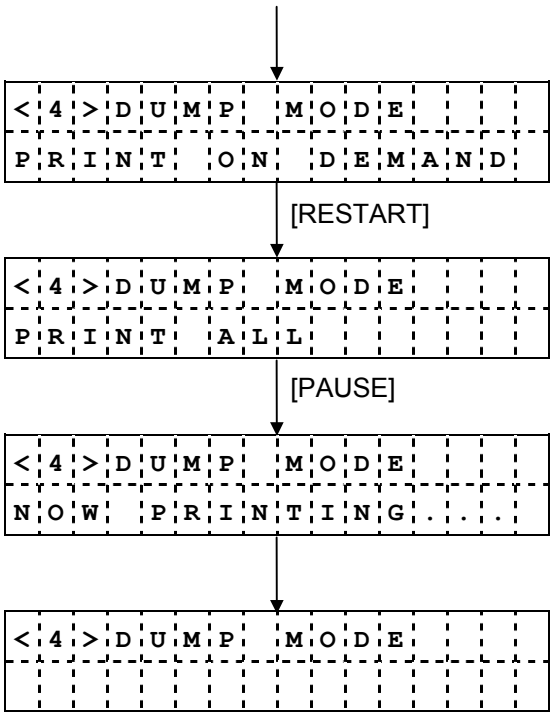
(14) Press the [PAUSE] key.

(15) Print method selection:
Select the print method using the [FEED] and [RESTART] keys.

(16) Press the [PAUSE] key.

(17) Start of printing the receive buffer data

(18) 166 lines of data are printed.



(19) Print method selection:
Select the print method using the [FEED] and [RESTART] keys.

(20) Press the [RESTART] key.

(21) Print method selection:
Select the print method using the [FEED] and [RESTART] keys.

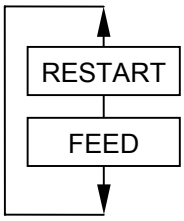
(22) Press the [PAUSE] key.

(23) Start of printing the remaining receive buffer data

(24) All of the remaining data is printed.

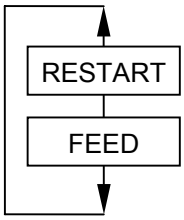
(25) After printing is completed, the display is returned to the receive buffer dumping menu.

Selection of receive buffer (BUFFER)



- RS-232C — RS-232C receive buffer
- CENTRO. — Centronics receive buffer
- NETWORK — Network I/F receive buffer
- BASIC1 — Buffer between the BASIC interpreter I/F and the Interpreter
- BASIC2 — Buffer between the BASIC interpreter and the printer
- USB — USB receive buffer
- RF-ID — RFID receive buffer

Selection of print method (PRINT)



- ON DEMAND — Prints 166 lines of data (approx. 50 cm), then stops.
- ALL — Prints all of receive buffer data, then stops.

Data in the receive buffer is printed out in the format below.

```
                                        :
                                        :
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00   ................
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00   ................
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00   ................
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00   ................
7B 41 58 3B 2B 30 30 30 2C 2B 30 30 30 2C 2B 30   {AX;+000,+000,+0
30 7C 7D 7B 44 30 37 37 30 2C 31 31 30 30 2C 30   0|}{D0760,1100,0
37 34 30 7C 7D 7B 43 7C 7D 7B 4C 43 3B 30 30 33   740|}{C|}{LC;003
30 2C 30 30 32 30 2C 30 30 33 30 2C 30 36 36 30   0,0020,0030,0660
2C 30 2C 32 7C 7D 7B 4C 43 3B 30 30 37 30 2C 30   ,0,2|}{LC;0070,0
30 32 30 2C 30 30 37 30 2C 30 36 36 30 2C 30 2C   020,0070,0660,0,
39 7C 7D 7B 4C 43 3B 30 30 35 30 2C 30 30 32 30   9|}{LC;0050,0020
                                        :
                                        :
44 45 46 47 48 49 4A 7C 7D 7B 50 43 31 30 3B 30   DEFGHIJ|}{PC10;0
33 35 30 2C 30 34 30 30 2C 31 2C 31 2C 4B 2C 30   350,0400,1,1,K,0
30 2C 42 3D 41 42 43 44 65 66 67 68 69 6A 6B 6C   0,B=ABCDefghijkl

6D 6E 6F 70 7C 7D 7B 50 56 30 32 3B 30 33 33 30   mnop|}{PV02;0330
2C 30 36 36 30 2C 30 32 37 30 2C 30 32 35 30 2C   ,0660,0270,0250,
41 2C 30 30 2C 42 3D 42 7C 7D 7B 50 56 30 33 3B   A,00,B=B|}{PV03;
                                        :
                                        :
3B 30 39 30 30 2C 30 31 38 30 2C 54 2C 48 2C 30   ;0900,0180,T,H,0
35 2C 41 2C 30 3D 31 32 33 34 35 36 37 38 39 30   5,A,0=1234567890
41 42 43 44 45 7C 7D 00 00 00 00 00 00 00 00 00   ABCDE|}.........
```

Feed direction

Print conditions:

- Print width: Approximately 100 mm
- Sensor designation: None
- Print speed: 6 ips for B-SX4, 5 ips for B-SX5
- The print mode (thermal transfer/direct thermal) depends on the current setting.
- Data of 16 bytes is printed on one line.
- Data is printed, starting from the new data to the old data.
- Data pointed by the receive buffer write pointer is printed in bold type.

Size of receive buffer

	B-SX4	B-SX5
RS-232C:	1 MB (Max. 65536 lines)	6 MB (Max. 393216 lines)
Centronics:	1 MB (Max. 65536 lines)	6 MB (Max. 393216 lines)
Network I/F:	1 MB (Max. 65536 lines)	6 MB (Max. 393216 lines)
BASIC1:	8 KB (Max. 512 lines)	8 KB (Max. 512 lines)
BASIC2:	8 KB (Max. 512 lines)	8 KB (Max. 512 lines)
USB:	1 MB (Max. 65536 lines)	6 MB (Max. 393216 lines)
RFID	8 KB (Max. 512 lines)	8 KB (Max. 512 lines)

NOTES:

1. *To print all of the receive buffer data, the label with the length below is required.*

	B-SX4	B-SX5
RS-232C:	198.2 m	1189.2 m
Centronics:	198.2 m	1189.2 m
Network I/F:	198.2 m	1189.2 m
BASIC1:	2 m	2 m
BASIC2:	2 m	2 m
USB:	198.2 m	1189.2 m
RFID	2 m	2 m

2. *If an error occurs when printing the receive buffer dump, the printer displays an error message, and stops. The error is cleared by pressing the [PAUSE] key, and then the display is returned to the receive buffer dumping menu "<4> DUMP MODE". After the error is cleared, data is not automatically reprinted.*

5.11 BASIC EXPANSION MODE

It is possible to execute the BASIC expansion mode program in BASIC expansion mode under the following conditions:
- The BASIC expansion mode program has already been loaded.
- The BASIC enable setting mode is selected.
The basic expansion mode ends when the basic expansion program is exited.

5.12 AUTOMATIC CALIBRATION SETTING (SUPPORTED FROM V4.4)

5.12.1 Operation Example of Automatic Calibration Setting

Power ON

```
ON LINE
B-SX4T     V4.4
```

(1) Idle or printing normally

[PAUSE]

(2) Press the [PAUSE] key.

```
PAUSE
B-SX4T     V4.4
```

(3) “PAUSE” is displayed.

[RESTART]

(4) Hold down the [RESTART] key for 3 seconds or more while the printer is in a pause state.

```
<1>RESET
```

(5) The reset menu is displayed.

[FEED]

(6) Press the [FEED] key.

```
<2>PARAMETER SET
```

(7) System mode menu display (Parameter setting)

[FEED]

(8) Press the [FEED] key.

```
<3>ADJUST SET
```

(9) System mode menu display (Fine adjustment value setting)

[FEED]

(10) Press the [FEED] key.

```
<4>DUMP MODE
```

(11) The receive buffer dumping menu is displayed.

[FEED]

(12) Press the [FEED] key.

```
<5>EXPAND MODE
```

(13) The BASIC expansion mode menu is displayed.

[FEED]

(14) Press the [FEED] key.

```
<6>BASIC SETTING
```

(15) The BASIC setting menu is displayed.

[FEED]

(16) Press the [FEED] key.

```
<7>LAN
```

(17) The LAN setting menu is displayed.

[FEED]

(18) Press the [FEED] key.

```
<8>AUTO CALIB
```

(19) The automatic calibration menu is displayed.

[PAUSE]

(20) Press the [PAUSE] key.

```
<8>AUTO CALIB
OFF
```

(21) The current setting is displayed.

[FEED] or [RESTART]

(22) Change the setting using the [FEED] or [RESTART] key.

```
<8>AUTO CALIB
ON  TRANS.
```

(23) Automatic calibration for the Transmissive sensor

[FEED] or [RESTART]

(24) Change the setting using the [FEED] or [RESTART] key.

```
<8>AUTO CALIB
ON  REFLECT
```

(25) Automatic calibration for the Reflective sensor

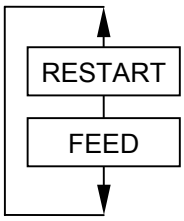
[PAUSE]

(26) Press the [PAUSE] key to save the setting.

```
<8>AUTO CALIB
```

(27) The automatic calibration menu is displayed.

Automatic calibration setting (AUTO CALIB)



- OFF — Disabled
- ON TRANS. — The transmissive sensor is enabled.
- ON REFLECT — The reflective sensor is enabled.

Explanation of operation

(1) When AUTO CALIB is enabled, an automatic calibration starts at an open/close of the print head after the power is turned on.

(2) When AUTO CALIB is enabled, the media length, effective print length, sensor type, and whether to use ribbon or not specified by commands are ignored.

(3) When “ON REFLECT” is selected, the lowest voltage detected by the black mark sensor is considered as a black mark level. And, the sum of this voltage and the manual threshold voltage will be adopted as a threshold.

(4) When “ON TRANS” is selected, the highest voltage detected by the feed gap sensor is considered as a gap level. After subtracting the manual threshold voltage from this voltage, the result will be adopted as a threshold.

(5) The printer feeds about 160 mm long media to detect a black mark/gap and determine the threshold. When the printer detects more than two black marks/gaps during this 160-mm media feed, the printer measures the media pitch and stops the automatic calibration 1 mm short of the bottom of a black mark or gap.

(6) If the second black mark/gap is not found under the above conditions, the printer continues media feed for up to 750.0 mm until the second black mark/gap is found. If it still cannot be detected, the printer will stop, resulting in a paper jam.

(7) This function is available only when the media pitch is 10.0 mm to 355.6 mm (14 inches).

(8) When the cutter is installed and a previous issue was performed in cut issue mode, the media is cut and ejected after an automatic calibration completes.

(9) When the automatic calibration is in operation, labels do not stop at a strip position even in strip or special strip mode. (Labels stop at the strip position when the firmware version is C5.7B or B-SX5T V5.6 or later.)

(10) When a label end or a head open error occurs during an automatic calibration, the printer stops, resulting in an error. Closing the print head can clear the error and resume the automatic calibration.

(11) During an automatic calibration, the ribbon motors are rotated. Even if the ribbon is not loaded, this function does not result in an error. However, the print condition will be automatically changed to “No ribbon” after the calibration ends.

(12) A ribbon error which occurs during a 20-mm feed from the start of a calibration will be cancelled. This is intended to prevent a wrong detection of no ribbon in the case the ribbon is slack when loaded.

5.13 LAN ENABLE/DISABLE SETTING (SUPPORTED BY V4.4, Vx.x, C5.7, Cx.x ONLY)

5.13.1 Operation Example of LAN Enable/Disable Setting

Power ON

```
ON LINE
B-SX4T      V4.4
```

(1) Idle or printing normally

[PAUSE]

(2) Press the [PAUSE] key.

```
PAUSE
B-SX4T      V4.4
```

(3) “PAUSE” is displayed.

(4) Hold down the [RESTART] key for 3 seconds or more while the printer is in a pause state.

[RESTART]

```
<1>RESET
```

(5) The reset menu is displayed.

[RESTART]

(6) Press the [RESTART] key twice.

```
<7>LAN
```

(7) LAN enable/disable setting menu display

[PAUSE]

(8) Press the [PAUSE] key.

```
<7>LAN
ON    SNMP ON
```

(9) The current setting is displayed.

(10) Change the setting from LAN ON to OFF using the [FEED] or [RESTART] key.

[FEED] or [RESTART]

```
<7>LAN
OFF
```

(11) The new setting is displayed.

(12) Change the setting from LAN OFF to ON using the [FEED] or [RESTART] key.

[FEED] or [RESTART]

```
<7>LAN
ON    SNMP ON
```

(13) The new setting is displayed.

(14) Change the setting from SNMP ON to OFF using the [FEED] or [RESTART] key.

[FEED] or [RESTART]

```
<7>LAN
ON    SNMP OFF
```

(15) The new setting is displayed.

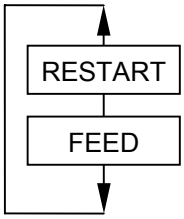
[PAUSE]

(16) Press the [PAUSE] key.

```
<7>LAN
```

(17) LAN enable/disable setting menu display

LAN Enable/Disable Setting (LAN)



• OFF	Disabled
• ON SNMP ON	LAN is enabled, SNMP is enabled.
• ON SNMP OFF	LAN is enabled, SNMP is disabled.

NOTES:

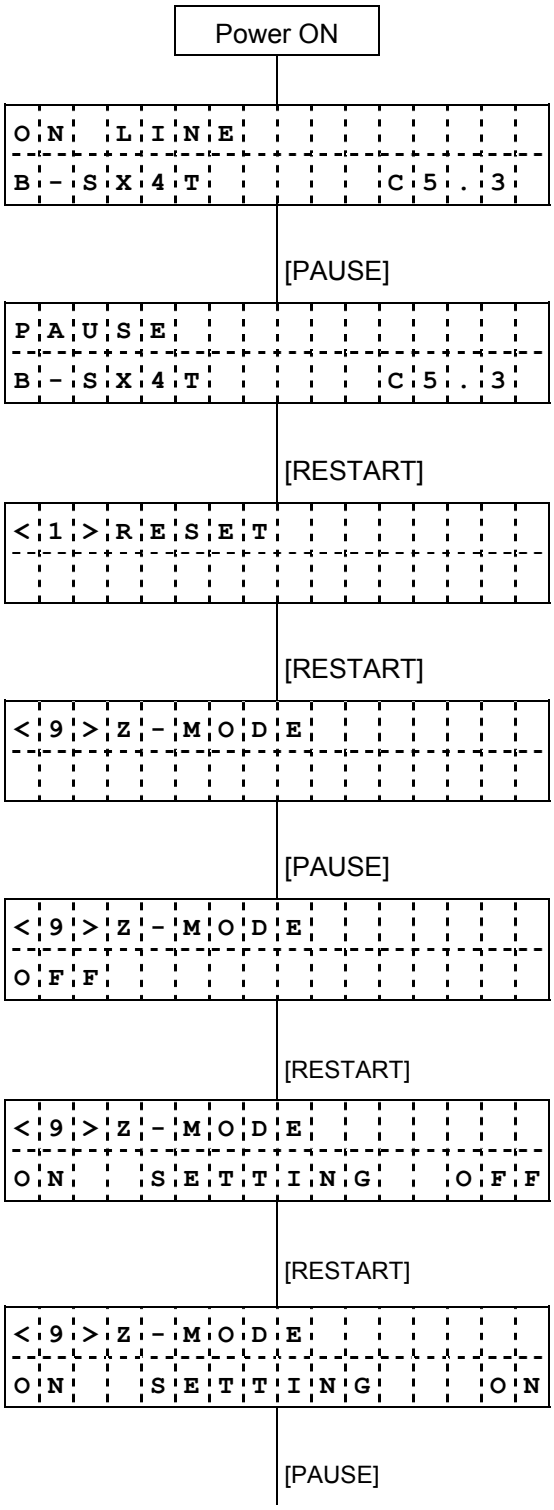
1. *To use the SNMP function, the firmware designed for SNMP is required to be installed in the flash ROM on the LAN board. (Version Vx.x only)*
2. *When the SNMP function is enabled, the max. image buffer length is 750 mm. (Version Vx.x only)*

5.14 Z-MODE SETTING (SUPPORTED FROM C5.3, VERSION Cx.x ONLY)

5.14.1 Outline of the Z-Mode

The Z-Mode is a feature intended for enabling much easier start-up of the BASIC program. Although the Z-Mode is similar to the BASIC setting menu, it contains only two functions: Enabling or disabling the BASIC program and starting the BASIC system mode program.
The display and the procedure are different, but “Z-MODE ON” equals to “BASIC ON” and they are linked with each other.

5.14.2 Operation Example of Z-Mode Setting



(1) Idle or printing normally

(2) Press the [PAUSE] key.

(3) “PAUSE” is displayed.

(4) Hold down the [RESTART] key for 3 seconds or more while the printer is in a pause state.

(5) The reset menu is displayed.

(6) Press the [RESTART] key.

(7) Z-Mode setting menu display

(8) Press the [PAUSE] key.

(9) The current setting is displayed.

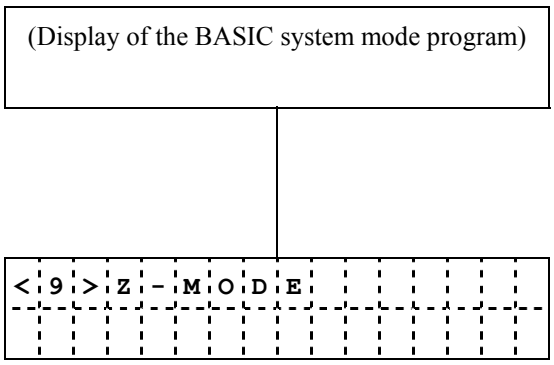
(10) Enable the Z-Mode using the [RESTART] key.

(11) The Z-Mode (BASIC program) is enabled, but the system mode program is not.

(12) Enable both Z-Mode (BASIC program) and system mode program using the [RESTART] key.

(13) The Z-Mode and the system mode program are enabled.

(14) Press the [PAUSE] key.

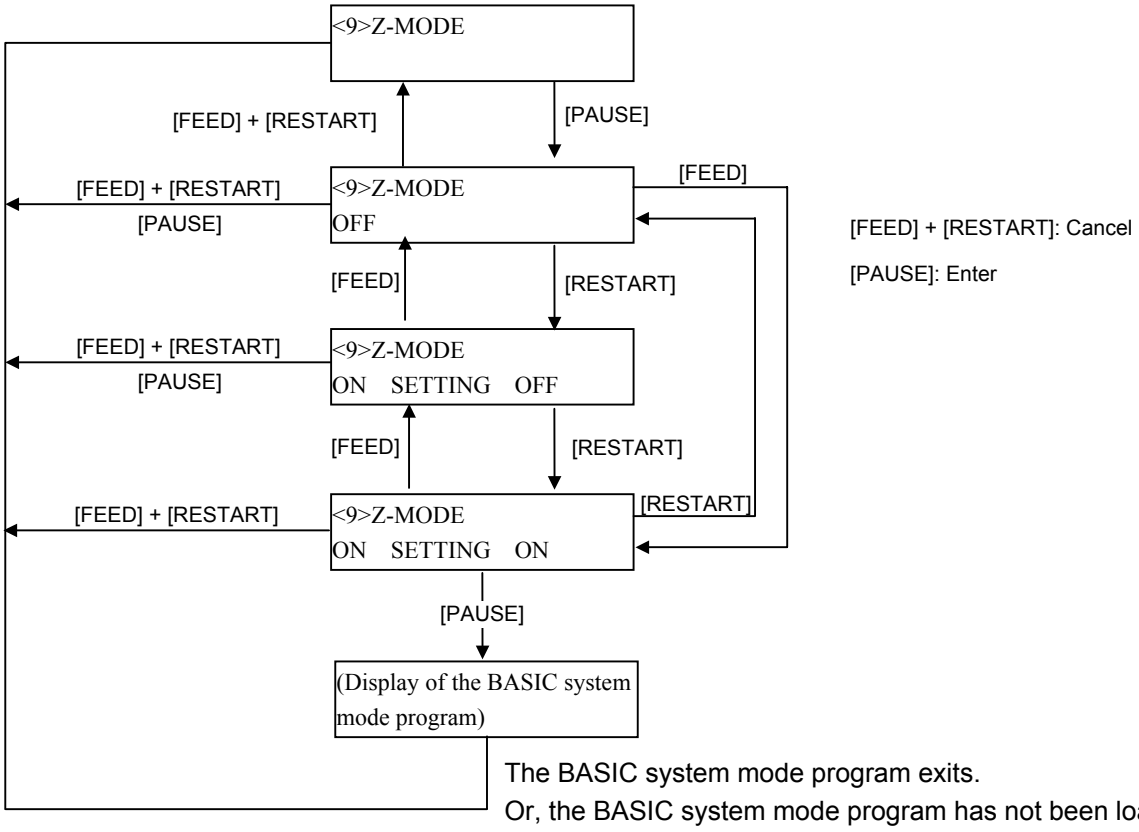


(15) The BASIC system mode program is started if it has been downloaded. The display depends on the program.

(16) The BASIC system mode program exits. (How to exit the program is depending on the BASIC system mode program in use.)

(17) Z-Mode setting menu display

Z-Mode Setting



OFF:	Disabled.
ON SETTING OFF:	Z-Mode is enabled, but the BASIC system mode program is not enabled.
ON SETTING ON:	Both Z-Mode and BASIC system mode program are enabled.

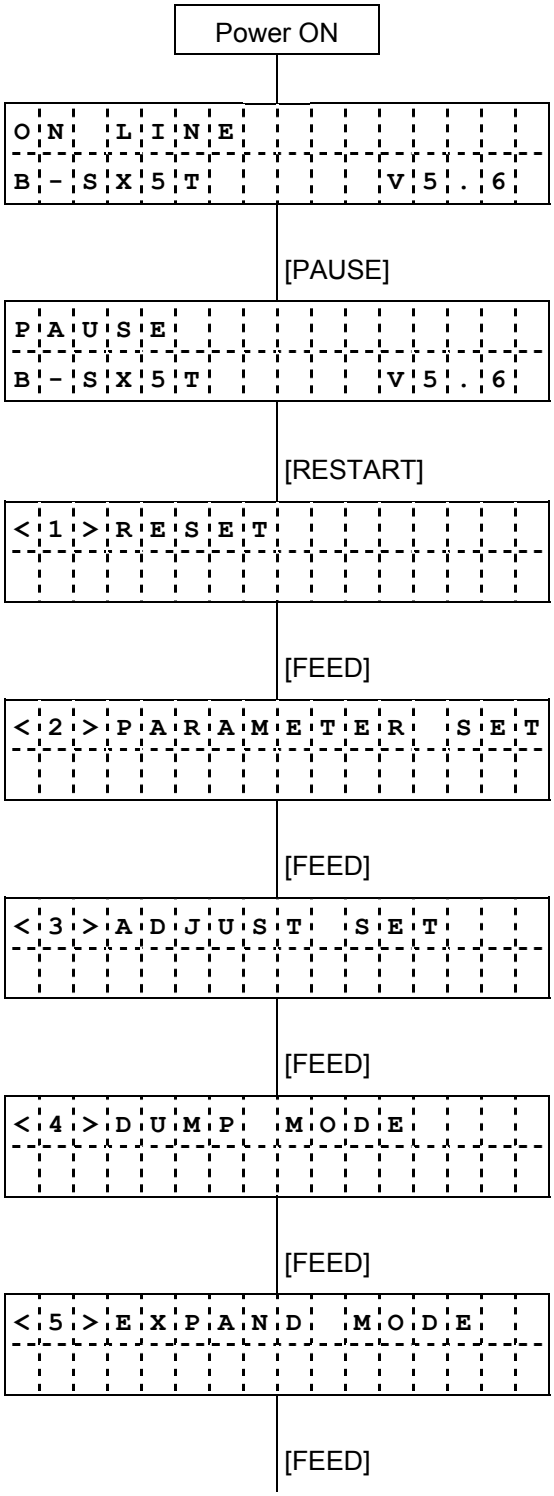
5.15 ISSUE CONTROL SETTING (SUPPORTED FROM V5.6, B-SX5T VERSION Vx.x ONLY)

5.15.1 Outline of the Issue Control Setting

Regarding the following items, it is possible to select whether to follow the command settings or to set in this mode.

Stop position control, Sensor setting, Print method, Print speed, Issue mode, Cut mode, Print orientation, and Auto status transmission

5.15.2 Operation Example of Issue Control Setting



(1) Idle or printing normally

(2) Press the [PAUSE] key.

(3) “PAUSE” is displayed.

(4) Hold down the [RESTART] key for 3 seconds or more while the printer is in a pause state.

(5) The reset menu is displayed.

(6) Press the [FEED] key.

(7) System mode menu display (Parameter setting)

(8) Press the [FEED] key.

(9) System mode menu display (Fine adjustment value setting)

(10) Press the [FEED] key.

(11) The receive buffer dumping menu is displayed.

(12) Press the [FEED] key.

(13) The BASIC expansion mode menu is displayed.

(14) Press the [FEED] key.

```
<6>BASIC  SETTING
```

(15) The BASIC setting menu is displayed.

[FEED]

(16) Press the [FEED] key.

```
<7>LAN
```

(17) The LAN setting menu is displayed.

[FEED]

(18) Press the [FEED] key.

```
<8>AUTO  CALIB
```

(19) The automatic calibration menu is displayed.

[FEED]

(20) Press the [FEED] key.

```
<9>ISSUE  CNTRL
```

(21) Issue control setting menu is displayed.

[PAUSE]

(22) Press the [PAUSE] key.

```
<9>ISSUE  CNTRL
CONTROL  MODE   1
```

(23) The current stop position control mode is displayed.

(24) Select the stop position control mode with the [FEED] or [RESTART] key.

[FEED]/[RESTART]

```
<9>ISSUE  CNTRL
CONTROL  MODE   2
```

(25) Selected stop position control mode is displayed.

(26) Press the [PAUSE] key.

[PAUSE]

```
<9>ISSUE  CNTRL
SENSOR  COMMAND
```

(27) Sensor setting menu is displayed.

(28) Select the sensor setting with the [FEED] or [RESTART] key.

[FEED]/[RESTART]

```
<9>ISSUE  CNTRL
SENSOR  NONE
```

(29) Selected sensor setting is displayed.

(30) Press the [PAUSE] key.

[PAUSE]

```
<9>ISSUE  CNTRL
PRT  TYPE  COMMAND
```

(31) Print method setting menu is displayed.

(32) Select the print method with the [FEED] or [RESTART] key.

[FEED]/[RESTART]

```
<9>ISSUE CNTRL
PRT TYPE TRANSFR
```

(33) Selected print method is displayed.

(34) Press the [PAUSE] key.

[PAUSE]

```
<9>ISSUE CNTRL
SPEED COMMAND
```

(35) Print speed setting menu is displayed.

(36) Select the print speed with the [FEED] or [RESTART] key.

[FEED]/[RESTART]

```
<9>ISSUE CNTRL
SPEED 3ips
```

(37) Selected print speed is displayed.

(38) Press the [PAUSE] key.

[PAUSE]

```
<9>ISSUE CNTRL
TYPE COMMAND
```

(39) Issue mode setting menu is displayed.

(40) Select the issue mode with the [FEED] or [RESTART] key.

[FEED]/[RESTART]

```
<9>ISSUE CNTRL
TYPE BATCH
```

(41) Selected issue mode is displayed.

(42) Press the [PAUSE] key.

[PAUSE]

```
<9>ISSUE CNTRL
CUT COMMAND
```

(43) Cut mode setting menu is displayed.

(44) Select the cut mode with the [FEED] or [RESTART] key.

[FEED]/[RESTART]

```
<9>ISSUE CNTRL
CUT OFF
```

(45) Selected cut mode is displayed.

(46) Press the [PAUSE] key.

[PAUSE]

```
<9>ISSUE CNTRL
ROTATION COMMAND
```

(47) Print orientation menu is displayed.

(48) Select the print orientation with the [FEED] or [RESTART] key.

[FEED]/[RESTART]

```
<9>ISSUE CNTRL
ROTATION 0
```

(49) Selected print orientation is displayed.

(50) Press the [PAUSE] key.

[PAUSE]

```
<9>ISSUE  CNTRL
STATUS    COMMAND
```

(51) Auto status transmission setting menu is displayed.

[FEED]/[RESTART]

(52) Select the auto status transmission setting with the [FEED] or [RESTART] key.

```
<9>ISSUE  CNTRL
STATUS      OFF
```

(53) Selected setting is displayed.

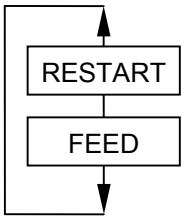
[PAUSE]

(54) Press the [PAUSE] key.

```
<9>ISSUE  CNTRL
```

(55) Issue control setting menu is displayed.

Stop position control mode (CONTROL MODE)



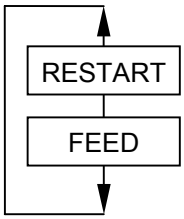
- MODE 1 — Mode 1 (Toshiba TEC standard)
- MODE 2 — Mode 2

Comparison between Mode 1 and Mode 2

Item	Mode 1 (Toshiba TEC standard)	Mode 2
Initial feed	When a first gap is detected, a counter is prepared to stop the gap at the print head position. When the printer determines there are a few labels between the print head and the media sensor, a counter for these labels is also created based on a calculation.	When a first gap is detected, a counter is prepared to stop the gap at the print head position. Labels positioned between the print head and the media sensor are wasted.
Feed jam during initial feed	A feed jam occurs when no gap is detected even if the printer feeds 1.5 times longer label than the programmed media pitch.	A feed jam occurs when no gap is detected even if the printer feeds 1500-mm label.
Feed jam during normal operation	A feed jam occurs when no gap is detected even if the printer feeds 1.5 times longer label than the programmed media pitch, or when a gap is detected before the printer feeds a half of the programmed media pitch.	A feed jam occurs when no gap is detected even if the printer feeds 1500-mm label, or when a gap which is 3 times longer than the actual gap is detected.
Stop position	A half of (the programmed label pitch – programmed effective print length) from the center of the detected gap	1 mm before the trailing edge of the detected gap

Print length	The programmed effective print length is aligned with the middle of a label pitch. Printing stops at the stop position even if all data has not been printed.	The programmed effective print length is considered as a drawing area. Printing starts from the print stop position for the programmed length. Printing stops at the stop position even if all data has not been printed.
Backup of the stop position for labels between the print head and the media sensor	Only the stop position of a label nearest to the print head is saved. That of the other labels is re-calculated at a power on time based on the programmed label pitch.	Only the stop position of a label nearest to the print head is saved. That of the other labels is re-calculated at a power on time based on the saved stop position (= actual label pitch).

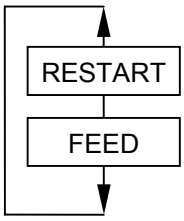
Sensor setting (SENSOR)



- COMMAND — Follows the setting of Issue Command.
- NONE — No sensor
- REFLECT. — Reflective sensor
- TRANS. — Transmissive sensor
- TRA-M — Transmissive sensor (Using manual threshold value)
- REF-M — Reflective sensor (Using manual threshold value)

Note: Though “COMMAND “ is selected after a parameter clear, “TRANS.” will be effective until an Issue Command is sent to the printer.

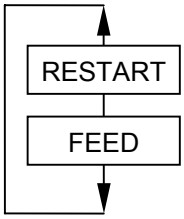
Print method (PRT TYPE)



- COMMAND — Follows the setting of Issue Command.
- DIRECT — Direct thermal
- TRA-W/R. — Thermal transfer (with ribbon save function)
- TRA-N/R — Thermal transfer (without ribbon save function)
- DIR-W/H — Direct thermal (with head up function)

Note: Though “COMMAND “ is selected after a parameter clear, “TRA-W/R” will be effective until an Issue Command is sent to the printer.

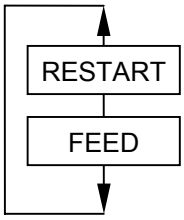
Print speed (SPEED)



• COMMAND	Follows the setting of Issue Command.
• 3 ips	3 ips
• 5 ips	5 ips
• 8 ips	8 ips

Note: Though “COMMAND “ is selected after a parameter clear, “5 ips” will be effective until an Issue Command is sent to the printer.

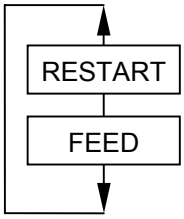
Issue mode (TYPE)



• COMMAND	Follows the setting of Issue Command.
• BATCH	Batch issue
• STRIP D	Strip issue (with back feed, and the strip sensor is enabled.)
• STRIP E	Strip issue (with back feed, the strip sensor is ignored, and a label applicator is supported.)

Note: Though “COMMAND “ is selected after a parameter clear, “BATCH” will be effective until an Issue Command is sent to the printer.

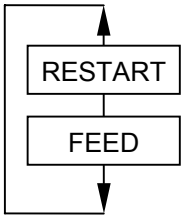
Cut mode (Cut)



• COMMAND	Follows the setting of Issue Command.
• OFF	No cut operation
• ON	With cut operation (cuts labels one-by-one)

Notes:
1. Though “COMMAND “ is selected after a parameter clear, “OFF” will be effective until an Issue Command is sent to the printer.
2. When “OFF” is selected, an Eject Command (IB) will be ignored.

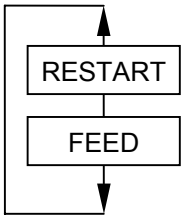
Print orientation (ROTATION)



• COMMAND	Follows the setting of Issue Command.
• 0	Bottom first printing
• 1	Top first printing
• 2	Bottom first and mirror printing
• 3	Top first and mirror printing

Note: Though “COMMAND “ is selected after a parameter clear, “0” will be effective until an Issue Command is sent to the printer.

Auto status transmission (STATUS)



• COMMAND	Follows the setting of Issue Command.
• OFF	Automatic transmission is not performed.
• ON	Automatic transmission is performed.

Note: Though “COMMAND “ is selected after a parameter clear, “ON” will be effective until an Issue Command is sent to the printer.

5.16 LCD MESSAGES AND LED INDICATIONS

The model and the firmware version are displayed on the lower line of the LCD.

No.	LCD Messages of Upper Line (English)	LED Indication			Printer Status	Restoration by the [RESTART] key Yes/No	Acceptance of Status Request and Reset Command Yes/No
		POWER	ON LINE	ERROR			
1	ON LINE	○	○	●	In the online mode	-	Yes
	ON LINE	○	⊙	●	In the online mode (Communicating)	-	Yes
2	HEAD OPEN	○	●	●	The head was opened in the online mode.	-	Yes
3	PAUSE ****	○	●	●	In a pause state	Yes	Yes
4	COMMS ERROR	○	●	○	A parity error or framing error has occurred during communication by RS-232C.	Yes	Yes
5	PAPER JAM ****	○	●	○	A paper jam occurred during paper feed.	Yes	Yes
6	CUTTER ERROR****	○	●	○	An abnormal condition occurred at the cutter.	Yes	Yes
7	NO PAPER ****	○	●	○	The label has run out.	Yes	Yes
8	NO RIBBON ****	○	●	○	The ribbon has run out.	Yes	Yes
9	HEAD OPEN ****	○	●	○	A feed or an issue was attempted with the head opened. (except the [FEED] key)	Yes	Yes
10	HEAD ERROR	○	●	○	A broken dot error has occurred in the thermal head.	Yes	Yes
11	EXCESS HEAD TEMP	○	●	○	The thermal head temperature has become excessively high.	No	Yes
12	RIBBON ERROR****	○	●	○	An abnormal condition occurred in the sensor for determining the torque for the ribbon motor.	Yes	Yes
13	REWIND FULL ****	○	●	○	An overflow error has occurred in the rewinder.	Yes	Yes
14	SAVING ####&&&& or SAVING %%%%%%%	○	○	●	In writable character or PC command save mode	-	Yes
15	FLASH WRITE ERR.	○	●	○	An error has occurred in writing data into memory for storage (flash memory card, the ATA card, or flash ROM on the CPU board).	No	Yes
16	FORMAT ERROR	○	●	○	An erase error has occurred in formatting memory for storage (flash memory card, the ATA card, or flash ROM on the CPU board).	No	Yes
17	FLASH CARD FULL	○	●	○	Saving failed because of the insufficient capacity of memory for storage (flash memory card, the ATA card, or flash ROM on the CPU board).	No	Yes

No.	LCD Messages of Upper Line (English)	LED Indication			Printer Status	Restoration by the [RESTART] key Yes/No	Acceptance of Status Request and Reset Command Yes/No
		POWER	ON LINE	ERROR			
18	Display of error command *(See **NOTE 1**.)*	○	●	○	A command error has occurred in analyzing the command.	Yes	Yes
19	**POWER FAILURE**	○	●	○	A momentary power interruption has occurred.	No	No
20	**INITIALIZING**...	○	●	●	The memory card is being initialized. (Initialization is carried out for a max. of approximately 15 seconds)	–	–
21	**EEPROM ERROR**	○	●	○	An EEPROM for back-up cannot be read/written properly.	No	No
22	**SYSTEM ERROR**	○	●	○	When any abnormal operations as below are performed, a system error occurs. (a) Command fetch from an odd address (b) Access to the word data from a place other than the boundary of the word data (c) Access to the long word data from a place other than the boundary of the long word data (d) Access to the area of 80000000H to FFFFFFFFH in the logic space in the user mode. (e) Undefined command placed in other than the delay slot has been decoded. (f) Undefined command in the delay slot has been decoded. (g) Command to rewrite the delay slot has been decoded.	No	No
23	**100BASE LAN INITIALIZING**... (This is spread over the upper and lower lines)	○	●	●	The 100BASE LAN is being initialized. * When the B-9700-LAN-QM (built-in 10/100BASE Ethernet interface board) has been installed.	–	–
24	**DHCP CLIENT INITIALIZING**... (This is spread over the upper and lower lines)	○	●	●	The DHCP client is being initialized. * When the DHCP function is enabled.	–	–

No.	LCD Messages of Upper Line (English)	LED Indication			Printer Status	Restoration by the [RESTART] key Yes/No	Acceptance of Status Request and Reset Command Yes/No
		POWER	ON LINE	ERROR			
25	**RFID WRITE ERROR**	○	●	○	The printer does not succeed in writing data onto the RFID tag after having retried for the specified times.	Yes	Yes
26	**RFID ERROR**	○	●	○	The printer cannot communicate with the RFID module.	No	Yes
27	**INPUT PASSWORD**	○	●	●	The printer is waiting for a password to be entered.	No	No
28	**PASSWORD INVALID** **Please Power Off** (This is spread over the upper and lower lines)	○	●	●	Password entered was not correct consecutively for three times.	No	No
29	**RFID CONFIG ERR**	○	●	○	B-SX704-RFID-U2-US-R and B-SX704-RFID-U4-EU-R only RFID module's destination code is not specified.	No	No

NOTE 1: When a command error is found in the command sent, 16 bytes of the command code of the error command are displayed on the upper line of the LCD. (However, [LF] and [NUL] are not displayed.)

