

PREFACE

TO THE AMSTRAD DMP3000/3160/3250DI

USER INSTRUCTIONS

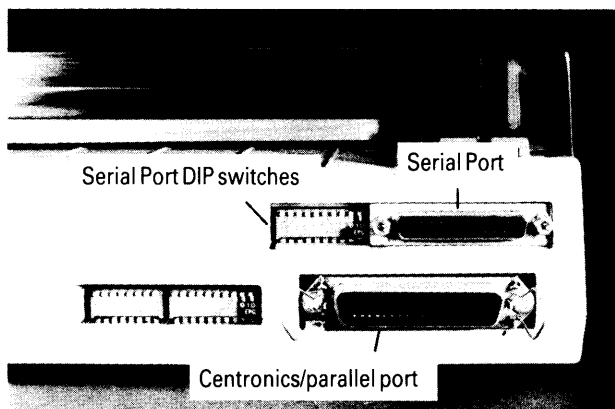
ADDITIONAL INFORMATION FOR DMP3250DI USERS

Your DMP3250DI has two interfaces; a Centronics/parallel port and a serial (RS232C compatible) port. The DMP3000/3160/3250DI User Instructions book contains details of the Centronics/parallel port, the RS232C serial port is described below.

IMPORTANT NOTICE

**Where a printer cable has been supplied with your DMP3250DI
it is for Centronics/parallel connection ONLY**

A serial printer lead is not supplied



PRINTER LEAD - SERIAL

You will require an RS232 Null-modem cable with a 25-pin D-type male connector for the printer on one end and a connector on the other end for the serial port of your computer, consult your dealer if you do not already have a suitable lead.

CONNECTING THE PRINTER TO A PC - SERIAL INTERFACE

Before connecting the serial lead make sure your computer and printer are switched OFF.

When you have connected the printer set the Serial Port DIP switches on the back of the printer (see over page for settings, DS3-8 and DS3-9 would normally be set for Ready/Busy protocol) then turn your printer and computer on.

Set your computer so that the printer output is sent to the serial port and the baud rate, parity, data length and stop bit agree with the DIP switch settings. If you do not know how to do this you will need to refer to your computer manuals. If you are using an Amstrad PC you will need to refer to the following sections of your User Instructions book:

Appendix V1.2 "Making use of the Serial Interface"
Part III 7.1 "Sending printer output to the Serial Interface"
Part III 7.3 "MODE"



Serial Interface

PIN	DESIGNATION	I/O	DESCRIPTION
1	FG	--	Frame Ground
2	SD	OUT	Send data This is a signal line to transmit serial data from the printer. This will be Mark when there is no data to transmit.
3	RD	IN	Receive Data This is a signal line to transmit serial data to the printer. This must be Mark when there is no data to transmit.
4	RTS	OUT	Request To Send This will be Space when data can be received, Mark when data cannot be received.
5	CTS	IN	Clear To Send This must normally be Space to allow the printer to send data. If this line is Mark status, no data will be transmitted from the printer.
6	DSR	IN	Data Set Ready This must be normally Space to allow the printer to receive data. If this line is Mark status, the printer will ignore the receiving data.
7	SG	--	Signal Ground
20	DTR	OUT	Data Terminal Ready. This will be Space when the printer is selected, Mark when deselected.

Note

"Space" level is + 12v

"Mark" level is - 12v

Serial Port DIP switch functions

BAUD RATE SELECTION (serial I/F only)

BAUD RATE	DS3-1	DS3-2	DS3-3
9600 bps	ON	ON	ON
4800 bps	OFF	ON	ON
2400 bps	ON	OFF	ON
1200 bps	OFF	OFF	ON
600 bps	ON	ON	OFF
300 bps	OFF	ON	OFF
200 bps	ON	OFF	OFF
150 bps	OFF	OFF	OFF

PARITY SELECTION

PARITY	DS3-4
YES	OFF
NO	ON
	DS3-5
ODD	OFF
EVEN	ON

The Default setting of all Serial Port DIP switches is OFF.

DATA LENGTH SELECTION

DATA LENGTH	DS3-6
8 bit	ON
7 bit	OFF

STOP BIT

STOP BIT	DS3-7
1 bit	OFF
2 bit	ON

PROTOCOL SELECTION

PROTOCOL	DS3-8	DS3-9
Serial(XON/XOFF)	ON	OFF
RTS (Ready/Busy)	OFF	OFF
Serial (ETX/ACK)	OFF	ON

INTERFACE SELECTION

INTERFACE	DS3-10
Centronics/parallel	OFF
Serial	ON

Introduction

AMSTRAD DMP3000/3160 PC Compatible Dot Matrix Printer

The DMP3000/3160 is yet another milestone in the AMSTRAD range of low-cost high-performance computer products.

It combines the versatility of an industry standard software instruction set with AMSTRAD's expertise in quality engineering.

Single cut sheet or continuous paper may be used, and the ingenious 'flatbed' design allows the easy insertion and alignment of both tractor and friction feed paper. Printing speeds of up to 160 characters per second will make rapid work of even the most lengthy drafts.

The extremely wide choice of sizes and typefaces coupled with a complete ASCII, international and graphics character set should provide a solution to any printing problem. In addition, the implementation of dot addressable graphics and standard Epson compatible command codes will allow the DMP3000/3160 to operate directly with most software, including word processors, spreadsheets and graphics programs.

The DMP3000/3160 will operate with the AMSTRAD PC or any other IBM PC-compatible which incorporates a standard parallel printer interface.

The DMP3000/3160 will also operate with any other personal or home computer (for example the AMSTRAD CPC series or the Acorn range of BBC microcomputers) which provide standard parallel printer output. In addition, the printer may be used (via a suitable interface) with computers which provide serial printer output (for example the Commodore or Sinclair ZX Spectrum range of computers).

NOTE - THROUGHOUT THIS MANUAL, ALL REFERENCES TO MODEL DMP3000 ARE EQUALLY APPLICABLE TO MODEL DMP3160 (EXCEPT WHERE OTHERWISE STATED).

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All maintenance and service on the product must be carried out by AMSTRAD authorised dealers. AMSTRAD cannot accept any liability whatsoever for any loss or damage caused by service or maintenance by unauthorised personnel. This guide is intended only to assist the reader in the use of the product, and therefore, AMSTRAD shall not be liable for any loss or damage whatsoever arising from the use of any information or particulars in, or any error or omission in, this guide or any incorrect use of the product.

We ask that all users take care to submit their user registration/guarantee cards.

All correspondence relating to the product or to this manual should be addressed to:

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Essex CM20 2EE**

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IMPORTANT

You must read this....

