

# Meto SP 40

## Label and Tag Printing

## Extended Operating Manual



# **GENERAL-PURPOSE THERMAL LABEL/TAG PRINTER**

**Models:**

**B-472-10-QQ-CMT**

**B-472-11-QP-CMT**

## **KEY OPERATION SPECIFICATION**

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***TOSHIBA TEC CORPORATION***

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## **1. SCOPE**

This specification applies to the key operations using the keys and the display panel of the B-472-10/11-QQ/QP-CMT General-purpose Thermal Label/Tag Printers.

## **2. OUTLINE**

Keyboard operations are roughly classified into online mode in which a pause/restart is carried out and error messages are displayed, and system mode in which self-test and setting of various parameters are performed.

This specification describes the key operation procedures using the printer keys and the display panel.

### 3. DIP SWITCH FUNCTIONS

#### (1) DIP SW 1 (Lower SW)

No.	ON/OFF			Function	Description
1	OFF			No	Automatic ribbon saving
	ON			Yes	
2	2	3	4		LCD error message display languages
	OFF	OFF	OFF	English	
	ON	OFF	OFF	German	
	OFF	ON	OFF	French	
	ON	ON	OFF	Dutch	
	OFF	OFF	ON	Spanish	
	ON	OFF	ON	Japanese (Note 1)	
	OFF	ON	ON	Italian	
3	ON	ON	ON	English	
	OFF			No	Automatic forward feed standby in cut mode
ON			Yes		
4	OFF			No Normal cut	Use of built-in rewinder or cutting operation
	ON			Yes Head-up cut	
5	OFF			Not used	Set to OFF
	ON				
6	OFF			Not used	Set to OFF
	ON				

#### (2) DIP SW 2 (Upper SW)

No.	ON/OFF		Function	Description
1	1	2		Transmission speed
	OFF	OFF	2400 BPS	
	ON	OFF	4800 BPS	
	OFF	ON	9600 BPS	
2	ON	ON	19200 BPS	Stop bit length
	OFF	ON	2 bits	
3	OFF	ON	7 bits	Data length
	ON	ON	8 bits	
4	OFF	ON	No	Presence/absence of parity
	ON	ON	Yes	
5	OFF	ON	Even	Parity (valid only when 5 is ON)
	ON	ON	Odd	
7	7	8		Transmission control system
	OFF	OFF	XON/XOFF protocol (Note 2)	
	ON	OFF	READY/BUSY (DTR) protocol (Note 2)	
	ON	OFF	READY/BUSY (RTS) protocol (Note 4)	
8	OFF	ON	XON/XOFF+READY/BUSY (DTR) protocol (Note 3)	
	ON	ON	XON/XOFF protocol (Note 3)	

**NOTES:.** (1) When Japanese is selected, the character code is partially changed.

Refer to the character code table described later.

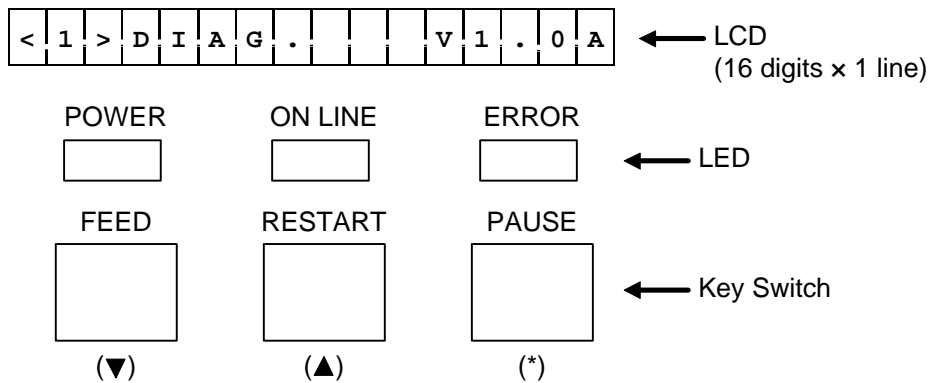
(2) An XON is not output at power on and an XOFF is not output at power off.

(3) An XON is output at power on and an XOFF is output at power off.

(4) If DTR or RTS is selected, switch by using the parameter setting in the system mode.

\* The DIP switch statuses are read when the printer power is turned on.

## 4. OPERATION PANEL



(The symbols, ▼, ▲, and \* are not actually displayed on the front panel.)

## 5. ONLINE MODE

### 5.1 KEY FUNCTION

- [FEED] key: Feeds one sheet of paper.
- This key is used to eject one sheet of paper.  
This key is also 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 on the proper position. One or two sheets of paper should be fed to adjust the paper position before printing.
  - \* For the method of using the label with width of 38 mm or less in the cut mode, refer to the section for parameter setting.
- [RESTART] key: Resumes printing after temporary stop of label printing or after an error.  
Places the printer in usual initial state which is obtained after the power is turned on. Programs various parameters.
- [PAUSE] key: Stops label printing temporarily.  
Programs the threshold values.

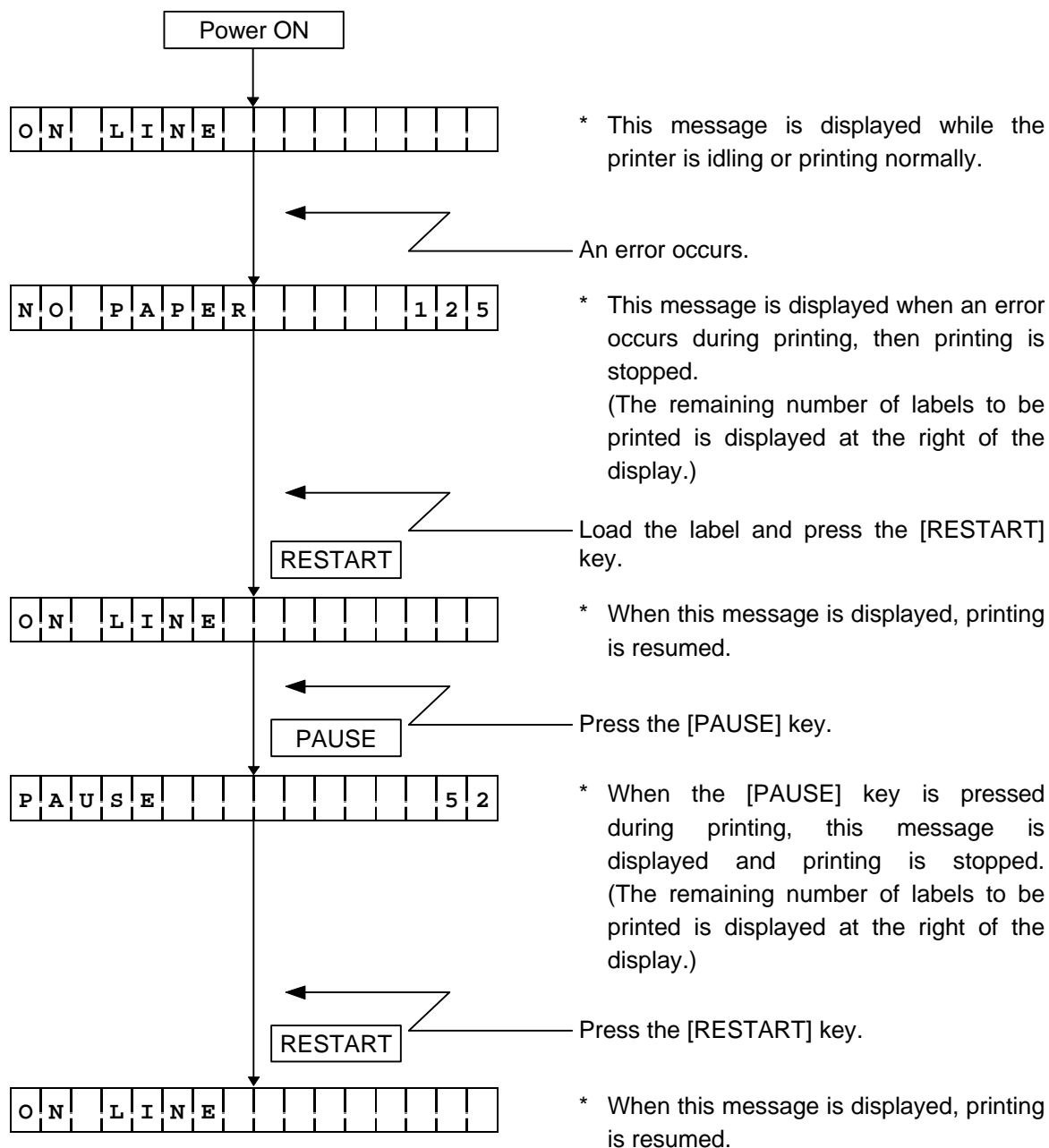
### 5.2 LED FUNCTION

- [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 x 1 line

## 5.4 ONLINE MODE OPERATION EXAMPLE



**NOTE:** [Remaining number of labels to be printed] = [Designated number of labels] -  
[Number of labels/tags normally printed until the error occurs]

## 5.5 THRESHOLD SETTING (PREPRINTED LABEL)

### 5.5.1 Outline of Threshold Setting

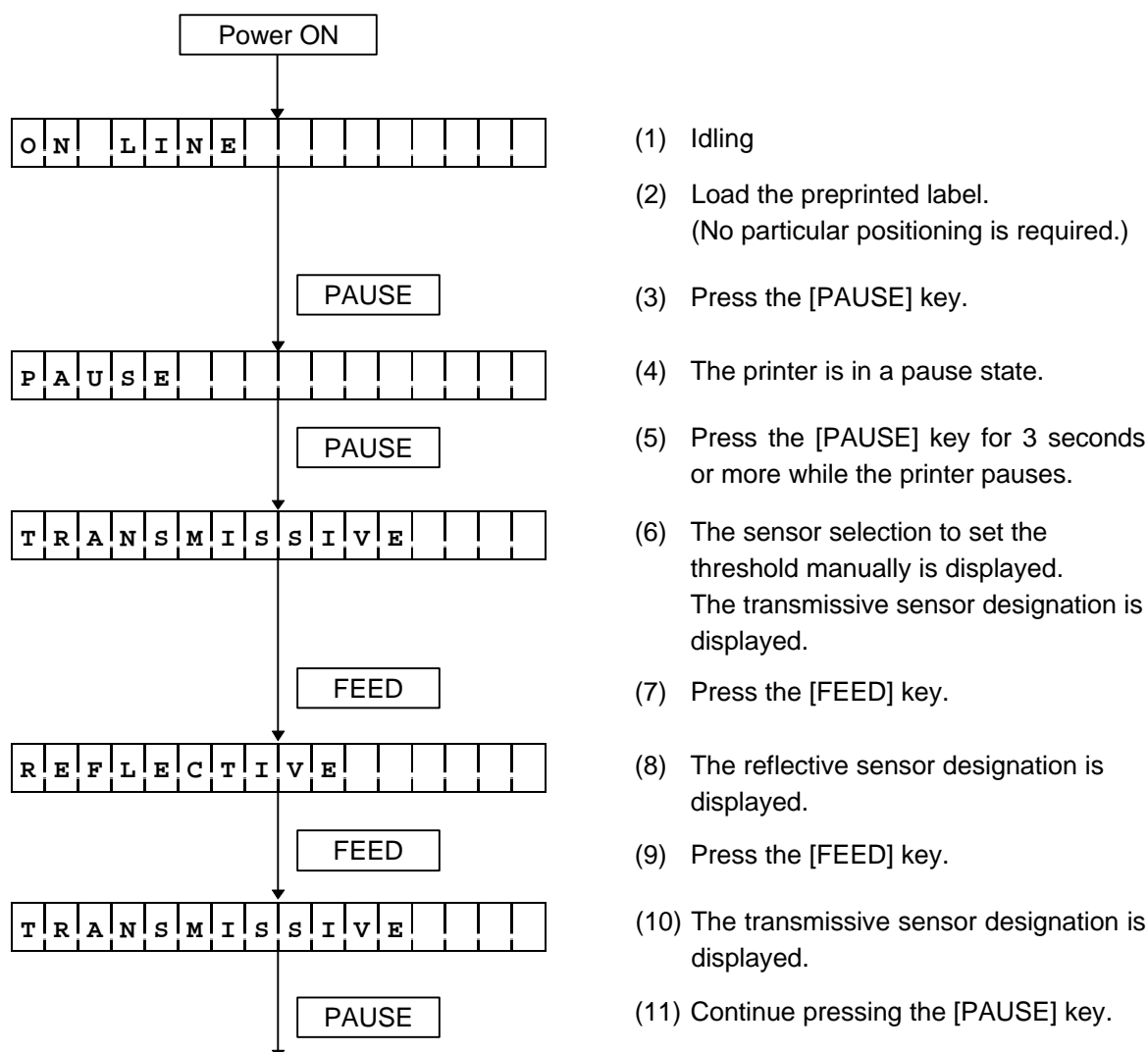
When a label is printed, the printer detects the gap between the labels using the transmissive sensor, and correct the print position automatically to obtain constant print position. When the preprinted label is used, however, some inks may prevent proper positioning correction. In this case, determine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

A constant print position on the preprinted labels 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.

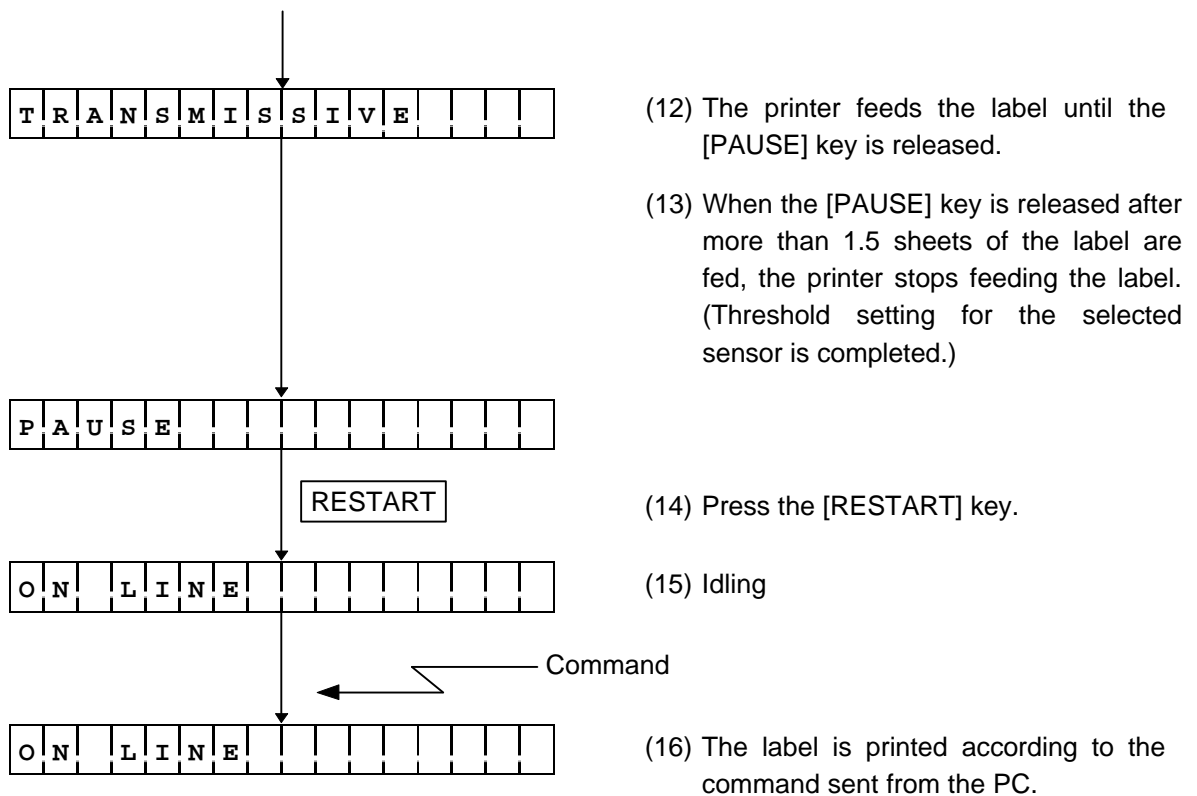
When a label is printed by detecting the black mark on the back of the label, the reflective rate variation of a place other than the black mark may prevent the proper positioning correction. In this case, determine the reflective sensor threshold by key operation and store the value in the non-volatile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



