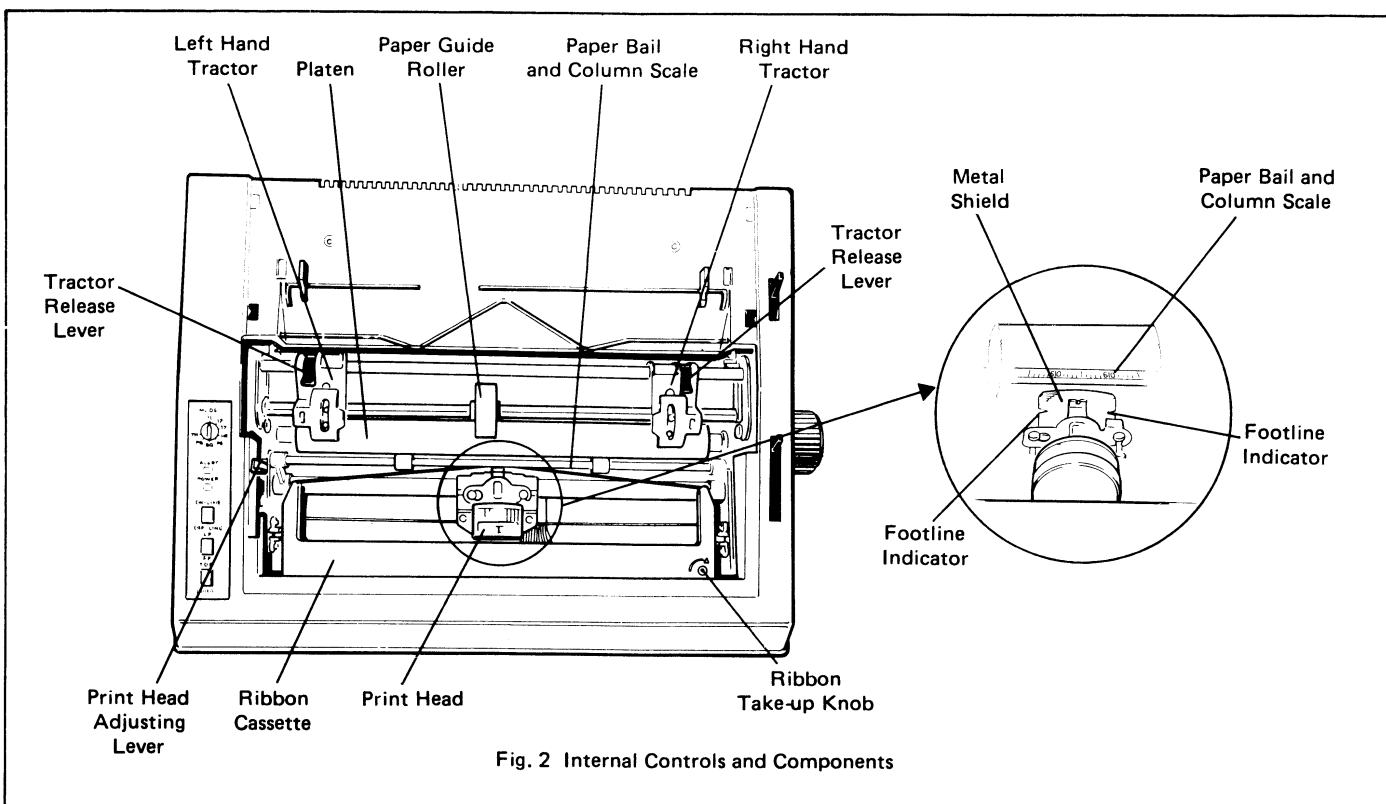
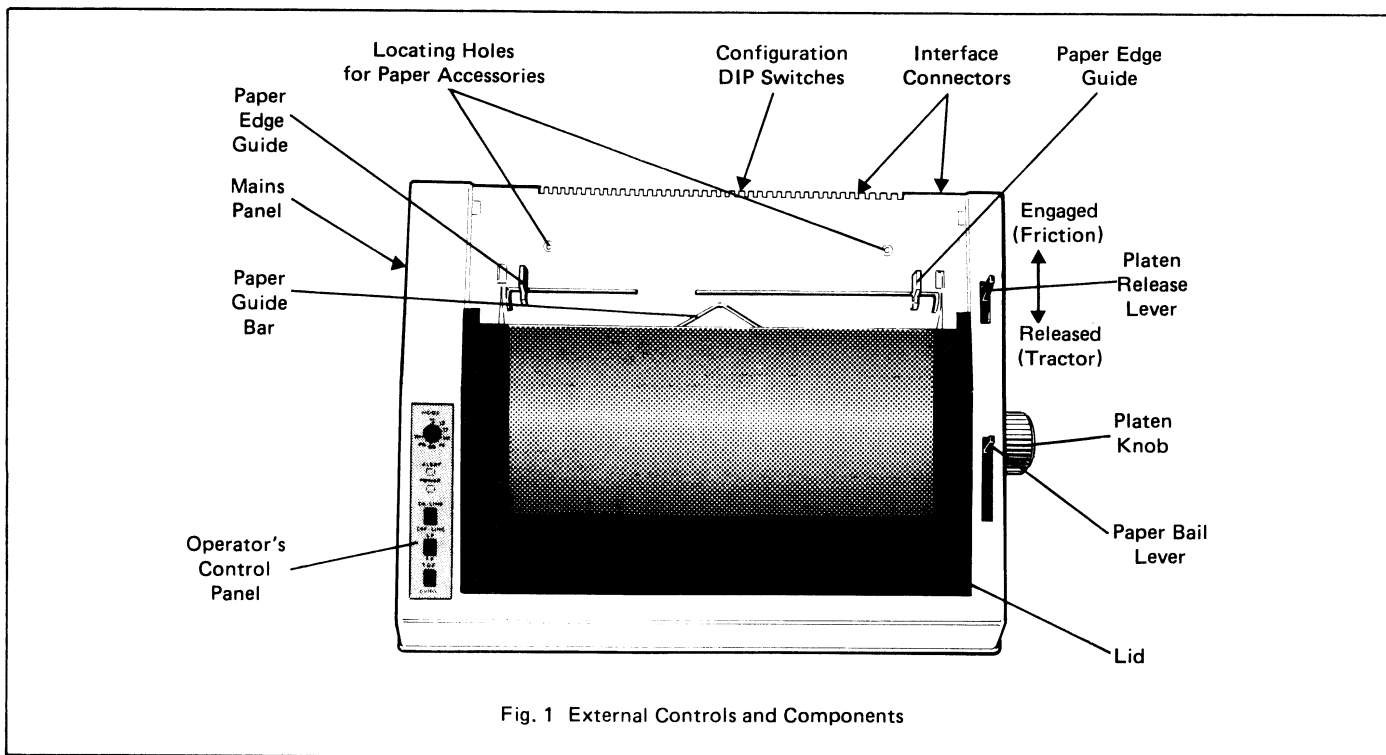
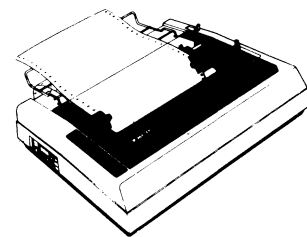


