

4.0 Operation

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The Model 220 can be controlled by an Executive Remote, a Service Remote or a PC Terminal. Both remotes perform the same functions described in the menu tree. The Service Remote can access many functions directly with keys, bypassing the menu tree. A PC terminal requires a Null Modem cable and a terminal emulation program (such as Windows or ProComm-see *Section 4.11*) to emulate a VT-100 terminal.

This chapter assumes the operator is referencing the menu tree using an Executive Remote or Service Remote. Instructions are given with reference to accessing functions through the menu tree.

4.1 Executive Remote

The Executive Remote can be used as an infrared or tethered remote (see Figure 4-1). If using the Executive remote as an IR, do not plug in the tether cable. If using with the tether, plug one end of the tether cable into the remote and the other end into the phone-style receptacle (see *Figure 3-8*) on the projector's rear panel. Both ends of the tether cable are terminated in phone jacks. The IR function is disabled when the tether cable is plugged into the remote. All setup, image, and raster adjustments are made with the Executive Remote by navigating through the menu tree (see *Figure 4-3*).

The Executive Remote has a maximum range of about 16 meters (**line of sight only**) when using the IR transmitter. It does not transmit effectively through a rear-screen window.

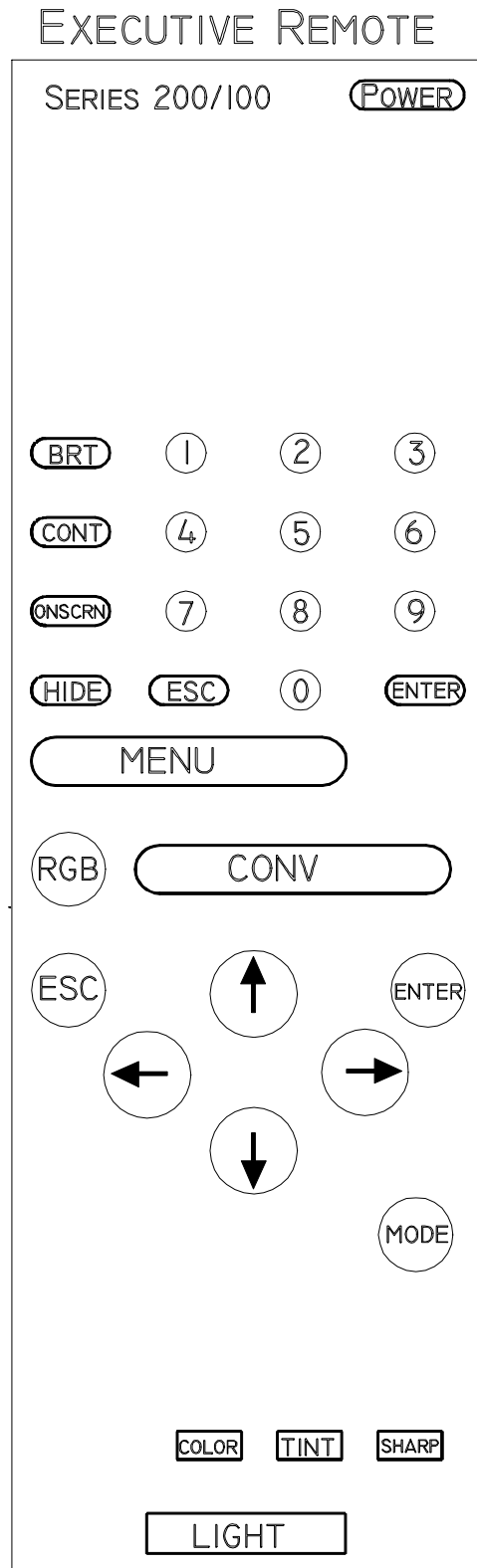


Figure 4-1. The Executive Remote Control.

4.2 Service Remote

The Service Remote provides quicker access to some functions by using keys on the remote. In the Menu Structure Diagram (Figure 4-3), these direct access functions are indicated by a ● symbol after the function name. Direct access features eliminate the need to access functions via the menu structure and save time during set up.

The Service Remote can be used as an IR remote or with an optional 150' tether cable. Inserting the tether cable disables the IR transmitter. See Figure 4-2 for an illustration of the Service Remote control keys and Table 4-1 for key function and usage.

The Service Remote has a maximum range of about 16 meters, line-of-sight, when using an IR transmitter. It does not transmit effectively through a rear-screen window.

