

70/752 Video Data Terminal Operating Manual

70/752A.V/VIDEO DATA TERMINAL OPERATING MANUAL

CG-001-3-00

 SPERRY RAND



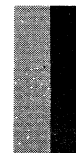
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70/752 Video Data Terminal Operating Manual

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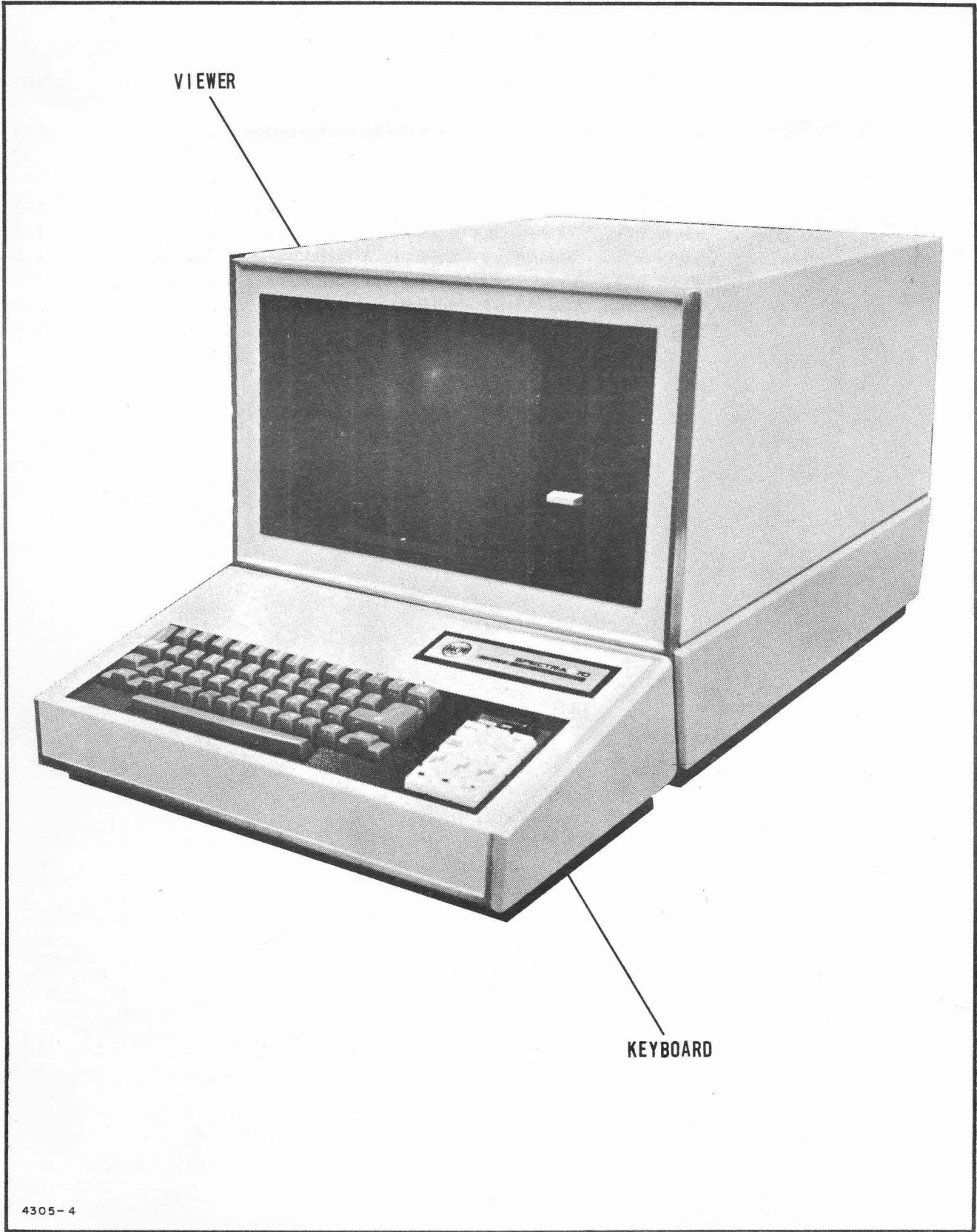
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VIEWER

KEYBOARD

4305-4

Frontispiece. Video Data Terminal Model 70/752



DESCRIPTION

GENERAL

◆ The Video Data Terminal, Model 70/752, provides you, the operator, a means of remote two-way communication with the central computer. It consists of a standard typewriter keyboard and a television-type viewer. You can use it to request data from, or send data to the central computer in any form consisting of available characters and symbols. Requests and information to be sent to the central computer are typed on the keyboard and at the same time displayed on the viewer. After making sure the message is correct, you can send it to the central computer. Then, almost immediately, the response from the central computer is displayed on the viewer.

Standard features of the Video Data Terminal allow you to add or replace data within the message or erase any data you type. You may select portions of the message displayed to be sent to the central computer. You may also display both the message sent and the message received.

Special features, additional to the basic Video Data Terminal available, allow you to print and retain permanent records of messages sent and received. You may automatically display standard message formats. Your Video Data Terminal may be connected directly to the central computer or it may be one of many stations along a single communication line to the central computer.

You may display messages consisting of up to 1,080 characters (about 180 words) in 20 lines of 54 characters each. The full message frame fills an area about 8 inches wide and 6 inches high on the 12 inch display tube of the viewer.

KEYBOARD DESCRIPTION

◆ The Model 70/752 consists of a keyboard and a viewer. The keyboard contains a conventional, electric typewriter 4-row keyboard and the controls and indicators necessary for operation.

VIEWER DESCRIPTION

◆ The viewer contains the display tube, the electronics system, and the controls necessary to adjust the quality of the displayed message.

CHARACTERISTICS

◆ The characteristics of the Model 70/752 Video Data Terminal are listed in table 1-1.

OPERATING MODES

◆ The Video Data Terminal operates in three basic modes; write, transmit, and receive. The addition of special features will vary the operation of the Video Data Terminal in some modes. Upon completion of the power-on procedure, the operator must select the write mode to start normal operation of the Video Data Terminal.

Write Mode

◆ The write mode allows the operator to compose a message in a manner similar to that of typing a letter on a typewriter. The format of the composed message is determined by special considerations or requirements of the system operating procedures.

Composition of the message is aided by a moveable cursor that indicates the position in which the next character will appear (figure 1-1).

