signal/one ®

SOFTWARE MANUAL
FOR "1030RTTY"
A MILSPEC 1030C RADIO
TELETYPE PROGRAM

"This manual describes both the features and the use of the
1030RTTY program, as modified to integrate the HAL ST-8000
HF modem and support operational requirements of the
U.S. Marine Corps' Military Affiliate Radio System (MARS)."

for:
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project officer: —
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SECTION 1.0

GENERAL

1.1 PROGRAM FUNCTIONS

This manual covers the set-up and operation of Signal-One's
1030RTTY program, which integrates the operation of the MILSPEC 1030
transceiver and the HAL ST-8000 HF modem. The program allows the user
to control the functions of the transceiver that are required to set-
up the system to send and receive either voice or radio teletype
(RTTY) transmissions. Also integrated into the operation of the
program is the capability of allowing the HAL ALERT-1 RTTY signal
recognition unit to automatically halt scanning and automatically
receive any message that follows the alert.

1.2 REQUIREMENTS

Certain minimum equipment requirements must be available if this
program is to be used efficiently. The following items are needed.

          transceiver -- Signal-One model: MILSPEC 1030C

          HF modem -- HAL Communications model: ST-8000

     RTTY call monitor -- HAL Communications model: ALERT-1

             computer -- Tempest approved Zenith 150, 200, and 248 models
                         and COMPAQ computers. Use of other computers may
                         result in degraded performance due to high levels
                         of interference generated by many systems.

     computer options -- Two serial communications ports
                         One parallel printer port
                         At least 256 kilobytes of memory
                         Two floppy disk drives
                         monochrome text type monitors are supported

There is an option internal to this program that allows the use of the system with receivers other than the MILSPEC 1030C. This option is a stop-gap function in that it will allow operators to get used to the program prior to delivery of the MILSPEC 1030C transceiver. When using the optional mode, there will be no transceiver control allowed nor will status be available to the user. Use of this option will be covered in section 3.0.

1.3 CABLES

All cables that are required come with the equipment. However there is a requirement for three "Y" adapters, if the ALERT-1 unit is used. These adapters are needed to split the transmit and receive audio signals and the push-to-talk signal. Be sure to use only shielded cable when connecting any of the equipment mentioned in this manual. Use of non-shielded cable will increase the posibility of interference levels the computer and the receiver and the reverse.

SECTION 2.0
PRELIMINARY SETUP

2.1 BACKUP COPIES OF SOFTWARE

It is always important to initially make copies of all software. The Signal-One software is not copy-protected, in that the user can make as many copies as is required to properly run the station. The programs may be installed on a hard disk system if desired. The 1030RTTY program is not keyed to a specific transceiver as is other Signal-One software. It is recommended that the distribution disk not be used for operation of the program, instead, format two other disks and make copies of the program using either the disk operating systems (DOS) DISKCOPY or COPY commands (see DOS manual for proper use of these commands). After making the backup copies of the program, place the original disk in a safe location. This program is supplied for use only where a Signal-One MILSPEC 1030C transceiver is in place or is on order. It is not legal to make copies of this program for use at other stations that have not purchased a MILSPEC 1030C, without written permission of the Signal-One Corporation.

Note: While formatting disks for making backup copies of the program, it may be convenient to format a few disks to be used later to store messages as they are received.

2.2 EXTERNAL FILES

In addition to the 1030RTTY.EXE file, this program uses four external files in its normal operation these files and their functions are given below.

OPFREQS.MEM -- This file saves the operational frequencies which are shown on the control screen described in section 4.0. This file is automatically updated each time the program is terminated in the proper manner, using the "Esc" key from the control screen.

CALL.TXT -- This file is used to store a separate calling sequence, used when in transmitting mode. The file can be constructed from the EDIT mode. The operation of the edit mode is described in section 6.0.

FORMAT.TXT -- This file is used to store an outline of a standard message. The file can be created using the edit mode. While in the edit mode, pressing the FORMAT option key, will result in this file being displayed. The user can fill in the message blanks, save it to a different file, and transmit it later.

1030RTTY.AMR -- This file is used by the program to save the contents of the automatic messge renumbering screen. If it does not exist, the program will automatically generate it, however, it will contain the pre-programmed information and may require updating prior to using the automatic message numbering mode.

