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**Instruction Manual**  
**The Weather Star® Jr.**  
**INSTALLATION AND**  
**USER'S GUIDE**

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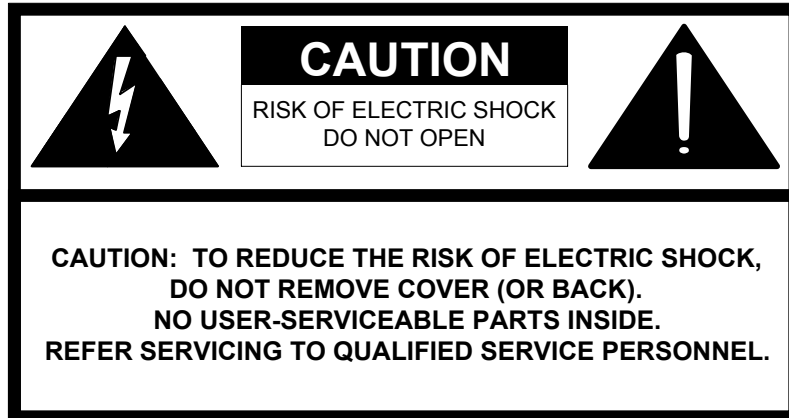
*When ordering parts from Wegener Communications, Inc., be sure to include the equipment model number, equipment serial number, and a description of the part.*

*In all correspondence with Wegener Communications, Inc., regarding this publication, please refer to 2450-001B.*

*First Edition: March 1994*

*Revised: July 1997*

Weather Star is a registered trademark of THE WEATHER CHANNEL®



## **CAUTION**

As this unit is intended to interface with other electrical/electronic systems, proper engineering practices must be adhered to during installation and check-out.

All AC power and ground must be installed in accordance with National Electric Code Standards as to conductor size and limitations (see NFPA 70, articles 200-280, as amended, if required), and lightning protection must be provided.

All RF interconnections must be properly shielded to prevent ingress or egression of potential interfering sources to existing services.

Any damage to this unit caused by improper wiring/interconnections will void any warranty extended.

## **WARRANTY**

The following warranty applies to all Wegener Communications products.

All Wegener Communications products are warranted against defective materials and workmanship for a period of one year after shipment to customer. Wegener Communications' obligation under this warranty is limited to repairing or, at Wegener Communications' option, replacing parts, subassemblies, or entire assemblies. Wegener Communications shall not be liable for any special, indirect, or consequential damages. This warranty does not cover parts or equipment which have been subject to misuse, negligence, or accident by the customer during use. All shipping costs for warranty repairs will be prepaid by the customer. There are no other warranties, express or implied, except as stated herein.

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# **SECTION 1 GENERAL INFORMATION**

## **1.1 INTRODUCTION**

The purpose of this manual is to describe the proper installation and operation of The Weather Star<sup>®</sup> Jr. supplied by THE WEATHER CHANNEL<sup>®</sup>. The Weather Star<sup>®</sup> Jr. captures, formats, and displays the local forecast for a specified weather zone.

## **1.2 SYSTEM DESCRIPTION**

THE WEATHER CHANNEL<sup>®</sup> transmits its programming from the uplink in Atlanta, Georgia, to affiliates throughout the U.S. Please refer to figure 1-1, Network Overview, on page 1-2. Transmitted with THE WEATHER CHANNEL<sup>®</sup> programming are network control commands and weather data supplied by the National Weather Service for thousands of weather zones.

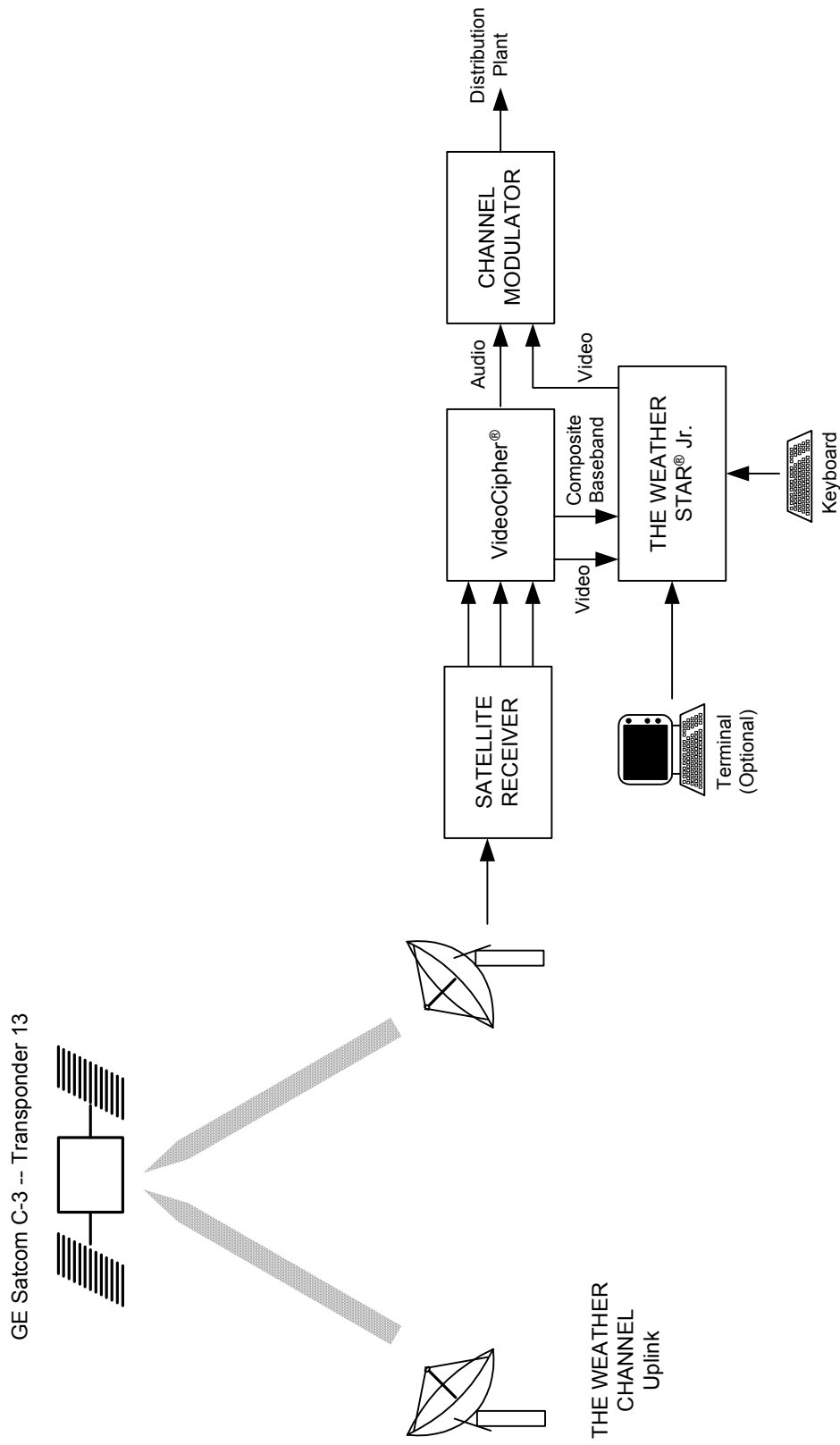
At the affiliate site, The Weather Star<sup>®</sup> Jr. is installed in between a satellite receive system tuned to THE WEATHER CHANNEL<sup>®</sup> programming feed and the channel modulator. The Weather Star<sup>®</sup> Jr. captures the data designated for its specified weather zone and displays it automatically at the appropriate time. Local crawl messages may be entered through the supplied keyboard or with the RS-232 port.

