THE SERIES 840 SYSTEMS

- The 840E Enhanced Messaging System

- The 840 Messaging System

- The 840B Page Titler

OPERATIONS GUIDE

Video Data Systems

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Release: September 1997

SERIES 800 POWER UP INSTRUCTIONS

ALL SERIES 800 SYSTEMS CONSIST OF:

Character Generator Chasis

> 1 rack unit height with rack mounts
>
> NTSC composite video output from BNC PROGRAM OUT connector
>
> Editing is real time, visible on PROGRAM OUT line output
>
> EDIT BNC output for preview
>
> Memory, date and time backed up by internal battery

External Power Supply

> Wall outlet type
>
> Plugs into the 5-pin DIN plug marked POWER at rear of chasis

Keyboard

> 101-key IBM type
>
> Plugs into 5-pin DIN port at front of chasis marked KEYBOARD

CONNECTIONS

1. Rack mount or place on secure flat surface.

2. Connect cable from PROGRAM OUT BNC connector to modulator or a video monitor. This is "line output."

3. Connect cable from EDIT BNC to a preview monitor (optional). This is a preview output.

4. Plug keyboard connector into KEYBOARD input on front of chasis.

5. Plug power supply in POWER input on rear and into wall outlet. Power LED on front should illuminate immediately. *There is no power switch.*

A blue background with a yellow cursor should be active.

There could be a series of messages running on the screen. To terminate the messages, press **Queue End** on the lower right portion of the keyboard.

THE UNIT IS READY FOR USE.

To get up and running quickly, refer to the QUICK START GUIDE. To get the most of out the unit, learn its complete operation by reading the detailed operations manual.

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VIDEO DATA SYSTEMS' SERIES 840

QUICK START GUIDE

Use this guide to get up and running fast with any System 840 Series unit.

The steps to follow to get a message composed, saved and run are described in short form.

WHAT THE SYSTEM NEEDS

Message Pages: *Pages created for display. They must be stored in memory as specific page numbers before they can be run on the system.*

A Queue: *Created to run one or more stored message pages automatically. Queues also run crawls over message pages.*

CREATING AND STORING A MESSAGE PAGE

1. Press **Clear Page**.

    This sets all parameters to the system defaults (a standard condition). Bright blue background, yellow font color (for color units), and font style one will be activated.

2. Compose a message page using the keyboard as any typewriter or computer keyboard.

3. Press **Store** to save the page so it can be recalled at any time or used in a queue.

    The system responds with: Save Page Number:

    The system specifies the current page number.

4. Press **Enter** to store the message into the current page number.

    The page can be stored as any page number typed in before pressing **Enter**.

CREATING AND RUNNING A QUEUE FOR AUTOMATIC PAGE DISPLAY

1. Create the message pages to be displayed and store them as individual page numbers.

2. Press **Set Queue**. The prompt Seq # Page: Dwell: appears.

3. Specify 1 as Seq # (using ↑ ↓), the number of the queue's first message page as Page #

    (using **Page Up**, **Page Down**), and the page display time in seconds as Dwell (using → ←).

    Press ↑ to get to the next Seq # and repeat this process for all pages entered in the queue, specifying a sequence number and dwell for each page based on where it

must appear in the queue and for how long.

4.   Press **Enter** to end the queue definition.

5.   Press **Queue Start** to run the queue.

6.   Press **Queue End** to end the queue.

RUNNING A MESSAGE PAGE WITH A CRAWL

Displaying a crawl is only possible when a queue is running. When a crawl has been created and

defined by the crawl parameters, it automatically begins when a queue starts.

A crawl is defined by specifying: Which message page is the crawl message
                                             Where on the screen the crawl should be
                                             How fast the crawl should go

Creating and Defining the Crawl

1.   Press **Shift Clear Page** and create the crawl message.

> This clears the page and activates a single-line message mode to create a message specifically as a crawl. The right (→) and left (←) arrow buttons move the message right and left as necessary to get it in and out of view on screen.

3.   Press **Store**, specify the page number to store the crawl as (not the same as any valid message already in the system), and then press **Enter**.

4.   Press **Clear Page** when the crawl is stored to exit the single-line message mode.

5.   Press **Ctrl T**. At the Page to be crawled: prompt specify the crawl's page number. Press

> **Enter**.   This defines the crawl created as the one to run
>
> when a queue is started.

6.   Press **Ctrl E**. Specify the crawl screen position at the Top of crawl line = prompt. Type

in 208 to define the bottom of the screen, and press **Enter.**

> For screen position, the lower the value, the higher on screen the crawl will appear. The value 160 specifies the top of the screen.

7.   Press **Shift Speed** to specify medium crawl speed. (**Speed** is slow, **Ctrl Speed** is fast)

Creating and Running a Queue with the Active Crawl

8.   Use already existing message pages or create and store a message page or pages over

which the crawl will appear.

> Have no copy at or below the point on the pages where the crawl will appear.

9.   If there is already a queue defined, it can be used. Otherwise, create one by pressing **Set Queue**. The prompt   Seq #   Page: Dwell: appears.

10.   Specify 1 as Seq # (using ↑ ↓), the number of the queue's first message page as Page # (using **Page Up**, **Page Down**), and Dwell as 5 (for queues with more than one page, using

→ ←). Press ↑ to get to the next Seq # and repeat this process for all pages desired in the queue. Press **Enter** when queue definition is complete.

11.   Press **Queue Start** to start the queue, which displays the message pages with the crawl running.

> For queues with multiple pages and Dwell time of 5, each page stays on screen for 5 seconds with the crawl running continuously over each page.

12.   Press **Queue End** to end the queue.

RUNNING A CRAWL OVER A BLANK PAGE

1.   Create and store a message page as described above on which the crawl will appear.

         Have no copy at all on this message page. It will be the blank page on which the crawl will appear. On color systems, choose the color desired for the background.

2.   Create and store the crawl message, and bring up the queue prompt as described above.

3.   Specify 1 as the Seq #, the blank message page number on which the crawl will run as the Page #, and since in this case the Dwell time does not matter, specify 1. Then press **Enter**.

4.   Press **Queue Start** to run the queue and have the blank message page displayed with the crawl.

5.   To end the queue, press **Queue End**.

CONTENTS

INTRODUCTION

The 840 and 840E (Enhanced) Messaging Systems offer color background and color character generation as well as keying over genlocked incoming video. Both Messaging Systems deliver four font styles, 16 character colors and 16 background colors.

The 840 has 99 pages of memory and one COMM port. A second optional COMM port is available to support options such as the Weather Package.

The 840E, the enhanced member of the 840 Series, is upgraded to 224 pages of memory and supplies a third COMM port for additional external communications capability.

The 840B (Basic) Page Titler is a black-and-white character generator with full-screen editing capability that keys directly over genlocked incoming video.

All systems offer crawl capability.

The Manual

This manual details the complete operation of all three members of the Series 840 family.

The keyboard for the Series 840 systems is a standard 101-button QWERTY-style computer keyboard. (QWERTY is an acronym made from the letter buttons starting on the upper left of any keyboard - q, w, e, r, t, y.) Video Data Systems has modified the keyboard by putting specific system function names on some standard keys.

When functions and the buttons that enable them are discussed, the actual buttons to press are indicated in **Bold** using the exact wording from the button itself. The word "button" is used rather than "key" so as not to confuse the key capability of the system with the pressing of a button.

Use this manual. It is designed to help anyone get to the explanation of any function quickly and understand it completely.

The manual doesn't only detail what to do, for complex functions it explains why it is done that way. This fosters better understanding of the process.

The Contents page is designed to work as a mini Quick Reference Guide. The buttons to press to enable a function are called out in parentheses next to the function section designation. This can remind someone of what buttons to press without their having leaf through the manual. Check it out. It is helpful.

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The last section of the manual explains and details the operation of four optional functions with which the Series 840 units can be ordered. They include the Weather Package, the Real-Time Events List Package, the International Characters Package and the Routing Switcher Control Package.

As an additional option, any Series 800 System can be addressed and controlled from another 800 system or a remote PC with special software. Details for various remote control modes of operation will be provided upon request.

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1. GETTING STARTED

Follow the SERIES 800 POWER UP INSTRUCTIONS in the beginning of this manual to get the system up and running. The system will be ready for use immediately.

There will be an active background color and a selected font style, height and color for 840 and 840E units. The 840B unit will not have color fonts or background. All initially active attribute selections are factory set system defaults. Defaults are recalled any time a page of information is cleared using the **Clear Page** button.

The system defaults include:

Font	1
Background Color	Bright Blue (Color 10)
Character Color	Bright Yellow (Color 15)
Upper Additional Spaces	0
Lower Additional Spaces	0

Each of the defaults will be discussed in greater detail later.

Of course, the defaults will not be what is wanted all the time. The system gives the user the flexibility to create customized screens of information to suit specific needs. The choices used for customizing what is built are always available with a few keystrokes.

