

Datapoint 3300 / Instructions



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INTRODUCTION

Computer Terminal Corporation made an intensive study of the needs of the remote, timesharing computer users and the features that were desired in a data terminal. The results - Datapoint 3300.

Advanced electronic engineering, handsome styling, compact size plus compatibility with all timesharing services describe the Datapoint 3300.

This Operator's Instruction Manual has been prepared to acquaint you, the operator, with all of the operating features of the Datapoint 3300.

If you are familiar with the Model 33 teletype terminal, then a phaseover to the Datapoint 3300 will be very simple. If you have never used an entry data terminal, then please take the time and read this manual completely. By so doing you should have a full understanding of all the operating functions of the Datapoint 3300. In the event we have failed to explain any function to your satisfaction and understanding or if you have any questions, please, feel free to contact your local sales representative.

COMPATIBILITY

The Datapoint 3300 is a stand-alone terminal, completely compatible with all Timesharing services that currently support terminals using the USA Standard Code for Information Interchange (ASCII). The interface of the Datapoint 3300 was designed to conform to the Electronic Industries Association (EIA) RS-232-B standard; therefore, it is compatible with all Bell System, or equivalent data sets and most acoustical couplers.

OUTSTANDING FEATURES

There are two memories in the Datapoint 3300: A Read Only Memory (ROM), and a Circulating Memory. Both memories are of the Metal Oxide Silicon (MOS) type. The use of MOS memories is a major contributor to the small size of the Datapoint 3300. The ROM is used as the character generator and the Circulating Memory serves to refresh the display sixty times each second. The refresh rate is synchronized to the power line; therefore, flicker is eliminated.

Another contributor to the stable display found on the Datapoint 3300 is the CRT deflection system. The scan is not a TV type raster scan. The CRT is scanned horizontally only once per character line, or 25 times per frame rather than 525 times per frame as found in TV tape scan systems. This scan system developed by Computer Terminal Corporation allows the screen to be refreshed at the 60 cycle synchronous rate.

UNPACKING

The Datapoint 3300 has been carefully packed to ensure its safety during shipment; however, the terminal should be carefully inspected as soon as it is removed from its shipping container. In the event that damage has occurred, immediately file claim against the carrier and notify Computer Terminal Corporation, 9725 Datapoint Dr., San Antonio, Texas 78229 or call (512)-696-4520.

INSTALLATION

The Datapoint 3300 is styled to be office compatible. Base dimensions are the same as commonly available Executive typewriters; therefore, the unit fits on any typewriter table or desk.

The installation of the Datapoint 3300 is very simple; only 115 VAC and a modem or data coupler of your choice is required. The choice of the data set to be used depends upon the baud rate. The 103 type data set is reliable up to 200 baud; however, with special tuning the 103 has been used successfully at 300 baud. The telephone company or data set vendor should be consulted about the 103's use above 200 baud. The 202 type data set is necessary for data rates above 300 baud. For initial operation the following is required:

1. Place the power switch on the Datapoint 3300 to the OFF position.
2. Place the LOCAL/REMOTE switch to the LOCAL position.
3. Insert the power cord into the receptacle on the rear panel of the Datapoint 3300 and connect to a 115 VAC wall plug.
4. Select a data coupler or data set which has an EIA RS-232-B interface and will operate at the baud rate at which the terminal will be used. Use a standard RS-232-B cable to connect the terminal to the coupler.
5. Set the baud rate switch on the back control panel to the correct speed setting. Note: the speed setting is determined by the speed limitations of the Timesharing or communication service being used. (See Page 7).
6. Set the DUPLEX switch on the back control panel to the proper setting, FULL or HALF. This is also determined by the Timesharing service being used. (See Page 7).
7. Allow approximately one minute for the CRT filament to warm up, then place the power switch in the ON position. The blinking cursor should appear in the first character position. If the cursor does not appear on the screen within 15 seconds depress the HOME UP key. If the cursor still does not appear, turn the terminal OFF immediately and contact your service man.