Facit 4510

Serial matrix printer

Operator guide



LOADING FAN-FOLD PAPER

INITIAL ALIGNMENT

- (1) Ensure that the Tractor Unit and Paper Separator/Tray are in place on the printer (see Replacement of Tractor Unit and Installation of Paper Separator/Tray) and that the printer is Off-line.
- (2) Move the paper edge guides out as far as they will go. Release the two tractors (via their release levers) and move them out also.
- (3) Move the paper bail lever fully forward.
- (4) Close the printer's lid. Feed fan-fold paper up through the Paper Separator/Tray, under the paper guide and down behind the platen, with the printing side of the paper underneath (see fig. 3). Wind the paper in with the platen knob until it appears at the front of the platen. Pull the platen release lever forward to disengage friction feeding.
- (5) Open the printer's lid. Pull the paper up between the platen and the paper bail, and pass it under the back edge of the lid. Align the paper so that the desired margin position coincides with column 0 on the paper bail scale, and so that the edges of the paper entering and leaving the printer are in line.
- (6) Space the rollers on the paper bail evenly across the width of the paper. Move the paper bail lever back so that the paper is trapped between paper bail and platen.
- (7) Open the paper retainers on the tractors (see fig. 4) and slide each tractor in until the tractor pins engage with the holes at the edges of the paper. Lock each tractor and close the paper covers, then centre the paper guide wheel between the tractors.
- (7) Close the lid. Move the paper edge guides in to just touch the edges of the paper.
- (8) Feed paper up (by platen knob or LF/FF switch) and guide the paper over the paper guide and through the back of the Paper Separator Tray. Where multi-part stationery is used these guide bars can be used to assist paper separation (see fig. 3).
- (9) Set the top of form position (see Setting TOF).
- (10) Ensure that the printer is set for the correct format length, line length and skip zone (the host may change these by commands or the Configuration DIP switches SW1/3 to 7 may be changed).

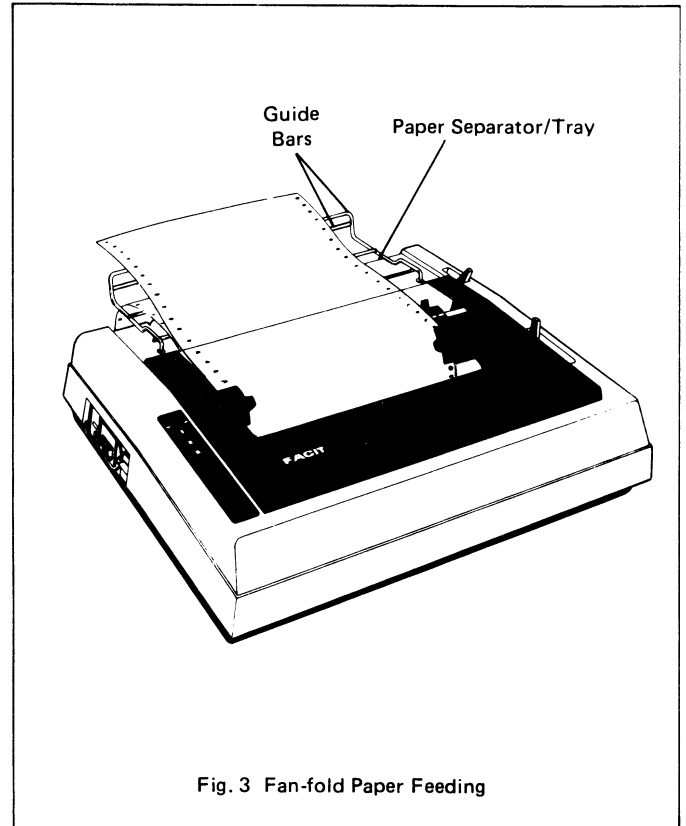


Fig. 3 Fan-fold Paper Feeding

RENEWAL OF FAN-FOLD PAPER

- (1) Set the printer Off-line and move the paper bail lever forward and remove any old paper.
- (2) Feed paper through the Paper Separator, under the paper guide and around the platen. Move the paper bail lever back.
- (3) Open the paper retainers, engage the tractor pins with the paper and close the retainers.
- (4) Feed the paper under the back edge of the lid and through the Paper Separator.
- (5) Set TOF if necessary and put the printer On-line.

