

Operators Manual for
PAMS - Personal Amtor Mailbox System
AMCS - Amtor Message Center System (MARS)
February 22, 1992 - Version 2.00

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CHAPTER 1

Introduction

TWO SYSTEMS IN ONE

This program has two personalities. If the program is started with a configuration file named PAMS.CNF it is a Personal Amtor Mailbox System (PAMS) for use on amateur radio. If the program is started with a configuration file named AMCS.CNF it is an Amtor Message Center System (AMCS) for use on the U.S. Military Affiliate Radio System (MARS). Because of the differences in protocols between the two services the two modes are incompatible and require different operating modes.

WHAT THE SYSTEM DOES...

The PAMS/AMCS is a software system that runs under MS-DOS 3.x or higher on an IBM-XT or compatible computer. It provides an AMTOR terminal program and personal mailbox (MBO) system that is compatible with APLINK when configured as PAMS. PAMS/AMCS contains all of the required protocol to send and receive messages automatically between other PAMS/AMCS' and between PAMS and APLINK stations. It may be operated unattended to accept connections from other stations automatically.

The system conforms as closely as possible to the conventions that have evolved for the use of packet BBSs. There are differences necessitated by the nature and constraints of the AMTOR mode. For this reason, as well as the fact that AMTOR does not automatically identify a sending station, the system requires positive identification during login. The system will also request confirmation of the addressee when entering messages into the system (unless the user has selected 'EXPERT' mode).

By setting certain parameters in the configuration and forwarding files, PAMS/AMCS may serve as a general purpose AMTOR mailbox, operating exactly as APLINK except that there is no facility for interconnecting with the packet system.

THE OPERATOR INTERFACE

The keyboard commands for this program use a minimum of function and special keys. It has been designed to be easy to use across all of the keyboard types found on personal PCs including lap top and notebook versions. In particular, the TAB key - which is of no other use when using AMTOR - is used to initiate virtually all channel commands. All keyboards have the TAB key in nearly the same place.

For those operators already familiar with running APLINK a little extra time may be needed for 'retraining'.

CHAPTER 2

Hardware Installation

The equipment required to run this system includes:

1. IBM-XT or close clone running MS-DOS 3.x or higher. A hard disk is needed if you are serving as a general access mailbox. When simply running as a personal mailbox you should be able to run using only diskettes. At least one COM port must be installed and available. (No COM port is required if you are using a HAL PCI-3000.) The minimum acceptable free memory is about 250k.

2. An AMT-1 AMTOR Terminal Unit, a PK-232 AEA AMTOR Terminal Unit, or a HAL Communications PCI-3000 Terminal Unit.

WARNING - THIS VERSION OF PAMS/AMCS WAS DEVELOPED AND TESTED WITH THE FOLLOWING VERSION OF ROMS: IN THE AMT-1, VERSION 07A; IN THE PK-232, JULY 1991; AND IN THE PCI-3000, VERSION 1.7C. YOU SHOULD USE ONE OF THESE, OR LATER, ROMS IN YOUR AMTOR CONTROLLER. IT IS STRONGLY RECCOMENDED THAT YOU NOT RUN THIS VERSION OF PAMS/AMCS WITH EARLIER VERSION ROMS.

Contact Jim, KE5HE @ KE5HE.TX.USA if you need new ROMs for the AMT-1 or the PCI-3000. Contact AEA for the latest ROM for the PK-232.

If the AMT-1 is used it should be configured for 110 baud. All soft configuring is done by PAMS/AMCS at startup. Only Rx and Tx signals are used between the AMT-1 and the computer. Flow control is performed through use of the status byte from the AMT-1. The COM port of choice must be set in the PAMS.CNF for AMCS.CNF configuration file (see below).

If a PK-232 AEA Terminal Unit is used, the interconnecting cable between the PK-232 and the serial port should include wires 1 through 8 and 20 and no others.

If a HAL PCI-3000 is used, simply install the unit as received from the factory. Do not use a serial port or connect to the "host" port on the PCI-3000. The interface between the PCI-3000 and PAMS is on the internal PC bus.

3. The r.f. hardware that connects to your chosen terminal unit I will leave to your imagination.

CHAPTER 3

Software Installation

The delivery disk normally contains a self-extracting archive file. Create a temporary directory on your hard disk and copy the archive file into that directory and then run it. The following files should appear in the temporary directory:

PAMSAMT.EXE - The main program when using the AMT-1,
PAMS232.EXE - The main program when using the PK-232,
PAMSPCI.EXE - The main program when using the HAL PCI-3000,

READ.ME - Read it!,
COPYRITE - Author's copyright statement,
HELPPWDO - A help file used by PAMS,
PAMS.ASC - The operator's manual (ASCII format),
PAMS.DOC - The operator's manual (Microsoft Word format),
USERS.EXE - The users' file editor,
PAMS.CNF - A sample system configuration file,
FORWARD.APS - A sample autoforward routing file,
HELP - The short form help file,
INFO - The info file (should be operator edited),
HELP1. thru HELP9. - Detailed help files the operator will
install using the SH command.
INTRCPT.APS - A sample intercept file,
MBBIOS.COM - A TSR communications port driver,
MBBCONFIG.EXE - The MBBIOS.COM configuration program,
MBBIOS.DOC - Documentation for MBBIOS.COM,

In addition the operator must obtain a copy of the Norton Editor.

To install the system for the first time, simply copy all of the above files and the Norton Editor (renamed E.COM) into a hard disk subdirectory named \PAMS or \AMCS. Rename either PAMSAMT.EXE, PAMS232.EXE, or PAMSPCI.EXE to PAMS.EXE (or AMCS.EXE), depending upon which AMTOR terminal you are using. Add \PAMS\MBBIOS.COM to your AUTOEXEC.BAT file. When you run PAMS\AMCS the first time the system will create two subdirectories: \PAMS\MESSAGES and \PAMS\ARCHIVE (or \AMCS\MESSAGES and \AMCS\ARCHIVE).