1. Always connect the mains lead of the printer to a 3-pin plug following the instructions in chapter 1.
2. Do not attempt to connect the printer to any mains supply other than 220-240V AC 50Hz.
3. There are no user serviceable parts inside the printer - **DO NOT ATTEMPT TO GAIN ACCESS INSIDE THE CASING**. Refer all servicing to qualified service personnel.
4. Do not operate the printer with its ribbon removed.
5. Do not operate the printer with no paper loaded.
6. Do not switch on or operate the printer with the cardboard print head stabilisers in position.
7. Do not bring drinks or any other liquids near the printer. If you *do* accidentally spill liquid on the printer, immediately remove the mains plug from the supply socket and consult your dealer.
8. Do not block or cover the ventilation slots in the cabinet.
9. Do not use or store the printer in excessively hot, cold, damp, or dusty areas.

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Chapter 1

Open the box....

Subjects covered in this chapter:

- How to wire up the mains plug
- Preparing the printer
- Fitting the ink ribbon
- Connecting the printer to your computer
- Loading the paper
- How the controls work
- First steps in printing

Unpacking your printer

In addition to the DMP3000 printer and this manual, you will also find a small box within the packing pieces containing the ink ribbon, as well as the paper guide bar. Make sure that you do not accidentally discard either of these items during unpacking.

Fitting a mains plug to your printer

The DMP3000 operates from a 220-240 Volt AC 50Hz mains supply. Fit a proper mains plug to the mains lead of the DMP3000. If a 13 Amp (BS1363) plug is used, a 3 Amp fuse must be fitted. The 13 Amp fuse supplied in a new plug must NOT be used. If any other type of plug is used, a 5 Amp fuse must be fitted either in the plug or adaptor or at the distribution board.

WARNING: THIS APPARATUS MUST BE EARTHED

IMPORTANT: The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow	: Earth
Blue	: Neutral
Brown	: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured **GREEN-AND-YELLOW** must be connected to the terminal in the plug which is marked by the letter **E** or by the safety earth symbol \perp or coloured green or green-and-yellow.

The wire which is coloured **BLUE** must be connected to the terminal which is marked with the letter **N** or coloured black.

The wire which is coloured **BROWN** must be connected to the terminal which is marked with the letter **L** or coloured red.

Disconnect the mains plug from the supply socket when not in use.

Do not attempt to remove any screws, nor open the casing of the DMP3000. Always obey the warning on the rating label located on the underside of the unit:

WARNING:
LIVE PARTS INSIDE - DO NOT REMOVE ANY SCREWS

WARNING-
DO NOT CONNECT TO "I T" POWER SYSTEM

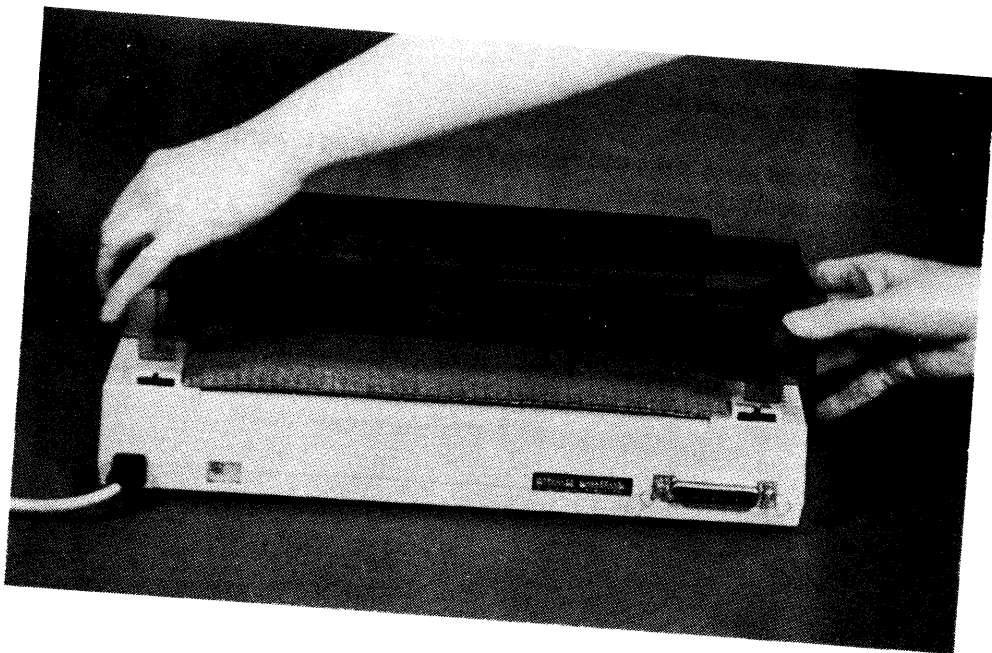
Note: An "I T" power system is a power distribution system having no direct connection to earth, the exposed conductive parts of the electrical installation being earthed.

Preparing your printer

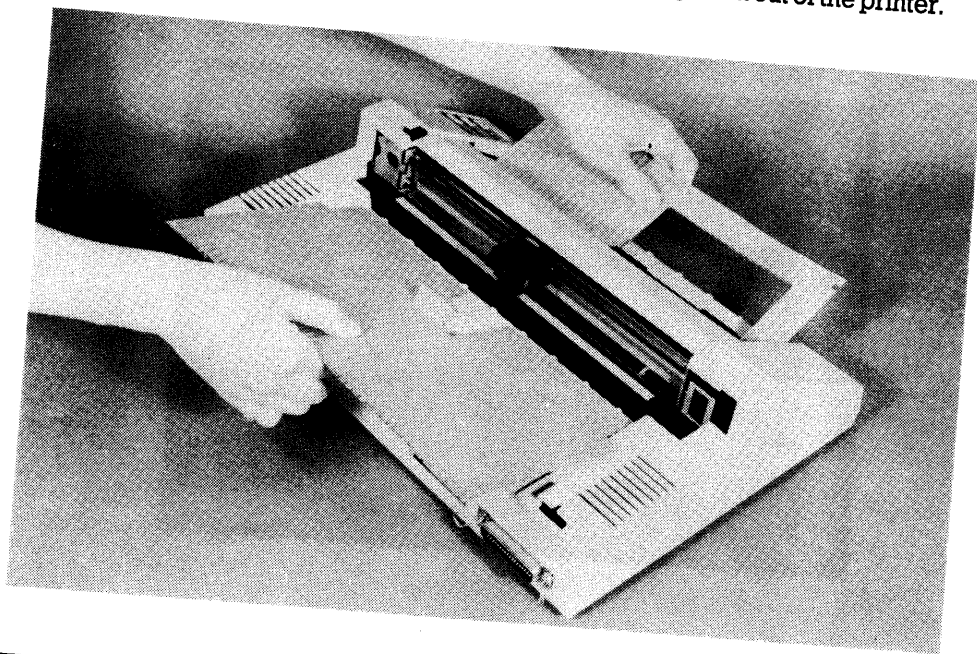
Now that you've fitted the mains plug, you'll no doubt be anxious to switch on and start printing.... **DON'T!** There are a number of important preparations yet to be made, and it is vital that you carry out the following instructions first:

Removing the cardboard print head stabilisers

Firstly, remove the clear plastic cover at the top of the printer by simply lifting it off. To replace the cover, simply lower the locating flaps at the rear of the cover into the holes above the rear edge of the printer (see the picture at the top of the next page). When the printer cover is in position, it may be hinged to either an open or closed position.