Table 1-1. Video Data Terminal Characteristics

Message Character Repertoire:							
·(space)	(	0	8	@	H	P	X
÷	)	1	9	A	I	Q	Y
"	*	2	:	B	J	R	Z
#	+	3	;	C	K	S	[
\$	,	4	<	D	L	T]
%	-	5	=	E	M	U	× (multiply)
&	· (period)	6	>	F	N	V	
'	/	7	?	G	O	W	

Control Characters:	Displayed Character
NUL-No Character	----- None
ETX - End of Text	-----]
RETURN - Return Character - starts new line	----- <<

Keyboard	Viewer
Weight: 30 pounds	Weight: 100 pounds
Height: 3.75 inches	Height: 14.5 inches
Width: 16.9 inches	Width: 16.9 inches
Depth: 7.75 inches	Depth: 20.5 inches

Transmit and Receive Speeds

1200 bits per second (asynchronous)

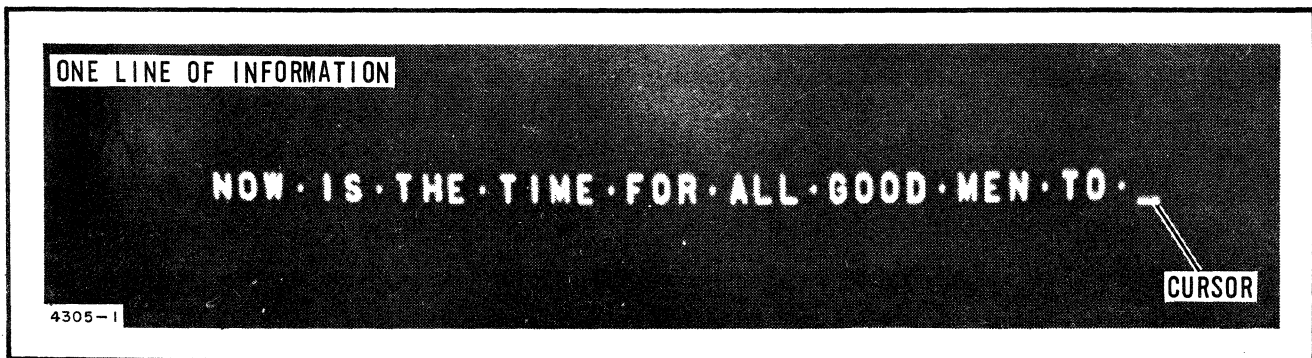


Figure 1-1. Cursor

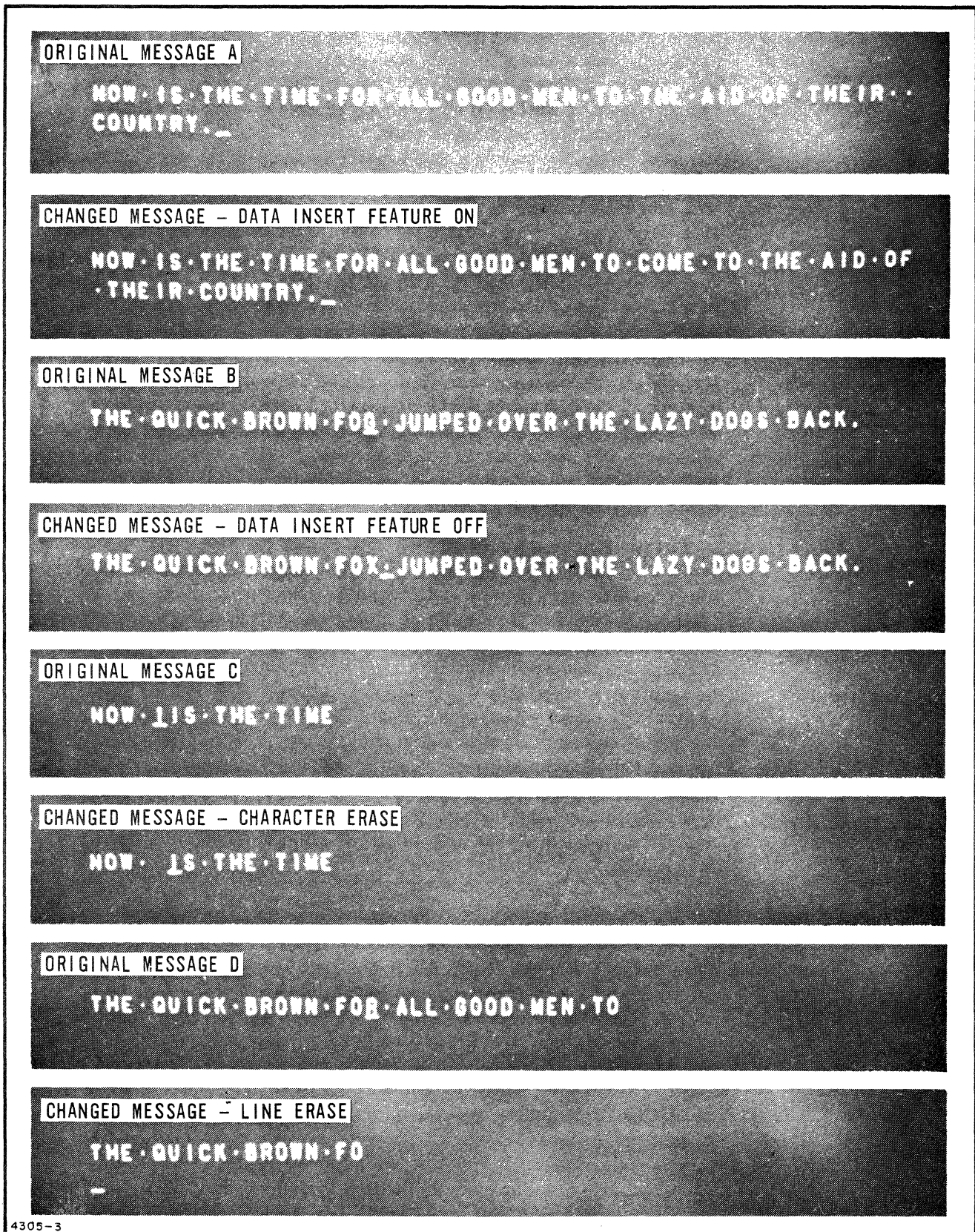
**Write Mode**
(Cont'd)

The cursor may be moved about, in the write mode, by controls on the keyboard control panel to allow the operator to add or replace characters and correct or edit the message. Many of the cursor operations are automatic. As each character is entered, the cursor automatically moves to the next character position — from one character position in the line to the next, from the end of a line to the beginning of the next, and from the end of the last line to the beginning of the first line. The advance control will move the cursor to the right until the end of the line is reached and then will move it to the next line. The return control will move the cursor to the beginning of the next line. The backspace control will move the cursor within the line but will not move the cursor from the beginning of a line to the end of the previous line. When the advance or backspace operator controls are held down, the respective operations repeat at ten times per second. Keyboard controls such as the character and line erase switches aid message correction. These controls enable the operator to remove an individual character, the right hand portion of a line or a complete line. Blank character spaces between characters are not considered. For example: ". BL A CK. C A T ." will be transmitted as ". BLACK. CAT." However, during print operations, the blank characters will be printed as spaces.