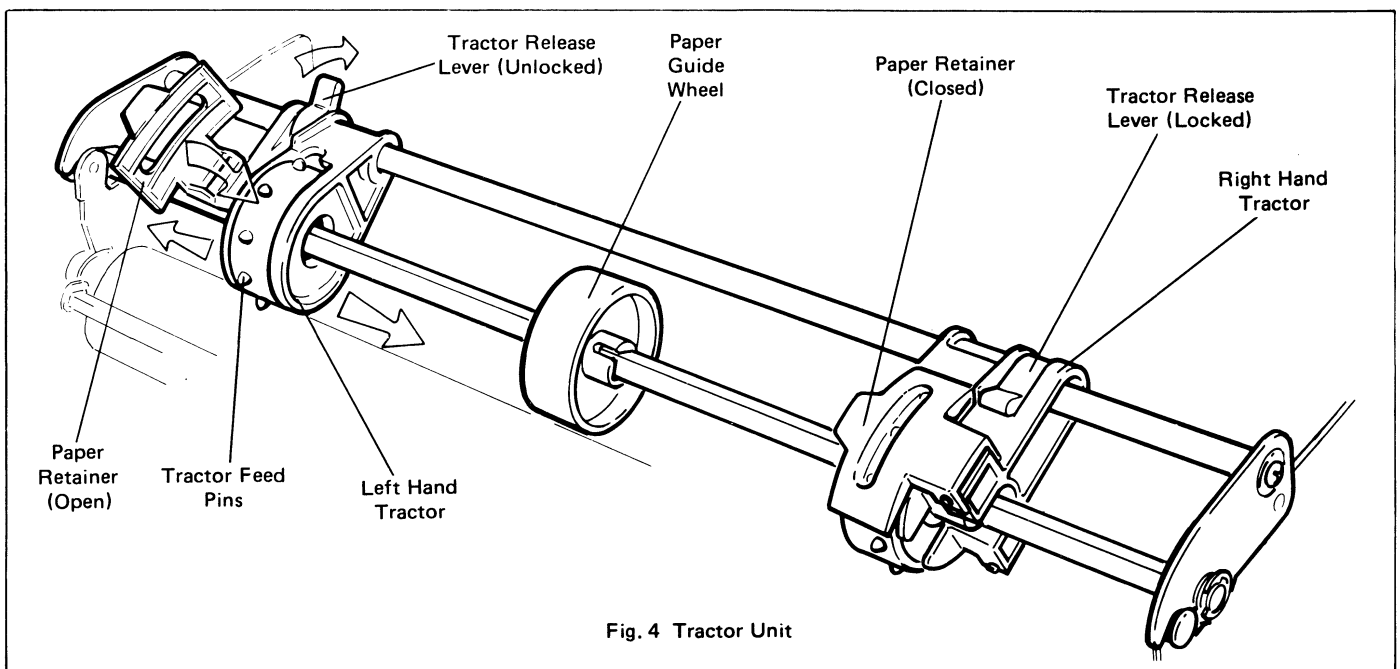


Fig. 4 Tractor Unit

LOADING ROLL PAPER

INITIAL ALIGNMENT

- (1) Ensure that the printer is Off-line and that the Paper Roll Holder is fitted (see Installation of Paper Roll Holder). The Tractor Unit may be left in place, in which case the tractors should be moved out clear of the paper, or it may be completely removed (see Removal of Tractor Unit).
- (2) Move the paper edge guide on both the printer and the Paper Roll Holder as far out as they will go.
- (3) Move the paper bail lever fully forward and ensure that the platen release lever is in the back position.
- (4) Fit the new paper roll on the paper roll spindle (pushing it down against the collar) and position the spindle on the Paper Roll Holder so that the spindle collar is to the left of the roll and the paper feeds off the bottom of the roll (printing side underneath), (see fig. 5).
- (5) With the printer's lid closed, feed the paper under the paper guide and behind the platen. Rotate the platen knob so that paper is fed around the platen. As the paper approaches the underside of the lid, move the paper bail lever back so that it captures the paper. Keep feeding the paper until it appears from under the back edge of the lid.
- (6) Align the paper so that the desired margin position coincides with column 0 on the paper bail scale and so that the edges of the paper entering and leaving the printer are in line. Move the platen release lever forward temporarily to assist in paper alignment. It may also be necessary to slide the paper roll on its spindle to achieve smooth paper feeding.
- (7) Move both pairs of paper edge guides in to just touch the edges of the paper.
- (8) Space the rollers on the paper bail evenly across the width of the paper.
- (9) Ensure that the printer is set for the correct line length (and form length and skip zone if required). The host may change these by command or the configuration DIP switches SW1/5 (and SW1/3, 4, 6 and 7) may be changed.
- (10) Set the printer On-line. Note that the back edge of the lid can be used to tear off paper.

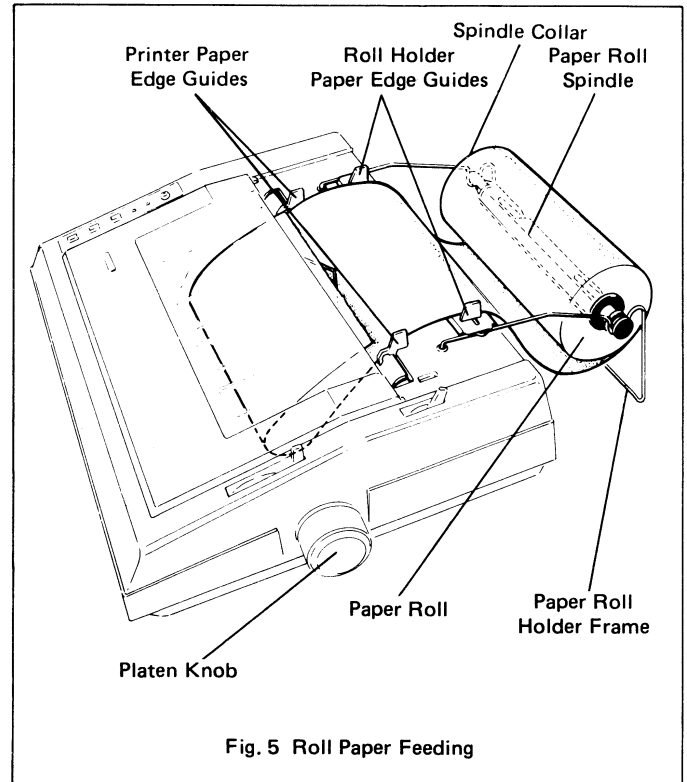


Fig. 5 Roll Paper Feeding

RENEWAL OF ROLL PAPER

- (1) Ensure that the printer is Off-line. Move the paper bail lever forward.
- (2) Fit a new paper roll on the spindle. Feed the paper between the paper edge guides (sliding the roll on the spindle to achieve smooth feeding), under the paper guide and round the platen. Capture the paper with the paper bail and continue feeding until the paper emerges from the printer.
- (3) Set the printer On-line.