[Example 1] [ESC] PC001; 0A00, 0300, 2, 2, A, 00, B [LF] [NUL]

Command error

LCD display

```
PC001;0A00,0300,
B-SX4T     V1.0A
```

[Example 2] [ESC] T20 G30 [LF] [NUL]

Command error

LCD display

```
T20G30
B-SX4T     V1.0A
```

[Example 3] [ESC] XR; 0200, 0300, 0450, 1200, 1 [LF] [NUL]

Command error

LCD display

```
XR;0200,0300,045
B-SX4T     V1.0A
```

NOTE 2: When the command error is displayed, "? (3FH)" is displayed for codes other than 20H to 7FH and A0H to DFH.

NOTE 3: ○: ON
⊙: Blinking
●: OFF
****: Remaining number of labels to be printed ␣␣␣␣ to 9999 (in units of 1 label/tag)
%%%%%%%: Remaining memory capacity for ATA card 0 to 9999999 (in units of 1 K byte)
####: Remaining memory capacity of PC save area of the flash memory card:
0 to 3072 (in K bytes)
&&&&: Remaining memory capacity of writable character storage area for the flash memory card
0 to 3072 (in K bytes)

* ### (3-digit display) for V4.x/X4.x/C4.x (MAIN3 PCB):
Remaining memory capacity of PC save area: 0 to 869 (in K bytes)
&&&&: Remaining memory capacity of writable character storage area for the flash memory card
0 to 3147 (in K bytes)

NOTE 4: If the ribbon near end detection setting is specified, the ERROR LED blinks slowly, while the printer is in a ribbon near end state and displays messages 1, 2, or 3.

5.17 LCD MESSAGES IN DIFFERENT LANGUAGES (UPPER LINE OF LCD)

No.	ENGLISH
1	ON LINE
2	HEAD OPEN
3	PAUSE ****
4	COMMS ERROR
5	PAPER JAM ****
6	CUTTER ERROR****
7	NO PAPER ****
8	NO RIBBON ****
9	HEAD OPEN ****
10	HEAD ERROR
11	EXCESS HEAD TEMP
12	RIBBON ERROR****
13	REWIND FULL ****
14	SAVING ####&&&& SAVING %%%%%%%
15	FLASH WRITE ERR.
16	FORMAT ERROR
17	FLASH CARD FULL
18	POWER FAILURE
19	INITIALIZING...
20	EEPROM ERROR
21	SYSTEM ERROR
22	RFID WRITE ERROR
23	RFID ERROR
24	INPUT PASSWORD
25	PASSWORD INVALID
26	RFID CONFIG ERR

No.	GERMAN
1	ON LINE
2	KOPF OFFEN
3	PAUSE ****
4	UEBERTR.-FEHLER
5	PAPIERSTAU ****
6	MESSERFEHL. ****
7	PAPIERENDE ****
8	FARBB.-ENDE ****
9	KOPF OFFEN ****
10	KOPF DEFEKT
11	KOPF UEBERHITZT
12	FB-FEHLER ****
13	AUFWI.VOLL ****
14	SP.-MOD ####&&&& SP.-MOD %%%%%%%
15	FLASH FEHLER
16	FORMATFEHLER
17	FLASH ZU KLEIN
18	POWER FAILURE
19	INITIALIZING...
20	EEPROM ERROR
21	SYSTEM ERROR
22	RFID WRITE ERROR
23	RFID ERROR
24	INPUT PASSWORD
25	PASSWORD INVALID
26	RFID CONFIG ERR

No.	FRENCH
1	PRETE
2	TETE OUVERTE
3	PAUSE ****
4	ERR. COMMUNICAT.
5	PB. PAPIER ****
6	PB. CUTTER ****
7	FIN PAPIER ****
8	FIN RUBAN ****
9	TETE OUVERTE****
10	ERREUR TETE
11	TETE TROP CHAUDE
12	ERREUR RUBAN****
13	ERR.REMB. ****
14	MEM LIB ####&&&& MEM LIB %%%%%%%
15	ERREUR MEM FLASH
16	ERREUR DE FORMAT
17	MEM INSUFFISANTE
18	POWER FAILURE
19	INITIALIZING...
20	EEPROM ERROR
21	SYSTEM ERROR
22	RFID WRITE ERROR
23	RFID ERROR
24	INPUT PASSWORD
25	PASSWORD INVALID
26	RFID CONFIG ERR

No.	DUTCH
1	IN LIJN
2	KOP OPEN
3	PAUZE ****
4	COMM. FOUT
5	PAPIER VAST ****
6	SNIJMES FOUT****
7	PAPIER OP ****
8	LINT OP ****
9	KOP OPEN ****
10	PRINTKOP DEFECT
11	TEMP. FOUT
12	LINT FOUT ****
13	OPROL VOL ****
14	MEM ####&&&& MEM %%%%%%%
15	FLASH MEM FOUT
16	FORMAAT FOUT
17	GEHEUGEN VOL
18	POWER FAILURE
19	INITIALIZING...
20	EEPROM ERROR
21	SYSTEM ERROR
22	RFID WRITE ERROR
23	RFID ERROR
24	INPUT PASSWORD
25	PASSWORD INVALID
26	RFID CONFIG ERR

No.	SPANISH
1	ON LINE
2	CABEZAL ABIERTO
3	PAUSA ****
4	ERROR COMUNICACI
5	ATASCO PAPEL****
6	ERROR CORTAD****
7	SIN PAPEL ****
8	SIN CINTA ****
9	CABEZA ABIER****
10	ERROR DE CABEZAL
11	TEMP.CABEZA ALTA
12	ERROR CINTA ****
13	REBOBI.LLENO****
14	SALVAR ####&&&& SALVAR %%%%%%%
15	ERROR ESCRITURA
16	ERROR DE FORMATO
17	MEMORIA INSUFICI
18	POWER FAILURE
19	INITIALIZING...
20	EEPROM ERROR
21	SYSTEM ERROR
22	RFID WRITE ERROR
23	RFID ERROR
24	INPUT PASSWORD
25	PASSWORD INVALID
26	RFID CONFIG ERR

No.	JAPANESE
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	

* Japanese messages are omitted here.

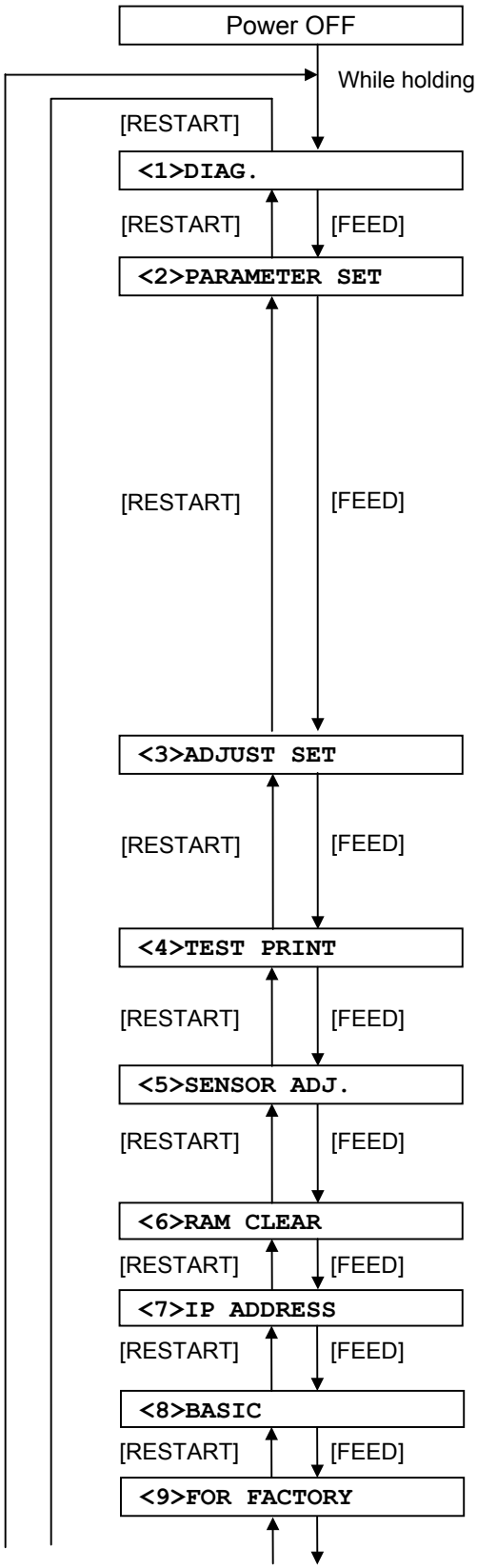
No.	Italian
1	PRONTA
2	TESTA APERTA
3	PAUSA ****
4	ERR. COMUNICAZ.
5	CARTA INCEP.****
6	ERR. TAGL. ****
7	NO CARTA ****
8	NO NASTRO ****
9	TESTA APERTA****
10	ERROR TESTA
11	TEMP. TESTA ALTA
12	ERR. NASTRO ****
13	RIAVV.PIENO ****
14	SALVA ####&&&& SALVA %%%%%%%
15	ERR.SCRITT.CARD
16	ERR. FORMATTAZ.
17	MEM. CARD PIENA
18	POWER FAILURE
19	INITIALIZING...
20	EEPROM ERROR
21	SYSTEM ERROR
22	RFID WRITE ERROR
23	RFID ERROR
24	INPUT PASSWORD
25	PASSWORD INVALID
26	RFID CONFIG ERR

6. SYSTEM MODE

6.1 OUTLINE OF SYSTEM MODE

In this mode, the printer self-test operation and parameter setting operation are performed. Described below is the key operation procedure performed regarding the system mode.

●System mode for service persons and system administrators (All system mode menus are available.)



Maintenance counter/Various parameters printout, Printer self-test operation and results printout, Thermal head broken dots check

Character code selection, Font “0” selection, Communication speed selection, Data length selection, Stop bit length selection, Parity selection, Transmission control method selection, Language selection for LCD messages, Setting for forward feed standby, Forward feed standby action, Setting for head-up operation in cut issue mode or for using the rewinder, Installed solenoid type setting, Ribbon saving system setting, Control code selection, Peel-off wait status selection, [FEED] key function setting, Kanji code selection, Euro code setting, Automatic head broken dots check setting, Centronics ACK/BUSY timing setting, Web printer function setting, Ribbon near end detection setting
Reset process when the nInit signal is ON, Expansion I/O operation mode setting, Centronics operation mode setting, Plug-and-Play operation setting, Label end/ribbon end process setting, Pre-peel-off process setting, Back feed speed setting, MaxiCode specification setting, Print head type setting, System mode password operation setting, XML function setting (V4.4A, Xx.x only)

Feed fine adjustment, Cut position fine adjustment (or strip position fine adjustment), Back feed fine adjustment, X-coordinate fine adjustment, Print density fine adjustment (Thermal transfer/Direct thermal print mode), Ribbon motor drive voltage fine adjustment, Transmissive sensor manual threshold fine adjustment, Reflective sensor manual threshold fine adjustment

Parameter setting, 1-dot slant line printout, 3-dot slant line printout, Character printout, Bar code printout, Non-printing
Automatic printout for the assembly process (Transmissive sensor/Reflective sensor), Factory pattern printout

Thermal head temperature sensor display, Open-air temperature sensor display, Reflective sensor display/adjustment, Transmissive sensor display/adjustments, Sensor status without paper, Ribbon end sensor status

Maintenance counter clear, Various parameters clear

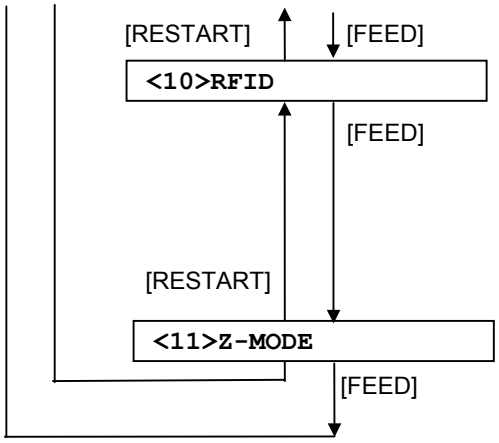
Printer IP address setting, Gateway IP address setting, Subnet mask setting, Socket communication port number setting, DHCP setting, DHCP client ID setting

BASIC setting, BASIC file browser, BASIC trace setting

Head-up adjustment for the process, Option check for the process

Continued on the following page.

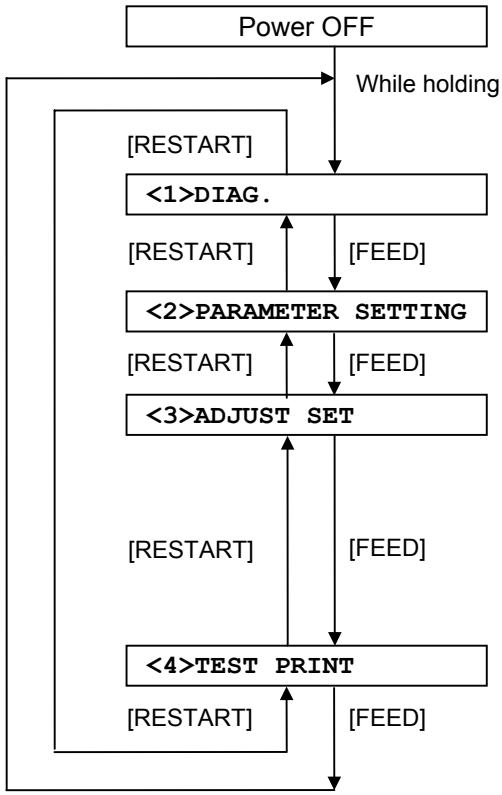
Continued from the previous page.



RFID read test, RFID module type selection, RFID carrier sense setting, RFID module's destination code setting (user-inaccessible setting), RFID tag type selection, Max. number of RFID issue retries, RFID error tag detection, Max. number of RFID read retries, RFID read retry time-out, Max. number of RFID write retries, RFID write retry time-out, RFID adjustment for retry, RFID wireless power level, Password setting to protect error tag detection, AGC threshold setting, Access password setting, Channel setting, Automatic unlock function setting, Q value, AGC threshold for data write, AGC threshold lower limit for retry, Hibiki tag multi-word write

Z-Mode setting, BASIC system mode program setting
(Supported from C5.3, Cx.x only)

●System mode for users (Operable system mode menus are limited.)



Maintenance counter/Various parameters printout, Printer self-test operation and results printout, Thermal head broken dots check

Installed solenoid type setting, Ribbon saving system setting

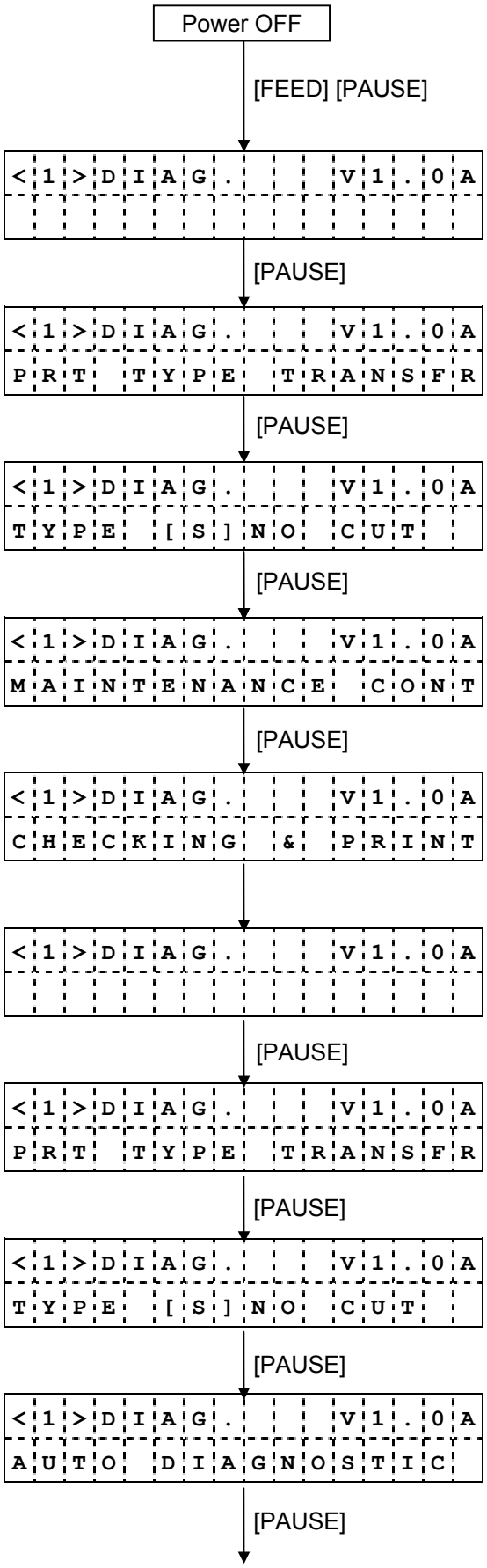
Feed fine adjustment, Cut position fine adjustment (or strip position fine adjustment), Back feed fine adjustment, X-coordinate fine adjustment, Print density fine adjustment (Thermal transfer/Direct thermal print mode), Ribbon motor drive voltage fine adjustment, Transmissive sensor manual threshold fine adjustment, Reflective sensor manual threshold fine adjustment,

Parameter setting, 1-dot slant line printout, 3-dot slant line printout, Character printout, Bar code printout, Non-printing Automatic printout for the assembly process (Transmissive sensor/Reflective sensor), Factory pattern printout

6.2 SELF-TEST

6.2.1 Self-test Operation Example

(1) Maintenance counter/various parameters printout, automatic self-test printout



(1) Power off state

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [PAUSE] key.

(5) Print type setting mode

(6) Press the [PAUSE] key.

(7) Issue type setting mode

(8) Press the [PAUSE] key.

(9) Maintenance counter/various parameter print mode

(10) Press the [PAUSE] key.

(11) Start of maintenance counter/various parameters check

(12) Results printout

(13) The self-test menu is displayed.

(14) Press the [PAUSE] key.

(15) Print type setting mode

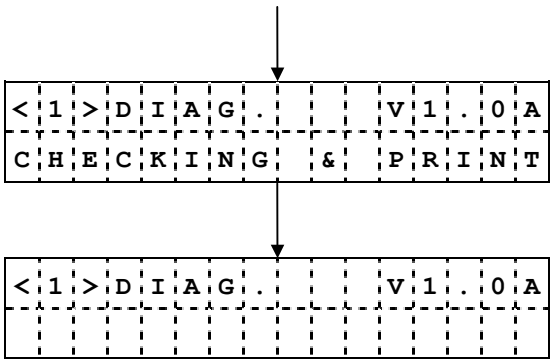
(16) Press the [PAUSE] key.

(17) Issue type setting mode

(18) Press the [PAUSE] key.

(19) Automatic self-test mode

(20) Press the [PAUSE] key.

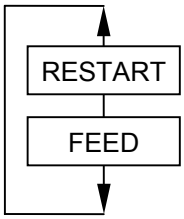


(21) Start of automatic self-test

(22) Results printout

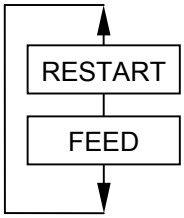
(23) The self-test menu is displayed.

Print type setting (PRT TYPE)



- TRANSFR (Thermal transfer printing)
- DIRECT (Direct thermal printing)

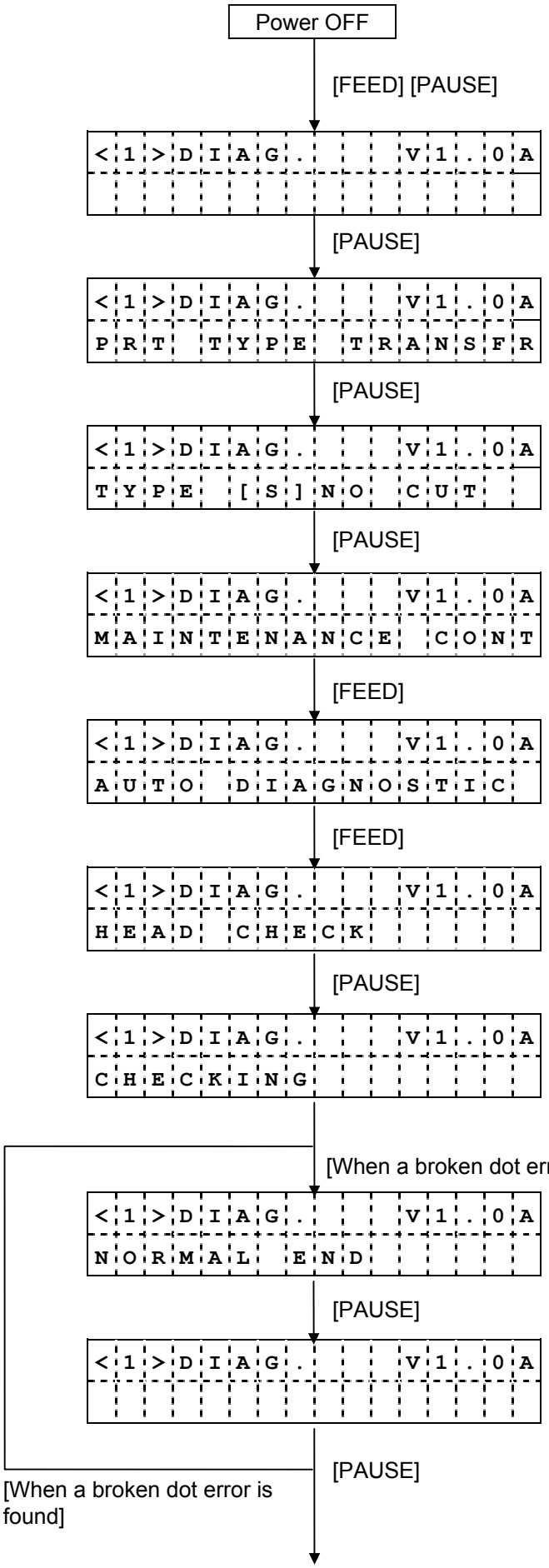
Issue type setting (TYPE)



- [S]NO CUT (Batch issue)
- [C]WITH CUT (Issue with a cut)

NOTE: *When an error occurs while printing the results of the self-test, the error message is displayed and printing is stopped. The error is cleared by pressing the [PAUSE] key, then the system mode menu is displayed again. Printing is not automatically resumed after the error is cleared.*

(2) Head broken dots check



(1) Power off state

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [PAUSE] key.

(5) Print type setting mode

(6) Press the [PAUSE] key.

(7) Issue type setting mode

(8) Press the [PAUSE] key.

(9) Maintenance counter/various parameters printout mode

(10) Press the [FEED] key.

(11) Automatic self-test mode

(12) Press the [FEED] key.

(13) Head broken dots check mode

(14) Press the [PAUSE] key.

(15) Start of head broken dots check

(16) Results display (Normal end)

(17) Press the [PAUSE] key.

(18) The self-test menu is displayed.

```
<1>DIAG.   V1.0A
HEAD ERROR
```

(16') Results display (Error)

[PAUSE]

(17') Press the [PAUSE] key.

```
<1>DIAG.   V1.0A
```

(18') The self-test menu is displayed.

6.2.2 Self-test Items

(1) Maintenance counter/various parameters printout

① Maintenance counter

- Total label distance covered (cannot be cleared)
- Label distance covered
- Print distance
- Cut count
- Head-up/down count
- Ribbon motor drive time
- Head-up solenoid drive time
- RS-232C hardware error count
- System error count
- Momentary power interruption count

② Various parameters

[Value programmed on the PC]

- Feed fine adjustment value
- Cut position (or strip position) fine adjustment value
- Back feed fine adjustment value
- Print density fine adjustment value (Thermal transfer print mode)
- Print density fine adjustment value (Direct thermal print mode)
- Ribbon motor drive voltage fine adjustment (Rewind)
- Ribbon motor drive voltage fine adjustment (Back tension)

[Value programmed using the keys]

- Feed fine adjustment value
- Cut position (or strip position) fine adjustment value
- Back feed fine adjustment value
- Print density fine adjustment value (Thermal transfer print mode)
- Print density fine adjustment value (Direct thermal print mode)
- Ribbon motor drive voltage fine adjustment (Rewind)
- Ribbon motor drive voltage fine adjustment (Back tension)
- X-coordinate fine adjustment value
- Reflective sensor manual threshold fine adjustment
- Transmissive sensor manual threshold fine adjustment
- Character code type
- Font “0”
- Communication speed
- Data length
- Stop bit length
- Parity
- Transmission control method
- Language for LCD messages
- Forward feed standby after an issue
- Forward feed standby action
- Head-up operation in cut issue mode/use of the rewinder
- Installed solenoid type setting
- Ribbon saving system setting
- Control code type
- Peel-off wait status selection
- [FEED] key function
- Kanji code type
- Euro code set value
- Automatic head broken dots check setting
- Centronics ACK/BUSY timing setting

- Web printer function setting
- Reset process when the nInit signal is ON
- Ribbon near end detection setting
- Expansion I/O operation mode setting
- Centronics operation mode setting
- Plug-and-play operation setting
- Label end/ribbon end process setting
- Pre-peel-off process setting
- Back feed speed setting
- MaxiCode specification setting
- Print head type setting
- IP address setting
- BASIC setting
- Socket communication port number setting
- BASIC interpreter setting
- DHCP setting
- Wireless LAN setting
- RFID module type selection
- RFID tag type selection
- RFID module's destination code setting (user-inaccessible setting)
- RFID error tag detection
- Password setting to protect error tag detection
- Access password setting
- Automatic unlock function setting
- Max. number of RFID issue retries
- Max. number of RFID read retries
- RFID read retry time-out
- Max. number of RFID write retries
- RFID write retry time-out
- RFID adjustment for retry
- RFID wireless power level setting
- RFID AGC threshold setting
- RFID channel setting
- Number of times tag data write succeeded
- Number of times tag data write failed
- Q value
- AGC threshold for data write
- AGC threshold lower limit for retry
- Hibiki tag multi-word write
- System mode password setting
- XML function setting (V4.4A, Xx.x only)
- Stop position setting in the issue control setting mode (Vx.x only)
- Sensor setting in the issue control setting mode (Vx.x only)
- Print method setting in the issue control setting mode (Vx.x only)
- Print speed setting in the issue control setting mode (Vx.x only)
- Issue mode setting in the issue control setting mode (Vx.x only)
- Cut mode setting in the issue control setting mode (Vx.x only)
- Print orientation setting in the issue control setting mode (Vx.x only)
- Auto status transmission setting in the issue control setting mode (Vx.x only)

(2) Automatic self-test

① Memory check

- Program area (Model, creation date, version, part number, checksum)
- Boot area (Model, creation date, version, checksum)
- Font area checksum
- Bit map Kanji ROM checksum (Gothic, Mincho, Chinese Kanji)

- EEPROM check
- RAM check
- Card check

② Sensor check

- Strip sensor
- Thermal head open sensor
- Thermal head-up sensor
- Rewinder overflow sensor
- Cutter home position sensor
- Ribbon rewind motor sensor
- Ribbon back tension motor sensor
- Thermal head temperature sensor
- Open-air temperature sensor
- Heat sink sensor
- Reflective sensor
- Transmissive sensor
- Ribbon end sensor
- Thermal head resistance rank

③ Expansion I/O loop back check

④ Internal serial I/F loop back check

⑤ RFID module check

6.2.3 Self-test Results Printout Samples

(1) Maintenance counter/various parameters printout

"MAIN4-R" is printed for V5.0 or later.

```
TOTAL FEED   1.1km       MAIN4-R [QQ]
FEED         1.1km
PRINT        0.5km
CUT          96
HEAD U/D     32
RIBBON       3h
SOLENOID     0h
232C ERR     255
SYSTEM ERR   0
POWER FAIL   0
[PC]                 [KEY]
FEED      +2.0mm     FEED      +0.0mm
CUT       +0.0mm     CUT       +1.0mm
BACK      +0.0mm     BACK      +0.0mm
TONE(T)   +0step     TONE(T)   +0step
TONE(D)   +0step     TONE(D)   +0step
RBN(FW)   -10        RBN(FW)   -8
RBN(BK)   +0         RBN(BK)   +0
X ADJ.    +0.0mm
THRESHOLD(R)  1.0V
THRESHOLD(T)  1.4V
FONT              [PC-850]  [0]
SPEED             [9600]
DATA LENG.        [8]
STOP BIT          [1]
PARITY            [EVEN]
CONTROL           [XON+READY AUTO]
MESSAGE           ENGLISH
FORWARD WAIT      [ON] +0.0mm  [MODE1]
HU CUT/RWD.       [OFF]
RIBBON SAVE       [ON:TAG]  [TYPE2]
CODE              [AUTO]
PEEL OFF STATUS   [ON]
FEED KEY          [FEED]
KANJI             [TYPE1]
EURO CODE         [B0]
AUTO HD CHK       [OFF]
ACK/BUSY          [TYPE1]
WEB PRINTER       [OFF]
INPUT PRIME       [ON]
RIBBON NEAR END   [OFF]
EX.I/O MODE       [TYPE1]
CENTRO MODE       [SPP]
PLUG & PLAY       [OFF]
LBL/RBN END       [TYPE1]
PRE PEEL OFF      [OFF]
BACK SPEED        [STD]
MAXI CODE SPEC.   [TYPE1]
THERMAL HEAD      [V2:HEAD]
PRTR IP ADDRESS   [192.168.010.020]
GATE IP ADDRESS   [000.000.000.000]
SUBNET MASK       [255.255.255.000]
TTF AREA          [2816KB]
EXT CHR AREA      [ 128KB]
BASIC AREA        [  64KB]
PC SAVE AREA      [  64KB]
SOCKET PORT       [OFF] [08000]
BASIC             [OFF]
BASIC TRACE       [OFF]
DHCP              [OFF]
DHCP ID           [FFFFFFFFFFFFFFFFFFFF]
                  [FFFFFFFFFFFF]
ESS ID            [SymbolAP          ]
                  [          ]
CONNECTION        [INFRASTRUCTURE]
CHANNEL           [01]
AUTH              [OPEN SYSTEM]
WEP               [OFF]
WEP TYPE          [40bit]
SEND KEY          [1]
WEP KEY #1        [101112131415161718191A1B1C]
WEP KEY #2        [202122232425262728292A2B2C]
WEP KEY #3        [303132333435363738393A3B3C]
WEP KEY #4        [404142434445464748494A4B4C]
```

```
RFID MODULE       [U1]
RFID TAG TYPE     [NONE]
RFID ERR CHECK    [PASS] [ON] [ON]
RFID RETRY        [3]
RFID RD CYCLE     [5] [2.0sec]
RFID WT CYCLE     [5] [2.0sec]
RFID ADJ RETRY    [+00mm]
RFID POWER LEV    [251]
RFID AGC THR.     [0]
RFID CHANNEL      [AUTO]
RFID Q VAL        [2]
RFID WT AGC       [11]
RFID WT MIN AGC   [11]
RFID MLT.BLK WT   [OFF]
RFID WT OK TAGS           0
RFID VOID PRINT TAGS      0
SYSTEM PASSWORD   [OFF]
LAN               [OFF]
XML SPEC.         [STD]
ISSUE CTRL MODE   [1]  SNS [CMD]  PRT [CMD]
SPD [CMD]  TYP [CMD]  CUT [CMD]  ROT [CMD]
STS [CMD]
```

V4.4, Vx.x, C5.7, Cx.x only

V4.4A, Xx.x only

Vx.x only

The number of digits displayed has been increased to 4 from V5.0/X5.0/C5.0.

NOTE: *Print conditions: 288 mm of label length, thermal transfer/direct thermal print mode(*1), no sensor used, 6 ips/5 ips(*2), one sheet to print, batch issue, no driving of paper rewind motor*

*(*1) Depends on the print type setting.*
*(*2) B-SX4: 6 ips, B-SX5: 5 ips*

(2) Automatic self-test printout

```
PROGRAM  B-SX4T       7FM00226000
   MAIN  15OCT2002    V1.0A:1A00
   BOOT  20SEP2002    V1.0 :8500
FONT     5600
KANJI    NONE   :0000
         NONE   :0000
EEPROM   OK
SDRAM    8MB
CARD     SLOT 1 ATA
         SLOT 2 LAN
SENSOR1  00000000,00000111
SENSOR2  [H]23°C [A]22°C [S]25°C
         [R]4.2V [T]2.5V [E]0.6V
         [RANK]7
EXP.I/O  NG
EX.232C  NG
RFID     OK  #00RV972 (EU0) R01
BASIC M  Z-SX4-MV10F. V1.0F:7479
BASIC S  Z-SX4-SV10E. V1.0E:AD36
```

When the firmware version of the MAIN PC Board is V4.1:xx00 or later, drawing number for the software is not printed.

See Note 4.

When the MAIN PC Board type is the PWA-SX MAIN2 (Part No.: 7FM00503x00), the heat sink sensor status is not printed.

Printed only when the firmware version is C5.3 or greater (Cx.x only).

NOTES: *1. Print conditions: 87 mm of label length, thermal transfer/direct thermal print mode(*1), no sensor used, 6 ips/5 ips(*2), one sheet to print, batch issue, no driving of paper rewind motor*

*(*1) Depends on the ribbon designation setting.*
*(*2) B-SX4: 6 ips, B-SX5: 5 ips*

2. "°" used for "°C" may not be printed correctly, depending on the types of the character code.

3. In the case the printer firmware version is C5.3 or greater, a BASIC program file name and system mode program file name are printed. When the first 4 letters of the each program file name are "Z-SX", the checksum will be also printed.

4. The SDRAM size differs depending on the model and firmware version:
B-SX4T before V5.0/X5.0/C5.0: 8MB
B-SX5T before V5.0/X5.0/C5.0: 16MB
B-SX4T V5.0/X5.0/C5.0 or greater: 16MB
B-SX5T V5.0/X5.0/C5.0 or greater: 32MB

6.2.4 Self-test Printout Contents

(1) Maintenance counter

Item	Contents	Range
TOTAL FEED	Total label distance covered (cannot be cleared)	0.0 to 3200.0 km
FEED	Label distance covered	0.0 to 3200.0 km
PRINT	Print distance	0.0 to 200.0 km
CUT	Cut count	0 to 1000000
HEAD U/D	Head up/down count	0 to 2000000
RIBBON	Ribbon motor drive time	0 to 2000 hours
SOLENOID	Head-up solenoid drive time	0 to 1000 hours
232C ERR	RS-232C hardware error count	0 to 255
SYSTEM ERR	System error count	0 to 15
POWER FAIL	Momentary power interruption count	0 to 15
RFID WT OK TAGS	Number of successful RFID write	0 to 9999999
RFID VOID PRINT TAGS	Number of failure in RFID write	0 to 9999999

Maintenance Counter	Count Conditions
Total label distance covered Label distance covered	Counts when the paper feed motor is driven to feed a paper or print. (Counts also during a reverse feed operation.) When the power is off, the label distance of 50.0 cm or less may be rounded down and backed up.
Print distance	Counts while printing. (Counting is not performed during reverse feed operation.) B-SX4: When the power is off, the print distance of 8.2 m or less is rounded down and backed up. B-SX5: When the power is off, the print distance of 5.5 m or less is rounded down and backed up.
Cut count	Every cut operation is counted. When the power is off, a cut count of 31 or less is rounded down and backed up.
Head up/down count	Counts head up/down operations using the ribbon saving solenoid. (Combination of up and down operations is counted as one.) When the power is off, an up/down count of 31 or less is rounded down and backed up.
Ribbon motor drive time	Counts when the ribbon motor is driven to feed a paper or print. (Counts also during a reverse feed operation.) For B-SX4: When the power is off, a drive time of 32 seconds or less is rounded down and backed up. For B-SX5: When the power is off, a drive time of 27 seconds or less is rounded down and backed up.