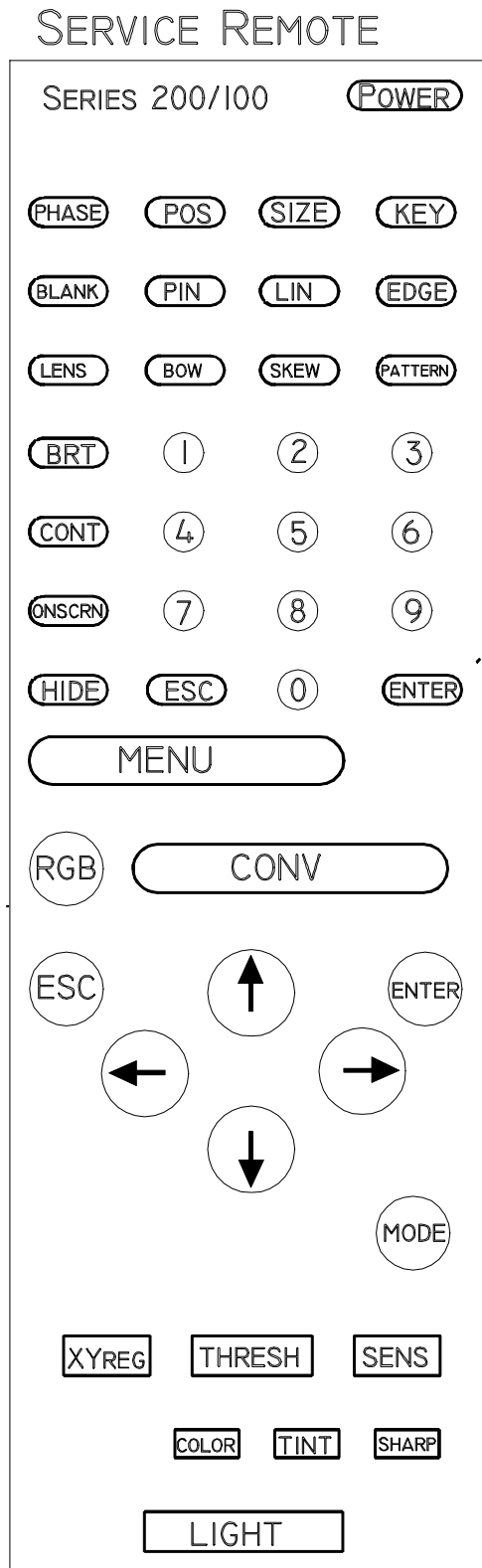


Figure 4-2. Service Remote Control. Descriptions of key functions can be found in Table 4-1 on the next page.

Table 4-1. Service Remote Control Key Functions

KEY	FUNCTION	USAGE
Power ●	Press ON to turn power on, and OFF to turn power off.	Power ON and OFF.
Menu ●	Toggles on/off Main Menu display.	Press once to display Main Menu, second time to hide Main Menu.
Escape ●	Cancels last command and retreats one menu level, cancels an input, exits adjustment	Press to back out of current menu.
Enter ●	Implements commands, chooses an item exits an adjustment, goes to next menu level	Press Enter when selection is highlighted or to exit an adjustment.
Conv	Same as Enter key.	
Cont ●	Contrast. Change the amount of image intensity.	Press Cont + left/right arrows to set level.
Bright ●	Brightness. Adjust until black portions of a projected image are black, but detail in color balanced areas is not lost.	Press Bright + left/right arrows to set brightness level.
Arrows ●	Used for increasing and decreasing control levels, cursor movement, convergence and geometry	
Phase	Horizontal and vertical Phase adjustment of the input image on the CRT raster.	Press Phase + left/right arrows for H phase or up/down arrows for V phase.
Blank	Blanking. Adjusts blanking levels at image edges. Press once for Top/Left and again for Bottom/Right.	Access T/L (top/left) or B/R (bottom/right) blanking from Timing. Adjust with arrows.
Size	Adjusts projected image height and width on screen.	Press Size + arrows to set ht/width.
Pos	Adjusts image raster horizontally and vertically on screen.	Use UP/Down and left/right arrows to center.
Onscrn ●	Toggles on/off the "on screen" information display.	Toggles "on screen" display On/Off.
RGB ●	Color selection to adjust or hide	Toggle to desired color.
Hide ●	Blanks CRTs for all colors or selected color.	Toggles image or selected color on or off.
Lin	Horizontal and Vertical Linearity correction for improper grid spacing on an image.	Press Lin + Left/Right or Up/Down arrows to correct linearity distortion.
Edge	Edge Linearity. Horizontal and Vertical edge linearity correction for improper grid spacing at image sides.	Press EDGE + Left/Right or Up/Down key to correct edge linearity distortion.
Mode ●	Provides menu to edit Channels or Sources lists.	Press to edit Channels or Sources.
XYReg	Enters Registration (XY) convergence adjustment.	Press XYReg. See Section 5.4.1.
Numbers●	Selects the input signal channel and makes Menu selections.	Press channel or menu number.
Thresh	Enters Threshold convergence adjustment.	Press Thresh. See Section 5.4.2.
Sens	Enters Sensitivity convergence adjustment.	Press Sens . See Section 5.4.3.
Pin	Vertical and horizontal pincushion correction for distortion at the sides or top and bottom of an image	Press PIN + arrows to correct vertical and horizontal pincushion distortion.
Key	Keystone. Horizontal and vertical keystone correction for grid line distortion at the sides or top and bottom of an image with respect to the center line	Press Key + Left/Right or Up/Down keys to correct horizontal or vertical keystoneing.
Bow	Adjust picture bowing	Press Bow-use arrows to correct.
Skew	Corrects for slight yoke rotation.	Press Skew-use arrows to correct.
Lens	Projection lens Zoom/Focus.	Press Lens . Up/down arrows to zoom. Left/right arrows to focus.
Pattern	Displays test pattern menu.	Press Pattern. Select a test pattern.
Color	Controls color intensity of image	Press COLOR + arrow keys to adjust
Sharp	Controls sharpness of image	Press SHARP + arrow keys to adjust
Tint	Controls hue of image	Press TINT + arrow keys to adjust Active only for Composite or S-Vid

Bulleted keys are available on both the Executive and Service Remotes.

4.3 Power On Sequence



CAUTION!!! Before applying power or starting adjustments, read entire Safety Chapter at the front of this manual.

NOTE: When the projector is turned off, the Xenon Arc Lamp is turned off but the cooling fans stay on for several minutes to cool the lamp. **Do not** unplug the projector or turn off the circuit breaker until these fans have stopped running.

Verify that the projector is connected to a 220-240 VAC, 20 Amp, 50/60 Hz, single phase source.

To turn on projector power:

1. Toggle the circuit breaker on the rear panel to ON. The LED light on the left rear of the projector glows orange. If this light blinks red, a problem exists. If using a PC terminal on Port A, the monitor will display information on the problem.
2. Press the Power key on the Remote.

NOTE: The same Power key also turns the projector power off. When turning power off, this LED will blink again. The LED must stop blinking before power to the projector can be turned on again.

The orange LED should now glow green. The ignitor circuit ignites the arc lamp and power is supplied to the projector. A Hughes-JVC logo may appear on the screen for 5 seconds. The screen then displays the external image or goes blank if no image signal is present.