2. CHOOSING AND USING ATTRIBUTES

Among the set of thirteen buttons above the alphanumeric keyboard are the functions that select the various attributes of color, font and various sizing parameters available to an operator for composing a screen.

2.1 Background Color (BKGND COLOR)

Pressing the **BKGND COLOR** (BACKGROUND COLOR) button is the *only way to select background color.*

Background color applies only to the 840 and 840E units.

The button cycles or steps through the sixteen background choices in a specific order.

Each time **BKGND COLOR** is pressed, the background color changes to the next choice.

Pressing **Shift BKGND COLOR** steps in the reverse direction through the choices. So if a color is passed, it can be accessed by going back to it.

The color choices in the sequence are:

1.	Black	9.	No Bkgnd - Incoming Video Only
2.	Blue	10.	Bright Blue (Default Color)
3.	Red	11.	Bright Red
4.	Magenta	12.	Bright Magenta
5.	Green	13.	Bright Green
6.	Cyan	14.	Bright Cyan
7.	Dull Yellow	15.	Bright Yellow
8.	Gray	16.	White

A selected background color begins *at the cursor position* and continues to the end of the page or until another change is specified.

If the cursor is in the home position (upper left of the screen) when the first color change is made, the whole screen will change to that color. If the cursor is anywhere else, only the portion of the screen after the cursor will be affected.

If a screen already has two active background colors and a third is specified between the first two, the new color fills the screen only up until the beginning of where the last color begins.

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Background color requires at least one blank character space between color changes. As a result, background color changes can not be made on a character by character basis. So to create background color changes within a single word (such as having each letter with its own background color), the word must be typed out with spaces between its letters.

Using **BKGND COLOR** an operator can easily create:

- line-by-line color backgrounds
- word-by-word color backgrounds
- words with multiple background colors

The System 840 and 840E units offer fifteen background colors and one genlocked incoming video signal to key over. Pressing **Ctrl BKGND COLOR** immediately selects the external video source as the background without having to cycle through the background choices.

2.1A Keying Over Incoming Video

One of the sixteen choices **BKGND COLOR** offers on the System 840 is no background color at all. When that choice is active, the genlocked incoming video is the background and the message is keyed over the video.

The System 840B always keys character and border directly over incoming video since it does not create color background.

2.2 Character Color (CHAR COLOR)

Pressing **CHAR COLOR** (CHARACTER COLOR) changes the color of screen characters.

Character color applies to System 840 and 840E units only.

CHAR COLOR *does not change the color of already typed characters, it determines the color of the next character typed* and all following characters until another change is specified.

Character color can be changed as often as on a character by character basis.

The colors available for characters are the same sixteen colors as are available for background color in the system.

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There is no way to preview what the selected color is when **CHAR COLOR** is pressed. The new color will be active but it won't be seen until the next character is typed. So if a change is made, type a character to test out what was selected. If it is not the color desired, backspace to kill the character, make another choice and repeat the process until the desired color is active.

Pressing **Shift CHAR COLOR** steps backwards through the color choices.

If the character color selected is the same as the current background color, typed characters may not be visible on screen. Borderless characters will simply blend in with the background, much like the proverbial white cat in a snowstorm. Only characters typed with a black border will be seen, but they will appear empty since their interior matches the background.

2.3   Font Selection (FONT)

There are four internal fonts, or type styles, in the standard system configuration. Three are proportionally spaced and one is fixed pitch.

The fonts are different sizes and heights. Therefore, each will allow a different number of characters per average line of text and each will adjust the row spacing to suit its character height. When more than one font is selected on a row, the tallest font determines the row spacing.

Font 1 is the default and is a Geneva style. It is a basic type style with no swirling edges or fancy curves. It allows about 28 characters per line of text.

Font 2 is a Clarendon style font. That means it is a fancier font with some swirling edges and curves. It allows about 28 characters per line.

Font 3 is a heavy Modern style font. It is thick and broad and comes only in upper case letters. It allows about 17 characters per line.

Font 4 is a small fixed pitch font and allows exactly 41 characters per line.

Pressing the **FONT** button cycles or steps through the font selections in the Font 1, 2, 3, 4 order. The selection is *active from the current cursor position until another font change selection is made.* So if no other selection is made, the currently selected font will remain in effect for the rest of the page.

Font changes can be made as often as on a character by character basis.

To see what font is selected when pressing the **FONT** button, type a character. If that is not the desired font, backspace, press **FONT** again and type a character. Repeat the process until the font desired is active.

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2.3A   Resetting to the Default Font

The current font selection can be reset at any time to the system default of Font 1 (Geneva) by pressing **Ctrl FONT**. That is a faster way to get to that selection than using the **FONT** button and testing to see if Geneva is active.

2.4   Border Selection (BORDER)

The **BORDER** button selects the style for the selected font. Style of a font can be defined as whether characters will be black, white, colored, and whether or not characters will have black borders.

Each time **BORDER** is pressed, *all characters on a screen will immediately change to the new character style selection.*

Whichever style is active is active on a system-wide basis. That means not only for the whole current page, but for anything on any page until another style change is made.

Border is not a parameter that is stored with a page. It is a status that is what it is based on the current selection. So when any page is recalled to the screen, its characters immediately take on the currently active border selection.

2.4A   Border Selection for Fonts

The **BORDER** button cycles through the three style choices for character display.

Style 1 is color characters as specified by the **CHAR COLOR** function.

Style 2 is black characters.

Style 3 is color characters as specified by the **CHAR COLOR** function with a black border. This style is the system default.

2.5   Flashing Characters

The **FLASH** button activates the parameter that causes screen characters to flash on and off continuously.

FLASH is actually an ON/OFF toggle for the flash function based on cursor position. Each time **FLASH** is pressed, everything after the cursor flashes if it hadn't been or stops if it had been.

2.5A   Flash Example

One way to make **FLASH** operation clear is to construct an example.

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A basic operation for **FLASH** is *to make only one selected word on the screen flash.*

To do this:

1. Position the cursor at the beginning of the word that must flash.

2. Press **FLASH**.

All characters beginning at the cursor position to the end of the screen will begin flashing, which includes much more than the desired effect. But that's okay, the process isn't completed yet.

3. Move the cursor to the beginning of the word following the one that is supposed to be flashing.

4. Press **FLASH**.

Everything from the cursor position to the end of the screen stops flashing. That leaves only the original word flashing.

2.6   Background Space (UPPER BKGND SPACE, LOWER BKGND SPACE)

Background space is defined in the System 800 series as the amount of color background above and below a character in any given row. The amount of color background above a character in a row is the upper background space and the amount of color background below a character in a row is the lower background space.

The upper and lower background spaces for any row can be increased or decreased independently of each other with the **UPPER BKGND SPACE** and **LOWER BKGND SPACE** buttons. So, for instance, a row can be designed to have a high ceiling of color above the characters and very tight floor of color below the characters.

Since the color of the upper/lower background is the last color used on a row, if a new color is specified at the beginning of the next row, that next row will be a different color than the one above. This can be done to alternate row colors, giving the message color separators for each row.

2.6A   Upper Background Space Adjustment

Pressing the **UPPER BKGND SPACE** button increases the color background space above the characters on the current cursor row and the rows below. Any change made affects the rows below it until the point where another change has been specified.

If anywhere after a change another is made, all rows below the new change follow it, leaving everything above it alone.

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Each time **UPPER BKGND SPACE** is pressed the affected space increases up until its allowed maximum is reached.

Pressing **Shift UPPER BKGND SPACE** decreases the color background space above the characters, effectively working as the reverse of **UPPER BKGND SPACE**.

2.6B   **Resetting to the Default Upper Background Space (Ctrl UPPER BKGND SPACE)**

Pressing **Ctrl UPPER BKGND SPACE** resets the upper background space to its default state. This will affect the current row and all rows below until the point where another change has been specified.

2.6C   **Lower Background Space Adjustment**

Pressing the **LOWER BKGND SPACE** button increases the color background space below the characters on the current cursor row and the rows below. Any change made affects the rows below it until the point where another change has been specified.

If anywhere after a change another is made, all rows below the new change follow it, leaving everything above it alone.

Each time **LOWER BKGND SPACE** is pressed the affected space increases up until its allowed maximum is reached.

Pressing **Shift LOWER BKGND SPACE** decreases the color background space below the characters, effectively working as the reverse of **LOWER BKGND SPACE**.

2.6D   **Resetting to the Default Lower Background Space (Ctrl LOWER BKGND SPACE)**

Pressing **Ctrl LOWER BKGND SPACE** resets the lower background space to its default state. This will affect the current row and all rows below until the point where another change has been specified.

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3. CURSOR MOVEMENT: GETTING AROUND THE SCREEN

Getting around a screen efficiently is a somewhat overlooked skill. Everybody knows that pressing and holding a cursor arrow button will move the cursor in a desired direction and eventually it will get to the place intended. Eventually isn't really good enough. There are better ways to get around the screen built into every System 800 series unit and getting to know them takes little time now and saves a great deal of time later -- not to mention a great deal of frustration.

