



TEC Thermal Printer

B-480 SERIES

Maintenance Manual

Document No. **EO18-33004**

Original **Jun., 1999**

(Revised)

WARNING!

Follow all manual instructions. Failure to do so could create safety hazards such as fire or electrocution.

- NOTES:**
- 1. Manual instructions must be followed when installing option kits or adding cables to avoid system failures and to insure proper performance and operation.*
 - 2. Failure to follow manual instructions or any unauthorized modification, substitution or change to this product will void the limited product warranty.*

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CAUTION:

1. *This manual may not be copied in whole or in part without prior written permission of TOSHIBA TEC.*
2. *The contents of this manual may be changed without notification.*
3. *Please refer to your local Authorized Service representative with regard to any queries you may have in this manual.*

1. UNPACKING

1.1 Procedure

- 1) Open the carton.
- 2) Unpack the accessories from the carton.
- 3) Unpack the side pad (L)/(R) and the printer from the carton.
- 4) Place the printer on the level surface.

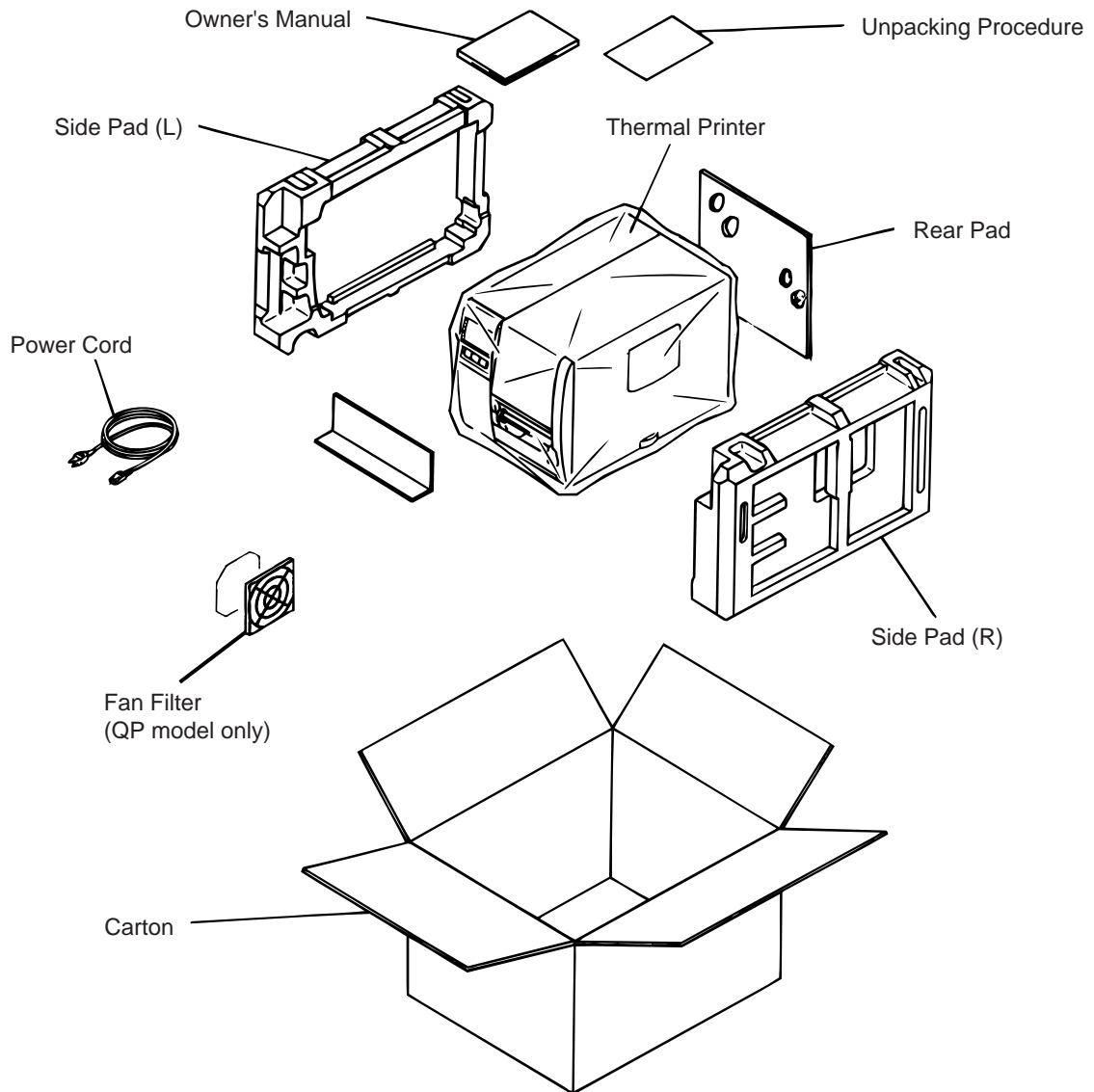


Fig. 1-1

1.2 Checks

- 1) Check for damages or scratches on the machine.
- 2) Confirm that none of the accessories are missing.

NOTE: Keep the carton and side pads for later transport.

2. MAJOR UNIT REPLACEMENT

WARNING!

Disconnect the power cord before replacing the main parts.

CAUTION:

1. NEVER separate the ribbon motors from the attaching plate, (bracket) because doing so will change their adjustment. (See Fig. 2-11)
2. NEVER remove the two screws painted red on the side of the print block. (See Fig. 2-15)
3. NEVER remove the four screws on the side of the print block. (See Fig. 2-15)
4. NEVER remove unmentioned screws because doing so will change their adjustment.

- 1) Turn the power off.
- 2) Open the top cover to remove the four FL-3x5 screws. Slide the top cover to the left to release the damper and remove the top cover.
- 3) Remove the seven screws (FL-4x5 and B-4x5) to remove the left side cover.
- 4) Disconnect the FAN motor connector from the PS unit.

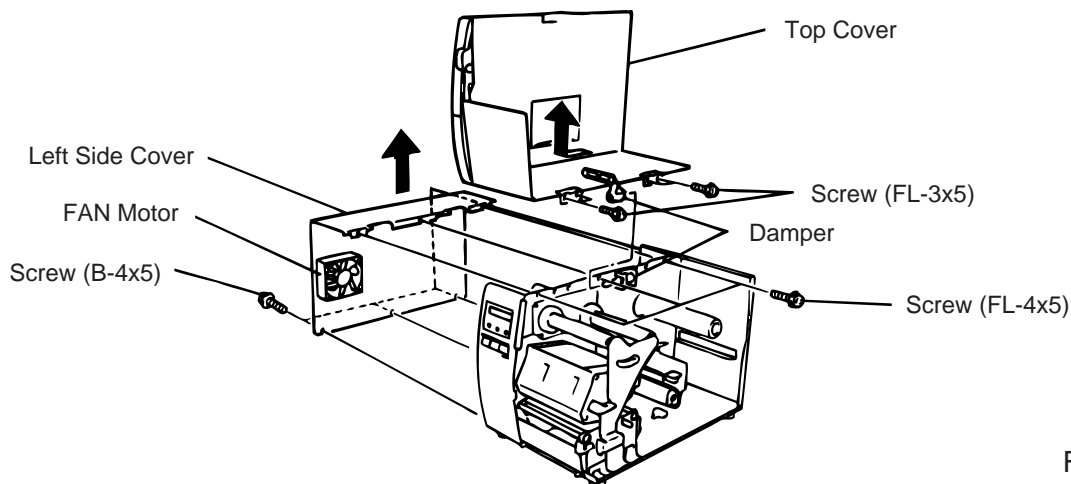


Fig. 2-1

NOTE: Instructions to remove the top cover and left side cover are omitted from each removal/installation procedure provided below.

■ Lubrication

CAUTION: 1. Lubrication: During parts replacement
2. Kinds of oil: FLOIL G-488: 1kg kan (Part No. 19454906001)

Any machine is generally in its best condition when delivered; therefore, it is necessary to try to keep this condition. Unexpected failure occurs due to lack of oil, debris or dust. To keep its best condition, periodically clean the machine and apply proper kinds of oil to each part in which lubrication is needed. Although the frequency of lubrication varies according to how much the machine is used, at least it is necessary to lubricate before the machine becomes dry. It is also necessary to wipe off excessive oil as it collects dirt.

CAUTION: Do not spray the inside of the printer with lubricants unsuitable oil can damage the mechanism.

2.1 Replacing the PS Unit

CAUTION: Replace only with same type and ratings of fuse for continued protection against risk of fire.

- 1) Remove the I/O PC board. (Refer to Section 2.4).
- 2) Remove the three FL-4x6 screws and disconnect the two connectors to detach the PS unit.

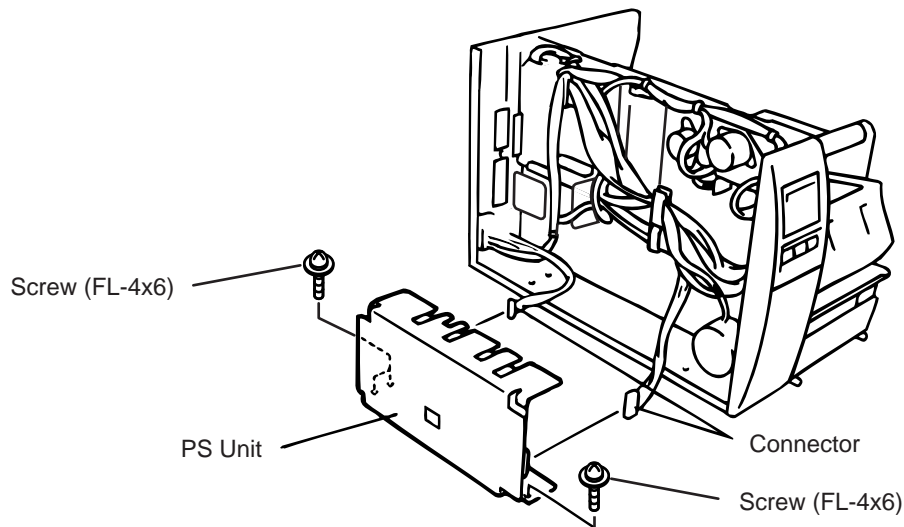
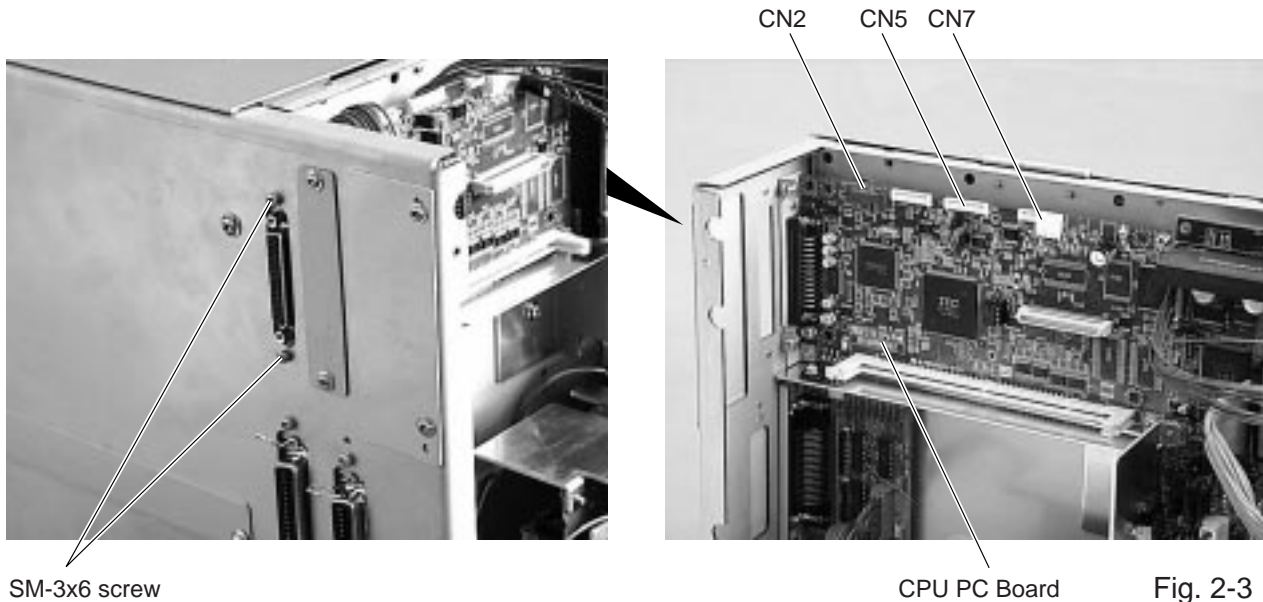


Fig. 2-2

2.2 REPLACING THE CPU PC BOARD

- 1) Refer to Section 2 and remove the top cover and left side cover.
- 2) Disconnect the harnesses from CN2, 5, and 7 on the CPU PC board.
- 3) Remove the four SM-3x6 screws to detach the CPU PC board.



- 4) Replace the CPU PC board and reassemble in the reverse order of removal.
- 5) Adjust the black mark sensor.
As the black mark sensor is adjusted by key entries in system mode, refer to page 5-44 for the adjustment procedure.
- 6) Adjust the feed gap sensor.
As the feed gap sensor is adjusted by key entries in system mode, refer to page 5-45 for the adjustment procedure.

CAUTION: Be careful when replacing the CPU PC board, since a non-resettable counter (IC15) is installed on this board. (Refer to Section 5.2.1 Maintenance Counter Printing.)
If this counter should be reset, replace IC15.

2.3 REPLACING THE CENTRONICS I/F PC BOARD

- 1) Refer to Section 2 and remove the top cover and left side cover.
- 2) Disconnect the harness from CN1 on the CENTRO PC board.



Fig. 2-4

- 3) Remove the two SM-3x8 screws to detach the CENTRO PC board.



Fig. 2-5

- 4) Replace the CENTRO PC board and reassemble in the reverse order of removal.

2.4 REPLACING THE I/O PC BOARD

- 1) Refer to Section 2 and remove the top cover and left side cover.
- 2) Disconnect the harnesses from CN2 to 4, 8 to 14 and 17 on the I/O PC board, and remove the FL-4x6 screw.
- 3) Detach the I/O PC board from the locking support.

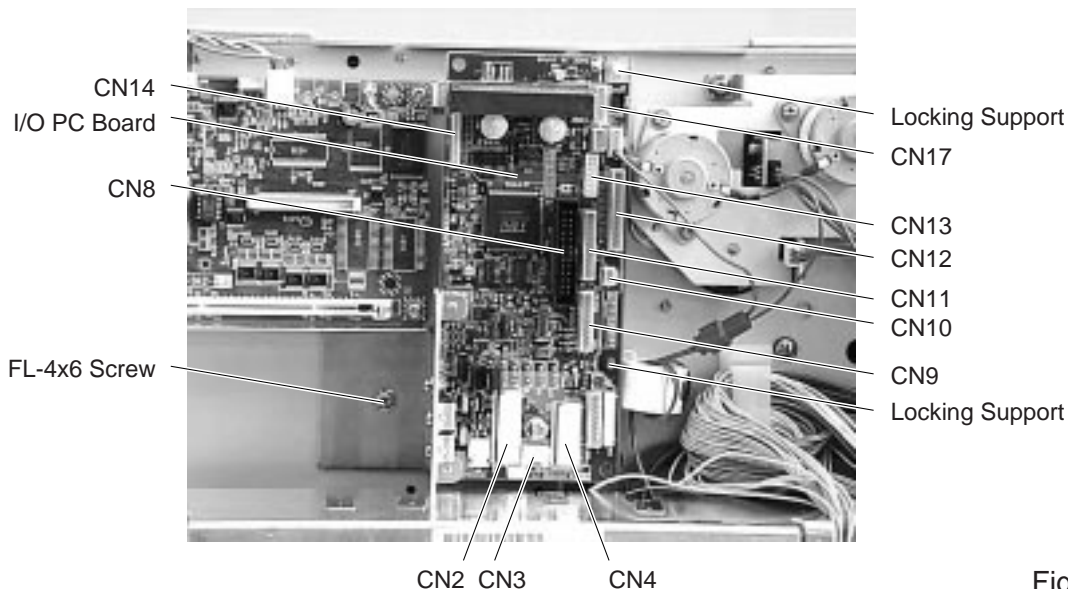


Fig. 2-6

- 4) Replace the I/O PC board and reassemble in the reverse order of removal.
- 5) Adjust the ribbon end sensor.

Use the following Ribbons; TTM-78 (Maker: Fujicopian)

- ① Set the ribbon so that the ribbon end sensor can detect the ribbon. Turn the power on.
- ② Turn the VR1 so that the voltage between Frame plate (GND) and Pin TPRETR is 3.0 ± 0.2 V with an oscilloscope.
- ③ Turn the power off and mount the left side cover and top cover.

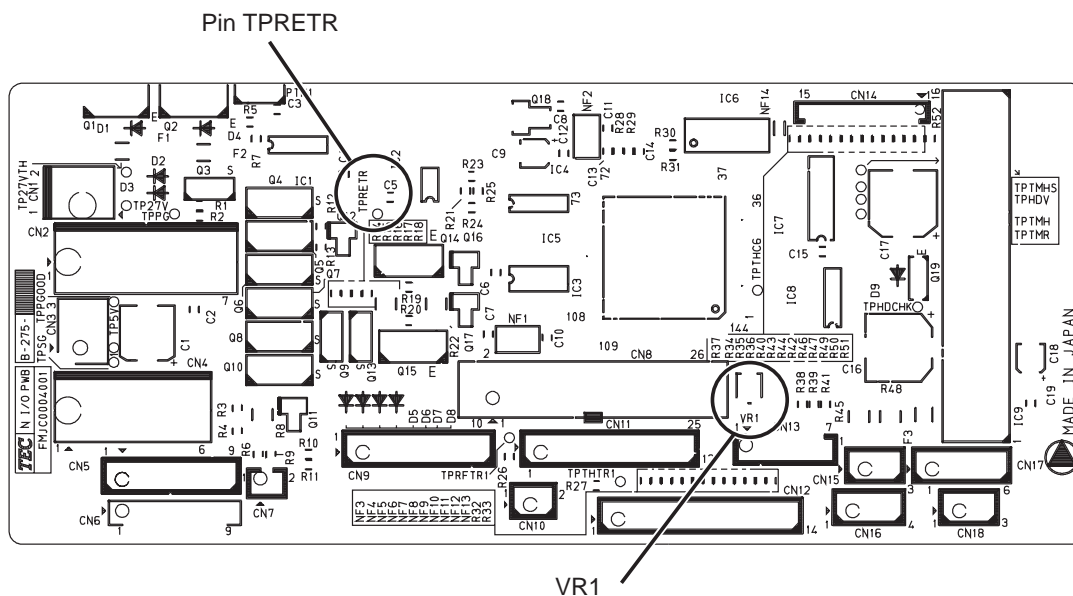


Fig. 2-7

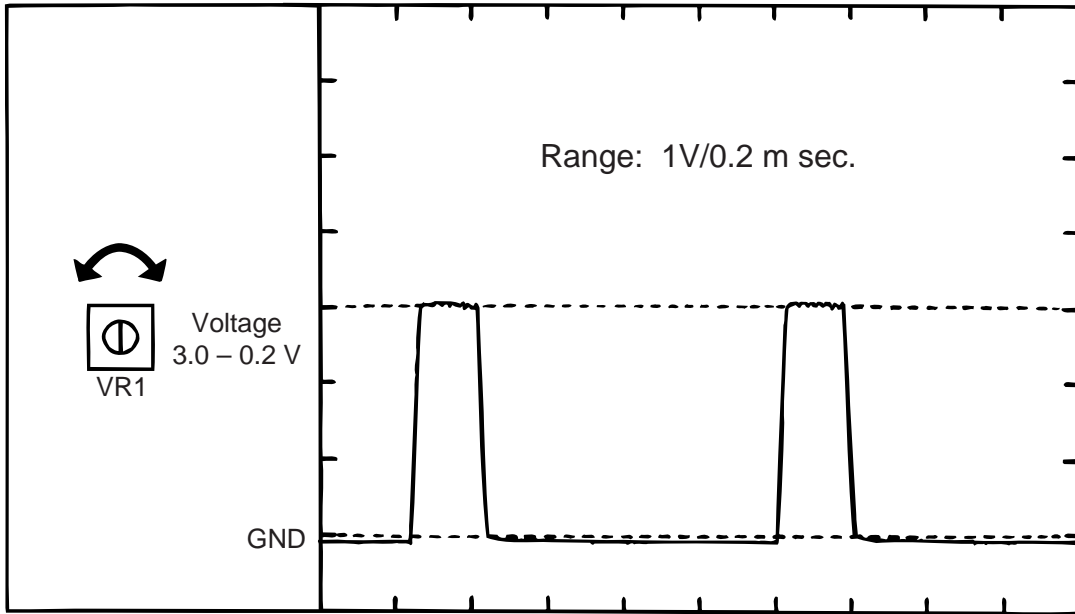


Fig. 2-8

2.5 Replacing the Stepping Motor

- 1) Remove the two black screws to detach the front plate, remove the two FL-4x6 screw and FL-4x8 screw to detach the belt cover.

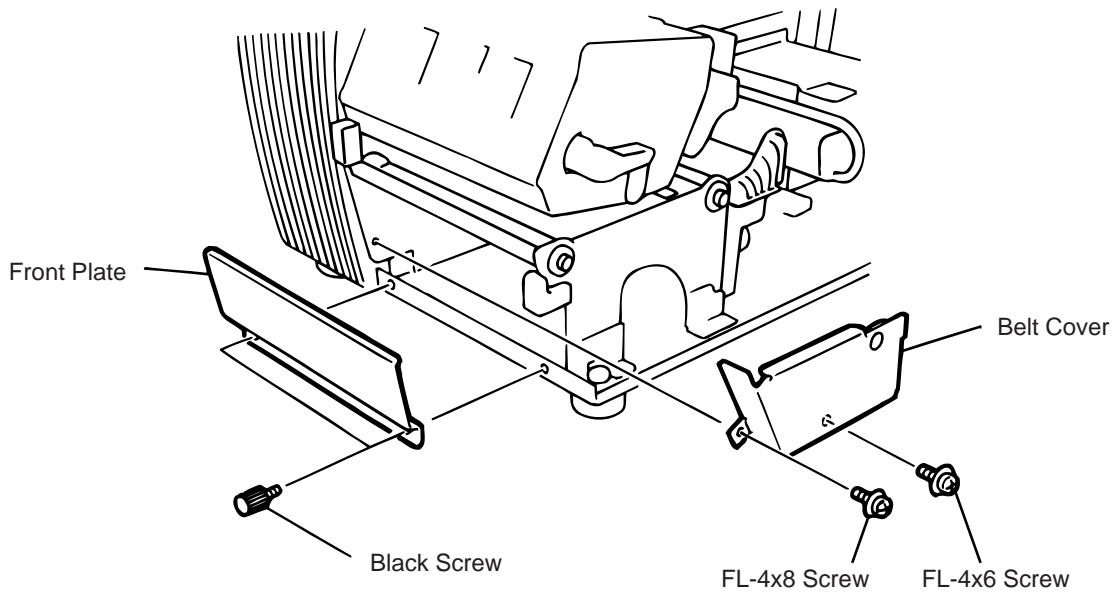


Fig. 2-9

- 2) Unclamp and disconnect the connector from CN17 on the I/O PC board.

- 3) Remove the two SM-4x8 screws, loosen the two belts from the pinion gear, and remove the stepping motor.

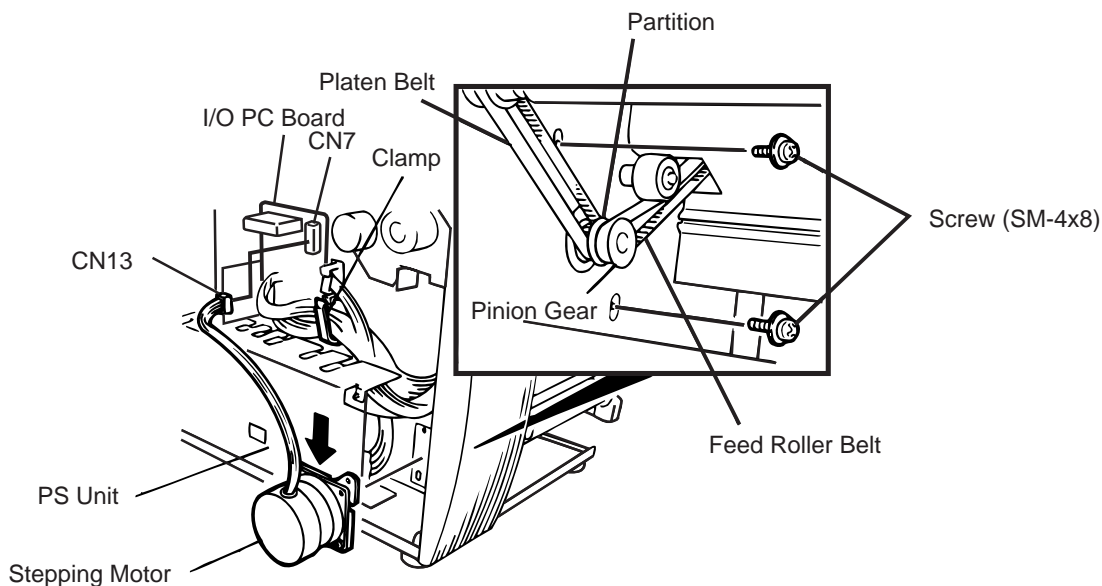


Fig. 2-10

- 4) When replacing the stepping motor, place the platen belt first then the feed roller belt around the pinion gear so that the partition is positioned between two belts. Hold down the stepping motor at 3.5 kg ± 300 g force and secure it so that the belts have no slack or disengagement.
- 5) Reassemble in the reverse order of removal.

2.6 Replacing the Ribbon Motors

CAUTION: NEVER separate the ribbon motors from the attaching plate because doing so will change their adjustment.

- 1) Disconnect the two connectors and remove the two SM-3x5B screws to detach the ribbon motors.
FLOIL G-488

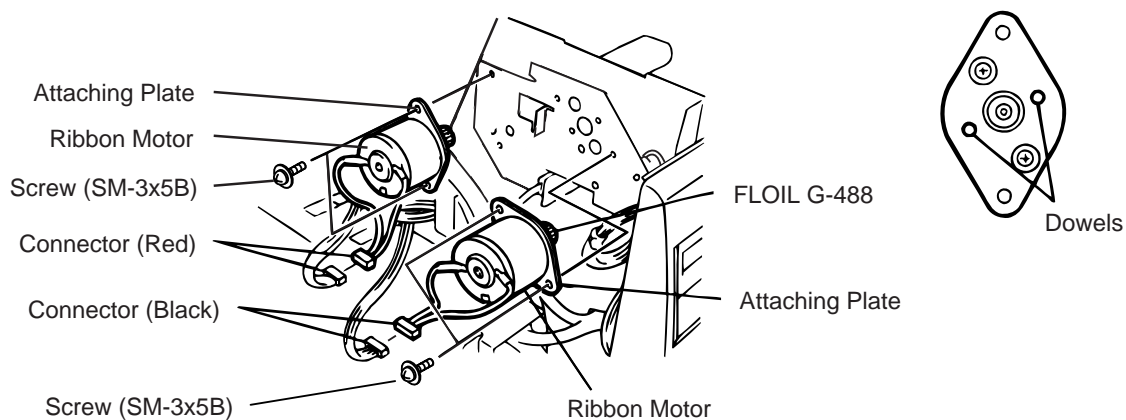


Fig. 2-11

- 2) Replace the ribbon motors, then align the dowels to attach the ribbon motors. Reassemble in the reverse order of removal.

2.7 Replacing the Solenoid (QP Model only)

NOTE: The following procedure can be employed without removing the top cover and left side cover.

- 1) Before removing the ribbon stopper, check its attaching direction for later installation. Remove the ribbon stopper from the ribbon shaft on which the ribbon is wound.
- 2) Remove the two SM-4x8B screws, disconnect the connector CN1 on the RSV PC board to detach the solenoid unit.

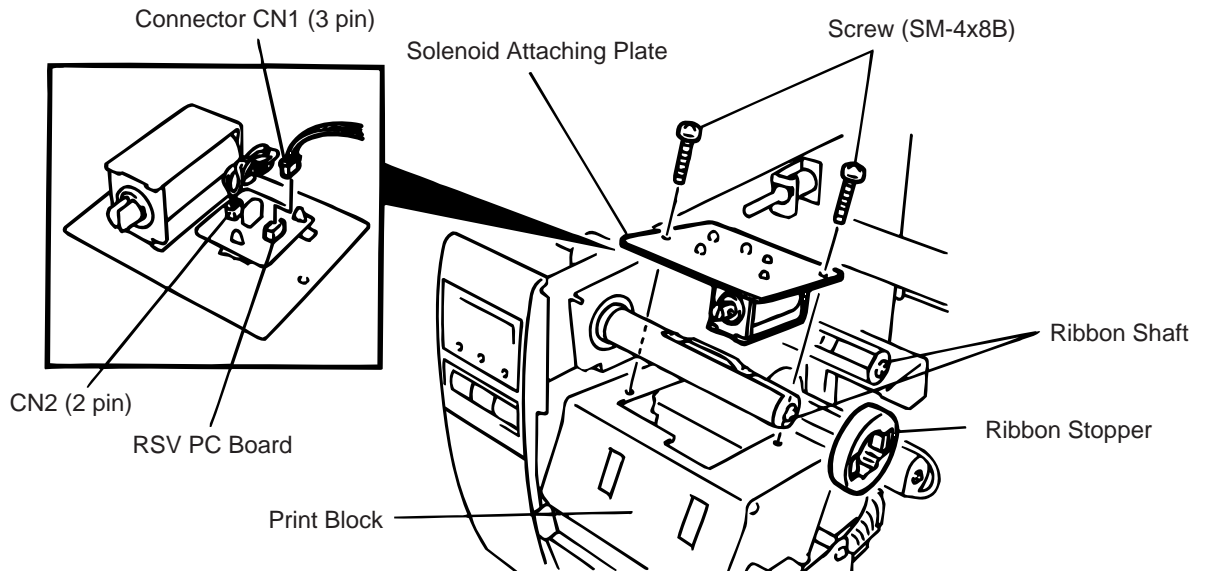


Fig. 2-12

- 3) Remove the two SM-3x5B screws and disconnect the connector CN2 on the RSV PC board to detach the solenoid.

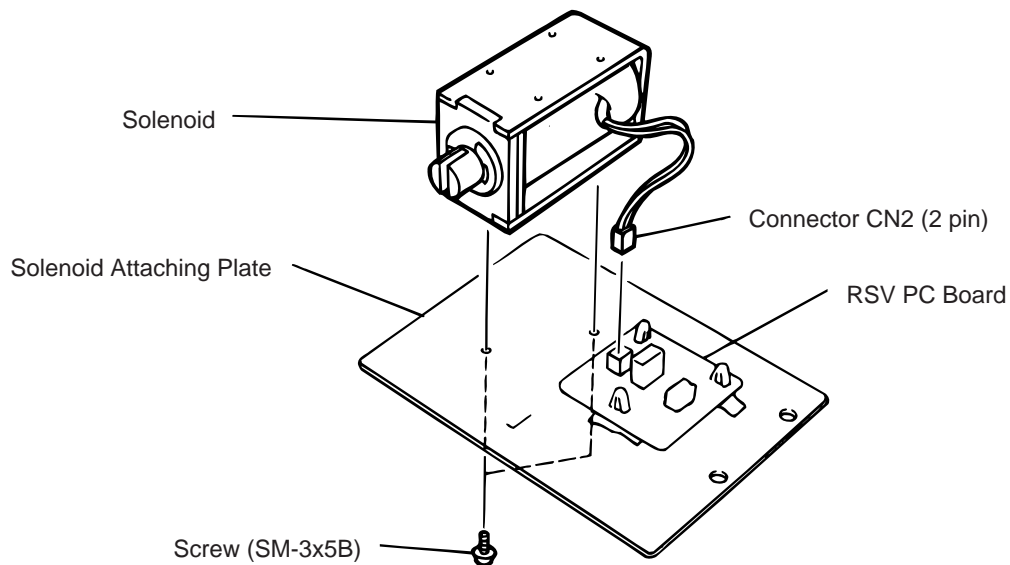


Fig. 2-13

NOTE: Make sure to remove any dust that appears during removal or installation because it may affect the print quality.

- 4) Replace the solenoid and attach it to the solenoid attaching plate.
- 5) Assemble the solenoid unit so that the head up link engages the spring pin.

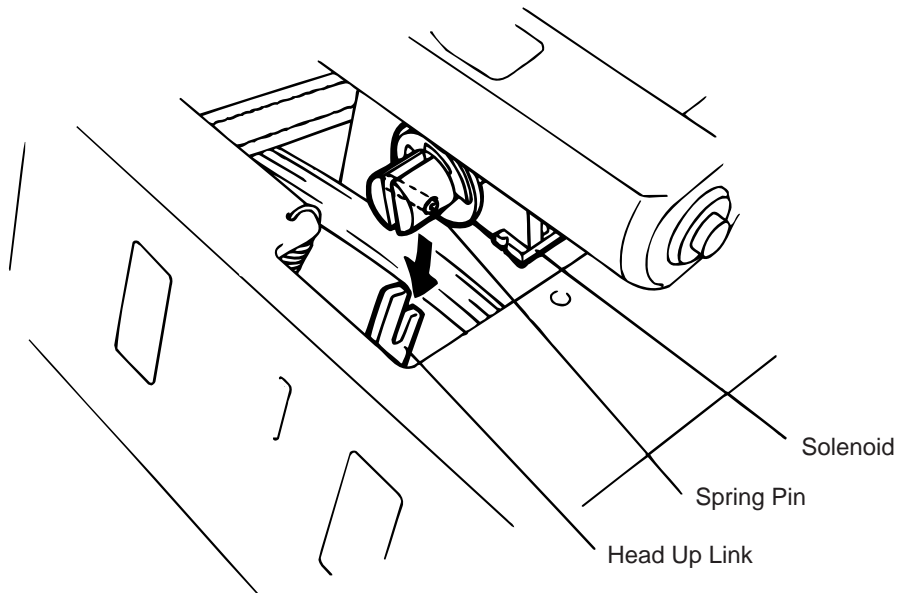


Fig. 2-14

CAUTION: Take care to orient the screw so that they are vertically aligned with the solenoid attaching plate.

- 6) Reassemble in the reverse order of removal.

2.8 Replacing the Print Head

CAUTION:

1. NEVER touch the element when handling the print head.
2. NEVER touch the connector pins to avoid a breakdown of the print head by static electricity.
3. NEVER remove the two screws painted red on the side of the print block.
4. NEVER remove the four screws on the side of the printer block.
5. NEVER remove the print block, otherwise it requires the adjustment of the position when reassembling.

NOTE: The following procedure can be employed without removing the top cover and the left side cover.

NOTE: Never loosen screws other than two SM-4x8B.

- 1) Turn the head lever clockwise to lower the print head. Remove the two SM-4x8B screws.
- 2) Turn the head lever counterclockwise and disconnect the two connectors to detach the print head from the print block.

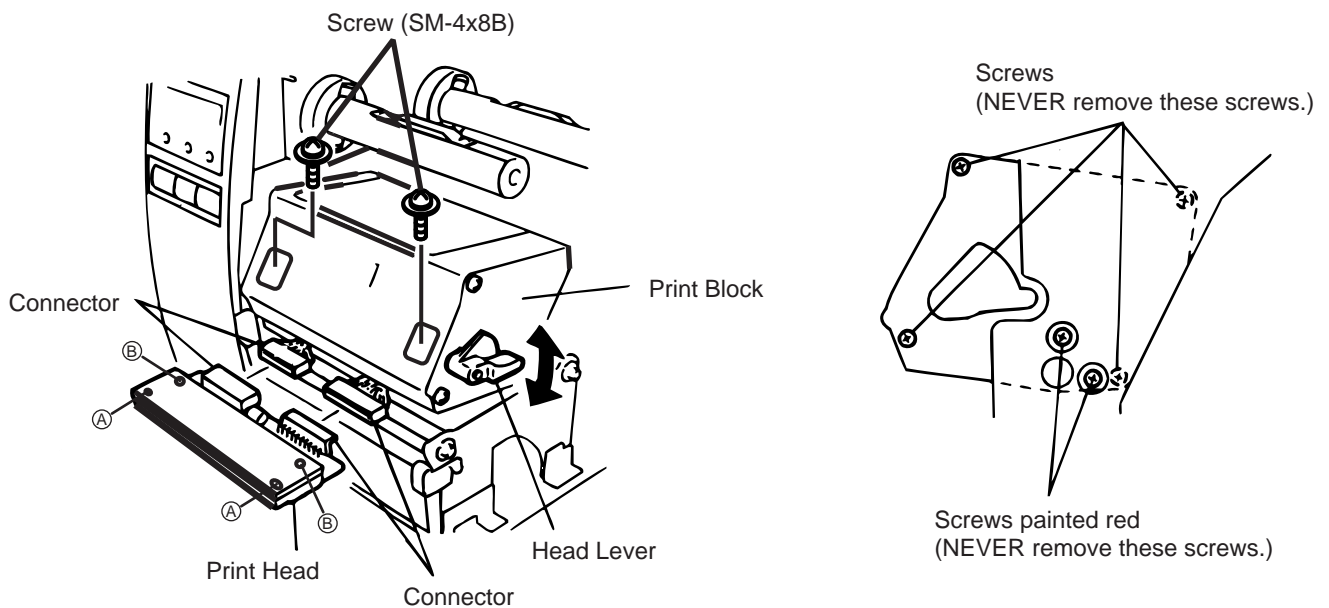


Fig. 2-15

- 3) Replace the print head and connect the connectors.
- 4) Turn the head lever clockwise and secure the print head with screws in the holes (B).

NOTE: Use caution to prevent damage to the element during print head adjustment.

■ Adjusting the print head position

1. Fit the jig in the platen and strip shaft.
2. Press the jig at an angle of 45° until it is snug against the print head. Then secure the print head.

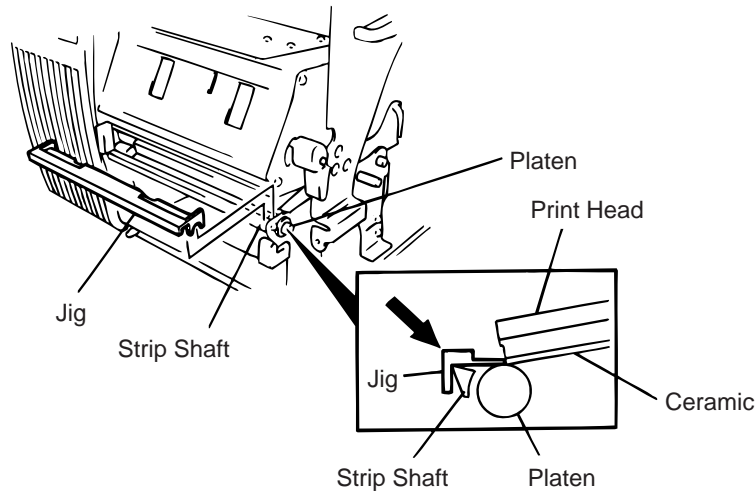


Fig. 2-16

3. Remove the jig.
4. Refer to page 5-68 and clear the maintenance counter.
5. Refer to page 5-53 and perform test print.

NOTES: 1. Use caution to prevent damage to the element during adjustment of the print head.
2. The jig used for the B-472/572 printer is also used.

2.9 Replacing the Platen and Feed Roller

CAUTION:

The pinch roller belt assembled inside the printer does not need to be replaced because it receives less load.

- 1) Remove the front plate and belt cover. (Refer to Section 2-5.)
- 2) Turn the head lever counterclockwise, then remove the E-ring (E-3) and Hold Shaft and release the ribbon shaft holder plate.

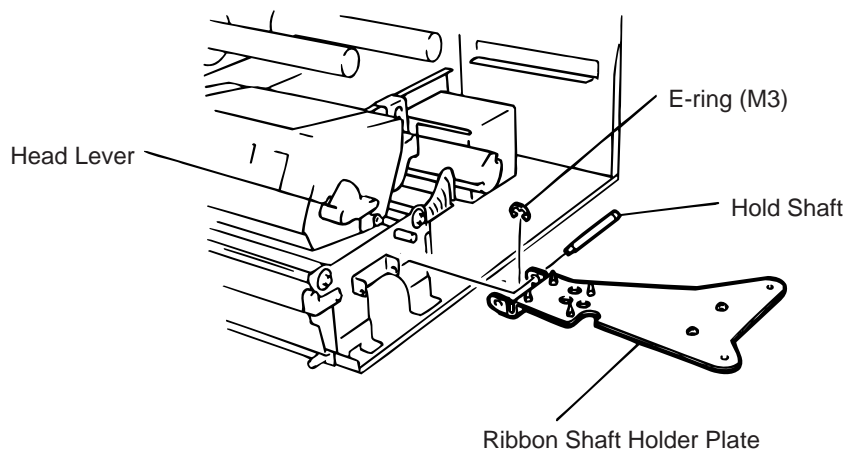


Fig. 2-17

- 3) Remove the six screws (FL-4x6, B-4x12 and P-3x12) to detach the right plate Ass'y.

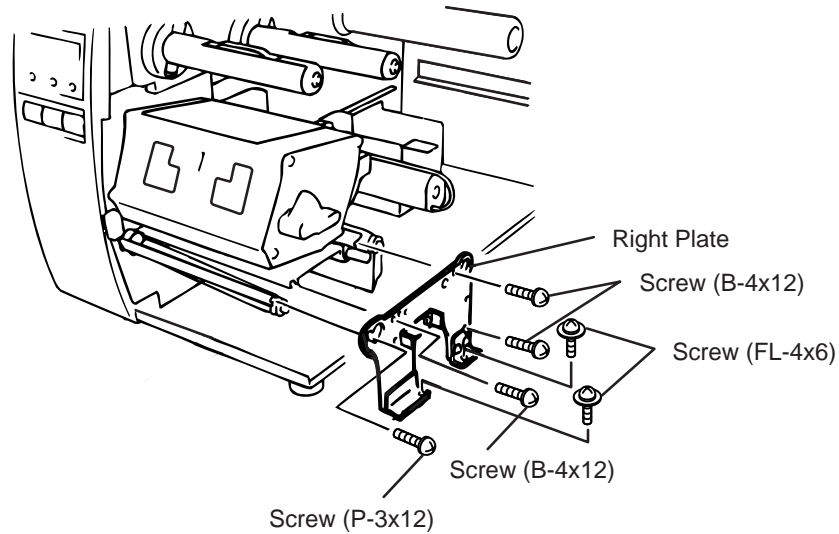


Fig. 2-18

- 4) Loosen the two screws (SM-4x8B) fixing the stepping motor to loosen the platen belt and feed roller belt.
- 5) Remove the platen belt to detach the platen. Remove the feed roller belt to detach the feed roller.
- 6) Remove both bearings from the platen or feed roller.

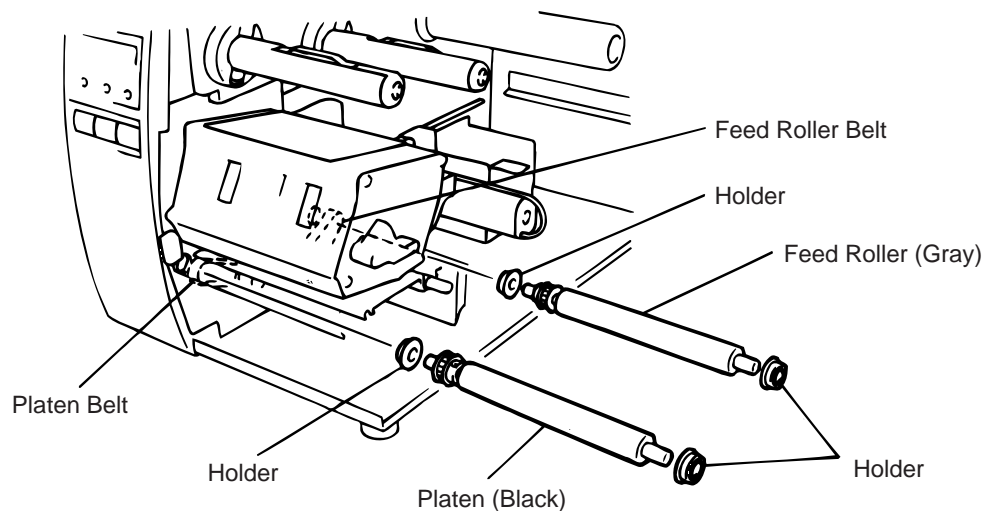


Fig. 2-19

- 7) Replace the platen and feed roller, put on the belt and assemble it with the printer. The longer belt is the platen belt.
- 8) Attach the right plate.
- 9) Hold down the stepping motor and secure it so that the belts have no slack or disengagement. (Refer to Section 2-5.)
- 10) Reassemble in the reverse order of removal.

2.10 Replacing the Paper Sensor

NOTE: Turn the knob until the paper sensor reaches full forward.

- 1) Refer to Section 2.9 and detach the right plate.
- 2) Remove the FL-4x6 screw to detach the media guide plate.

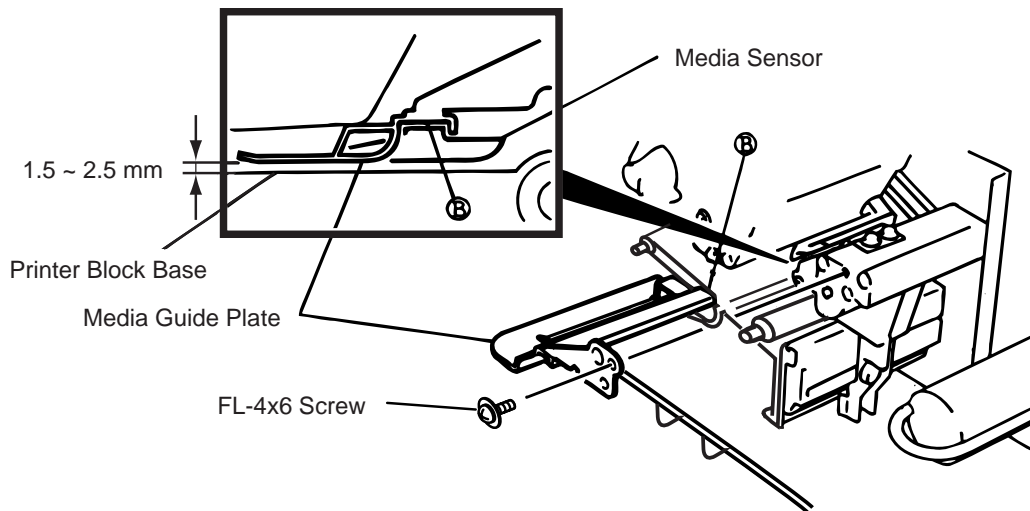


Fig. 2-20

- 3) Disconnect the connectors for the paper sensor.
- 4) Remove M1.5 E-ring, M3 washer and paper sensor unit.
- 5) Remove M1.5 E-ring, turn the knob counter clockwise, then remove the paper sensor.

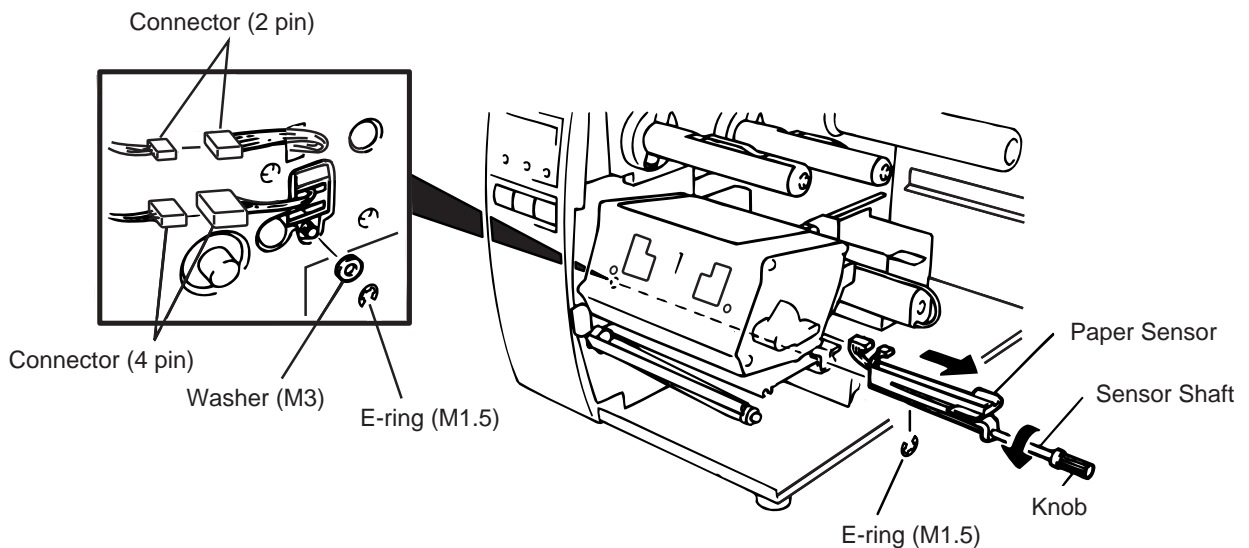


Fig. 2-21

- 6) Replace the paper sensor and reassemble in the reverse order of removal.
- 7) After replacing the paper sensor, refer to page 5-44/5-45 and adjust the voltage.

2.11 Replacing the Ribbon Back Tension Block

- 1) Turn the head lever counterclockwise, then release the ribbon shaft holder plate.
- 2) Remove the M3 E-ring and the two M3 washers to remove the ribbon back tension block. At this time, remove the back tension stopper and ribbon back tension washer from the ribbon back tension block.