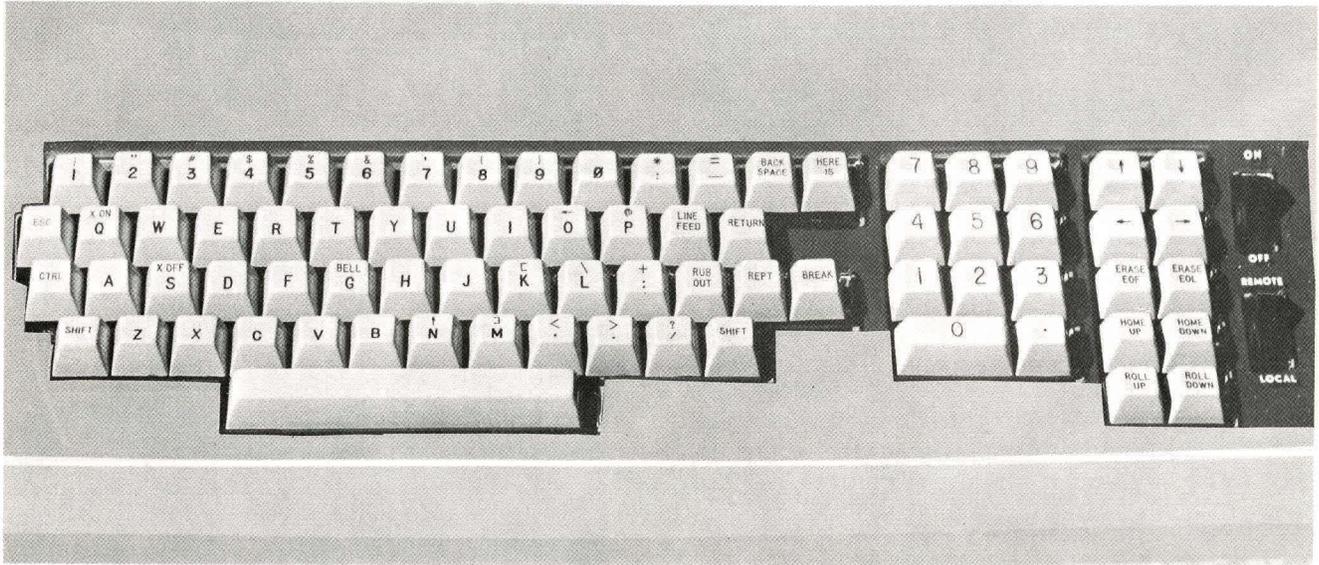
CAUTION

Do not leave the terminal ON if the cursor is not visible.

KEYBOARD FAMILIARIZATION

The Datapoint 3300 is simple to operate, since a standard or universal keyboard is used. You should have no difficulty in acquiring typing speed once "keyboard confidence" is attained. To enable you to practice, place the power switch to the ON position and the mode switch to the LOCAL position.

Depress each of the standard alphanumeric keys and verify that the proper character is displayed on the screen. As you depress a key, the character is immediately displayed on the CRT screen with no distracting noise. The 3300 is truly noiseless.



You will notice that the characters on the CRT screen arrange themselves from left to right with a total of 72 characters per line and 25 lines. As the 64th character in a line is keyed, an audible "beep" will be heard, alerting you that you are coming to the end of that line. As you complete the last, or 25th line, the first line at the top of the screen will "roll up" and disappear; it will in turn be replaced by what was the second line, etc. The maximum number of lines that can be displayed is 25.