SECTION 3.0

GETTING STARTED

3.1 EQUIPMENT SETUP

Proper set-up and wiring of the equipment is required prior to using the 1030RTTY program. The program will not run correctly, unless it receives the proper signals from the communications ports. See figure 3-1 for hook-up layout. The following directions should be followed when initially wiring the system.
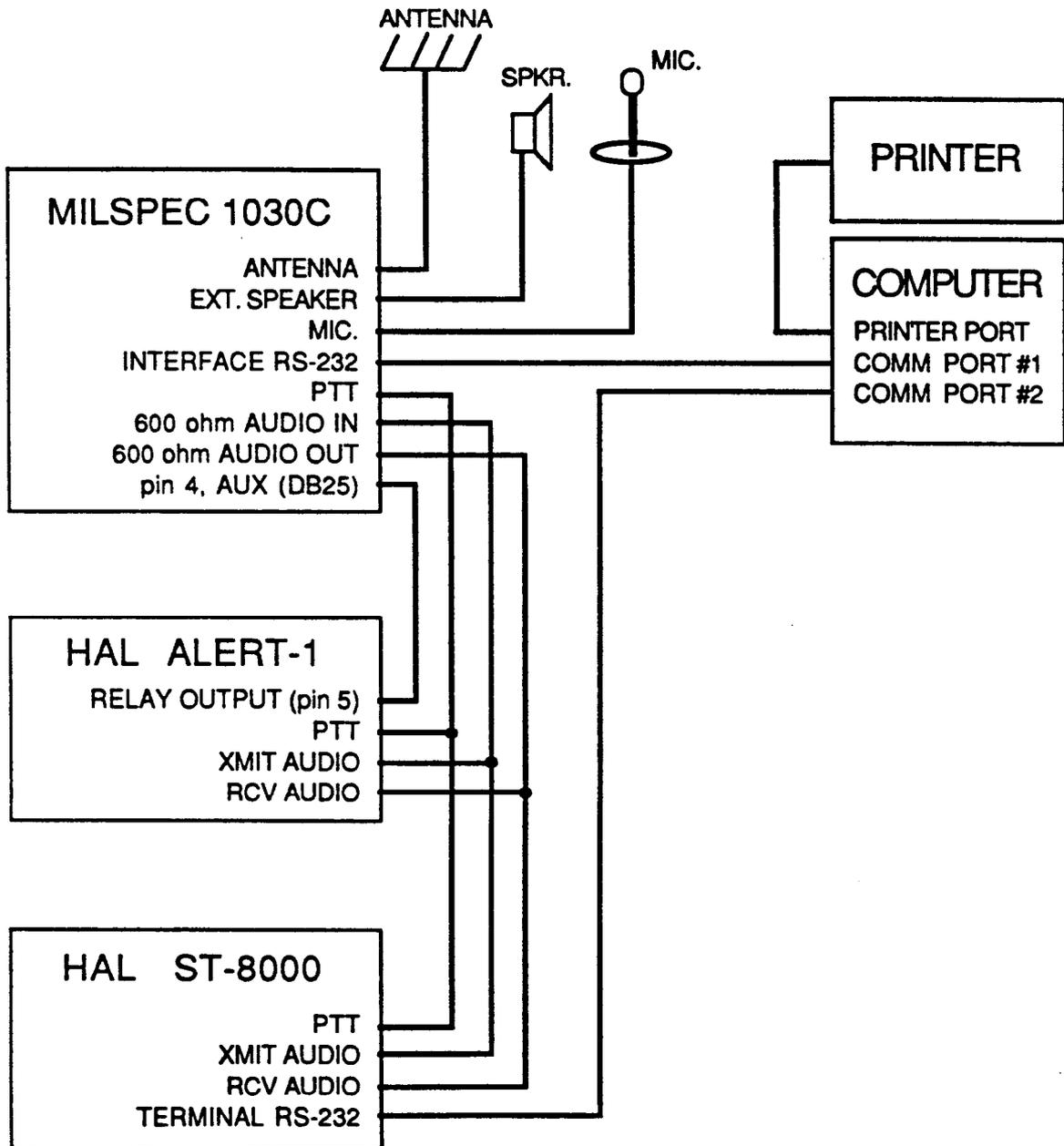

3.1.1 Wiring

Make the following connections between the units. Cables for the connections identified, are available packed in the original cartons containing the MILSPEC 1030C and ST-8000 units. The combination cable supplied with the ST-8000 for transmit audio and PTT will have to be fitted with two RCA type plugs prior to its use.

1. Position the MILSPEC 1030C, make the 110 volt AC connection
2. Position the HAL ST-8000, make its 110 volt AC connection
3. Position the Computer and printer, if used, supply AC power
4. Connect external speaker to MILSPEC 1030C if desired
5. Connect microphone to MILSPEC 1030C
6. Connect RS-232 cable between the computer's comm port #1 and the MILSPEC 1030C's Control port.
7. Connect RS-232 cable between the computer's comm port #2 and the HAL ST-8000 terminal port.
8. Connect audio cable from ST-8000 audio input to 1030C 600 ohm audio output.
9. Connect transmit audio and PTT cable from ST-8000 to appropriate 600 ohm audio input on rear of 1030C and PTT jack on rear of 1030C.
10. Connect proper antenna to 1030C
11. Connect external RF output amplifier (if needed).