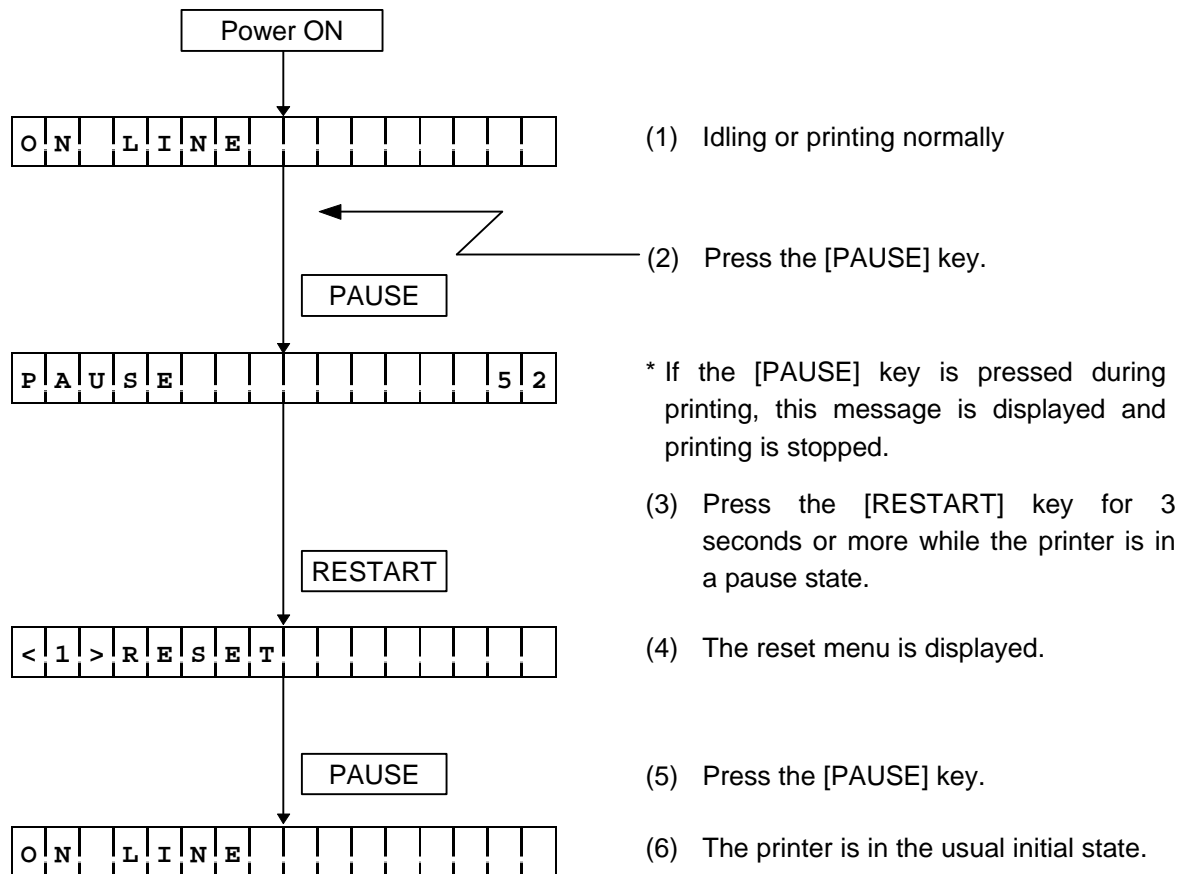




#### <Supplementary Explanation>

- (1) When the [PAUSE] key is released within 3 seconds while printer pauses, the [PAUSE] key is invalid.
- (2) When the threshold is programmed, 1.5 sheets 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) When the [PAUSE] key is pressed for 3 seconds or more in a head-up state, the [PAUSE] key is invalid.
- (4) During a label feed, an error including the paper end, ribbon end or cutter error is not detected.
- (5) When the proper print position is not obtained after threshold programming, the transmissive sensor may be improperly adjusted. In this case, readjust the transmissive sensor in system mode, 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 RESET

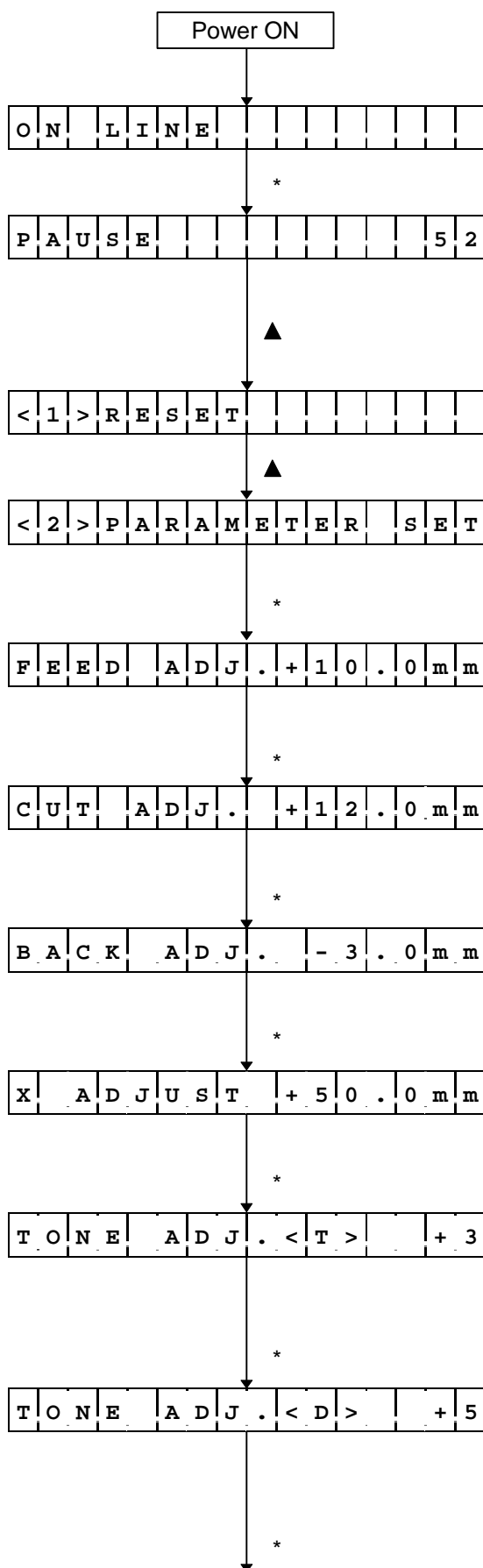


### <Supplementary Explanation>

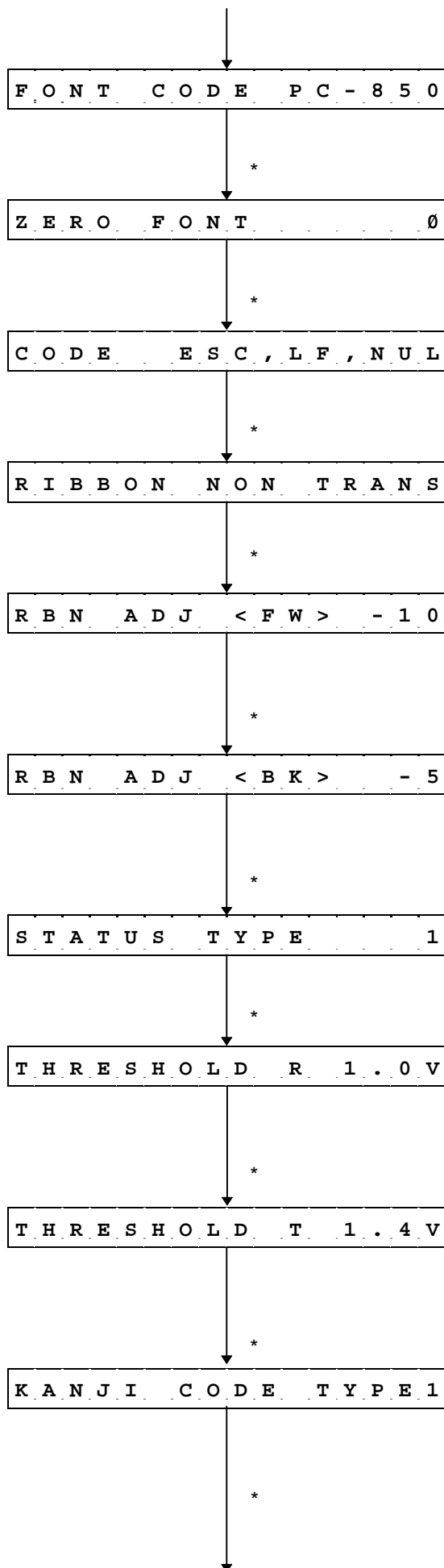
- (1) If the [RESTART] key is pressed for 3 seconds or more when the printer can resume printing (the state of "Restoration by the [RESET] key"), the printer displays the reset menu.
- (2) When the [RESTART] key is pressed for less than 3 seconds during an error or pause, the printer resumes printing a label. (The printer does not display the reset menu.) When a communication error or command error has occurred, however, the printer enters the usual initial state by pressing the [RESTART] key.

## 5.7 PARAMETER SETTING

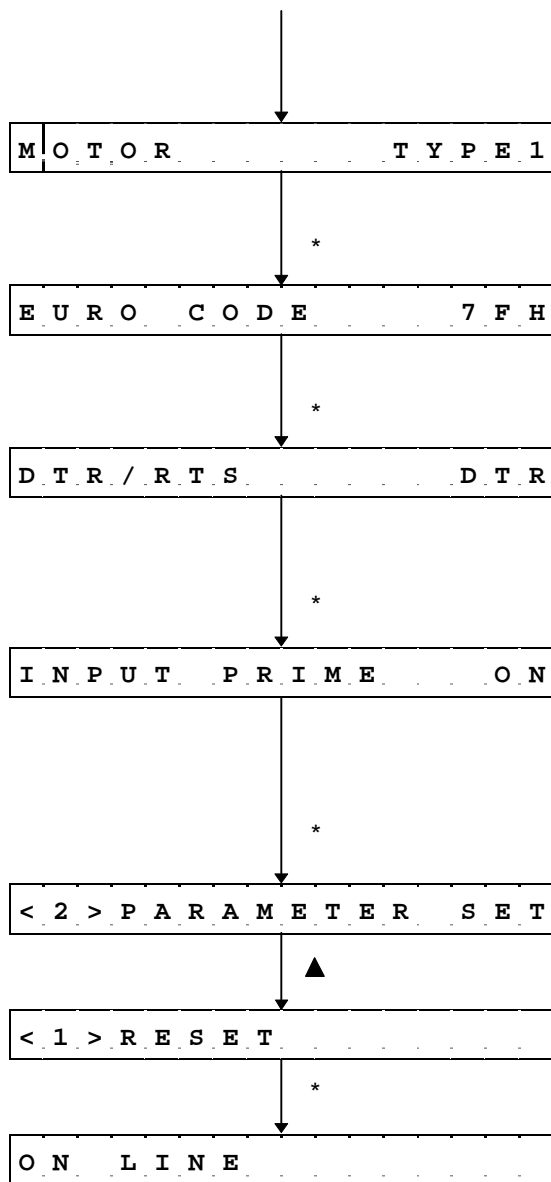
### 5.7.1 Parameter Setting Operation Example



- (1) Idling or printing normally
- (2) Press the [\*] key.
  - \* If the [\*] key is pressed during printing, this message is displayed and printing is stopped.
- (3) Press the [▲] key for 3 seconds or more while the printer is in a pause state.
- (4) The reset menu is displayed.
- (5) Press the [▲] key.
- (6) The parameter setting menu is displayed.
- (7) Press the [\*] key.
- (8) Feed fine adjustment:  
Set the fine adjustment value using the [▼] and [▲] keys.
- (9) Press the [\*] key.
- (10) Cut (strip) position fine adjustment:  
Set the fine adjustment value using the [▼] and [▲] keys.
- (11) Press the [\*] key.
- (12) Back feed fine adjustment:  
Set the fine adjustment value using the [▼] and [▲] keys.
- (13) Press the [\*] key.
- (14) X-coordinate fine adjustment:  
Set the fine adjustment value using the [▼] and [▲] keys.
- (15) Press the [\*] key.
- (16) Print density fine adjustment (thermal transfer mode):  
Set the fine adjustment value using the [▼] and [▲] keys.
- (17) Press the [\*] key.
- (18) Print density fine adjustment (direct thermal mode):  
Set the fine adjustment value using the [▼] and [▲] keys.
- (19) Press the [\*] key.



- (20) Character code selection:  
Select the character code using the [▼] and [▲] keys.
- (21) Press the [\*] key.
- (22) Font 0 selection:  
Select the font using the [▼] and [▲] keys.
- (23) Press the [\*] key.
- (24) Control code selection:  
Select the control code using the [▼] and [▲] keys.
- (25) Press the [\*] key.
- (26) Ribbon type selection:  
Select the ribbon type using the [▼] and [▲] keys.
- (27) Press the [\*] key.
- (28) Ribbon motor drive voltage fine adjustment (Rewind):  
Set the fine adjustment value using the [▼] and [▲] keys.
- (29) Press the [\*] key.
- (30) Ribbon motor drive voltage fine adjustment (Back tension):  
Set the fine adjustment value using the [▼] and [▲] keys.
- (31) Press the [\*] key.
- (32) Strip status selection:  
Select the strip status using the [▼] and [▲] keys.
- (33) Press the [\*] key.
- (34) Reflective sensor manual threshold fine adjustment:  
Set the fine adjustment value using the [▼] and [▲] keys.
- (35) Press the [\*] key.
- (36) Transmissive sensor manual threshold fine adjustment:  
Set the fine adjustment value using the [▼] and [▲] keys.
- (37) Press the [\*] key.
- (38) Kanji code selection:  
Select the Kanji code using the [▼] and [▲] keys.
- (39) Press the [\*] key.



- (40) Stepping motor selection:  
Select the stepping motor using the [▼] and [▲] keys.
- (41) Press the [\*] key.
- (42) Euro code setting:  
Set the Euro code using the [▼] and [▲] keys.
- (43) Press the [\*] key.
- (44) READY/BUSY control protocol selection:  
Select DTR or RTS using the [▼] and [▲] keys.
- (45) Press the [\*] key.
- (46) Reset process when the INPUT•PRIME signal is ON:  
Set the reset process when the INPUT•PRIME signal is ON by using the [▼] and [▲] keys.
- (47) Press the [\*] key.
- (48) The parameter setting menu is displayed.
- (49) Press the [▲] key.
- (50) The reset menu is displayed.
- (51) Press the [\*] key.
- (52) The printer is in the usual initial state.

### 5.7.2 Parameter Setting Operation Example

For details, refer to “6.3 Various Parameters Setting” in the system mode section.

- (1) Feed fine adjustment (FEED ADJUST)  
-50.0 mm to +50.0 mm (in 0.5 mm units)
- (2) Cut (strip) position fine adjustment (CUT ADJUST)  
-50.0 mm to +50.0 mm (in 0.5 mm units)
- (3) Back feed fine adjustment (BACK FEED 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 (TONE ADJUST)  
-10 step to +10 step (in units of step)
- (6) Character code selection (FONT CODE)  
PC-850, PC-8
- (7) Font 0 selection (ZERO FONT)  
0 (No slash used), Ø (Slash used)
- (8) Control code selection (CODE)
  - Automatic selection
  - Manual selection (ESC, LF, NUL method)
  - Manual selection ({, |, } method)
  - Code designation (Manual method)
- (9) Ribbon type selection (RIBBON)
  - Transmissive ribbon
  - Non-transmissive ribbon
- (10) Ribbon motor drive voltage fine adjustment (RIBBON ADJ)  
-15 step to +0 step (in units of step)
- (11) Strip status selection
  - 1: No strip status
  - 2: Strip status
- (12) Reflective sensor manual threshold fine adjustment  
0.0 V to 4.0 V
- (13) Transmissive sensor manual threshold fine adjustment  
0.0 V to 4.0 V
- (14) Kanji code selection  
TYPE 1, TYPE 2
- (15) Stepping motor selection  
TYPE 1, TYPE 2
- (16) Euro code (new currency symbol) setting  
20H to FFH
- (17) READY/BUSY control protocol selection  
DTR, RTS
- (18) Reset process when the  $\overline{\text{INPUT} \bullet \text{PRIME}}$  signal is ON  
ON: Performed      OFF: Not performed

## 5.8 LCD MESSAGES AND LED INDICATIONS

No.	LCD Messages	LED Indication			Printer Status	Restoration by the [RESTART] key Yes/No	Acceptance of Status Request 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 pause	Yes	Yes
4	COMMUS ERROR	○	●	○	A parity error, overrun 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 ****	○	●	○	An attempt was made to feed or issue with the head open. (except the [RESTART] key)	Yes	Yes
10	EXCESS HEAD TEMP	○	●	○	The thermal head temperature has become excessively high.	No	Yes
11	RIBBON ERROR ****	○	●	○	An abnormal condition occurred in the sensor for determining the torque for the ribbon motor.	Yes	Yes
12	REWIND FULL ****	○	●	○	An overflow error has occurred in the rewinder.	Yes	Yes
13	SAVING ### %%%	○	○	●	In writable character or PC command save mode	-	Yes
14	FLASH WRITE ERR.	○	●	○	An error has occurred in writing in the flash memory card.	No	Yes
15	FORMAT ERROR	○	●	○	An erase error has occurred in formatting the flash memory card.	No	Yes
16	FLASH CARD FULL	○	●	○	Saving failed because of the insufficient capacity of the flash memory card.	No	Yes

17	Display of error command (See NOTE 1.)	○	●	○	A command error has occurred in analyzing the command.	Yes	Yes
18	<b>DIVIDE ERROR</b>	○	●	○	A zero dividing error has occurred.	No	No
19	<b>UNUSED CODE TRAP</b>	○	●	○	An undefined command was fetched.	No	No
20	<b>POWER FAILURE</b>	○	●	○	A momentary power interruption has occurred.	No	No
21	<b>EEPROM ERROR</b>	○	●	○	An EEPROM for back-up cannot be read/written properly.	No	No

**NOTE 1:** When a command error is found in the command sent, 20 bytes of the command code of the error command are displayed. (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,**

[Example 2] [ESC] T20 E61 [LF] [NUL]

└─ Command error

LCD display

**T20E61**

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

└─ Command error

LCD display

**XR;0200,0300,045**

**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 count

□□□□ ~9999 (in pieces)

### : Remaining memory capacity for PC saving

0 ~ 895 (in K bytes)

%%%% : Remaining memory capacity for storing  
writable characters

0 ~ 3147 (in K bytes)



## 5.9 LCD MESSAGES IN DIFFERENT LANGUAGES

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	EXCESS HEAD TEMP
11	RIBBON ERROR*****
12	REWIND FULL *****
13	SAVING ### %%%%
14	FLASH WRITE ERR.
15	FORMAT ERROR
16	FLASH CARD FULL

No.	GERMAN
1	ON LINE
2	KOPF OFFEN
3	PAUSE *****
4	UEBERTR.-FEHLER
5	PAPIERSTAU *****
6	MESSERFEHL. *****
7	PAPIERENDE *****
8	FARB.-ENDE *****
9	KOPF OFFEN *****
10	KOPF UEBERHITZT
11	FB-FEHLER *****
12	AUFWI.VOLL *****
13	SP.-MOD ### %%%%
14	FLASH FEHLER
15	FORMATFEHLER
16	FLASH ZU KLEIN

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	TETE TROP CHAUDE
11	ERREUR RUBAN*****
12	ERR.REMB. *****
13	MEM LIB ### %%%%
14	ERREUR MEM FLASH
15	ERREUR DE FORMAT
16	MEM INSUFFISANTE

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	TEMP.FOUT
11	LINT FOUT *****
12	OPROL VOL *****
13	MEM ### %%%%
14	FLASH MEM FOUT
15	FORMAAT FOUT
16	GEHEUGEN VOL

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	TEMP.CABEZA ALTA
11	ERROR CINTA *****
12	REBOBI.LLENO*****
13	SALVAR ### %%%%
14	ERROR ESCRITURA
15	ERROR DE FORMATO
16	MEMORIA INSUFICI

