FUJITSU

M304X Series

Line Printer
Operator's Guide

B02P-1500-0051A . . . 06

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CONTENTS

TABLES

CHAPTER 1 INSTALLATION

This chapter explains unpacking, inspection, cabling, initial power-on, and testing the printer. The installation must be done in this order.

1.1 Required Tools

- 30 mm open-end wrench
- 17 mm open-end wrench (for the printer with the powered stacker)
- Phillips screwdriver
- Standard screwdriver (for the Winchester type interface connector)

1.2 Unpacking

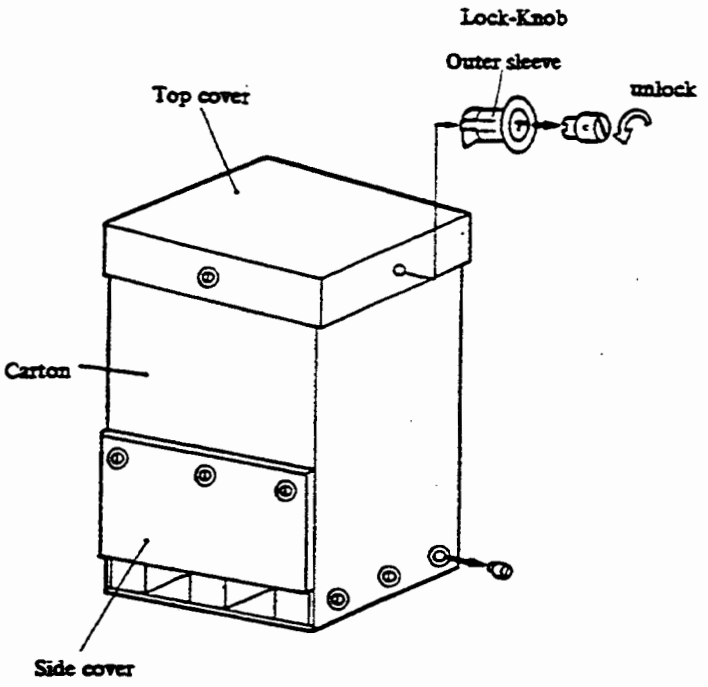
(1) Turn the lock knobs counterclockwise and pull them out.

On the top cover ..... 3 pcs.
On the front side ..... 3 pcs.
On the rear side ..... 3 pcs.
On the right side ..... 2 pcs.
On the left side ..... 3 pcs. (side cover side)

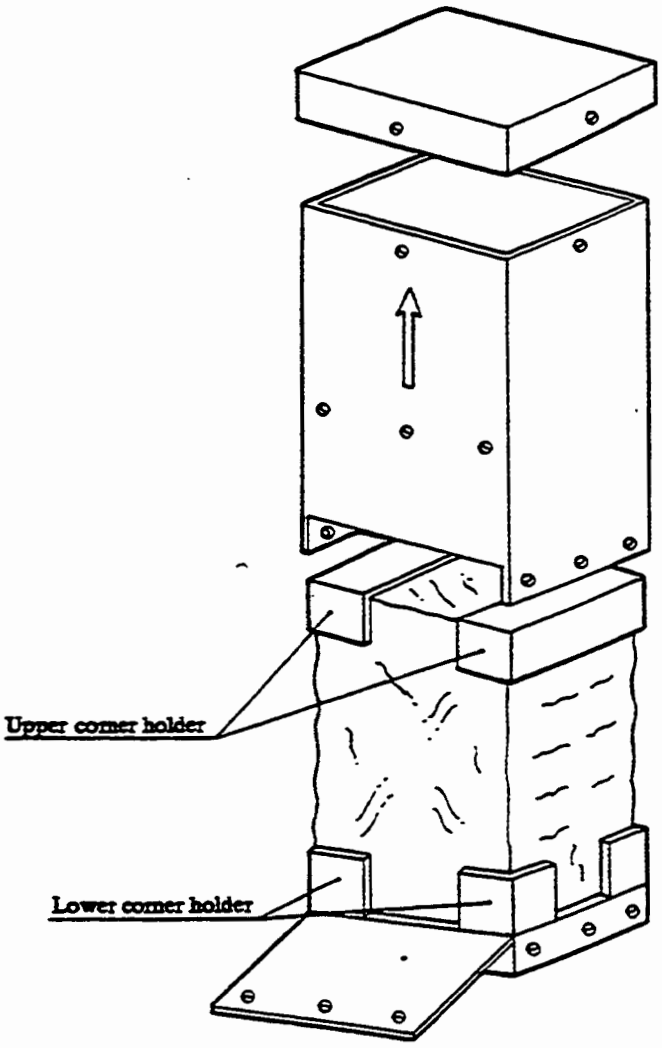
Remove the outer sleeves for lock knobs from the carton.

ATTENTION

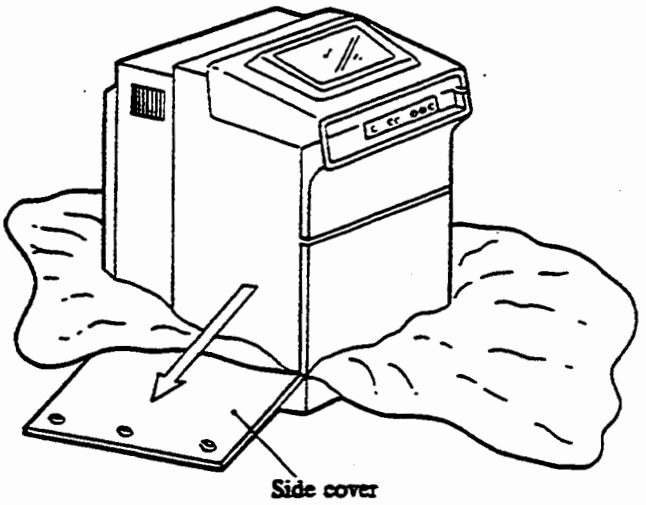
Use one hand to pull the lock knobs securing the side cover while holding it with the other hand so that it does not fall down. Take care to lower the side cover slowly.



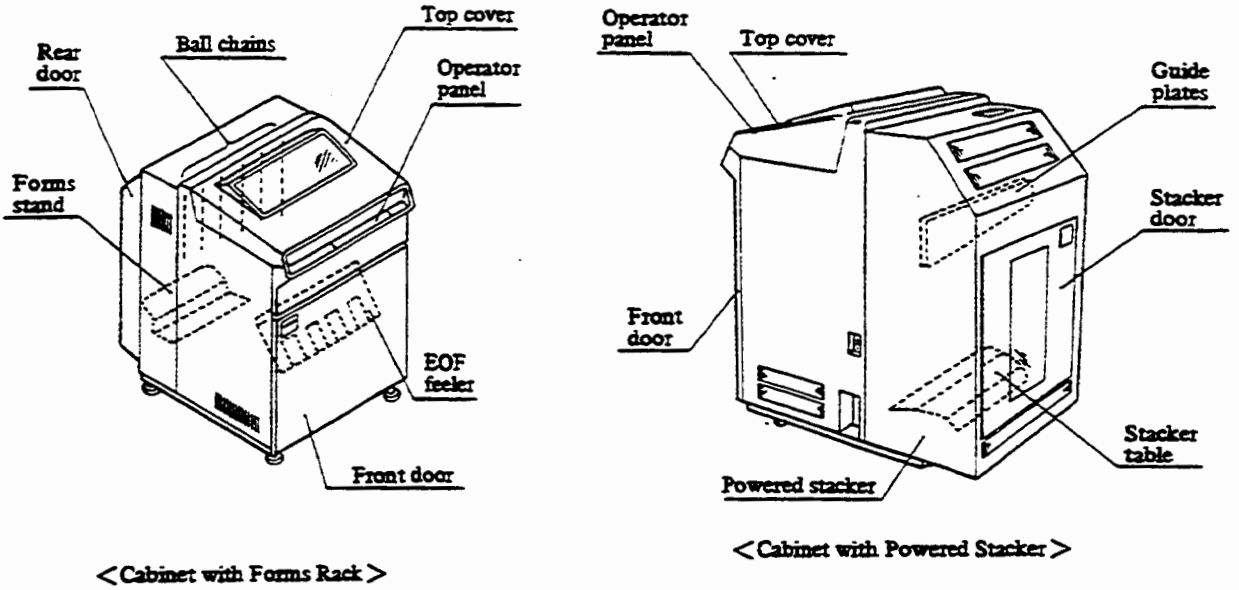
(2) Remove the top cover and the carton. Take off the upper corner and lower corner holders.



(3) Remove the sheet covering the printer. Turn the leveling pads to lower the four casters, then roll the printer down the side cover.



(4) Remove the masking tape used to lock printer parts during transportation. The masking tape is applied at locations shown in Figure 1.1.



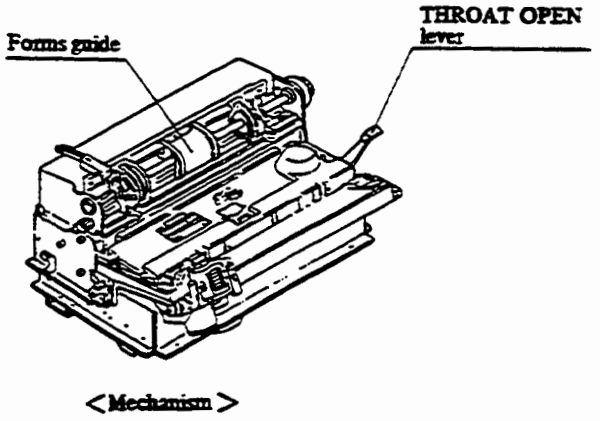


Figure 1.1 Masking tape locations

(5) Remove the protective covers from the glass windows of the top cover and rear door and on the operator panel.

(6) Level the printer by adjusting the leveling pads using the 30 mm open-end wrench. Turn the leveling pad counterclockwise to lower the printer, and clockwise to highten it. If the powered stacker is provided, level the powered stacker using the 17 mm open-end wrench.

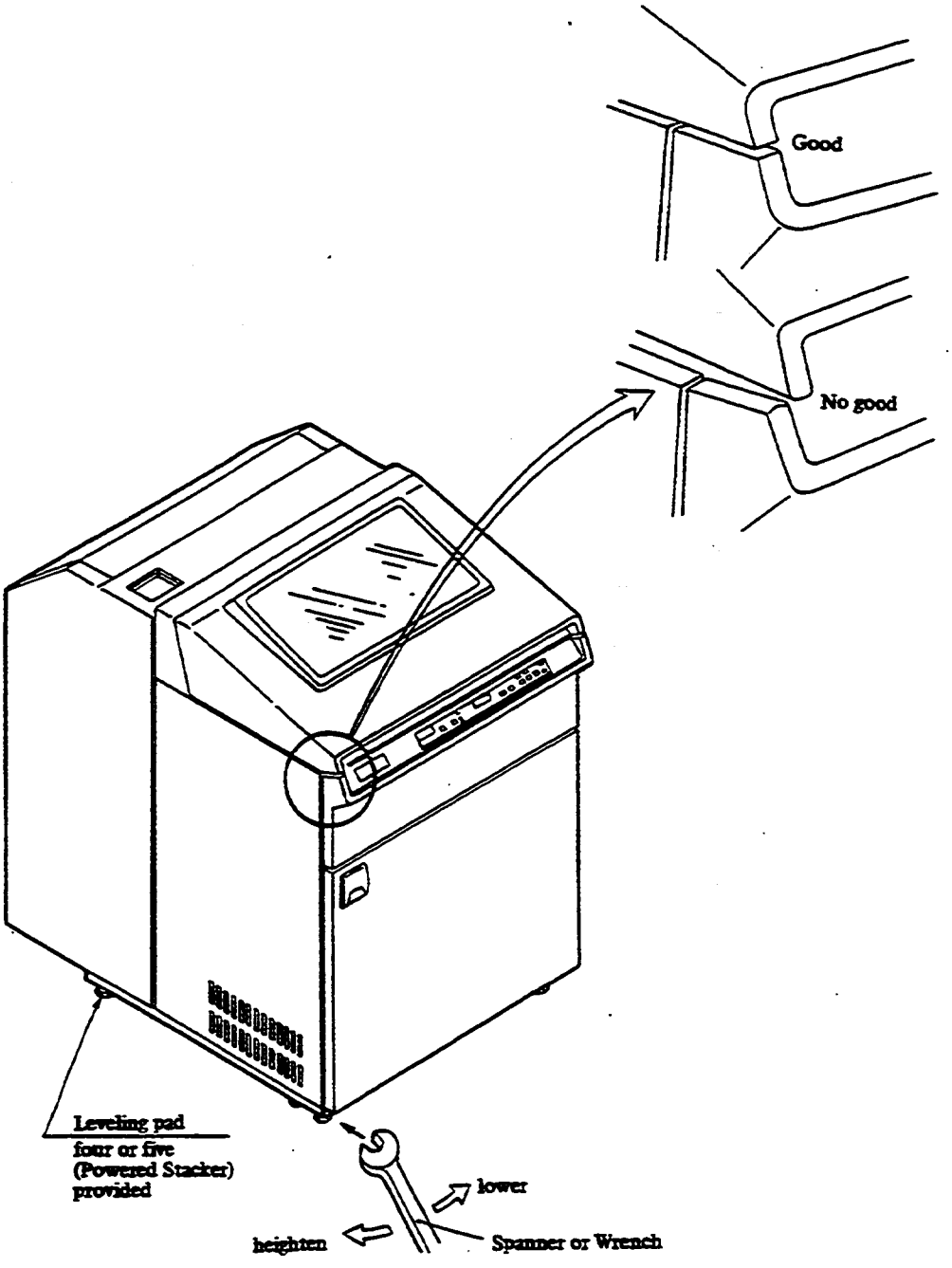


Figure 1.2 Leveling-1

(7) Set the leveling pad so that four casters are not engaged. (about 3 mm up)

Note: Make sure that each covers and doors are not shifted from other covers. If the front side of edge of the top cover is placed to right side against the front panel edge, turn the front-left leveling pad to lift the printer.

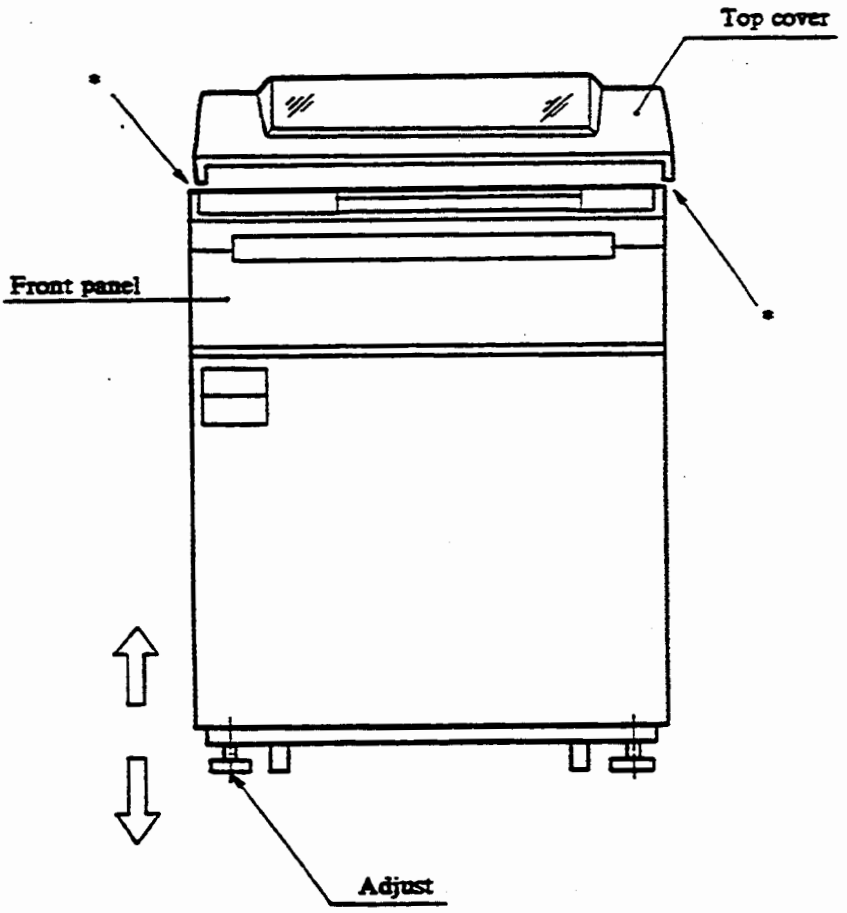


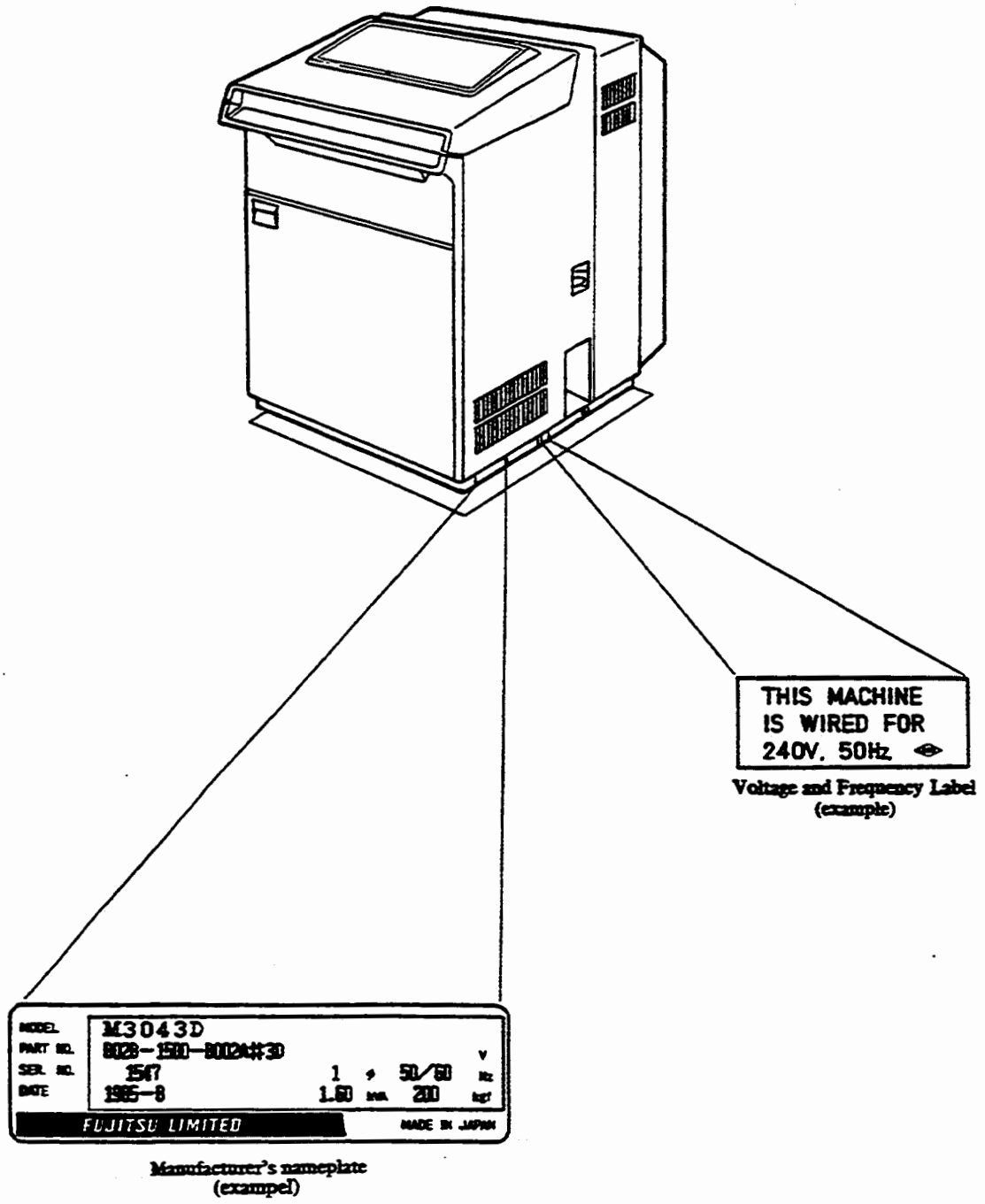
Figure 1.3 Leveling-2

1.3 Inspection

(1) Check the printer doors and covers for scratches or damages.

(2) Check the model number, production date, and serial number on the manufacturer's nameplate (see Figure 1.4).

(3) Make sure that the input voltage and frequency indicated on the label agree your power source.



Voltage and Frequency Label (example)

Manufacturer's nameplate (exampel)

Figure 1.4 Labels location

(3) Check the accessories supplied, against the accessory list. The accessories for this printer are as follows:

Ribbon cartridge	1
Power cable	1
Test record	1
Print sample	1
Test forms (standard continuous forms)	Approx. 100 pages
Accessory list	1

(4) Make sure that Part Number of the power cable in the accessory list agrees with the power source (See Table 1.1).

If the part number of the power cable is not listed and the label is attached on the printer as shown in Figure 1.5, use the power supply cord or its equivalent listed in Table 1.2.

Table 1.1 Power cables attached to printer

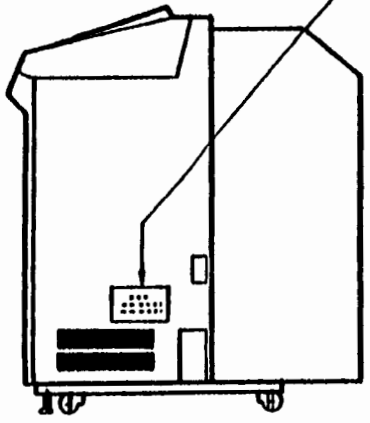
Part Number of power cable	Voltage range of Power source (V)	Remarks
CT-VM0033B-0113FL3M-HIRAKAWA	100 - 120	UL/CSA
B660-1305-T110A#L3R003		
CT-VM0099-VM0113L3M-HIRAKAWA	200 - 240	
CT-VM0113L3M-HIRAKAWA		
B66L-1305-0001A		
B660-1305-T079A#L3R003		
B660-1305-T086A#L3R003		
B660-1305-T087A#L3R003		
B660-1305-T088A#L3R003		
C66L-4740-0001		
CT-VM0099-VM0113L3M-HIRAKAWA	200 - 240	VDE
CT-VM0309-VM0113L3M-HIRAKAWA		

CAUTION

SEE THE OPERATOR'S GUIDE MANUAL FOR PROPER

SELECTION OF THE POWER SUPPLY CORD

M3040
M3041
M3042



Note: Above temporary marking will be attached to the enclosure of unit by tape.

Figure 1.5 Power supply cord caution label

Table 1.2 Usable power supply cord

Model	M3040/M3041/M3042	
Input voltage	100/110/115/120V	200/220/230/240V
North America <Note 1>	Cord Sets Type SJT, No. 16 AWG, 3-conductors (Single phase; 2-current carrying conductors and ground) NEMA 5-15P	Connector; Rated 10A, 250 VAC Cable; <Note 2> Type SJT, No. 18 AWG, 3-conductors (Single phase; 2-current carrying conductors and ground) Attachment Plug Cap; NEMA 6-15P
Europe U.K. Australia <Note 3>		Cord Sets Connector; Rated 6A, 250 VAC See CEE 22 STANDARD SHEET 5 Cable; <Note 2> O.C.3 × 0.75 mm^2 Type H05VV-F Table 16 ordinary duty Attachment Plug Cap; Rated 6A, 250 VAC

Notes 1. Be sure that detachable power supply cord is UL Listed and CSA Certified.

2. Cable length of above power supply cords shall be less than 4.5 m.

3. The product shall be provided with cable and fittings marked as follows.
The cable will bear the <HAR> mark or contain marker threads.
The marker threads used are as shown in Table 1.3.
The fittings (connector and attachment plug cap) shall be marked with at least one of logos as shown in Table 1.4.

Table 1.3 Threads length for each country

Country	Length of threds, cm		
	Black	Red	Yellow
Austria	3	1	5
Belgium	1	3	1
Denmark	3	1	3
France	3	3	1
Germany	3	1	1
Ireland	3	3	5
Italy	1	3	5
Netherlands	1	3	3
Norway	1	1	7
Sweden	1	1	5
United kingdom	1	1	3

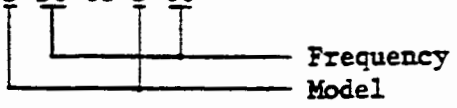
Table 1.4 Safety agency of each country

Country	Safety agency	Logo
Austria	OVE	
Belgium	CEBEC	
Denmark	DEMKO	
France	UTE	
Germany	VDE	
Ireland	IIRS	
Italy	IMQ	
Netherlands	KEMA	
Norway	NEMKO	
Sweden	SEMKO	
Switzerland	SEV	
United Kingdom	BSI	

(5) UL/CSA version

Open the top cover and pull up the band cover latch to open the band cover. Confirm that the frequency of the power source matches the numbers stamped on the motor pulley by viewing through the oblong hole of the V-belt cover. If the numbers are not read clearly through the oblong hole, rotate the drive pulley counterclockwise. These numbers indicate the model number and power frequency as follows.

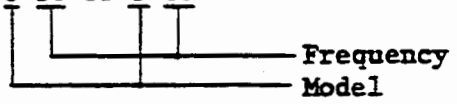
Model	Stamped numbers
M3040, M3041	1-50 or 1-60
M3042	2-50 or 2-60
M3043	3-50 or 3-60

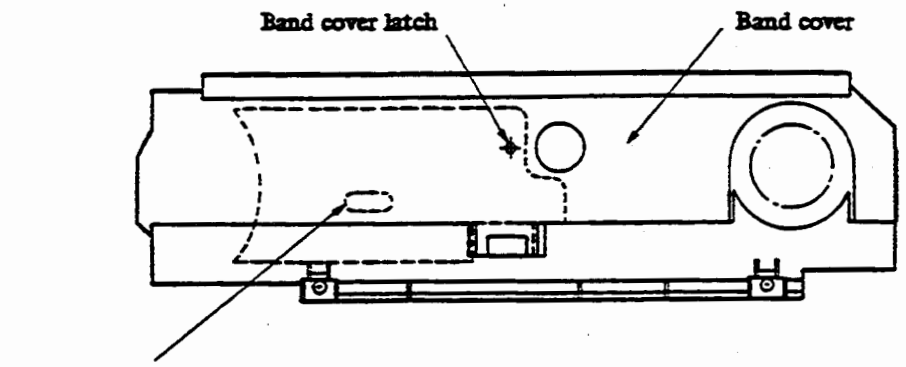


VDE version

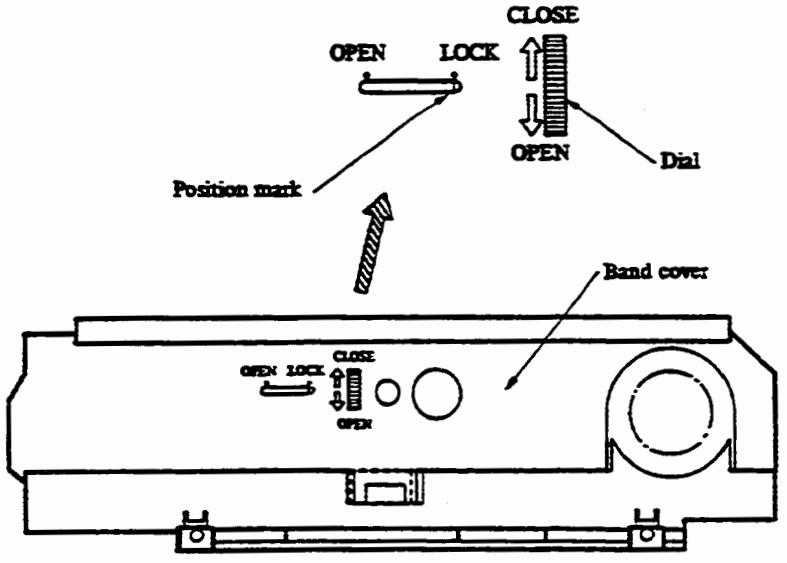
Open the top cover and turn the dial to "OPEN" side to open the band cover until the position mark is reached at "OPEN" position. Confirm that the frequency of the power source matches the numbers stamped on the motor pulley. These numbers indicate the model number and power frequency as follows.