If the ALERT-1 is to be used in the configuration then perform the following procedure in addition to those items described above.

1. Position the HAL ALERT-1, supply it with 12 volts DC

ANTENNA

SPKR.   MIC.

PRINTER

COMPUTER

MILSPEC 1030C

ANTENNA
EXT. SPEAKER
MIC.
INTERFACE RS-232
PTT
600 ohm AUDIO IN
600 ohm AUDIO OUT
pin 4, AUX (DB25)

PRINTER PORT
COMM PORT #1
COMM PORT #2

HAL ALERT-1

RELAY OUTPUT (pin 5)
PTT
XMIT AUDIO
RCV AUDIO

HAL ST-8000

PTT
XMIT AUDIO
RCV AUDIO
TERMINAL RS-232

EQUIPMENT REQUIRED AND CONNECTIONS

Figure   3-1

2. Connect audio cable between ALERT-1 rcvr in and 1030C 600 ohm audio output (in parallel with connection to ST-8000).

3. Connect audio cable between ALERT-1 xmit out and 1030C 600 ohm audio input (in parallel with connection to ST-8000).

4. Connect cable between ALERT-1 PTT and 1030C PTT connector (also in parallel with connection to ST-8000).

5. Connect cable using DB9 connector on back of ALERT-1, pin 5, and 1030C P3 connector, pin 5.

3.1.2 Equipment Check-out

Check out the MILSPEC 1030C according to the directions in the 1030C Operating and Technical Manual. Leave the switches in the following positions.

mode -- USB
RX/TX channel -- A
frequency -- operational frequency

Check out and set up the HAL ST-8000 according to the ST-8000 manual. Become familiar with the operation as explained in the manual and leave the ST-8000 switches and controls set as described below for MARS operation.

MARK frequency -- 1415 hz
SPACE frequency -- 1585 hz
SHIFT range -- 170 hz
input baud rate -- 74 hz
output baud rate -- 1200 hz
detector mode -- M/S FM
regen -- B/A
squelch -- maximum counterclockwise
diversity -- maximum counterclockwise
antispace -- ON
tx/KOS/rx switch -- KOS position
polarity -- NORMAL

If the ALERT-1 is to be used, refer to the ALERT-1 instruction manual for proper setting of the internal switches prior to attempting operation with the rest of the system.

3.2 INITIAL OPERATION

Coordinate with another station to send RTTY traffic on the frequency using voice transmission. Operation of the MILSPEC 1030C is covered in section 4.0, while the proper operation of the ST-8000 is covered in sections 5.0 and 7.0.

3.2.1 Program Loading

After the computer is turned on and boot-up is accomplished according to the DOS manual, load the 1030RTTY program by typing "1030RTTY" and pressing the RETURN KEY.

The 1030RTTY program will produce the screen display shown on the next page. Pressing any key except the "ESC" key will start the program using the MILSPEC 1030C control portion of the program. If the "ESC" key is pressed, all aspects of the MILSPEC 1030C control capabilities will be suppressed. For normal operation, using the 1030C, the result will be the screen display described in section 4.0. The screen will display the current status of the MILSPEC 1030C including the currently tuned frequency, mode, signal level, etc.

Similarly, if the MILSPEC 1030C portion of the program is not enabled by pressing the "ESC" key, the -RTTY- receive screen will be displayed. If an RTTY signal is being received, the program will immediately start copying the message being sent. All of the options described in sections 5, 6, and 7 will be available at this time. Continue to section 4 or section 5, once either the 1030C control or RTTY receiving screens are displayed

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SIGNAL-ONE MILSPEC 1030 RTTY PROGRAM

MILSPEC/1030 should be ON and Connected to Communications Port #1
HAL ST-8000 should be ON and Connected to Communications Port #2

PRESS ANY KEY TO CONTINUE, (ESC) to not use MILSPEC/1030

Start-up screen for 1030RTTY program
Figure 3-1

SECTION 4.0

1030 CONTROL SCREEN

4.1 CONTROL SCREEN ACTION DESCRIPTIONS

When the MILSPEC 1030C control screen is being displayed, the user may initiate a number of actions. These actions are divided into two groups, COMMANDs and FUNCTIONs. Figure 4-1 shows the information shown on the command screen. While the command screen is being displayed, the frequency, step rate, mode, smeter readings, PBT offset, receive audio, and current time will be updated at a rate consistent with the processing speed of the computer being used. Computers based on the 8088 microcomputer chip, such as the Zenith 150, will update the screen at about ten times per second, while 80286 based computers, such as the Zenith 248, will produce faster updates, as high as 50 times per second.