Correction of the message is also aided by Data Insert, a standard feature on the basic unit. This operation feature, enabled or disabled by a keyboard control panel switch, enables characters, words, or additional lines to be added in the middle of a message without changing the last portion of the message (figure 1-2). When this operation is enabled, the remaining characters in that line, and succeeding lines if that line is full, are shifted to the right one character position each time a character is added. The data insert operation is modified when control characters appear at the end of a line and shifting to the next line is required. The subject characters are the "J", NUL, and "<<" characters. These characters will not be shifted to the next line. If this condition is encountered, these characters will be erased and, if necessary, must be added at the desired position after the data insert or addition of information operation is complete.

Transmit Mode

◆ The transmit mode allows the operator to send the displayed message, or variable data if the format feature is used, to the central computer. During the transmit mode, all manual controls are disabled. Entering the transmit mode requires that an ETX character has been entered and that the transmit control is enabled. The Video Data Terminal then disables the write mode and exchanges signals with the data set to determine that the data set is ready to transmit the message. The message is then transmitted to the central computer. When the Video Data Terminal senses transmission of the last message character (the ETX character), the transmit mode is ended by returning the cursor to the top of the message, turning off the transmit mode light, and enabling the receive mode. The transmitted message will be displayed unchanged until the operator manually switches to the write mode and changes the message or until a return message is received. If the message must be changed after



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Figure 1-2. Correcting the Message



Transmit Mode
(Cont'd)

it has been transmitted or a return message or message-received-acknowledgement has not been received, the message may be retransmitted by returning to the write mode and then enabling transmit of the same or changed message.

Receive Mode

◆ The receive mode, inhibited until a message has been transmitted, allows reception of a message from the central computer. As the incoming message is received, each character is displayed as it is received, replacing characters of the transmitted message. When the end of the received message is displayed, the balance of the screen is erased. As in the transmit mode, all manual controls are disabled. If the message was transmitted using the Message Segment Address (MSA) operation, the return message will start in the position following the "J" (ETX) character, thereby allowing the operator to observe the request and answer at the same time.

**Message Segment
Address Operation**

◆ The Message Segment Address (MSA) feature is a standard feature of the Video Data Terminal and is enabled or disabled by a control on the keyboard control panel. It allows you to display both your message and the response from the central computer and also allows you to transmit or print any portion of the displayed message. When using the MSA feature, the operation to transmit the message to the central computer is the same until the ETX character is transmitted; then, the cursor will remain in the character position after the ETX character instead of returning to the beginning of the first line. The response will then start at that position and will not replace or erase the original message. You may transmit or print a partial message by enclosing that portion with the ETX character at the end and the cursor at the beginning. If you use the MSA feature to print a partial message, you will have to remove the added "J" (ETX) character and move the cursor to the beginning of the message when you wish to transmit the entire message. When the MSA feature is enabled, the write control will not move the cursor.

**Data Format
Special Feature**

◆ Composition of the message is aided by addition of the Data Format Feature 5710. The standard message format with blanks (or variable data fields) for variable information relieves the operator of strict format considerations and requires only composition of information that varies from message to message (figure 1-3). The standard message format is displayed at reduced brightness so that the variable data is easily recognized. This feature also reduces system operation cost and allows more efficient use of the central computer because only the variable data is transmitted. Therefore, computer and communication line use-time is significantly reduced.

The format is displayed in response to a special data format request message sent to the central computer. The automatic operations of the cursor are modified when using the data format feature. When a message format is displayed, the function of the cursor controls are modified so that the cursor will not indicate that the next character entered will change a character of the format. Therefore, operator modification of the format is impossible except for screen erase. The write control will

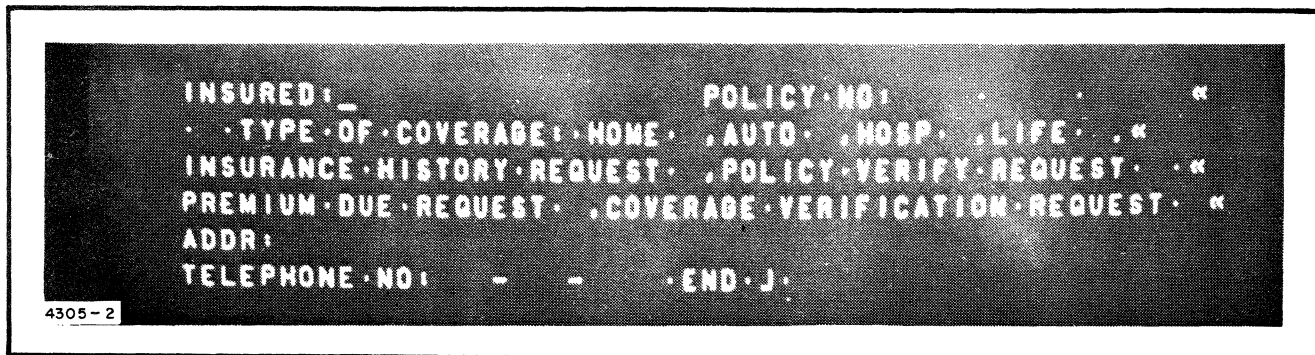


Figure 1-3. Example of Standard Partial Message Format

**Data Format
Special Feature**
(Cont'd)

move the cursor to the first available variable data character position. The return control will move the cursor to the first variable data character position following the line it is in; this position may be in the center of the next line or several lines below. The advance control will move the cursor within the variable data fields and will also move the cursor to the first character of the next variable data field in the same or succeeding lines. The backspace control will move the cursor only within the variable data field it is in. Variable data may be inserted into any or all of the fields available and then transmitted to the central computer. The variable data may be erased leaving the format displayed by the variable data erase control. When the displayed data format is no longer needed, the screen erase control will erase the format.