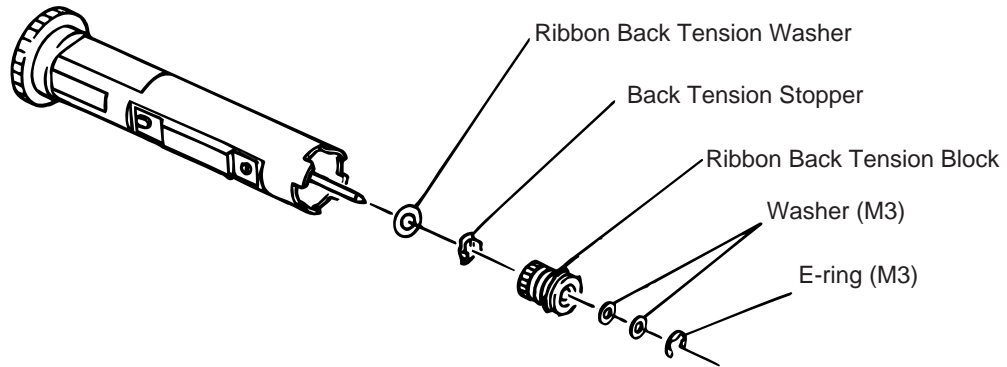


Fig. 2-22

- 3) Replace the ribbon back tension block and reassemble in the reverse order of removal.

2.12 Replacing the Pinch Roller Shaft Ass'y

- 1) Turn the head lever to position ③, and release the ribbon shaft holder plate.
- 2) Remove the black screw to detach the media guide plate.

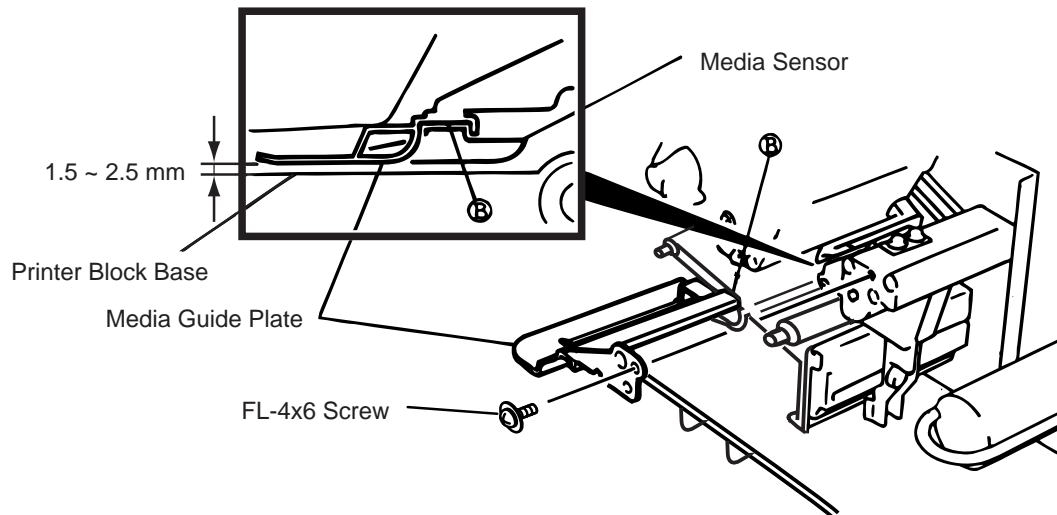


Fig. 2-23

- 3) Remove the SM-4x8B screw to detach the spring plate.
- 4) Remove the six B-4x12 screws to detach the pinch roller cover.
- 5) Remove the E-5 E-ring to loosen the pinch roller belt, and remove the pinch roller shaft ass'y.

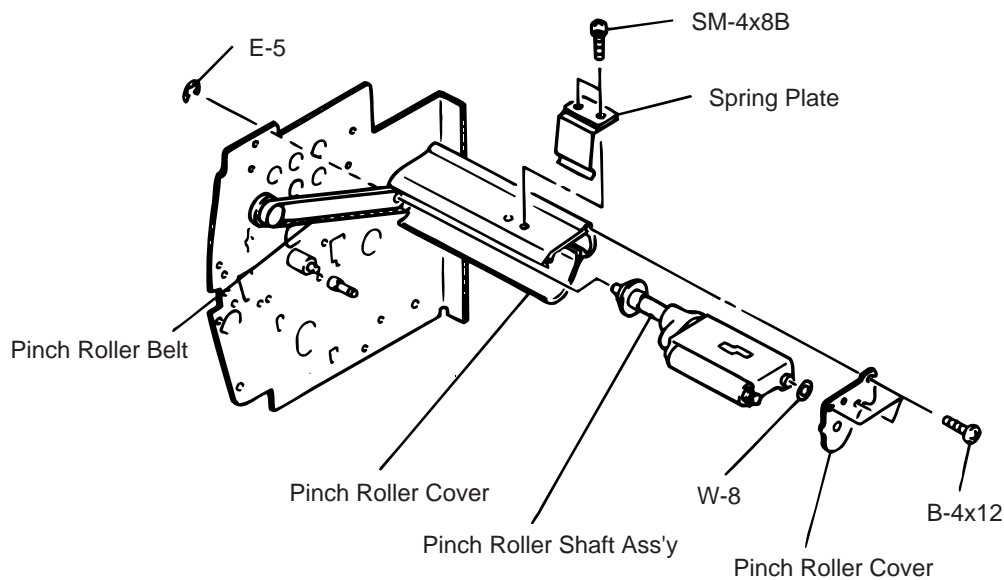


Fig. 2-24

- 6) After replacing the pinch roller shaft ass'y, make the following adjustment while you reassemble the pinch roller shaft ass'y in the reverse order of removal.

■ Adjustment

1. Install the pinch roller unit so it parallels the base. If it does not, change the engaging position of the pinch roller belt and the pulley.

(Place the pinch roller cover over the pinch roller Unit so that hole A is centered in hole B.)

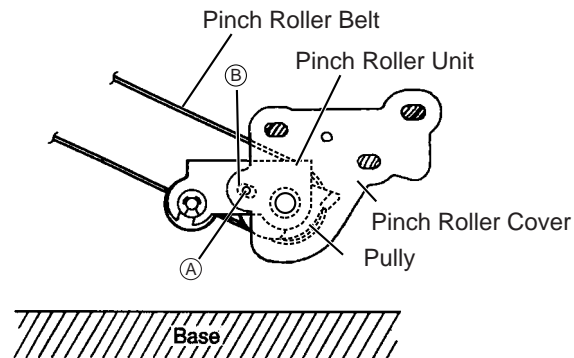


Fig. 2-25

2. Attach the jig to the platen, feed roller and pinch roller shaft as shown in the figure below. Then attach the pinch roller cover to the pinch roller frame with the three B-4x12 screws. Then secure the pinch roller frame with the three B-4x12 screws.

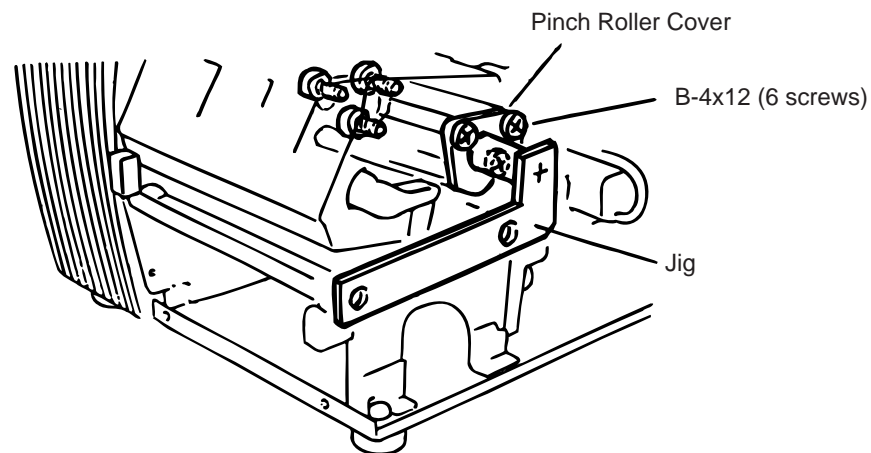


Fig. 2-26

- NOTES:**
1. Replace the platen and the feed roller prior to attaching the jig.
 2. Attach the jig while the pinch roller frame is tentatively attached to the main frame with the B-4x12 screws. Secure the pinch roller cover to the pinch roller frame with the three B-4x12 screws, then tighten the other side of the screws.
 3. The flat top of the pinch roller frame must be installed in parallel to bosses on the printer frame.

Check

- ① Check if excessive load is applied to the jig after the above NOTE 2.
(For example, check if the pinch roller frame moves when the jig is removed.)
- ② Check that there is no gap caused by a slant shaft between the pinch roller and the feed roller when the pinch roller is lowered.

3. Turn the head lever clockwise to lock the pinch roller shaft ass'y. Attach the spring plate to the pinch roller frame with the two SM-4x8B screws, pushing the spring plate toward the rear of the printer.

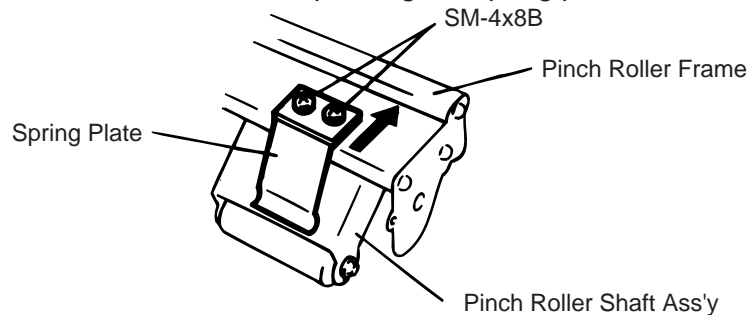


Fig. 2-27

NOTE: Check that the pinch roller shaft ass'y moves up and down smoothly when turning the head lever clockwise/counterclockwise.

4. Install the media guide plate to the printer so there is a 1.5 to 2.5 mm gap between the media guide plate and the printer block base.

2.13 Correcting Skew Printing

- If media still skews after adjusting the pinch roller shaft ass'y with the jig, follow the procedure below to correct the skew problem.

1. Check if the media skews right or left.
2. Loosen the B-4x12 screw to move the pinch roller cover to the front or rear of the printer depending on the skew direction.

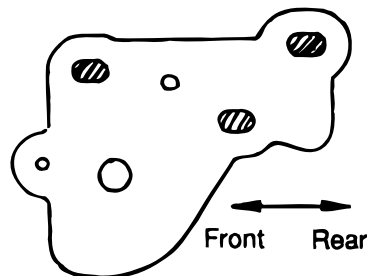


Fig. 2-28

When the media skews right, move the pinch roller cover to the front.

When the media skews left, move the pinch roller cover to the rear.

- If a paper skew problem should occur when using rolls wound with labels facing outside after completing the modification, adjust the paper guide as follows.

- * In case the label skews to the right side of the print head, move the guide downward.
- * In case the label skews to the left side of the print head, move the guide upward.

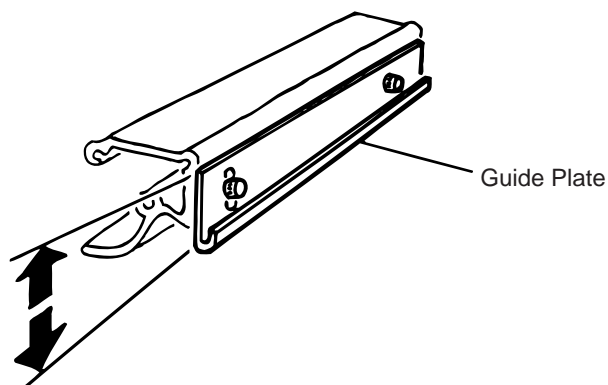


Fig. 2-29

3. INSTALLATION PROCEDURE FOR THE OPTIONAL EQUIPMENT

WARNING!
Make sure to unplug the power cord before installing the optional equipment.

3.1 PCMCIA PC BOARD (B-8700-PC-QM)

All the following parts are supplied with the kit. Make sure you have all items shown below.

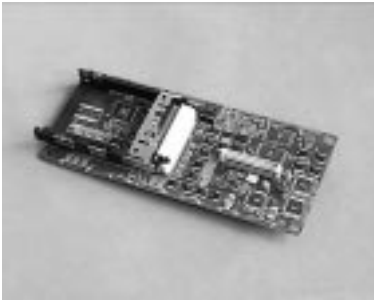
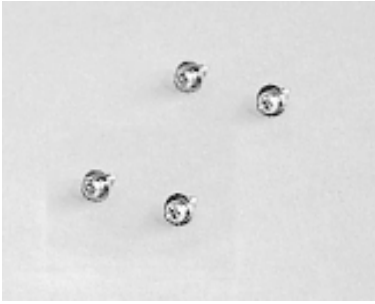
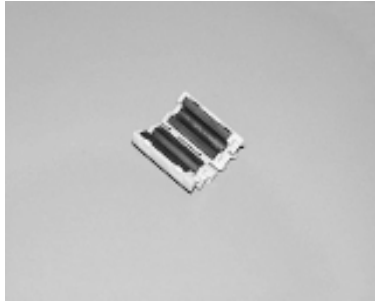
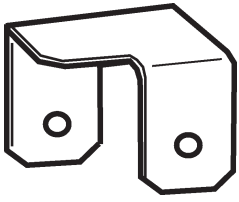
<p>PCMCIA PC Board (1 pc.)</p> 	<p>SM-3x8 Screw (4 pcs.)</p> 	<p>Ferrite Core (1 pc.) (See Note on Page 3-3)</p> 
<p>PCB Holder Plate (1 pc.)</p> 		

Fig. 3-1

1. Refer to Section 2 and remove the top cover and left side cover.
2. Remove the two FL-3x4 screws to detach the blind plate.

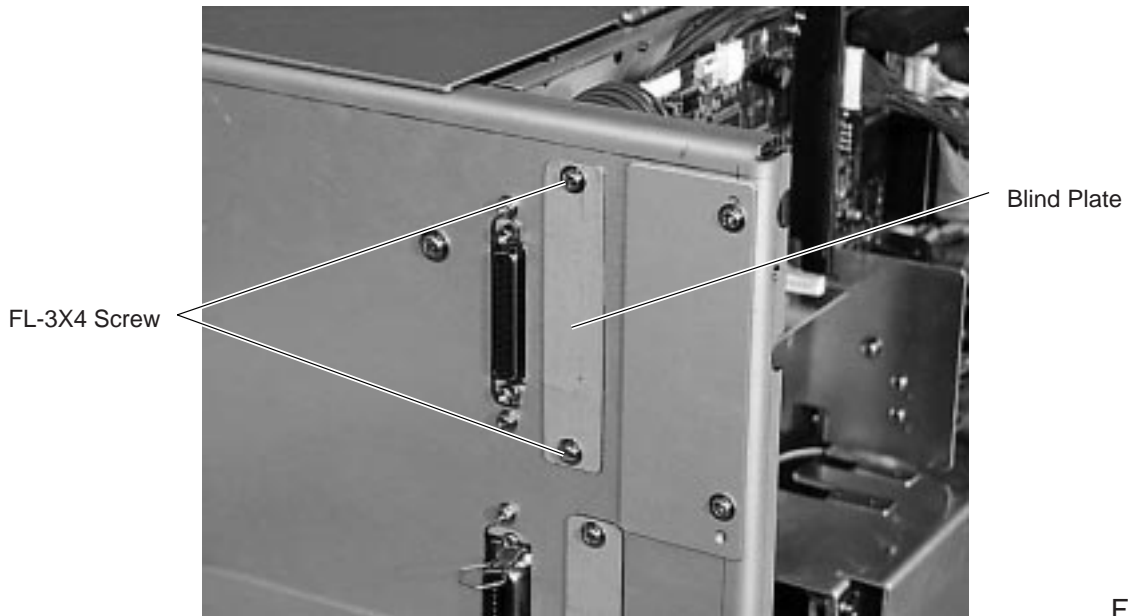


Fig. 3-2

NOTE: Keep the FL-3x4 screws and blind plate safe.

3. Disconnect the harness from CN2 on the CPU PC board.
 Fix the PCB holder plate to the CPU PC board with the SM-3x8 screw so that the PCB holder plate aligns with the PCB support plate.

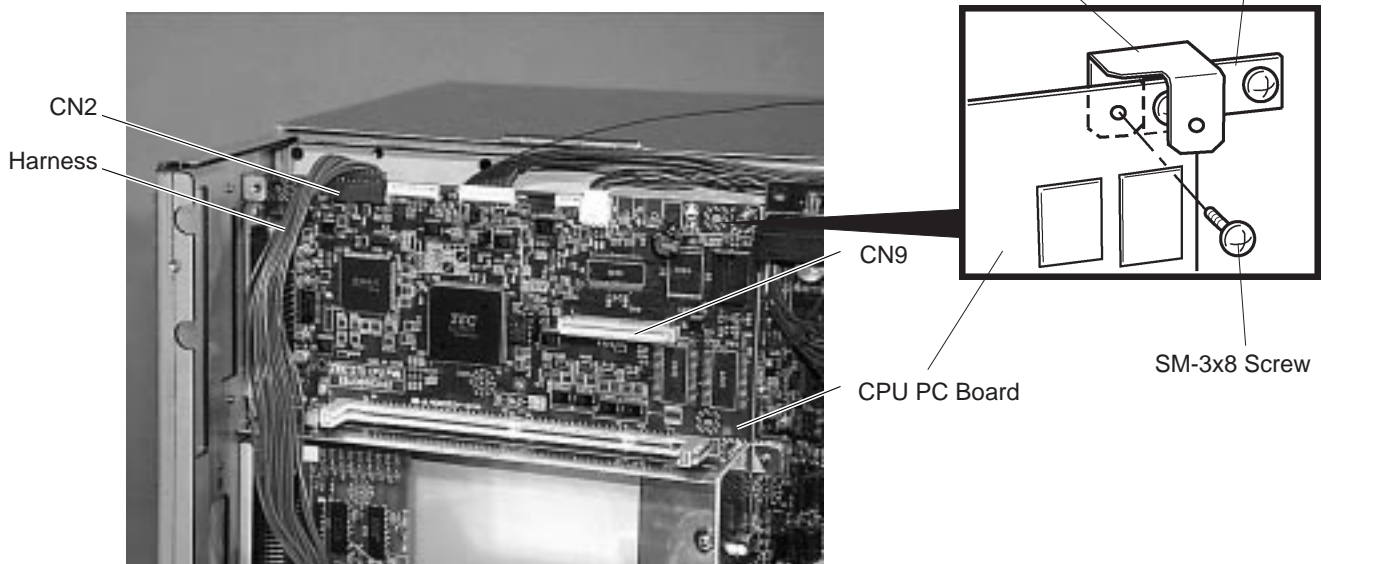


Fig. 3-3

4. Connect the CN51 on the PCMCIA PC board to the CN9 on the CPU PC board. (Refer to Fig. 3-2)
5. Fix the PCMCIA PC board with the three SM-3x8 screws onto the CPU PC board and the PCB holder plate.

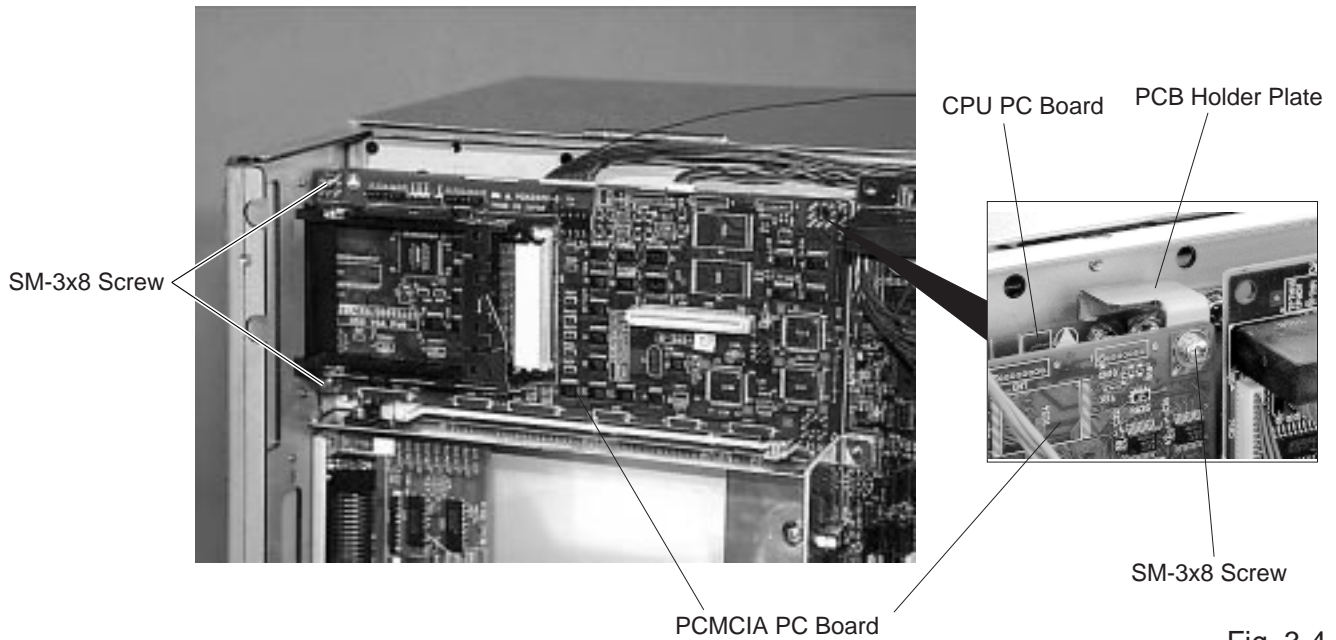


Fig. 3-4

6. Return the harness to the CN2 on the CPU PC board.

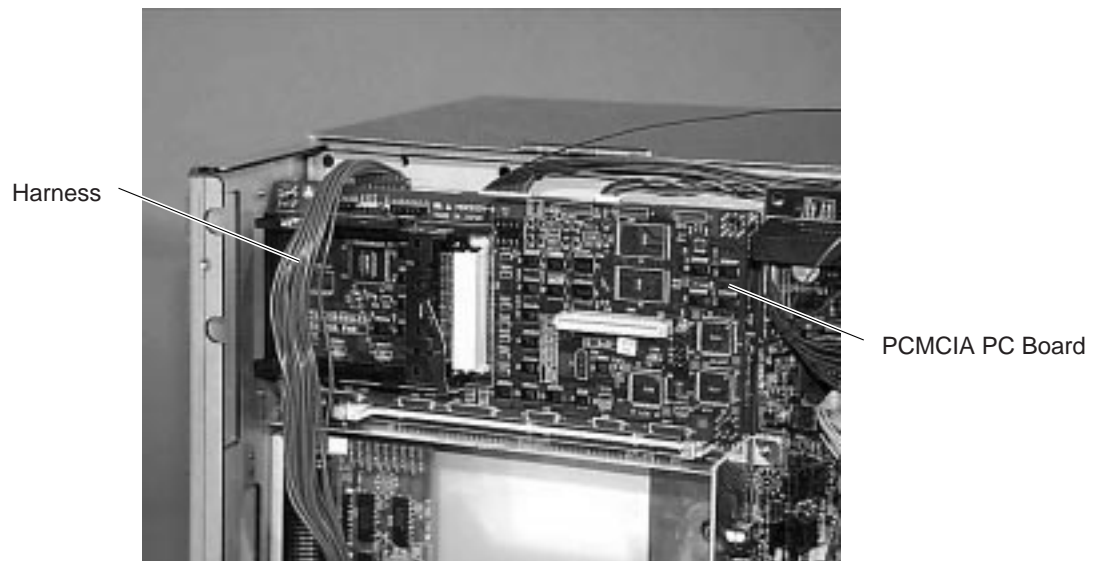


Fig. 3-5

7. Reassemble the left side cover and top cover in the reverse order of removal.

NOTE: Attach the ferrite core to any cable attached to a PCMCIA card (Example LAN card) that may be inserted into the card slot. Place the ferrite core as close to the PCMCIA card as possible.

3.2 EXP I/O PC Board (B-8700-IO-QM)

All the following parts are supplied with the kit. Make sure you have all items shown below.

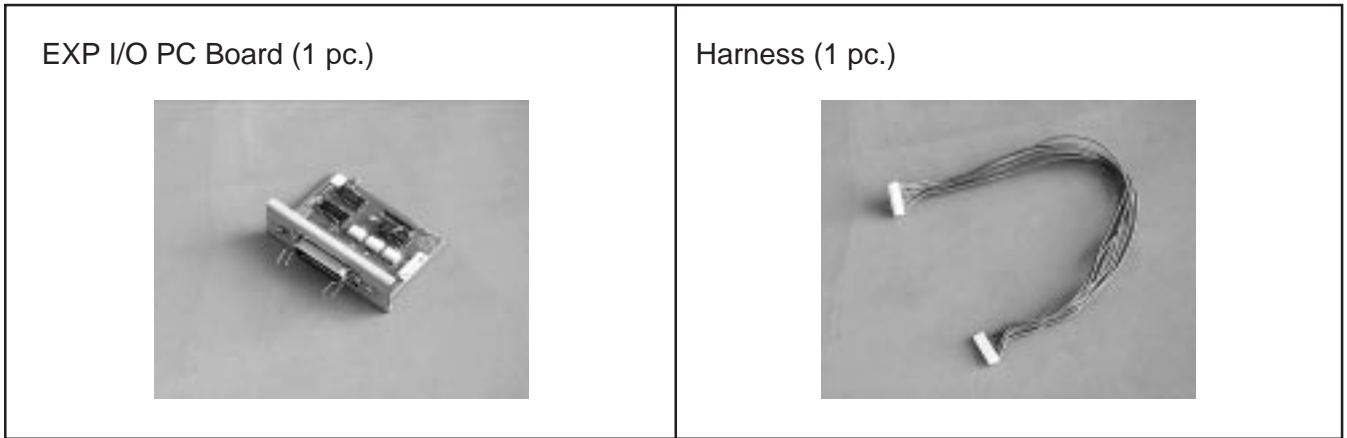


Fig. 3-6

1. Refer to Section 2 and remove the top cover and left side cover.
2. Remove the two FL-3x4 screws to detach the blind plate.



Fig. 3-7

NOTE: Keep the FL-3x4 screws and blind plate safe.

3. Remove the two SM-3x6 screws from the EXP I/O PC board.

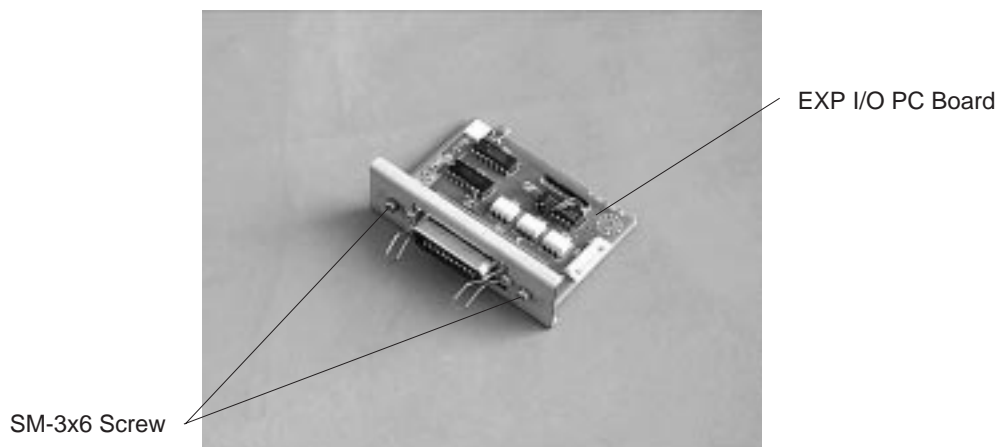


Fig. 3-8

4. Fix the EXP I/O PC board on the rear cover with the two SM-3x6 screws removed in Step 3.

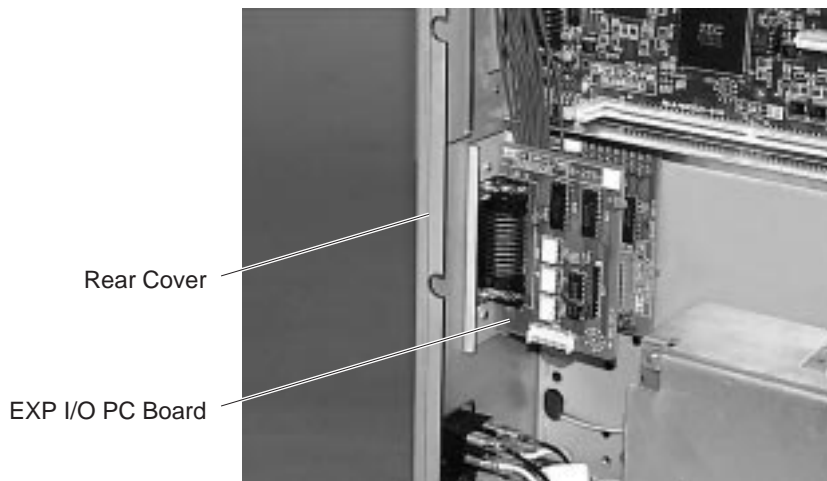


Fig. 3-9

5. Connect the attached harness to CN1 on the EXP I/O PC board and CN6 on the I/O PC board.



Fig. 3-10

6. Reassemble the left side cover and top cover in the reverse order of removal.

3.3 Cutter Module (B-4205-QM)

Description	Q'ty/Unit	Description	Q'ty/Unit
Cutter Unit	1	Cutter Attaching Screw	2
Cutter Cover	1	Screw (FL-4x6)	1
Take-up/Cutter Harness	1	Cleaner	1

1. Remove the top cover and left side cover. (See Fig. 2-1.)
2. Remove the front plate. (See Fig. 2-9.)
3. Remove the screw (SM-4 x 8B) and two connectors to detach the operation panel.

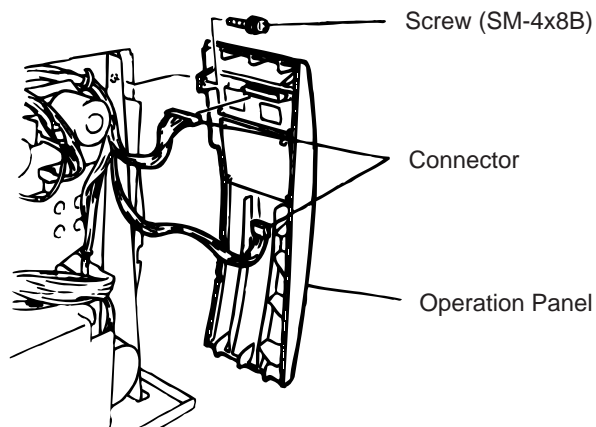


Fig. 3-11

4. Install the cutter unit with the attached screws (cutter attaching screw, FL-4 x 6). When installing the cutter, make sure that the guide is not in contact with the platen. If it is, print failure or noise may be caused.

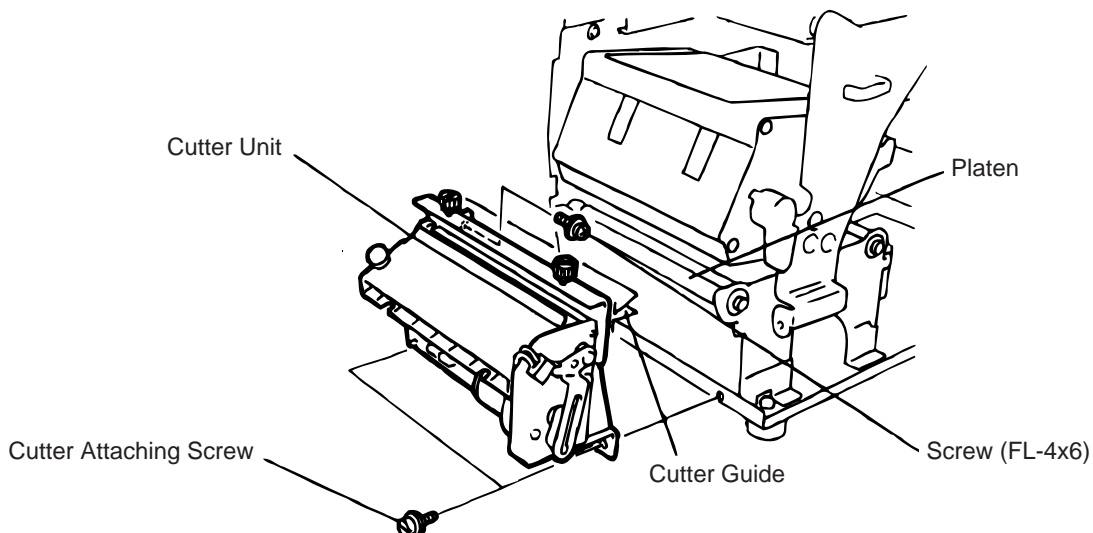


Fig. 3-12

- Connect the take-up/cutter harness to CN1 on the Cutter I/F PC board and CN5 on the I/O PC Board, then fix it with the clamp.

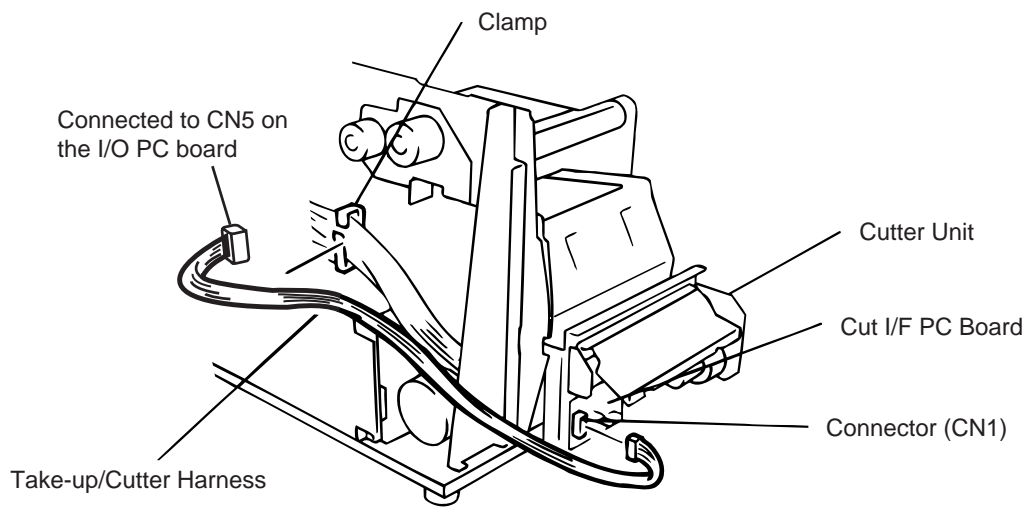


Fig. 3-13

- Mount the cutter cover with the two white screws.

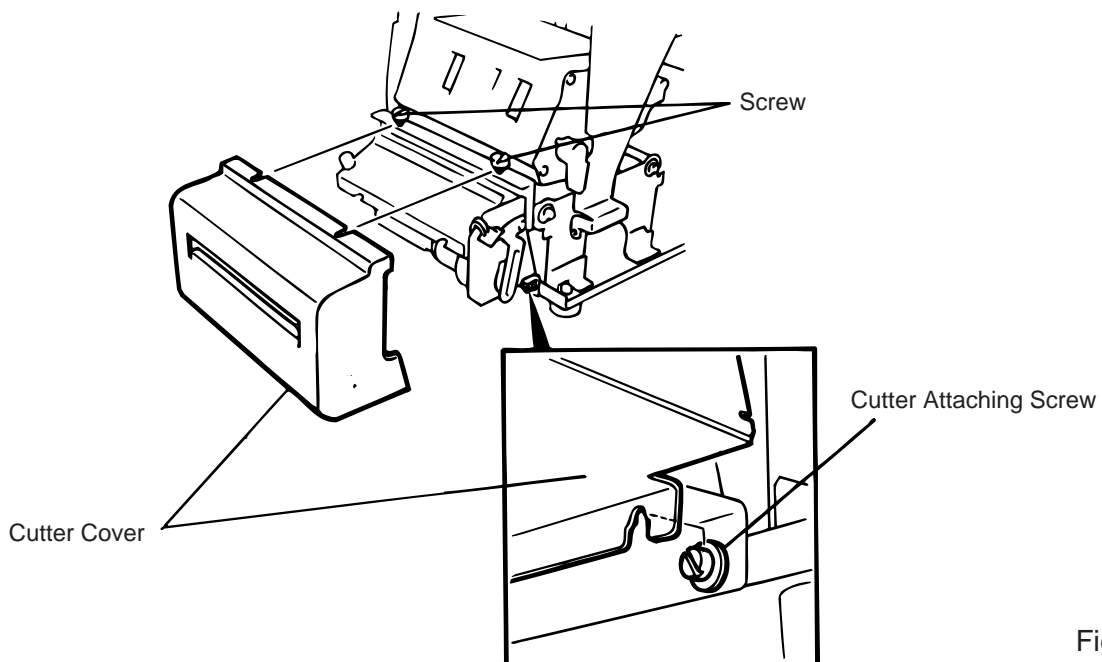


Fig. 3-14

- Reassemble the left side cover and the top cover in the reverse order of removal.
- After reassembly is complete, perform a test print to confirm that the cutter works properly. After printing a print sample at a speed of 6"/sec., feed the media about 33 mm and check that the swing cutter works without error. After cutting the media, feed the media about 33 mm in the reverse direction and check that it correctly stops at the print start position.

NOTE: Retain the parts that are removed during installation of the cutter unit. They will be required when the printer is modified to a standard type.

Removed Parts	Q'ty/Unit	Removed Parts	Q'ty/Unit
Front plate	1	Black screws	2

■ Adjusting the Cutter Guide Plates

After replacing the cutter unit the following adjusting procedure should be employed to prevent paper jams.

1. Attach the cutter guide plate A with two SM-4 x 6C screws so that the fixed cutter is positioned 0.1 mm to 0.4 mm above the bottom of the cutter guide plate A.
2. Attach the cutter guide plate B with two FL-4 x 8 screws so that there is a clearance of 0.5 mm between the cutter guide plate A and cutter guide plate B using a clearance gauge.

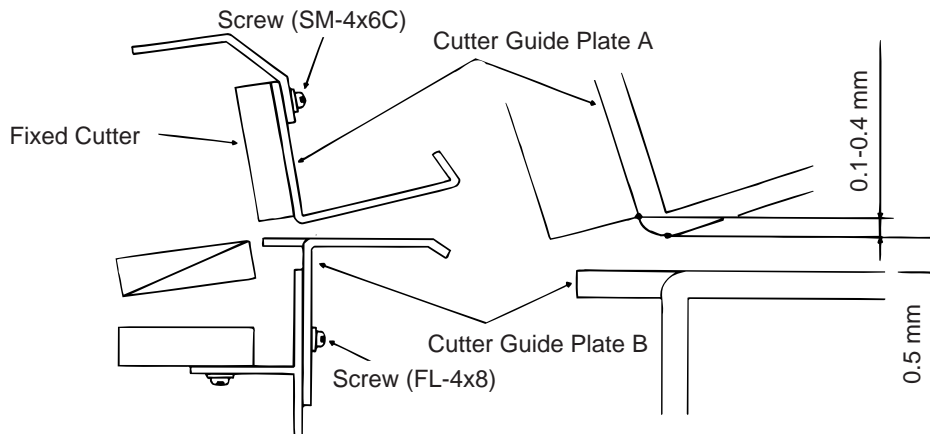


Fig. 3-15

3.4 Ribbon Saving Module (B-4905-R-QM)

Description	Q'ty/Unit
Ribbon Saving Module	1

1. Turn the head lever counterclockwise to release the ribbon shaft holder plate.
2. Remove the ribbon stopper from the ribbon shaft on which the ribbon is wound. Before removing the ribbon stopper, check its attaching direction for later installation. Remove the ribbon stopper from the ribbon shaft on which the ribbon is wound.
3. Remove the two SM-4 x 8 screws to detach the solenoid attaching plate.

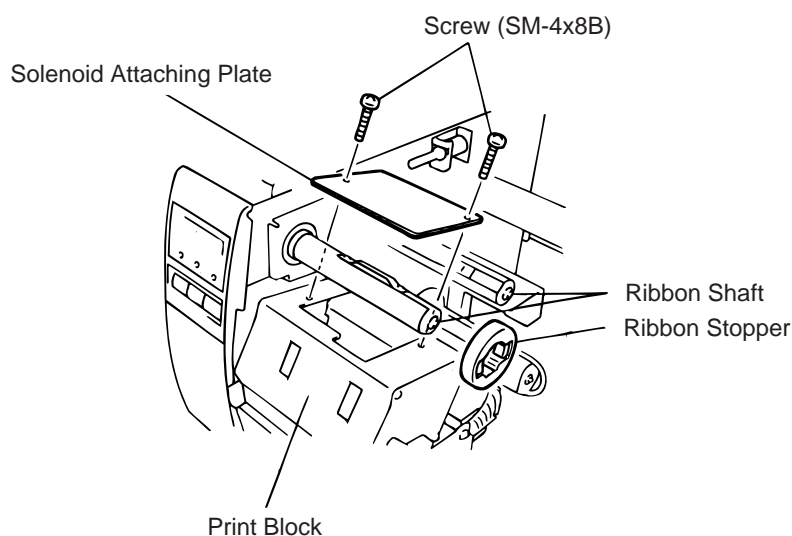


Fig. 3-16

4. Pass the solenoid harness of the ribbon saving module through the opening from the print block side and connect to CN15 on the I/O PC board. Fix the harness with the clamp.
5. Install the ribbon saving module on the print block.
6. Assemble the solenoid unit so that the head up link engages the spring pin.
7. Secure the ribbon saving module with the SM-4x8B screws removed in Step 3.

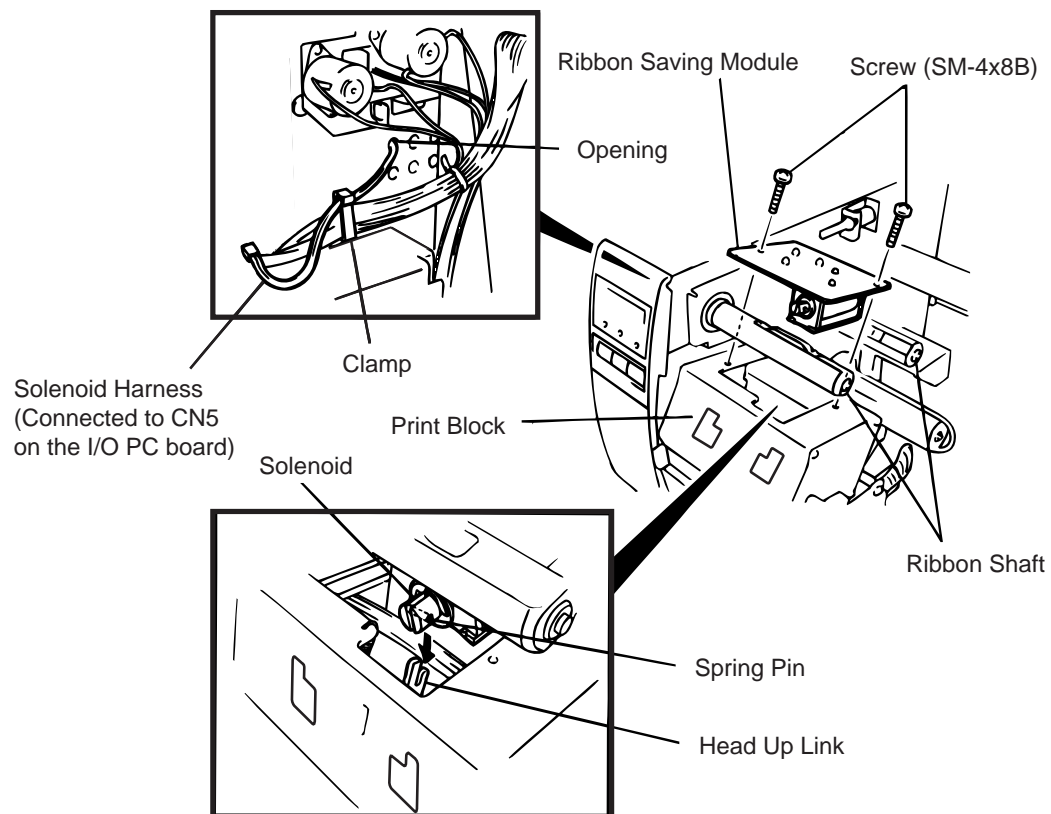


Fig. 3-17

8. Set the Ribbon Saving Module is ON. (Refer to Section 5.3.16)

NOTE: Make sure to remove any dust that appears during removal or installation because it may affect the print quality.

CAUTION: Take care to orient the screws so that they are vertically aligned with the ribbon saving module.

3.5 Strip Module (B-4905-H-QM)

Description	Q'ty/Unit	Description	Q'ty/Unit
Rewinder Ass'y	1	Rewinder Guide Plate	1
Rewind Full Sensor (LED)	1	Screw (FL-4x6)	4
Strip Sensor (Tr)	1	Screw (SM-3x6B)	1
Strip Sensor (LED)	1	Screw (SM-4x6B)	2
Rewind Paper Guide	1		

1. Remove the top cover and left side cover (See section 2-1.)
2. Remove the operation panel. (See section 3-3.)
3. Fasten the rewind paper guide to the base with the two SM-4 x 6B screws.

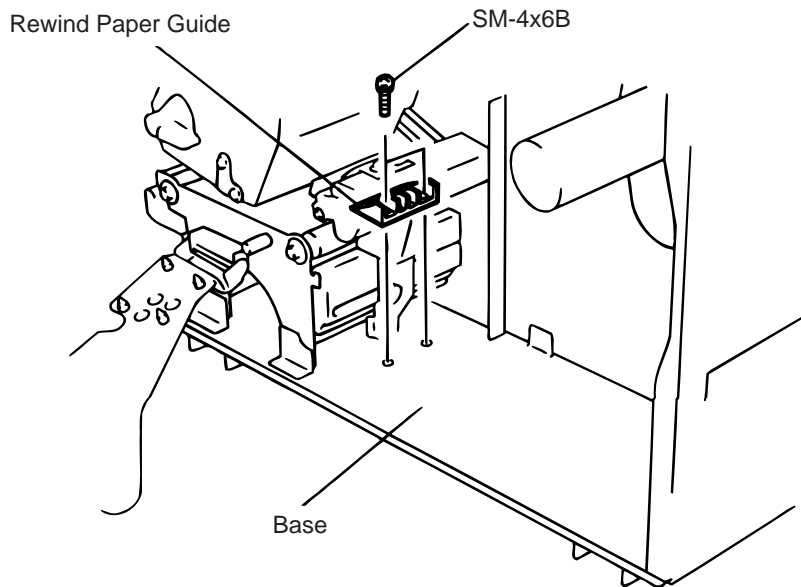


Fig. 3-18

4. Pass the take-up harness of the rewinder ass'y and the longer harness of the rewind full sensor through the hole of the main frame. Connect the take-up harness and rewind full sensor harness to CN16 and CN5 on the I/O PC board respectively. Fix the harness at two points with the clamps.
5. Connect the connector of the rewind full sensor (LED) with the other harness of the rewind ass'y.
6. Align the notch of the take-up holder with the screw hole of the rewinder ass'y and attach it to the printer with four FL-4 x 6 screws.
7. Attach the rewind full sensor (LED) to the base with SM-3 x 6B screw.

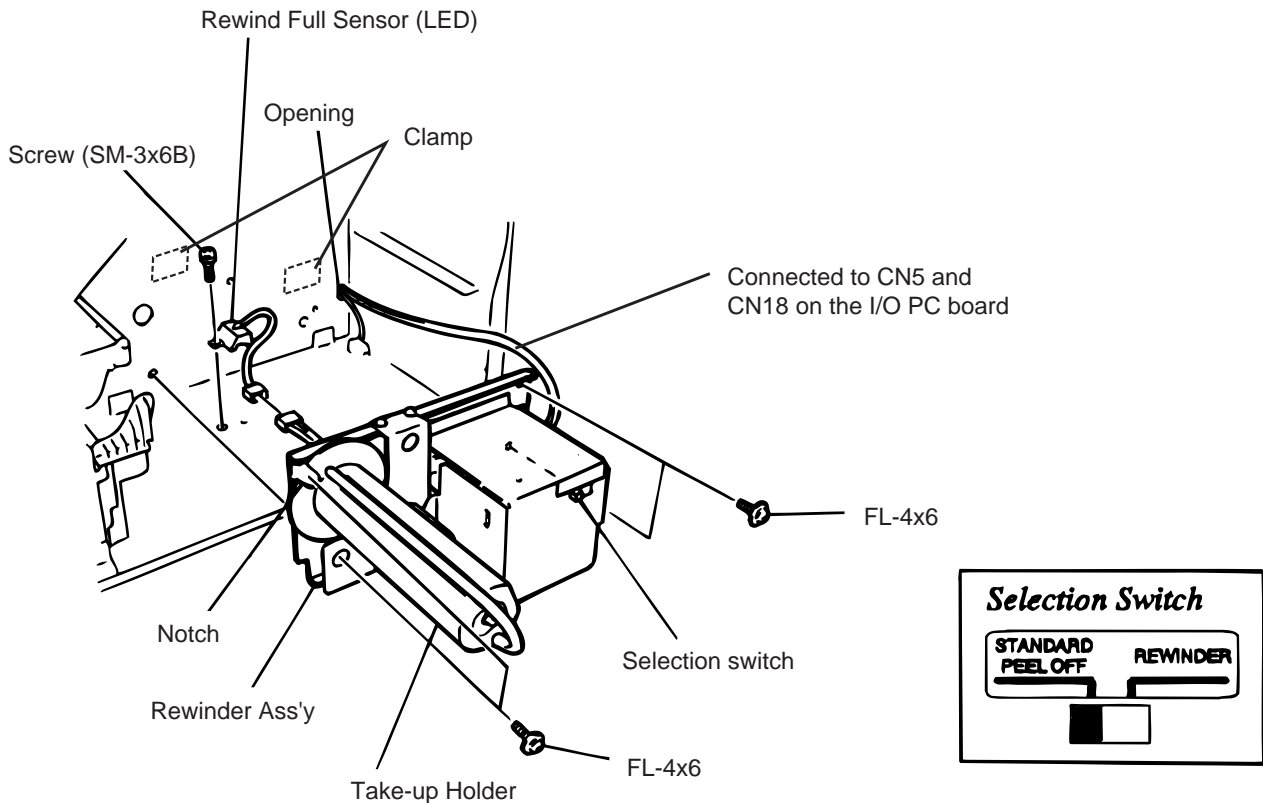


Fig. 3-19

NOTE: You should change the selection switch position depending on the usage of the take-up holder. Improper setting can affect the print quality.

STANDARD/PEEL OFF (STRIP): Batch and strip types

REWINDER: Built-in rewinder type

For the cutter type, the selection switch can be set to either position.