Model	Stamped numbers
M3040, M3041	1-50 or 1-60
M3042	2-50 or 2-60
M3043	3-50 or 3-60



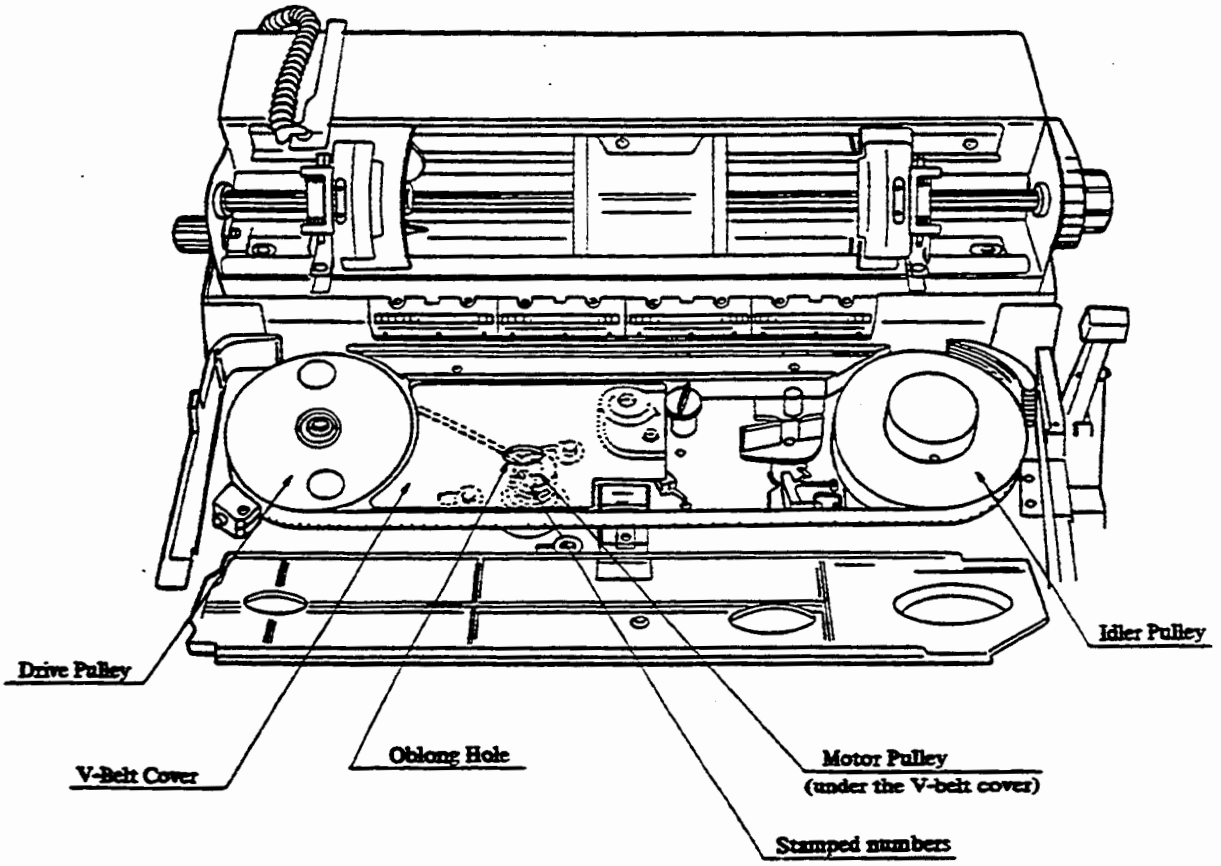


(a) UL/CSA version

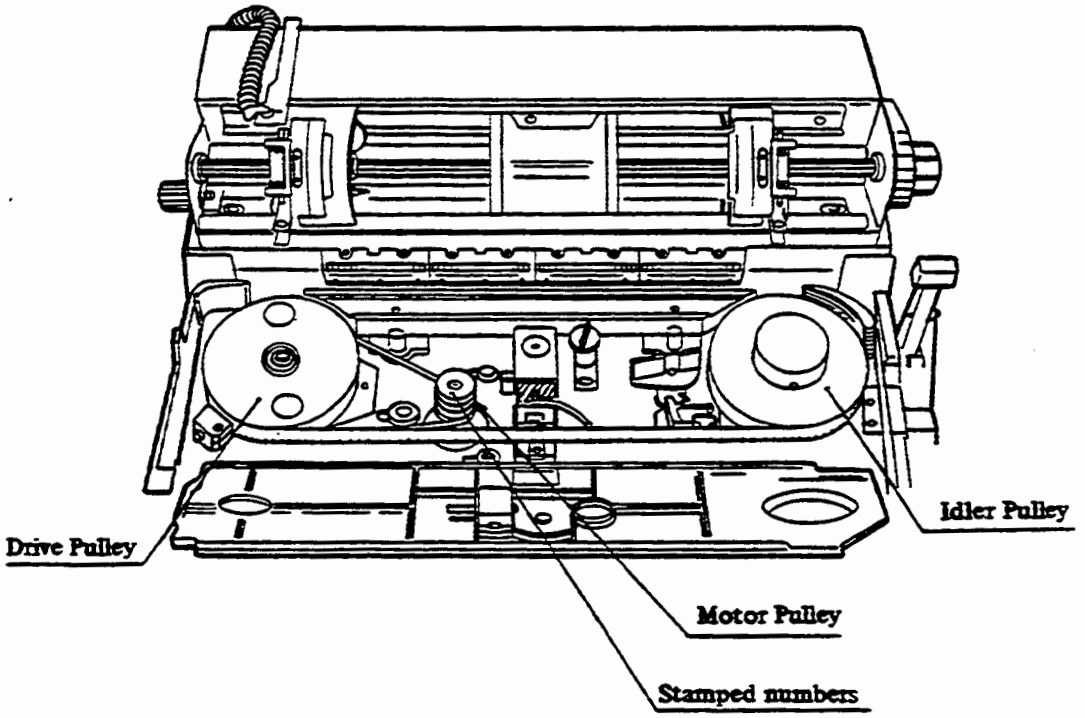


(b) VDE version

Figure 1.6 Band cover latch



(a) UL/CSA version



(b) VDE version

Figure 1.7 Numbers on the motor pulley

(6) Make sure that the print band is installed on the drive and idler pulley. Also make sure that the printer mechanism has no abnormality, i.e., broken or loosen parts, etc.

(7) Mount the band cover and close the top cover.

If the printer is not the model and configuration that was ordered or if it is damaged, call your sales representative.

1.4 Cabling

1.4.1 Power cable connection

(1) M3040, M3041 and M3042

Connect plugs at both end of the power cable; the male connector to an AC receptacle and the female connector to the printer.

When the power cable is not attached to the printer, connect to the power source using the power supply cord listed in Table 1.2.

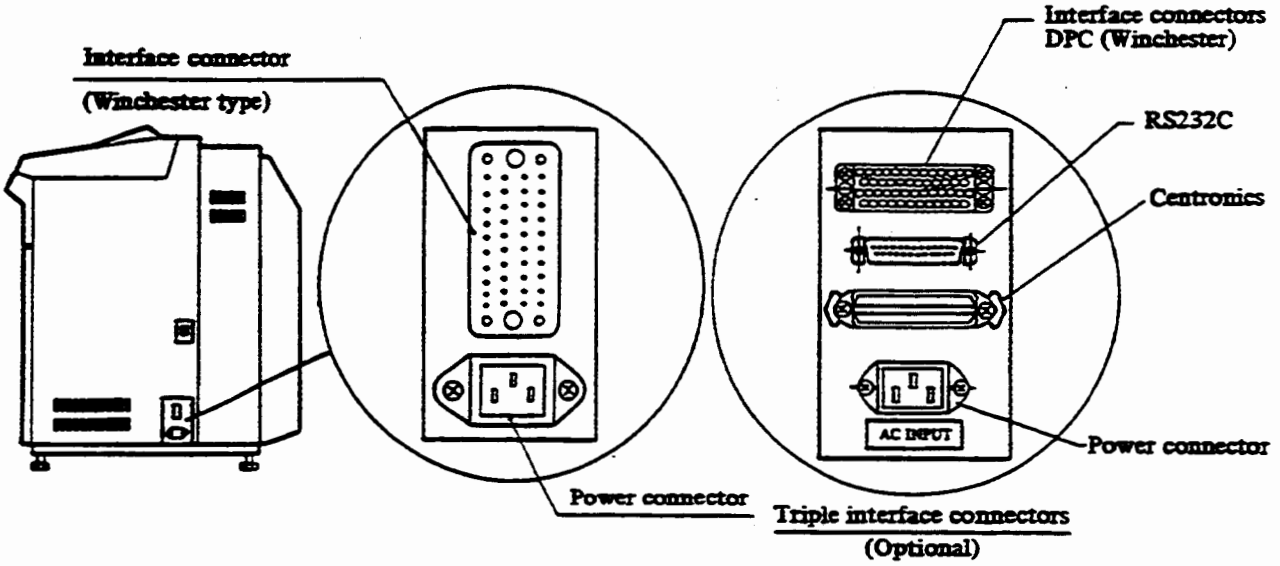


Figure 1.8 Power and interface connectors

(2) M3043

When no power cable is connected to the M3043, the connection of the power cable must be done by electrician according to the Appendix B.

When the power cable is already connected to the M3043, connect the male connector to an AC receptacle.

1.4.2 Interface cable connection

Passing the cable clamp under the power connector, connect the interface cable plug to the printer and clamp the cable. See Figure 1.9.

Insert a DPC-interface AMP connector or an RS-232-C interface connector, then tighten the two mounting screws. Use a standard screwdriver to secure a DPC-interface Winchester connector. Insert a Centronics interface connector, then lock it in place using the two lock wires.

Note: In case of M304X with the triple interface, only one cable either DPC, Centronics or RS232C interface shall be inserted.

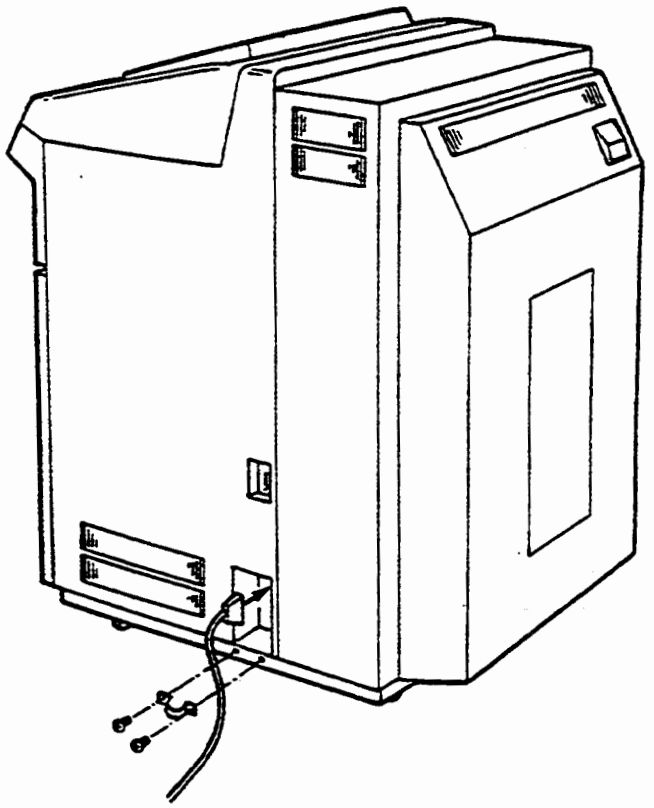


Figure 1.9 Interface cable clamping

1.5 Preparing for Initial Power-On

After the power and interface cables are connected, mount the forms and ribbon before turning the power on.

For mounting forms, refer to section 2.4.
For mounting ribbon, refer to section 2.5.

1.6 Initial Power-On

(1) Set the MODE SELECTION switch on the operator panel to NORMAL.

(2) Set the power switch on the lower right side of the printer to position I to turn on the printer.

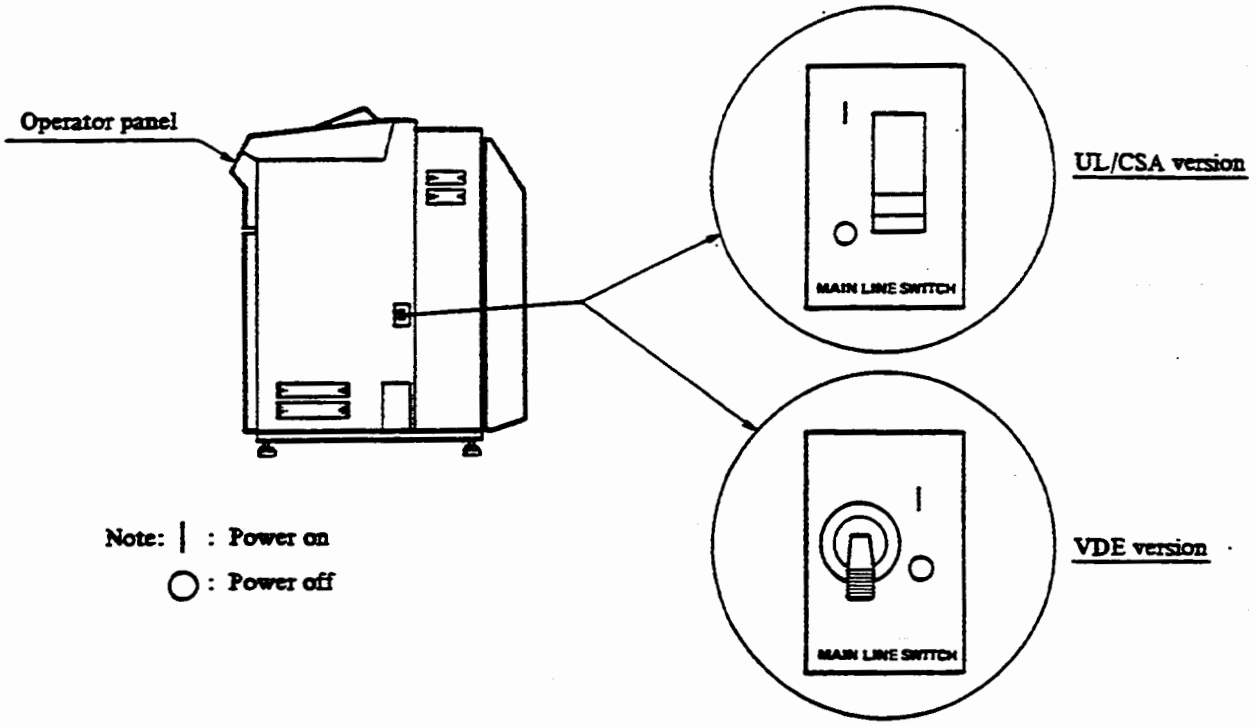


Figure 1.10 Power switch

(3) Make sure that the power is turned on (the POWER lamp on the operator panel lights). The TOP OF FORM lamp will light and STATUS indicator will display OFLINE or STOP on the operator panel. DIAG will be displayed first on the STATUS indicator just after power is turned on, then the display will changed to OFLINE or STOP.

Note: The STATUS indicator displays OFLINE for M304XC and M304XD, and STOP for M304XR.

(4) If the POWER lamp does not light, check whether the power cable connectors are firmly connected to an AC receptacle and to the printer power connector and the distributor switches are turned on. If these are all right and the power can not be turned on, call a customer engineer.

(5) If the STATUS indicator displays characters other than OFLINE and STOP, check the followings.

- The forms are correctly mounted.
- The top cover, the band cover, and the print unit are closed.
- The format control tape (FCT) is loaded. (If the optional FCT unit is installed.)

If these are all right, press the ERROR RESET switch and make sure that the ERROR lamp goes off. If the ERROR lamp still lights, call a customer engineer.

1.7 Testing

After initial power-on, test the printer functions offline and online. The forms position must be adjusted for printing prior to these tests.

1.7.1 Forms position adjustment

(1) Open the top cover.

(2) Lift the THROAT OPEN lever.

(3) Turn the ADVANCE FORMS knob to align the top of the forms with the scale of the line scale. Figure 1.12 shows an example when the test forms (11-inch page) are used.

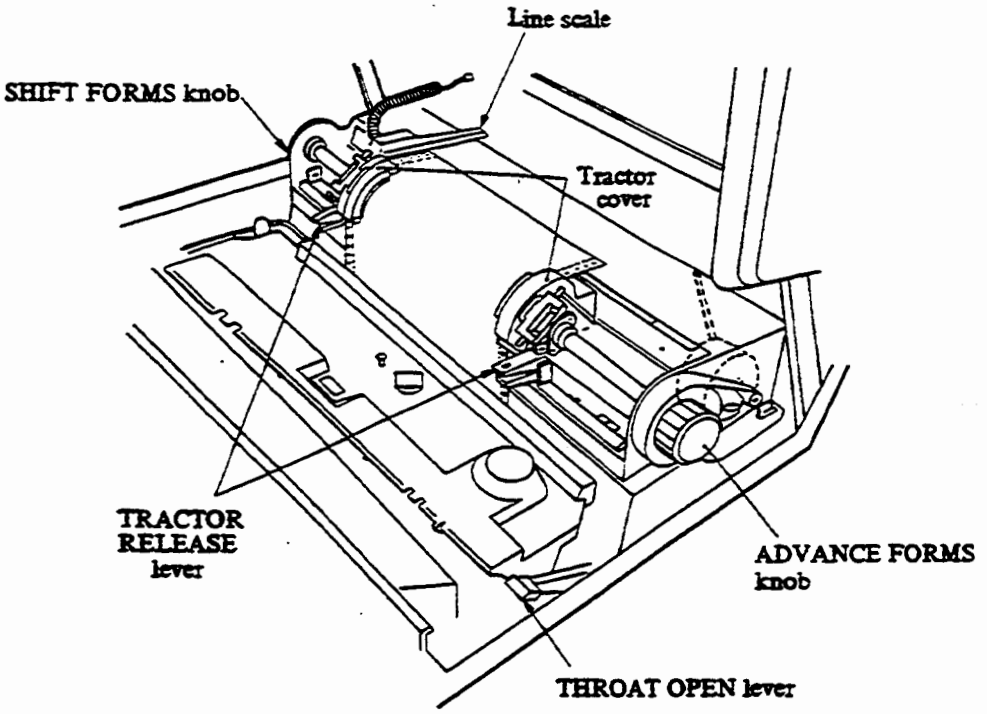


Figure 1.11 Forms adjustment knobs and levers

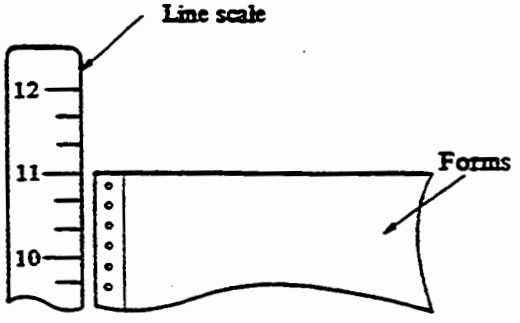


Figure 1.12 Example of forms adjustment

(4) Adjust the lateral tension of the forms using TRACTOR RELEASE levers. The forms require tension in the range where pin feed holes of the forms will not damaged during printing.

(5) Adjust the horizontal print position by using the SHIFT FORMS knob.

(6) Open the front door and adjust the forms position in the forms hopper to enable the forms to move straight into the printer.

(7) Move the THROAT OPEN lever down to lock the print unit.

(8) If necessary, adjust fine forms position using the FINE FORMS ADJUST switches on the operator panel. When forms are moved downward, pull the forms downward slightly to make them taut.

(9) Close the front door.

(10) Set the FORMS THICKNESS knob to an appropriate position according to the forms thickness. (Set to 1 for the test forms.)

(11) Close the top cover.

1.7.2 Offline test

(1) Make sure that the power is turned off. (The POWER lamp on the operator panel does not light.) If the power is turned on, set the power switch to position 0 and wait 30 seconds.

(2) Set the MODE SELECTION switch to TEST.

(3) Set the power switch to position I.

(4) Make sure that the POWER and TEST lamps light and the STATUS indicator displays TEST.

(5) Press the START/STOP switch. The START/STOP lamp lights and the shift pattern printing starts. The STATUS indicator changes from TEST to SFTPRT.

(6) Make sure that the forms are fed to the forms rack (or the powered stacker) and the ribbon is fed normally.

(7) Press the START/STOP switch to terminate the test. The START/STOP lamp goes out.

(8) Check that the printed output is printed normally and the print band is the one that was ordered.

(9) Set the MODE SELECTION switch to NORMAL. The TEST MODE lamp goes out and the STATUS indicator displays OFLINE or STOP.

(10) If the ERROR lamp lights the printer stops before the end of forms during the offline test, call a customer engineer.

1.7.3 Online test

(1) Set the printer online by pressing the START/STOP switch. The START/STOP lamp lights.

(2) In online mode, carry out the online test by mainframe operations.

2.1 Precautions

(1) Once power is turned off, do not turn on again within 30 seconds.

(2) Do not press switches unnecessarily during operation.

(3) Do not attempt to adjust exceeding the range indicated by the adjustment knobs in the mechanical section. Excessive turning will cause failure.

(4) Never touch screws, nor open covers, etc., not directly related to operation. The printer mechanism section is precision built, and unnecessary adjustments will cause a malfunction or failure.

(5) Never print without forms or the ribbon.

(6) Lubrication is performed at maintenance time, and usually unnecessary at other times.

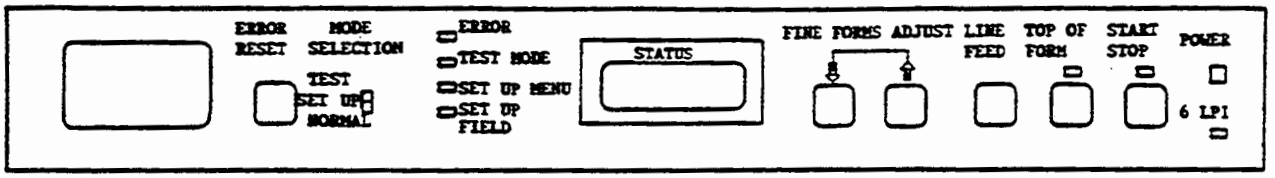
(7) The printer gets dirty quickly because it uses paper. Thus, it must sometimes be cleaned.

2.2 Mode Setting and Power On

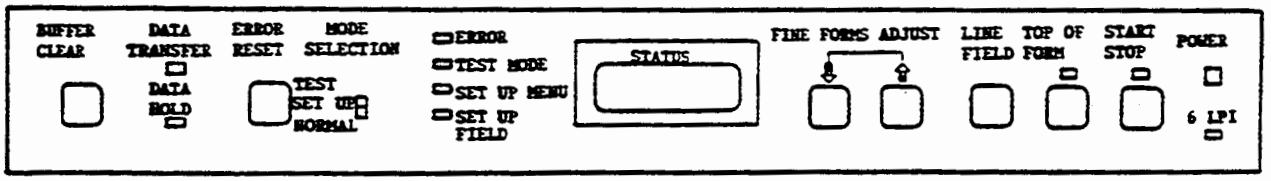
This printer can operates under the following three modes.

Table 2.1 Printer modes

MODE SELECTION switch position	Mode	Printer operation
NORMAL	Normal mode	The printer operates online and prints data from the system. If an error is detected, the printer status and error contents are displayed on the STATUS indicator.
TEST	Test mode	The printer executes test printing or self-diagnosis. The printer does not operate online in this mode.
SET UP	Set up function mode	The printer selects a function and sets it up. The function does not change until another function is set. The function remains in effect even through the power is turned off.



(a) M304XD, M304XC



(b) M304XR, M304X with triple interface

: Pushbutton switch
: Slide switch
: LED lamp
: STATUS indicator

Figure 2.1 Operator panel

(1) Set the MODE SELECTION switch on the operator panel to TEST, SET UP or NORMAL position to select the printer mode.

(2) Set the power switch on the right side of the cabinet to position I. Make sure the POWER lamp on the operator panel lights.

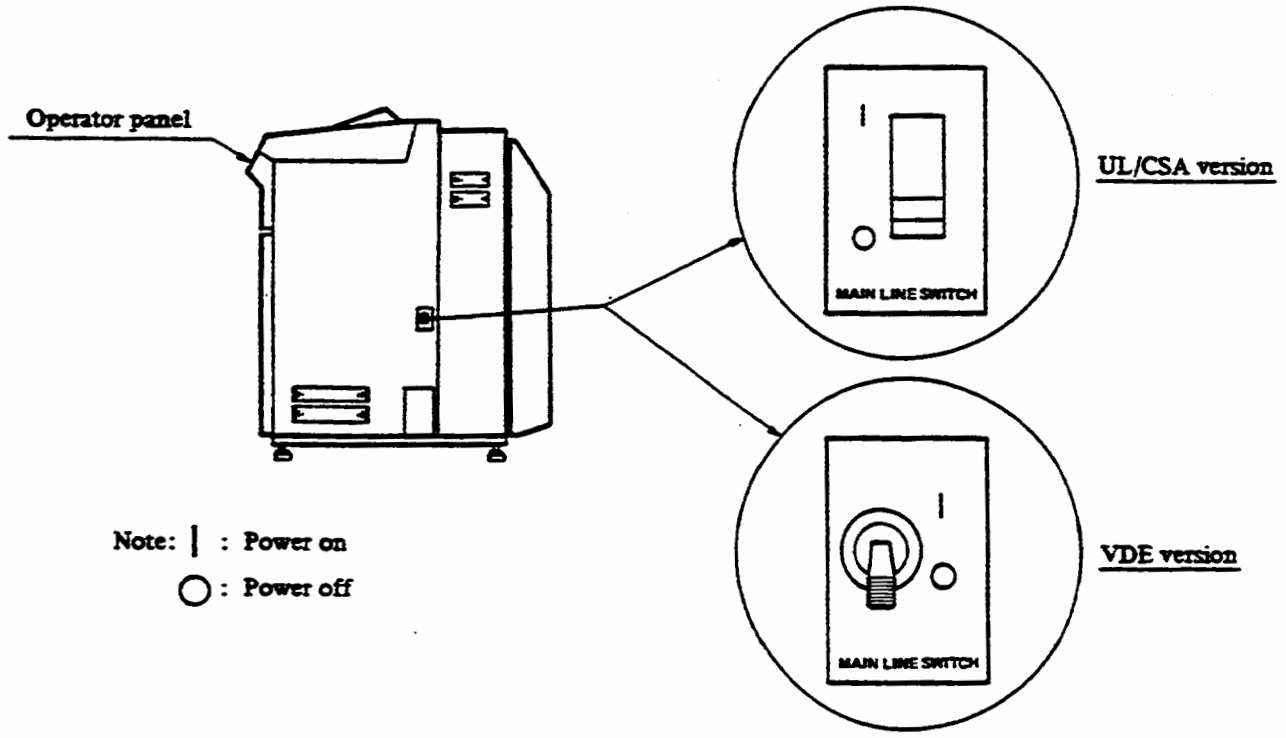


Figure 2.2 Power switch

(3) If a power supply or cooling fan fault is detected, the power will be turned off automatically.

(4) When set the MODE SELECTION switch to NORMAL in item (1), proceed to section 2.4. When set to SET UP, preceed to section 2.5. When set to TEST, preceed to section 2.6.

Note: To change the mode from SET UP or TEST to NORMAL, and from NORMAL to TEST is possible during power-on, but in the following case, it is impossible to change the mode during power-on.

- SET UP to TEST (directly)
- TEST to SET UP (directly)

When change the mode in above case during power-on, once turn off the power and perform the procedure from item (1) in this section.