If you are using a PK-232 for on the AMTOR channel you may have to use MBBCONFIG.EXE to change the configuration of slot number 1 to hardware handshaking equal to 'Y'.

If you are going to run AMCS, rename PAMS.CNF to AMCS.CNF.

Using the Norton Editor, edit the files PAMS.CNF (or AMCS.CNF), INTRCPT.APS, and INFO to fit your station. Edit USERS.APS with USERS.EXE to add or delete whatever stations you wish or just let each station be entered into the USERS.APS file as they log on for the first time.

Your computer's system clock (TIME and DATE command in MS-DOS) should be set to your local time. You should add the following line to your AUTOEXEC.BAT file: 'SET TZ=aaann' where aaa is a three letter code for your local time zone and nn is the number of hours difference between your local time zone and GMT (UTC). Use a positive number if you are west of Greenwich and a negative number if you are east. For example:

```
SET TZ=EST5
```

should be used for Eastern Standard Time (USA).

Several other files will be created by the system in the PAMS/AMCS directory when it is first run.

Look at the sample INFO file with the Norton Editor. You will see what needs to be done there.

The intercept file, INTRCPT.APS, provides a very special service. Each line of the file should contain a station's call letters, white space, and an h-route - AND NOTHING ELSE. Each time a message is entered into PAMS/AMCS (either from over the air or from the operator) the file is searched for a match to the TO field of the incoming message, if nothing is found then a search is made on the first token of the AT field. If the first call on any line matches, then the h-route is placed in the AT field of the message. Note in the sample provided that the first line of the file reads:

```
W5SMM WA8DRZ.#NOCAL.CA.USA.NA
```

This means that any message for W5SMM entering the system will be forwarded to him at WA8DRZ. (In fact, W5SMM requests that all sysops leave his call in the intercept file as shown.)

INSTALLATION NOTE

If you are using Desqview be sure to allow PAMS/AMCS enough time to run.

There is no hard and fast rule since it depends strongly on the speed of your computer. If the time allotment gets too short the system is painfully slow for your users and in some cases will fall far enough behind to cause timeouts. This is especially true if you are using the PK-232. The software overhead to run a PK-232 on AMTOR is very much higher than for other AMTOR controllers.

NOTE FOR EXISTING APLINK USERS

All files with the extension .APS are compatible with PAMS/AMCS. You may switch between PAMS/AMCS and APLINK without any problem but you may not run them at the same time. To start PAMS/AMCS copy your APLINK.CNF file to PAMS.CNF (or AMCS.CNF) and make new HELP and INFO files.

Now set up the configuration file as described in the next chapter.

CHAPTER 4

The Configuration File

For PAMS/AMCS to run you must first edit the PAMS.CNF or AMCS.CNF file to suit your particular station. The following parameters must be included in the file for the system to function.

MYCALL=W5XYZ The call letters for your station.
MYSELCAL=WXYZ The selcal for your station.

The remaining parameters are optional and the system will assume a default value if nothing is given.

AAB Default: AAB=1 - Enables the automatic answerback for this station.

ADELAY PK-232 Only. Default: The parameter set in the PK-232 at startup. Sets the value of the transmit delay for the PK-232. Multiply the parameter by 10 milliseconds. Example: ADELAY=5 sets the transmit delay to 50 ms.

ALMOFF Default: ALMOFF=<null> - Sets the hour of the day (local time) to disable the sysop alarm. Example: ALMOFF=7 turns off the sysop alarm at 0700 local time.

ALMON Default: ALMON=<null> - Sets the hour of the day (local time) to turn on the sysop alarm. Example: ALMON=15 enables the sysop alarm at 1500 local time.

ALOG Default: ALOG=LOG - The path/filename for the AMTOR log file. Set ALOG=NONE if you do not want a system log.

AMT-D AMT-1 only. Default: AMT-D=0 - Sets the error threshold for the AMT-1 (when the version 07A or later ROM is installed). 1 is the tightest and 5 is the loosest error threshold. The AMT-1 designer recommends a setting of 4.

AMT-F AMT-1 only. Default: AMT-F=1 - If 1, enables FEC mode in the AMT-1 (when the version 07A or later ROM is installed), if 0, disables the FEC mode. Disabling the FEC mode is useful when scanning since it prevents the scanner from pausing on FEC signals.

AMTPORT Default: AMTPORT=1 - Sets the choice of communications port used by

the computer to connect to the AMTOR controller. If AMTPORT is set to 0 the AMTOR port is disabled and no communications port is used or required in the computer.

AMTRATE	Default: AMTPORT=2400 - Sets the baud rate between the AMTOR controller and the computer. Allowable rates are 1200, 2400, 4800 and 9600. This parameter has no effect when using the AMT-1.
ASCII	Default: ASCII=0 - Enables the extended (full) set of ascii punctuation characters on the AMTOR channel. Read the next chapter before including this parameter in the PAMS.CNF or AMCS.CNF file.
AUTOLOG	Default: AUTOLOG=1 - Enables the system's automatic AMTOR login feature.
AUTOREGISTER	Default: AUTOREGISTER=1 - Enables a new user to automatically be entered into the users file. If disabled only calls entered into the users file by the sysop may log into the system.
CALL	Default: CALL=<null> - Presets a call for a distant station at system startup. Example: CALL=WA8DRZ
EVENTLOG	Default: EVENTLOG=0 - If set to 1 enables the writing of an event log. See chapter 9.
HEAP	Default: HEAP=0 = If set to 1 enables a diagnostic feature that displays the status and amount of free memory available to the program.
LCMD	Default: LCMD=1 - When set to 1 enables the 'L' command on the AMTOR port. When set to 0 disables the 'L' command on the AMTOR port.
LOGFEC	Default: LOGFEC=1 - Enables writing FEC mode signals into the AMTOR log.
LOWERCASE	Default: LOWERCASE=0 - Enables upper and lower case mode on the AMTOR channel. Please read the next chapter before including this parameter in the PAMS.CNF or AMCS.CNF file.
MAXLINES	Default: MAXLINES=60 - Sets the number of printed lines on your printer between form feeds.
MSGFF	Default: MSGFF=0 - Enables automatic form feed at the end of a message printed on the system printer.
MYROUTE	Default: MYROUTE=<null> - If you set MYROUTE to the full h-route

for your station it will appear in headers generated by PAMS/AMCS. Default is your own call without any h-routing. You must still set the parameter MYCALL as well, without any extensions.