4.2 CONTROL SCREEN COMMANDS

The running program responds to three keys other than the function keys described below. These are: the escape key, "ESC"; the "S" key; and the "T" key. The functions of each are given below.

<ESC> Command -- Pressing this key results in the closing of any open files, the saving of the memory frequencies, and the complete termination of the 1030RTTY program. Control will be returned to the computer's DOS level. This is the normal type of program termination.

S Command -- Pressing the "S" key initiates the SCAN mode of operation. When this key is pressed, regardless of the tuned frequency, the program will take control of the MILSPEC 1030C and tune it to the first frequency listed in the memory blocks that is tagged for scanning. Tagging is explained below. The program will continuously scan each of the tagged frequencies until either a key is pressed, other than the specific controlling keys such as "A", "U", "D", "R", or "L". These keys have special functions that will be explained later in this section. If any other key is pressed, the scan will stop and control will be returned to the operator. While

4-1

MILSPEC 1030 CONTROL AND SCANNING SCREEN

—FREQUENCY—	—STEP—	—1030—	——SMETER——		—PBT—	—RX—	—CURRENT—
KHz	RATE	MODE	PEAK	AVERAGE	OFFSET	AUDIO	TIME
14,760.00	10 Hz	USB	S9	S9	0	ON	10:54

MEMORY	FREQUENCY	SCAN		MEMORY	FREQUENCY	SCAN
A	05,970.00	SKIP		K	16,173.00	SCAN
B	07,465.00	SKIP		L	16,173.00	SCAN
C	10,258.00	SKIP		M	16,173.00	SCAN
D	11,401.00	SKIP		N	16,173.00	SCAN
E	12,222.00	SKIP		O	16,173.00	SCAN
F	13,736.50	SKIP		P	16,173.00	SCAN
G	14,383.50	SKIP		Q	16,173.00	SCAN
H	05,970.00	SKIP		R	16,173.00	SCAN
I	05,970.00	SKIP		S	16,173.00	SCAN
J	05,970.00	SCAN		T	16,173.00	SCAN

COMMANDS: <ESC>=END PROGRAM, S=SCAN(START/STOP), T=SCAN TOGGLE

1FREQ   2AUDIO   3STORE   4RECALL 5 SWR   6RTTY   7 STEP 8 PBT   9u FRQ   10d FRQ

MILSPEC 1030 Control and Scanning Screen

Figure 4-1

the scanning function is running, the program will continuously be
looking at the received signal strength of each of the scanned
frequencies. If the signal strength on a given frequency is above the
threshold displayed, the program will stop and monitor that frequency,
looking for an ALERT code. The program will continue to monitor the
frequency as long as the signal level remains above the threshold.
The displayed value of delay will be used by the program to hold the
receiver on frequency for short periods of time when the signal level
drops below the threshold as long as it returns to a level higher than
the threshold. If an ALERT signal is received while the receiver is

tuned to a given frequency (ALERT function is described in a separate section and also in the HAL ALERT-1 manual), the program will automatically transfer the program into its RTTY receive mode and turn on the "save input" function. These functions will be described in detail in later sections. It should be noted that the faster computers will enhance the operation of the scanning mode, since they run 6 to 10 times as fast and more readings can be accomplished in a given time period. While the program is scanning, the following keys can be used to activate their corresponding functions.

"A" -- Pressing the "A" key toggles the audio OFF and ON while the scanning function is being used.

"U" -- This key causes the scan stop threshold to increase by a fraction of the total range. For example, when increasing the level from an "S4" to and "S5", the "U" key will have to be pressed a number of times since there are many increments between "S4" and "S5". There are a lesser number of increments between higher signal levels.

"D" -- This key causes the scan stop threshold to decrease in the same manner as described above for the "U" key.

"R" -- Pressing this key causes the scanning delay to raise or increase by one second each time it is pressed.

"L" -- Pressing this key causes the scanning delay to lower or decrease by one second each time it is pressed.

T Command -- While the control screen is being displayed and the program is not scanning, pressing this key causes the active scanning tag for the memory pointed at to be toggled from SCAN to SKIP or reverse. The SCAN/SKIP pointers are also automatically saved when the "ESC" key is pressed.

4.3 CONTROL SCREEN FUNCTIONS

The keys described below are active when the control screen is being displayed and the scan function is not being used.

F1 --- FREQ This key allows the user to enter a specific
frequency and have that frequency transferred to the MILSPEC 1030C.
When the key is pressed, the following prompt will be displayed.