LOADING SHEET PAPER

INITIAL ALIGNMENT

- (1) Ensure that the printer is Off-line. The Tractor Unit may be left in place, in which case the tractors should be moved out clear of the paper, or it may be completely removed (see Removal of Tractor Unit). The Paper Separator/Tray may be fitted, if desired, to collect printed sheets (see Installation of Paper Separator/Tray).
- (2) Move the paper edge guides out towards the sides of the printer. Pull the paper bail lever fully forward and ensure the platen release lever is in the back position.
- (3) With the lid closed, feed one sheet of paper (with the printing side downwards) under the paper guide and as far as it will go. Using the platen knob, wind the paper round to the front of the platen and move the paper bail lever back to capture the top of the sheet. Continue winding the paper through until the top edge appears under the back edge of the lid. Align the paper so that the desired margin position coincides with column 0 on the paper bail scale and so that the edges of the paper entering and leaving the printer are in line. Move the platen release lever forward temporarily to assist in paper alignment.

- (4) Move the paper edge guides in to just touch the edges of the paper. Space the rollers on the paper bail evenly across the paper.
- (5) Set the top of form position (see Setting TOF).
- (6) Ensure the printer is set for the correct form length, line length and skip zone (bottom margin). This may be set by the host sending a command or the Configuration DIP switches SW1/3 to 7 may be changed.
- (7) Set the printer On-line.

LOADING SUBSEQUENT SHEETS

- (1) Set the printer Off-line if necessary.
- (2) Remove the sheet just printed and move the paper bail lever forward.
- (3) Feed a new sheet between the paper edge guides, under the paper guide bar and wind it in with the platen knob.
- (4) Capture the top of the paper with the paper bail and set the TOF position.
- (5) Set the printer On-line.

SETTING TOF

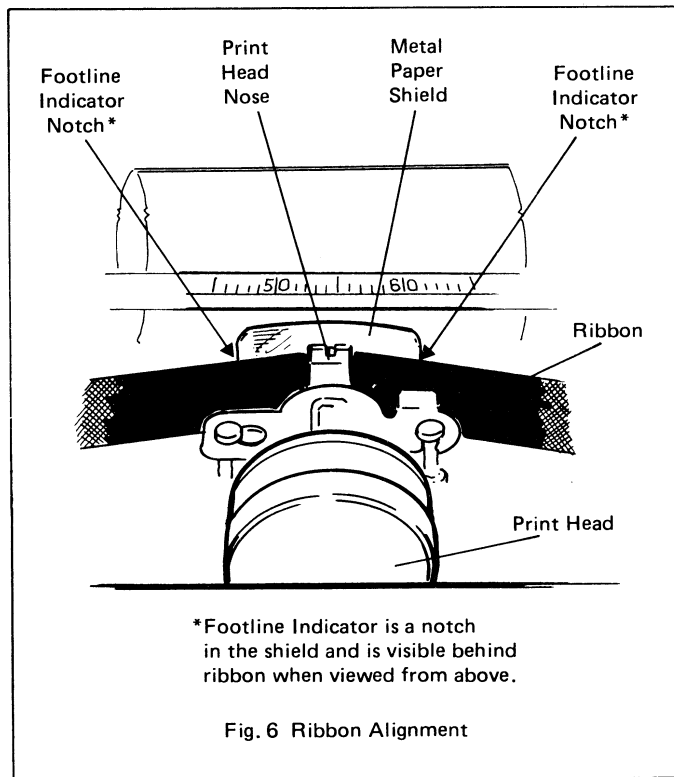
This procedure is independent of the type of paper loaded.

The current printing position (i.e. the base of the current line of text) is indicated by the footline indicator (see fig. 6). When the printer is first switched on the current printing position is set automatically as the top of the form (TOF). Depressing the FF switch will always return the printer to the TOF position.

When the printer is set to the TOF position, the operator may move the paper by hand or via the platen knob (but not the LF switch) until the desired TOF position on the paper is at the footline indicator. No further action is necessary.

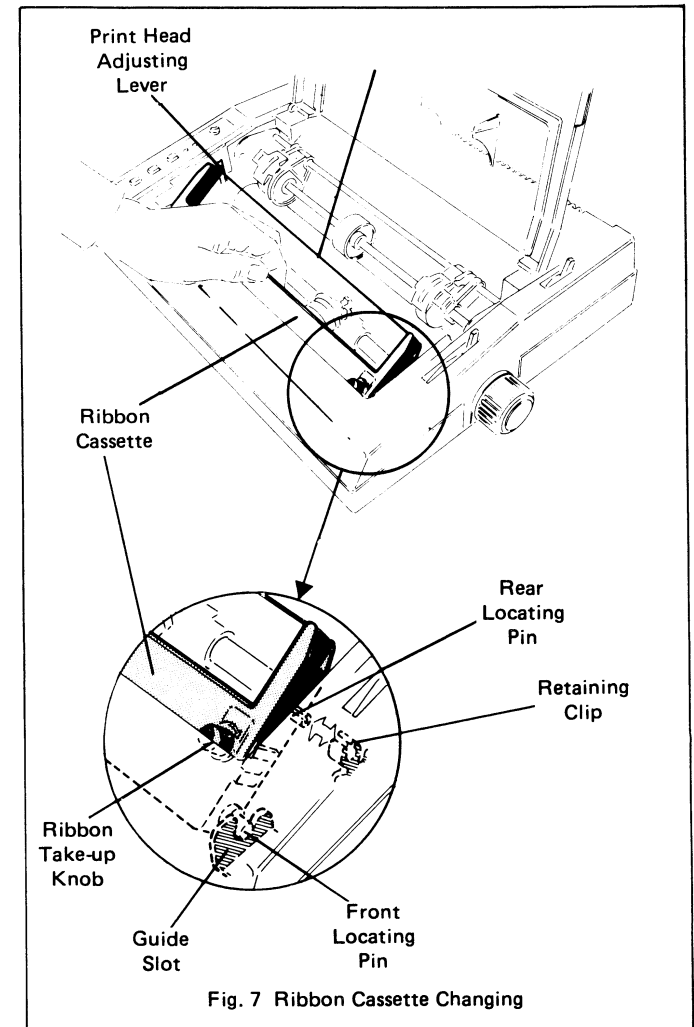
When the printer is not set to the TOF position, the user may use any means to move the paper (including the LF switch) until the TOF position on the paper is at the footline indicator. The printer's TOF position may then be set to the current position by the operator depressing the TOF switch.