MYSUFFIX	Default: MYSUFFIX=<null> - An extension to your call such as a different call area. Do not include the / in entry.
NLS	Default: NLS=1 - Stands for No Leading Space. If set to 1 you cannot type a leading space on a new line from the keyboard while transmitting in keyboard mode on the air.
NORTON	Default: NORTON=1 - If you prefer to use a 'generic' ascii text editor rather than the Norton Editor set NORTON=0. Whatever editor you use must be named E.COM, E.EXE, or be invoked by a properly constructed E.BAT file.
OWNHEADER	Default: OWNHEADER=0 - Enables the addition of your station's header to a message when it is originated at your station. If you are not running an MBO serving other users it should be set to 0.
PCIAD	Default: PCIAD=5 - Set the value in milliseconds of the audio delay in the PCI-3000.
PCICD	Default: PCICD=30 - Sets the value in milliseconds of the control delay in the PCI-3000.
PCIDLY	Default: PCIDLY=0 - Setting PCIDLY=1 enables a long timeout delay on a lost ARQ link, otherwise the timeout delay is normal.
PCIPD	Default: PCIPD=5 - Set the value in milliseconds of the ptt delay in the PCI-3000.
PCISCAN	Default: PCISCAN=0 - Setting PCISCAN=1 enables a level (low) scan stop signal output from the PCI-3000 upon receipt of a selcal otherwise the scan stop signal is a pulse.
PCITD	Default: PCITD=20 - Sets the value in milliseconds of the transmit delay in the PCI-3000.
PK232REV	Default: PK232REV=0 - For PK-232 users only. If set to 1 reverses the sense of the mark and space tones.
PRINTER	Default: PRINTER=NONE - The path to your printer. A typical setting is PRINTER=LPT1.
PRTLOG	Default: PRTLOG=1 - Specifies the channel that prints to your printer

when the system starts.

PRTLOG=1 for system printer (default), PRTLOG=2 for AMTOR channel printer, or PRTLOG=3 for PACKET channel printer.

QTH	Default: QTH=<null> - Your QTH and postal code. This text will appear in your message headers. Example: QTH=MIAMI, FL Z:32132
SELCAL	Default: SELCAL=<null> - Presets a selcal for a distant station at system startup. Example: SELCAL=WDRZ
SHORTHEADERS	Default: SHORTHEADERS=0 - If set to 1 only the first and last header will be forwarded on AMTOR. Intermediate headers will be dropped. This acts only on messages forwarded on AMTOR. All the headers will still be forwarded on the packet channel.
SIGNON	Default: SIGNON=NEED HELP? TYPE 'HELP+?' - The pre-login message.
SYSMMSG	Default: SYSMMSG=<null> - The post-login message. This is not normally set but may be used to draw attention to an important bulletin. Example: SYSMMSG=URGENT: READ MSG 1234
TUPDATE	Default: TUPDATE=999 - Set the hour of the day (local time) that the system update will occur automatically. Set to 999 to prevent automatic updating. Automatic updating is strongly recommended.

You may change the colors displayed on the screen. Use the following range of numeric values to set the color parameters.

- 0 BLACK
- 1 BLUE
- 2 GREEN
- 3 CYAN
- 4 RED
- 5 MAGENTA
- 6 BROWN
- 7 LIGHT GREY
- 8 DARK GREY
- 9 LIGHT BLUE
- 10 LIGHT GREEN
- 11 LIGHT CYAN
- 12 LIGHT RED
- 13 LIGHT MAGENTA

14 YELLOW
15 WHITE

Backgrounds may only use 0 thru 7.

STATFORE	Default: STATFORE=0 (BLACK) - Status line foreground.
STATBACK	Default: STATBACK=7 (LIGHT GREY) - Status line background.
WDOFORE	Default: WDOFORE=15 (WHITE) - Text windows foreground.
WDOBACK	Default: WDOBACK=1 (BLUE) - Text windows background. (Black on black and white screens)
POPFORE	Default: POPFORE=15 (WHITE) - Popup windows foreground.
POPBACK	Default: POPBACK=7 (LIGHT GREY) - Popup windows background.

Once you have set up the PAMS.CNF or AMCS.CNF file you need to create a forwarding file as described in chapter 7.

CHAPTER 5

Character Sets

Beginning with PAMS version 2.00 there are two new features which, at the sysop's option, may be activated to extend the range of characters available on AMTOR. One is upper and lower case alpha characters and the second is an extension of the available set of punctuation characters to include the entire ASCII set.

UPPER/LOWER CASE

To activate the upper/lower case feature include the following in the PAMS.CNF or AMCS.CNF file:

```
LOWERCASE=1
```

This feature will work with any PK-232 controller, any AMT-1 controller with a version 07A ROM or later, and any PCI-3000 with versio 1.7C ROM or later. If you need a new AMT-1 or PCI-3000 ROM contact Jim, KE5HE @ KE5HE.TX.USA.

The addition of lower case is achieved by transmitting a case 'toggle' or shift character, a Baudot blank, whenever the text changes between upper and lower case. (The Baudot blank is the Baudot character with all bits set to 0, not to be confused with the Baudot space.) The beginning of any transmission is always assumed to be in upper case. Any Baudot figures character always shifts the alpha case back to upper.

Since the Baudot blank character is ignored by virtually all receiving devices this mode is 'backwards' compatible with your existing user's system. A user not equipped with a system that interprets the Baudot blank continues to see all upper case characters.