8. Connect the shorter harness of the strip sensor (Tr) with the strip sensor harness (LED).
9. Pass the other the strip sensor (Tr) harness through the clamp and connect to CN16 on the I/O PC Board.
10. Secure the strip sensors (Tr) and (LED) with SM-4 x 6B screw.
11. Fix the harness mentioned in Step 7 with the clamp. Be sure to wire the harness along with the main frame, base and right plate.

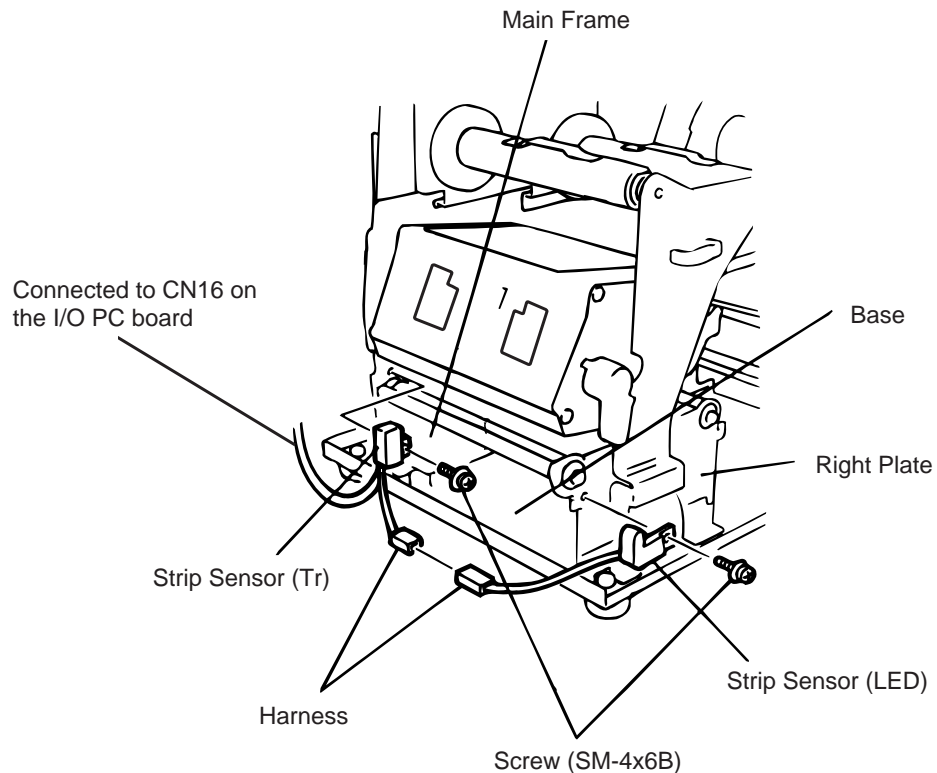


Fig. 3-20

12. Reassemble the operation panel, top cover and left side cover in the reverse order of removal.
13. When using the built-in rewinder in Batch mode, fit the rewinder guide plate to the strip shaft, then attach it with the black screws which were removed in step 4.

3.6 Fanfold Paper Guide Module (B-4905-FF-QM)

Description	Q'ty/Unit
Fanfold Paper Guide (rear)	1
Fanfold Paper Guide (front)	1

1. Open the top cover.
2. Remove the T-4 x 8 screws to detach the paper guide ass'y at the center of the printer and attach the fanfold paper guide (front) with these same screws.

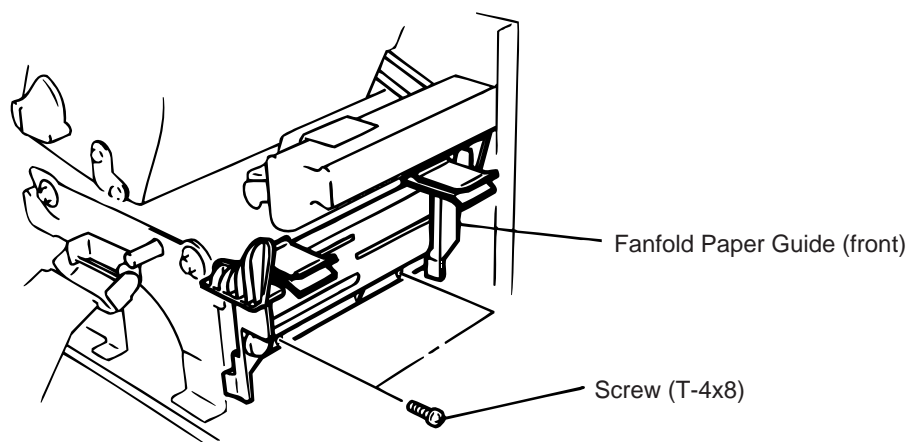


Fig. 3-21

3. Remove the FL-4 x 5 screws to detach the blind plate on the back of the printer and attach the fanfold paper guide (rear) with the same screws.

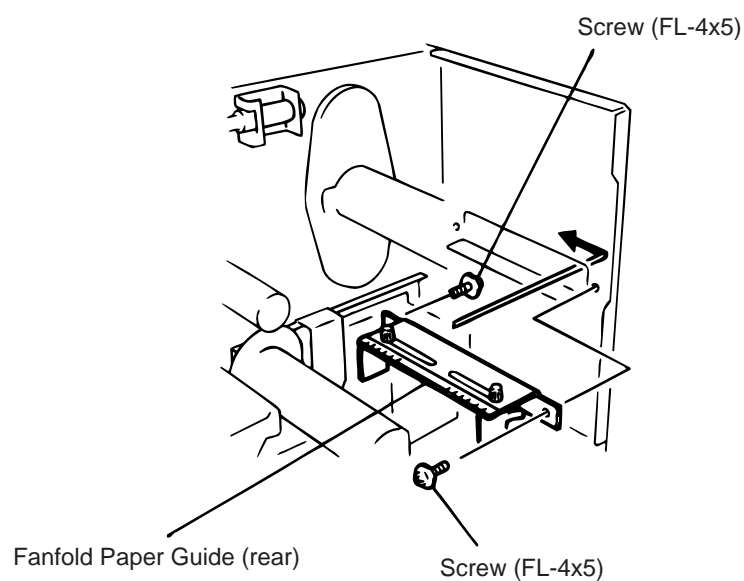


Fig. 3-22

3.7 Cutter Module (B-8204-QM)

3.7.1 Packing List

All the following parts are supplied with the kit. Make sure you have all items shown below.



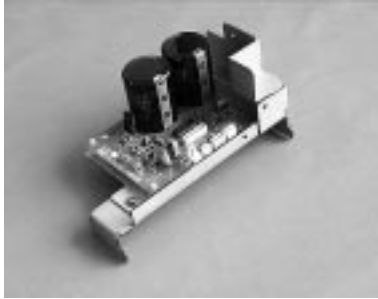


<p>Cutter Unit (1 pc.)</p> 	<p>Cutter Cover (1 pc.)</p> 	<p>Cutter Driver Unit (1 pc.)</p> 
<p>Harness (2 pcs.) (2 pin/9 pin)</p> 	<p>SM-4x8 Screw (6 pcs.)</p> 	

Fig. 3-23

- 1) Refer to Section 2 and remove the left side cover.
- 2) Refer to Section 3.3 and remove the operation panel.
- 3) Refer to Section 2.5 and remove the two black screws and front plate.

NOTE: Keep the two black screws and front plate safe.

- 4) Fix the cutter drive unit to the printer with the three SM-4x8 screws.

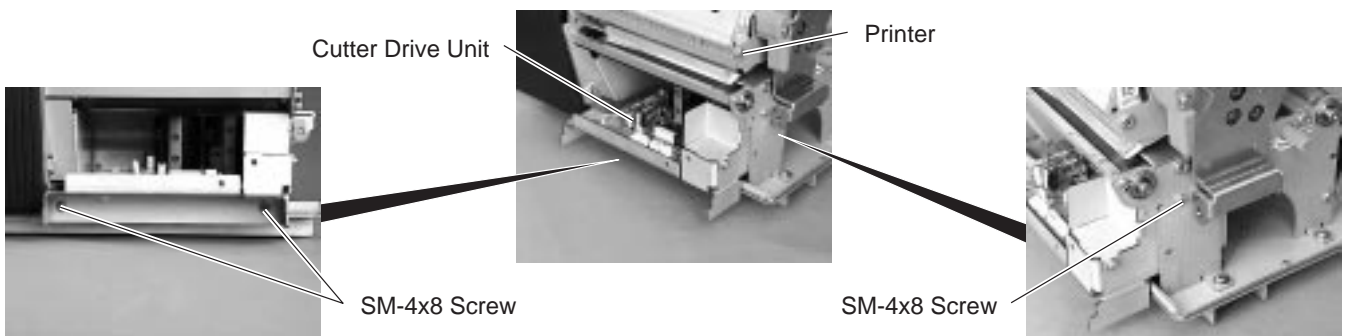


Fig. 3-24

- 5) Connect the attached harness (9 pins) to CN7 on the cutter drive unit and CN5 on the I/O PC board, and the attached harness (2 pins) to CN9 on the cutter drive unit and CN7 on the I/O PC board, respectively.

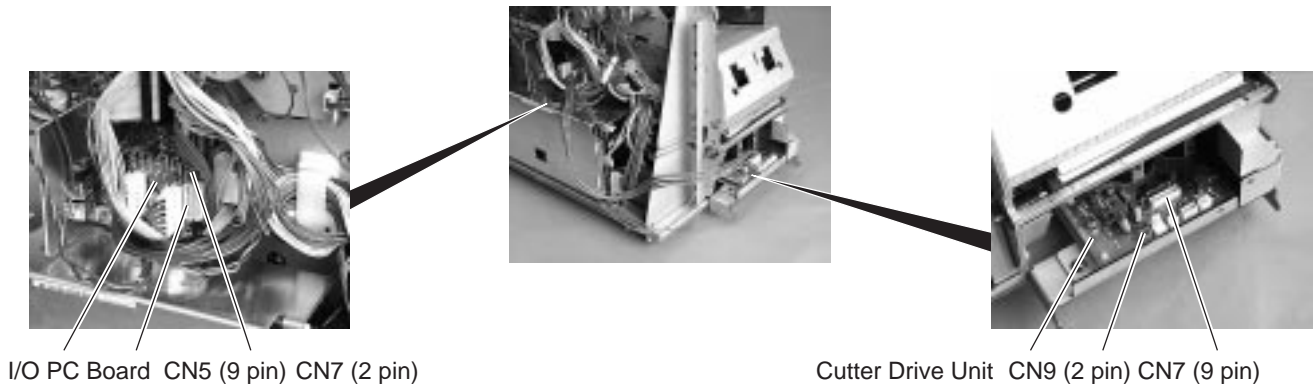


Fig. 3-25

- 6) Reassemble the operation panel removed in Step 2. At this time, pass the harness through the clearance not to be clamped by the operation panel.

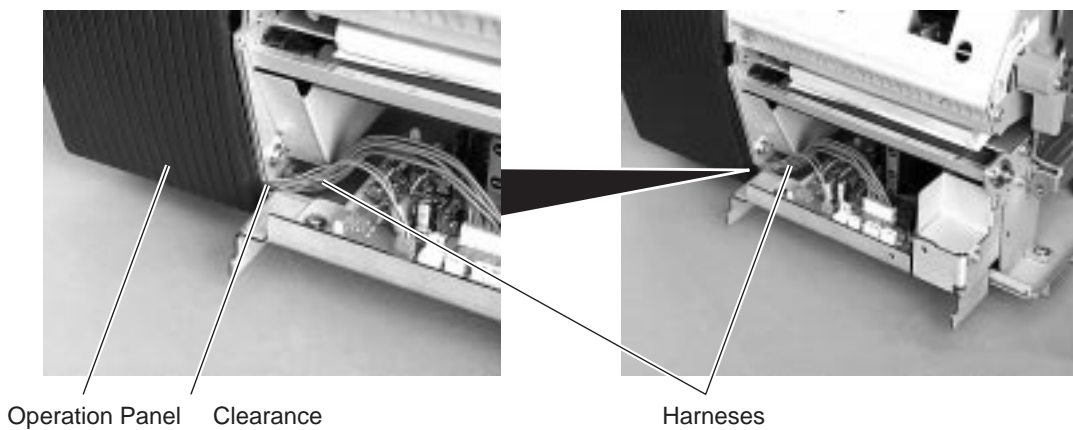


Fig. 3-26

- 7) Connect the four harnesses to CN8, 10 to 12 on the cutter drive unit.



Fig. 3-27

8) Fit the two hooks of the cutter drive unit into the notches, and then fix the cutter unit with the attached three SM-4x8 screws.

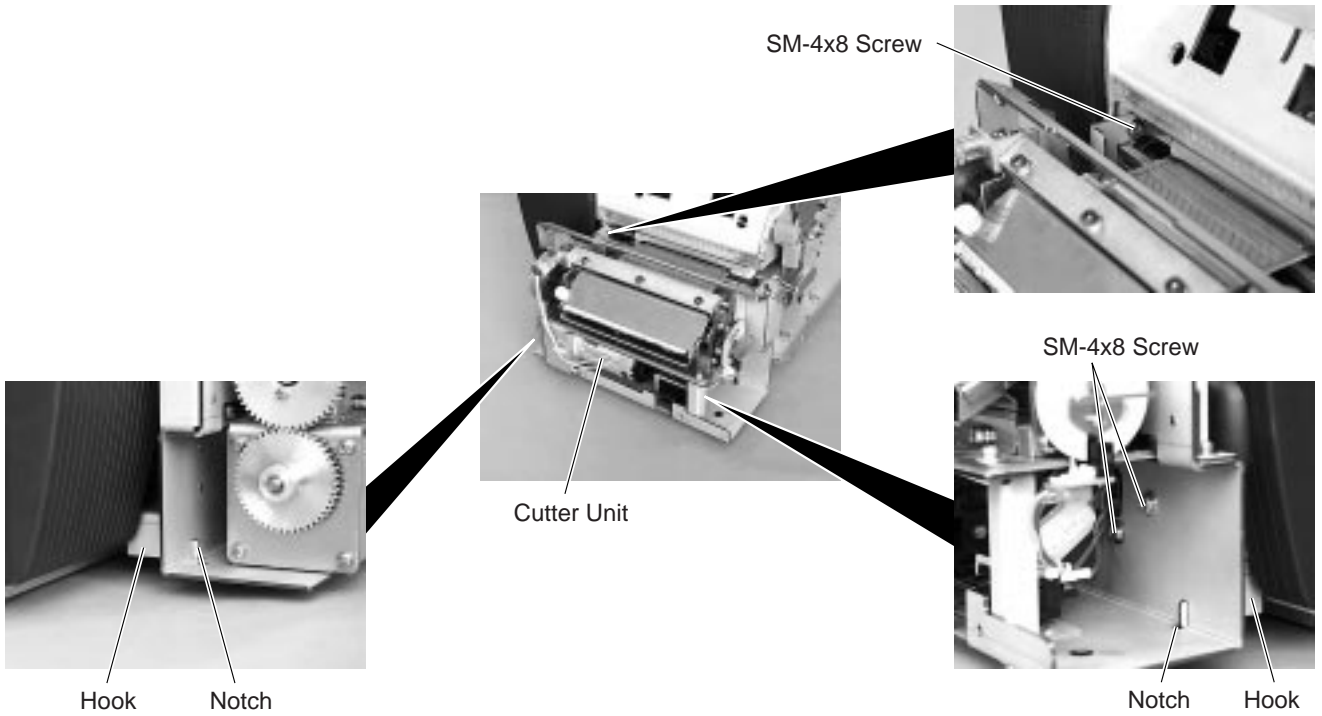


Fig. 3-28

9) Attach the cutter cover on the cutter unit with two screws so that the hook turns on the cutter cover open switch.

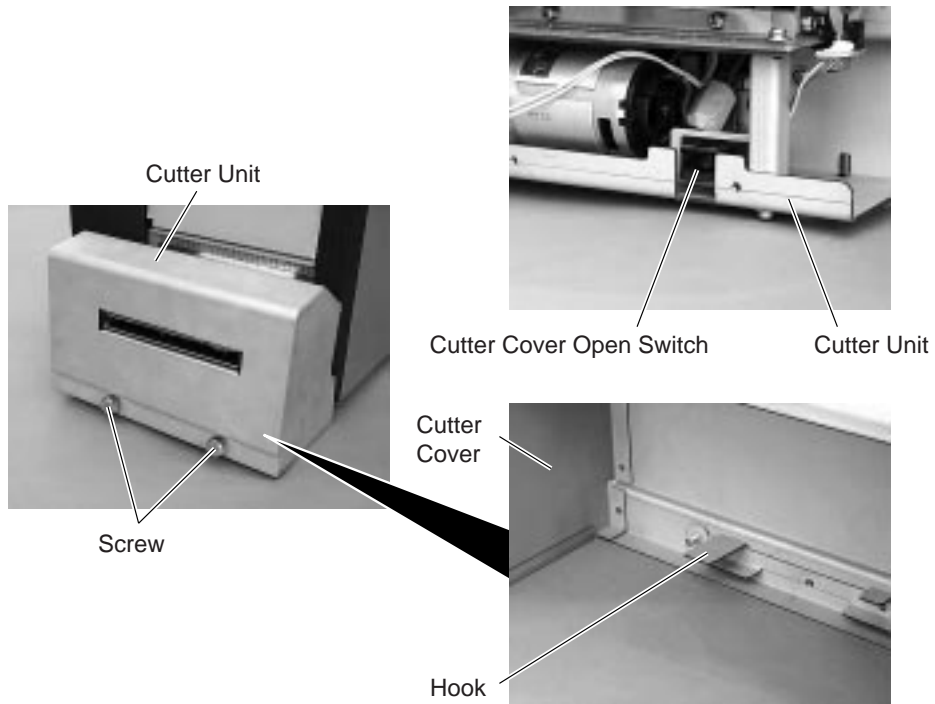


Fig. 3-29

10) Reassemble the left side cover in the reverse order of removal.

■ Adjust Cut Angle

When the cutter cuts media obliquely, follow the procedure below to adjust the cut angle.

1. Loosen the two SM-4x8B screws.
2. Move the guide plate back or forth so that the cutter is perpendicular to the media. Tighten the same SM-4x8B screws.

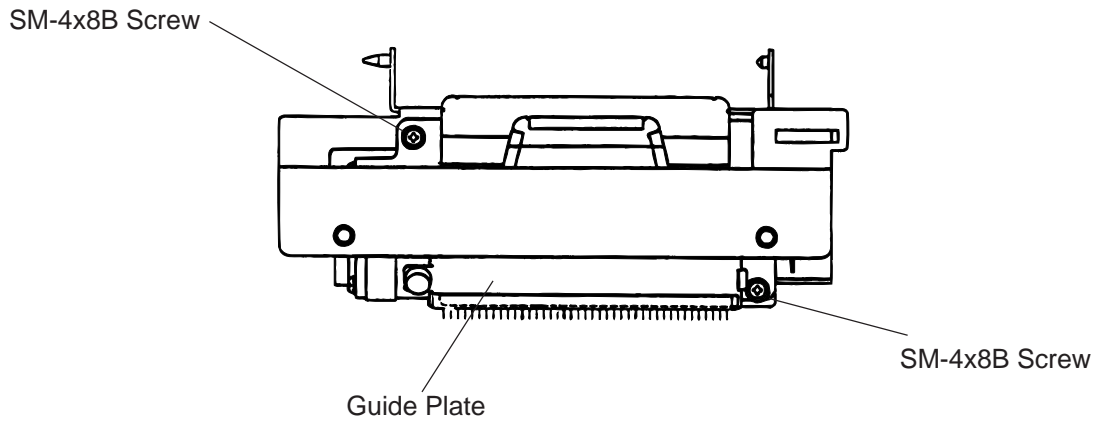


Fig. 3-30

3. Perform a test cut to check for a proper cut. Repeat the procedure, if necessary.

4. TROUBLESHOOTING

Problems	Cause	Solution
Power is not turned ON.	<ol style="list-style-type: none"> 1. Input voltage to the printer is not within the rated voltage. (Check by CN1 on the PS unit.) 2. Output voltage from the printer is not within the rated voltage. (Check that the voltage between Pin 4 and Pin 6 (GND) of CN3 on the PS unit is 27 V. And check the voltage between Pin 1 and Pin 3 (GND) is 5 V.) 3. I/O PC board is not applied with voltage. (Check the voltage between Pin 4 and Pin 6 (GND) of the CN12 on the I/O PC board is 27 V.) 4. Failure of CPU PC board. 	<ul style="list-style-type: none"> • Replace the power cable or power inlet. • Replace the PS unit. • Replace the power harness. • Replace the CPU PC board.
LED or LCD does not light.	<ol style="list-style-type: none"> 1. Failure of the LED board/LCD 2. Failure of the LCD/LED harness 3. Failure of the CPU PC board 	<ul style="list-style-type: none"> • Replace the LED board/LCD. • Replace the LCD/LED harness. • Replace the CPU PC board.
Poor printing.	<ol style="list-style-type: none"> 1. The print paper is of poor quality. 2. Dirty print head 3. The head lever fastens the print head incompletely. 4. Alignment adjustment of the print head is improper. 	<ul style="list-style-type: none"> • Use the media approved by TOSHIBA TEC. • Clean the print head. • Fasten the head lever completely. • Re-adjust the head.
Printer does not print.	<ol style="list-style-type: none"> 1. Print head failure 2. Connection of the print head connector is incomplete, a bad contact, or broken wires. 3. Failure in the rewinding/feeding of the ribbon. 4. Failure of the CPU PC board 5. Failure of the software 6. Failure of the printer cable 	<ul style="list-style-type: none"> • Replace the print head. • Connect the harness completely, or replace the harness. • Replace the ribbon rewind motor, ribbon feed motor or I/O PC board. • Replace the CPU PC board. • Check the program. • Replace the printer cable.

Problems	Cause	Solution
Dot missing	<ol style="list-style-type: none"> 1. Broken element of print head 2. Broken wires of print head cable 3. Failure of the CPU PC board 4. Failure of the I/O PC board 	<ul style="list-style-type: none"> • Replace the print head. • Replace the print head harness. • Replace the CPU PC board. • Replace the I/O PC board.
Blurred print	<ol style="list-style-type: none"> 1. Poor quality of media. 2. Dust is attached to the media. 	<ul style="list-style-type: none"> • Use only TOSHIBA TEC specified media. • Clean the print head and remove the dust from the media.
Ribbon wrinkle	<ol style="list-style-type: none"> 1. Poor quality of the ribbon 2. Ribbon is not rewound or fed smoothly. 	<ul style="list-style-type: none"> • Use only TOSHIBA TEC specified ribbon. • Replace the ribbon rewind motor or ribbon feed motor.
Ribbon end error	<ol style="list-style-type: none"> 1. Poor quality of the ribbon 2. Improper voltage applied to the ribbon end sensor 3. Failure of the ribbon end sensor 4. Failure of the circuit which controls the ribbon end sensor. 	<ul style="list-style-type: none"> • Use only TOSHIBA TEC specified ribbon. • Refer to page 2-4 to adjust the ribbon end sensor. • Replace the ribbon end sensor. • Replace the I/O PC board.
Label feed failure	<ol style="list-style-type: none"> 1. Paper is not set properly. 2. Paper of poor quality 3. Improper adjustment of the feed gap sensor or black mark sensor. 4. Failure of the feed gap sensor or black mark sensor 5. Labels cannot be stripped off the backing paper or the backing paper with labels cannot be wound properly. 6. The cutter mechanism is not installed properly. 7. Failure of the stepping motor 	<ul style="list-style-type: none"> • Set the paper properly. • Use the paper approved by TOSHIBA TEC. • Re-adjust the sensor. • Replace the feed gap sensor or black mark sensor. • Replace the take-up motor or I/O PC board. • Install the cutter mechanism properly. • Replace the stepping motor or I/O PC board.
Communication error	<ol style="list-style-type: none"> 1. Failure of the communication cable 2. Failure of the RS-232C connector 3. Failure of the communication connector 4. Failure of the PC or application software 5. Failure of the CPU PC board 	<ul style="list-style-type: none"> • Replace the cable. • Replace the connector. • Replace the connector. • Modify the program. • Replace IC2 (MC145407). If the trouble is not solved, replace the CPU PC board.

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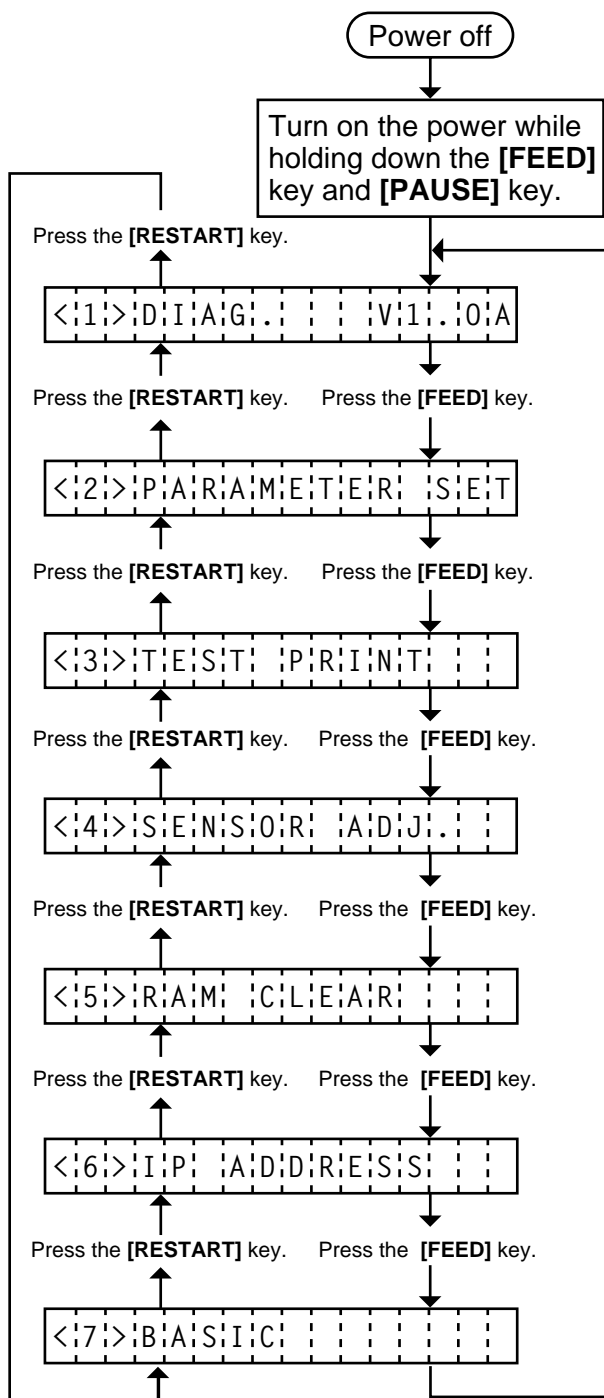
5. DIAG. TEST OPERATION

5.1 OUTLINE OF THE DIAG. TEST OPERATION

In system mode the diag. test operation is used to diagnose the printer and to set the parameters by using the [FEED], [RESTART] and [PAUSE] keys on the operation panel. Diag. test operation (Type I) is started from the power off state and the parameter setting (Type II) is started while the printer is on-line or printing. For further details, please refer to the corresponding pages.

NOTE: Every size in this manual is written in millimeter. To obtain the size in inch, divide by 25.4.

■ Type I



■ Self Test Mode (See page 5-3)

Data from the maintenance counter and automatic diagnosis are printed on the media.

■ Parameter Setting Mode (See page 5-15)

Fine adjustment of the feed length, cut/strip position, back feed length, X axis, print tone, thresholds of the black mark sensor and feed gap sensor, ribbon motor drive voltage, and selection of character code, font zero, baud rate, data length, stop bit, parity, transmission control mode, language of LCD message, auto forward wait and head up ON/OFF in cut mode, ribbon saving module, control code, ribbon type, strip wait status, feed key function, kanji code, EURO font cod, Centronics I/F ACK/BUSY timing, Web printer, and auto print head broken element check are available in this mode.

■ Test Print Mode (See page 5-53)

Print condition and test print type (slant line, characters and bar code) are selectable.

■ Sensor Setting Mode (See page 5-60)

A thermistor check and the adjustment of the black mark and feed gap sensors are available in this mode.

A transmission check is made to both a print head thermistor and an environmental temperature thermistor.

■ RAM Clear Mode (See page 5-65)

Data from the maintenance counter is cleared and parameter setting is initialized in the RAM clear mode.

■ IP Address Setting Mode (See page 5-70)

Host IP address, Printer IP address, and Gateway IP address settings are available in this mode.

■ BASIC Setting Mode (See page 5-72)

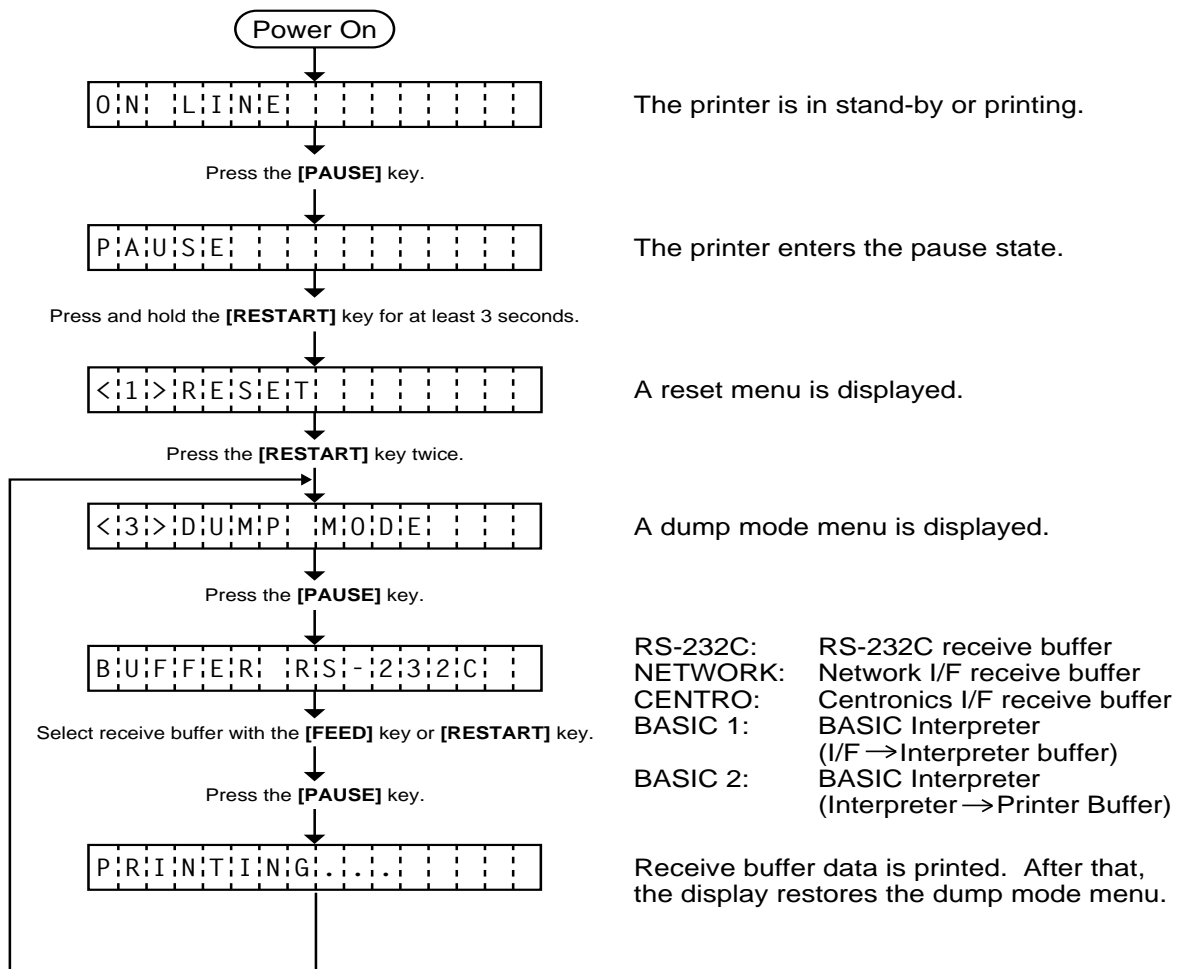
Setting the BASIC specification to be enabled/disabled and displaying the program file/data file are available in this mode.

In system mode the [FEED], [RESTART] and [PAUSE] keys function as described below.

Key Name	Function
[FEED] key	Used to start the system mode as a [PAUSE] key does. Used to select the parameter mode or to fine adjust the parameters in the negative direction (-).
[RESTART] key	Used to select the parameter mode or to fine adjust the parameters in the positive direction (+)
[PAUSE] key	Used to start the system mode as a [FEED] key does and to select the parameter mode. Used as an enter key.

■ Type II

The parameter setting such as feed length fine adjustment or cut/strip position fine adjustment can be changed while the printer is on-line or printing. Pressing the [PAUSE] key causes the printer to enter parameter setting mode. Reset mode is provided for this procedure to cancel the steps which follow the [PAUSE] key without turning the power off.



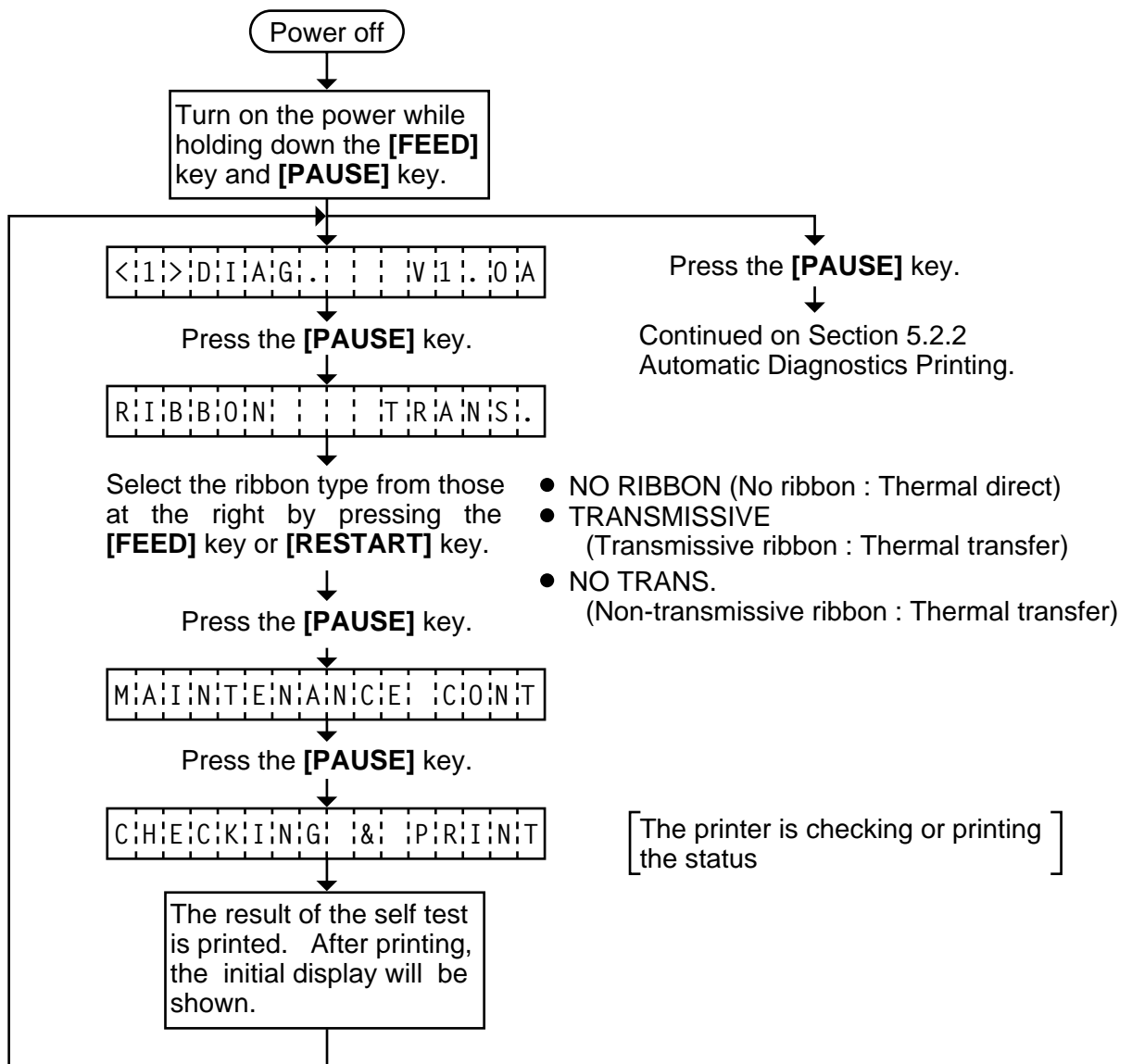
- NOTES:**
1. Pressing the [PAUSE] key during printing causes the printer to pause printing and show the number of remaining media.
 2. If the [RESTART] key is released within 3 seconds, the printer will resume printing because the [RESTART] key is activated.
 3. Since the reset is performed when terminating this mode, the printer cancels the remaining media and returns to on-line mode. This reset will not clear the changed parameter settings.

5.2 SELF TEST MODE

In self test mode the printer status is printed in two types of sample print.

5.2.1 Maintenance Counter and Parameter Printing

The data from 1 to 50 on a sample print is printed. This data is the printer status and the value set in the parameter setting mode.



- NOTES:**
1. If the maintenance counter printing results in an error, the printer will display the error message and stop printing. The error status can be cleared by the **[PAUSE]** key, however, the display will return to the initial display "<1>DIAG.V1.0A". Printing is not automatically resumed after the error is cleared.
 2. Both label and tag paper can be used for printing.

■ Sample Print

[Print Condition]

- Preset count : 1
- Print speed : 5"/sec.
- Sensor : No sensor
- Printing method : Thermal transfer
- Supply length : 140 mm
- Issuing mode : Batch printing
(without rewinder)

(1)	TL FEED	1.1 km	[PC]		
(2)	FEED	1.1 km	FEED	+2.0 mm	(40)
(3)	PRINT	0.5 km	CUT	+0.0 mm	(41)
(4)	CUT	96	BACK	+0.0 mm	(42)
(5)	HEAD U/D	32	TONE (T)	+0 step	(43)
(6)	RIBBON	3 h	TONE (D)	+0 step	(44)
(7)	SOLENOID	0 h	RBN (FW)	-10	(45)
			RBN (BK)	+0	(46)
(8)	232C ERR	255	[KEY]		
(9)	SYS ERR	0	FEED	+0.0 mm	(47)
(10)	PW FAIL	0	CUT	+1.0 mm	(48)
			BACK	+0.0 mm	(49)
(11)	THRESHOLD (R)	1.0 V	TONE (T)	+0 step	(50)
(12)	THRESHOLD (L)	0.7 V	TONE (D)	+0 step	(51)
			RBN (FW)	-8	(52)
(13)	FONT [PC-850]	[0]	RBN (BK)	+0	(53)
(14)	CODE [AUTO]		X ADJ.	+0.0 mm	(54)
(15)	RIBBON	[TRANS]			
(16)	STATUS	[1]			
(17)	SPEED	[9600]			
(18)	DATA LENG	[8]			
(19)	STOP BIT	[1]			
(20)	PARITY	[EVEN]			
(21)	CONTROL	[XON+READY AUTO]			
(22)	MESSAGE	[ENGLISH]			
(23)	FORWARD WAIT	[OFF]			
(24)	HEAD UP CUT	[OFF]			
(25)	RIBBON SAVE	[ON]			
(26)	FEED KEY	[FEED]			
(27)	KANJI	[TYPE1]			
(28)	EURO CODE	[B0]			
(29)	AUTO HD CHK	[OFF]			
(30)	WEB PRINTER	[OFF]			
(31)	HOST IP ADDR	[192.168.010.010]			
(32)	PRTR IP ADDR	[192.168.010.020]			
(33)	GATE IP ADDR	[000.000.000.000]			
(34)	SUBNET MASK	[255.255.255.000]			
(35)	TTF AREA	[704 KB]			
(36)	EXT CHR AREA	[128 KB]			
(37)	BASIC AREA	[64 KB]			
(38)	PC SAVE AREA	[64 KB]			
(39)	SOCKET PORT	[OFF] [08000]			

Fig. 5-1

1) Maintenance Counter

#	Item	Count Condition	Range
(1)	Total media distance covered	Counted when the feed motor drives to feed, print and issue the media. (Counted also during ribbon save operation and back feed.) [See NOTE 2.]	0.0 to 3200.0 km
(2)	Media distance covered		0.0 to 200.0 km
(3)	Print distance	Counted while printing. (Feeding and issuing media, and ribbon saving operation are not counted.) [See NOTE 2.]	0.0 to 200.0 km
(4)	Cut count	Counts every cut. [See NOTE 3.]	0 to 1000000 times
(5)	Head up and down count	Counts every up and down of the print head using the solenoid for ribbon save operation. (Up+Down=1 count) [See NOTE 3.]	0 to 2000000 times
(6)	Ribbon motor driving time	Counts when the ribbon motor drives to feed, print and issue the media. (The driving time is not counted during ribbon saving operation, but is during back feed.) [See NOTE 4.]	0 to 2000 hours
(7)	Solenoid driving time	Counted during ribbon saving operation. [See NOTE 4.]	0 to 1000 hours
(8)	RS-232C hardware error count	Counted when a parity, overrun or framing error occurs. [See NOTE 5.]	0 to 255 times
(9)	System error count	Counted when a zero-dividing error occurs or undefined command is retrieved.	0 to 15 times
(10)	Momentary power failure count	Counts the number of times the power restores while the CPU is busy after reset.	0 to 15 times

- NOTES:**
- Item from (2) through (10) are initialized to "0" after RAM clear.
 - If the distance is 5.5 m or less, it is rounded down and no data is added to the memory at power off.
 - If the count is 31 counts or less, it is rounded down and no data is added to the memory at power off.
 - If the driving time is 27 sec. or less, it is rounded down and no data is added to the memory at power off.
 - When a sent command results in an error, the same number as the data capacity of the command is counted by byte.

2) Parameters

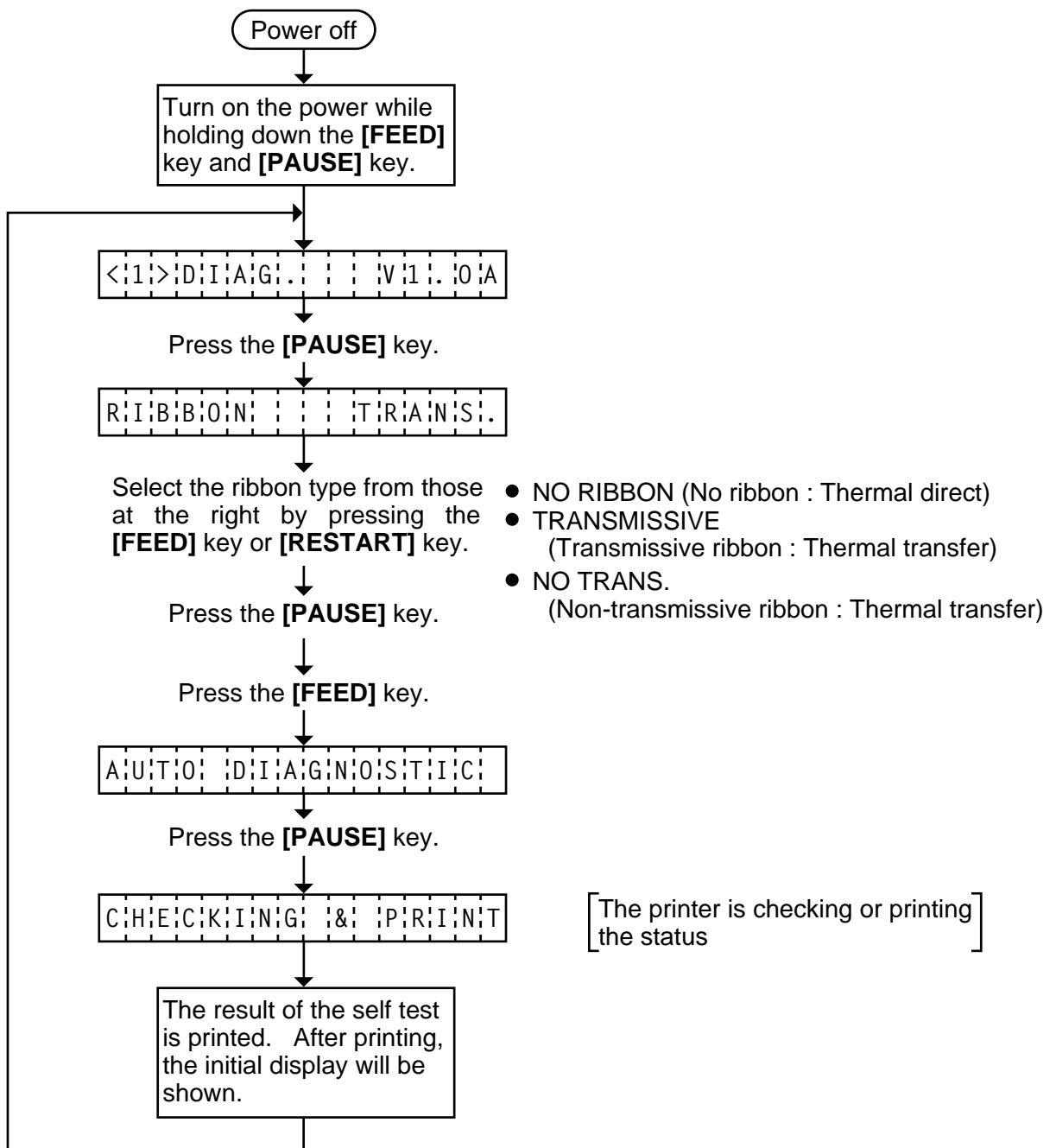
#	Item	Contents
(11)	Threshold manual fine adjustment for the black mark sensor	0.0V to 4.0V
(12)	Threshold manual fine adjustment for the feed gap sensor	0.0V to 4.0V
(13)	Character	PC-850: PC-851 PC-1252 LATIN9 PC-852: PC-855 PC-1253 Arabic PC-857: PC-1250 PC-1254 PC-8: PC-1251 PC-1257
	Font zero	0: No slash used. ∅: Slash used.
(14)	Control code	AUTO: Automatic selection ESC LF NUL: ESC LF NUL mode { }: Mainframe mode 1B 1C 1D: Manual
(15)	Ribbon type	TRANS.: Transmissive ribbon NON TRANS.: Non-transmissive ribbon

#	Item	Contents
(16)	Status	1: Strip wait status is not sent to the PC. 2: Strip wait status is sent to the PC.
(17)	Baud rate	2400: 2400 bps 4800: 4800 bps 9600: 9600 bps 19200: 19200 bps 38400: 38400 bps
(18)	Data length	7: 7 bits 8: 8 bits
(19)	Stop bit	1: 1 bit 2: 2 bits
(20)	Parity	NONE: None ODD: ODD EVEN: EVEN
(21)	Transmission control code	XON/XOFF: XON/XOFF READY/BUSY: READY/BUSY (DTR) XON+READY AUTO: XON/XOFF+READY/BUSY (DTR) XON/XOFF AUTO: XON/XOFF READY/BUSY RTS: RTS
(22)	Language selection for LCD message	ENGLISH: English GERMAN: German FRENCH: French DUTCH: Dutch SPANISH: Spanish JAPANESE: Japanese ITALIAN: Italian
(23)	Auto forward wait in cut mode	ON: Available OFF: Unavailable
(24)	Head up in cut mode	ON: Available OFF: Unavailable
(25)	Ribbon saving module	ON: Available OFF: Unavailable
(26)	Feed key function	FEED: feeds one label PRINT: prints image buffer on one label
(27)	Kanji code type (Not supported QQ/QP models)	TYPE 1: Windows code TYPE 2: Original code
(28)	Euro font code	20H to FFH
(29)	Auto print head broken element check	ON: Available OFF: Unavailable
(30)	Web printer function	ON: Available OFF: Unavailable
(31)	Host IP address	***.***.***.***
(32)	Printer IP address	***.***.***.***
(33)	Gateway IP address	***.***.***.***
(34)	Subnet mask	***.***.***.***
(35)	True type font registration area size	0 KB to 896 KB (units of 64 KB)
(36)	External character registration area size	0 KB to 896 KB (units of 64 KB)
(37)	BASIC file store area size	0 KB to 896 KB (units of 64 KB)
(38)	PC saving area size	0 KB to 896 KB (units of 64 KB)
(39)	Socket port number	ON: Available OFF: Unavailable Port No. 0 ~ 65535

#	Item	Contents
(40) (47)	Feed length fine adjustment (PC), (KEY)	-50.0 mm to +50.0 mm
(41) (48)	Cut/Strip position fine adjustment (PC), (KEY)	-50.0 mm to +50.0 mm
(42) (49)	Back feed length fine adjustment (PC), (KEY)	-9.9 mm to +9.9 mm
(43) (50)	Print tone fine adjustment (Thermal transfer) (PC), (KEY)	-10 step to +10 step
(44) (51)	Print tone fine adjustment (Thermal direct) (PC), (KEY)	-10 step to +10 step
(45) (52)	Ribbon take-up motor driving voltage fine adjustment (PC), (KEY)	-15 step to +0 step
(46) (53)	Ribbon feed motor driving voltage fine adjustment (PC), (KEY)	-15 step to +0 step
(54)	X axis fine adjustment	-99.5 mm to +99.5 mm

5.2.2 Automatic Diagnostic Printing

The data from ① to ⑨ on a sample print is printed.



- NOTES:**
1. If the automatic diagnosis printing results in an error, the printer will display the error message and stop printing. The error status can be cleared by the **[PAUSE]** key, however, the display will return to the initial display "<1> DIAG. V1.0A". Printing is not automatically resumed.
 2. Both label and tag paper can be used for printing.