No.	JAPANESE
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

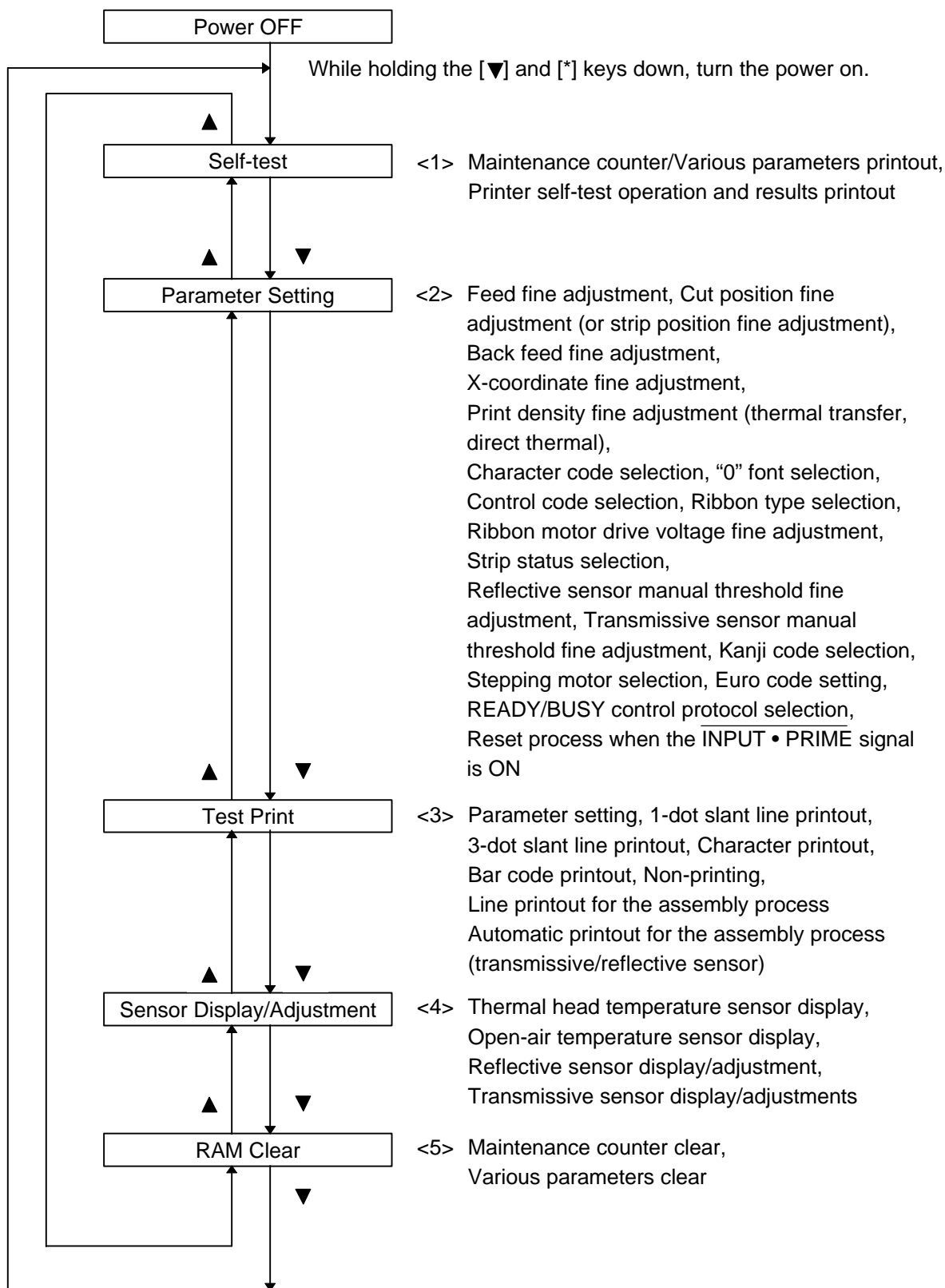
\* Japanese messages are omitted here.

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	TEMP. TESTA ALTA
11	ERR. NASTRO ****
12	RIAVV.PIENO ****
13	SALVA ### %%%
14	ERR.SCRITT.CARD
15	ERR.FORMATTAZ.
16	MEM.CARD PIENA

## 6. SYSTEM MODE

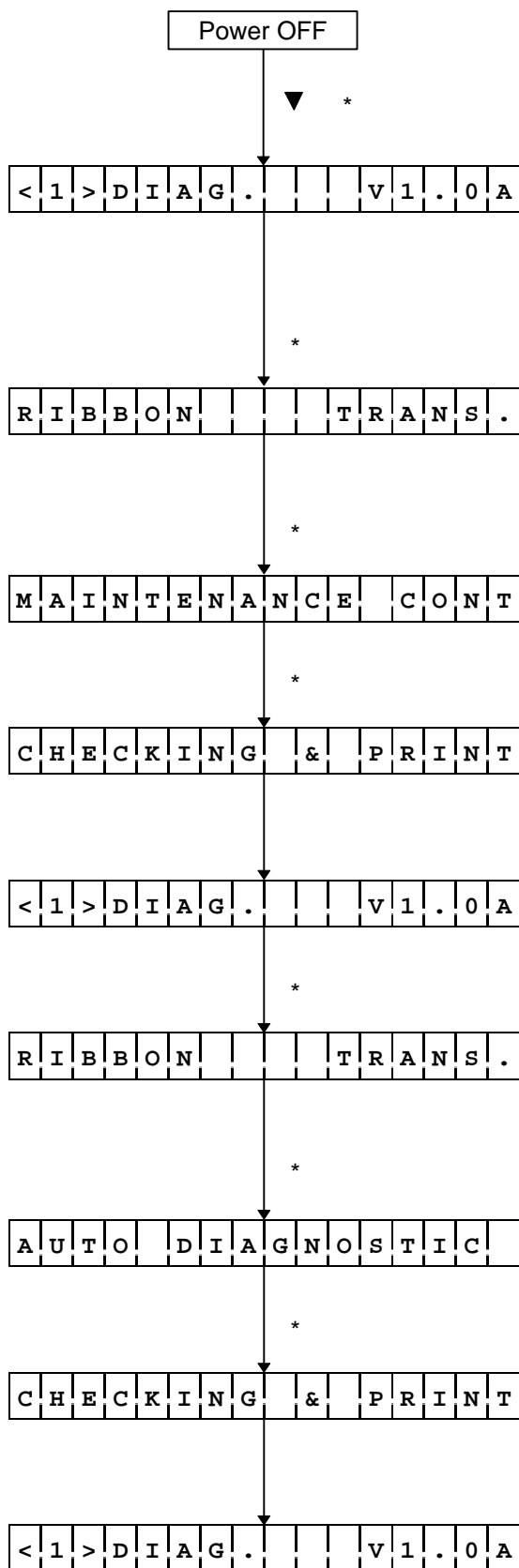
### 6.1 OUTLINE OF SYSTEM MODE

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



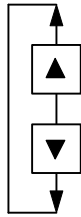
## 6.2 SELF-TEST

### 6.2.1 Self-test Operation Example



- (1) Power off state
- (2) While pressing the [▼] and [\*] keys, turn the power on.
- (3) System mode menu display (Self-test)  
(The program ROM version is displayed.)
- (4) Press the [\*] key.
- (5) Ribbon designation mode:  
Program mode using the [▼] and [▲] keys.
- (6) Press the [\*] key.
- (7) Maintenance counter/various parameters printout mode
- (8) Press the [\*] key.
- (9) Start of maintenance counter and parameter check
- (10) Results printout
- (11) System mode menu display (Self-test)
- (12) Press the [\*] key.
- (13) Ribbon designation mode:  
Program mode using the [▼] and [▲] keys.
- (14) Press the [\*] key.
- (15) Self-test mode
- (16) Press the [\*] key.
- (17) Start of the automatic self-test check
- (18) Results printout
- (19) System mode menu display (Self-test)

## Ribbon Designation (RIBBON)



- NO RIBBON
- TRANS.
- NO TRANS.

(No ribbon: Direct thermal print)

(Transmissive ribbon: Thermal transfer print)

(Non-transmissive ribbon: Thermal transfer print)

**NOTE:** When an error occurs during printing the results of the self-test, the error message is displayed and printing is stopped. The error is cleared by pressing the [\*] key, then the system mode menu is displayed again. The printer does not automatically resume printing if the error is cleared.

## 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
- Cutting 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 density fine adjustment value (Direct thermal)
- Ribbon motor drive voltage fine adjustment

[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 density fine adjustment value (Direct thermal)
- X-coordinate fine adjustment value
- Character code type
- Font "0"
- Control code type
- Ribbon type
- Ribbon motor drive voltage fine adjustment
- Strip status selection
- Reflective sensor manual threshold fine adjustment
- Transmissive sensor manual threshold fine adjustment
- Kanji code type
- Stepping motor type
- Euro code set value
- READY/BUSY control protocol selection
- Reset process when the INPUT • PRIME signal is ON

(2) Automatic Self-test

① Memory Check

- Program ROM (version, part number, checksum)
- Mask ROM (version, part number, checksum)
- METO program (version)
- Kanji ROM checksum
- Kanji outline ROM checksum
- EEPROM check
- DRAM check
- Flash card check

② Sensor Check

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

③ Switch Check

- DIP SWs 1 and 2

④ Expansion I/O Loop Back Check

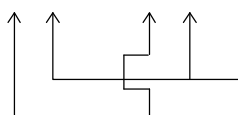
## 6.2.3 Self-test Results Printout Samples

### (1) Maintenance Counter/Various Parameters Printout

TL FEED 0.0km	[PC]
FEED 0.0km	FEED +0.0mm
PRINT 0.0km	CUT +0.0mm
CUT 0	BACK +0.0mm
HEAD U/D 0	TONE (T)+0step
RIBBON 0h	TONE (D)+0step
SOLENOID 0h	[KEY]
232C ERR 255	FEED +0.0mm
SYS ERR 0	CUT +0.0mm
PW FAIL 0	BACK +0.0mm
FEED SPEED	TONE (T)+0step
FONT[PC-850][0]	TONE (D)+0step
CODE[AUTO]	X ADJ. +0.0mm
RIBN[TRANS.]	
RIBN ADJ.[PC]+0 +0 [KEY] +0 +0	
STATUS	[OFF]
THRESHOLD R	1.0V
THRESHOLD T	1.4V
KANJI	[TYPE1]
MOTOR	[TYPE1]
EURO CODE	7FH
DTR/RTS	[DTR]
INPUT PRIME	[ON]

Explanation for print data of the ribbon motor drive voltage fine adjustment

RIBN[TRANS.]	X ADJ. +0.0mm
RIBN ADJ.[PC]+0 +0 [KEY]+0 +0	



Ribbon motor drive voltage fine adjustment (Back tension)  
Ribbon motor drive voltage fine adjustment (Rewind)



(2) Automatic Self-test Printout

PROGRAM	V3.0B FMBC0035510:7E00
MASK	V1.0 FMRM0034901:B100
METO PRG	V1.60 Std.
KANJI	0000:0000
	0000:0000:0000:0000
EEPROM	OK
DRAM	512KB
CARD	OK
SENSOR1	00000000,10111011
SENSOR2	[H]3.3V [A]3.4V
	[R]3.0V [T]3.5V
	[RANK]5
DIP SW	00100000, 10001010
EXP.I/O	NG

**NOTE:** Print Conditions: 50 mm of label length, thermal transfer/direct thermal print mode (\*1), no sensor used, 6"/sec, one sheet to print, batch issue, no built-in rewinder used

(\*1) Depends on the ribbon setting.

## 6.2.4 Self-test Printout Contents

### (1) Maintenance Counter

Item	Contents	Range
TL FEED	Total label distance covered (cannot be cleared)	0.0 to 3200.0 km
FEED	Label distance covered	0.0 to 200.0 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
SYS ERR	System error count	0 to 15
PW FAIL	Momentary power interruption count	0 to 15

Maintenance Counter	Count Conditions
Total label distance covered Label distance covered	Counts when the paper feed motor is driven to perform a paper feed, print and eject operation. (Counts also during a ribbon save operation or reverse operation.) When the power is off, the total distance of 8.2 m or less is regarded and backed up as 0.0 m.
Print distance	Counts while printing. (Counting is not performed during eject, reverse or ribbon saving operation.) When the power is off, the print distance of 8.2 m or less is regarded and backed up as 0.0 m.
Cut count	Every cut operation is counted. When the power is off, the cut count of 31 or less is regarded and backed up as 0.
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, the up/down count of 31 or less is regarded and backed up as 0.
Ribbon motor drive time	Counts when the ribbon motor is driven to perform a paper feed, print and eject operation. (Counts also during a reverse operation but not during a ribbon save operation.) When the power is off, the drive time of 32 seconds or less is regarded and backed up as 0.
Head-up solenoid drive time	Counts when the ribbon saving operation is performed. When the power is off, the drive time of 32 seconds or less is regarded and backed up as 0.
RS-232C hardware error count	Counts when a parity, overrun, or framing error occurs. * When data of several bytes is transmitted continuously, counting is performed per byte.
System error count	Counts when a zero-dividing error occurs or non-defined command is fetched.
Momentary power interruption count	Counts when a momentary power interruption occurs.

## (2) Various Parameters Check Contents

Item	Contents	Remarks
[PC] 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	-9.9 mm to +9.9 mm
tone (T)	Print density fine adjustment (thermal transfer)	-10 to +10 step (See <b>NOTE 2.</b> )
tone (D)	Print density fine adjustment (direct thermal)	-10 to +10 step (See <b>NOTE 2.</b> )
RIBBON ADJ.	Ribbon motor drive voltage fine adjustment	-15 to +0 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)	-10 to +10 step (See <b>NOTE 2.</b> )
tone (D)	Print density fine adjustment (direct thermal)	-10 to +10 step (See <b>NOTE 2.</b> )
X. ADJ.	X-coordinate fine adjustment	-99.5 mm to +99.5 mm
RIBBON ADJ.	Ribbon motor drive voltage fine adjustment	-15 to +0 step
FONT	Character code selection	PC-850: PC-850 PC-8: PC-8
	Font "0" selection	0 : No slash used Ø : Slash used
CODE	Control code type	AUTO: Automatic selection ESC LF NUL: ESC LF NUL method {   } : {   } method 1B 1C 1D Manual method (See <b>NOTE 1.</b> )
RIBN	Ribbon type	TRANS: Transmissive ribbon NON TRANS: Non-transmissive ribbon
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
STATUS TYPE	Strip status selection	1: No strip status 2: Strip status
KANJI CODE	Kanji code type	TYPE1: For Windows codes TYPE2: For original codes
MOTOR	Stepping motor type	TYPE1: Motor made by Sanyo TYPE2: Motor made by NMB
EURO CODE	Euro code setting	20H to FFH

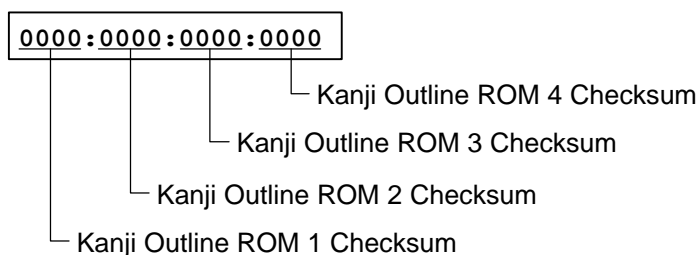
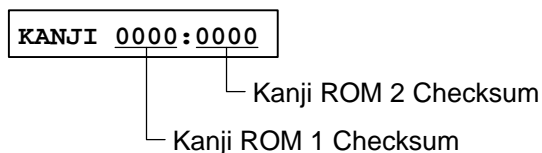
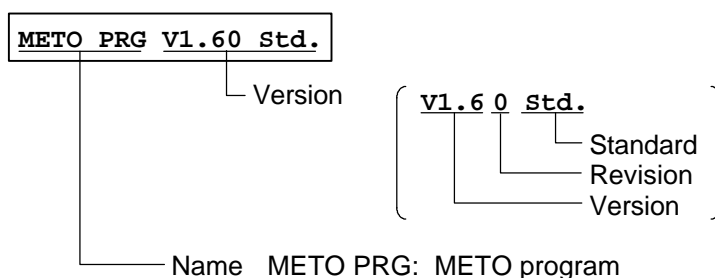
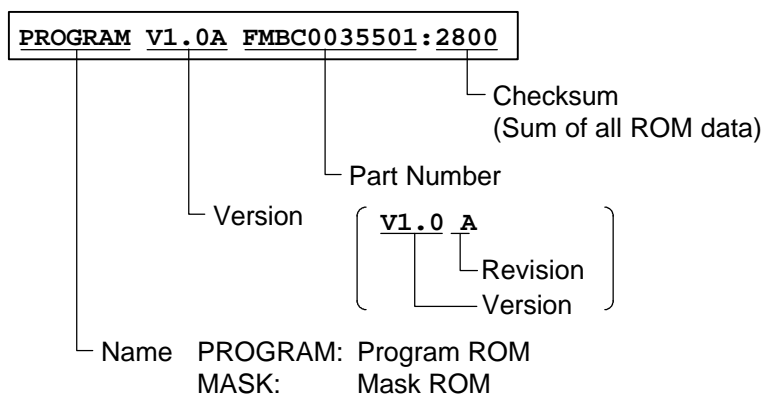
Item	Contents	Remarks
<b>DTR/RTS</b>	READY/BUSY control method selection	DTR: DTR/DSR control protocol RTS: RTS/CTS control protocol
<b>INPUT PRIME</b>	Reset process when the INPUT • PRIME signal is ON	ON: Performed OFF: Not performed

**NOTE:** 1. When the manual method is selected as the control code type, the code which has been set is printed.

2. The fine adjustment value is the sum of the fine adjustment by the command and the fine adjustment in the system mode (by key operation). The respective max. fine adjustment values are  $\pm 10$ . The max. value for each print speed is as below. When the value exceeds the maximum, it is automatically corrected to the max. value, and then the printer prints.

