

***EXHIBIT C***

***User Manual***

# **MSP**

## **9 Wire Dot Matrix Printers**

### *Quick Reference Manual*

## **TVS Electronics Ltd.**

34, Developed Plots, South Phase,  
Industrial Estate, Guindy, Chennai - 600 032.  
Phone : +91-44-232 5506 Fax : +91-44-232 7577  
Web : [www.tvs-e.com](http://www.tvs-e.com)

***This Manual is meant for Reference only***

***For detailed information refer to***

**ELECTRONIC GUIDE**

***in the Software Diskette provided***

***to you with your MSP Printer.***

**Please note that it is mandatory to register your product with us. The warranty applicable for this product is likely to be rejected in case of non-registration of your product with us.**

For any queries on our products and/or services, you can contact either our branch office or our authorized service provider. List of service providers is enclosed in a separate booklet.

For on-line support, please contact **Careline**, an exclusive Tele-solution desk available for any TVS customers. The contact details are:

Telephone : (91) (044) 2322511/2322399  
Fax : (91) (044) 2327588  
E-mail : [careline@scl.sprintrpg.ems.vsnl.net.in](mailto:careline@scl.sprintrpg.ems.vsnl.net.in)

We wish you a happy and memorable association with your TVS product.

Dear Customer,

Congratulations for having made the intelligent choice of buying a TV product. This product is designed and manufactured with utmost care to give you high quality, trouble-free performance in the years to come.

Welcome to the world of TVS-E service, we at TVS-E have always been offering you innovative services and support packages that match international practices and standards. Each of these special services (Call centre, Careline and Carefax to name a few) has been devised to cater to the varying requirements of our valued customers/business partners like you.

For on-line support, please contact call centre, an exclusive Tele-solutions desk available for any TVS customers. The contact details are

Telephone : (91) (044) 2322511 / 2322399

### **Careline**

Careline is a E-mail technical support from TVS-E that will provide solutions to all your technical clarifications and respond to you.

We respond to all your queries within 24 hours of its receipt at your end.

Careline.Email Id : [Careline.tv@scl.sprintrpg.ems.vsnl.net.in](mailto:Careline.tv@scl.sprintrpg.ems.vsnl.net.in)

[Careline@esa.tvse.co.in](mailto:Careline@esa.tvse.co.in)

### **Carefax**

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MSP 200 Series	

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## **Locating the right place for your MSP Printer**

Locate a flat and sturdy surface which allows the paper to flow freely.

- ▲ Choose a Power outlet (wall socket which is closest to the power socket in the printer avoid messy routing of power cable)
- ▲ Ensure your MSP Printer is placed at a dust free location.
- ▲ Avoid exposing your printer to excessive heat.
- ▲ Always ensure your printer has a steady source of 220/240 V electricity.

### **What does your Carton contain ?**

- ▲ Printer
- ▲ Paper insertion plate
- ▲ Power Cord
- ▲ This Quick Reference Manual
- ▲ Ribbon Cartridge
- ▲ Software Diskette/CD ROM
- ▲ Parallel Interface Cable
- ▲ Dust Cover\*

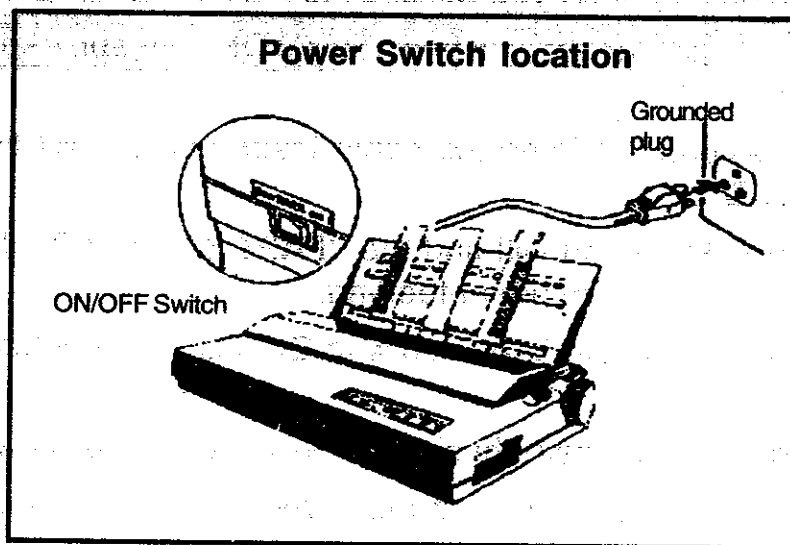
\* Applicable for Selected Models only.

## Unpacking your printer

- ▲ You will find two buffers on either sides of the Printer.
- ▲ Gently hold both the buffers and lift up.
- ▲ Never lift the printer by holding any part of the printer.

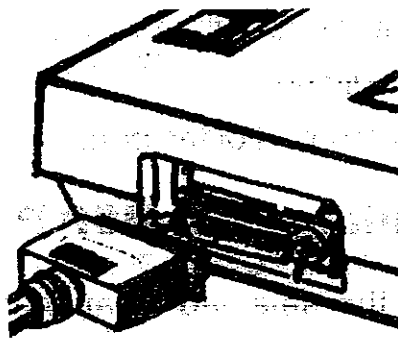
## Installing your MSP Printer

- ▲ After placing the printer on the selected location remove all the protective tapes you find.
- ▲ You have been provided with a parallel interface cable. Connect them to your computer and printer.
- ▲ Install the power cord and make sure you have provided proper earthing.