NOTE: The Hughes-JVC logo is a default setting. Access the preference menu to deselect, if desired.

4.3 Inbetriebnahme



VORSICHT!!! Vor Einschalten des Gerätes oder Änderungen an den Projektoreinstellungen sollten die im Kapitel "Sicherheitsinformationen" am Anfang dieses Handbuchs besprochenen Sicherheitsrichtlinien sorgfältig durchgelesen werden. Denken Sie daran, daß beim Abschalten des Projektors die Xenonbogenlampe zwar auch abgeschaltet wird, die Ventilatoren jedoch zur Abkühlung der Lampe noch einige Minuten weiterlaufen. Das Netzkabel des Projektors **darf erst** gezogen oder der Hauptleistungsschalter erst umgelegt werden, wenn alle Ventilatoren zum Stillstand gekommen sind.

Der Projektor muß an eine Wechselstromquelle mit 220-240 V, 20 A, 50/60 Hz, einphasig, angeschlossen sein.

Der Projektor wird wie folgt eingeschaltet:

1. Der Hauptleistungsschalter an der Rückseite des Gerätes muß auf ON (EIN) stehen. Den Schalter gegebenenfalls umlegen. VORSICHT! Der Hauptleistungsschalter sollte stets auf ON (EIN) stehen und nur in Notsituationen umgelegt werden. Bei Betätigung des Schalters werden sämtliche Kühlventilatoren abgeschaltet. Die Lampe kühlt dadurch nicht ausreichend ab und kann in ihrer Lebensdauer beeinträchtigt werden. Da der Projektor einmal pro Stunde automatisch alle Einstellungen speichert, werden durch Umlegen des Schalters auch alle seit der letzten automatischen Speicherung vorgenommenen Änderungen gelöscht.

Das LED-Anzeigelämpchen links hinten am Projektor leuchtet orangefarben. HINWEIS: Wenn dieses Anzeigelämpchen rot blinkt, liegt eine Störung am Gerät vor. Bei Verwendung eines Endgerätes an Anschluß A (als Terminal A markiert) werden auf dem Monitorbildschirm Informationen zur Störung angezeigt.

2. Die Stromtaste an der Fernbedienung drücken. Die gleiche Taste wird benutzt zum ausschalten vom gerät.

Das in Schritt 2 erwähnte orangefarbene LED-Anzeigelämpchen leuchtet jetzt grün auf. Die Bogenlampe wird über den Zündschaltkreis gezündet und der Projektor mit Strom versorgt. Auf dem Bildschirm erscheint 5 Sekunden lang das Hughes-JVC-Logo. Auf der Leinwand ist dann die Bildinformation der externen Signalquelle sichtbar, bei fehlendem Eingangssignal bleibt die Leinwand dunkel.

4.3 Procédure de mise en service



PRUDENCE !!! Avant de mettre le projecteur sous tension ou de le régler, lire et apprendre les directives de sécurité données dans le chapitre Sécurité, au début de ce manuel. Se souvenir que quand le projecteur est arrêté, la lampe à arc au xénon est éteinte, mais que les ventilateurs de refroidissement continuent à fonctionner pendant plusieurs minutes pour refroidir la lampe. Il est très **important de ne pas** débrancher le projecteur ou d'ouvrir le coupe-circuit avant l'arrêt des ventilateurs.

Vérifier que le projecteur est branché sur une alimentation entre 220 V et 240 V c.a., 50 à 60 Hz, monophasée, 20 A.

Pour mettre le projecteur en service.

1. Vérifier que le coupe-circuit à l'arrière du panneau est en position de marche. Si ce n'est pas le cas, mettre le coupe-circuit sur marche. **PRUDENCE ! Normalement, ce coupe-circuit doit être laissé sur marche, sauf en cas d'urgence. S'il est arrêté pour une raison quelconque, les ventilateurs de refroidissement s'arrêtent également et il n'y a pas assez de temps pour refroidir la lampe à arc. Ceci peut provoquer une défaillance prématurée de la lampe. Egalement, les données concernant le projecteur sont saisies une fois par heure et toutes les données depuis la dernière sauvegarde automatique sont perdues.**

A l'arrière gauche du projecteur, le voyant DEL est allumé orange. REMARQUE : si le voyant clignote rouge, il y a un problème. Si un terminal est branché sur le port A (marqué Terminal A), des renseignements sur le problème sont affichés sur l'écran du moniteur.

2. Appuyer sur la touche POWER (Marche/arrêt) de la télécommande.

Le voyant DEL orange de l'étape 2 est maintenant vert. Le circuit de l'allumeur allume la lampe à arc et le projecteur est sous tension. Un sigle Hughes-JVC apparaît sur l'écran pendant 5 secondes. L'écran affiche alors l'image de la source extérieure, ou reste au noir en l'absence de signal.

4.4 Navigating the Menu

The basic procedure for navigating the menu is shown at the top of the Menu Structure Diagram, Figure 4-3. Examples for displaying the menu, making preference selections, and setup selections are shown below.

Displaying the Main Menu: The Main Menu displays on the screen when the Menu key is pressed unless another menu was previously selected. If another menu displays (refer to the Menu Structure Diagram, Figure 4-3) press Escape until the Main Menu appears. The Escape key backs up from the menu displayed to the *previous* menu. The menus display on the screen for 10 seconds, then “time out” and go off the screen.

Choosing Numbered Menus: Menu selections are made with the Remote using menus with or without numbers. This optional selection is made under Preferences. Menus without numbers may be preferred when using Short Menu (see Section 4.10). Numbered menus allow for faster access and may be preferred during projector setup.

To choose numbered menus:

1. Press Menu to display the Main Menu.
2. Use the up/down arrow keys to highlight #7, System, and press Enter (or press #7 at the Main Menu).
3. From the System menu, use the arrows keys to highlight #3, Preferences, and press Enter (or select # 3 at the System menu)).
4. From Preferences select #1 and press Enter to toggle the Numbered Menus box to select menus with or without numbers (checked box=menus with numbers).