    WHAT FREQ. (RETURN FOR CURRENT FREQ.): _

    The user may then enter the desired frequency. Pressing the
RETURN key or entering an illegal frequency will result in no action.
Legal frequencies are those between 10 hertz and 29.9999 megahertz.
The frequency should be entered as a string of numbers without commas
or decimals.
    EXAMPLE: If the desired frequency is 14.76000 megahertz, the
numbers "1476" should be entered. The program is smart enough to know
that you want the trailing zeros added. Also, if the frequency to be
entered is less than ten megahertz and above 3 megahertz, then the
leading zero is also automatically entered for you. For instance, to
enter the frequency 7.335 megahertz, you would type in "7335". For
frequencies less than 3 megahertz, the leading zero(s) must be added
since the program would not know if the entered frequency was, say 2.9
megahertz of 29 megahertz.

    F2 --- AUDIO This key toggles the audio ON and OFF. The
condition is always shown on the control screen. If the audio is
turned off, the front panel control of the MILSPEC 1030C is disabled.

    F3 --- STORE This key allows the user to store a frequency in
any one of the twenty displayed memory positions. Frequencies are
entered in the same manner as described for function key "F1" above,
with the additional option of allowing direct transfer of the
receiver's frequency to a memory.
    EXAMPLE: If the MILSPEC 1030C is set to a particular
frequency, and you would like to store it in memory "D" for later
recall, you would press the "F3" key. At the prompt, you would type
the letter "D" corresponding to the memory to be used. Finally you
would press the RETURN key to transfer the frequency. The screen will
then be updated to show the current contents of all the memories.

F4 --- RECALL This key performs the opposite function of the "F3" key. The user may recall any of the twenty frequencies that are stored in the programs memory. To use this function, the user presses the "F4" key and then presses the key associated with the displayed frequency that is desired. The selected frequency is directly entered into the MILSPEC 1030C at that time.

NOTE: When the program is terminated, the currently displayed frequency memory values are stored on the floppy disk for recall when the program is run the next time. If the program is not properly terminated, for instance if the power were to fail, any changes to memory during that session would not be saved.

F5 --- SWR The standing wave ratio (SWR) of the antenna connected to the MILSPEC 1030C can be checked at any time by pressing the "F5" key. Upon pressing this key, the computer will automatically set the transceiver into a transmit mode. It will transmit a carrier signal for approximately one-half second, measure the forward and reflected power levels, and compute and display the current SWR at the displayed frequency.

F6 --- RTTY Pressing the "F6" key will instruct the program to go to the Radio Teletype (RTTY) receive mode. An entirely new screen will be displayed. The RTTY mode is completely described in the next section.

F7 --- STEP Pressing the "F7" key will select a new step rate which is used when the "F9" or "F10" keys are pressed to tune the frequency either up of down. The tuning functions are described below.

F8 --- PBT The Pass Band Tuning (PBT) feature allows the user to decrease interfering signal levels by varying the passband of the receiver as referenced to the receive frequency. When using the PBT feature, front panel control of the MILSPEC 1030C is disabled. This feature is usually used when the receiver is tuned to a specific operational frequency and traffic is being handled.

F9 --- UP FRQ This key allows the operator to shift the frequency displayed in the "up" direction by the amount shown in the steprate block on the control screen. A single press of the "F9" key will increase the frequency by exactly the steprate. If the key is held down, the frequency will be continually increased. In addition, if the key is held down for a longer period of time the rate of change of the MILSPEC 1030C's frequency will increase, allowing faster changes to be made. An additional capability is activated by the simultaneous pressing of the "Alt" key and the "F9" key. This action causes the frequency to be tuned at a rate ten times faster than pressing the "F9" key by itself.

F10 -- DN FRQ This key operates exactly like the "F9" key except that the frequency is decreased. The "Alt" key function also works with this key.

SECTION 5.0
RECEIVING RTTY MESSAGES

5.1 -RTTY- RECEIVE SCREEN

The receive screen is activated when the "F6" key is pressed from the control screen, or when the program is run using the "ESC" key option to eliminate MILSPEC 1030C control functions. The receive screen is also activated automatically if an ALERT code is received during the scanning process. Figure 5-1 shows an example of the screen.

The receive screen function is to display that teletype data being received and demodulated using the HAL ST-8000 HF Modem. No other type of modem has been tested with this program, other type modems may or may not work.

The receive screen also allows for the monitoring of a few of the features of the MILSPEC 1030C. These functions include the receive frequency and the signal strength of the the station being received. The frequency, signal strength and also the time and date are updated each time the characters "NNNN" are received, which designate the start of a new message or the end of a message. In addition, the operator can update the frequency, signal strength, time, and date any time it is required, by pressing the "space" key while messages are being received or between messages. Time and date also added and updated for the operators convenience.