**Connecting Parallel Interface Cable**



**Connecting Parallel Interface Cable  
Components in your MSP printer**

- ▲ On the left rear side of the printer you will find the **POWER SWITCH**.
- ▲ On the rear side of the printer you will find **TRACTOR** with sprockets to fit continuous (fanfold) stationery.
- ▲ On the right side besides the interface cable insertion you will find a circular knob **"PAPER FEED KNOB"**.
- ▲ Above the paper feed knob you will find the **"PAPER SELECT LEVER"**. - To select between friction and pin mode of paper feeding.
- ▲ "Paper Insertion Plate" has been provided with Guides which helps you to feed single sheets
- ▲ When you open top cover, on the right side you will find **"Paper Thickness Lever"**
- ▲ On the tractor unit to your left, you find the **"PAPER PARK LEVER"** where you select between single sheet and continuous sheets.

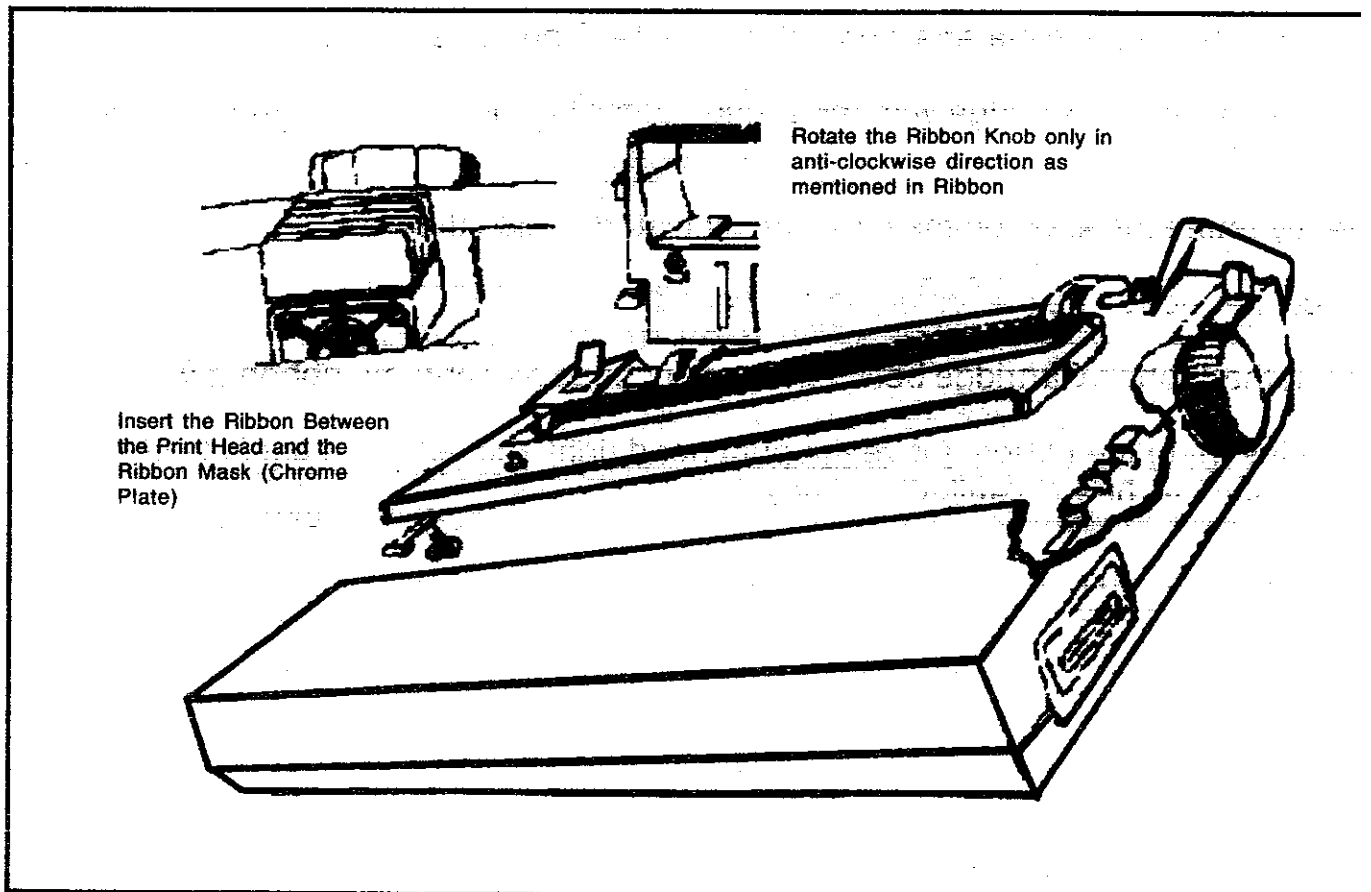
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## Installing the Ribbon Cartridge

- ▲ When installing the Ribbon Cartridge ensure that the printer is Powered “OFF”.
- ▲ Lift the top cover, you will find there are “LIFT” labels indicated.
- ▲ Remove the packing materials provided with the Ribbon Cartridge.
- ▲ Hold the Ribbon Cartridge with the round knob which is located on the left side of the ribbon (top position).
- ▲ Gently rotate the knob on the direction indicated beside the knob.
- ▲ Place the Ribbon on the top of the print head.
- ▲ Insert the Ribbon Cartridge between the print head and chrome ribbon guide.
- ▲ After inserting the ribbon, move the print head right and left a few times to ensure that the ribbon has been installed properly.