To Choose Full or Short Menus: Full menus are necessary to perform timing, geometry, convergence, and maintenance. Short menus allow very limited menu selections such as picture settings and channel selection. The short menu is useful for certain situations such as; the projector is already set up and operating, frequent channel changes are occurring, and changes in picture settings are often necessary. Short menus also prevent inadvertent changes from occurring to the timing, geometry, or convergence setup data when several operators are handling the remote.

To select short or full menus:

1. From the Main Menu select Full Menus.
2. Press Enter to toggle to full or short menu (checked box=Full Menu) .

For the full menu tree see Figure 4-3. For the short menu tree see Figure 4-6.

Unless otherwise noted, the procedures in this manual use the Standard or Technician remote, the menu tree and numbered, full menus.

Menu Selection Examples: Two examples of selections made using numbered menus are shown below. Refer to the Menu Structure Diagram, Figure 4-3.

To select the test pattern for Linearity:

1. Press Menu (and Escape, if necessary) to display the Main Menu.

2. Select the System menu.
3. From the System menu, select Test Pattern.
4. From the Test Pattern list select X-hatch.
5. The standard crosshatch test pattern appears on the screen.

To select Linearity for adjustment purposes:

(Continue from the above test pattern selection.)

1. Press Menu and/or Escape to display the main menu.
2. Select the Geometry menu.
3. Select Linearity.
4. The Linearity adjustment window appears on the screen.

NOTE: It is also possible to move from side to side in the menu tree. For example, when in the System menu, #7, (above first example) to go to #4, Timing, (above second example) press the left arrow three times to move 3 places to the left. To move back to the System menu, press the right arrow three times. During setup adjustments this feature can save time when moving between Picture, Timing, Geometry, and Convergence.

Switcher Instructions

1. Under Comm. Setup, Port A or Port B Device, select Video Switcher.
2. Select a baud speed of 9600 if the switcher is connected to Port A or a speed of 19200 if the switcher is connected to Port B. **NOTE:** Switchers are recommended to be connected to Port B. This allows for Boot Manager to be connected to Port A through the ANSI terminal when software upgrades are needed without the need for reconfiguring the ports.
3. Turn power off using the remote or PC to shut the system down.
4. Restart the system to activate changes.
5. Add a third digit to VIC channel assignment to show that a switcher is being used (see Section 5.13 on Video Input Cards).

4.5 Full Menu Structure

To view the Main Menu, press Menu on the remote. The Main Menu displays on the screen. **NOTE:** If another menu is displayed, press Escape again until the Main Menu appears.

Menu screens remain active for approximately 10 seconds. After 10 seconds the menu "times out" and is cleared from the screen. To issue a command, press Menu and the number of your selection.

Figure 4-3 shows the Main Menu Structure and the submenus. For a description of each menu item see Section 4.9.

After becoming familiar with navigating the menu the next step is to select a channel. This is covered next in Section 4.6. Be sure that the channel selected has a source file

set up to handle the type of graphic source to be viewed. Observe the list of sources on the selected channel to confirm this. See Section 4.6 and the Glossary for the meaning of the terms “channel”, “source” and “source file”.

If there is no source file on the selected channel to handle the source to be viewed, the proper source file can be attached from another channel to the selected channel. Refer to Section 4.7, “Attaching a Source”.

If there is no acceptable source file set up on any other channel to attach to the selected channel, a source file must be set up to handle the source to be viewed. The procedures for setting up source files are covered in Chapter 5.

Navigating the Menu: Press Menu on the Remote (or spacebar on a PC) to display the Main Menu. Press the number of the menu item needed (or use arrow keys to scroll to the item, then press Enter). From the submenus, press the number of the selection wanted. To move side to side within any group (such as from the Picture menu to the Convergence menu or from the Preferences menu to the Test Patterns menu) press the right or left arrow keys. Some sample selections are shown in Section 4.4