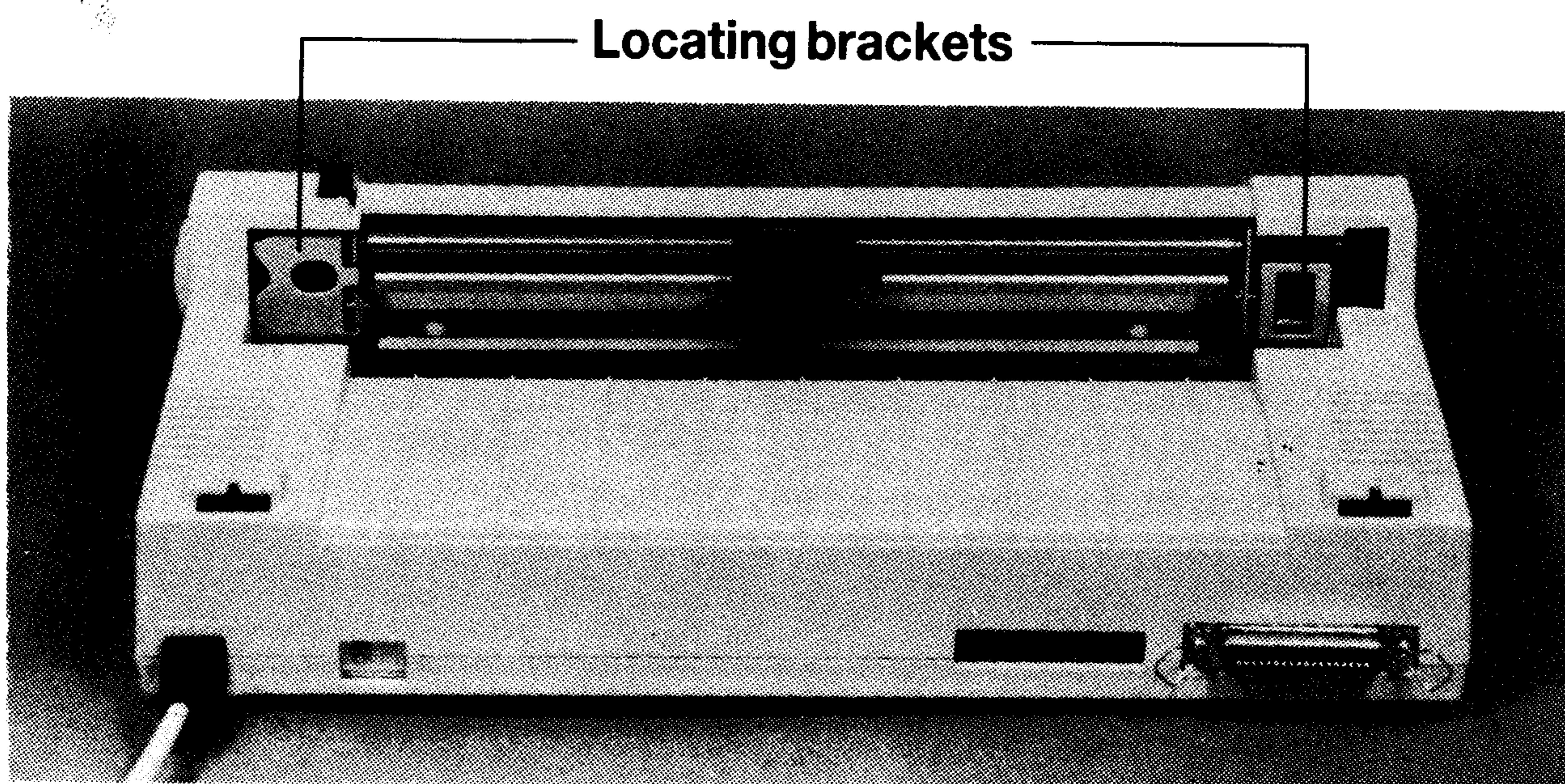
Now remove the cardboard print head stabilisers by sliding them out of the printer.