The cursor control buttons are among the two small button clusters centered between the alphanumeric keypad and the larger cluster on the right side of the keyboard. They include the **Home** and **End** buttons, and, of course, the cursor direction arrow buttons.

3.1 Home Button

Pressing the **Home** button *always moves the cursor to the upper left corner of the current screen* -- the home position. This is standard computer screen terminology.

The home position is a good reference point for any number of situations and it is good to know that it is always available at the touch of the **Home** button.

3.2 End Button

Pressing the **End** button at any time will *move the cursor immediately to the next character position after the last thing typed on the current page* -- the end of the typed material on the page. The last thing typed does not have to be a character, it could be a space or a return.

This is a helpful function. If at any time typing is interrupted to change something in the middle of a page, when the change is completed it is easy to get back to where typing had left off -- **End** takes the cursor right there.

3.3 Cursor Direction Arrow Buttons (→, ←, ↑, ↓)

The cursor direction arrow buttons move the cursor in the direction of the arrow: right (→), left (←), up (↑) or down (↓).

Using the up (↑) and down (↓) arrows is an efficient way of getting to higher or lower rows of text. A quick push of these buttons moves one row and holding them down sets the cursor in constant motion until the buttons are released.

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One quick push of the right (→) or left (←) arrow buttons move the cursor one character position. Holding them down sets the cursor in constant motion until the button is released. And that's why people tend to use these buttons to take the cursor across a row of text from one word to several words away from where the cursor rests, or even worse, from one end of the row to the other.

There are better ways to do this.

3.3A   Moving One Word At A Time (Ctrl Arrow (→ or ←))

Pressing Ctrl right arrow (→) moves the cursor to the beginning of the next word.

Holding down Ctrl and pressing the right arrow (→) button several times will take the cursor quickly across the screen to the right, resting on the beginning of words all the way along.

Press Ctrl left arrow (←) to move the cursor to the beginning of the previous word.

Holding down Ctrl and pressing the left arrow (←) button several times will take the cursor quickly across the screen to the left, resting on the beginning of words all the way along.

It is far more efficient to get to the beginning of a specific word in a row with these functions than it is by sending the cursor across with just the arrow because more often than not the word desired will be passed and then the cursor will have to be taken the other way to get back to it.

3.3B   Moving Directly to a Margin (Shift Arrow (→ or ←))

Pressing Shift right arrow (→) moves the cursor directly to the right margin of the current row.

Pressing Shift left arrow (←) moves the cursor directly to the left margin of the current row.

Clearly, these are the best ways to get the cursor to the side of the screen desired.

3.4   Space Bar and Backspace Button (←)

The **Space Bar** and **Backspace** button should not be left out of the discussion of cursor movement since they are used often when typing and editing.

Obviously, the **Space Bar** is used to space between words when typing. But it works differently depending on the typing mode that is active (See: 5.1 Typing Mode (Insert Over/Write Button)).

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In Character Insert Mode, the **Space Bar** causes the cursor to push all characters to the right as it moves, creating a space at the cursor position.

In Overwrite Mode, **Space Bar** makes the cursor wipe a character off the screen as it moves right, which makes it a destructive cursor movement in that mode.

Backspace is right above the **Enter** button and has an arrow on it pointing to the left. Do not confuse it with the left arrow button in the cursor direction arrow cluster, it works very differently (and has a longer stem on its arrow).

Backspace is always a destructive cursor movement button, which means it *destroys any character that is in the way as it moves the cursor backwards.* Quite different than the left arrow button that simply moves the cursor left leaving everything alone.

Only use **Backspace** when characters to the left of the cursor must be wiped off the screen.

3.5   Turning the Cursor On and Off (TOGGLE CURSOR)

The **TOGGLE CURSOR** button is one of the buttons in the thirteen-button cluster above the alphanumeric keypad.

Pressing **TOGGLE CURSOR** removes the visible cursor from the screen.

The cursor is still active and message creation and editing can still be done. The cursor will simply not be visible, which means when typing is interrupted it will be difficult to know where the cursor resides. Of course, typing another character will reveal its location.

Pressing **TOGGLE CURSOR** when the cursor is invisible returns it to the screen.

4.   GETTING TO THE PAGE DESIRED

Messages or screens of information are created on any of 99 pages available in the system. These pages always exist, whether any information has been typed into them or not. As a result, it is possible to step through or call up to the screen any page in the system at any time.

There are several ways to get a desired page on screen for message creation or editing.

4.1   Using the Page Up and Page Down Buttons

Pressing **Page Up** calls the next *numerically higher* page to the screen. So if the current page is 1 and the desired page is 3, pressing **Page Up** twice gets page 3 on screen.

Pressing **Page Down** calls the next *numerically lower* page to the screen. So if the current page is 3 and the desired page is 1, pressing **Page Down** twice gets page 1 on screen.

Either one of the page movement functions is a reasonable way to get to a desired page providing that it is within a short range away from the current page. If the current page is very far from the page that must be called up -- say the current page is 11 and the page that must be called up is 52 -- then **Page Up** is a very inefficient way to get to page 52.

4.2   Using the Edit Button

The best way to get to a page that is far from the current page is by using the **Edit** button. **Edit** instantly recalls a specified page from memory to the screen.

To use Edit:

1.Press **Edit**.

The system responds with:

                              Edit Page Number:

and specifies the current page number.

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2.Specify the desired page number by *typing in the desired numbers with the numeric buttons.*

If an incorrect number is typed, press **Esc** (Escape) or **Backspace** and make a correction.

(Another way to specify the desired page is to use the up (↑) and down (↓) arrows, which will increase or decrease the displayed number. But that is not much different than using **Page Up** and **Page Down**, so why bother?)

3.Press **Enter**.

The specified page will appear on screen. If nothing had been stored on the recalled page, the screen will come up blank.

Don't be confused by the name **Edit**. Just because that function is used to get a page on screen for editing does not mean changes have to be made. The button simply gets a page on screen. It could just as easily have been called Recall.

4.2A   Identifying the Current Page on Screen (Ctrl Edit)

There is no visible indication of what page is currently on screen.

To find out the page number of the page on the screen, press **Ctrl Edit**. A prompt appears:

Current Page = xx

Kill the function with **Enter** or **Esc**.

5.   CREATING AND EDITING MESSAGES

Creating a page is really an editing process itself because nothing starts out perfect. Editing involves changing what is on screen to what is really wanted on screen. There are many tools available in the system to make this process as easy as possible.

5.1   Typing Mode (Insert Over/Write Button)

There are two modes in which typing is done with the system, the Insert Mode   and the Overwrite Mode. They are selected with the **Insert Overwrite** button.

In the Insert Mode, which is the default, each character typed is inserted in a row at the cursor position and all following characters move to the right to make room for it. When the row is filled to capacity, the row will not accept any additional characters -- basically, if something else is typed, it is ignored and the cursor moves down to the next line.

In the Insert Mode, typing a character will never destroy another character.

In the Overwrite Mode, each character typed is placed at the cursor position. If there already is a character there, that character will be overwritten by the new one. This is a destructive typing mode.

In either mode, when the cursor reaches the right margin it will move to the next line.

It should be noted that there are two kinds of "spaces". The **Space Bar** inserts a space character that is the width of the number 0 of the currently selected font. Moving to the right with the right arrow key beyond already existing text inserts a narrow space equal to about 1/3 the width of a **Space Bar** character.

5.2   Inserting and Deleting Spaces, Characters and Rows (Insert and Delete Buttons)

The **Insert** button adds a narrow space at the current cursor position. The cursor remains at rest but all characters to its right move one narrow space to the right. **Insert** only affects the characters on the row where the cursor resides.

Shift Insert causes an entire row to be inserted. If the cursor is in the middle of a row and **Shift Insert** is pressed, all text from the cursor position to the end of the row is brought down to a new row beginning at the new row's left margin. All rows of text below are moved down to make room for the new row.

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When this is done repeatedly, there will be a point at which the maximum number of rows is reached and the button will have no further effect.

It is also possible that some rows will move down below the visible bottom level of the screen but still be considered valid rows. This could happen if the selected height for rows is very high. The rows out of sight below the screen can be brought up by deleting some above them or lowering the row height.

The **Delete** button deletes a space or character at the current cursor position. The cursor remains at rest but all characters to its right move one space to the left. **Delete** only affects the characters on the row where the cursor resides.

After all text on a row to the right of the cursor is deleted a character at a time with **Delete**, the next time **Delete** is pressed all the text from the line below moves up to fill the empty space. This could result in more text coming up than can fit in the space from the cursor position to the right margin.

If this happens, some of the moved up text will be unseen -- as if it is hanging off screen to the right. Position the cursor at the right margin and press **Shift Insert**. A new row will be inserted below that will accommodate the extra text.

Shift Delete will delete everything on the row where the cursor resides. All rows below move up as a result.

Ctrl Delete will delete all text from the cursor position to the right margin.