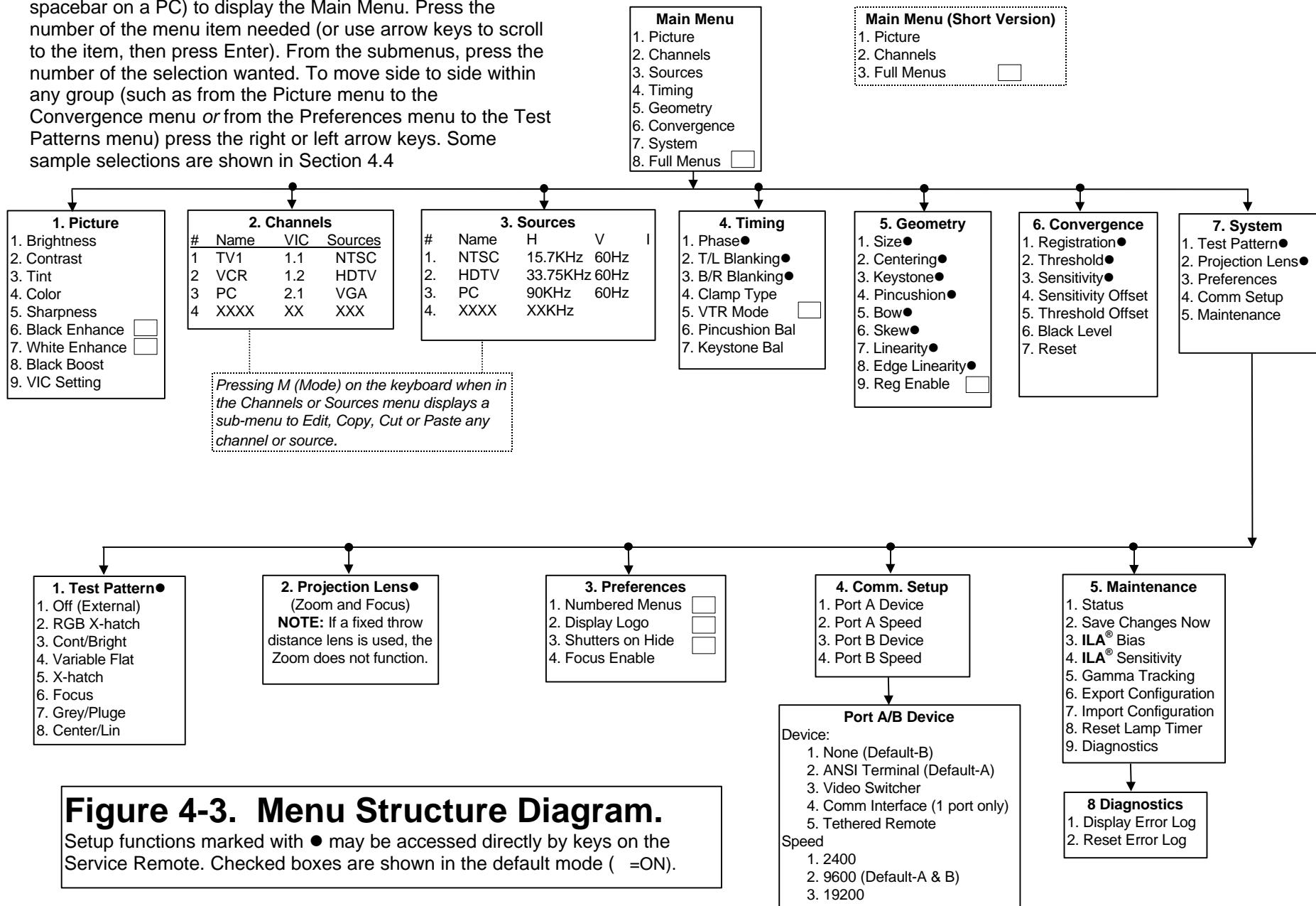


Figure 4-3. Menu Structure Diagram.

Setup functions marked with ● may be accessed directly by keys on the Service Remote. Checked boxes are shown in the default mode (=ON).

4.6 Selecting a Channel

A channel is an Autoselect group of up to 20 source files set up to receive different input sources within any one VIC slot or port. **NOTE:** The Autoselect feature means that when the incoming source changes in the active channel, the projector automatically selects and switches to the source file within that channel that most closely matches the incoming source's parameters. The channel selected must have a source file set up to handle the type of incoming source. The terms "source" and "source file" are often used interchangeably. A "source" is a specific type of input like NTSC or VGA and contains specific geometric and convergence parameters. A "source file" is a data set in the projector's memory created to handle a specific input source. Source files must be set up to match the specific geometric and convergence parameters in the incoming source.

The procedures in Chapter 5 set up a new source file for a new input source. The resultant geometric and convergence data in the new source file can then be "attached" to a different channel (see "*Attaching a Source*" below). The Geometry and Convergence settings on these attached sources should not be adjusted. Any adjustments made on attached sources will alter the data on the original source and any other source that is also attached to it. Bear in mind that the setup data is only being borrowed by the attached source from the original source. A more detailed description on attaching sources is provided in the next section.

To select a channel from the menu system :

1. Press MENU to display the Main Menu
2. Select *Channels* from the Main Menu
3. Enter channel number using the number keys
4. Press Enter once to highlight the selected channel. Press Enter again to activate the highlighted channel. If using arrow keys, scroll to highlight the desired channel and press Enter once.
5. If the active channel contains more than one source file for the incoming input source, the closest match will be automatically selected.

NOTE: If the channel number is known, it may be selected by pressing the channel number, then pressing Enter.

Active Channel– Press Enter with no numbers preceding it, and the **active** channel number will display on the screen for 3 seconds (provided the Onscrn display mode is ON). In the Channels menu the **active** channel is shown with a *pointer* to the **left** of the number (as long as the **active** channel number is on the screen list).

NOTE: Do not confuse the **active** channel with the **highlighted** channel. The **active** channel is the channel that is on screen. The **highlighted** channel is the channel that has been scrolled to with the arrow keys or selected by pressing its number and Enter, but has not yet been made **active** by pressing Enter again. Pressing the channel number and Enter "**highlights**" the channel on the Channels list. Pressing Enter again makes it "**active**" (on screen). Sources may be attached (see "*Attaching a Source*" below) to the **highlighted** channel, while another channel is **active**.

The **active** channel is displayed in the upper right corner of the Channels menu. See Figure 4-4 for an illustration of the Channels' menu and **active/highlighted** channels.

This column shows the Video Input Card being used for the channel and source. The first number is the VIC slot, the second number is the VIC port, and the third number is the switcher port, if any.

Highlighted channel-not selected yet. Move the highlight with arrow keys.

Pointer shows the **active** (on screen) channel, provided it is on the screen list. Pointer moves to another channel after the operator selects a new channel and presses Enter.

#	Name	VIC	Sources
1	VTR-1	1.1	NTSC
2	CAM-1	1.2	NTSC
3	PC	3.1	VGA SVGA1 SVGA2
4	MAC	3.2	MAC33 MAC45
5	HD-LD	1.3.14	HDTV
6	CABLE	2.1	NTSC

Indicates **active** channel (3) and **active** source (SVGA2).

List of sources that Channel 3 is set up for.

Pointer shows **active** source (SVGA2) for CH 3. Pointer is a tilde (~) for an approximate matched source.

Figure 4-4. Channel List, showing **active** channel and source.

4.7 Attaching a Source

A source is defined as a graphics input signal with a specific set of parameters such as horizontal/vertical scan rates, interlaced or noninterlaced scanning, and sync type/polarity. An incoming source can be attached to a source file that was previously set up for a different source. The attached source is borrowing the setup data from the original source file.