## **1.3 EQUIPMENT DESCRIPTION**

The Weather Star<sup>®</sup> Jr. is contained in a 1.75" high rack-mount chassis which will operate over a wide range of AC voltages. The Weather Star<sup>®</sup> Jr. requires unscrambled video and composite baseband from a satellite receive system tuned to THE WEATHER CHANNEL<sup>®</sup> program feed and provides switched broadcast quality video output.

## **1.4 TECHNICAL SUPPORT**

In the event the unit fails to perform as described contact THE WEATHER CHANNEL<sup>®</sup> at 800-554-7354.



**Figure 1-1. Network Overview**

## SECTION 2 INSTALLATION

### 2.1 UNPACKING AND INSPECTION

Carefully unpack The Weather Star<sup>®</sup> Jr. and inspect it for obvious signs of physical damage which might have occurred during shipment. Any damage claims must be reported to the carrier immediately. Also, be sure to check packing materials carefully for important documents and materials.

Contact THE WEATHER CHANNEL<sup>®</sup> at 800-554-7354 with questions.

### 2.2 PHYSICAL ENVIRONMENT

The Weather Star<sup>®</sup> Jr. mounts in a standard EIA 19-inch rack and occupies 1.75 inches of vertical space and is 10 inches deep. It is recommended that other equipment not be installed directly above The Weather Star<sup>®</sup> Jr. to allow air flow. The Weather Star<sup>®</sup> Jr. requires 117 VAC  $\pm$  10% at 50 to 60 Hz. All indicators are located on the front panel as is the keyboard interface connector. All input connections and output connections (with the exception of the keyboard interface connector) are located on the rear panel. BNC connectors are used for video and composite baseband.

#### **Caution**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## 2.3 CONNECTIONS AND INTERFACES

The following describes the installation process in a step by step manner. Please refer to figure 2-1 which illustrates all connections and interfaces.

### **Note**

Four solid state switched outputs are available on a rear panel terminal strip. They are Weather Warning, Language, Local Commercial Pre-roll, and Crawl On-air. It may be necessary, depending on the space available, to connect these devices before installing The Weather Star<sup>®</sup> Jr. in the equipment rack. Refer to appendix B for functional explanation.

1. Install The Weather Star<sup>®</sup> Jr. in the equipment rack.
2. Connect a BNC cable from the LOOP THRU on the VideoCipher<sup>®</sup>, or to Comp/BB if using an I.R.D. (integrated receiver descrambler) to the BASEBAND IN on The Weather Star<sup>®</sup> Jr.

### **Note**

If you are using a Microdyne receiver, connect DEMOD to BASEBAND IN on The Weather Star<sup>®</sup> Jr. and terminate J2 on the VideoCipher<sup>®</sup>.

3. Connect a BNC cable from the video OUTPUT of the VideoCipher<sup>®</sup> or I.R.D. to the VIDEO IN on The Weather Star<sup>®</sup> Jr.
4. Connect a BNC cable from the VIDEO OUT of The Weather Star<sup>®</sup> Jr. to the VIDEO IN on channel modulator.
5. Connect left Audio Out on VideoCipher<sup>®</sup> or I.R.D. to Audio Input on modulator.
6. Using twisted pair wire, connect language (!) on The Weather Star<sup>®</sup> Jr. to the VideoCipher<sup>®</sup>. Lang (+) connects to language pin on the VideoCipher<sup>®</sup> and Lang (-) connects to chassis ground on the VideoCipher<sup>®</sup>.

## 2.4 TURN-ON PROCEDURE

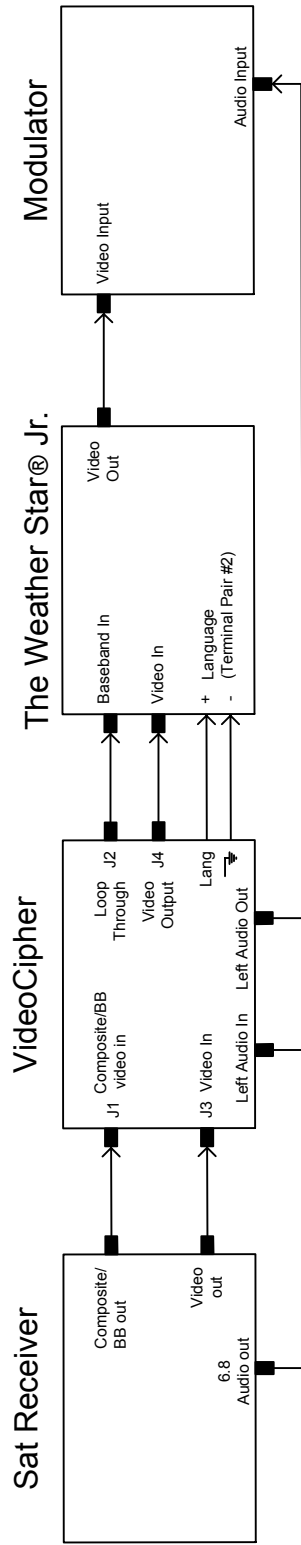
The following steps detail the necessary procedure to make The Weather Star<sup>®</sup> Jr. function as intended for your area.

1. Apply AC power.
2. Observe the front panel indicators. It is normal for the indicators to "flash" during power up as The Weather Star<sup>®</sup> Jr. executes internal diagnostics. After 15 seconds the POWER and VIDEO indicators should indicate solid green, the DATA indicator should remain solid as data is detected. The LANG OPEN, UNIT ADDR, and LC PRE-ROLL indicators may or may not be illuminated. The SC ALARM indicator should be off.  
Please refer to Appendix B, Controls and Indicators, for a detailed description of the front panel indicators.
3. Refer to paragraph 3.3 for keyboard crawl entry and use of diagnostics.