5.3   Justifying and Centering Text (Left Just, Ctr, and Right Just Buttons)

The **Left Just** button left justifies all text on the current cursor row. That means it positions the first word of text at the left margin with all text following it.

The **Right Just** button right justifies all text on the current cursor row. That means it positions the last word of text at the right margin with all text ahead of it.

Ctr centers all text on the current cursor row.

All of the above three buttons used with Shift will cause the whole page to adopt the selected function -- Left justify a whole page, right justify a whole page or center a whole page.

Note:Centering or right justifying text over a color background can cause an unwanted effect if done in the incorrect manner -- See: 2.1B Centering or Right Justifying Text with Background Color.

5.4   Clearing a Page (Clear Page Button)

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The **Clear Page** button does just what its name suggests, it clears the entire contents of the current page. Every parameter that defines the page is reset to its default state. The defaults are:

Font	1
Background Color	Bright Blue (Color 10)
Character Color	Bright Yellow (Color 15)
Upper Additional Spaces	0
Lower Additional Spaces	0

A good reason to use **Clear Page** is to wipe out an unwanted message from a page before creating a new one. It is better to work in a clean area with known settings to avoid any unseen and unwanted settings that might get in the way.

If a message is cleared by mistake, don't panic. If it had been stored in memory, it is still there and can be recalled using the **Edit** button.

If a message has not been stored in memory before it is cleared with **Clear Page**, it is lost.

6.   STORING MESSAGES INTO MEMORY (Store Button)

When a message is completed it must be stored into system memory with the **Store** button for later recall and use.

To store a message into memory:

1.Press the **Store** button.

The system responds with:

<div align="center">Save Page Number:</div>

The system specifies the current page number.

2.To store the message into the current page number press **Enter**.

That suggests that it could be stored as any page, and it can. Just because the message was created with the current page number active does not mean that that message is tied to that page number.

The number specified in that Save Page Number: prompt defines what page number that message should be stored as, and any valid page number in the system is possible. The desired number can be typed in, or get to a higher number with the up arrow (↑) and to a lower number with down arrow (↓).

If the page specified (even if it's the current page) already has stored text in it, the system will ask if that text should be overwritten by the new text. That is a safeguard to prevent any mistakes. Respond with Y for Yes to confirm.

If the message on a page is not stored, the message on the page will be lost as soon as another page is brought to the screen.

That goes for an edited page as well. If changes are made to a page after it has been stored, it must be stored again or the changes will be lost when another page is brought to the screen.

Any time there is not enough memory to hold an entire message, the portion that does not fit will be lost. And if there is no memory at all when a message is being stored, an error message will indicate that.

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7.   CREATING A QUEUE FOR AUTOMATIC PAGE DISPLAY

Running a queue is the basic way the system displays stored pages.

A queue is a user-defined sequence that automatically calls up desired pages in a predetermined order for a predetermined display time (called dwell).

The buttons used to define and run a queue are in the keypad at the right of the keyboard.

7.1   Setting Up a Queue (Set Queue Button)

The **Set Queue** button is where a queue is defined. It does not matter what page is displayed when building a queue. When **Set Queue** is pressed the system prompts:

<div align="center">Seq #   Page: Dwell:</div>

Seq #

Seq # defines where in the queue's order a specified page will appear. If it will be the third page shown, its sequence number is 3.

When the function is activated, the Seq # displayed will be the next one in order. To change it, go to a higher number with the up arrow (↑) and to a lower number with the down arrow (↓).

If a sequence order number is skipped, it will not make a difference when the queue is run. So a sequence of 1, 2, 3, 5, 6, is valid and it will run in that order.

Page:

Page: is the page that will be displayed as the specified sequence element. Any page number can be used that has something stored into it. An empty page is invalid and will be skipped over when the queue is run. And a page can be repeated any number of times in a queue.

When the function is activated the current page will be specified as the Page #. To select a different page, go to a higher page number with **Page Up** and to a lower page with **Page Down**.

Dwell:

Dwell is how long a displayed page will remain on screen until the next page is called up. Dwell time is specified in number of seconds from 1 to 239, and each page in the queue can have a different dwell time.

Specify the dwell time by going to a higher number with the right arrow (→) and to a lower number with left arrow (←).

When all parameters are specified, press **Enter**. The queue is ready for use as soon as it has one page in it.

7.1A Clearing the Queue (Ctrl Set Queue)

Only one queue can exist in the system at one time. As a result, when a queue is no longer wanted and a new one is about to be built, it is a good idea to clear the current one out of the system first.

Then there won't be any remnants from the old one to get in the way of the new one -- such as unwanted pages from the old one appearing in the new one.

To clear the queue out of the system, press **Ctrl Set Queue**.

7.2 Starting and Ending a Queue (Queue Start and Queue End Buttons)

To start a queue, press the **Queue Start** button.

The default condition is for a queue to run in an endless loop.

To end a queue, press the **Queue End** button.

When a queue is ended with the **Queue End** button, the last page displayed is cleared from the screen.

For units that genlock and key messages over incoming video, when a queue is ended, the key is disabled, removing the keyed message from the video.

If a queue is running a crawl message when **Queue End** is pressed, the crawl continues until the last character moves off the screen to the left.

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7.2A   Setting a Queue Repeat Number (Ctrl Queue End)

Rather than have a queue repeat itself in an endless loop, a number can be specified to define how many times it should be repeated.

To define a repeat number press **Ctrl Queue End** and type in the number desired. When **Queue Start** is pressed, the queue will run the specified amount of times   and end as described above.

To reset the queue back to an endless loop, define a repeat value above 128.

7.3   Stepping Through a Queue Manually (Next Queue Entry Button)

To step through a queue manually, press **Next Queue Entry**.

The first page in the queue will be called to the screen and will stay there until the button is pressed again. When the last entry in the queue has been displayed, the next page to be called up will be the first page in the queue.

Obviously, with this function the dwell time for each page in a queue is defeated.

Using **Next Queue Entry** is a good way to look through a queue that has been built to see if it is exactly what was wanted. It is also a way to switch through a queue manually on line, rather than use the dwell timings used when the queue was created.

To get back to normal editing mode, press **Queue End**.

7.4   Inserting or Deleting Queue Entries

A page can be inserted into or removed from an already existing queue at any point in the queue. This would be done for any number of reasons, the simplest being that once a queue is created it becomes obvious that it would be better with or without a particular page.

To add a new page to the sequence of a queue:

1.Press **Set Queue**.

This brings up the system prompt where the queue is defined by Seq # (the place in the queue's numerical order), Page: (the message page assigned that place in the order) and Dwell: (how long the page will stay on screen).

2.Step through the queue with the up (↑) and down (↓) arrows to the sequence number where a new page must be added. (It will be added before the indicated sequence number).

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3.Press **Insert**.

The Seq # number displayed remains but Page: number and Dwell: go blank.

3.Specify the new page number using **Page Up** and **Page Down**, and specify the dwell time desired using the right arrow (→) and left arrow (←).

4.Press **Enter**.

The page that had originally been specified as that Seq # has moved up in the queue by one Seq #, as have any following pages.

To delete a page from the sequence of a queue:

1.Press **Set Queue**.

This brings up the system prompt where the queue is defined by Seq # (the place in the queue's numerical order), Page # (the message page assigned that place in the order) and Dwell (how long the page will stay on screen).

2.Step through the queue with the up (↑) and down (↓) arrows to the Seq # of the page that must be deleted.

3.Press **Delete**.

The displayed Page # value is removed from the queue. It is replaced by the page that had come after it, essentially decreasing that page's Seq # by one. The sequence number for all following pages in the queue are lowered by one number since a page has been removed before them.

Understand that the page removed from the queue *is removed only from the queue. It still remains in system memory* as a valid page that can be called up at any time and displayed and edited.

7.5   **Removing a Specific Page From a Queue (Dequeue Page Button)**

Rather than having to find a specific page in a queue to remove it with the **Delete** button, **Dequeue Page** will delete a page from a queue based on its page number.

Since a page can be used multiple times in a queue, when a page that appears many times in a queue is no longer wanted, several pages must be removed.

Dequeue Page deletes all occurrences of a specified page from a queue.

To use Dequeue Page:

1.Press **Dequeue Page**.

The system displays the current page number for dequeuing.

If that is not the desired page, specify the desired page by number, or by scrolling up and down in number with the up (↑) and down (↓) arrows.

2.Press **Enter** when the desired page number is displayed.

All occurrences of that page in the queue are deleted.

7.6   **Timed Removal of a Specific Page From a Queue (End Time Button)**

A page can automatically be removed from a queue based on date and time by using the **End Time** button. This is important for timely removal of dated material from a queue.

The page removed from the queue *is removed only from the queue. It still remains in system memory* as a valid page that can be called up at any time and displayed and edited.

To specify a page for timed removal:

1.Press **End Time**.

The system prompts for the information it needs:

Page: Date: Time:

The current page will be displayed next to Page.