To change the mode from NORMAL to SET UP is possible during power-on, but some of the set up menus cannot be changed. If want to change other set up menus, once turn off the power and perform the procedure from item (1) in this section. Refer to section 2.5.

2.3 Power Off

(1) Ensure that printing or forms feeding is not in progress, and that the printer is in stop mode.

(2) Set the power switch to position 0.

2.4 NORMAL Mode Operation

(1) When the MODE SELECTION switch is set to NORMAL and the power switch is turned on, the printer is in the NORMAL mode. The POWER lamp lights and the printer automatically executes the self-diagnosis program. During self-diagnostsis, DIAG is displayed on the STATUS indicator.

(2) If no faults occur, OFLINE (or STOP) is displayed on the STATUS indicator. If any faults occur, the ERROR lamp comes on and one of the error codes is displayed on the STATUS indicator. Refer to Appendix C for each error contents. If several faults occur, the contents of each error are displayed in sequence by repeatedly pressing the FINE FORMS ADJUST (⬆ or ⬇) switch.

(3) After correcting all errors, press the ERROR RESET switch. The ERROR lamp goes out and OFLINE (or STOP) is displayed.

(4) After confirming that OFLINE (or STOP) is displayed, press the START/STOP switch. The START/STOP lamp comes on and ONLINE (or START) is displayed on the STATUS indicator. The printer should come online.

(5) If an error occurs when the printer is online, the printer is automatically switched offline. The ERROR lamp comes on and the error code is displayed on the STATUS indicator. Refer to Appendix C.

(6) After correcting the error, press the ERROR RESET switch. The ERROR lamp comes out.

(7) Press the START/STOP switch to bring the printer online again. The START/STOP lamp comes on and ONLINE (or START) is displayed on the STATUS indicator.

Note 1: When the printer is online, pressing the START/STOP switch puts the printer offline. The START/STOP lamp comes out and OFLINE (or STOP) is displayed.

Note 2: When the printer is offline, OFLINE is displayed in M304XD or M304XC, and STOP is displayed in M304XR. When the printer is online, ONLINE is displayed in M304XD or M304XC, and START is displayed in M304XR.

Note 3: In the M304XR
The DATA TRANSFER Lamp is on while trarsferring on receiving data between the host and the printer.
The DATA HOLD Lamp is on when data is stored in the interface buffer.
When the BUFFER CLEAR switch is pressed with the ERROR RESET switch held down, the interface buffer is cleared, after that, the DATA HOLD Lamp comes off.

2.5 SET UP Mode Operation

Kinds of set up menus and set up fields are different according to the models:

M3040D, M3041D, M3042D, M3043D	See Table 2.2
M3040C, M3041C, M3042C, M3043C	See Table 2.3
M3040R, M3041R, M3042R, M3043R	See Table 2.4

The number of changeable set up menus is different according to the power-on sequence.

	Power-on sequence		Number of set up menu
Case 1:	MODE SELECTION switch SET UP	⇨ Power switch 0	All set up menus
Case 2:	Power switch 0	⇨ MODE SELECTION switch SET UP	Several set up menus (marked with ** in Tables 2.2, 2.3, and 2.4)

Note: In case 2, after turn on the power, confirm that OFLINE (or STOP) is displayed on the STATUS indicator. If ONLINE (or START) is displayed, press the START/STOP switch to put the printer offline.

(1) After confirming that SET UP is displayed, press the START/STOP switch while pressing the ERROR RESET switch to set SET UP mode. The SET UP MENU lamp comes on and the first item of the set up menu is displayed on the STATUS indicator.

(2) Set up menu selection

Press the FINE FORMS ADJUST (⬆ or ⬇) switch to select a set up menu. Every time pressing, the set up menu item is displayed on the STATUS indicator. When the required set up menu item appears, press the START/STOP switch to set the item. The SET UP MENU lamp goes off and the SET UP FIELD lamp comes on. The first set up field is displayed on the STATUS indicator.

(3) Set up field selection

Press the FINE FORMS ADJUST (⬆ or ⬇) switch to select a set up field. Every time pressing, the set up field item is displayed on the STATUS indicator. When the required set up field item appears, press the START/STOP switch to set the item. The SET UP FIELD lamp goes off and the SET UP MENU lamp comes on. The set up menu item selected in item (2) is displayed on the STATUS indicator.

(4) When changing another set up menu item, repeat the procedures (2) and (3).

(5) When NORMAL mode is required after SET UP mode operation is finished, set the MODE SELECTION switch to NORMAL. The SET UP MENU lamp goes off and OFLINE (or STOP) is displayed on the STATUS indicator.

Note: Interface selection (optional triple interface)
When using the M304X with the triple interface, select the set up menu I/F as explained in item (2).
The required interface (either DPC, Centronics or RS232C) is set to select the set up field below as described in item (3).

Set up menu	Function	Set up field	Function
I/F	The specified interface is set.	CENTRO DPC RS232C	Centronics I/F is available DPC I/F is available. RS232C I/F is available.

Table 2.2 STATUS indicator display, Set up menus (M304XD)

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
1	LPI	Forms feed pitch is set.	6LPI 8LPI	6 lines/inch 8 lines/inch	6LPI	
2	FLSSEL	The setting method of the form length per page is set in lines or inches.	INCHES	Form length is set in inches.	INCHES	Form length is set in set up menu Nos. 3 and 4.
			LINES	Form length is set in lines.		Form length is set in set up menu No. 2.
3	FORM-L	Number of lines per page is set.	LIN018 LIN019 . . . . LIN198 LIN199	18 lines/page 19 lines/page . . . . 198 lines/page 199 lines/page	LIN066	This set up menu is valid only when LINES is set in FLSSEL of set up menu No. 9.
4	FORM-I	Form length per page is set in inches. (Form length) = (length set by FORM-I) + (length set by FORM-F)	ICH 3 ICH 4 . . . . ICH 21 ICH 22	3 inches 4 inches . . . . 21 inches 22 inches	ICH11	This set up menu is valid only when INCHES is set in FLSSEL of set up menu No. 9. If 1/4ICH or 1/6ICH is set for FORM-F when 6LPI is set in LPI of set up menu No. 1 or if 1/6ICH, 1/3ICH, 2/3ICH, or 5/6ICH is set when 8LPI is set, an INCHER error occurs. If this error occurs, the setting must be made again.
5	FORM-F	FORM-I: Integer part FORM-F: Fraction part	0ICH 1/6ICH 1/4ICH 1/3ICH 1/2ICH 2/3ICH 3/4ICH 5/6ICH	No fraction part 1/6 inches 1/4 inches 1/3 inches 1/2 inches 2/3 inches 3/4 inches 5/6 inches	0ICH	
6	SKIPOV	Perforation, skip-over count are set.	LIN000 LIN001 . . LIN014 LIN015	No lines are skipped. 1 line is skipped. . . 14 lines are skipped 15 lines are skipped.	LIN003	

Table 2.2 STATUS indicator display, Set up menus (M304XD) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
7	BOF CH	The BOF channel is set.	NO CH 2 . . CH 11 CH 12	BOF skip-over is invalid. BOF channel is 2. . . BOF channel is 11. BOF channel is 12.	NO	
8	CRCODE	The CR code function is set.	CR<>NL CR=NL	The printer only points. It does not feed forms. The printer prints one line and feeds one line.	CR<>NL	
9	COLUMN	The print position is set.	136COL 132COL 80COL	136 characters/line 132 characters/line 80 characters/line	136COL	
10 **	NULCOD	Null code set as a space or ignored.	SPACE IGNORE	Set as space Ignored	SPACE	
11 **	LFCODE	Validity of LF code is set.	ENABLE DISABL	LF code is valid. LF code is invalid.	ENABLE	
12 **	AUTONL	When the MODE SELECT switch is set to NORMAL at power on, the availability of ONLINE mode is set.	ENABLE DISABL	The printer is automatically in the ONLINE mode. The printer is not in the ONLINE mode unless the START/STOP switch is pressed.	DISABL	
13 **	SP CMD	Maximum line feed capability of space command function.	SP15 SP63	The maximum number of feeds for the space command function 0 to 15. The maximum number of line feeds for the space command function 0 to 63.	SP15	
14 **	TRNCT	The operation when the received space command exceeds TOF is set.	ENABLE DISABL	The forms stop position is aligned at TOF. Execution is done as specified by the received space command.	DISABL	

Table 2.2 STATUS indicator display, Set up menus (M304XD) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
15 **	LOW-UP	Upper case and lower case change.	ENABLE DISABL DEPEND	Changes Do not change Changes in the case of 64-character band. Does not change in the case of 96-character band.	DISABL	
16 **	I1403	Forms feed operation is set when the following conditions are satisfied and at reception of a skip command having no print data. - The print line is positioned at the specified channel. - Nothing has been printed on the print line.	ENABLE DISABL	Form is not fed. Form is fed.	DISABL	
17 **	DT BIT	Number of valid bits on the interface data line is set.	7BIT 8BIT	7-bit mode 8-bit mode	7BIT	
18 **	P-INST	Validity of paper instruction signal is set.	USE NO USE	Paper instruction signals are valid. Paper instruction signals are invalid.	NO USE	Space and skip commands can be used, and FCB loading is possible.
19 **	TOFSIG	Validity of TOF signal is set.	NO OUT CH 1 CH 9	TOF signal is invalid. TOF signal is valid at CH1. TOF signal is valid at CH9.	NO OUT	

Table 2.2 STATUS indicator display, Set up menus (M304XD) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
20 **	BOFSIG	Validity of BOF signal is set.	OUTPUT	BOF signal is valid.	NO OUT	
			NO OUT	BOF signal is invalid.		
21 **	IDNT01	Validity of IDNT (01 or 00) signal is set.	OUTPUT	IDNT signal is valid.	NO OUT	
			NO OUT	IDNT signal is invalid.		
22 **	F-MOVE	Validity of paper move signal is set.	NO OUT	Paper move signal is invalid.	NO OUT	
			PR MOV	Paper move signal is valid.		
			VFURDY	VFU is loaded correctly.		
			CH 9	Signal is set at channel 9.		
23 **	IF SIG	The logic of the interface signals is set. (excluding buffer clear signals)	HIGH	When the interface signal is high (+5 V) or low (0 V), the operation is regarded as true (1) or false (0) respectively.	LOW	
			LOW	When the interface signal is low (0 V) or high (+5 V), the operation is regarded as true (1) or false (0) respectively.		
24 **	BCLSIG	The logic of the buffer clear signals is set.	HIGH	When the buffer clear signal is high (+5 V) or low (0 V), the operation is regarded as true (1) or false (0) respectively.	LOW	
			LOW	When the buffer clear signal is low (0 V) or high (+5 V), the operation is regarded as true (1) or false (0) respectively.		

Table 2.2 STATUS indicator display, Set up menus (M304XD) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
25 **	BCLSEL	Signals to clear the buffer are selected.	ONLY	When the buffer clear signal is received, the buffer is cleared.	ONLY	
			& WSB	When the buffer clear signal and the write stroke are received, the buffer is cleared.		
26 **	PARITY	Even or odd parity check is set.	EVEN	Even parity is checked.	NO	When an odd parity code is received, a parity error occurs.
			ODD	Odd parity is checked.		When an even parity code is received, a parity error occurs.
			NO	No parity is checked.		When a parity code is received, a parity error occurs.
27 **	PTYSIG	Parity check signals are set.	WIF1-8	The WIF1 to WIF8 signals check the parity.	WIF1-8	
			W1-7PI	The WIF1 to WIF7 and PI signals check the parity.		
28 **	SKIPCM	Skip or space command is set by the bit No. of the received forms feed data and that bit contents.	BIT5HI	Data bit 5=1 ... Skip command Data bit 5=0 ... Space command	BIT5LO	
			BIT5LO	Data bit 5=0 ... Skip command Data bit 5=1 ... Space command		
			BIT7HI	Data bit 7=1 ... Skip command Data bit 7=0 ... Space command		
			BIT7LO	Data bit 7=0 ... Skip command Data bit 7=1 ... Space command		

Table 2.2 STATUS indicator display, Set up menus (M304XD) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
29 **	AUTEJC	Validity of the following operation is set. - When the printer is in the start state and data transmission from the host is not performed, and the interface buffer is empty, four or five sheets of paper (11-inch forms) are fed 2 seconds after the TOF switch on the operator panel is pressed. Then, the printer enters the stop state and after 20 seconds, it enters the start state again.	ENABLE DISABL	The operation is valid. The operation is invalid.	DISABL	
30 **	INVCOD	Set as space or ignored when an invalid control code is sent from the host.	SPACE IGNORE	Set as space Ignored	SPACE	
31 **	OPBELT	Determined by selection when special bands are used. This printer prints according to the specifications of the selected belt number when a 192-character band is installed.	BELT1 BELT2 BELT3 . . . BELT28 BELT29 BELT30	Band selection	BELT1	
32 ** (See Note)	I/F	The specified interface is set.	CENTRO DPC RS232C	Centronics I/F is available DPC I/F is available RS232C I/F is available	DPC	In case of the M304X with the triple interface, this set up menu is added.

Table 2.2 STATUS indicator display, Set up menus (M304XD) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
33 **	D-MENU	Display menu	DISP NODISP	Display the all menu Display only menus which are possible to change everytime whithout power-on mode.	DISP	
34	Releas	Date released ROM is indicated.	ex. 032388	March 23'88		

Table 2.3 STATUS indicator display, Set up menus (M304XC)

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
1	LPI	Forms feed pitch is set.	6LPI 8LPI	6 lines/inch 8 lines/inch	6LPI	
2	FLSSEL	The setting method of the form length per page is set in lines or inches.	INCHES	Form length is set in inches.	INCHES	Form length is set in set up menu Nos. 3 and 4.
			LINES	Form length is set in lines.		Form length is set in set up menu No. 2.
3	FORM-L	Number of lines per page is set.	LIN 18 LIN 19 . . . . LIN198 LIN199	18 lines/page 19 lines/page . . . . 198 lines/page 199 lines/page	LIN 66	This set up menu is valid only when LINES is set in FLSSEL of set up menu No. 9.
4	FORM-I	Form length per page is set in inches. (Form length) = (length set by FORM-I) + (length set by FORM-F)	ICH 3 ICH 4 . . . . ICH 21 ICH 22	3 inches 4 inches . . . . 21 inches 22 inches	ICH 11	This set up menu is valid only when INCHES is set in FLSSEL of set up menu No. 9. If 1/4ICH or 1/6ICH is set for FORM-F when 6LPI is set in LPI of set up menu No. 1 or if 1/6ICH, 1/3ICH, 2/3ICH, or 5/6ICH is set when 8LPI is set, an INCHER error occurs. If this error occurs, the setting must be made again.
5	FORM-F	FORM-I: Integer part FORM-F: Fraction part	0ICH 1/6ICH 1/4ICH 1/3ICH 1/2ICH 2/3ICH 3/4ICH 5/6ICH	No fraction part 1/6 inches 1/4 inches 1/3 inches 1/2 inches 2/3 inches 3/4 inches 5/6 inches	0ICH	
6	SKIPOV	Perforation, skip-over count are set.	LIN 0 LIN 1 . . LIN 14 LIN 15	No lines are skipped. 1 line is skipped. . . 14 lines are skipped 15 lines are skipped.	LIN 3	

Table 2.3 STATUS indicator display, Set up menus (M304XC) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
7	BOF CH	The BOF channel is set.	NO	BOF skip-over is invalid.	NO	
			CH 2	BOF channel is 2.		
			.	.		
			.	.		
			CH 11	BOF channel is 11.		
			CH 12	BOF channel is 12.		
8	CRCODE	The CR code function is set.	CR<>NL	The printer only points. It does not feed forms.	CR<>NL	
			CR=NL	The printer prints one line and feeds one line.		
9	COLUMN	The print position is set.	136COL	136 characters/line	136COL	
			132COL	132 characters/line		
			80COL	80 characters/line		
10	VTCODE	Vertical tab (VT) operation is set.	VT<>NL	When a VT code is received, a skip is made to the channel set in set up menu No. 11.	VT<>NL	
			VT=NL	The VT code is regarded as an LF code.		
11	VT CH	Channel for vertical tab (VT) is set.	ALL	All channels are regarded as VT channels.	ALL	
			CH 2	VT channel is channel 2.		
			CH 3	VT channel is channel 3.		
			.	.		
			.	.		
			.	.		
			CH 11	VT channel is channel 11.		
			CH 12	VT channel is channel 12.		

Table 2.3 STATUS indicator display, Set up menus (M304XC) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
12	R-MRGN	The operation, when data exceeding the number of characters per line set in COLUMN of set up menu No. 7 is received, is set.	NL CR DISABL	The printer prints and feeds one line. The printer only prints. It does not feed forms. The printer does not print until it receives a control code. Therefore, the data exceeding the number of characters set in COLUMN is not printed.	NL	
13	ESCCOD	Validity of ESC (escape) code is set.	ENABLE DISABL	ESC code is valid. ESC code is invalid.	DISABL	
14 **	NULCOD	Null code set as a space or ignored.	SPACE IGNORE	Set as space Ignored	SPACE	
15 **	LFCODE	Validity of LF code is set.	ENABLE DISABL	LF code is valid. LF code is invalid.	ENABLE	
16 **	AUTONL	When the MODE SELECT switch is set to NORMAL at power on, the availability of ONLINE mode is set.	ENABLE DISABL	The printer is automatically in the ONLINE mode. The printer is not in the ONLINE mode unless the START/STOP switch is pressed.	DISABL	
17 **	TRNCT	The operation when the received space command exceeds TOF is set.	ENABLE DISABL	The forms stop position is aligned at TOF. Execution is done as specified by the received space command.	DISABL	
18 **	LOW-UP	Upper case and lower case change	ENABLE DISABL DEPEND	Changes Does not change Changes in the case of 64-character band. Does not change in the case of 96-character band.	DISABL	

Table 2.3 STATUS indicator display, Set up menus (M304XC) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
19 **	I1403	Forms feed operation is set when the following conditions are satisfied and at reception of a skip command having no print data. - The print line is positioned at the specified channel. - Nothing has been printed on the print line.	ENABLE DISABL	Form is not fed. Form is fed.	DISABL	
20 **	BUFCLR	Buffer clear code is set.	DEL CAN BOTH NO	DEL code (X'7F') CAN code (X'18') Both DEL and CAN codes are valid. Both DEL and CAN codes are ignored.	DEL	
21 **	PFCTRM	The operation is set when LF or FF code is received.	ENABLE DISABL	When an LF or FF code is received, already received data is not printed and is kept, and forms are fed. When an LF or FF code is received, already received data is printed and forms are fed.	DISABL	
22 **	BUSYSL	Sending mode of BUSY signal is set.	ENABLE DISABL	BUSY signal is sent for each print data. BUSY signal is sent only when a control code is received.	DISABL	
23 **	DT BIT	Number of valid bits on the interface data line is set.	7BIT 8BIT	7-bit mode 8-bit mode	7BIT	

Table 2.3 STATUS indicator display, Set up menus (M304XC) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
24 **	SKIPCM	Skip or space command is set by the bit No. of the received forms feed data and that bit contents.	BIT5HI BIT5LO BIT7HI BIT7LO	Data bit 5=1 ... Skip command Data bit 5=0 ... Space command Data bit 5=0 ... Skip command Data bit 5=1 ... Space command Data bit 7=1 ... Skip command Data bit 7=0 ... Space command Data bit 7=0 ... Skip command Data bit 7=1 ... Space command	BIT5LO	
25 **	AUTEJC	Validity of the following operation is set. - When the printer is in the start state and data transmission from the host is not performed, and the interface buffer is empty, four or five sheets of paper (11-inch forms) are fed 2 seconds after the TOF switch on the operator panel is pressed. Then, the printer enters the stop state and after 20 seconds, it enters the start state again.	ENABLE DISABL	The operation is valid. The operation is invalid.	DISABL	
26 **	INVCOD	Set as space or ignored when an invalid control code is sent from the host.	SPACE IGNORE	Set as space Ignored	SPACE	

Table 2.3 STATUS indicator display, Set up menus (M304XC) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
27 **	OPBELT	Determined by selection when special bands are used. This printer prints according to the specifications of the selected belt number when a 192-character band is installed.	BELT1 BELT2 BELT3 . . . BELT28 BELT29 BELT30	Band selection	BELT1	
28 ** (See Note)	I/F	The specified interface is set.	CENTRO DPC RS232C	Centronics I/F is available DPC I/F is available RS232C I/F is available	CENTRO	In case of the M304X with the triple interface, this set up menu is added.
29 **	D-MENU	Display MENU	DISP NODISP	Display the all menus. Only display the menus which is possible to change everytime without power on mode.	DISP	
30	Releas	Date released ROM is indicated.	ex. 032388	March 23'88		

Table 2.4 STATUS indicator display, Set up menus (M304XR)

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
1	LPI	Forms feed pitch is set.	6LPI 8LPI	6 lines/inch 8 lines/inch	6LPI	
2	FLSSEL	The setting method of the form length per page is set in lines or inches.	INCHES	Form length is set in inches.	INCHES	Form length is set in set up menu Nos. 4 and 5.
			LINES	Form length is set in lines.		Form length is set in set up menu No. 3.
3	FORM-L	Number of lines per page is set.	LIN 18 LIN 19 . . . . LIN198 LIN199	18 lines/page 19 lines/page . . . . 198 lines/page 199 lines/page	LIN 66	This set up menu is valid only when LINES is set in FLSSEL of set up menu No. 2.
4	FORM-I	Form length per page is set in inches. (Form length) = (length set by FORM-I) + (length set by FORM F)	ICH 3 ICH 4 . . . . ICH 21 ICH 22	3 inches 4 inches . . . . 21 inches 22 inches	ICH 11	This set up menu is valid only when INCHES is set in FLSSEL of set up menu No. 9. If 1/4IN or 1/6IN is set for FORM-F when 6LPI is set in LPI of set up menu No. 1 or if 1/6IN, 1/3IN, 2/3IN, or 5/6IN is set when 8LPI is set, an INCHER error occurs. If this error occurs, the setting must be made again.
5	FORM-F	FORM-I: Integer part FORM-F: Fraction part	0 ICH 1/6 ICH 1/4 ICH 1/3 ICH 1/2 ICH 2/3 ICH 3/4 ICH 5/6 ICH	No fraction part 1/6 inches 1/4 inches 1/3 inches 1/2 inches 2/3 inches 3/4 inches 5/6 inches	0 ICH	
6	SKIPOV	Perforation, skip-over count are set.	LIN000 LIN001 . . LIN 14 LIN 15	No lines are skipped. 1 line is skipped. . . 14 lines are skipped 15 lines are skipped.	LIN003	

Table 2.4 STATUS indicator display, Set up menus (M304XR) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
7	BOF CH	The BOF channel is set.	NO CH 2 : : : CH 11 CH 12	BOF skip-over is invalid. BOF channel is 2. : : : BOF channel is 11. BOF channel is 12.	NO	
8	COLUMN	The print position is set.	136COL 132COL 80COL	136 characters/line 132 characters/line 80 characters/line	136COL	
9 **	TRNCT	The operation when the received space command exceeds TOF is set.	ENABLE DISABL	The forms stop position is aligned at TOF. Execution is done as specified by the received space command.	DISABL	
10 **	LOW-UP	Upper case and lower case change	ENABLE DISABL DEPEND	Changes Does not change Changes in the case of 64-character band. Does not change in the case of 96-character band.	DISABL	
11 **	I1403	Forms feed operation is set when the following conditions are satisfied and at reception of a skip command having no print data. - The print line is positioned at the specified channel. - Nothing has been printed on the print line.	ENABLE DISABL	Form is not fed. Form is fed.	DISABL	

Table 2.4 STATUS indicator display, Set up menus (M304XR) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
12 **	OPBELT	Determined by selection when special bands are used. This printer prints according to the specifications of the selected when a 192-character band is installed.	BELT1 BELT2 BELT3 . . . BELT28 BELT29 BELT30	Band selection	BELT1	
13 ** (See Note)	I/F	The specified interface is set.	CENTRO DPC RS232C	Centronics I/F is available DPC I/F is available RS232C I/F is available	RS232C	In case of the M304X with the triple interface, this set up menu is added.
14 **	D-MENU	Menu indication	DISP NODISP	All set-up menus are displayed. Menus other than those displayed only in power-on mode are displayed.	DISP	
15	L-END	New Line on Right Margin operation is set.	NO NLonRM	The operation is not performed. The operation is performed.	NLonRM	
16	Releas	Date released ROM is indicated.	ex. 032388	March 23'88		
17	CRCODE	The CR code function is set.	CR<>NL CR=NL	The printer only prints. It does not feed forms. The printer prints one line and feeds one line.	CR<>NL	

Table 2.4 STATUS indicator display, Set up menus (M304XR) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
18	L.TERM	The print position after the print operation is completed is set.	CR/FF	Only when a CR or FF code is received, the print position is returned to the first character position. When other print command is received, the print position is not returned.	PRTCMD	
			PRTCMD	When a print operation command is received, the print position is always returned to the first character position after the print operation is completed.		
19	VTCODE	Vertical tab (VT) operation is set.	VT<>LF	When a VT code is received, a skip is made to the channel set in set up menu No. 11.	VT<>LF	
			VT=LF	The VT code is regarded as an LF code.		
20	VT CH	Channel for vertical tab (VT) is set.	ALL	All channels are regarded as VT channel.	ALL	
			CH 2	VT channel is channel 2.		
			CH 3	VT channel is channel 3.		
			:	:		
			CH 11	VT channel is channel 11.		
			CH 12	VT channel is channel 12.		
21 **	DT BIT	Number of valid bits on the interface data line is set.	7BIT	7-bit mode	7BIT	
			8BIT	8-bit mode		
			7SI/SO	7-bit+SI/SO mode		

Table 2.4 STATUS indicator display, Set up menus (M304XR) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
22 **	PARITY	Even or odd parity check is set.	EVEN	Even parity is checked.	NO	When an odd parity code is received, a parity error occurs.
			ODD	Odd parity is checked.		When an even parity code is received, a parity error occurs.
			NO	No parity is checked.		When a parity code is received, a parity error occurs.
			IGNORE	Parity bit is ignored.		Even, odd, mark or space parity is enabled. Sending data; XON/XOFF code or status data; is even parity.
23 **	BAUD	Baud rate is set.	2400B 4800B 9600B 19200B		9600B	
24 **	A-FULL	The data storage rate of the interface buffer is set as a timing to inform the host by the following that the interface buffer is almost full: (1) X-OFF code transmission (2) Reverse Channel signal OFF (3) DTR signal OFF (4) RTS signal OFF	87.5% 75%	Data storage rate is 87.5%. (256 bytes remain) Data storage rate is 75%. (512 bytes remain)	87.5%	

Table 2.4 STATUS indicator display, Set up menus (M304XR) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
25 **	A-EMP	The data storage rate of the interface buffer is set as a timing to inform the host by the following that the interface buffer is almost empty: (1) X-ON code transmission (2) Reverse Channel signal ON (3) DTR signal ON (4) RTS signal ON	12.5% 25% 37.5% 50% 62.5%	Data storage rate is 12.5%. (256 bytes) Data storage rate is 25%. (512 bytes) Data storage rate is 37.5%. (768 bytes) Data storage rate is 50%. (1024 bytes) Data storage rate is 62.5%. (1280 bytes)	12.5%	
26 **	PRTCOL	The message protocol is set.	XONXOF REV.ON REV.OF DTR=RV RTS=RV	XON/XOFF protocol Reverse Channel line protocol This signal remains on until the interface buffer is almost full. Reverse Channel line protocol This signal remains off until the interface buffer is almost full. DTR line protocol This signal remains on until the interface buffer is almost full. RTS line protocol This signal remains on until the interface buffer is almost full.	XONXOF	
27 **	STPBIT	The stop bit is set.	1 1.5 2	1 bit 1.5 bits 2 bits	1	

Table 2.4 STATUS indicator display, Set up menus (M304XR) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
28 **	RTS	The logic of RTS signal is set.	FULDPX HLFDPX	After power on, this signal is always set to 1. This signal is on when data transmission is requested for the host or while data is being transmitted.	FULDPX	This set up menu is invalid when an RTS line protocol is set.
29 **	CTS	Validity of CTS signal is set.	ENABLE DISABL	If the CTS signal is on, data is transmitted to the host. Data is transmitted regard less the CTS signal contents.	DISABL	
30 **	RI	The following operation is set. - The printer enters the start state after the DTR signal is set on in response to Ring Indicator (RI) signal.	ENABLE DISABL	The printer enters the start state. The printer does not enter the start state.	DISABL	This set up menu is invalid when the DTR line protocol is set.
31 **	DTR	The logic of the DTR signal is set.	CNTON CNTON2 STATUS	After power on, the DTR signal is always on, and the printer enters the start state. Same function as CNTON, but, operator must press the START/STOP switch. The DTR signal is set on or off according to the start or stop state of the printer.	STATUS	This set up menu is invalid when the DTR line protocol is set.