VideoCipher<sup>®</sup> is a registered trademark of General Instrument Corporation



## Standard Connections Using A Separate Receiver and VideoCipher®



## Standard Connections Using An Integrated Receiver/Descrambler (I.R.D.)



Figure 2-1. Installation Block Diagram

## **SECTION 3 OPERATION**

### **3.1 FUNCTIONAL OVERVIEW**

The Weather Star<sup>®</sup> Jr. uses weather data and network control commands modulated on a 7.38 MHz subcarrier-above-video to generate and display local weather forecast. The Weather Star<sup>®</sup> Jr. normally displays program video from the satellite receiving system. However, upon command from THE WEATHER CHANNEL<sup>®</sup> network control, The Weather Star<sup>®</sup> Jr. will switch to internally generated text pages. The Weather Star<sup>®</sup> Jr. will also overlay tags and locally originated crawls onto the program video.

### **3.2 INDICATORS**

The following paragraphs discuss the purpose of all indicators on The Weather Star<sup>®</sup> Jr. See figure 3-1 for front and rear panel views. There are no internal user adjustments. One LED on the front panel is reserved for future use.

#### **3.2.1 POWER**

The POWER indicator is a green LED which is illuminated when acceptable AC power is present.

#### **3.2.2 VIDEO**

The VIDEO indicator is a green LED which is illuminated when acceptable video is present.

#### **3.2.3 DATA**

The DATA indicator is a green LED which is illuminated when acceptable data is detected.

#### **3.2.4 LANG OPEN**

Indicates status of the solid state switch LANGUAGE on the back of The Weather Star<sup>®</sup> Jr. When illuminated, it indicates that the switch is open (this switches audio channels on the VideoCipher<sup>®</sup>).

#### **3.2.5 UNIT ADDR**

The UNIT ADDR indicator is a green LED which is illuminated momentarily when The Weather Star<sup>®</sup> Jr. has received a command or data specifically to this unit.

#### **3.2.6 LC PRE-ROLL**

Indicates a local commercial avail is present. When lit, the LC PRE-ROLL contact closure on the rear of The Weather Star<sup>®</sup> Jr. will close.

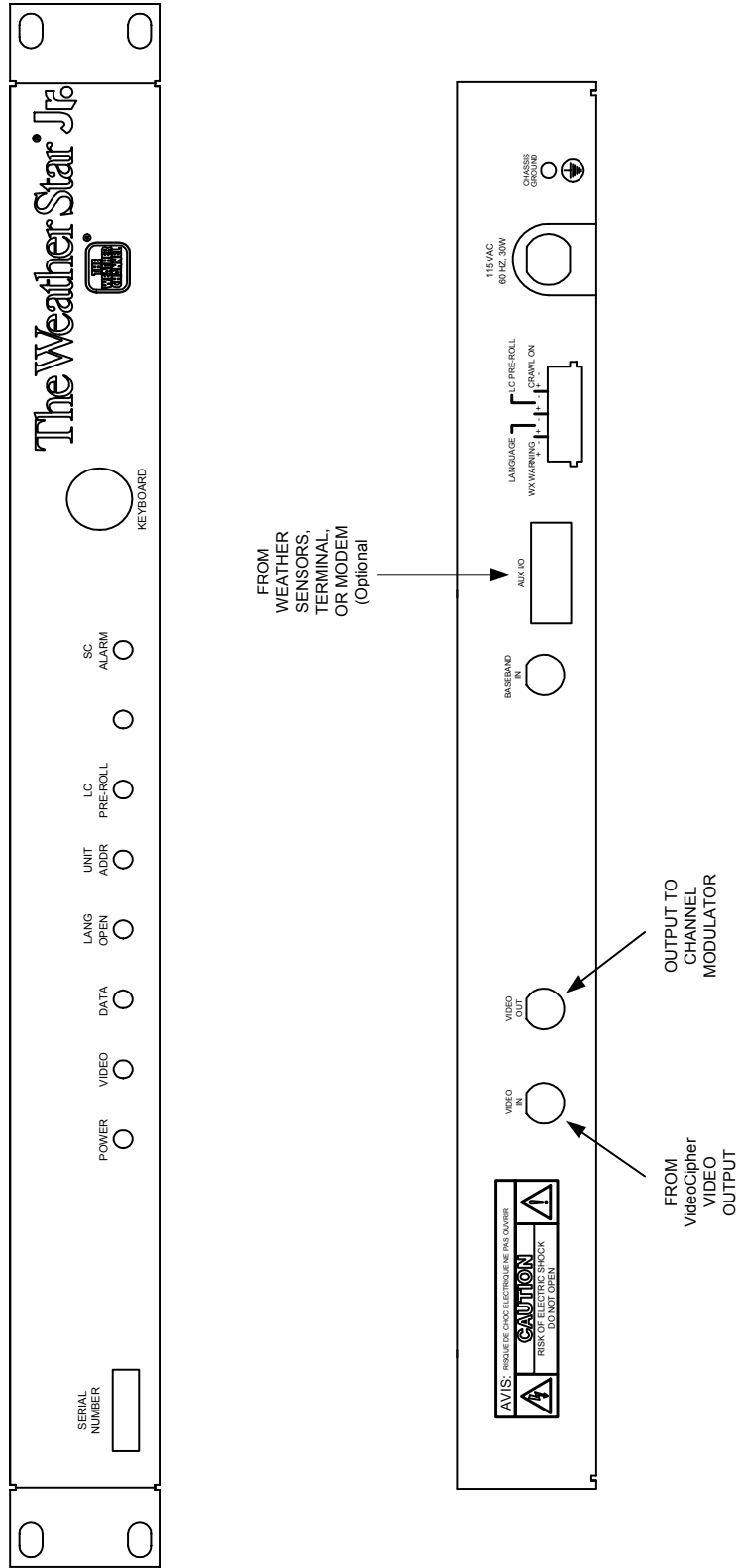


Figure 3-1. The Weather Star® Jr., Front and Rear Panels

### 3.2.7 SC ALARM

The SC ALARM indicator is a red LED which is illuminated if The Weather Star<sup>®</sup> Jr. has lost lock on the video subcarrier which contains the weather data and network control commands. If this LED illuminates please refer to Section 4, Troubleshooting.

## 3.3 KEYBOARD

The Weather Star<sup>®</sup> Jr. is equipped with a front mounted keyboard connector for attachment of a PC-AT style keyboard. The keyboard may be used to do the following:

- Perform various diagnostics functions
- Select serial port's baud rate
- Install sensor package
- Enter, edit, or erase a local crawl message

### 3.3.1. Diagnostics, Baud Select, and Sensor Installation

A diagnostic mode is entered when **Alt F10** is pressed while no one is currently using the serial interface for scheduling crawl messages. While in diagnostics mode, the following will be displayed.