■ Sample Print

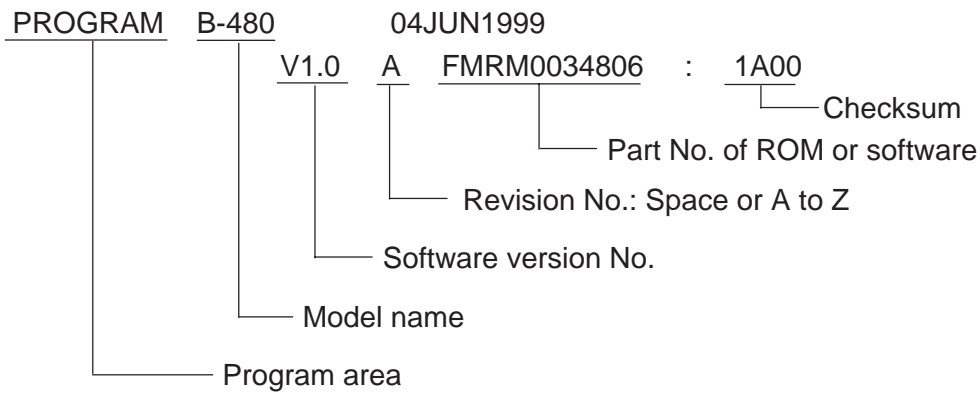
[Print condition]

- Preset count : 1
- Print speed : 5"/sec.
- Sensor : No sensor
- Printing method : Thermal Transfer
- Supply length : 59 mm
- Issuing mode : Batch printing
(without rewinder)

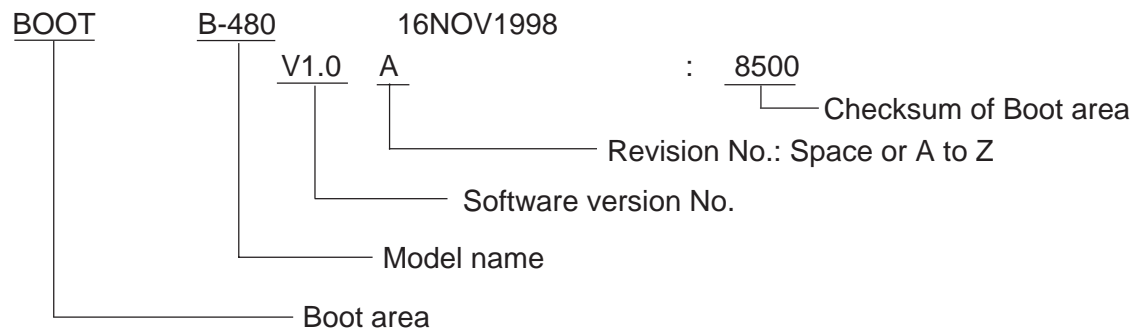
(1)	PROGRAM	B-480	04JUN1999	
		V1.0A	FMRM0034806: 1A00	
(2)	BOOT	B-480	16NOV1998	
		V1.0A		: 8500
(3)	FONT	5600		
(4)	KANJI	8900		
(5)	EEPROM	OK		
(6)	DRAM	16MB		
(7)	CARD	SLOT 1	ATA	
		SLOT 2	LAN	
(8)	SENSOR1	00000000,00000000		
(9)	SENSOR2	[H] 20°C [A] 22°C [S] 25°C		
		[R] 4.2V [T] 2.5V		
		[RANK]7		
(10)	EXP.I/O	NG		

Fig. 5-2

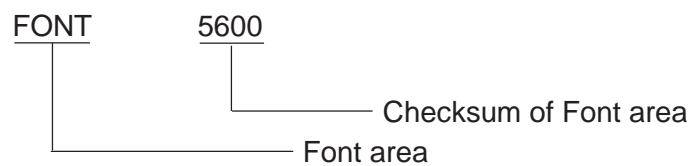
(1) PROGRAM ROM Check



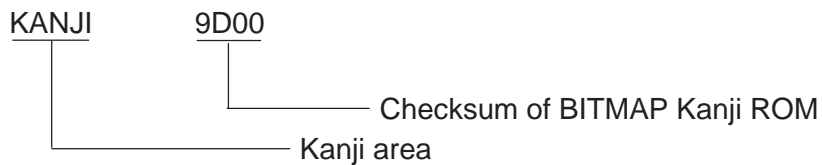
(2) BOOT Check



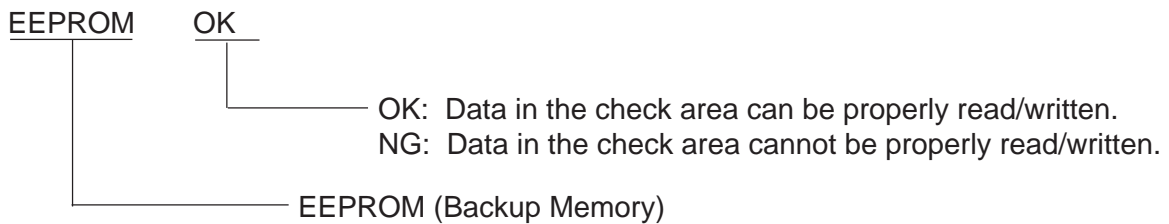
(3) Font Check



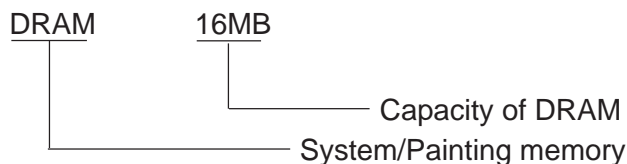
(4) Kanji Check



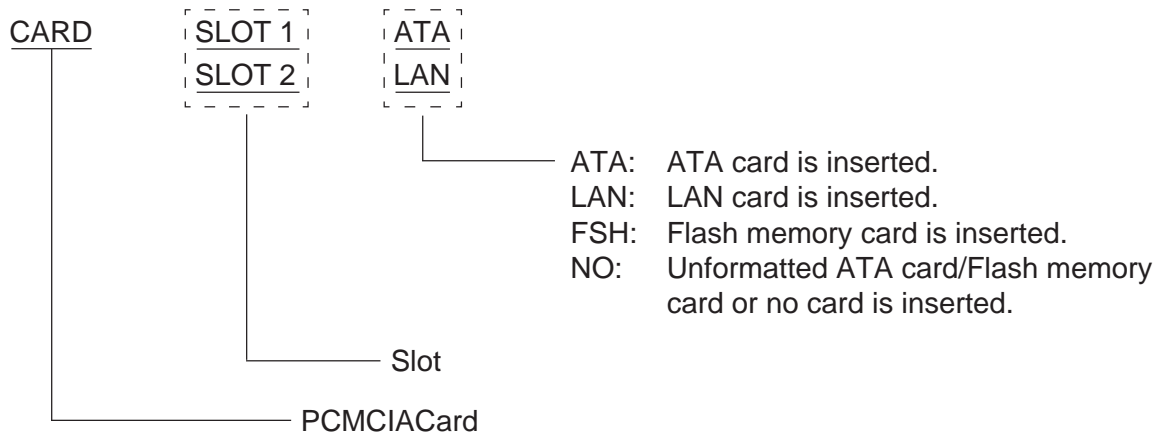
(5) EEPROM Check



(6) DRAM Check

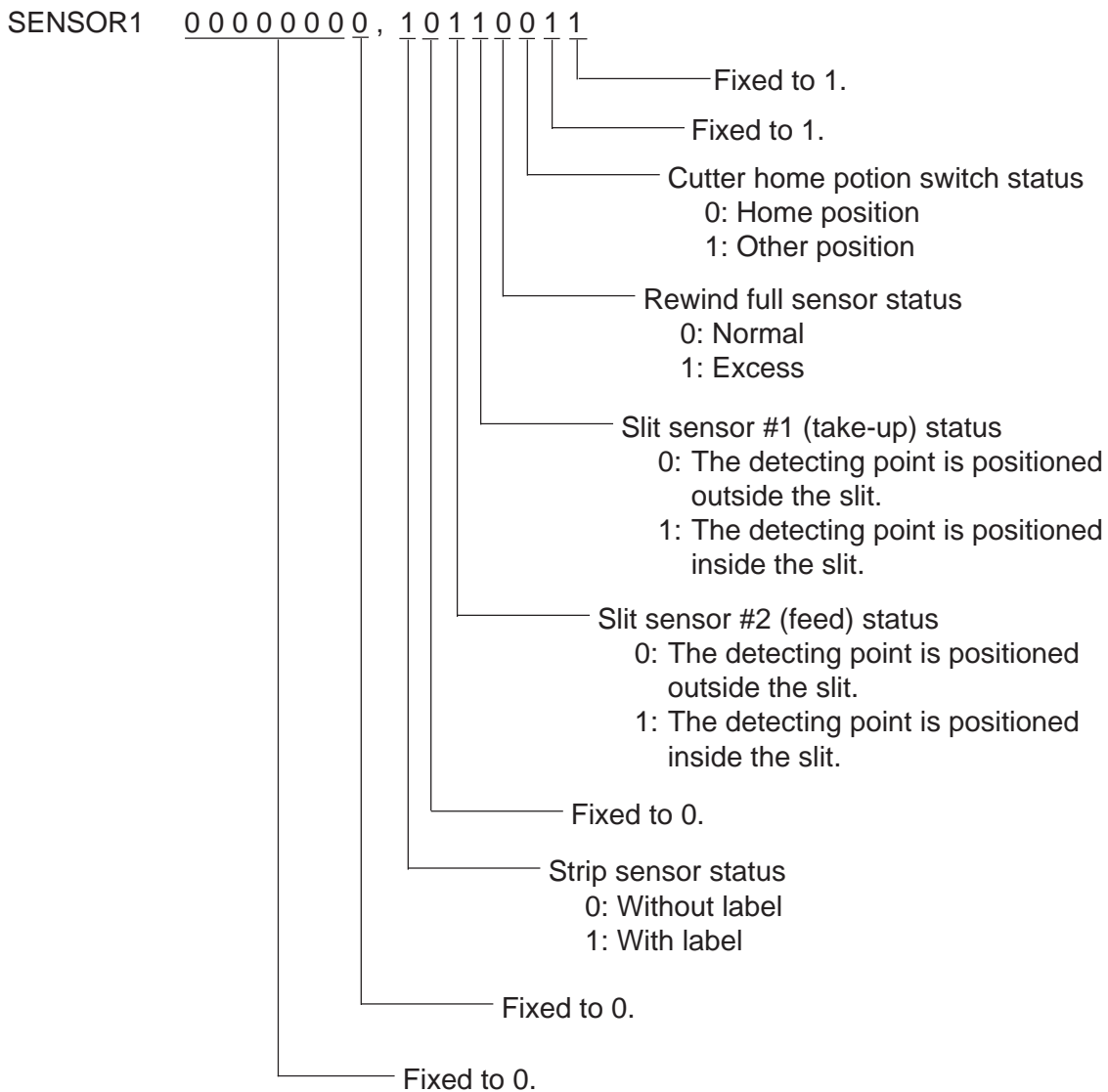


(7) PC card Check



- NOTES:**
1. Software version No., part No. of ROM and checksum vary according to the software version of PROGRAM ROM.
 2. The last two digits of the checksum are usually 0.
 3. When the kanji ROM is not installed, the checksum becomes "0000"
 4. When selecting the Diag. Test operation, pressing the **[RESTART]** and **[FEED]** keys at the same time restores the display to the system mode menu.

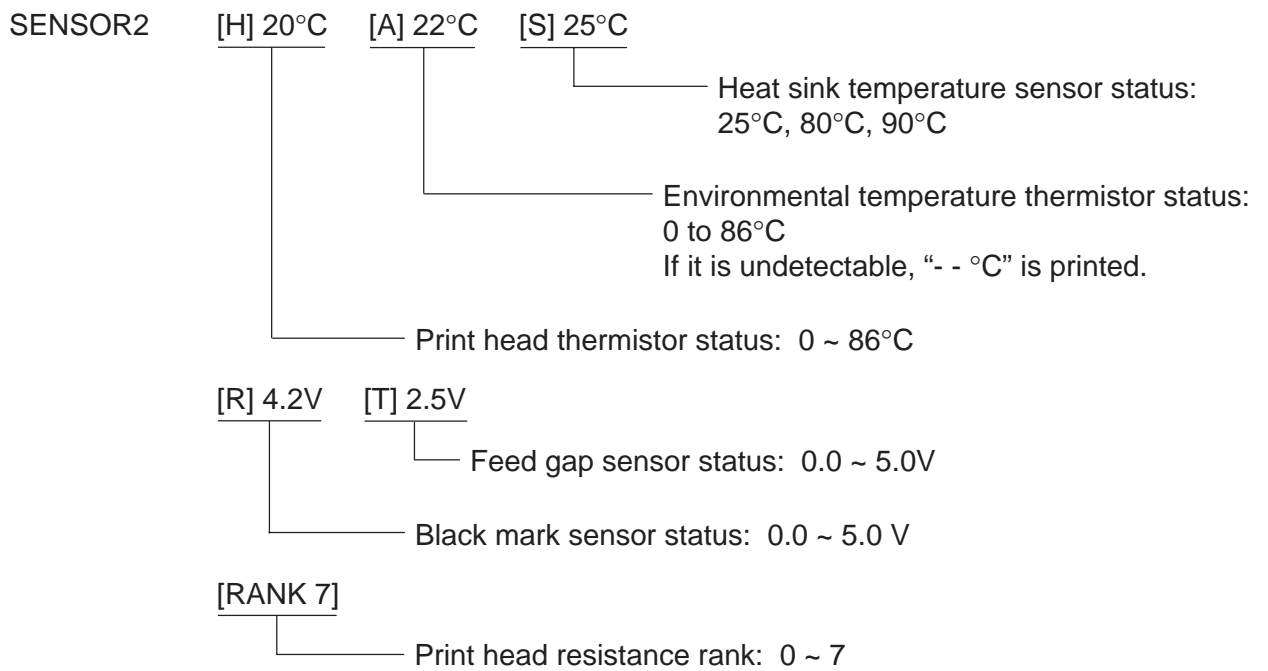
(8) Sensor 1 Check



■ Print status content description of each sensor/switch

Sensor/Switch	Print status content description
Cutter home position switch	Indicates whether the cutter is at the home position or not.
Rewind full sensor	Indicates whether the media is wound to peak capacity on the built-in take-up spool or not.
Slit sensor #1 (take-up) Slit sensor #2 (feed)	Controls ribbon motor rotation by detecting the slit on the ribbon take-up motor and the ribbon feed motor. Indicates the position of the slit sensor.
Strip sensor	Indicates the existence of label in strip mode. When no label is detected (0), the subsequent label is issued, when a label is detected (1), the subsequent label will not be issued until the current label is removed.

(9) SENSOR 2 Check

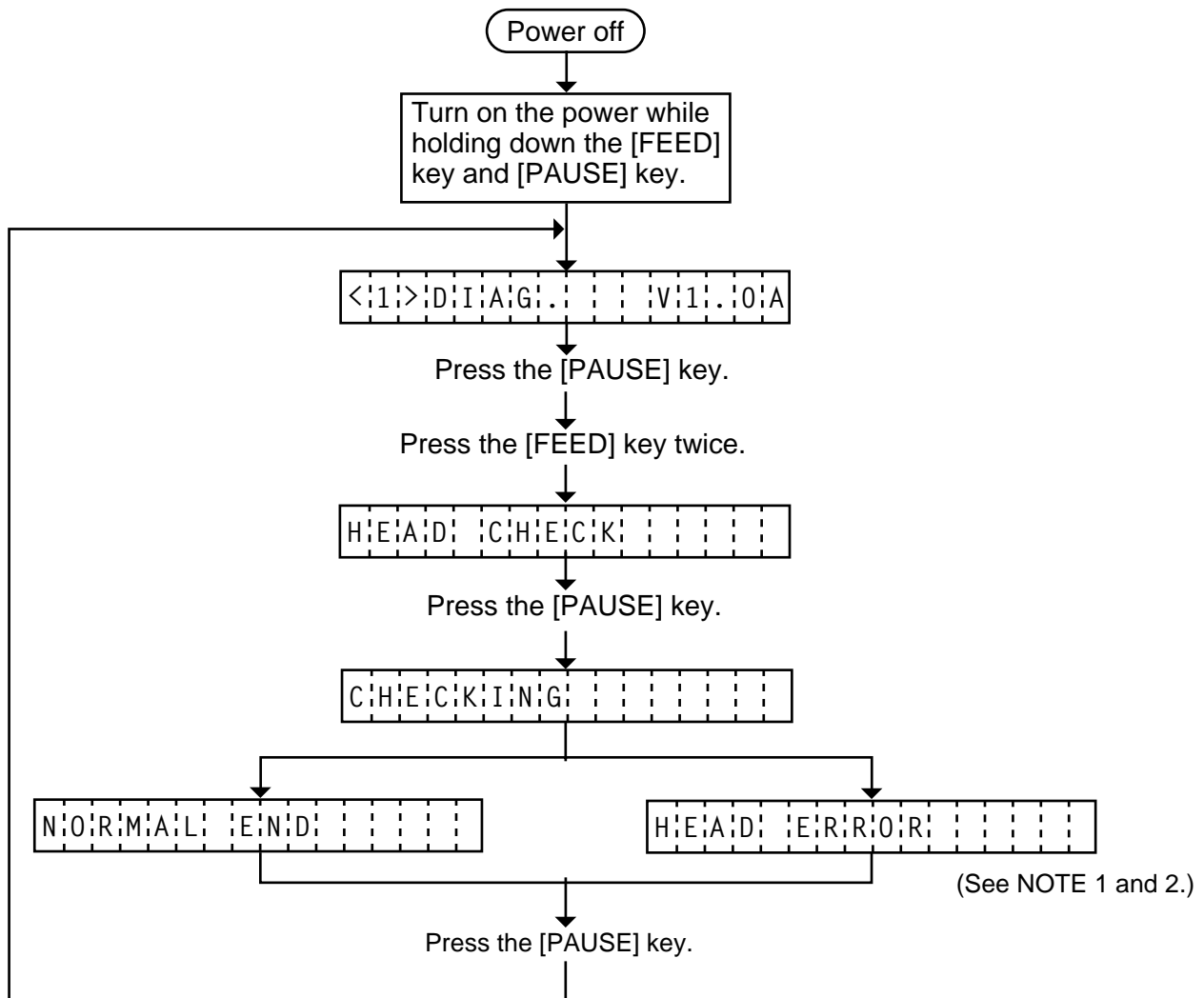


Print Head Resistance Rank

Resistance Rank	Average resistance (Ω)
0	1409 - 1454
1	1361 - 1408
2	1314 - 1360
3	1266 - 1313
4	1219 - 1265
5	1171 - 1218
6	1124 - 1170
7	1076 - 1123

5.2.3 Head Broken Element Check

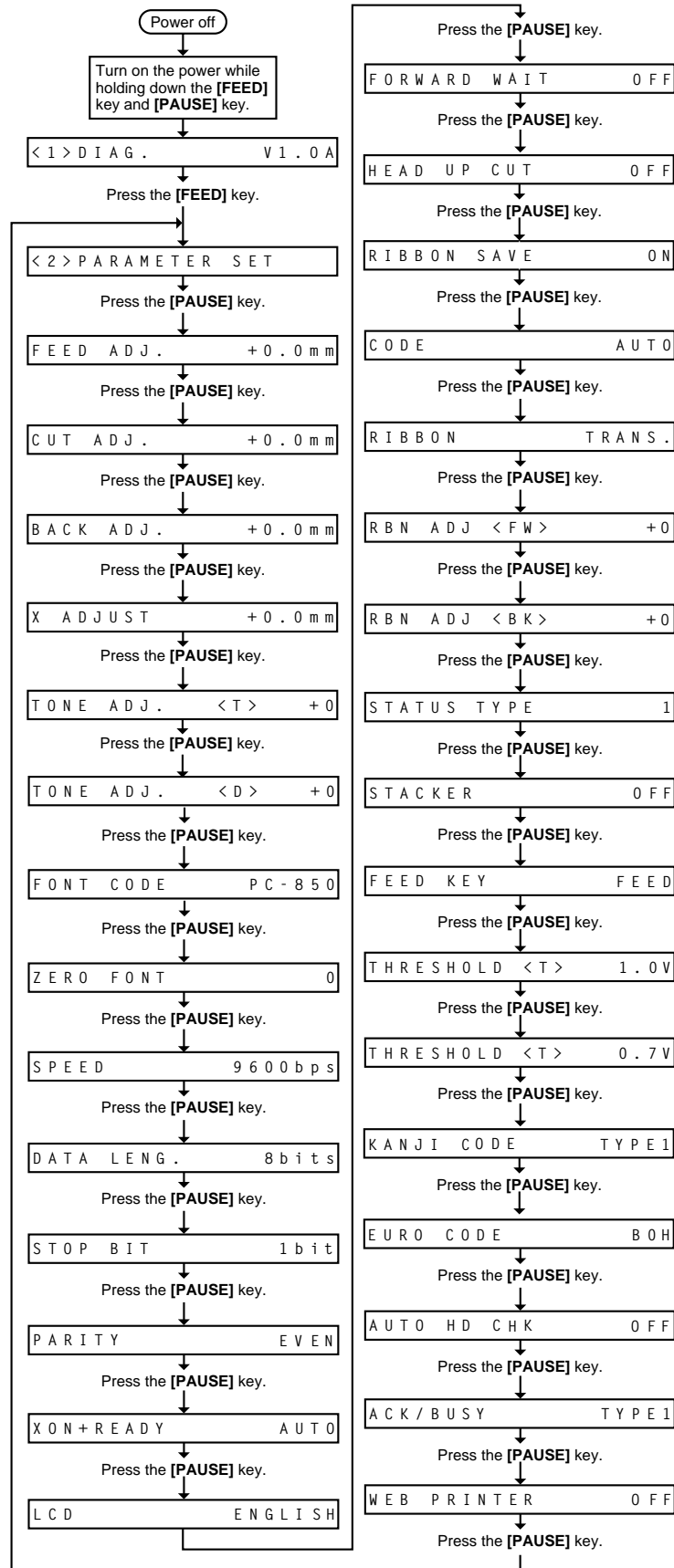
The printer automatically performs the head broken element check. The result of the head broken element check is indicated in the display.



- NOTES:**
1. If the head broken element check results in 'HEAD ERROR', the print head must be replaced after referring to Section 2.8 Replacing the Print Head.
 2. After replacing the print head, clear the maintenance counter as described in Section 5.6.1 and perform a test print in Section 5.4 TEST PRINT MODE.

5.3 PARAMETER SETTING MODE

The following items are set in the parameter setting mode. The values set in this mode are printed on the sample print of the maintenance counter. Setting procedure and functions are provided below.

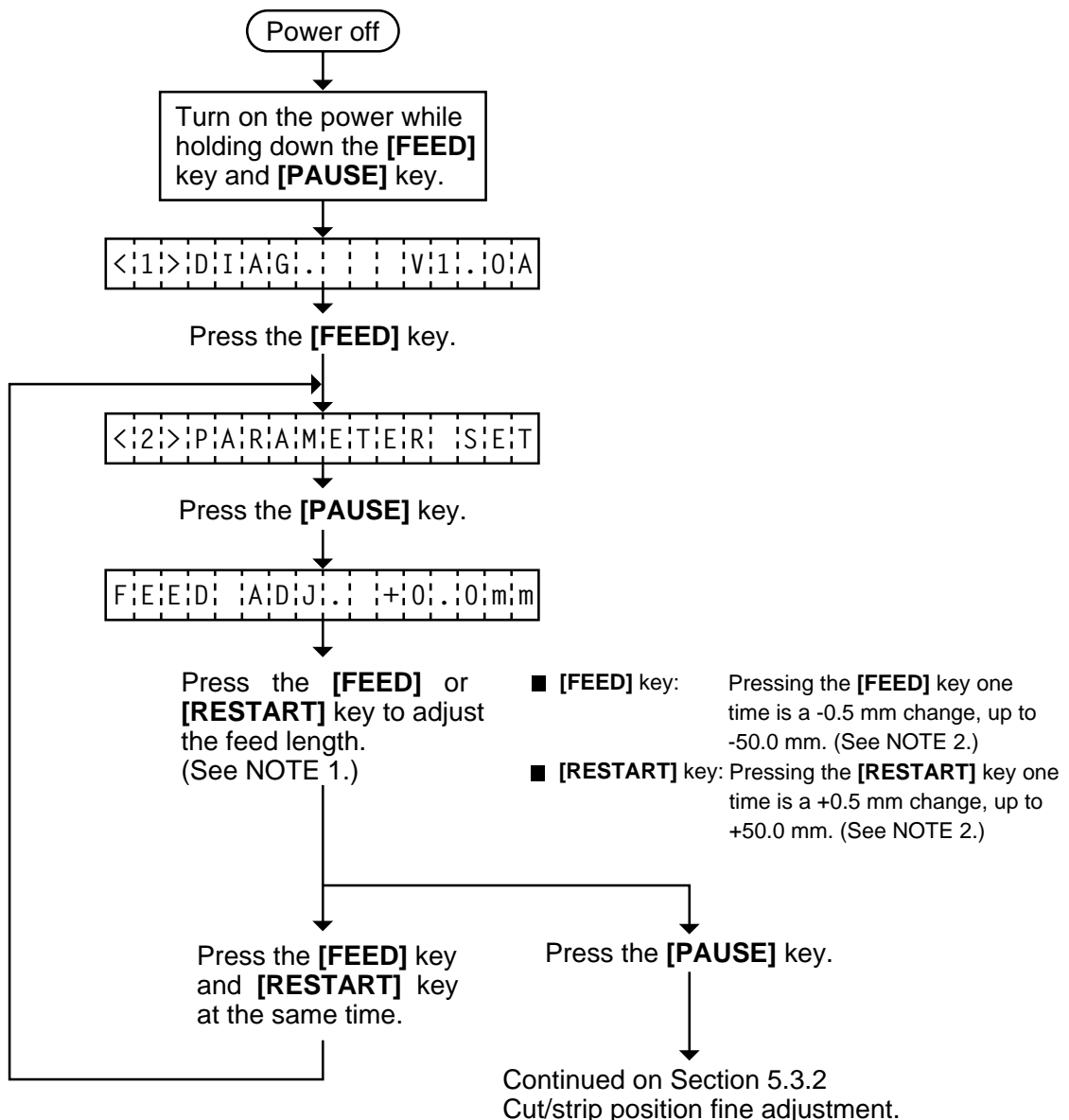


■ Parameter Setting Mode Table

Mode Name	Function
FEED ADJ.	Using this parameter the feed length is fine adjusted.
CUT ADJ.	Using this parameter the cut position or strip position is fine adjusted.
BACK ADJ.	Using this parameter the back feed length from the cut/strip position to the home position is fine adjusted.
X ADJUST	This setting is used to finely adjust print position in the X axis.
TONE ADJ. <T> (Thermal transfer printing) TONE ADJ. <D> (Thermal direct printing)	Using this parameter the print tone is fine adjusted. The longer the print pulse width, the darker the print tone becomes. The shorter, the lighter the print tone becomes.
FONT CODE	The character code either PC-850 or PC-8 is selected.
ZERO FONT	The font zero either 0 or Ø is selected.
SPEED	Baud rate of the serial interface is selected.
DATA LENG.	Data length of the serial interface is selected.
STOP BIT	Stop bit of the serial interface is selected.
PARIITY	Parity of the serial interface is selected.
XON+READY	Transmission control mode of the serial interface is selected.
LCD	Language which displays LCD message is selected.
FORWARD WAIT	Auto forward wait in cut mode is selected. When idle for 3 seconds or more after cutting, the printer automatically feeds the paper 10mm forward.
HEAD UP CUT	Print head up in cut mode is selected. If a back feed is performed when this parameter is ON, it is done while the print head is up. (Available only when the ribbon saving module is installed and the ribbon save mode is ON.)
RIBBON SAVE	The ribbon saving module is selected. Be sure to set this parameter to ON when using the ribbon saving module.
CODE	The command code out of AUTO, ESC/LF/NUL, or { I } is selected.
RIBBON	Ribbon type either transmissive or non-transmissive is selected.
RBN ADJ <FW> (Ribbon feed motor) RBN ADJ <BK> (Ribbon feed motor)	Using this parameter the torque of the ribbon motors is fine adjusted.
STATUS TYPE	Whether or not the strip wait status (05H) is sent in response to the status request command from the PC is selectable.
STACKER	The stacker is selected. Be sure to set this parameter to ON when using the stacker.
FEED KEY	The [FEED] key function is selected. FEED: feeds a piece of paper PRINT: prints image buffer on a piece of paper.
THRESHOLD <R>	The threshold of the black mark sensor is manually fine adjusted.
THRESHOLD <T>	The threshold of the feed gap sensor is manually fine adjusted.
KANJI CODE	Kanji code either Windows code or original code is selected. (Not supported by QQ/QP models.)
EURO CODE	EURO code is selected from 20H to FFH.

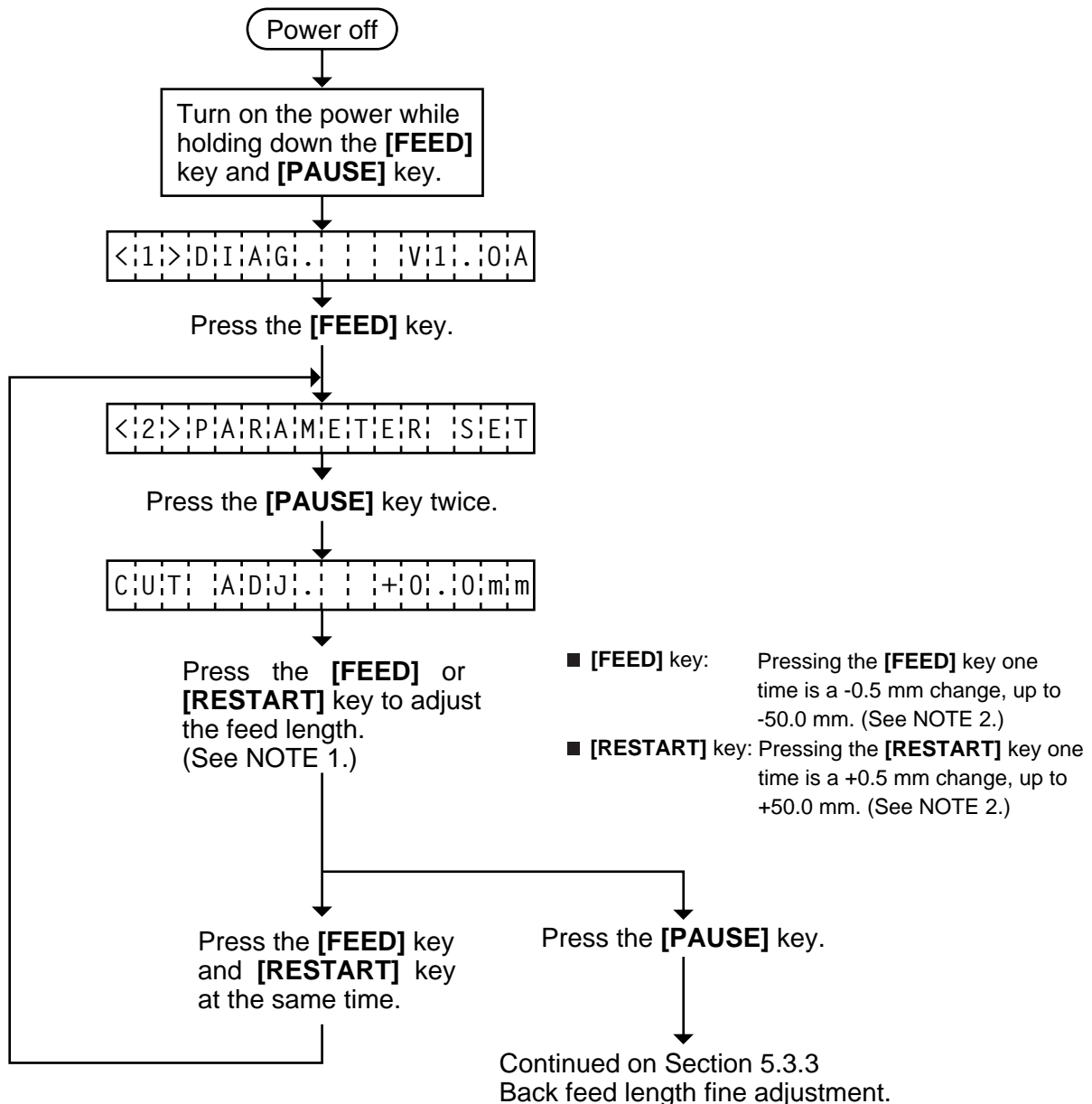
Mode Name	Function
AUTO HD CHK	Auto head broken element check is selected. ON: When the power turns ON, the auto head broken element check is performed. OFF: When the power turns ON, the auto head broken element check is not performed.
ACK/BUSY	Using this parameter sets the Centronics I/F ACK/BUSY timing.
WEB PRINTER	The Web printer is selected.

5.3.1 Feed Length Fine Adjustment



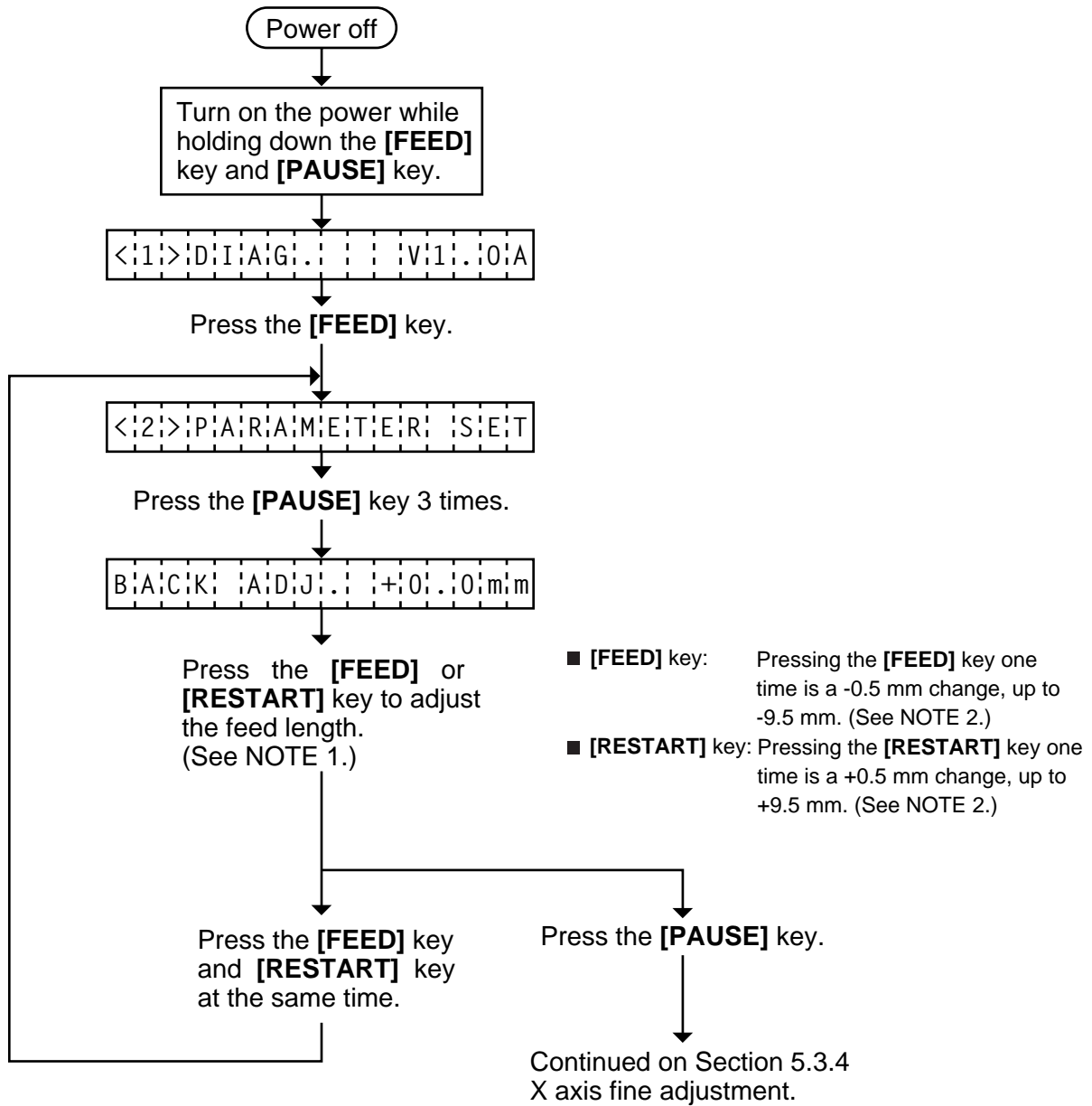
- NOTES:**
1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
 2. Max. fine adjustment ± 50.0 mm = Key fine adjustment value (± 50.0 mm) + PC fine adjustment value (± 50.0 mm)
When the value reaches the maximum, the value remains unchanged even if the subsequent fine adjustment is performed.
 3. A changed feed value is stored in memory by pressing the **[PAUSE]** key.

5.3.2 Cut/Strip Position Fine Adjustment



- NOTES:**
1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
 2. Max. fine adjustment ± 50.0 mm = Key fine adjustment value (± 50.0 mm) + PC fine adjustment value (± 50.0 mm)
When the value reaches the maximum, the value remains unchanged even if a subsequent fine adjustment is performed.
 3. A changed cut/strip position value is stored in memory by pressing the **[PAUSE]** key.
 4. When using label with length of less than 38 mm, calculate the cut position fine adjustment value using the expression provided on page 5-21.

5.3.3 Back Feed Length Fine Adjustment



- NOTES:**
1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
 2. Max. fine adjustment ± 9.9 mm = Key fine adjustment value (± 9.5 mm) + PC fine adjustment value (± 9.9 mm)
When the value reaches the maximum, the value remains unchanged even if the subsequent fine adjustment is performed.
 3. A changed back feed value is stored in memory by pressing the **[PAUSE]** key.

■ Feed Length Fine Adjustment Example

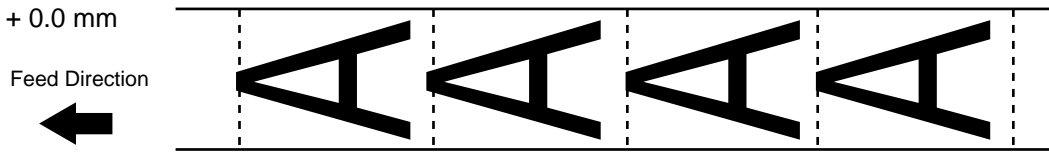


Fig. 5-4

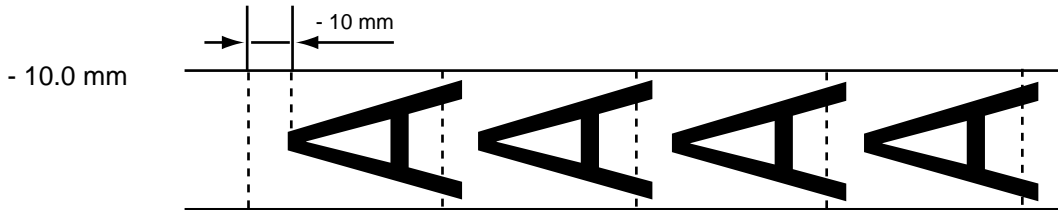


Fig. 5-5

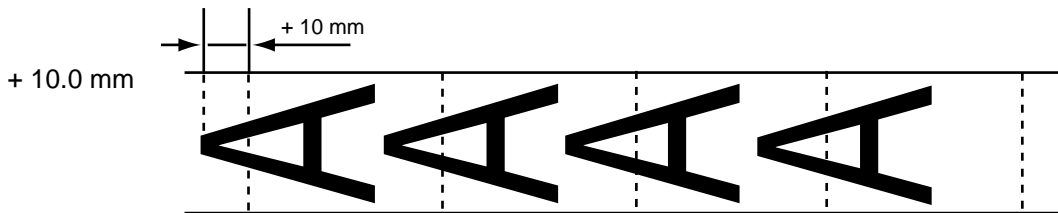


Fig. 5-6

■ Cut Position Fine Adjustment Example

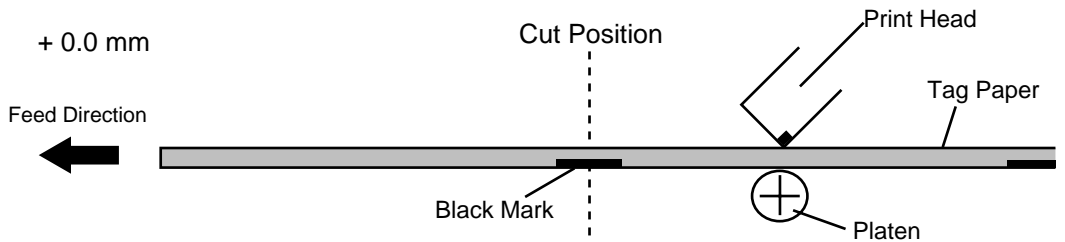


Fig. 5-7

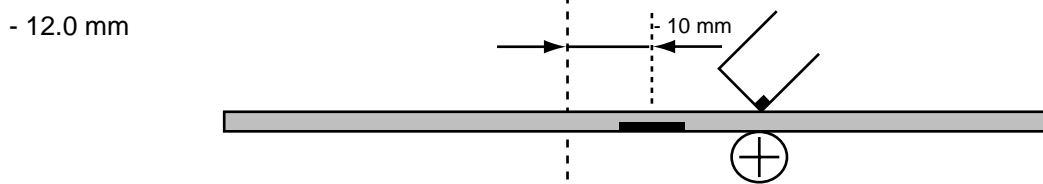


Fig. 5-8

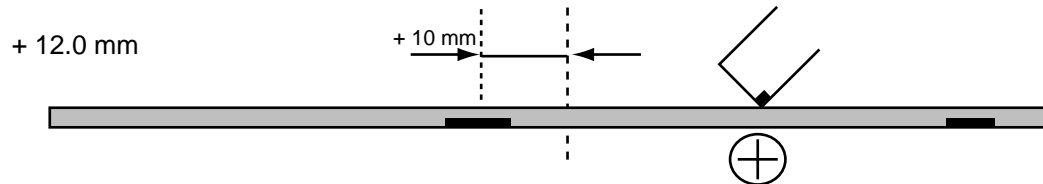


Fig. 5-9

■ When using a label with a length of less than 38 mm :

Case 1

Conditions: Issue command [ESC]XS, feed command [ESC]T and eject command [ESC]IB are received. Label pitch: 38.0 mm or less, with cut, feed gap sensor, cut position fine adjustment value ± 10 mm or less, and issue mode set to C (cut). When the above conditions are all met, the issue operation in cut issue mode is as follows:

- ① Head lifted → ② Forward feed to the cut position → ③ Head lowered → ④ Cut →
⑤ Head lifted → ⑥ Backfeed to the home position → ⑦ Head lowered.

Case 2

Generally the minimum label length which is available in cut mode is 38.0 mm. When using a label with a length of less than 38 mm, the edge of the label may be caught on the print head during back feed to the print start position after cutting the label gap, causing a improper print start position.

In this case set the cut position fine adjustment value after calculating the value using the following formula so that the unprinted label returns to the correct print start position.

However, use of this method will leave one or two printed label(s) between the print head and the cutter. Feed or print the label(s) to remove them.

(a) Formula for cut position fine adjustment value

Cut position fine adjustment value

= (the number of labels left between the print head and the cutter) x (span of label)

= (32.8 mm/label length) x (span of label)

* Omit the decimals of the value obtained by dividing 32.8 mm by the label length for one unit.

(example) Span of label : 30.0 mm, Label length : 24.0 mm

$(32.8 \text{ mm}/30.0 \text{ mm}) \times 30.0 \text{ mm} = 1 \times 30.0 \text{ mm} = +30.0 \text{ mm}$

(b) Example

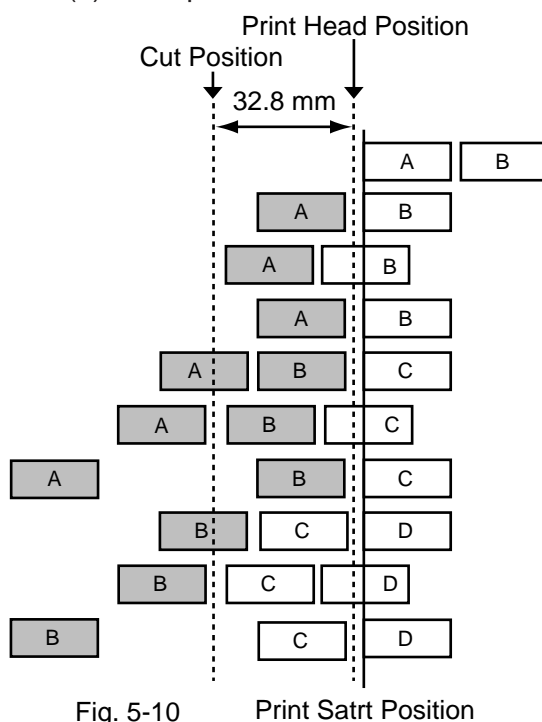


Fig. 5-10 Print Start Position

- ① Idling
- ② Printing the first label (A) is completed.
- ③ Label A is fed to the cut position and the front gap is cut.
- ④ Label B is fed in the reverse direction to the print start position.
- ⑤ Printing the second label (B) is completed.
- ⑥ Label B is fed to the cut position and the front gap is cut.
- ⑦ Label C is fed in the reverse direction to the print start position.
- ⑧ To take away label B, label (C) is fed.
- ⑨ Label B is fed to the cut position and the front gap is cut.
- ⑩ Label D is fed in the reverse direction to the print start position.

■ Strip Position Fine Adjustment Example

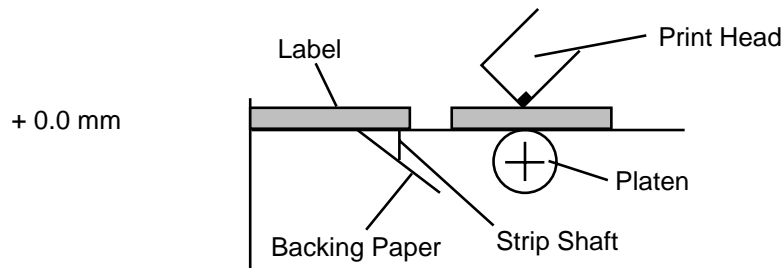


Fig. 5-11

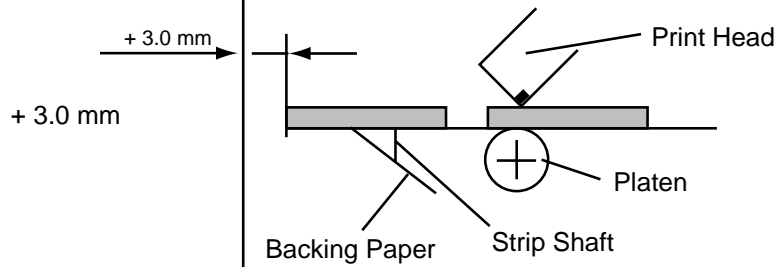


Fig. 5-12

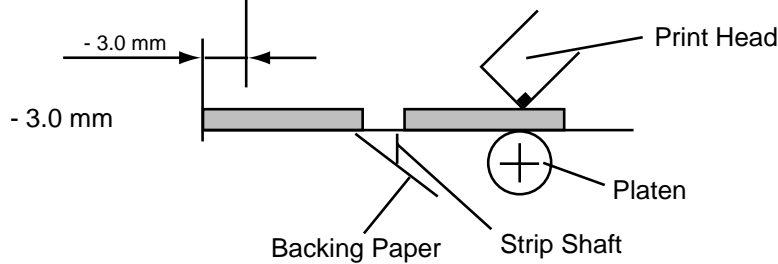


Fig. 5-13

NOTE: The print stop position when printing the label in strip mode varies according to label length for the strip mode printing stops so that the edge of the strip shaft is 4 mm from the middle of the gap. This is because the gap length is programmed as 2 mm. When the gap length is 5 mm or more, the effective print length should be set to the value obtained by subtracting 2 mm from the label pitch, that is, set the gap length to 2 mm. If the print format hangs over the gap as a result, correct the print start position. If the print stop position is improper, refer to Section 5.3.2 and make a fine adjustment.