This method of transmitting upper and lower case was originated by Peter, G3PLX. It is used in the 'PLX' AMTOR mailboxes that he has written so that upper and lower case characters can be preserved on traffic exchanged between the two systems.

WARNING - The latest versions of the PK-232 also implement upper and lower case using a different technique. Your users must not use that mode or the upper and lower cases will become confused and/or stray graphics characters may appear in their text. Tell your PK-232 users to set the parameter 'CODE 0' in their controllers.

EXTENDED ASCII PUNCTUATION SET

The extended ASCII punctuation set is not 'backward' compatible with existing systems so must be activated on a station by station basis either by the sysop or by the user himself. A user must be using PAMS version 2.0 or later or APLINK version 6.0 or later.

To enable your system to offer the extended ASCII characters you must add ASCII=1 to your PAMS.CNF or AMCS.CNF file. This only enables the code in your PAMS/AMCS to permit this mode and does not activate it for any specific user. For this feature to work you must have the following ROMS: In the PK-232, July 1991 or later, the AMT-1, version 07A or later, and the PCI-3000, version 1.7C or later. DO NOT SET ASCII=1 UNLESS YOU HAVE A PROPER ROM.

To activate the extended ASCII character set for a particular user, set the ASCII tag in your user file to 1 (using USERS.EXE) for that user and then link with him on the AMTOR channel and set his system to ASCII mode with the 'ASCII' command.

The user may set this tag in your user file for his call by sending the command 'ASCII' while logged into your system. This command is a toggle and will switch the user's tag between ON and OFF each time the command is received. PAMS/AMCS will echo the state of the selection each time the command is received. Once the tag is set it remains set until the user or sysop changes it again and does not have to be set each time a user logs in.

The technique used for transmitting the extended punctuation characters is to send an 'escape' code (again, a Baudot blank) ahead of a Baudot figures character to 'reassign' it to an alternate value. For example, to send a colon in the Baudot code the system transmits a 'Figs-C'. This may be one or two characters depending on whether the controller is already in 'Figs' case. To send a semicolon, which is an ASCII character but not a Baudot character, the system precedes the 'Figs-C' with the Baudot blank. This does not interfere with the upper/lower case alpha toggle since any figures character resets the system to upper case alpha.

Here is the 'escape' table used for the extended characters:

No Null Escape -----	With Null Escape -----
Figs-A: - Dash	_ Underscore
Figs-B: ? Query	
Figs-C: : Colon	; Semicolon
Figs-D: <Reserved for WRU>	
Figs-E: 3	
Figs-F: % Percent	` Reverse Apostrophe
Figs-G: @ At Symbol	} Closing Brace
Figs-H: # Hash Mark	{ Opening Brace
Figs-I: 8	

Figs-J: * Asterisk
Figs-K: (Open Paren [Opening Square Bracket
Figs-L:) Close Paren] Closing Square Bracket
Figs-M: . Period > Closing Angle Bracket
Figs-N: , Comma < Opening Angle Bracket
Figs-O: 9 ~ Tilde
Figs-P: 0
Figs-Q: 1 ! Exclamation Point
Figs-R: 4 \$ Dollar Sign
Figs-S: ' Apostrophe " Quotation Marks
Figs-T: 5
Figs-U: 7 @ And Symbol
Figs-V: = Equal | Vertical Bar
Figs-W: 2
Figs-X: / Slash Mark \ Reverse Slash Mark
Figs-Y: 6 ^ Caret
Figs-Z: + Plus

CHAPTER 6

The Forwarding File

Using the Norton editor, create an ASCII file named FORWARD.APS. Make entries into the file that look something like this (assume you are N6FW for this example):

- . A line beginning with a period is ignored
- . Blank lines are ignored

- . The first entry should be your call
N6FW N6FW
- . The second entry is a '*' followed by the calls of any or
all APLINK or PAMS station that you forward messages to.
* WA8DRZ N0IA

That takes care of it if you are running a simple personal MBO and not providing message forwarding for others. Any time you have a message(s) entered into your system that are not addressed to you and have an entry in the 'AT' field, they will be forwarded automatically whenever you are linked to one of the stations in the second entry and you use the command TAB-F or started the link with the command TAB-D. If any of those stations link to you and initiate a reverse forward command your pending messages will be forwarded.

If you wish to run PAMS/AMCS as a full amtor MBO or segregate your traffic between different APLINK stations then your FORWARD.APS file gets more complicated. Read on:

- . The first entry should be your call typically (see below)
N6FW N6FW
VK2AGE AH6D VK2AGE VK3EHQ
TG9VT TG9VT
#SOCAL.CA N0IA
#NOCAL.CA WA8DRZ
- . This entry routes all NTS traffic with a zip code starting with
. 78 to KE5HE
78* KE5HE
- . The next entry would hold all Alaska traffic in the system
AL N6FW
- . The following state code entries are exceptions to the rule
. that USA traffic goes to WA8DRZ
HI AH6D
TX KE5HE
IL WA1URA WB7QWG
IN WA1URA WB7QWG
USA WA8DRZ

AUS AH6D VK2AGE VK3EHQ
EU TG9VT ZF1GC
NA WA8DRZ
AS TG9VT ZF1GC
OC AH6D
SA TG9VT ZF1GC
AF TG9VT ZF1GC

and so on. The first entry on a line is a routing token and the remaining entries on the same line are bbs/mbo stations that messages with those routing tokens may be sent to. Messages that have nothing in the 'AT' field will not move unless there is an exact match to the 'TO' field.

You may use a wild card (a '*') on the left hand token. DO NOT USE WILD CARDS EXCEPT FOR ZIP CODES OR WHERE THE FIRST THREE LETTERS ARE 'NTS'. Wild cards on anything else will potentially confuse the h-routing scan process.

If you have a token with a leading '#' then the expected following token must be included also: see #NOCAL.CA above.

