



# **SOFTPAQ 4 SOFTWARE MANUAL**

**"This manual describes the use of: EXTRAOP, SWRLOT,  
SIGLOCK, and LOGGER. These four programs  
make up the SOFTPAQ 4 package.**

**COPYRIGHT (C) 1987  
SIGNAL ONE CORPORATION**

**March 2, 1987**

## TABLE OF CONTENTS

SECTION	TITLE	PAGE
1.0	INTRODUCTION . . . . .	1
2.0	EQUIPMENT REQUIRED . . . . .	1
3.0	GETTING STARTED . . . . .	3
4.0	PRECAUTIONS . . . . .	4
5.0	EXTRAOP.EXE . . . . .	5
5.1	FEATURES . . . . .	5
5.2	OPERATION . . . . .	5
5.3	OPTIONS . . . . .	6
6.0	LOGGER . . . . .	7
6.1	FEATURES . . . . .	7
6.2	OPERATION . . . . .	8
6.3	MAIN MENU OPTIONS . . . . .	8
6.4	LOGGER OPERATION . . . . .	19
6.5	GENERAL FUNCTIONS . . . . .	25
7.0	SWRLOT.EXE . . . . .	28
8.0	SIGLOCK.EXE . . . . .	28
9.0	RELATED DATA . . . . .	33
10.0	GENERAL OPERATING CONSIDERATIONS . . . . .	34

## MILSPEC 1030 INTERFACE SOFTWARE

### 1.0 INTRODUCTION:

SOFTPAQ 4 includes four separate programs that will enable you to use your computer to interface with the MILSPEC 1030 transceiver. These four programs by no means constitute the limit of what you can do with your equipment. The only limit is the imagination and programming ability of the one writing the software. To aid those not skilled in programming, these programs have been made available. Other applications programs are under development. Announcements of future programs will be sent to you as the programs become available.

The four programs included in this package will allow an appropriate computer to interface with the MILSPEC 1030 and perform the following major functions:

a. EXTRAOP: Allows your computer to control most of the capabilities available from the front panel.

b. LOGGER: Performs real time operating and logging actions. It is set up to aid in contest operation however it can be used to simplify everyday operations.

c. SWRLOT: Allows the computer and MILSPEC 1030 to interface with the forward and reflected power measurement capabilities, calculating SWR and plotting it across a predetermined frequency range. All of the amateur bands are included in a menu for ease of operation. The menu also includes a selection that allows custom selection of frequency end points and the number of measurement intervals.

d. SIGLOCK: Directs the equipment to scan bands or discrete frequencies for signals. When a signal is found it will attempt to tune in the signal by recognizing the mode and the determining the frequency offset required to fine tune it.

### 2.0 EQUIPMENT REQUIRED:

All of the included programs have been tested extensively and are believed to be free of errors. They have been tested using the COMPAQ IBM compatible portable computer which is the recommended computer for

interfacing to the MILSPEC 1030. The reason for selecting this computer over others, including the IBM PC itself, is that the recommended computer is very insensitive to radio frequency interference (RFI) and it also has a low level of radiation of electro-magnetic interference (EMI). Your COMPAQ computer should have at least one RS-232 interface adapter for serial communications installed, which must be connected to the optional RS-232 interface installed in the MILSPEC 1030. This configuration along with a minimum of 192K bytes of random access memory (RAM) and a disk drive is the simplest setup that will support these programs. Other IBM PC and compatible computers have been used to control the MILSPEC 1030 with varying degrees of success. The main area in which these other computers do not perform at the same level as the COMPAQ in the area of RFI. Transmissions made with the MILSPEC 1030 has interfered with the computers on many occasions, creating a lock-up of the computer keyboards. The systems then must be shut completely off and re-booted to correct the situation. In one specific case involving the IBM PC, it was found that by replacing the keyboard with a keyboard marketed by KEYTRONIC, a model KB 5151, all the RFI problems were eliminated. This does not necessarily mean that in your specific case a new keyboard will make your computer less susceptible to RFI. Other RFI elimination methods or shielding could make these systems usable with the MILSPEC 1030, however any modifications are left entirely up to the user since RFI problems are usually location and equipment configuration dependent, varying in each separate installation. Any IBM PC or compatible does require the graphics option if these programs are to be run on it.

If you are contemplating use of these programs and do not as yet have your computer, the above explanations should be studied carefully before you purchase a system. On the other hand, if you already own an IBM PC or compatible and wish to "make it work" the following list of suggested changes may help cure all or part of the problem. You may wish to implement one or all of the following:

- a. Use an RFI/EMI filter between the computer and the AC power line.
- b. Change an IBM PC keyboard to a KEYTRONIC model KB 5151.
- c. Use only shielded RS-232 cables.

d. Disconnect all other peripherals including printers or modems from the computer.

e. Ground the computer separately via at least three different lengths of wire so that the unit has an effective as possible RF ground at all frequencies of operation.

f. Use proper grounding and antenna feedline techniques with your transmitting equipment.

g. Use a tuner to match the antenna to the transmitter.

One or more of the above listed changes may help your particular system, however it is not the responsibility of SIGNAL/ONE Corp. to correct interference problems. In most cases if the MILSPEC 1030 is connected to a dummy load the computer will not be affected by radio frequency interference. This fact can be used to assure yourself that the programs are operating properly.

If you are using a non-COMPAQ computer, your system will need the graphics capability to run these programs. This is the standard high resolution graphics mode supported by the IBM PC, which has a resolution of 640 by 200 dots. Higher resolution graphics such as those supported by hardware from various vendors such as HERCULES are not supported by this software.

### 3.0 GETTING STARTED

Included with these instructions is a program disk which includes on it, the four programs described above. These programs are not copy protected. However each program will not run with other MILSPEC 1030 interface units. Each is programmed to work with the exact timing characteristics of your interface, taking into account the speed of the components on your board and the software version or release number. You can make as many copies of the programs as you need for use on your system. Even put it on a hard disk system if you desire too. Prior to attempting to use the programs you should back up the disk. This may be done on the COMPAQ by formatting a disk as you would any program disk and then copying all programs from the supplied SIGNAL/ONE disk onto the newly formatted disk. If the newly formatted disk is in drive B and the supplied disk is in drive A, the command would be:

COPY A:\*. \* B:

This procedure is explained in your disk operating system (DOS) manual.

An alternate method is to use any disk copy program that makes an exact duplicate of a disk.