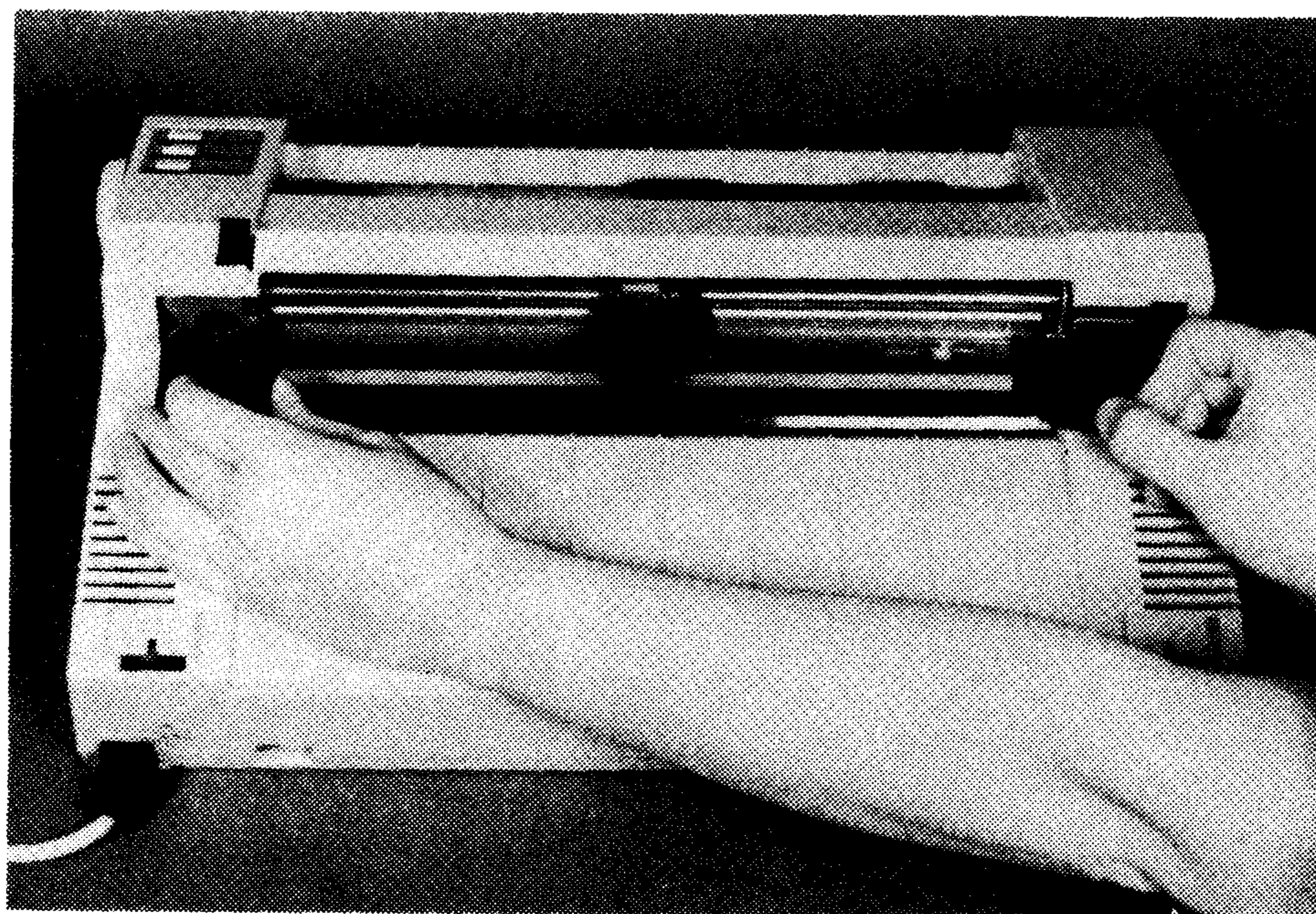
Fitting the ribbon

Carefully fit the ribbon as now described.

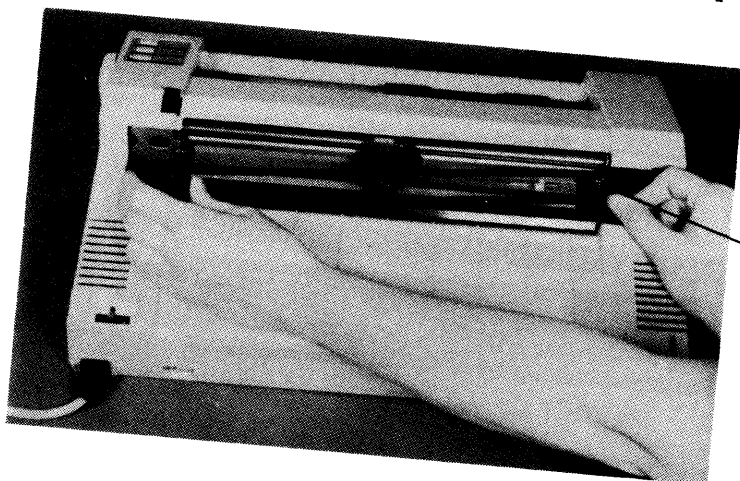
Firstly, turn the printer away from you so that you are looking towards the rear. Note the two (metal) ribbon locating brackets.



Carefully remove the ribbon from its packing, and prepare to fit the two plastic ends of the ribbon assembly into the metal locating brackets on the printer.

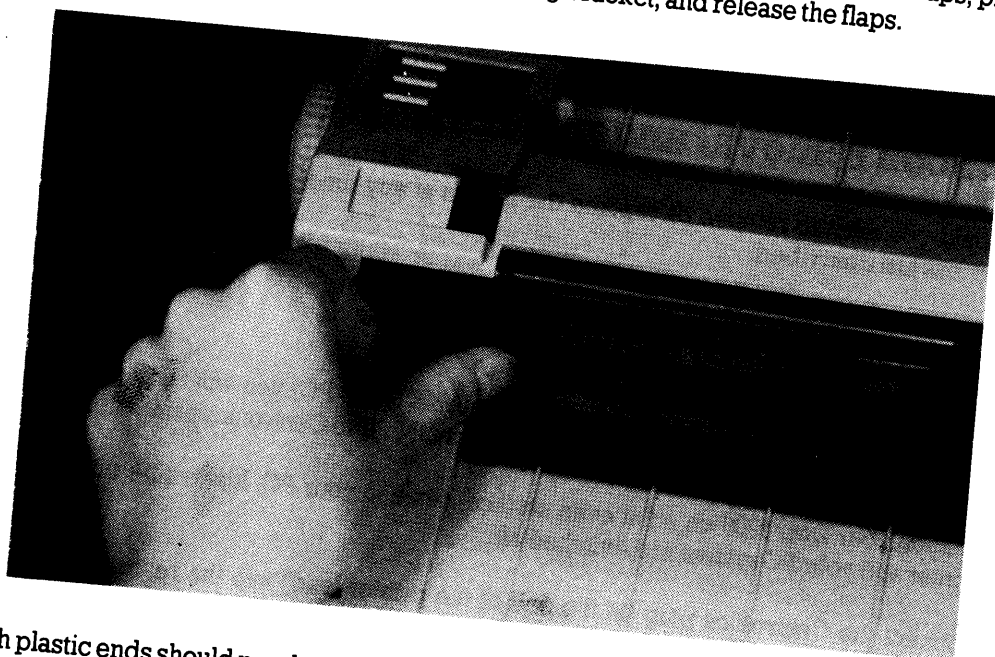


Start by fitting the plastic end which is in your right hand. Place the bottom of the plastic end into the square hole in the locating bracket. Now clip the top of the plastic end fully into position.



Plastic end

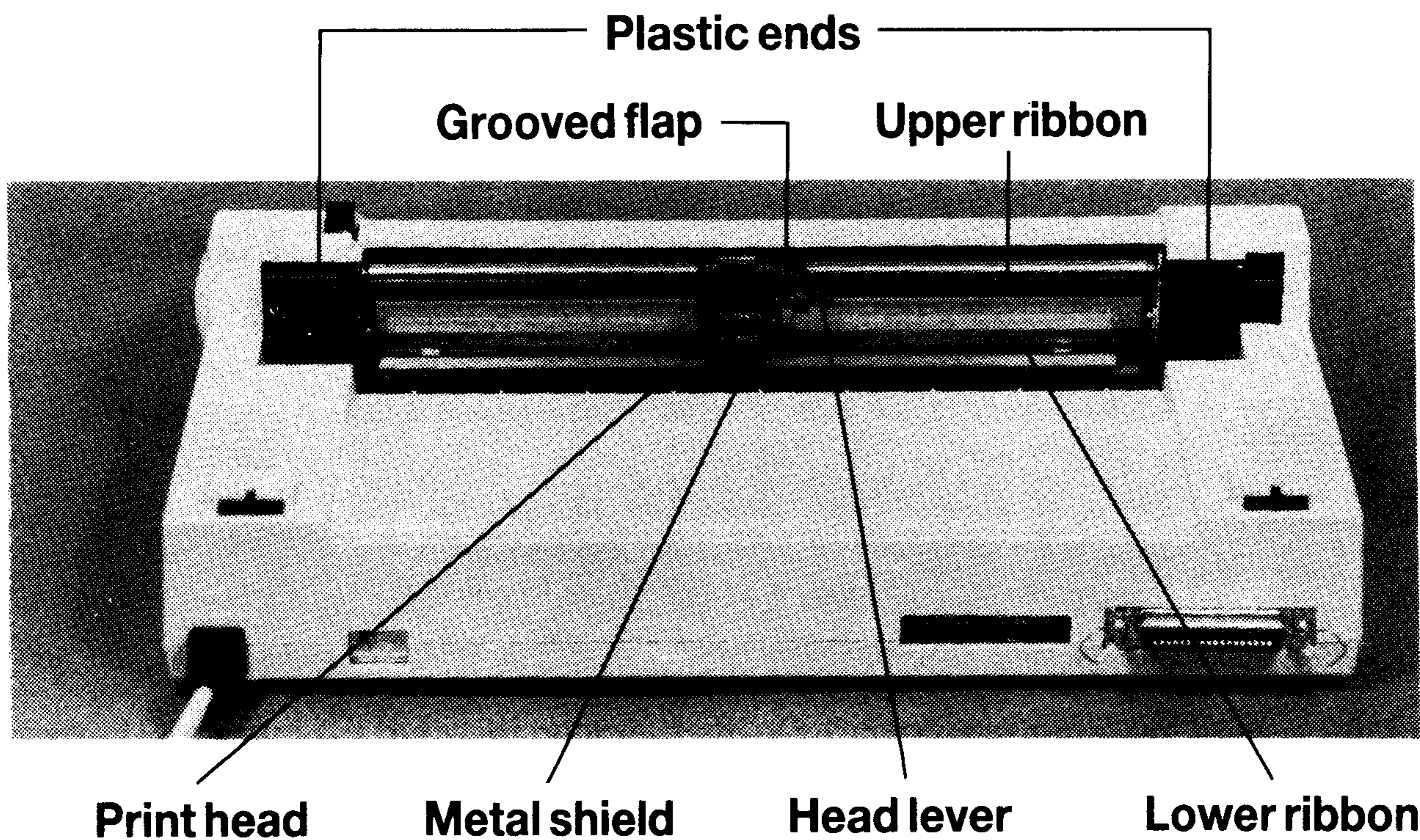
Now take hold of the other plastic end. Gently pinching together the two small flaps, place the plastic end fully home into the other locating bracket, and release the flaps.