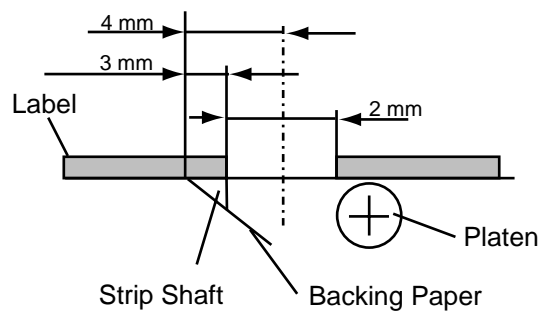


Fig. 5-14

■ Back Feed Length Fine Adjustment Example

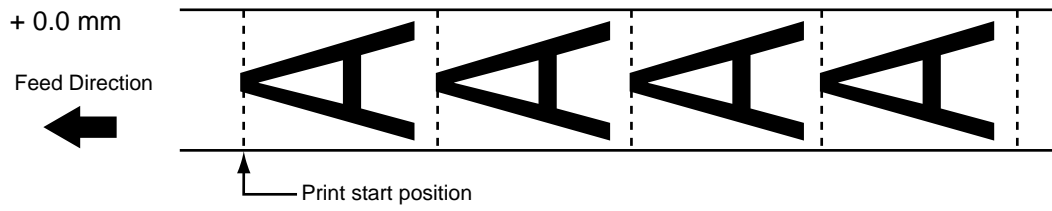


Fig. 5-15

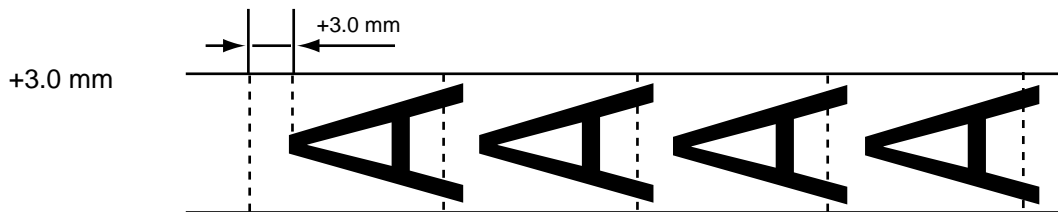


Fig. 5-16

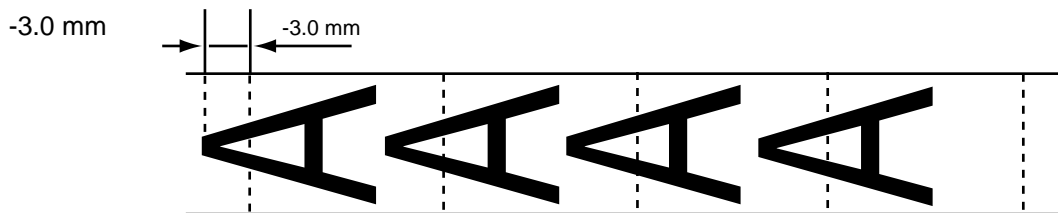
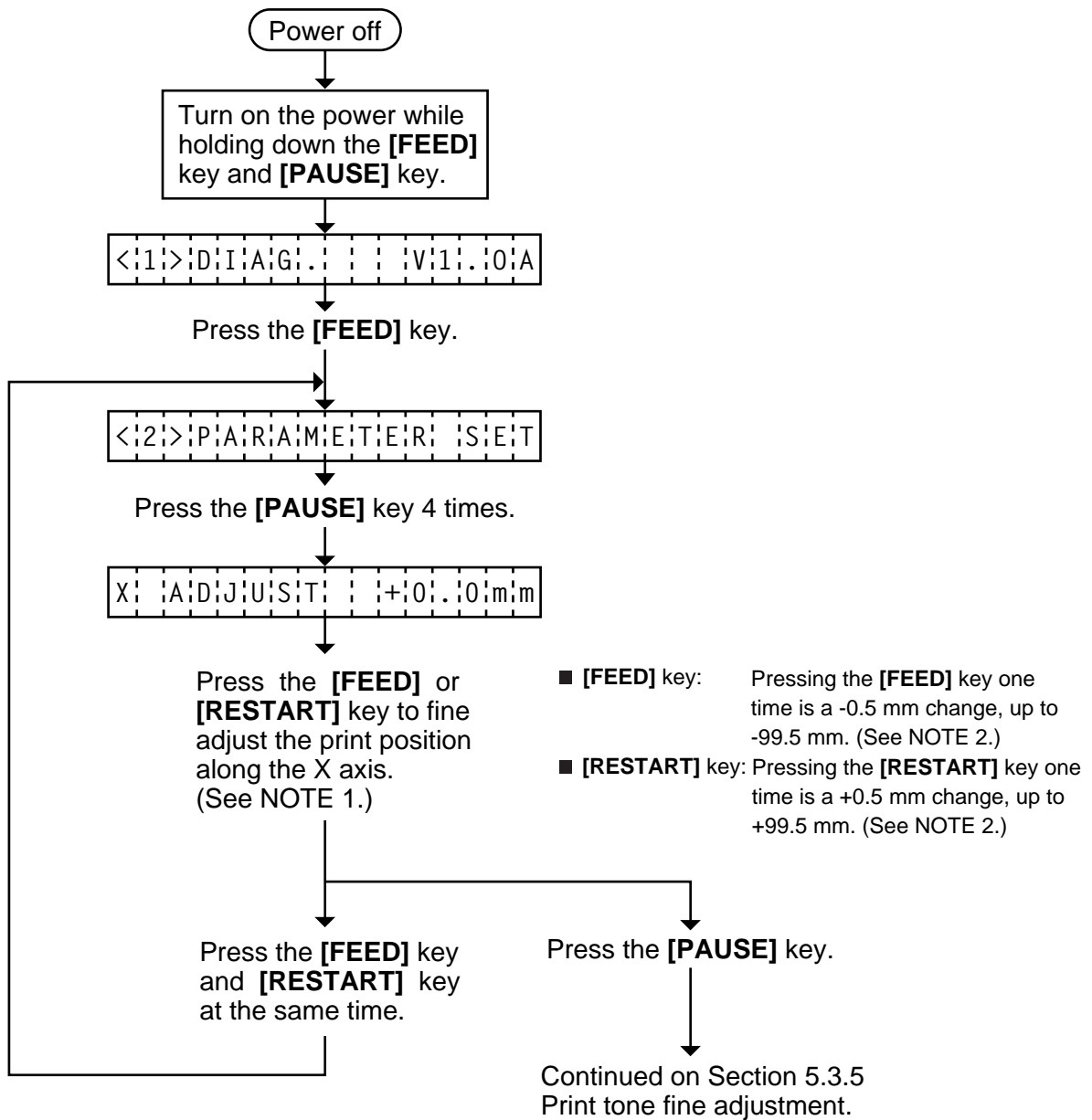


Fig. 5-17

5.3.4 X Axis Fine Adjustment



- NOTES:**
1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
 2. Max. fine adjustment ± 99.5 mm = X axis value
When the value reaches the maximum, the value remains unchanged even if the subsequent fine adjustment is performed.
 3. A changed X axis is stored in memory by pressing the **[PAUSE]** key.

■ X Axis Fine Adjustment Example

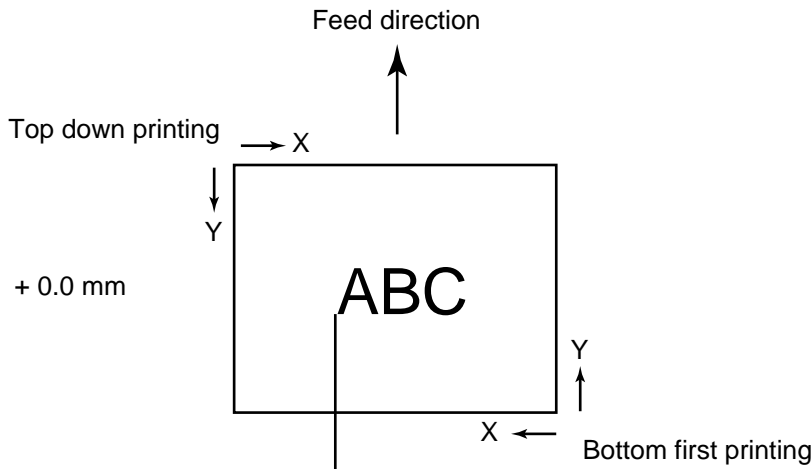


Fig. 5-18

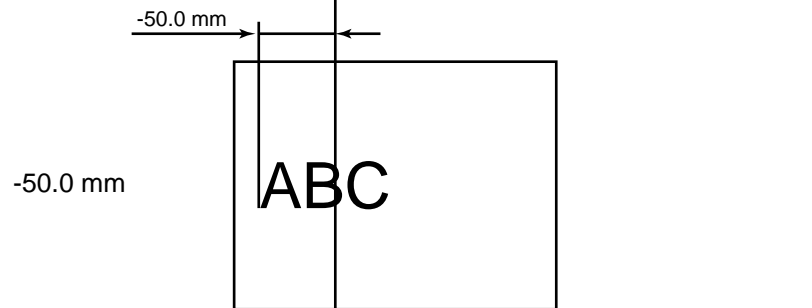


Fig. 5-19

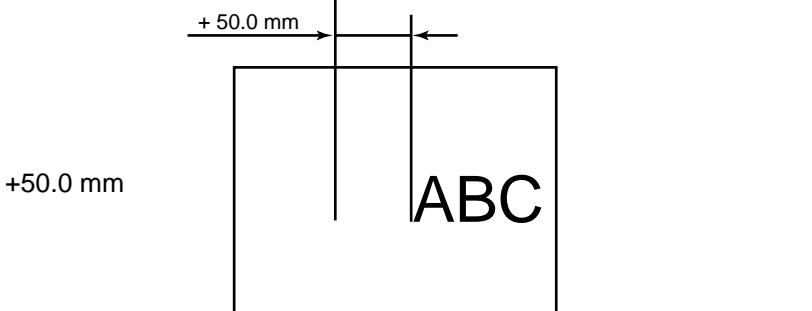
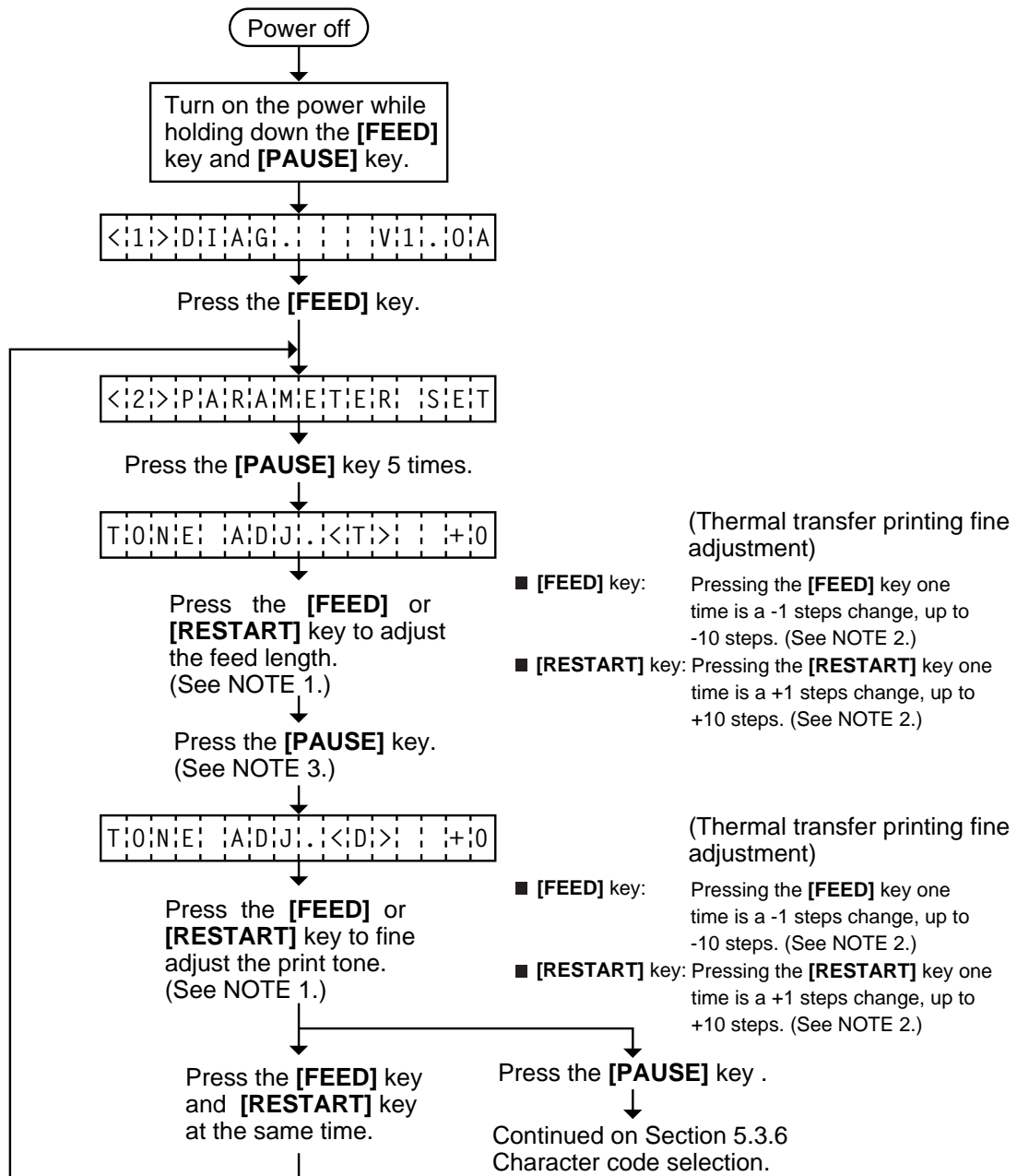


Fig. 5-20

- NOTES:**
4. The X axis fine adjustment is performed to fine adjust the X axis of the drawing in the left or right direction.
 5. Adjust the X axis 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.)
 6. X axis fine adjustment cannot be used in self test mode or test printing.

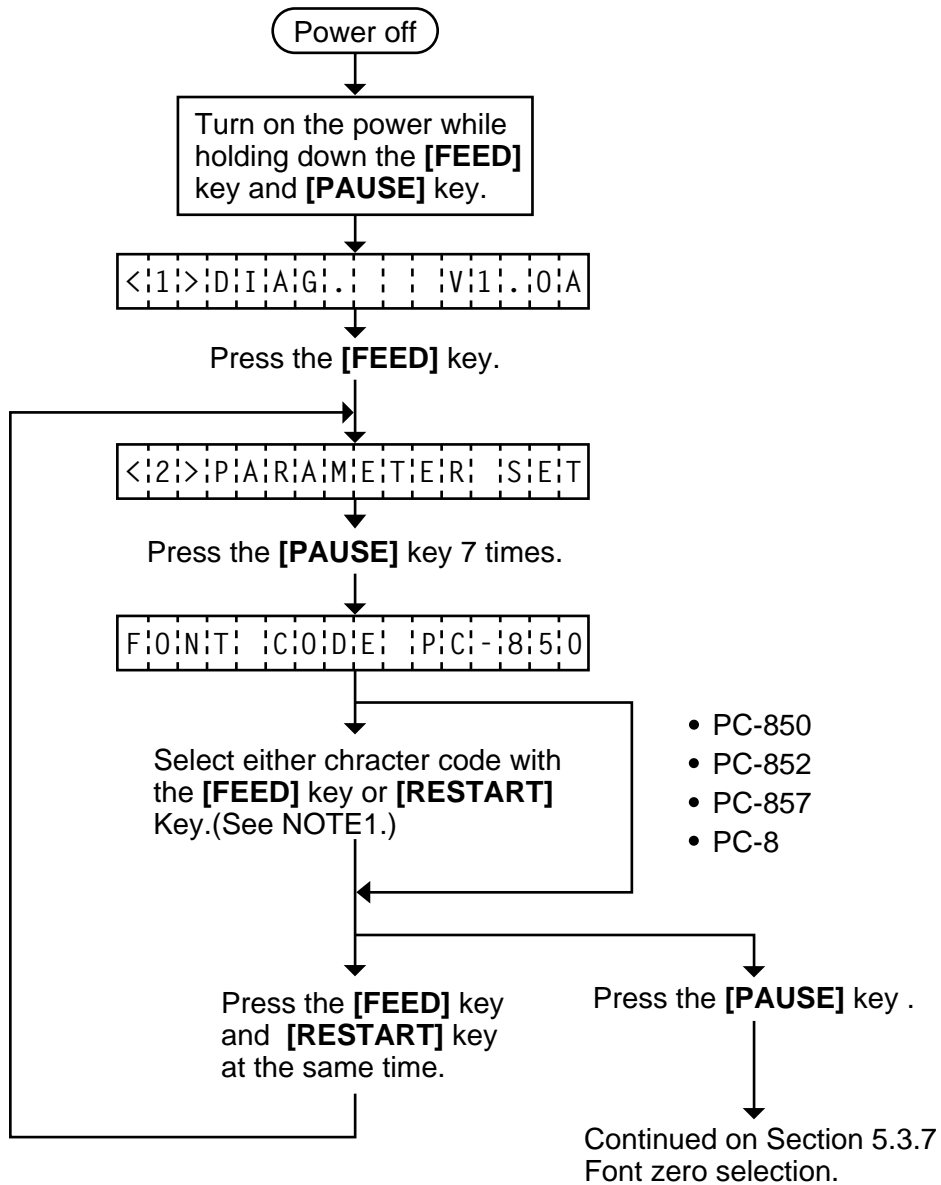
5.3.5 Print Tone Fine Adjustment



- NOTES:** 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
2. A changed print tone value is stored in memory by pressing the **[PAUSE]** key.
3. Fine adjustment value equals to the sum of the values set by the PC command and system mode (key operation) and each max. value is ±10 step. However, the upper limit of the adjustment value is decided according to the print speed to protect the print head. If the set value exceeds the following upper limit, it is automatically corrected to the proper value.

Print Speed	Thermal Transfer	Thermal Direct
3" / sec.	+10 step	+ 10 step
4" / sec.		+ 2 step
5" / sec.	+5 step	+ 5 step
8" / sec.	+2 step	+ 2 step

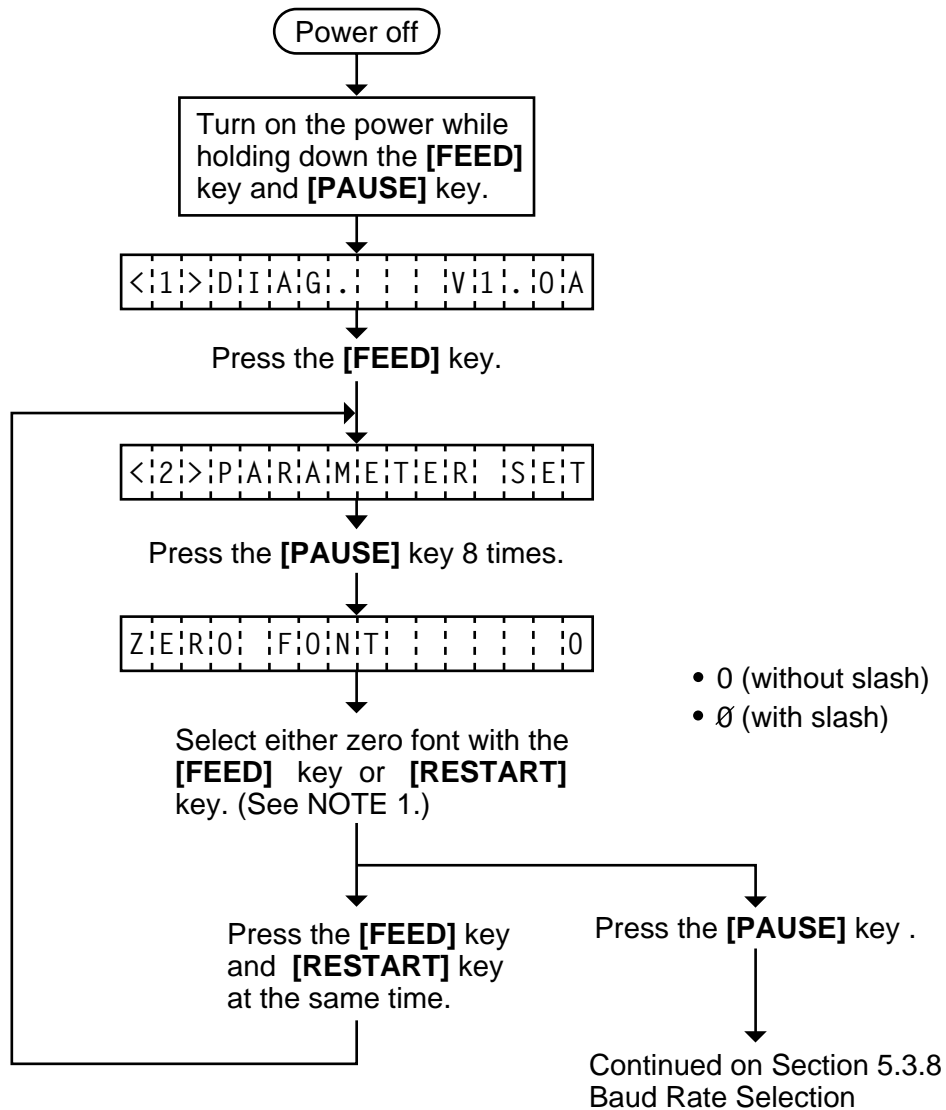
5.3.6 Character Code Selection



NOTES: 1. Holding the [FEED] key or [RESTART] key down for more than 0.5 seconds enables a fast forward.

2. A changed font code is stored in memory by pressing the [PAUSE] key.

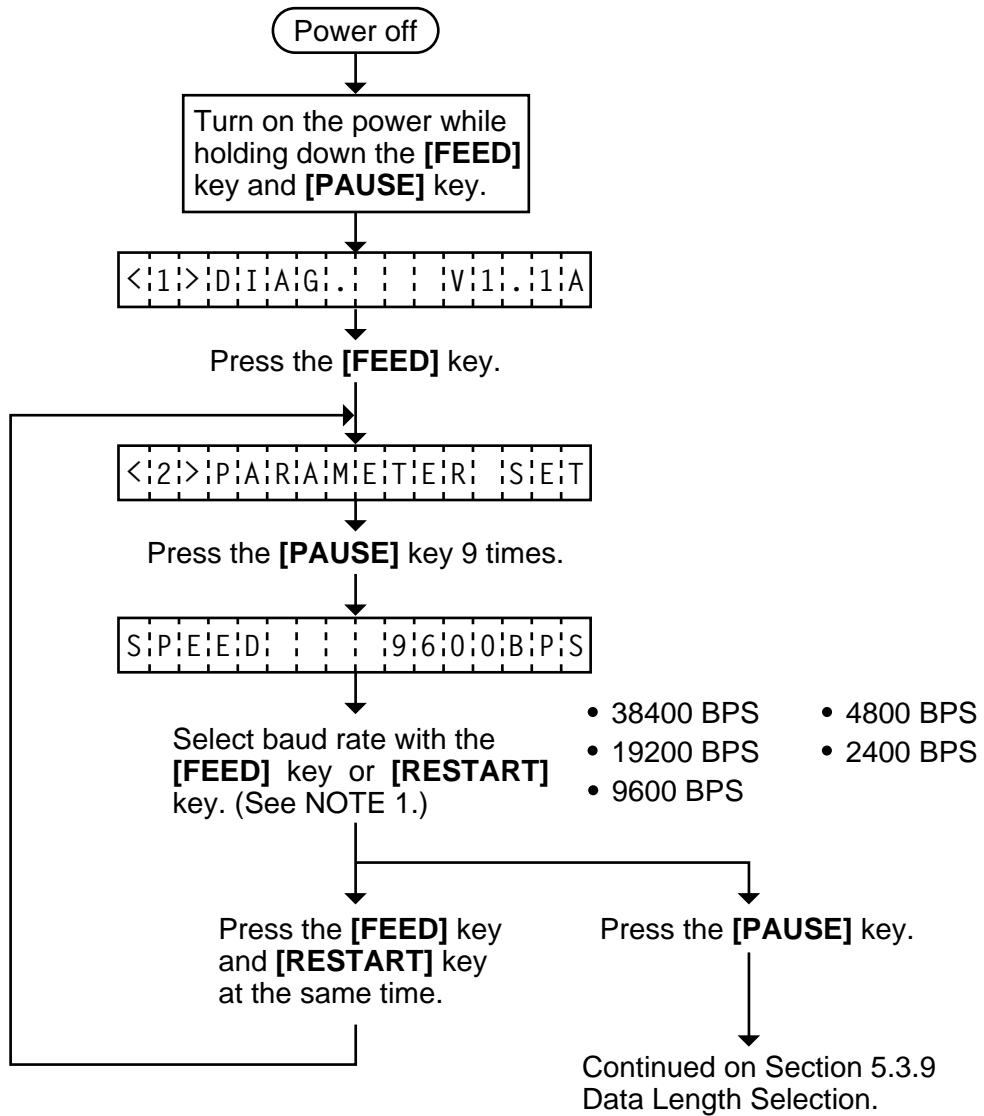
5.3.7 Font Zero Selection



NOTES: 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.

2. A changed zero font is stored in memory by pressing the **[PAUSE]** key.

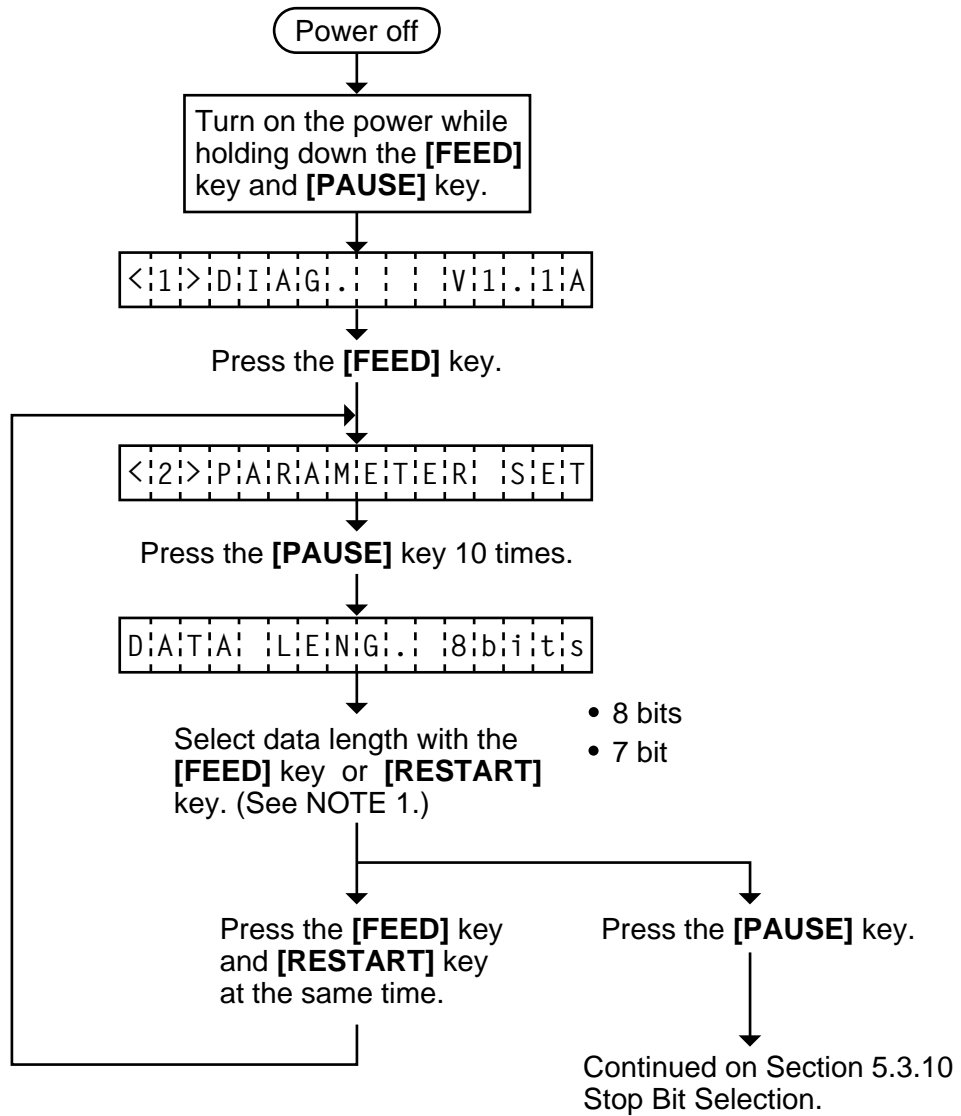
5.3.8 Baud Rate Selection



NOTES: 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.

2. A changed baud rate is stored in memory by pressing the **[PAUSE]** key.

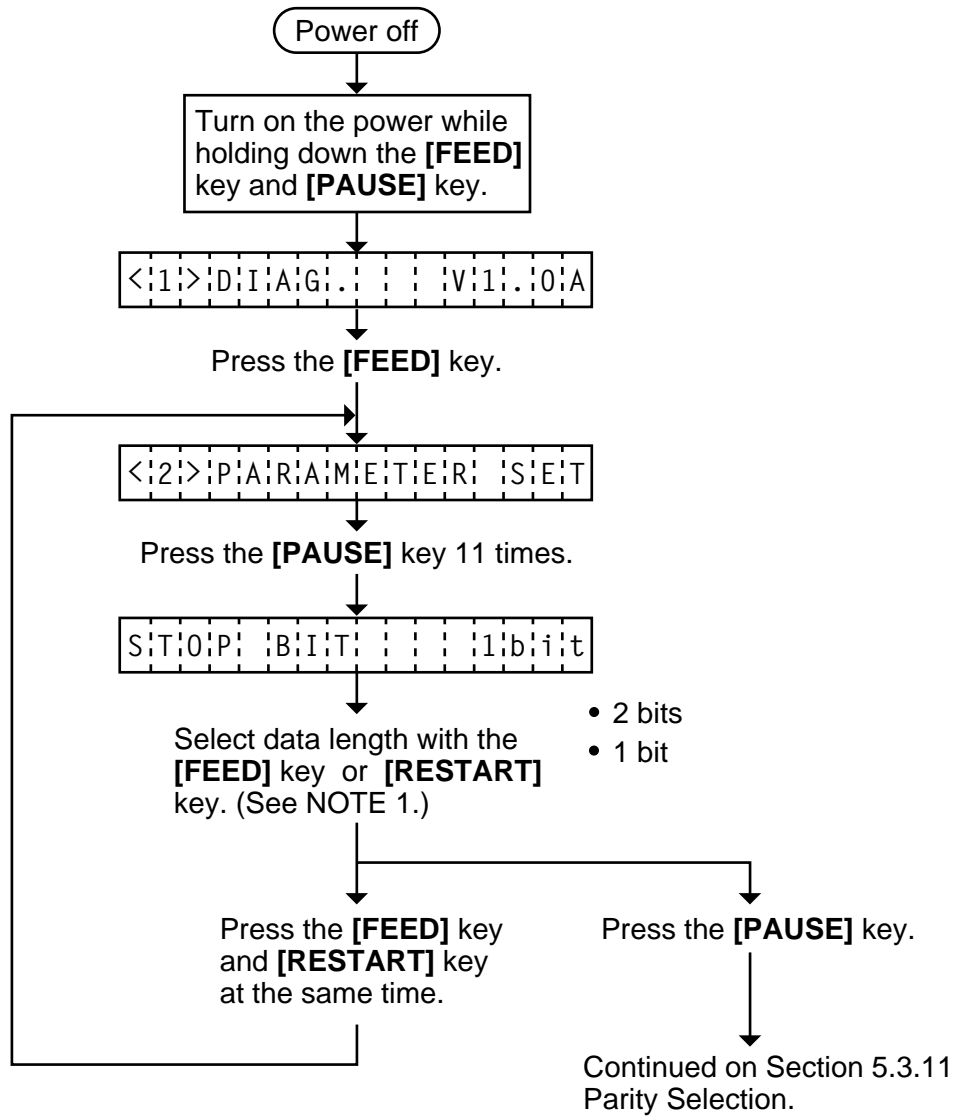
5.3.9 Data Length Selection



NOTES: 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.

2. A changed data length is stored in memory by pressing the **[PAUSE]** key.

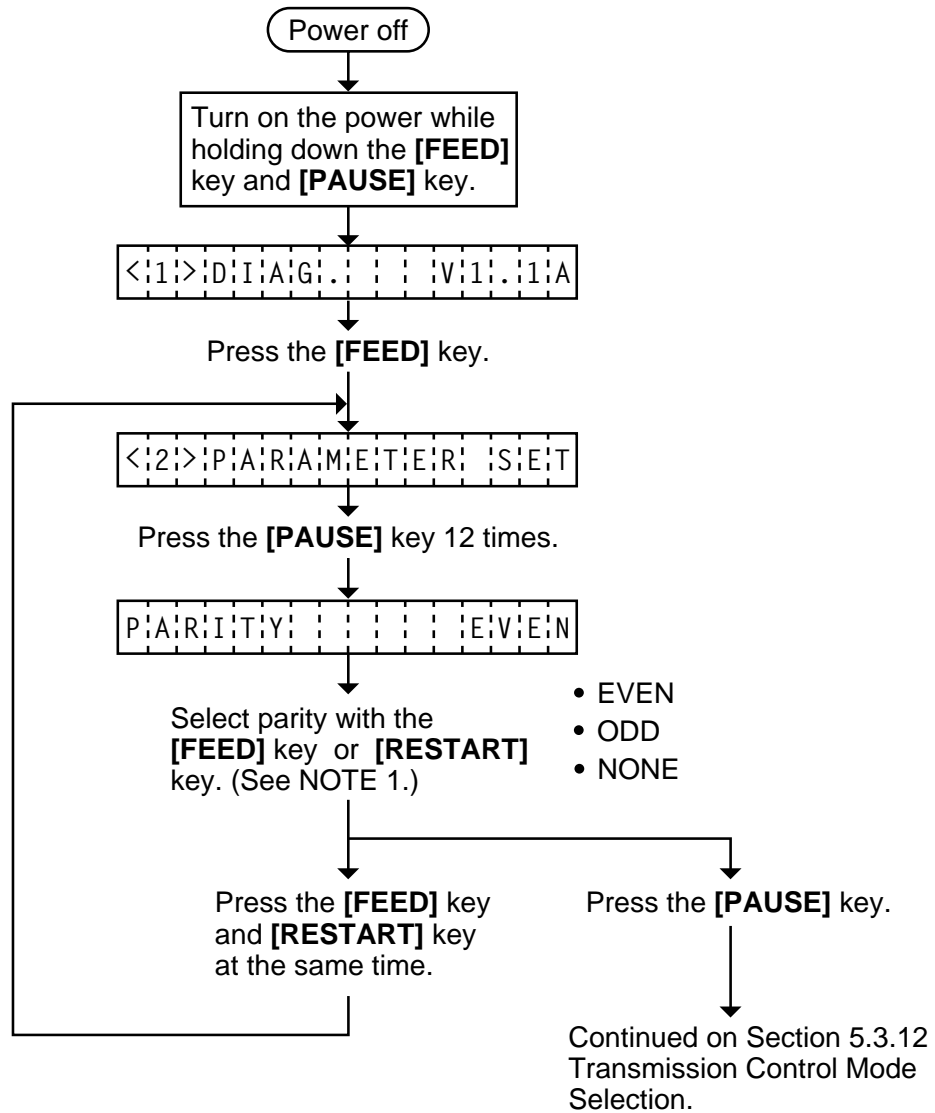
5.3.10 Stop Bit Selection



NOTES: 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.

2. A changed data length is stored in memory by pressing the **[PAUSE]** key.

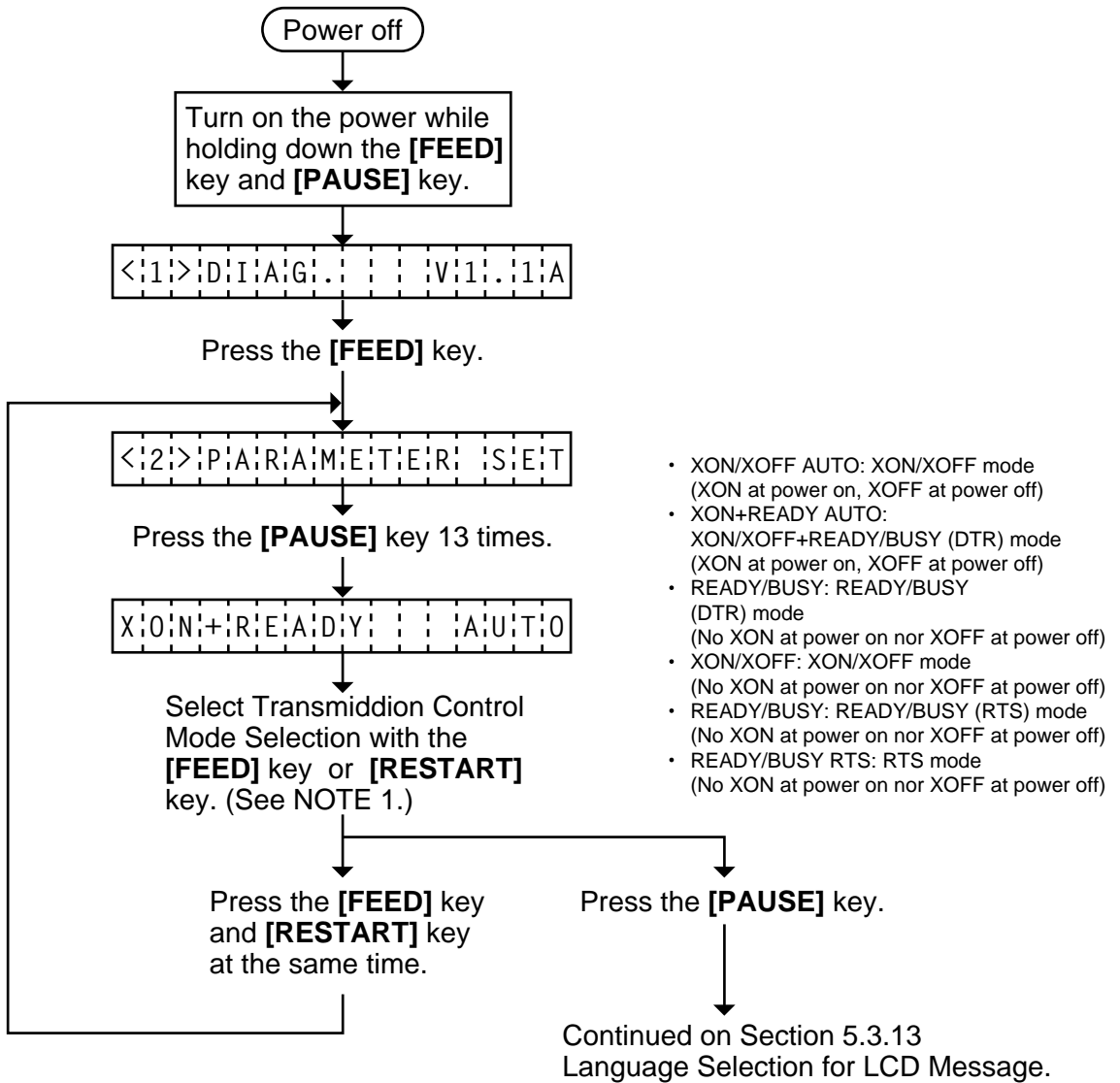
5.3.11 Parity Selection



NOTES: 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.

2. A changed parity is stored in memory by pressing the **[PAUSE]** key.

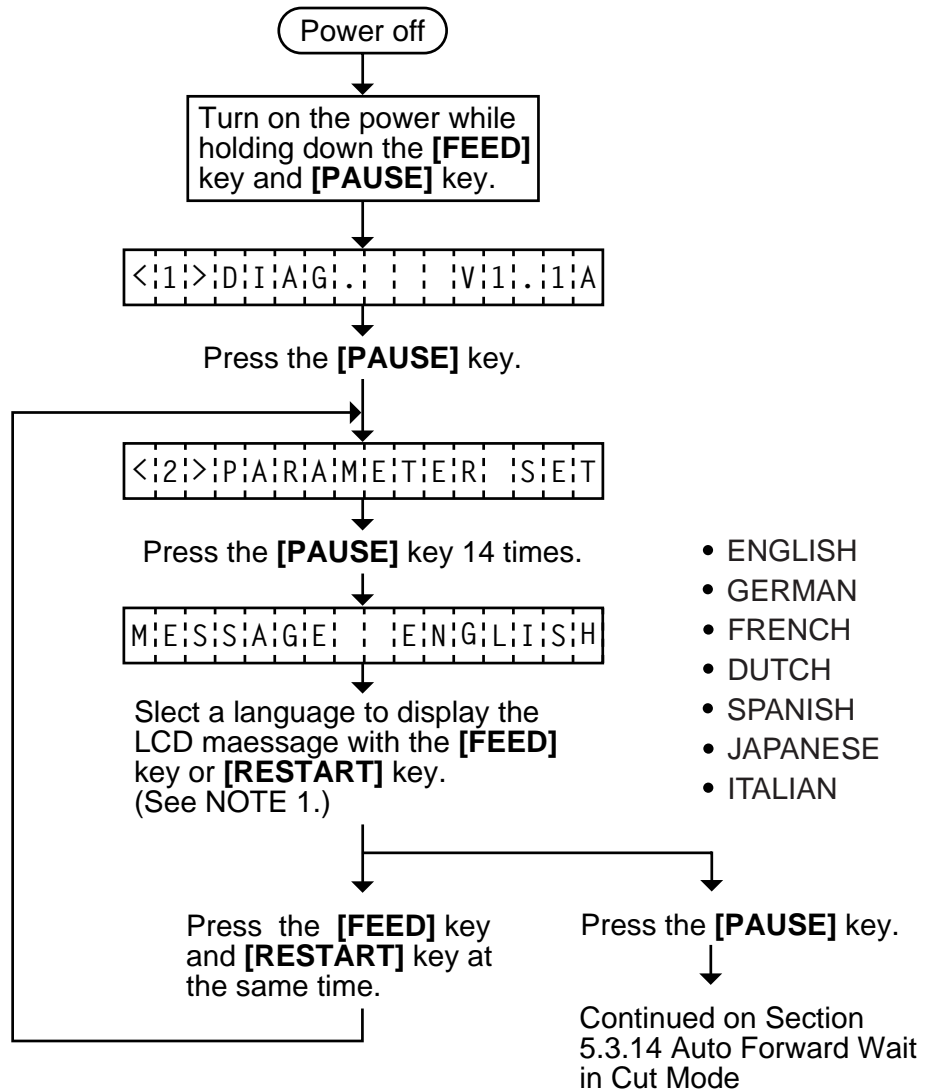
5.3.12 Transmission Control Mode Selection



NOTES: 1. Holding the [FEED] key or [RESTART] key down for more than 0.5 seconds enables a fast forward.

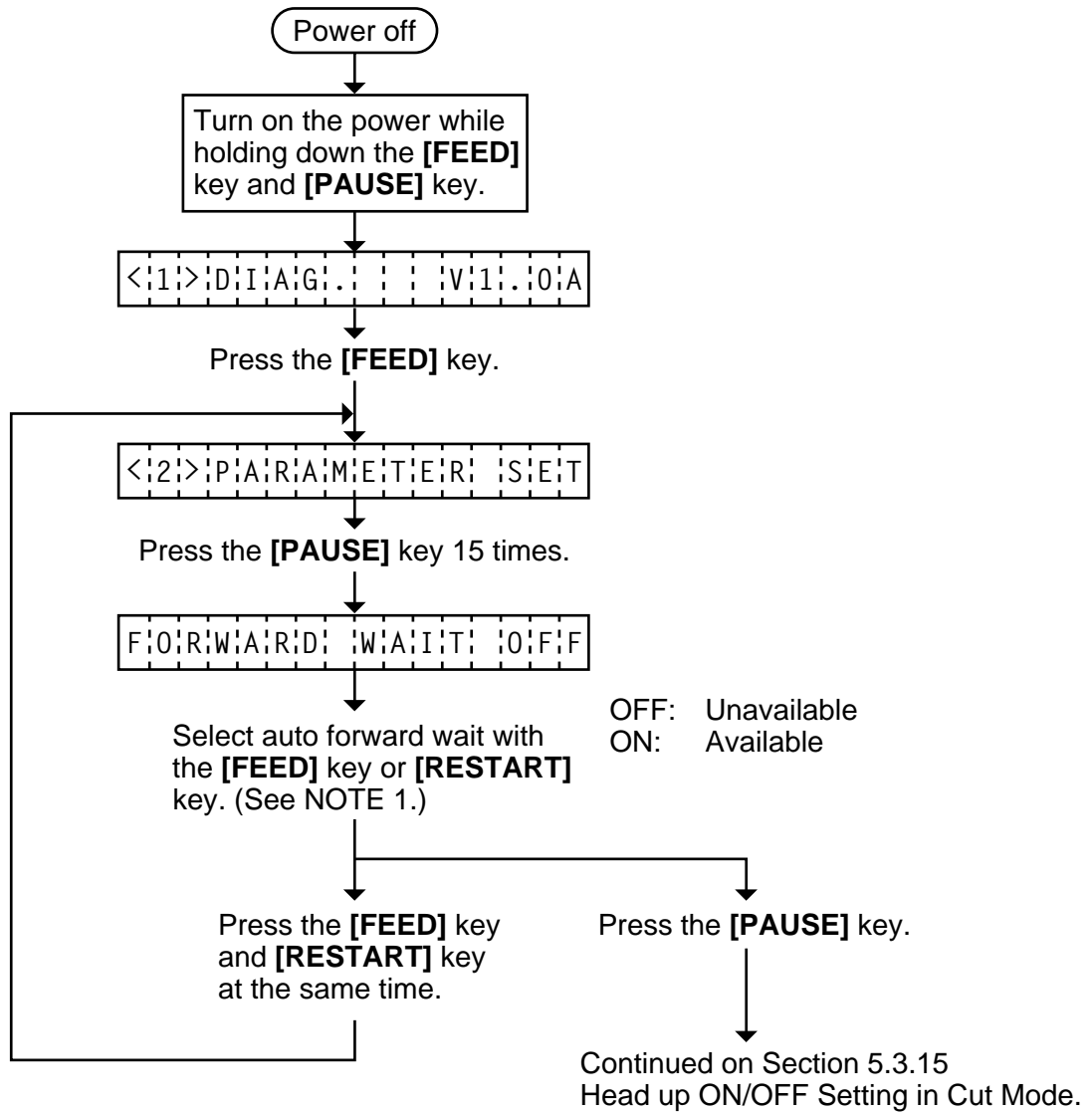
2. A changed transmission control mode is stored in memory by pressing the [PAUSE] key.

5.3.13 Language Selection for LCD Message



- NOTES:** 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
 2. A changed language is stored in memory by pressing the **[PAUSE]** key.
 3. A changed language is not cleared by a parameter clear.

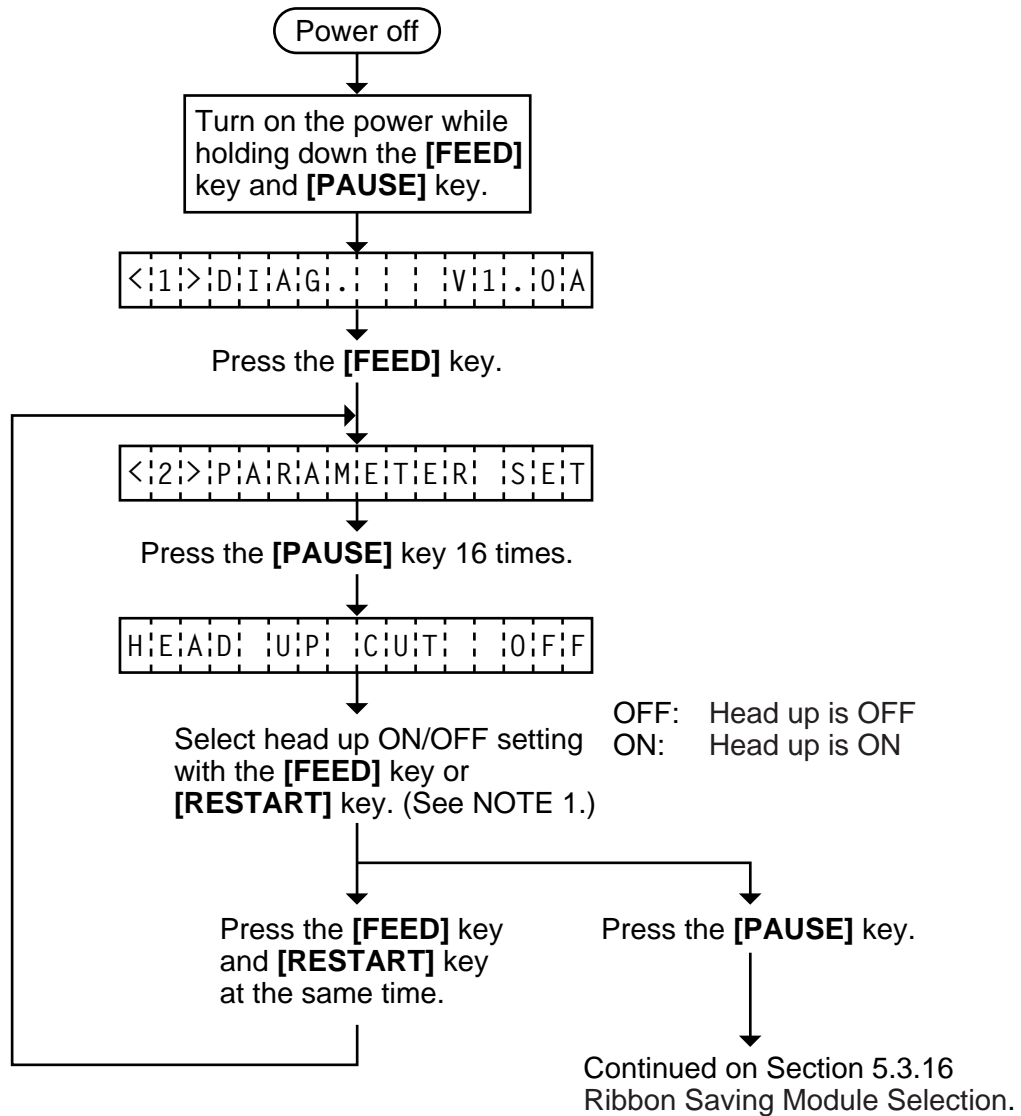
5.3.14 Auto Forward Wait in Cut Mode



NOTES: 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.

2. A changed data length is stored in memory by pressing the **[PAUSE]** key.

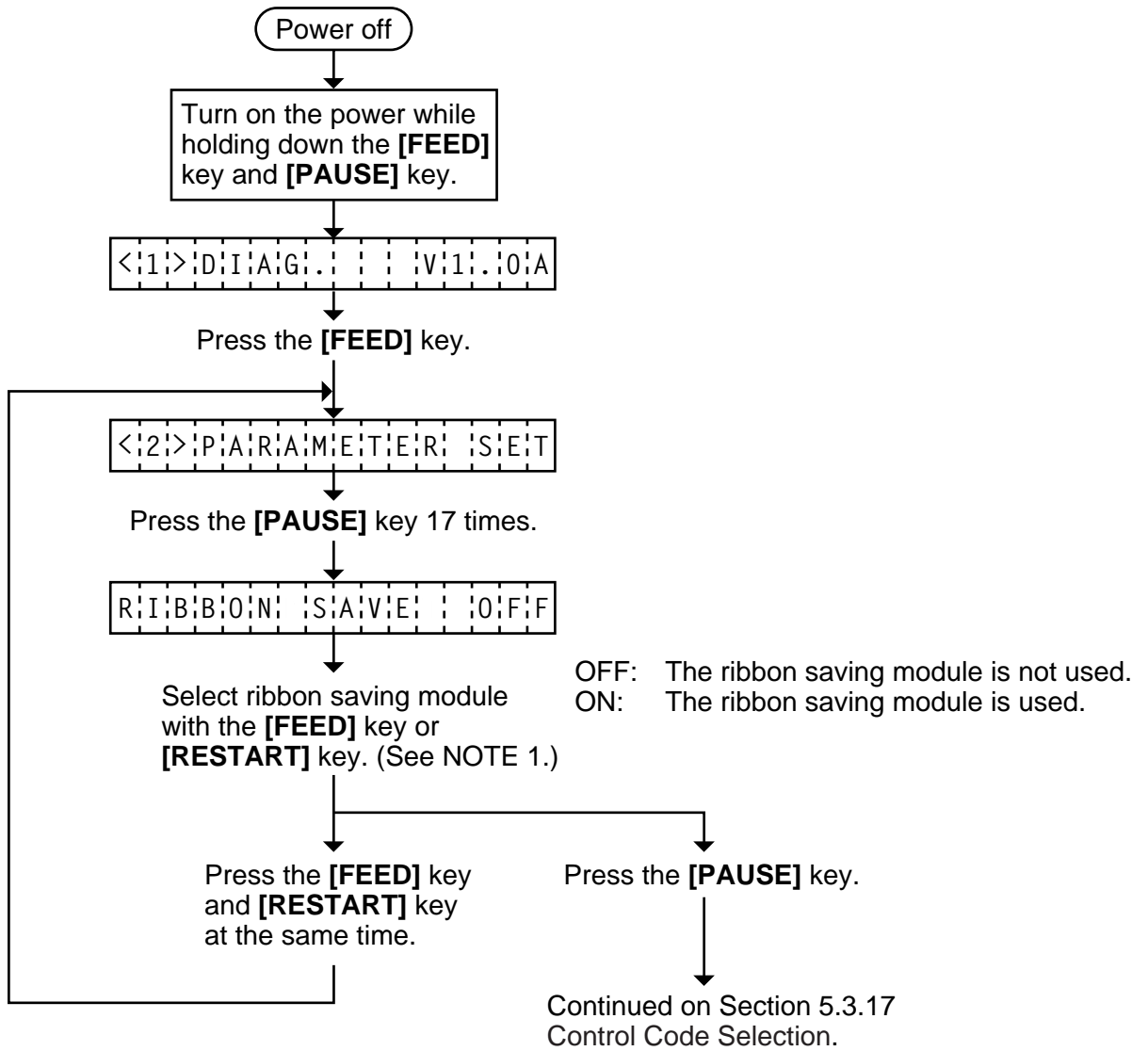
5.3.15 Head up ON/OFF Setting in Cut Mode



NOTES: 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.