5.2 RECEIVE SCREEN FUNCTIONS

The keys described below are active when the -RTTY Receive Screen is being displayed.

F1 --- RCV This key reactivates the -RTTY- Receive Screen.

F2 --- XMIT This key transfers the program to the transmit mode and displays the -RTTY Transmit Screen.

```
-RTTY- RECEIVE SCREEN          DISPLAY TEXT ONLY        filename: 1030RTTY.TXT

                                     -

                                     -

                                     -

                                     -

                                     -

                                     -

                                     -

                                     -

         MESSAGE TEXT WOULD BE SHOWN IN THIS AREA OF THE SCREEN

                                     -

                                     -

                                     -

                                     -

                                     -

                                     -

   Freq: 14,760.00mhz  |  Signal:  S4   |  Time: 19:22  |  Date: 11-02-1987
  1 RCV    2 XMIT  3 EDIT  4 SAVE  5       6MS1030 7LF ON  8PR ON  9 FILE   10 CLS
                              RTTY  Receive Screen
```

RTTY Receive Screen

Figure 5-1

F3 --- EDIT This key transfers the program to the editing mode
and displays the Message Editing Mode screen.

F4 --- SAVE This function key opens a disk file with the same
name as that shown on the screen. The, programmed in, default name of
the file is 1030RTTY.TXT. The name of the file can be changed, using
the "F9" function key described below. After this file has been
opened, all characters are saved as received. No changes are made to
the received message. After this key has been pressed, the label for
the key will automatically change to "STOP" which will reverse the
process, closing the file and restoring the "SAVE" label. When files
are opened with the "SAVE" command, the file is opened in APPEND mode,
which means that the current contents of that file are retained and
new information will be stored at the end of the present information.

F5 --- NOT USED

F6 --- MS1030/QUIT If the program is started using the normal
control screen, this key will be labeled "MS1030" and will have the
function of returning control to the Control Screen. If the program
is loaded an run using the "ESC" option, this key will be labeled
"QUIT" and its use will close all files and terminate the operation of
the program.

F7 --- LF ON This key is used to automatically insert a line
feed key code after any received carriage return key code. This mode
is used when the sending station does not send line feed key codes.
This feature is not usually required for MARS operation, but is needed
for some amateur operations. After the auto-line feed feature is ON,
the label for this function key changes to "LF OFF". Pressing the key
again will reverse the function and return the key label to "LF ON".

F8 --- PR ON Pressing this function key will route the
characters simultaneously to a printer connected to the line printer
parallel port on the computer. This feature should not be used unless
a printer is attached. Upon pressing this key, the label is changed
to "PR OFF". Pressing the key a second time will reverse the function
and turn off the printer.

F9 --- FILE Pressing the "F9" key will instruct the program to
change the currently being used file name. This option should not be
used when concurrently receiving and saving messages. Upon pressing
the "F9" key, the display will change to prompt the user to enter a
new filename. A simple press of the RETURN key will allow the user to
get out of the situation with no change.

F10 -- CLS Pressing the "F10" key will result in the message
window on the screen to be blanked. The cursor will be reset to the
upper left position in the active screen area. The headings and
status lines will not be erased.

SECTION 6.0
EDITING SCREEN TEXT

6.1 MESSAGE EDITING MODE SCREEN

The message editing screen is activated when the "F3" key is pressed from the either the -RTTY- Receive Screen or the -RTTY- Transmit Screen. A sample of the screen is shown in figure 6-1 on the next page.

The message editing function is used to allow the user to construct a message while not in the transmit mode. The user may save the message to a disk file and later transmit that message. The message may also be recalled from a diskfile and modified. This version of the 1030RTTY program allows editing message files containing approximately 800 messages, for floppy disk systems. Files containing larger numbers of messages may be used for systems incorporating hard disk drives.

6.2 SCREEN EDITING FUNCTIONS

The keys described below are active when the Message Editing Mode screen is being displayed.

F1 --- RCV This key transfers the program to the receive mode and displays the -RTTY Receive Screen.

F2 --- XMIT This key transfers the program to the transmit mode and displays the -RTTY Transmit Screen.

F3 --- EDIT This key reactivates the editing mode and displays the Message Editing Mode screen.

F4 --- F EDIT This command assumes that the you have received a series of messages and now wish to edit those messages. The following sequence of commands should be entered. Upon pressing the "F4" key, the computer will display a screen similar to figure 6-1.