Both plastic ends should now be locked fully into place.

The ribbon which runs between the plastic ends must now be correctly positioned. Gently raise the small head lever to the right of the print head, then slide the upper ribbon under the grooved flap above. Now release the head lever.

Finally, slide the lower ribbon in between the bottom of the print head and the small metal shield below.



Ribbon removal and replacement

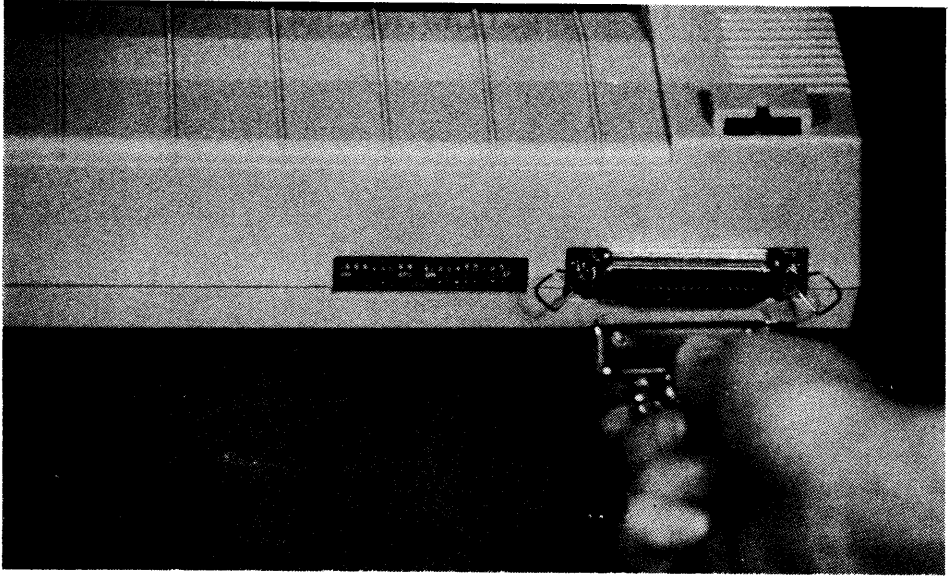
Should you wish to remove or replace the ribbon at any time, simply reverse the fitting process just described.

Connecting the printer to a PC

To connect the DMP3000 to a PC (such as the AMSTRAD PC) you will require a suitable lead (the AMSTRAD PL-2 or any other equivalent IBM PC to Centronics printer lead).

Position your DMP3000 on a flat even surface, close to your PC. Make sure that both the printer and your PC system are switched off.

Connect the Centronics plug (at the end of the printer lead) into the rear socket on the printer. If the Centronics plug has a cut-out in each side, you may fasten the printer's locking-clips into the cut-outs.



Connect the other end of the printer lead into your PC. If you are connecting the DMP3000 to an AMSTRAD PC, use the socket marked PARALLEL PRINTER at the rear of the PC system unit.

You may now replace the printer cover and turn the printer towards you.

Connecting the printer to a home computer

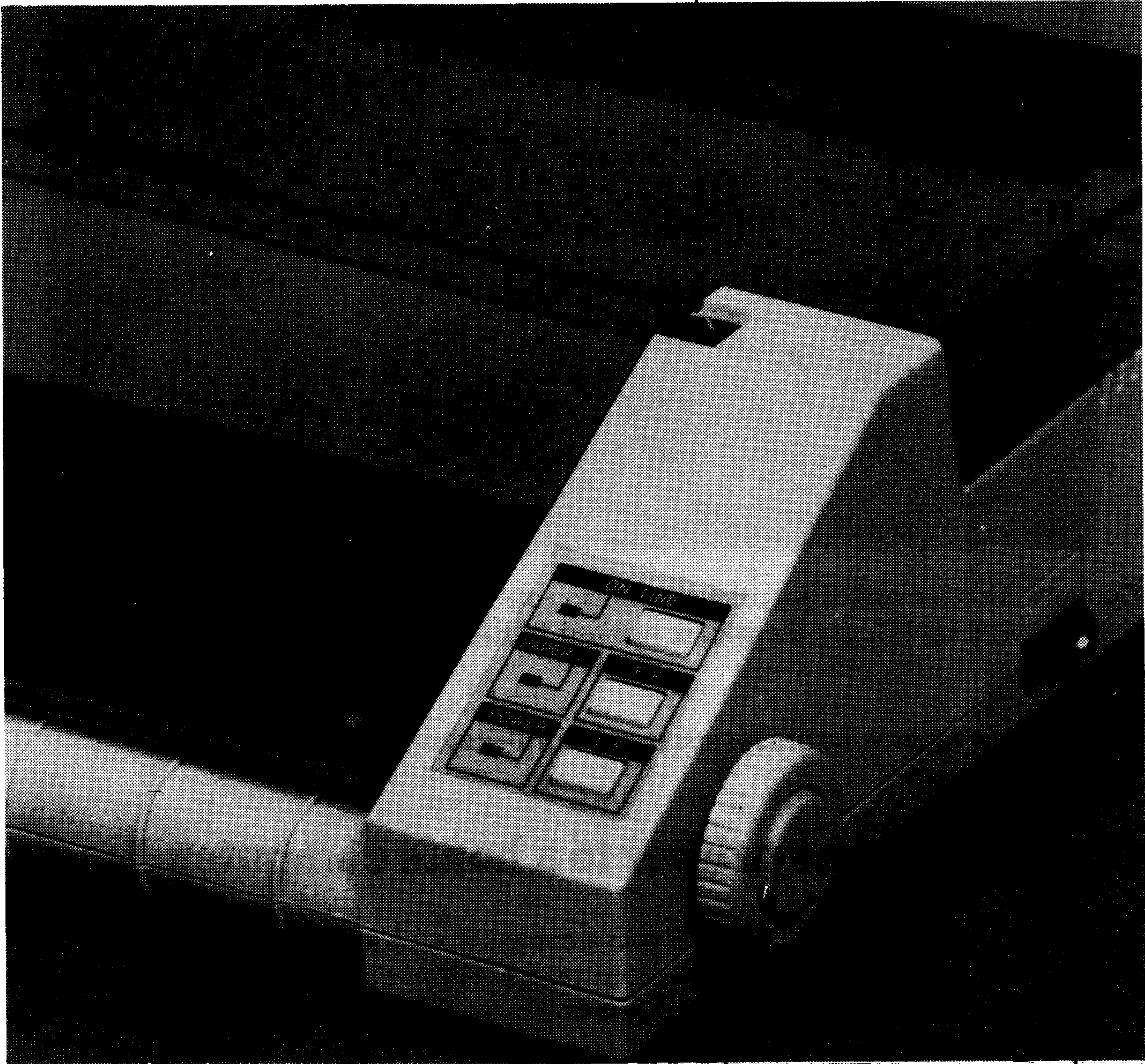
Should you wish to use the DMP3000 with a computer such as one of the AMSTRAD CPC series or the Acorn BBC range of microcomputers, all you will require is a lead to connect the DMP3000 to the PRINTER socket on the computer. (The AMSTRAD PL-1 printer lead is suitable for AMSTRAD CPC computers.)