NOTE: Setup procedures for new sources are covered in Chapter 5. When setting up a source file for a new source, the operator first *connects* the source to the rear panel input jacks, then *selects* the channel to receive that source, then *names* the channel to show the source type, then *selects* the VIC slot and/or VIC port to handle that source (if the projector uses more than one VIC or a multi-port VIC), and then *follows the adjustment procedures* in Chapter 5 to set up a source file to handle that specific source. Once a source has been set up, it can be “attached” to another channel.

To “attach a source” means that an original source file and its geometry and convergence parameters are being used by another source. The attached sources are using the *same* source files (*they are the same source files, not copies*). A source can be attached to a source file from a different channel. Geometry and convergence settings should not be adjusted on attached sources because all attached sources will then be altered by the same adjustment. This is only true for geometry and convergence. Timing and picture settings come into the attached source at the default levels and may be adjusted without affecting the original source or any other attached source.

Two identical sources can be located in two different channels with two distinctly different picture settings for use with possibly different room environments. For example, different brightness and contrast settings could be used for the same source in two different channels, saving the time of repeatedly adjusting contrast and brightness.

NOTE: One channels’ source file parameters can be used as starting points to set up new sources in other channels. To do this the first channel is copied to a second channel. Follow the procedure in Section 5.12, “Backing up settings”. Each channel (groups of source files) can be customized to suit whatever purposes are needed.

Each channel is capable of handling up to 20 different sources. There are 99 channels (groups of source files) available. The maximum number of channel/source combinations is 200.

To attach a source to a channel:

1. Press Menu to display the Main Menu.
2. From the Main Menu select Channels.
3. From the Channels list, press the number of the channel to attach the source to. If the channel is not highlighted press Enter to highlight the channel. Do not press Enter if the channel is already highlighted (this would make the channel “active”).
4. Press the right arrow key to move to the Sources list.
5. Use the arrow keys and scroll to highlight the source desired.
6. Press Enter. This attaches the highlighted source to the channel that is highlighted in the Channels list.

CAUTION! Do not make any adjustments to geometry or convergence on these “attached” sources. Any adjustments will also alter the original source file data and other attached sources.

MAIN		SOURCES				CH 14 [HDTV]
#	Name	H (kHz)	V (Hz)	I		
1	NTSC	15.7	60.1	I		
2	VGA	31.5	72.0			
3	SVGA1	44.5	72.4			
4	SVGA2	56.6	60.8			
5	HDTV	33.5	60.2	I		
6	PAL	15.4	50.1	I		
7	8514A	34.5	61.1	I		
8						
VIC 2.3		33.5 +	60.2 +	I		

Highlights show the valid sources for the active channel (14).

Pointer shows the active source for the channel, provided it is visible on screen. Pointer is a tilde if source is an approximate match

This row indicates the VIC # and the scan rates for the active channel.

Indicates the channel that is highlighted on the "Channels" list. Also shows the source in brackets if this highlighted channel is also active (on screen). If the highlighted channel indicated here is *not* the active channel, the source is blank.

This column indicates if the scan is interlaced or not. (I=interlaced, blank =noninterlaced)

Figure 4-5. Sources list showing "active" and "highlighted" sources.

The **Active Source** is the source the **active** channel displays on the screen. It is indicated by a pointer on the left under the Sources list in Figure 4-5. The **active** source is also shown on the Sources list in the upper right corner. The other **highlighted** sources displayed are additional valid sources for the **highlighted** channel (14).

NOTE: Chapter 5 covers procedures on setting up new sources.

4.8 Picture Settings

To change picture settings:

1. Select #1, Picture from the Main Menu.
2. Press the number of the selection to be adjusted.
3. Use the left/right arrow keys to increase or decrease the settings for Brightness, Contrast, Tint, Color, or Sharpness. Tint, Color, and Sharpness are active only for Composite (NTSC) or S-Vid inputs. Contrast can be adjusted by individual color by toggling the RGB key to highlight the color desired and using the left/right arrow keys to adjust. **NOTE:** Repeatedly pressing the RGB key toggles from RGB (all colors on screen) to Red then Green then Blue then back to all colors.
4. The Black and White Enhance feature enhances black and/or white detail. After selecting the proper levels for the picture settings, toggle the Black Enhance and/or White Enhance ON indicated by the checked box. Select the toggle level that provides the best picture.
5. Accessing VIC Settings displays a submenu. The operator can then select the appropriate VIC to use when setting up a new channel/source. This submenu is

available only if the projector is using more than one VIC). See Section 5.13 for more details on VICs setup.

4.9 Menu Item Definitions

This section defines the menu items available through the Main Menu and submenus.

Main Menu

1. **PICTURE**--Displays picture adjustments and VIC settings. A small window contains the adjustment name and the current data value. When the value is highlighted the user may enter a new value.
 - (1) Brightness--Adjustment for picture brightness
 - (2) Contrast--Adjustment for picture contrast
 - (3) Tint--Adjustment for picture tint
 - (4) Color--Adjustment for picture color
 - (5) Sharpness--Adjustment for picture focus
 - (6) Black Enhance--Toggle to boost the black level. Default is OFF.
 - (7) White Enhance--Toggle to boost the white level. Default is OFF.
 - (8) Black Boost--Enhances black detail in dark areas of image.
 - (9) VIC Settings--Video Input Card settings.
2. **CHANNELS**--Displays the channel numbers, channel names, VICs, and some of the sources attached to each channel. Pressing M (mode) provides the following sub-menu for editing purposes:
 - (1) COPY--copies (without changing) the highlighted channel's name, VIC path, and list of sources into the paste buffer in preparation for pasting to another channel.
 - (2) CUT--same as copy above except that the highlighted channel is reset to factory defaults (name is blank, VIC is unassigned and no source is attached).
 - (3) PASTE--pastes the contents of the paste buffer into the highlighted channel.
 - (4) EDIT--allows editing of the channel name and VIC. Right and left arrows move the cursor to the point for editing, pressing enter chooses the field to edit, up/down arrows or dialog boxes allow for changing the character or the input port. Pressing enter accepts the change.
3. **SOURCES**--Displays input sources, horizontal and vertical rates sync type/polarity, interlaced or noninterlaced scanning. Contains a submenu for editing, copying, cutting or pasting any source information like the channel list menu. Indicates active source with a pointer. Highlights the sources that are attached to the channel that is highlighted on the channel list.
4. **TIMING**--Displays the timing menu and adjustments.
 - (1) Phase--adjustment for picture phase.