Table 2.4 STATUS indicator display, Set up menus (M304XR) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
32 **	RLSD	The logic of the Reversed Line Signal Detector (RLSD) signal is set.	ENABLE DISABL	The data transferred by the Receive Data (RD) signal is valid when the RLSD signal is on. The received data is valid regardless the RLSD signal contents.	DISABL	
33 **	DSR	The logic of Data Set Ready (DSR) signal is set.	ENABLE DISABL	The data transferred by the RD signal is valid when the RLSD signal is on. The received data is valid regardless the RLSD signal contents.	DISABL	
34 **	SCDTXE	The code number to which the received data is converted is set when a transmission error occurs.	SUB 20 SUB 21 . . SUB 7D SUB 7E	Converted to code X'20' Converted to code X'21' . . Converted to code X'7D' Converted to code X'7E'	SUB 3F	
35 **	SUBTXE	The convertion of the received data is set when a transmission error occurs.	ENABLE DISABL	Converted to the code set in SCDTXE. Not converted, and the received data is ignored.	ENABLE	
36 **	STPTXE	The stop operation is set when a transmission error occurs.	ENABLE DISABL	The printer stops. The printer does not stop.	ENABLE	
37 **	SCDIVC	The code number to which the control code data is converted is set when an invalid control code is received.	SUB 20 SUB 21 . . SUB 7D SUB 7E	Converted to code X'20'. Converted to code X'21'. . . Converted to code X'7D'. Converted to code X'7E'.	SUB 3F	

Table 2.4 STATUS indicator display, Set up menus (M304XR) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
38 **	SUBIVC	The convertion of the control code data is set when an invalid control code is received.	ENABLE DISABL	Converted to the code set in SCDIVC. Not converted, and the control code is ignored.	ENABLE	
39 **	SIPIVC	The stop operation is set when the invalid control code occurs.	ENABLE DISABL	The printer stops. The printer does not stop.	ENABLE	
40 **	SCDISQ	The code number to which the control sequence data is converted is set when an invalid control sequence occurs.	SUB 20 SUB 21 . . SUB 7D SUB 7E	Converted to code X'20'. Converted to code X'21'. . . Converted to code X'7D'. Converted to code X'7E'.	SUB 3F	
41 **	SUBISQ	The convertion of the control sequence data is set when an invalid control sequence occurs.	ENABLE DISABL	Converted to the code set in SCDISQ. Not converted, and that data is ignored.	ENABLE	
42 **	SIPISQ	The stop operation is set when an invalid control sequence occurs.	ENABLE DISABL	The printer stops. The printer does not stop.	ENABLE	
43 **	AUTONL	When the MODE SELECTION switch is set to NORMAL at power on, the availability of START mode is set.	ENABLE DISABL	The printer is automatically in the START mode. The printer is not in the START mode.	DISABL	

Table 2.4 STATUS indicator display, Set up menus (M304XR) - continued

Set up menu No.	Set up menu	Function	Set up field	Function	Factory setting	Note
44 **	AUTEJC	Validity of the following operation is set. - When the printer is in the start state and data transmission from the host is not performed, and the interface buffer is empty, four or five sheets of paper (11-inch forms) are fed 2 seconds after the TOF switch on the operator panel is pressed. Then, the printer enters the stop state and after 20 seconds, it enters the start state again.	ENABLE DISABL	The operation is valid. The operation is invalid.	DISABL	
45 **	HEXDMP	Validity of the following operation is set. - The received data from the host is dumped in hexadecimal notation.	ENABLE DISABL	The operation is valid. The operation is invalid.	DISABL	When this set up menu is set to ENABLE, if the transmission error occurs in the received data, the printer does not stop.

2.6 TEST Mode Operation

When the printer is in the NORMAL mode, make sure that the printer is offline. If not, press the START/STOP switch to put the printer offline. After confirm that OFLINE (or STOP) is displayed on the STATUS indicator, set the MODE SELECTION switch to TEST.

(1) Confirm that the TEST MODE lamp lights and TEST is displayed on the STATUS indicator.

(2) Test menu selection (Refer to Table 2.5)

Press the FINE FORMS ADJUST (⬆ or ⬇) switch to select the test item. Every time pressing, the test item is displayed on the STATUS indicator. When the required test item appears, press the START/STOP switch. The START/STOP lamp comes on and the test starts.

If the START/STOP switch is pressed when the TEST is displayed, the shift printing test starts.

Note: Test menu L.LOOP is available only for M304XR.

(3) Test termination

Test other than the SETFL test do not terminate automatically. Press the START/STOP switch to terminate these tests. The START/STOP lamp goes off.

The SETFL test terminates automatically. As soon as the test ends, the START/STOP lamp goes off.

(4) If an error is detected during test execution, the ERROR lamp comes on and the printer stops. For error contents and its solution, refer to Appendix C. After correcting the error, press the ERROR RESET switch to reset the error. The TEST is displayed on the STATUS indicator.

(5) If another test is to be run, repeat the procedure(s).

(6) When all tests are finished, set the MODE SELECTION switch to NORMAL. The TEST MODE lamp goes off and OFLINE (or STOP) is displayed on the STATUS indicator.

Table 2.5 STATUS indicator display, Test menu

Test menu No.	Status indicator display	Test name	Function and procedure
1	1 SFTPRT	Shift Printing	This test prints a shift pattern of all characters on the print band set in the printer. All printing errors and forms feed errors are detected during this test. Press the START/STOP switch while SETPRT is displayed to start the test. The START/STOP lamp comes on when the switch is pressed. Press the START/STOP switch again to stop the test. The START/STOP lamp will go out. When an error is detected during the test, the ERROR lamp comes on, the error contents are displayed, and the test terminates.
2	FIXPRT	Fix Printing	This test prints the character specified in test menu 3 (FIX DT) in all print positions. All printing error and forms feed errors are detected during the test. Press the START/STOP switch to start the test while FIXPRT is displayed. The START/STOP lamp comes on when the switch is pressed. Press the START/STOP switch again to stop the test. The START/STOP lamp will go out. When an error is detected during the test, the ERROR lamp comes on, the error contents are displayed, and the test terminates. If the test is run without specifying the character in test menu 3, H is printed in all print positions.
3	FIX DT	Fix Printing Data	The character to be printed in the FIXPRT and PSEADJ tests is specified in the FIX DT menu. When power is turned on, the specified character is H (default). When the START/STOP switch is pressed while FIXPRT or PSEADJ is displayed, the currently specified character is displayed as follows: PRDT=H └——Currently specified character

Table 2.5 STATUS indicator display, Test menu - continued

Test menu No.	Status indicator display	Test name	Function and procedure
3	FIX DT	Fix Printing Data	The displayed character changes in alphabetical order every time the FORMS FINE ADJUST ↑ switch is pressed. When the ↓ switch pressed, characters are displayed in reverse order. To specify a character, press the START/STOP switch when the desired character is displayed. The specified character remains in effect until power is turned off or until another character is specified using this menu. When power is turned off, the specified character becomes the default character, H. pecifiable character codes are X'21' to X'5F'. Some rinted characters are different from those displayed ecause of the following differences in print bands.

Characters displayed in STATUS indicator	#	$	@	[	\	]	↑	↓
(Character code: hex)	X'23'	X'24'	X'40'	X'5B'	X'5C'	X'5D'	X'5E'	X'5F'
Print band for US	#	$	@	[	\	]	^	_
Print band for UK	£	$	@	[	\	]	^	_
Print band for France	£	$	à	°	ç	§	^	_
Print band for Germany	#	$	§	Ä	Ö	Ü	^	_
Print band for Sweden	#	¤	É	Ä	Ö	Å	ú	_
Print band for Denmark	#	$	É	Æ	ø	Å	ú	_

4	NONPRT	No Print Test	This test performs the print and forms feed operations without exciting the hammer magnets. All errors except those relating to hammer checks are detected during the test. When an error is detected, the error contents are displayed and the test terminates. Press the START/STOP switch to start the test. Press the START/STOP switch a second time to terminate the test.

Table 2.5 STATUS indicator display, Test menu - continued

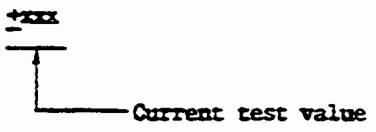
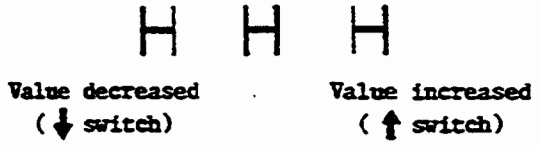
Test menu No.	Status indicator display	Test name	Function and procedure
5	PSEADJ	Horizontal synchronization adjustment in all columns	This test is used to adjust the horizontal synchronization in all columns. When the START/STOP switch is pressed while PSEADJ is displayed, the printer begins to print the character specified in the FIX DT test. The print speed is slower than in the FIXPRT test. If an error is detected during the test, the test terminates. The current value set for the test is displayed as follows:  Press the FINE FORMS ADJUST ↑ switch to increase the value; press the ↓ switch to decrease the value. The value can be any value from -063 to +063 (including 000). When the value is increased, horizontal synchronization shifts to the right. When the value is decreased, it shifts to the left. The following example shows the effect of this adjustment:  Printed characters can be shifted a maximum of 0.46 mm (0.0181") using this adjustment. If the synchronization cannot be adjusted, call a customer engineer. Since the value set in the test is not lost when power is turned off, the test does not have to be rerun when power is turned on again.
6	BNDTST	Band and Ink Ribbon Motion Test	This test checks the print band and ribbon operations. When the START/STOP switch is pressed, the START/STOP lamp comes on and the print band and ribbon begin to move. They stop when the START/STOP switch is pressed again. They also stop when an error is detected.
7	RBNTST	Ribbon Motion Test	This test checks the ribbon operation. When the START/STOP switch is pressed, the START/STOP lamp comes on and the ribbon begins to move. It stops when the START/STOP switch is pressed again. It also stops when an error is detected.

Table 2.5 STATUS indicator display, Test menu - continued

Test menu No.	Status indicator display	Test name	Function and procedure
8	FD TST	Form Feeding Test	This test checks continuous line feeding. (The skip-over function is also valid.) When the START/STOP switch is pressed, the START/STOP lamp comes on and the forms begin to feed. The operation terminates when the START/STOP switch is pressed or if the forms jam.
9	SET FL	SET to Form Length Mode	This menu is used to change the forms feed control mode using FCB or FCI data to the form length mode. Pressing the START/STOP switch changes the mode, and automatically ending operation of the menu. When the mode is changed, the FCB or FCI data is cleared. Forms feed is then controlled by form length, which is set by the set-up mode FORM-L menu. The print line at the time becomes the first line of a page.
10	L.LOOP	Local Loop-back Test	When selecting this test menu, connect the following jumper connector instead of the interface cable connector; Printer — Jumper connector Transmitted Data ⟵ ⟵ Receive Data ⟵ ⟵ Test Mode ⟵ ⟵ Local Loop-back ⟵ ⟵ This test checks whether the data transmitted from the printer is correctly received by the printer and whether the transmitted data matches the received data. (If this test is performed without the jumper connector, a LLER40 error occurs.)
11	HEXDMP	Data dump in hexadecimal notation	This test checks the following operation. - The received data from the host is dumped in hexadecimal notation.
12	SETUPD	Printer's Set Up Data Print Out	This test is used to confirm the set up data. When the START/STOP switch is pressed, the START/STOP lamp comes on and start the set up data printing operation. When this operation finished. The START/STOP lamp comes off.

Note: Test menu No. 10 is available only for M304XR.
Test menu No. 11 is available only for M304XC and M304XD.

2.7 Forms Mounting

(1) When the START/STOP lamp on the operator panel lights, press the START/STOP switch to put the printer offline.

(2) Open the top cover.

(3) Press the TOP OF FORM switch on the operator panel. Ensure that the TOP OF FORM lamp comes on.

(4) Lift the THROAT OPEN lever to widen the forms path. This also pulls the EOF feeler upward.

(5) Open the front door and place forms in the forms hopper.

(6) Incert the first sheet under the EOF feeler and push it upward.

(7) Pull the first sheet out from the upper forms path.

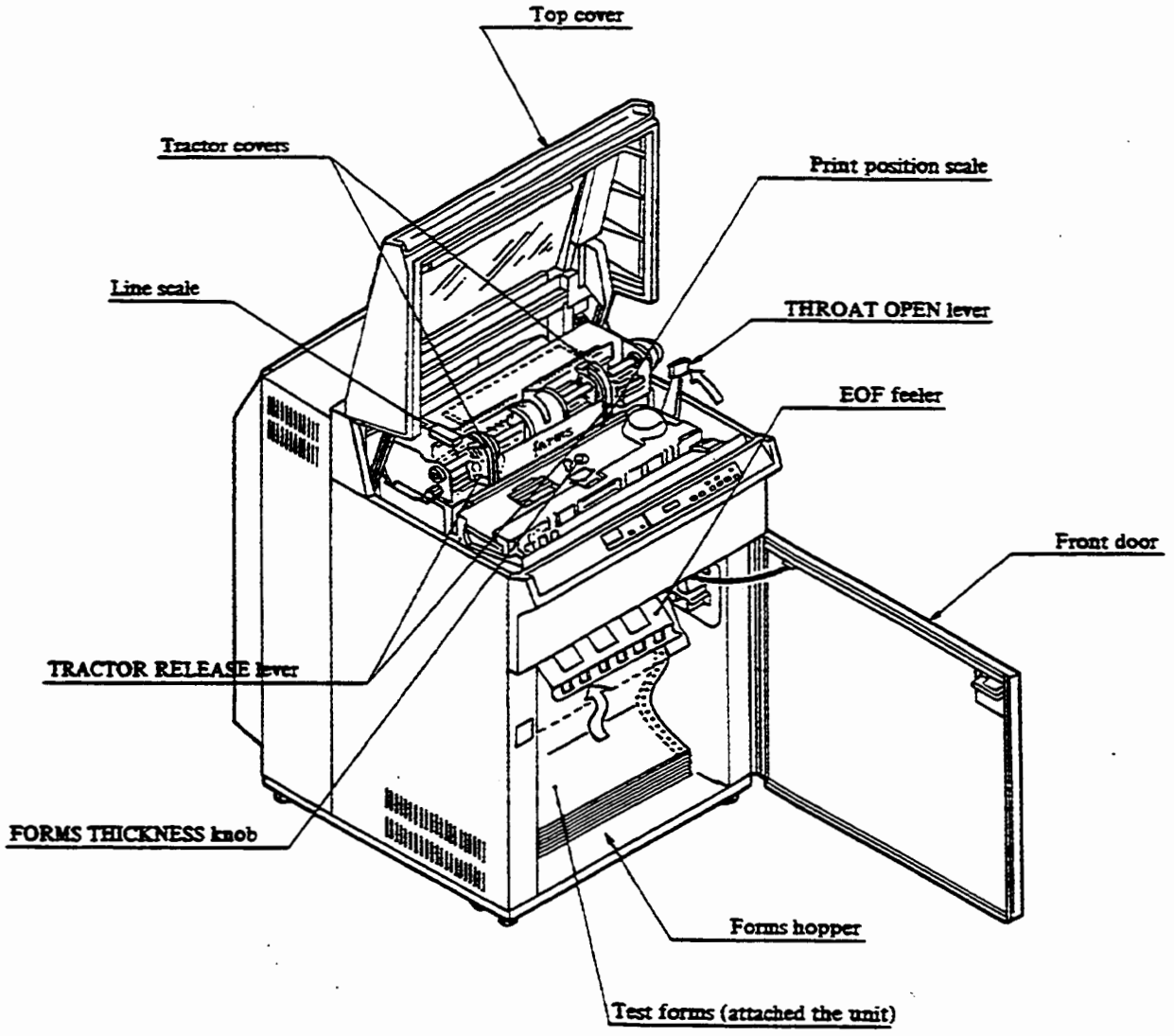


Figure 2.3 Forms mounting

(8) Open the left and right tractor covers, and set the pin-feed holes of the forms to pins of the tractor wheel.

(9) Close the tractor covers.

(10) Align the horizontal printing position by using TRACTOR RELEASE levers for rough adjustment and adjust the lateral tension of the forms.

NOTE

The forms require tension in the range where feed holes of the forms will not be damaged during printing.

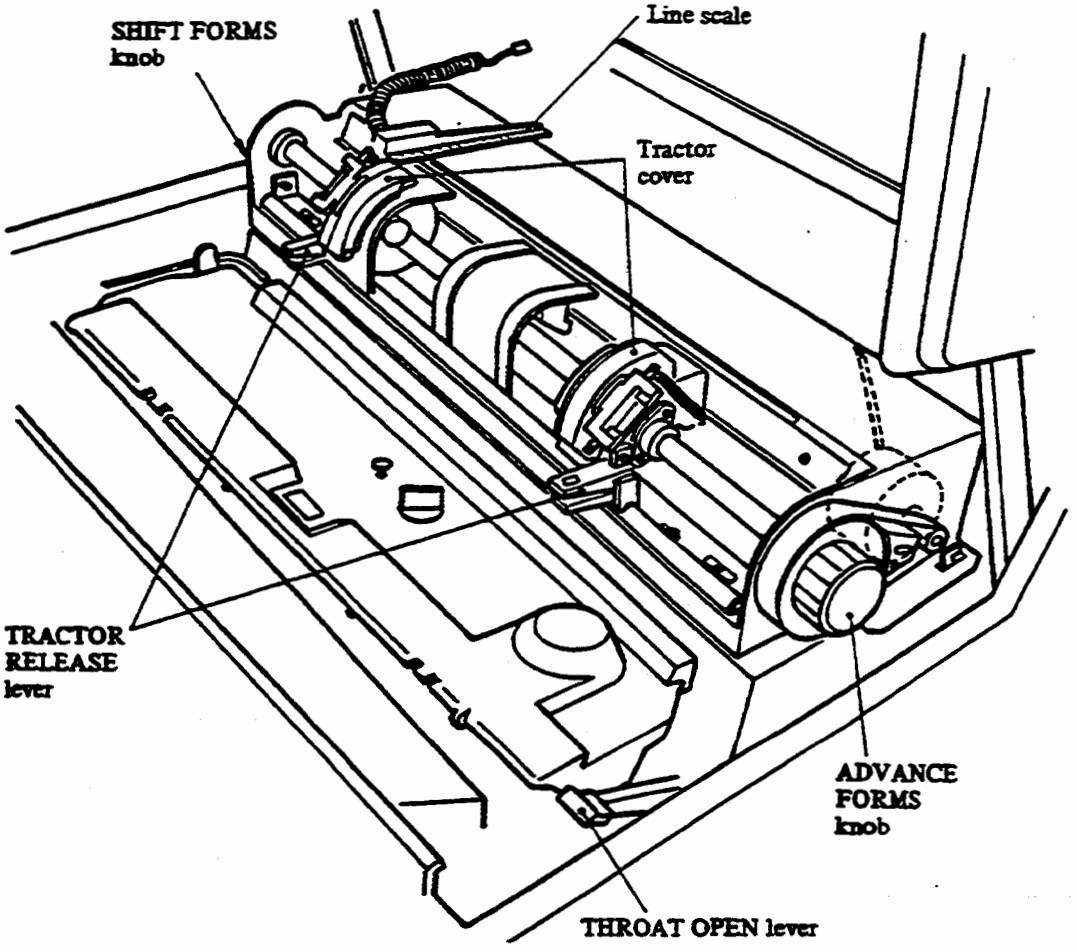


Figure 2.4 Forms adjustment

(11) Align the top-of-forms position (the first printing line position) with the line scale, using the ADVANCE FORMS knob for rough adjustment.

(12) Adjust the position of the forms hopper to enable the forms to move straight into the printer.

(13) Set the FORMS THICKNESS knob according to the forms thickness. When the forms are thin, turn the knob clockwise; when the forms are thick, turn counterclockwise.

(14) Move the THROAT OPEN lever down to lock the print unit.

(15) If necessary, use the SHIFT FORMS knob to align the horizontal print position and the FINE FORM ADJUST (⬆or⬇) switch on the operator panel to align the top-of forms position for fine adjustment.

NOTE

Incorrect adjustment causes print failures such as missing characters or parts of characters.

(16) Turn the ribbon feed rollers to take up the ribbon slack.

(17) Close the front door and the top cover.

(18) Press the START/STOP switch to put the printer online.

(19) Ensure that the forms come into the forms rack (or the powered stacker). After the top form reaches the bottom of the forms rack (or the table of the powered stacker), set the leading forms so that the creases of the forms are folded in the same direction as before.

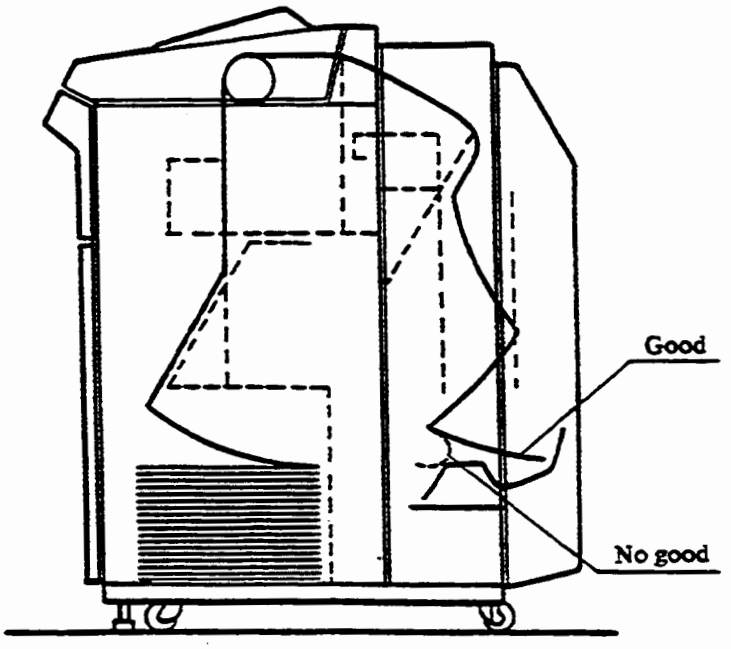


Figure 2.5 Forms stacking

(20) The forms rack allows about 200 to 300 sheets of standard forms to be folded continuously. But, the number of sheets varies considerably depending on the forms quality, size, the number of plies, and print pattern.

The powered stacker allows about 2,500 to 3,000 sheets to be folded continuously, except for mis-stacking (rated about 1/1000).

(21) If the stacked forms in the forms rack is as shown in Figure 2.6, folding forms is impossible thereafter. Press the edge of the stacked forms to flatten them, rearrange, or take printed portion out.

a. When the top face of the forms curls like U.

b. When the forms are displaced or twisted gradually.

Figure 2.6 Forms posture causing fold failures

2.8 Ribbon Replacement

Before the ribbon replacement, take out the polyethyleve gloves from the package of the ribbon cartridge. Wear them for keeping your hands clean.

2.8.1 Ribbon removal

(1) If the START/STOP lamp on the operator panel lights, press the START/STOP switch to put the printer offline.

(2) Open the top cover.

(3) Lift the THROAT OPEN lever to unlock the print unit.

(4) Pull the RIBBON DRIVE RELEASE lever toward you to increase the ribbon feed roller clearance.

(5) Grasping the handle on the left side of the ribbon cartridge, carefully remove the cartridge, pressing the ribbon entrance to prevent the ribbon inside from coming out.