Maintenance Counter	Count Conditions
Head-up solenoid drive time	Counts when the ribbon saving operation is performed. For B-SX4: When the power is off, a drive time of 32 seconds or less is rounded down and backed up. For B-SX5: When the power is off, a drive time of 27 seconds or less is rounded down and backed up.
RS-232C hardware error count	Counts when a parity error or a framing error occurs. * When data of several bytes is transmitted continuously, counting is performed per byte.
System error count	Counts when a system error of No. 22 listed in section 5.10 "LCD MESSAGES AND LED INDICATIONS" occurs.
Momentary power interruption count	Counts when a momentary power interruption occurs.
Number of successful RFID write	Counts when an RFID write has succeeded.
Number of failure in RFID write	Counts when an RFID write has failed.

(2) Various parameters check contents

Item	Contents	Remarks
[PC] FEED	Feed fine adjustment	-50.0 mm to +50.0 mm *(See **NOTE**.)*
CUT	Cut position (or strip position) fine adjustment	-50.0 mm to +50.0 mm *(See **NOTE**.)*
BACK	Back feed fine adjustment	-9.9 mm to +9.9 mm *(See **NOTE**.)*
TONE(T)	Print density fine adjustment (Thermal transfer print mode)	-10 to +10 step
TONE(D)	Print density fine adjustment (Direct thermal print mode)	-10 to +10 step
RBN(FW)	Ribbon motor drive voltage fine adjustment (Rewind)	-15 to +6 step
RBN(BK)	Ribbon motor drive voltage fine adjustment (Back tension)	-15 to +10 step
[KEY] FEED	Feed fine adjustment	-50.0 mm to +50.0 mm
CUT	Cut position (or strip position) fine adjustment	-50.0 mm to +50.0 mm
BACK	Back feed fine adjustment	-9.5 mm to +9.5 mm
TONE(T)	Print density fine adjustment (Thermal transfer print mode)	-10 to +10 step
TONE(D)	Print density fine adjustment (Direct thermal print mode)	-10 to +10 step
RBN(FW)	Ribbon motor drive voltage fine adjustment (Rewind)	-15 to +0 step
RBN(BK)	Ribbon motor drive voltage fine adjustment (Back tension)	-15 to +0 step
X ADJ.	X-coordinate fine adjustment	-99.5 mm to +99.5 mm
THRESHOLD<R>	Reflective sensor manual threshold fine adjustment	0.0 V to 4.0 V
THRESHOLD<T>	Transmissive sensor manual threshold fine adjustment	0.0 V to 4.0 V

Item	Contents	Remarks
FONT	Character code selection	PC-850: PC-850 PC-852: PC-852 PC-857: PC-857 PC-8: PC-8 PC-851: PC-851 PC-855: PC-855 PC-1250: PC-1250 PC-1251: PC-1251 PC-1252: PC-1252 PC-1253: PC-1253 PC-1254: PC-1254 PC-1257: PC-1257 LATIN9: LATIN9 Arabic: Arabic UTF-8: UTF-8 *V4.4A, C5.3 to C5.7A, Xx.x only
	Font “0” selection	0 : No slash used Ø : Slash used
SPEED	Communication speed selection	2400: 2400 bps 4800: 4800 bps 9600: 9600 bps 19200: 19200 bps 38400: 38400 bps 115200: 115200 bps
DATA LENG.	Data length selection	7: 7 bits 8: 8 bits
STOP BIT	Stop bit length selection	1: 1 bit 2: 2 bits
PARITY	Parity selection	NONE: None parity ODD: ODD parity EVEN: EVEN parity
CONTROL	Transmission control method selection	XON/XOFF: XON/XOFF protocol (No XON output when the power is on, no XOFF output when the power is off) READY/BUSY: READY/BUSY (DTR) protocol (No XON output when the power is on, no XOFF output when the power is off) XON+READY AUTO: XON/XOFF + READY/BUSY (DTR) protocol (XON output when the power is on, XOFF output when the power is off) XON/XOFF AUTO: XON/XOFF protocol (XON output when the power is on, XOFF output when the power is off) READY/BUSY RTS: RTS protocol (No XON output when the power is on, no XOFF output when the power is off)

Item	Contents	Remarks
MESSAGE	Language selection for LCD messages	ENGLISH: English GERMAN: German FRENCH: French DUTCH: Dutch SPANISH: Spanish JAPANESE: Japanese ITALIAN: Italian
FORWARD WAIT	Forward feed standby after an issue	ON: Performed (A fine adjustment value for the stop position is also printed.) OFF: Not performed
FW/BK ACT.	Forward feed standby action	MODE 1: Stops after 13.7-mm forward feed. MODE 2: Stops after 6-mm back feed and 3-mm forward feed. (Only when the cut mode, thermal transfer, and feed gap sensor are selected.) In other cases, the printer stops after 13.7-mm forward feed.
HU CUT/RWD.	Head-up operation in cut issue mode, or use of the rewinder	ON: Head-up operation is performed, or the rewinder is used. OFF: Head-up operation is not performed, or the rewinder is not used.
RBN SAVE	Ribbon saving system setting	ON(TAG): Used when the head lever position is “TAG”. ON(LBL): Used when the head lever position is “LABEL”. OFF: Not used ON:LBL2: Used when the head lever position is “LABEL”. (Vx.x only)
	Installed solenoid type setting	TYPE 1 (TDS-12C) TYPE 2 (TDS-16A: Stronger pull force type)
CODE	Control code type	AUTO: Automatic selection ESC LF NUL: ESC LF NUL method { | }: { | } method ××○○△△ Any set code (Described in hex. code)
PEEL OFF STS	Peel-off wait status selection	ON: Selected OFF: Not selected
FEED KEY	[FEED] key function setting	FEED: One label is fed. PRINT: Data in the image buffer is printed on one label.
KANJI	Kanji code type	TYPE1: For Windows codes TYPE2: For original codes
EURO CODE	Euro code setting	20H to FFH

Item	Contents	Remarks
AUTO HD CHK	Automatic broken dots check setting	ON: Automatic broken dots check is performed. OFF: Automatic broken dots check is not performed.
ACK/BUSY	Centronics ACK/BUSY timing setting	TYPE 1: The ACK signal is sent to match the rising edge of ACK signal and the falling edge of the BUSY signal. TYPE 2: The ACK signal is sent to match the falling edge of ACK signal and the falling edge of the BUSY signal.
WEB PRINTER	Web printer function setting	ON: Enabled OFF: Disabled
INPUT PRIME	Reset process when the nInit signal is ON	ON: Reset is performed. OFF: Reset is not performed.
RIBBON NEAR END	Ribbon near end detection setting	30 m: Ribbon near end state is detected when the remaining ribbon length is approximately 30 m. 70 m: Ribbon near end state is detected when the remaining ribbon length is approximately 70 m. OFF: Ribbon near end state is not detected.
EX.I/O MODE	Expansion I/O operation mode	TYPE1: Standard mode TYPE2: In-line mode
CENTRO MODE	Centronics operation mode	SPP: Compatibility mode ECP: ECP mode
PLUG & PLAY	Plug-and-play operation setting	ON: Plug-and-play operation is enabled. OFF: Plug-and-play operation is disabled.
LBL/RBN END	Label end/ribbon end process setting	TYPE1: When a label end or ribbon end state is detected, the printer stops even if it is printing. TYPE2: When a label end or ribbon end state is detected, the printer prints the current label as far as possible, then stops.
PRE PEEL OFF	Pre-peel-off process setting	ON: Pre-peel-off operation is performed. OFF: Pre-peel-off operation is not performed.
BACK SPEED	Back feed speed setting	STD: 3 ips LOW: 2 ips
MAXI CODE SPEC.	MaxiCode specification setting	TYPE1: Compatible with the current version TYPE2: Special specification
THERMAL HEAD	Print head type setting	B-SX4: V1: TPH104R2, V2: TPH104R7, or equivalent B-SX5: V1: TPH128R4, V2: TPH128R5, or equivalent

Item	Contents	Remarks
SYSTEM PASSWORD	System mode password operation	OFF: Password is not asked to enter the system mode. ON: Password is asked to enter the system mode. Password: 4-digit HEX value
PRTR IP ADDRESS	Printer IP address	***.***.***.***
GATE IP ADDRESS	Gateway IP address	***.***.***.***
SUBNET MASK	Subnet mask	***.***.***.***
TTF AREA	TrueType font storage area size	V4.x/X4.x/C4.x or earlier: 0 KB to 896 KB (in units of 64 KB) V5.0/X5.0/C5.0 or later: 0 KB to 3072 KB (in units of 64 KB)
EXT CHR AREA	Writable character storage area size	V4.x/X4.x/C4.x or earlier: 0 KB to 896 KB (in units of 64 KB) V5.0/X5.0/C5.0 or later: 0 KB to 3072 KB (in units of 64 KB)
BASIC AREA	BASIC file storage area size	V4.x/X4.x/C4.x or earlier: 0 KB to 896 KB (in units of 64 KB) V5.0/X5.0/C5.0 or later: 0 KB to 3072 KB (in units of 64 KB)
PC SAVE AREA	PC saving area size	V4.x/X4.x/C4.x or earlier: 0 KB to 896 KB (in units of 64 KB) V5.0/X5.0/C5.0 or later: 0 KB to 3072 KB (in units of 64 KB)
SOCKET PORT	Socket communication port number	ON: Socket communication function is enabled. OFF: Socket communication function is disabled. Port number: 0 to 65535
BASIC	BASIC interpreter setting	ON: BASIC interpreter function is enabled. OFF: BASIC interpreter function is disabled.
BASIC TRACE	BASIC interpreter trace setting	ON: Trace function is enabled. OFF: Trace function is disabled.
DHCP	DHCP setting	ON: DHCP function is enabled. OFF: DHCP function is disabled.
DHCP ID	DHCP ID setting	Max. 16 characters
ESS ID	Wireless LAN: ESS ID	Max. 32 characters
CONNECTION	Wireless LAN: Connection setting	INFRASTRUCTURE: Infrastructure mode ADHOC: Adhoc mode
CHANNEL	Wireless LAN: Connection channel setting	Channel number: 00 to 14
AUTH	Wireless LAN: Authentication method	OPEN SYSTEM: Open system method SHARED KEY: Shared key method
WEP	Wireless LAN: Encryption setting	ON: Encryption is enabled. OFF: Encryption is disabled.
WEP TYPE	Wireless LAN: Encryption key setting	40bit: 40-bit encryption is used. 128bit: 128-bit encryption is used.
SEND KEY	Wireless LAN: Encryption key to be used at transmission	1 to 4

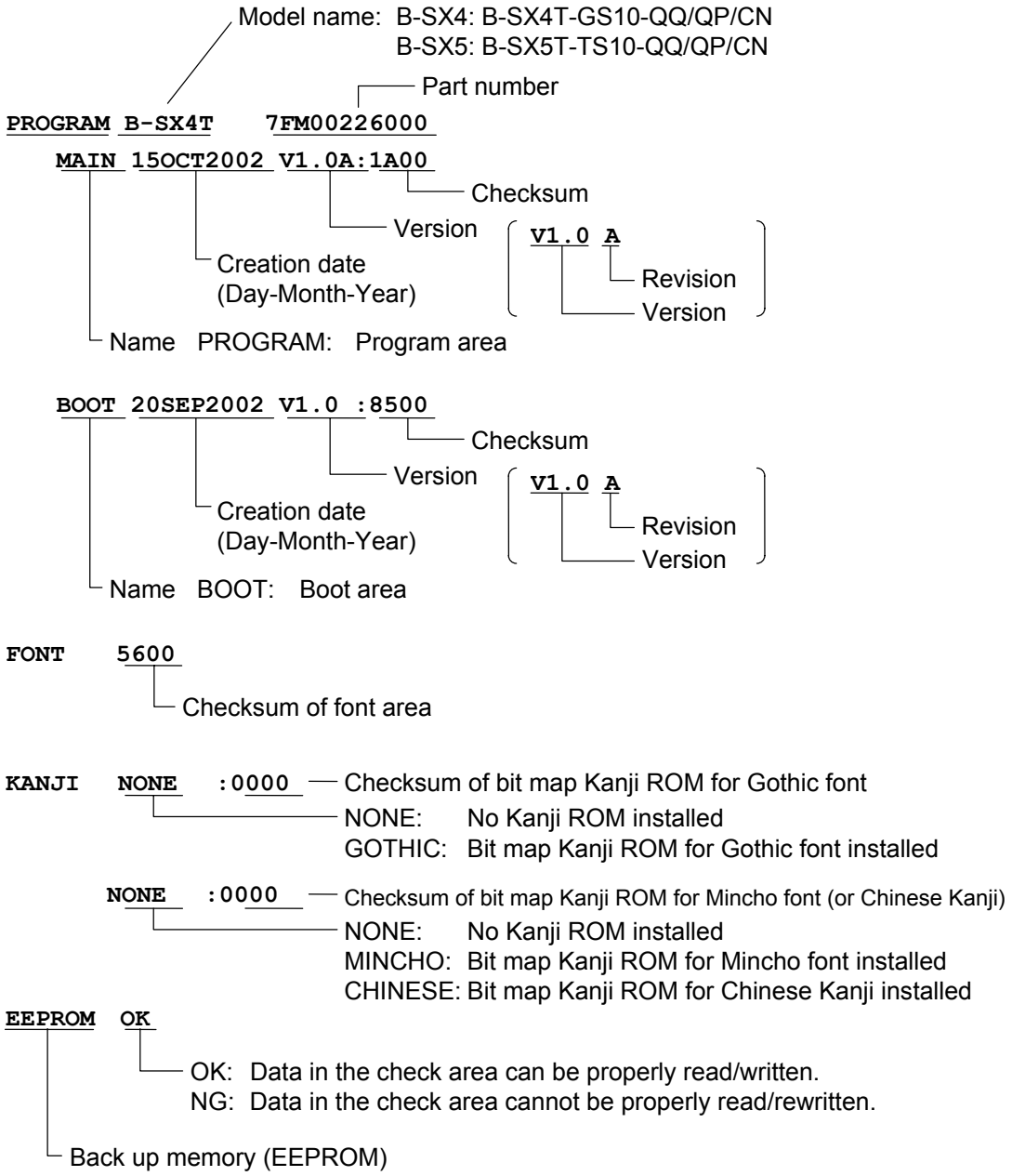
Item	Contents	Remarks
WEP KEY #1	Wireless LAN: Encryption key #1	13-byte fixed length (When the WEP type is 40 bit, the leading 5 bytes are effective.)
WEP KEY #2	Wireless LAN: Encryption key #2	13-byte fixed length (When the WEP type is 40 bit, the leading 5 bytes are effective.)
WEP KEY #3	Wireless LAN: Encryption key #3	13-byte fixed length (When the WEP type is 40 bit, the leading 5 bytes are effective.)
WEP KEY #4	Wireless LAN: Encryption key #4	13-byte fixed length (When the WEP type is 40bit, the leading 5 bytes are effective.)
RFID MODULE	RFID module type selection	NONE: No RFID kit is installed. U1: B-9704-RFID-U1-EU/US(-R) H1: B-9704-RFID-H1-QM H2: B-SX704-RFID-H2 U2: B-SX704-RFID-U2(-EU/US/CN/AU-R), B-SX704-RFID-U4-EU-R
RFID TAG TYPE	RFID tag type selection	None I-Code: 11 Tag-it: 12 C220: 13 ISO15693: 14 C210: 15 C240: 16 C320: 17 EPC Class0: 21 EPC Class1: 22 ISO18000-6B: 23 EPC C1 Gen2: 24
RFID ERR CHECK	RFID error tag detection	OFF: Detection is disabled. EPC: RFID error tag detection for EPC area data PASS: RFID error tag detection for access password area data (only when using a Gen2 tag) When PASS is selected, the following settings are subsequently displayed: Password setting to protect error tag detection ON: Enabled OFF: Disabled Automatic unlock function setting ON: Enabled OFF: Disabled
RFID RETRY	Max. number of RFID issue retries	0 to 255
RFID RD CYCLE	Max. number of RFID read retries RFID read retry time-out	0 to 255 0 to 9.9 sec.
RFID WT CYCLE	Max. number of RFID write retries RFID write retry time-out	0 to 255 0 to 9.9 sec.
RFID ADJ RETRY	RFID adjustment for retry	-99 mm to +99 mm

Item	Contents	Remarks
RFID POWER LEVEL	RFID wireless power level setting	0 to 255 (for the B-9704-RFID-U1-US/EU(-R)) 18 to 26 (for the B-SX704-RFID-U2) 9 to 18 (for B-SX704-RFID-U2-EU/US/CN/AU-R) 0 to 18 (for B-SX704-RFID-U4-EU-R)
RFID THRESHOLD	RFID AGC threshold setting	0 to 15
RFID RF CHANNEL	RFID channel setting	2CH to 8CH AUTO
RFID Q VAL	Q value	0 to 5
RFID WT AGC	AGC threshold for data write	0 to 15
RFID WT MIN AGC	AGC threshold lower limit for retry	0 to 15
RFID MULT WRITE	Hibiki tag multi-word write	ON: Enabled OFF: Disabled
LAN (Supported only by V4.4, Vx.x, C5.7, Cx.x)	LAN setting	ON SNMP ON: Both LAN and SNMP are enabled. ON SNMP OFF: LAN is enabled and SNMP is disabled. OFF: LAN Is disabled.
XML SPEC (Supported only by V4.4A, Xx.x)	XML function setting	STD: Standard specification ORACLE: Specification for Oracle
MODE (Supported only by Vx.x.)	Stop position setting in issue control setting mode	1: MODE1 2: MODE 2
SNS (Supported only by Vx.x.)	Sensor setting in issue control setting mode	CMD: Follows the issue command NON: No sensor REF: Reflective sensor TRN: Transmissive sensor R-M: Reflective sensor (using manual threshold value) T-M: Transmissive sensor (using manual threshold value)
PRT (Supported only by Vx.x.)	Print method setting in issue control setting mode	CMD: Follows the issue command DIR: Direct thermal TWR: Thermal transfer (with ribbon save function) TNR: Thermal transfer (without ribbon save function) DHU: Direct thermal (with head up function)
SPD (Supported only by Vx.x.)	Print speed setting in issue control setting mode	CMD: Follows the issue command 3: 3 ips 5: 5 ips 8: 8 ips
TYP (Supported only by Vx.x.)	Issue mode setting in issue control setting mode	CMD: Follows the issue command BCH: Batch SRD: Strip (with strip sensor enabled) SRE: Strip (with strip sensor ignored, supporting applicator)

Item	Contents	Remarks
CUT (Supported only by Vx.x.)	Cut mode setting in issue control setting mode	CMD: Follows the issue command OFF: No cut operation ON: With cut operation
ROT (Supported only by Vx.x.)	Print orientation setting in issue control setting mode	CMD: Follows the issue command 0: Bottom first printing 1: Top first printing 2: Bottom first and mirror printing 3: Top first and mirror printing
STS (Supported only by Vx.x.)	Auto status transmission setting in issue control setting mode	CMD: Follows the issue command OFF: Not performed. ON: Performed.

NOTE: *For the B-SX4, the head density is 8 dots/mm. If the value is set to "x.2 mm" or "x.3 mm", the operation to be performed is the same for both. Therefore, "x.3 mm" is printed on the maintenance counter printout, even if "x.2 mm" is set. Similarly, if "x.7 mm" is set, "x.8 mm" is printed on the maintenance counter printout.*

(3) Memory check contents



SDRAM 8MB

- 8MB: Capacity of SDRAM (8 MB for B-SX4, 16 MB for B-SX5)
  * V5.0/X5.0/C5.0 or later (16 MB for B-SX4, 32 MB for B-SX5)
- SDRAM: Memory for the system and drawing

CARD SLOT 1 ATA
SLOT 2 LAN

- ATA, LAN:
  - ATA: ATA card is installed.
  - LAN: LAN card is installed.
  - FSH: Flash memory card is installed.
  - NO: ATA card or flash memory card which is not formatted, is installed, neither card is installed.
- SLOT 1, SLOT 2: Slot
- CARD: PCMCIA card

(4) Sensor check contents

SENSOR1 00000000,00000000

- Thermal head open sensor
  1: The head is closed.
  (If the head is opened, it is not printed.)
- Thermal head-up sensor
  1: The head is lowered.
  (If the head is lifted, it is not printed.)
- Cutter home position sensor
  0: Home position
  1: Outside the home position
- Rewinder overflow sensor
  0: Normal
  1: Overflow
- Ribbon rewind motor sensor
  0: Outside the slit
  1: Inside the slit
- Ribbon back tension motor sensor
  0: Outside the slit
  1: Inside the slit
- Blank (Fixed to 0)
- Strip sensor (Peel-off sensor)
  0: Label is not present.
  1: Label is present.
- Blank (Fixed to 0)

When the MAIN PC Board type is the PWA-SX MAIN2 (Part No.: 7FM00503x00), the heat sink sensor status is not printed.

SENSOR2 [H]20°C [A]22°C ~~[S]25°C~~

- Heat sink sensor status (25 °C, 80 °C, 90 °C)
- Open-air temperature sensor status (0 to 86 °C, --°C if it cannot be detected)
- Thermal head temperature sensor status (0 to 86 °C)

[R]4.2V [T]2.5V [E]2.7V

- Reflective sensor status for detecting the ribbon end state (0.0 to 5.0 V)
- Transmissive sensor status (0.0 to 5.0 V)
- Reflective sensor status (0.0 to 5.0 V)

[RANK]7

- Thermal head resistance rank

Resistance rank	Average resistance (ohm)	
	B-SX4	B-SX5
0	748 to 758	1100 to 1116
1	759 to 770	1117 to 1133
2	771 to 782	1134 to 1150
3	783 to 794	1151 to 1168
4	795 to 806	1169 to 1187
5	807 to 818	1186 to 1203
6	819 to 831	1204 to 1222
7	832 to 843	1223 to 1240
8	844 to 856	1241 to 1259
9	857 to 869	1260 to 1279
10	870 to 883	1280 to 1298
11	884 to 896	1299 to 1318
12	897 to 910	1319 to 1338
13	911 to 924	1339 to 1358
14	925 to 938	1359 to 1379
15	939 to 952	1380 to 1400

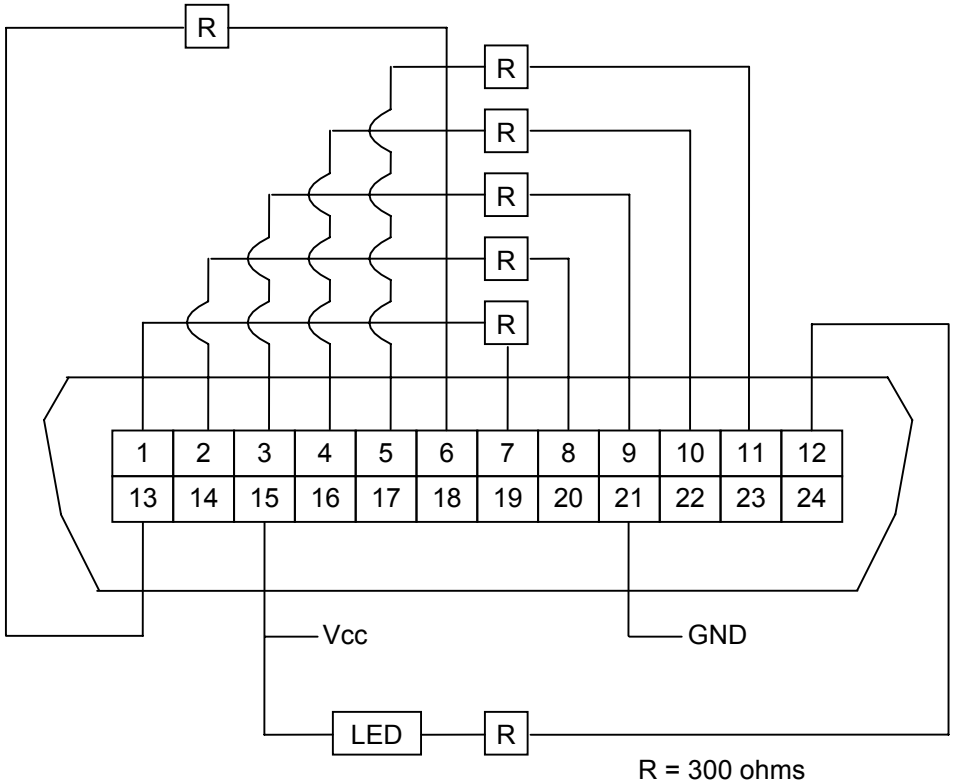
(5) Expansion I/O check contents

EXP.I/O NG

OK: Normal data
NG: Abnormal data, or the loop-back jig is not connected.

Expansion I/O

* Connect the cable as illustrated below, then check the high output/high input, low output/low input.



R = 300 ohms
Connector: FCN-781P024-G/P

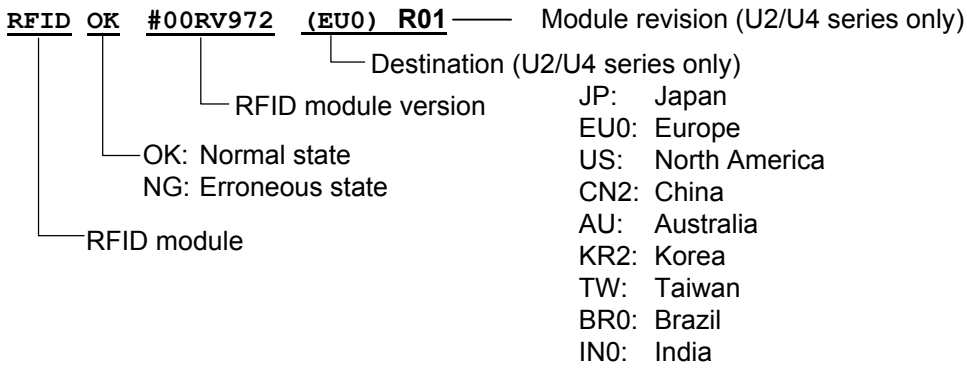
(6) Internal serial I/F check contents

EX.232C NG

OK: Normal data
NG: Abnormal data, or the loop-back jig is not connected.

Internal serial I/F

(7) RFID module check contents



Module revisions and supported countries

B-SX704-RFID-U2-US-R

Revision	Country
R00	US
R01	US, AU, KR, TW
R02	US, AU, KR, TW, BR
R03	US, AU, KR, TW, BR

* From R03, KR conforms to the new Radio Law.

B-SX704-RFID-U2-EU-R

Revision	Country
R00	EU0
R11	EU0, IN0

B-SX704-RFID-U2-R

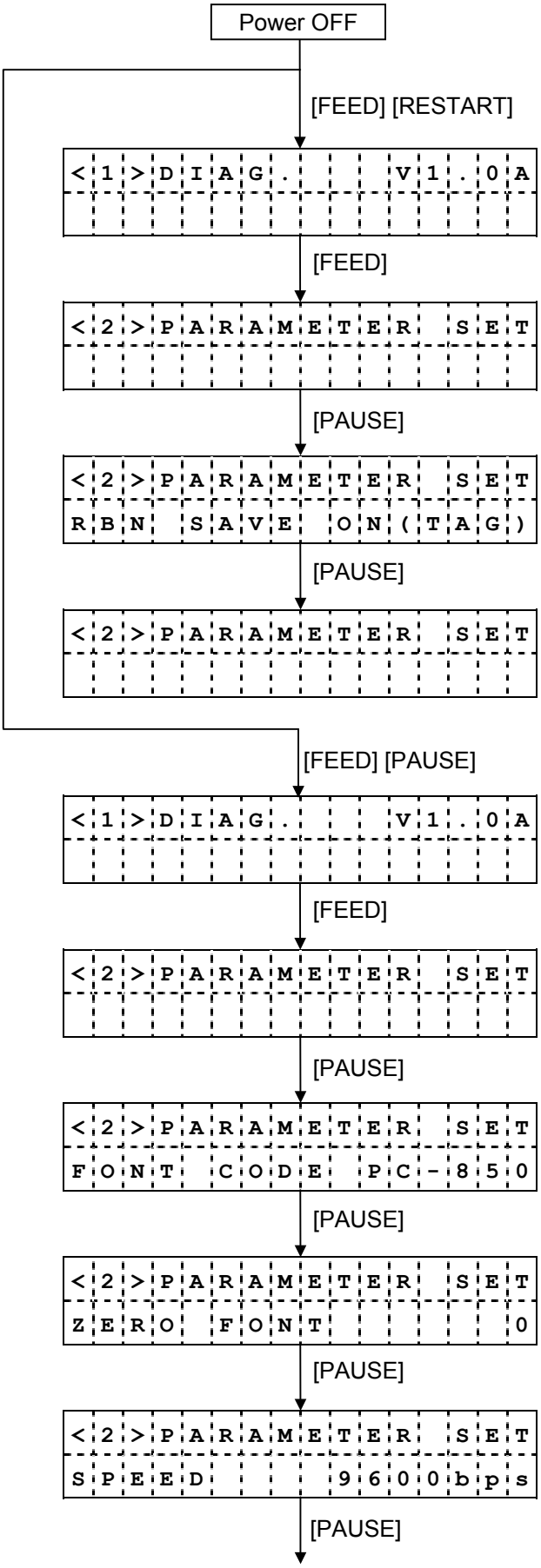
Revision	Country
R00	JP

B-SX704-RFID-U4-EU-R

Revision	Country
R00	EU0

6.3 VARIOUS PARAMETERS SETTING

6.3.1 Various Parameters Setting Operation Example



(1) Power off state

(2) While holding the [FEED] and [RESTART] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [FEED] key.

(5) System mode menu display (Parameter setting)

(6) Press the [PAUSE] key.

(7) Ribbon saving system selection: Select an option using the [FEED] and [RESTART] keys.

(8) Press the [PAUSE] key.

(9) System mode menu display (Parameter setting)

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [FEED] key.

(5) System mode menu display (Parameter setting)

(6) Press the [PAUSE] key.

(7) Font code selection: Select the code using the [FEED] and [RESTART] keys.

(8) Press the [PAUSE] key.

(9) Font “0” selection: Select the font using the [FEED] and [RESTART] keys.

(10) Press the [PAUSE] key.

(11) Communication speed selection: Select the communication speed using the [FEED] and [RESTART] keys.

(12) Press the [PAUSE] key.

```
<2>PARAMETER SET
DATA LENG. 8bits
```

[PAUSE]

(13) Data length selection:
Select the data length using the [FEED] and [RESTART] keys.

(14) Press the [PAUSE] key.

```
<2>PARAMETER SET
STOP BIT   1bit
```

[PAUSE]

(15) Stop bit length setting:
Select the stop bit length using the [FEED] and [RESTART] keys.

(16) Press the [PAUSE] key.

```
<2>PARAMETER SET
PARITY     EVEN
```

[PAUSE]

(17) Parity setting:
Select the parity using the [FEED] and [RESTART] keys.

(18) Press the [PAUSE] key.

```
<2>PARAMETER SET
XON+READY  AUTO
```

[PAUSE]

(19) Transmission control method selection:
Select the transmission control method using the [FEED] and [RESTART] keys.

(20) Press the [PAUSE] key.

```
<2>PARAMETER SET
LCD      ENGLISH
```

[PAUSE]

(21) Language selection for LCD messages:
Select the language for LCD messages using the [FEED] and [RESTART] keys.

(22) Press the [PAUSE] key.

```
<2>PARAMETER SET
FORWARD WAIT OFF
```

[PAUSE]

(23) Setting for forward feed standby:
Make the forward feed standby setting using the [FEED] and [RESTART] keys.

(24) Press the [PAUSE] key.

```
<2>PARAMETER SET
FW/BK ACT. MODE1
```

[PAUSE]

(25) Setting for forward feed standby action:
When the forward feed standby is set to ON, select the action of the forward feed standby using the [FEED] and [RESTART] keys.

(26) Press the [PAUSE] key.

```
<2>PARAMETER SET
HU  CUT/RWD.  OFF
```

[PAUSE]

(27) Setting for head-up operation in cut issue mode:
Make the head-up operation setting or the rewinder use setting using the [FEED] and [RESTART] keys.

(28) Press the [PAUSE] key.

```
<2>PARAMETER SET
SOLENOID   TYPE2
```

[PAUSE]

(29) Installed solenoid type setting:
Set which type of solenoid is installed, TYPE 1 or TYPE 2, with the [FEED] and [RESTART] keys.

(30) Press the [PAUSE] key.

```
<2>PARAMETER SET
RBN SAVE ON(TAG)
```

[PAUSE]

(31) Ribbon saving system setting:
Determine whether or not the ribbon saving system is used with the [FEED] and [RESTART] keys.

(32) Press the [PAUSE] key.

```
<2>PARAMETER SET
CODE  ESC,LF,NUL
```

[PAUSE]

(33) Control code selection:
Select the code using the [FEED] and [RESTART] keys.

(34) Press the [PAUSE] key.

```
<2>PARAMETER SET
PEEL OFF STS OFF
```

[PAUSE]

(35) Peel-off wait status selection:
Set the peel-off wait status selection using the [FEED] and [RESTART] keys.

(36) Press the [PAUSE] key.

```
<2>PARAMETER SET
FEED KEY   FEED
```

[PAUSE]

(37) [FEED] key function setting:
Make the setting for the [FEED] key function using the [FEED] and [RESTART] keys.

(38) Press the [PAUSE] key.

```
<2>PARAMETER SET
KANJI CODE TYPE1
```

[PAUSE]

(39) Kanji code selection:
Select the Kanji code using the [FEED] and [RESTART] keys.

(40) Press the [PAUSE] key.

```
<2>PARAMETER SET
EURO CODE    B0
```

[PAUSE]

(41) Euro code setting:
Set the Euro code using the [FEED] and [RESTART] keys.

(42) Press the [PAUSE] key.

```
<2>PARAMETER SET
AUTO HD CHK  OFF
```

[PAUSE]

(43) Automatic head broken dots check setting:
Set the automatic head broken dots check using the [FEED] and [RESTART] keys.

(44) Press the [PAUSE] key.

```
<2>PARAMETER SET
ACK/BUSY   TYPE1
```

[PAUSE]

(45) Centronics ACK/BUSY timing setting:
Select the ACK/BUSY timing using the [FEED] and [RESTART] keys.

(46) Press the [PAUSE] key.

```
<2>PARAMETER SET
WEB PRINTER  OFF
```

[PAUSE]

(47) Web printer function setting:
Set the function for a web printer using the [FEED] and [RESTART] keys.

(48) Press the [PAUSE] key.

```
<2>PARAMETER SET
INPUT PRIME  ON
```

[PAUSE]

(49) Reset process when the nInit signal is ON:
Set the reset process using the [FEED] and [RESTART] keys.

(50) Press the [PAUSE] key.

```
<2>PARAMETER SET
RBN NEAR END 70m
```

[PAUSE]

(51) Ribbon near end detection setting:
Select the remaining ribbon length to be detected as a ribbon near end state using the [FEED] and [RESTART] keys.

(52) Press the [PAUSE] key.

```
<2>PARAMETER SET
EX.I/O    TYPE1
```

[PAUSE]

(53) Expansion I/O operation mode setting:
Select the operation mode using the [FEED] and [RESTART] keys.

(54) Press the [PAUSE] key.

```
<2>PARAMETER SET
CENTRO.MODE  SPP
```

[PAUSE]

(55) Centronics operation mode setting:
Select the operation mode using the [FEED] and [RESTART] keys.

(56) Press the [PAUSE] key.

```
<2>PARAMETER SET
PLUG & PLAY  OFF
```

[PAUSE]

(57) Plug-and-play operation setting:
Set the plug-and-play operation using the [FEED] and [RESTART] keys.

(58) Press the [PAUSE] key.

```
<2>PARAMETER SET
LBL/RBN END TYP1
```

[PAUSE]

(59) Label end/ribbon end process setting:
Select the label end or ribbon end process using the [FEED] and [RESTART] keys.