NNNNRIG001SDI005

RR NOASG

DE MSD 3006

R 300106Z OCT 87

FM PVT RICHARD C MARK SAN DIEGO CA/NNNOMSD SCA

TO MS NANCY HENRY

214 MONTANNA ST

DETROIT MI 48645

517-555-0101

BT

UNCLAS

NMAT ONE PVT RICHARD C MARK USMC 999-99-9999

PLT 3111 M CO 3RD RTBN MCRD SAN DIEGO CA 92140-5144

NMAT TWELVE

BT

1   2   3   4   5F QUIT 6   7FORMAT 8   9 FILE   10 CLS
Message Editing Mode
Figure 6-1

      You may edit any character shown on the screen. To edit the
screen you may use the function keys described in paragraph 6.3. You
may only advance the screen through the file, all data that is moved
off the top of the screen is saved in a disk file. The only way to get
back to the top of the file, first message, is to quit and re-edit.

      If you would like to add a new message in the text, make room for
the message by inserting blank lines on the screen. Move the cursor up
with the up arrow key to where you want the message to start and press
the "F7" FORMAT key. A message outline will be automatically printed
on the screen. You may then fill in the text.

When all changes have been made to a file, quit the edit operation by pressing the "F5" F QUIT key. The file will then be written to disk and is ready to either automatically renumber the file or to transmit the file to another station.

F5 --- This key is not used in this mode.

F6 --- MS1030/QUIT If the program is started using the normal control screen, this key will be labeled "MS1030" and will have the function of returning control to the Control Screen. If the program is loaded and run using the "ESC" option, this key will be labeled "QUIT" and its use will close all files and terminate the operation of the program.

F7 --- FORMAT This key will instruct the computer to look for a file named FORMAT.TXT. If this file is found it will display that file on the screen, starting at the cursor position. It is used in the edit mode to generate an outline of a new message.

F8 --- MSG ID Pressing the "F8" key will command the program to go into the automatic message number generation mode. This version of 1030RTTY only allows this feature to operate on files. It will not work on messages shown on the screen. The file must first be changed, if required, to insure that the "NNNN" character string begins any new message. You may amke any changes, using the "F EDIT" mode from the edit screen. Make sure that you do not press the "F8" key more than once, since that would added the same new message header information twice.

This "MSG ID" feature is used in the following manner.

1. A group of messages is received using the receive screen with the "SAVE" option ON and the PR ON command, pressed, to output the messages concurrently to the printer. For this example we will used the default filename of "1030RTTY.TXT" to store the messages in.

2. After the messages have all been received, the "SAVE" option and the printer are both turned OFF.

3. The printed list of messages is reviewed by hand to correct errors or to prompt the sending station for text when it is not readable.

4. After the entire list of messages is reviewed, the "F EDIT" mode is used to make any required changes or fills in the messages.

5. Bring up the editing screen and make sure that the file to be worked on is the same as the file named at the top of the screen. If the file name is correct, press the "F8" key. You will be prompted for you station identifier and the number to use for the first message (figure 6-2). After entering the requested information, the program will automatically update all the message headers to reflect both your station identifier and the serial number assigned to that message.

6. After the messages have been corrected and your identifier and serial number has been inserted in the text for all the messages, the transmit file selection can be used to retransmit the messages to the next relay point.

F9 --- FILE Pressing the "F9" key will instruct the program to change the currently being used file name. This option should not be used when concurrently receiving and saving messages. Upon pressing the "F9" key, the display will change to prompt the user to enter a new filename. A simple press of the RETURN key will allow the user to get out of the situation with no change.

F10 -- CLS Pressing the "F10" key will result in the message window on the screen to be blanked. The cursor will be reset to the upper left position in the active screen area. The headings and status lines will not be erased.

Automatic Message Routing Header Reference Screen

Station Call: NOMCI   Two Letter ID: CI

Region/Area	Routing	Letter	Next Number
Region 1	NOASI	I	1
Region 2	NOASC	C	1
Region 3	NOASF	F	1
Region 4	NOASG	G	1
Region 5	NOASE	E	1
Region 7	NOASK	K	1
Region 8	NOASL	L	1
Cuba	NOGCG	G	1
Philippines	NOGCI	I	1
Japan	NOGCJ	J	1
Korea	NOGCK	K	1
Guam	NOGCM	M	1
Diego Garcia	NOGCN	N	1
Okinawa	NOGCO	O	1
Puerto Rico	NOGCR	R	1
Iceland	NOGCY	Y	1
Panama	NOGCZ	Z	1
Antarctica	NOICE	E	1

F1= Reset Numbers, F2=Save Screen Data, F9=Make Changes, F10=Return EDIT

Automatic Message Header Screen

Figure 6-1

6.3 EDITING KEYS

A number of keys have special functions when the editing screen
is active. Each of these keys and their individual functions are
described below.

Four cursor control keys -- These keys move the cursor
around the editing area.

Home -- This key moves the cursor to the upper left point in the active screen.

End -- This key moves the cursor to the lower right point in the active screen.