3"/sec: +10 step  
6"/sec: +5 step  
10"/sec: +2 step

### (3) Memory Check Contents



<Supplementary Explanation>

- When [▲] and [▼] are entered at the same time in self-test item selection, the system mode menu is displayed.
- The last two digits of the checksum of the program ROM and the mask ROM are usually "0".
- The last two digits of the checksum of the Kanji ROMs and the Kanji outline ROMs are not "0".
- The checksum is calculated whether the Kanji ROM or the Kanji outline ROM is installed or not.

However, when the top one byte of the Kanji ROM is not proper, the checksum is not calculated and "0000" is printed. Similarly, when the top one byte of the all Kanji outline ROMs is not proper, the checksum is not calculated and "0000" is printed.

- The version, part number, and checksum vary according to software version.

<u>EEPROM</u>	<u>OK</u>
---------------	-----------

OK: Data in the check area can be properly read/written.

NG: Data in the check area cannot be properly read/rewritten.

Back up memory (EEPROM)

<u>DRAM</u>	<u>512KB</u>
-------------	--------------

All displayed data can be read/written.

Memory for the system and drawing

<u>CARD</u>	<u>OK</u>
-------------	-----------

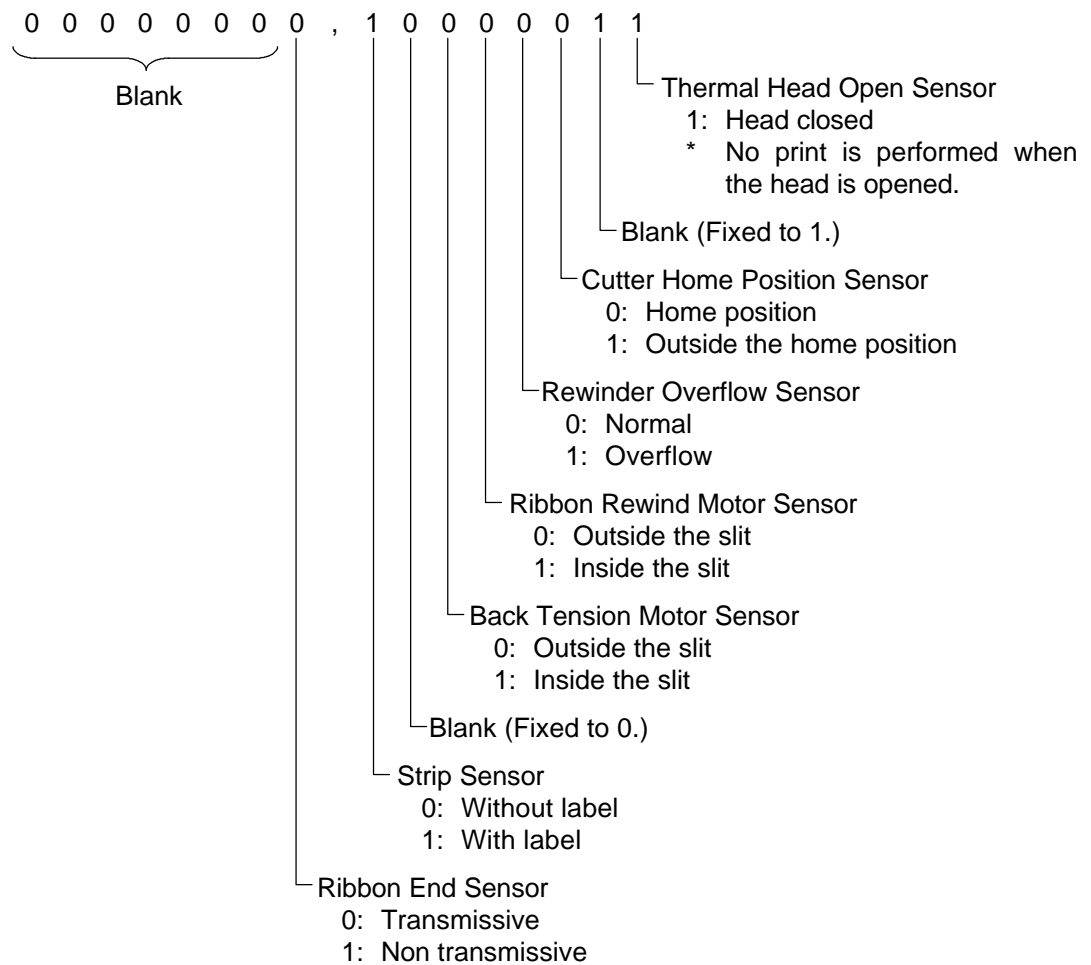
OK: Formatting is complete.

NG: Formatting is not properly performed or the card has not yet been inserted.

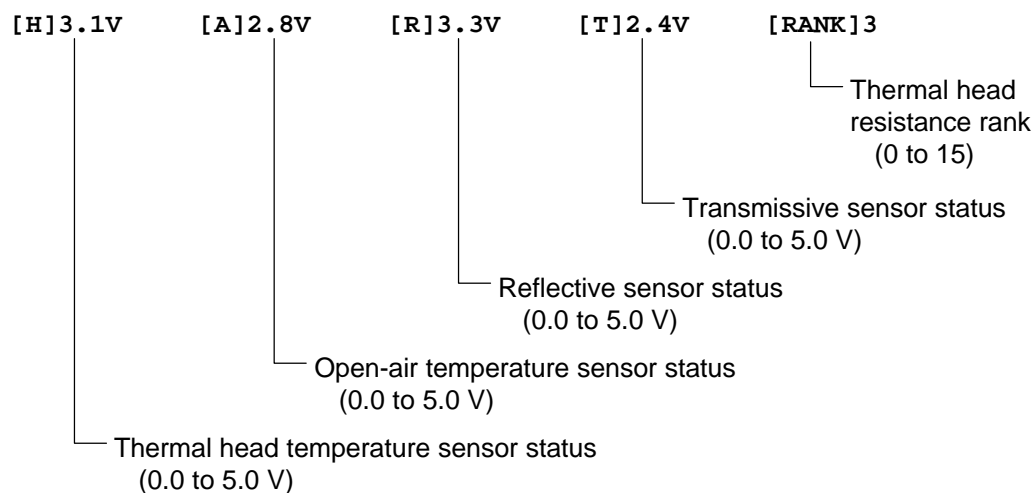
Flash memory card for storing writable character/PC save command

#### (4) Sensor Check Contents

##### ① Sensor 1



② Sensor 2



\* Thermistor Status

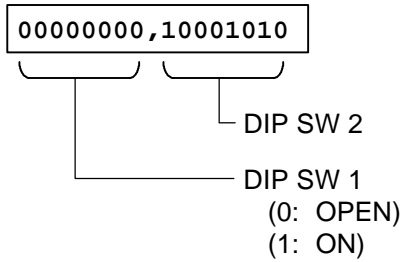
Temperature (°C)	Thermistor Status (V)	Temperature (°C)	Thermistor Status (V)	Temperature (°C)	Thermistor Status (V)
0	3.9	30	3.1	60	1.8
2	3.9	32	3.1	62	1.6
4	3.8	34	3.0	64	1.5
6	3.8	36	2.9	66	1.4
8	3.8	38	2.8	68	1.3
10	3.7	40	2.7	70	1.2
12	3.7	42	2.7	72	1.1
14	3.6	44	2.6	74	1.0
16	3.6	46	2.5	76	1.0
18	3.5	48	2.4	78	0.9
20	3.5	50	2.3	80	0.9
22	3.4	52	2.2	82	0.8
24	3.3	54	2.1	84	0.7
26	3.3	56	2.0	86	0.7
28	3.2	58	1.9		

\* Thermal Head Resistance Rank

Resistance Rank	Average Resistance (ohm)	Resistance Rank	Average Resistance (ohm)
0	957 to 971	8	830 to 845
1	942 to 956	9	814 to 829
2	926 to 941	10	798 to 813
3	910 to 925	11	782 to 797
4	894 to 909	12	766 to 781
5	878 to 893	13	750 to 765
6	862 to 877	14	734 to 749
7	846 to 861	15	719 to 733

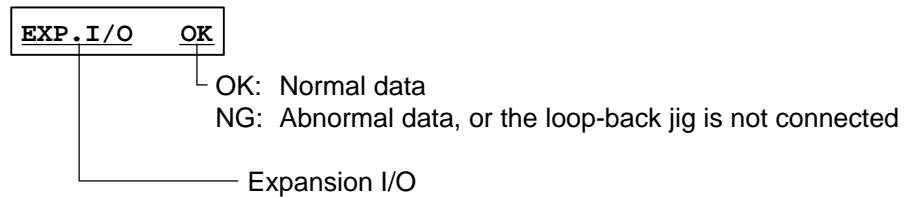
(5) Switch Check Contents

No.: 87654321 87654321

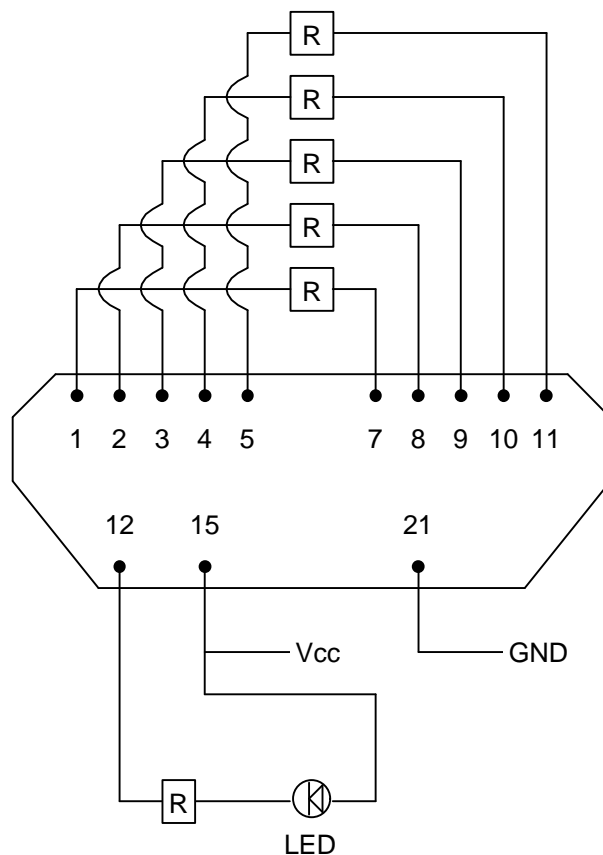


- \* DIP SW 1-7 is always 0, regardless of settings.  
(It cannot be checked in the self-test.)

(6) Expansion I/O Check Contents



- \* Connect the cable as described below, then check the high output/high input, low output/low input.

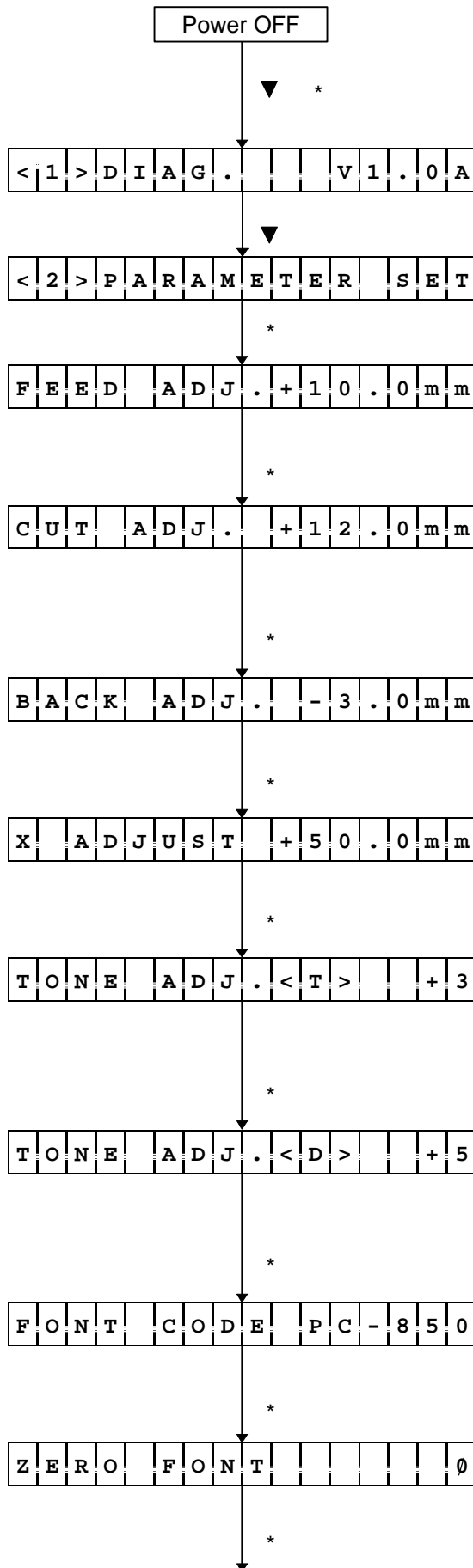


R = 300 ohms  
Connector: FCN-781P024-G/P

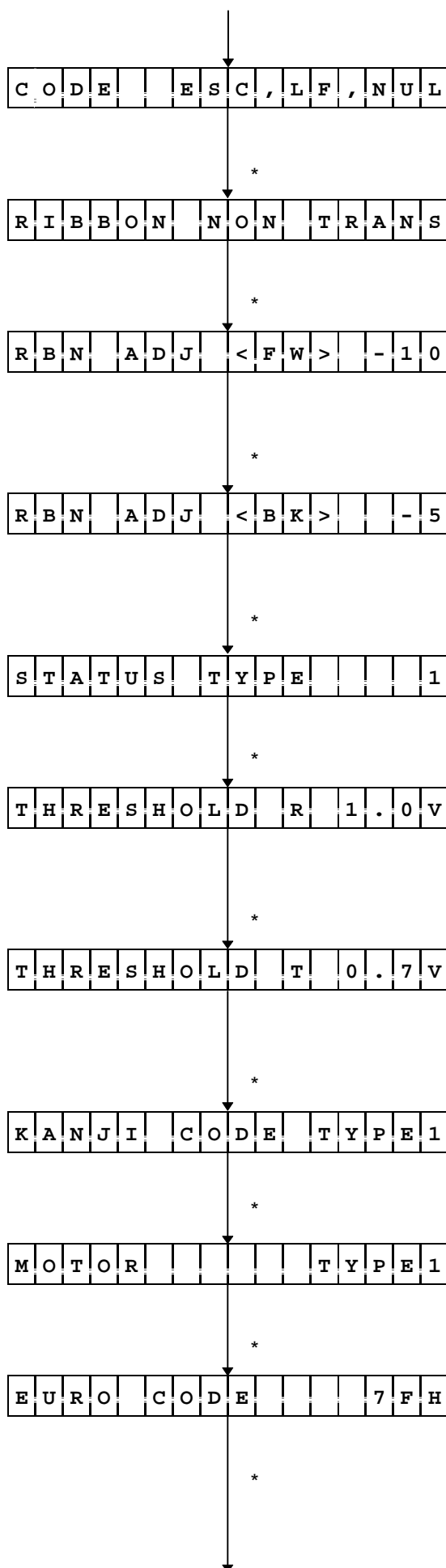


## 6.3 VARIOUS PARAMETERS SETTING

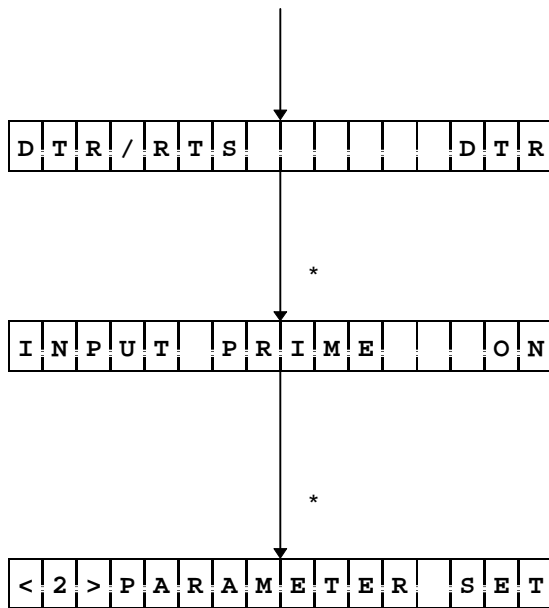
### 6.3.1 Various Parameters Setting Operation Example



- (1) Power off state
- (2) While pressing the [▼] and [\*] keys, turn the power on.
- (3) System mode menu display (Self-test)
- (4) Press the [▼] key.
- (5) System mode menu display (Parameter setting)
- (6) Press the [\*] key.
- (7) Feed fine adjustment:  
Set the fine adjustment value using the [▼] and [▲] keys.
- (8) Press the [\*] key.
- (9) Cut position (or strip position) fine adjustment:  
Set the fine adjustment value using the [▼] and [▲] keys.
- (10) Press the [\*] key.
- (11) Back feed fine adjustment:  
Set the fine adjustment value using the [▼] and [▲] keys.
- (12) Press the [\*] key.
- (13) X-coordinate fine adjustment:  
Set the fine adjustment value using the [▼] and [▲] keys.
- (14) Press the [\*] key.
- (15) Print density fine adjustment (thermal transfer mode):  
Set the fine adjustment value using the [▼] and [▲] keys.
- (16) Press the [\*] key.
- (17) Print density fine adjustment (direct thermal mode):  
Set the fine adjustment value using the [▼] and [▲] keys.
- (18) Press the [\*] key.
- (19) Character code selection:  
Select the code using the [▼] and [▲] keys.
- (20) Press the [\*] key.
- (21) Font "0" selection:  
Select the font using the [▼] and [▲] keys.
- (22) Press the [\*] key.