2.If the page number desired is not displayed, use **Page Up** and **Page Down** to specify the page that must be removed. **Home** calls up the first page in memory and **End** calls up the last page in memory.

3.Specify the date of the current month that is the target for the page removal by using the **Insert** and **Delete** buttons.

4.Specify the time of the selected day that is the target for the page removal. Use the up (↑) and down (↓) arrow buttons for hour selection (in 24-hour clock time) and the right (→) and left (←) arrow buttons for minutes.

5.Press **Enter** or **Esc** to complete the process.

All occurrences of the page specified will automatically be deleted from the queue on the date and time specified.

7.6A   Removing All End Times From the System (Ctrl End Time)

When *all specified end times* need to be removed from the system, press **Ctrl End Time**. This is not a selective parameter that will allow some end times to remain while removing others.

7.7   Automatic Queue Start Based On Clock Time (Shift Queue Start)

A queue can be automatically started once or a multiple of times at specific minutes past the hour every hour of the day. The amount of times the queue repeats itself each time it starts is also programmable.

Pressing **Shift Queue Start** will initiate the time-dependent queue, but first all the parameters for start time, start interval and repeat value must be defined.

The start time in minutes past the hour is specified at the Queue sync minute: prompt called up by pressing **Ctrl S**. Type in the value desired or use the up (↑) and down (↓) arrow buttons to get to it.

The interval in minutes between starts of the queue is specified at the Queue cycle interval: prompt called up by pressing **Ctrl D**. Type in the value desired or use the up (↑) and down (↓) arrow buttons to get to it.

The amount of times a queue will repeat itself each time it is started is specified at the Times to run queue: prompt called up by pressing **Ctrl Queue End**. Type in the value desired.

The best way to illustrate the process is to create a step-by-step time-dependent queue start example.

7.7A   Automatic Queue Start Example

<p align="center">**VIDEO DATA SYSTEMS**</p>

The following example describes how to build a timed queue start that will run a queue at the top of the hour and every fifteen minutes after that. Each time the queue runs it will repeat itself twice.

A timed queue is not selective as to which hour of the day the queue is run. It runs every hour at the specified minute after the hour. That means that the timed queue example will have the queue run every fifteen minutes every hour of the day until stopped with **End Queue**.

1.Press **Ctrl S.**

This calls up the Queue sync minute: prompt where the Queue Sync Time is set. That is simply the minute past the hour for the queue's first run.

2.Type in 0.

This defines the first occurrence of the queue as zero minutes past the hour.

If it was to begin at ten minutes past the hour, the value would be 10. If a number larger than 59 is specified, the system will reject it and use 0.

3.Press **Enter**.

The system accepts the value and the prompt is removed from the screen.

4.Press **Ctrl D**.

This calls up the Queue cycle interval: prompt, where the minutes between queue starts are specified.

5.Type in 15.

This specifies an interval between queue starts as fifteen minutes. Any number greater than 59 will be rejected by the system and it will use 59.

6.Press **Enter**.

The system accepts the value and the prompt is removed from the screen.

7.Press **Ctrl Queue End**.

This calls up the Times to run queue: prompt. It specifies how many times the queue will repeat itself each time it runs.

8.Type in 2.

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This specifies that the queue should repeat twice each time it is run. Numbers from 128 and greater will cause the queue to repeat continuously.

9.Press **Enter**.

The system accepts the value and the prompt is removed from the screen.

The time-dependent queue is started with **Shift Queue Start** and ended with **Queue End**.

8.   CRAWLING A MESSAGE ACROSS THE SCREEN

A crawl is only possible when a queue is running. There is no actual button or series of keystrokes that turn on a crawl. When a crawl has been defined by the crawl parameters, it automatically happens when a queue starts.

Any stored message can be selected to be crawled across the screen. Only one message can be crawled at a time.

All crawls are repeated in an endless loop.

When a queue is stopped with **Queue End**, the crawl will stop as well. It will not get any additional characters and those already on screen will continue moving to the left until they are off screen.

When a message is selected to be crawled, its background color, font, character color and row height attributes become part of the crawl.

Attributes can be changed specifically for a crawl with commands that will be discussed in this section.

A message selected to crawl on a System 840 may have no color background, which means it will use the genlocked video as its background and crawl directly over that.

8.1   Defining the Crawl

A crawl is defined by telling the system:

> - Which message page should be crawled
> - Which scan line on the screen the crawl should run on
> - How fast the crawl should move

Once these parameters are set, they will remain active for all subsequent crawls unless they are changed. That allows a standard crawl format to be used. Of course, the page specified can be changed to define new messages to be crawled.

8.1A   Specifying the Message to be Crawled (Ctrl T)

To select the message page that will be crawled, press **Ctrl T**.

The Page to be crawled: prompt appears displaying the last page number that was specified as a crawl.

To specify a different page, type in the number or use the up (↑) or down (↓) arrow buttons to get to the page number. An invalid number, such as one above the highest fixed message number, will be rejected and the original number will be retained.

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Press **Enter** to complete the function.

To abort the function at any time, press **Esc**. The original number will be retained.

8.1B   Specifying the Crawl Screen Position (Ctrl E)

The position on the screen for a crawl is defined by the scan line number where the top of the crawl will appear. Scan lines may not mean much to some people, but just remember that the top of the screen is line 0 and the bottom is about line 250. So basically, the higher the line number, the closer to the bottom of the screen.

When preparing a text page on which a crawl will appear, be careful not to leave any text at or below the position on the screen where the crawl will appear or it will not be seen since the crawl position defines the last portion of the screen where text can appear.

To specify where on the screen the crawl should appear, press **Ctrl E**.

The Top of crawl line = prompt appears displaying the currently specified scan line number.

To specify a different scan line number, type it in or use the up (↑) or down (↓) arrow buttons to get to the number.

A good line choice is 208, which positions the crawl near the bottom of the screen. The minimum acceptable scan line value for a crawl is line 160.

Press **Enter** to complete the function.

To abort the function at any time, press **Esc**. The original scan line number will be retained.

The system only wants numbers divisible by eight. So it will change a number selection to the nearest number divisible by eight. Don't pay too much attention to this and just work in round numbers. An invalid number, such as one too large, will be rejected and the original number will be retained.

8.1C   Specifying the Crawl Speed (Speed Button)

There are three speeds at which a crawl can run: Slow, Medium and Fast.

Pressing the **Speed** button selects Slow.

Pressing **Shift Speed** selects Medium.

Pressing **Ctrl Speed** selects Fast.

Speed changes can be made while the crawl is running to see how the speeds work with the message.

The last crawl speed selected remains in effect even if power is interrupted.

8.1D   Specifying the Crawl Row Height (Ctrl R)

Crawl row height is how high the crawl area is on the screen including the background and characters.

The default value is 32 scan lines per field. This gives an acceptable height that should probably be left alone. If a crawl screen position of 208 is used, the crawl background will continue to the bottom of the screen.

To select different height for the crawl row, press **Ctrl R**.

The Size of crawl line = prompt appears displaying the current value.

Specify a different value by typing it in or by using the up (↑) or down (↓) arrow buttons to get to the number.

The system only wants numbers divisible by four. So it will change a number selection to the nearest number divisible by four. Don't pay too much attention to this and just work in round numbers. An invalid number, such as one too large, will be rejected and the original number will be retained.

Press **Enter** to complete the function.

To abort the function at any time, press **Esc**. The original number will be retained.
8.2Creating a Message As a Crawl (Shift Clear Page)

As explained above, any message saved in a page can be used as a crawl. While that is a powerful feature, it also presents unexpected problems if the message wasn't designed as a crawl.

For instance, the spacing between words might suit the page but not a crawl. And lines of information could be separated in such a way as not to be translatable for an acceptable crawling message.

There is a better way to create a message if it is known beforehand that it will be used as a crawl.

When **Shift Clear Page** is pressed it activates a single-line message mode at the top of the cleared page. Typing can only be done on this single line. As typing continues beyond the margins, the message crawls off screen to the left just as a crawl would. So the message is created specifically as a crawl.

The right (→) and left (←) arrow buttons move the message right and left as necessary to get it in and out of view on screen.

Save the crawl message using the **Store** function while the message is still on screen. At the Store Page Number: prompt specify a page number for the crawl message and press **Enter**. That page number is important.

Be sure to specify the crawl message page number as the page to be crawled using the **Ctrl T** function.

8.3   Controlling a Crawl in Progress

When a queue is running and a crawl is in progress on screen, the active crawl can be stopped, resumed or aborted as desired.

8.3A   Stopping a Crawl (STOP CRAWL Button)

To stop a crawl that is in progress, press **STOP CRAWL**, the rightmost button above the alphanumeric keypad.

The current crawl will run through its complete message and crawl totally off screen to the left.

8.3B   Resuming a Stopped Crawl (Shift STOP CRAWL)

After a crawl has been stopped by pressing **STOP CRAWL**, if the queue is still running, the crawl can be restarted by pressing **Shift STOP CRAWL**.