SPECIAL CODED KEYS

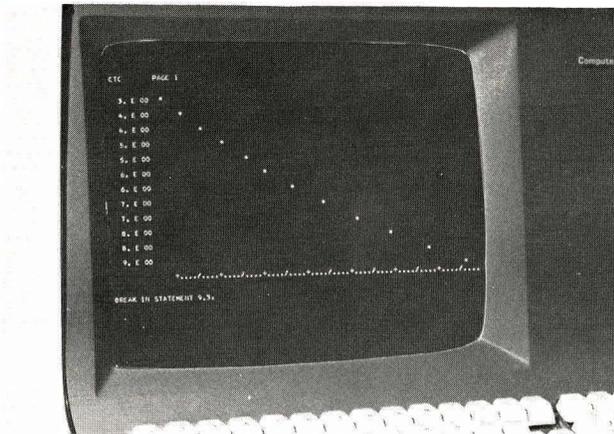
The Datapoint 3300 has other exceptionally useful features designed into it that are controlled by the following keys.

BACKSPACE — Depressing this key causes the cursor to move back one space. If this key is coded as a shifted "O" the back arrow will not be displayed.

HERE IS — This key starts the Answer-Back and will cause the Answer-Back message to be printed on the screen.

NOTE

If the terminal is not fitted with an Answer-Back, nothing will occur when the HERE IS is depressed.



ESC — Depressing this key causes an octal 033 to be transmitted (control-shift "K"), unless Computer Terminal Corporation is directed to code it otherwise, and no visual display occurs.

LINE FEED — The LINE FEED key will cause the cursor to move down one line position until the cursor reaches the bottom line. When the cursor is on the bottom line, the key will cause the text to roll up one line every time the key is depressed. In addition to the visual indication, this key causes the Standard ASCII line feed code to be transmitted.

RETURN — Depressing this key transmits the Standard ASCII carriage return code and causes the cursor to return to the first character position of the line being printed.

CTRL — Depressing this key in conjunction with any other key converts the particular code generated into a control code. Control codes do not cause any visible display. A control "G" (BELL) will cause an audible "beep".

RUBOUT — The RUBOUT key causes an all "one's" code to be transmitted. This code is usually interpreted by the computer as a "no-op" code. No visual display occurs when this key is depressed.

REPT — Depressing this key in conjunction with any other key causes a repetitive code to be transmitted at a 7.5 characters per second rate. The transmitted code is determined by the key that is depressed in addition to the REPT key.

BREAK — Depressing the BREAK key causes the output line to go to an all space condition. This is usually interpreted by the computer as a program exit command. No visual indication is apparent.

SHIFT — When either of the two shift keys is depressed in conjunction with another key, the upper case character indicated on the particular key is transmitted and printed.

CAUTION

Keys not having an upper case character shown on the key should not be used with a shift key depressed. An erroneous code will occur, thus, printing an illegal character.

NOTE

X ON (Q key), X OFF (S key) and BELL (G key) are control characters, NOT shifted characters.



CURSOR CONTROL KEYS

The eight cursor control keys are located on the extreme right side of the keyboard. They consist of the four directional **ARROWS**, **ERASE EOF**, **ERASE EOL**, **HOME UP** and **HOME DOWN**.

The four directional arrows cause the cursor to move on the screen in the direction indicated on the key. Holding the key down for more than approximately 1.5 seconds causes the movement to repeat until the key is released.



The **ERASE EOF** key causes the screen to be cleared from the cursor position to the end of the frame.

The **ERASE EOL** key causes the portion of the line from the cursor position to the end of that line to be erased.

The **HOME UP** key places the cursor in the first character, first line position. In order to clear the complete screen, depress the **HOME UP** and then the **ERASE EOF** key.

The **HOME DOWN** key places the cursor in the first character, last line position of the screen.

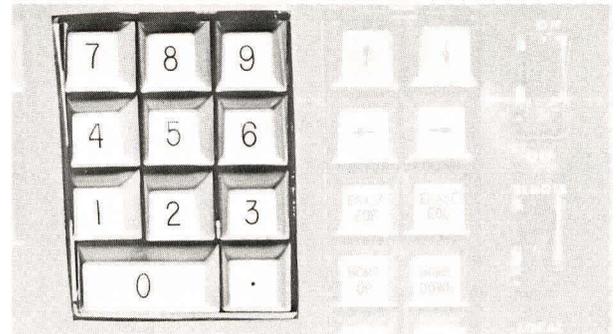


Unless the coded cursor key option is incorporated in a particular terminal, the cursor controls will not transmit a character and cause no action other than local cursor movement. (See Optional Features, page 8).