- (23) Control code selection:  
Select the code using the [▼] and [▲] keys.
- (24) Press the [\*] key.
- (25) Ribbon type selection:  
Select the ribbon using the [▼] and [▲] keys.
- (26) Press the [\*] key.
- (27) Ribbon motor drive voltage fine adjustment (Rewind):  
Set the fine adjustment value using the [▼] and [▲] keys.
- (28) Press the [\*] key.
- (29) Ribbon motor drive voltage fine adjustment (Back tension):  
Set the fine adjustment value using the [▼] and [▲] keys.
- (30) Press the [\*] key.
- (31) Strip status selection:  
Select the strip status using the [▼] and [▲] keys.
- (32) Press the [\*] key.
- (33) Reflective sensor manual threshold fine adjustment:  
Set the fine adjustment value using the [▼] and [▲] keys.
- (34) Press the [\*] key.
- (35) Transmissive sensor manual threshold fine adjustment:  
Set the fine adjustment value using the [▼] and [▲] keys.
- (36) Press the [\*] key.
- (37) Kanji code selection:  
Select the Kanji code using the [▼] and [▲] keys.
- (38) Press the [\*] key.
- (39) Stepping motor selection:  
Set the stepping motor using the [▼] and [▲] keys.
- (40) Press the [\*] key.
- (41) Euro code setting:  
Set the Euro code using the [▼] and [▲] keys.
- (42) Press the [\*] key.



(43) READY/BUSY control protocol selection <sup>\*1</sup>:  
Select DTR and RTS using the [▲] and [▼] keys.

(44) Press the [\*] key.

(45) Reset process when the INPUT • PRIME signal is ON:  
Set the reset process when the INPUT • PRIME signal is ON using the [▲] and [▼] keys.

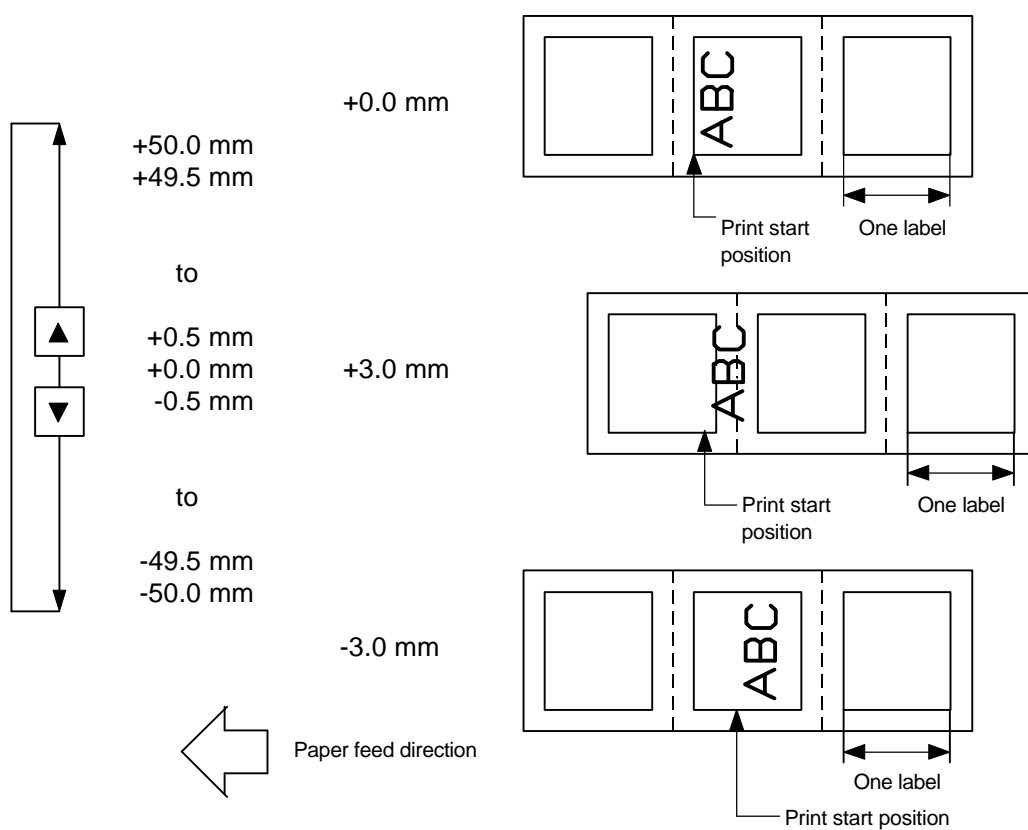
(46) Press the [\*] key.

(47) System mode menu display  
(Parameter setting)

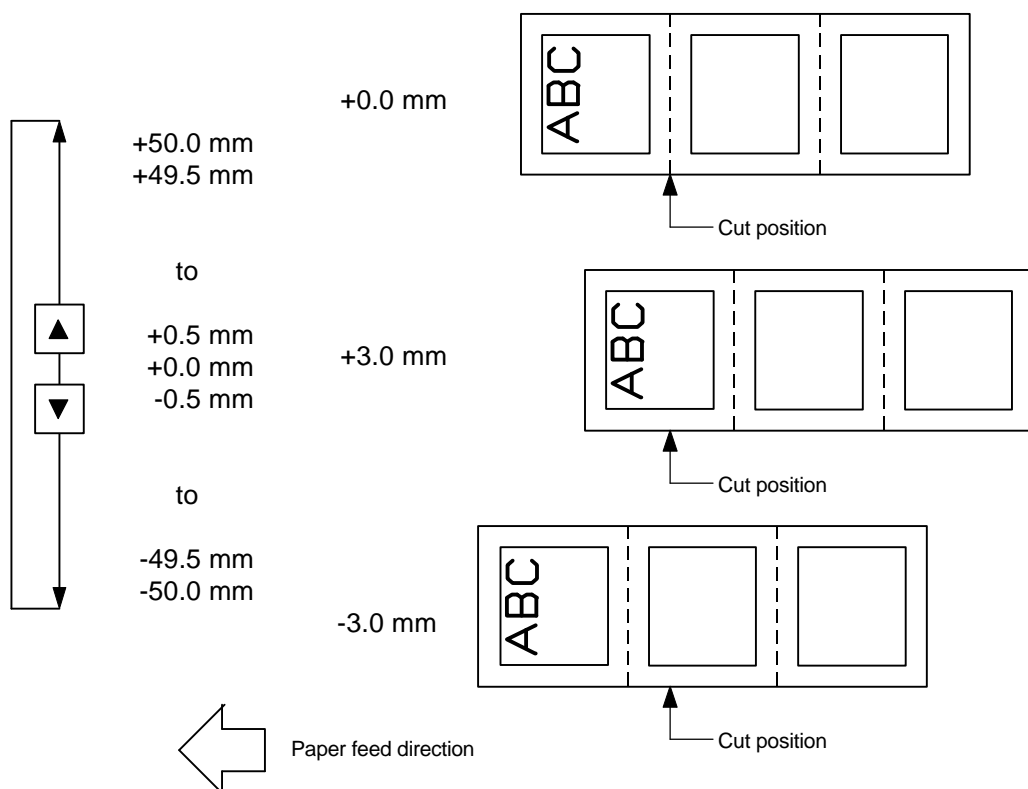
\*1: It is effective when the transmission control is set to READY/BUSY protocol by the DIP SW2.

### 6.3.2 Setting Contents

#### (1) Feed Fine Adjustment (FEED ADJ.)



#### (2) Cut Position Fine Adjustment (CUT ADJ.)



[Procedure for Label Having Label Pitch of Less than 38 mm]

[Method 1] When the following conditions are all met, the paper ejection operation in cut print mode 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,  
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 (B-4905-R-QM) is attached. When the ribbon save module is not installed, use Method 2 since the head is not lifted/lowered.

[Method 2] 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 mm is used, 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 the cut position fine adjustment according to the following procedure, the above problem will be solved. However, when this procedure is used, one or more printed labels are left between the head and the cutter. Therefore, the left labels should be removed by an issue or feed of a label.

(a) Cut Position Fine Adjustment Value Calculation

The cut position fine adjustment value can be calculated using the following method. When a back feed to the proper home position is not performed even if this value is used, the cut position should be adjusted with a desired value.

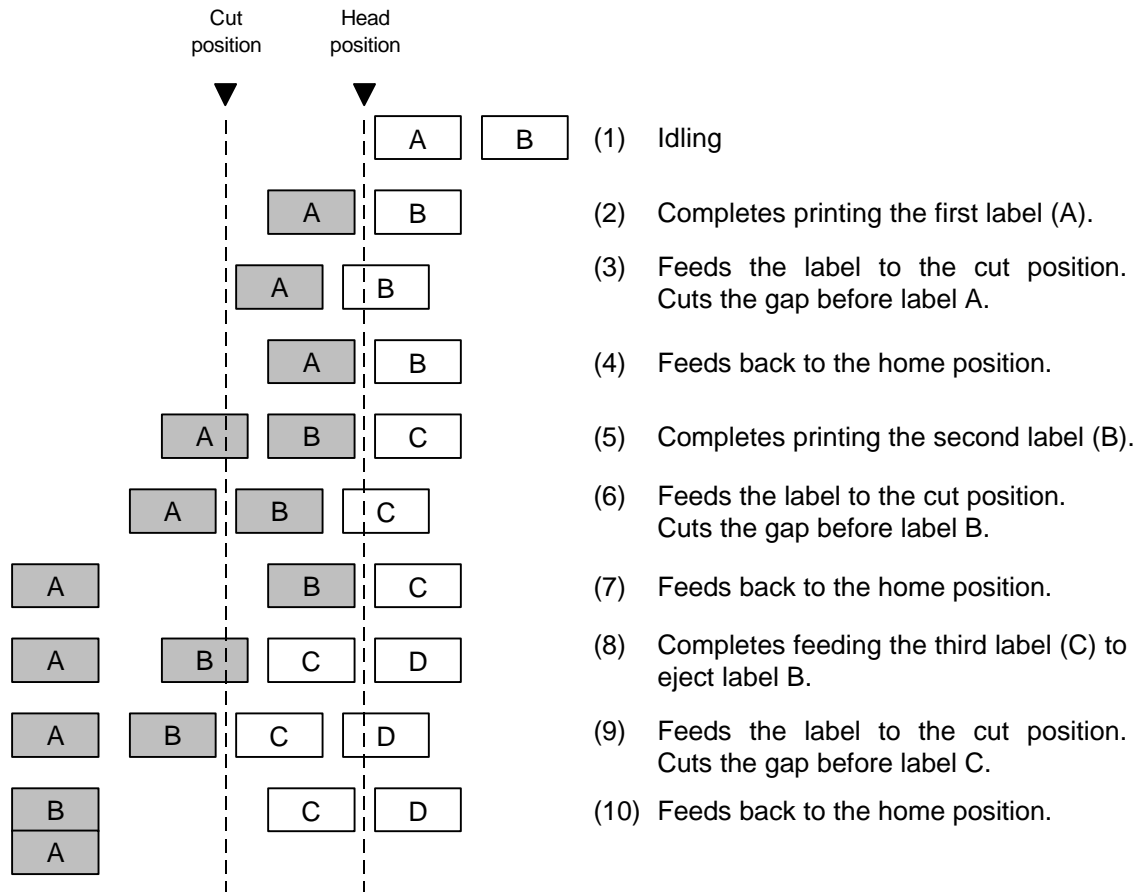
$$\begin{aligned}\text{Cut position fine adjustment value} &= (\text{Number of labels left between head and cutter}) \times (\text{Label pitch}) \\ &= \left( \frac{32.8 \text{ mm}}{\text{Label pitch}} \right) \times (\text{Label pitch})\end{aligned}$$

\* Decimals of the result of the division is omitted.

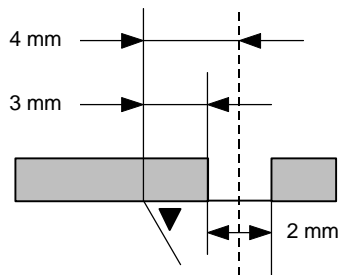
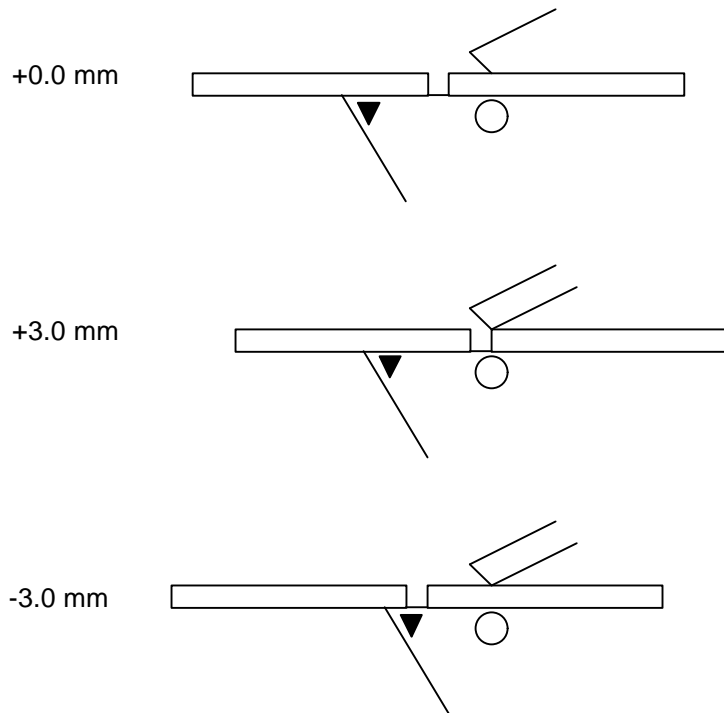
Ex) Label pitch: 30.0 mm

$$\begin{aligned}\text{Cut position fine adjustment value} &= \left( \frac{32.8 \text{ mm}}{30.0 \text{ mm}} \right) \times (30.0 \text{ mm}) \\ &= 1 \times 30.0 \text{ mm} \\ &= +30.0 \text{ mm}\end{aligned}$$

(b) Operation Example



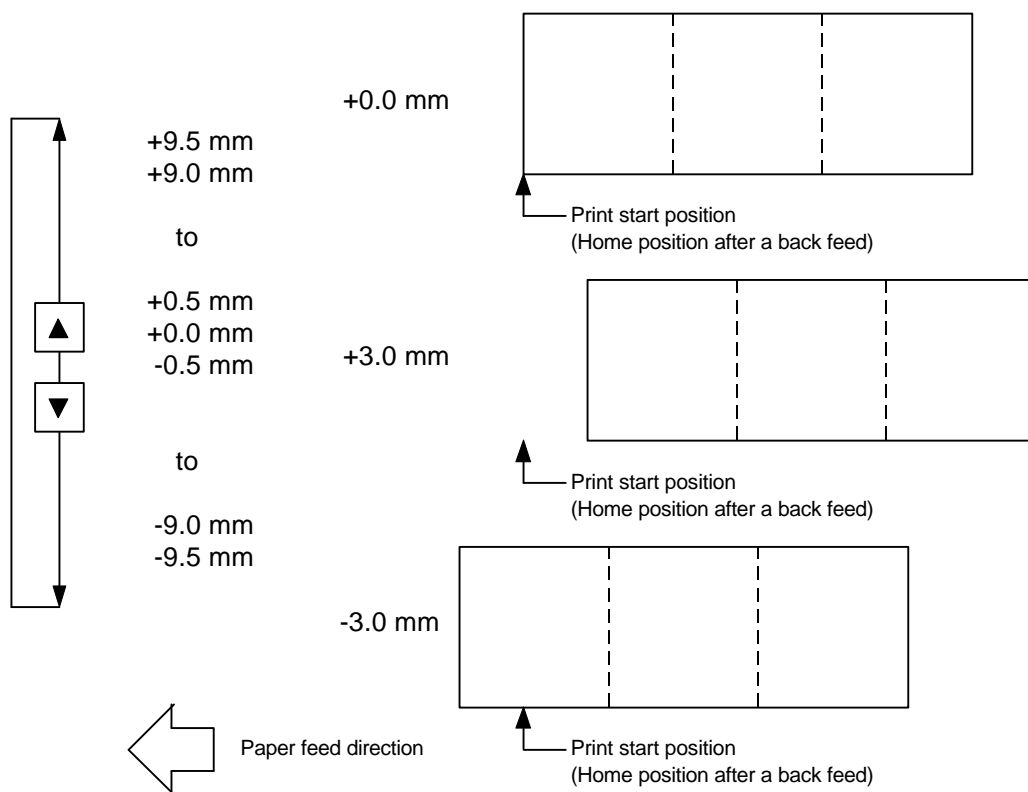
[Strip Position Fine Adjustment]



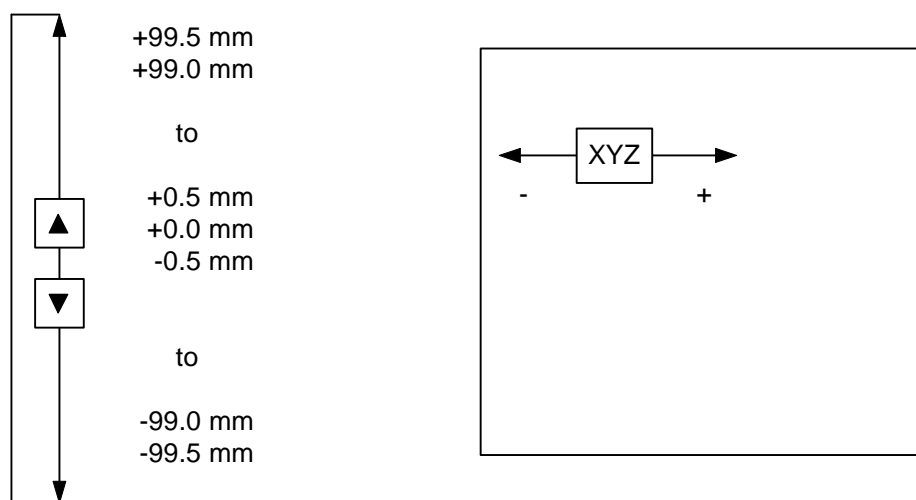
Printing in the strip issue mode is stopped at the position where the distance from the middle point of the gap between labels to the top of the strip shaft is 4 mm, since the gap between labels is assumed to be 2 mm.

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 Length Fine Adjustment (BACK ADJ.)