Next, place into drive A: the disk you have just copied the programs onto, and with the A: showing on the screen, type in the name of the program you wish to run. (These names are the same as listed in the program descriptions section of these instructions.) The program residing on the disk has an additional suffix in its name (example: the SWRPLOT program is called by typing SWRPLOT and pressing the return key, the computer will then load and run the program.) The program resides on the disk under the name of SWRPLOT.EXE.

After loading and running the program will display a copyright notice and then after a short time delay, either a menu or status display will be displayed. Commands that may be used are in most cases self-explanatory. If explanations are required a help option will be selectable from the display.

#### 4.0 PRECAUTIONS:

Never allow the computer or the disks to be positioned within 18 inches of any equipment containing a high power transformer such as a linear amplifier of a piece of auxiliary equipment. This includes the MILSPEC 1030 itself. High magnetic fields produced by the transformers can interrupt the operation of a computer or actually erase the data on a magnetic disk.

Another area of concern, present in many amateur stations is that of poor power regulation. It is usually caused by high power drain from a 110 volt AC power line. If the voltage is temporarily lowered to 105 volts or less, many computers will behave in unpredictable ways. If you believe this could be happening in your station, the problem can be eased by running a separate 110 or 220 volt line into the station for high power equipment. A voltage leveler could also be used to connect the computer to the AC powerline.

## 5.0 EXTRAOP.EXE:

### 5.1 FEATURES:

This program gives computer control of the MILSPEC 1030 to the operator. The level of control in some cases is higher than can be achieved with MILSPEC 1030 front panel controls. Major features are:

- |                             |                     |
|-----------------------------|---------------------|
| a. Frequency control        | b. Memory control   |
| c. Clock control            | d. Pass-band tuning |
| e. Band switch via memories | f. Mode switching   |
| g. Freq. step size control  | h. Receiver Mute    |
| i. SWR measurement          | j. S-meter monitor  |
| k. Logging to printer       |                     |

### 5.2 OPERATION:

First, boot up your computer according to the instructions that come with the Disk Operating System (DOS). At the prompt that should look like this A>, type EXTRAOP and press <RETURN>. After a few seconds, the program copyright notice should appear on the screen. After verifying that the computer is connected to the MILSPEC 1030 and the unit is turned on, press any key to continue.

The program will make communications with the MILSPEC 1030 and beep twice as the program resets the RS-232 communications lines.

A current status display will appear on the screen similar to figure 1. The status entries are updated as changes are made to the MILSPEC 1030 via the computer interface. Reverse video and special display techniques used such as blinking are not shown in figure 1.

The display will indicate the MILSPEC 1030's status as it changed at the radio front panel. Current time is updated every minute. Memories are numbered A through T and preset to the common ham bands and WWV frequencies. The arrow indicates the last memory pointer that was used. An additional command, R, is available if the PROSEARCH rotator is attached to communications port number two (COM2).

CURRENT MILSPEC 1030 STATUS

<u>FREQUENCY</u>	<u>STEP</u>	<u>1030</u>	<u>SMETER</u>		<u>PBT</u>	<u>RX</u>	<u>CURRENT</u>
Khz	RATE	MODE	PEAK	AVERAGE	OFFSET	AUDIO	TIME
14,200.99	100 HZ	USB	S9	+10	0000	ON	23:59

<u>SWR</u>				
1.2 to 1	MEMORY	FREQUENCY	MEMORY	FREQUENCY
	A	01,800.00	K	15,000.00
	B	03,500.00	L	20,000.00
	C	03,800.00	M	21,000.00
	D	05,000.00	N	21,300.00
	E	07,000.00	O	28,000.00
	F	07,150.00	P	28,100.00
	G	10,000.00	Q	28,500.00
	H	10,100.00	R	28,600.00
	I	14,000.00	S	29,000.00
	J >	14,150.00	T	29,450.00

COMMANDS AVAILABLE: (ESC)=END PROGRAM, L=LOG

1FREQ 2AUDIO 3STORE 4RECALL 5SWR 6SMETER 7STEP 8PBT 9FREQ U OFREQ D

(figure 1.)

### 5.3 OPTIONS:

The following functions are available by pressing the applicable function key:

KEY F1: FREQ. Allows you to directly enter a new frequency

KEY F2: AUDIO. Toggles audio off and on.

KEY F3: STORE. Stores a frequency in any of the memories.

KEY F4: RECALL. Recalls a frequency from one of the memories.

KEY F5: SWR. Measures SWR at the tuned frequency.



KEY F6: SMETER. Makes a number of smeter checks and displays peak/avg.  
KEY F7: STEP. Allows you to change the step rate for tuning.  
KEY F8: PBT. Enables PBT and changes the function keys.  
KEY F9: FREQ U. Increments the frequency by one step.  
KEY F10: FREQ D. Decrements the frequency by one step.

UP AND DOWN ARROW KEYS: These keys move the memory pointer up or down one position and sets the frequency to the new frequency.

ESC: Press the <ESC> key to end the program.

L COMMAND: This command will let you log a contact to your printer. Make sure that the printer is on, press "L" and follow directions.

EXAMPLE:

03/29/85 23:24:14 14200.21 KHz USB SIG PEAK: S9, AVG S8 SWR 2.3 to 1  
W1AW SENT: 59 RCVD: 57 Bob operating W1AW on vacation

## 6.0 LOGGER.EXE

### 6.1 FEATURES:

This program allows an operator to access the features of the MILSPEC 1030. A default parameter table allows for custom logging and default value control. The operator can do any of the following:

a. Pre-plan a contest. This function allows one to pre-designate which band the operation should be taking place on for selectable time blocks. Input is DAY, TIME, and BAND with up to 30 band changes. This can be edited on-line.

b. Check for a duplicate contact. This function uses the current logging file and checks it for the callsign entered at the keyboard.

c. Log the contact to a band log. Activated by a the return key, this function writes contact related data onto disk to form a log of contacts. This information then can be printed by separate command.

d. Memorize callsigns or frequency of operation. Upon pressing the STORE key, the screen and memory will be updated to show the current list of calls with frequencies. The options available are to STORE or RECALL an entry. RECALL sets the MILSPEC 1030 to the proper frequency.

e. Plan schedules. This option works on a call/frequency basis. It is used to keep track of pre-arranged schedules of stations and frequencies for later use. The list can be read from the logger screen.

f. Print log. Display/print log in a format suitable for records.

g. Print dupe sheets. Display/print list of callsigns containing each call logged more than once in the particular log file. This list may then be used as the contest entry dupe check list for that band.

h. Alphabetize contacts. Alphabetize calls in a band file and display/prints the list for a contest entry or future reference.