2. A changed data length is stored in memory by pressing the **[PAUSE]** key.

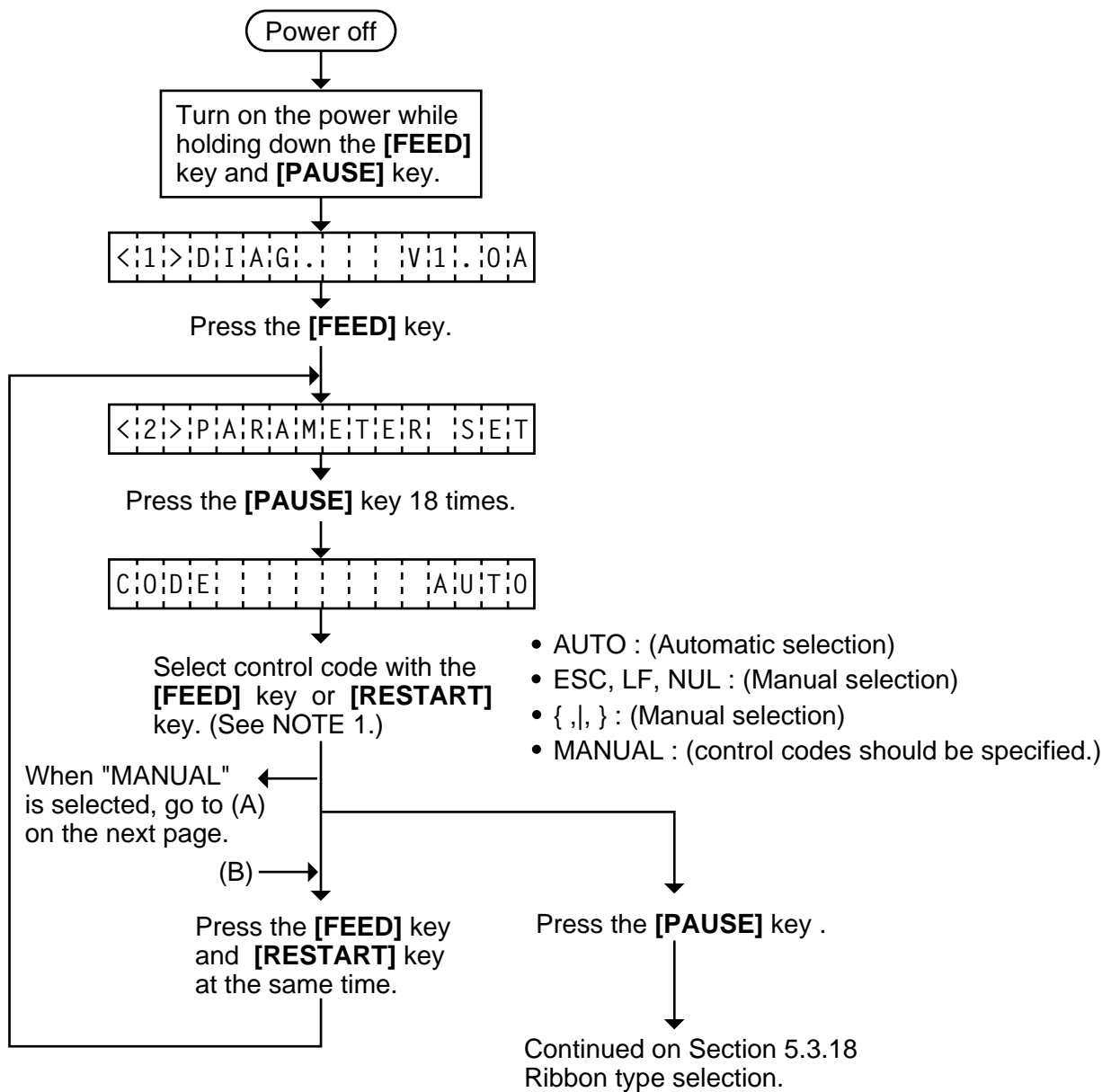
5.3.16 Ribbon Saving Module Selection



NOTES: 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.

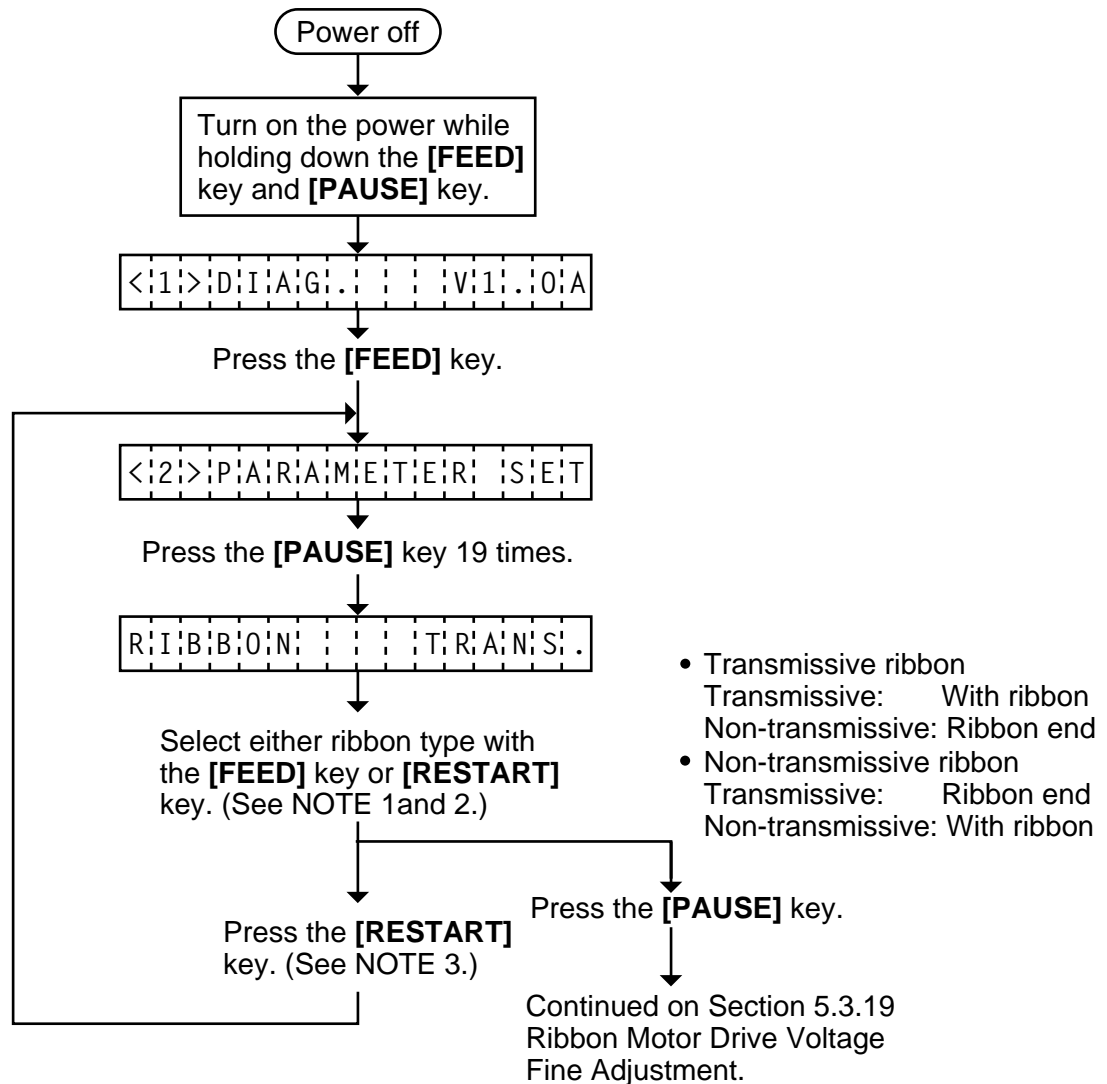
2. A changed data length is stored in memory by pressing the **[PAUSE]** key.

5.3.17 Control Code Selection



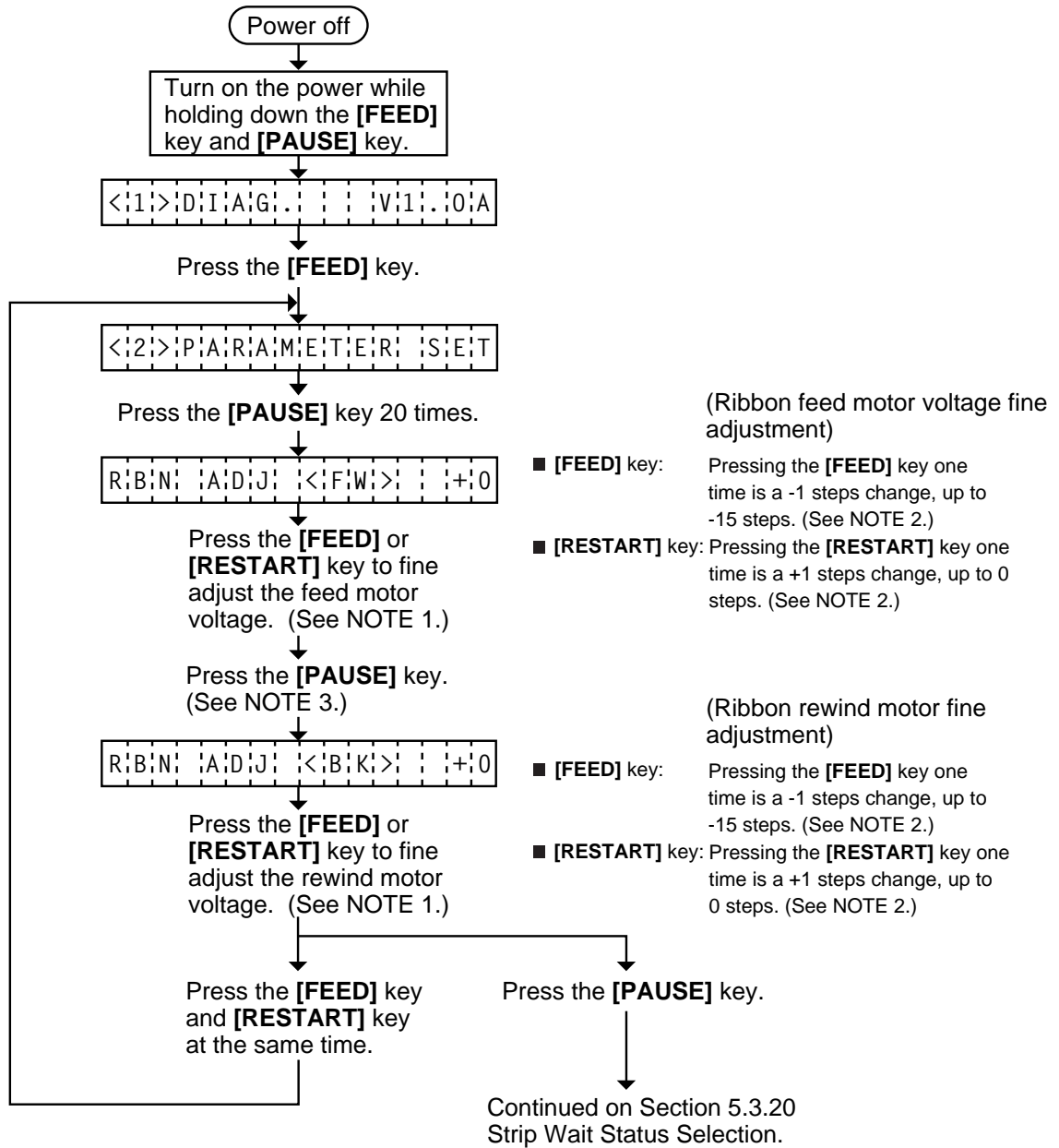
- NOTES:**
1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
 2. A changed control code is stored in memory by pressing the **[PAUSE]** key.
 3. When "AUTO", "ESC, FL, NUL", or "{, |, }" is selected, be sure to select the Non-transmissive ribbon in the ribbon type selection operation.
 4. When "MANUAL" is selected be sure to specify all the control codes 1 to 3. Failure to do this disables selection of "MANUAL".

5.3.18 Ribbon Type Selection



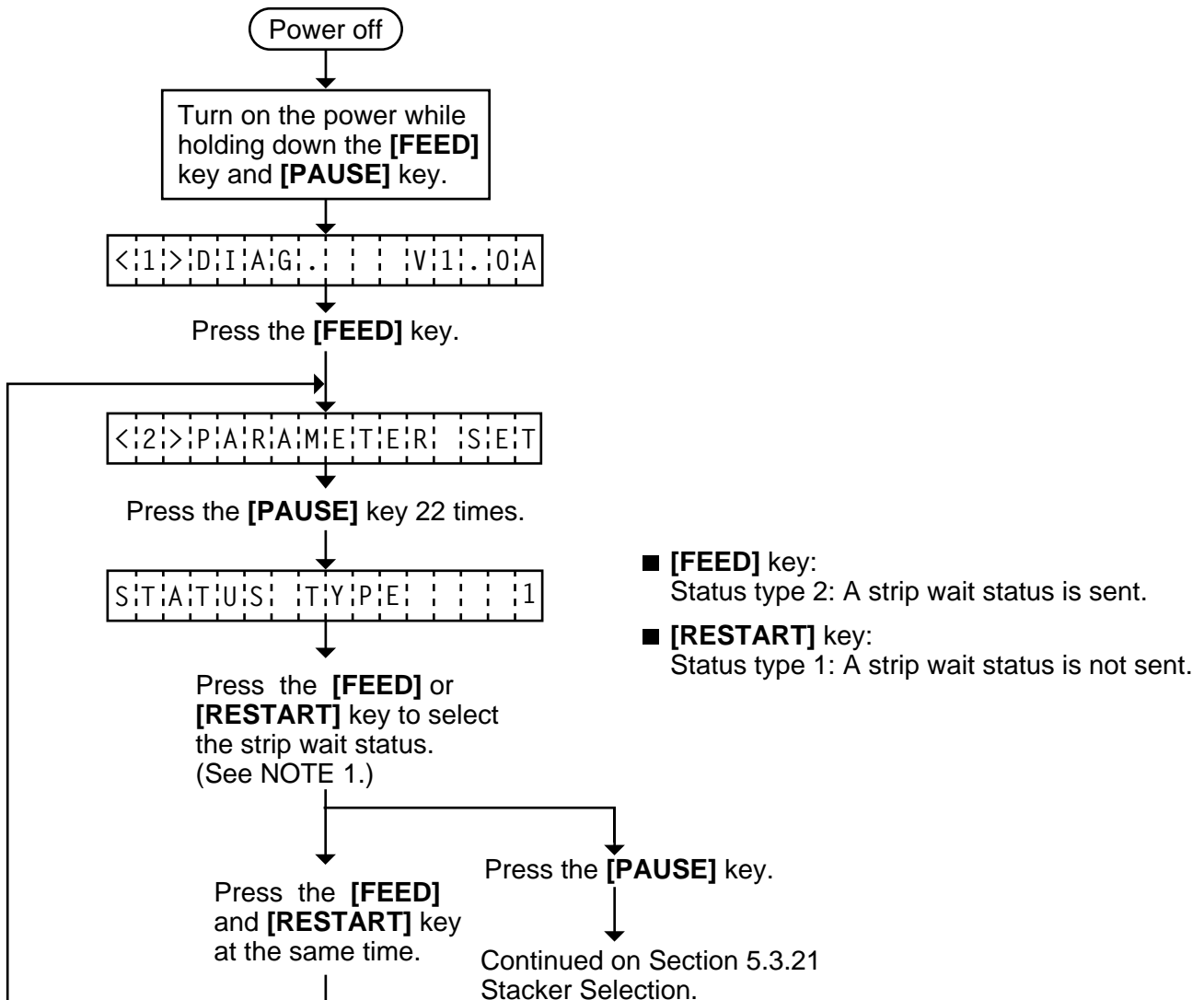
- NOTES:** 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
2. Non-transmissive (NON TRANS.) ribbon cannot be used so the ribbon type must be set to transmissive (TRANS.) ribbon.
3. A changed ribbon type is stored in memory by pressing the **[PAUSE]** key.

5.3.19 Ribbon Motor Drive Voltage Fine Adjustment



- NOTES:**
1. Holding the [FEED] key or [RESTART] key down for more than 0.5 seconds enables a fast forward.
 2. Max. fine adjustment -15 steps = Key fine adjustment value (-15 steps)+PC fine adjustment value (-15 steps)
When the value reaches the maximum, the value remains unchanged even if the subsequent fine adjustment is performed.
 3. A changed motor voltage value is stored in memory by pressing the [PAUSE] key.
 4. One step corresponds to 5% of the standard voltage and up to 75% of the voltage can be decreased.

5.3.20 Strip Wait Status Selection



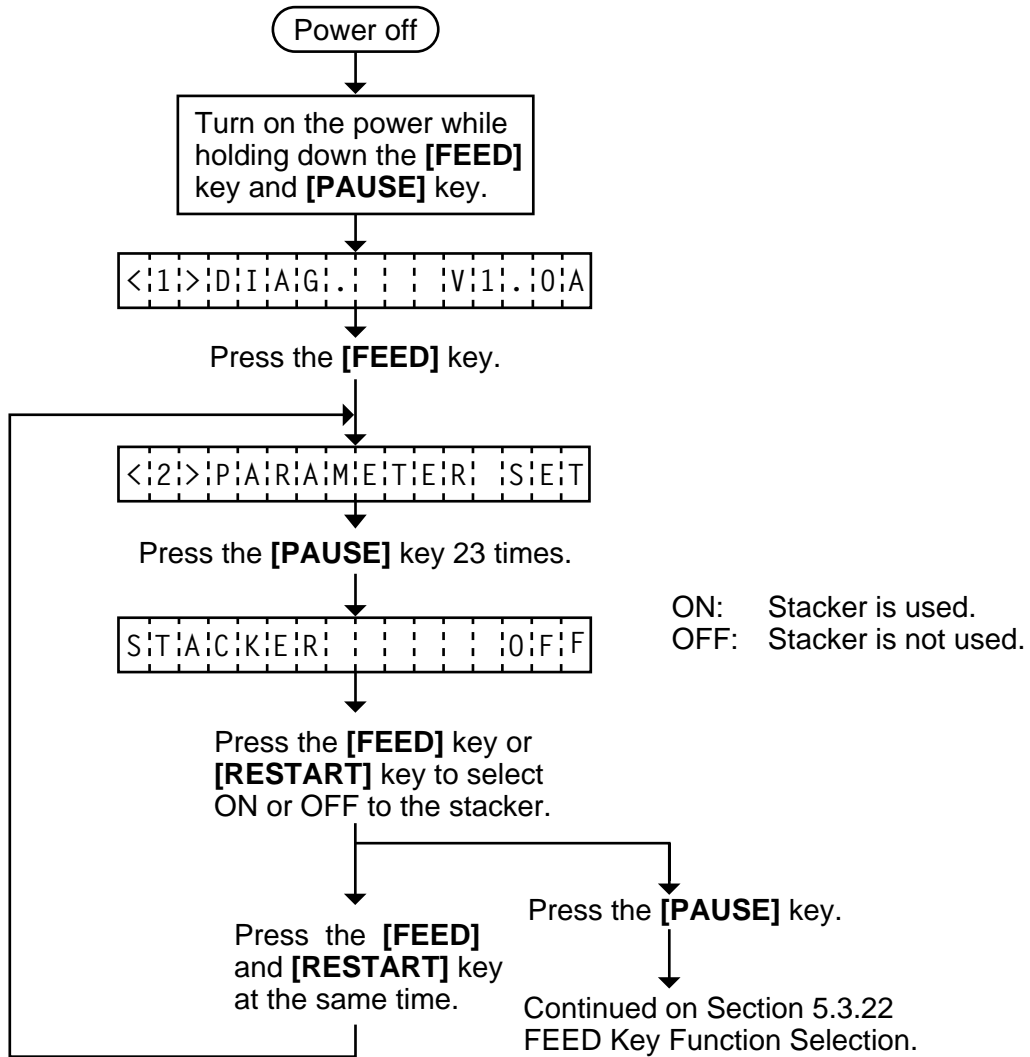
NOTES: 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.

2. When the status type 1 is selected, the printer will send (00H) in response to the status request command sent from the PC while a label stays at the strip sensor (when idling, after feeding, or all printing finished).

When the status type 2 is selected, the printer will send (05H) in response to the status request command sent from the PC while a label stays at the strip sensor (when idling, after feeding, or all printing finished.)

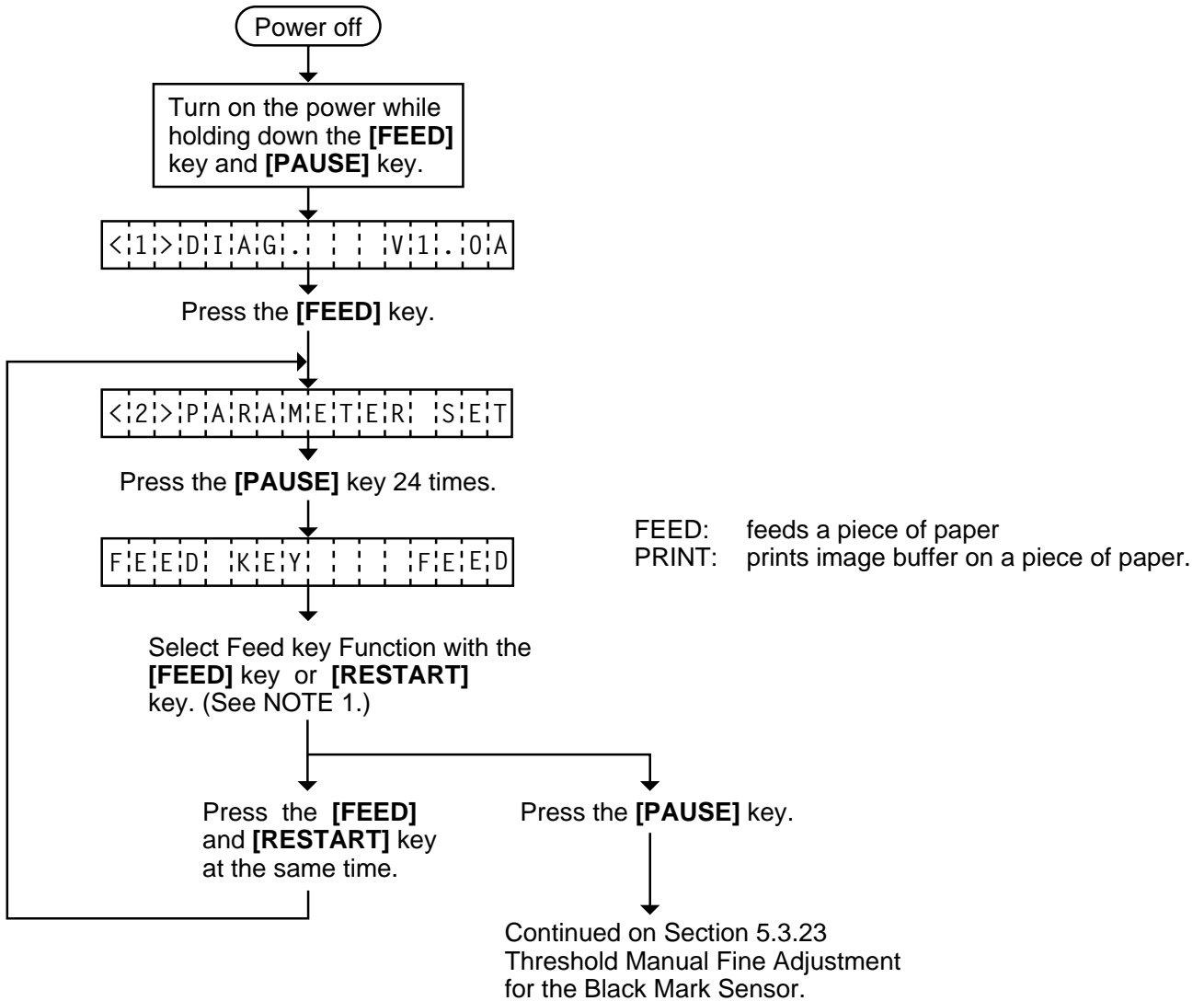
If the status request command is sent during printing, the printer will always send (05H) regardless of the setting.

5.3.21 Stacker Selection



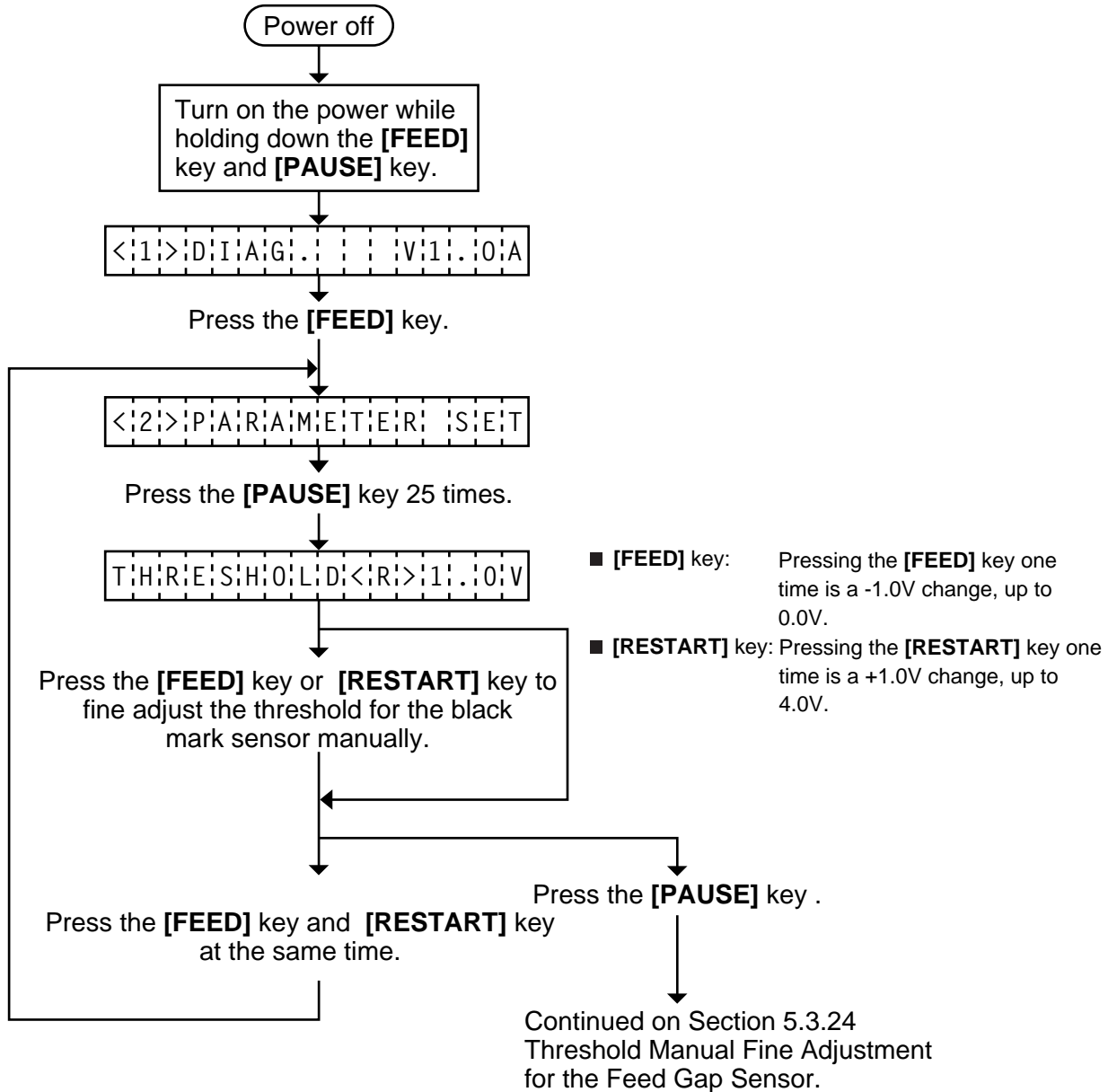
- NOTES:**
1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
 2. A changed Stacker selection is stored in memory by pressing the **[PAUSE]** key.

5.3.22 FEED Key Function Selection



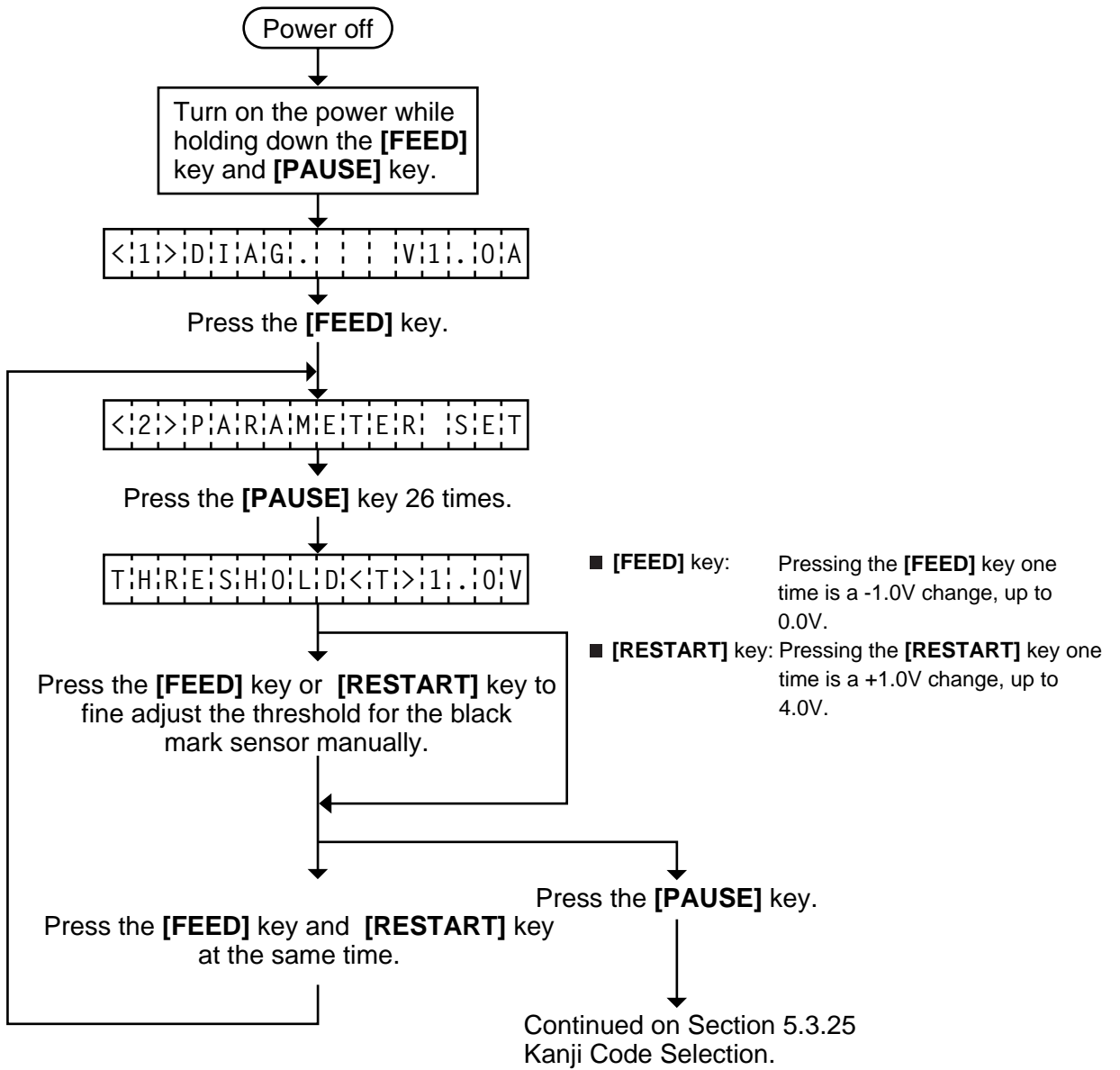
- NOTES:**
1. Holding the [FEED] key or [RESTART] key down for more than 0.5 seconds enables a fast forward.
 2. A changed data length is stored in memory by pressing the [PAUSE] key.

5.3.23 Threshold Manual Fine Adjustment for the Black Mark Sensor



- NOTES:** 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
2. A changed threshold fine adjustment value is stored in memory by pressing the **[PAUSE]** key.

5.3.24 Threshold Manual Fine Adjustment for the Feed Gap Sensor



- NOTES:** 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
2. A changed threshold fine adjustment value is stored in memory by pressing the **[PAUSE]** key.

- **How to Calculate Threshold Fine Adjustment Value**

If the following cases occurred, threshold value for the paper sensors should be fine adjusted after referring to the next page.

Case 1:

When using tag paper, the black mark and the print area are distinguished from each other by the 1.5V or more difference of sensor output voltage. If a low-sensitive sensor is installed in the printer, it may not detect 1.5V or more difference between the black mark and the print area. This may cause the printer to feed over one and a half tags, and then stop with "PAPER JAM" displayed.

Case 2:

The presence and lack of label are distinguished from each other by the reflective sensor voltage. When the voltage is more than 1.5V, it is regarded as the presence of paper. And less than 1.5V is regarded as the paper end. If a low-sensitive-sensor is used, 1.5V or more may not be detected at the backing paper since the reflectance of backing paper is low. In such case, more than 5mm-long gap is regarded as the no paper. And trying to print or feed the label when the sensor stops at the gap results in a NO PAPER error. This problem tends to occur when using labels with thin backing paper.

Case 3:

If the reflective sensor's output voltage when detecting no paper is 1.5V or more, the sensor does not recognize the actual paper end during printing. Accordingly, the printer continues to print despite of the paper end. This problem may occur on printers of which the resistors on the CPU PCB have been changed according to the Technical Information #SVM7A1010/1 (issued on April 16, 1997).

Case 4:

When using perforated fanfold labels, the transmissive sensor mistakes the perforation on the gap for a print area, resulting in a PAPER JAM error.

Case 5:

When using such a particular label stock that a black mark is printed on every two or three gaps, the sensor detects three different voltages at the label, unmarked gap and black mark, respectively. The sensor cannot distinguish the unmarked gap from the black mark, so the printer stops with displaying "PAPER JAM".

NOTE: The following operation cannot be performed unless the sensor type is changed by the issue command or feed command.

- (1) Using the sensor adjustment in Diag. mode, measure the sensor voltage at the following four points.

Label: Print area Backing paper
 Tag paper: Print area Black mark

Example:

[REFLECTIVE]	2.8 V
[TRANSMISSIVE]	4.1 V

- (2) Using the following formula, calculate the threshold from the measured voltage:

When using labels (transmissive sensor):

Threshold = (Max. voltage at the backing paper) - (Voltage at the print area) - 0.7V
 e.g.) 2.0V = 4.2V - 1.5V - 0.7V

When using perforated labels (transmissive sensor):

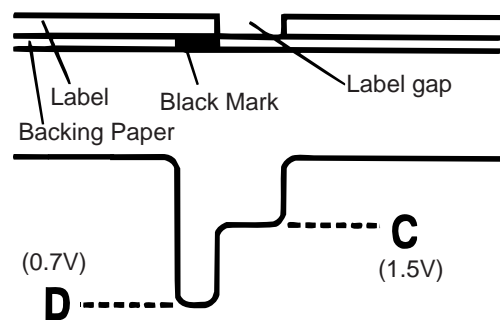
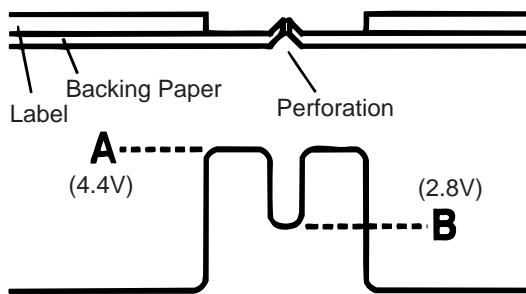
$$\text{Threshold} = \frac{\text{A}}{\text{A}} \text{ (Max. voltage at the backing paper)} - \frac{\text{B}}{2} \text{ (Min. voltage at the backing paper)} - \frac{\text{A}}{2} \text{ (Min. voltage at the backing paper)}$$

e.g.) 2.2V = 4.4V - (2.8V/2) - (1.6V/2)

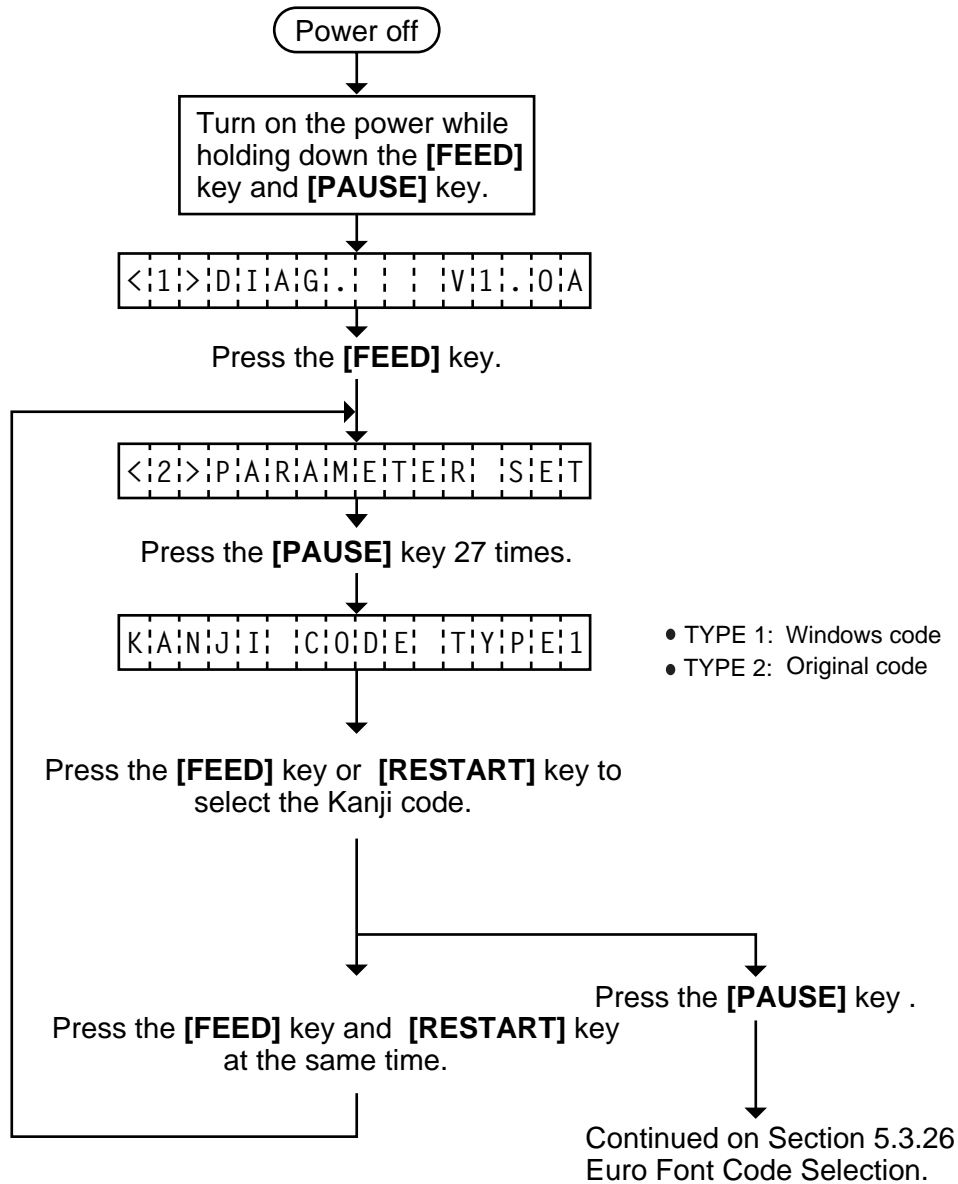
When using labels with black marks (reflective sensor):

$$\text{Threshold} = \frac{\text{C}}{2} \text{ (Min. voltage at the print area)} - \frac{\text{D}}{2} \text{ (Min. voltage at the black mark)}$$

e.g.) 0.4V = (1.5V - 0.7V)/2

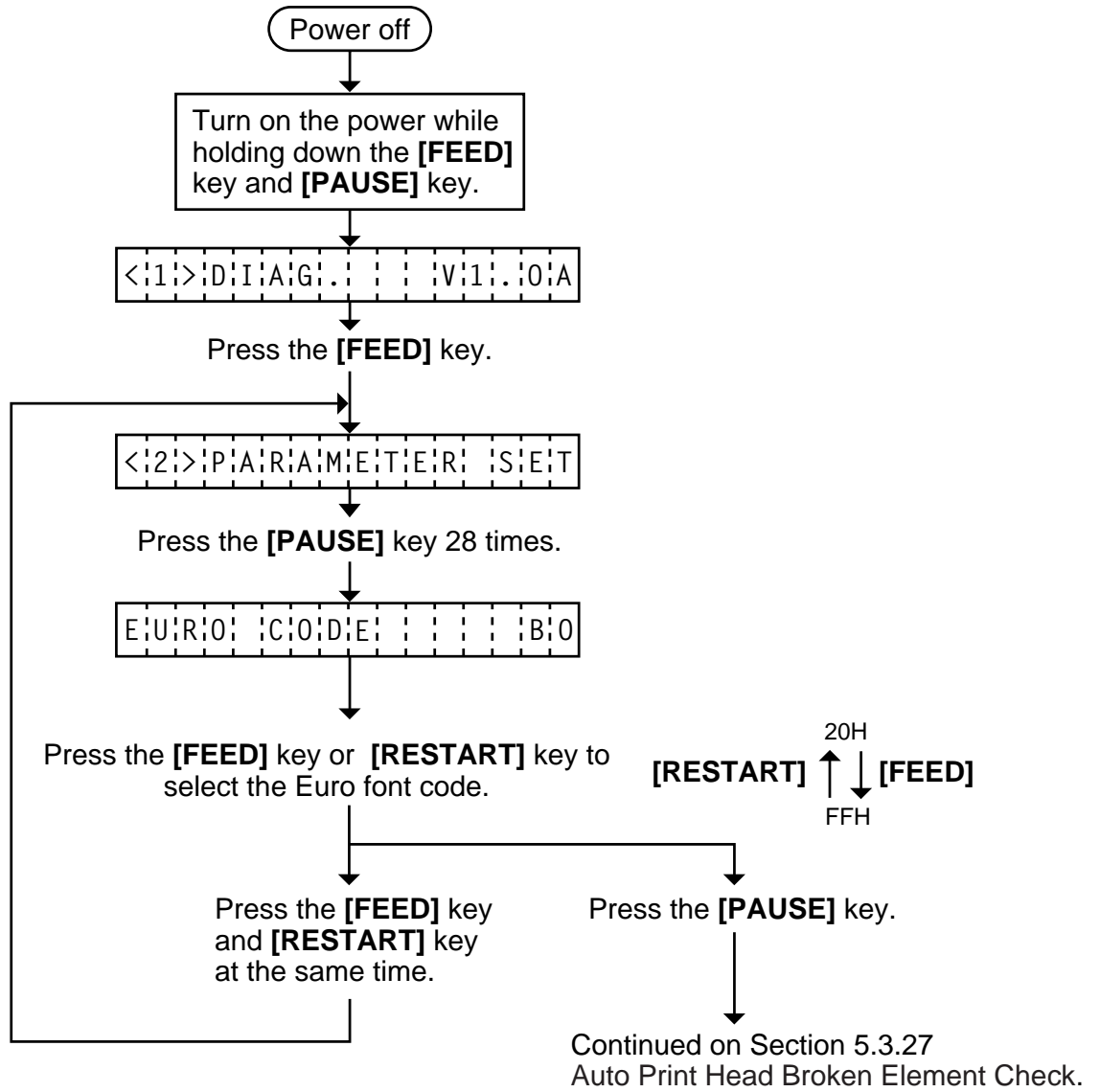


5.3.25 Kanji Code Selection



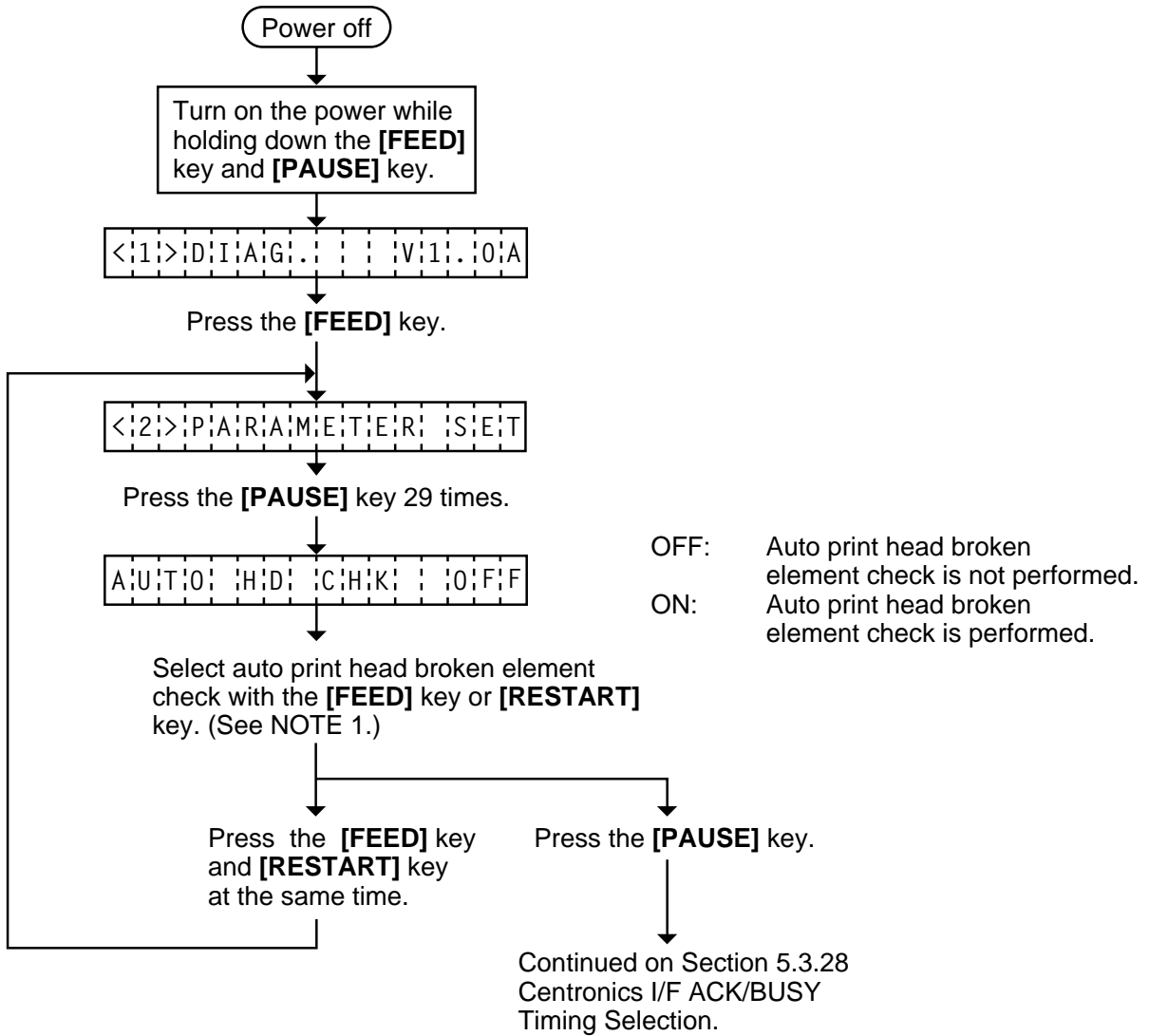
- NOTES:** 1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
2. A changed Kanji code is stored in memory by pressing the **[PAUSE]** key.

5.3.26 Euro Font Code Selection



- NOTES:** 1. Holding the [FEED] key or [RESTART] key down for more than 0.5 seconds enables a fast forward.
 2. A changed Euro font code is stored in memory by pressing the [PAUSE] key.