ADDING MACHINE FORMAT KEYBOARD

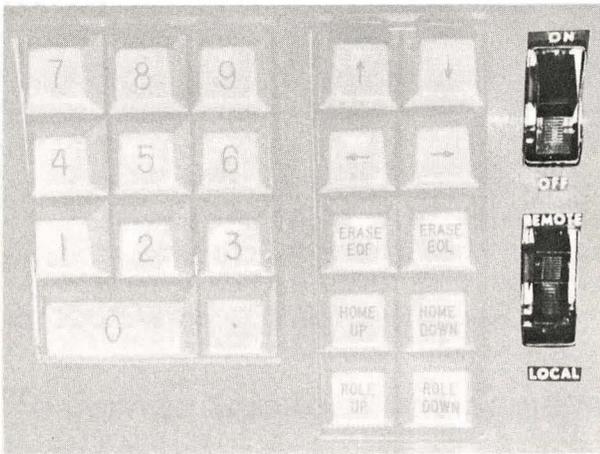
For those accustomed to using adding machines, or when large amounts of numerical data is to be entered into the computer, the adding machine format keys are especially useful.

The adding machine format keys do not interfere with the operation of the standard numerical keys, located on the top row of the keyboard.



REMOTE OPERATION

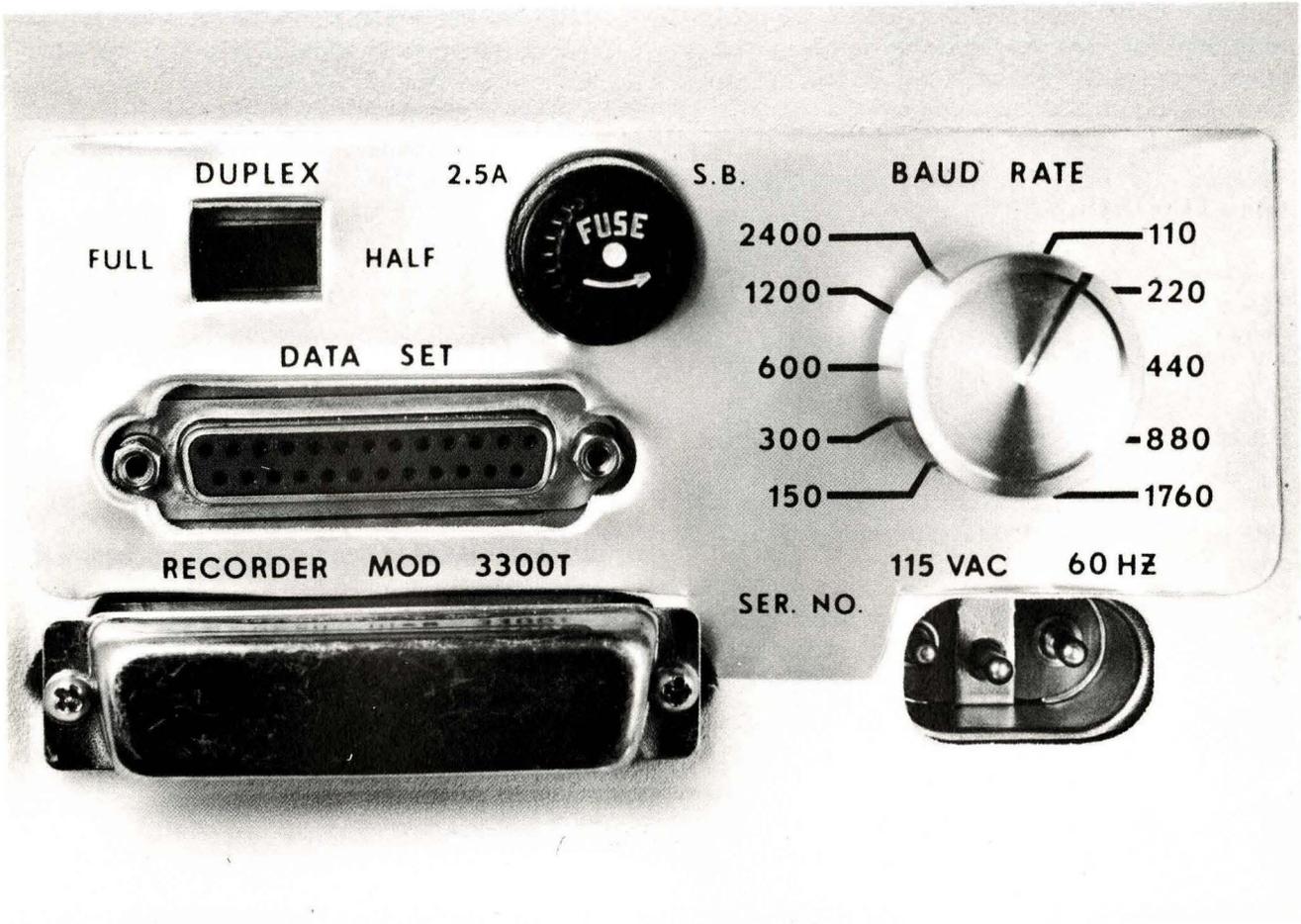
The remote mode is the on-line mode of the Datapoint 3300. The terminal should be placed in the remote mode before telephone contact is made with the computer. Once telephone contact is made with a computer and the terminal is in the remote mode, each coded key will transmit its code to the output line when the key is depressed. Note that the Datapoint 3300 is an interactive terminal; therefore, each character is transmitted as the key is depressed. The operation of the keyboard in the remote mode is identical to that described above under "Local Operation." The one exception being that the output and input interface is now active.