8.3C   Aborting a Crawl (Ctrl STOP CRAWL)

A crawl can be aborted at any time by pressing **Ctrl STOP CRAWL**.

There is a significant difference between stopping a crawl with **STOP CRAWL** and aborting a crawl with **Ctrl STOP CRAWL**. An aborted crawl stops adding characters to its message when **Ctrl STOP CRAWL** is pressed, leaving the message incomplete. All characters already on screen will crawl completely off to the left.

If the crawl is started again with **Shift STOP CRAWL**, it will start at the beginning of its message.

8.4   Disabling the Crawl

What really makes a crawl happen every time a queue is run is the fact that a page number has been specified to be crawled using the **Ctrl T** function. So logically, if no page

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number is specified, or a page that is blank is specified, there will be no crawl.

To disable the crawl, press **Ctrl T**. Specify 0 as the page number and press **Enter**.

That always works. Specifying a blank page would also, but that requires remembering which pages are blank. And they may not remain blank.

8.5   Crawling a Message Over a Blank Screen

It might be assumed that since a crawl is only possible when a queue is running that there must always be some other information on screen with the crawl. That is not the case.

Given the fact that a queue must be running for a crawl to appear, why not create a queue that has no information in it except a background color? Or, for instance, no color at all, just incoming video as a background to be keyed over.

To create this effect:

1.Select a page on which to work and press **Clear Page**.

The page is cleared, resetting all attributes to their default conditions.

2.Specify the desired background color by cycling through the choices with **BKGND COLOR**.

External video is a valid background if a color is not wanted.

3.Press **Store**.

The store prompt displays the current page number.

4.Press **Enter**.

The color background is stored as a valid stored message page.

5.Press **Ctrl Set Queue**.

This clears the current queue out of the system.

6.Press **Set Queue**.

The   Seq #   Page: Dwell: prompt appears.

7.Use the **Page Up** and **Page Down** buttons until the number of the message page just created appears as the Page #.

Verify that the Seq # is 1 since the queue being defined will have only this single sequence page.

Dwell time does not matter because there is only one page in the queue.

8.Press **Enter** to complete the queue definition.

9.Press **Ctrl T**.

This brings up the crawl page definition prompt.

10.Define the desired page as the crawl.

11.Press **Enter** to complete the crawl page definition.

When the queue is started with **Queue Start** the empty screen with background color (or incoming video) will appear and the crawl will move across the screen.

8.6   System Fixed Messages for Crawling

There are a minimum of seven messages already in the system for use when needed. They are emergency or condition-related messages. Additional messages of this type are

available as options.

The fixed messages are numbered from 100 through 106. They are:

Message #100:   This is a test of the Video Emergency Alert System. If this was an emergency you would be able to get further information from this video channel. This is a test.

Message #101:   Please stand by for an emergency message.

Message #102:   Please stand by for an emergency weather bulletin.

Message #103:   Testing   Testing   Testing

Message #104:   Please tune to another channel for further emergency information.

Message #105:   We are having technical difficulties with the audio for this broadcast, please be patient.

Message #106:   We are having technical difficulties with the video for this broadcast, please be patient.

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9. ENABLING AND DISABLING THE VIDEO KEY (KEY ON and KEY OFF)

All System 840 units key their messages over genlocked incoming video. The System 840 and 840E units also output color background as desired, which replaces the video as background.

When a queue is started with **Queue Start**, the key is automatically enabled, displaying the message or messages.

When **Queue End** is pressed to end the queue, the key is automatically disabled.

The key can also be enabled and disabled as desired to manually key in and out any selected message page.

To manually enable the key, press **KEY ON**.

To manually disable the key, press **KEY OFF**.

Placing the token %K anywhere on a page will force the page to always be in the key off state.

That page of text with the token will never be displayed as part of a queue where it has been specified. It is treated as a blank page by the queue and is skipped over, which is useful when a blank page is needed in a queue.

The System 840 will display the page with the token on the preview monitor of its output but not on its on-line output.

10.   DISPLAYING TIME AND DATE ON SCREEN (TIME TOKENS)

The current time and date can be displayed anywhere on screen as part of a message page.

When the message is composed, the place on the page where the time and date is wanted is indicated by the placement of tokens, which are special characters that tell the system where to generate the desired information when the page is displayed as part of a queue.

That means that *whenever the page is on screen for composition or editing, the time and date will not appear -- just the tokens will appear.*

When the queue containing the message with time and date specified is run, the time and date will be displayed.

Creating the desired time and date information is a simple matter of using the needed combination of tokens. The tokens and what they display are:

> %X   Two-Digit Year (ie. 93)
> %Y   Full Year (ie. 1993)
> %L   Month Name Abbreviated
> %D   Date of Month
> %W   Day of Week Abbreviated
> %H   Hour of Day
> %T   GMT Hours
> %M   Minutes
> %S   Seconds

An example of tokens for a full time and date display would be:

> %L %D, %Y %H:%M:%S

Putting on screen:

> Jan 31, 1998 11:30:58

Notice that spacing and additional characters are important. Space between token elements the same way as spacing is desired between the displayed elements. And insert commas and colons where they should appear in the display.

When using the GMT time setting for hours, the difference between local time and GMT can be set by pressing **Shift KEY ON** and entering a number (maximum 12 hours).

10.1   Time Countdowns

There are two types of countdowns available in the system.

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The time-of-day based countdown counts down from current clock time to a specified goal clock time within the same day. The countdown indicates how long it will be until the goal time of day is reached.

The elapsed-time based countdown counts down from a specified amount of time to zero. The countdown indicates how long it will be until zero, when the specified amount of time will have passed.

The countdowns are displayed on screen with the use of tokens in a similar manner to how time and date displays are created. Only one type of countdown can be active at any one time in the system.

10.1A Time-of-Day Based Countdown

The goal of a time-of-day countdown is the time that is being counted to. The difference between that time and the current time of day is the countdown value at any given time during the countdown. When the goal is reached, the display will reach 00:00:00.

To specify the time-of-day countdown goal, press **Ctrl G**.

The goal must be specified in 24-hour clock time, hours, minutes and seconds. When the function is activated a prompt will appear with the last time value specified. To specify the goal value desired, use the following buttons (upper and lower case as indicated):

h	Increase Hours
H	Decrease Hours
m	Increase Minutes
M	Decrease Minutes
s	Increase Seconds
S	Decrease Seconds

Press **Enter** to accept the value specified. To abort the function, press **Esc**.

The countdown display on screen can include the difference between the goal time and the time of day in hours, minutes and seconds, or any combination of those elements.

To display the desired countdown elements on screen, the following tokens are   used:

> %A   Difference between goal time and current time in hours

> %B   Difference between goal time and current time in minutes

> %C   Difference between goal time and current time in seconds

To specify the goal time on the page, use the token

> %Ghh:mm:ss

in that exact format.

The %Ghh:mm:ss token can be used to specify different goal times on different pages, so that the %A, %B, %C tokens appearing on those pages will display different countdowns.

10.1B Elapsed-time Based Countdowns

The goal of an elapsed-time countdown is the amount of time that is being counted down from. The difference between the goal amount of time and how long it will be until it is reached is the countdown value at any given time during the countdown. When the goal is reached the display will reach 00:00:00.

To specify the elapsed-time countdown goal, press **Ctrl C**.

The goal must be specified in 24-hour clock time, hours, minutes and seconds. When the function is activated, a prompt will appear with the last time value specified. To specify the goal value desired, use the following buttons (upper and lower case as indicated):

> h   Increase Hours
> H   Decrease Hours
> m   Increase Minutes
> M   Decrease Minutes
> s   Increase Seconds
> S   Decrease Seconds

Press **Enter** to accept the value specified. To abort the function, press **Esc**.

The countdown display on screen can include hours, minutes and seconds, or any combination of those elements.

To display the desired countdown elements on screen the following tokens are used (all three being total hours, minutes and seconds):

%A   Difference between goal hours and current hours

%B   Difference between goal time and current minutes

%C   Difference between goal time and current seconds

When using an elapsed-time countdown, only one elapsed-time goal can be specified.

An elapsed-time countdown will not run based on a goal time specified for a time-of-day countdown.

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11.   SETTING THE INTERNAL SYSTEM CLOCK (Ctrl Time)

The internal system clock holds time and date information. It has battery backup that keeps it running even when power is off. It should not normally need resetting but it should be checked periodically to insure that any clock dependent functions will trigger at the right time.

The clock takes into account leap years when they are applicable. And it can operate in either standard or military format as described below.

To set the clock, press **Ctrl Time**.

Each of the time and date defining elements in the prompt that appears on screen must be stepped through until the desired setting is reached. Use the following commands to set each element:

For Setting Time

> Ctrl H Hours
> Ctrl M Minutes
> Ctrl S   Seconds

For Setting Date

> Ctrl Y Year
> Ctrl L Month
> Ctrl D Date
> Ctrl W Day of Week

The time shown on the screen updates each second. There may be a delay between when a button is pressed to change a value and the appearance of the changed parameter.