Whatever method is used to set the TOF, the user must ensure that the correct form length is also selected (Configuration DIP switches SW1/3 and 4 or command from host) to maintain synchronism between printer TOF and paper TOF.



RIBBON CHANGING

- (1) Set the printer Off-line. Open the lid.
- (2) Note the setting of the print head adjusting lever then pull it fully forward to give maximum clearance between print head and platen.
- (3) Move the carriage to approximately the centre of its travel but not where the print head nose is obstructed by a paper bail roller.
- (4) Disengage the old ribbon from the print head and pull the cassette out by first lifting the rear edge from the retaining clips (see fig. 7) and pulling out the cassette and ribbon.
- (5) Take up any slack in the new ribbon by rotating the take-up knob on the ribbon cassette. Slide the front locating pins on the cassette into their guide slots in the printer.
- (6) Lower the rear of the cassette onto the retaining clips.
- (7) Push the cassette firmly down until it is held by the retaining clips. If there is any resistance due to the cassette drive spindle not engaging properly, rotate the take-up knob until engagement occurs.
- (8) If necessary, rotate the take-up knob further to draw the ribbon down between the print head nose and the shield.
- (9) Reset the print head adjusting lever to its original position (see (2) above).
- (10) Close the lid and set the printer On-line.



SETTING OF THE PRINT HEAD-TO-PLATEN DISTANCE

The distance between the print head and the platen may be adjusted to optimize print quality for differing paper types (especially multi-part) and to allow maximum room when changing ribbon or clearing jammed paper by means of the Print Head Adjusting Lever. It has a numbered scale to simplify repeating settings. Moving the lever towards the front of the printer increases the distance and moving it to the rear decreases the distance.

To optimize print quality, load the required paper and start the printer in Self-test mode (hold the OVR.R switch down whilst switching on until printing starts). Move the lever in small steps, observing the quality of printing for each step until optimum quality is achieved (it is convenient to adjust the lever at the start of a line so that adjacent lines may then be compared).

SETTING THE PRINTER FOR FRICTION FEED (REMOVAL OF TRACTOR UNIT)

- (1) Switch the printer Off-line and open the lid.
- (2) The Tractor Unit is removed by grasping the rear (round section) bar and pulling it up to disengage the ends of the bar from their retaining clips (see fig. 8).
- (3) The Tractor Unit can now be lifted away.
- (4) Engage the friction feed mechanism by moving the platen release lever fully back.
- (5) Load roll paper, if required. Close the lid and set the printer On-line.

SETTING PRINTER FOR TRACTOR FEED (FITTING OF TRACTOR UNIT)

- (1) Set the printer Off-line and open the lid.
- (2) Fit the two slots at the front of the tractor mechanism onto the locating pins above the ends of the platen (see fig. 8).
- (3) Swing the rear of the tractor mechanism down so that the locating pins on the back edges of the mechanism engage with the plastic retaining clips.
- (4) Push down the rear of the tractor mechanism until it is firmly held by the retaining clips.
- (5) Pull platen release lever fully forward to disengage friction feed.
- (6) Load fan-fold paper, close lid and set printer On-line.

INSTALLATION OF PAPER SEPARATOR/TRAY

The Paper Separator/Tray is a wire framework which is used to guide fan-fold paper into and out of the printer, to assist separation of multi-part stationery and to act as a collector tray for printed cut sheets (see fig. 3). To fit it:

- (1) Holding the frame vertically, locate the bent wire ends in the two holes behind the paper edge guides.
- (2) Swing the frame back and down until it rests on the top rear of the printer, overhanging at the back. Use of the unit is described in the Paper Loading section.

INSTALLATION OF PAPER ROLL HOLDER

The Paper Roll Holder consists of a wire frame with paper edge guides and a plastic spindle (see fig. 5). To fit the holder:

- (1) Holding the frame vertical, locate the bent wire ends of the holder in the two holes behind the printer's paper-edge guides.
- (2) Swing the frame back and down so that the cross-piece rests on the ground behind the printer.
- (3) The spindle is a push fit in the centre of the paper roll (25 mm, 1 inch nominal internal diameter). The spindle drops into place on the wire frame. Loading of roll paper is described in the Paper Loading section.

SWITCHING ON

The On/Off switch is on the mains panel on the left side of the printer. When switching on, the operator can select the Normal Operating mode, Self-testing mode or Transparency mode as follows:

Normal Operation Set On/Off switch On – the red POWER indicator will light and the printer will be Off-line. The printer can also be set Off-line by the operator or automatically by the printer during printer operation. The table opposite indicates how to regain On-line operation from the various Off-line conditions.

Self-testing Hold the OVR.R switch depressed and set On/Off switch on. Keep OVR.R switch down until carriage movement commences. The printer will perform self-testing, the

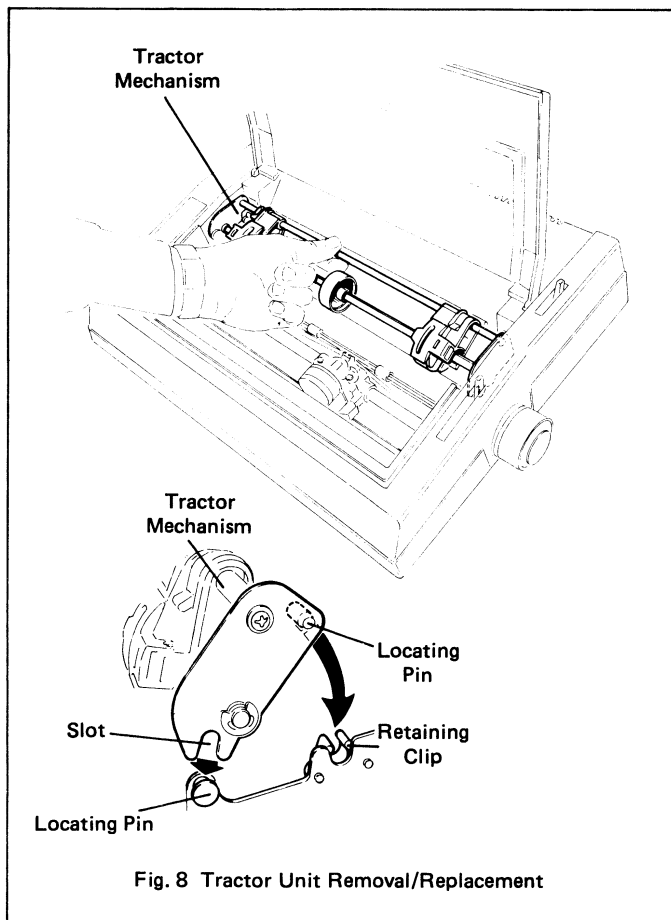


Fig. 8 Tractor Unit Removal/Replacement

print head will move across, ribbon will be moved and the platen will perform regular line feeds. If paper is loaded, test printing will also occur. If an error is detected the ERROR/ON LINE indicator will flash.