Ins -- This key turns on the insert function and allows characters to be inserted in a line of text. If the character is a "RETURN", then a new line will be inserted.

Del -- this key will delete the character which the cursor is positioned under.

Backspace -- The backspace character moves the cursor back one space and deletes that character.

Ctrl "Y" -- Holding the "Ctrl" key down and pressing the "Y" key will delete the entire line on which the cursor is positioned.

PgUp -- This key will advance the screen through the file at a rate of 18 lines, filling the screen will nearly a whole screen of new information, this key is used to advance to the next message when making changes to message files.

SECTION 7.0

TRANSMITTING RTTY MESSAGES

7.1 -RTTY- TRANSMIT SCREEN

The transmit screen is activated when the "F2" key is pressed from the either the -RTTY- Receive Screen or the Message Editing Mode screen. Figure 7-1 shows a sample of the transmit screen.

The transmit screen function is to transmit messages to another station. When this screen is being displayed, the user may key in the message and have it transmitted directly to the other station (live keyboard). The user may also transmit pre-programmed messages of files that have been previously saved. The use of this screen requires that the HAL ST-8000 is set up properly and the MILSPEC 1030C is on and set-up properly.

7.2 TRANSMIT SCREEN FUNCTIONS

The keys described below are active when the -RTTY Receive Screen is being displayed.

F1 --- RCV This key transfers the program to the receive mode and displays the -RTTY Receive Screen.

F2 --- XMIT This key reactivates the -RTTY- Transmit Screen.

F3 --- EDIT This key transfers the program to the editing mode and displays the Message Editing Mode screen.

F4 --- NOT USED

F5 --- T FILE Pressing this key will command the program to automatically send all the characters in the file named in the default filename block at the top of the screen.

-RTTY- TRANSMIT SCREEN   DISPLAY TEXT ONLY   filename: 1030RTTY.TXT

```
                              -
                              -
                              -
                              -
                              -
                              -
                              -
                              -
```

TRANSMITTED MESSAGE TEXT WOULD BE SHOWN IN THIS AREA OF THE SCREEN

```
                              -
                              -
                              -
                              -
                              -
                              -
                              -
                              -
```

1 RCV   2 XMIT 3 EDIT 4   5T FILE 6MS1030 7T TEST 8T CALL 9 FILE   10 CLS

RTTY Transmit Screen

Figure 7-1

F6 --- MS1030/QUIT If the program is started using the normal
control screen, this key will be labeled "MS1030" and will have the
function of returning control to the Control Screen. If the program
is loaded an run using the "ESC" option, this key will be labeled
"QUIT" and its use will close all files and terminate the operation of
the program.

F7 --- T TEST Pressing this key will automatically send a test
message, which is pre-programmed test sequence. The message that will
be transmitted when pressing this key is identical to the approved test
message in the MARS operating instruction manual. It consists of the

"THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG" AND "RYRYRYRYRYRY ....."
sequences, including the proper carriage returns and linefeed
characters. To use this feature, make sure that the proper station
callsign has been entered and saved from the MSG ID, automatic message
header screen.

F8 --- T CALL Pressing this key will automatically send a pre-
programmed call. The file transmitted when pressing this key is
called "CALL.TXT". This file can be constructed or modified from the
edit mode.

F9 --- FILE Pressing the "F9" key will instruct the program to
change the currently being used file name. This option should not be
used when concurrently receiving and saving messages. Upon pressing
the "F9" key, the display will change to prompt the user to enter a
new filename. A simple press of the RETURN key will allow the user to
get out of the situation with no change.

F10 -- CLS Pressing the "F10" key will result in the message
window on the screen to be blanked. The cursor will be reset to the
upper left position in the active screen area. The headings and
status lines will not be erased.

SECTION 8.0
OPERATING PRECAUTIONS

8.1 UPPERCASE CHARACTERS

While it is not absolutely necessary that the user be in upper-case while typing, the use of upper-case will allow the viewer to see the text exactly as it will appear when received by the destination station. The ST-8000 will automatically convert lower case letters to upper-case equivalents prior to transmitting them.

8.2 FILES

Care must be taken to make sure that the user knows which file is the one which he wants to send or receive. When receiving messages, if the filename has been previously used and not deleted, the new messages will be appended or placed behind the earlier messages. Of course this can be corrected when editing the ·file, but it would require a longer editing session.

8.3 PROGRAM VERSION AND UPDATES

This is the first version of 1030RTTY, and undoubtedly there will be areas that will need improvement. Improvements will be made and distributed free-of-charge to purchasers of the original program. The time table and version update periods will be a function of the number of modifications made and the operational impact of the modifications. User identified problems or enhancements are solicited. Please contact Signal-One with problem reports or suggestions.