(Refer to the Figure in the next page)

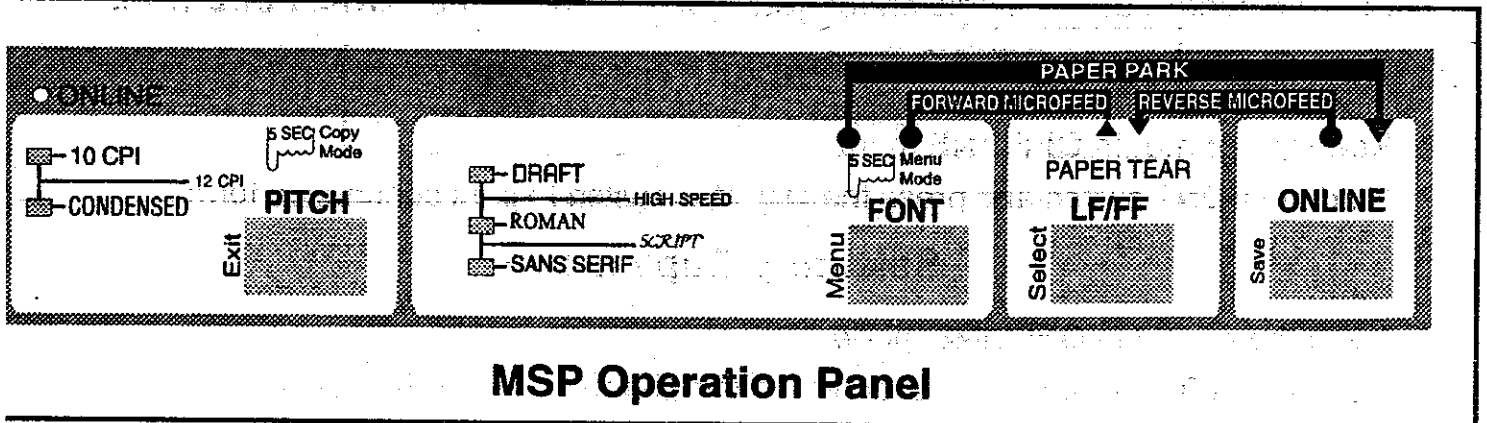
## Installing the Printer Ribbon



## Control Panel

### Operating the control panel

- ▲ The **ONLINE** light is in top left corner of the control panel. When the light glows, the printer is in **ONLINE**, when it is **OFF**, the printer is in **OFF LINE**, and when this light blinks the printer is out of paper.
- ▲ Keep the printer in **OFF LINE** Mode. Use the **FONT** switch to scroll through the available fonts (Draft, NLQ Roman, NLQ Sans Serif, High Speed Draft and **NLQ Script**). The font light indicates the Font chosen.
- ▲ **PITCH** lights indicates the character pitch you are using. When the printer is in **OFFLINE** mode, by pressing the switch you can scroll through options such as 10 cpi, 12 cpi and condensed (17.1 cpi)



**MSP Operation Panel**

### **Micro Line Settings**

- ▲ Keep the printer in **OFFLINE** mode.
- ▲ For **Forward Micro Line Feed** press the LF/FF switch, while keeping FONT switch pressed.
- ▲ For **Reverse Micro Line Feed** press the LF/FF switch, while keeping ONLINE switch pressed.
- ▲ Press **ONLINE** to save the settings.

### **Line Feed & Form Feed (LF/FF)**

- ▲ Keep the printer in **OFFLINE** mode.
- ▲ Each time you press the **LF/FF** switch the printer advances by one line. This is **LINE FEED (LF)**
- ▲ Hold the LF/FF switch for 2 seconds, the continuous form is advanced to the next of Form, where as the single sheet gets ejected. This is the **FORM FEED (FF)**.

### **Paper Park**

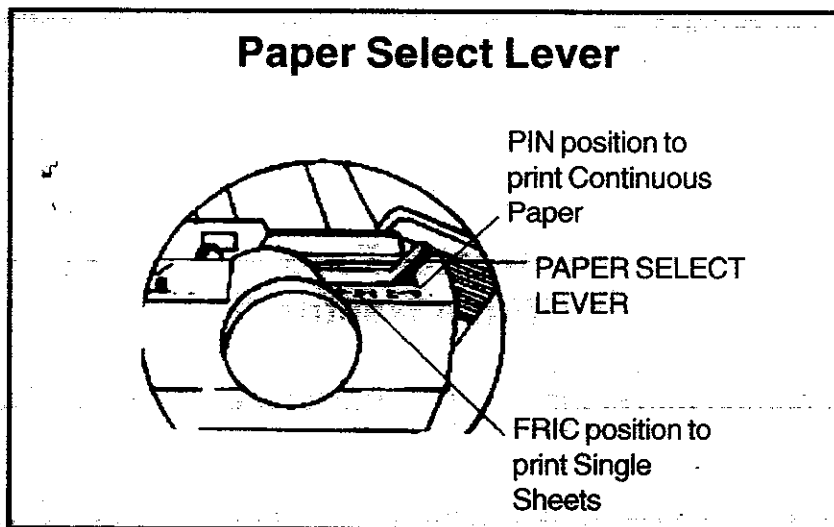
- ▲ Keep the printer in **OFFLINE** mode.
- ▲ Hold the **FONT** switch and press the **ONLINE** switch to park continuous form.