(60) Press the [PAUSE] key.

```
<2>PARAMETER SET
PRE PEEL OFF OFF
```

[PAUSE]

(61) Pre-peel-off process setting:
Select the pre-peel-off process using the [FEED] and [RESTART] keys.

(62) Press the [PAUSE] key.

```
<2>PARAMETER SET
BACK SPEED   STD
```

[PAUSE]

(63) Back feed speed setting:
Select the back feed speed using the [FEED] and [RESTART] keys.

(64) Press the [PAUSE] key.

```
<2>PARAMETER SET
MAXI CODE    TYP1
```

[PAUSE]

(65) MaxiCode specification setting:
Select the MaxiCode specification using the [FEED] and [RESTART] keys.

(66) Press the [PAUSE] key.

```
<2>PARAMETER SET
THERMAL HEAD  V2
```

[PAUSE]

(67) Print head type setting:
Select the print head type that is actually installed, using the [FEED] and [RESTART] keys.

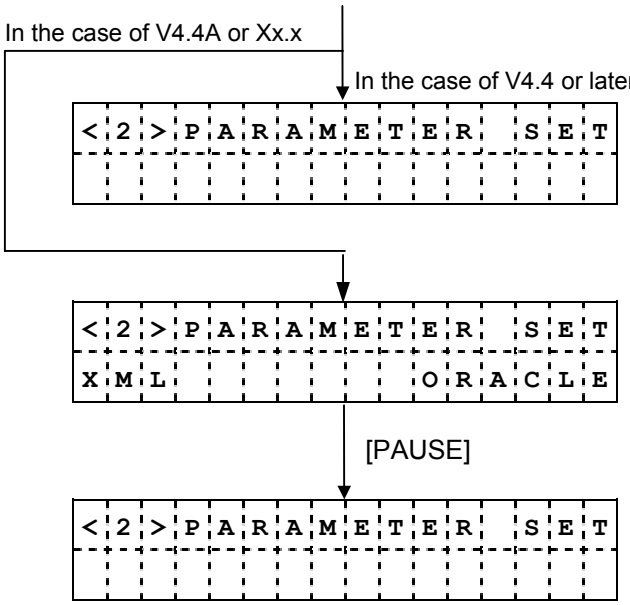
(68) Press the [PAUSE] key.

```
<2>PARAMETER SET
PASSWORD OFF----
```

[PAUSE]

(69) System mode password operation setting:
Select the system mode password operation using the [FEED] and [RESTART] keys.

(70) Press the [PAUSE] key.



(71) The parameter setting menu is displayed.

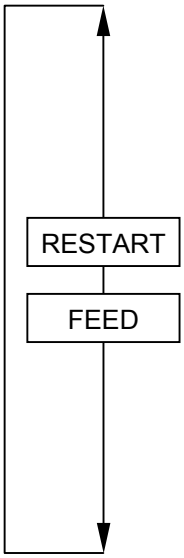
(71) XML function setting:
Select the specification of the XML function, using the [FEED] or [RESTART] key.

(72) Press the [PAUSE] key.

(73) The parameter setting menu is displayed.

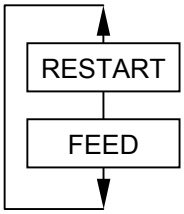
6.3.2 Setting Contents

(1) Character code selection (FONT CODE)



- PC-8
- PC-857
- PC-852
- PC-850
- Arabic
- LATIN9
- PC-1257
- PC-1254
- PC-1253
- PC-1252
- PC-1251
- PC-1250
- PC-855
- PC-851
- UTF-8 (V4.4A only)

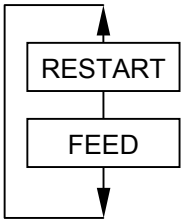
(2) Font “0” selection (ZERO FONT)



- 0 (without slash)
- Ø (with slash)

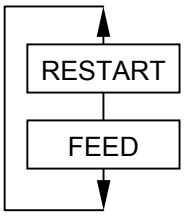
NOTE: *The following fonts do not support a zero with a slash. Therefore, even if a zero with a slash is specified, a zero without a slash is used.*
[Bit map fonts]
OCR-A, OCR-B, GOTHIC725 Black, Kanji, Chinese Kanji
[Outline fonts]
Price fonts 1, 2, and 3, DUTCH801 Bold, BRUSH738 Regular, GOTHIC725 Black,

(3) RS-232C communication speed selection (SPEED)



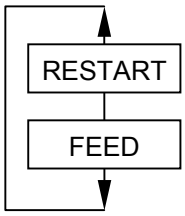
- 115200 bps
- 38400 bps
- 19200 bps
- 9600 bps
- 4800 bps
- 2400 bps

(4) RS-232C data length selection (DATA LENG.)



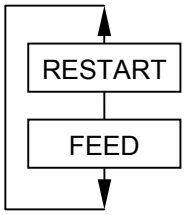
- 8 bits
- 7 bits

(5) RS-232C stop bit length selection (STOP BIT)



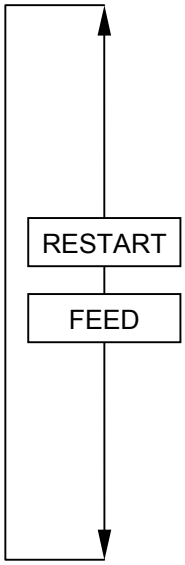
- 2 bits
- 1 bit

(6) RS-232C parity selection (PARITY)



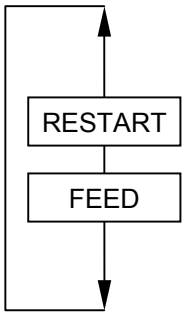
- EVEN
- ODD
- NONE (No parity)

(7) RS-232C transmission control method selection (XON/XOFF, READY/BUSY)



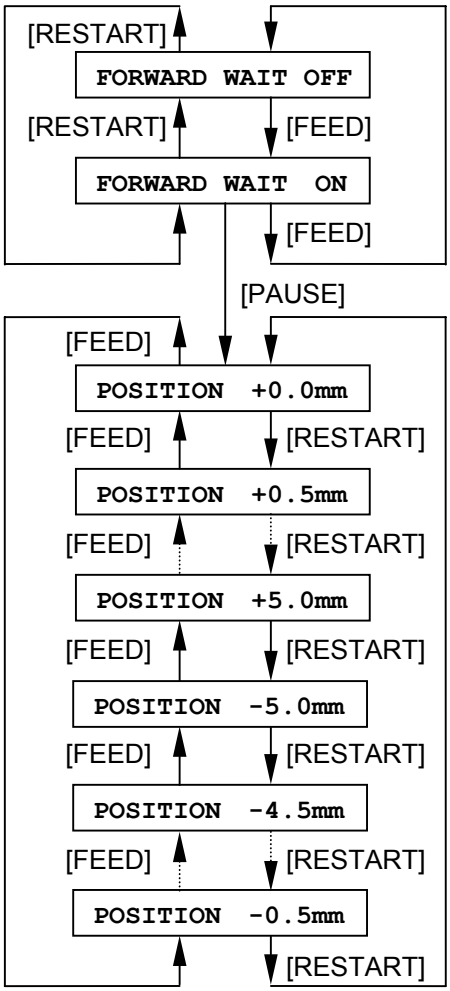
- XON/XOFF AUTO : XON/XOFF protocol (XON output when the power is on, XOFF output when the power is off)
- XON + READY AUTO : XON/XOFF + READY/BUSY (DTR) protocol (XON output when the power is on, XOFF output when the power is off)
- READY/BUSY : READY/BUSY (DTR) protocol (No XON output when the power is on, no XOFF output when the power is off)
- XON/XOFF : XON/XOFF protocol (No XON output when the power is on, no XOFF output when the power is off)
- READY/BUSY RTS : RTS protocol (No XON output when the power is on, no XOFF output when the power is off)

(8) Language selection for LCD messages (LCD)



- ENGLISH
- ITALIAN
- JAPANESE
- SPANISH
- DUTCH
- FRENCH
- GERMAN

(9) Setting for forward feed standby after an issue (FORWARD WAIT)



- OFF: Not performed
- ON: Performed

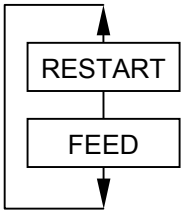
Setting for the fine adjustment value for the stop position after a forward feed standby:

-5.0 mm to +5.0 mm

+: Performs a longer length of a forward feed, then stops.

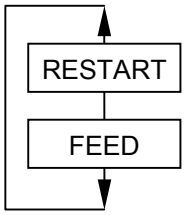
-: Performs a shorter length of a forward feed, then stops.

(10) Setting for forward feed standby action (FW/BK ACT.)



- MODE 1: Stops after 13.7-mm forward feed.
- MODE 2: Stops after 6-mm back feed and 3-mm forward feed. (Only when the cut mode, thermal transfer, and feed gap sensor are selected.) In other cases, the printer stops after 13.7-mm forward feed.

(11) Setting for head-up operation in cut issue mode, or for using the rewinder (HU CUT/RWD.)

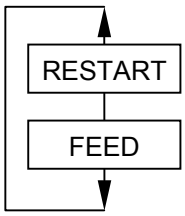


- OFF: Head-up operation is not performed/the rewinder is not used.
- ON: Head-up operation is performed/the rewinder is used.

When a cut issue is performed, this head-up operation setting takes effect. When a batch issue is performed, the rewinder setting takes effect.

NOTE: *If the solenoid temperature is high when a cut issue is about to be performed with the head lifted, the head may not be lifted.*

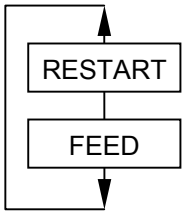
(12) Installed solenoid type setting (SOLENOID)



- TYPE 1: TDS-12C (wound with blue tape) is installed.
- TYPE 2: TDS-16A (stronger pull force type wound with black tape) is installed.

NOTE: *If this setting does not match the actually installed solenoid type, ribbon saving function may not be able to work.*

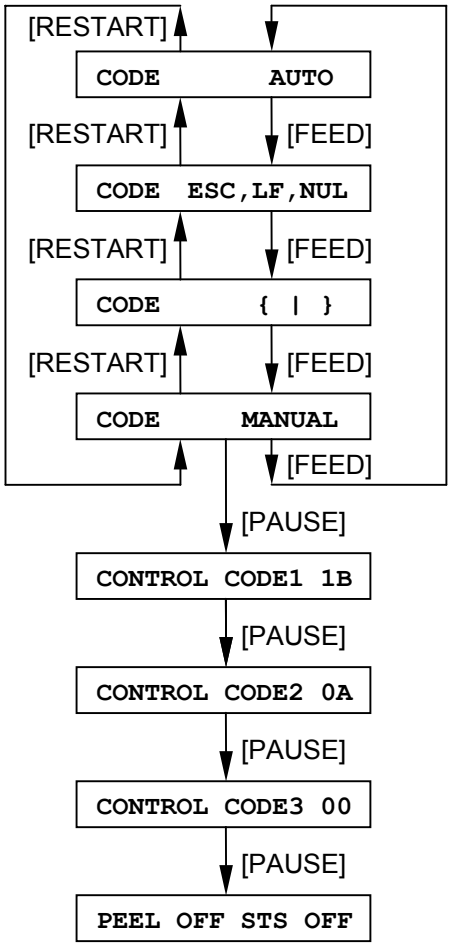
(13) Ribbon saving system setting (RIBBON SAVE)

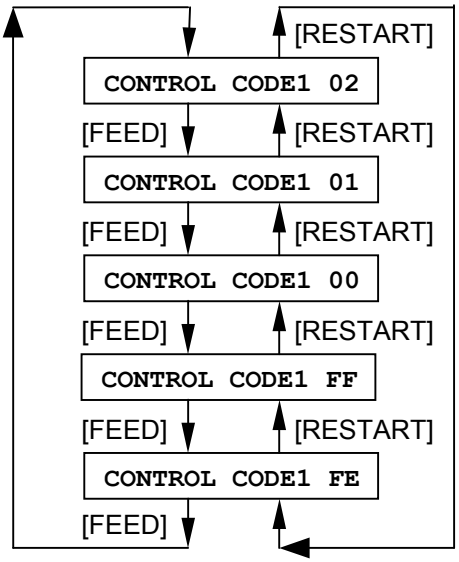


- OFF: The ribbon saving system is not used.
- ON (LBL): The ribbon saving system is used when the head lever position is “LABEL”.
- ON (TAG): The ribbon saving system is used when the head lever position is “TAG”.
- ON:LBL2: The ribbon saving system is used when the head lever position is “LABEL”.

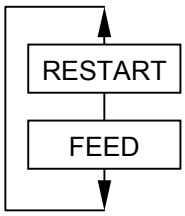
NOTE: *If the ribbon saving function is enabled without installing the ribbon saving module, the ribbon may sag during feeding/printing, and printing cannot be performed properly. Care must be taken when setting this parameter.*
Also, the ribbon saving option shall be selected depending on the head lever position. Incorrect setting may disable the proper ribbon saving function.
When using labels, basically “ON (LBL)” is selected. If prints blur right after a ribbon save, “ON:LBL2” shall be selected.

(14) Control code selection (CODE)



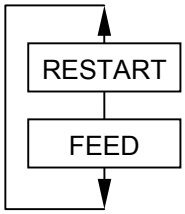


(15) Peel-off wait status selection (PEEL OFF STS)



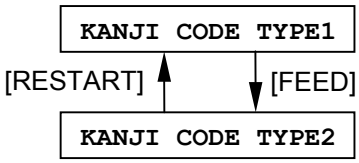
- OFF: No peel-off wait status selection
- ON: Peel-off wait status selection

(16) [FEED] key function setting (FEED KEY)



- FEED: One label is fed.
- PRINT: Data in the image buffer is printed on one label.

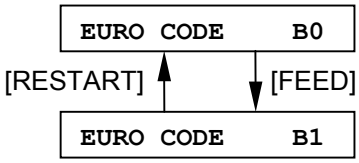
(17) Kanji code selection (KANJI CODE)



TYPE 1: For WINDOWS codes

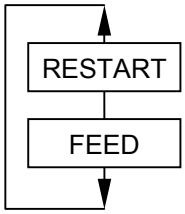
TYPE 2: For original codes

(18) Euro code setting



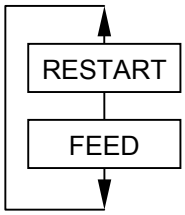
20H
↕
FFH

(19) Automatic head broken dots check setting (AUTO HD CHK)



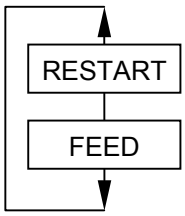
- OFF: Head broken dots check is not automatically performed.
- ON: Head broken dots check is automatically performed.

(20) Centronics ACK/BUSY timing setting (ACK/BUSY)



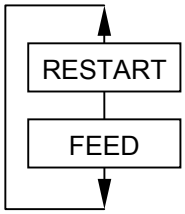
- TYPE 1
- TYPE 2

(21) Web printer function setting (WEB PRINTER)



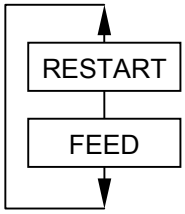
- OFF: Web printer function is disabled.
- ON: Web printer function is enabled.

(22) Reset process when the nInit signal is ON (INPUT PRIME)



- OFF: The reset process is not performed.
- ON: The reset process is performed.

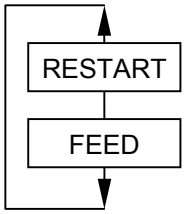
(23) Ribbon near end detection setting (RBN NEAR END)



- 70 m: A ribbon near end state is detected when the remaining ribbon length is 70 m.
- 30 m: A ribbon near end state is detected when the remaining ribbon length is 30 m.
- OFF: A ribbon near end state is not detected.

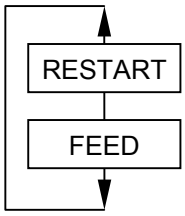
NOTE: *There are some variations in detecting the ribbon near end state. It is preferable to use this setting for reference purposes.*

(24) Expansion I/O operation mode setting (EX. I/O)



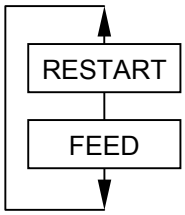
- TYPE1: Standard mode
- TYPE2: In-line mode

(25) Centronics operation mode setting (CENTRO.)



- SPP: Compatibility mode
- ECP: ECP mode

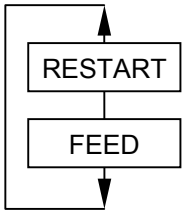
(26) Plug-and-play operation setting (PLUG & PLAY)



- OFF: Plug-and-play operation is disabled.
- ON: Plug-and-play operation is enabled.

NOTE: *In the USB interface, plug-and-play operation is always enabled, regardless of this setting.*

(27) Label end/ribbon end process setting (LBL/RBN END)



- TYP1: When a label end or ribbon end state is detected, the printer stops even if it is printing.
- TYP2: When a label end or ribbon end state is detected, the printer prints the current label as far as possible, then stops.

- TYP1: When a label end or ribbon end is detected in the middle of printing, printing is immediately stopped. When the printing is restarted, first the initial feed is performed, and then the printer starts printing from the unfinished label.

- TYP2: TYPE 2 is available only when the ribbon saving function is set to OFF. If the ON (LBL) or ON (TAG) is selected, TYPE 1 will be automatically performed regardless of the selection.

  [Label end]

  When a label end is detected in the middle of printing, the printer completes the half-finished label and stops when the next label is at the home position, displaying the error message “NO PAPER X”. (*“X” indicates the remaining number of labels.)* The remaining number of labels = [Specified number of labels] – [The number of finished labels including half-finished one]
  If a label end is detected while the specified last label is printed, the position of “X” will be blank.
  When the printing is restarted, first the initial feed is performed, and then the printer starts printing from the next label. In case of the label end while the specified last label is printed, only the initial feed is performed, and if the status response is set to ON, an issue end status is sent following a feed end status.

  [Ribbon end]

  - When a ribbon end is detected when the unfinished label length is 30 mm or more, printer prints for 20 mm and stops printing, displaying an error message “NO RIBBON X”. (“X” indicates the remaining number of labels.)
    The remaining number labels = [Specified number of labels] – [The number of finished labels] – 1
    If a ribbon end is detected while the specified last label is printed, the position of “X” will be blank.
    When the printing is restarted, first the initial feed is performed, and then the printer starts printing from the next label. In case of the ribbon end while the specified last label is printed, only the initial feed is performed.

- When a ribbon end is detected where the unfinished label length is less than 30 mm, the printer completes the half-finished label and stops printing when the next label is at the home position, displaying the error message “NO RIBBON X”. (“X” indicates the remaining number of labels.)
  The remaining number of labels = [Specified number of labels] – [The number of finished labels including half-finished one]
  If a ribbon end is detected while the specified last label is printed, the position of “X” will be blank.
  When the printing is restarted, first the initial feed is performed, and then the printer starts printing from the next label.
  In case of the ribbon end while the specified last label is printed, only the initial feed is performed, and if the status response is set to ON, an issue end status is sent following a feed end status.

Example of LBL/RBN END TYP2

[Case 1] Specified number of labels = 5,

A label end is detected while the 3rd label is printed.

(1st)(2nd)(3rd)
↑

After issuing 3rd label completely, the printer stops printing, displaying “NO PAPER 2”.

When printing is restarted, first the initial feed is performed, then 4th and 5th labels are printed. Finally, all of 5 labels have been finished.

[Case 2] Specified number of labels = 5,

A ribbon end is detected while the 3rd label is printed. Unfinished label length is 30 mm or more.

(1st)(2nd)(3rd)
↑

After the 3rd label is printed for 20 mm, the printer stops printing, displaying “NO RIBBON 2”.

When printing is restarted, first the initial feed is performed, then 4th and 5th labels are printed. Finally, 1st, 2nd, 4th, and 5th labels have been finished.

[Case 3] Specified number of labels = 5,

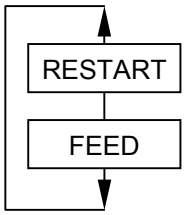
A ribbon end is detected while the 3rd label is printed. Unfinished label length is less than 30 mm.

(1st)(2nd)(3rd)
↑

After issuing 3rd label completely, the printer stops printing, displaying “NO RIBBON 2”.

When printing is restarted, first the initial feed is performed, then 4th and 5th labels are printed. Finally all of 5 labels have been finished.

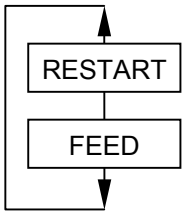
(28) Pre-peel-off process setting (PRE PEEL OFF)



- OFF: Pre-peel-off operation is not performed..
- ON: Pre-peel-off operation is performed.

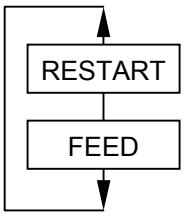
NOTE: *When the printer speed "10 ips" is specified, the pre-peel-off operation is performed, even if it is set to OFF in this setting.*

(29) Back feed speed setting (BACK SPEED)



- STD: 3 ips
- LOW: 2 ips

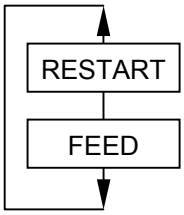
(30) MaxiCode specification setting (MAXI CODE)



- TYPE1: Compatible with the current version
- TYPE2: Special specification

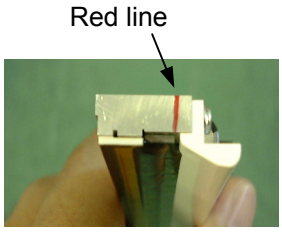
The mode specified by the command may be different from the actual mode, depending on the status of this parameter. Also, the data transmission method differs partly.
For details, refer to the B-SX4/SX5 External Equipment Interface Specification.

(31) Print head type setting (THERMAL HEAD)



		B-SX4	B-SX5	
• V2:	Enhanced type	TPH104R7	TPH128R5	or equivalent
• V1:	Current type	TPH104R2	TPH128R4	

B-SX4: V2 type print head (TPH104R7 or equivalent) in or after September 2004
B-SX5: V2 type print head (TPH128R5 or equivalent) in or after November 2004

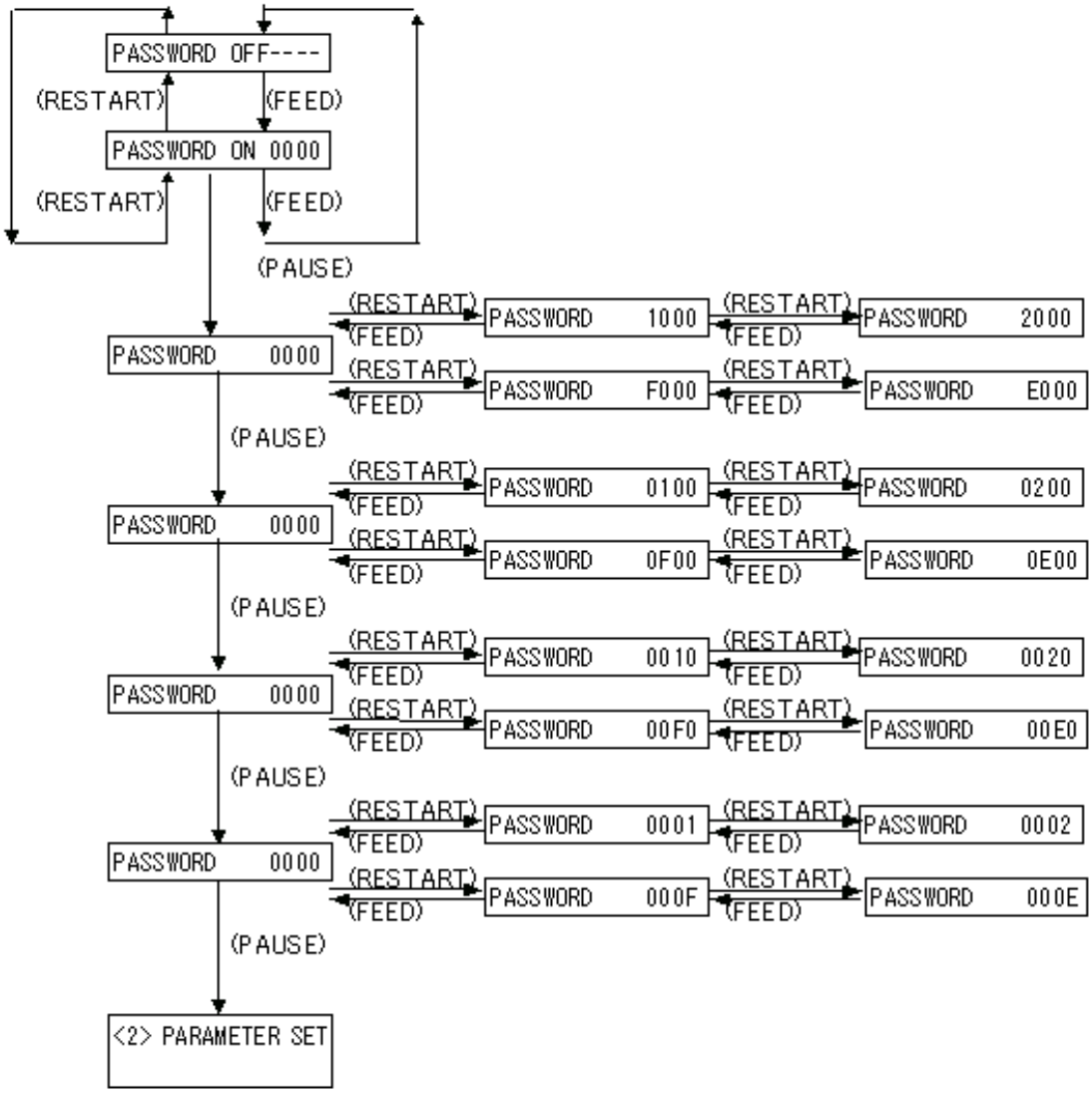


NOTE 1: Selecting the incorrect print head type may affect the print quality or print head life.
NOTE 2: The enhanced print head (B-SX4: TPH104R7 or equivalent, B-SX5: TPH128R5 or equivalent) has a red line on the side. (See the picture on the left.)

Supplementary explanation

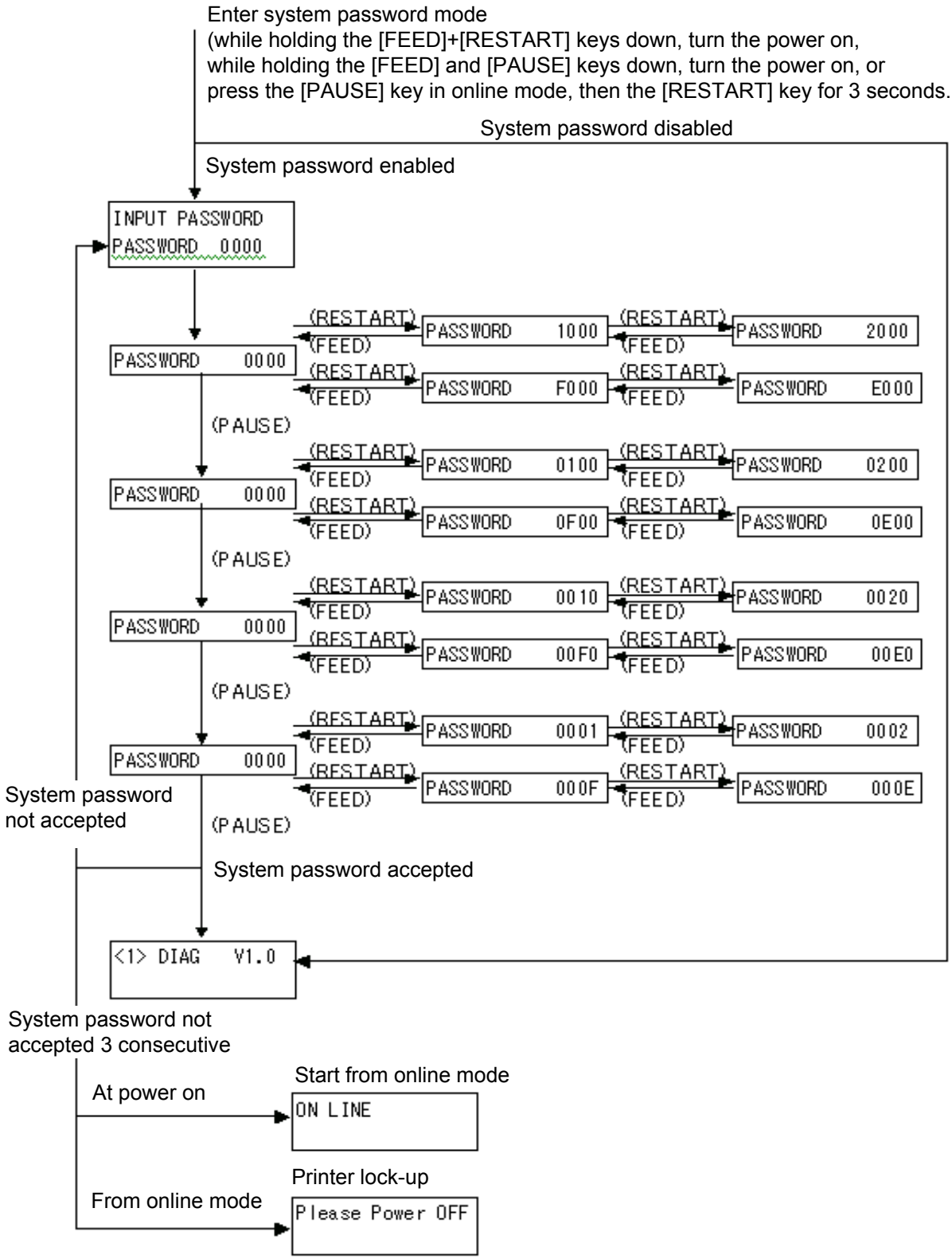
- When the [RESTART] and [FEED] keys are pressed at the same time, the display shows the system mode menu.
- If the [RESTART] or [FEED] key is held down for 0.5 seconds or more when a parameter is being set, the printer enters the repeat mode, in which the key is entered repeatedly.
- A changed parameter is stored in memory by pressing the [PAUSE] key.

(32) System password setting (PASSWORD)

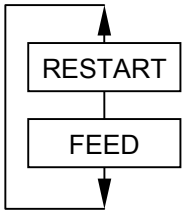


- With the system mode password parameter set to ON, a password entry window appears when either of the following occurs: a) “system mode for service persons and system administrators” is invoked, b) “system mode for users” is invoked, or c) the [PAUSE] and [RESTART] keys are held down for 3 seconds to invoke the system mode.
  When the password, which is the same as that registered here, is entered in the password entry window, the printer starts in system mode.
  As same as when the password is registered, a 4-digit hexadecimal value is entered one by one in the password entry window.
- If a password entry fails three consecutive times when “system mode for service persons and system administrators” or “system mode for users” is invoked with the system mode password parameter set to ON, the printer starts in online mode.
- If a password entry fails three consecutive times when the [PAUSE] and [RESTART] keys are held down for 3 seconds to invoke the system mode, the message “Please Power OFF” appears on the LCD and the printer locks up.
- If the system password is forgotten, disable the system mode password operation using the @010 command.

- System mode password entry



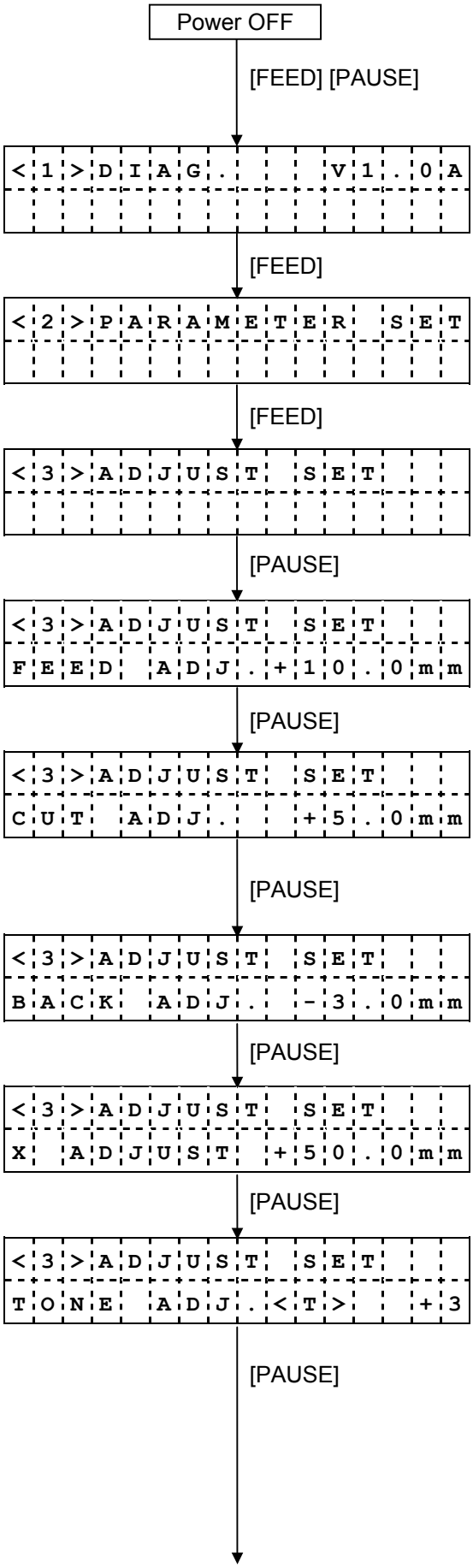
(33) XML function setting (XML) ***Note**: Supported only by V4.4A or Xx.x.*



- STD: Standard specification
- ORACLE: Specification for Oracle

6.4 FINE ADJUSTMENT VALUE SETTING

6.4.1 Fine Adjustment Value Setting Operation Example



(1) Power off state

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [FEED] key.

(5) System mode menu display (Parameter setting)

(6) Press the [FEED] key.

(7) System mode menu display (Fine adjustment value setting)

(8) Press the [PAUSE] key.

(9) Feed fine adjustment:
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(10) Press the [PAUSE] key.

(11) Cut position (or strip position) fine adjustment:
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(12) Press the [PAUSE] key.

(13) Back feed fine adjustment:
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(14) Press the [PAUSE] key.

(15) X-coordinate fine adjustment:
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(16) Press the [PAUSE] key.

(17) Print density fine adjustment (Thermal transfer print mode):
Set the fine adjustment value using the [FEED] and [RESTART] keys.

(18) Press the [PAUSE] key.

```
<3>ADJUST SET
TONE ADJ.<D>  -2
```

(19) Print density fine adjustment (Direct thermal print mode):
Set the fine adjustment value using the [FEED] and [RESTART] keys.

[PAUSE]

(20) Press the [PAUSE] key.

```
<3>ADJUST SET
RBN ADJ <FW>  -10
```

(21) Ribbon motor drive voltage fine adjustment (Rewind):
Set the fine adjustment value using the [FEED] and [RESTART] keys.

[PAUSE]

(22) Press the [PAUSE] key.

```
<3>ADJUST SET
RBN ADJ <BK>  -5
```

(23) Ribbon motor drive voltage fine adjustment (Back tension):
Set the fine adjustment value using the [FEED] and [RESTART] keys.

[PAUSE]

(24) Press the [PAUSE] key.

```
<3>ADJUST SET
THRESHOLD<R>1.0V
```

(25) Reflective sensor manual threshold fine adjustment:
Set the fine adjustment value using the [FEED] and [RESTART] keys.

[PAUSE]

(26) Press the [PAUSE] key.

```
<3>ADJUST SET
THRESHOLD<T>1.4V
```

(27) Transmissive sensor manual threshold fine adjustment:
Set the fine adjustment value using the [FEED] and [RESTART] keys.