When the special data format is provided, the standard data insert feature is not available, and due to changes in the electronics system the repetitive cursor movements repeat at approximately five times per second.

**Printer Adapter
Special Feature**

◆ The 70/752 Video Data Terminal may also be provided with the Printer Adapter Feature 5711. This feature will enable the operator to retain a copy of any message displayed. The message will be printed on a Model 33 or Model 35 teletype printer at approximately 10 characters per second. The data printed may be selected by insertion of return and ETX (end of text) characters to remove ends of lines or information after the ETX character. If the format option is used, the format data will also be printed.

**Station Selector
Special Feature**

◆ The Station Selector Feature 5707 allows up to 26 Video Data Terminals to be used on a multi-station communication line where invitation for separate station transmission, polling, is controlled by the processor. Provision of this feature modifies operation of the Video Data Terminal in only one respect. As an operator attempts to transmit a message, the central computer may be servicing another Video Data Terminal station. In this case, the operator would notice a slightly longer delay in receipt of a message from the central computer. Under seriously heavy traffic



**Station Selector
Special Feature
(Cont'd)**

conditions, where four other Video Data Terminal stations had full messages to transmit and receive (1080 characters) the last operator, also having a full message to transmit, would have to wait approximately one and one-half minutes before receiving a reply from the central computer. This example is realistic as heavy traffic communications links are limited, for efficiency, to a much lower number of stations than the total allowed by coding (26).

**CONTROLS AND
INDICATORS**

◆ The controls and indicators to be used by the operator are contained on the keyboard, within the door to the right of the display tube, and at the rear of the Viewer, opposite the data set connector. An operational description of each control and indicator is given, referencing an illustration to show its relative position on the Video Data Terminal (figure 1-4).

**ACCURACY
CONTROL
FEATURES**

General

◆ The electronics system provides several accuracy checks on operations and due to immediate display of the desired characters, the operator can visually check the accuracy of the data produced.

Verification

◆ The electronics system tests each character displayed 60 times each second. If the tests indicate that the character is an invalid character, that character position will be displayed as a solid white block. However, if the message is transmitted while displaying the solid white block of an invalid character, that invalid character will be transmitted.





KEYBOARD CONTROL PANEL	
POWER	Applies and removes all power to the Video Data Terminal.
WRITE	Positions the cursor to beginning of frame, permits data to be entered and displayed, and is lighted in the write mode. When the special data format feature is used, the cursor will be moved to the first position available for data entry. When the MSA feature is enabled, the cursor is not moved.
PRINT	Causes the displayed message to be reproduced at the printer, is lighted during printing operation, and is enabled only in the write mode.
XMT	Causes the displayed message to be transmitted, is lighted in the transmit mode, and is enabled only in the write mode.
DATA INSERT	Permits insertion of a new character or characters, causes all characters at and to the right of the cursor to be shifted one position to the right with each new character entry, and is lighted when the data insert operation is enabled.
MSA	Causes transmit and print operations to begin at the cursor location and end at the location of the "J" and is lighted when the MSA feature is enabled.
FORMAT DATA	Erases characters in variable data display fields when enabled by the master erase key.
CHAR	Erases the character in the position indicated by the cursor when enabled by the master erase key.
LINE	Erases all characters in the line at and to the right of the position indicated by the cursor and moves the cursor to the beginning of the next line when enabled by the master erase key. When using the data format, only variable data is erased.
SCREEN	Erases the entire displayed message and returns the cursor to beginning of the page when enabled by the master erase key.
 (backspace)	Moves cursor one position to left. If held down, this will repeat at about ten times per second, five times per second if the Data Format Feature 5710 is provided.
 (advance)	Moves cursor one position to right. If held down, this will repeat at about ten times per second, five times per second if the Data Format 5710 is provided.
 (return)	Repositions cursor to first character of next line. This control must be pressed each time it is desired that the cursor be moved to the next line.
OPERATOR'S ADJUSTMENT CONTROLS	
PICTURE	Controls apparent double-image display of characters.
BRIGHTNESS	Controls the intensity of displayed message.
FOCUS	Controls the sharpness of displayed message.
Circuit Breaker	Provides circuit breaker control for line input power.
KEYBOARD KEYS	
J (ETX)	Produces the end-of-text character "J".
<<(Return Character)	Produces the return character (<<), erases all characters or variable data at and to the right of the position where the return character is displayed, and positions the cursor in the first available character position of the next line.
 (Master erase)	Enables the CHAR, LINE, SCREEN, and FORMAT DATA erase actions.
SHIFT	Permits characters printed on upper portion of keys to be entered and displayed.
SHIFT LOCK	Locks the shift key operation so that characters printed on upper portion of the character keys are displayed when they are pressed.
Space Bar	Inserts small dot and one-character space into the displayed message for the space between words.
Standard Character Keys	Produce the characters of the displayed message.

Figure 1-4. Operators Controls and Indicators (Sheet 1 of 2)