- SN The unit's serial number - Each of the six digits will be displayed with a value between 0 and 9.
- SW The settings of the "Addresses Switches" - Displayed in hex, where each digit will be displayed with a value between 0 and F.
- DQ Data quality - This value is expressed as a percentage and is updated every second. It is an indication of the error rate of the data stream. It is reset at power-up and when the **F7** key is pressed while in diagnostics mode
- RLYS Solid state relays. Shows binary value for state of each of the four relays, where a 0 represents an open state, and a 1 a closed state. While in diagnostics mode, pressing the **F1** through **F4** keys will toggle the state of the corresponding relay (also reflected on screen).
- BAUD The baud rate of the RS-232 (Aux I/O) port - Will be 300, 600, 1200, 2400, 4800 or 9600. Pressing the **F5** key while in diagnostics mode will select the next highest baud rate and will wrap after highest.
- SENSORS The status of the external weather sensor package (optional) - Will be indicated by one of three statements: "OK" will indicate that the sensors are connected and working; "BAD" will indicate that the sensors are connected but not working properly; and "N/A" will indicate that the sensors are not connected. Pressing **F6** while in diagnostics mode will force the unit to poll for the status of the sensor package.

The following summarizes the use of the function keys while in diagnostics mode:

Key(s)	Action
F1	Toggle relay 1
F2	Toggle relay 2
F3	Toggle relay 3
F4	Toggle relay 4
F5	Select baud rate
F6	Check sensor status
F7	Reset data quality counters
F10, ALT-F10	Exit Diagnostics

When the diagnostics mode is exited, the unit will resume normal operation. Also, if a meaningful key is not pressed within any two minute period while in diagnostics mode, the unit will exit diagnostics mode (as if **F10** was pressed). Before plugging the keyboard into The Weather Star<sup>®</sup> Jr., ensure that A/X switch on the bottom of the keyboard in the A position.

### 3.3.2 Crawl Message Editing

Crawl message 1 may be edited on-screen using the AT keyboard. On-screen editing will take place at the bottom of the screen, with the crawl message displayed <32> characters at a time. The editing session begins by pressing **Alt C**.

#### **Caution**

Starting the editing session will de-activate the crawl schedule, if active. Also, if a terminal session is in progress, that session will be terminated. Terminal access will not be allowed while editing the crawl message via the AT keyboard.

A cursor is displayed to indicate the current text position at which editing will take place.

Example:

*If the cursor is advanced past the 30th screen position, the beginning of the on-screen display will shift forward one position until the cursor is again at the 30th position. This leaves three characters to the right of the text which allow the user to look ahead at off-screen text. This automatic scrolling will only occur if message text is present to the right of the screen display; i.e., if the end-of-message marker (EOM) is visible on screen, text will not be scrolled.*

*If the cursor is moved past the fourth screen position, the on-screen display will shift left one position until the cursor is again at the fourth screen position. This keeps three characters to the left of the cursor which allows the user to look ahead at off-screen text. This automatic scrolling will only occur if text is present to the left of the on-screen display; i.e., the text will not shift if the first message character is visible in the home position.*

A different cursor is used for insert mode than is used for type-over mode, and an end-of-message character is displayed automatically after the last character in the crawl text.

**Special keys available during crawl editing are given in table 3-1.**

**TABLE 3-1. CRAWL EDITING FUNCTION KEYS USING FRONT PANEL KEYBOARD**

<b>FUNCTION</b>	<b>KEYSTROKES)</b>
Move cursor left one text position, not past the first text character.	[ρ]
Delete character at current cursor position.	[DEL]
Move cursor one position to the left and delete character at cursor position.	[BS]
Toggle Insert and Overstrike Modes (Insert by default)	[INS]
Move cursor to first letter of previous word	[CTRL][ρ]
Move cursor to first letter of next word	[CTRL][τ]
Move cursor to first text character (if visible). If not, move cursor to fourth screen position. If cursor is already at the fourth position, the cursor will move left 29 text characters, staying at the same screen position.	[SHIFT][ρ]
Move cursor to EOM, if visible. If not, move cursor to 30th screen position. If cursor is already at the 30th screen position, cursor will advance 29 text characters, stain at the same screen position.	[SHIFT][τ]
Move cursor to first text character, first screen position.	[HOME]
Move cursor to EOM*, 32nd screen position (if 32 characters available).	[END]
Delete entire crawl and move cursor to first text position as with [HOME].	[CTRL][E]
Exit and save changes. Prompt will ask to confirm that changes should be saved. If not, editing will resume.	[RET]
Exit without saving changes. Prompt will ask to confirm that changes should be lost. If not, editing will resume.	[CTRL][X]

\*EOM (End of Message)

## SECTION 4 TROUBLESHOOTING

<b>VIDEO PROBLEMS</b>		
<b>Symptom</b>	<b>Possible Cause</b>	<b>Suggested Action</b>
No Video Out (Power LED <b>off</b> )	No AC Voltage	Confirm that unit is plugged into an active AC power outlet. Test outlet for 115V AC.
No Video Out (Power LED <b>on</b> )	No input to modulator	Confirm that <b>VIDEO OUT</b> on The Weather Star® Jr. is connected to <b>VIDEO INPUT</b> on the channel modulator.
	Defective video cable	Replace coax cable between The Weather Star® Jr. <b>VIDEO OUT</b> and <b>VIDEO INPUT</b> on the channel modulator.
	VideoCipher® locked in black	Connect <b>VIDEO OUTPUT</b> of the VideoCipher® to <b>VIDEO INPUT</b> on the channel modulator. If a black screen is observed, replace the VideoCipher®.
	Modulator defective	Replace channel modulator.
	The Weather Star® Jr. locked	Unplug The Weather Star® Jr. for 15 seconds. Observe video 30 seconds after power is re-applied. If a black screen is still observed, call THE WEATHER CHANNEL®.
Distorted Characters	Incorrect video level	Confirm that the <b>VIDEO INPUT</b> to The Weather Star® Jr. is 1V p-p.
	VideoCipher® defective	Disconnect <b>VIDEO IN</b> on The Weather Star® Jr. Observe the local forecast pages displayed. If the characters appear undistorted, replace the VideoCipher®. If the characters appear distorted, The Weather Star® Jr. may be locked.
	The Weather Star® Jr. locked	Unplug The Weather Star® Jr. for 15 seconds. Observe video 30 seconds after power is re-applied. If the alphanumeric characters are still distorted, call THE WEATHER CHANNEL®.
<p><b>If the above steps do not correct the problem, call THE WEATHER CHANNEL® at 800-554-7354 for technical assistance.</b></p>		