## 6.2 OPERATION:

First, boot up your computer according to the instructions that come with the Disk Operating System (DOS). At the prompt that should look like this A>, type `LOGGER` and press `<RETURN>`. After a few seconds, the program copyright notice should appear on the screen. After verifying that the computer is connected to the MILSPEC 1030 and the unit is turned on, press any key to continue. The program will make communications with the MILSPEC 1030 and beep twice as the program resets the RS-232 communications lines. The main menu display will appear on the screen similar to figure 2. The function performed by each option is explained in the next main menu options section.

## 6.3 MAIN MENU OPTIONS:

### 6.3.1 Option A: SET OPERATION TITLE

PRESS "A" and the program will ask you to select a title for the operation that you wish to continue with. Enter a name for the operation. The name can be up to eight characters long.

### 6.3.2 Option B: BAND SELECT

PRESS "B" and the following display will appear, figure 3.

\*\*\*\*\* SELECT OPTIONS AND FEATURES \*\*\*\*\*

- <A> SET OPERATION TITLE
- <B> BAND SELECT
- <C> SET DATE AND TIME
- <D> SET STATUS FLAGS
- <E> EDIT A BAND FILE
- <F> SHOW FILES
- <G> DELETE FILES
- <H> SET UP OR EDIT A PROMPTING FILE
- <I> SHOW A LIST OF PROMPTING TIMES
- <J> DISPLAY/PRINT LOGGED INFORMATION
- <K> DISPLAY/PRINT ALPHABETICAL LISTING OF CALLSIGNS
- <L> DISPLAY/PRINT LISTING OF DUPLICATE CALLSIGNS
- <M> ACTIVATE LOGGER
- <N> END PROGRAM

(figure 2.)

After selecting the band, the program will ask you to make a mode selection by displaying the following menu, figure 4.

NOTE: The operation and band must be specified to use the prompting or logging features. After you have initially set up this program and properly terminated operation once, the operation, band and many other options are stored on disk for recall next time you run the program. This recall is automatic. The information is stored in the file named "LOGGER.MEM".

### 6.3.3 Option C: SET DATE AND TIME

This option allows you to set or reset the date and time. Upon boot up of your system, you are asked what date and time it is currently. If you enter these values upon boot up, they will not have to be changed for LOGGER operation unless you want to use ZULU or UCT times for logging or display. PRESS "C" and the following display will appear on the screen, figure 5.

————— BAND SELECTION MENU —————

<A> 1.8	<D> 28	<1> SPARE
<B> 3.5	<E> 50	<2> SPARE
<C> 7.0	<F> 144	<3> SPARE
<D> 10.1	<G> 220	<4> SPARE
<E> 14	<H> 440	<5> SPARE
<F> 18	<I> 1215	<6> SPARE
<G> 21	<J> 2300	<7> SPARE
<H> 24		<8> SPARE

<ESC> TO RETURN TO MENU

SELECT BAND (A-0, or 1-8)

(figure 3.)

SELECT MODE FOR THE BAND

<C> CW  
<P> PHONE  
<R> RTTY  
<S> SSTV  
<O> OTHER  
<ESC> NO CHANGE

SELECT MODE (C, P, R, S, or 0)

(figure 4.)

CURRENT TIME IS: 23:22:57  
CURRENT DATE IS: 01-09-1985  
ENTER NEW TIME:

(figure 5.)

EXAMPLE: Enter time in exact format shown in REVERSE VIDEO. Then press <RETURN>. To make no change in the time, press <RETURN> only. In either case, the display will change to request a new date. Enter the new date in the exact format requested and press <RETURN>. Again, for no change, press <RETURN> only. The program will return to the main menu.

#### 6.3.4 Option D: SET STATUS FLAGS

This option sets the parameters for the logging operation. Each option is explained in detail below. PRESS "D", and the following display will appear on the screen, figure 6. Data may vary.

The current parameters or defaults are displayed. The line to be changed is printed again. The program asks for a change in the default disk drive. An (A:) is initially displayed. If no change is required, press <RETURN>. The line will then be updated to request new information for the second parameter. The procedure is repeated until each parameter has been entered. At any time, if a "Q" is entered and a <RETURN> is pressed, the program will return to the main menu.

The following is a description of the valid entries for each of the parameters.

##### 6.3.4.1 Line #1: DEFAULT DISK DRIVE:

This line is used to set the disk drive that the program will use when it looks for the "LOGGER.MEM" file, the "LOGGER.PPP" prompting file, or any of the band files that the program uses to log or display to. Any disk drive that is used by the system can be designated. Usually A: and B: are floppy disks and C: is a hard disk. The colon (:) must be used when making a disk drive selection. This value is saved when operation is halted properly.

DEFAULT DISK DRIVE: A:  
LOG INFO TO PRINTER ON/OFF: OFF  
AUTO RCVD REPORT: 599  
AUTO SENT REPORT: 599 2002  
FIRST CHAR. OF SERIAL #: 5  
NEXT SERIAL NUMBER: 2002

NEW DRIVE? (A: B: C: D:):

PRESS <O>-RETURN TO MENU, <RETURN>-SKIP TO NEXT ENTRY

(figure 6.)

#### 6.3.4.2 Line #2: LOG INFO TO PRINTER ON/OFF:

This line allows the program to print a record of each contact to the line printer attached to the computer. The information printed will be the same as that which is stored on disk after each contact is logged. To change this status value, enter either "ON" or "OFF" and press <RETURN>. If no change is required press <RETURN> only to go to the next status line.

#### 6.3.4.3 Line #3: AUTO RCVD REPORT:

This line contains the information that the program will use as a default when logging each contact to the disk file and printer if the printer default is "ON". Any type information can be put in this line. Usually a 59 for phone or 599 for CW operation will be adequate. This information is ignored if the operator chooses to input different signal reports, etc. To change this information, simply enter the information you want and press <RETURN>. If the information is already correct, press only a <RETURN> to go to the next status line. This value is saved when operation is halted properly.

#### 6.3.4.4 Line #4: AUTO SENT REPORT:

This line is similar to Line #3 but is used for Sent Report. An additional feature included is that a serial number can be automatically inserted and changed by the logging operation. To use this feature, leave space where you want the serial number to be inserted and note the position of the first character of the spaces left for the number. This position will be used in the next line.