### **Selecting Copy mode**

- ▲ Keep the printer in **OFFLINE** mode.
- ▲ Hold the **PITCH** switch for 5 seconds to toggle the Copy Mode status

## Selecting and Loading paper Paper Select Lever

- ▲ “FRIC” and “PIN” are the two positions.
- ▲ The “FRIC” is used to load single sheet paper.
- ▲ The “PIN” is used to load continuous paper.



### Top of Form settings (TOF)

- ▲ Keep the printer in **OFFLINE** mode
- ▲ Load the stationery. It gets loaded to the present **TOF** settings.

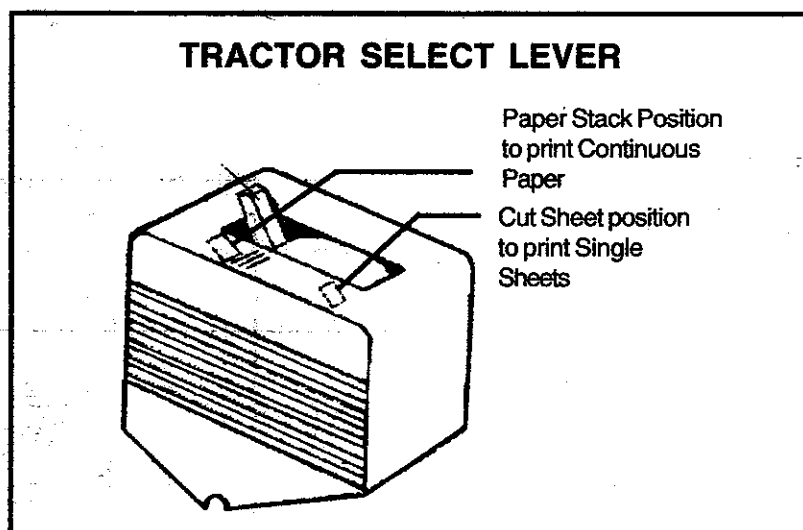
- ▲ Top of from **TOF** is the first printing position on the paper.  
Normally printer leaves a gap of 0.5" inch from the top edge of the paper.
- ▲ Use Micro Line Feed (forward and revers) to adjust the **TOF**.
- ▲ Press **ONLINE** to save the settings.

### **Tractor Feed Push Tractor**

- ▲ The MSP printer comes with standard Push Tractor mechanism installed from the factory.
- ▲ Close the top cover.
- ▲ If the tractor is not already in push position, push the two release levers on the back each end of the Tractor mechanism and place the mounting feet into the slots on the rear of the printer. Secure the Tractor unit and let go of the release levers; the Tractor will lock and now you can turn the paper feed knob to make sure the gears are turning properly.

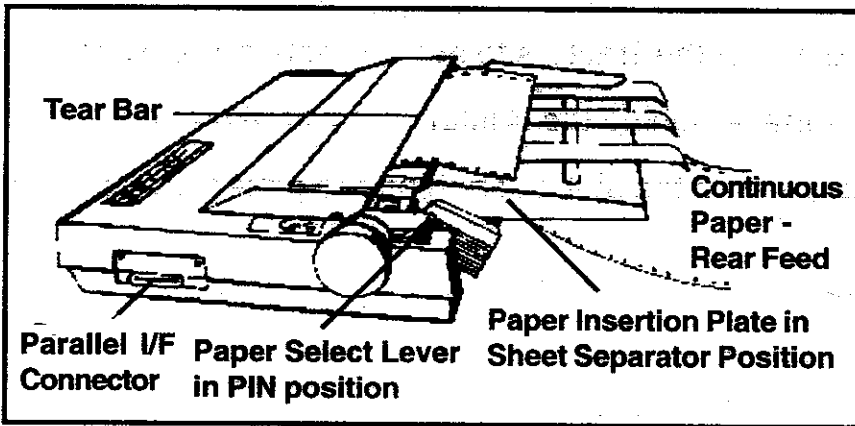
## Tractor Select Lever

- ▲ Space the paper supports evenly between the adjustable tractors.
- ▲ Now load the paper from the rear side of the printer.
- ▲ Flip the locking levers forward and adjust the Tractors to approximate paper width.
- ▲ Place a stack of paper on a level surface behind the printer.
- ▲ Using **LF/FF** switch, advance a paper into the slot just behind the platen and past the paper-out sensor.
- ▲ Now the paper will load automatically.