Press **Enter** or **Esc** to exit the setting mode.

The system clock can run in either standard or military time format.

To select standard time format (the system default), press **Ctrl]**.

To select military time format, press **Ctrl [**.

When in military time format all numbers less than 10 will have a leading 0.

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12.   SYSTEM RESET

The system can be reset by an operator two ways.

A soft reset brings the system back to its power-on condition, *RETAINING ALL SYSTEM MEMORY*. Basically, this will safely reset the system, clearing out any minor operational glitches that may be occurring while protecting all stored messages, queues, crawl parameters, etc.

To soft reset the system, press **left Ctrl, left Alt, right Ctrl** simultaneously.

A complete system reset *CLEARS ALL SYSTEM MEMORY*, meaning all stored messages, all queue information, etc. will be lost. It could be considered a first birthday condition, bringing it back to its original manufacturer defaults.

To perform a complete system reset, press and hold **left Ctrl and left Alt** simultaneously, and then press **right Alt**.

The system resets to:

Font	1 (Geneva)
Mode	Bright Yellow Characters with Black Border
Key	Off
Queue	Cleared
Page Memory	Cleared
Echo	Off
Time Display	Standard Format

After either reset, the screen will be blank and data input will be locked out for about one second.

The system will reset itself and clear out its memory if it detects any invalid system parameters or memory during the internal system checks it performs on itself during power down and power up.

13.   CREATING A STANDARD PAGE FORMAT

It is common practice for users of billboard type systems to establish a standard page format that they use each time they create a message. That way there is a consistent look to their output, including color background, font color and style, current time display, etc.

This does not mean that each time a message page is created all those same choices must be made from scratch. Using a little ingenuity and some of the standard system functions, creating a standard format page is practically an automated process.

And this goes for most any user requirement that is particular to their application of the system. There may not be a dedicated function for something, but that doesn't mean it can't easily be done once the system capabilities are understood.

So creating a standard page format is just one example of what the system can do when operators use it to its best advantage.

13.1   Standard Page Format Example

This will not be a step-by-step example giving every button that must be pressed because each function involved is described in detail elsewhere. Rather, the thrust of the example is the logic involved in figuring out how to do it.

1. Create a page format that will serve as the standard.

   It can have text that must appear on every page, time tokens for time display, anything that will be wanted. Or it can be a blank screen with color background but with the font and style desired active so that when typing is done later those choices will be there.

2. Store the page as page 99 (or page 224 on a 840E with expanded memory).

   This page will not be used to display messages. It is being stored as page 99 (or 224) to put it someplace out of the way where it will remain undisplayed but *available to be used as a palette for creation of other pages that will be displayed with messages*.

3. When a new message page must be created in the standard format, call up page 99 (or 224) either with **Edit** or with **Page Up** or **Page Down**.

   This automatically sets up the screen in the already established format.

4. Store the page as another page number.

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That creates a new message page retaining all the format choices. It also leaves page 99 (or 224) the way it was, to be used again in the creation of other pages.

5.Compose the message on the new page as required.

6.Store the completed message again with **Store** to save the message on the formatted page.

The new page is now ready to be used.

14.   MISCELLANEOUS - MEMORY STATUS AND SOFTWARE VERSION (Ctrl ? and Ctrl V)

Memory Status

To see how much memory is available in the system for message page creation, press **Ctrl ?**.

The information appears on the bottom of the screen. To remove it from the screen, press any button.

Software Version

To see what version of software is installed in the system, press **Ctrl V**.

A prompt will appear on the bottom of the screen similar to:

<div align="center">(c) VDS 09/22/97 1704</div>

Press any key to remove the version prompt from the screen.

15.   AVAILABLE OPTIONS

The Series 840 systems can be ordered with optional functions that may suit the needs of specific users.

The Weather Package works in conjunction with a separately purchased weather sensing system that sends current weather information to the Series 840 for display on any message page. This information includes such parameters as current temperature, wind chill factor, wind direction and speed, etc.

With the Real-Time Events List Package, the Series 840 can be programmed to trigger automatic timed events that include control of external VCRs for playback, stop and rewind. Queues and keys can be enabled and disabled as well.

The International Characters Package works with a font set added to the system that offers lower-case accented international characters. The accents -- aigu, grave, circumflex, umlaut and cedilla -- can be specified for fourteen different character configurations.

When the Routing Switcher Control Package is installed, the Series 840 controls Video Data Systems' 8 x 8 Routing Switcher. Any of the 7 inputs to the switcher can be selected as background for the Series 840 message key.

15.1   Weather Package Operation

A System 840 unit with The Weather Package installed displays various selected current weather conditions on screen as part of a message page. This is a common feature of billboards displayed on cable television channels that broadcast time, date and weather information on a regular basis. The weather information is relayed to the System 840 from a weather sensing unit.

Like the System 840 functions that are used to display time and date information through the use of tokens when composing the message pages (See: Section 10. DISPLAYING TIME AND DATE ON SCREEN (TIME TOKENS)), weather information is also accessed through the use of tokens.

When a message including weather information is composed, the place on the page where the weather information is wanted is indicated by the placement of tokens -- special characters that tell the system where to generate the desired information when the page is displayed as part of a queue.

That means that *whenever the page is on screen for composition or editing, the weather information will not appear -- just the tokens will appear.*

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When the queue containing the message with the weather information specified is run, the weather information will be displayed where indicated by the token placement.

Specifying the desired weather information is a simple matter of using the needed tokens. The tokens and what they display are:

%4	Temperature (in Fahrenheit)
%5	Wind Chill (in Fahrenheit)
%6	Maximum Temperature for Current Day
%7	Minimum Temperature for Current Day
%8	Heating Degree Days Accumulated to Date
%9	Cooling Degree Days Accumulated to Date
%I	Rainfall for Current Day
%J	Rainfall Accumulated to Date
%N	Barometric Pressure (in Inches of Mercury)
%O	Relative Humidity
%P	Wind Direction
%Q	Wind Speed (in MPH)

All parameters relating to a current day, such as maximum and minimum temperature, and rainfall, are automatically reset each midnight.

All parameters accumulated to date, such as heating degree days, cooling degree days and rainfall, will continue to accumulate until reset at the weather sensor unit according to its manufacturer's instructions.

The various wind direction possibilities are displayed as:

N	S	E	W
NE	SE	ESE	WSW
NNE	SSE	ENE	WNW
NW	SW		
NNW	SSW		

An example of tokens for a message displaying temperature, wind chill, and wind direction and speed would be:

Temperature:	%4 F
Wind Chill:	%5 F
Wind:	%P %Q MPH

Putting on screen:

Temperature:	22 F
Wind Chill:	11 F
Wind:	NE 15 MPH

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Notice that spacing and additional characters are important. Space between token elements the same way as spacing is desired between the displayed elements. And if commas and colons are used, they should appear in the display as they should appear on the message page with the parameters.

15.1A The Weather Sensor

All the various weather parameters that can be displayed are generated by the Weatherwise WI-1000 Weatherstation by VDS. The actual weather sensor is manufactured by Rainwise.

Operation and installation information for the sensor is provided by Rainwise with its unit. Correct installation is the responsibility of the user. Note that proper mounting and grounding of the unit is very important. All warranties for the weather sensor are the responsibility of Rainwise.

The sensor's information is also displayed on a Rainwise display panel through the use of a selector switch. In addition to the weather parameters, it also displays the time of day. This time of day setting is for the Rainwise system only and does not affect the System 800 at all.

The sensor's weather information is sent to the System 840 through a serial data cable connected from the rear of the Rainwise panel to the System 840 serial input.

When a queue is initiated that includes weather information, the weather sensor information is read and retained in the System 840's memory. As the queue continues, the weather sensor information is reread each minute and the System 840 memory is updated with the new information.

15.2 Real-Time Events List Package Operation

A real-time events list triggers the occurrence of specific programmed events at specifically defined times. The times are not only time of day, but day of the week, and include the possibility of repeating events on an hourly or daily basis.

Internal system functions that can be triggered include starting and stopping a queue, and enabling and disabling a key. While timed queues can be created in the System 840 without the Events Package, the timed queue function is not nearly as powerful as what is available with the Events Package.

External events that can be triggered include control of any device that will accept commands from the System 840 control lines, the most common of which would be controlling a remoted VCR for play, stop and rewind functions.

15.2A Defining Events

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Events are defined on a display that is called to the screen by pressing **Ctrl A**.

When the list is on screen only seven events are visible at one time. There are 99 possible events that can be scrolled through at any time. The display is configured as:

```
##    dy hh:mm A  B  C  D  E  F  G  H  I  J  K  L
01    MO 09:23 -  -  -  -  -  -  -  -  -  -  -  -
02    MO 09:55 H  -  -  -  -  -  -  -  -  -  -  P
03    ? ? ??:??   -  -  -  -  -  -  -  -  -  -  -  -
04    ++ 10:59 -  -  P  -  -  -  -  -  -  -  -  -
05    ++ 11:00 p  -  -  -  -  -  -  -  -  -  -  L
06    ++ 11:30 -  -  P  -  -  -  -  -  -  -  -  L
07    MO 12:00    QUEUE ON
```

THE DISPLAY

Top Line:

> The letters A through L are designations for the twelve control lines that connect to the external devices controlled by the system. In the row below each of these are listed the commands that apply to that specific control line.