If you put a call (other than your own and the call of the packet bbs you forward to) in a routing token field then also put that call in the intercept file with full h-routing so that down stream stations will know how to deal with it.

Put the most specific tokens first, such as call letters, followed by tokens beginning with '#', followed by zip codes (including zip codes with wild cards), followed by state codes, followed by country codes, followed by continental codes. The scanning process is complicated and the order of entries in FORWARD.APS is very important. For example, if a message has HI.USA in the 'AT' field it will not forward to WA8DRZ in the above sample file because it will have 'hit' on AH6D first and the system will hold the message for that station. Put your own call in the first line in both the first and second field to insure that traffic addressed 'AT' your station stays there.

MESSAGES THAT DO NOT MATCH ANY ROUTING ON THE LIST WILL NOT MOVE.

Messages with the call of the station that you are linked to in the 'TO' field move unconditionally to that station.

Any number of mbo calls can follow the routing token as long as they are separated by one or more spaces and do not exceed a total line length of 80 characters.

The routing table is kept in memory to speed things up a bit. If you change FORWARD.APS the system will see a change in the file time stamp and reload the routing table the next time routing is requested.

HINTS

Do not try to put every possible h-routing token in your FORWARD.APS file. It is enough to put 'USA' for the station(s) that handles most of your U.S. traffic and then just enter the state codes that are exceptions ahead of it. Use country codes for the station(s) that take your foreign traffic, etc... If your FORWARD.APS file is growing large you may not be making the best of it. Make sure there is at least one entry for each country that you are likely to handle traffic for.

REJECTED MESSAGES

If the system attempts to forward a bulletin and it is rejected (usually meaning that the other station already has it) its status is changed to STATIC and it is left in the system for all to read.

If a private or NTS message is rejected it is marked as REJECTED and held for the sysop to take action on it. A rejection of a private or NTS message usually means there is some problem, typically a case of "round robin" routing. In any case the sysop should look into it. When the sysop does a message listing rejected messages will show a '*' in the status column, or '**' if it is over 24 hours old. The message status is restored, of course, by the MCB editor once the problem has been solved.

CHAPTER 7

Starting the System

If you have not already done so, re-boot the system to make sure MBBIOS.COM has been loaded. To start the system the first time, keep your transmitter turned off but your AMTOR terminal unit on, and run PAMS.EXE (or AMCS.EXE). (Be sure you renamed one of the PAMSxxx.EXE file to either PAMS.EXE or AMCS.EXE.) The system will go through its initialization procedure and when it is ready for service will display the copyright notice on the screen.

Type the following sysop commands to enter the tutorial help files:

```
SH PAMS HELP1(return)
SH PAMS HELP2(return)
etc. thru HELP9
```

To see if it all worked type:

```
LH(return)
```

and you should get the message list with the help files showing. If uncertain about this procedure read KEYBOARD OPERATION and SYSOP COMMANDS sections first.

This completes the installation. You should be up and running.

SPECIAL NOTE REGARDING THE PK-232

You may 'cold start' the PK-232 provided you have the PK-232 19 July 1990 (or later) ROM installed. You can continue as you are now or you can remove the battery (or pull jumper JP-1) and simply turn the PK-232 on just before running PAMS and PAMS will do a full configuration including setting the baud rate to whatever you have set in the PAMS.CNF file (AMTRATE=nnnn, default is 2400). This should work OK where you want the system to automatically restart from a power failure.

CHAPTER 8

Bulletins

Bulletins entered into the system from the AMTOR channel or by the Sysop are visible to everyone who uses the system.

Bulletins may be entered by any station. If there is no entry in the 'AT' field then the bulletin will remain in the system but will not be forwarded to any other station. If there is an entry in the 'AT' field the bulletin will be forwarded once only to the station indicated by the FORWARD.APS file for that routing. PAMS does not do "flood" forwarding of bulletins. If the bulletin is ultimately forwarded to a packet bbs however, that bbs may "flood" the bulletin to many stations.

All bulletins are held in the system until deleted by the sysop or the originating station.

CHAPTER 9

Logs

SYSTEM LOG

The system maintains a log file. The path (file name) of the file declared in the PAMS.CNF or AMCS.CNF file (the default is LOG if not named). The log records everything transmitted or received on the channel. The main purpose is diagnostic and can be turned off once the system is known to be stable and free of programmer errors. In order not to fill the disk with endless text logs, the current text log is renamed LOG.OLD when UPDATE is executed and the previous LOG.OLD file is deleted.

The log file may be read with the TAB-L command or off line with the Norton Editor or any ascii text editor.

If a failure occurs during system operation the log file should immediately be saved to give the programmer half a chance at finding what happened.

EVENT LOG

The system is also capable of maintaining an event log which is named EVENTLOG.APS. To activate this log include EVENTLOG=1 in your PAMS.CNF or AMCS.CNF file. This log records the receipt and delivery of all messages to and from your system.

If the UPDATE command is run on the first day of the month then the current event log is renamed EVENLOG.OLD and a new event log is started.

CHAPTER 10

Console Operation

When the system is started, two windows will be displayed with the copyright notice showing on the top window when the system has completed initialization.

The top window is devoted to displaying characters received on the AMTOR channel or and the bottom window to characters received from the keyboard or files being transmitted. Over each window is a status bar related to that window.

In channel mode the keyboard is word buffered. The word is transmitted when the spacebar, return, a control character, or +? is pressed.

The system can be in either of two modes: channel mode or message manager mode (message manager mode is the same as sysop mode in the APLINK system).

CHANNEL COMMANDS

The system comes up in channel mode and is returned to channel mode whenever the TAB key is pressed. Pressing the TAB key causes a prompt window to open with a list of the channel commands in view. The TAB key is followed by a alpha character which invokes the following commands:

TAB A Switch the amtor controller to ARQ monitor mode. The MBO is disabled.

TAB B In ARQ mode, send a 'break' command - i.e., force the link into send mode for your station. Use sparingly.