<b>VIDEO PROBLEMS - Continued</b>		
<b>Symptom</b>	<b>Possible Cause</b>	<b>Suggested Action</b>
Distorted Video	VideoCipher® not authorized	Confirm that SYNC and AUTHORIZED LEDs on the VideoCipher® are illuminated.
	Incorrect video level	Confirm that the <b>VIDEO INPUT</b> to The Weather Star® Jr. is 1 V p-p.
	VideoCipher® Defective	Connect the <b>VIDEO OUTPUT</b> of the VideoCipher® to the <b>VIDEO INPUT</b> of the channel modulator. If distorted video is still seen, replace the VideoCipher®.
	The Weather Star® Jr. locked	Unplug The Weather Star® Jr. for 15 seconds. Observe video 30 seconds after power is re-applied. If video still appears distorted, call THE WEATHER CHANNEL®.
Constant blank Screen	No video input	Observe front panel <u>VIDEO LED</u> If <u>not</u> illuminated, confirm that <b>VIDEO OUTPUT</b> of the VideoCipher® or I.R.D is connected to <b>VIDEO IN</b> on The Weather Star® Jr.
	The Weather Star® Jr. locked	Unplug The Weather Star® Jr. for 15 seconds. Observe video 30 seconds after power is reapplied. If a blank screen is still observed, call - THE WEATHER CHANNEL®.
Blank screen (during local)	(see local forecast problems)	
Constant Local Forecast	No video input	Observe front panel <u>VIDEO LED</u> . If <u>not</u> illuminated, confirm that <b>VIDEO OUTPUT</b> of the VideoCipher® or I.R.D is connected to <b>VIDEO IN</b> on The Weather Star® Jr.
	VideoCipher® not authorized	Confirm that SYNC and AUTHORIZED LEDs on the VideoCipher® are illuminated
	VideoCipher® defective	Connect the <b>VIDEO OUTPUT</b> of the VideoCipher® to the <b>VIDEO INPUT</b> of the channel modulator. If video is not seen, replace the VideoCipher®.
	Incorrect video level	Confirm that the <b>VIDEO INPUT</b> to The Weather Star® Jr. is 1V p-p.
<b>If the above steps do not correct the problem, call THE WEATHER CHANNEL® at 800-554-7354 for technical assistance.</b>		



<b>VIDEO PROBLEMS - Continued</b>		
<b>Symptom</b>	<b>Possible Cause</b>	<b>Suggested Action</b>
Constant Local Forecast (Cont.)	The Weather Star® Jr. locked	Unplug The Weather Star® Jr. for 15 seconds. Wait 4 minutes after power is re-applied for a local forecast to complete. If a constant local forecast is still observed, call THE WEATHER CHANNEL®.
<b>LOCAL FORECAST PROBLEMS</b>		
No Local Forecast	No data input	Confirm that front panel <u>Data</u> LED is illuminated. If extinguished, or the <u>SC ALARM</u> LED is illuminated, confirm that <b>J2</b> from the VideoCipher® or <b>Composite/Baseband</b> from the I.R.D is connected to <b>BASEBAND IN</b> on The Weather Star® Jr. If using a receiver or I.R.D with selectable DE-EMPHASIS, ensure that the DE-EMPHASIS switch is <b>off</b> or in the <b>flat</b> position.
	S/N not authorized	Enter the front panel keyboard diagnostic display by pressing <alt> <b>F10</b> . Note the number in the serial number field (SN) located in the upper left corner of the display. Confirm that it matches the serial number on the front panel of The Weather Star® Jr. Call THE WEATHER CHANNEL® to verify that this unit is authorized.
	Data not loaded	Confirm that the <b>POWER</b> , <b>VIDEO</b> and <b>DATA</b> LEDs on the front panel of The Weather Star® Jr. are illuminated. Wait 30 minutes for the local forecast data to load.
Constant Local Forecast	No video input	Observe front panel <u>VIDEO</u> LED If <u>not</u> illuminated, confirm that <b>VIDEO OUTPUT</b> of the VideoCipher® or I.R.D is connected to <b>VIDEO IN</b> on The Weather Star® Jr.
	VideoCipher® not authorized	Confirm that SYNC and AUTHORIZED LEDs on the VideoCipher® are illuminated.
	VideoCipher® defective	Connect the <b>VIDEO OUTPUT</b> of the VideoCipher® to the <b>VIDEO INPUT</b> of the channel modulator. If good video is not seen, replace the VideoCipher®.
	Incorrect video level	Confirm that the <b>VIDEO INPUT</b> to The Weather Star® Jr. is 1 Vp-p.
<b>If the above steps do not correct the problem, call THE WEATHER CHANNEL® at 800-554-7354 for technical assistance.</b>		

<b>LOCAL FORECAST PROBLEMS - Continued</b>		
<b>Symptom</b>	<b>Possible Cause</b>	<b>Suggested Action</b>
Constant Local Forecast (Cont.)	The Weather Star <sup>®</sup> Jr. locked	Unplug The Weather Star <sup>®</sup> Jr. for 15 seconds. Wait 4 minutes after power is re-applied for a local forecast to complete. If a constant local forecast is still observed, call THE WEATHER CHANNEL <sup>®</sup> .
Wrong Local Forecast	TWC Database incorrect	Call THE WEATHER CHANNEL <sup>®</sup> .
Misspelled Local Forecast	Data Errors	Enter the front keyboard diagnostic display by pressing <b>Alt F10</b> . Observe the number next to the heading <b>DQ</b> (data quality) if this number is below 95, peak the satellite antenna or fine tune the receiver. After making adjustments, press <b>F7</b> to observe the updated data quality. Press <b>F10</b> to exit the display.
Blank Pages	Data not loaded	Confirm that the <b>POWER</b> , <b>VIDEO</b> and <b>DATA</b> LEDs on the front panel of The Weather Star <sup>®</sup> Jr. are illuminated. Wait 30 minutes for local forecast data to load.
	S/N not authorized	Enter the front panel keyboard diagnostic display by pressing <b>Alt F10</b> . Note the number in the serial number field (SN) located in the upper left corner of the display. Confirm that it matches the serial number on the front panel of The Weather Star <sup>®</sup> Jr. Call THE WEATHER CHANNEL <sup>®</sup> to verify that this unit is authorized.
	TWC Database incorrect	Call THE WEATHER CHANNEL <sup>®</sup> .
<b>If the above steps do not correct the problem, call THE WEATHER CHANNEL<sup>®</sup> at 800-554-7354 for technical assistance.</b>		