SPACE OVERWRITE MODES (SPOW)

There are two SPOW modes, automatic and optional SPOW latch. The automatic mode is standard and provides for the inhibiting of the destructive space if a carriage return is received without a line feed. This allows two points of a graph to be plotted on the same line when the second point is farther out on the axis than the first. Also, it will allow a question and blank to be written and then the carriage returned and the question spaced over to fill in the blank.

The optional SPOW latch should be used in conjunction with coded cursor option. This will allow the computer to write a complete form on the screen and then set the SPOW latch by sending a control "N". The cursor may be "homed up" and the operator could space over the form to fill in the blanks without destroying the form. When the form is complete, a control "O" and a Line Feed release the SPOW latch. The space once again becomes destructive.



Back Control Panel

OPTIONAL FEATURES

To provide those users who may have need of additional features, there are the following optional features which can be incorporated into your Datapoint 3300 at minimal cost.

TAPE CONTROL KEYS

The tape control keys are the ROLL UP and ROLL DOWN keys located in the bottom right corner of the keyboard. When a Datapoint 3300T is used with the Datapoint 3300, the ROLL UP and ROLL DOWN keys determine the direction of read of the magnetic tape. The ROLL DOWN key causes the tape to read data in the reverse direction and ROLL UP causes data to be read from the tape in the forward direction.

When the Datapoint 3300T is not used, the ROLL UP and ROLL DOWN keys index the data up and down respectively, but take no other action, and no code is transmitted on the output line.



THE SPEED BUFFER. The Standard Datapoint 3300 is capable of working at baud rates up to 600 baud. The optional Speed Buffer extends the range to 2400 baud. The baud rates are selectable on the back control panel of the terminal by a rotary switch. Baud rates may be selected in multiples of 110 or 150 baud.

THE ANSWER-BACK. The Answer-Back is required by some Timesharing services for automatic identification of users. The Answer-Back is a programmable electronic wheel that generates a 21 character sequence, 20 of which are programmable. The circuit is triggered by the receipt of a control "E" (WRU) from the computer, or locally by depressing the HERE IS key.