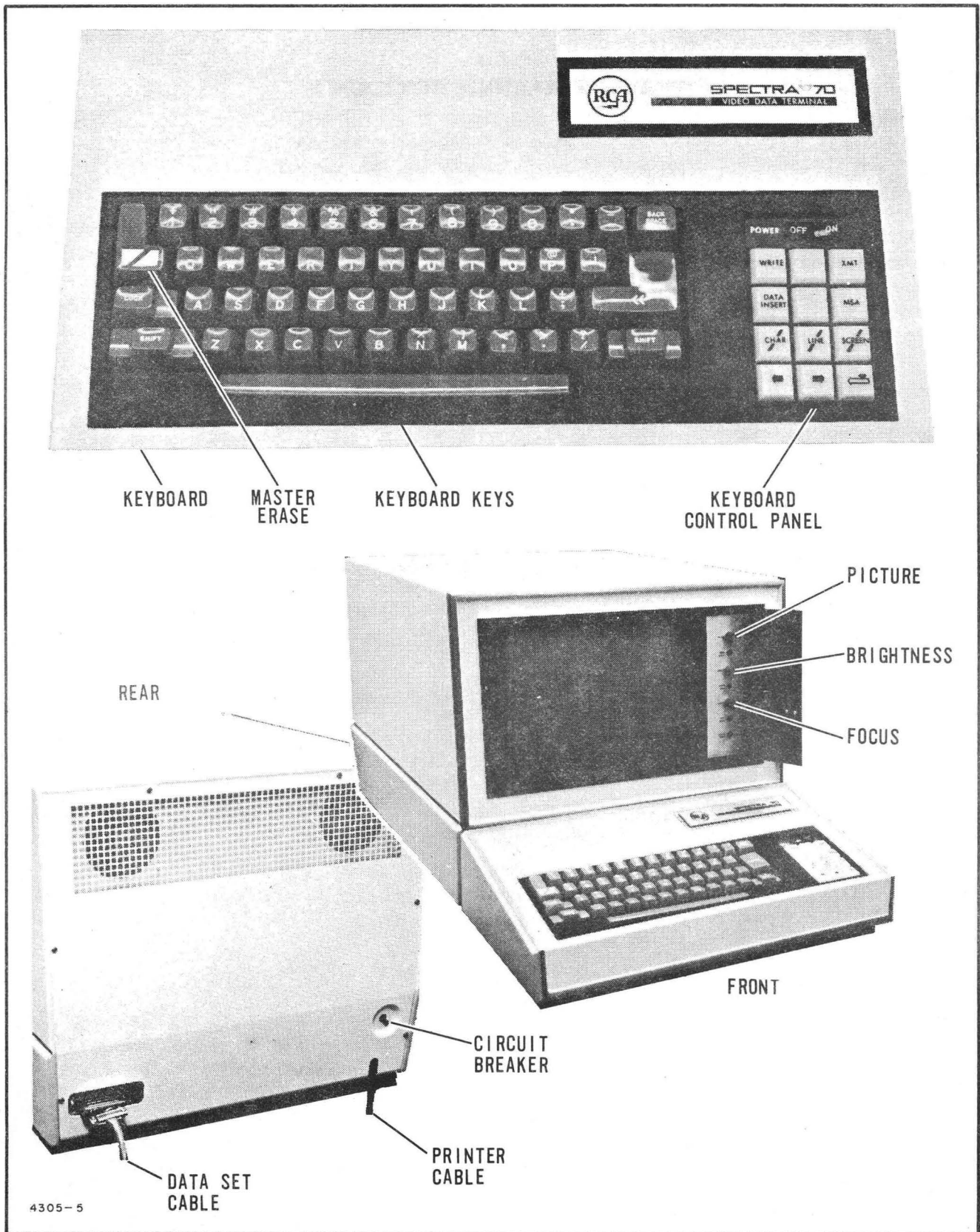


Figure 1-4. Operators Controls and Indicators (Sheet 2 of 2)

GENERAL OPERATING PROCEDURES



OPERATION

GENERAL

◆ The Model 70/752 Video Data Terminal operations are completely controlled by the operator who performs or enables the various functions. There are no special detailed procedures or time limits on the actions of the operator for correct operation of the unit. The message may be typed at any speed up to 20 characters per second, changed as many times as desired, and then transmitted. During Video Data Terminal operations, different functions are enabled or disabled when the unit is operating in its three operating modes. The operating mode is easily determined by observing the WRITE and TRANSMIT indicators. When either is lighted, operation is in the indicated mode. When neither are lighted, operation is in the receive mode.

The following procedures define what operations are to be performed in all phases of Video Data Terminal operation. When performing any of the following procedures and the prescribed operation does not work, refer to the Error procedures following the operating procedures.

POWER

Applying Power

- ◆ a. Ensure that the power cable is plugged into a 115-volt 60-cycle outlet and that the circuit breaker in the back of the unit is pushed in.
- b. Press the ON side of the POWER switch on the keyboard control panel.
- c. Press the WRITE switch and the WRITE indicator will light and the cursor will appear in the upper left corner within 30 seconds.
- d. Type several characters in the corners and center of the page frame and then adjust the PICTURE, BRIGHTNESS, and FOCUS controls to display sharp, easily read characters. Turning the brightness control too high will make the characters hard to read and may damage the display tube.
- e. Press the Master erase key and the SCREEN switch at the same time and check to see that the letters typed disappear and the cursor returns to the upper left corner.

Note: The Video Data Terminal is now operating in the write mode and is ready for message composition.

Emergency Power Off

- ◆ Press the OFF side of the POWER switch and remove power cable from outlet, if unit begins smoking or crackling.

Normal Power Off

- ◆ Press the OFF side of the POWER switch to end Video Data Terminal operation.

COMPOSING THE MESSAGE

- ◆ a. The Video Data Terminal is ready for message composition if the cursor is in the upper left corner and the WRITE indicator is on. Do not use the ETX character in any other place than the end of the message. Characters typed after the ETX character will not be transmitted to the central computer. Determine from system operating procedures what characters or sequence of characters are reserved for special messages or purposes.
- b. Start typing the message.
- c. If you desire to type in the next line before reaching the end of the present line, press the "<<" (return) key (a "<<" character will be displayed).
- d. Continue typing until the message is completed.
- e. Add the "]"(EXT) character.

Correcting the Message

- ◆ Corrections may be made at any time the WRITE indicator is on.
 - a. Position the cursor beneath the character to be changed. (Insure that the DATA INSERT lamp is off.)
 - (1) If a data format is used and the cursor is in the same variable data field as the character to be changed, press and hold the ◀(backspace) switch to position the cursor beneath the character.
 - (2) If no data format is used, and the cursor is in the same line as the character to be changed, press and hold the ◀(backspace) switch to position the cursor beneath the character.
 - b. If the cursor is not in the same line as the character to be changed, press the ⏪(return) switch enough times to move the cursor to the beginning of the line containing the character.
 - c. Press and hold the ▶(advance) switch to move the cursor beneath the character to be changed.
 - d. Press the desired character key and check to see that the character to be changed was replaced by the correct character.
 - e. If there is an extra character, position the cursor beneath it and press the master erase key and the CHAR (character erase) switch at the same time.
 - f. If there is an extra line in the message, position the cursor at the beginning of the line with the ⏪(return) switch, advance to the point where erase of the line is to start, and then press either the master erase key and the LINE switch or the "<<" (return) key on the keyboard. Only the variable data will be erased if a data format is being used.



Correcting the Message
(Cont'd)

Note: During normal write mode operation the LINE erase switch and << (return) key will move the cursor to the first available character position in the next line. The << (return) key will also provide the same function as the line erase switch, except that a "<<" (return) character will be displayed at that point.