- (2) T/L Blanking--adjustment for top/left blanking.
 - (3) B/R Blanking--adjustment for bottom/right blanking.
 - (4) Clamp Type--pick list for type of clamping preferred. Default is back porch.
 - (5) VTR Mode--toggle for VTR on or off. The default for this setting is OFF.
 - (6) Pincushion Bal--Balances the pincushion distortion equally on both sides or top and bottom so that the pincushion adjustment can perform a proper correction.
 - (7) Keystone Bal--Balances the keystone distortion equally on both sides or top and bottom so that the Keystone adjustment can perform a proper correction.
5. *GEOMETRY*--Displays the following raster adjustments:
- (1) Size--value adjustment for width and height.
 - (2) Centering--Value adjustment for red, green and blue, horizontal and vertical centering.
 - (3) Keystone--value adjustment for left, right, top, and bottom keystone correction.
 - (4) Pincushion--value adjustment for left, right, top, and bottom pincushion correction.
 - (5) Bow--value adjustment for left, right, top, and bottom bow correction.
 - (6) Skew--value adjustment for the red, green and blue horizontal and vertical center.
 - (7) Linearity--value adjustment for red, green, and blue, vertical and horizontal linearity correction.
 - (8) Edge Linearity--value adjustment for red, green, and blue, horizontal and vertical edge linearity correction.
 - (9) Reg Enable--menu toggle to enable convergence (XY Registration). This box should be checked only when doing Geometry procedures and for specific maintenance by service personnel. The default is ON.
6. *CONVERGENCE*--Displays the following convergence parameters:
- (1) Registration--XY adjustment for red, green and blue.
 - (2) Threshold--red, green, and blue adjustment for varying the brightness of the dark areas of the screen.
 - (3) Sensitivity--red, green, and blue adjustment for varying the brightness of the bright areas of the screen.
 - (4) Threshold Offset--R, G, and B adjustment for varying the brightness of the dark areas of the screen.
 - (5) Sensitivity Offset-- R, G, and B adjustment for varying the brightness of the bright areas of the screen.
 - (6) Black Level--G2 adjustment for red, green, and blue.
 - (7) Reset--menu for Registration, Threshold, and Sensitivity. Resets Registration to 128, Threshold to 64, and Sensitivity to 128. It is also color-selectable.

7. **SYSTEM**--Displays the System menu and its six sub-menus as shown below:
- (1) **Test Pattern**--Provides selection of nine different test patterns as described in Section 5.2 in Chapter 5.
 - (2) **Projection Lens**--value adjustment for zoom and focus.
 - (3) **Preferences**--allows operator to select menus with or without numbers and "Shutters on Hide":
 - 1). **Numbered menus**--toggle On or Off. The default is ON.
 - 2). **Display Logo**--On or Off. The default is On and displays the HJT Logo at startup.
 - 3). **Shutters on Hide**--Covers the R, G, or B **ILA®** assembly to prevent the **ILA®** window from appearing on the screen.
 - 4). **Focus Enable**--When box is checked, focusing is allowed. When box is unchecked focusing is disabled to prevent accidental focusing.
 - (4) **Comm Setup**--menu selection for type of device for port A/B and baud speed. The defaults for Port A are ANSI Terminal and 9600 Baud. The defaults for Port B are None and 9600 Baud. If a Switcher is being used, it must be selected for either Port A or B from the Comm. Setup menu. Select a speed of 9600 Baud for Port A or 19200 for Port B. **NOTE:** Switchers and the Tethered Remote option should be connected to Port B. This allows for Boot Manager to be connected to Port A when software upgrades are needed without reconfiguring.
 - (5) **Maintenance**--provides a sub-menu below for maintenance purposes:
 - Status--displays projector parameters such as; software revision, VIC types, channel information, lamp hours, projector (system controller) hours.
 - Save Changes Now--saves all current parameters. This is usually done automatically once every hour and during a POWER-OFF sequence.
 - ILA® Bias--red, green, and blue ILA® light valve bias adjustment. Must be done whenever light valve components are replaced or ILA® sensitivity is changed.
 - ILA® Sensitivity--value adjustment for light valve bias frequency.
 - Gamma Tracking--Equalizes **ILA®**'s gamma at 50% points to achieve a better white balance. This is a maintenance feature performed at setup only.
 - Export Configuration--dialog for saving the projector's setup data to an external host for backup. This backup data can be imported whenever a System Controller board is replaced.
 - Import Configuration--used with #5 "export" above.
 - Reset Lamp Timer--dialog--confirmation.
 - Diagnostics--provides a sub-menu for; Beam current measurement, display system error log, reset system error log, and display HW IIC status.

4.10 Short Menu Structure

Short menus allow very limited menu selections and prevent inadvertent changes in setup data when several operators are using the remote.