The Answer-Back may also be used as a formatting or tabbing device. This can be accomplished by coding all twenty characters as spaces, or right arrows, if the coded cursor option is incorporated.

NO AUTOMATIC CARRIAGE RETURN AND LINE FEED.

The Standard Datapoint 3300 will automatically return the cursor to the first character position of the next line after the 72nd character is written on any one line. This feature may be eliminated at time of manufacture, if desired. The cursor would then remain at the 72nd character position until Line Feed and Carriage Return characters were received.

CODED CURSOR KEYS. This option provides for the unique coding of each of the eight cursor and format control keys. The keys are:

<u>KEY DESIGNATION</u>	<u>STANDARD OPTION CODE</u>
↑	Control Z
↓	Control K
←	Control Y
→	Control X
ERASE EOF	Control - Shift O
ERASE EOL	Control - Shift N
HOME UP	Control - Shift M
HOME DOWN	Control - Shift L

When the cursor key option is incorporated, these keys will transmit a unique code to the computer, thus, allowing the computer to keep track of the cursor position at all times. The computer may send cursor codes back (See ASCII Table, or Table on page 8 for cursor codes) that will cause the cursor to move to any predetermined position. With this option, page editing and effective tabulation are available to the operator.

BACKSPACE KEY. The backspace key is normally coded as a shifted "O" (←). The normal coding will cause the cursor to move back one character position and inhibit the back arrow from being displayed. Any other code is available if desired.

ESCAPE KEY. The escape key is normally coded octal 033 (control-shift "K"). Any other code is available if desired.

READ ONLY DATA. Data can be provided through a special cable to drive a Read Only RS-232-B Teleprinter device if desired.

SPACE OVER WRITE (SPOW) LATCH. This option allows the destructive nature of the space character to be eliminated when a control "N" is received. The SPOW latch is released by the receipt of a control "O" and a Line Feed. (See page 6 for additional data).

INTERFACE SPECIFICATION

TYPE: EIA RS-232-B

SIGNAL CHARACTERISTICS:

1. RECEIVE
 - a. MARK -3 to -25 volts
 - b. SPACE..... +3 to +25 volts
2. TRANSMIT
 - a. MARK-10 Volts with 3K Load
 - b. SPACE.....+6 Volts with 3K Load

Maximum Short Circuit Current500 MA
Terminating Impedance3K TO 7K
Connector Type17-10250-1
Amphenol (or equivalent)

PIN ASSIGNMENTS:

<u>Pin</u>	<u>Function</u>
1	Protective Ground
2	Transmitted Data
3	Receive Data
4	Request to Send
7	Signal Ground
8	Data Carrier Detector
11.....	Reverse Channel Transmit Data
12.....	Reverse Channel Receive Data
18.....	Read Only Data (See Note)
20.....	Data Terminal Ready

NOTE

The data available at pin 18 may be used to drive a read only copy device and has the same signal characteristics as the normal transmitted data. All data transmitted and received appears at this point.

HIGH SPEED OPERATION OF THE DATA-POINT 3300

When the Datapoint 3300 is operated at baud rates above 300, a 202 type data set or equivalent

data set or coupler must be used. The most common high speed bit rate to be supported by most Timesharing operations is 1200 baud; however, to operate above 600 baud, the Datapoint 3300 must be equipped with the optional "Speed Buffer". The Datapoint 3300 is designed to operate with a data set having a reverse channel. At the higher baud rates the system operation is half duplex. Set the duplex switch to FULL (The 202 has its own Feedback Path) and select the proper baud rate on the rear panel. The use of the reverse channel makes it possible for the computer or the terminal to initiate a channel reversal. The Datapoint 3300 is ready to operate with the high speed modem as it comes from the factory.