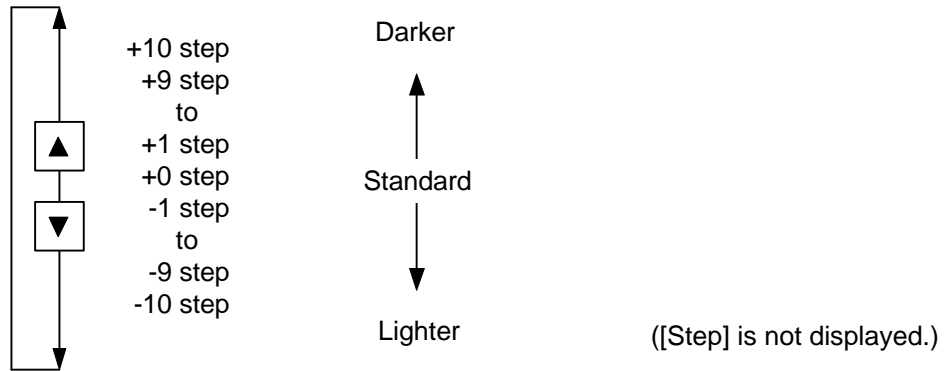


### (4) X-coordinate Fine Adjustment (X ADJUST)

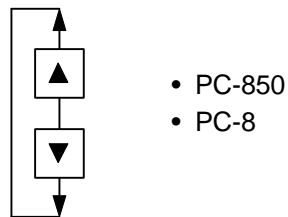




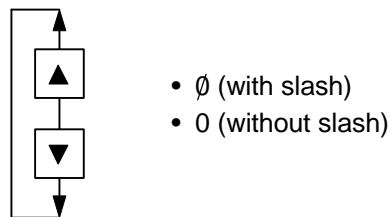
(5) Print Density Fine Adjustment (TONE ADJ.)



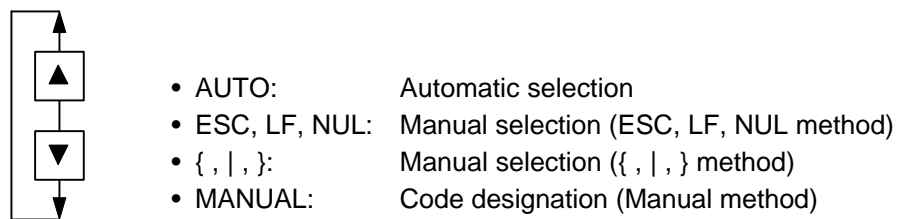
(6) Character Code Selection (FONT CODE)



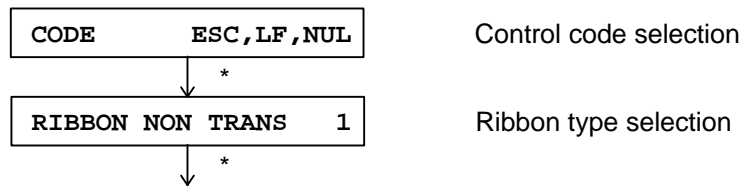
(7) Font “0” Selection (ZERO FONT)



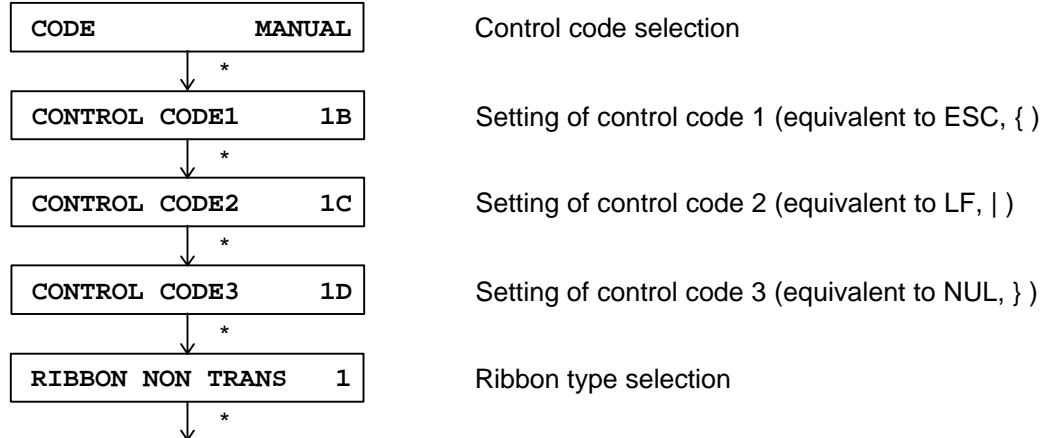
(8) Control Code Selection (CODE)



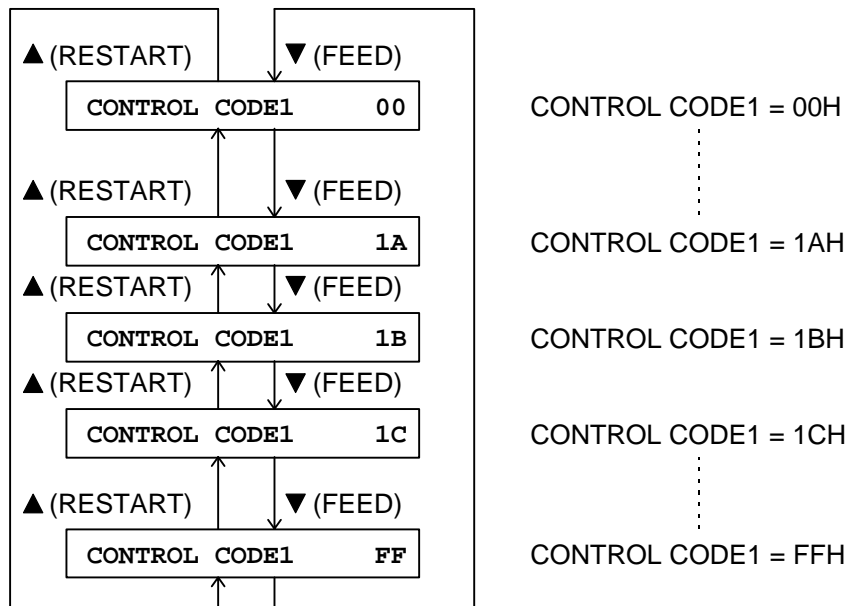
\* When AUTO, ESC, LF, NUL, or { , | , } is selected, the following ribbon type selection is carried out.



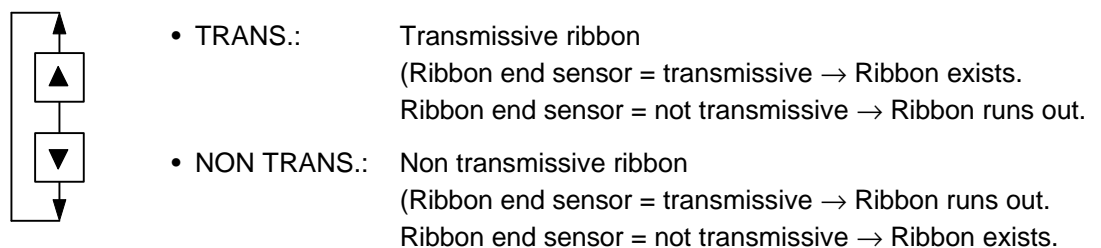
\* When MANUAL is selected, the following code setting is carried out.



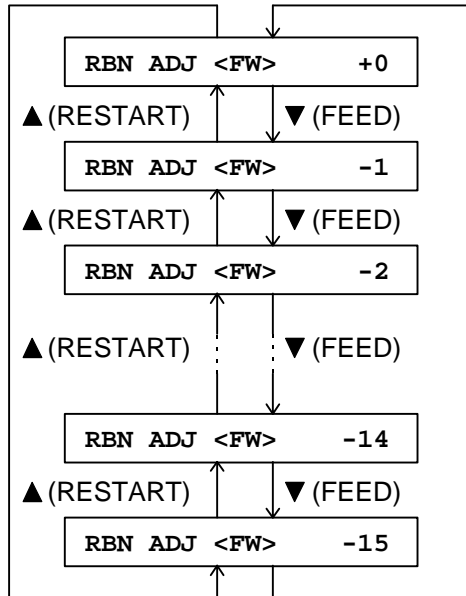
\* Setting of control code



#### (9) Ribbon Type Selection (RIBBON)



(10) Ribbon Motor Drive Voltage Fine Adjustment Setting (Rewind)



+0 step (Standard)

-1 step ( $-5\% \times 1 = -5\%$ )

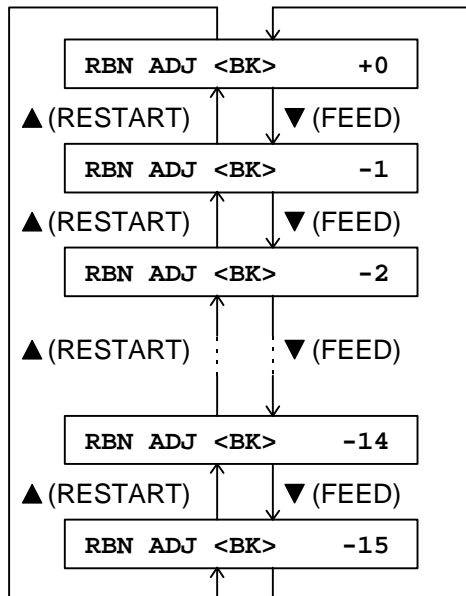
-2 step ( $-5\% \times 2 = -10\%$ )

-14 step ( $-5\% \times 14 = -70\%$ )

-15 step ( $-5\% \times 15 = -75\%$ )

- -1 step = -5%
- For negative adjustments only

(11) Ribbon Motor Drive Voltage Fine Adjustment Setting (Back Tension)



+0 step (Standard)

-1 step ( $-5\% \times 1 = -5\%$ )

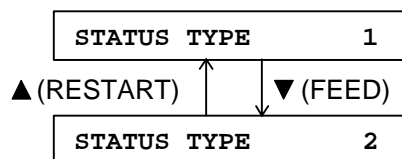
-2 step ( $-5\% \times 2 = -10\%$ )

-14 step ( $-5\% \times 14 = -70\%$ )

-15 step ( $-5\% \times 15 = -75\%$ )

- -1 step = -5%
- For negative adjustments only

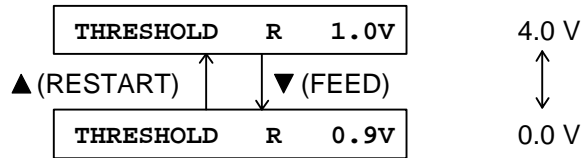
(12) Strip Status Selection



No strip status

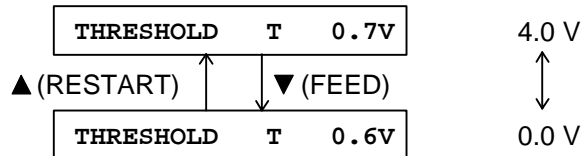
Strip status

(13) Reflective Sensor Manual Threshold Fine Adjustment Setting



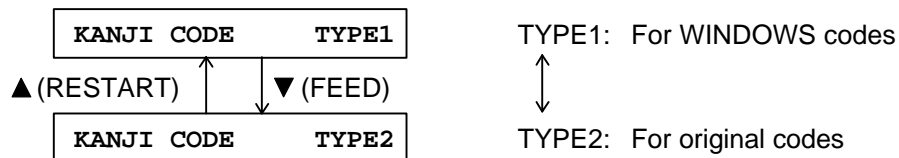
\* When the reflective sensor manual threshold fine adjustment is performed, it is not necessary to perform the threshold setting operation again.

(14) Transmissive Sensor Manual Threshold Fine Adjustment Setting

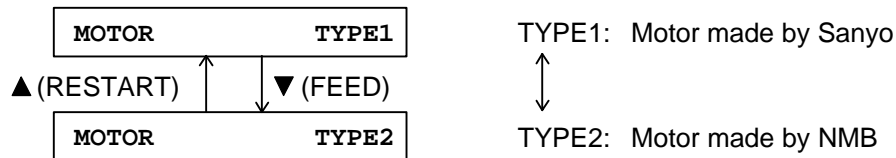


\* When the transmissive sensor manual threshold fine adjustment is performed, it is not necessary to perform the threshold setting operation again.

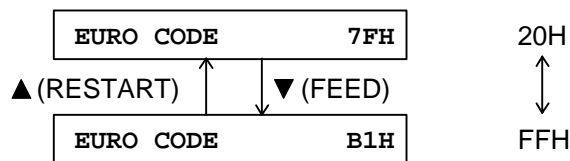
(15) Kanji Code Selection



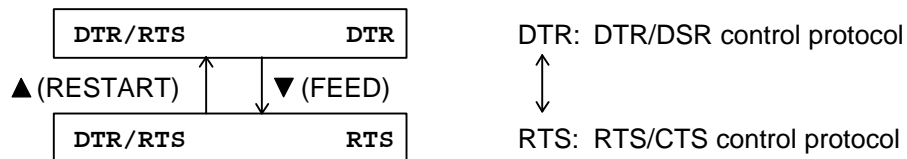
(16) Stepping motor selection



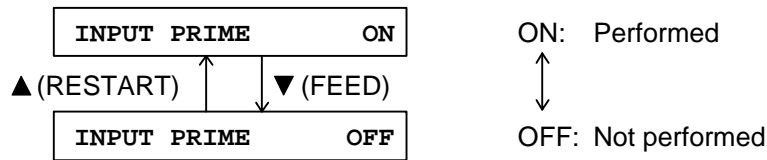
(17) Euro code setting



(18) READY/BUSY control protocol selection



- (19) Reset process when the INPUT • PRIME signal is on



- (20) Supplementary Explanation

- When the [▲] and [▼] keys are pressed at the same time, the display shows the system mode menu.
- If the [▲] or [▼] key is pressed for 0.5 seconds or more when a parameter is being set, the printer enters repeat mode, in which the key is entered repeatedly.
- A changed parameter becomes effective by pressing the [\*] key. However, only when MANUAL is selected in “Control Code Selection” and all the following codes are programmed, is the mode switched to MANUAL.
- 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:
 

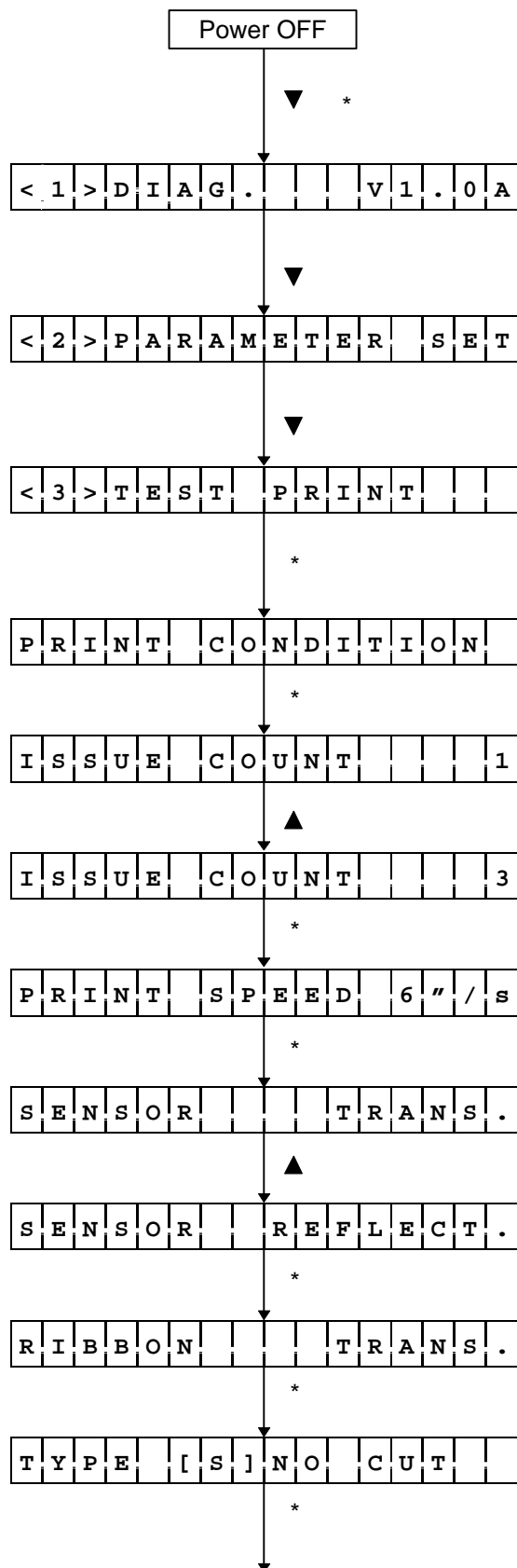
Feed fine adjustment:	±50.0 mm
Cut position (or strip position) fine adjustment:	±50.0 mm
Back feed fine adjustment:	±9.9 mm
Print density fine adjustment:	±10 step
X-coordinate fine adjustment:	±99.5 mm
Ribbon motor drive voltage fine adjustment:	-15 step
- The X-coordinate fine adjustment is performed 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 the 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 shipment from the factory.
- The ribbon motor drive voltage fine adjustment value will be the sum of the system mode (key operation on the printer) and the ribbon rewind motor adjustments or the system mode (key operation on the printer) and the ribbon back tension motor adjustments. The respective max. fine adjustment values each are -15.
- The print density fine adjustment value is the sum of the fine adjustment by the command 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 follows. When the value exceeds the maximum, it is automatically corrected to the max. value, and then the printer prints.
 