TAB C Start an ARQ call. A window will open prompting you for call letters. Enter call letters only if you want to use the default selcal otherwise enter call letter and selcal seperated by a space or '/'. The enter key starts the call, the ESC key cancels the operation. The last call you used may be repeated by just typing the enter key.

TAB D Starts an ARQ call as above but automatically goes into autoforward mode once GA+? is received from the called station. If you are already linked it begins autoforwarding. This command should only be used with another APLINK, PAMS, or compatible MBO.

TAB E Ends an ARQ link. It only takes effect when your station is in the send mode.

TAB F Set a new remote station call and selcal.

TAB G Switches the displayed time to GMT (or back to local).

TAB H Displays additional help.

TAB I Sends station identification.

TAB K Switches the system between keyboard and MBO operation. If the system is left in keyboard mode it will eventually time out and return to MBO operation.

TAB L Read the log. Brings up the Norton editor with the log file loaded. All channel operation are frozen during this time.

TAB M Switches the system to message manager mode while linked to a station. This is not required when you are not linked since typing a message manager command from the keyboard will switch the system automatically.

TAB N Sends a 'top of form' command to your printer.

TAB P Switches the printer between the channel and the message manager. The system comes up with the printer attached to the message manager unless you have made a special entry in the configuration file.

TAB Q Quit PAMS. You will get a prompt asking you to confirm this.

TAB R Channel reset. This forces the amtor controller back to FEC/ARQ standby no matter what is going on. This is the 'panic' button.

TAB S Send a file to the station you are linked with. It functions when you are in either ARQ or FEC mode and are sending.

TAB T Invokes a carrier test. Turns on a steady carrier for adjusting you transmitter. Press any key to stop it.

TAB W Clear the windows of any text. This does not clear any send or receive buffers.

TAB Z APLINK/PAMS logout. This sends your identification and logout command to another APLINK or PAMS station. Use this rather than just dropping the link.

There are some channel commands that do not use the TAB key:

ESC Clears all transmit buffers and stop any file transmission or automatic forwarding.

DEL If the amtor controller is stuck in figures case this key will set it to letters case.

F1 Shows you the help screen (same as TAB H).

- F3 Same as the TAB key (this is done for parity with the Norton Editor).
- F9 Send command. If in FEC standby it start an FEC transmission. If in ARQ it sends a break command (same as TAB B).
- F10 Received command. If transmitting in FEC mode, it returns the amtor controller to FEC standby mode. If transmitting in ARQ mode it sends the +? command.

MESSAGE MANAGER COMMANDS

Remember, the following are message manager commands used by the system operator. They are not the same as the commands used over the air by a remote station. These commands are not normally invoked while linked but may be usually without harm unless autoforwarding is in progress. The system will delay response to an online user while message manager commands are being executed.

In the table below <number> is any integer between 0 and 999999, <id>, <id1> and <id2> are standard 1 to 6 character routing designators (usually call letters) as used in Packet, and <filename> is any valid MS-DOS path/filename.

COMMAND	FUNCTION
-----	-----
E <number>	Invokes the Message Control Block Editor for message <number>. See the separate section describing the MCB Editor.
K <number>	Cancel message <number>.
K <number 1> <number 2>	Cancel message <number 1> thru <number 2>.
KB <number>	Same as K <number> except bulletins only.
KB <number 1> <number 2>	Same as K <number 1> <number 2> except bulletins only.
L	List all messages in the system except bulletins.
L <number>	List all messages in the system equal to or greater than <number>, except bulletins.
LP	List all "pending" messages; messages awaiting forwarding or delivery.
LT	List all messages addressed to this station and to "SYSOP".
LT <id>	List all messages to <id>.

LF	List all messages from this station.
LF <id>	List all messages from <id>.
LB	List all bulletins.
LH	List all help files.
LR	List users logging into the system on the AMTOR channel in the last 24 hours.
LU	List all users registered for the AMTOR channel.
NTS	List all NTS messages in the system.
P <number>	Print message <number> to your printer. If the message is addressed to your station it will be marked as forwarded.
PN	Print all new messages to your station and mark them as forwarded.
R <number>	Read message <number>. This invokes the Norton Editor with message <number>. Not only can the Sysop read but he can also modify any message in the system. It is generally not socially acceptable to modify other people's messages. Any message accessed in this way addressed to your station will be marked as forwarded.
RESTORE <number>	Restores a canceled message provided it has not been archived.
SP <id1> [AT <id2>] [<filename>]	If file name is included, copies <filename> into APLINK as a message to <id1>. If <filename> is not included then the Norton Editor is invoked. After the message has been typed and edited, exiting the editor stores the message into APLINK. If the Norton Editor is exited without saving the text (i.e., F3 Q Y) then the operation is canceled.
SB . . .	Same as the SP command above except the message is marked BULLETIN.
ST . . .	Same as the SP command above except that the message is marked NTS. Certain restrictions may apply to NTS messages. See the section on NTS operations.
SH . . .	Same as the SP command above except the "message" is a help

file only.

UPDATE

Manually initiates the system update routines. This should be done once a day or on first use if the system has not been used for more than a day. If you run your system continuously then this is normally done by setting the 'TUPDATE' parameter in the PAMS.CNF or AMCS.CNF file.

NOTE: Messages that are removed from the active directory at UPDATE time are copied into a subdirectory under the current PAMS directory named ARCHIVE. In a typical installation this directory path would be C:\PAMS\ARCHIVE. The archive subdirectory is created automatically by the system.

IN AND OUT OF AMTOR MBO MODE

The system is toggled in and out of MBO mode by pressing TAB-K. The system will automatically return to MBO mode after about ten minutes time, once the system is no longer linked, in the highly unlikely event that the operator forgets to return it.

If a user is using the MBO when TAB-K is invoked, all operations will stop, any open message files closed and the system will send:

...PLEASE STANDBY

At that point you may converse with the user. TAB-K again will return the system to MBO mode. Once out of MBO mode the program operates as an ordinary AMTOR terminal program and may be used to call stations, send files manually, etc.