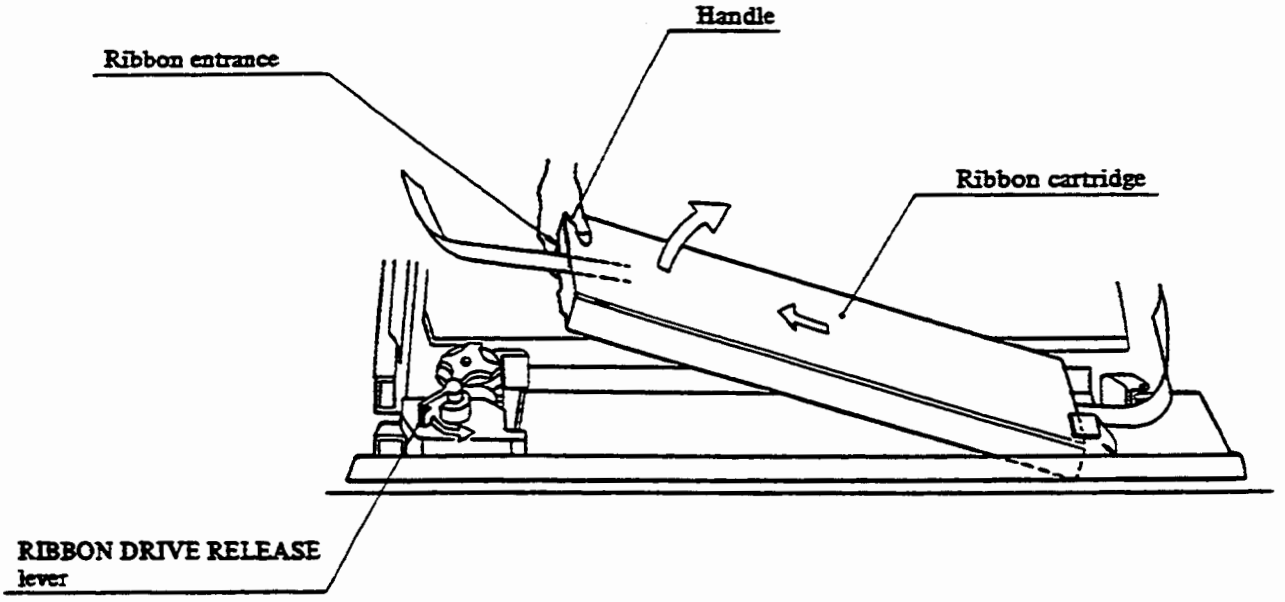


Figure 2.7 Ribbon removal

2.8.2 Ribbon mounting

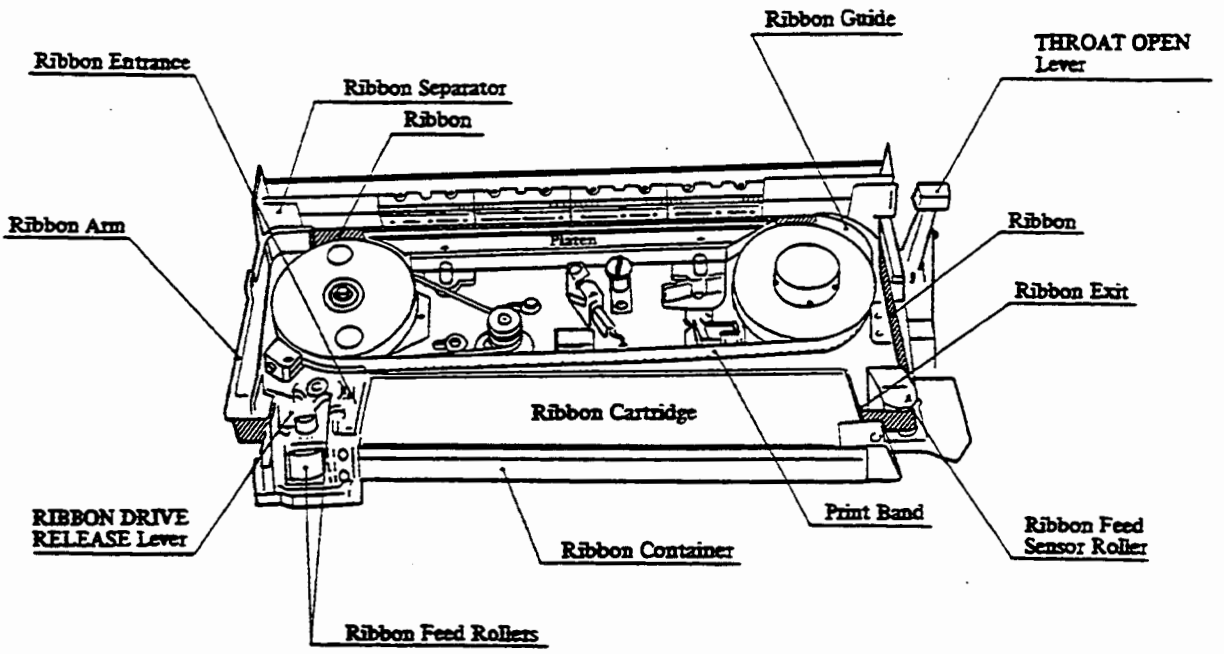
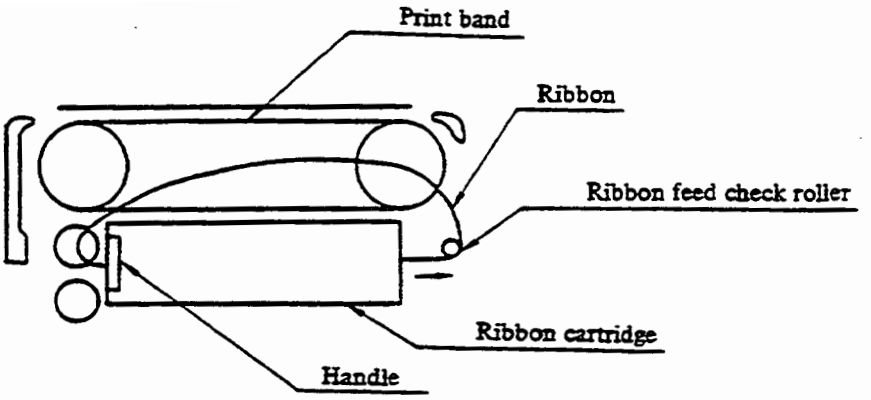


Figure 2.8 Ribbon path

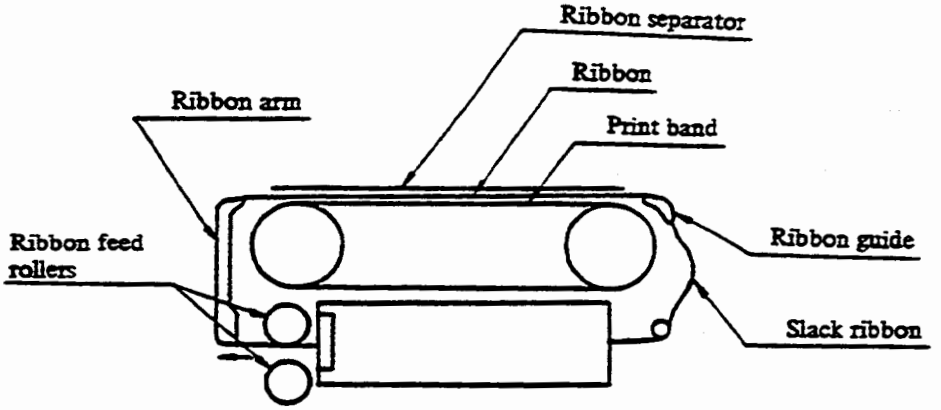
(1) Make sure that the TROAT OPEN lever is lifted up and two ribbon feed rollers are separated.

(2) Pull a short length of ribbon out from the ribbon exit (right side) of the ribbon cartridge and hang the pulled-out ribbon over the ribbon feed sensor roller. Rush the ribbon cartridge down into the ribbon container. (see Figure 2.9 (a))

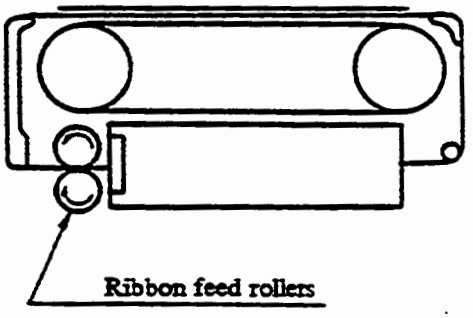
(3) Pull a short length of ribbon out from the ribbon entrance (left side) of the ribbon cartridge and pass the pulled-out ribbon through the ribbon feed rollers. Hang the ribbon over the left side ribbon arm. Pass the ribbon between the ribbon separator and the print band. Hand the ribbon over the right side ribbon guide. (see Figure 2.9 (b))



(a)



(b)



(c)

Figure 2.9 Ribbon mounting

(4) Push the RIBBON DRIVE RELEASE lever back to its original position.

(5) Turn the ribbon feed rollers by hand to take up the ribbon slack.

WARNING

Not push the slack ribbon into the ribbon cartridge by hand. The disturbed ribbon in the ribbon cartridge will cause a ribbon jam or other damages.

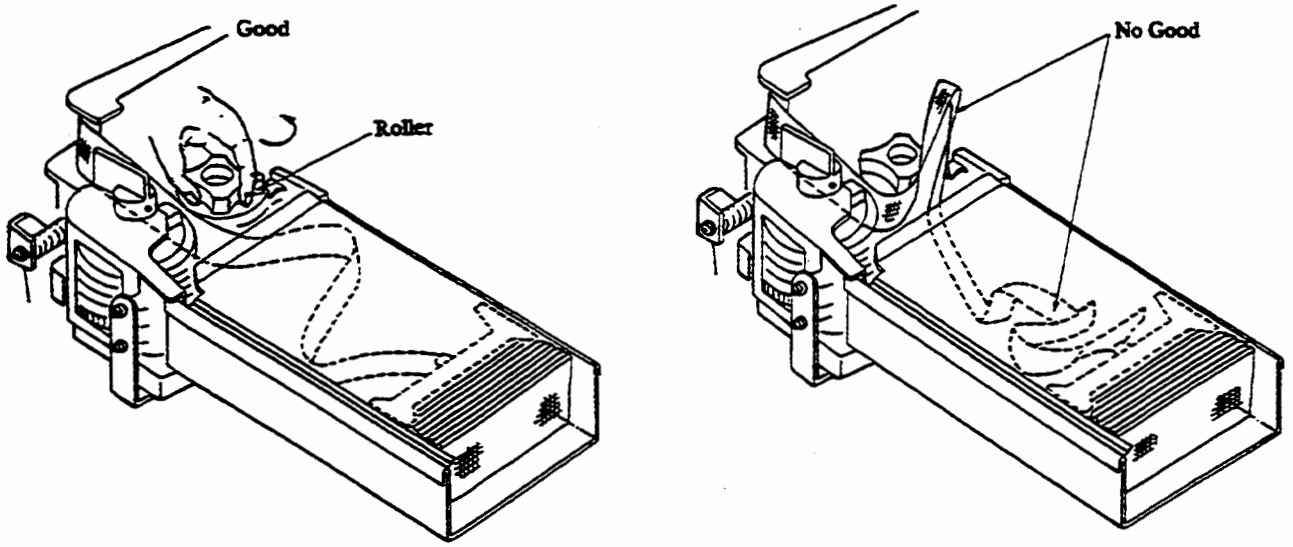


Figure 2.10 Slack ribbon removing

(6) Make sure that the ribbon is not slack or twisted.

(7) Push the THROAT OPEN lever down to lock the print unit.

(8) Close the top cover.

2.8.3 Ribbon scraping and ribbon storing temporarily

When scraping or keeping a used ribbon cartridge, insert the ribbon stopper sticked on the ribbon cartridge as shown in Figure 2.11.

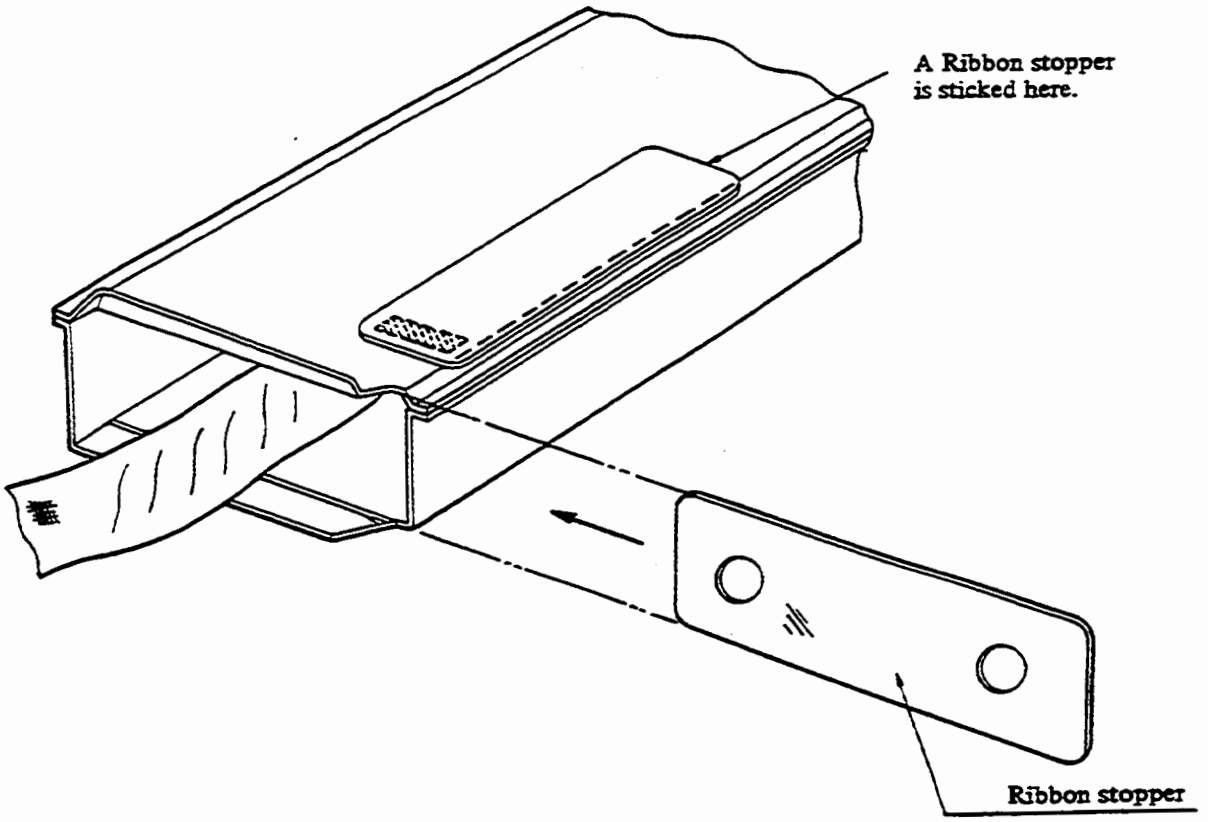


Figure 2.11 Ribbon stopper inserting

2.9 Print Band Replacement

When replacing the print band, wear the polyethylene gloves attached to the ribbon cartridge to keep your hands clean.

2.9.1 Warnings

(1) Do not fold or twist the print band.

(2) Do not start the print unit without locking the band cover.

(3) Do not touch the print band with a magnet or a screwdriver.

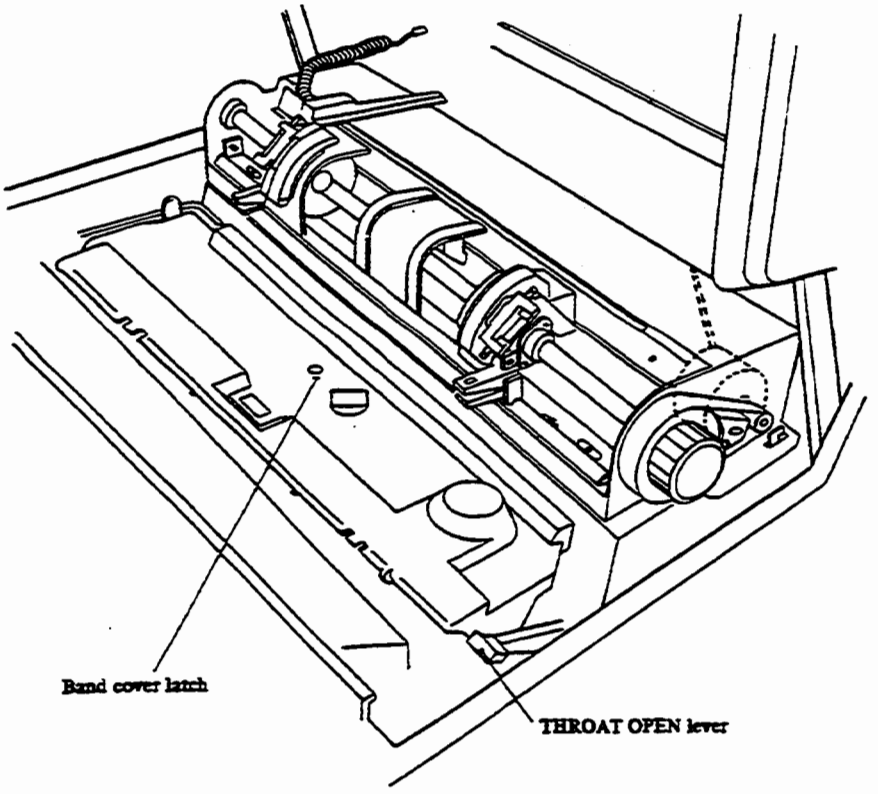
2.9.2 Print band removal

(1) If the START/STOP lamp on the operator panel lights, press the START/STOP switch to put the printer offline.

(2) Open the top cover and lift up the THROAT OPEN lever to unlock the print unit.

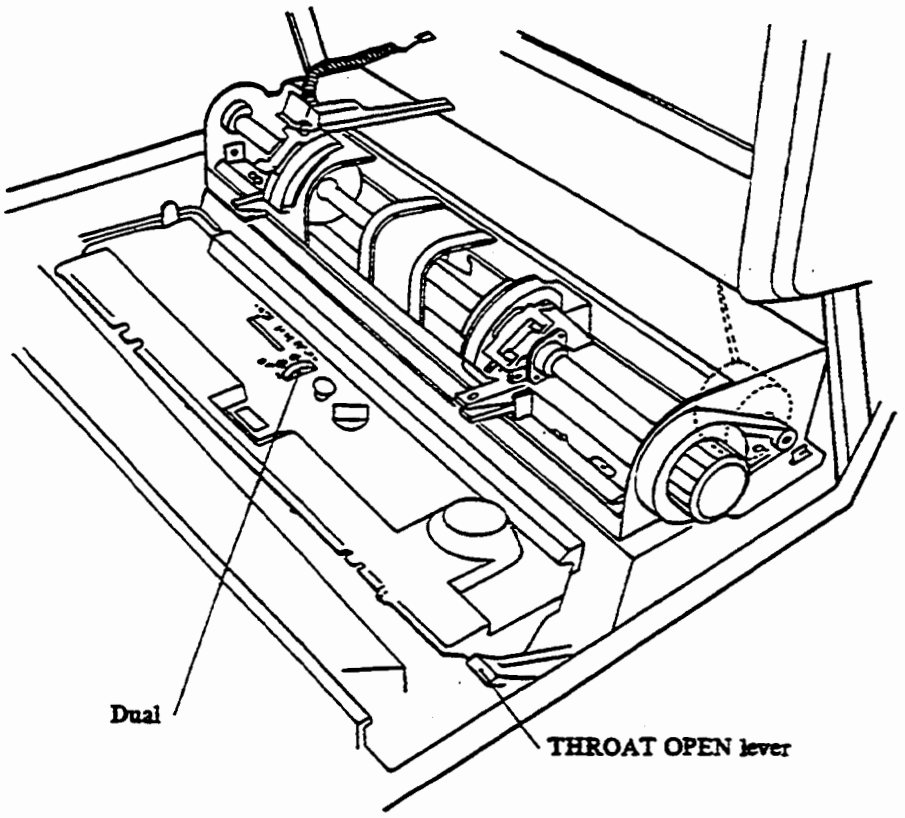
(3) For the UL/CSA version printer, pull the band cover latch and open the band cover.

For the VDE version printer, turn the dial to "OPEN" side until the position mark is reached at "OPEN" position and open the band cover.



(a) UL/CSA versition

Figure 2.12 Print band removing (1) (1/2)



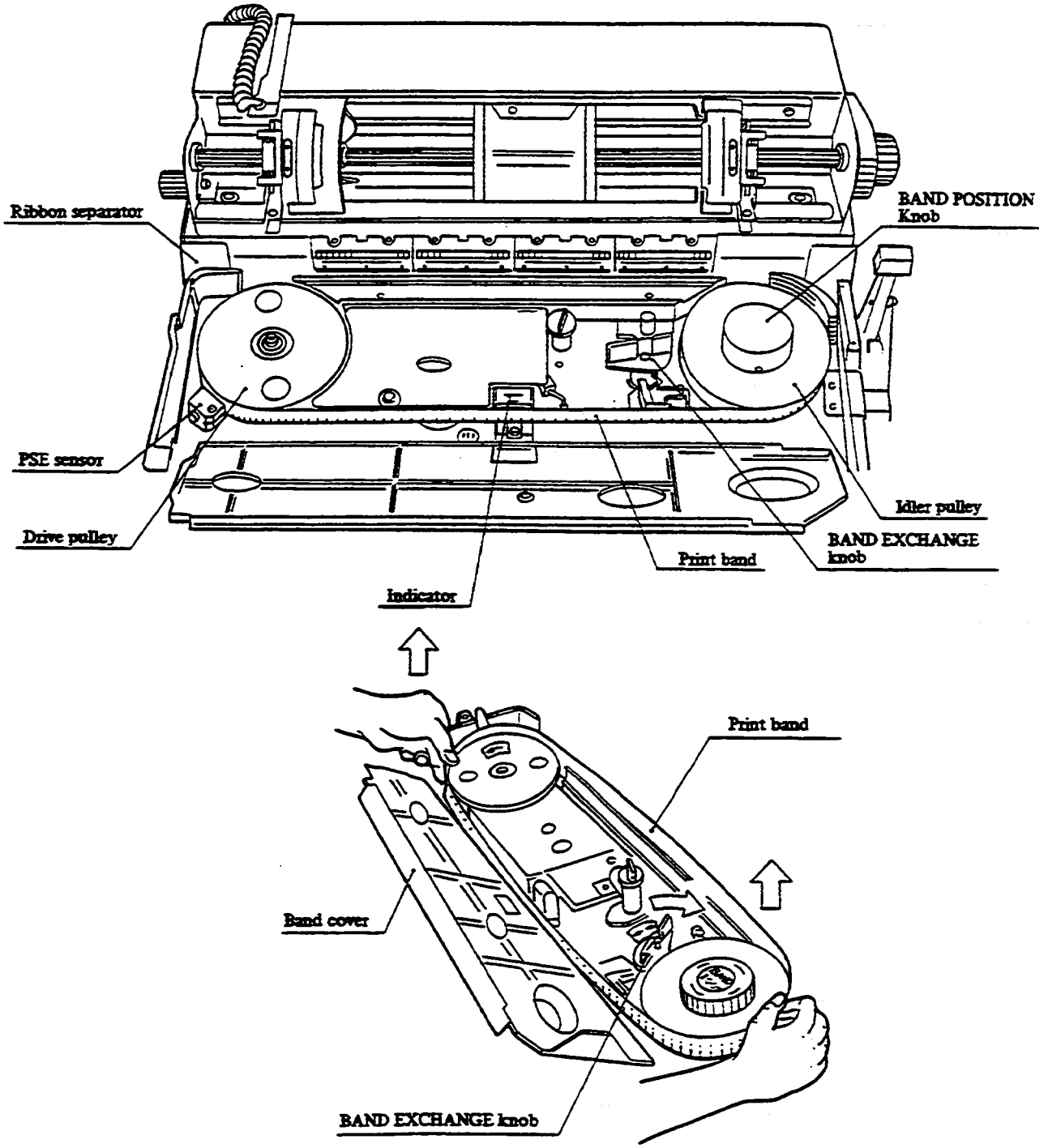
(b) VDE version

Figure 2.12 Print band removing (1) (2/2)

(4) Hold the right and left edge of the ribbon separator (polyethylene film), and gently pull it out.

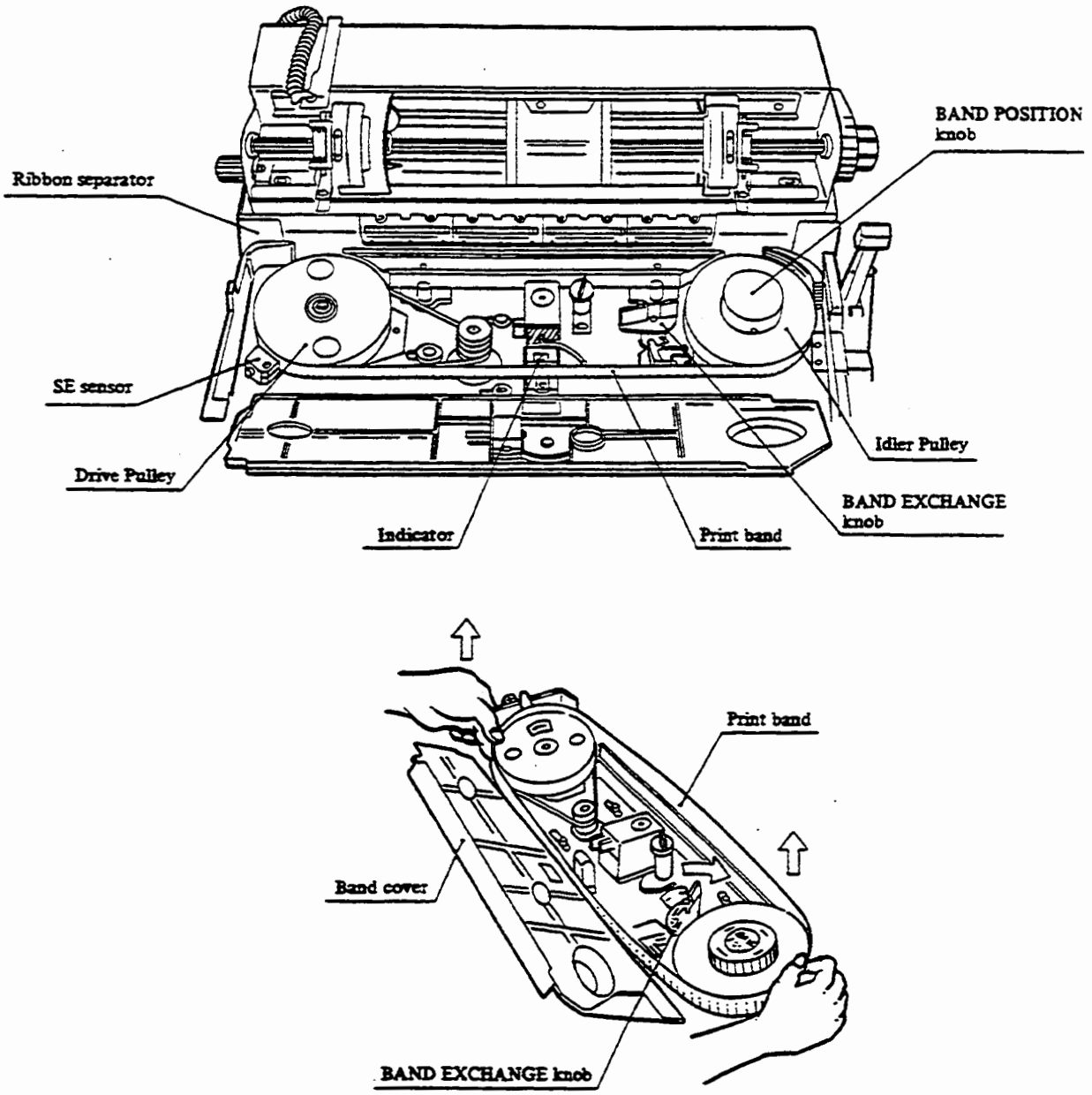
(5) Turn the BAND EXCHANGE knob to the BAND EXCHANGE position.

(6) Hold the right and left ends of the print band and carefully lift upward. Be careful so as to avoid hitting the PSE sensor with the print band.



(a) UL/CSA version

Figure 2.13 Print band removing (2) (1/2)



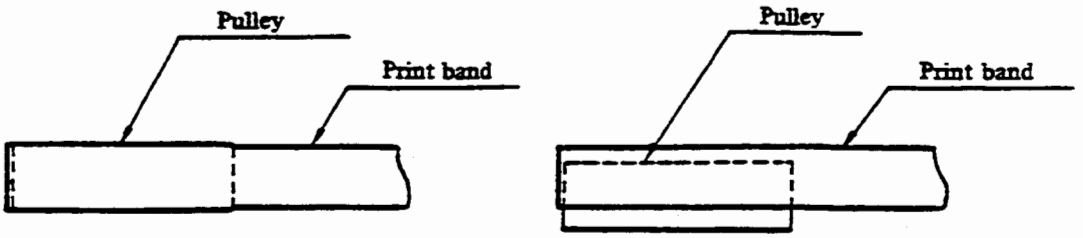
(b) VDE version

Figure 2.13 Print band removing (2) (2/2)

2.9.3 Print band mounting

(1) Make sure that the THROAT OPEN lever is lifted up and the BAND EXCHANGE knob is set to BAND EXCHANGE position.

(2) Hang the print band on the two pulleys (drive and idler), taking care to avoid hitting the PSE sensor with the print band. The print band should be mounted so that the print band rins and the upper and lower faces of the pulleys are aligned as shown in Figure 2.14.



(a) Good (b) No good

Figure 2.14 Print band position adjustment (1)

(3) Turn slowly the BAND EXCHANGE knob to NORMAL position.

(4) Turn the idler pulley counterclockwise by hand until the print band is in place (about ten turns).

(5) Adjust the print band position using the BAND POSITION knob while watching the indicator from above. See Figure 2.15 for proper alignment.