EXAMPLE: If the report is to be 599, a serial number, and your state; you will enter 599, four spaces, and the two letter state designator "599\_\_AZ". Note that the first character of the serial number occurs at position four. After the report is entered, a <RETURN> is pressed. Again, if no change is required, press <RETURN> only to go to the next status line. This value is saved when operation is halted properly.

#### 6.3.4.5 Line #5: FIRST CHAR OF SERIAL #:

This line indicates where in the sent report (LINE #4) that the four digit serial number will be placed. If no serial number is to be used, place a zero in this line. After a number corresponding to the first character of the four digits reserved for the serial number is pressed, press <RETURN>. Press <RETURN> to go to the next status line. This value is saved when operation is halted properly.

#### 6.3.4.6 Line #6: NEXT SERIAL NUMBER:

This line is only used if line #5 has a value other than zero. If operation is to start with serial number 0001, press "1" and <RETURN>. If operation is to begin at 500, press "5", "0", "0", and <RETURN>. For no change, press <RETURN>, and the main menu will appear. This value is saved when operation is halted properly.

NOTE: At any time you can go to the main menu by pressing "Q" and <RETURN>. However, if you have selected the "STATUS" option from the logger display, you will return to the logger display instead of the main menu.

### 6.3.5 Option E: EDIT A BAND FILE

Selecting this option allows you to make changes to an existing band file. The program will ask you for the name of the operation and what band and file to edit. The program will then ask you which record number that you wish to edit. You should already have a list of the records that you would like to edit prior to using this option. The record number of each contact can be found by using option "J" from the main menu to list all the contacts. The edit screen is shown in figure 6 below. Make your selection of the line to edit and follow the instructions. Take care to use the correct formats or you new record will not look like all the other records when you later print out the log. After the record is edited and a zero or <RETURN> is entered, the display will ask for a new record to edit. At this time a new record number can be entered or a zero or a <RETURN> can be entered to go to the main menu. If the edit mode was called from the logger display, the logger display will appear instead of the main menu.



QSO NUMBER: 1

- 1) CALLSIGN: WA2SAB/7
- 2) DATE: 05-27-1985
- 3) TIME: 11:29:13
- 4) SENT: 599 031 NM
- 5) RCVD: 599 019 AZ

ENTER LINE # TO EDIT (1-5), 0 TO END  
MAKE SELECTION —

(figure 6a.)

#### 6.3.6 Option F: SHOW FILES

This option allows you to see the files that are on the disk in the default drive. PRESS "F" and a display will be presented on the screen showing the files which are on the default disk drive. To see the files on the other disk drives, the default disk drive must be reset using Option "D" from the main menu. After the screen is reviewed, press any key to return to the main menu.

#### 6.3.7 Option G: DELETE FILES

This option allows you to delete disk files from any disk drive in the system. Be extremely careful in deleting files to avoid deletion of files you wish to save. To use this option, PRESS "G". The following display will appear on the screen:

Follow directions or take no action by pressing <RETURN> to return to the main menu.

\*\*\* USE CAUTION WITH THIS OPTION \*\*\*

#### 6.3.8 Option H: SET UP OR EDIT A PROMPTING FILE

This option allows you to set up a file of times, frequencies and callsigns that you can query from the logger to tell you when your next schedule is or when you need to change bands in a contest. Use

suboption "B" to set operation if none has been selected previously. To use this option, PRESS "H". The following display will appear on the screen unless no operation has been selected. If no operation is selected the program will ask for a selection. Use suboption "C" to change the name of the operation. Use suboption "E" to edit or look at current prompting file's content. Regardless of whether "C" or "E" is pressed, the eventual display that will appear is shown below, figure 7.

```

OPERATION: CQW          PROMPTING FILE

A>                                N>
B>                                O>
C>                                P>
D>                                Q>
E>                                R>
F>                                S>
G>                                T>
H>                                U>
I>                                V>
J>                                W>
K>                                X>
L>                                Y>
M>                                Z>

```

```

SELECT LINE TO CHANGE
PRESS <ESC> TO RETURN TO MENU

```

(figure 7.)

At this point you can enter or change data on any line in the file. The program will ask for a date, time, frequency and callsign. The callsign is optional. The file name used for this file is: EXAMPLE, operation is "CQW", file name is "CQW.PPP". This file is used by the "SKED" command activated from from the logger. The "SKED" command is described later. Press the escape (ESC) key to return to the main menu.

#### 6.3.9 Option I: SHOW A LIST OF PROMPTING TIMES

This option is a variation of Option H. The differences being that the edit capability is not included and it will allow you to view the file faster by eliminating one of the interim menus. After the operation title is entered and the file is displayed, you may return to the main menu by pressing the (ESC) key.

#### 6.3.10 Option J: DISPLAY/PRINT LOGGED INFORMATION

This option allows you to display and print the contents of a logging file. PRESS "K" and follow directions to enter the desired operation name. After the operation is designated, the band and mode selection menus will appear the same way as displayed in Option A. After the band and mode are selected, the program will ask if a printout is desired. If yes, press "P". If no, press any key. At this point, the log file will be displayed and printed similar to figure 8.

To stop/start display, press the space bar; to halt and return to the main menu, press the <ESC> key. At the end-of-log, any key pressed will return you to the main menu.

#### 6.3.11 Option K: DISPLAY/PRINT ALPHABETICAL LISTING OF CALLSIGNS

This option allows you to display and print alphabetized listings of all callsigns in a log file. The program will read in the desired file, alphabetize it and display the callsigns in sequence. To use this option, PRESS "K", the program will ask if you desire a print out. Pressing a "P" will enable the printer. Any other key will begin the alphabetization process. The process will generate a constantly changing display. When the two numbers increment together, the alphabetization is nearly complete. When all callsigns have been displayed, press any key to return to the main menu.

QSO#	DATE	TIME	CALL	RPRT SENT	RPRT RCVD	BAND	MODE
1	05-27-1985	11:29:13	W8HFD	599 179	599	1.8	CW
2	05-27-1985	11:29:53	WA2SAB/7	599 180	599	1.8	CW
3	05-27-1985	11:34:26	W4TIR	599 181	599	1.8	CW
4	05-27-1985	11:35:20	N5RRA	599 182	599	1.8	CW
5	05-27-1985	11:36:15	WA4ERT	599 183	599	1.8	CW
6	05-27-1985	11:37:22	W3DEE	599 184	599	1.8	CW
7	05-27-1985	11:39:40	W2QWE	599 185	599	1.8	CW
8	05-27-1985	11:40:37	W8UHF	599 186	599	1.8	CW

PRESS <SPACE> TO HALT/CONTINUE or <ESC> TO RETURN TO MENU

(figure 8.)