For the Commodore or Sinclair ZX Spectrum range of computers, you will require a suitable Centronics parallel interface for your computer.

Getting to know your printer

Take a good look at your printer. You'll be switching it on very shortly now, and it's as well to get acquainted with the names of all the buttons, knobs, switches, and lamps beforehand.

FRICITION/TRACTOR switch



Manual paper feed knob

Mains ON/OFF switch

Switching on

Switch on your computer system, then set the DMP3000 mains ON/OFF switch (at the right hand side of the printer) to *on*. The print head will move about for a few seconds, and you will then hear a bleeping sound. This sound is the paper out alarm, but do not worry about it for the moment. After the alarm has stopped, you will note that the POWER lamp and the PAPER OUT lamp are both on.

All that remains to do now is load the paper, then you can start printing.

Loading the paper

Hinge back the printer cover to its open position or remove it altogether. Look inside the paper compartment, and you will see 4 sliding plastic blocks attached to a metal bar.

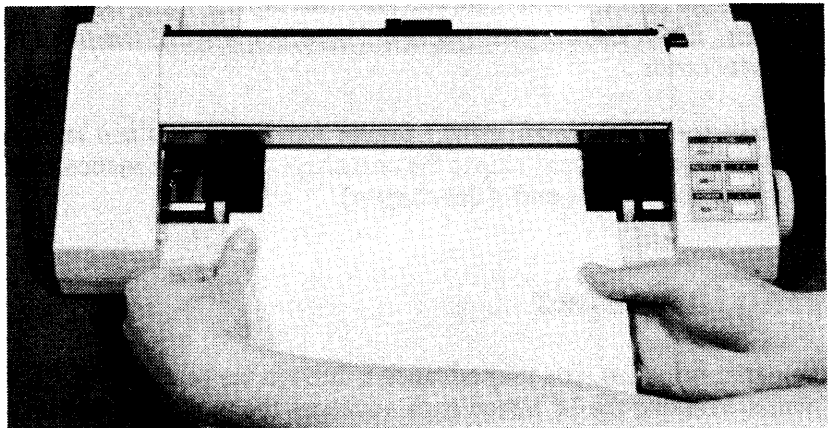


The two outer plastic blocks are called tractors, and they may be moved left or right to accommodate the size of paper you are using. The two inner plastic blocks support the middle of the paper and may be slid to any suitable position.

The DMP3000 may be used with plain paper or tractor feed paper (fan fold paper with holes at the side). There is a section entitled 'How to load tractor feed paper' at the end of this chapter.

How to load plain paper

Set the FRICTION/TRACTOR switch to TRACTOR. Take a piece of plain paper (A4 or similar) and slide it into the lower slots on the tractors:

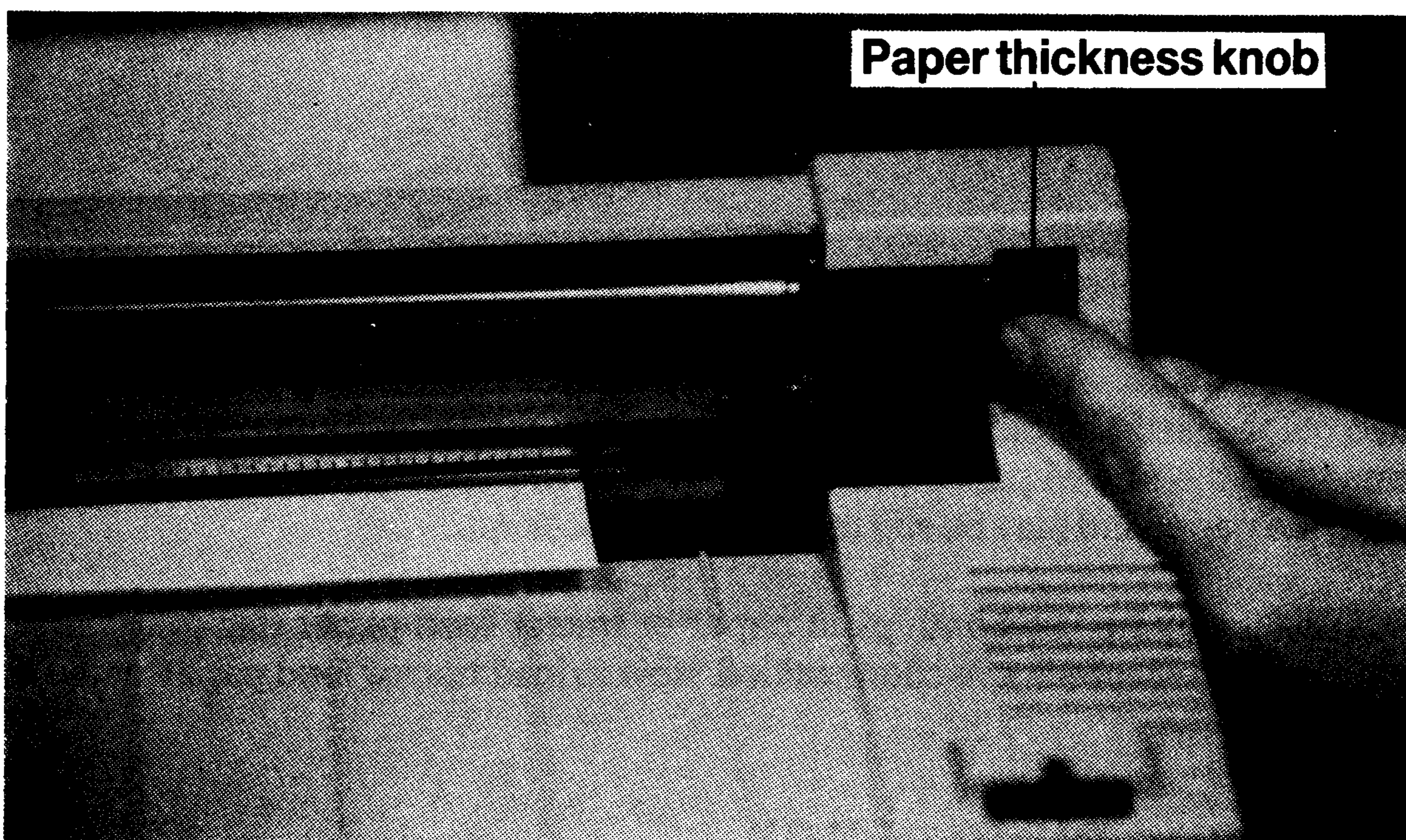


You will see the paper coming through, out of the top of the printer (just underneath the print head). Straighten up the position of the paper by hand, then set the FRICTION/TRACTOR switch to FRICTION. The paper is then loaded.

(Note that the position printing takes place on the paper, is directly under the print head.)

Paper thickness adjustment

Once the paper is loaded, you may adjust the paper thickness knob to a suitable setting - upwards for thicker paper (or two sheets); downwards for thinner paper.



Note that moving the paper thickness knob downwards will darken the printing; moving it upwards will lighten the printing.

If you removed the printer cover, then you may now replace it and hinge it forward to its closed position. When loading plain paper in future, you will find that there is no need to open the printer cover.

If you are already experienced in using a printer with a computer and know how each of the controls work, then you may skip to the next chapter (or to the section entitled 'How to load tractor feed paper' at the end of this chapter).

Moving the paper

Once the paper is loaded, you may advance it through the printer by using the LF (Line Feed) button. Pressing the LF button once advances the paper by one line; holding the

button down allows you to advance the paper continuously until you release the button. The FF (Form Feed) button will allow you to advance the paper by one page at a time. The use of this button will be explained shortly. Both the LF and FF buttons will only operate when the ON LINE lamp is off.

You may at any time advance the paper by using the manual paper feed knob instead of the LF and FF buttons.

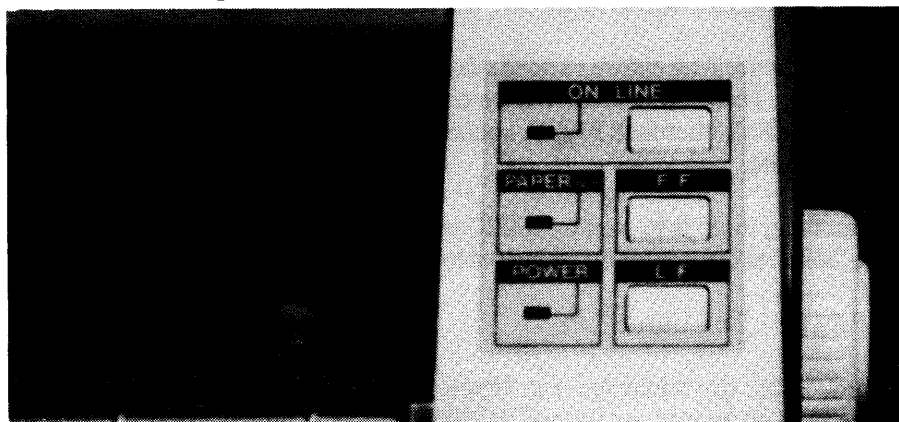
Starting printing

The DMP3000 incorporates a *self test* facility whereby all the ASCII characters are automatically printed. To try this out, first set the mains ON/OFF switch to *off*. Now, holding down the LF button, set the mains ON/OFF switch to *on*. Release the LF button, and self test printing will start and continue until either the paper runs out, or the mains is switched off.

After four or five lines of self test printing, set the mains ON/OFF switch to *off*.

Have a look at what's been printed. If the characters have not been printed clearly and evenly, check that you have installed the ribbon and paper correctly.

Now switch the printer back *on* again. Assuming that you still have some paper loaded in the printer, notice that when you switch on this time, the paper out alarm does NOT come on, and the ON LINE lamp is lit.



What does 'on line' mean?

'On line' means that the printer is ready to print (as soon as it receives a command from the computer). Note that when the printer is on line, you won't be able to move the paper using

the LF or FF buttons. What you must then do is press the ON LINE button once, so that the ON LINE lamp goes off. This is known as setting the printer 'off line', and you will then be able to advance the paper using the LF and FF buttons. So briefly, the rule is: on line to print; off line to stop printing ready to move the paper.

The FF button

The FF button may be used to advance the paper through the printer by one whole page.

To demonstrate, set the printer off line, then press the FF button. Watch what happens to the paper.

Form feed is very useful if, for example, you've just printed a letter to somebody and you wish to run it out from the printer.

If you are using tractor feed paper (explained at the end of this chapter) you may use the FF button to advance the paper by one page's length.

Print your first word


Load a piece of paper into the printer.

Press the ON LINE button, and make sure that the ON LINE lamp is lit.

From now on, you will be shown various example printer commands (in BASIC) to type into your computer. These commands will be compatible with the BASIC provided with most PCs, ie. IBM BASIC, Microsoft BASIC, Locomotive BASIC 2 (provided with the AMSTRAD PC), BASIC-A, etc.

So the first thing to do is to start up BASIC on your PC. Having done so, send a word (for example 'hello') to the printer by typing the following instruction into the computer:

```
LPRINT "hello"
```

The word 'hello' (or whatever you typed inside the quotation marks) should have immediately been printed-out by the DMP3000. If it hasn't, then check that you pressed the  ([Return] or [Enter]) key on your computer after typing in the instruction. If nothing still was printed, then check that the lead between the printer and the computer is correctly fitted at both ends, that the paper is correctly loaded, and that the printer is on line.