If a station that you want to talk to has logged off before you could catch them just press TAB-C(return) and if the other station is still on the frequency the link will be re-established.

Whenever an ARQ call is initiated (TAB-C or TAB-D) the MBO mode is switched off. It may be restored by the TAB-K toggle.

STATUS INDICATORS

Here is the meaning of the status bar indicators:

AMTOR:aaa/bbb:cccc <time and date> ddd/eee/fff

aaa = MBO when the AMTOR Mailbox is alive and well.

aaa = KSR when the SYSOP has shut off the mailbox

bbb = SBY when the MBO is waiting for a logon.

bbb = OPN when someone has logged on, but there is no command outstanding.

bbb = INP when receiving a file.

bbb = OUT when transmitting a file.

bbb = TSF when transmitting files in response to an RN command.

bbb = CFM during the time a message header is being confirmed.

cccc = Is the call of the last user to have signed onto the AMTOR mailbox; or, if the system has just been initialized, it is the call specified in the CALL parameter of the configuration file.

ddd = RCV when the AMTOR link is in the receive direction.

ddd = SND when the AMTOR link is in the transmit direction.

eee = FEC during standby and when operating in FEC mode.

eee = ARQ when linked or operating in ARQ-Listen mode.

fff = ERR, RQ, TFC, IDL, OVR, PHA, SBY, or ESC depending on the state of the AMTOR controller. See your controller manual for explanations.

KBD:aaaaa

PTR:bb

aaaaa = CHANNEL when the keyboard is assigned to the AMTOR channel.

aaaaa = MSGMGR when the keyboard is assigned to the message manager command handler.

bb = NC when the printer is not configured.

bb = MM when the printer is assigned to the message manager.

bb = CH when the printer is assigned to the AMTOR channel.

USING THE PRINTER

If the printer has been declared in the configuration file it is available for either logging or printing messages.

To log the channel to the printer, press TAB-P. To return the printer to standby press TAB-P again.

THE MCB EDITOR

Each message in the system has a tag record called a message control block maintained in a separate file. This record contains pertinent information about the message such as its type, filing time, from and to fields, etc., etc. Any item of data in the MCB may be changed by the Sysop except the message number and the filing and forwarding times. This is done with the MCB Editor which is invoked with a message manager command:

E <message number>

Once the Editor's window is opened on the display, typing any of the following key words (upper or lower case) will change the appropriate parameter in the MCB:

AMTOR, SYSOP, PRIVATE, BULLETIN, NTS
HELP, CANCELLED, PENDING, FORWARDED, STATIC
BID... TO... AT... FROM... BBS...

The TO, AT, FROM, and BBS fields may be changed by typing:

TO <new field>,
AT <new field>, etc...

Pressing return with no other entry will record any changes and return to the message manager command line.

THE USER FILE MAINTENANCE PROGRAM

Supplied with PAMS/AMCS is the program USERS.EXE. This program can only be run when PAMS/AMSC is not running, even if you are using a multitasking system such as Desqview. Operation of the program is reasonably self-evident. A user is automatically entered into the USERS.APS file upon the first logging into PAMS/AMCS unless AUTOREGISTER has been set to 0 in the PAMS.EXE or AMCS.EXE file. A call may also be entered directly with USERS.EXE.

There are a number of parameters that may be set for any given user using USERS.EXE. Here is a list and their meanings:

MBO Set this to 1 for any station that you directly autoforward traffic to on AMTOR. This enables that station to read any uncanceled message in your system in order to obtain fills and to enable the RF and RI

commands.

PROTECTED Prevents removal of the station from the file when the user file maintenance program purge command is used.

ASCII Enables use of the full ascii printing characters set with the user. This must only be set if the user is fully compatible with the full ascii protocol.

EXPERT 1 sets EXPERT mode for a user.

LOCKOUT 1 prevents the indicated call from logging into your system.

The **LAST MESSAGE** and **LAST BULLETIN** parameters cannot be changed except to set them to zero with the zero command. These two parameters determine what number the message and bulletin lists begin with.

LAST LOGIN shows the time and date of the last time the indicated call logged into the system. The purge command removes all calls from the file that have not logged in within the last 180 days.

CHAPTER 11

Program Distribution

USER ASSISTANCE

If you are having problems bringing up PAMS/AMCS for the first time please read, and then re-read the documentation provided on the disk. Most questions received to date are covered in this information.

If you still are having problems, or have other questions relating to PAMS system operation please direct them, in writing, to Craig, WA8DRZ/6:

Craig McCartney, WA8DRZ
160 Montalvo Road
Redwood City, CA 94062
USA

Via AMTOR, leave an note on the WA8DRZ/6 APLINK system on 20 or 30 meters.

Via Packet, send a message to:

WA8DRZ @ WA8DRZ.#NOCAL.CA.USA.NA

Via CIS send a note on Hamnet or Email to user id 73126,3260.

If you are having problems related to AMCS (MARS) operation contact:

Art Wertz, N5AEN/AAR6SX
8019 Riata Drive
San Antonio, TX 78227
512-674-8468

Most APLINK operators are willing to give you a hand in getting started.

APPENDIX A

AMTOR Channel Commands

The following is a verbatim copy of the help files included in the PAMS distribution. Note that these help files are only appropriate for PAMS operation. They require modification for AMCS (MARS) operation.

The difference between the two modes of operation are changes of symbols and indicators as follows:

<u>PAMS</u>	<u>AMCS</u>
NNNN	ZZZZ
LOGIN	ZKB
LOGON	ZKB
LOGOUT	ZKJ
LOGOFF	ZKJ
SK	AR
NTS	ATS
GMT	Z
STANDBY	WAIT
MBO	MCS
GA+?	K +?

AMTOR Channel Commands

Type any of the following commands on a new line and end with either (CR/LF) or the + ? sequence (but not both). If you do not use the + ? sequence the system will change the direction of the link for you when it recognizes a valid command.