[PAUSE]

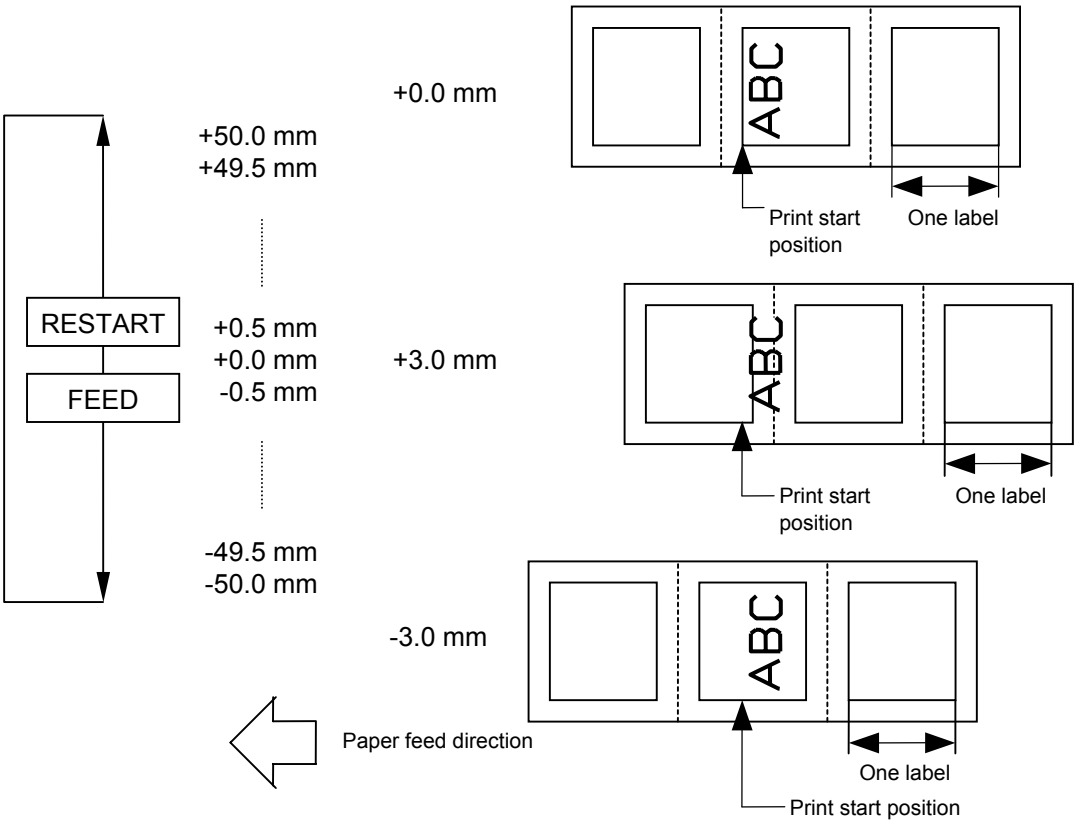
(28) Press the [PAUSE] key.

```
<3>ADJUST SET
```

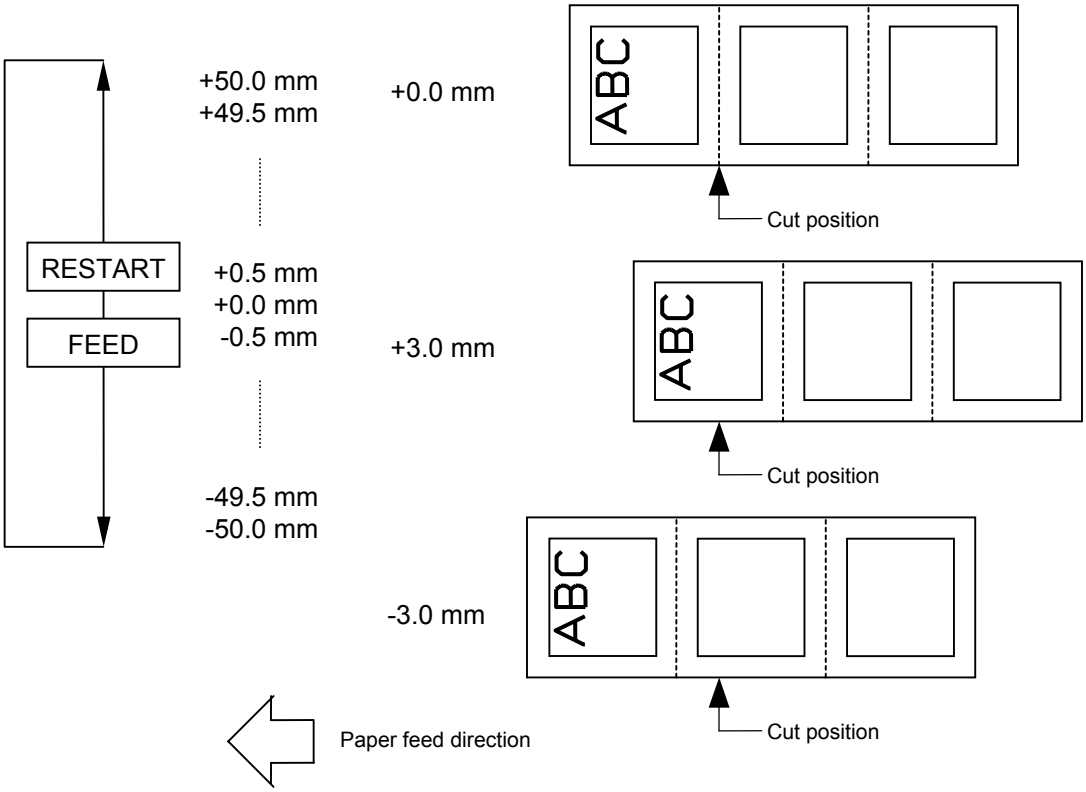
(29) The fine adjustment value setting menu is displayed.

6.4.2 Setting Contents

(1) Feed fine adjustment (FEED ADJ.)



(2) Cut position (or strip position) fine adjustment (CUT ADJ.)



[Procedure for label having label pitch of less than 38 mm when the swing cutter is used]

The minimum label pitch of the label which can be cut in normal use is 38.0 mm. When a label having a label pitch of less than 38.0 mm is used (although it is out of specifications), the edge of the label is caught by the edge of the thermal head during a back feed to the home position after cutting the gap area between labels. Therefore, the label may not be fed back to the proper home position. By performing either method below, the problem will be solved.

[Method 1] Lift the head.

When the following conditions are all met, the cut operation is as follows.

Head lifted → Forward feed to the cut position → Head lowered → Cut →
Head lifted → Reverse feed to the home position → Head lowered

Conditions: Issue Command, Feed Command, and Eject Command received.
Label pitch of 38.0 mm or less, cut performed, transmissive sensor designated, cut position fine adjustment of ±10.0 mm or less, and issue mode "C"

* The head is lifted/lowered only when the optional ribbon save module is attached and the ribbon saving system is set to ON in the parameter setting. When the ribbon save module is not installed, use Method 2 since the head is not lifted/lowered.

NOTES: *1. If the head is lifted up when the edge of the label being ejected passes the paper feed roller, the sensor may not be able to detect an error even if it occurs (a feed cannot be performed).*

2. If the head-up solenoid temperature is high when a cut issue is about to be performed with the head lifted, the head may not be lifted.

[Method 2] Adjust the cut position fine adjustment value.

When this procedure is used, one or more printed labels are left between the head and the cutter. Therefore, these labels should be removed by an issue or a label feed.

(a) Cut position fine adjustment value calculation

The cut position fine adjustment value can be calculated using the following method. If a back feed to the proper home position cannot be performed using this value, the cut position should be adjusted with any value.

$$\text{Cut position fine adjustment value} = \text{(Number of labels left between head and cutter)} \times \text{(Label pitch)}$$

$$= \left(\frac{32.8\ \text{mm}}{\text{Label pitch}}\right) \times \text{(Label pitch)}$$

* Any decimal remainders are dropped.

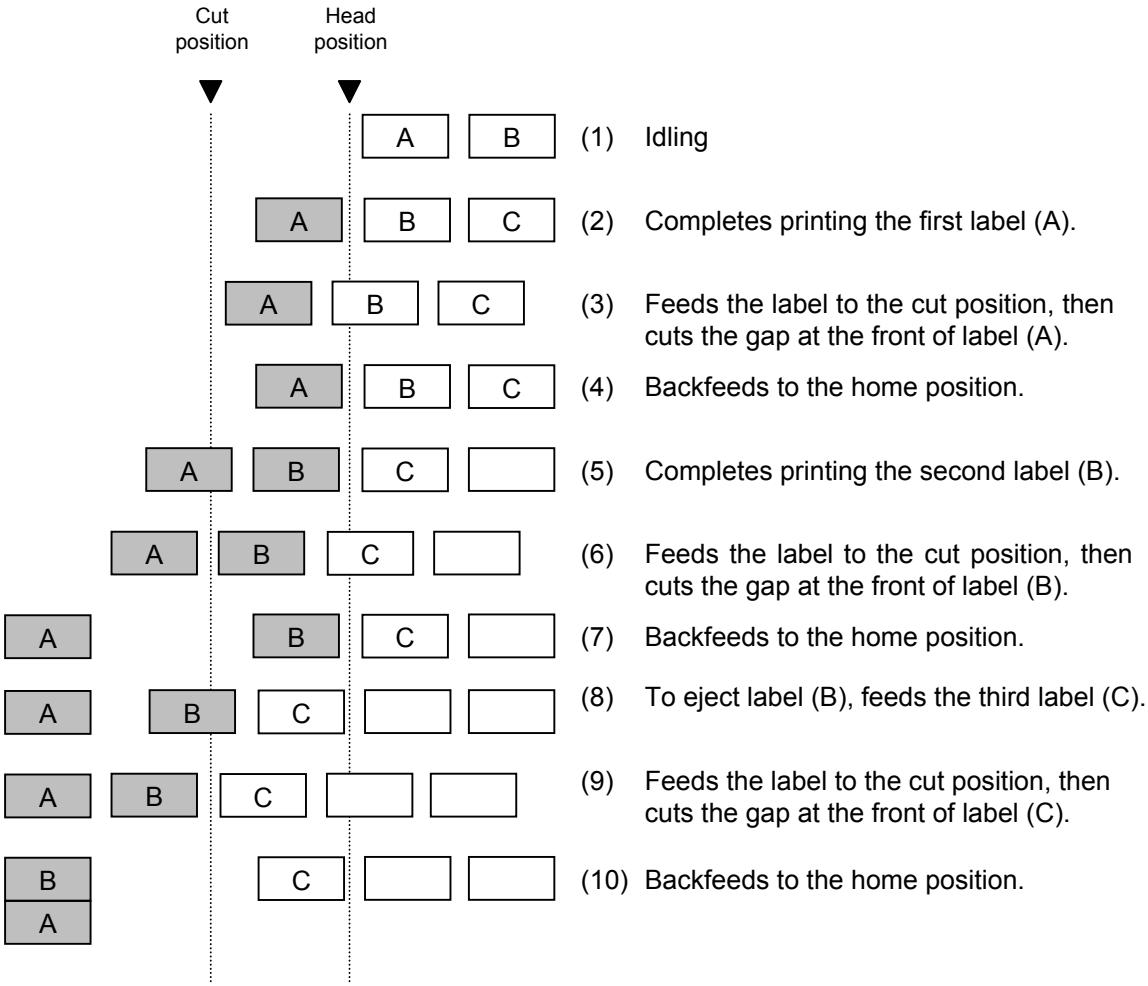
Ex) Label pitch: 30.0 mm

$$\text{Cut position fine adjustment value} = \left(\frac{32.8\ \text{mm}}{30.0\ \text{mm}}\right) \times (30.0\ \text{mm})$$

$$= 1 \times 30.0\ \text{mm}$$
$$= +30.0\ \text{mm}$$

(b) Operation example

Issue count: 2, Cut interval = 1



[Procedure for label having less than the min. label pitch for each issue speed when the rotary cutter is used]

When the following conditions are all met, the cut operation for the last label to be cut is as follows.

Forward feed to the cut position → Cut with feeding → Feed stops →
Head lifted → Reverse feed to the home position → Head lowered

Conditions: Issue Command, Feed Command, and Eject Command received.
Label pitch: Less than the min. label pitch for each issue speed, cut performed, transmissive sensor designated, cut position fine adjustment of ±10.0 mm or less, and issue mode "C"

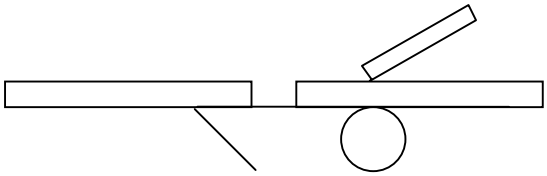
* For the Issue Command, this procedure is effective only for the last label to be cut when the next Issue Command is not received.
* The head is lifted/lowered only when the optional ribbon save module is attached and the ribbon saving system is set to ON in the parameter setting. When the ribbon save module is not installed, the head-up/down operations are not performed. See "NOTES" below.

NOTES:

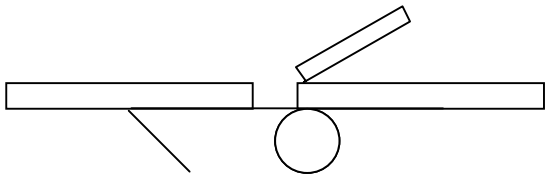
1. *If the head is being lifted up when the edge of the label which is being ejected passes the paper feed roller, the sensor may not be able to detect an error even if it occurs (a feed cannot be performed more).*
2. *If the head-up solenoid temperature is high when a cut issue is about to be performed with the head lifted, the head may not be lifted.*

[Strip position fine adjustment]

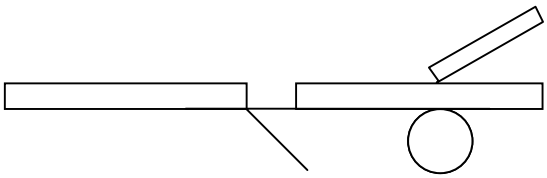
+0.0 mm

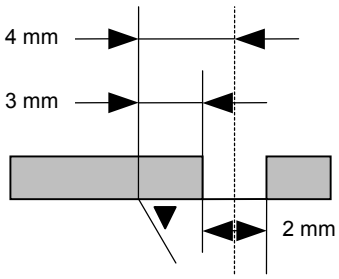


+3.0 mm



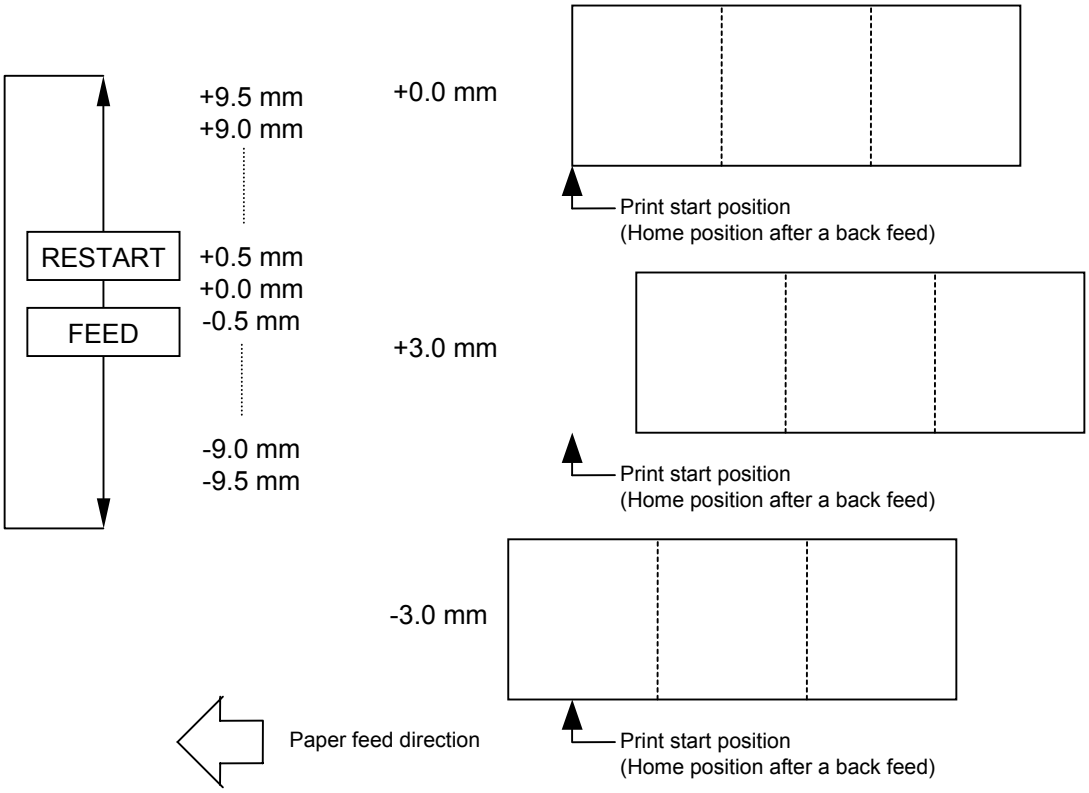
- 3.0 mm





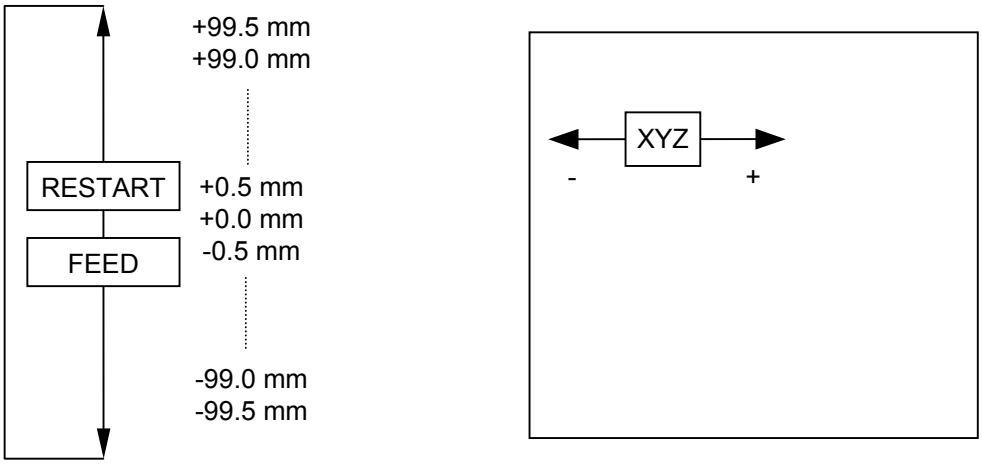
Printing in strip issue mode is stopped at the position where the distance from the middle point of the gap between labels to the end of the strip shaft is 4 mm, since the gap between labels is assumed to be 2 mm.
When the print stop position is not proper due to a greater gap, the print stop position should be adjusted using the strip position fine adjust function.

(3) Back feed fine adjustment (BACK ADJ.)

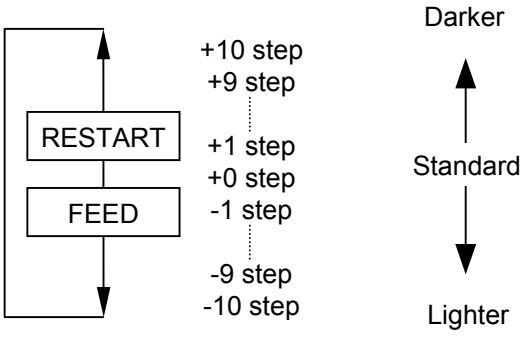


NOTE: *There may be cases where a label is not returned to the home position depending on the print conditions, even if a backfeed, of which the length is the same as the forward feed, is performed. In issues where any paper sensor is used, if the label pitch length is almost the same as the distance between the thermal print head and the paper sensors (75.5 mm), a label/tag may not be returned to the home position when operations with a backfeed (such as cut issues, strip issues, automatic forward feed standby) are performed. It may result in an error. In such cases, to prevent an error from occurring, the backfeed length should be increased by performing the back feed fine adjustment in the + direction.*

(4) X-coordinate fine adjustment (X ADJUST.)

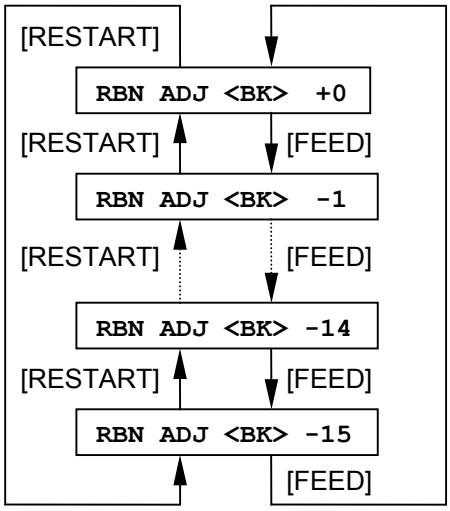


(5) Print density fine adjustment (Thermal transfer/direct thermal) (TONE ADJ.)



([Step] is not displayed.)

(6) Ribbon motor drive voltage fine adjustment setting (Rewind) (RBN ADJ <FW>)



+0 step (Standard)

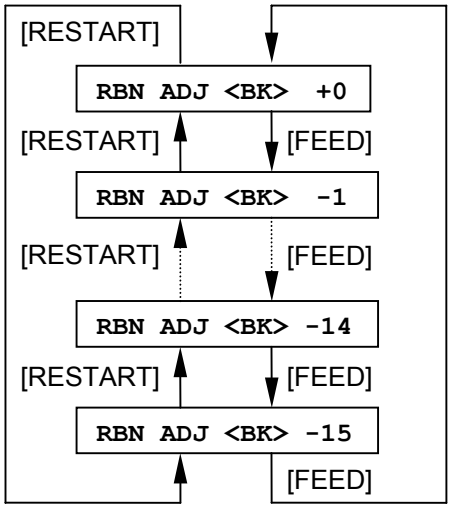
-1 step (5% × -1 = -5%)

-14 step (5% × -14 = -70%)

-15 step (5% × -15 = -75%)

• 1 step = 5%

(7) Ribbon motor drive voltage fine adjustment setting (Back tension) (RBN ADJ <BK>)



+0 step (Standard)

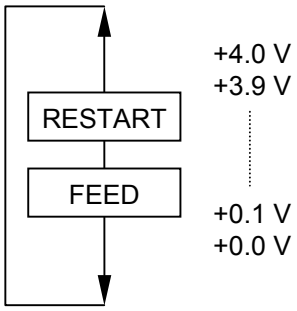
-1 step (5% × -1 = -5%)

-14 step (5% × -14 = -70%)

-15 step (5% × -15 = -75%)

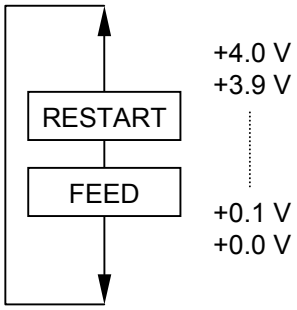
• 1 step = 5%

(8) Transmissive sensor manual threshold fine adjustment setting (THRESHOLD<T>)



NOTE: *If "0.0 V" is set, when the power is turned OFF then ON, the value "0.0 V" is returned to the initial value (1.0 V).*

(9) Reflective sensor manual threshold fine adjustment setting (THRESHOLD<R>)



NOTE: *If "0.0 V" is set, when the power is turned OFF then ON, the value "0.0 V" is returned to the initial value (1.4 V).*

Supplementary explanation

- When the [RESTART] and [FEED] keys are pressed at the same time, the display shows the system mode menu.
- If the [RESTART] or [FEED] key is held down for 0.5 seconds or more when a fine adjustment value is being set, the printer enters the repeat mode, in which the key is entered repeatedly.
- A changed fine adjustment value is stored in memory by pressing the [PAUSE] key.
- The printer is controlled by the sum of the fine adjustment parameter programmed on the printer and the fine adjustment command from the PC. However, the maximum values for each fine adjustment are as follows:

  Feed fine adjustment ..... ±50.0 mm
  Strip position fine adjustment ..... ±50.0 mm
  Back feed fine adjustment ..... ±9.9 mm
  Print density fine adjustment ..... ±10 step
  X-coordinate fine adjustment..... ±99.5 mm
  Ribbon motor drive voltage fine adjustment (Rewind) ..... -15 to +0 step
  Ribbon motor drive voltage fine adjustment (Back tension)..... -15 to +0 step

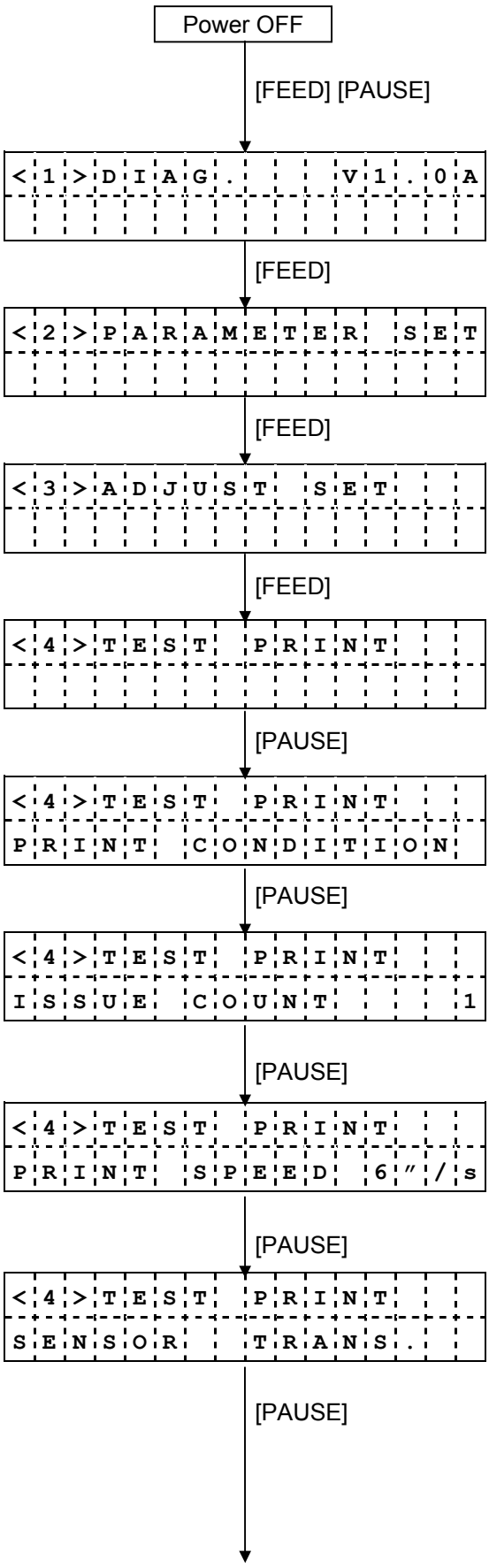
- The X-coordinate fine adjustment is performed to finely adjust the X-coordinate of the drawing in the left or right direction. Adjust the X-coordinate in the effective print range. (After the value reaches the coordinate “0”, the value remains unchanged even if a subsequent fine adjustment is performed in the negative direction.)
- The X-coordinate fine adjustment is not effective for the self-test results printout (maintenance counter, various parameters, and automatic self-test) and the test print.
- The print density fine adjustment value is +0 step at the time of shipment from the factory.
- The ribbon rewind/back tension motors drive voltage fine adjustment values are the sum of the fine adjustment by the command (from the PC) and the fine adjustment in the system mode (by key operation). The maximum fine adjustment values are -15 for both the ribbon rewind motor and the ribbon back tension motor.
- The print density fine adjustment value is the sum of the fine adjustment by command (from the PC) and the fine adjustment in the system mode (by key operation). The respective max. fine adjustment values are ±10. The max. value for each print speed is as below. When the value exceeds the maximum, it is automatically corrected to the max. value.

	B-SX4				B-SX5			
Print speed	V1 type: TPH104R2		V2 type: TPH104R7, or equivalent		V1 type: TPH128R4		V2 type: TPH128R5, or equivalent	
	Thermal direct	Thermal transfer	Thermal direct	Thermal transfer	Thermal direct	Thermal transfer	Thermal direct	Thermal transfer
3 ips	+10 step	+10 step	+10 step	+10 step	+10 step	+10 step	+10 step	+10 step
5 ips	----	----	----	----	+7 step	+10 step	+7 step	+10 step
6 ips	+8 step	+8 step	+8 step	+8 step	----	----	----	----
8 ips	----	----	----	----	+3 step	+10 step	+3 step	+10 step
10 ips	+4 step	+8 step	+5 step	+7 step	----	----	----	----

6.5 TEST PRINT

6.5.1 Test Print Operation Example

(1) Normal test print



(1) Power off state

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [FEED] key.

(5) System mode menu display (Parameter setting)

(6) Press the [FEED] key.

(7) System mode menu display (Fine adjustment value setting)

(8) Press the [FEED] key.

(9) System mode menu display (Test print)

(10) Press the [PAUSE] key.

(11) Test print condition setting mode

(12) Press the [PAUSE] key.

(13) Issue count setting mode:
Set the issue count using the [FEED] and [RESTART] keys.

(14) Press the [PAUSE] key.

(15) Print speed setting mode:
Select the print speed using the [FEED] and [RESTART] keys.

(16) Press the [PAUSE] key.

(17) Sensor selection mode:
Select the sensor using the [FEED] and [RESTART] keys.

(18) Press the [PAUSE] key.

```
<4>TEST PRINT
PRT TYPE TRANSFR
```

(19) Print type setting mode:
Select the print type using the [FEED] and [RESTART] keys.

[PAUSE]

(20) Press the [PAUSE] key.

```
<4>TEST PRINT
TYPE [S]NO CUT
```

(21) Issue type setting mode:
Select the issue type using the [FEED] and [RESTART] keys.

[PAUSE]

(22) Press the [PAUSE] key.

```
<4>TEST PRINT
LABEL LEN.  76mm
```

(23) Label size setting mode:
Set the label length using the [FEED] and [RESTART] keys.

[PAUSE]

(24) Press the [PAUSE] key.

```
<4>TEST PRINT
PAPER   FEED
```

(25) One label feed mode:
Set the mode using the [FEED] and [RESTART] keys.

[PAUSE]

(26) Press the [PAUSE] key.
(One label is fed.)

```
<4>TEST PRINT
```

(27) System mode menu display
(Test print)

[PAUSE]

(28) Press the [PAUSE] key.

```
<4>TEST PRINT
PRINT CONDITION
```

(29) Test print condition setting mode

[FEED]

(30) Press the [FEED] key.

```
<4>TEST PRINT
SLANT LINE(1DOT)
```

(31) 1-dot slant line printout mode

[FEED]

(32) Press the [FEED] key.

```
<4>TEST PRINT
SLANT LINE(3DOT)
```

(33) 3-dot slant line printout mode

[FEED]

(34) Press the [FEED] key.

```
<4>TEST PRINT
CHARACTERS
```

(35) Character printout mode

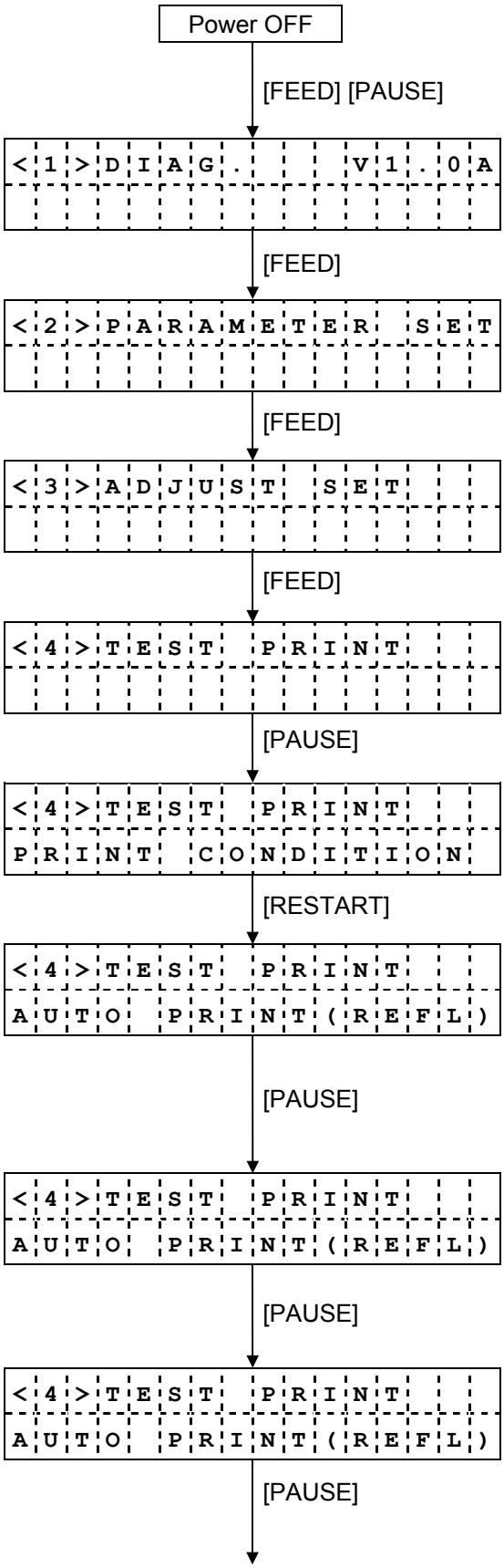
[PAUSE]

(36) Press the [PAUSE] key.
(One label is printed.)

```
<4>TEST PRINT
```

(37) System mode menu display
(Test print)

(2) Test print for assembly process



(1) Power off state

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [FEED] key.

(5) System mode menu display (Parameter setting)

(6) Press the [FEED] key.

(7) System mode menu display (Fine adjustment value setting)

(8) Press the [FEED] key.

(9) System mode menu display (Test print)

(10) Press the [PAUSE] key.

(11) Test print condition setting mode

(12) Press the [RESTART] key.

(13) Assembly process automatic printout mode (Reflective sensor)

(14) Press the [PAUSE] key.
[One label is fed.
3-dot slant line: 5 labels are printed.]

(15) Assembly process automatic printout mode (Reflective sensor)

(16) Press the [PAUSE] key.
(Bar code: 5 labels are printed.)

(17) Assembly process automatic print mode (Reflective sensor)

(18) Press the [PAUSE] key.
(Characters: 5 labels are printed.)

```
<4>TEST PRINT
```

(19) System mode menu display
(Test print)

[PAUSE]

(20) Press the [PAUSE] key.

```
<4>TEST PRINT
AUTO PRINT(TRAN)
```

(21) Assembly process automatic printout mode (Transmissive sensor)

[PAUSE]

(22) Press the [PAUSE] key.
One label is fed.
3-dot slant line: 5 labels are printed.

```
<4>TEST PRINT
AUTO PRINT(TRAN)
```

(23) Assembly process automatic printout mode (Transmissive sensor)

[PAUSE]

(24) Press the [PAUSE] key.
(Bar code: 5 labels are printed.)

```
<4>TEST PRINT
AUTO PRINT(TRAN)
```

(25) Assembly process automatic printout mode (Transmissive sensor)

[PAUSE]

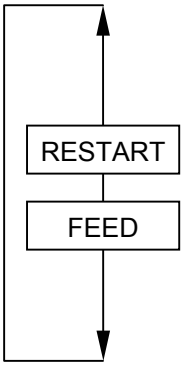
(26) Press the [PAUSE] key.
(Characters: 5 labels are printed.)

```
<4>TEST PRINT
```

(27) System mode menu display
(Test print)

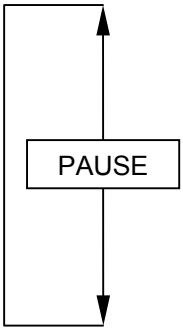
6.5.2 Setting Contents

(1) Test print mode selection



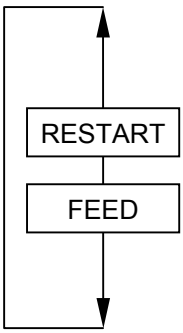
- PRINT CONDITION (Test print condition parameter setting)
- SLANT LINE (1DOT) (1-dot slant line printout)
- SLANT LINE (3DOT) (3-dot slant line printout)
- CHARACTERS (Character printout)
- BARCODE (Bar code printout)
- NON-PRINTING (Nothing prints)
- FACTORY TEST (Line printout for assembly process)
- AUTO PRINT (TRAN) (Assembly process automatic printout/transmissive sensor)
- AUTO PRINT (REFL) (Assembly process automatic printout/reflective sensor)

(2) Test print condition parameter setting (PRINT CONDITION)



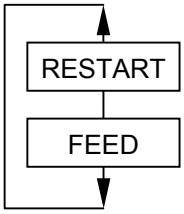
- ISSUE COUNT (Issue count setting)
- PRINT SPEED (Print speed)
- SENSOR (Sensor selection)
- PRT TYPE (Print type)
- TYPE (Issue type)
- LABEL LEN. (Label size)
- PAPER FEED (Paper feed mode)
- <4> TEST PRINT (Test print mode)
- PRINT CONDITION (Print condition parameter setting)

(3) Issue count setting (ISSUE COUNT)



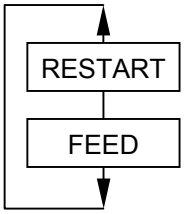
- 5000 (Issue count: 5000)
- 1000 (Issue count: 1000)
- 500 (Issue count: 500)
- 100 (Issue count: 100)
- 50 (Issue count: 50)
- 10 (Issue count: 10)
- 5 (Issue count: 5)
- 3 (Issue count: 3)
- 1 (Issue count: 1)

(4) Print speed (PRINT SPEED)



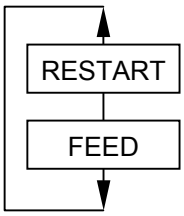
B-SX4		B-SX5	
• 10”/sec	(10 inches/sec)	• 8”/sec	(8 inches/sec)
• 6”/sec	(6 inches/sec)	• 5”/sec	(5 inches/sec)
• 3”/sec	(3 inches/sec)	• 3”/sec	(3 inches/sec)

(5) Sensor selection (SENSOR)



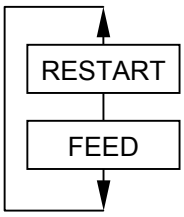
- NONE (No position detected)
- REFLECT. (Reflective sensor)
- TRANS. (Transmissive sensor)

(6) Print type (PRT TYPE)



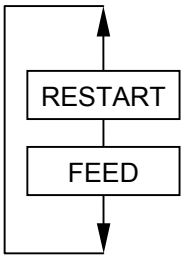
- TRANSFR (Thermal transfer)
- DIRECT (Direct thermal)

(7) Issue type (TYPE)



- [S] NO CUT (Batch issue mode)
- [C] WITH CUT (Issue with a cut)
- [H] PEEL OFF (Strip issue mode)

(8) Label size (LABEL LEN.)