3"/sec	+10 step
6"/sec	+5 step
10"/sec	+2 step

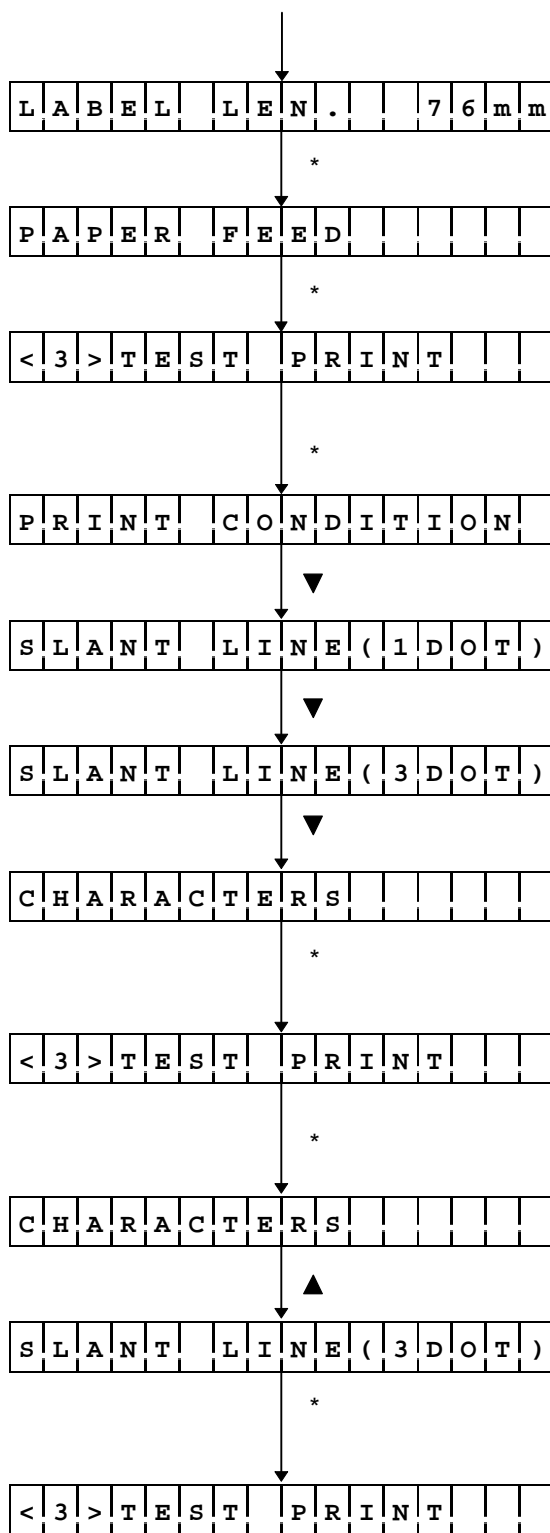
## 6.4 TEST PRINT

### 6.4.1 Test Print Operation Example

#### (1) Normal Test Print

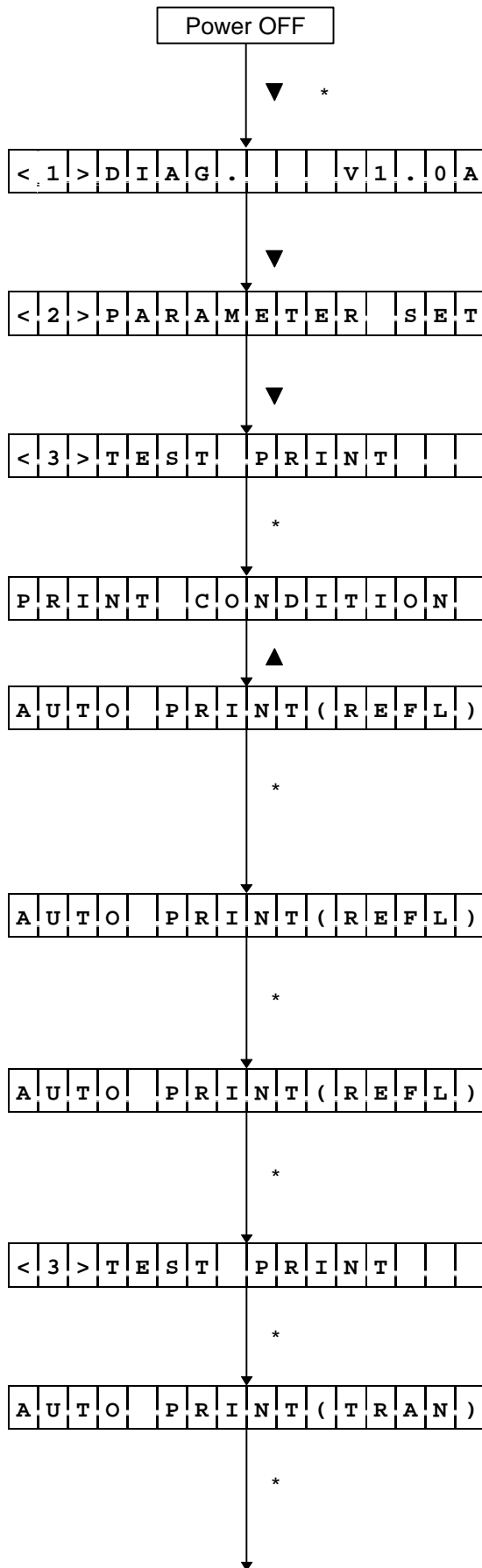


- (1) Power off state
- (2) While pressing the [▼] and [\*] keys, turn the power on.
- (3) System mode menu display (Self-test)
- (4) Press the [▼] key.
- (5) System mode menu display (Parameter setting)
- (6) Press the [▼] key.
- (7) System mode menu display (Test print)
- (8) Press the [\*] key.
- (9) Test print condition setting mode
- (10) Press the [\*] key.
- (11) Issue count setting mode
- (12) Press the [▲] key.
- (13) Set the issue count to 3.
- (14) Press the [\*] key.
- (15) Print speed setting mode
- (16) Press the [\*] key.
- (17) Sensor selection mode
- (18) Press the [▲] key.
- (19) Select the reflective sensor.
- (20) Press the [\*] key.
- (21) Ribbon selection mode
- (22) Press the [\*] key.
- (23) Issue type setting mode
- (24) Press the [\*] key.



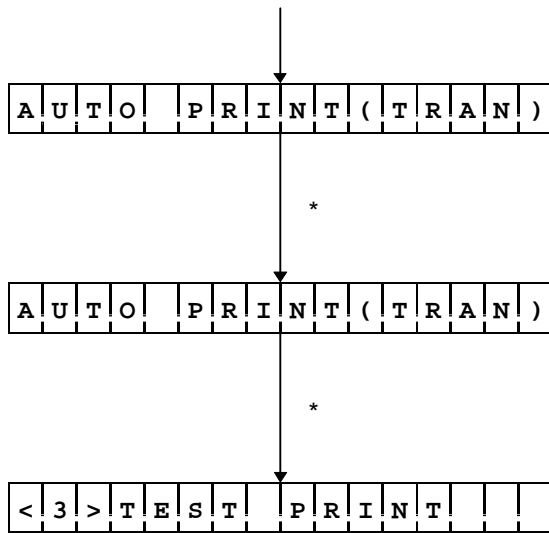
- (25) Label size setting mode
- (26) Press the [\*] key.
- (27) One label feed mode
- (28) Press the [\*] key.
- (29) System mode menu display  
(Test print)
- (30) Press the [\*] key.
- (31) Test print condition setting mode
- (32) Press the [▼] key.
- (33) 1-dot slant line printout mode
- (34) Press the [▼] key.
- (35) 3-dot slant line printout mode
- (36) Press the [▼] key.
- (37) Character printout mode
- (38) Press the [\*] key.  
(3-label printout)
- (39) System mode menu display  
(Test print)
- (40) Press the [\*] key.
- (41) Character printout mode
- (42) Press the [▲] key.
- (43) 3-dot slant line printout mode
- (44) Press the [\*] key.  
(3-label printout)
- (45) System mode menu display  
(Test print)

## (2) Test Print for Assembly Process



- (1) Power off state
- (2) While pressing the [▼] and [\*] keys, turn the power on.
- (3) System mode menu display (Self-test)
- (4) Press the [▼] key.
- (5) System mode menu display (Parameter setting)
- (6) Press the [▼] key.
- (7) System mode menu display (Test print)
- (8) Press the [\*] key.
- (9) Test print condition setting mode
- (10) Press the [▲] key.
- (11) Assembly process automatic printout mode (Reflective sensor)
- (12) Press the [\*] key.  
 [ One label feed  
 3-dot slant line: 5-label printout ]
- (13) Assembly process automatic printout mode (Reflective sensor)
- (14) Press the [\*] key.  
 (Bar code: 5-label printout)
- (15) Assembly process automatic printout mode (Reflective sensor)
- (16) Press the [\*] key.  
 (Character: 5-label printout)
- (17) System mode menu display (Test print)
- (18) Press the [\*] key.
- (19) Assembly process automatic printout mode (Transmissive sensor)
- (20) Press the [\*] key.  
 [ One label feed  
 3-dot slant line: 5-label printout ]





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

(22) Press the [\*] key.  
(Bar code: 5-label printout)

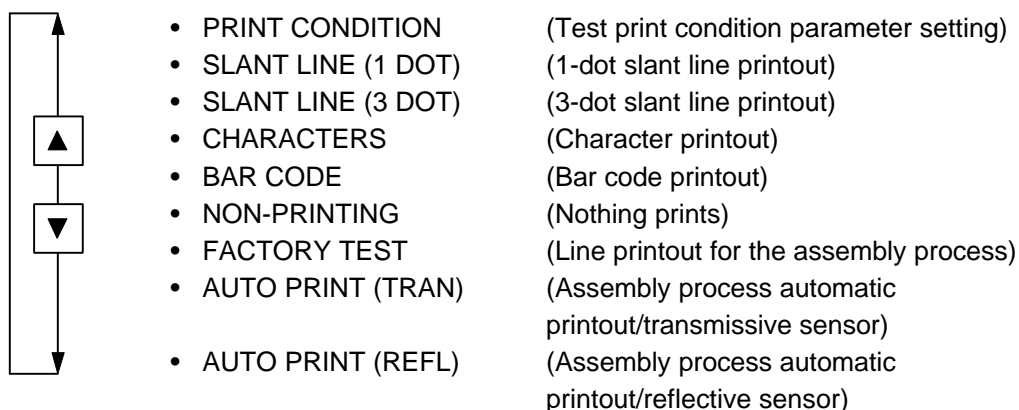
(23) Assembly process automatic printout mode (Transmissive sensor)

(24) Press the [\*] key.  
(Character: 5-label printout)

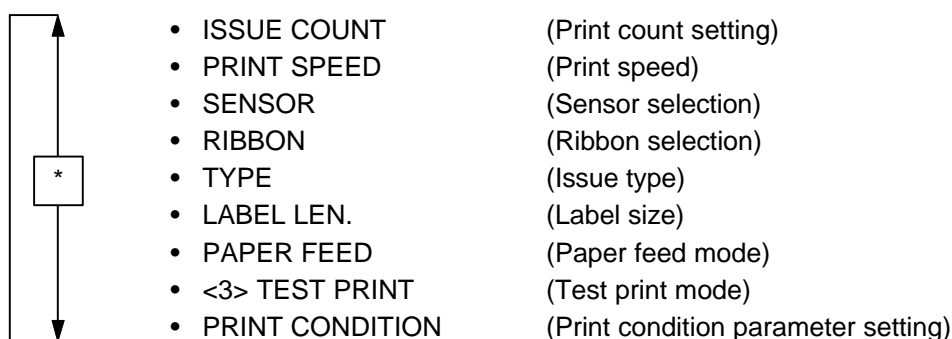
(25) System mode menu display  
(Test print)

## 6.4.2 Setting Contents

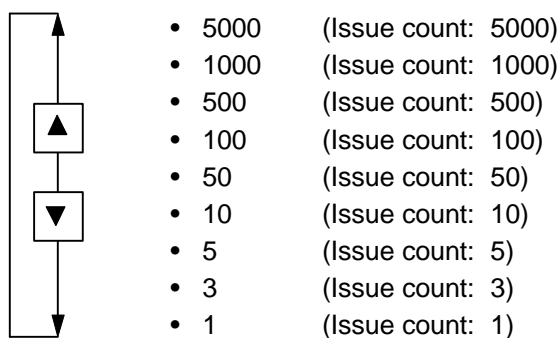
### (1) Test Print Mode Selection



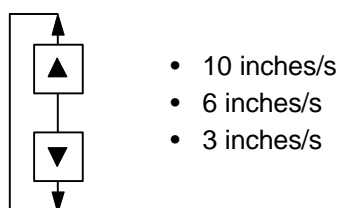
### (2) Test Print Condition Parameter Setting (PRINT CONDITION)



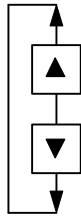
### (3) Issue Count Setting (ISSUE COUNT)



### (4) Print Speed (PRINT SPEED)

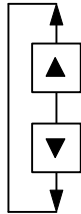


(5) Sensor Selection (SENSOR)



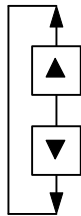
- NONE (No position detected)
- REFLECT. (Reflective sensor)
- TRANS. (Transmissive sensor)

(6) Ribbon Selection (RIBBON)



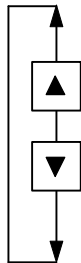
- NO RIBBON (No ribbon: Direct thermal print mode)
- TRANS. (Transmissive ribbon: Thermal transfer print mode)
- NO TRANS. (Non-transmissive ribbon: Thermal transfer print mode)

(7) Issue Type (TYPE)



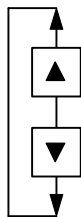
- [S] NO CUT (Batch issue mode, without cutting)
- [C] WITH CUT (Issue with cutting)
- [H] PEEL OFF (Strip issue mode)

(8) Label Size (LABEL LEN.)



- 999 (Label size: 999 mm)
- 998 (Label size: 998 mm)
- 997 (Label size: 997 mm)
- to
- 7 (Label size: 7 mm)
- 6 (Label size: 6 mm)
- 5 (Label size: 5 mm)

(9) Paper Feed (PAPER)



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

(10) Initial Parameter Values When Turing the Power On

- Menu Selection: Test print condition parameter setting
- Issue count setting (ISSUE COUNT): 1
- Print Speed (PRINT SPEED): 6 inches/sec.
- Sensor Selection (SENSOR): Transmissive sensor
- Ribbon Selection (RIBBON): Transmissive ribbon
- Issue Type (TYPE): Batch issue (without cutting)
- Label Size (LABEL LEN.): 76 mm
- Paper Feed (PAPER): Paper feed performed

(11) Supplementary Explanation

- When the [▲] and [▼] keys are pressed at the same time, the display shows the system mode menu.
- If the [▲] or [▼] key is pressed 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.
- 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 [\*] key and the display shows the system mode menu. The printer does not automatically resume printing if the error is cleared.
- A selected menu or changed parameter becomes effective by pressing the [\*] key. Such a parameter is retained until the power is turned off.
- The label size greater than the image buffer length cannot be designated. The image buffer length differs according to memory size. If designating, the printer prints in the image buffer length then stops, or the printer stops because of an error.
- When the space area is as described below, the printer automatically enters ribbon saving print mode (DIP SW 1-1 ON, thermal transfer print mode only).

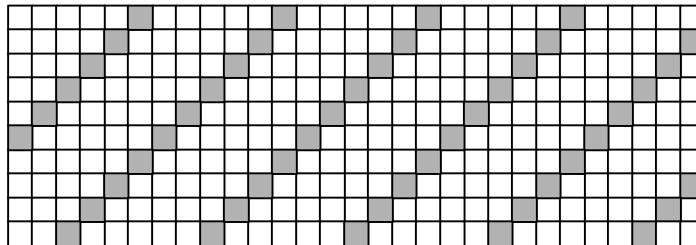
3"/sec., 6"/sec.:	20 mm or more
10"/sec.:	30 mm or more
- When the transmissive sensor is selected, the gap between labels should be 3 mm.

- The test print for the assembly process is performed under the following conditions.  
The parameter setting and print density fine adjustment value are ignored.

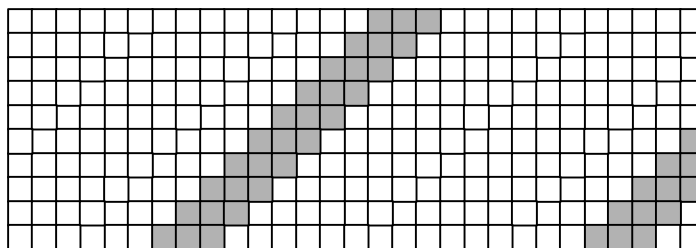
- Operations:
  - ① Feeds one label.
  - ② Prints 3-dot slant lines.
  - ③ Prints bar codes
  - ④ Prints characters
- Number of labels: 5 for each operation
- Print speed: 10 inches/sec.
- Sensor designation: Reflective or transmissive sensor
- Ribbon designation: Transmissive ribbon
- Issue mode: Batch issue (without cutting)
- Label size: 76 mm
- Print density fine adjustment value: -3

- Magnification of slant lines is as follows:

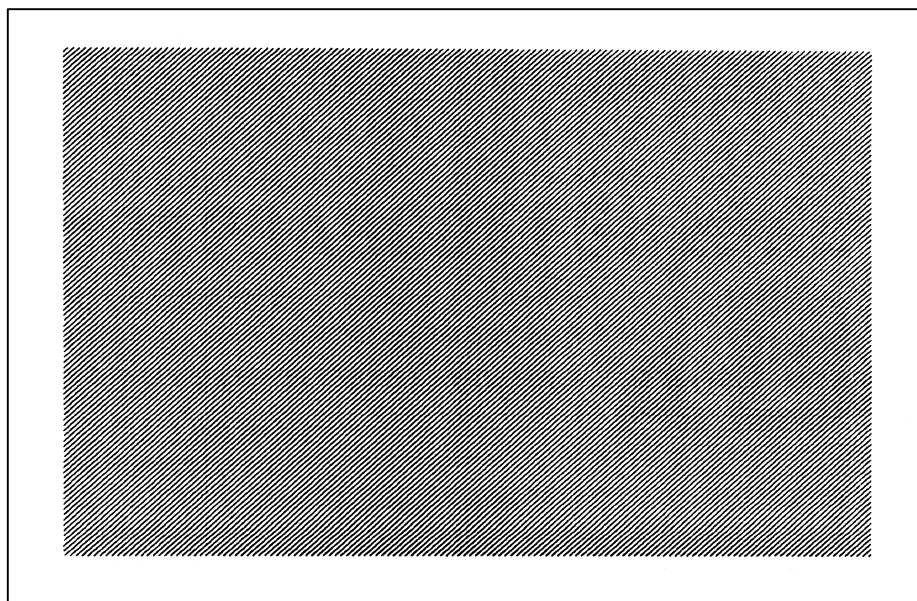
1-dot slant line (Black area ratio: 16.7%)