#### 6.3.12 Option L: DISPLAY/PRINT LISTING OF DUPLICATE CALLSIGNS

This option allows you to display and print a list of all duplicate callsigns in a log file. The band file will be read in and checked for duplicates, displaying each duplicate as it is encountered. PRESS "L", the program will ask if you desire a print out. Pressing a "P" will enable the printer. Any other key will start the duplicate checking process. The process will continue until all callsigns have been checked, displaying all duplicates as they are found. After all callsigns have been checked, press any key to return to the main menu.

#### 6.3.13 Option M: ACTIVATE LOGGER

This activates the logger which is interactive with the Milspec 1030. Each feature of the logger and available commands are explained in the next section. PRESS "M", a display, similar figure 9 shown in the next section, will appear on the screen. To return to the main menu from the logger type "MENU" press <RETURN>.

#### 6.3.14 Option N: END PROGRAM

This option properly terminates the logging session and returns you to DOS. It saves many settable options on disk so that the operator will return to the same point when the logger is run the next time.

#### 6.4 LOGGER OPERATION ( Option M from the main menu )

The logger is designed to help the radio operator keep track of stations worked. Major features of the logger mode are listed below and then explained in detail later in this section. Features are:

- a. Displays current frequency, mode and step rate.
- b. Displays current operation and band.
- c. Displays current date and time.
- d. Retains 26 separate memories of frequencies and callsigns.
- e. Manual scan of memory frequencies using arrow keys.
- f. Logs each contact to a disk file.
- g. Allows the use of default signal reports.
- h. Automatic serial number insertion in default signal report.
- i. Display number of contacts for the active band.
- j. Change frequency from computer.
- k. Step up or down in frequency from computer.
- l. Check call against stations logged to confirm duplicate calls.
- m. Automatic positioning of PRO-SEARCH rotator from keyboard by compass point, degree heading, left or right.
- n. Command mode.

##### 6.4.1 HEADER FEATURES (figure 9 below)

The logger display is divided into three main sections. The top few lines basically monitor the Milspec 1030 and include: frequency mode, step rate, date, time and logging file information.

6.4.1.1 FREQUENCY: This line displays the current frequency of the Milspec 1030 and will change with changes to the radio.

6.4.1.2 MODE: This line displays the current mode of the Milspec 1030 and will change as the mode switch is changed.

NAME OF OPERATION: CQW  
 FREQUENCY: 01,805.10      ACTIVE BAND: 1.8 CW  
 STEP: 100 Hz      DATE: 06-23-1985  
 MODE: USB      TIME: 10:27

MEMORY	FREQ.	CALL	MEMORY	FREQ.	CALL
A	0180305		N		
B	> 0180510		O		
C	0182200		P		
D			Q		
E			R		
F			S		
G			T		
H			U		
I			V		
J			W		
K			X		
L			Y		
M			Z		

LAST QSO: 06-23-1985 10:27:06 W4ESA      TX: 599 2002      RX: 599

CALLSIGN:      DEFAULT REPORT SENT: 599 2003  
 DEFAULT REPORT RCVD: 599  
 NEXT QSO OR SERIAL #: 2003  
 # OF QSOs THIS BAND: 2002

1FREQ. 2ERASE 3STORE 4RECALL 5CHECK 6MENU 7STEP 8ROTATE 9UP 0DOWN

(figure 9.)

6.4.1.3 STEP RATE: This line displays the step rate that the program will use if the function keys F9 and F10 are used to increment or decrement the frequency. The step rate is changed by pressing the F7 key.

6.4.1.4 DATE/TIME: Both date and time are automatically updated by the program. To change the date/time to UCT (ZULU), etc., use option "C" from the main menu.

6.4.1.5 NAME of OPERATION: This line shows the name that the program will use in either creating or using files for logging. Typically you will use this line as a description of what the operation is such as, CQWW for the CQ world-wide contest, or your callsign for general operation. This name can be changed in a number of ways via menu options. Option "B" from the main menu can be used or if you desire, use the command mode by typing the word "OPERATION" in place of a callsign in the block at the lower left of the logging screen. The command mode will be explained later.

6.4.1.6 ACTIVE BAND: This line shows the name of the band that is currently active for logging callsigns. The band should be changed when you change the band of operation. The bands allowed are selected from menus and are designated by the program. Like the operation, the band can be changed from various menus. Option "A" from the main menu can be used or if desired, use the command mode by typing the word "BAND" in place of a callsign in the block at the lower left of the logging screen. The command mode will be explained later.

#### 6.4.2 MEMORIES SECTION

The center of the logger screen display consists of the memory feature. The lines identified as A thru Z describe the contents of the 26 memories available from the program. Upon starting LOGGER for the first time, no information will be stored in the memories. After you use the memories, the contents will be saved each time the program is ended. The file on the disk storing the memories is `LOGGER.MEM`. The arrow in front of the frequency in the display is moved with the up arrow and down arrow cursor control keys on the right side of the keyboard. The arrow is also moved when a specific memory is recalled. To save a frequency, press the STORE key, F3, and follow the directions as they appear on the screen.

Example: tune the Milspec 1030 to the frequency you wish to save. Press the F3 key. Just above the STORE key label at the bottom of the screen, the program will ask which memory you want to use ( A-Z ).

Press "A". The memory designated as A now will contain the frequency of the 1030. If a callsign is desired in conjunction with the frequency, you must type a callsign in the callsign block prior to pressing the F3 key. The callsign will then be stored with the frequency in the memory.

Recalling a memory is done in either of two ways. The use of the up and down arrow keys will transfer the next memory into the Milspec 1030. The use of the F4 key, designated as RECALL, will recall the frequency of any of the 26 memories and place it into the Milspec 1030.

Example: To recall memory "C", press the F4 key. The program will ask which memory (A-Z) just above the recall label near the bottom of the screen. Press a "C". The contents of memory C are transferred to the 1030.

#### 6.4.3 COMMAND LOWER SECTION

The lower portion of the screen consists of the callsign or command entering line, default report area and the labels for the ten function keys, F1 thru F10, located on the left side of the keyboard.

##### 6.4.3.1 CALLSIGN BLOCK

This block is used to enter callsigns or commands into the program and to log QSOs into the proper band file.