The only operational differences with respect to the terminal's use with the 103 type data set or coupler, are as follows: when contact is established with the computer in the normal manner, the computer will immediately initiate a channel turn around, thus, giving it the control of the channel. When the computer has finished its transmission, it will initiate the channel turn around giving the terminal control. Control of the channel, or the device that is transmitting, is indicated by the light in the LOCAL/REMOTE switch on the Datapoint 3300. When the terminal has control, the light will be illuminated and when the computer has control, the light will be extinguished. Normally, the computer will initiate all channel turn arounds; however, the operator of the terminal may initiate a channel turn around by depressing, momentarily, the BREAK key. Terminal control of the channel may also be relinquished by switching the LOCAL/REMOTE switch from REMOTE to LOCAL and back to REMOTE. It is important that the operator wait until the light in the LOCAL/REMOTE switch is illuminated before any key other than the BREAK key is depressed. With the above exception, the operation of the terminals at the higher data rates is identical to its low speed (300 baud or less) operation.

DATAPOINT 3300 ASC II
CODE ASSIGNMENTS

BIT #				7	0	0	0	0	1	1	1	1
				6	0	0	1	1	0	0	1	1
4	3	2	1	5	0	1	0	1	0	1	0	1
0	0	0	0				SP	Ø	@	P		
0	0	0	1			X on	!	1	A	Q		
0	0	1	0				"	2	B	R		
0	0	1	1			X off	#	3	C	S		
0	1	0	0				\$	4	D	T		
0	1	0	1		WRU		%	5	E	U		
0	1	1	0				&	6	F	V		
0	1	1	1		BELL		'	7	G	W		
1	0	0	0			c →	(8	H	X		
1	0	0	1			c ←)	9	I	Y		
1	0	1	0		LINE FEED	c ↑	*	:	J	Z		
1	0	1	1		c ↓	ESC	+	;	K	[
1	1	0	0			HOME DOWN	,	<	L	\		
1	1	0	1		RE-TURN	HOME UP	-	=	M]		
1	1	1	0		SPOW LATCH	ERASE EOL	.	>	N	↑		
1	1	1	1		SPOW UN LATCH	ERASE EOF	/	?	O	←		RUB OUT

c Cursor

WARRANTY

Seller warrants that Purchaser shall acquire good and clear title to the equipment being purchased by Purchaser hereunder, free and clear of all liens and encumbrances. Seller further warrants all equipment to be free from defects and workmanship under normal use and service for a period of ninety (90) days from the date of delivery and warrants all parts for a period of one (1) year. Equipment or component parts thereof furnished by Seller to Purchaser but obtained by Seller from another manufacturer shall bear only the warranty given by such other manufacturer. All repair covered by this warranty must be done at the Seller's factory, unless Seller specifically directs that this service be performed at Purchaser's site. Any defect corrected within (90) days and found to be within the scope of the warranty will be repaired at Seller's factory or Purchaser's site, and charges for all labor, freight and material, on a replacement basis, will be borne by Seller. Any parts defect corrected after ninety (90) days, but before expiration of the warranty, will be repaired by Seller, with all labor and shipping charges invoiced to the Purchaser, but with parts and material supplied by Seller on a replacement basis. In either case, if it is determined that either no fault exists, or the

damage was created by negligence, the Purchaser agrees to pay all charges associated with the repair. This constitutes the sole warranty made by Seller either expressed or implied, such warranty being extended only to the Purchaser as an original purchaser. There are no warranties which extend beyond those described herein.

Any tampering, misuse or negligence in handling or use of equipment renders the warranty void. Further, the warranty is void if, at any time, the Purchaser removes the case and/or attempts to make any internal changes, removals or additions to any of the components of the equipment; if at any time the power supplied to any part of the equipment exceeds the rated tolerance, or if any external device attached by the Purchaser creates conditions exceeding the tolerance of the equipment; if at any time the serial number plate is removed or defaced. Damages from operation of the equipment that are not covered by the warranty will be defined to include all of the possibilities above, together with any practice, whether or not explicitly or implicitly prohibited in any instructions provided, orally or in writing, which result in conditions exceeding the design tolerance of the equipment.