So, for instance, control line A could be connected to a VCR to deliver a pulse that initiates the PLAY function, line B to initiate STOP and line C to initiate REWIND.

All control line connections are determined by users based on their own configurations.

Events are defined by the command characters (the H, P, p, and L characters in the display -- to be discussed below) specified for the appropriate control lines and by the time and day that they are to occur.

Left Column:

> Time and day information is listed along the left column for each line of possible commands for each control line.

The first two characters are abbreviations for the day of the week the event will occur -- using the first two letters of the day. If ++ is specified, the event will occur every day.

Next to the day, the time of the event is specified in 24-hour clock time (hours and minutes). If the value 99 is specified, the event will trigger on every hour of the specified day.

The characters ?? indicate an undefined event, time or control line command. Any event with any ? characters in it will be ignored by the system.

Display Commands:

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The command characters below each control line tell the system what type of command to send out through that control line to the connected device. The proper command for an event is determined by the type of event that must be triggered.

The possible command characters are:

> P = Send Pulse to toggle device to an opposite state
> H = Set control line to High voltage
> L = Set control line to Low voltage
> - = Leave control in current state
> p = Ignore this control line

The P or Pulse command is used to make a device to do something, like putting a remoted VCR in the Play, Stop or Rewind modes. The mode is selected by the specific control line being connected to the appropriate VCR control lines.

The H or High command is used to cycle a device to a High state that causes a change, like a switcher to take a different source -- the one defined by a High state at the switcher.

The L or Low command is used to cycle a device to a Low state that causes a change, like a switcher to take a different source -- the one defined by a Low state at the switcher.

The - command simply leaves everything the way it was with any device connected to a control line.

Function Commands:

To initiate a System 840 internal function via the events list, press the button that ordinarily enables that function. Queues can be started and ended and keys can be enabled or disabled. In addition, a general purpose control function can be triggered that could initiate a switcher event.

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The active command buttons are:

Queue Start	Puts QUEUE ON in the command row
Queue End	Puts QUEUE OFF in the command row
Key On	Puts KEY ON in the command row
Key Off	Puts KEY OFF in the command row
/	Specifies a general purpose control event

The defined function in a command row will be triggered on the day and time specified in that row's day and time area.

Using the Display:

Entering the desired information in the display to define a desired event requires an understanding of how the display operates.

Event information can only be specified on the top line of the display. So the desired line must be scrolled to the top of the display to enter information or edit already existing information.

The day and time portion of the top line will flash to indicate it is available for information specification or editing. And when a command line parameter field is active for command specification or editing, that parameter field position will flash.

All information is accepted as it is specified. There is no need to press any additional key to have the system acknowledge what has been specified.

Display operations and the buttons that initiate them include:

Operation	Button

Scrolling Through the Display

Display next 7 lines	**Page Down**
Display last 7 lines	**Page Up**
Next line up to top	Up Arrow (↑)
Last line back to top	Down Arrow (↓)

Left and Right Movement

Go left in display	Left Arrow (←)
Go right in display	Right Arrow (→)

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Day and Time Specification

Change day of week	**Insert**
Increase hour of day	**Home**
Increase minute of day	**End**

Additional Operations

Remove an event	**Delete**
Step thru event types	Backspace (←)
Exit event list function	**Esc**

15.2B Real-Time Events List Example

This example of a real-time events list function will be a series of commands to control a remoted VCR. The VCR will be played, stopped and rewound at specific times of the day every day.

For this to be possible, a user would have to have assigned three control lines to the VCR. In the example, assume that control line A controls Play, line B controls Stop, and line C controls Rewind.

In addition, a switcher must be triggered to switch from the normal video, which is defined as the High state (H), to the tape video, which is defined as the Low state (L). Control line L has been dedicated to switcher control.

The Example:

The 30-minute tape will be programmed to rewind one minute prior to each play function to insure that it is cued up properly. The rewind time is less than one minute.

The tape will be played every day at 9 AM and stopped at 9:30 AM. It will be played again at 1 PM and stopped at 1:30 PM.

For each play the system must switch to the tape video and after each play the system must switch back to its normal video output.

Using the various display operation buttons to specify the information, the complete display to initiate the example events would be:

```
##   dy hh:mm A  B  C  D  E  F  G  H  I  J  K  L
01   ++ 08:59 -  -  P  -  -  -  -  -  -  -  -  -
02   ++ 09:00 P  -  -  -  -  -  -  -  -  -  -  L
03   ++ 09:30 -  P  -  -  -  -  -  -  -  -  -  H
04   ++ 12:59 -  -  P  -  -  -  -  -  -  -  -  -
05   ++ 13:00 P  -  -  -  -  -  -  -  -  -  -  L
06   ++ 13:30 -  P  -  -  -  -  -  -  -  -  -  H
```

Example Diagnosis:

Notice that each event is defined as ++, which means they will happen every day.

The first and fourth lines send a pulse (P) through command line C, which initiates the Rewind function at one minute prior to each play start time -- at 8:59 AM and 12:59 PM.

The second and fifth lines send a pulse (P) through command line A, which initiates the Play function. They also send a Low command (L) through command line L to the switcher to switch to the tape video. All this happens at both 9:00 AM and 1 PM.

The third and sixth lines send a pulse (P) through command line B, which initiates the Stop function. They also send a High command (H) through command line L to the switcher to switch back to the normal video. All this happens at both 9:30 AM and 1:30 PM.

15.3   International Characters Package Operation

When the International Characters Package is installed in a Series 840 System, certain lower-case fonts will support the use of international accent characters.

To specify the desired accent, press and hold down the **Alt** button while pressing a second button according to the following:

Accent	**Specify With**
Aigu (´)	**Alt ,** (comma)
Grave (`)	**Alt .** (period)
Circumflex (^)	**Alt [** (open bracket)
Umlaut (¨)	**Alt]** (close bracket)
Cedilla (¸)	**Alt '** (apostrophe)

Then release both buttons and press the desired character button.

Currently available accented character configurations include:

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â	ê	î	ô	û	ç
à	è		ó	ù	
	é			ú	
	ë				
	É				

For character sets that support an upper case E with accent aigu (É), the character and its accent are specified together by pressing **Alt /** (forward slash).

15.4   Routing Switcher Control Package Operation

The Routing Switcher Control Package gives the System 840 the flexibility of selecting different video sources to key its messages over. The System 840 controls Video Data Systems' 8 X 8 Routing Switcher to select the desired video source as its input.

The routing switcher has up to seven video sources as its inputs. Each input has a corresponding output from the switcher. The eighth output from the switcher goes directly to the System 840, through which the selected video arrives at the 840.

The output of the System 840, which will be the selected video with a message keyed over it, goes back into the switcher as the switcher's eighth input.

System 840 messages can only be on one video channel at a time.

15.4A Specifying the Desired Video Source

The desired video source is selected by the System 840 on the basis of tokens embedded in the text of any message page.

Tokens are specific characters that instruct the System 840 to trigger certain desired effects or to put certain data on screen (See: Section 10. DISPLAYING TIME AND DATE ON SCREEN (TIME TOKENS) and Section 15.1 Weather Package Operation).

In this case, the token defines the video that is associated with that specific page and instructs the System 840 to take that source from the switcher.

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The token that defines the desired video source from the switcher is:

> %Rn   where n is a number from 1 - 7 relating to the seven
> available video sources from the switcher

The token itself will not appear on screen as part of the message page when it is displayed as an output from the System 840. It is only visible during message composition or editing.

The video switch defined by a token will occur when a page with a switcher token on it is taken as an active message. That could be done with the **KEY ON** button or as part of a queue.

When a message with a switcher token is taken as part of a queue, the video switch will occur simultaneously with the appearance of the message. If any additional video switches are defined on later pages of the queue, those switches will occur simultaneously with the appearance of those pages.

15.4B Routing Switcher/System 840 Communications

When powering up the System 840 and the switcher, the switcher should be powered up before the System 840. That is because the System 840 sends out an initialization command to the switcher, so the switcher must be ready to accept it. Basically, the 840 needs to know the switcher is there and ready to do what it needs.

The switcher must be configured as a loop-through device, meaning that each input from 1 - 7 is wired to its corresponding output from 1 - 7. As noted above, the eighth input is from the System 840 and the eighth output goes to the System 840.

The System 840's initialization command is insuring that the loop through condition is active in the switcher.

If at any time a command to the switcher causes the video signal to be removed from the System 840, after about one second the System 840 will send an initialization command to the switcher to try to regain its feed.

15.4C Basic Requirements

Input 1 *must be used.*

All unused video outputs *must be terminated.*

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