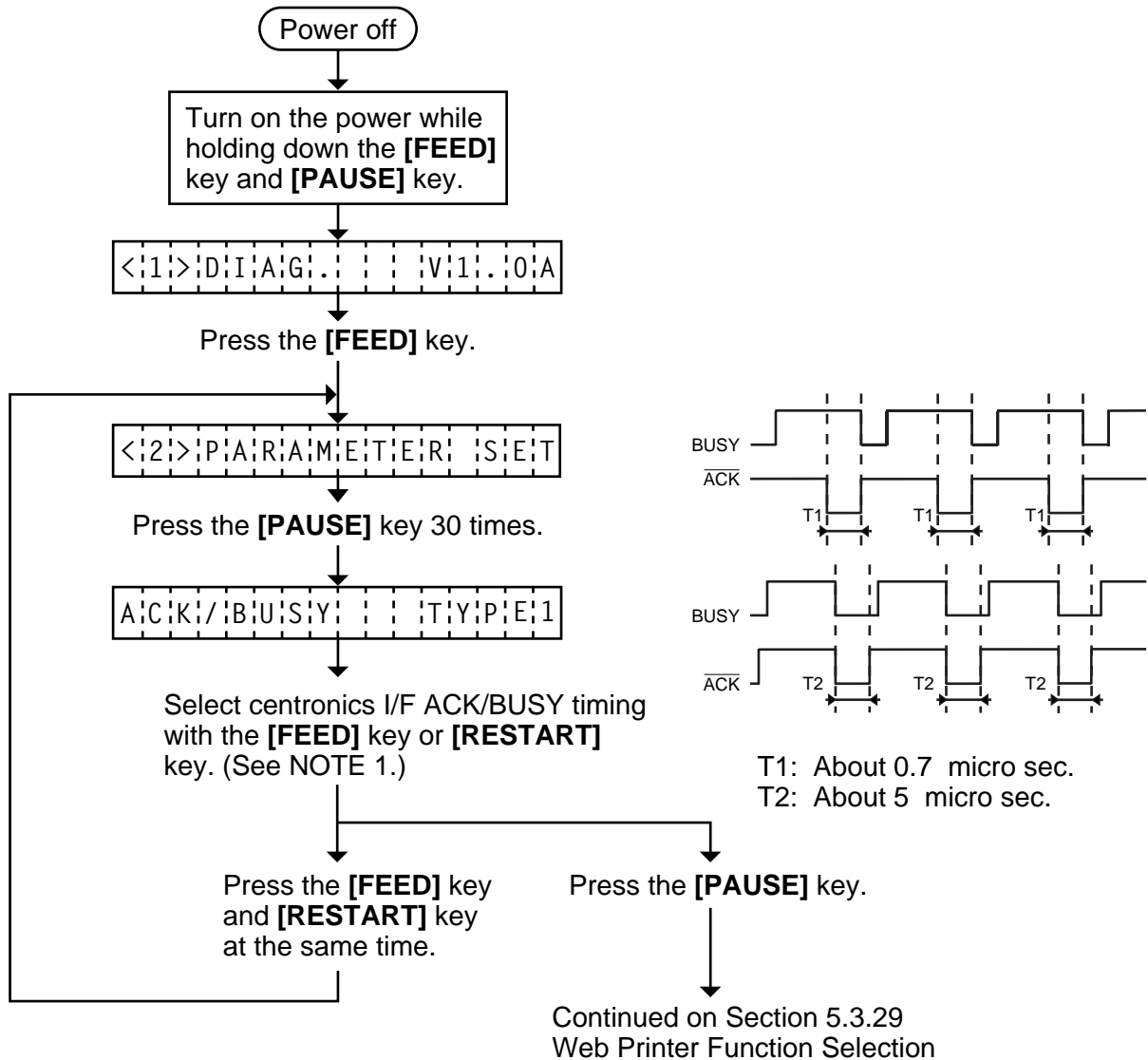
5.3.27 Auto Print Head Broken Element Check



- NOTES:**
1. Holding the [FEED] key or [RESTART] key down for more than 0.5 seconds enables a fast forward.
 2. A changed data length is stored in memory by pressing the [PAUSE] key.

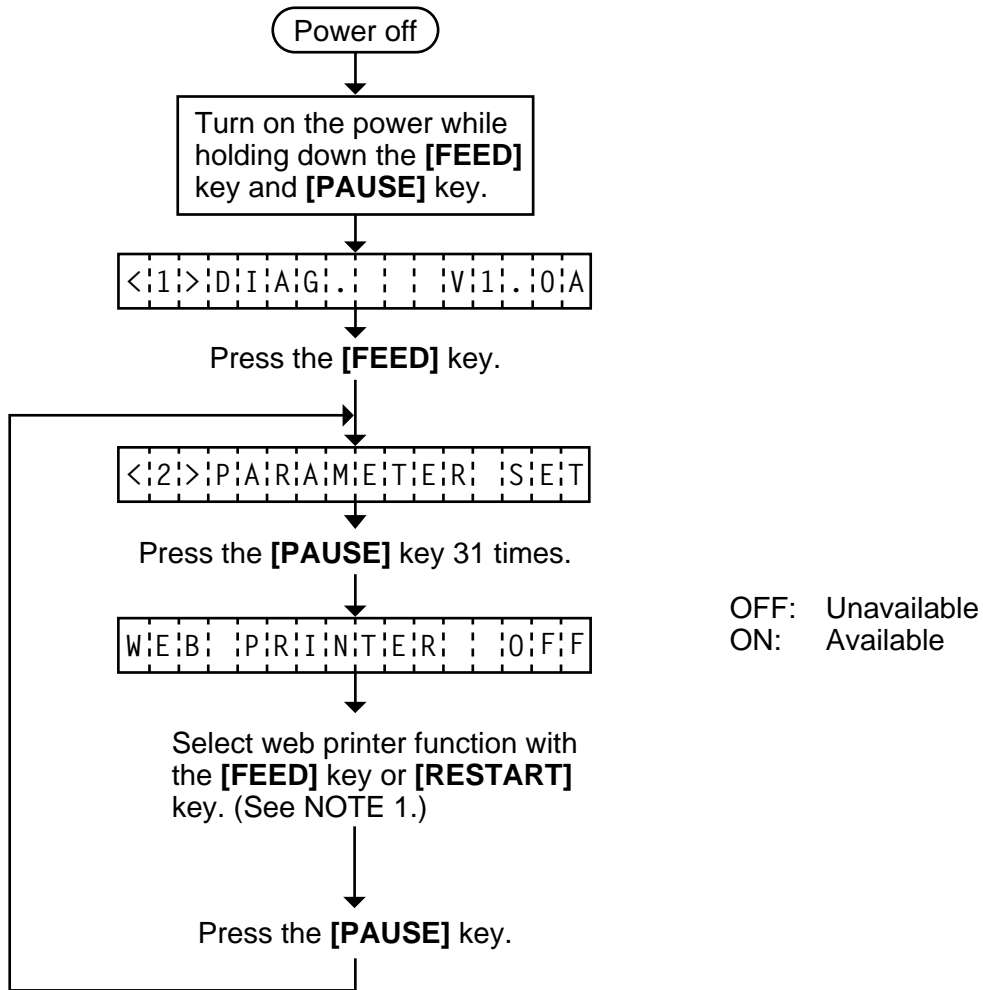
5.3.28 Centronics I/F ACK/BUSY Timing Selection

Choose the ACK/BUSY timing type 1 or type 2.



- NOTES:**
1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
 2. A changed data length is stored in memory by pressing the **[PAUSE]** key.

5.3.29 Web Printer Function Selection



- NOTES:**
1. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
 2. A changed Euro font code is stored in memory by pressing the **[PAUSE]** key.

5.4 TEST PRINT MODE

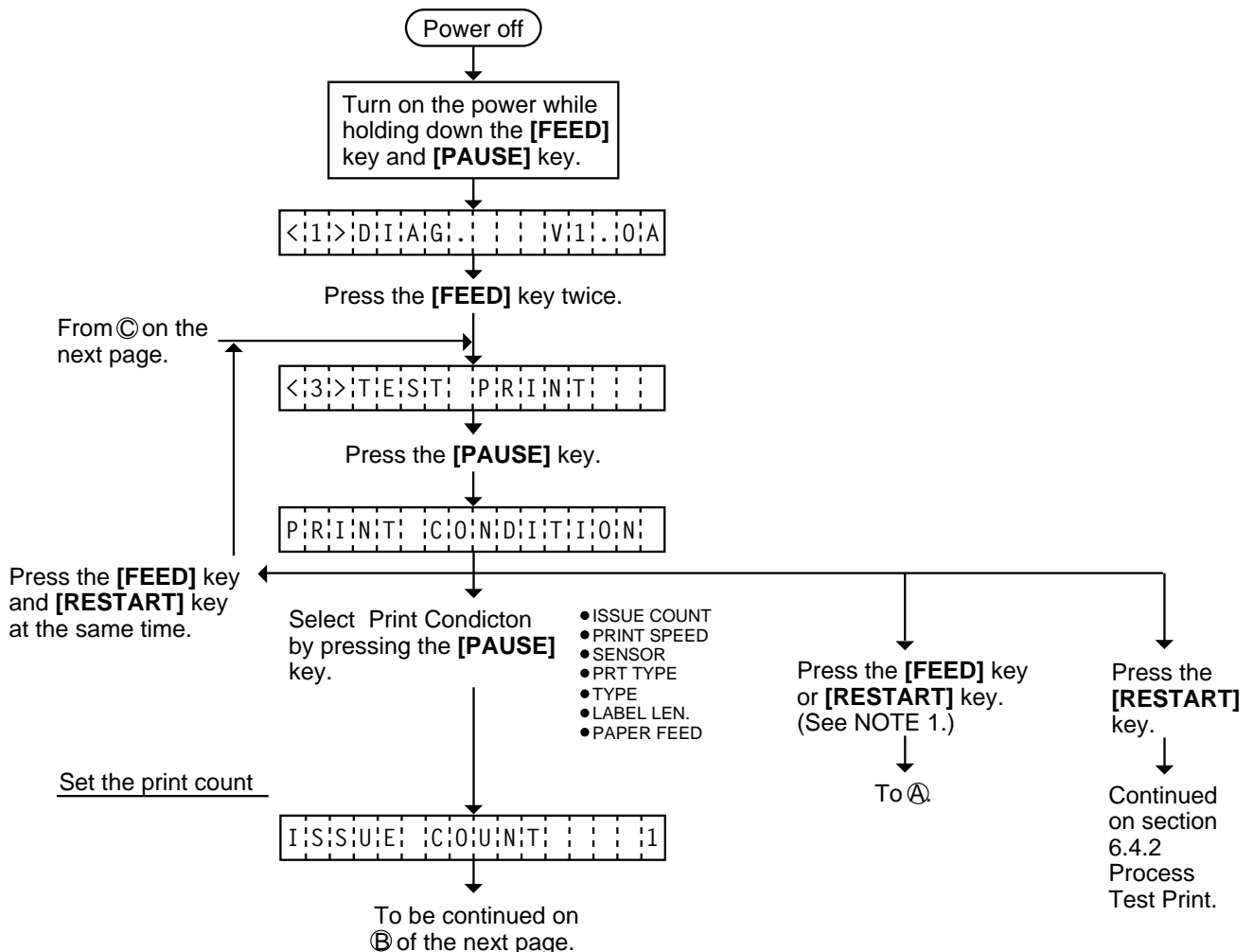
Test print mode contains normal test print and process test print.

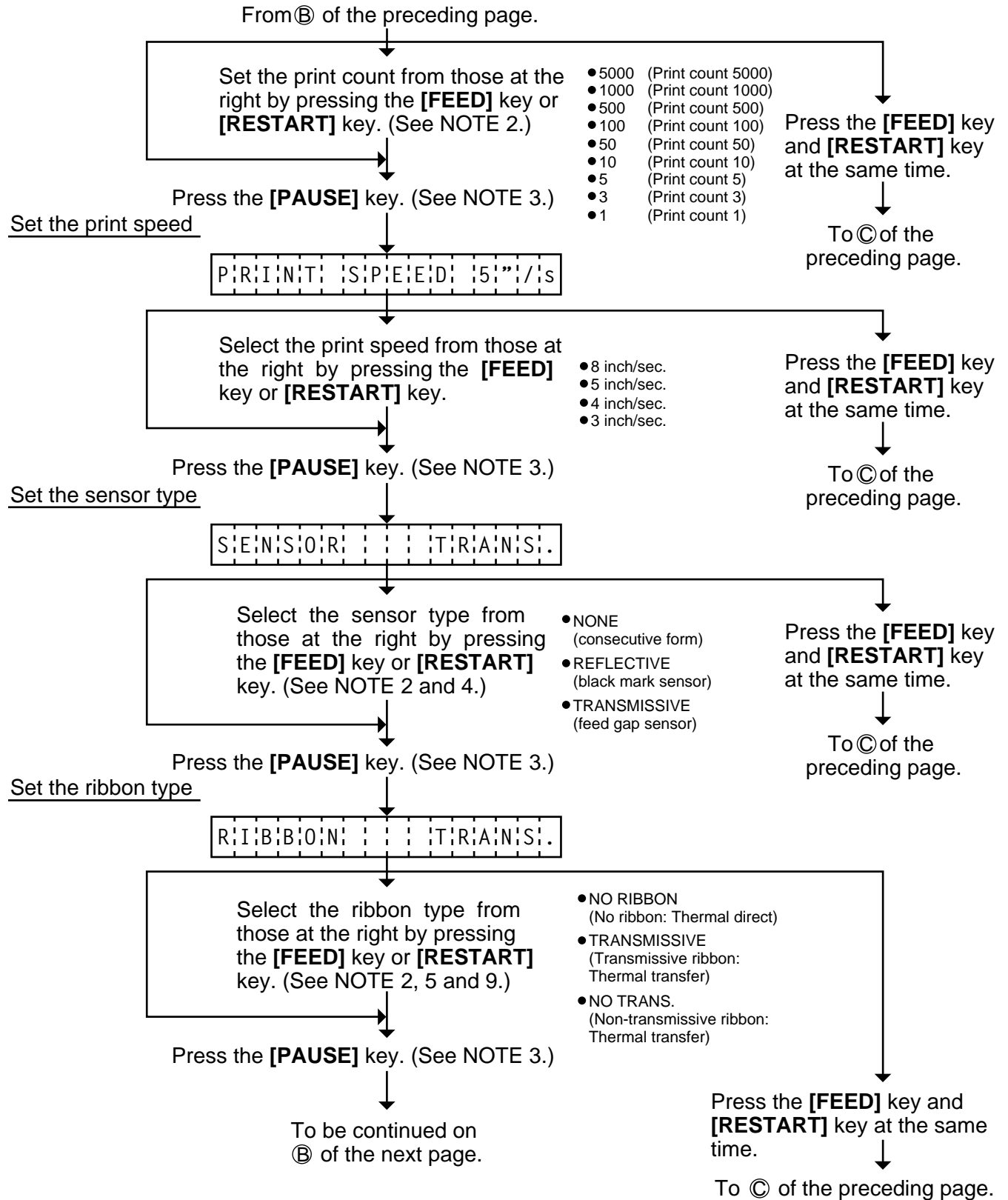
5.4.1 Normal Test Print

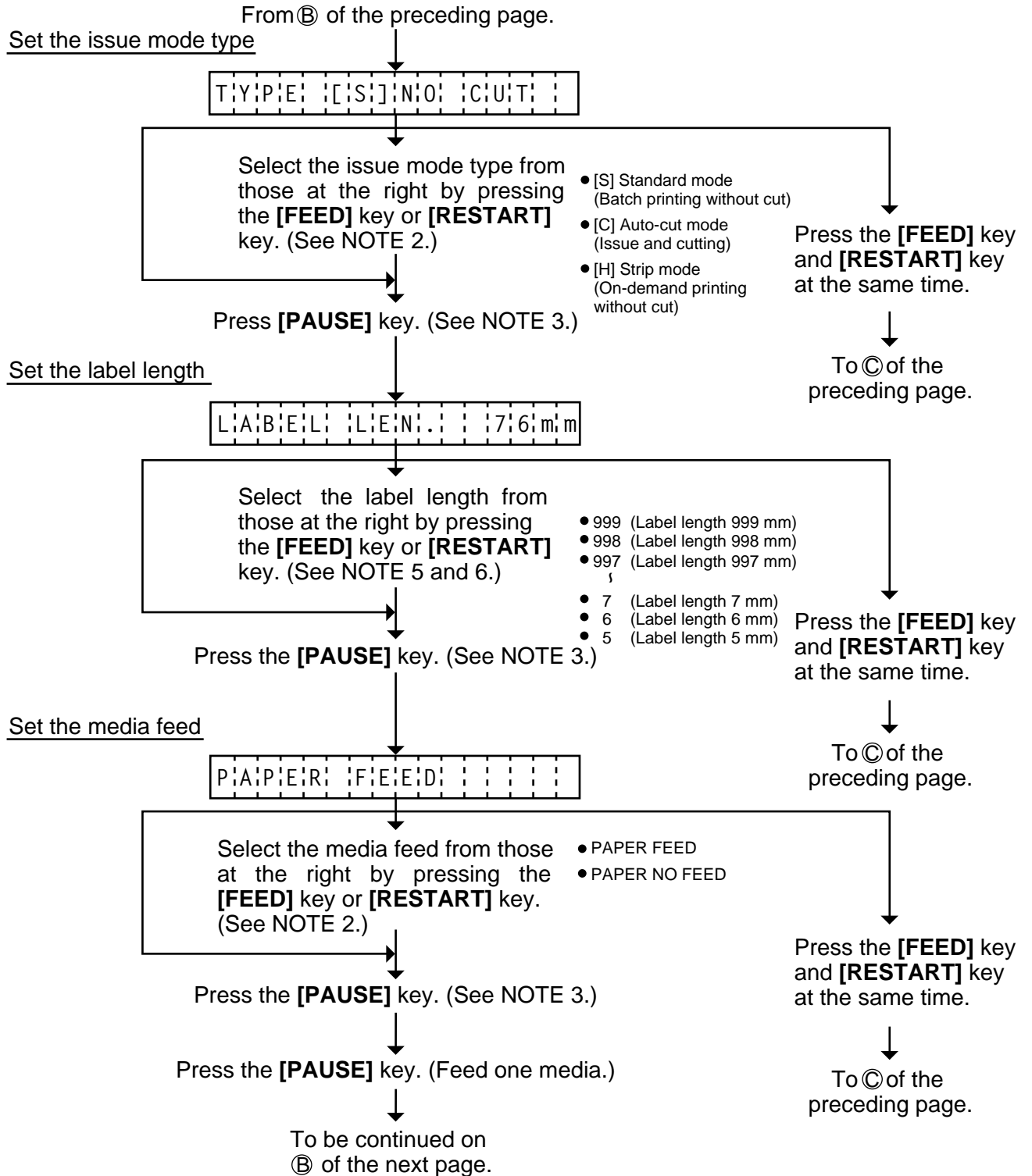
Eight kinds of test prints are provided in the test print mode. When performing the test print, 7 parameters should be set. The default parameter at power on is as below:

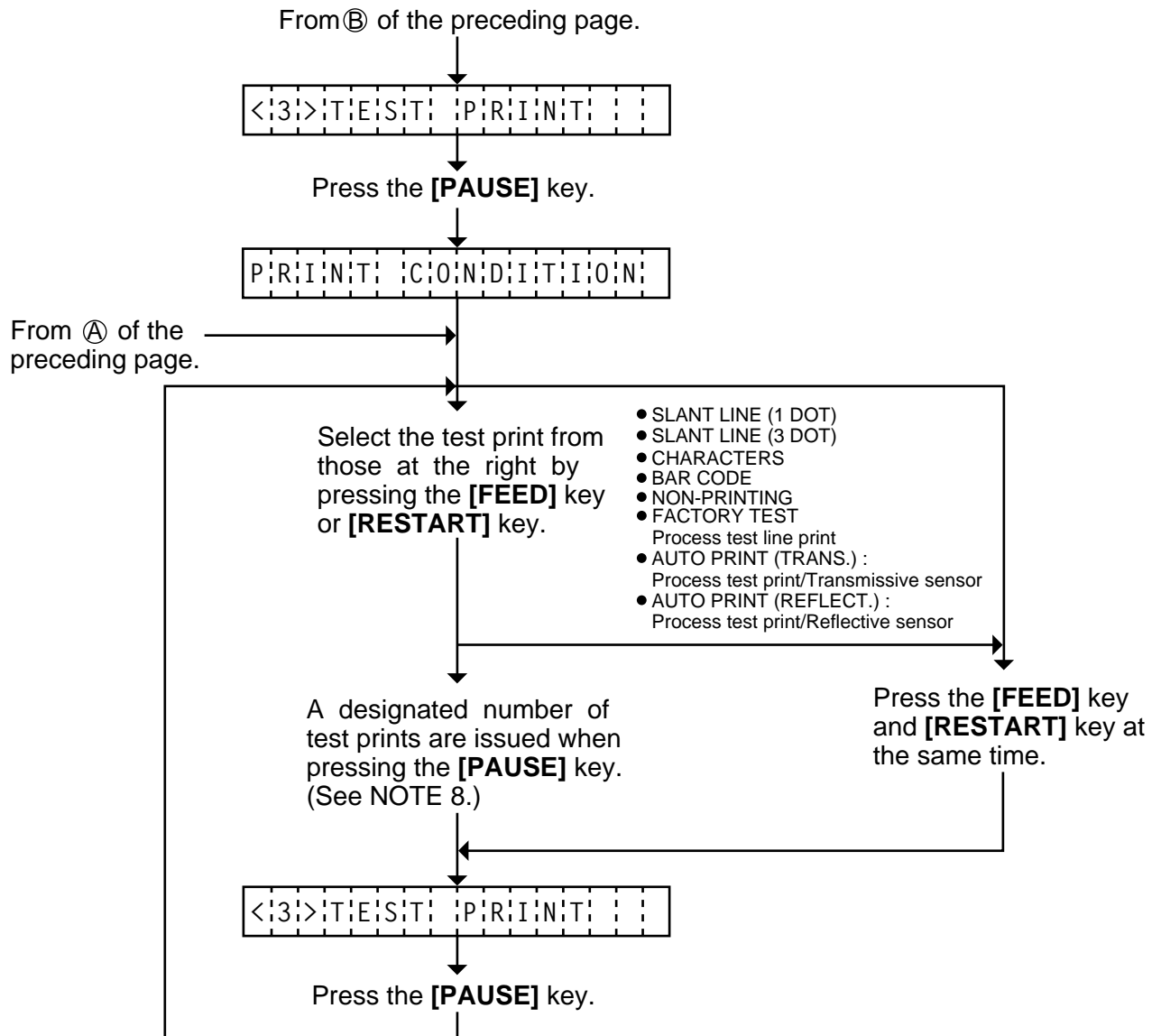
- ISSUE COUNT : 1
- PRINT SPEED : 5"/sec.
- SENSOR : Transmissive sensor
- PRINT TYPE : Thermal Transfer
- TYPE : Batch (without cut)
- LABEL LENGTH : 76 mm
- PAPER FEED : Feed

Operating procedure for the test mode is provided below.









- NOTES:**
1. When there is no change to the print condition, select one of the test print options to issue the test print.
 2. Holding the **[FEED]** key or **[RESTART]** key down for more than 0.5 seconds enables a fast forward.
 3. A selected print condition is activated when the **[PAUSE]** key is pressed.
 4. When the feed gap sensor is selected, the gap between labels becomes 3mm long.
 5. A label size greater than the image buffer length cannot be designated. The image buffer length differs according to memory size. If designated, the printer prints in the image buffer, or the printer stops because of an error.
 6. Pressing the **[FEED]** key changes the label length -1 mm, pressing the **[RESTART]** key changes +1 mm.
 7. 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 "<3> TEST PRINT". Printing is not automatically resumed after the error is cleared.
 8. When the space area is 20mm at the print speed of 3"/sec., 5"/sec, and 8"/sec., the printer automatically enters ribbon saving print mode. (only when the ribbon saving module is set to ON at the thermal transfer print)

9. All fine adjustment values except for the X axis fine adjustment are also available at a test print.
10. The print speed of 4"/sec. is applied to the thermal direct print only. Even if the print speed of 4"/sec. is selected for the thermal transfer print, the printer performs at 3"/sec..

■ Test Print Sample

- Slant line (1 dot)

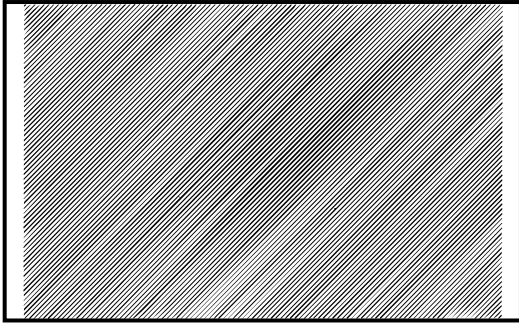


Fig. 5-21

- Slant line (3 dot)

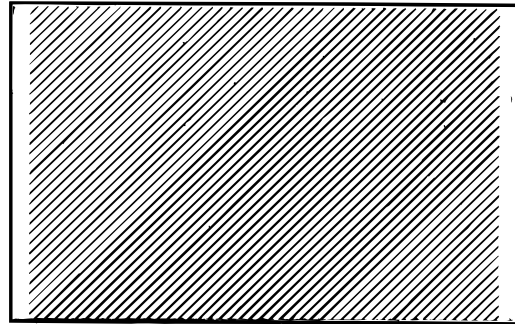


Fig. 5-22

- Characters

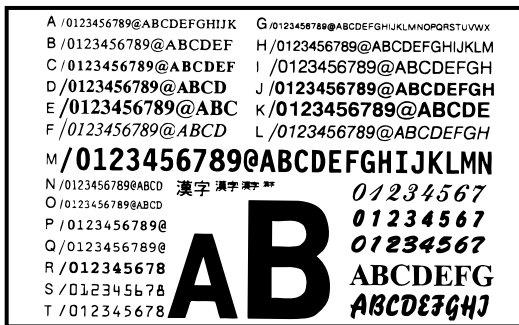


Fig. 5-23

- Bar code

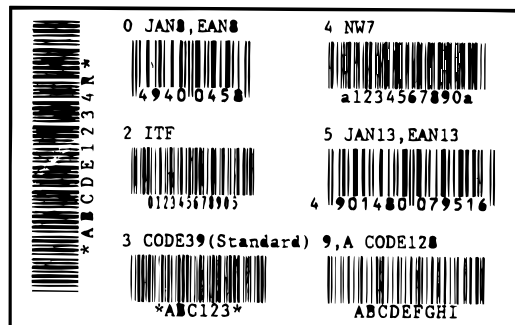


Fig. 5-24

- AUTO PRINT

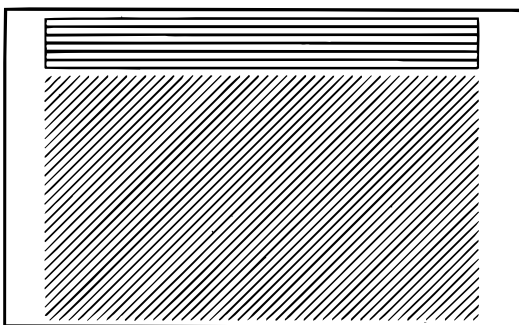


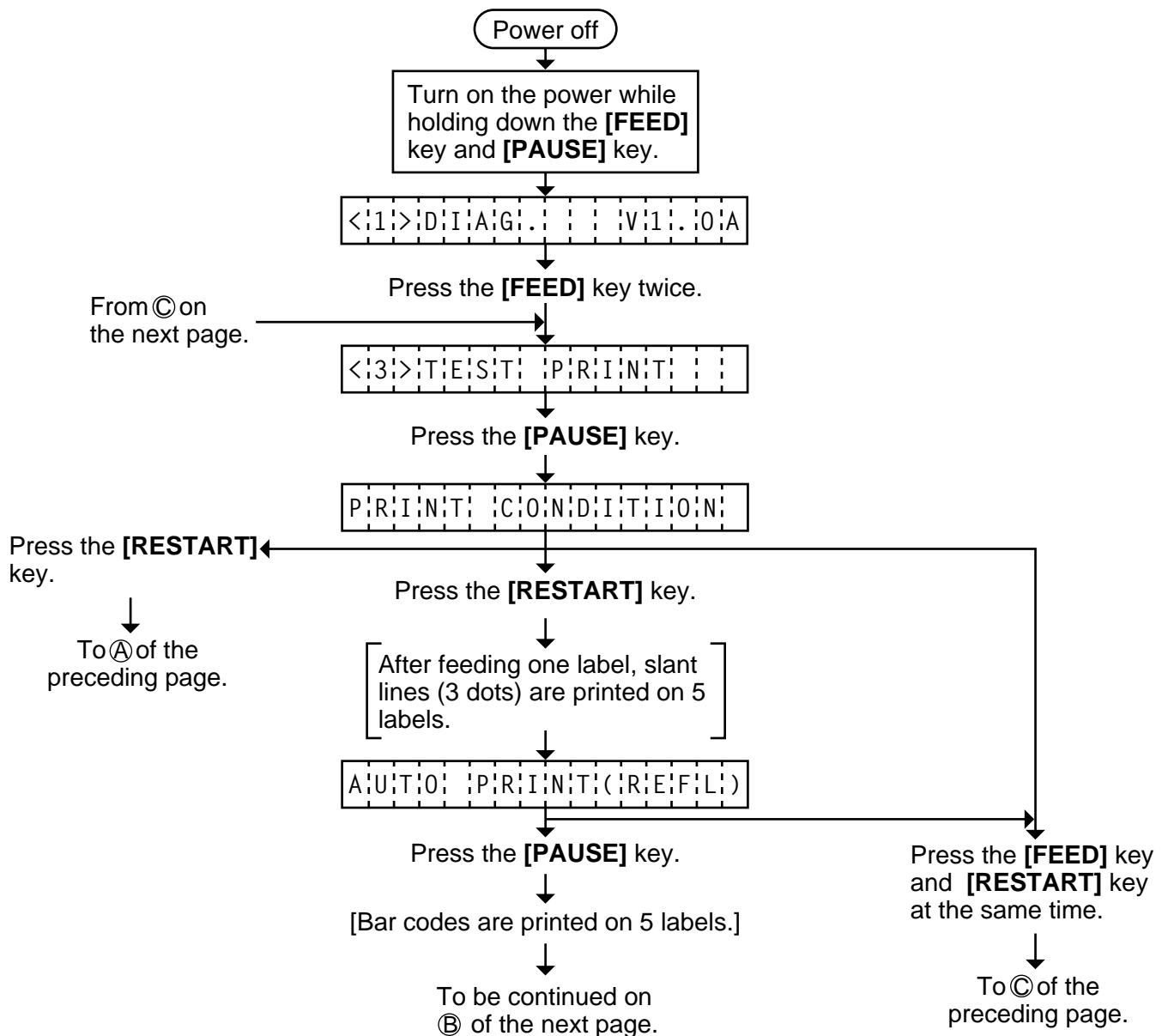
Fig. 5-25

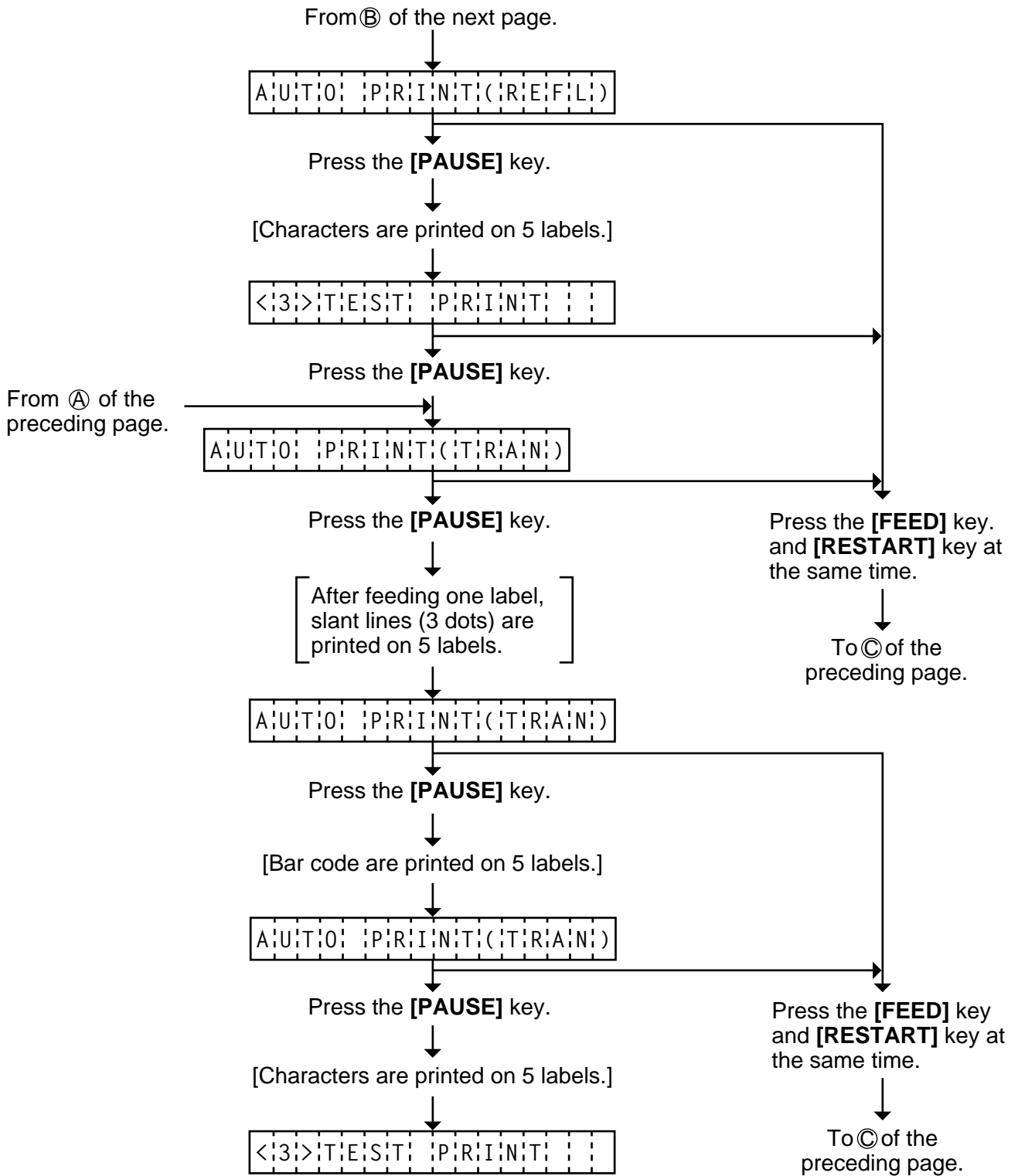
5.4.2 Process Test Print

In the process test print, the test print is automatically performed under the following conditions. Parameter setting and print tone fine adjustment value is ignored.

- OPERATION : One label feed, 3-dot slant line print, bar code print, character print
- ISSUE COUNT : 5 labels each
- PRINT SPEED : 8 inches/sec.
- SENSOR : Transmissive sensor (feed gap sensor) or reflective sensor (black mark sensor)
- RIBBON : Transmissive ribbon
- TYPE : Batch (without cut)
- LABEL LENGTH : 76 mm
- PRINT TONE FINE ADJUSTMENT VALUE : +0

Operating procedure for the test mode is provided below.



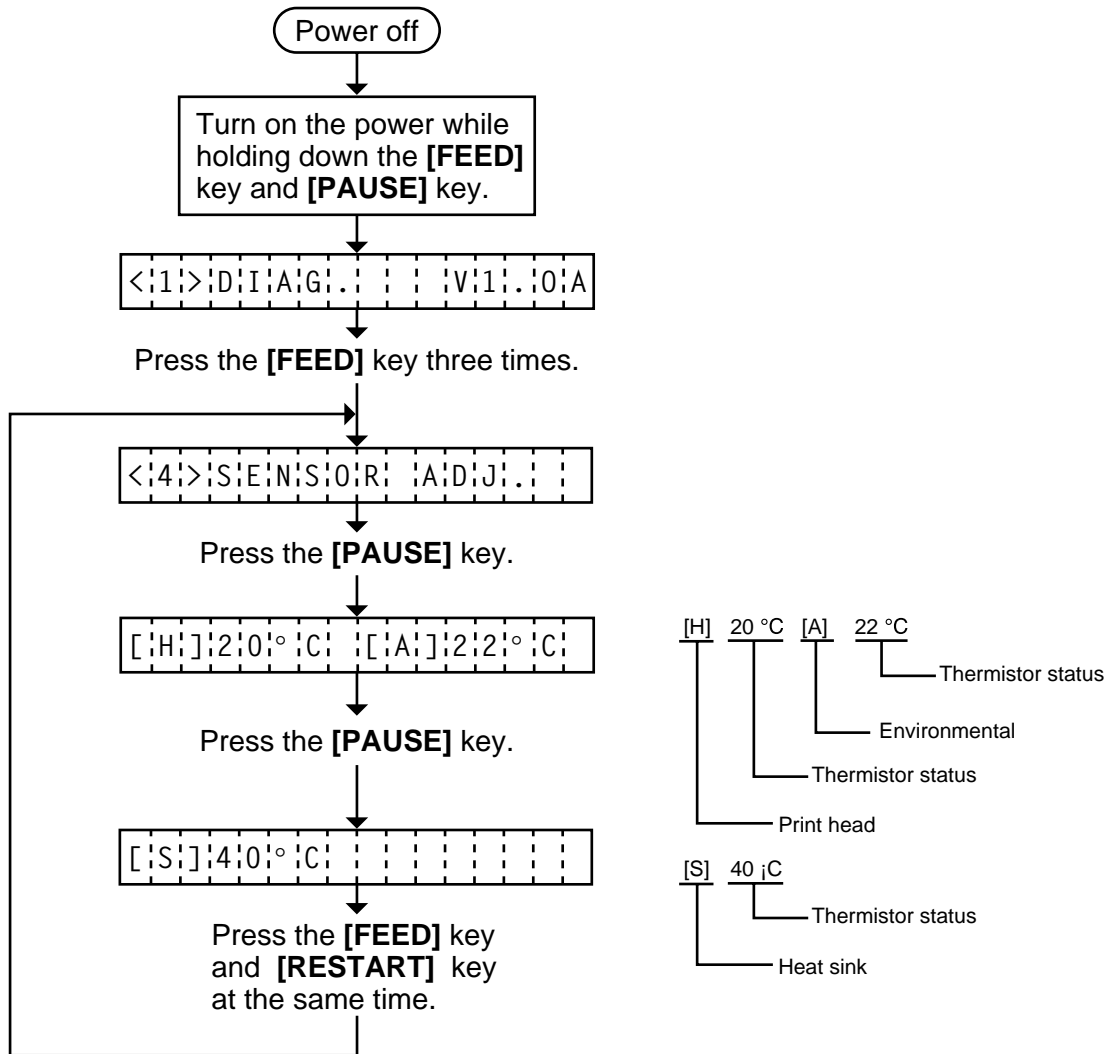


5.5 SENSOR SETTING MODE

Thermistor check and black mark/feed gap sensor settings are provided in the sensor setting mode. The value set in this mode is printed as data of sensor 2 in Automatic diagnosis printing in self test mode.

5.5.1 Thermistor Check (Read only)

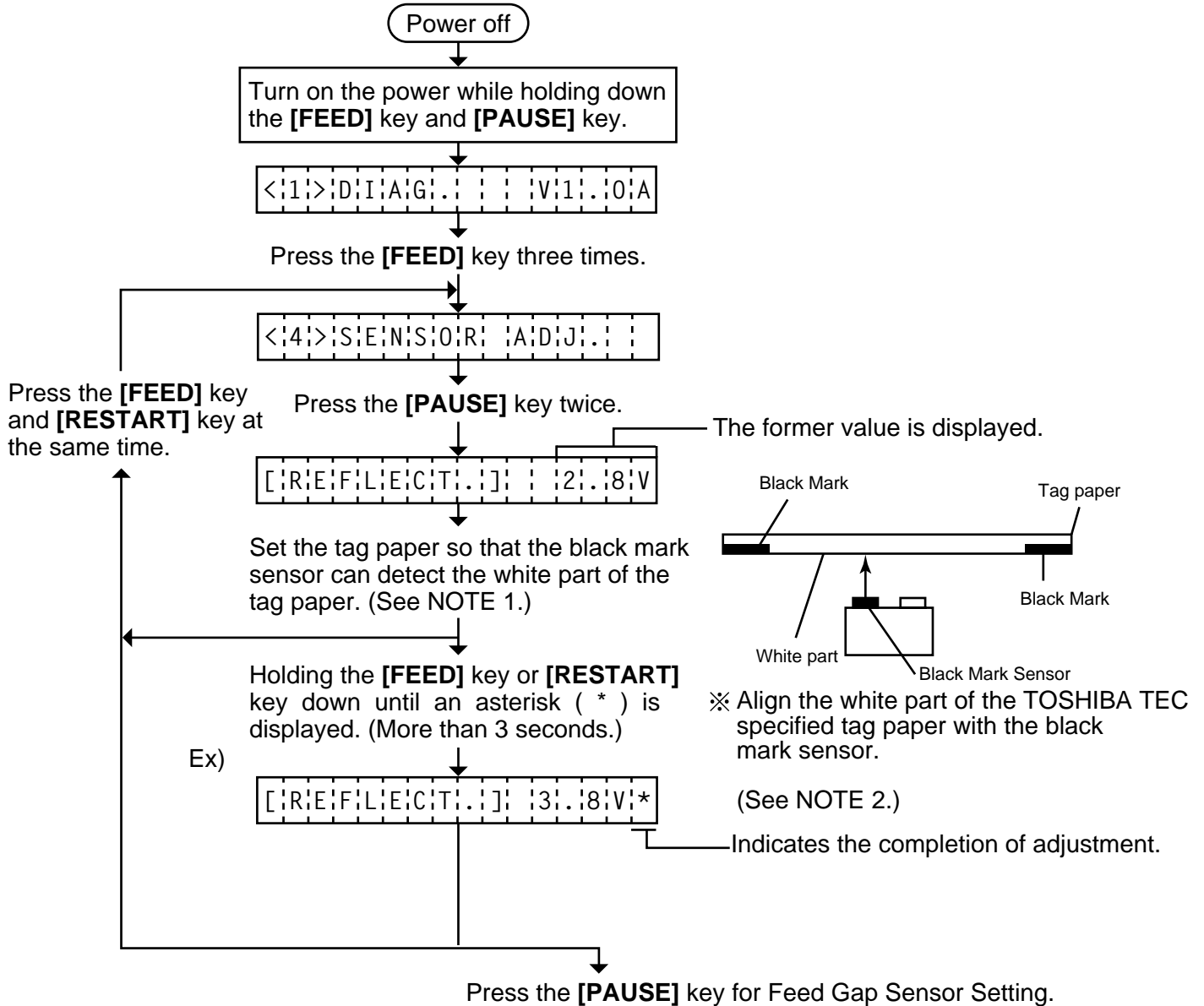
Thermistor check should be performed to check the environmental temperature and print head temperature after the excess head temp. error occurs or batch printing is performed for a long time.



NOTE: 1. Since the thermistor is supervised every 200 ms while displaying the status, the display could vary.

5.5.2 Black Mark Sensor Adjustment

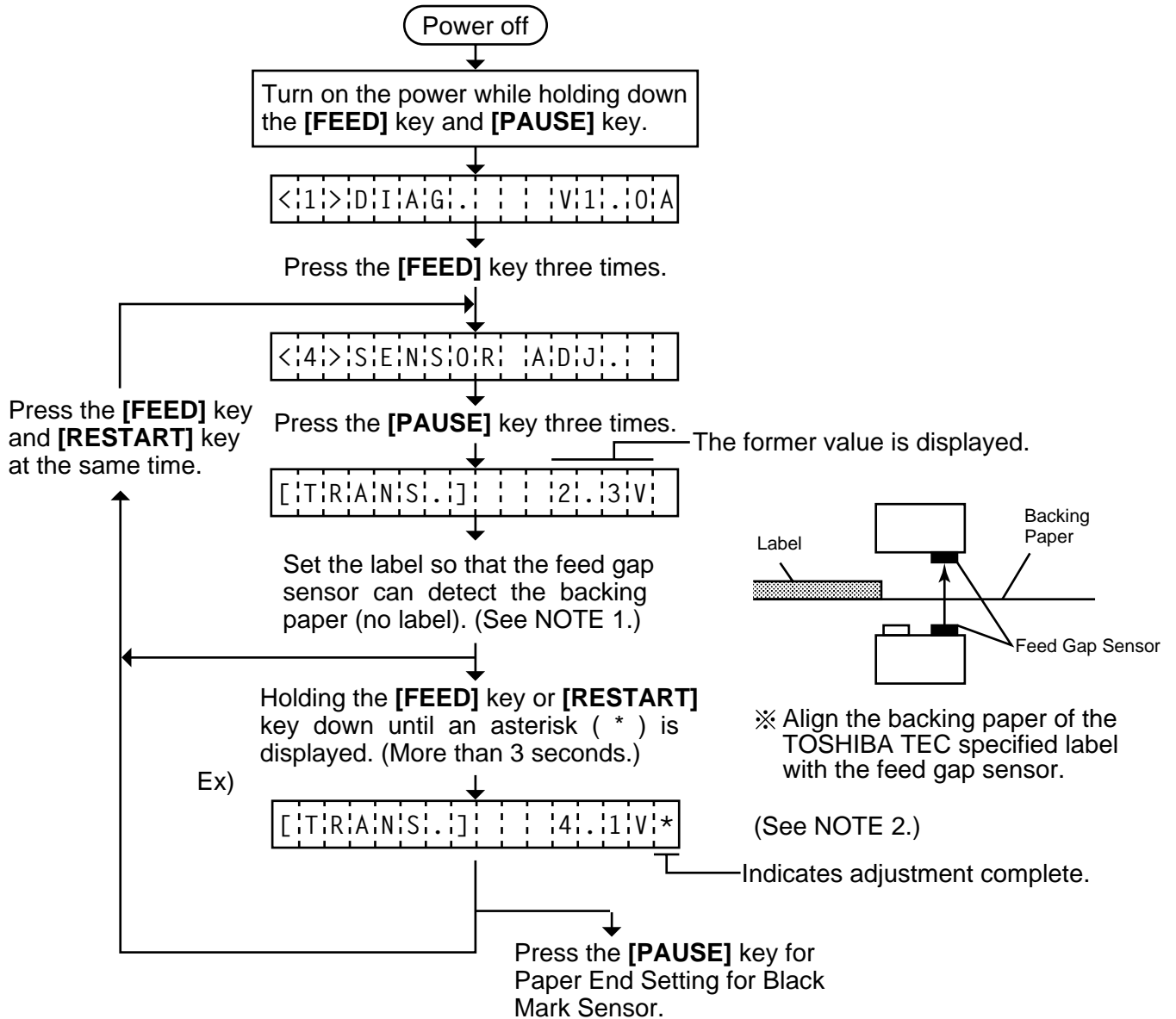
Black mark sensor setting should be performed after replacing the CPU PC board or changing the tag paper to other maker's one, or when a paper feed error occurs.



- NOTES:** 1. Make sure to adjust the black mark sensor using the white part of the tag paper as a criterion. Though an adjustment can be performed with the black mark, it may cause a paper jam error.
2. Pressing the **[PAUSE]** key validates the sensor adjustment. The value of the sensor is displayed up to 5.0 V.

5.5.3 Feed Gap Sensor Adjustment

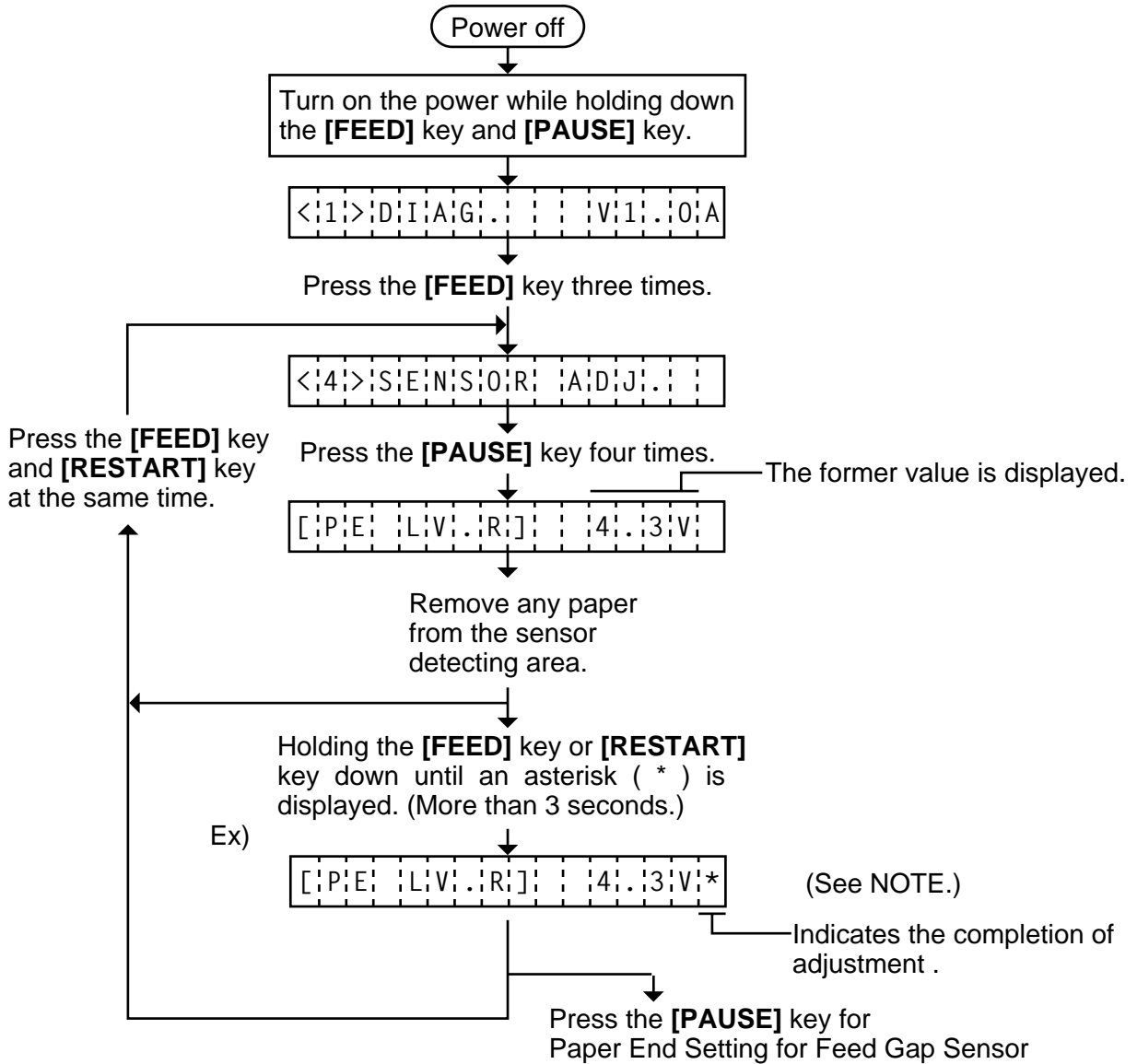
Feed gap sensor setting should be performed after replacing the CPU PC board or changing the label to other maker's one, or when a paper feed error occurs.