If no error occurs, the operator may commence normal operation (Off-line state) by holding the OVR.R switch down until the end of the current line. Full details of self-testing are given in the Technical Description.

Transparency Mode Set the rotary MODE switch to TM and set the On/Off switch On. The printer will ignore all control codes received except CR and LF, and will also ignore the first character after each ESC code. Thus when printing the printer will print only printable characters in Normal characters and will ignore all commands except new line commands. To exit this mode switch Off and reset the MODE switch.

Cause of Off-line Condition	Action to Switch On-line
Power-up, ERROR/ON LINE unlit	Press and release ON LINE switch
Power-up, ERROR/ON LINE flashing	Rectify fault
Paper End, ERROR/ON LINE flashing	(1) Replace paper, press and release ON LINE switch (2) Print to end of paper (on-line) – see Paper End section
Operator pressed OFF LINE switch, ERROR/ON LINE unlit	Press and release ON LINE switch
Fault condition, ERROR/ON LINE flashing	Rectify fault
Self-testing, ERROR/ON LINE unlit	Press OVR.R
Self-testing ERROR/ON LINE flashing	Rectify fault

PAPER END

The printer will be set automatically to the Paper End state (ERROR/ON LINE indicator flashing) when the end of the paper is detected at about 20mm from the current printing position. The operator may use the remaining paper to print the next line of text or to print to the end of the paper with the printer Off-line (accepting no more data in the buffer) or On-line (receiving data from the data source up to the capacity of the buffer).

Print Next Line

Press and release the OVR.R switch. The ERROR/ON LINE indicator goes out until the line has been printed. The process may be repeated until the end of paper is reached or the printer's buffer is empty.

Print to End of Paper (Off-line)

Keep the OVR.R switch depressed. Lines of text are printed to the end of the paper, until the buffer is empty or until the switch is released. While printing, the ERROR/ON LINE indicator is extinguished.

Print to End of Paper (On-line)

Keep both OVR.R and ON LINE switches depressed. Lines of text are printed to the end of the paper, until the buffer is empty or until the switches are released. During this process the printer will still accept data from the data source. The ERROR/ON LINE indicator is lit steadily during this process.

Note that where friction feeding is employed, the alignment of the paper may need to be corrected manually once the bottom edge of the paper is released from under the platen. **Printing always stops when end of the paper passes the printing position; the printer will not print directly on the platen.**

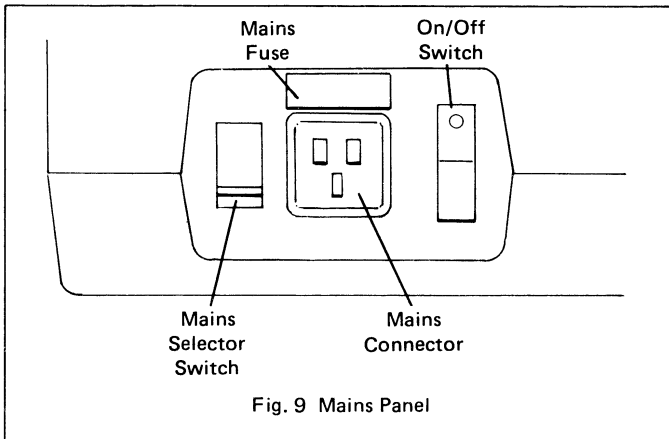


Fig. 9 Mains Panel

CONFIGURATION DIP SWITCHES

SW1 Settings

1	2	3	4	5	6	7	8	FUNCTION
0								Set character generator — 0
1								— 1
	0							Lines/inch — 6
	1							— 8
		1	0					Format length — 8 inch
		0	1					— 8½ inch
		1	1					— 11 inch
		0	0					— 12 inch
				0				Line length — 80 characters
				1				— 40 characters
					0	0		Skip zone — 0
					0	1		— ½ inch
					1	0		— 1 inch
					1	1		— 1½ inch
							0	Hex 5C — standard character
							1	— Yen sign ¥

SW2 Settings

1	2	3	4	5	6	7	8	FUNCTION
0								CR = line terminator LF = new line
1								CR or LF = new line
	0							Word length — 7 bits
	1							— 8 bits
		0	0	0				Baud rate, — 110 bps (Auto 2 stop bits)
		0	0	1				serial interface — 300
		0	1	0				— 600
		0	1	1				— 1200
		1	0	0				— 2400
		1	0	1				— 4800
		1	1	0				— 9600
		1	1	1				Parallel interface
					0	0	0	National set — US
					0	0	1	— Swedish/Finnish
					0	1	0	— Danish/Norwegian
					0	1	1	— German
					1	0	0	— British
					1	0	1	— Italian
					1	1	0	— French/Belgian
					1	1	1	— Spanish

Note: The current switch settings will be printed out in Self-test mode (see Technical Description for details).