<b>PERIPHERAL PROBLEMS</b>		
<b>Symptom</b>	<b>Possible Cause</b>	<b>Suggested Action</b>
Crawl Problems		Call THE WEATHER CHANNEL <sup>®</sup> .
No Keyboard Response	<p>A/X switch in wrong position</p> <p>RS-232 session active</p> <p>The Weather Star<sup>®</sup> Jr. locked</p> <p>Keyboard defective</p>	<p>Confirm that the A/X switch located on the bottom of the keyboard is in the <b>A</b> position. It may be necessary to unplug and reconnect the keyboard after the switch has been moved.</p> <p>Ensure that there is no interactive session in progress on the AUX I/O port on The Weather Star<sup>®</sup> Jr.</p> <p>Unplug The Weather Star<sup>®</sup> Jr. for 15 seconds. Attempt to access the keyboard 30 seconds after power is re-applied. If there is still no response, call THE WEATHER CHANNEL<sup>®</sup>.</p> <p>Call THE WEATHER CHANNEL<sup>®</sup>.</p>
No RS-232 Response	<p>User PC settings incorrect</p> <p>Incorrect baud rate</p> <p>RS-232 cable defective</p> <p>The Weather Star<sup>®</sup> Jr. locked</p>	<p>Confirm that PC is set to 2400 Baud, 8 data bits, 1 stop bit, no parity. Confirm correct PC port assignment.</p> <p>Enter the front panel keyboard diagnostic display by pressing <b>Alt F10</b>. Note the number in the baud' rate field (<b>BAUD</b>). Confirm that the number displayed matches the baud rate on your PC. Press <b>F5</b> to change the baud rate on The Weather Star<sup>®</sup> Jr. Press <b>F10</b> to exit the display.</p> <p>Replace RS-232 cable. Confirm that you are using a NULL-MODEM cable.</p> <p>Unplug The Weather Star<sup>®</sup> Jr. for 15 seconds. Attempt to access the RS-232 port 30 seconds after power is re-applied. If there is still no response, call THE WEATHER CHANNEL<sup>®</sup>.</p>
Will not accept password	Password changed	Call THE WEATHER CHANNEL <sup>®</sup> .
<p><b>If the above steps do not correct the problem, call THE WEATHER CHANNEL<sup>®</sup> at 800-554-7354 for technical assistance.</b></p>		

<b>PERIPHERAL PROBLEMS - Continued</b>		
<b>Symptom</b>	<b>Possible Cause</b>	<b>Suggested Action</b>
No Local Sensor Readings	No data from sensor station	Enter the front keyboard diagnostic display by pressing <b>ALT F10</b> . Observe the <b>sensor</b> status in the lower right corner of the display. If <b>N/A</b> is displayed, confirm that the sensor station is powered up and connected to the <b>AUX I/O</b> port on The Weather Star® Jr. Press <b>F6</b> on the keyboard to re-check sensor status. If <b>OK</b> is displayed, wait 10 minutes for The Weather Star® Jr. to process the data for display. If <b>BAD</b> is displayed, re-boot the sensor station, then press <b>F6</b> on the keyboard to re-check the sensor status. Press <b>F10</b> to exit the display.
No Local Comm. Insertion (no pre-roll)	Incorrect Connections	Verify the correct polarity of the connections to the <b>LC PRE-ROLL</b> terminals on The Weather Star® Jr.
	No contact closure	Confirm that the front panel <u>PRE-ROLL</u> LED on The Weather Star® Jr. is illuminated during the 68 second avail. During the avail, measure for a solid state closure between the <b>LC PRE-ROLL</b> terminals on the back of The Weather Star® Jr.  <b>NOTE:</b> To activate a test closure on The Weather Star® Jr., enter the front panel keyboard diagnostic display by pressing <b>Alt F10</b> . Observe the relay status ( <b>RLYS</b> ) in the lower left corner of the display. Press <b>F3</b> to activate the <b>LC PRE-ROLL</b> . The third digit in the <b>RLYS</b> display will change from 0 to 1 when active (0010). If connected, the commercial insertion equipment should activate. If no activation occurs, measure for a solid state contact closure between the <b>LC PRE-ROLL</b> terminals on the back of The Weather Star® Jr. Press <b>F3</b> to end the test. Press <b>F10</b> to exit the display.
	Insertion equipment	Physically short the <b>LC PRE-ROLL</b> terminals to manually activate the insertion equipment. If there is no activation, troubleshoot the insertion equipment.
<b>If the above steps do not correct the problem, call THE WEATHER CHANNEL® at 800-554-7354 for technical assistance.</b>		

<b>PERIPHERAL PROBLEMS - Continued</b>		
<b>Symptom</b>	<b>Possible Cause</b>	<b>Suggested Action</b>
VideoCipher® Will Not Authorize	Receiver not on frequency	Ensure that the satellite receiver or I.R.D is tuned to <b>SATCOM C3</b> (131° West Longitude), <b>transponder 13</b> .
	Incorrect AGC Voltage	Verify 4V AGC on the VideoCipher®. If AGC voltage is unstable, disconnect <b>BASEBAND IN</b> on The Weather Star® Jr. (Terminate J2 if using a separate VideoCipher®). Set the AGC voltage, and authorize the VideoCipher®. Once authorized, re-connect <b>BASEBAND IN</b> to The Weather Star® Jr. (Remove termination from J2 if installed in previous step).
	Defective VideoCipher®	Replace VideoCipher®.
No activation of external warning equipment	No contact closure	Test The Weather Star® Jr. weather warning contact closure as follows: Enter the front panel keyboard diagnostic display by pressing <b>Alt F10</b> . Observe the relay status ( <b>RLYS</b> ) in the lower left corner of the display. Press <b>F1</b> to activate the <b>WX. WARNING</b> relay. The first digit in the RLYS display will change from 0 to 1 when active (1000). If connected, the external equipment should activate. If no activation occurs, measure for a contact closure between the <b>WX WARNING</b> terminals on the back of The Weather Star® Jr. Press <b>F1</b> to end the test. Press <b>F10</b> to exit the display..
	Insertion equipment	Physically short the <b>LC PRE-ROLL</b> terminals to manually activate the insertion equipment. If there is no activation, troubleshoot the insertion equipment
<p><b>If the above steps do not correct the problem, call THE WEATHER CHANNEL® at 800-554-7354 for technical assistance.</b></p>		