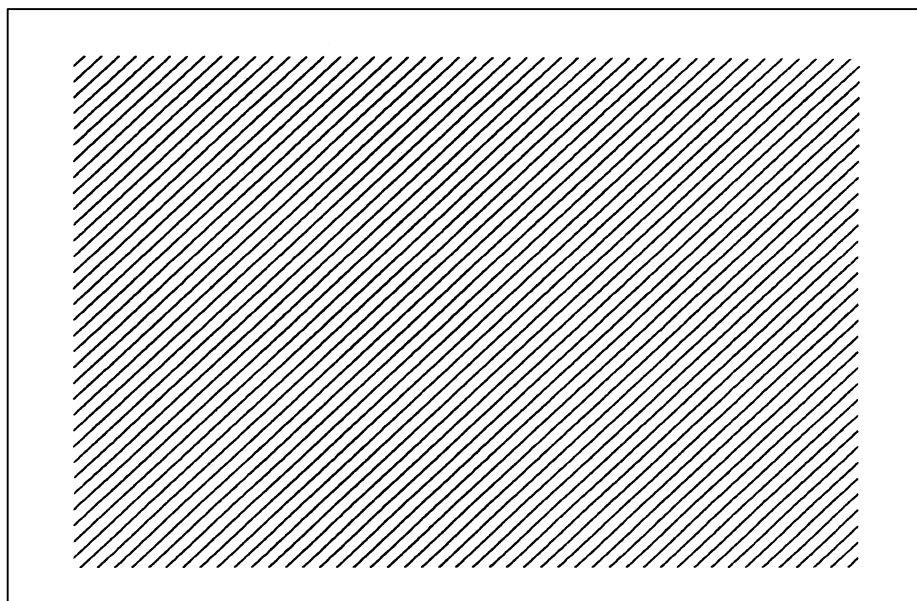
3-dot slant line (Black area ratio: 16.7%)



#### 6.4.3 Test Print Samples



1-dot slant line printout



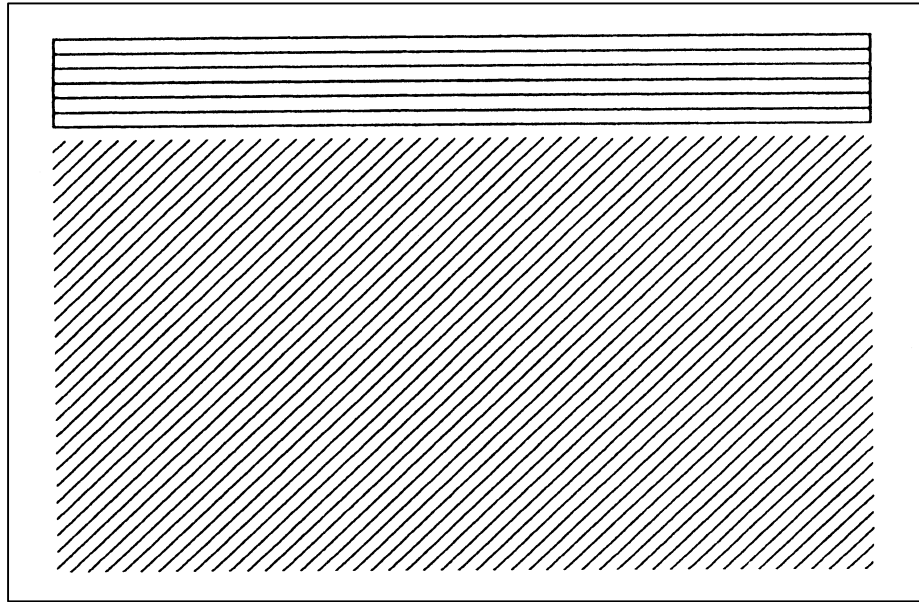
3-dot slant line printout



Character printout



Bar code printout

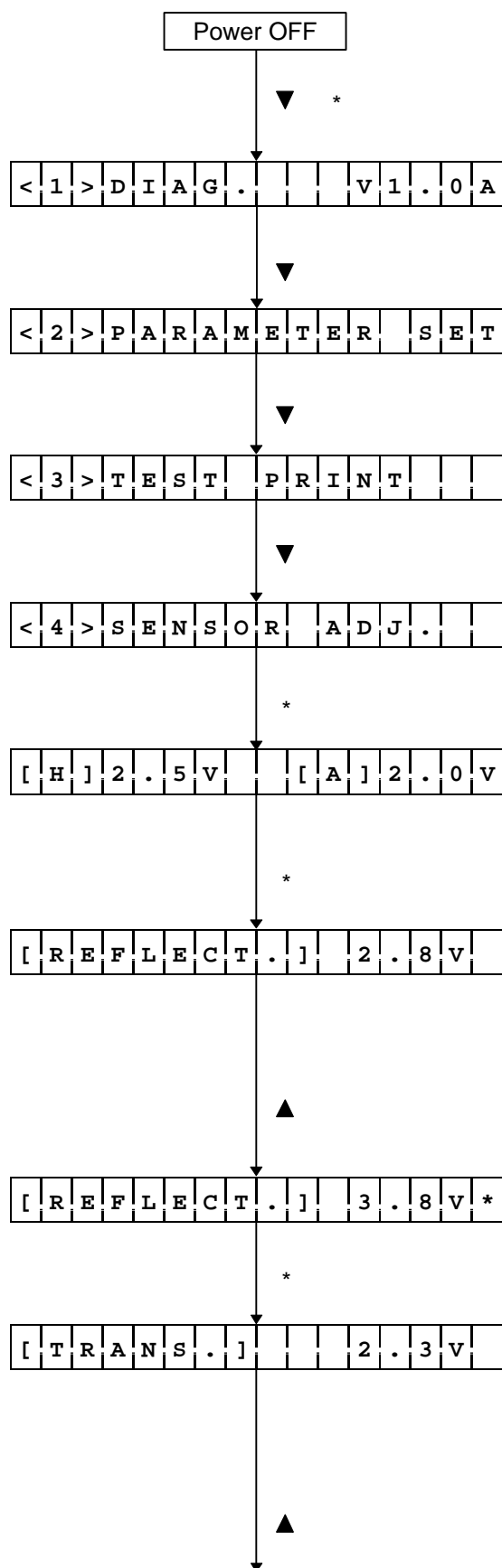


Line printout for the assembly process

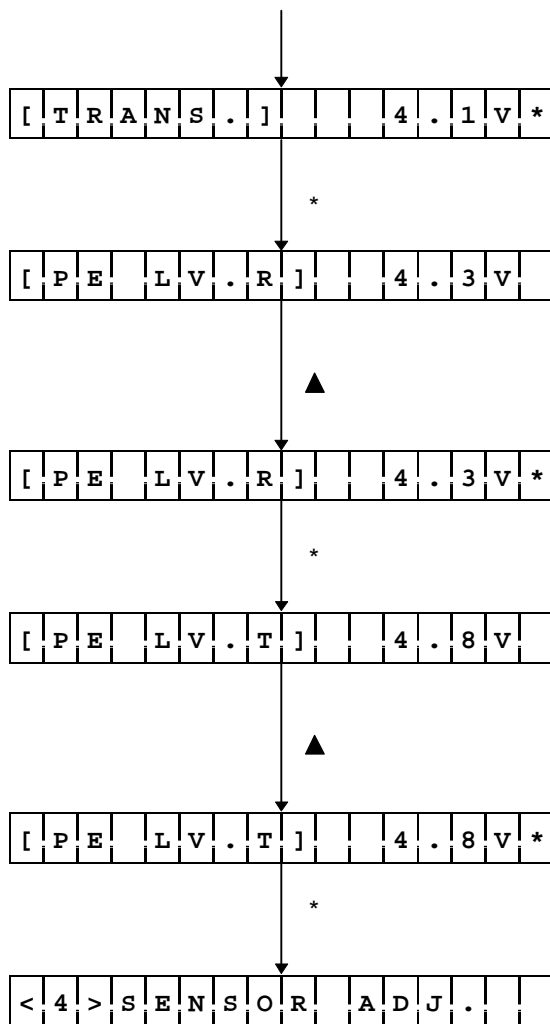


## 6.5 SENSOR DISPLAY/ADJUSTMENT

### 6.5.1 Sensor Display/Adjustment Operation Example



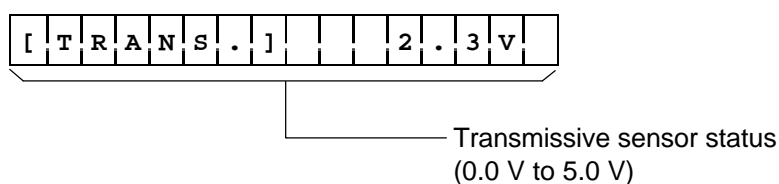
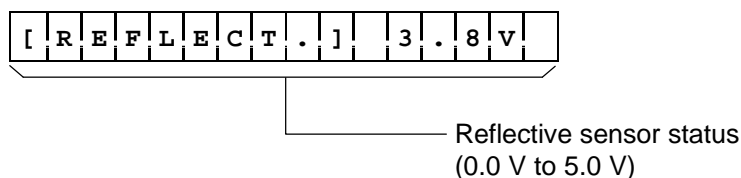
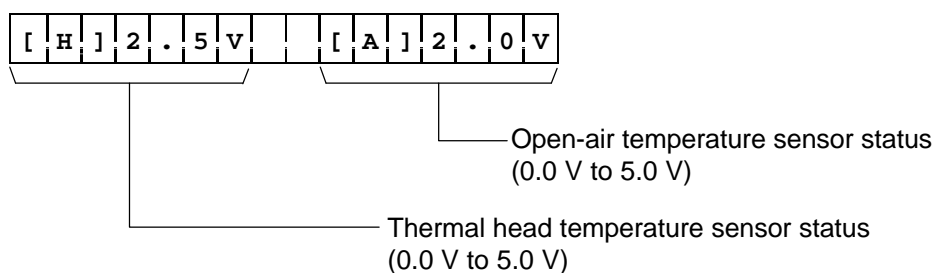
- (1) Power off state
- (2) While pressing the [▼] and [\*] keys, turn the power on.
- (3) System mode menu display (Self-test)
- (4) Press the [▼] key.
- (5) System mode menu display (Parameter setting)
- (6) Press the [▼] key.
- (7) System mode menu display (Test print)
- (8) Press the [▼] key.
- (9) System mode menu display (Sensor display/adjustment)
- (10) Press the [\*] key.
- (11) Thermal head temperature sensor adjustment value/open-air temperature sensor adjustment value
- (12) Press the [\*] key.
- (13) Reflective sensor adjustment value display:  
Load tag paper. (The black mark should not cover the sensor.)
- (14) Press the [▲] or [▼] key for 3 seconds or more.
- (15) "\*" is displayed when the reflective sensor adjustment is completed.
- (16) Press the [\*] key.
- (17) Transmissive sensor adjustment value display:  
Remove the label from the label paper and load the backing paper. (The label should not cover the sensor.)
- (18) Press the [▲] or [▼] key for 3 seconds or more.



- (19) “\*” is displayed when the transmissive sensor adjustment is completed.
- (20) Press the [\*] key.
- (21) Reflective sensor adjustment value display (without paper):  
Remove any paper covering the sensor.
- (22) Press the [▲] or [▼] key for 3 seconds or more.
- (23) “\*” is displayed when the reflective sensor adjustment is completed.
- (24) Press the [\*] key.
- (25) Transmissive sensor adjustment value display (without paper)  
Remove any paper covering the sensor.
- (26) Press the [▲] or [▼] key for 3 seconds or more.
- (27) “\*” is displayed when the transmissive sensor adjustment is completed.
- (28) Press the [\*] key.
- (29) System mode menu display  
(Sensor display/adjustment)

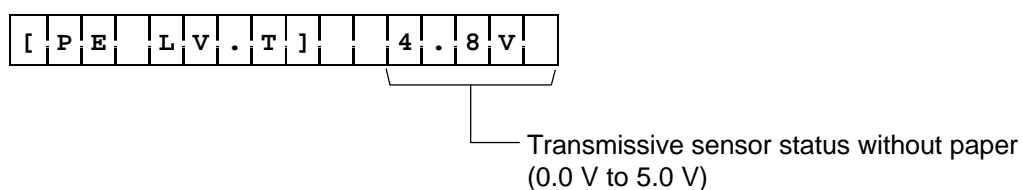
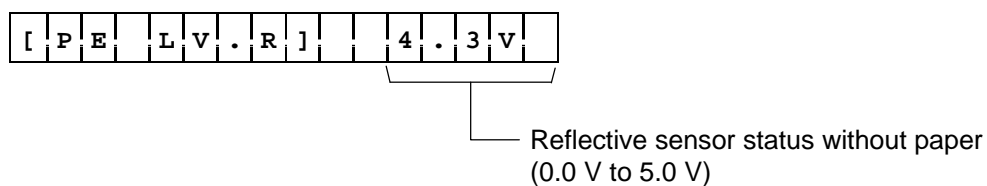
## 6.5.2 Display Contents

### (1) Sensor Adjustment Value Display



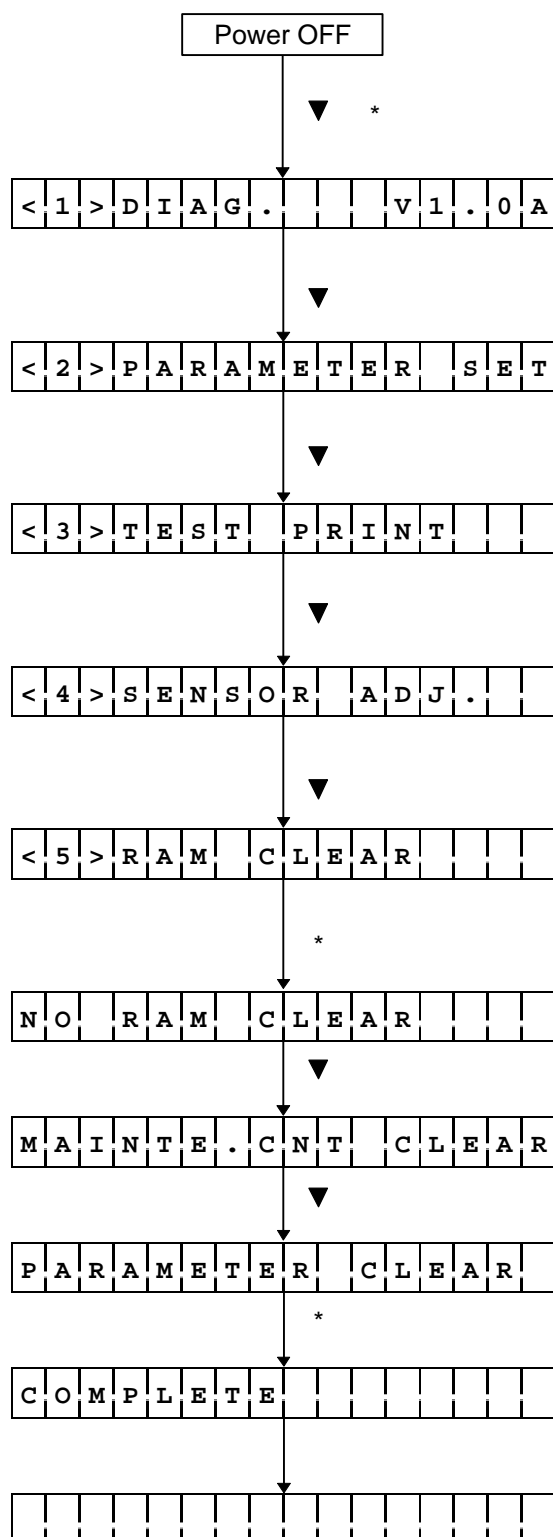
### (2) Supplementary Explanation

- 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 [▲] and [▼] keys are entered at the same time, the system mode menu is displayed.



## 6.6 RAM CLEAR

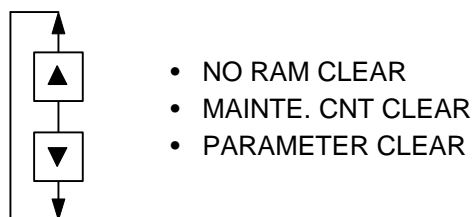
### 6.6.1 RAM Clear Operation Example



- (1) Power off state
- (2) While pressing the [▼] and [\*] keys, turn the power on.
- (3) System mode menu display (Self-test)
- (4) Press the [▼] key.
- (5) System mode menu display (Parameter setting)
- (6) Press the [▼] key.
- (7) System mode menu display (Test print)
- (8) Press the [▼] key.
- (9) System mode menu display (Sensor display/adjustment)
- (10) Press the [▼] key.
- (11) System mode menu display (RAM clear)
- (12) Press the [\*] key.
- (13) No RAM clear mode
- (14) Press the [▼] key.
- (15) Maintenance counter clear mode
- (16) Press the [▼] key.
- (17) Parameter clear mode
- (18) Press the [\*] key.
- (19) Parameter clear → Completed.
- (20) Turn the power off.

## 6.6.2 RAM Clear Contents

### (1) RAM Clear Mode



### (2) Supplementary Explanation

- When the [▲] and [▼] keys are pressed at the same time, the display shows the system mode menu.
- When “COMPLETE” is displayed after RAM clear is completed, be sure to turn off the power.
- The contents of the total label distance covered, sensor adjustment values (system mode <4>), the flash memory card, and stepping motor set value are not cleared by the RAM clear operation.

### (3) 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 hour
Head-up solenoid drive time	0 hour
RS-232C hardware error count	0
System error count	0
Momentary power interruption count	0

(4) 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
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
X-coordinate fine adjustment	0 mm
Character code selection	PC-850
Font "0" selection	"0" without slash mark
Control code type	Automatic selection
Ribbon type	Transmissive
Ribbon motor drive voltage fine adjustment (PC)	0
Ribbon motor drive voltage fine adjustment (Key)	0
Strip status selection	1
Status response	With
Reflective sensor manual threshold fine adjustment value	1.0 V
Transmissive sensor manual threshold fine adjustment value	1.4 V
Label pitch	76.2 mm
Effective print length	74.2 mm
Effective print width	104 mm
Presence/absence of ribbon	Present
Sensor type	Transmissive sensor
Feed speed	6"/sec.
Issue mode	Batch (without cutting)
PC-save automatic call	With
Kanji code	TYPE 1
Euro code	7FH
READY/BUSY control protocol	DTR
Reset process when the INPUT • PRIME signal is on	ON

**NOTE:** If "3: Transmissive sensor (when using preprinted labels)" or "4: Reflective sensor (when using a manual threshold value)" is selected for the type of sensor for a label issue, and a parameter clear is performed, the threshold setting should be made again.