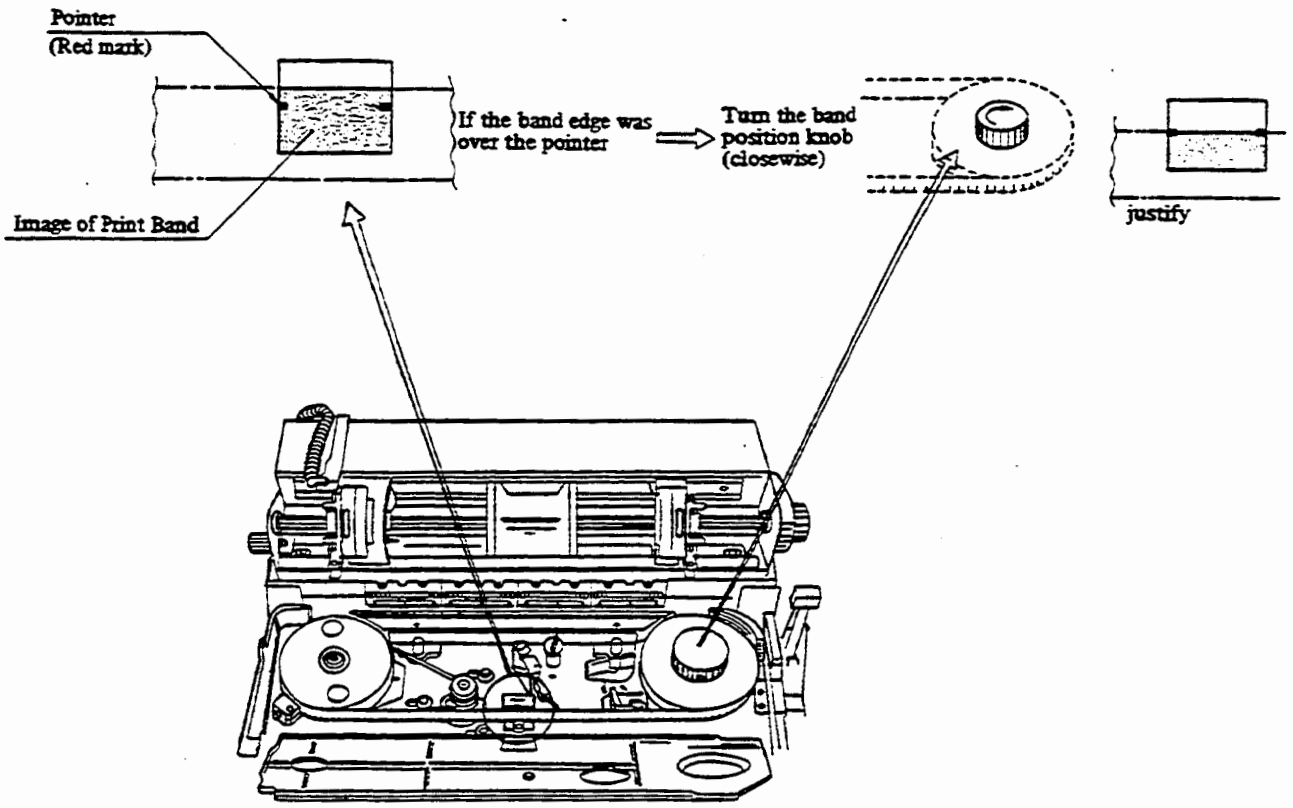


Figure 2.15 Print band position adjustment (2)

(6) Incert the ribbon separator until it is seated.
The ribbon separator has a cutout on the left side. Be careful not to switch the right and left sides. See Figure 2.16.

(7) For the UL/CSA version printer, close the band cover.

For the VDE version printer, close the band cover and turn the dial to "CLOSE" side until the position mark is reached at "LOCK" position.

(8) Turn the ribbon drive feed rollers by hand to take out any ribbon slack.

(9) Push the THROAT OPEN lever down to lock the print unit.

(10) Close the top cover.

2.10 Ribbon Separator Replacement

(1) If the START/STOP lamp on the operator panel lights, press the START/STOP switch to put the printer offline.

(2) Open the top cover and lift up the THROAT OPEN lever to unlock the print unit.

(3) Remove the ribbon separator by lifting the projections on its left and right.

(4) Incert the new ribbon separator until it is seated. Do not reverse the left and right sides of the ribbon separator. There is a cutout on the left side.

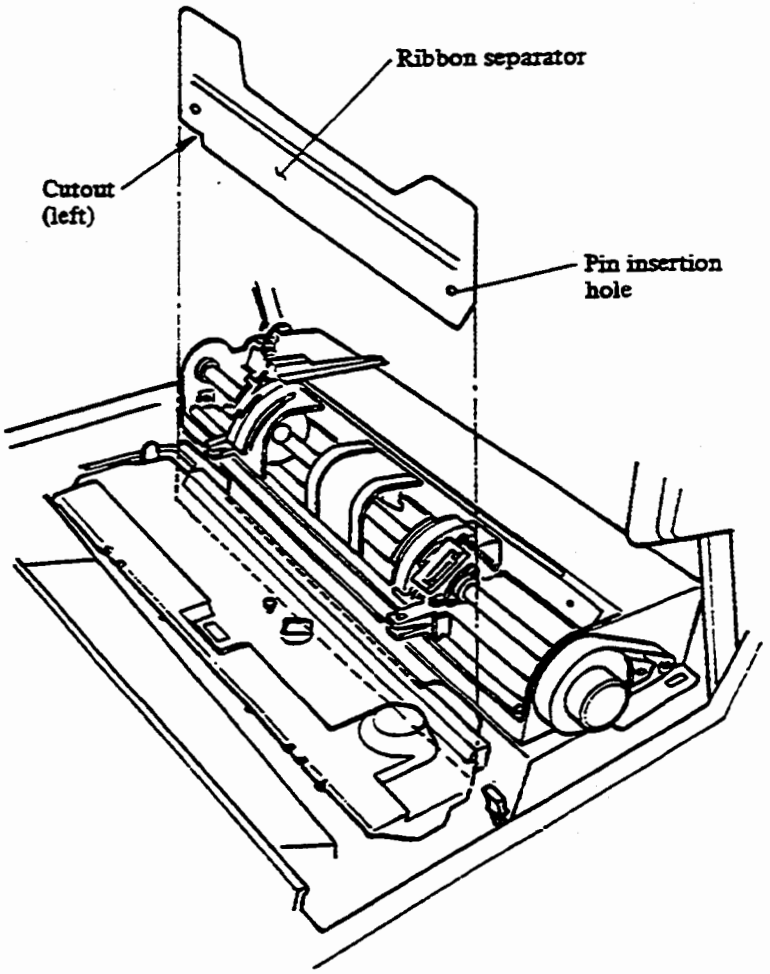


Figure 2.16 Ribbon separator mounting

(5) Make sure when lowering the THROAT OPEN lever that the pins are in the holes at the left and right of the ribbon separator. Check that the ribbon separator does not come out.

(6) Push the THROAT OPEN lever down and close the top cover.

2.11 Wax Replacement

(1) If the START/STOP lamp on the operator panel lights, press the START/STOP switch to put the printer offline.

(2) Open the top cover and lift up the THROAT OPEN lever to unlock the print unit.

(3) Pull the band cover latch and open the band cover.

(4) Turn the BAND EXCHANGE knob to the BAND EXCHANGE position.

(5) Remove the wax from the wax holder and replace with a new one.

(6) Turn the BAND EXCHANGE knob ot the NORMAL position.

(7) For the UL/CSA version printer, close the band cover.

For the VDE version printer, turn the dial to "CLOSE" side until the position mark is reached at "LOCK" position.

(8) Push the THROAT OPEN lever down and close the top cover.

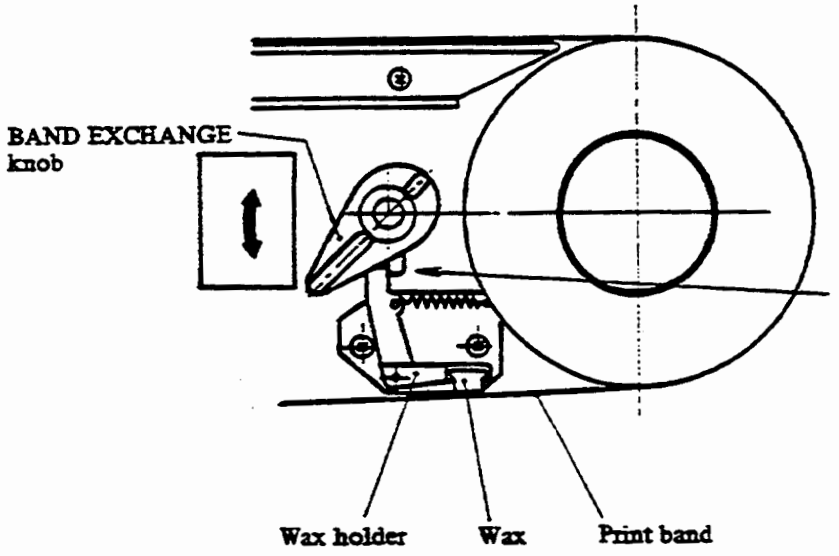


Figure 2.17 Wax replacement

2.12 Operations of Optional Operator Panels

The operations of the optional operator panels for the stacker, forms rack, and paper puller are explained in this section.

2.12.1 Stacker operator panel

Figure 2.18 shows the layout of the switches and lamps on the stacker operator panel. Table 2.6 lists the names, types, and functions of the switches and lamp indication.

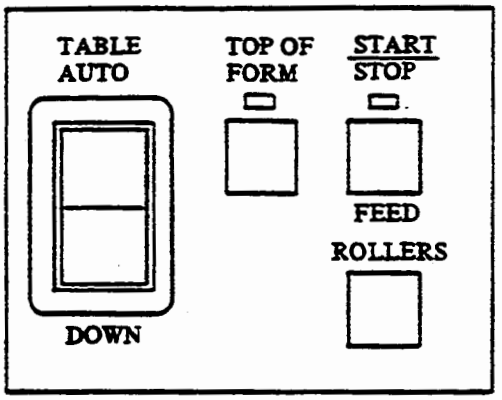


Figure 2.18 Stacker operator panel

Table 2.6 Names, types, and functions of switches and lamp indication on stacker operator panel

Item	Name	Type	Lamp	Function
1	START/STOP	Momentary	Provided	Same function as the START/STOP switch on the printer operator panel.
2	TOP OF FORM	Momentary	Provided	Same function as the TOP OF FORM switch on the printer operator panel.
3	FEED ROLLERS	Momentary	Not provided	When this switch is pressed, the stacker forms feed impeller starts rotating and draws forms into the stacker. When it is released, the impeller stops rotating. Use this switch when changing forms.
4	TABLE AUTO/DOWN	Locking (Rocker switch)	Not provided	AUTO: The stacker detects the top end of forms on the forms receive table and folds the forms automatically, retaining the detected top end position by controlling the table position. The Stacker Full condition is detected only when this switch is set to AUTO. DOWN: The forms receive table is set to bottom and is not moved. The Stacker Full condition is not detected. Specify this setting for forms which cannot be folded automatically or for removing forms from the stacker.

2.12.2 Forms rack operator panel

Figure 2.19 shows the layout of the switches and lamps on the forms rack operator panel. Table 2.7 lists the names, types, and functions of the switches and lamp indications.

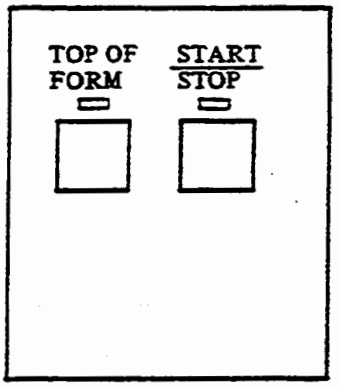


Figure 2.19 Forms rack operator panel

Table 2.7 Names, types, and functions of switches and lamp indication on forms rack operator panel

Item	Name	Type	Lamp	Function
1	START/STOP	Momentary	Provided	Same function as the START/STOP switch on the printer operator panel.
2	TOP OF FORM	Momentary	Provided	Same function as the TOP OF FORM switch on the printer operator panel.

2.12.3 Paper puller operator panel

Figure 2.20 shows the layout of the switches and lamps on the paper puller operator panel. Table 2.8 lists the names, types, and functions of the switches and lamp indication.

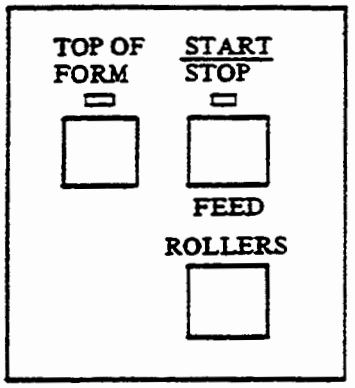


Figure 2.20 Paper puller operator panel

Table 2.8 Names, types, and functions of switches and lamp indication on paper puller operator panel

Item	Name	Type	Lamp	Function
1	START/STOP	Momentary	Provided	Same function as the START/STOP switch on the printer operator panel.
2	TOP OF FORM	Momentary	Provided	Same function as the TOP OF FORM switch on the printer operator panel.
3	FEED ROLLERS	Momentary	Not provided	When this switch is pressed, the paper puller forms feed impeller starts rotating and draws forms into the paper puller. When it is released, the impeller stops rotating. Use this switch when changing forms.

Dust and lint often settle on the printer surface. Therefore, the printer must be cleaned about once a week.

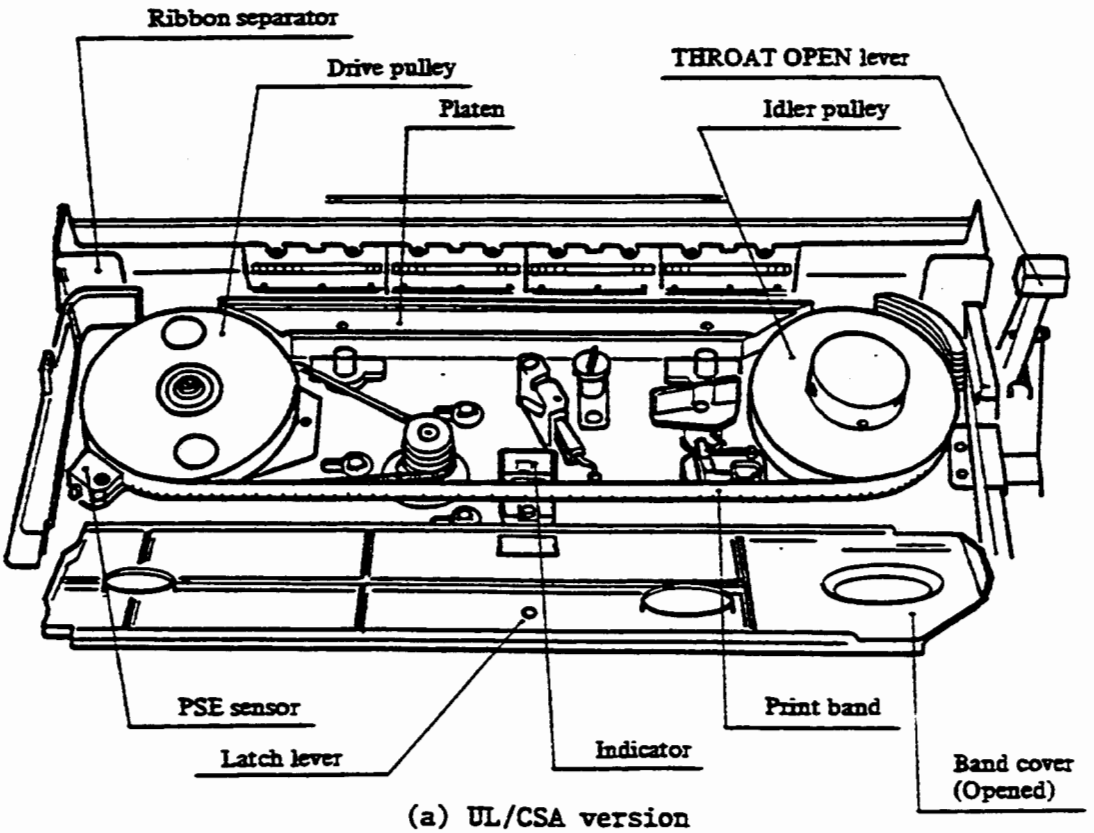
When cleaning, do not open the covers while the print band, gears, and belts are rotating. Also, make sure that dust does not settle onto the gears and belts.

The procedures for cleaning the base unit, the forms feed unit, the ribbon unit, and the cabinet are given in this chapter.

3.1 Cleaning the Base Unit

UL/CSA version

Before cleaning the base unit, open the top cover. Then, lift the THROAT OPEN lever and pull the cover latch to open the band cover. After cleaning the unit, reverse this procedure.

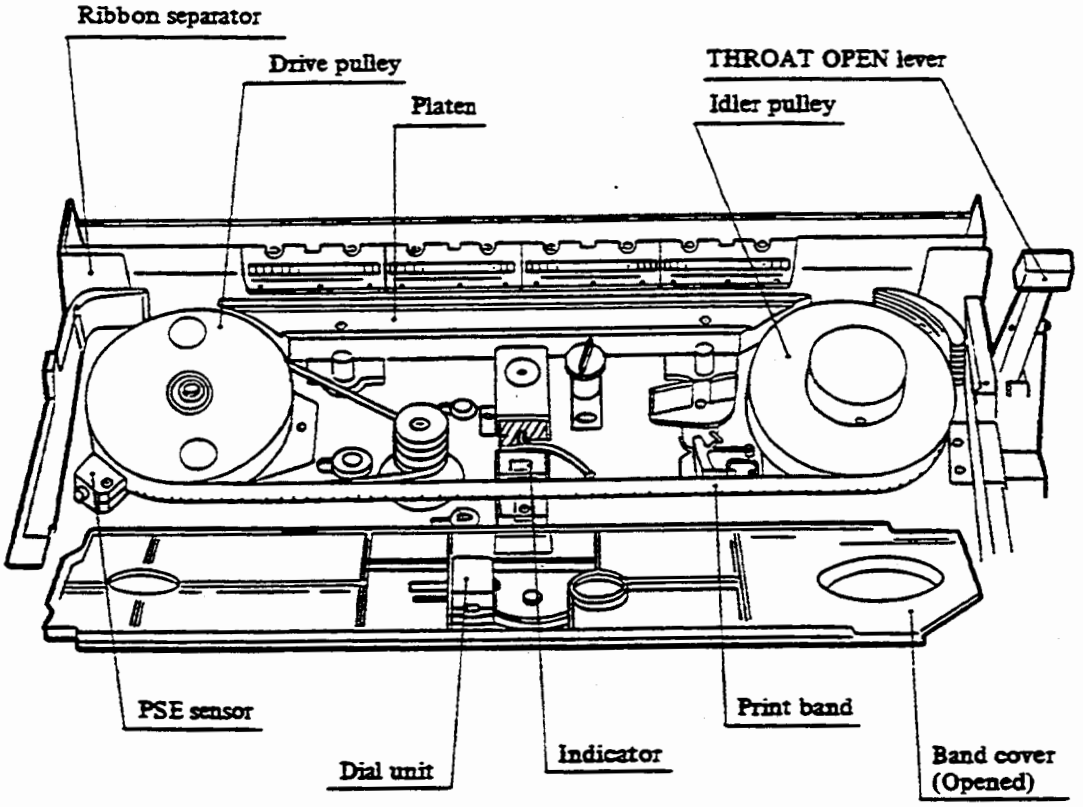


(a) UL/CSA version

Figure 3.1 Cleaning the base unit (1/2)

VDE version

Before cleaning the base unit, open the top cover. Then, lift the THROAT OPEN lever, and turn the dial to "OPEN" side until the position mark is reach at "OPEN" position, and open the band cover. After cleaning the base unit, reverse this prodedure.



(b) VDE version

Figure 3.1 Cleaning the base unit (2/2)

(1) Cleaning the print band and surrounding area

1. Remove the ribbon separator. Then rotate the BAND EXCHANGE knob and remove the print band.

2. Set the print band on a level surface, such as the corner of a desk, to prevent abnormal stretching of the print band. Also, remove dirt on the printing side of the print band with a dry cloth such as gauze so as not to bend the band.

   Remarks: Do not clean the other side of the print band (reverse side of the printing side) with a solvent, like alcohol. If the band is dirty, clear it with a dry cloth, like gauze.

3. Using a vacuum cleaner, clean around the print band and both sides of the band cover. Remove lint and dust on the external forms side.

(2) Cleaning the drive and idler pulleys

1. Remove the print band.

2. While rotating the drive and idler pulleys counterclockwise, clean the outside of the drive and idler pulleys with a dry cloth, like gauze.

(3) Cleaning the indicator

1. Remove the print band.

2. Clean the top and the outside of the indicator with a dry cloth, like gauze.

(4) Cleaning the PSE sensor

1. Remove the print band.

2. Using a vacuum cleaner, clean the PSE sensor head side facing the print band.

(5) Cleaning the platen

1. Remove the print band.

2. Remove the ribbon.

3. Remove the ribbon separator.

4. If the platen is dirty, clear it with a dry cloth, like gauze.

(6) Cleaning the ribbon separator.

1. Remove the ribbon separator.

2. Wipe off lint or dust on the ribbon. Remove old ink using a cloth dampered with ligroin or alcohol.

3. Remove all foreign matter between the holder section and film section of the ribbon separator. Fold the forms in half to make the job easier.

3.2 Cleaning the Forms Feed Unit

Before cleaning the forms feed unit, open the top cover and lift the THROAT OPEN lever. After cleaning it, reverse this procedure.

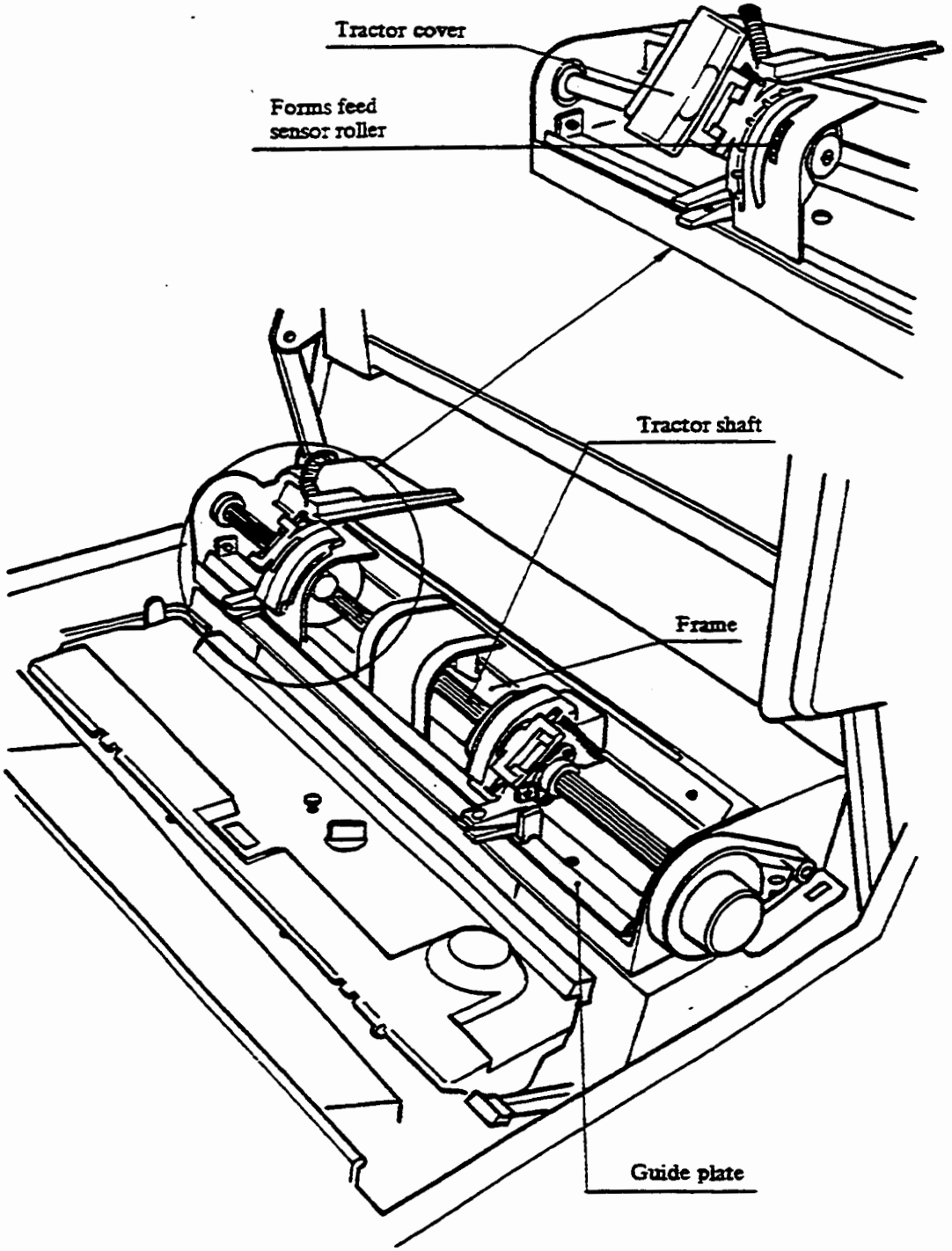


Figure 3.2 Cleaning the forms feed unit

(1) Cleaning the forms tractors

Open the tractor covers and remove dust from forms tractors with a vacuum cleaner. Clean the forms feed sensor roller near the left forms tractor with a soft cloth, like gauze.

(2) Cleaning the tractor shaft and frame

1. Wipe off dirt on the tractor shaft with a soft cloth, like gauze.

2. Using a vacuum cleaner, remove dust from the frame and the guide plate in the forms feed unit.

3.3 Cleaning the Ribbon Unit

Before cleaning the ribbon unit, open the top cover, lift the THROAT OPEN lever, and remove the ribbon cartridge. After cleaning it, reverse this procedure.

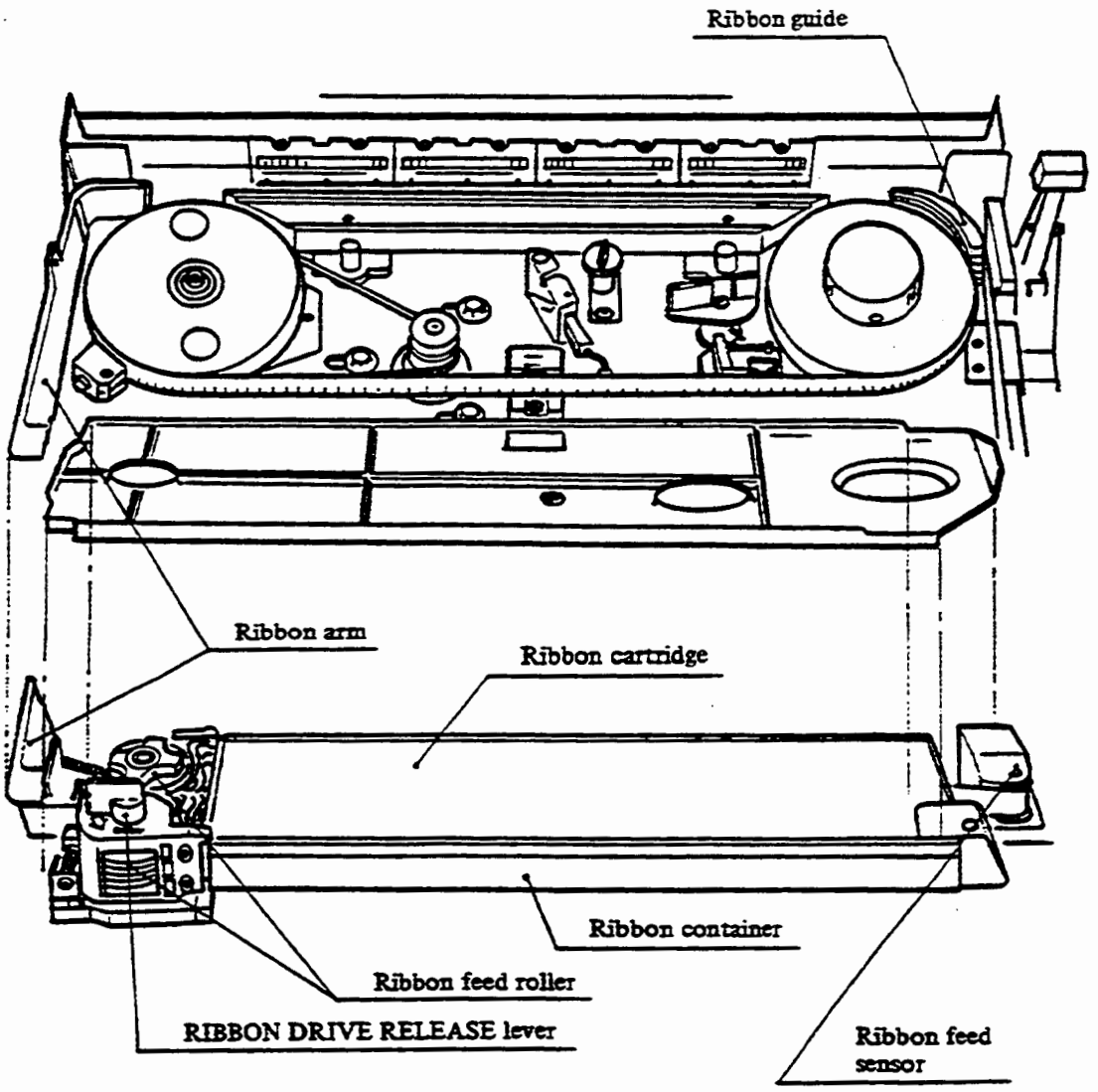


Figure 3.3 Cleaning the ribbon unit

(1) Cleaning the ribbon unit and surrounding area

Before replacing the ribbon, remove lint from the ribbon container with a vacuum cleaner.