To use short menus:

1. Press Menu to display the Main Menu.
2. From the Main Menu, select

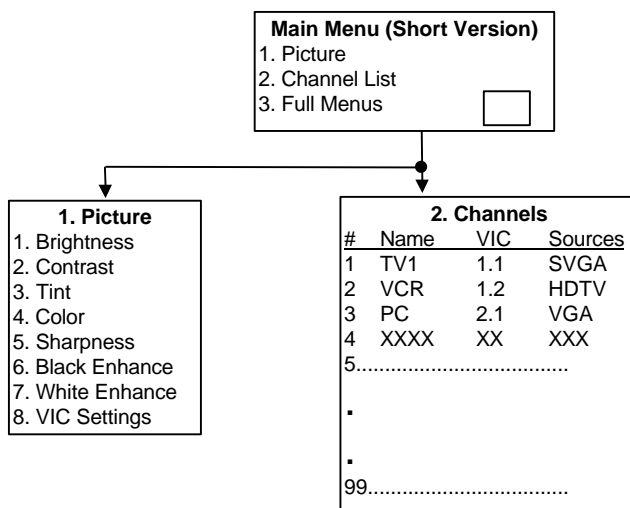


Figure 4-6. Short Menu Tree.

4.11 PC or VT-100 Terminal Control

The projector can be controlled by a VT-100 terminal. If a VT-100 is not available, a PC with Windows 3.1 or ProComm for DOS can emulate a VT-100. Table 4-2 shows the equivalent commands for the terminal and remote controls.

1. From Windows Program Manager, select TERMINAL then SETTINGS.
2. Select TERMINAL EMULATION from SETTINGS menu.
3. Select DEC VT-100(ANSI) (may already be selected).
4. Use a Null Modem cable to connect between the projector and the terminal.
5. Use the TERMINAL PREFERENCES and COMMUNICATIONS PROTOCOL below for Windows setup.

TERMINAL PREFERENCES

Select SETTINGS again from the menu bar. Select TERMINAL PREFERENCES. Set the following modes:

Line Wrap	Yes	CR CR/LF:	
Local Echo	No	Inbound	No
Sound	Yes	Outbound	No
Columns:		Cursor:	
80:	Yes	Block:	Yes
132:	No	Underline:	No
		Blink:	Yes
Terminal Font:		Translations	NONE
Courier 12		IBM to ANSI	No
Terminal Show:			
Scroll Bars	Yes	Buffer Lines	100
Use Function Arrow and Control keys for Windows	No		

COMMUNICATIONS PROTOCOL

Select SETTINGS using the menu bar, then select COMMUNICATIONS. Set the following communications parameters and modes.

Baud Rate	9600	Stop Bits	1
Data Bits	8	Flow Control	Xon/Xoff
Parity	None	Carrier Detect	No
Parity Check	No		
Connector	Com1-This is PC configuration dependent.		

Select FILE from the menu bar and select NEW. Under File Name enter VT-100.TRM. This will allow the user to select the file VT-100.TRM with the above parameters saved for future use.

Table 4-2. VT-100 Terminal and Remote Command Equivalents

ACTION	KEYBOARD INPUT	EXECUTIVE REMOTE KEYS	SERVICE REMOTE KEYS	DEC.	HEX.
Power OFF (All)	CTRL + F			6	6
Power ON (All)	CTRL + U			21	15
Power ON/OFF	CTRL-P	POWER	POWER	16	10
Power ON/OFF-Electronics only	CTRL + E			5	5
Power ON/OFF Lamp	CTRL + L			12	0C
Left Arrow	Left Arrow	Left Arrow	Left Arrow	27 91 68*	1B 5B 44*
Right Arrow	Right Arrow	Right Arrow	Right Arrow	27 91 67*	1B 5B 43*
Up Arrow	Up Arrow	Up Arrow	Up Arrow	27 91 65*	1B 5B 41*
Down Arrow	Down Arrow	Down Arrow	Down Arrow	27 91 66*	1B 5B 42*
Back out of menu	Esc	ESC	ESC	27	1B
Blanking	B		BLANK	66	42
Bow, H & V	U		BOW	85	55
Brightness	I	BRT	BRT	73	49
Center, H & V (RGB)	P		POS	80	50
Change channel	Number + Enter	Channel # + Enter	Channel # + Enter	48-57	30-39 + 0D
Color	Y	COLOR	COLOR	89	59
Contrast (RGB)	C	CONT	CONT	67	43
Edge, H & V (RGB)	E		EDGE	69	45
Enter	Enter	ENTER	ENTER	13	0D
Escape	Esc	ESC	ESC	27	1B
Hide	F	HIDE	HIDE	70	46
Keystone, H & V	K		KEY	75	4B
Lens adjust	A		LENS + Arrows	65	41
Linearity, H & V (RGB)	L		LIN	76	4C
Menu	Spacebar	MENU	MENU	32	20
Mode	M	MODE	MODE	77	4D
Numeric	0-9	0-9	0-9	48-57	30-39
Onscreen	O	ONSCRN	ONSCRN	79	4F
Phase	H		PHASE	72	48
Picture sharpness	X	SHARP	SHARP	88	58
Picture tint	Z	TINT	TINT	90	5A
Pincushion, H & V	N		PIN	78	4E
RGB toggle	R	RGB	RGB	82	52
Size, H & V	S		SIZE	83	53
Test pattern display	T		PATTERN	84	54
Skew, H & V (RGB)	W		SKEW	87	57
Threshold	D		THRESH	68	44
Sensitivity	V		SENS	86	56
Registration	G		XYREG	71	47
Redraw Terminal Screen				124	7C
Reboot**	CTRL+Shift+_			49	31
Restart System Software***	CTRL+Shift+^			48	30

*The Arrow keys are a sequence of Decimal or Hex numbers representing the sequence of Escape, Left Bracket, and A, B, C, or D depending on which arrow is pressed. The first number represents the Escape key, the second number represents the Left Bracket, and the third number represents the letter corresponding to the Arrow Key pressed.

**Refer to Section 5.14, Software Updating.

***Must be done for a software change or port configuration change (device, speed) to take effect (see Menu Structure, Figure 4-3-Comm Setup and Section 4.9-Menu Item Definitions, under System-Comm Setup).