- NOTES:** 1. Make sure to adjust the feed gap sensor using the backing paper with no label as a criterion. Though an adjustment can be performed with the label, it could cause a paper jam error.
2. Pressing the **[PAUSE]** key validates the sensor adjustment. The value of the sensor is displayed up to 5.0 V.

5.5.4 Paper End Setting for Black Mark Sensor

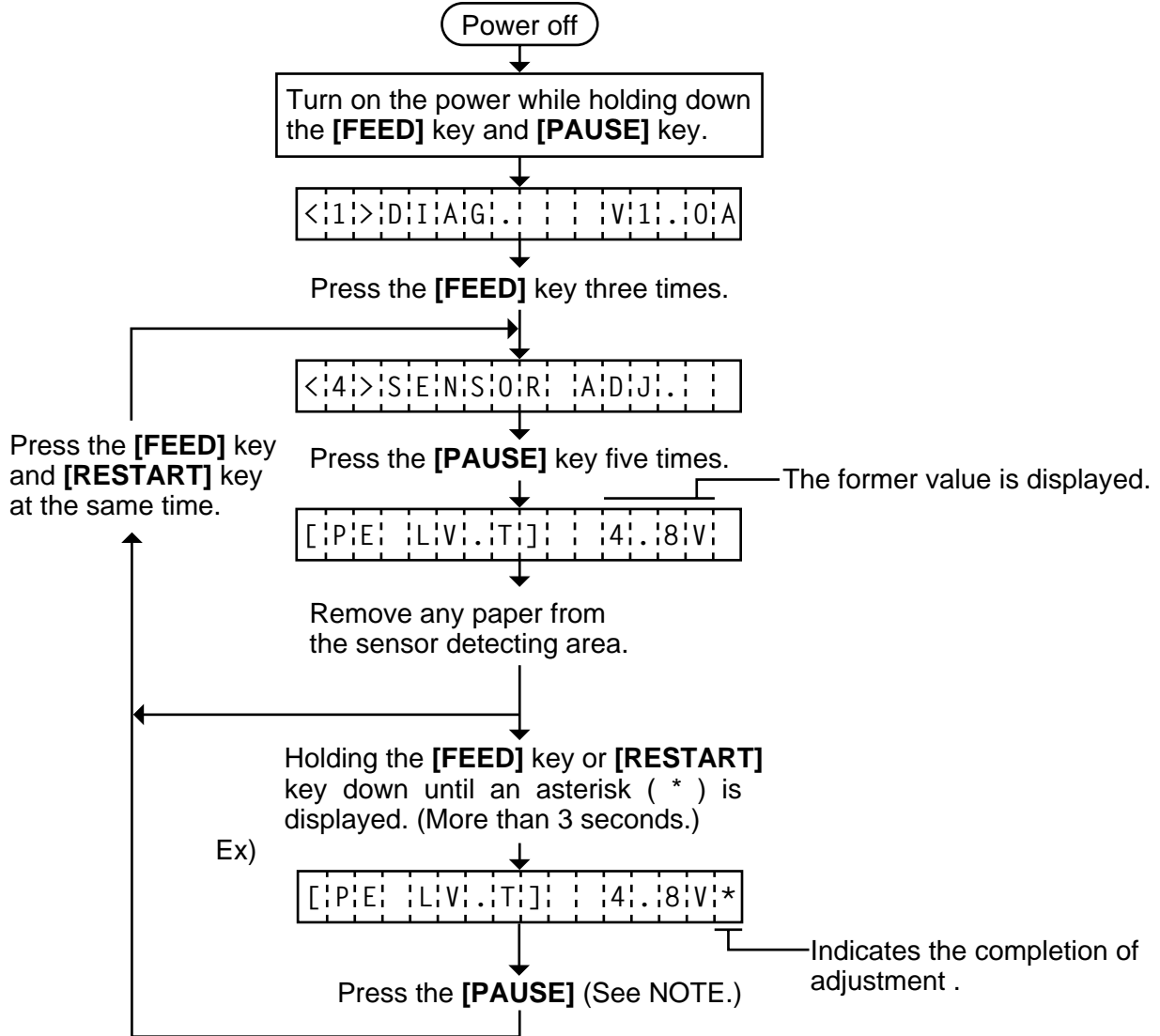
Paper end setting should be performed after replacing the CPU PC board or changing the tag paper to other maker's one, or when a paper feed error occurs.



NOTE: Pressing the [PAUSE] key validates the sensor adjustment. The value of the sensor is displayed up to 5.0 V.

5.5.5 Paper End Setting for Feed Gap Sensor

Paper end setting should be performed after replacing the CPU PC board or changing the label to other maker's one, or when a paper feed error occurs.



NOTE: Pressing the [PAUSE] key validates the sensor adjustment. The value of the sensor is displayed up to 5.0 V.

5.6 RAM CLEAR MODE

In RAM clear mode, various data written on the EEP-ROM can be initialized. There are two clear functions; Maintenance counter clear and parameter clear in the parameter setting mode. After referring to the following table specify and clear or initialize the data.

■ RAM Clear Mode Table

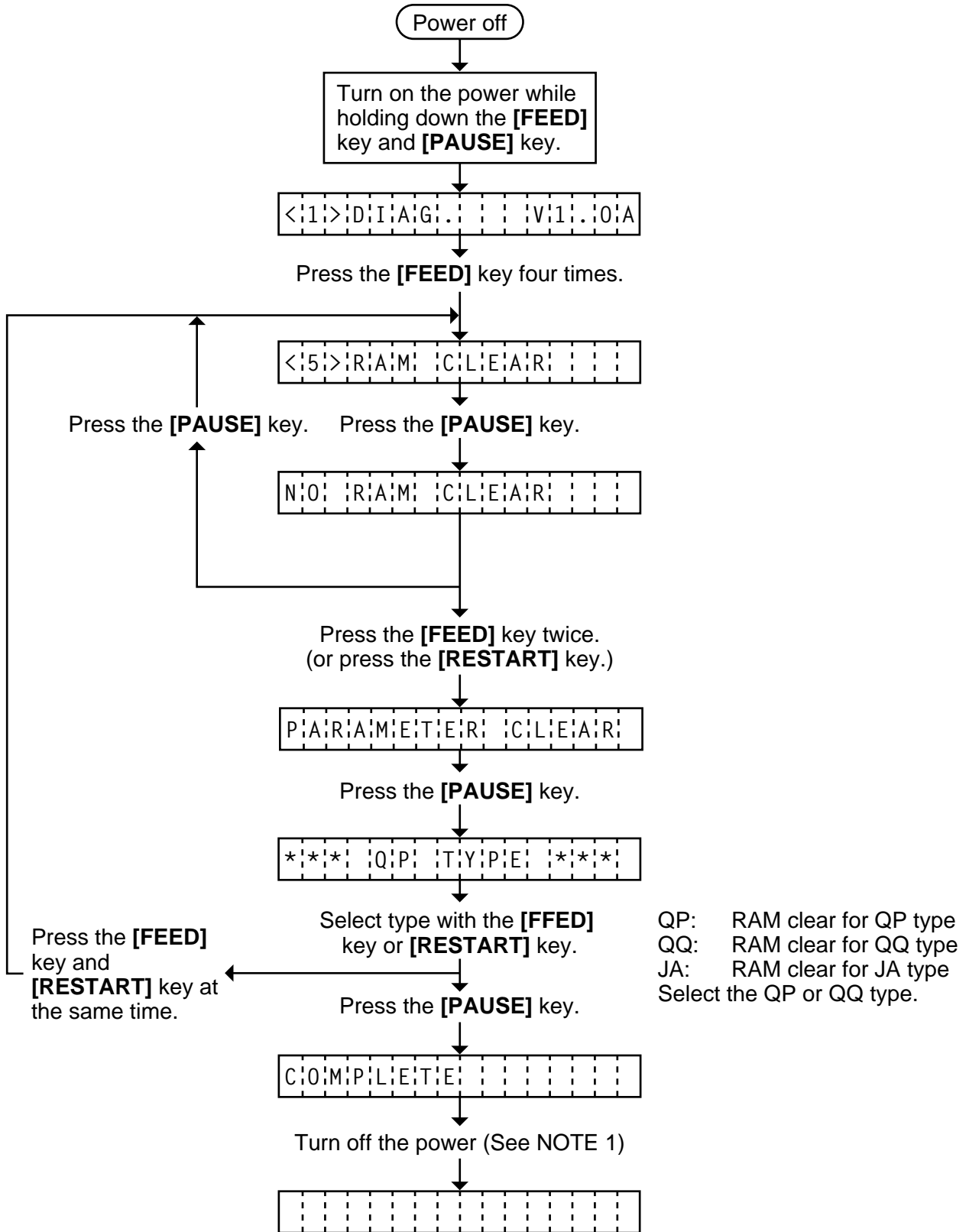
Mode Name	Function																								
NO RAM CLEAR	If you enter the RAM clear mode by mistake, specify this mode to escape from the RAM clear mode without executing RAM clear.																								
MAINTE. COUNTER CLEAR	<p>After replacing the print head, cutter module, ribbon feed/rewind motor, solenoid and CPU PC Board, clear the maintenance counter. The following data will be cleared to zero. Confirmation can be made through the maintenance counter procedure in self test mode. (See NOTE 1 and 2.)</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Initial Value</th> </tr> </thead> <tbody> <tr> <td>Media distance covered</td> <td>0.0 km</td> </tr> <tr> <td>Print distance</td> <td>0.0 km</td> </tr> <tr> <td>Cut count</td> <td>0 time</td> </tr> <tr> <td>Head up and down count</td> <td>0 time</td> </tr> <tr> <td>Ribbon motor driving time</td> <td>0 hour</td> </tr> <tr> <td>Solenoid driving time</td> <td>0 hour</td> </tr> <tr> <td>Take-up Motor driving time</td> <td>0 hour</td> </tr> <tr> <td>RS-232C hardware error count</td> <td>0 time</td> </tr> <tr> <td>System error count</td> <td>0 time</td> </tr> <tr> <td>Momentary power failure count</td> <td>0 time</td> </tr> </tbody> </table>	Item	Initial Value	Media distance covered	0.0 km	Print distance	0.0 km	Cut count	0 time	Head up and down count	0 time	Ribbon motor driving time	0 hour	Solenoid driving time	0 hour	Take-up Motor driving time	0 hour	RS-232C hardware error count	0 time	System error count	0 time	Momentary power failure count	0 time		
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PARAMETER CLEAR	<p>This clear should be employed when initializing the following parameters to the settings before shipment. Confirmation can be made through the automatic diagnostic procedure in self test mode. (See NOTE 1 and 2.)</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Initial Value</th> </tr> </thead> <tbody> <tr> <td>Feed length fine adjustment (PC)</td> <td>0.0 mm</td> </tr> <tr> <td>Cut/strip position fine adjustment (PC)</td> <td>0.0 mm</td> </tr> <tr> <td>Back feed length fine adjustment (PC)</td> <td>0.0 mm</td> </tr> <tr> <td>Print tone fine adjustment (Thermal transfer) (PC)</td> <td>0 step</td> </tr> <tr> <td>Print tone fine adjustment (Thermal direct) (PC)</td> <td>0 step</td> </tr> <tr> <td>Ribbon motor drive voltage fine adjustment (Take-up) (PC)</td> <td>0</td> </tr> <tr> <td>Ribbon motor drive voltage fine adjustment (Feed) (PC)</td> <td>0</td> </tr> <tr> <td>Feed length fine adjustment (KEY)</td> <td>0.0 mm</td> </tr> <tr> <td>Cut/strip position fine adjustment (KEY)</td> <td>0.0 mm</td> </tr> <tr> <td>Back feed length fine adjustment (KEY)</td> <td>0.0 mm</td> </tr> <tr> <td>Print tone fine adjustment (Thermal transfer) (KEY)</td> <td>0 step</td> </tr> </tbody> </table>	Item	Initial Value	Feed length fine adjustment (PC)	0.0 mm	Cut/strip position fine adjustment (PC)	0.0 mm	Back feed length fine adjustment (PC)	0.0 mm	Print tone fine adjustment (Thermal transfer) (PC)	0 step	Print tone fine adjustment (Thermal direct) (PC)	0 step	Ribbon motor drive voltage fine adjustment (Take-up) (PC)	0	Ribbon motor drive voltage fine adjustment (Feed) (PC)	0	Feed length fine adjustment (KEY)	0.0 mm	Cut/strip position fine adjustment (KEY)	0.0 mm	Back feed length fine adjustment (KEY)	0.0 mm	Print tone fine adjustment (Thermal transfer) (KEY)	0 step
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Back feed length fine adjustment (KEY)	0.0 mm																								
Print tone fine adjustment (Thermal transfer) (KEY)	0 step																								

Mode Name	Function			
PARAMETER CLEAR	<table border="1"> <thead> <tr> <th data-bbox="627 293 1171 327">Item</th> <th data-bbox="1171 293 1390 327">Initial Value</th> </tr> </thead> </table>		Item	Initial Value
	Item	Initial Value		
	Print tone fine adjustment (Thermal direct) (KEY) 0 step			
	Ribbon motor drive voltage fine adjustment (Take-up) (Key) 0			
	Ribbon motor drive voltage fine adjustment (Feed) (Key) 0			
	X axis fine adjustment 0.0 mm			
	Threshold manual fine adjustment for the black mark sensor 1.0 V			
	Threshold manual fine adjustment for the feed gap sensor 0.7 V			
	Character code selection PC-850			
	Font zero selection "0" (without slash)			
	Control code selection Auto.			
	Ribbon type selection Trans.			
	Strip wait status setting 1			
	Baud rate 9600 bps			
	Data length			
	QP Type	8 bits		
	QP Type	7 bits		
	Stop bit 1 bit			
	Parity			
	QP Type	None		
	QQ Type	EVEN		
	Transmission control mode			
	QP Type	XON/XOFF+READY/ BUSY mode		
	QQ Type	READY/BUSY RTS mode		
	Language Selection for LCD Message			
	QP Type	English		
	QQ Type	English		
	Auto forward wait in cut mode OFF			
	Head up ON/OFF setting in cut mode OFF			
	Ribbon saving module selection OFF			
	Auto print head broken element check OFF			
	Stacker selection OFF			
[FEED] key function selection feeds a piece of paper				
Status response ON				
Label pitch 76.2 mm				
Effective printing length 74.2 mm				
Effective printing width 104.0 mm				
Print type Thermal Transfer				
Sensor type Transmissive sensor (Feed gap sensor)				
Feed Speed 5 inch/sec.				

Mode Name	Function	
PARAMETER CLEAR	Item	Initial Value
	Issue mode	Standard (Batch printing without Cut)
	PC save automatic calling	ON
	Kanji code	TYPE 1
	EURO font code	B0H
	Web printer function selection	OFF

- NOTES:**
1. Total media distance covered (TL FEED) and the adjustment value for the sensors cannot be cleared.
 2. Data stored on the flash memory card cannot be cleared with this procedure. To clear data on the flash memory card, send the format command to initialize the card. For details, refer to the External Equipment Interface Specification.
 3. For data to be cleared in the RAM clear mode, refer to the RAM clear mode table.
 4. After RAM clear is performed, the threshold setting value will turn to the default (0). When using pre-printed labels, be sure to set the threshold after referring to the Owner's Manual.

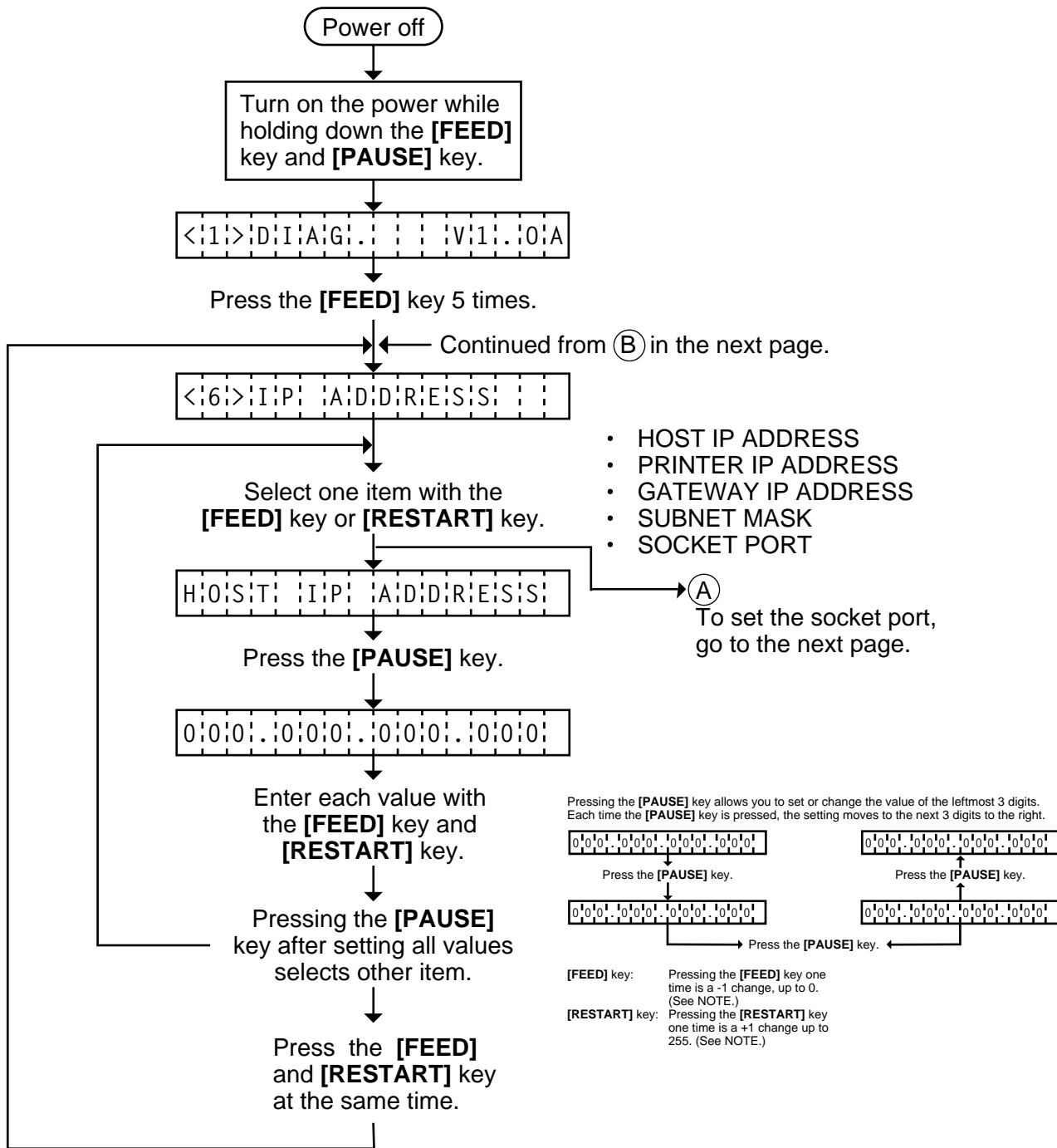
5.6.2 Parameter Clear



NOTE: 1. Confirm that "COMPLETE" is displayed, then turn the power off.

5.7 IP ADDRESS SETTING MODE

Host IP Address, Printer IP Address, Gateway IP Address, SUBNET mask and Socket Port setting are available in this mode.



NOTE: 0 to 255 are set into each IP address setting value.

A Continued from **A** in the previous page.

S:O:C:K:E:T: P:O:R:T: | | | | | | | | | |

Socket communication port setting.

Press the **[PAUSE]** key.

P:O:R:T: O:F:F: | | | | | | | | | |

Select "PORT ON" or "PORT OFF" with the **[RESTART]** key or **[FEED]** key.

ON: Available
 OFF: Unavailable

P:O:R:T: O:N: 0:8:0:0:0: | | | | | | | | | |

When "PORT ON" is selected, a port number is displayed. Pressing the **[PAUSE]** key allows the port number setting.

Press the **[PAUSE]** key.

P:O:R:T: O:N: 0:8:0:0:0: | | | | | | | | | |

Enter the 5th digit of the port number with the **[FEED]** key or **[RESTART]** key.

Press the **[PAUSE]** key.

P:O:R:T: O:N: 0:8:0:0:0: | | | | | | | | | |

[FEED] key: Pressing the **[FEED]** key on time causes a -1 change, up to 0.
[RESTART] key: Pressing the **[RESTART]** key one time causes a +1 change, up to 9.

Press the **[PAUSE]** key.

Pressing the **[PAUSE]** key allows the 4th digit setting.

P:O:R:T: O:N: 0:8:0:0:0: | | | | | | | | | |

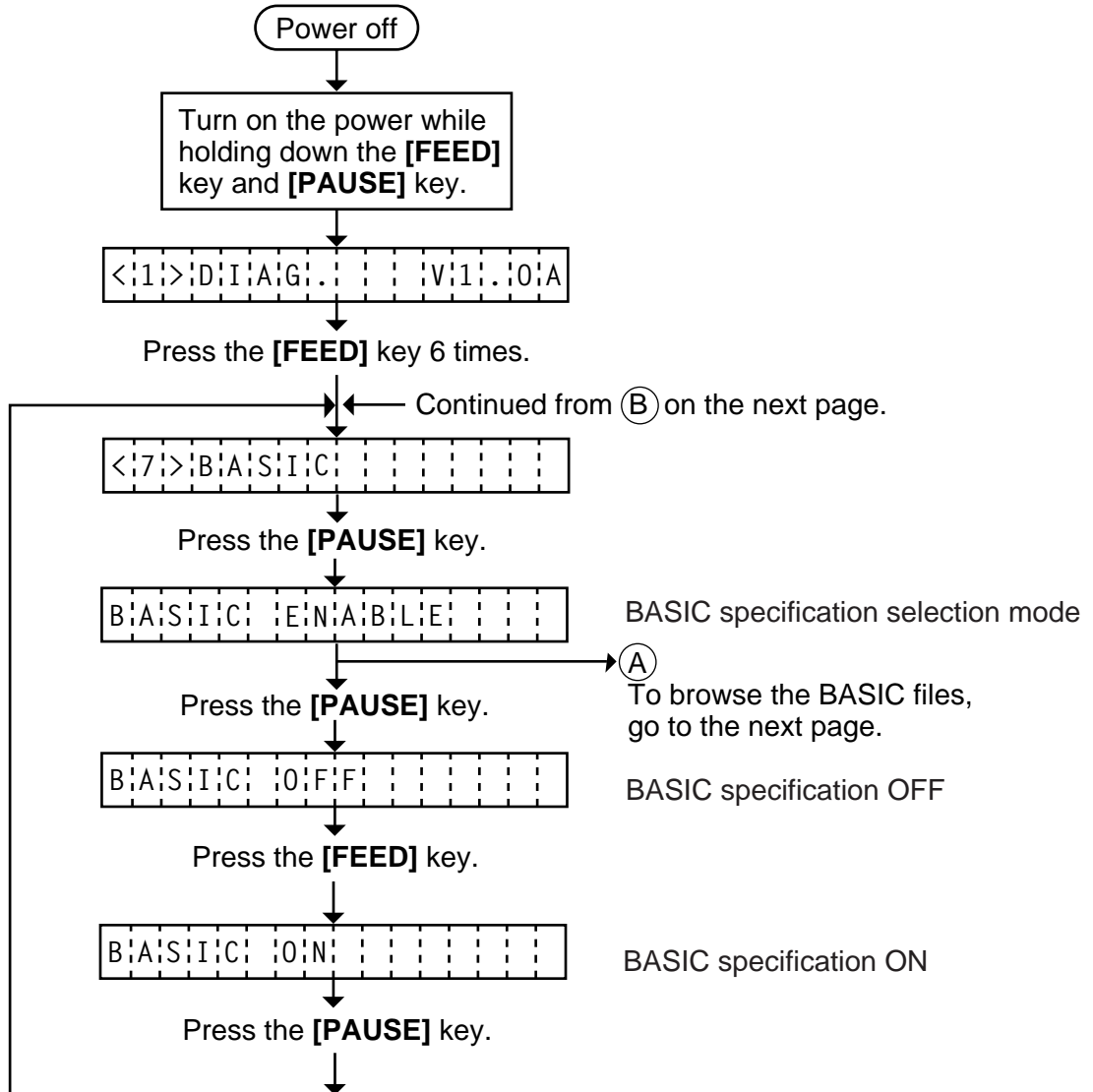
Repeat this procedure until the 1st digit setting has been completed. After setting the 1st digit, press the **[PAUSE]** key to return the display to "<6>IP ADDRESS".

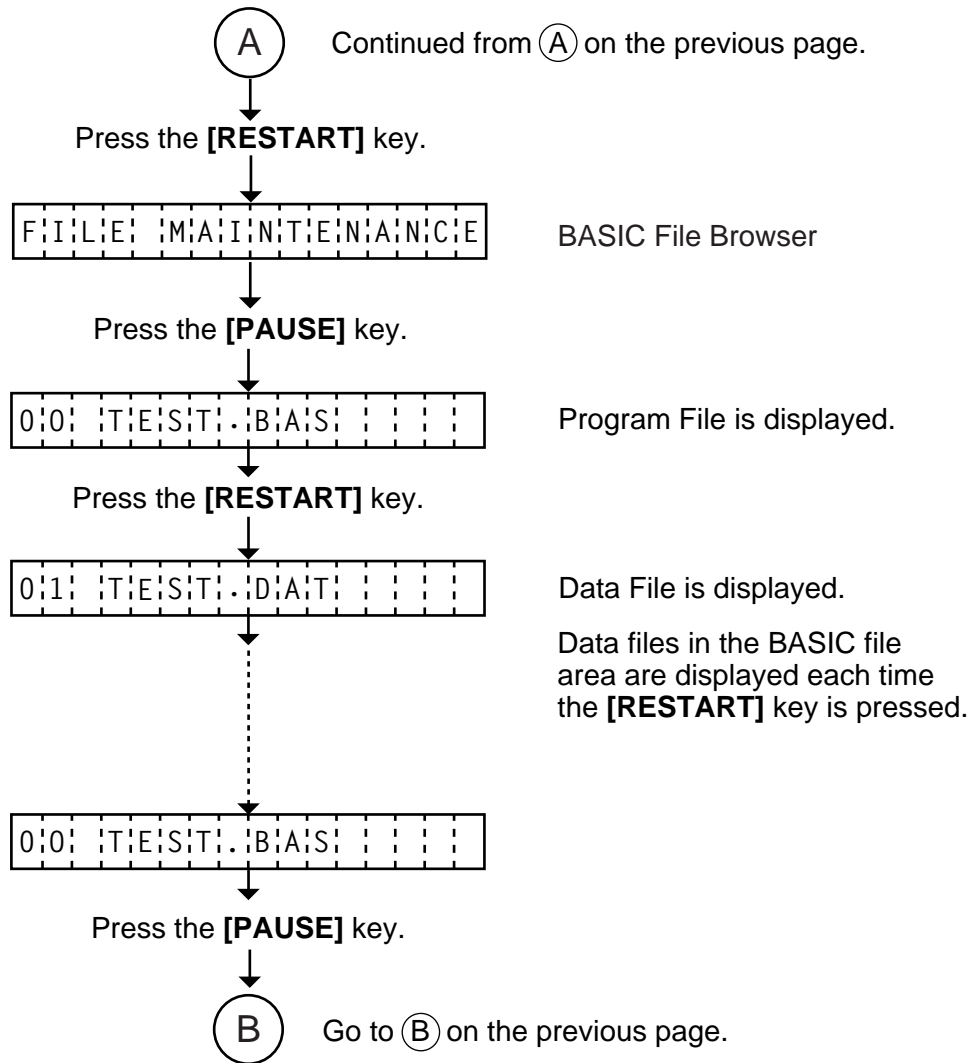
Press the **[PAUSE]** key.

B Go to **B** in the previous page.

5.8 BASIC SETTING MODE

Setting the BASIC specification to be enabled/disabled and displaying the program file, and data file, area file are available in this mode.



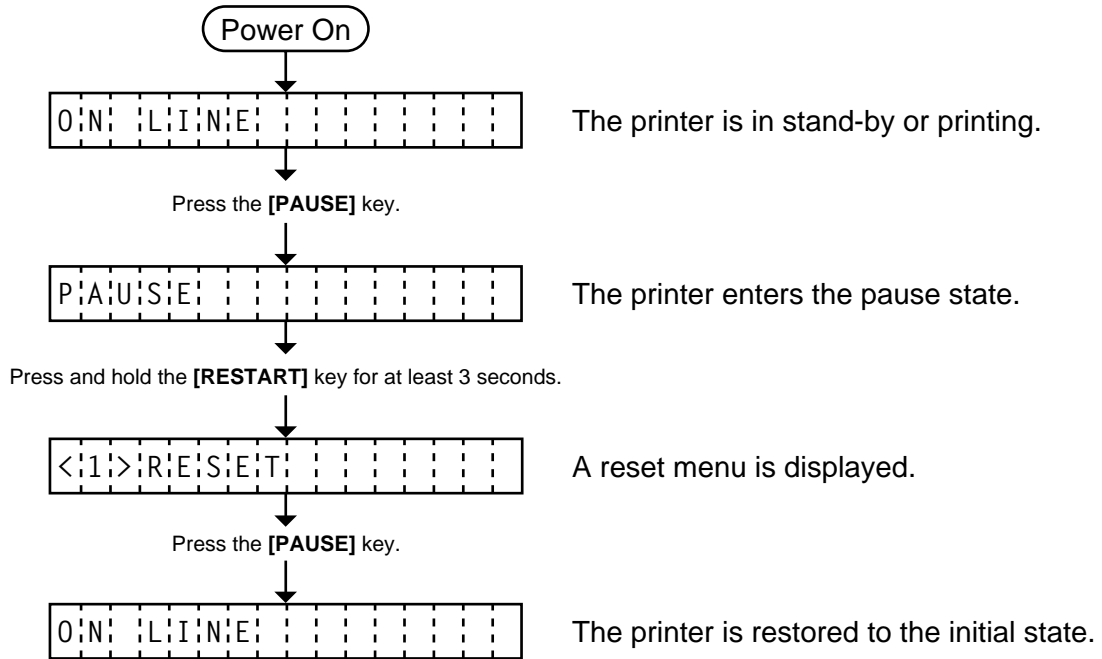


6. ON LINE OPERATION

6.1 RESET OPERATION

This operation restores the printer to the initial status.

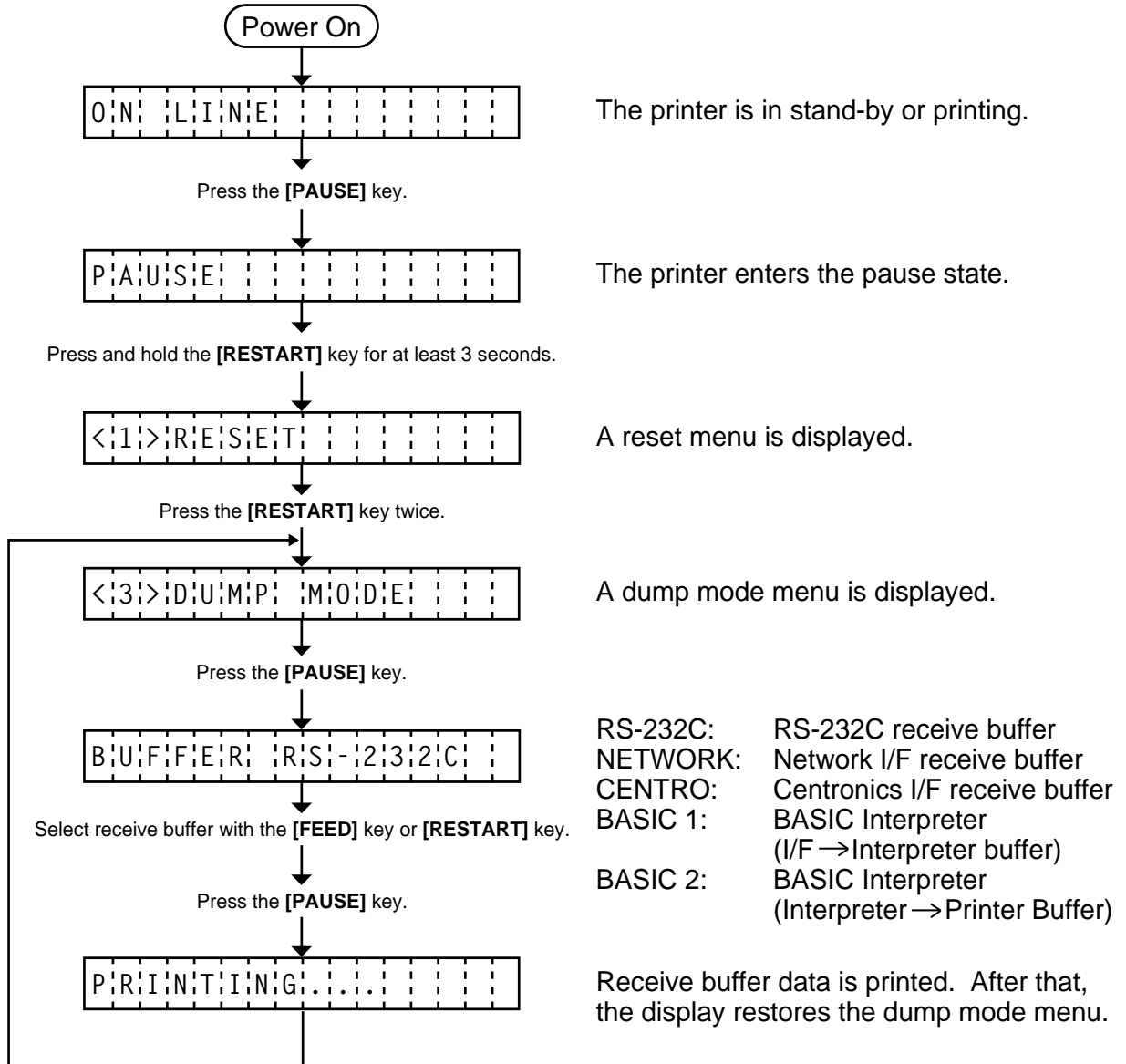
- Sample operation



- NOTES:**
1. If the **[RESTART]** key is released within 3 seconds in the pause state, the printer will resume printing without displaying the reset menu.
 2. If the **[RESTART]** key is released within 3 seconds in the error state, the printer will remain in error. However, in case of a communication error or command error, the printer will restore to the initial status.

6.2 Dump Mode

Receive buffer data of RS-232C I/F, Centronics I/F, Network I/F, and BASIC Interpreter are dumped in this mode. Communication data and Network connection can be checked.



Receive buffer data is printed on the following condition.

■ Sample Print

[Print condition]

- Print width: 4.2"
- Sensor: No sensor
- Print speed: 5"/sec.
- Print method (Thermal transfer/Thermal direct) which is in used is applied.
- 24-byte data is printed on one line.

```

53 43 24 3D 43 48 0A 00 1B 3A 2B 24 30 31 32 30 5E FF 01 0B 3C 2C 12 40
23 31 32 33 34 2C 31 2C 34 2C 41 0A 00 1B 20 45 89 00 30 30 30 31 2C 34
45 67 3B 2C 0A 00 0D 30 7B 3C FF 24 30 31 32 30 2E 9F 31 34 31 33 22 45
20 4F 3D 2C 21 22 23 24 2C 30 41 42 43 44 5B 21 26 73 06 13 4C 3F 32 33
67 32 4C 4A 50 12 33 34 35 36 2C 43 44 45 2C 0A 00 45 4C A4 BB 45 34 23
67 90 90 2C 34 35 36 37 2D 63 57 52 3B 79 97 56 5B 66 45 30 31 32 33 34
70 12 2C 34 53 76 5F D4 CC A3 26 78 35 70 7B 65 34 35 36 2C 40 0A 00 40

```



Feed direction

Receive buffer size

- RS-232C: 10K bytes (427 lines)
- Centronics I/F: 10K bytes (427 lines)
- Network I/F: 8K bytes (342 lines)
- BASIC 1: 0 to 896K bytes
- BASIC 2: 0 to 896K bytes

NOTE: When an error occurs on printing, an error message is displayed and the printing stops. Pressing **[PAUSE]** key releases the error and restores the display to "<3> DUMP MODE", however an auto reissue is not performed after that.

7. PROGRAM DOWN LOAD

This section provides step by step instructions on how to setup and download the firmware to the B-482 thermal printer. The firmware download will be made from a Personal Computer via the RS-232C interface and centronics interface of the printer.

7.1 OUTLINE OF FEATURES

The software for performing the program download will allow the download of the Firmware (Boot Program, Application Program, and Character Generator) from the provided FDK. The software will be run on a standard PC and communication to the B-482 thermal printer will be via the RS-232C interface and the centronics interface.

Firmware Download - The Boot Program, Application Program, and Character Generator are installed into the B-482 printer's Flash memory prior to being shipped to the customer. However, if specifications should change at a later date, this software will allow downloading firmware updates to the B-482 printer.

7.2 SOFTWARE INSTALLATION

Before you can communicate from your PC to the B-482 printer, you must first copy the "Install Program for B-NX" from the three FDKs provided to the hard disk of your PC.

Example

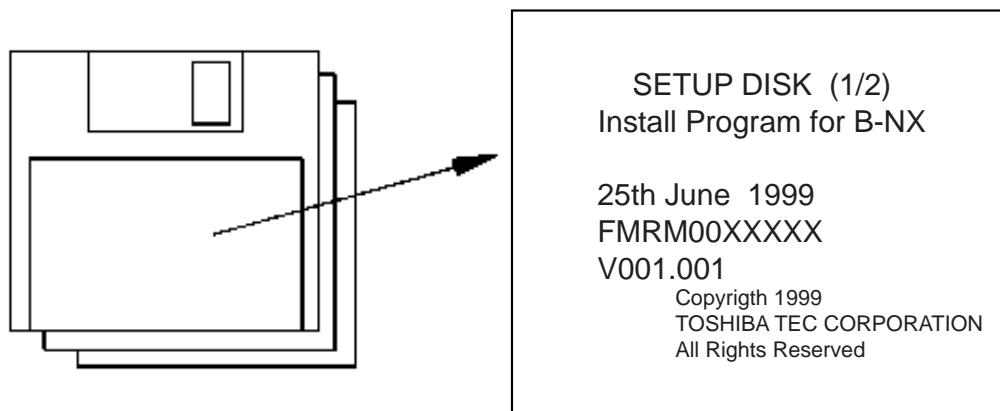


Fig. 7-1

7.2.1 System Requirements

System

IBM Compatible PC running Windows 95® or Windows 98®. (Note: Windows 3.1 is not supported)

Note: Windows 95 and Windows 98 are registered trademarks of the Microsoft Corporation.

Installed memory of 16MB minimum (32MB recommended)

Available Hard Disk space of 10MB

Interface

The RS-232C interface and centronics interface.

7.2.2 Setup

Setup Disk

Make sure that you have all two diskettes available of the “Install Program for B-NX”. (Refer to the Fig. 7-1 in paragraph 7.2 on the preceding page).

Installation Procedure

1. While running Windows 95 or Windows 98, insert Setup Disk (1/2) into the PC floppy drive.
2. Click on the START button then highlight RUN and click on RUN.
3. When the RUN display appears, as in Fig. 7-2, type in A:\SETUP and click on OK.

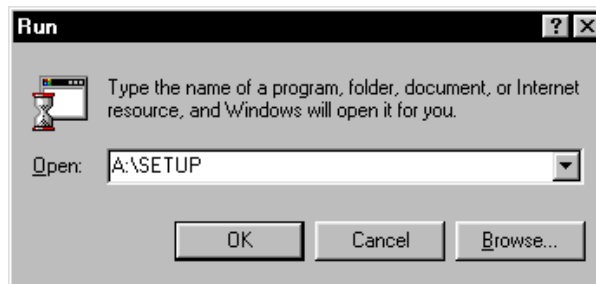


Fig. 7-2

4. When requested, insert Setup Disk (2/2).



Fig. 7-3

5. After all the files have been copied, the following message screen will automatically appear. Click on OK to continue.



Fig. 7-4

6. After click OK in the previous screen, the following message screen appears. Click on the button to accept the directory or change the directory if desired.

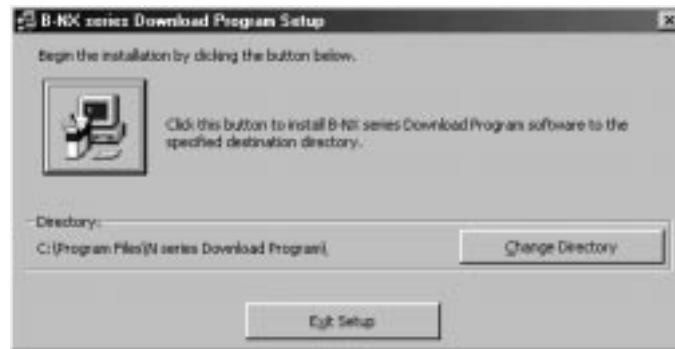


Fig. 7-5

7. The following program group selection menu will appear. Click on the CONTINUE button.



Fig. 7-6

8. When the install process is completed, the following screen display will appear. Click on the OK button to end the installation.

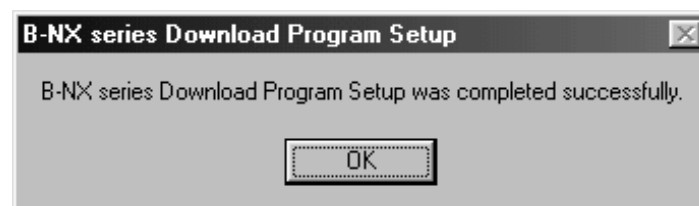


Fig. 7-7

7.3 INSTALL PROGRAM FOR B-482

If it ever becomes necessary to upgrade the firmware in the B-482 printer you will be supplied with a floppy disk containing the latest firmware revision similar to that shown in Fig. 7-8 below.

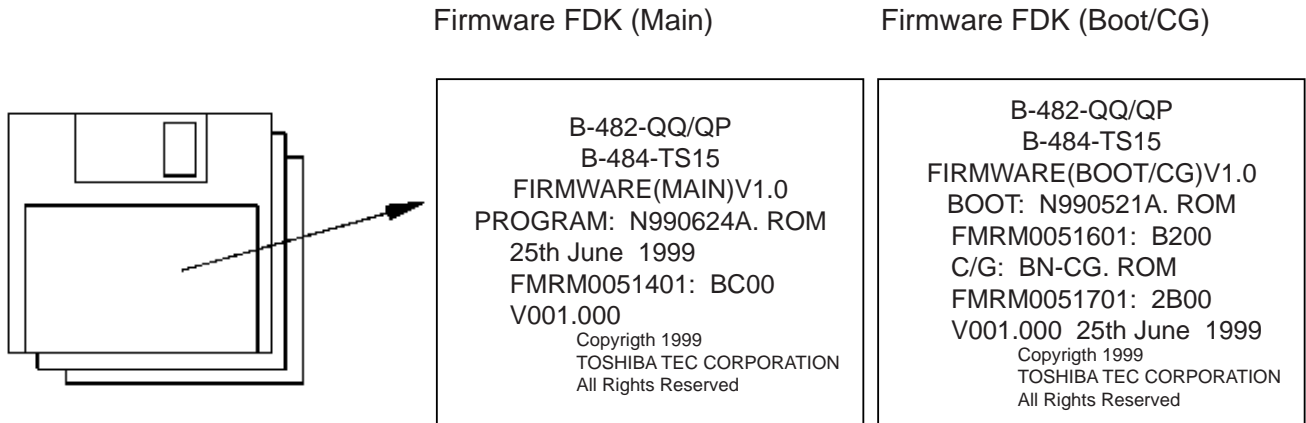
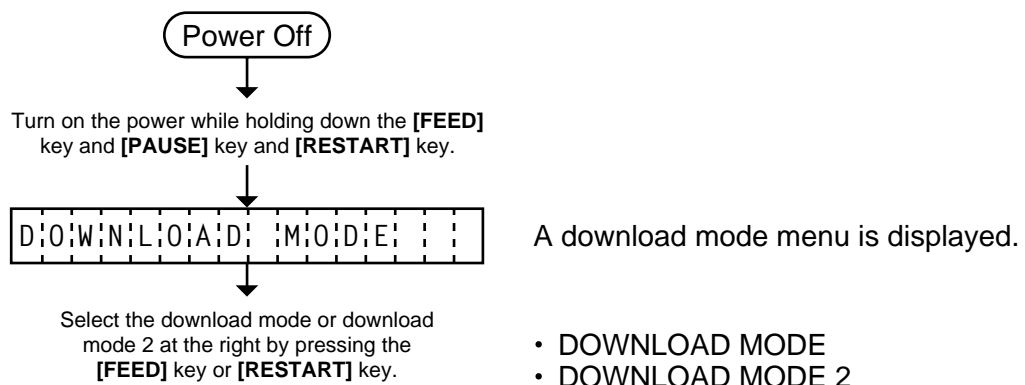


Fig. 7-8

In the procedure in this manual, the firmware program which is read from the FDK is installed. However, if you use the firmware program which is copied onto the hard disk, you can reduce your operation time.

- NOTES:**
1. Check the current firmware version and checksum by performing the self-diagnostic printing in the System Mode. If the current firmware version and checksum are equal to those you just try to download, do not perform a downloading.
 2. Prior to program files copy connect the B-482 printer to your PC with the Centronics I/F cable. Cancel the network pass allocated to LPT 1 of the PC. Failure to do this will disable you from firmware download.
 3. If the file format of the file installed into the FDK is "*.EXE", click it twice to decompress into "*.ROM" file.

1. Turn on the printer power by the following procedure.



2. Turn on the PC power and start up Windows.
3. Click on the START button to access the program menu.
4. Highlight "Programs" then highlight "B-NX Install Program" and click on B-NX Program Loader as shown in the screen display of Fig. 7-9 below.



Fig. 7-9

5. As soon as you click on B-NX Program Loader, the screen will change as shown in Fig. 7-10 below.



Fig. 7-10

6. Select the drive, directory, file name, extension, and applicable PC port for the firmware to be installed. (The following shows that a:(N990623B.ROM will be downloaded by using LPT1 port.)

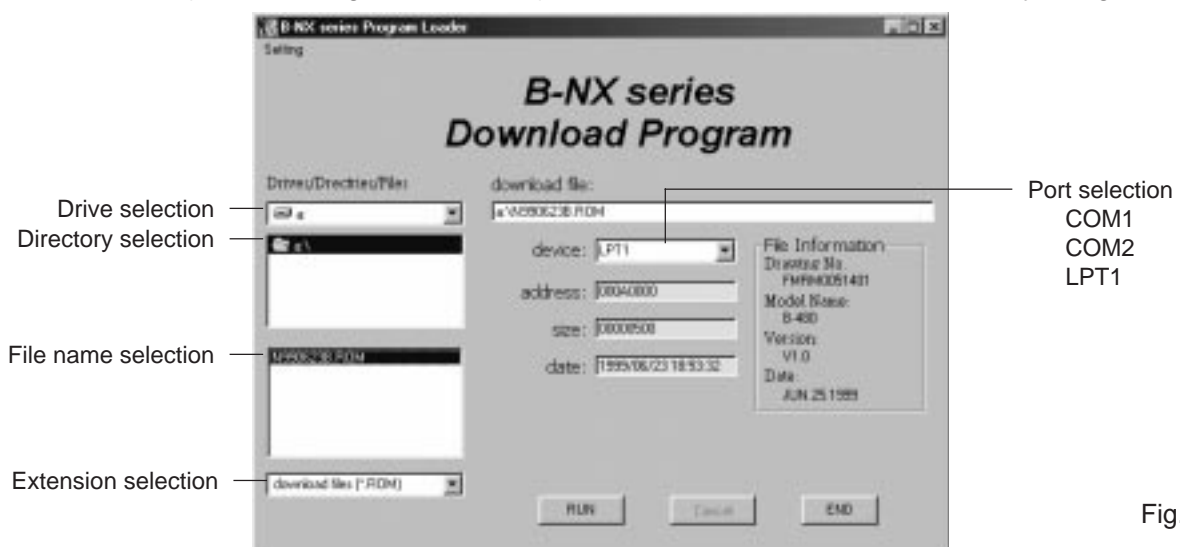


Fig. 7-11

7. When the RUN button is clicked, the following screen will appear. Click on Yes button to start the download. At this time, "NOW LOADING..." is displayed on the printer LCD.



Fig. 7-12

- NOTES:**
1. If "NOW LOADING..." does not appear, finish the download program, turn the printer power off, and retry from Step 1).
 2. When "NOW LOADING..." is displayed and the downloading is in progress, never turn the printer power off or disconnect the cables. Even if a wrong file is downloaded by mistake, never stop downloading. After terminating the downloading, download the correct file.

8. After about 10 seconds the following screen indicating the firmware is downloaded will appear.



Fig. 7-13

- NOTES:**
1. If an error occurs on the PC or printer in the middle of downloading, retry from connection of the printer to the PC.
 2. If the PC hangs up or a power failure occurs, retry from connection of the printer to the PC.

9. After downloading the program successfully, the display will be as shown in the Fig. 7-14 below. At this time, the printer is in the ON LINE mode. If finish with the program download, click on the END button. If you want to perform the program download to other printers, change the printer and start it up in download mode, then click on the RUN button.



Fig. 7-14

- NOTES:**
1. When the program install rate indicator on the PC returns to 0% after it reached 100%, and when the printer is in the ONLINE Model, the downloading terminates successfully. After successful termination of the downloading, perform the following:
 - Turn the printer power ON while pressing and holding the **[FEED]** and **[PAUSE]** keys to enter the System Mode.
 - Confirm that the correct version of the software is displayed on the LCD.
 - Perform a self-diagnostic printing and confirm that the correct version of the software has been downloaded.
 2. Only download command is available on downloading.
 3. In the "DOWNLOAD MODE", the firmware may not be downloaded from some kinds of PC. In this case, use the "DOWNLOAD MODE2". (Centronics Interface ACK-BUSY timing is different between "DOWNLOAD MODE" and "DOWNLOAD MODE2".)