(2) Cleaning the ribbon feed rollers and surrounding area

Disengage the ribbon feed rollers by pulling the RIBBON DRIVE RELEASE lever, and remove lint from the rollers with a vacuum cleaner.

Do not clean using a solvent, like alcohol.

(3) Cleaning the ribbon guide and surrounding area

1. Remove the ribbon from the ribbon guide and the ribbon arm.
2. Clean off lint or link on the guide surface with a soft cloth or sponge.

(4) Cleaning the ribbon feed sensor

1. Remove the ribbon from the ribbon feed sensor.
2. Wipe off lint or ink on the roller with a soft cloth, like gauze.
3. Make sure that the roller rotates smoothly and has vertical play.

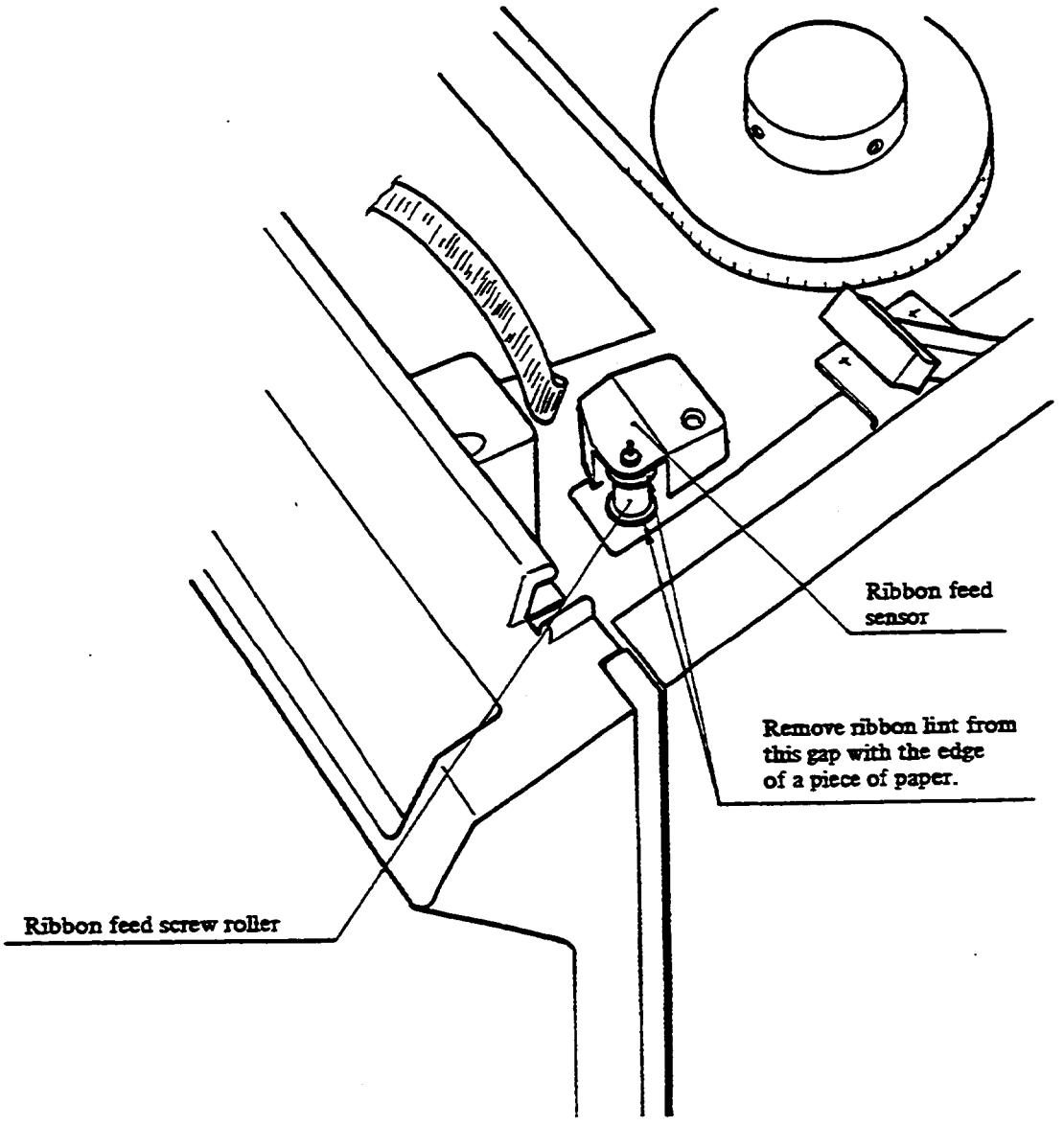


Figure 3.4 Cleaning the ribbon feed sensor

3.4 Cleaning the Cabinet

Clean the cabinet and its components using the procedures given in this section. After cleaning any or all of these components, reverse the corresponding procedures.

(1) Cleaning the hopper

1. Open the top cover and lift the THROAT OPEN lever.
2. Open the front door.
3. Remove dust from the hopper with a vacuum cleaner.

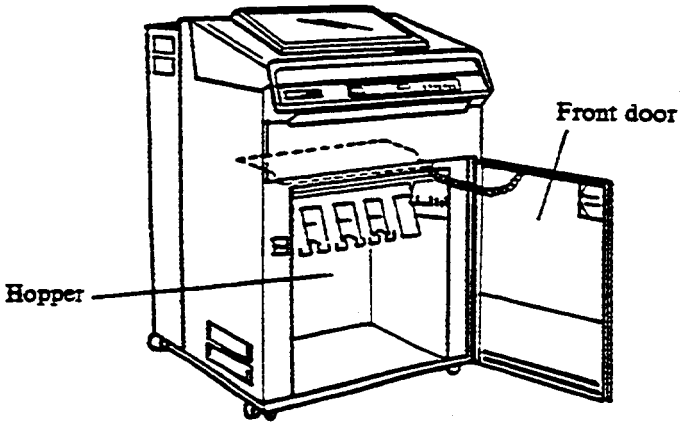


Figure 3.5 Cleaning the hopper

(2) Cleaning the area around the control section

1. Open the rear door or the stacker door.
2. Remove screw A in the forms rack or in the powered stacker and open the forms rack or the powered stacker.
3. Using a vacuum cleaner, remove dust from the cabinet. Take care not to damage parts or to remove any loose parts.

Screw A in the powered stacker is located at almost the same position as the one in the forms rack.

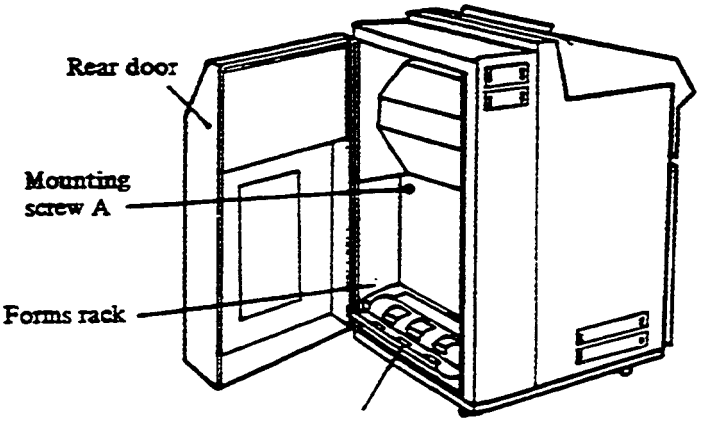


Figure 3.6 Opening the forms rack or powered stacker

(3) Cleaning the forms rack

1. Open the rear door.

2. Remove dust from the forms rack with a vacuum cleaner.

(4) Cleaning the powered stacker

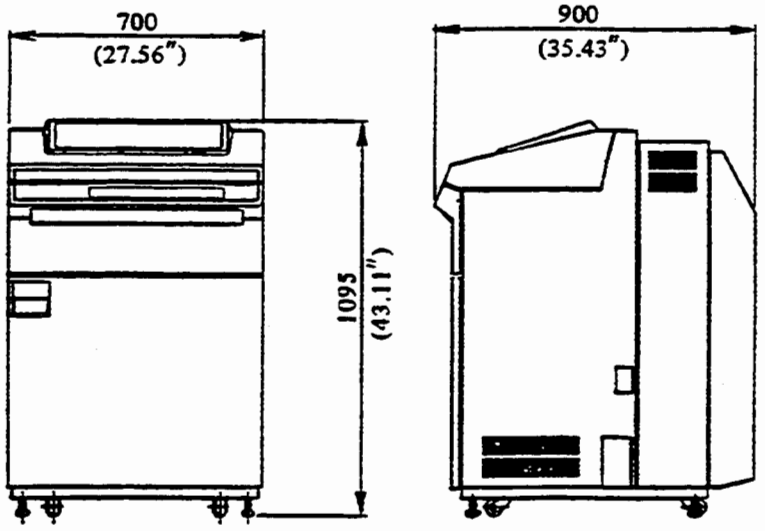
1. Open the stacker door.

2. Remove dust from the powered stacker with a vacuum cleaner.

APPENDIX A INSTALLATION REQUIREMENTS

A.1 Outer dimensions

M3040
M3041
M3042



M3043

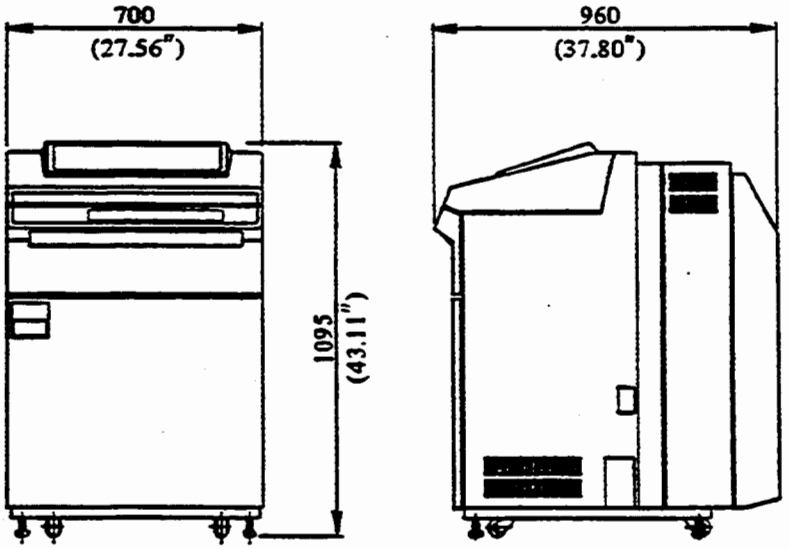


Figure A.1 Outer dimensions (with forms rack)

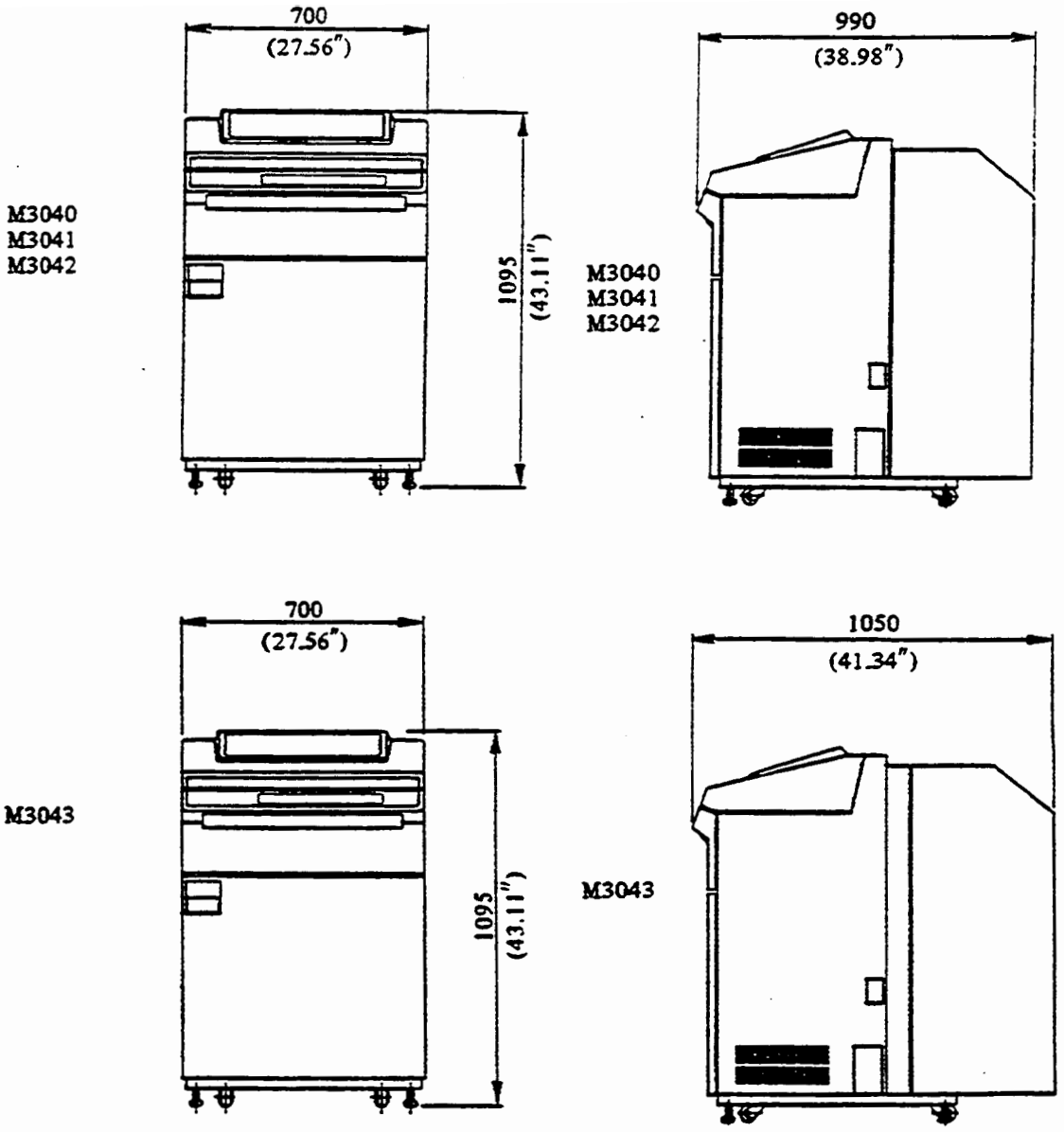
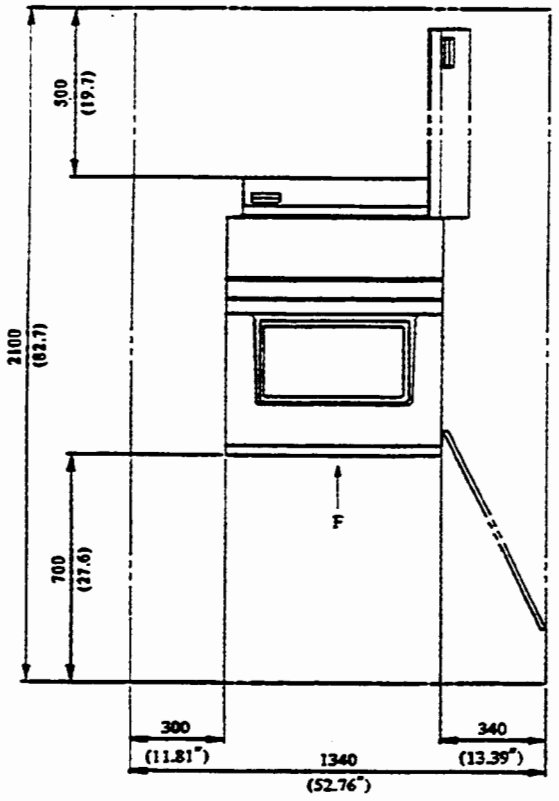


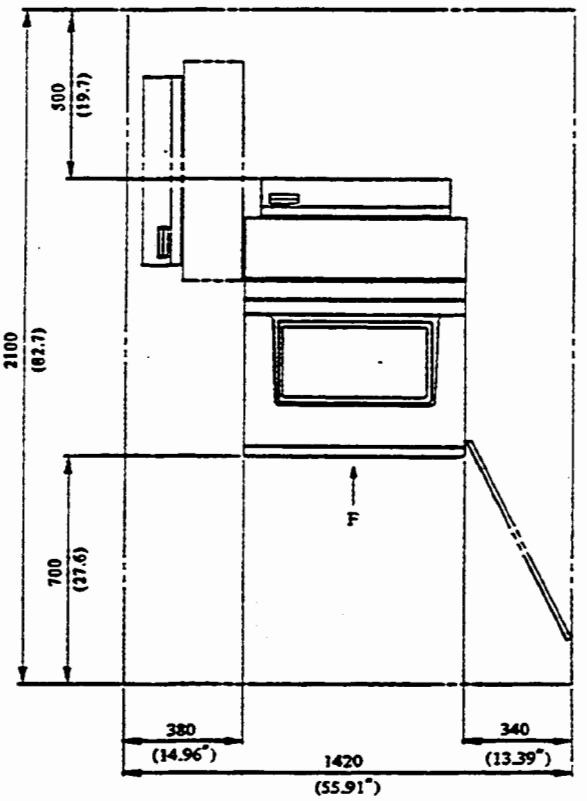
Figure A.2 Outer dimensions (with powered stacker)

A.2 Operation and Maintenance Area

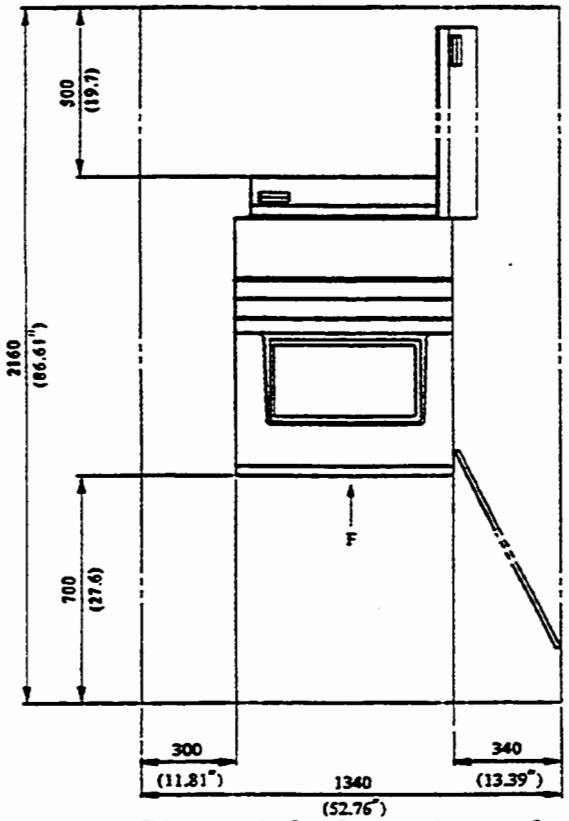
Operation area for M3040/M3041/M3042



Maintenance area for M3040/M3041/M3042



Operation area for M3043



Maintenance area for M3043

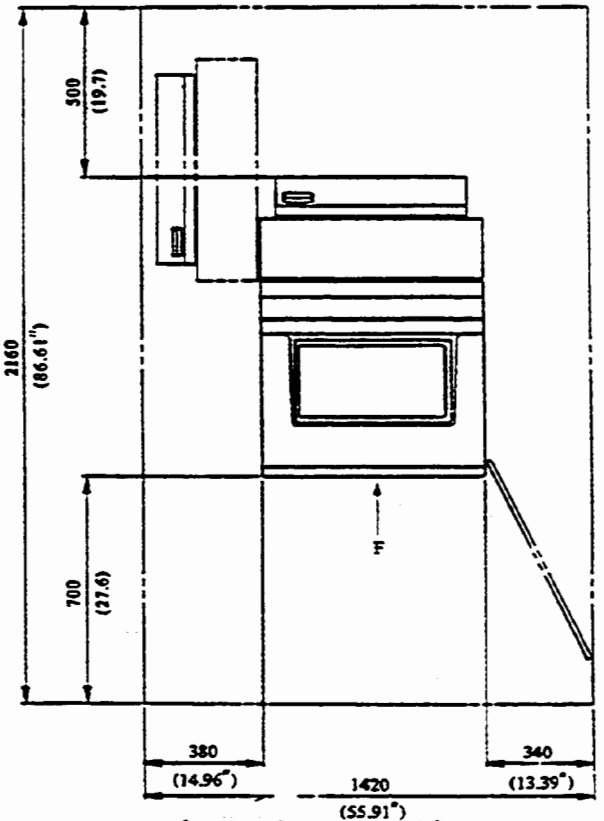
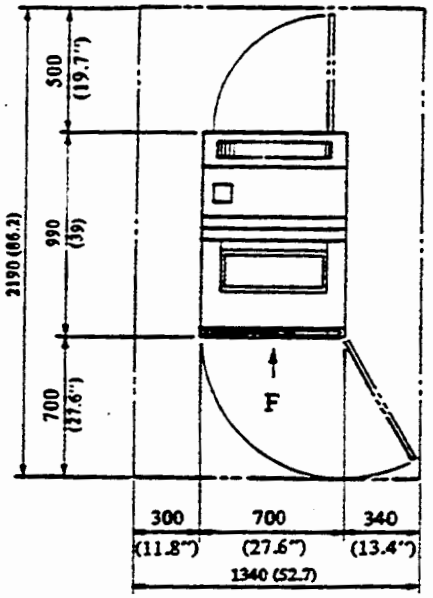
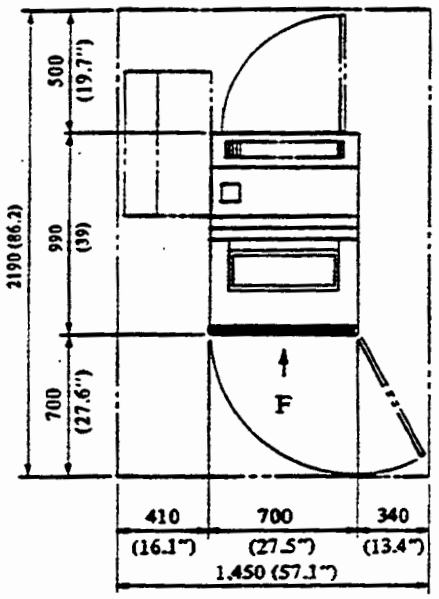


Figure A.3 Operation and maintenance area (with forms rack)

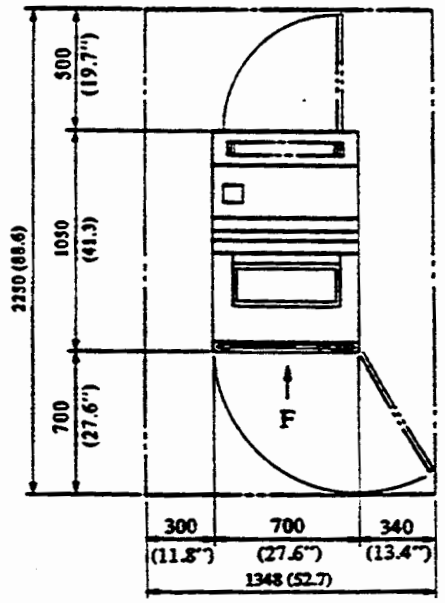
Operation area for M3040/M3041/M3042



Maintenance area for M3040/M3041/M3042



Operation area for M3043



Maintenance area for M3043

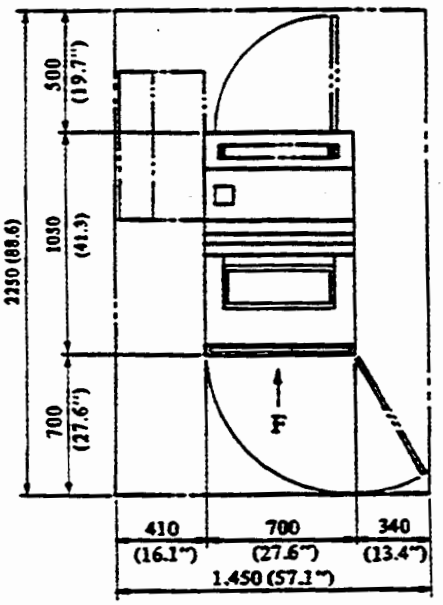


Figure A.4 Operation and maintenance area (with powered stacker)

A.3 Electrical conditions

Table A.1 Electrical conditions

Item \ Model			M3040	M3041	M3042	M3043
Primary voltage		UL/CSA version	100/110/115/120/200/220/230/240 V AC ±10%			
		VDE version	200/220/230/240 V AC ±10%			
Phase			Single phase			
Frequency			50 or 60 Hz $^{+2}_{-4}$%			
Power consumption	When printing	48-character set 136-column printing	550 VA	700 VA	850 VA	1600 VA
		64-character 136-column printing	520 VA	630 VA	760 VA	1400 VA
	When not printing		250 VA			400 VA
Starting surge			50 A or less			75 A or less

A.4 Environmental conditions

Table A.2 Environmental conditions

Item			Condition			
			M3040	M3041	M3042	M3043
Ambient conditions	When operating	Temperature range	5°C to 40°C (41° to 104°F)			
		Relative humidity	20% to 80% RH			
		Maximum wet-bulb temperature	29°C (84.2°F)			
	When not operating	Temperature range	-20°C to 50°C (-4° to 122°F)			
		Temperature gradient	15°C/h (27°F/h) or below			
		Relative	10% to 90% RH (Without condensation)			
		Maximum wet-bulb temperature	29°C (84.2°F)			
Heat dissipation (64-character set 136-column printing)			360 kcal/h	440 kcal/h	530 kcal/h	980 kcal/h
Air flow			5 m^3/min			7 m^3/min

APPENDIX B POWER CABLE CONNECTION FOR M3043

(1) Open the rear door (for the forms rack) or the stack door (for the powered stacker).

(2) Remove the bolt A and open the forms rack or the powered stacker.