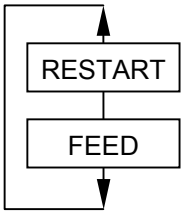


- 999 (Label size: 999 mm)
- 998 (Label size: 998 mm)
- 997 (Label size: 997 mm)

⋮

- 7 (Label size: 7 mm)
- 6 (Label size: 6 mm)
- 5 (Label size: 5 mm)

(9) Paper feed (PAPER)



- FEED (Paper feed is performed.)
- NO FEED (No paper feed is performed.)

(10) Initial parameter values when turning the power on

- Menu selection: Test print condition parameter setting
- Issue count setting (ISSUE COUNT): 1
- Print speed (PRINT SPEED): 6”/sec for B-SX4, 5”/sec for B-SX5
- Sensor selection (SENSOR): Transmissive sensor
- Print type (PRT TYPE): Thermal transfer print mode
- Issue type (TYPE): Batch issue
- Label size (LABEL LEN.): 76 mm
- Paper feed (PAPER): Paper feed is performed.

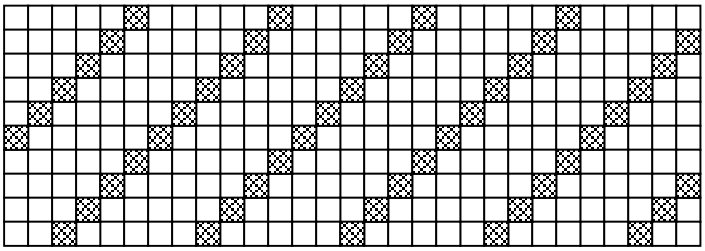
(11) Supplementary explanation

- When the [FEED] and [RESTART] keys are pressed at the same time, the display shows the system mode menu.
- If the [RESTART] or [FEED] key is held down for 0.5 seconds or more when a parameter is set or the menu is selected, the printer enters repeat mode, in which the key is entered repeatedly.
- Each fine adjustment parameter is effective for test print. However, the X-coordinate fine adjustment is excluded.
- When an error occurs during a test print, the error message is displayed and printing is stopped. The error is cleared by pressing the [PAUSE] key and the display shows the system mode menu. Printing is not automatically resumed after the error is cleared.
- A selected menu or changed parameter becomes effective by pressing the [PAUSE] key. Such a parameter is retained until the power is turned off.
- The label size greater than the image buffer length cannot be designated. If it is designated, the printer prints in the image buffer length then stops, or the printer stops because of an error.
- The test print for the assembly process is performed under the following conditions.
  The parameter setting and print density fine adjustment value are ignored.
  - Operations: ① Feeds one label.
    ② Prints 3-dot slant lines.
    ③ Prints bar codes
    ④ Prints characters
  - Issue count: 5 for each operation
  - Print speed: 6”/sec for B-SX4, 5”/sec for B-SX5
  - Sensor designation: Reflective or transmissive sensor
  - Print type: Thermal transfer print mode
  - Issue mode: Batch issue
  - Label size: 76 mm
  - Print density fine adjustment value: ±0
- When the transmissive sensor is selected, the gap between labels should be 3 mm.

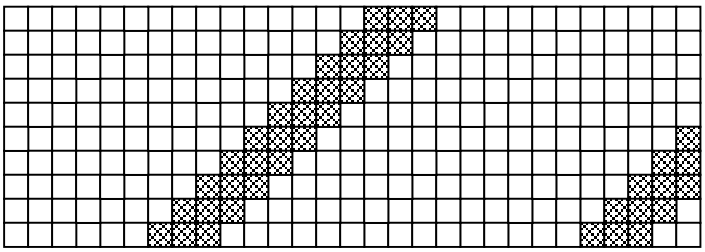
- For B-SX4, the print speed “10 ips” is not supported for printing with the rotary cutter. If “10 ips” is specified when the rotary cutter has been installed, the print speed is corrected from 10 ips to 6 ips, regardless of the cut designation.
  For B-SX4, if less than 15.0 mm and 30.0 mm of the label pitch is specified for printing at 3 ips and 6 ips, respectively, an issue without a cut is performed.
  For B-SX5, if less than 15.0 mm, 25.0 mm, 38.0 mm of the label pitch is specified for printing at 3 ips, 5 ips, and 8 ips, respectively, an issue without a cut is performed.

- Magnification of slant lines is as follows:

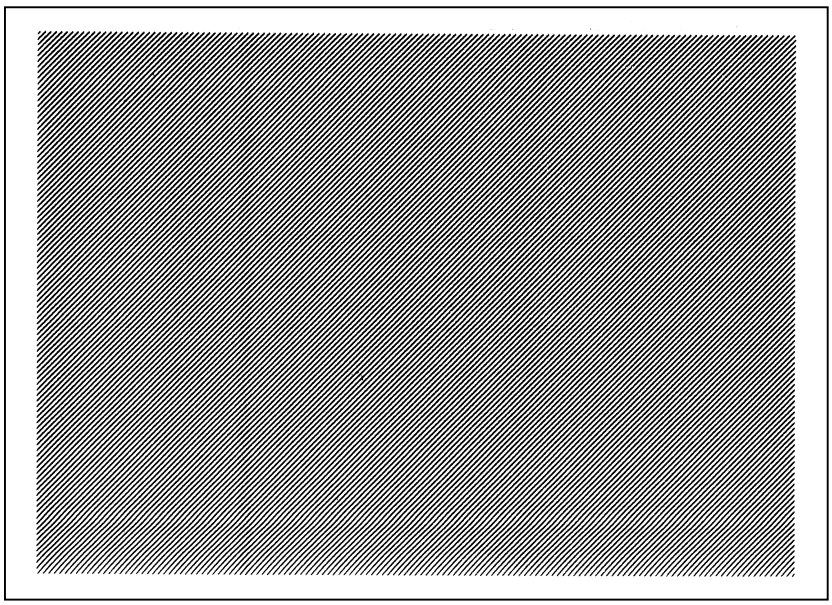
  1-dot slant line (Black area ratio: 16.7%)



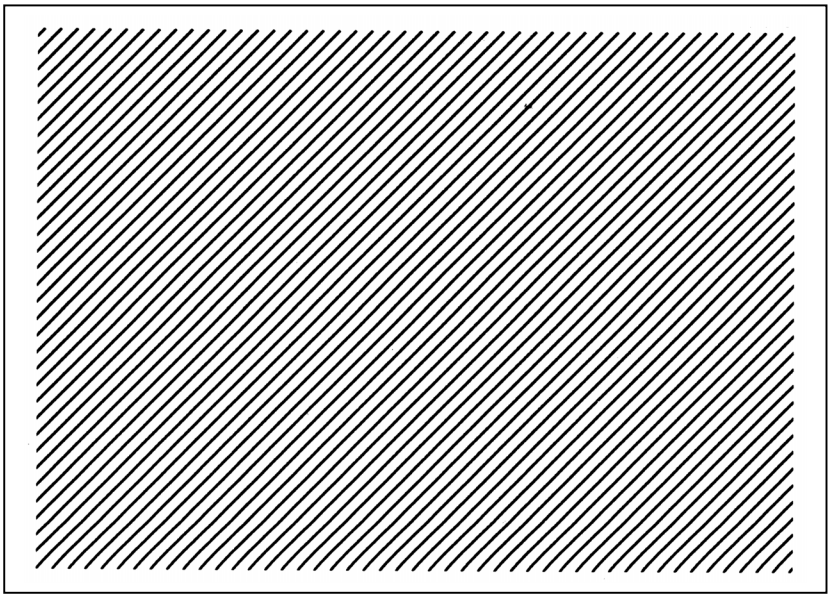
  3-dot slant line (Black area ratio: 16.7%)



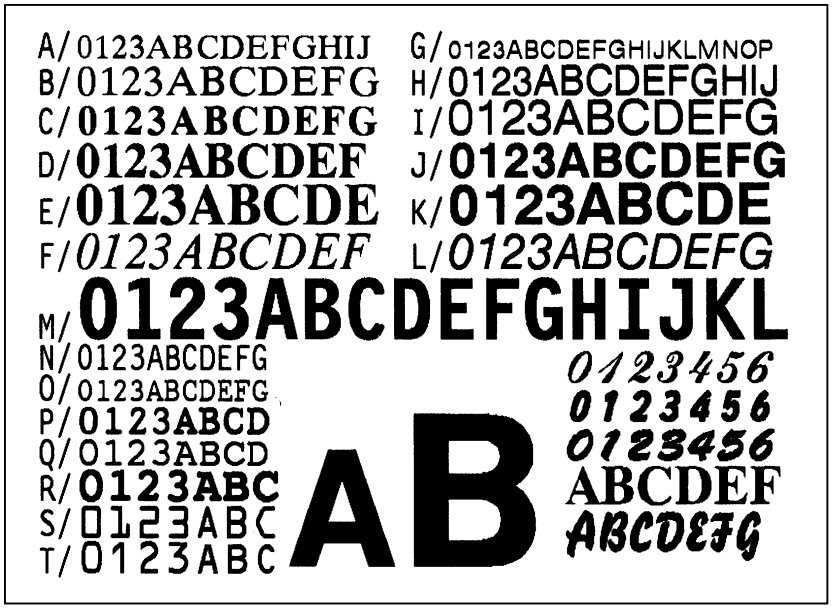
6.5.3 Test Print Samples



1-dot slant line printout



3-dot slant line printout



Character printout (B-SX4)

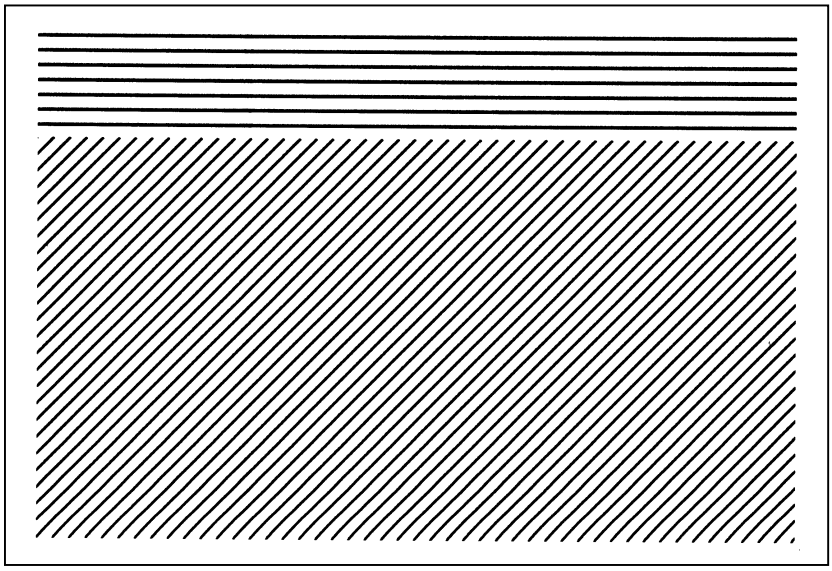
Character printout (B-SX5)

Character printout (B-SX4T Chinese)
* Supported by C5.7A or later

Character printout (B-SX5T Chinese)
* Supported by C5.7A or later

Bar code printout (B-SX4)

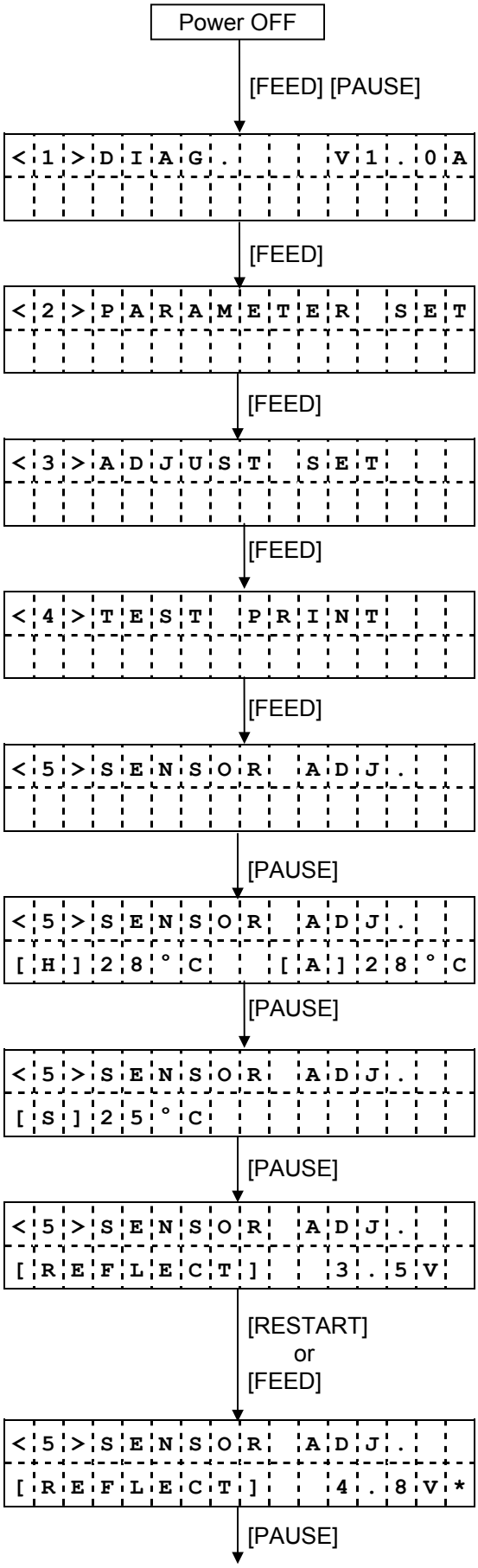
Bar code printout (B-SX5)



Line printout for the assembly process

6.6 SENSOR DISPLAY/ADJUSTMENT

6.6.1 Sensor Display/Adjustment Operation Example



(1) Power off state

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [FEED] key.

(5) System mode menu display (Parameter setting)

(6) Press the [FEED] key.

(7) System mode menu display (Fine adjustment value setting)

(8) Press the [FEED] key.

(9) System mode menu display (Test print)

(10) Press the [FEED] key.

(11) System mode menu display (Sensor display/adjustment)

(12) Press the [PAUSE] key.

(13) Thermal head temperature/open-air temperature display

(14) Press the [PAUSE] key.

(15) Heat sink temperature display
*: When the Part No. of the MAIN PC Board is 7FM00503x00, this value is not displayed.

(16) Press the [PAUSE] key.

(17) Reflective sensor adjustment value display:
Load tag paper. (The black mark should not cover the sensor.)

(18) Hold down the [RESTART] or [FEED] key for 3 seconds or more.

(19) "*" is displayed when the reflective sensor adjustment is complete.

(20) Press the [PAUSE] key.

```
<5>SENSOR ADJ.
[TRANS.]   2.4V
```

[RESTART]
or
[FEED]

```
<5>SENSOR ADJ.
[TRANS.]   4.1V*
```

[PAUSE]

```
<5>SENSOR ADJ.
[PE]R0.1V  T4.8V
```

[RESTART]
or
[FEED]

```
<5>SENSOR ADJ.
[PE]R0.1V  T4.8V*
```

[PAUSE]

```
<5>SENSOR ADJ.
[RIBBON]   0.3V
```

[RESTART]
or
[FEED]

```
<5>SENSOR ADJ.
[RIBBON]   0.3V*
```

[PAUSE]

```
<5>SENSOR ADJ.
```

(21) Transmissive sensor adjustment value display:
Remove the label from the label paper and load the backing paper. (The label should not cover the sensor.)

(22) Hold down the [RESTART] or [FEED] key for 3 seconds or more.

(23) "*" is displayed when the transmissive sensor adjustment is complete.

(24) Press the [PAUSE] key.

(25) Reflective/transmissive sensor adjustment value display (without paper):
Remove any paper covering the sensor.

(26) Hold down the [RESTART] or [FEED] key for 3 seconds or more.

(27) "*" is displayed when the reflective/ transmissive sensor adjustment is complete.

(28) Press the [PAUSE] key.

(29) Ribbon end sensor adjustment value display:
Set the ribbon part so that it covers the sensor.

(30) Hold down the [RESTART] or [FEED] key for 3 seconds or more.

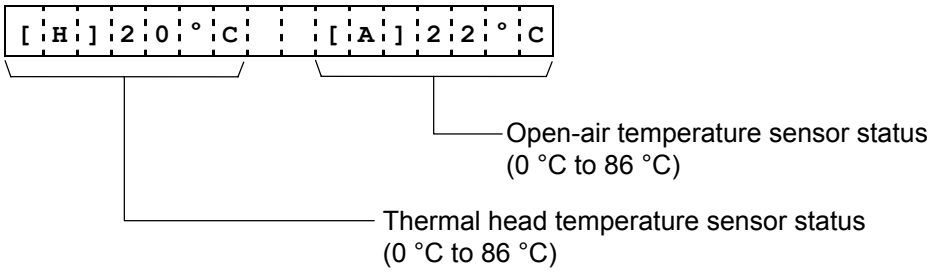
(31) "*" is displayed when the ribbon end sensor adjustment is complete.

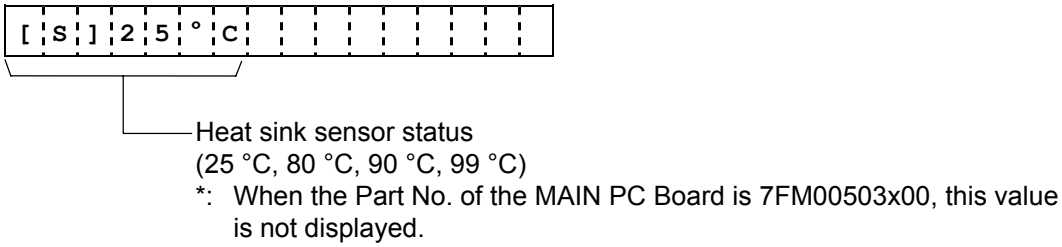
(32) Press the [PAUSE] key.

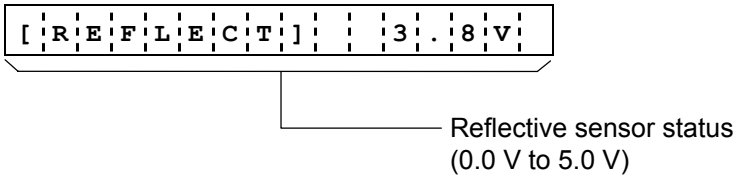
(33) System mode menu display
(Sensor display/adjustment)

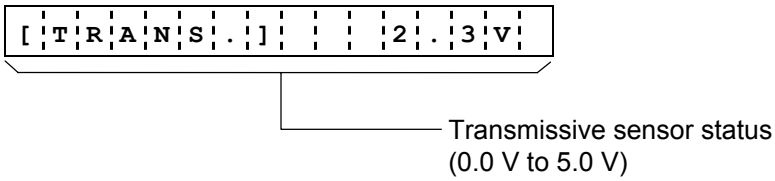
6.6.2 Display Contents

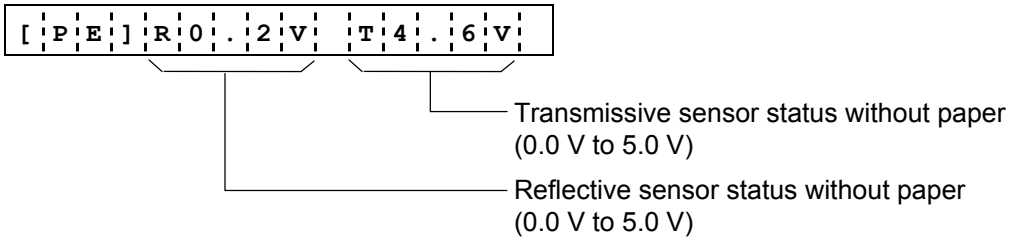
(1) Sensor adjustment value display

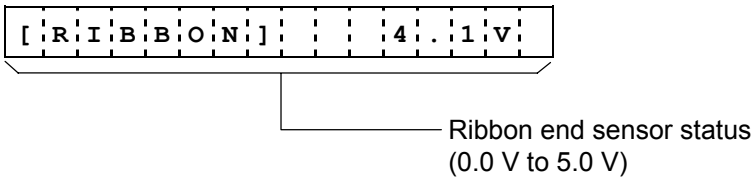










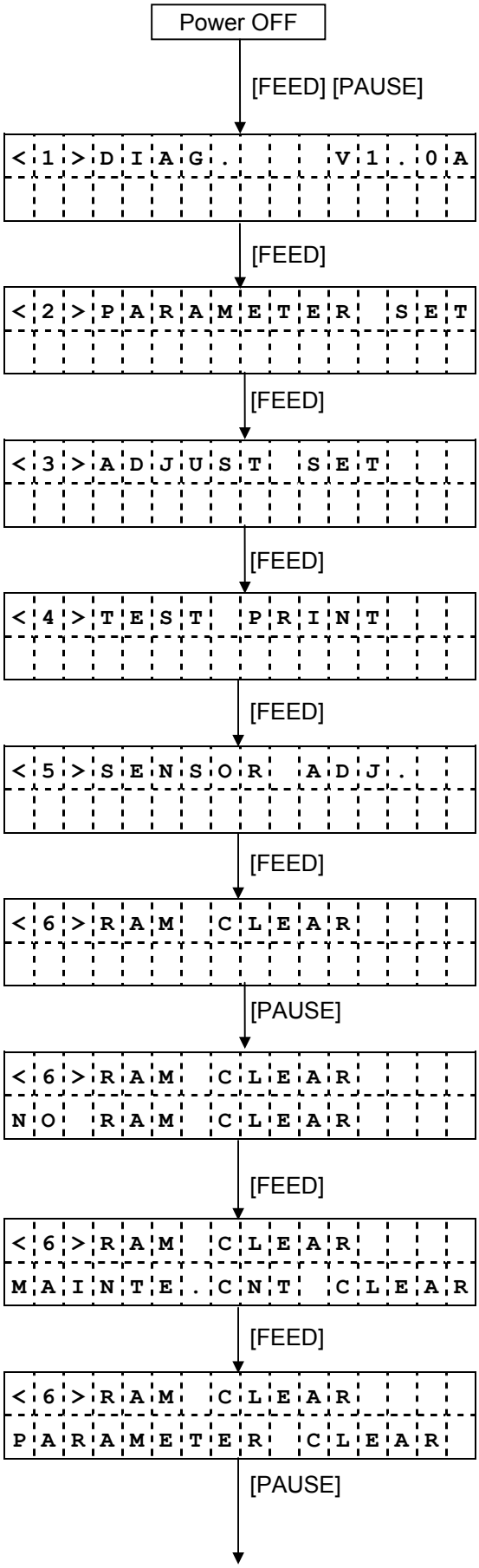


(2) Supplementary explanation

- During the sensor check, each sensor status is monitored and displayed every 200 msec. (When the sensor status is changed, the display also changes.)
- When the [FEED] and [RESTART] keys are entered at the same time, the system mode menu is displayed.

6.7 RAM CLEAR

6.7.1 RAM Clear Operation Example



(1) Power off state

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [FEED] key.

(5) System mode menu display (Parameter setting)

(6) Press the [FEED] key.

(7) System mode menu display (Fine adjustment value setting)

(8) Press the [FEED] key.

(9) System mode menu display (Test print)

(10) Press the [FEED] key.

(11) System mode menu display (Sensor display/adjustment)

(12) Press the [FEED] key.

(13) System mode menu display (RAM clear)

(14) Press the [PAUSE] key.

(15) No RAM clear mode
(*) Mode to prevent RAM clear from being performed mistakenly.

(16) Press the [FEED] key.

(17) Maintenance counter clear mode

(18) Press the [FEED] key.

(19) Parameter clear mode

(20) Press the [PAUSE] key.

```
<6>RAM CLEAR
***  QP  TYPE  ***
```

(21) RAM clear for the QP type

[FEED]

(22) Press the [FEED] key.

```
<6>RAM CLEAR
***  QQ  TYPE  ***
```

(23) RAM clear for the QQ type

[FEED]

(24) Press the [FEED] key.

```
<6>RAM CLEAR
***  CN  TYPE  ***
```

(25) RAM clear for the CN type.

[PAUSE]

(26) Press the [PAUSE] key.

```
<6>RAM CLEAR
***  QM  TYPE  ***
```

(27) RAM clear for the QM type.

Select the type according to the destination.

[PAUSE]

(28) Press the [PAUSE] key.

```
<6>RAM CLEAR
*
```

(29) Parameter clear is executed.

```
<6>RAM CLEAR
**
```

```
<6>RAM CLEAR
***
```

(30) Progress display

```
<6>RAM CLEAR
*****************
```

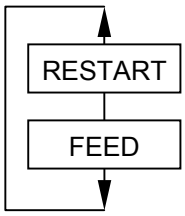
```
COMPLETE
***  COMPLETE  ***
```

(31) Parameter clear is complete.

(32) Turn the power off.

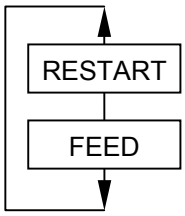
6.7.2 RAM Clear Contents

(1) RAM clear mode



- NO RAM CLEAR
- MAINTE.CNT CLEAR
- PARAMETER CLEAR

(2) Selection of destination type



- QP TYPE (for Europe/Asia)
- QQ TYPE (for North/South America/China)
- CN TYPE (for China)
- QM TYPE (for North/South America/ Europe/Asia/China)

(3) Supplementary explanation

- When the [FEED] and [RESTART] keys are pressed at the same time, the display shows the system mode menu.
- When “COMPLETE” is displayed after RAM clear is complete, be sure to turn off the power.
- The total label distance covered, sensor adjustment values (system mode <5>), the IP address setting, and data of flash memory card and ATA card are not cleared by RAM clear.
- Number of successful RFID write and number of failure in RFID write cannot be cleared by RAM clear.
- RFID module’s destination code setting (user-inaccessible setting), password setting to protect error tag detection, access password setting, and automatic unlock function setting cannot be cleared by RAM clear. (The initial values in the table are the factory default.)
- System password setting cannot be cleared by RAM clear.
- The destination for which RAM clear has been performed ([QQ], [QP], [CN] or [QM]) is printed on the top right-hand corner of the maintenance counter printout.

(4) Initial values after maintenance counter clear

Item	Initial Value
Label distance covered	0 km
Print distance	0 km
Cut count	0
Head up/down count	0
Ribbon motor drive time	0 hours
Head-up solenoid drive time	0 hours
RS-232C hardware error count	0
System error count	0
Momentary power interruption count	0

(5) Initial values after parameter clear

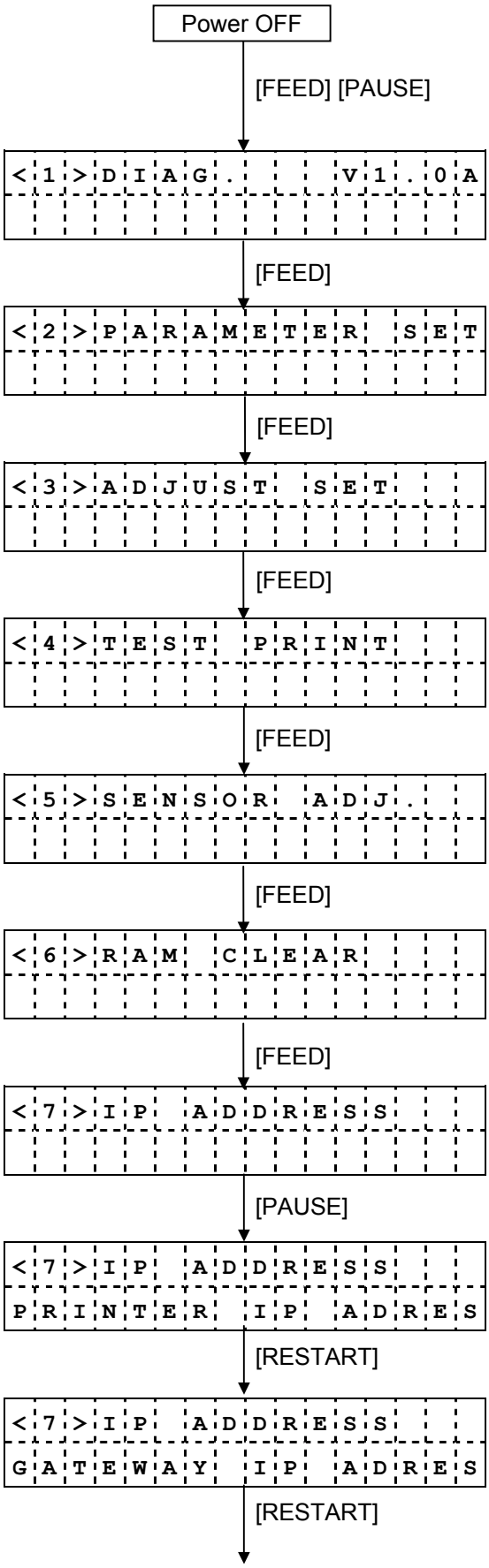
Parameter		Initial Value
Feed fine adjustment (PC)		0 mm
Cut position (or strip position) fine adjustment (PC)		0 mm
Back feed fine adjustment (PC)		0 mm
Print density fine adjustment: Thermal transfer print mode (PC)		0
Print density fine adjustment: Direct thermal print mode (PC)		0
Ribbon motor drive voltage fine adjustment (Rewind) (PC)		0
Ribbon motor drive voltage fine adjustment (Back tension) (PC)		0
Feed fine adjustment (Key)		0 mm
Cut position (or strip position) fine adjustment (Key)		0 mm
Back feed fine adjustment (Key)		0 mm
Print density fine adjustment: Thermal transfer print mode (Key)		0
Print density fine adjustment: Direct thermal print mode (Key)		0
Ribbon motor drive voltage fine adjustment (Rewind) (Key)		0
Ribbon motor drive voltage fine adjustment (Back tension) (Key)		0
X-coordinate fine adjustment (Key)		0 mm
Transmissive sensor manual threshold fine adjustment value		1.4 V
Reflective sensor manual threshold fine adjustment value		1.0 V
Character code selection		PC-850
Font “0” selection		“0” (without slash mark)
Communication speed		9600 bps
Data length		8 bits
Stop bit length		1 bit
Parity	QP type	NONE
	QQ type	NONE
	CN type	NONE
	QM type	NONE
Transmission control	QP type QM type	XON/XOFF + READY/BUSY (DTR) protocol: (XON output when the power is on, XOFF output when the power is off)
	QQ type	READY/BUSY (DTR) protocol
	CN type	XON/XOFF + READY/BUSY (DTR) protocol: (XON output when the power is on, XOFF output when the power is off)

Parameter		Initial Value
Language for LCD messages	QP type	English
	QQ type	English
	CN type	English
	QM type	English
Forward feed standby after an issue		OFF
Forward feed standby action		MODE 1
Head-up operation in cut issue mode, or use of the rewinder		OFF (Head-up operation is not operated/ the rewinder is not used.)
Installed solenoid type		TYPE 2 (Stronger pull force type)
Ribbon saving system	B-SX4	OFF
	B-SX5	ON (TAG): When the head lever position is “TAG”.
Control code type		Auto
Peel-off wait status selection		OFF
[FEED] key function		FEED (One label is fed.)
Kanji code		TYPE1
Euro code		B0H
Automatic head broken dots check		OFF
Centronics ACK/BUSY timing		TYPE1
Web printer function		OFF
Reset process when the nInit signal is ON		ON
Ribbon near end detection setting		OFF
Expansion I/O operation mode		TYPE1
Centronics operation mode	QQ type	ECP
	Other than QQ type	SPP
Plug-and-play operation mode	QQ type	ON
	Other than QQ type	OFF
Label end/ribbon end process setting		TYPE1
Pre-peel-off process setting		OFF
Back feed speed setting		3 ips
MaxiCode specification setting		TYPE1
Print head type setting	B-SX4	V2 type: TPH104R7 or equivalent
	B-SX5	V2 type: TPH128R5 or equivalent
Status response		ON
Label pitch		76.2 mm
Effective print length		74.2 mm
Effective print width	B-SX4	104.0 mm
	B-SX5	128.0 mm
Print type		Thermal transfer print mode
Sensor type		Transmissive sensor
Feed speed	B-SX4	6”/sec.
	B-SX5	5”/sec.
Issue mode		Batch
PC-save automatic call		ON Save No. on the CPU board (ID) 01
BASIC interpreter setting		OFF

Parameter	Initial Value
BASIC interpreter trace setting	OFF
DHCP setting	OFF
RFID module type selection	NONE
RFID tag type selection	NONE
RFID module's destination code setting (user-inaccessible setting)	Depending on the module setting
RFID error tag detection	OFF
Password setting to protect error tag detection	Disabled: 0000
Access password setting	00000000
Automatic unlock function setting	Disabled
Max. number of RFID issue retries	3
Max. number of RFID read retries	5
RFID read retry time-out	4.0 seconds
Max. number of RFID write retries	5
RFID write retry time-out	2.0 seconds
RFID adjustment for retry	+00 mm
RFID radio power level	B-9704-RFID-U1: 251 B-SX704-RFID-U2: 18 B-9704-RFID-U1-EU-R: 50 B-SX704-RFID-U2-EU/US/CN/AU-R: 18 B-SX704-RFID-U4-EU-R: 18
RFID AGC threshold setting	0
RFID channel setting	AUTO
Q value	0
AGC threshold for data write	0
AGC threshold lower limit for retry	0
Hibiki tag multi-word write	0: OFF
System mode password setting	OFF
LAN enable/disable setting (V4.4 or later, except V4.4A)	ON SNMP ON
XML function setting (V4.4A or Xx.x)	STD
Z-Mode (C5.3 or later, Cx.x only)	OFF
Stop position setting in the issue control setting mode (Vx.x only)	MODE 1
Sensor setting in the issue control setting mode (Vx.x only)	Command
Print method setting in the issue control setting mode (Vx.x only)	Command
Print speed setting in the issue control setting mode (Vx.x only)	Command
Issue mode setting in the issue control setting mode (Vx.x only)	Command
Cut mode setting in the issue control setting mode (Vx.x only)	Command
Print orientation setting in the issue control setting mode (Vx.x only)	Command
Auto status transmission setting in the issue control setting mode (Vx.x only)	Command

6.8 IP ADDRESS SETTING

6.8.1 IP Address Setting Operation Example



(1) Power off state

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [FEED] key.

(5) System mode menu display (Parameter setting)

(6) Press the [FEED] key.

(7) System mode menu display (Fine adjustment value setting)

(8) Press the [FEED] key.

(9) System mode menu display (Test print)

(10) Press the [FEED] key.

(11) System mode menu display (Sensor display/adjustment)

(12) Press the [FEED] key.

(13) System mode menu display (RAM clear)

(14) Press the [FEED] key.

(15) System mode menu display (IP address setting)

(16) Press the [PAUSE] key.

(17) Printer IP address setting mode

(18) Press the [RESTART] key.

(19) Gateway IP address setting mode

(20) Press the [RESTART] key.

```
<7>IP ADDRESS
SUBNET MASK
```

(21) Subnet mask setting mode

[RESTART]

(22) Press the [RESTART] key.

```
<7>IP ADDRESS
SOCKET PORT
```

(23) Socket port number setting mode

[RESTART]

(24) Press the [RESTART] key.

```
<7>IP ADDRESS
DHCP
```

(25) DHCP function setting mode

[RESTART]

(26) Press the [RESTART] key.

```
<7>IP ADDRESS
DHCP CLIENT ID
```

(27) DHCP client ID setting mode

[PAUSE]

(28) Press the [PAUSE] key.

```
<7>IP ADDRESS
PRINTER IP ADRES
```

(29) Printer IP address setting mode

[PAUSE]

(30) Press the [PAUSE] key.

```
<7>IP ADDRESS
192.168.010.010
```

(31) Printer IP address display

[FEED]

(32) Press the [FEED] key.

```
<7>IP ADDRESS
191.168.010.010
```

(33) Setting for the first 8 bits

[FEED]

(34) Press the [FEED] key.

```
<7>IP ADDRESS
190.168.010.010
```

(35) Setting for the first 8 bits

[FEED]

(36) Press the [FEED] key.

```
<7>IP ADDRESS
157.168.010.010
```

(37) Setting for the first 8 bits

[PAUSE]

(38) Press the [PAUSE] key.

```
<7>IP ADDRESS
157.168.010.010
```

(39) The first 8 bits are entered and the setting goes on to the next 8 bits.