##### 6.4.3.1.1 CALLSIGNS

After a station callsign is typed into the block, a number of operations can be performed. Previously the use of a callsign with the memory feature was explained. A callsign can be checked against those callsigns already logged by entering the callsign and pressing the <RETURN> key or the "F5" key. The program will respond with either "OK" or "DUPE" meaning it had been worked. If it is a duplicate contact then you have the option of logging it or erasing it. The callsign can be cleared with the "ERASE" key, F2. The callsign can be logged by pressing the <RETURN> key.



#### 6.4.3.1.2 LOGGING

After the logging function is started, the program will request that you enter the report you sent. At this time you can enter the data and press <RETURN> or if you want the default "SENT" report to be logged, press the <RETURN> key only. In either case, the next action will be that the program will ask for you to enter the report you received. Again, you have some options. You can enter the data and press <RETURN> or just press the <RETURN> key if you desire to use the default received report. You can also add information to the default report by entering a "+" and then the information you want added to the default report. If you have made a mistake and did not want to log the callsign, you may enter a "Q" and press <RETURN> in place of either of the reports. The "Q" will halt the logging process and return you to the same place you were prior to pressing the <RETURN> key.

#### 6.4.3.1.3 COMMANDS

An additional feature is the use of the callsign block to enter commands to the program. Instead of calling up the main menu and then selecting an option, you may go directly to certain options via the callsign block. These options or functions are listed as follows:

END	OPERATION	BAND	SKED	MENU
STATUS	CLEAR	BACK	HELP	EDIT

Each option is initiated by typing in the command exactly as it appears above and then pressing the <RETURN> key. The action taken by each command is described as follows:

##### 6.4.3.1.3.1 END

This is the proper way to end the operation of the program. It closes all files properly and writes the current status of the logger and memories to a disk file. If you do not end the program using this command or Option "N" on the main menu, you may not save all the data that you have entered in operation of the logger. Actual logging files will not be affected by improper termination.

#### 6.4.3.1.3.2 OPERATION

This command is similar to Option "A" on the main menu except that control is passed directly back to the logger screen.

#### 6.4.3.1.3.3 BAND

This command is similar to Option "B" on the main menu except that control is passed directly back to the logger screen.

#### 6.4.3.1.3.4 SKED

This option searches the current operation's prompting file to find the next scheduled contact or band change. The information appropriate to the next schedule will then be displayed under the callsign block. The prompting file must have been created by using Option "H" from the main menu prior to the use of the "SKED" command.

#### 6.4.3.1.3.5 MENU

This command returns you to the main menu.

#### 6.4.3.1.3.6 STATUS

This command is the same as previously described for Option "D" on the main menu except that control is passed directly back to the logger screen.

#### 6.4.3.1.3.7 CLEAR

This command is used to clear the memories displayed on the logger screen. The screen is then rewritten to show no data is in the memories. If you want to make sure that the memory is saved, you must exit the program properly by using option "N" from the main menu or use the "END" command.

#### 6.4.3.1.3.8 BACK

This command will set the next serial number and the QSO's for this band back one number so that the same numbers can be re-used. It has the same effect as erasing the last logged QSO.

#### 6.4.3.1.3.9 HELP

This command will display a list of all the available commands. The screen will be similar to figure 10 below.

COMMANDS AVAILABLE BY TYPING THEM IN ON THE CALLSIGN LINE ARE:

BACK —— ERASES LAST QSO FROM LOG  
BAND —— CHANGE TO NEW BAND AND MODE  
CLEAR —— CLEAR ALL 26 MEMORIES  
EDIT —— EDIT CURRENT LOG FILE  
END —— RETURNS TO DOS  
HELP —— DISPLAYS THIS LIST  
MENU —— RETURNS TO MAIN MENU  
OPERATION — CHANGE TO NEW OPERATION  
SKED —— SEARCH PROMPT FILE AND DISPLAY NEXT SCHEDULE  
STATUS —— DISPLAY OR CHANGE PROGRAM DEFAULTS

PRESS ANY KEY TO RETURN TO LOGGER

(figure 10.)

#### 6.4.3.1.3.10 EDIT

This command places you into the edit mode using the current operation, band, and mode. This is the same edit mode as option "E" from the main menu except that after editing is complete you return to the logger.

### 6.5 GENERAL FUNCTIONS

#### 6.5.1 DEFAULT REPORT AREA

This area is used to display the default reports set by option "D" from the main menu or by using the "STATUS" command. The total number of contacts logged on the current operation and band is also displayed.

## 6.5.2 FUNCTION KEYS

The bottom line of the logger screen shows the title of the function keys F1 thru F10 situated on the left side of the keyboard. The function and use of each of the ten keys are described as follows:

### 6.5.2.1 F1-FREQ

This key allows you to enter a new frequency that will be sent to the 1030. Only the first few significant digits need be entered.

Example: If you wish to enter a new freq. of 14.2 MHz, press F1 key. A request for the new frequency will appear under the callsign block. Press the "1", "4" and "2" keys, then <RETURN> to force the program to send the new frequency to the 1030. The frequency display on the radio and the logger screen will then show the new frequency of 14.200.00 MHz. All seven digits may be entered if they are significant.

NOTE: Do not use periods or commas in the new frequency or the program will not accept the information.

### 6.5.2.2 F2-ERASE

Pressing this key will clear any callsign or command from the callsign block.

### 6.5.2.3 F3-STORE

Use this key to store the current operating frequency into any of the 26 memories (A-Z). After pressing this key the program will ask which memory to use. Press any letter A thru Z, the display arrow will change to indicate that the frequency is stored in the selected memory.

### 6.5.2.4 F3-RECALL

This key performs the reverse operation of the F3 STORE key. The operation is the same as explained for F3. The frequency in the selected memory is transferred to the radio and the current frequency displayed on the screen. The memory designator arrow is also changed to the selected memory.

#### 6.5.2.5 F5-CHECK

To use this key you must have entered a callsign in the callsign block first. When you press this key the program will check the current operation and band log to see if a contact was previously logged on the band. If a duplicate contact has been made, the word "DUPE" will appear and you will be given the choice of logging the QSO or halting the operation. If the callsign has not previously been logged, the word "OK" will appear for a short time. You may then log the callsign in the manner described in paragraph 6.4.3.1.2.

#### 6.5.2.6 F6-MENU

This key performs the same function as the MENU COMMAND. This key returns you to the main menu.

#### 6.5.2.7 F6-STEP

Pressing this key changes the step rate used by the F9 and F10 keys to increment the current 1030 frequency. Possible steps are 10Hz, 100Hz, 1KHz, 100KHz and 1MHz.