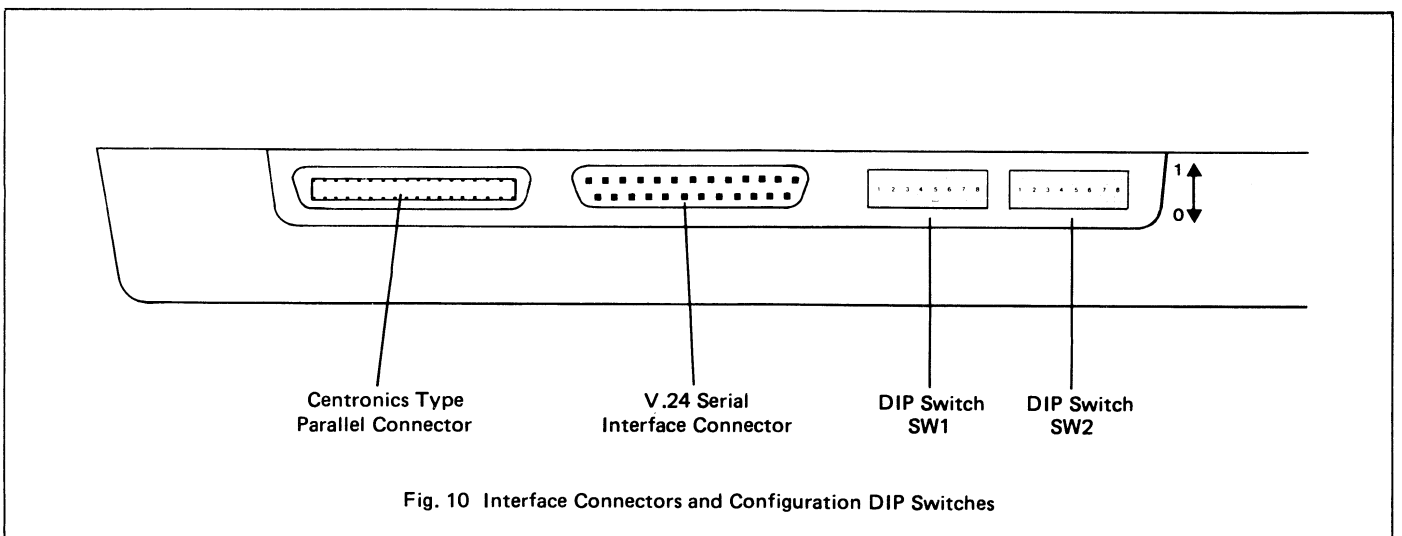


Fig. 10 Interface Connectors and Configuration DIP Switches

SUMMARY OF COMMANDS

CHARACTER MODE

COMMAND	ASCII KEY SEQUENCE
SELECT NATIONAL VERSION – U.S. SWEDISH/FINNISH DANISH/NORWEGIAN GERMAN BRITISH ITALIAN FRENCH/BELGIAN SPANISH	ESC 8 @ * ESC 8 A ESC 8 B ESC 8 C ESC 8 D ESC 8 E ESC 8 F ESC 8 G
SELECT LINE SPACING – 6 lpi 8 lpi	ESC 4 ESC 5
SELECT PIN GRAPHICS RESOLUTION – 60 d/i 72 d/i 100 d/i	ESC . N ESC . M ESC . H
SELECT CHARACTER GENERATOR – 0 1	ESC / @ * ESC / A
SET VERTICAL TABS	ESC 1 (N ₁ .. N ₃₂) DEL
SET FORMAT LENGTH	ESC 2 (N) DEL
SET RIGHT MARGIN	ESC) (N) DEL
SET SKIP ZONE	ESC • (N) DEL
SET SPACING INCREMENT	ESC SP (N) DEL
SET SI SEQUENCE SET SO SEQUENCE	ESC [CTRL+O] [string] DEL ESC [CTRL+N] [string] DEL
SELECT FONT – NORMAL CONDENSED COMPRESSED HIGH RESOLUTION – CONSTANT PROPORTIONAL BLOCK GRAPHICS – CONDENSED NORMAL ENLARGED PIN GRAPHICS	ESC 6 or [CTRL+B] ESC 9 ESC 7 ESC : ESC ; ESC < ESC = ESC > [CTRL+V]
SHIFT IN	[CTRL+O]
SHIFT OUT	[CTRL+N]
START ELONGATED	[CTRL+~]*
START UNDERLINED	[CTRL+]]*
END ELONGATED/UNDERLINED	[CTRL+_]
HORIZONTAL TAB	[CTRL+I]
BACKSPACE	[CTRL+H]

COMMAND	ASCII KEY SEQUENCE
SPACING INCREMENT	[CTRL+X]
ABSOLUTE CHARACTER POSITION	ESC + (n) DEL
ABSOLUTE DOT POSITION	ESC , (n) DEL
REPEAT DATA	ESC - (n) DEL
HALF LINE FEED FORWARD	ESC U
FULL LINE FEED FORWARD	ESC N
HALF LINE FEED BACK	ESC D
FULL LINE FEED BACK	ESC [CTRL+P]
CARRIAGE RETURN	[CTRL+M]
LINE FEED	[CTRL+J]
VERTICAL TAB	[CTRL+K]
FORM FEED	[CTRL+L]
RESET TO POWER UP	ESC Ø

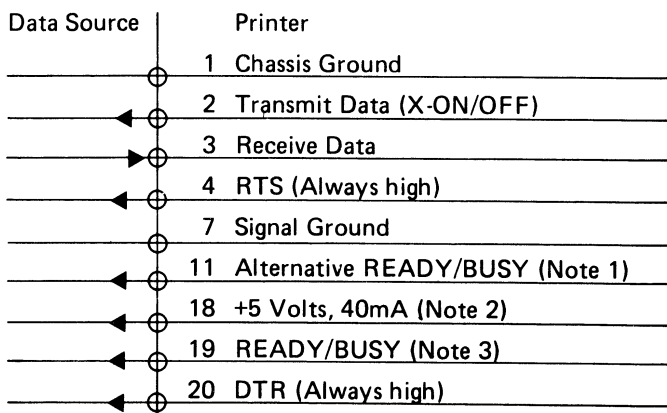
PIN GRAPHICS MODE

COMMAND	ASCII KEY SEQUENCE
SELECT FONT – NORMAL CONDENSED COMPRESSED HIGH RESOLUTION – CONSTANT PROPORTIONAL BLOCK GRAPHICS – CONDENSED NORMAL ENLARGED	[CTRL+V] ESC 6 ([C+V][C+B]) [CTRL+V] ESC 9 [CTRL+V] ESC 7 [CTRL+V] ESC : [CTRL+V] ESC ; [CTRL+V] ESC < [CTRL+V] ESC = [CTRL+V] ESC >
START ELONGATED END ELONGATED	[CTRL+V] [CTRL+~]* [CTRL+V] [CTRL+~]*
ABSOLUTE DOT POSITION	[CTRL+V] ESC , (n) DEL
REPEAT DATA	[CTRL+V] ESC - (n) DEL
CARRIAGE RETURN	[CTRL+V] [CTRL+M]
LINE FEED	[CTRL+V] [CTRL+J]
FORM FEED	[CTRL+V] [CTRL+L]
RESET TO POWER UP	[CTRL+V] ESC Ø
PRINT DOTS 2+3+5	[CTRL+V] [CTRL+V]

*Subject to national variation (see Technical Description).