- g. Insure that there is only one "J" character. Characters typed after the "J" will not be transmitted.

Data Insert

◆ This operation is enabled only in the write mode and is not provided if Data Format Feature 5710 is installed.

- a. Move the cursor beneath the position where data is to be inserted.
- b. Press the DATA INSERT switch, it will light.
- c. Add the desired data. The succeeding data will automatically be shifted to the right and to the following lines. The "<<" or "J" characters will be erased, not shifted from line to line, and a new "J" character may have to be added.
- d. Press the DATA INSERT switch to disable the data insert function, the lamp will go out.

Preparing for Partial Message Transmission

◆ A portion of the composed message may be transmitted by using the following procedure:

- a. Position the cursor at the end of the message to be transmitted and add the "J" character.
- b. Position the cursor at the beginning of the message to be transmitted.
- c. Press the MSA switch, it will light.
- d. Transmit the message.
- e. After a return message is received, depress the MSA switch, the lamp will go out.

Print Operations

◆ This feature is enabled only in the write mode and is only available on Video Data Terminal units provided with the Printer Adaptor Feature 5711. (The printer cable must be connected to the Teletype Data coupler).

- a. If the entire message is to be printed:
 - (1) Move the cursor to the end of the message and add the "J" character.
 - (2) Press the PRINT switch, it will light, the WRITE light will go off, the printer will print the message, the PRINT light will go off, and the WRITE light will go on again.
- b. If only a portion of the displayed message is to be printed:
 - (1) Position the cursor at the end of the message segment and add the "J" character.
 - (2) Position the cursor at the beginning of the message segment to be printed.

Print Operations
(Cont'd)

- (3) Press the MSA switch, it will light.
- (4) Press the PRINT switch, it will light, the WRITE light will go off, the selected message segment will be printed, PRINT lamp will go off, and the WRITE light will go on again.
- (5) If the same message is to be re-transmitted, the cursor must be moved back to the beginning of the message segment (use the return and advance switches); if a different message is to be transmitted, ensure that the "J" character ending the previously printed message segment is removed and another "J" character is added to end the message to be transmitted.
- (6) If after printing a partial message the entire message is to be transmitted, erase the previous "J" character, add the "J" at the end of the message, press the MSA switch to disable further MSA operations and transmit the message.

Data Set Connection

◆ The Video Data Terminal will operate normally in the write mode without the Data-Phone data set connected, but will not operate in the transmit or receive modes.

The Video Data Terminal is connected to the Data-Phone data set by a cable as shown in figure 2-1. The cable connector must be firmly pushed into the receptacle.

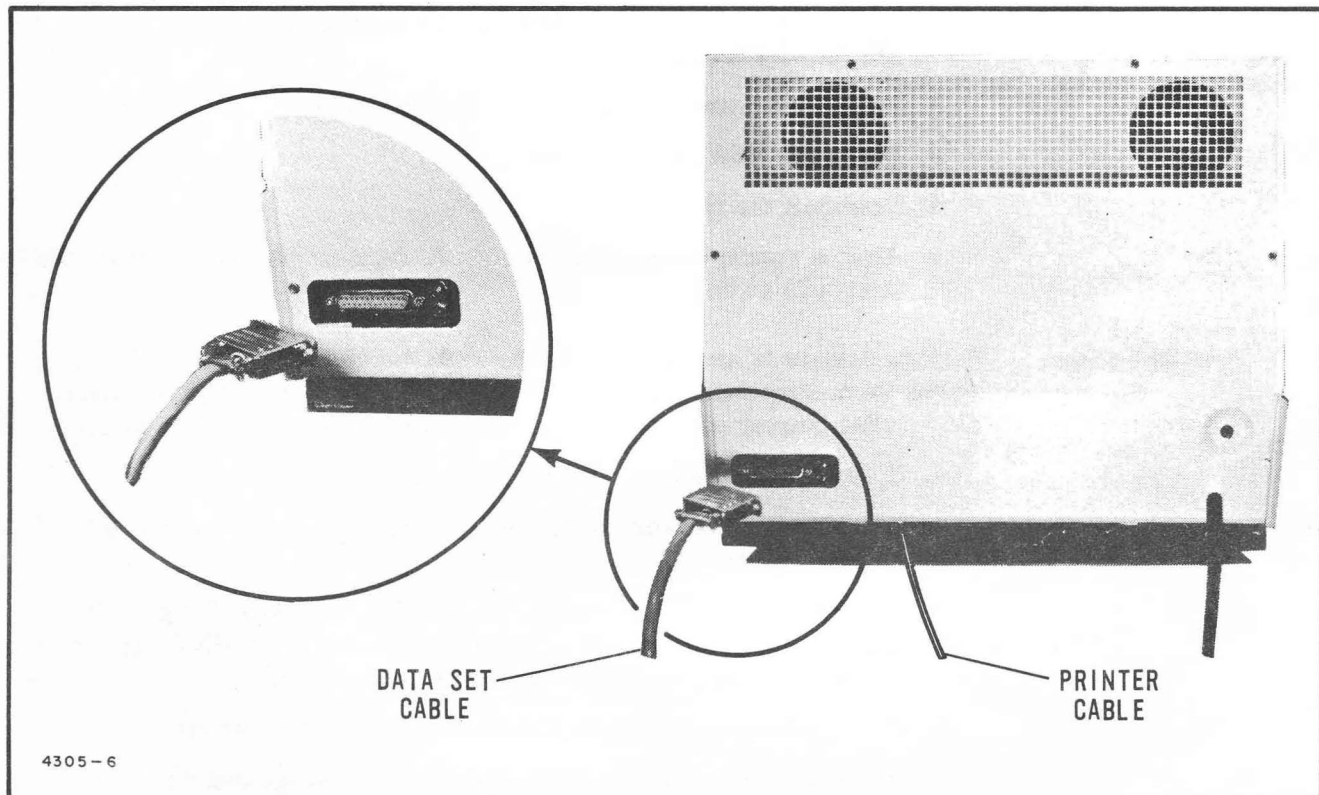


Figure 2-1. Data Set Connection



Transmitting the Message (202C)

◆ When transmitting a message using the Data-Phone Data Set 202C (has telephone), use the following procedure:

Note: If the data format feature is used and the following messages will also use the same data format, transmit the message using the MSA feature. If the MSA feature is not used, the response will erase the data format.