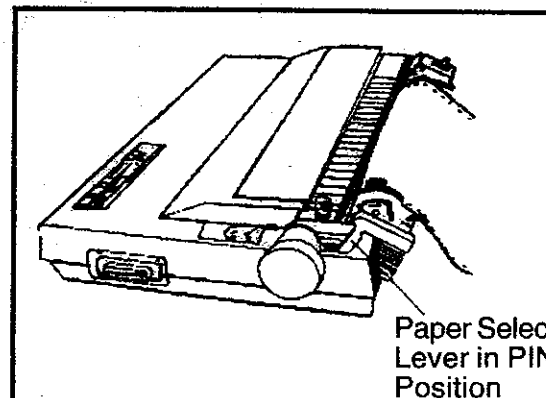




## Printing Continuous Stationery in Push Tractor Mode



### Inserting Continuous Paper in Push Tractor

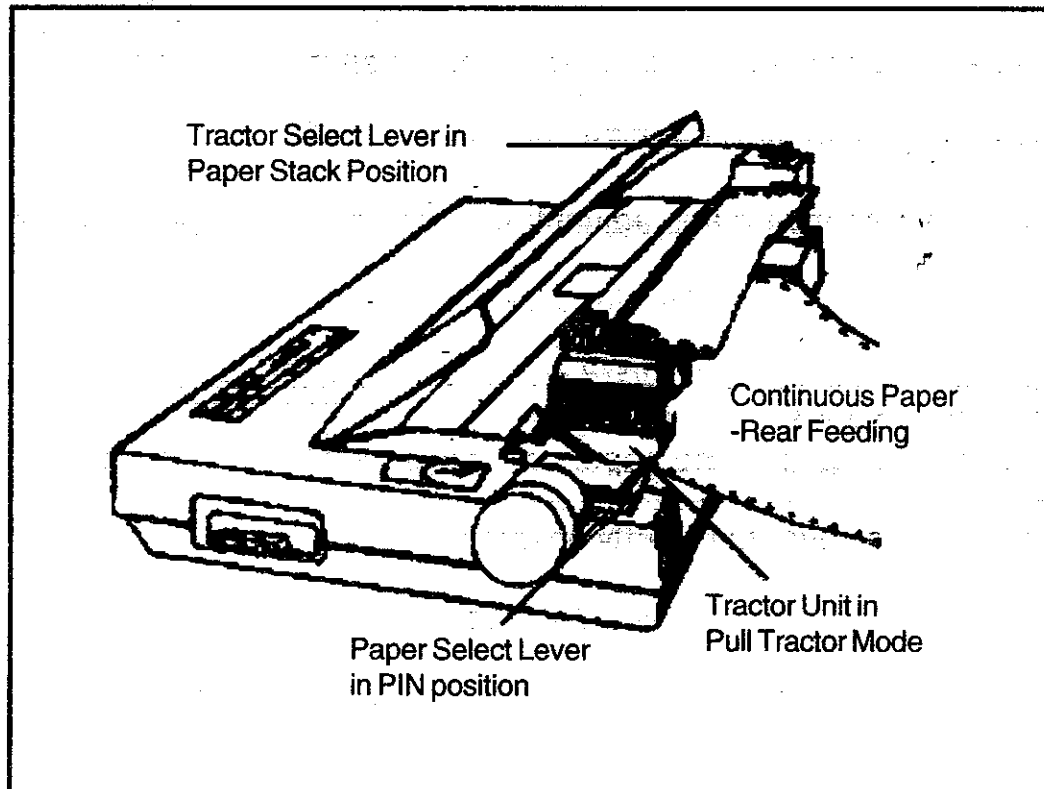


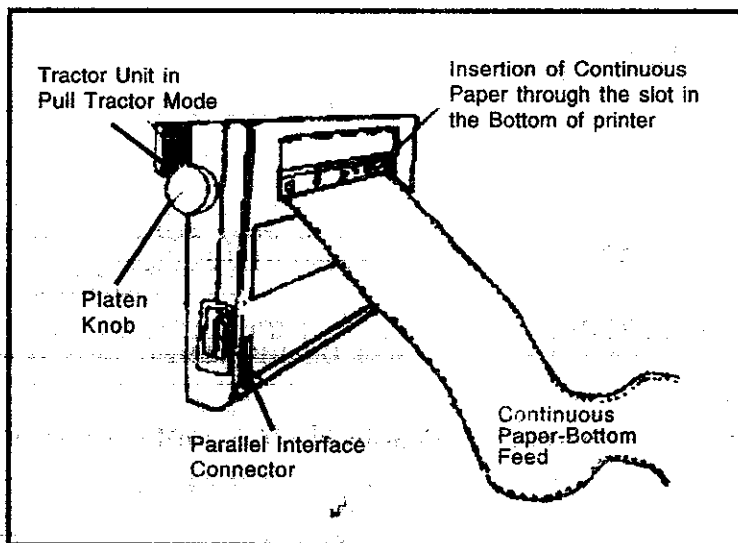
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## Pull Tractor