Note: The parameter (N) should have a value entered in relative Hexadecimal (see Technical Description for conversion table); the parameter (n) should have a value entered in decimal.

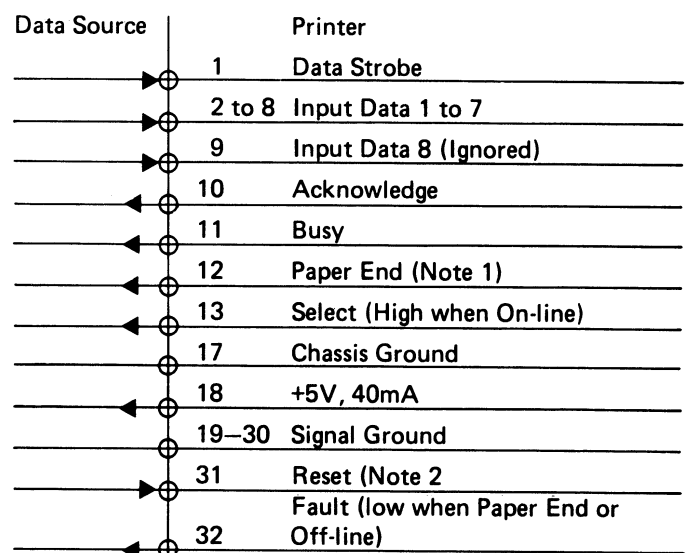
INTERFACE CONNECTORS



Notes: (1) READY/BUSY can be moved from pin 19 to pin 11 by linking a solder bubble (see section 9.4.2).

(2) +5 volts can be supplied on pin 18 by linking a solder bubble (see section 8.2.3 and 9.4.3).

(3) READY = High, BUSY = Low; can be inverted by solder bubble (see section 9.4.1).



Notes: (1) High indicates Paper End.

(2) Can be reset to power-up condition by data source setting this line low.

OPERATOR'S CONTROL PANEL

ERROR/ON LINE indicator

When unlit: printer Off-line, no faults

When lit steady: printer On-line

When lit flashing:

- (a) Fault during power-up test or normal operation; switch off printer and call service personnel
- (b) Paper end condition, load new paper or use OVR.R switch
- (c) Print head has been moved. Press OVR.R to realign.

POWER ON indicator

When unlit: power off

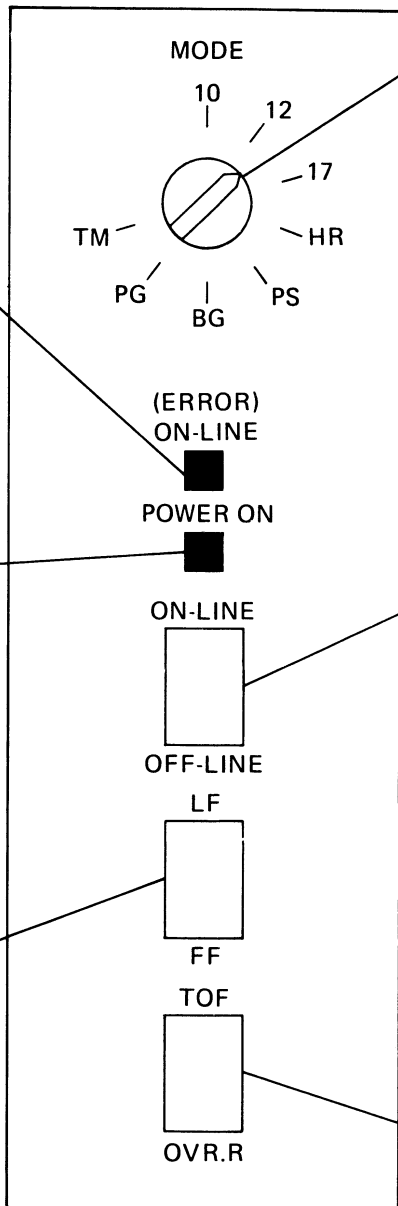
When lit: power on

LF/FF switch

This two-function switch is biased to the central (off) position and is operative only when the printer is Off-line.

When the bottom half (FF) is depressed, the printer will feed paper to the next Top of Form position.

When the top half (LF) is depressed momentarily a single line feed will occur. If the switch is held depressed for more than ¼ sec, further line feeds will be performed until the switch is released.



MODE rotary switch

This switch sets the default operating mode of the printer as follows:

- 10 = Normal chars (10 cpi)
- 12 = Condensed chars (12 cpi)
- 17 = Compressed chars (17 cpi)
- HR = High resolution, fixed pitch (10 cpi)
- PS = High resolution, proportional pitch (10–20 cpi)
- BG = Block graphics (1:1 aspect ratio)
- PG = Pin graphics (1:1 aspect ratio)
- TM = Transparency mode

This switch is sensed only at Power-up or after a Reset command. To change the operation mode, set the switch to the desired position and turn the power off and then on again. The mode may also be changed at any time by the host.

ON LINE/OFF LINE switch

Depressing the upper half (ON LINE) turns the printer On-line provided there are no faults. The ERROR/ON LINE indicator lights to show that the printer is On-line. If the printer is On-line, depressing the lower half (OFF LINE) turns the printer Off-line. The ERROR/ON LINE indicator will be extinguished. The switch is also used in conjunction with the OVR.R switch during the Paper End state.

TOF/OVR.R switch

This two-function rocker switch is biased to the central (off) position and is operative only when the printer is Off-line.

When the top half (TOF) is depressed, the current line (indicated by the Footline Indicator) is registered as the new Top of Form position (overriding any previous TOF).

The bottom half (OVR.R) is operative only when the printer is in the Paper End state.

- (a) Momentary depression: print next line
- (b) Hold depressed: print to end of paper with printer Off-line
- (c) Hold OVR.R and ON LINE switches depressed: print to end of paper with printer On-line.

Paper End is described overleaf. The OVR.R switch can also be used to initiate self-testing (see Technical Description).