[FEED]

(40) Press the [FEED] key.

```
<7>IP ADDRESS
157.167.010.010
```

(41) Setting for the next 8 bits

[FEED]

(42) Press the [FEED] key.

```
<7>IP ADDRESS
157.166.010.010
```

(43) Setting for the next 8 bits

[FEED]

(44) Press the [FEED] key.

```
<7>IP ADDRESS
157.165.010.010
```

(45) Setting for the next 8 bits

[FEED]

(46) Press the [FEED] key.

```
<7>IP ADDRESS
157.069.010.010
```

(47) Setting for the next 8 bits

[PAUSE]

(48) Press the [PAUSE] key.

```
<7>IP ADDRESS
157.069.010.010
```

(49) The 8 bits are entered and the setting goes on to the next 8 bits.

[RESTART]

(50) Press the [RESTART] key.

```
<7>IP ADDRESS
157.069.011.010
```

(51) Setting for the next 8 bits

[RESTART]

(52) Press the [RESTART] key.

```
<7>IP ADDRESS
157.069.012.010
```

(53) Setting for the next 8 bits

[RESTART]

(54) Press the [RESTART] key.

```
<7>IP ADDRESS
157.069.013.010
```

(55) Setting for the next 8 bits

[RESTART]

(56) Press the [RESTART] key.

```
<7>IP ADDRESS
157.069.046.010
```

(57) Setting for the next 8 bits

[PAUSE]

(58) Press the [PAUSE] key.

```
<7>IP ADDRESS
157.069.046.010
```

(59) The 8 bits are entered and the setting goes on to the next 8 bits.

[RESTART]

(60) Press the [RESTART] key.

```
<7>IP ADDRESS
157.069.046.011
```

(61) Setting for the next 8 bits

[RESTART]

(62) Press the [RESTART] key.

```
<7>IP ADDRESS
157.069.046.012
```

(63) Setting for the next 8 bits

[RESTART]

(64) Press the [RESTART] key.

```
<7>IP ADDRESS
157.069.046.013
```

(65) Setting for the next 8 bits

[RESTART]

(66) Press the [RESTART] key.

```
<7>IP ADDRESS
157.069.046.124
```

(67) Setting for the next 8 bits

[PAUSE]

(68) Press the [PAUSE] key.

```
<7>IP ADDRESS
GATEWAY IP ADRES
```

(69) Gateway IP address setting mode

[PAUSE]

(70) Press the [PAUSE] key.

```
<7>IP ADDRESS
000.000.000.000
```

(71) Gateway IP address display

(72) Gateway IP address setting

```
<7>IP ADDRESS
SUBNET MASK
```

(73) Subnet mask setting mode

[PAUSE]

(74) Press the [PAUSE] key.

```
<7>IP ADDRESS
255.255.255.000
```

(75) Subnet mask display

(76) Subnet mask setting

```
<7>IP ADDRESS
SOCKET PORT
```

(77) Socket communication port setting mode

[PAUSE]

(78) Press the [PAUSE] key.

```
<7>IP ADDRESS
PORT OFF  -----
```

(79) Socket communication setting (Disabled)

[RESTART]

(80) Press the [RESTART] key.

```
<7>IP ADDRESS
PORT ON   08000
```

(81) Socket communication setting (Enabled)

[PAUSE]

(82) Press the [PAUSE] key.

```
<7>IP ADDRESS
PORT ON   08000
```

(83) Set a value for the 5th digit.

[RESTART]

(84) Press the [RESTART] key.

```
<7>IP ADDRESS
PORT ON   18000
```

(85) Confirm a set value for the 5th digit.

[PAUSE]

(86) Press the [PAUSE] key.

```
<7>IP ADDRESS
PORT ON   18000
```

(87) Set a value for the 4th digit.

[FEED]

(88) Press the [FEED] key.

```
<7>IP ADDRESS
PORT ON   17000
```

(89) Confirm a set value for the 4th digit.

[PAUSE]

(90) Press the [PAUSE] key.

```
<7>IP ADDRESS
PORT ON   17000
```

(91) Enter values for the 3rd to the 1st

[FEED] ..... [RESTART] ..... [PAUSE] .....

(92) Set values for the 3rd to the 1st digits.

```
<7>IP ADDRESS
DHCP
```

(93) DHCP setting

[PAUSE]

(94) Press the [PAUSE] key.

```
<7>IP ADDRESS
DHCP      OFF
```

(95) DHCP setting (Disabled)

[RESTART]

(96) Press the [RESTART] key.

```
<7>IP ADDRESS
DHCP      ON
```

(97) DHCP setting (Enabled)

[PAUSE]

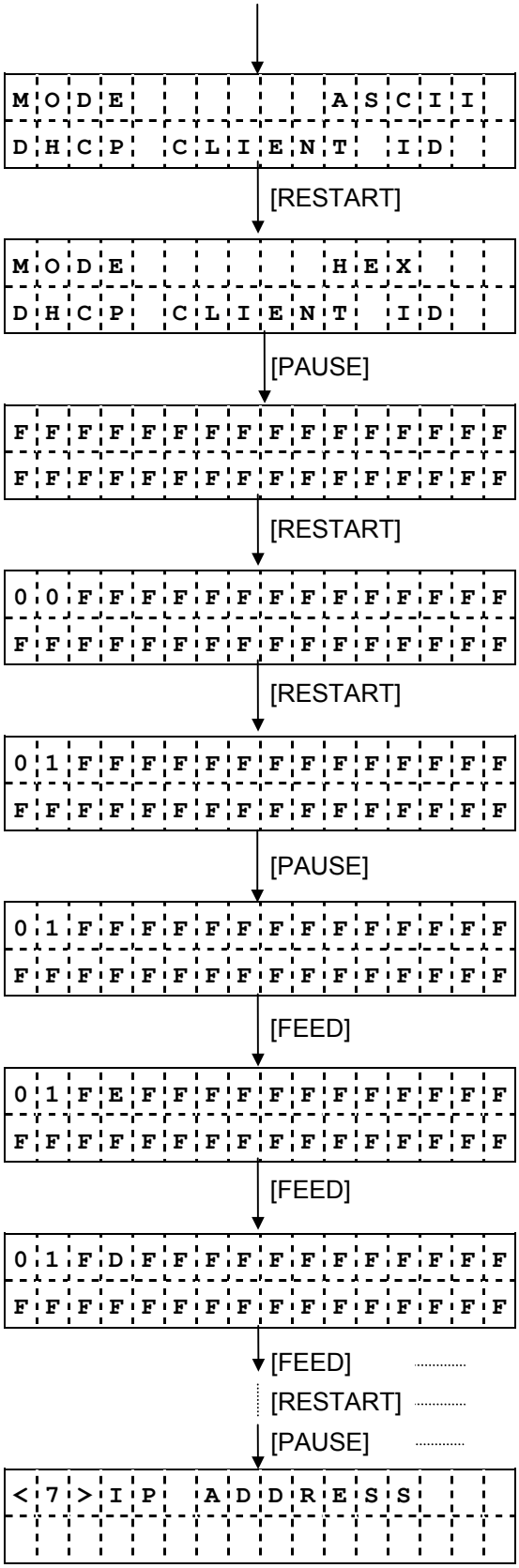
(98) Press the [PAUSE] key.

```
<7>IP ADDRESS
DHCP CLIENT ID
```

(99) DHCP client ID setting

[PAUSE]

(100) Press the [PAUSE] key.



(101) DHCP client ID input mode setting (ASCII)*

(102) Press the [RESTART] key.

(103) DHCP client ID input mode setting (HEX)

(104) Press the [PAUSE] key.

(105) Input the DHCP client ID. (HEX)

(106) Press the [RESTART] key.

(107) Input the DHCP client ID. (HEX: 1st byte)

(108) Press the [RESTART] key.

(109) Input the DHCP client ID. (HEX: 1st byte)

(110) Press the [PAUSE] key.

(111) Input the DHCP client ID. (HEX: 2nd byte)

(112) Press the [FEED] key.

(113) Input the DHCP client ID. (HEX: 2nd byte)

(114) Press the [FEED] key.

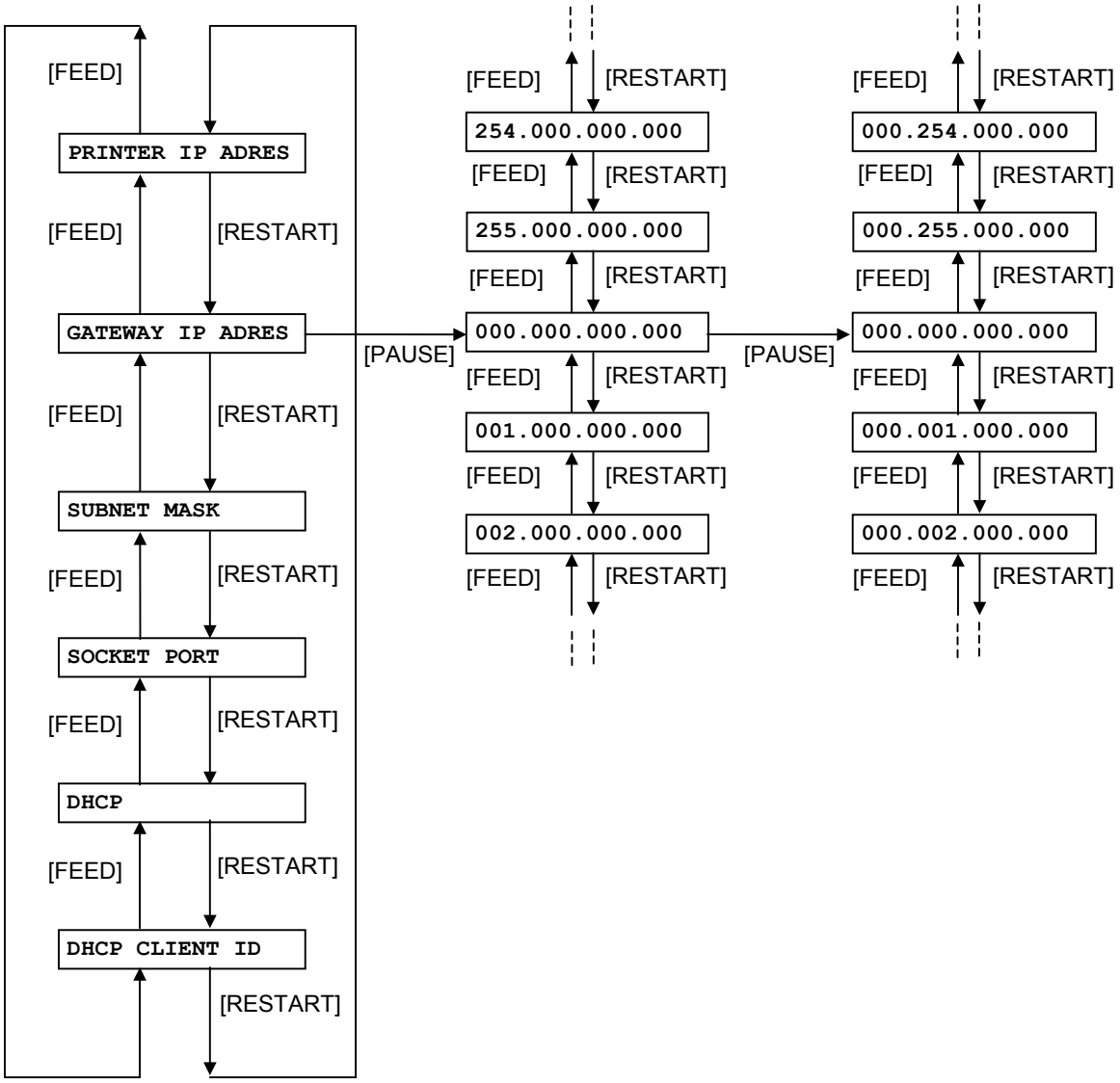
(115) Input the DHCP client ID. (HEX: 2nd byte)

(116) Input the DHCP client ID. (HEX: 2nd to 16th bytes)

(117) End of IP address setting

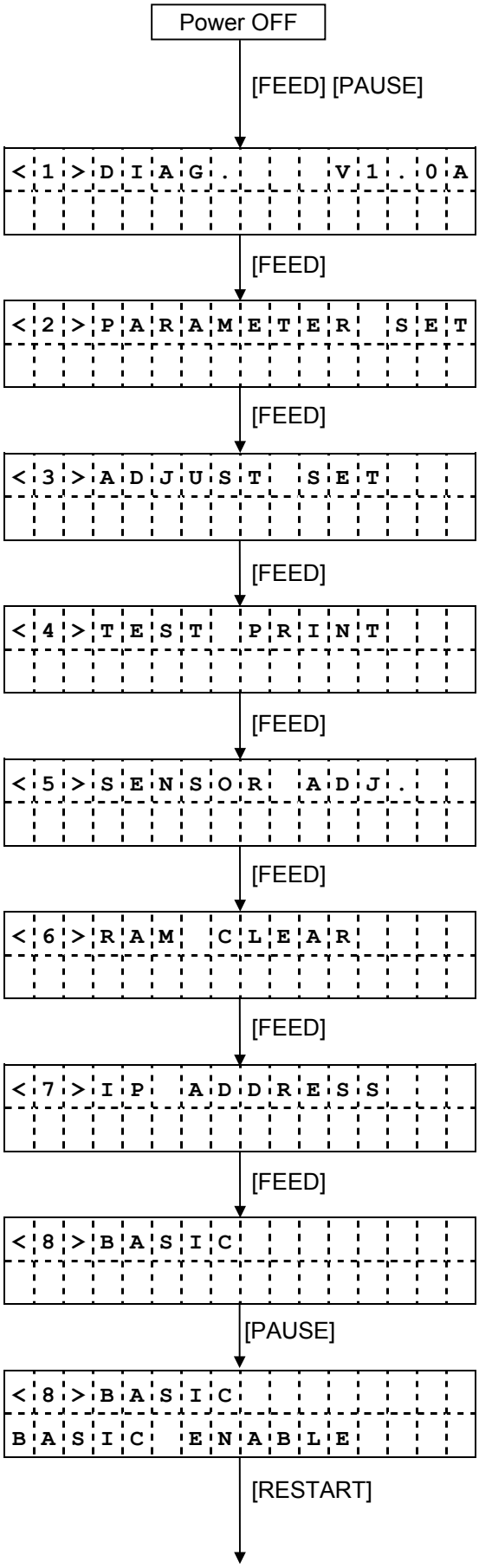
NOTE: *When the DHCP client ID input mode is ASCII, data for each byte is displayed in ASCII characters.*

6.8.2 Setting Contents



6.9 BASIC SETTING

6.9.1 BASIC Setting Operation Example



(1) Power off state

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [FEED] key.

(5) System mode menu display (Parameter setting)

(6) Press the [FEED] key.

(7) System mode menu display (Fine adjustment value setting)

(8) Press the [FEED] key.

(9) System mode menu display (Test print)

(10) Press the [FEED] key.

(11) System mode menu display (Sensor display/adjustment)

(12) Press the [FEED] key.

(13) System mode menu display (RAM clear)

(14) Press the [FEED] key.

(15) System mode menu display (IP address setting)

(16) Press the [FEED] key.

(17) BASIC setting mode

(18) Press the [PAUSE] key.

(19) BASIC enable setting mode

(20) Press the [RESTART] key.

```
<8>BASIC
FILE MAINTENANCE
```

(21) BASIC file browser

[RESTART]

(22) Press the [RESTART] key.

```
<8>BASIC
BASIC TRACE
```

(23) BASIC trace setting

[RESTART]

(24) Press the [RESTART] key.

```
<8>BASIC
EXPAND MODE
```

(25) BASIC expansion mode

[RESTART]

(26) Press the [RESTART] key.

```
<8>BASIC
BASIC ENABLE
```

(27) BASIC enable setting mode

[PAUSE]

(28) Press the [PAUSE] key.

```
<8>BASIC
BASIC    OFF
```

(29) BASIC is disabled.

[FEED]

(30) Press the [FEED] key.

```
<8>BASIC
BASIC    ON
```

(31) BASIC is enabled.

[PAUSE]

(32) Press the [PAUSE] key.

```
<8>BASIC
FILE MAINTENANCE
```

(33) BASIC file browser

[PAUSE]

(34) Press the [PAUSE] key.

```
<8>BASIC
00 TEST.BAS
```

(35) Program file display

[RESTART]

(36) Press the [RESTART] key.

```
<8>BASIC
01 TEST.DAT
```

(37) Data file display

(38) Names of data files saved in the BASIC file area are displayed.

```
<8>BASIC
00 TEST.BAS
```

(39) Program file display

[PAUSE]

(40) Press the [PAUSE] key.

```
<8>BASIC
BASIC TRACE
```

(41) BASIC trace setting

[PAUSE]

(42) Press the [PAUSE] key.

```
<8>BASIC
TRACE   OFF
```

(43) BASIC trace setting (Disabled)

[FEED]

(44) Press the [FEED] key.

```
<8>BASIC
TRACE   ON
```

(45) BASIC trace setting (Enabled)

[PAUSE]

(46) Press the [PAUSE] key.

```
<8>BASIC
EXPAND MODE
```

(47) BASIC expansion mode

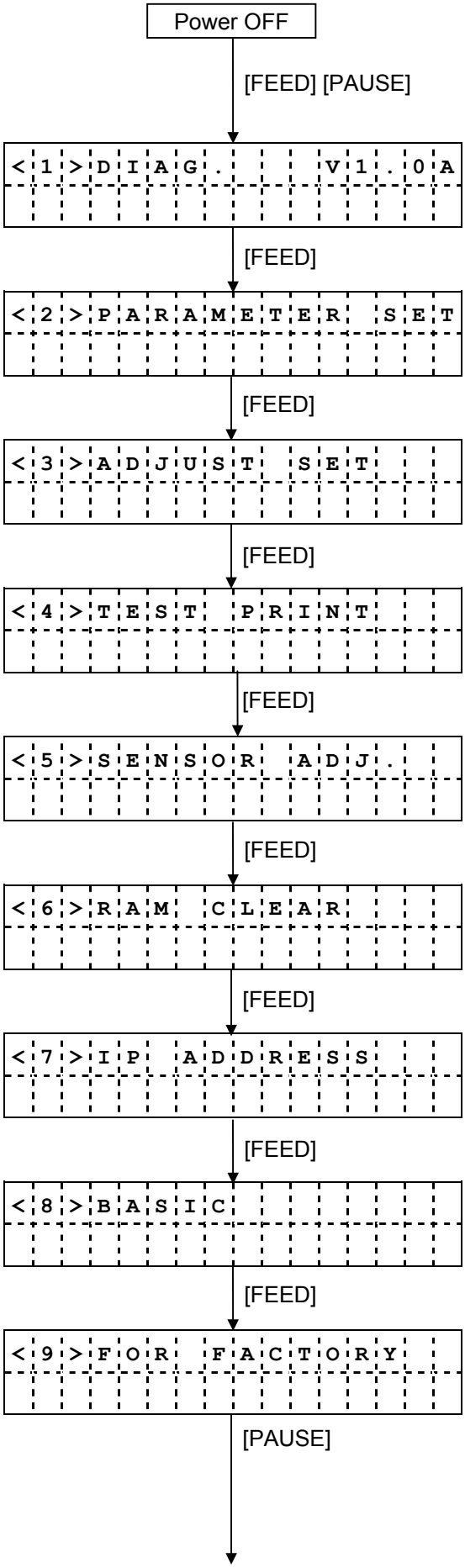
[PAUSE]

(48) Press the [PAUSE] key to execute the BASIC expansion mode program, if it has been loaded.
The method to end the program varies among the programs.

```
<8>BASIC
```

(49) BASIC setting mode

6.10 ADJUSTMENT MODE FOR FACTORY



(1) Power off state

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [FEED] key.

(5) System mode menu display (Parameter setting)

(6) Press the [FEED] key.

(7) System mode menu display (Fine adjustment value setting)

(8) Press the [FEED] key.

(9) System mode menu display (Test print)

(10) Press the [FEED] key.

(11) System mode menu display (Sensor display/adjustment)

(12) Press the [FEED] key.

(13) System mode menu display (RAM clear)

(14) Press the [FEED] key.

(15) System mode menu display (IP address setting)

(16) Press the [FEED] key.

(17) System mode menu display (BASIC setting)

(18) Press the [FEED] key.

(19) The menu for the adjustment mode for the factory is displayed.

(20) Press the [PAUSE] key.

```
<9>FOR FACTORY
HEAD UP ADJUST
```

(21) Head-up adjustment mode display

[PAUSE]

(22) Press the [PAUSE] key.

```
<9>FOR FACTORY
OPTION CHECK
```

(23) Option check mode display

[RESTART]

(24) Press the [RESTART] key.

```
<9>FOR FACTORY
HEAD UP ADJUST
```

(25) Head-up adjustment mode display

[PAUSE]

(26) Press the [PAUSE] key.

```
<9>FOR FACTORY
SOLENOID ON....
```

(27) The left message is displayed, and the head-up solenoid is turned ON for 10 seconds.

After 10 seconds

```
<9>FOR FACTORY
```

(28) After 10 seconds, the solenoid is turned OFF, then the display is returned to the menu for the adjustment for the factory.

[PAUSE]

(29) Press the [PAUSE] key.

```
<9>FOR FACTORY
HEAD UP ADJUST
```

(30) Head-up adjustment mode display

[RESTART]

(31) Press the [RESTART] key.

```
<9>FOR FACTORY
OPTION CHECK
```

(32) Option check mode display

[PAUSE]

(33) Press the [PAUSE] key.

```
<9>FOR FACTORY
OPTION CHECK  OK
```

(34) Option check result display

[PAUSE]

(35) Press the [PAUSE] key.

```
<9>FOR FACTORY
```

(36) The display is returned to the menu for the adjustment for the factory.

NOTE: *Option Check Details*

By installing the tool for option check, the following connectors on the board are checked: the solenoid connector (CN11), the peeled-off paper sensor connector (CN20), rewinder overflow sensor connector (CN4), the rotary cutter detection connector (CN18).

If the check results in a failure, then the failed item number is displayed on the LCD.

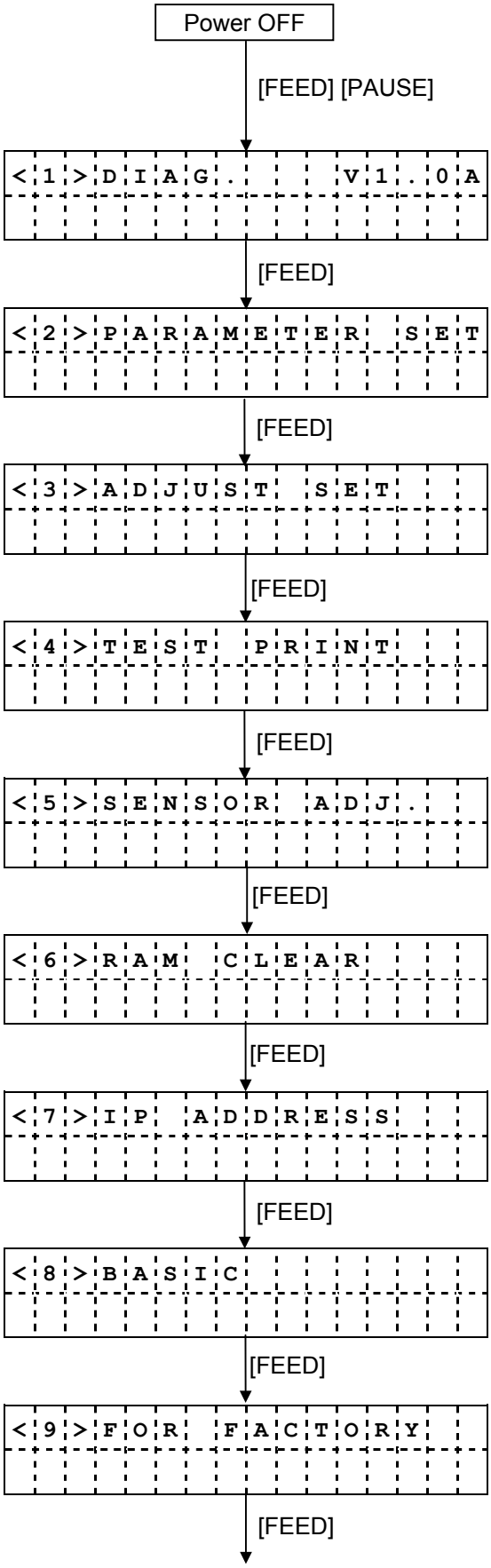
[Failed item numbers]

1: Solenoid connector (CN11)
2: Peeled-off paper sensor connector (CN20)
3: Rewinder overflow sensor connector (CN4)
4: Rotary cutter detection connector (CN18)

** When the check is performed, all connectors of the tool for the option check must be connected. A connector which is also used for supplying the power is included. If all connectors are not connected, the check is not properly performed. Several failed item numbers may be displayed.*

6.11 RFID SETTING

6.11.1 RFID Setting Operation Example



(1) Power off state

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(3) The self-test menu is displayed.

(4) Press the [FEED] key.

(5) System mode menu display (Parameter setting)

(6) Press the [FEED] key.

(7) System mode menu display (Fine adjustment value setting)

(8) Press the [FEED] key.

(9) System mode menu display (Test print)

(10) Press the [FEED] key.

(11) System mode menu display (Sensor display/adjustment)

(12) Press the [FEED] key.

(13) System mode menu display (RAM clear)

(14) Press the [FEED] key.

(15) System mode menu display (IP address setting)

(16) Press the [FEED] key.

(17) System mode menu display (BASIC setting)

(18) Press the [FEED] key.

(19) The menu for the adjustment mode for the factory is displayed.

(20) Press the [FEED] key.

```
<10>RFID
```

(21) RFID setting menu display

[PAUSE]

(22) Press the [PAUSE] key.

```
<10>RFID
READ TEST    OFF
```

(23) RFID read test menu
Make a choice by using the [FEED] or [RESTART] key.

[PAUSE]

(24) Press the [PAUSE] key.

```
<10>RFID
CARRIERSENSE OFF
```

(25) RFID carrier sense test menu
Make a choice by using the [FEED] or [RESTART] key.

[PAUSE]

(26) Press the [PAUSE] key.

```
<10>RFID
MODULE       NONE
```

(27) RFID module type selection
Make a choice by using the [FEED] or [RESTART] key.

[PAUSE]

(28) Press the [PAUSE] key.

```
<10>RFID
TAG          NONE
```

(29) RFID tag type selection
Make a choice by using the [FEED] or [RESTART] key.

[PAUSE]

(30) Press the [PAUSE] key.

```
<10>RFID
COUNTRY      US
```

(31) RFID module's destination code setting (user-inaccessible setting) (U2 only)
Make a choice by using the [FEED] or [RESTART] key.

[PAUSE]

(32) Press the [PAUSE] key.

```
<10>RFID
ERR CHK      OFF
```

(33) RFID error tag detection
Make a choice by using the [FEED] or [RESTART] key.

[PAUSE]

(34) Press the [PAUSE] key.

```
<10>RFID
ISSUE RETRY     3
```

(35) Max. number of RFID issue retries
Set the value by using the [FEED] or [RESTART] key.

[PAUSE]

(36) Press the [PAUSE] key.

```
<10>RFID
R CYCLE CNT     5
```

(37) Max. number of RFID read retries
Set the value by using the [FEED] or [RESTART] key.

[PAUSE]

(38) Press the [PAUSE] key.

```
<10>RFID
R CYCLE TIM   4.0
```

(39) RFID read retry time-out
Set the value by using the [FEED] or [RESTART] key.

[PAUSE]

(40) Press the [PAUSE] key.

```
<10>RFID
W CYCLE CNT    5
```

[PAUSE]

(41) Max. number of RFID write retries
Set the value by using the [FEED] or [RESTART] key.

(42) Press the [PAUSE] key.

```
<10>RFID
W CYCLE TIM  2.0
```

[PAUSE]

(43) RFID write retry time-out
Set the value by using the [FEED] or [RESTART] key.

(44) Press the [PAUSE] key.

```
<10>RFID
ADJ RETRY   +00
```

[PAUSE]

(45) RFID adjustment for retry
Set the value by using the [FEED] or [RESTART] key.

(46) Press the [PAUSE] key.

```
<10>RFID
POWER LEVEL  251
```

[PAUSE]

(47) RFID wireless power level setting menu display
Make a choice by using the [FEED] or [RESTART] key.

(48) Press the [PAUSE] key.

```
<10>RFID
AGC THRESHOLD   0
```

[PAUSE]

(49) RFID AGC threshold setting
Set the value by using the [FEED] or [RESTART] key.

(50) Press the [PAUSE] key.

```
<10>RFID
RF CHANNEL  AUTO
```

[PAUSE]

(51) RFID channel setting
Set the value by using the [FEED] or [RESTART] key.

(52) Press the [PAUSE] key.

```
<10>RFID
Q VALUE       2
```

[PAUSE]

(53) Q value setting
Set a value by using the [FEED] or [RESTART] key.

(54) Press the [PAUSE] key.

```
<10>RFID
WT AGC       11
```

[PAUSE]

(55) AGC threshold for data write
Set a value by using the [FEED] or [RESTART] key.

(56) Press the [PAUSE] key.

```
<10>RFID
WT MIN AGC   11
```

[PAUSE]

(57) AGC threshold lower limit for retry
Set a value by using the [FEED] or [RESTART] key.

(58) Press the [PAUSE] key.

```
<10>RFID
MULT WRITE  OFF
```

[PAUSE]

(59) Hibiki tag multi-word write
Set a value by using the [FEED] or [RESTART] key.

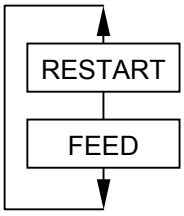
(60) Press the [PAUSE] key.

```
<10>RFID
```

(61) RFID setting menu display

6.11.2 Setting Contents

(1) RFID read test



- OFF: A read test is not performed.
- ON: A read test is performed.

OFF: A read test is not performed.

ON: The printer enters the read test mode, and a read test is performed each time the [PAUSE] key is pressed. The read data on the tag is displayed on the LCD message display. If the tag cannot be read, “RFID TIMEOUT” or “RFID READ ERROR” is displayed. Only the tags selected by the RFID tag type selection can be read. An RFID tag read error will result if the type of the tag to be read and the type of the tag selected by the RFID tag type selection do not match. Make sure the RFID tag type has been selected before the read test is started.

LCD can display up to 16 digits x 2 lines data. (See below.)

1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
6	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1

In the case of the B-SX704-RFID-U2-EU/US/CN/AU-R

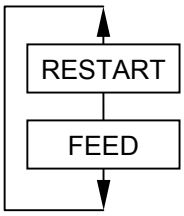
1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
6	5	4	3	2	1	0	9					(	0	E	)

The data, displayed in hex. numbers. Displayed data is an EPC code in the EPC area (only when the B-SX704-RFID-U2-EU/US/CN/AU-R or B-SX704-RFID-U4-EU-R is used.)
When the RFID tag contains data of 16 digits or more, the first 16 digits are displayed. When data volume is less than 16 digits, the vacant digits will be filled with spaces.

In the case of the B-SX704-RFID-U2-EU/US/CN/AU-R or B-SX704-RFID-U4-EU-R, the AGC value of a read tag, enclosed with parentheses, is displayed on the right most place on the lower line. Therefore, 14-byte data is displayed in hex. code.
When the RFID tag contains 14 bytes or more data, the first 14 bytes are displayed. When data volume is less than 14 bytes, the vacant digits will be filled with spaces.
If more than one tag is read at one time, especially when short-pitch tags are used, pressing the [FEED] or [RESTART] key shows the other tags’ data. Among them, a tag with the highest AGC value is considered to be positioned just above the antenna.

- When the RFID module type is set to “NONE” or a communication cannot be established, a message, “NON RFID MODULE”, is displayed.
- When the B-SX704-RFID-U2-US-R or B-SX704-RFID-U4-EU-R is used and if a RFID module’s destination code is not specified (user-inaccessible setting), an “RFID CONFIG ERR” error message is displayed.

(2) RFID carrier sense setting (B-SX704-RFID-U2 only)



- OFF: A carrier sense is not performed.
- ON: A carrier sense is performed.

OFF: A carrier sense is not performed.
ON: The printer enters the carrier sense mode, and performs a carrier sense. In 5 seconds, environmental radio wave of each channel is picked up for about 30 times (Enabled only when the B-SX704-RFID-U2 is used.)

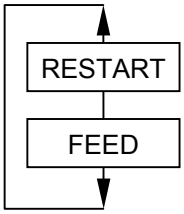
LCD display example

```
1:100% MAX 0011
2: 90% MAX 0011
```

The left-most number indicates a channel number, and a percentage means the availability of the channel which is determined by performing approx. 30 carrier senses. Thus, “100%” means that this channel is not used by any other devices. The display can be scrolled up or down, from Channel 1 (1CH) to channel 9 (9CH), by using the [FEED] or [RESTART] key. Pressing the [PAUSE] key causes the printer to perform a carrier sense again. To quit a carrier sense, press the [FEED] and [RESTART] keys at the same time.
“MAX 0011” means the value of the maximum radio wave picked up.

- When the RFID module type is set to “NONE” or a communication cannot be established, a message, “NON RFID MODULE”, is displayed.
- When the RFID module type is set to other than U2, a message, “NOT AVAILABLE” is displayed.
- When the RFID module type is set to U2 but effective data cannot be obtained, a message, “NO RESPONSE” is displayed.
- When the B-SX704-RFID-U2-US-R is used and if a RFID module’s destination code is not specified (user-inaccessible setting), an “RFID CONFIG ERR” error message is displayed.

(3) RFID module type selection

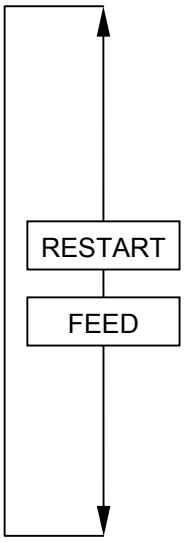


- U1: B-9704-RFID-U1-US/EU(-R) is installed.
- H1: B-9704-RFID-H1-QM is installed.
- NONE: No RFID kit is installed.
- U2: B-SX704-RFID-U2(-EU/US/CN/AU-R) or B-SX704-RFID-U4-EU-R is installed.
- H2: B-SX704-RFID-H2 is installed.

NONE: No RFID kit is installed.
U1: The RFID kit for UHF band (B-9704-RFID-U1-US/EU(-R)) is installed.
H1: The RFID kit for HF band (B-9704-RFID-H1-QM) is installed.
H2: The RFID kit for HF band (B-SX704-RFID-H2) is installed.
U2: The RFID kit for UHF band (B-SX704-RFID-U2(-EU/US/CN/AU-R) or B-SX704-RFID-U4-EU-R) is installed.
This setting will become effective after the printer power is turned off, and back to on.

(4) RFID tag type selection

① When the RFID module type is set to “NONE”:

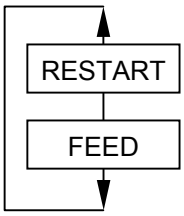


- C220: 13
- Tag-it: 12
- I-Code: 11
- ISO18000-6B: 23
- EPC C1: 22
- EPC C0: 21

- NONE (When a tag type is not selected.)

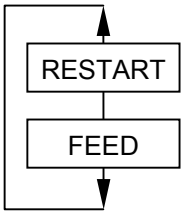
- C320: 17
- EPC C1 Gen2: 24
- C240: 16
- C210: 15
- ISO15693: 14

② When the RFID module type is set to “U2”:



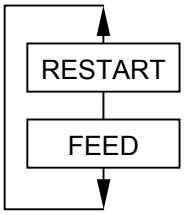
- NONE (When a tag type is not selected.)
- EPC C1 Gen2: 24

③ When the RFID module type is set to “H2”:



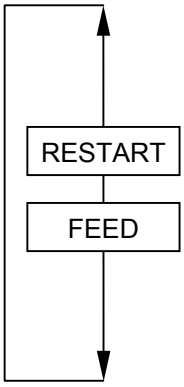
- NONE (When a tag type is not selected.)
- ISO15693: 14

④ When the RFID module type is set to “U1”:



- EPC C1: 22
- EPC C0: 21
- NONE (When a tag type is not selected.)
- EPC C1 Gen2: 24
- ISO18000-6B: 23

⑤ When the RFID module type is set to “H1”:



- C220: 13
- Tag-it: 12
- I-Code: 11

- NONE (When a tag type is not selected.)

- C320: 17
- C240: 16
- C210: 15
- ISO15693: 14

This setting will become effective after the printer power is turned off, and back to on.
Only the tag types, which can be read/written by the modules set by the RFID module setting, are displayed.