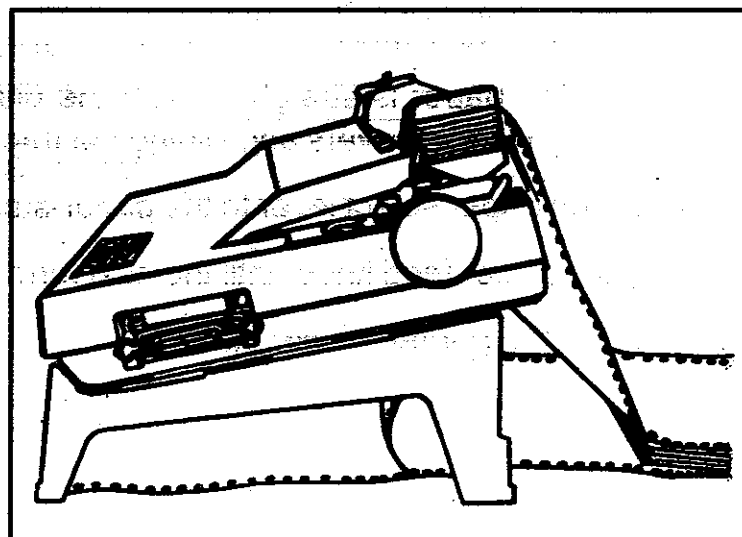
- ▲ Push in the two release levers on the back of each end of the Tractor mechanism and place the mounting feet into the slots on the top of the printer.
- ▲ Secure the Tractor unit on top of the printer and let go of the release levers - The tractor will lock into place.
- ▲ Install the paper supports and space them evenly between the adjustable tractors.
- ▲ Move the paper select lever to the **FRIC** position
- ▲ Flip the locking levers forward and adjust the Tractors to the approximate paper width.
- ▲ Place a stack of paper on a level surface behind the printer.
- ▲ Bring the top sheet of the paper forward and insert it into the slot just behind the platen.
- ▲ Turn the paper feed knob until the paper advances past the print head.
- ▲ Move the paper select lever to the **PIN** position.
- ▲ Adjust the paper left or right by sliding the Tractors.
- ▲ When the paper is positioned, lock the Tractors in place by flipping the locking levers towards the back.
- ▲ Turn the power switch **ON** to start printing.

## Printing Continuous Paper with Tractor Unit in Pull Position





**Paper Insertion  
Bottom Feed**



### **Bottom Feed Paper path**

- ▲ Ensure the Tractor is in Pull position.
- ▲ Turn OFF the printer power switch.
- ▲ Remove the top cover and rest the printer on its front side as shown in the figure.
- ▲ Insert continuous forms through the slot in the bottom of the printer. Pull the forms so that 4 or 5 inches extend out of the printer.
- ▲ Position the forms in the printer as far left as possible in order to activate the printer's paper sensor.
- ▲ Set the printer right-side-up.
- ▲ Open the tractor covers, position the continuous forms on the sprockets and close the covers.
- ▲ Ensure the paper is straight. Adjust the distance between the tractor, if necessary, by unlocking the lock levers and sliding the tractors until the paper is taut. Relock the levers
- ▲ Move the paper select lever to the paper-stack position.
- ▲ Turn the paper feed knob until the next form is set to the correct starting-print position.
- ▲ Turn ON the printer power switch.

(Refer to the Figure in the previous page)

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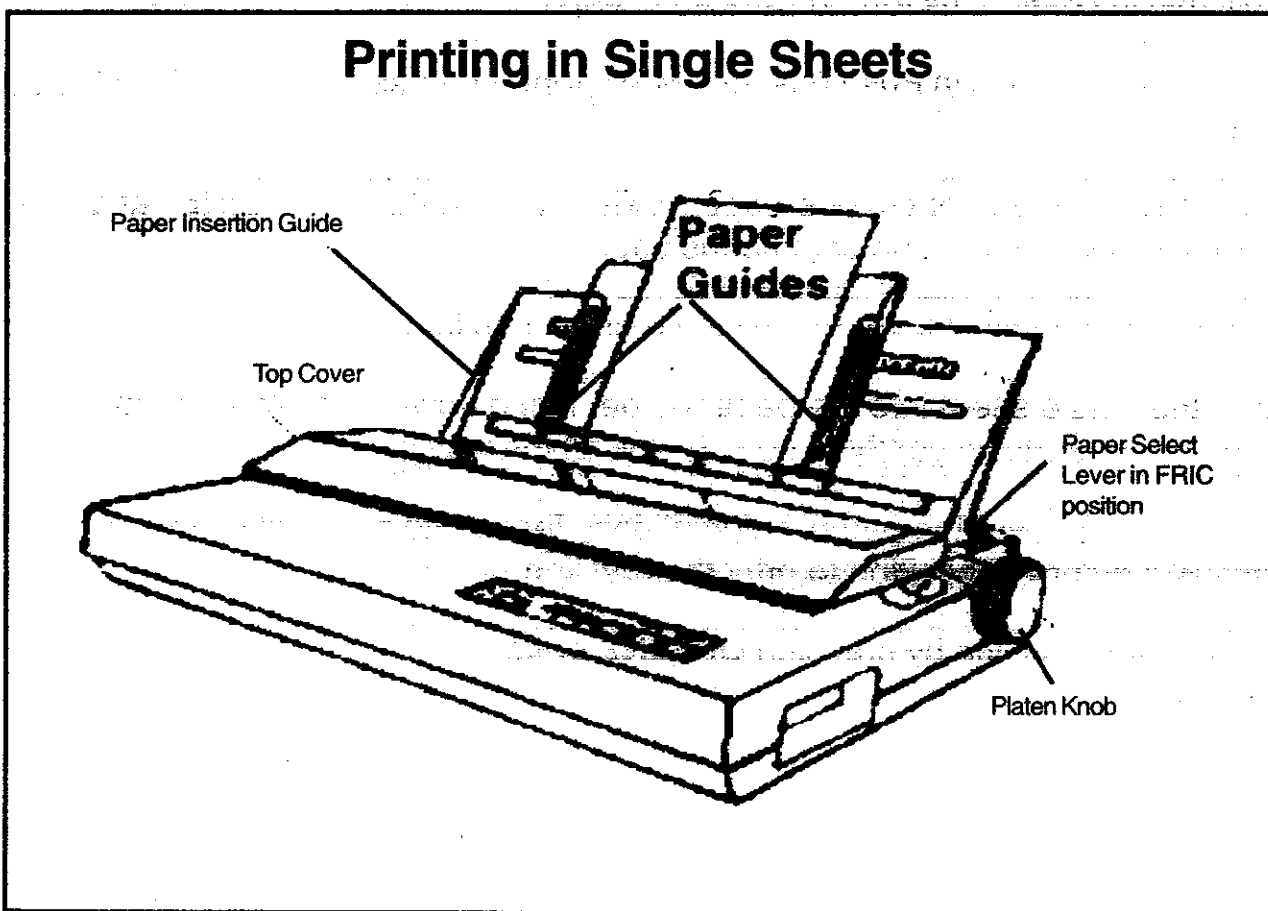
## Printing on Single Sheet