#### 6.5.2.8 F8-ROTATE

This key enables the feature to automatically change the position of your rotator if you have a PRO-SEARCH rotator controller attached properly to the computer. To use this feature, press the F8 key; The program will ask you for a heading. You may enter the exact heading in degrees 0 thru 359 or you may use descriptions such as "N" for north, "NE" for northeast or "E" for east. If you entered a "W" the rotator will turn to 270 degrees and halt. You may also enter an "L" or "R" to turn the rotator left or right for one second. The PRO-SEARCH rotator will not move closer than 16 degrees to the mechanical stop. Therefore if you enter 180 degrees, the program will convert it to 164 and turn the rotator to 164 . Use the "R" command to get it closer to 180 .

NOTE: The PRO-SEARCH must be connected to the COM2: serial port connector and the band rate must be set to 300 band for proper operation.

#### 6.5.2.9 F9-UP

This key will increment the 1030's frequency by the amount shown in the STEP block at the top of the screen.

#### 6.5.2.10 F10-DOWN

This key will decrease the 1030's frequency by the amount shown in the STEP block at the top of the screen.

### 7.0 SWRPLOT.EXE

This program will offer the user a menu of frequency ranges corresponding to the existing amateur radio frequency bands. This menu is similar to that shown in figure 11 below. The last choice in the menu allows the user to input his choice of start frequency, end frequency, and the step increment. After the frequency selection, the computer will begin stepping through the range of frequencies one step at a time. At each frequency, the forward and reverse power is measured and the SWR is computed. The frequency is then incremented and the process is repeated until the end frequency is reached. At that time, the SWR plot is displayed on the computer screen (figure 12). The user may then exit the program by pressing the <ESC> key, make a print of the SWR plot, display the numerical data that the SWR plot was constructed from (figure 13), or print out the numerical data. The final option is to return to the frequency selection menu if another plot is desired.

NOTE: Make sure that all the directions are followed. The gain control on the MILSPEC 1030 must be turned up to approximately at least to its half gain point and an antenna should be connected to the antenna jack on the back of the radio. A dummy load can be used for test purposes in place of an antenna.

### 8.0 SIGLOCK.EXE

This program allows the operator to scan bands for signals. After a SSB, CW, or AM signal is found (RTTY is not included), it is analyzed to determine where the optimum tuning point is. The program then attempts to tune in the signal. In many cases, no further tuning or a minimum of tuning will be required to monitor the signal.

SELECT PRESET BAND OR YOUR OWN FREQUENCY PARAMETERS

- A) 1.8 TO 2.0 Mhz
- B) 3.5 TO 4.0 Mhz
- C) 7.0 TO 7.3 Mhz
- D) 10.1 TO 10.2 Mhz
- E) 14.0 TO 14.35 Mhz
- F) 18.06 TO 18.17 Mhz
- G) 21.0 TO 21.45 Mhz
- H) 24.89 TO 24.99 Mhz
- I) 28.0 TO 29.7 Mhz
- J) SELECT YOUR OWN BAND
- K) (END), RETURN TO SYSTEM

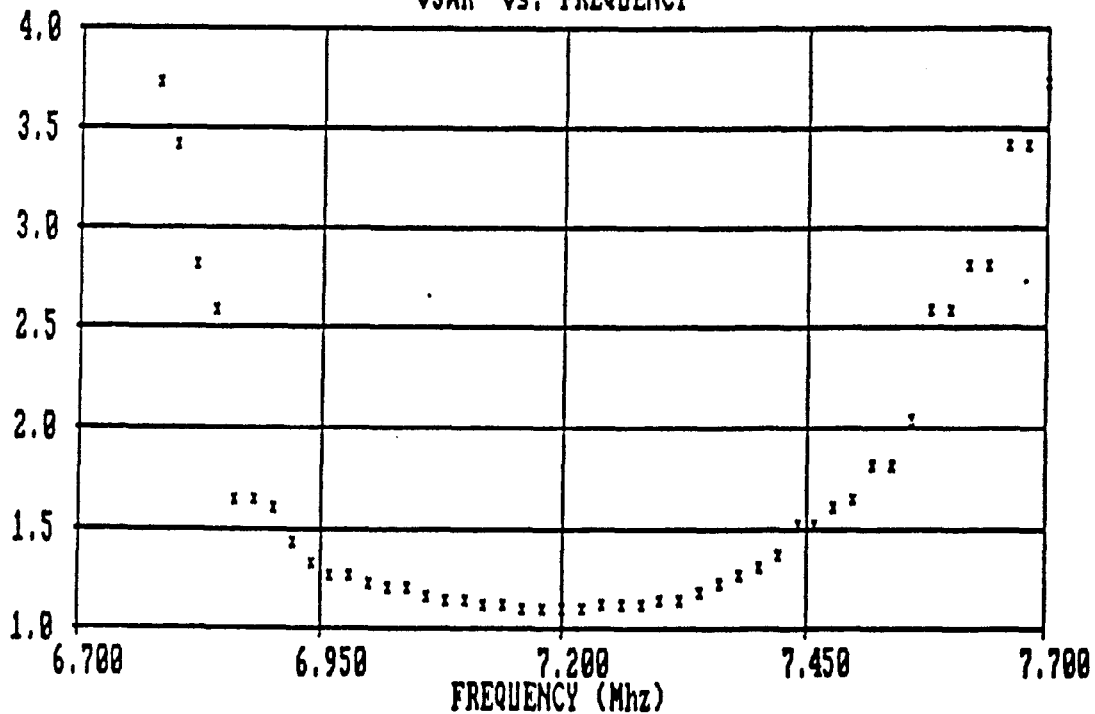
MAKE YOUR FREQUENCY SELECTION (A-K)

(figure 11.)

40 METER VERTICAL SWR

11-12-1984 22:12:13

USWR vs. FREQUENCY



(figure 12.)

FREQUENCY	SWR	FREQUENCY	SWR
1400000	2.214251	1401800	1.788788
1403600	1.747878	1405400	1.747878
1407200	1.729486	1409000	1.729486
1410800	1.69614	1412600	1.595433
1414400	1.595433	1416200	1.576014
1418000	1.657581	1419800	1.522131
1421600	1.40031	1423400	1.432216
1425200	1.432216	1427000	1.754295
1428800	1.781547	1430600	1.781547
1432400	1.595433	1434200	1.69614
1436000	1.69614		0

PRESS ANY KEY TO RETURN TO MENU\_

(figure 13.)