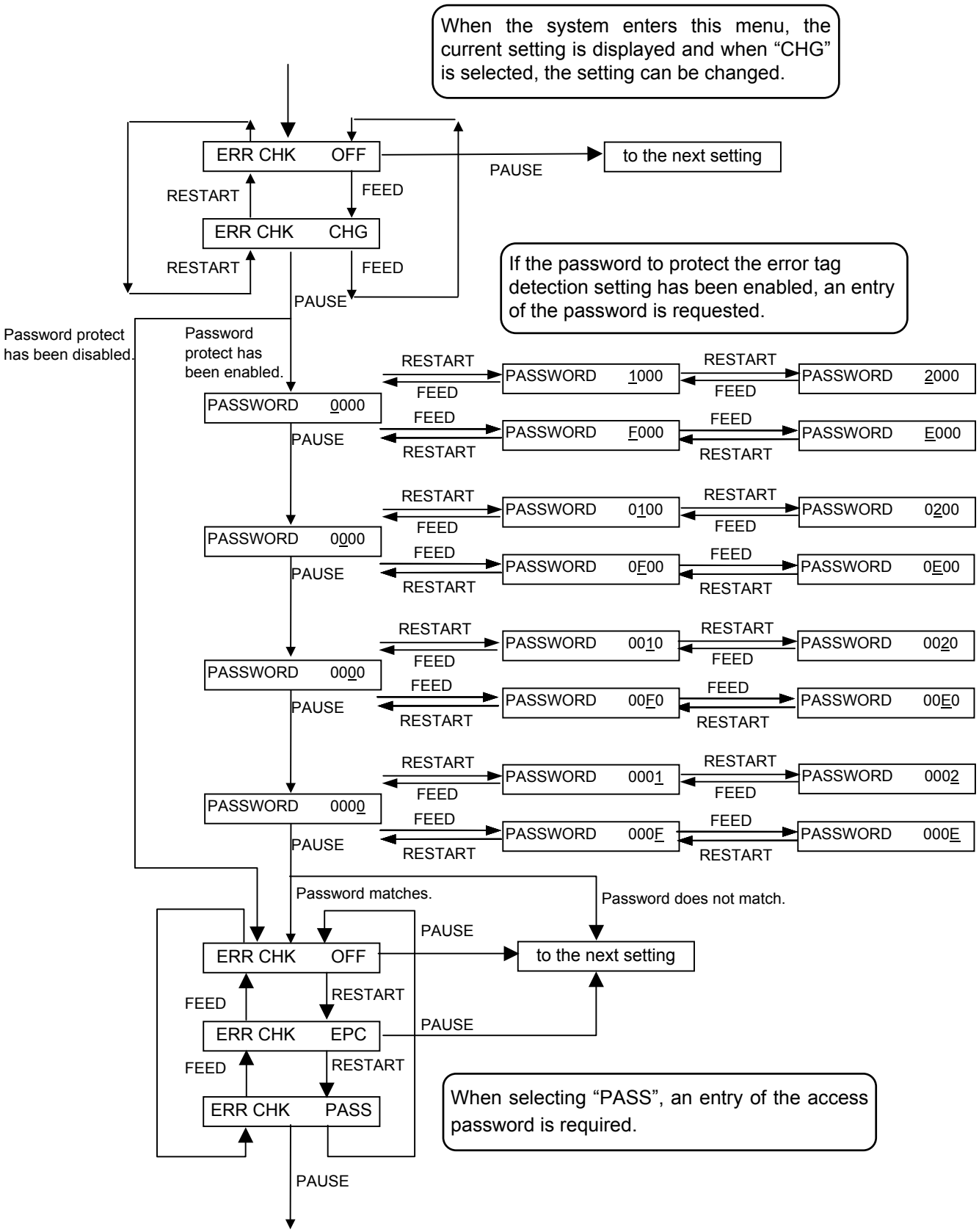
(5) RFID error tag detection

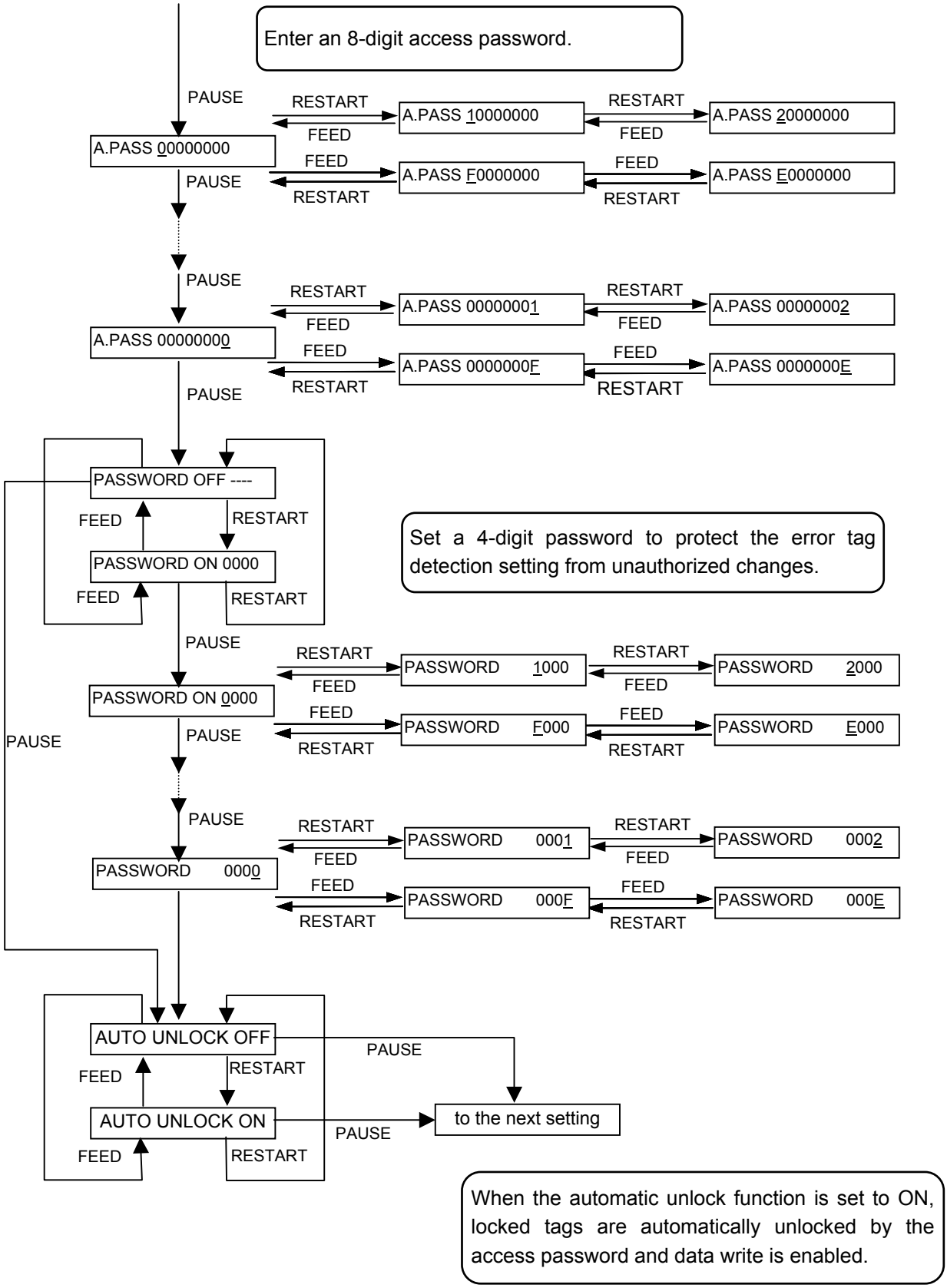
EPC: An error tag detection is performed. A tag (EPC area for Gen2 tags) is read before writing data on it and data is written on the tag only when the header data is “A5A5”.

OFF: An error tag detection is not performed. Though a tag is read before writing data on it, data is always written on the tag whatever data is set as the header data.

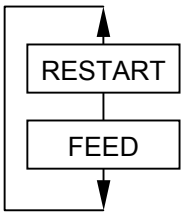
PASS: An error tag detection is performed only for Gen2 tags. The access password area of a tag is read before writing data on it. Only when the data read matches the access password setting data, the data is written on the tag.

To prevent unauthorized changes of the setting, a password to protect the error tag detection setting can be registered.


When the system enters this menu, the current setting is displayed and when “CHG” is selected, the setting can be changed.
ERR CHK OFF
PAUSE
to the next setting
RESTART
FEED
ERR CHK CHG
RESTART
FEED
PAUSE
If the password to protect the error tag detection setting has been enabled, an entry of the password is requested.
Password protect has been disabled.
Password protect has been enabled.
PASSWORD 0000
PASSWORD 1000
PASSWORD 2000
PASSWORD F000
PASSWORD E000
PASSWORD 0000
PASSWORD 0100
PASSWORD 0200
PASSWORD 0F00
PASSWORD 0E00
PASSWORD 0000
PASSWORD 0010
PASSWORD 0020
PASSWORD 00F0
PASSWORD 00E0
PASSWORD 0000
PASSWORD 0001
PASSWORD 0002
PASSWORD 000F
PASSWORD 000E
Password matches.
Password does not match.
ERR CHK OFF
to the next setting
ERR CHK EPC
ERR CHK PASS
When selecting “PASS”, an entry of the access password is required.


Enter an 8-digit access password.
PAUSE
A.PASS 00000000
RESTART
FEED
A.PASS 10000000
A.PASS 20000000
A.PASS F0000000
A.PASS E0000000
A.PASS 00000000
A.PASS 00000001
A.PASS 00000002
A.PASS 0000000F
A.PASS 0000000E
PASSWORD OFF ----
PASSWORD ON 0000
Set a 4-digit password to protect the error tag detection setting from unauthorized changes.
PASSWORD 1000
PASSWORD 2000
PASSWORD F000
PASSWORD E000
PASSWORD 0000
PASSWORD 0001
PASSWORD 0002
PASSWORD 000F
PASSWORD 000E
AUTO UNLOCK OFF
AUTO UNLOCK ON
to the next setting
When the automatic unlock function is set to ON, locked tags are automatically unlocked by the access password and data write is enabled.

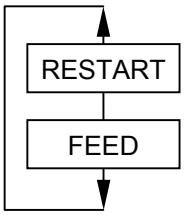
(6) Max. number of RFID issue retries



- +
- Initial value (3)
- –

0 to 255
Set the maximum number of retries to issue the RFID tag.
When issuing the RFID tag failed, the printer prints the error pattern, and retries to issue the tag for up to specified number of times. If the printer does not succeed even after having retried for the max. times, the printer stops, resulting in an error.

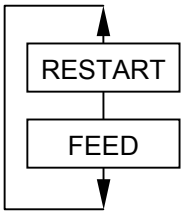
(7) Max. number of RFID read retries



- +
- Initial value (5)
- –

0 to 255
Set the maximum number of retries to read the RFID tag.
The printer retries to read the data in the RFID tag for up to specified number of times. If the time-out has come before the max. number retries have been done, the printer stops the retries at the time.
Whenever the printer writes data onto the RFID tag, the tag is read first. The max. number of retries set by this parameter becomes also effective in this pre-read.

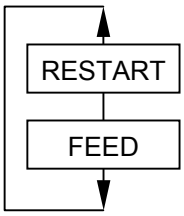
(8) RFID read retry time-out



- +
- Initial value (4.0)
- –

0.0 to 9.9 (0.0 second to 9.9 second)
Set the time-out for retry to read the RFID tag.
If the printer has retried for the max. number of times within the RFID read retry time-out, the printer stops the retries at the time.
Whenever the printer writes data onto the RFID tag, the tag is read first. The read retry time-out set by this parameter becomes also effective in this pre-read.

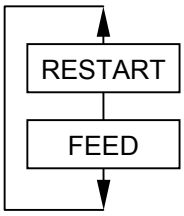
(9) Max. number of RFID write retries



• +
• Initial value (5)
• –

0 to 255
Set the maximum number of retries to write data onto the RFID tag.
The printer retries to write data onto the RFID tag for up to specified number of times. If the time-out has come before the max. number of retries have been done, the printer stops the retries at the time.

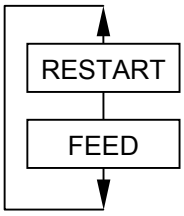
(10) RFID write retry time-out



• +
• Initial value (2.0)
• –

0.0 to 9.9 (0.0 second to 9.9 second)
Set the time-out for retry to write data onto the RFID tag.
If the printer has retried for the max. number of times within the RFID write retry time-out, the printer stops the retries at the time.

(11) RFID adjustment for retry



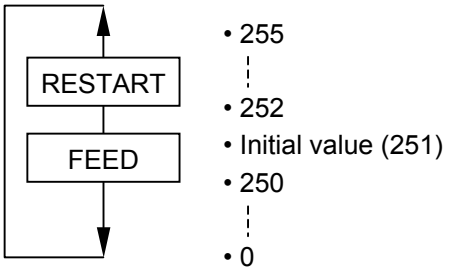
• +
• Initial value (+00)
• –

–99 mm to +99 mm
+: Reverse feed direction –: Feed direction

Set the value to move the RFID tag position.
If writing data on the tag failed, the printer feeds the RFID tag forward or backward for specified length in order to retry writing data. When “0” is set for this parameter, this function is not performed.
Only the value of –3 mm or less or +3 mm or more becomes effective.

(12) Radio output power level

① When the B-9704-RFID-U1-US/EU(-R) is installed.

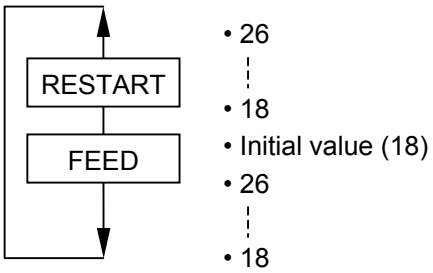


0 to 255

Set the wireless power level from the RFID module. When the value is “0”, the power is the weakest and when “255”, the power is the strongest. The factory setting is 251.

In the case of the B-9704-RFID-U1-EU-R, the factory default is 50.

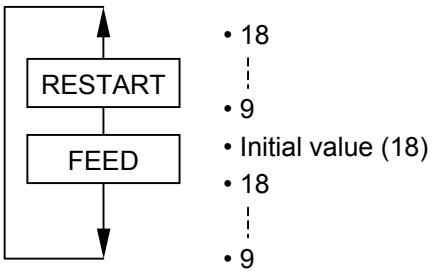
② When the B-SX704-RFID-U2 is installed.



18 to 26

When the value is “18”, the power is the weakest and when “26”, the power is the strongest. The factory default is 18.

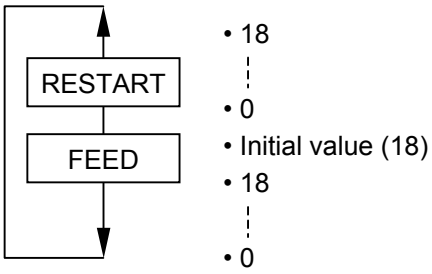
③ When the B-SX704-RFID-U2-EU/US/AU/CN-R is installed.



9 to 18

When the value is “9”, the power is the weakest and when “18”, the power is the strongest. The factory default is 18. (“0” to “8” are also selectable, but shall not be set. Even if any of 0” to “8” is set, it will be ignored.)

④ When the B-SX704-RFID-U4-EU-R is installed.

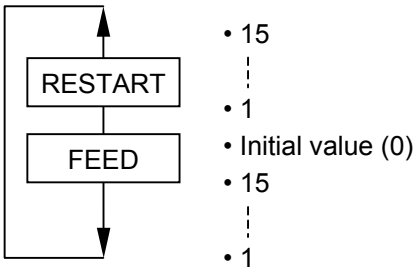


0 to 18
When the value is “0”, the power is the weakest and when “18”, the power is the strongest. The factory default is 18.

The optimal value is different depending on the tags used. Usually it is not necessary to change this value but changing the value sometimes can increase the number of successful read/write times.

(13) RFID AGC threshold setting

Available only when the B-SX704-RFID-U2(-EU/US/CN/AU-R) or B-SX704-RFID-U4-EU-R is installed.



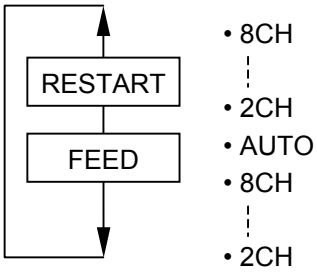
0 to 15
Obtain the gain of the RFID tag, and when that gain is lower than the AGC threshold, tags are considered as error tags even if a data write succeeds.
When the AGC threshold is se to “0”, all tags are writable. When set to 8, for example, only tags with the AGC threshold level set to 9 or greater are writable.
The optimal value is different depending on the tags. The factory default is 0.

The AGC levels are different between the RFID module firmware version V968 or earlier and V971 or greater. Refer to the following table.
For example, Rank 1 of the firmware V968 or earlier falls within Ranks 1 to 5 of the firmware V971 or greater. Rank 14 of the firmware V968 or earlier is corresponding to Rank 16 of the firmware V971 or greater.

V968 or earlier	Rank					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Value					73	6a	61	58	4f	46	3d	34	2b	28	24	20	1c	18	14	10
V971 or greater	Rank	1	2	3	4	5	6	7	8	9	10	11	12	13	14		15		16		
	Value	73	6b	64	5f	5a	55	50	4b	46	40	38	30	2b	24		1b		16		

(14) RFID channel setting

Available only when the B-SX704-RFID-U2 is installed.



2CH to 8CH, AUTO

Set the channel to be used for writing data onto RFID tags.

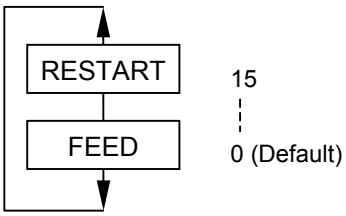
When a channel is chosen from 2CH to 8CH, that channel will be repeatedly used.

When the channel is set to AUTO, more than one channels are repeatedly used in the following order.

AUTO: 2CH → 8CH → 4CH → 3CH → 7CH → 5CH → 2CH

(15) Q value

Available only to the B-SX704-RFID-U2-EU/US/CN/AU, B-SX704-RFID-U2, or B-SX704-RFID-U4-EU-R with the module's firmware version of #00T or later.



0 to 15

In the case multiple RFID tags are read at the same time, this menu is useful to pinpoint a target tag.

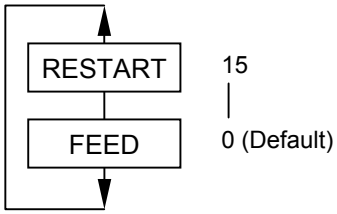
Set the Q value to "1" or greater (2 is recommended.). Q value "0" causes the tags to interfere with each other and disables proper data write.

When a Q value is set, set an AGC threshold for data write and an AGC threshold lower limit for retry, also. Setting all these values enable writing data to a tag placed just above the antenna.

However, the problem that multiple tags are read at the same time does not occur on the B-SX series with most RFID tag types. It is not necessary to change the default setting.

(16) AGC threshold for data write

Available only to the B-SX704-RFID-U2-EU/US/CN/AU, B-SX704-RFID-U2, or B-SX704-RFID-U4-EU-R with the module's firmware version of #00T or later.



0 to 15
When the Q value is set to 1 or greater, the AGC threshold for data write becomes effective. When the obtained gain of an RFID tag is lower than the AGC threshold for data write, a data write operation is not performed. In other words, setting an AGC threshold for data write enables writing data only to a tag placed just above the antenna.

Supposing that the gain of a tag just above the antenna is 14 and that of a tag off the antenna is 7, setting the threshold to 11 (a value between 8 and 14) enables the printer to write data only to the tag just above the antenna.
When the threshold is set to 0, a data write operation is performed regardless of the gain of a tag.

Both of the AGC threshold and the AGC threshold for data write are used to determine whether a tag is defective or not, but the timing of a gain measurement is different. In the case of the AGC threshold, this is performed after data is written to a tag.

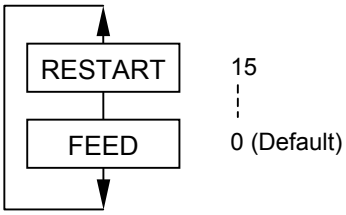
On the contrary, when the AGC threshold for data write is effective a measurement is performed before data is written. And if a gain value is lower than the threshold, a data write operation is not performed.

The optimum value differs depending on the tag type.

However, the problem that multiple tags are read at the same time does not occur on the B-SX series with most RFID tag types. It is not necessary to change the default setting.

(17) AGC threshold lower limit for retry

Available only to the B-SX704-RFID-U2-EU/US/CN/AU, B-SX704-RFID-U2, or B-SX704-RFID-U4-EU-R with the module's firmware version of #00T or later.



0 to 15
When the Q value is set to 1 or greater, the AGC threshold lower limit for retry becomes effective.
Even if a tag's gain is lower than the AGC threshold for data write, a data write to the tag may be successful in a retry if the gain is greater than the lower limit. For a retry, the printer lowers the threshold to the highest gain of the tag if it is greater than the lower limit or to the lower limit if it is greater than the highest gain of the tag.

Example 1

AGC threshold for data write: 11
Lower limit for retry: 9
Detected tag's gain: 10

As the gain of the tag is lower than the threshold, a data write operation is not performed for this tag at the first try. However, the gain is greater than the lower limit.
Then the printer retires to write data to this tag according to a new AGC threshold of 10.
In this case, a retry of a data write will mostly succeed because the detected tag's gain is greater than the new threshold. (However, the success rate is not 100% because a gain of a tag is not always the same.)

Example 2

AGC threshold for data write: 11
Lower limit for retry: 9
Detected tag's gain: 8

As the gain of the tag is lower than the threshold, a data write operation is not performed for this tag at the first try. Also, the gain is lower than the lower limit.
Then the printer retries to write data to this tag according to a new AGC threshold of 9.
In this case, a retry of data write will mostly fail because the detected tag's gain is lower than the new threshold. (However, the error rate is not 100% because a gain of a tag is not always the same.)

When the same value is set to the AGC threshold for data write and the AGC threshold lower limit for retry, respectively, the threshold will not be changed for a retry.
The optimum value differs depending on the tag type.

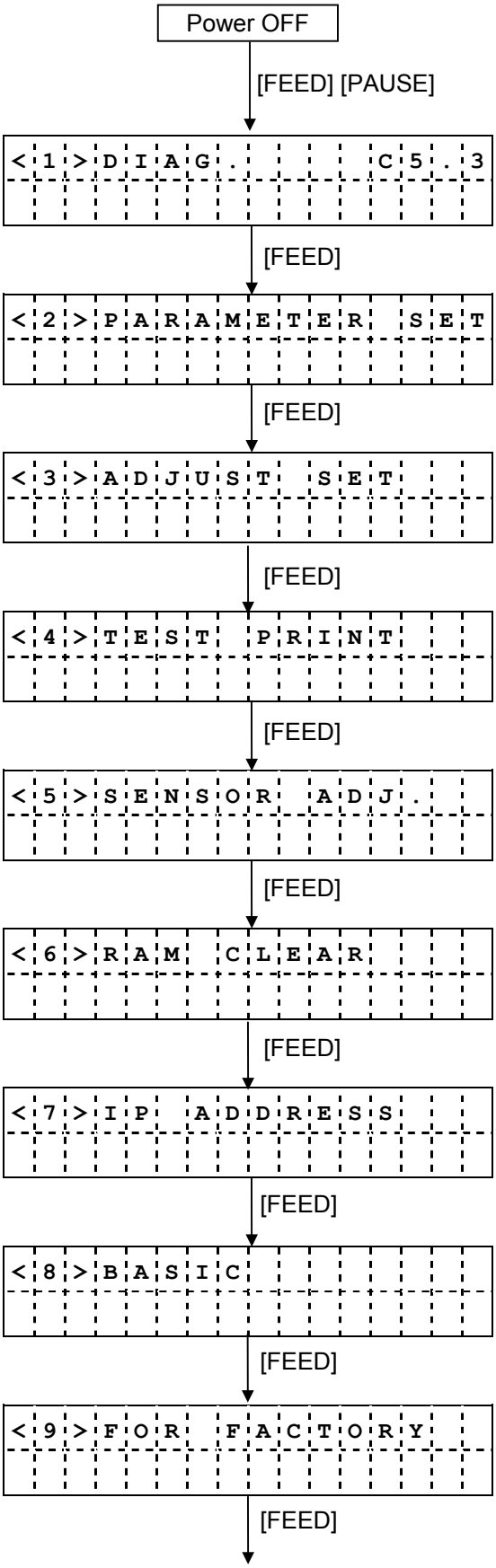
However, the problem that multiple tags are read at the same time does not occur on the B-SX series with most RFID tag types. It is not necessary to change the default setting.

(18) Hibiki tag multi-word write (Available only to the B-SX704-RFID-U2-EU/US/CN/AU or the B-SX704-RFID-U2 with the module's firmware version of #00T or later.)

Gen2-compatible Hibiki tag (HITACHI) has a function which reduces the time to write data on the RFID chips. This is called "Multi-word write". Use of this function enables a speed-up of the data write operation. However, this function is unique to the Hibiki tag, and not usable with the other Gen2-compatible chips. The factory default is set to OFF (disabled).

6.12 Z-MODE SETTING (SUPPORTED FROM C5.3, VERSION Cx.x ONLY)

6.12.1 Z-Mode Setting Operation Example



(1) Power off state

(2) While holding the [FEED] and [PAUSE] keys down, turn the power on.

(4) Press the [FEED] key.

(5) System mode menu display (Parameter setting)

(6) Press the [FEED] key.

(7) System mode menu display (Fine adjustment value setting)

(8) Press the [FEED] key.

(9) System mode menu display (Test print)

(10) Press the [FEED] key.

(11) System mode menu display (Sensor display/adjustment)

(12) Press the [FEED] key.

(13) System mode menu display (RAM clear)

(14) Press the [FEED] key.

(15) System mode menu display (IP address setting)

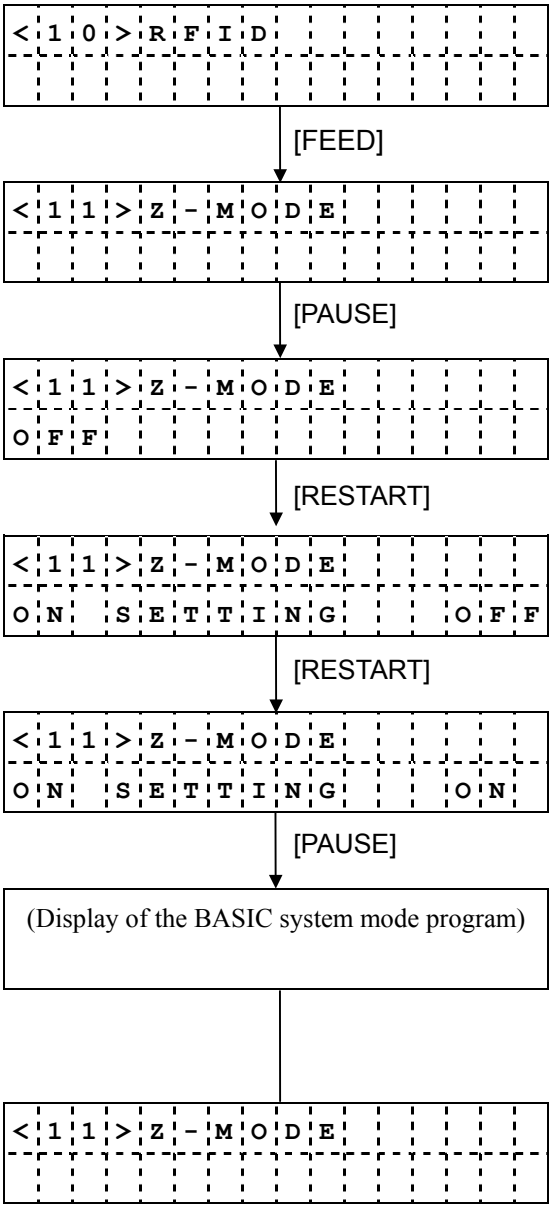
(16) Press the [FEED] key.

(17) System mode menu display (BASIC)

(18) Press the [FEED] key.

(19) System mode menu display (Factory setting)

(20) Press the [FEED] key.



(21) System mode menu display (RFID setting)

(22) Press the [FEED] key.

(23) System mode menu display (Z-Mode setting)

(24) Press the [PAUSE] key.

(25) The current setting is displayed.

(26) Enable the Z-Mode using the [RESTART] key.

(27) The Z-Mode (BASIC program) is enabled, but the system mode program is not.

(28) Enable both Z-Mode (BASIC program) and system mode program using the [RESTART] key.

(29) The Z-Mode and the system mode program are enabled.

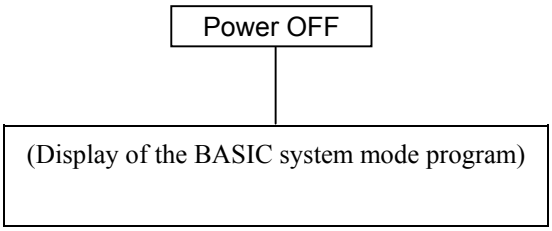
(30) Press the [PAUSE] key.

(31) The BASIC system mode program is started if it has been downloaded. The display depends on the program.

(32) The BASIC system mode program exits. (How to exit the program is depending on the BASIC system mode program in use.)

(33) Z-Mode setting menu display

When the Z-MODE is enabled.

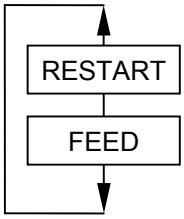


(1) Power off

(2) Turn on the printer power.

(3) BASIC program is started.

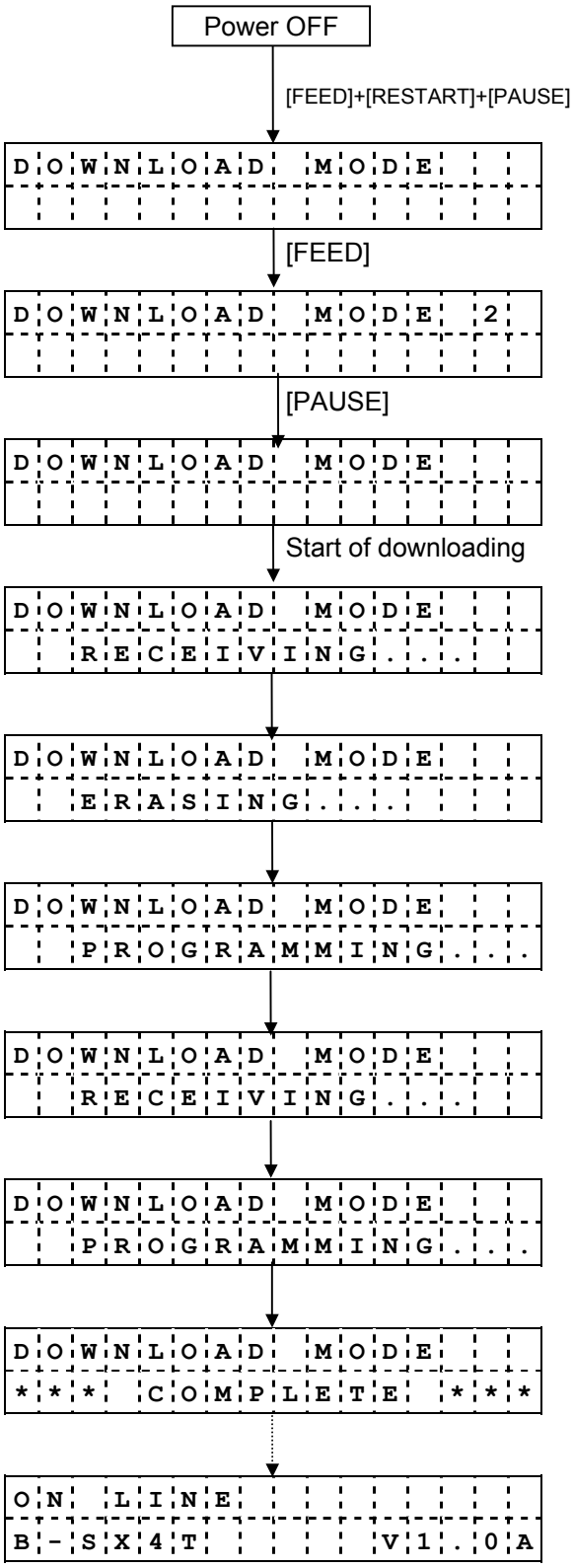
Z-Mode Setting (Z-Mode)



• OFF	Disabled
• ON SETTING OFF	Z-Mode is enabled, but the BASIC system mode program is not enabled.
• ON SETTING ON	Both Z-Mode and BASIC system mode program are enabled.

NOTE: For details, refer to Section 5.13 Z-MODE SETTING.

7. DOWNLOAD MODE



(1) Power off state

(2) Turn the power on by pressing the [FEED], [RESTART] and [PAUSE] keys at the same time.

(3) Download mode display

(4) Press the [FEED] key.

(5) Download mode 2 display

(6) Press the [PAUSE] key.

(7) The download mode display

(8) The download command is sent.

(9) The message indicating the data is being received, is displayed.

(10) The message indicating data in flash ROM is being erased, is displayed.

(11) The message indicating the downloaded data is being written, is displayed.

(12) The message indicating the data is being received, is displayed.

(13) The message indicating the downloaded data is being written, is displayed.

(14) Downloading is completed.

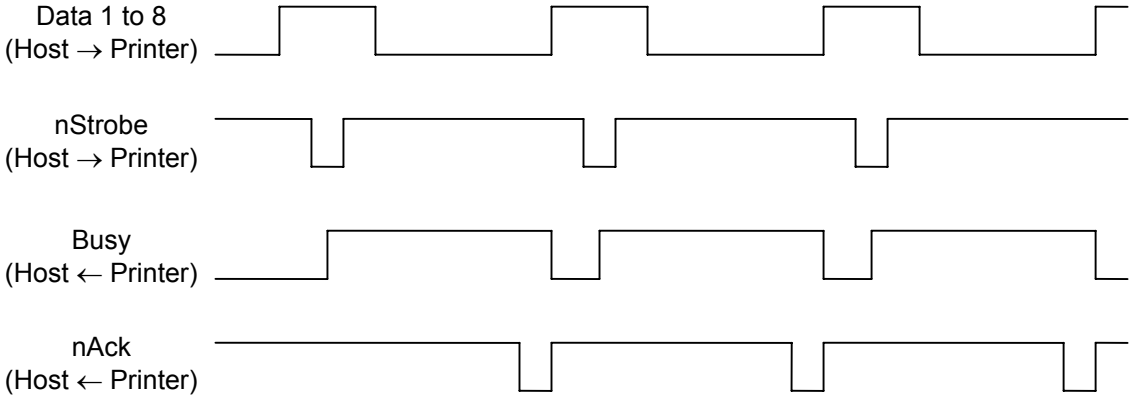
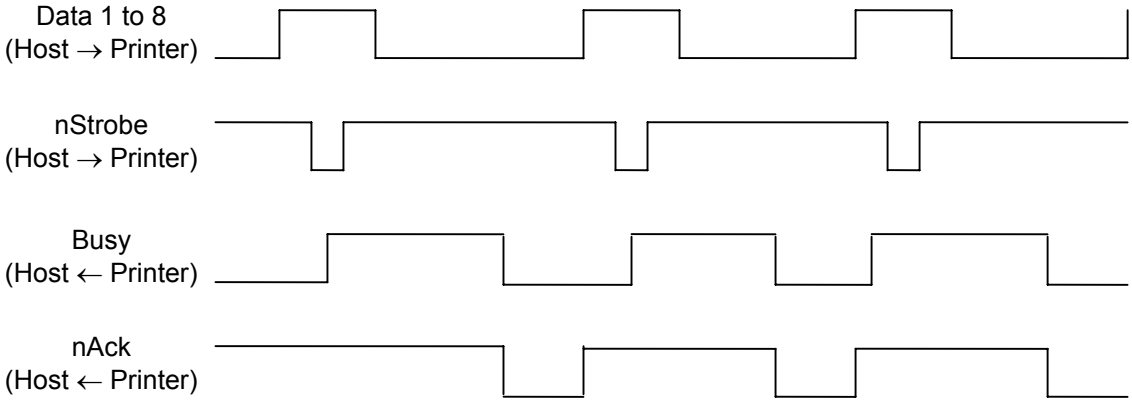
(15) After downloading is completed, the printer will be automatically rebooted, and then it will enter the online state.

*: If the printer is not rebooted but keeps displaying the message of "*** COMPLETE ***", different model's firmware (B-SX4 ↔ B-SX5) may be downloaded.

When the power is turned on while pressing the [FEED], [RESTART], and [PAUSE] keys at the same time, the printer enters the download mode.
In the download mode, only commands concerning downloading are available.
The printer keys can be used for selecting between “DOWNLOAD MODE” and “DOWNLOAD MODE 2”.
The timing for ACK-BUSY in Centronics differs between “DOWNLOAD MODE” and “DOWNLOAD MODE 2”. When downloading is not performed properly in the “DOWNLOAD MODE”, it may be performed properly if “DOWNLOAD MODE 2” is selected.

One of two types of the BUSY/ACK timing can be selected.

(1) DOWNLOAD MODE (Default)



(2) DOWNLOAD MODE 2