Single-sheet feeding allows you to print on Letter head and on other types of paper that are not available in continuous format (A4&A3 sheets).








- ▲ Ensure the Tractor is in Push position. MSP printer comes with the Tractor in push position.
- ▲ If you have loaded continuous paper, switch the printer '**OFF LINE**' and press the **FONT/ONLINE** to park the continuous paper.
- ▲ Move the paper select lever to the single-sheet position.
- ▲ Insert the single sheet into the paper guide, faced down, between the paper holders. Push the paper down gently to be sure it is all the way in.
- ▲ After a short pause, the paper automatically feeds into the printer and stops when it reaches the correct position to print the first line.
- ▲ Set the printer on line by pressing **ON LINE** switch.

(Refer to the Figure in the next page)

## Printing in Single Sheets



## Helpful Hints

-  **WARNING** Use only Normal Density MSP Ribbons for MSP 9 wire Printers. Use of improper ribbon may damage the print head and invalidate the warranty.
-  **WARNING** If you are replacing a ribbon be sure the printer is **OFF** and the print head has cooled.
-  **CAUTION** Carefully read the instructions for correct ribbon placements. Improper placement can cause smudged printing and may jam the ribbon.
-  **NOTE** **ONLINE** is the printer's normal operating mode. When the printer is **ONLINE**, it can receive data from your computer and print. When the printer is **OFFLINE**, it stops printing and responds only to control-panel instructions, such as moving the paper.
-  **NOTE** To completely cancel the print job, first cancel the job in your software application. Then clear the data from the print buffer.
-  **NOTE** Because of advanced paper-handling features it is seldom necessary to turn the paper feed knob. More frequently turning the paper feed knob causes misalignment. Use the Control panel instead.
-  **NOTE** Paper tear off, top-of-form adjustment and paper parking are not available when using tractor in **PULL** mode.





Do not rotate the **PLATEN KNOB** when the printer is in power condition.



The top margin is usually set by your software. You may not need to change top-of-form setting very often.



For serial interface connection you need to install an optional serial interface board. Please contact your nearest TVS-E dealer. Serial interface cable comes with a board.



If the printer is used heavily or in a dusty environment consult TVS-E service centre for advice on periodic cleaning and lubrication.

**Product Specifications**

Description	MSP 245 / MSP 1245		
<b>Print Head</b> Number of Wires Print Head life	9 200 Million Characters		
<b>Print Speed (cps)</b> High Speed (cps) Draft (cps) NLQ (cps)	<b>10</b> — 200 40	<b>12</b> — 240 48	<b>15</b> 300 — 60
<b>Print Method</b> Bi-directional (Text & Graphics) Logic Seeking	Standard (Menu Selectable) Standard		
<b>Print Size</b> (Max. Char. Per line/ Char. per inch) 10 cpi Expanded Condensed Compressed-Expanded 12 cpi 12 cpi Expanded	136/10 68/5 231/17 116/8.5 163/12 82/6		
<b>Print Matrix</b> Standard Descender Dot NLQ Mode Double Strike Mode Emphasised Mode Emphasised Double Strike mode IBM Graphic Chars.	9 x 9 8th & 9th wire 18 x 18 9 x 9 9 x 18 9 x 18 12 x 12		

**Product Specifications**

<b>Description</b>	<b>MSP 245 / MSP 1245</b>
<b>Fonts</b>	
Draft	10, 12, 15, 17, 20
NLQ Roman	10, 12, 17, 20, PS
NLQ SanSerif	10, 12, 17, 20, PS
NLQ Script	10, 12, 17, 20, PS
<b>Paper Handling</b>	
Paper Feed Method	Friction/Tractor (Pull/Push)
Paper Path	Top (Cutsheets) Rear / Bottom (Continuous form)
<b>Copy capability</b>	1+3 with carbon (Max. 0.3 mm)
<b>Ribbon Cartridge</b>	
Type	MSP Cartridge - 9 wire
Life Expectancy	3 Million Characters
<b>Interface</b>	
Centronics Parallel	Standard-IEEE1284A Compliant
RS232	Optional
<b>Data Buffer</b>	5 K Bytes
<b>Emulation</b>	Epson EX & IBM Pro Printer XL (MENU Selectable)
<b>Environment</b>	5° to 45° C
<b>Voltage*</b>	90-270 V AC
<b>Reliability-MTBF</b>	6000 POH
<b>Physical dimension</b>	
Width x depth x height	608x379x147 mm
Weight (Kg)	7.0 Kg

For Detailed Specifications - Please Refer to the **ELECTRONIC GUIDE** in the print software disk.