- a. Press the TALK button on the Data-Phone data set. (Insure that the data set cable is connected to the Video Data Terminal.)
- b. Place a telephone call to the central computer by dialing the correct number.

Note: If the central computer uses an automatic answering system, skip step c.

- c. When the computer operator agrees to accept your message, he will press the DATA button on his Data-Phone data set, and you will hear a high pitched tone.
- d. Wait until the high pitched tone changes to a lower pitched tone, then press the DATA button on your Data-Phone data set.
- e. Press the TRANSMIT switch, it will light, and then go off.

Note: When a message is transmitted it will remain displayed on the Viewer until a reply is received.

- f. After transmitting your message and a reply is not received, re-transmit the message by pressing the WRITE switch (if the MSA feature was used, move the cursor to the beginning of the message) and then press the TRANSMIT switch.
- g. If the message transmitted used the data format feature and the variable data is to be changed, press the master erase and FORMAT DATA switches to erase the variable data and the response.
- h. If the message was transmitted using MSA operations, the answer (response) to your message will be displayed with the message that was transmitted. You may now do the following:
 - (1) Change the message, by replacing characters in the original message, ensure the " J " (ETX) character is at the end of the message, and transmit the new message. The response to the new message will appropriately change the response to the old message.
 - (2) Retain the response to the last message for reference and erase the original message by moving the cursor to the first available character position and then pressing the master erase and LINE switches for each line of the message you wish to erase.
 - (3) Erase the variable data and the response by pressing the master erase and FORMAT DATA switches.

**Transmitting the
Message (202C)**

(Cont'd)

(4) Erase the format, original message, and response by pressing the master erase and SCREEN switches.

- i. When you have completed transmitting and receiving the message, press the TALK button on the Data-Phone Data Set and close the call.

**Transmitting the
Message (202D)**

◆ When transmitting the message using the Data-Phone Data Set 202D (does not have telephone) use the following procedure (ensure that the data set cable is connected to the Video Data Terminal):

Note: If the data format feature is used and the following messages also use the same data format, transmit the message using the MSA feature. If the MSA feature is not used, the response will erase the data format.

- a. Press the TRANSMIT switch, it will light, and then go off.
- b. After transmitting your message and a reply is not received, re-transmit the message by pressing the WRITE switch, if the MSA feature was used, move the cursor to the beginning of the message, and then the TRANSMIT switch.
- c. If the message transmitted used the data format feature and the variable data is to be changed, press the master erase and FORMAT DATA switches to erase the variable data and the response.
- d. If the message was transmitted using MSA operations, the response or answer to your message will be displayed with the message transmitted. You may now do the following:
 - (1) Change the message, by replacing characters of the original message, ensure the "J"(ETX) character is at the end of the message, and transmit the new message. The response to the new message will appropriately change or erase the response to the old message.
 - (2) Retain the response for reference and erase the original message by moving the cursor to the first available character position and then press the master erase and LINE switches for each line of the original message you wish to erase.
 - (3) Erase the variable data and response by pressing the master erase and FORMAT DATA switches.
 - (4) Erase the format, original message, and response by pressing the master erase and SCREEN switches.



**ERROR
PROCEDURES**

◆ The operator may perform the following procedures to correct for burned out lamps and loss of power. If these procedures do not restore normal operation, call the Customer Service Representative for service.

Loss of Power

General

◆ Determine the apparent cause for the power loss by examining the power cable connection, the circuit breaker (figure 2-1) in the rear of the Viewer (if it is extended, the circuit breaker has been tripped), and the keyboard cable connection (the keyboard must be moved straight away from the Viewer to check the connection).

*Power Cable
Disconnected*

- ◆ If the power cable has been disconnected:
 - a. Press the OFF side of the POWER switch.
 - b. Connect the power cable.
 - c. Apply power.

*Circuit Breaker
Tripped*

- ◆ If the circuit breaker has been tripped:
 - a. Press the OFF side of the POWER switch.
 - b. Press the circuit breaker button in; if the circuit breaker trips again, maintenance is required.
 - c. Press the ON side of the POWER switch and check the circuit breaker.

CAUTION

Do not press the circuit breaker button a second time or equipment damage may result; call the Customer Service Representative for maintenance.

- d. Press the WRITE switch, it will light; then press the master erase and SCREEN switches.
- e. Compose a test message watching carefully for a failure. If operation seems normal, a momentary surge in the utility power probably tripped the circuit breaker.

*Keyboard Cable
Disconnected*

- ◆ If the keyboard cable is disconnected:
 - a. Press the OFF side of the POWER switch.
 - b. Remove the power cable from the power source outlet.
 - c. Connect the keyboard cable to the keyboard (the connector will fit only in the correct position).
 - d. Connect the power cable to the power source outlet.
 - e. Apply power to the unit.

**Burned Out
Lamps**

- ◆ The lamps on the keyboard control panel may be replaced by the following procedure:
 - a. Press the OFF side of the POWER switch.
 - b. Pull up on the pushbutton cap until it comes out (figure 2-2).
 - c. Remove the lamp from the bottom of the pushbutton cap and replace it with a lamp of the same type (GE327).
 - d. Replace the pushbutton cap and push it into position.

**EQUIPMENT
CARE**

General

- ◆ The Video Data Terminal requires only the normal care given an electric typewriter and a television set. The keyboard, display tube face, and cabinet must be cleaned periodically. The following procedure outlines this cleaning procedure.

Cleaning Procedure

- ◆
 - a. Obtain several soft, lintless cloths, some liquid detergent containing ammonia, and approximately one-half quart of warm water.
 - b. Add a couple of tablespoons full of the liquid detergent to the water.
 - c. Press the OFF side of the POWER switch to remove power from the unit.
 - d. Dampen a soft cloth with the soapy water and clean the display tube face and keyboard. Be careful not to allow the soapy water to drip into the keyboard or viewer cabinets.
 - e. Clean the exterior of the viewer and keyboard cabinets in the same manner.
 - f. Perform the same procedure with clean water without detergent, and then buff-dry the entire unit with a dry cloth.