<b>AUDIO PROBLEMS</b>		
<b>Symptom</b>	<b>Possible Cause</b>	<b>Suggested Action</b>
Distorted Audio	Incorrect wiring	Confirm that <b>LEFT AUDIO OUT</b> of the VideoCipher <sup>®</sup> or I.R.D is connected to <b>AUDIO INPUT</b> on the channel modulator.
	Defective Video- Defective modulator	Replace VideoCipher <sup>®</sup> Replace modulator.
No Audio	Incorrect wiring	Confirm that <b>LEFT AUDIO OUT</b> of the VideoCipher <sup>®</sup> or I.R.D is connected to <b>AUDIO INPUT</b> on the channel modulator.
	Defective VideoCipher <sup>®</sup>	Replace VideoCipher <sup>®</sup> .
	Defective modulator	Replace modulator.
Incorrect Audio	Incorrect audio wiring	Confirm that <b>LEFT AUDIO OUT</b> of the VideoCipher <sup>®</sup> or I.R.D is connected to <b>AUDIO INPUT</b> on the channel modulator.
	Incorrect LANGUAGE wiring	Confirm that <b>LANGUAGE</b> ± on the rear panel of The Weather Star <sup>®</sup> Jr. is connected to <b>LANG</b> (+) and chassis ground (-) on the VideoCipher <sup>®</sup> or I.R.D.
	No contact closure	If the front panel <b>LANG OPEN</b> LED is off, measure for a contact closure on the <b>LANGUAGE</b> terminals on the rear panel of The Weather Star <sup>®</sup> Jr.
	VideoCipher <sup>®</sup> not switching	Replace VideoCipher <sup>®</sup> .
<p><b>If the above steps do not correct the problem, call THE WEATHER CHANNEL<sup>®</sup> at 800-554-7354 for technical assistance.</b></p>		

# APPENDIX A TECHNICAL SPECIFICATIONS

## The Weather Star<sup>®</sup> Jr.

### Series 2450 Video Display System

#### Video

Input Range	1V p-p $\pm 0.2V$ p-p
Video Standard	EIA RS-170
Input Impedance	75 ohms $\pm 10\%$ non-looping
Input Clamping	Sync tip clamped $\pm 20$ mV with 10-90% APL
Frequency Response ( $\pm 0.5$ dB)	16 kHz to 4.2 MHz
Differential Phase	[ $3^\circ$
Differential Gain 10 to 90%	[ 3
Lum Nonlinearity	[ 5 IRE
Hum	$\mu$ 65 dB
Weighted S/N Ratio	$\mu$ 65 dB
Gain	Unity reference to 1 V p-p
Transient Response (K factor)	< 2%
LT Wave Distortion	[ 5 IRE
FT Wave Distortion	[ 5 IRE
CL Delay Inequality	[ 5 nS
CL Gain Inequality	< 3 IRE
CL Intermodulation	2 IRE
Chrominance NL Gain	1 %
Chrominance NL Phase	1 degree
Genlock Input Range	0.5 to 2V p-p
Lock-up Period	Maximum 100 $\lambda$ seconds for V, H, and chroma lock
Genlock Reference	Input color burst when source video is present; 3.579545 MHz $\pm 100$ Hz when source video is not present
Horiz. Phasing, Input to Output	Coincidental to $\pm 0.5 \lambda$ s
Output Burst Jitter	$\pm 1^\circ$
Input to Output Color Phasing	$\pm 3^\circ$

#### Mechanical

Input AC Voltage	115V $\pm 10\%$
Power Consumption	25 Watts
Height x width x depth	1.75 in. (1 RU) x 19 in. x 15 in.
Temperature	10 TO 40° C
Solid State Relays	30V, 20 mA DC

#### Agency Approvals

FCC Class B / UL 1419 / CSA

## APPENDIX B CONTROLS AND INDICATORS

The Weather Star <sup>®</sup> Jr.		
<b>LED Overview</b>		
<b>POWER</b>	Normally on	Indicates main power to unit. When off, it indicates a loss of AC power, or internal power supply defective.
<b>VIDEO</b>	Normally on	Indicates presence of input video. When off, it indicates a loss of video input sync. (Confirm <b>video output</b> from the VideoCipher <sup>®</sup> or I.R.D is connected to <b>video in</b> on The Weather Star <sup>®</sup> Jr.
<b>DATA</b>	Normally on	Indicates presence of satellite data. When off, it indicates a loss of data. (Confirm J2 from VideoCipher <sup>®</sup> or COMP/BB from I.R.D is connected to <b>baseband in</b> on The Weather Star <sup>®</sup> Jr.
<b>LANG OPEN</b>	Normally off (on during certain portions of programming)	Indicates status of the solid state switch LANGUAGE on the back of The Weather Star <sup>®</sup> Jr. When lit, it indicates that the switch is open. (This switches audio channels on the VideoCipher <sup>®</sup> .)
<b>UNIT ADDR</b>	Normally off (flashes occasionally)	Indicates when a message or command is received specifically for this unit. If on solid, The Weather Star <sup>®</sup> Jr. is locked.
<b>LC PRE-ROLL</b>	Normally off	Indicates a local commercial avail is present. When lit, the <b>LC PRE-ROLL</b> contact closure on the rear of The Weather Star <sup>®</sup> Jr. will close.
<b>(No Label)</b>	Normally off	(Future use)
<b>SC ALARM</b>	Normally off	Indicates a loss of Subcarrier. When lit, confirm J2 from VideoCipher <sup>®</sup> or COMP/BB from I.R.D is connected to <b>baseband in</b> on The Weather Star <sup>®</sup> Jr.
<b>NOTE:</b> On power up, it is normal for the front panel LEDs to flash in unison as internal diagnostics are performed.		



The WeatherStar® Jr.

**Solid State Relays**

<b>WX WARNING</b>	Normally open	Closes when a severe weather <b>warning</b> is issued for your area. When the warning is first issued, this relay closes for two complete cycles of the warning text.
<b>LANGUAGE</b>	Normally closed	Opens during certain portions of programming. This relay closure switches audio channels on the VideoCipher®.
<b>LC PRE-ROLL</b>	Normally open	Provides an eight second pre-roll before network local commercial avails. This relay remains closed for a total of 68 seconds. Connect this relay when using local commercial insertion equipment.
<b>CRAWL ON</b>	Normally open	Closes when a crawl message is on-air.

# APPENDIX C

## TERMINAL INTERFACE

### C.1 INTRODUCTION

The Weather Star<sup>®</sup> Jr. provides a password protected serial port that can be used to edit and schedule up to 10 crawls using a PC, terminal, or TANDY 102. An external modem can be connected for remote access.

### C.2 SETTINGS

The default baud rate for The Weather Star<sup>®</sup> Jr. is **2400**. Baud rates of 300, 600, 1200, 2400, 4800, 9600 are selectable through the front panel keyboard. It can be changed by entering the diagnostic screen (as described in paragraph 3.3.1) and pressing F5 until the desired baud rate is displayed. Other settings are: **8 data bits, no parity, and 1 stop bit** (these parameters can not be changed).