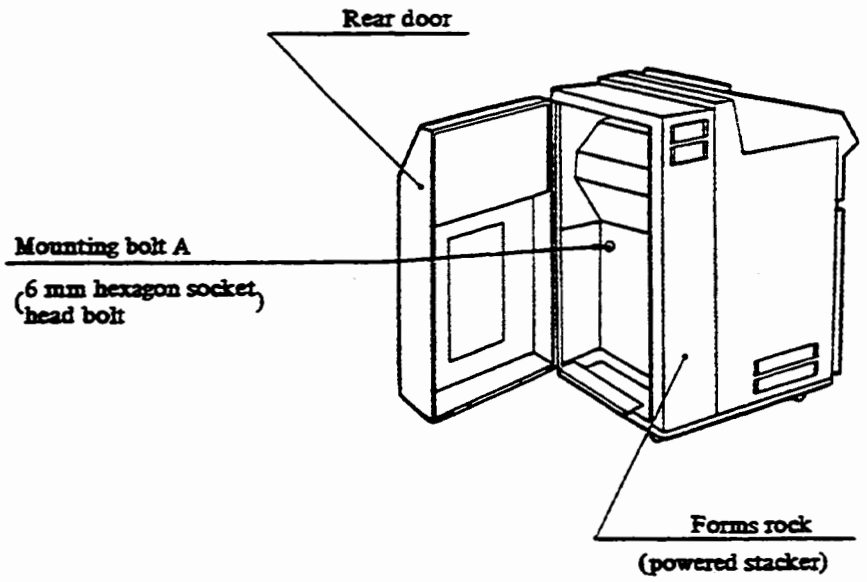


Figure B.1 Forms rack or powered stacker opening

(3) Remove the screw B and open the circuit unit C.
This portion locates right-bottem of the printer. (rear side)

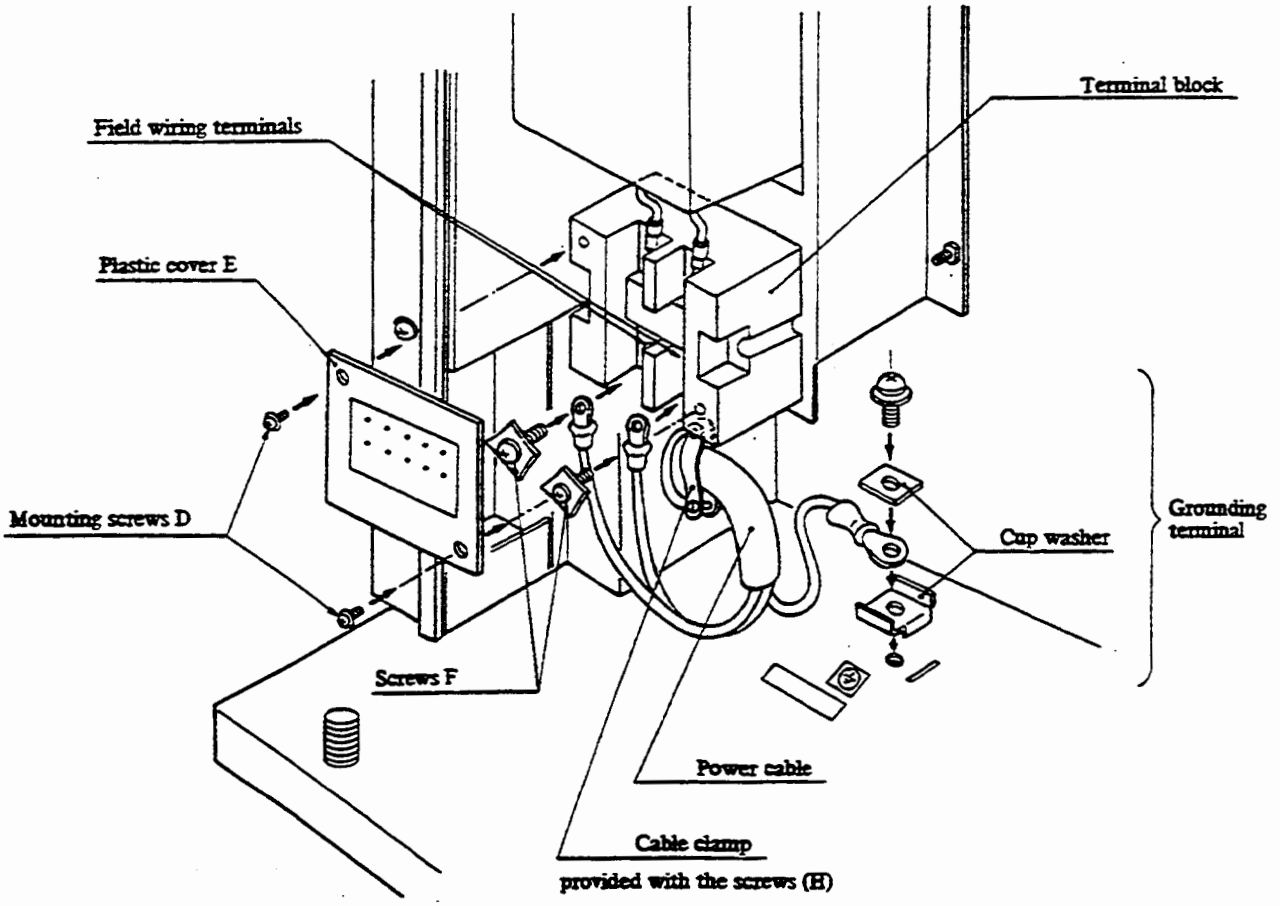


Figure B.2 Preparation for cabling

(4) Remove the plastic cover E for the terminal block by removing the screws D.

(5) Remove the screws F for the field wiring temporarily.

(6) Loosen screws H and lead the power cable through the cable clamp of the cable entry into the printer.

(7) Connect the power cable terminals (marked with L1 or L2/N) with screws F to the field wiring terminals of the terminal block. At this time, match the mark L1 and L2/N on both power cable terminals and field wiring terminals.

(8) Mount the plastic cover E with fixing screws D.

(9) Connect the grounding terminal of the power cable to the grounding terminal of the printer.

(10) Fix the power cable with the cable clamp with fixing the screws H.

(11) Close the circuit unit C and the forms rack or the powered stacker by performing the reverse order of procedure (3) to (1).

Note: The power cable should satisfy the following specifications:

- No. 12 AWG
- Single phase, 3 wires (2 conductors, 1 ground)
- Minimum rated 125 V for 100 to 120 V printer
- Minimum rated 250 V for 200 to 240 V printer

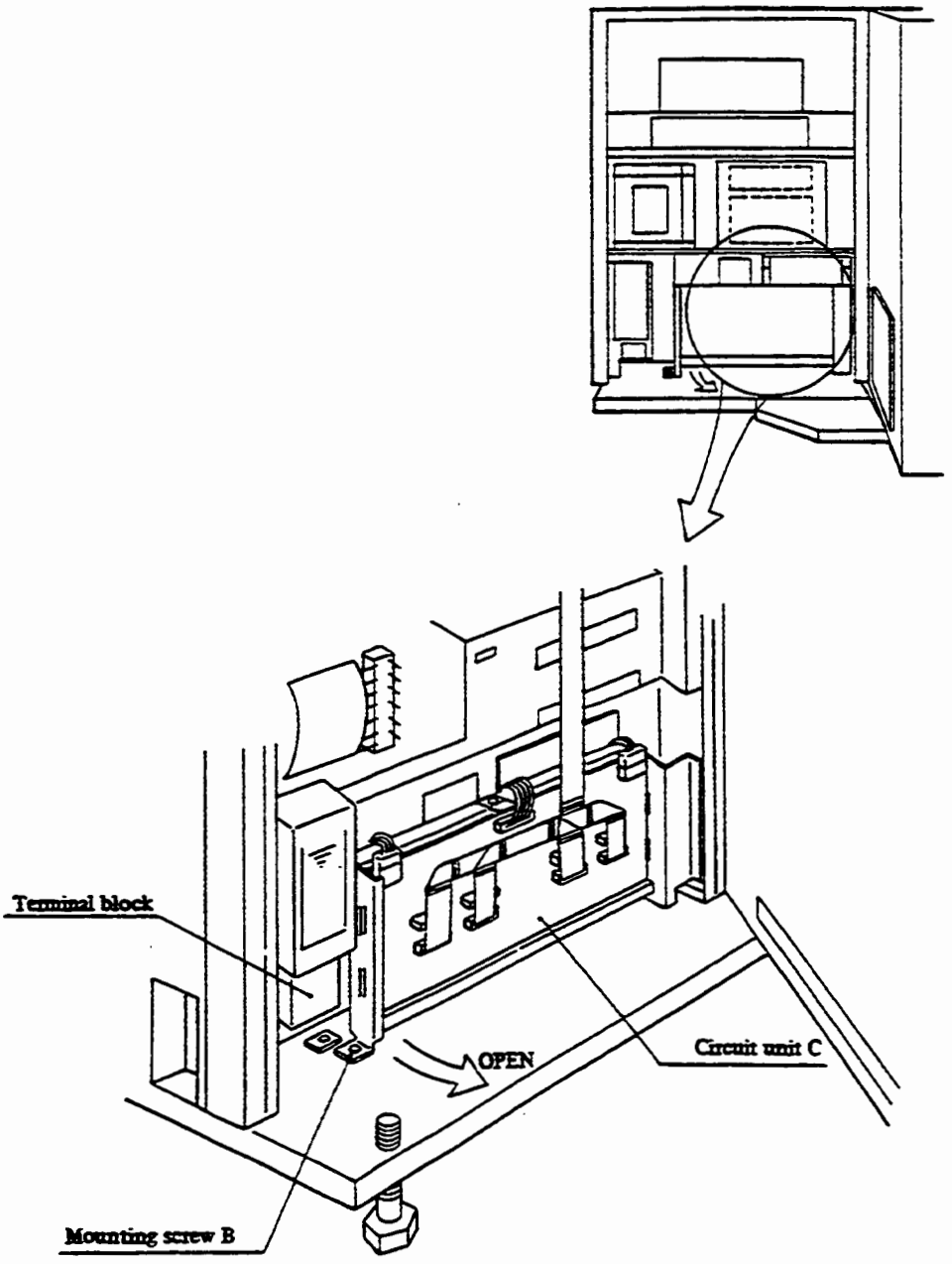


Figure B.3 Field wiring

APPENDIX C ERROR MASSEGES

Error messages and different according to the model.

For M304XD and M304XC, refer to Table C.1.
For M304XR, refer to Table C.2.

Table C.1 Error messages for M304XD/M304XC

STATUS indicator display	Meaning	Solution
DIAGER *	A self-diagnosis error was detected when the POWER switch was turned on. Press the ↑ or ↓ switch to display the error contents. Display Meaning RAMERR: Internal buffer (IBF) read/write error PCAERR: Device control (DVC) response error or control circuit board mismatch. DVCERR: Error in device control (DVC) counter PDBERR: Print data buffer (PDB) read/write error ENRCHK: Abnormal current in the print magnet CHOUT : Faulty checkout signal from hammer magnet driver OPNxxx: Open coil check xxx is faulty column number FALxxx: Hammer check in initial hammer aging	When this error is detected, the printer is disabled. This error is not reset by pressing the ERROR RESET switch. Call a customer engineer.
COVER	The top cover is open.	Close the top cover completely.
INTRLK	The THROAT OPEN lever or BAND COVER latch is open or only partially locked.	Close the THROAT OPEN lever or BAND COVER latch completely.
FORM	End of forms was detected.	Set new forms. See Section 2.7.
STACKR	The stacker is full. This message is output only if the optional powered stacker is being used.	Empty the stacker. This error occurs only in a printer equipped with a powered stacker.
JAM	Forms feeding is abnormal; such as forms have jammed or are torn.	The forms are out of position. Reset correctly. See Section 2.7.
RIBBON	Ribbon feeding is abnormal; The ribbon is jammed or torn.	Replace the ribbon. See Section 2.8.
NOCHNL	Forms are not being fed because the channel specified by the SKIP command was not found in the FCB or FCI data.	Check the FCB or FCI data and make sure the correct channel was entered in the SKIP command.
PTYCHK	The parity of data received from the main frame was not correct.	Check whether the printer uses odd or even parity. If the parity used in the I/O interface differs from the one set, change the parity using the SET UP menu. If this error recurs, call a customer engineer.

Table C.1 Error messages for M304XD/M304XC - continued

STATUS indicator display	Meaning	Solution
IFSERR	The I/O interface logic (active high or low) set in the printer does not agree with the logic used by the mainframe system. This error remains in the printer set online until the I/O interface signal logic set in the printer is altered in the set-up mode.	Change the logic set in the set-up mode IFS HI or BCL HI menu.
FCTERR *	There is an error in the FCT unit or paper tape in a printer equipped with the FCT option. When the error occurs, the printer goes to FLS mode. The details of this error are displayed as follows.	Check the details of the error by pressing the ⬆ or ⬇ switch.
	Display Meaning	
	PNCHER: FCT read error or punch error	Make the FCT unit read the FCT twice. If the twice-read data do not agree, check the FCT.
	FCTLNG: FCT too long (The page length is more than 255 lines.)	Check the FCT page length.
	FCTSHT: FCT too short (The page length is one line.)	Check the FCT page length.
	FCTUNT: FCT control error (The FCT is not set in the FCT unit, an FCT jam occurred, or the FCT unit is faulty.)	Call a customer engineer.
	CH1NON: Channel 1 non-detect (Channel 1 is not punched in the FCT.)	Punch channel 1 is the FCT.
LDERR *	Errors were detected while FCB data was being loaded. The details of this error are displayed as follows.	Check the details of the error by pressing the ⬆ or ⬇ switch.
	Display Meaning	
	FCBSHT: The FCB data is on one line.	Check the data loaded in the FCB. Correct the FCB data and reload it in the FCB.
	FCBLNG: The FCB data exceeds 254 lines.	
	STOPCD: The odd data or STOP code of the FCB data not correct.	

Table C.1 Error messages for M304XD/M304XC - continued

STATUS indicator display	Meaning	Solution
BAND *	A print band fault was detected. The details of this error are displayed as follows. Display Meaning SPDCHK: The print band speed is abnormal. PSENON: The print band was not activated, or PSE was not generated. HPNON : HP was not detected. PSEMNO: PSE was not detected. MISDET: HP or PSE was not detected correctly. ROMNON: The code ROM for the optional print band is not set. SIRTCH: The print band has started and has been identified, but its speed is abnormal.	Check the details of the error by pressing the ↑ or ↓ switch. Call a customer engineer. Call a customer engineer. Check whether the print band is correctly set. If it is, call a customer engineer. Call a customer engineer.
SYNCH	Synchronization between the font and print data buffer is faulty.	Call a customer engineer.
HMRCHK *	Print magnet abnormality. The error contents are displayed as follows: Display Meaning MISxxx: Current flowed through the magnet for a column that should not have been excited during print control, or hammer magnet coil is open. FALxxx: No current flowed through the magnet without coil open for a column that should have been excited during print control. ENRCHK: Current flow through the print magnet is abnormal.	Check the details of the error by pressing the ↑ or ↓ switch. Call a customer engineer. The faulty column number is indicated by xxx.
PTOERR	Indicates that one line was not printed out within the specified time.	Call a customer engineer.
TILKER	Printing is crooked because the THROAT OPEN lever or BAND COVER latch is pulled upward.	Make sure that the THROAT OPEN lever or BAND COVER latch is correctly set. If the error recurs, call a customer engineer.
FUSE 1 FUSE 3 FUSE 5	A fuse has blown.	Call a customer engineer.
FAN	Abnormal temperature is detected in the power supply. A fan fault is also possible.	Call a customer engineer.

Table C.1 Error messages for M304XD/M304XC - continued

STATUS indicator display	Meaning	Solution
INCHER	Invalid form length setting (by inch unit).	Check the form length setting in the SET UP menu. If it is wrong, correct it. See Table 2.3 or 2.4.
VLOW	Hammer magnet drive voltage is low.	Call a customer engineer.
VHIGH	Hammer magnet drive voltage is high.	Call a customer engineer.

Table C.2 Error messages for M304XR

STATUS indicator display	Meaning	Solution
DIAGER *	A self-diagnosis error was detected when the POWER switch was turned on. Press the ↑ or ↓ switch to display the error contents. Display Meaning RAMERR: Internal buffer (IBF) read/write error PCAERR: Device control (DVC) response error or control circuit board mismatch. DVCERR: Error in device control (DVC) counter PDBERR: Print data buffer (PDB) read/write error ENRCHK: Abnormal current in the print magnet CHOUT : Faulty checkout signal from hammer magnet driver OPNxxx: Open coil check xxx is faulty column number FALxxx: Hammer check in initial hammer aging	When this error is detected, the printer is disabled. This error is not reset by pressing the ERROR RESET switch. Call a customer engineer.
COVER	The top cover is open.	Close the top cover completely.
INTRLK	The THROAT OPEN lever or BAND COVER latch is open or only partially locked.	Close the THROAT OPEN lever or BAND COVER latch completely.
FORM	End of forms was detected.	Set new forms. See Section 2.7
STACKR	The stacker is full. This message is output only if the optional powered stacker is being used.	Empty the stacker. This error occurs only in a printer equipped with a powered stacker.
JAM	Forms feeding is abnormal; such as forms have jammed or are torn.	The forms are out of position. Reset correctly. See Section 2.7.
RIBBON	Ribbon feeding is abnormal; The ribbon is jammed or torn.	Replace the ribbon. See Section 2.8.
PTYCHK	The parity of data received from the main frame was not correct.	Check whether the printer uses odd or even parity. If the parity used in the I/O interface differs from the one set, change the parity using the SET UP menu. If this error recurs, call a customer engineer.

Table C.2 Error messages for M304XR - continued

STATUS indicator display	Meaning	Solution
FCTERR *	There is an error in the FCT unit or paper tape in a printer equipped with the FCT option. When the error occurs, the printer goes to FLS mode. The details of this error are displayed as follows.	Check the details of the error by pressing the ↑ or ↓ switch.
	Display Meaning	
	PNCHER: FCT read error or punch error	Make the FCT unit read the FCT twice. If the twice-read data do not agree, check the FCT.
	FCTLNG: FCT too long (The page length is more than 255 lines.)	Check the FCT page length.
	FCTSHT: FCT too short (The page length is one line.)	Check the FCT page length.
	FCTUNT: FCT control error (The FCT is not set in the FCT unit, an FCT jam occurred, or the FCT unit is faulty.)	Call a customer engineer.
	CH1NON: Channel 1 non-detect (Channel 1 is not punched in the FCT.)	Punch channel 1 is the FCT.
BAND *	A print band fault was detected. The details of this error are displayed as follows.	Check the details of the error by pressing the ↑ or ↓ switch. Call a customer engineer.
	Display Meaning	
	SPDCHK: The print band speed is abnormal.	Call a customer engineer.
	PSENON: The print band was not activated, or PSE was not generated.	Check whether the print band is correctly set. If it is, call a customer engineer.
	HPNON : HP was not detected.	Call a customer engineer.
	PSENNO: PSE was not detected.	
	MISDET: HP or PSE was not detected correctly.	
	ROMNON: The code ROM for the optional print band is not set.	
	STRTCH: The print band has started and has been identified, but its speed is abnormal.	
SYNCH	Synchronization between the font and print data buffer is faulty.	Call a customer engineer.

Table C.2 Error messages for M304XR - continued

STATUS indicator display	Meaning	Solution
HMRCHK *	Print magnet abnormality. The error contents are displayed as follows: Display Meaning MISxxx: Current flowed through the magnet for a column that should not have been excited during print control, or hammer magnet coil is open. FALxxx: No current flowed through the magnet without coil open for a column that should have been excited during print control. ENRCHK: Current flow through the print magnet is abnormal.	Check the details of the error by pressing the ↑ or ↓ switch. Call a customer engineer. The faulty column number is indicated by xxx.
PTOERR	Indicates that one line was not printed out within the specified time.	Call a customer engineer.
TILKER	Printing is crooked because the THROAT OPEN lever or BAND COVER latch is pulled upward.	Make sure that the THROAT OPEN lever or BAND COVER latch is correctly set. If the error recurs, call a customer engineer.
FUSE 1 FUSE 3 FUSE 5	A fuse has blown.	Call a customer engineer.
FAN	Abnormal temperature is detected in the power supply. A fan fault is also possible.	Call a customer engineer.
INCHER	Invalid form length setting (by inch unit).	Check the form length setting in the SET UP menu. If it is wrong, correct it. See Table 2.5.
VLOW	Hammer magnet drive voltage is low.	Call a customer engineer.
VHIGH	Hammer magnet drive voltage is high.	Call a customer engineer.
TRNSER	A transmission error occurred.	Check the band rate and parity.
RMOVFL	A right margin overflow occurred. Print data exceeding the right margin (column 80, 132, or 136) was transmitted, therefore, it could not be printed.	Set the L-END of the set up menu to NLonRM or check the data transmitted from the host.
IBOVFL	The interface buffer overflowed.	- Check the message protocol. - Set the A-FULL of the set up menu from 87.5% to 75%.
ERR099	An invalid control code occurred.	Check the data transmitted from the host.

Table C.2 Error messages for M304XR - continued

STATUS indicator display	Meaning	Solution
ERR200	Code X'50', X'5B', X'4B', or X'63' was not transmitted after control code X'1B' (escape code).	Check the data transmitted from the host.
ERR210	Code X'22', X'23', or X'25' was not transmitted after control code X'90' (DCS).	Check the data transmitted from the host.
ERR300	The number of bytes of the parameter in the Load FCB command was 512 or more.	Check the data transmitted from the host.
ERR310	Line 176 or higher was specified for the channel in the Load FCB command, or the number of lines was outside the range of 19 to 175 lines.	Check the data transmitted from the host.
ERR320	Channel 1 was not specified in the Load FCB command data.	Check the data transmitted from the host.
ERR330	An invalid channel was specified in the Load FCB command data.	Check the data transmitted from the host.
ERR340	There was an invalid parameter format in the Load FCB command data.	Check the data transmitted from the host.
ERR350	The total number of lines was not specified in the Load FCB command data.	Check the data transmitted from the host.
ERR400	The parameter in the skip to channel n command was two bytes or more.	Check the data transmitted from the host.
ERR410	The channel specified in the skip to channel n command was not from 1 to 12.	Check the data transmitted from the host.
ERR430	The parameter in the skip to channel n command was invalid.	Check the data transmitted from the host.
ERR440	The channel specified in the skip to channel n command was not in the FCB, or the FCB was not loaded.	Check the data transmitted from the host.
ERR460	When a VT code was received, an attempt was made to skip to the specified channel, but the specified channel was not in the FCB, or the FCB was not loaded.	Check the data transmitted from the host or set the VT CH of set up menu to ALL.
ERR500	Terminating code X'20', X'61', X'62', or X'65' was not transmitted within 128 bytes after CSI (X'1B', X'5B', or X'9B').	Check the data transmitted from the host.
ERR510	Code X'20' was followed to CSI, but code X'4E' or X'47' was not transmitted after code X'20'.	Check the data transmitted from the host.

Table C.2 Error messages for M304XR - continued

STATUS indicator display	Meaning	Solution
ERR600	The parameter in the Load Horizontal Tab Stop Data command was invalid.	Check the data transmitted from the host.
ERR610	The column specified for the tab stop in the Load Horizontal Tab Stop Data command was column 0 or column 136 or higher.	Check the data transmitted from the host.
ERR700	The parameter in the Select Vertical Pitch command was invalid.	Check the data transmitted from the host.
ERR800	The parameter in the Repeat Character command was invalid.	Check the data transmitted from the host.
ERR810	The number of repeat characters specified in the Repeat Character command was 136 or more.	Check the data transmitted from the host.
ERR850	The parameter in the Move horizontal Position command was invalid.	Check the data transmitted from the host.
ERR860	The number of characters specified in the Move Horizontal Position command was 136 or more.	Check the data transmitted from the host.
LLER10	During the local loopback test, the host transmitted the data, but the printer could not receive.	Call a customer engineer.
LLER20	During the local loopback test, the received data did not match the transmitted data.	Call a customer engineer.
LLER30	During the local loopback test, a transmission error occurred.	Call a customer engineer.
LLER40	During the local loopback test, the TM signal was not set active within 2 seconds after the LL signal was set active.	- Check the jumper connector for the loopback test is connected. - If so, call a customer engineer.

APPENDIX D CHARACTER AND CONTROL CODES

Character and Controls codes differs according to the interface type.

Table D.1 shows the codes for DPC interface (M304XD), Table D.2 shows for Centronics interface (M304XC), and Table D.3 shows for RS-232-C interface (M304XR).

Table D.1 Character (ASCII) and control codes for M304XD

▭ : Control code area

B_8 →					0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
B_7 →					0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
B_6 →					0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
B_5 →					0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B_4	B_3	B_2	B_1	L \ U	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@*	P	`*	P								
0	0	0	1	1			!	1	A	Q	a	q								
0	0	1	0	2			"	2	B	R	b	r								
0	0	1	1	3			#*	3	C	S	c	s								
0	1	0	0	4			$*	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7			'	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A	LF		*	:	J	Z	j	z								
1	0	1	1	B			+	;	K	[*	k	{*								
1	1	0	0	C	FF		,	<	L	*	l	¦*								
1	1	0	1	D	CR		-	=	M	]*	m	}*								
1	1	1	0	E			.	>	N	~*	n	~*								
1	1	1	1	F			/	?	O	_	o									

Note: Codes with an asterisk in the table above vary with the print band for each country as follows:

Code / Country	X'23'	X'24'	X'40'	X'5B'	X'5C'	X'5D'	X'5E'	X'60'	X'7B'	X'7C'	X'7D'	X'7E'
U.S.A.	#	$	@	[	\	]	-	`	{	¦	}	-
U.K.	£	$	@	[	\	]	-	`	{	¦	}	-
France	£	$	à	°	ç	§	-	`	é	ù	è	-
Germany	#	$	§	Ä	Ö	Ü	-	`	ä	ö	ü	ß
Sweden	#	¤	É	Ä	Ö	Å	ú	é	ä	ö	å	ü
Denmark	#	$	É	Æ	ø	Å	ú	é	æ	ø	å	ü

Table D.2 Character (ASCII) and control codes for M304XC

: Control code area

B_8					0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
B_7					0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
B_6					0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
B_5					0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B_4	B_3	B_2	B_1	L\U	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@*	P	`*	P								
0	0	0	1	1		DC1	!	1	A	Q	a	q								
0	0	1	0	2			"	2	B	R	b	r								
0	0	1	1	3		DC3	#*	3	C	S	c	s								
0	1	0	0	4			$*	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7	BEL		'	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A	LF		*	:	J	Z	j	z								
1	0	1	1	B	VT	ESC	+	;	K	[*	k	{*								
1	1	0	0	C	FF		,	<	L	*	l	¦*								
1	1	0	1	D	CR	Start code	-	=	M	]*	m	}*								
1	1	1	0	E		Stop code	.	>	N	~*	n	~*								
1	1	1	1	F		VFU com-mand	/	?	O	_	o	DEL								

Note: Codes with an asterisk in the table above vary with the print band for each country as follows:

Code / Country	X'23'	X'24'	X'40'	X'5B'	X'5C'	X'5D'	X'5E'	X'60'	X'7B'	X'7C'	X'7D'	X'7E'
U.S.A.	#	$	@	[	\	]	^	`	{	¦	}	~
U.K.	£	$	@	[	\	]	^	`	{	¦	}	~
France	£	$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
Sweden	#	¤	É	Ä	Ö	Å	ú	é	ä	ö	å	ü
Denmark	#	$	É	Æ	ø	Å	ú	é	æ	ø	å	ü

Table D.3 Character (ASCII) and control codes for M304XR

: Control code area

B_8					0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
B_7					0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
B_6					0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
B_5					0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B_4	B_3	B_2	B_1	LU	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0	NULL		SP	0	@*	P	`*	P		DCS						
0	0	0	1	1		XON	!	1	A	Q	a	q								
0	0	1	0	2			"	2	B	R	b	r								
0	0	1	1	3		XOFF	#*	3	C	S	c	s								
0	1	0	0	4			$*	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7	BEL		'	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9	HT		)	9	I	Y	i	y								
1	0	1	0	A	LF		*	:	J	Z	j	z								
1	0	1	1	B	VT	ESC	+	;	K	[*	k	{*	HLF	CSI						
1	1	0	0	C	FF		,	<	L	*	l	|*		SI						
1	1	0	1	D	CR		-	=	M	]*	m	}*								
1	1	1	0	E	SO		.	>	N	~*	n	~*								
1	1	1	1	F	SI		/	?	O	_	o	DEL								DEL

Note: Codes with an asterisk in the table above vary depending on the print band for each country, as follows:

Code / Country	X'23'	X'24'	X'40'	X'5B'	X'5C'	X'5D'	X'5E'	X'60'	X'7B'	X'7C'	X'7D'	X'7E'
U.S.A.	#	$	@	[	\	]	-	`	{	|	}	-
U.K.	£	$	@	[	\	]	-	`	{	|	}	-
France	£	$	à	°	ç	§	-	`	é	ù	è	-
Germany	#	$	§	Ä	Ö	Ü	-	`	ä	ö	ü	ß
Sweden	#	¤	É	Ä	Ö	Å	ú	é	ä	ö	å	ü
Denmark	#	$	É	Æ	ø	Å	ú	é	æ	ø	å	ü

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