Well, you have now set up the DMP3000 and printed your first word. The next chapter goes on to describe some of the simpler printing functions, and will introduce you to some of the

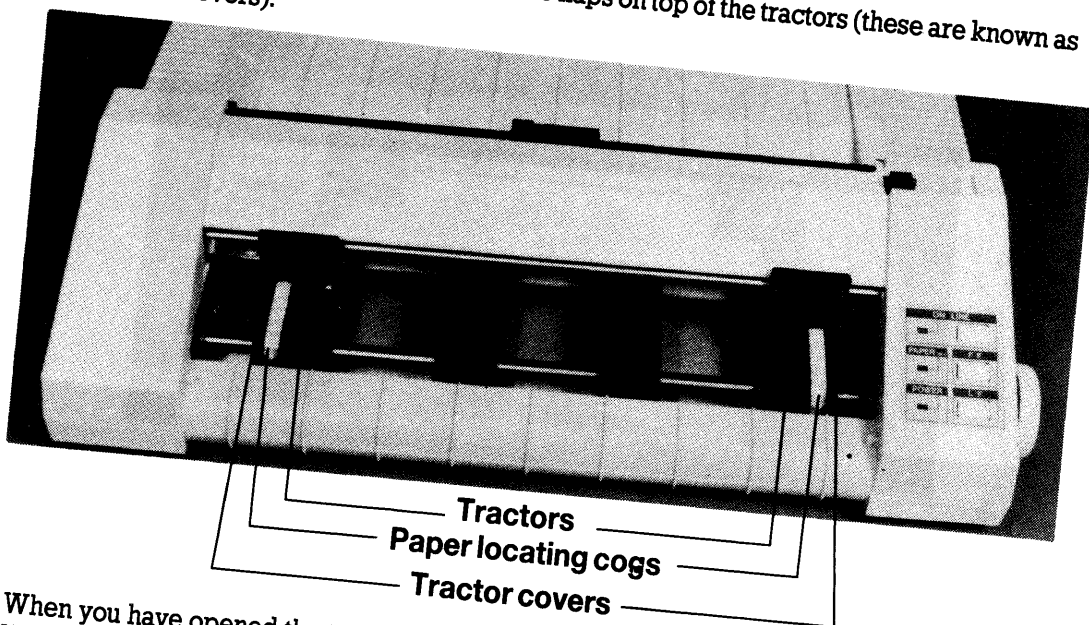
alternative styles of printing that the DMP3000 is capable of.

Finally in this chapter....

How to load tractor feed paper

Tractor feed paper is useful if you want to print program listings or long continuous texts. Load the paper as follows:

Open the printer cover, and hinge back the flaps on top of the tractors (these are known as the tractor covers):



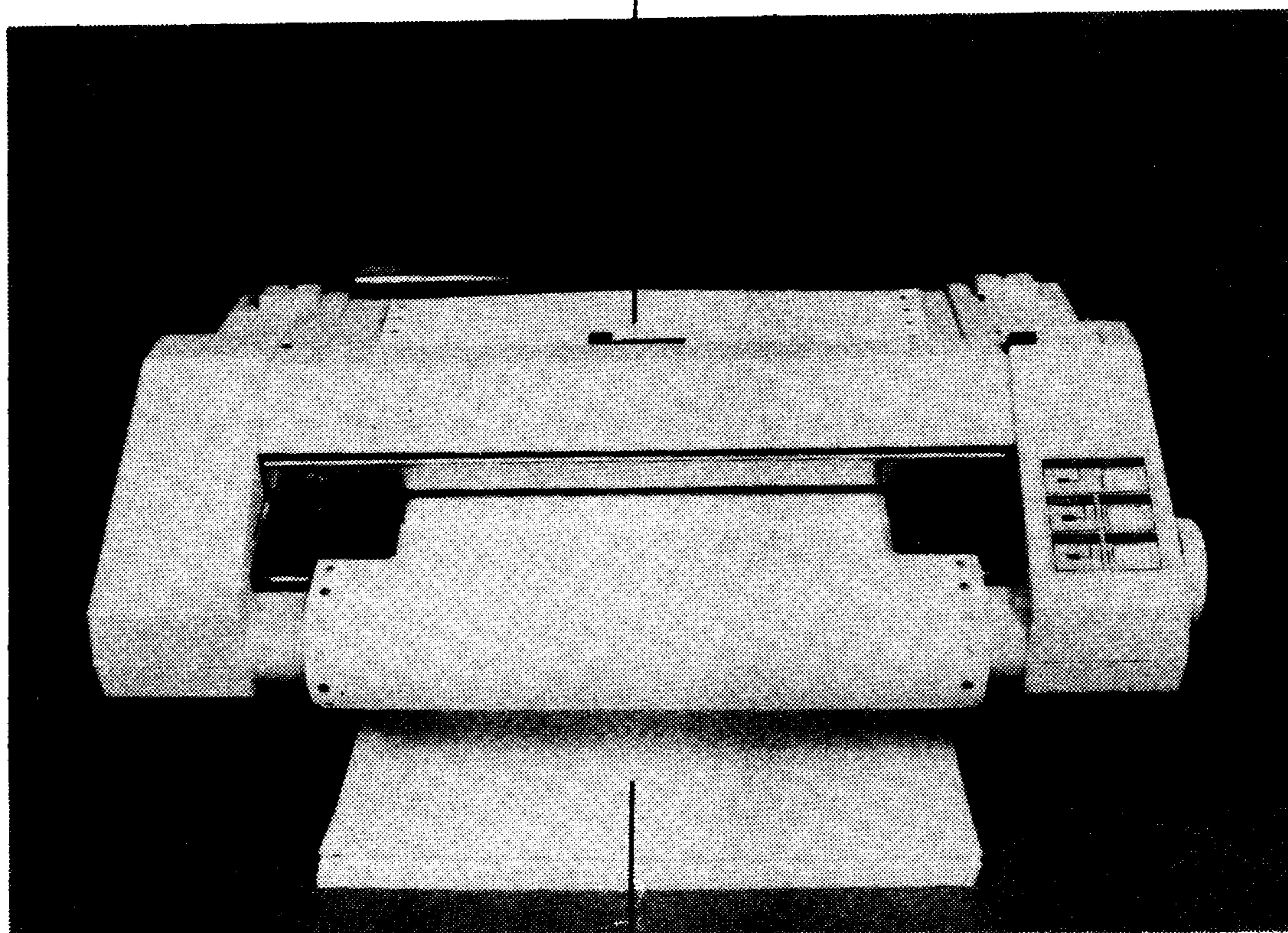
When you have opened the tractor covers, the paper locating cogs will be fully exposed. Now line up the paper holes over the cogs, and if necessary, slide the tractors sideways to accommodate the size of paper being used.

Place the paper over the cogs and close the tractor covers. Set the FRICTION/TRACTOR switch to TRACTOR, and carefully feed the paper into the printer (using the LF button or the manual paper feed knob) making sure that the paper feeds in smoothly without creasing or tearing at the tractors.

When you see the paper coming out of the top of the printer (just underneath the print head) the paper is loaded, and you may then close the printer cover.

If you wish, you may position the feed paper underneath the printer by extending the printer legs (as shown on the next page).

Printed output paper



Feed paper

Printer legs

The paper guide bar may optionally be fitted between the left and right front feet of the printer.

Make sure that the printed output paper is allowed to run out freely, and pile directly behind the printer. The paper should fold one way, then the other, as it piles.