The terminal connects to the 9 pin female **AUX I/O** connector on the rear panel of The Weather Star<sup>®</sup> Jr. (see figure 3-1.). The connection must be made in accordance with RS-232 standard for DTE (Data Terminal Equipment). The Weather Star<sup>®</sup> Jr. requires a **NULL MODEM** cable when attached directly to a terminal or PC.

#### Note

If you are using TANDY 102 portable computer, the maximum permitted baud rate is 1200. Set your TANDY 102 protocol to: 58N1E.

### C.3 OPERATION

#### C.3.1 Logging In

1. Press **Enter** twice from your computer's keyboard (the prompt on the screen will display the serial number, software version number, and ask for terminal type):

```
WEATHER STAR JR 100013
      VERSION v1p6.3
Enter Terminal type
1. VT-100/VT-102
2. RS-102/VT-52
>
```

2. Press **1** if you are using a computer terminal/PC or Press **2** if you are using a TANDY 102 Portable Computer.

3. Enter **password** (default password is "USER") press **Return**.

The main menu will appear:

Main Menu	
A. Show message	F. Enable Schedule
B. Revise message	G. Disable Schedule
C. Erase message	H. Change Password
D. Show schedule	
E. Revise schedule	J. Log out
Which ?	

### **Note**

It is not necessary to press ENTER after selecting a letter from the menu. The Weather Star<sup>®</sup> Jr. will automatically advance into the selected function.

- **Show message:** Reviews the crawl messages in The Weather Star<sup>®</sup> Jr. The crawl names will be displayed along with the number of utilized characters and spaces in each crawl. You may view the text by selecting the corresponding letter. This mode is read-only, no editing permitted.
- **Revise message:** Allows editing of new or existing crawl messages.
- **Erase message:** Deletes a message by crawl name. Select the letter of the crawl to be deleted at the "which?" prompt.
- **Show schedule:** Reviews the current schedule. The rotation mode and the scheduled crawls will be displayed with the current crawl on-air highlighted.
- **Revise schedule:** Allows creation or editing of a crawl schedule. This will allow you to select the order that the crawl messages will run.
- **Enable Schedule:** Activates a schedule or a single crawl. You may choose from a *timed interval* selectable from 15 mins to 24 hours, a *sequential rotation*, or *single crawl* activation.
- **Disable Schedule:** Deactivates the schedule. The screen will display: "Schedule DISABLED."
- **Change Password:** Allows the user password to be changed.
- **Log out:** Ends terminal session. The screen will display: "Logged out of crawl scheduler..."

### C.3.2 Changing Your Password

1. From the main menu, select **H**.
2. Enter your new password (up to 10 characters). Numbers, upper and lower case letters are accepted.
3. Press enter.
4. Press Y to answer: save?

*The new password will be accepted the next time you log-in.*

### C.3.3 Entering a Crawl

4. From the main menu, press "**B**" to revise a message.

The following menu will appear:

Revise crawl	
A. Empty	F. Empty
B. Empty	G. Empty
C. Empty	H. Empty
D. Empty	I. Empty
E. Empty	J. Empty
Q. Quit	
	Which ?

5. Choose a crawl to revise by selecting a letter from "**A-J**."
6. The Weather Star<sup>®</sup> Jr. will ask for a new Crawl Name. Enter a new name (up to 12 characters) or press enter to keep name if already displayed.
7. Type in your crawl message (up to 255 characters). Upper and lower case letters are accepted. Refer to table **C-1** at the end of this section for a list of editing commands. Press **Enter** when completed.
8. The Weather Star<sup>®</sup> Jr. will display: "Save Crawl?" Press "**Y**" for yes. The crawl message is now saved.
  4. You can continue to enter additional messages by repeating steps 5-8.
  5. Press "**Q**" when completed to return to MAIN MENU.

### C.3.4 Activating or Scheduling a Crawl

#### NOTE

To activate a single crawl only, follow steps 5 through 7.

1. From the MAIN MENU, Press "E" to revise the schedule or press "D" to review the current schedule.

After pressing E, the following menu will appear:

Revise Schedule

A)dd, I)nsert, D)elele, C)lear, Q)uit  
Current Mode: Single            Which ?

2. Press appropriate letter to select a function:

A)dd:     A directory of crawl messages will be displayed. Choose a letter from A-J to select messages.

I)nsert:   A prompt will ask which entry to insert before.

D)elele:   A prompt will ask which entry to delete.

C)lear:    Clears the contents of the current schedule.

3. Continue until a desired schedule is created.

4. Press "Q" when completed to return to MAIN MENU.

5. Press "F" from main menu (Enable schedule). The following will be displayed:

Choose Crawl Rotation Method

A. Time interval  
B. Continuous Rotation  
C. Single Crawl  
Q. Quit

Which?

6. Choose function which suits your needs:

#### **Time Interval**

Timed rotation interval selectable from 15 mins to 24 hours. If selected, you will be asked to select a time interval for all crawls in the schedule to rotate.

**Continuous Rotation**     Sequential rotation of all crawls in the schedule. If selected, you will be asked to choose the initial crawl to begin with.

**Single crawl**                 Selects a single crawl for display. If selected, you will be asked to choose which crawl to display.

7. Press "**J**" to log out and end session. The screen will display: "Logged out of crawl scheduler..."

**The crawl will appear during the next local forecast.**

**NOTE**

The crawl schedule will reset Saturday night at midnight to the first crawl in the schedule.

TABLE C-1. CRAWL EDITING FUNCTION KEY USING A TERMINAL OR PC

FUNCTION	KEYSTROKES
<b>The following commands can be used while editing a crawl:</b>	
Moves cursor without deleting characters.	(Arrow keys ρ τ)
Deletes character at current cursor position.	<b>Delete</b>
Moves cursor left, deleting characters.	<b>Backspace</b>
Save crawl and exit.	<b>Enter</b>
Changes from Insert to Overstrike mode.	Hold down <b>Control</b> , and press <b>I</b>
Erases crawl.	Hold down <b>Control</b> , and press <b>E</b>
Exit without saving.	Hold down <b>Control</b> , and press <b>X</b>
Moves cursor to first letter of previous word.	Hold down <b>Control</b> , and press <b>P</b>
Moves cursor to first letter of next word.	Hold down <b>Control</b> , and press <b>N</b>
Moves cursor to home position	Hold down <b>Control</b> and press <b>A</b>
Moves cursor to End of Message.	Hold down <b>Control</b> and press <b>Z</b>