Specifications subject to change without notice.

**Product Specifications**

<b>Description</b>	<b>MSP 240+</b>	<b>MSP 245+</b>
<b>Print Head</b> Number of Wires Print Head life	9 200 Mn. Chrs.	9 200 Mn. Chrs.
<b>Print Speed (cps)</b> High Speed (cps) Draft (cps) NLQ (cps)	10 12 15 - - 375 250 300 - 50 60 75	10 12 15 - - 360 240 288 - 50 60 -
<b>Print Size</b> (Max.Char.Per line/ Char.per inch) 10 cpi Expanded Condensed Compressed & Expanded 12 cpi 12 cpi Expanded	80/10 40/5 136/17 68/8.5 96/12 48/6	136/10 68/5 231/17 116/8.5 163/12 82/6
<b>Print Matrix</b> Standard Descender Dot NLQ Mode Double Strike Mode Emphasised Mode Emphasised Double Strike Mode IBM Graphic Chars.	9 x 9 8th & 9th wire 18 x 18 9 x 9 9 x 18 9 x 18 12 x 12	9 x 9 8th & 9th wire 18 x 18 9 x 9 9 x 18 9 x 18 12 x 12

**Product Specifications**

Description	MSP 240+	MSP 245+
<b>Fonts</b>		
Draft	10, 12, 15, 17, 20	
NLQ Roman	10, 12, 17, 20, PS	
NLQ SanSerif	10, 12, 17, 20, PS	
NLQ Script	10, 12, 17, 20, PS	
<b>Barcode</b>	3 of 9	
<b>Paper Handling</b>		
Paper Feed Method	Friction/Tractor (Pull/Push)	
Paper Path	Top (Cutsheets) Rear/Bottom (Continuous form)	
<b>Copy capability</b>	1+3 with carbon (Max 0.3mm)	
<b>Ribbon Cartridge</b>		
Type	MSP Type - 9 wire-10"	MSP Type - 9 wire-15"
Life Expectancy	3 Million Characters	3 Million Characters
<b>Interface</b>	Centronics Parallel	Standard-IEEE1284A Compliant
<b>RS232</b>	Optional	Optional
<b>Data Buffer</b>	13 K Bytes	13 K Bytes
<b>Emulation</b>	Epson EX & IBM Pro Printer XL (MENU Selectable)	
<b>Environment</b>	5° C to 45° C	
<b>Voltage</b>	90 - 270 V AC	
<b>Reliability-MTBF</b>	6000 POH	
<b>Physical dimension</b>		
Widthxdepthxheight	433x379x147mm	608x379x147mm
Weight (Kg)	5.7 Kg	7.0 Kg

For Detailed Specifications - Please Refer to the **ELECTRONIC GUIDE** in the printer software disk.  
 Specifications subject to change without notice.  
 Use MSP 240, MSP 245 Software Driver for MSP 240+, MSP 245+ Printers respectively.

**Product Specifications**

Description	MSP 255		
<b>Print Head</b> Number of Wires Print Head life	9 200 Mn. Chrs.		
<b>Print Speed (cps)</b> High Speed (cps) Draft (cps) NLQ (cps)	10 - 250 50	12 - 300 60	15 375 - 75
<b>Print Size</b> (Max.Char.Perline/ Char.per inch) 10 cpi Expanded Condensed Compressed & Expanded 12 cpi 12 cpi Expanded	136/10 68/5 231/17 116/8.5 163/12 82/6		
<b>Print Matrix</b> Standard Descender Dot NLQ Mode Double Strike Mode Emphasised Mode Emphasised Double Strike Mode IBM Graphic Chars.	9 x 9 8th & 9th wire 18 x 18 9 x 9 9 x 18 9 x 18 12 x 12		

**Product Specifications**

Description	MSP 255
<b>Fonts</b> Draft NLQ Roman NLQ SanSerif NLQ Script	10, 12, 15, 17, 20 10, 12, 17, 20, PS 10, 12, 17, 20, PS 10, 12, 17, 20, PS
<b>Paper Handling</b> Paper Feed Method Paper Path	Friction/Tractor (Pull/Push) Top (Cutsheets) Rear/Bottom (Continuous form)
<b>Copy capability</b>	1+3 with carbon (Max 0.3mm)
<b>Ribbon Cartridge</b> Type Life Expectancy	MSP Type - 9 wire-15" 3 Million Characters
<b>Interface</b>	Centronics Parallel    Standard-IEEE1284A Compliant
<b>RS232</b>	Optional
<b>Data Buffer</b>	13KBytes
<b>Emulation</b>	Epson EX & IBM Pro Printer XL (MENU Selectable)
<b>Environment</b>	5° C to 45° C
<b>Voltage</b>	90 - 270 V AC
<b>Reliability-MTBF</b>	6000 POH
<b>Physical dimension</b> Widthxdepthxheight Weight (Kg)	608x379x147mm 7.0 Kg

For Detailed Specifications - Please Refer to the **ELECTRONIC GUIDE** in the printer software disk.  
 Specifications subject to change without notice.