By setting certain scanning parameters, the system can be made to stop and wait, stop for a settable time delay then resume scanning, print data concerning each signal found, and turn audio ON/OFF during scan.

The following are some of the parameters that can be set by the user:

- a. Expected mode of signal
- b. Start frequency
- c. End frequency
- d. Step rate
- e. Signal filter type
- f. Level to stop on
- g. Delay to remain on the frequency of the signal
- h. Scan audio toggle
- i. Log signal data to printer toggle.



The program is menu driven and is easy to run. After starting the program, a frequency range is selected either from the menu or by describing the band which will be scanned. Figure 14 describes the frequency selection menu. If a preset band is selected, the program presents a display showing all the variables applicable to the scan. You may change any of the variables by using the function keys, one through ten (see figure 15 for list of function keys and descriptions). Initially you may wish to step through some of the function keys and see what changes, so that you can get an idea of how the options work.

#### FREQUENCY BAND SELECTION MENU

CHOICE	SCAN RANGE/FREQ. (MHz)	EXPECTED MODE
<A>	1.800 — 1.850	CW1
<B>	1.800 — 1.850	LSB
<C>	3.500 — 3.570	CW1
<D>	3.750 — 4.000	LSB
<E>	7.000 — 7.050	CW1
<F>	7.150 — 7.300	LSB
<G>	10.100 — 10.200	CW1
<H>	10.100 — 10.200	USB
<I>	14.000 — 14.070	CW1
<J>	14.150 — 14.350	USB
<K>	18.068 — 18.168	CW1
<L>	18.068 — 18.168	USB
<M>	21.000 — 21.070	CW1
<N>	21.200 — 21.450	USB
<O>	24.890 — 24.890	CW1
<P>	24.890 — 24.890	USB
<Q>	26.969 — 27.255	AM
<R>	28.000 — 28.100	CW1
<S>	28.500 — 28.700	USB
<T>	SET YOUR OWN BAND	

SELECT BAND: <ESC> TO END PROGRAM

(figure 14.)

FUNCTION KEY	Description
F1	This key returns you to the frequency selection menu so that you may reselect or change the frequency that the program will scan.
F2	This key starts the scanning action.
F3	This key selects the type of signal that is expected
F4	This key toggles the scanning rate (frequency step).
F5	This key advances the threshold level
F6	This key decreases the threshold level
F7	This key increases the delay that the program uses to remain on frequency after a signal is found.
F8	This key decreases the delay
F9	This key toggles the audio ON/OFF during the scanning process.
F10	This key toggles the printer echo of the signal data.

(figure 15.)

The "F2" key will start the scanning action. The scan rates are defaulted to rates that have been selected for that particular band however you may get better performance by selecting your own frequency step rate.

When a signal that is stronger than the threshold is found, the program will stop and scan the frequency range around the signal to determine how wide it is and where to tune the radio. The radio will then tune to that frequency and stop. The time which the program will keep the radio on that particular frequency is set with the F7 and F8 function keys. If the time is set to zero (0) the program will wait until a key is pressed before it starts scanning for the next signal on the band.

In actual practice operation of this program is dependent upon band noise, antenna characteristics, propagation, and other subtle areas that affect normal radio transmission and reception such as; splatter or over modulation, random signals, etc. Because of these problems, the operator must realize that error free operation cannot be guaranteed for a program of this type.

## 9.0 RELATED DATA

The MILSPEC 1030 communications interface operates at 9600 baud. It uses the eight data bits per byte mode with one parity bit. The RTS RS232 signal is used to control the external data flow. RTS will be active when the next character can be processed. No more than one character can be sent after the RTS line indicates not ready. If more than one character is sent, the additional characters may be lost. If the sending device cannot accept characters at the rate the interface is sending, the CTS line is used to control the transmitted data from the interface. All characters are echoed by the interface except for the carriage return, which is echoed as carriage return-linefeed. Thus when a response is expected, it will be in the form; command (including carriage return), linefeed, response, carriage return, linefeed, and ready prompt. All of these software applications programs have error processing code to eliminate any random errors in the transfer of data.

Connector P3, the accessory port can be used to automatically change antennas after a corresponding change in the frequency of operation. The output signals; B0, B1, B2, B3, and B4 comprise a binary designator which corresponds to the megahertz band that the MILSPEC 1030 is operating on in realtime. An external, user supplied, decoder is required to transform this signal into signals that would automatically transfer the RF INPUT/OUTPUT to different antennas.

Connector P3 also has general purpose input ports that are wired directly to the analog to digital converter located on the interface board. These are designated V5, V6, and V7. The input analog signal must be between zero and five volts. External protection should be used to assure that the input never goes negative or rises above the 5.5 volt level. The supplied software does not use either the antenna switching capability or the auxiliary A-to-D inputs.

## 10.0 General Operating Considerations

The MILSPEC 1030 interface controller can auto synchronize on any one of the following fifteen baud rates:

19200	9600	7200	4800	3600
2400	1800	1200	600	300
150	134.58	109.92	75	50

For any of the above rates selected, the serial data format is set up as eight bit, one stop bit and no parity bits.

After power up, the interface monitors the console port, P2, for an ASCII carriage return. Whenever a character is received by the interface, it is compared to a carriage return. If it does not match, the next baud rate is selected and the process repeats until the carriage return is detected. The highest rate is selected first and then the lower rates in turn. Thus the higher rates will initialize quicker than the slower rates.

When the carriage return is detected, the interface will return the ready prompt "\*". The ready prompt is sent whenever the interface is able to accept a command, unless the echo is turned off. Some commands may not return the ready prompt for extended periods of time. Thus external devices must wait for the prompt before they send a new command.

As characters are received, they are scanned and the interface progresses through the states selected by each character. For this reason, external devices operating at high rates can send characters faster than they can be processed. No more than one character can be sent after RTS indicates not ready. If more than one character is sent, the additional characters may be lost. If the sending device cannot accept characters at the rate the interface is sending, the CTS line can be used to control the transmitted data from the interface. No more than one character will be sent after CTS changes state.

All characters are echoed by the interface except for the carriage return which is echoed as carriage return and a line feed. Therefore when a response is expected, it will be in the following form. The command (including carriage return), line feed, response, carriage return, line feed and ready prompt.

In those cases when an invalid command sequence is received by the interface, the error prompt "?" is sent before the ready prompt. If the error prompt "?" is sent, the command sequence will abort before any action is taken.

The current command sequence may be aborted at any time before the carriage return by sending "ESC". Once the carriage return terminates the command, only an error can prevent the command from completing.