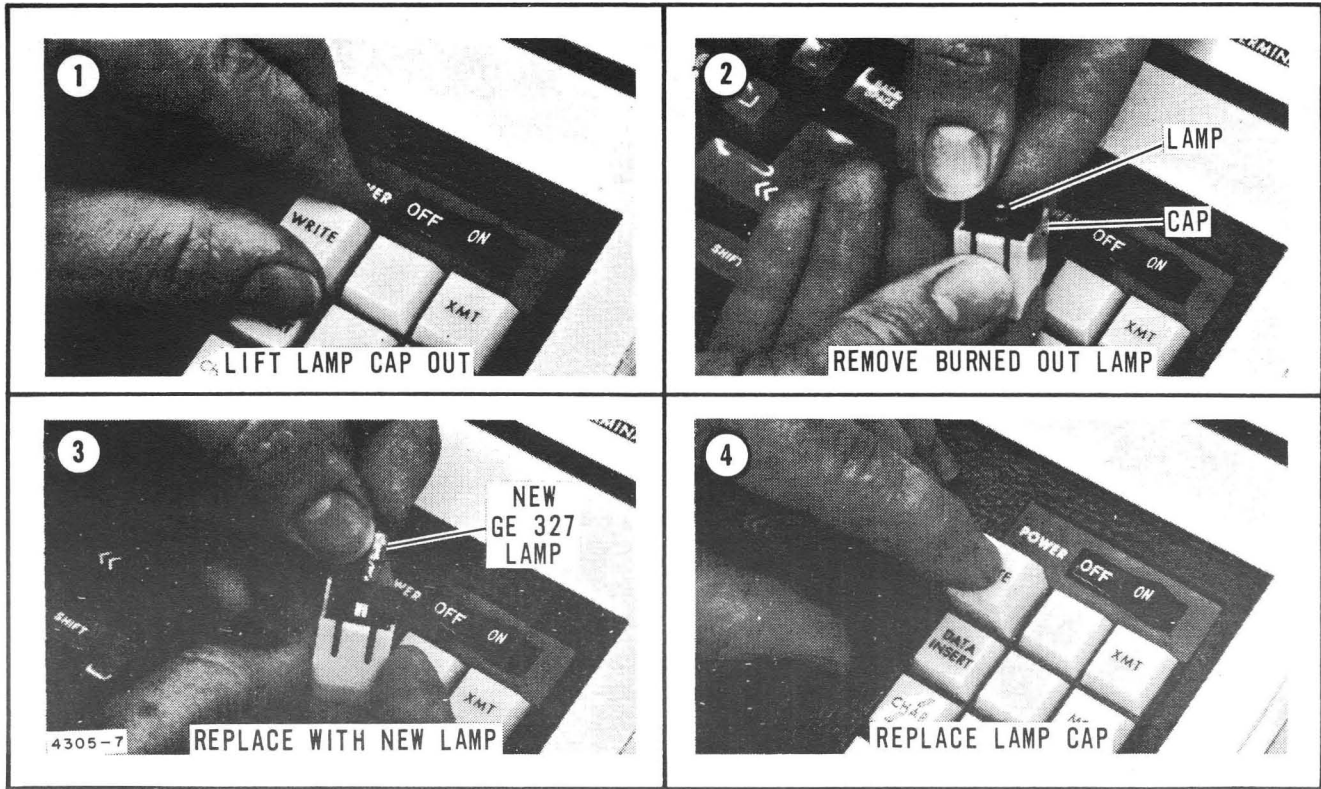


Figure 2-2. Lamp Replacement

NOTES



GLOSSARY

◆ This glossary contains a brief description of unique terms, which are used in this manual.

Asynchronous	Not synchronized. The Video Data Terminal transmit or receive operations do not require timing signals for accurate transmission or reception of information.
Bit	A portion of the character code. The Video Data Terminal characters are designated by 64 different character codes.
Central Computer	A Spectra 70 computer used to control a network of Video Data Terminals.
Character Repertoire	The 64 characters (alphabet, numerals, and symbols) that may be displayed by the Video Data Terminal.
Circuit Breaker	A device used to limit the maximum current that the Video Data Terminal will take from the power source outlet. The circuit breaker is used in the same manner as a household electric fuse, except that the circuit breaker may be reset rather than replaced.
Cursor	A movable underscore which indicates where the next character will be entered.
Data-Phone Data Set	The data set is the device used to change the Video Data Terminal signals to signals that may be transmitted on telephone wires and vice versa.
Disable	Prevents operation of a control or set of controls.
Enable	Allows a control or set of controls to perform their function.
Message Format	The message format consists of 1,080 characters arranged in 20 lines of 54 characters each. This is the maximum number of characters that may be displayed in one message.
Message Frame	The area filled by a message containing 1,080 characters.
Message-Received-Acknowledgment	A character or set of characters that automatically advances the Video Data Terminal to the write mode, and indicates to the operator that the central computer has received the message.
Message Segment Address	(Refer to the explanation of Message Segment Address Operation.) The cursor and "J" (ETX character) indicate to the electronics system of the Video Data Terminal the starting and ending address of the message segment to be transmitted to the central computer.
Mode of Operation	A manner of performing an operation. As wash, rinse, and dry are the operating modes of a washing machine; write, transmit, and receive are the operating modes of the Video Data Terminal.
Multi-Station Communications Line	A single telephone line serving as a common link to the central computer for several Video Data Terminals.
Remote Two-Way Communication	The Video Data Terminal transmits messages to and receives messages from the central computer over a communications line connecting a Video Data Terminal in one city to the central computer in another city.
Return Message	The message received from the central computer in response to the message transmitted to the central computer.
Segment	A portion of the message displayed.
Standard Message Format	A message received from the central computer, upon request, containing blanks for information available to the Video Data Terminal operator. Many standard message formats may be available for different types of routine communication with the central computer.
System Operating Procedures	The procedures required by the central computer for control of the total information network. These include the use of characters to be used for special purposes, such as starting and ending a message (in addition to the "J" character), the operations or messages required to notify the processor that a Video Data Terminal will be communicating with it, or the logging of messages sent or received by the Video Data Terminal.
Teletype Printer	The device that may be added to the Video Data Terminal and will print copies of the messages displayed. The printer will be a Teletype Model 32 or 33 receive only page printer.
Traffic Communications Link	A telephone line which connects the Video Data Terminal and the central computer and carries message traffic between them.
Use-Time	The central computer is used for many tasks; controlling, receiving, and transmitting to the Video Data Terminal is one task. If the time to perform this one task is shortened by more efficient transmission of data, more time is available to perform other tasks, and the computer may be directed to perform more tasks.
Variable Data	Data that will change for each specific message during routine use of the standard message format. Refer to figure 1-3; the blanks are for variable data.