H or HELP - Send the help file

CNCN - Cancel whatever is in progress. (Usually a message you are entering into the system)

LOGIN (your call) - Logs you in

LOGON (your call) - Same as LOGIN

L - List all available messages in the system, not including bulletins (see note)

L (number) - As above equal or greater than (number)

LTO or LM - List all messages to you
LTO (call) - List all messages to (call)
LFM - List all messages from you
LFM (call) - List all messages from (call)
LT - List all NTS messages
LB - List all general interest bulletins (see note)
LB (number) - As above equal or greater than (number)
LR - List users who have logged on in the past 24 hours

NTS - List all unforwarded NTS messages

RN or RM - Read all new messages addressed to you
R (number) - Read message (number)
RH (number) - Read message (number) including routing headers

SP (call) - Send a message to (call), end with NNNN
SB (name) - Enter a bulletin with (name), end with NNNN
SB (name) AT (route) BID (bid) - Enter a bulletin with (name) at
(route) with a bid of (bid)

SP (call) AT (route) - Send a message to (call) to be forwarded
via (route)

ST (zipcode) AT (NTS statecode) - Send an NTS message (use
accepted NTS subject and message format)

NNNN - End a message. Must have been started with SP, SB, or ST.

CANCEL (number) - Cancels message (number) if originated by you

T - Talk to the sysop

I - Information about this system

V - Read version number

A - (After seizing the link) Abort a file being received

LOGOUT - Logs you off

LOGOFF - Same as LOGOUT

/// - Anywhere on the line cancels the line (except in messages)

NOTE: The L, and LB commands will only list messages you have not
previously listed. Follow the command with a number to override
this feature. Use 0 to list all messages in the category.

Here are some special commands for the expert user:

EXPERT - Toggles the 'EXPERT' mode

ASCII - Toggles the full ascii character set mode. Do not use this command unless your system is compatible with the full ascii protocol.

RI - Reads the MBO's intercept file

RF - Reads the MBO's AMTOR autoforward routing file

Note: RI and RF are available to other MBO's only

F - (After seizing the link) Abort a file being received and mark it forwarded if it is for you. (This is for use with duplicate messages.)

(File: HELP2) LOGGING IN ON AMTOR

Logging In On AMTOR

This MBO has an automatic login procedure for registered stations with automatic answerback (AAB) enabled. When you first link with the system, it seizes the link, identifies, sends a 'WRU' character (figs-D), and waits for an answerback response. The expected response is:

(CR/LF)QRA CALL SELCAL + ?

or

(CR/LF)DE CALL SELCAL + ?

For example '(CR/LF)QRA WA8DRZ WDRZ + ?' IS TYPICAL RESPONSE.

If no AAB response is received the system sends a manual login request followed by the + ? sequence. At this point a user should send either 'LOGIN (call)(CR/LF)' OR 'LOGON (call)(CR/LF)'. If the call has been registered the system will respond with a 'GA' prompt. If an error was received or the call is not registered the system will ask you to confirm the call. If you answer the confirmation request with 'YES' the call becomes registered.

APLINK will disconnect after three minutes if no login has been recognized.

Once you have logged on, the system is ready for your command whenever it sends a 'GA' (Go Ahead) prompt.

You may log out of the system with 'LOGOUT(CR/LF)' or 'LOGOFF(CR/LF)'.

any time the link is lost the current user is automatically logged out.

If a message is being sent to the system during a link failure, that part of the message that was received is filed and is available to the addressee.

(File: HELP3) RECEIVING YOUR MESSAGES ON AMTOR

Receiving Your Messages on AMTOR

The quickest and simplest way to receive your messages is to give the 'RN' (meaning 'Read New') command as soon as you sign on. All messages in the system not already marked 'forwarded' will be transmitted to you automatically without further action on your part. As each message is completely forwarded to you it is marked 'forwarded' and will not be transmitted again with this command. (You may read it again with the 'R (number)' command.

If you are receiving an unforwarded message and the link is lost it will still be available to the 'RN' command.

If you have logged into the system with your automatic answerback then the system will mark your messages 'forwarded' only after it triggers your answerback at the end of each message.

You do not have to (in fact, cannot) delete a message. Once it is forwarded the system will delete it 24 or more hours later. In the meantime it may be read again using the 'R (number)' command.

Use the list commands to see what messages are available.

(File: HELP4) ENTERING A MESSAGE ON AMTOR

Entering a Message On AMTOR

Messages may be entered directly from your keyboard into the system, however it is better if you prepare a file before logging on and then send it at machine speed. This reduces the connect time to the system and the potential for transmission errors.

You may send three kinds of messages:

'SP (call)' which is a message to a specific station and may only be read by that station (or you or the sysop) and will appear on the message list only for those stations. For others, it simply isn't there. 'SP' messages will remain in the system for 21 days or 24 hours after being marked 'forwarded', whichever comes first.

'SP' type messages may also be entered for automatic forwarding to another MBO/BBS. They may be entered in the form 'SP (call) TO (route)' where (call) is the addressee and (route) is the hierarchical route to his local MBO/BBS. Since AMTOR does not provide for a number sign character (unless you are in full ascii mode), use the equal sign character in its place when required in an h-route address and APLINK will convert it to a number sign character.

'ST (zipcode) TO (NTS statecode)' is used to enter a message to anyone to be delivered by the National Traffic System. The subject (first line) should read: QTC (city, state) and the body of the message should be in standard ARRL message format.

'SB (id)' addresses a message to 'id' and marks it as a bulletin. You may also include a bulletin identification (BID) by adding 'BID ' followed by the bin on the same line. For example:

```
SB ALL BID 12345W1ABC
```

is a message to 'ALL' with a bid of 12345W1ABC.

Bulletin type messages will remain in the system until removed (cancelled) by either the originator or the sysop.

To send a message, type the command (i.e., 'SP W5SMM(CR/LF)') and wait for a response from the system. The line will be typed

back and you will be requested to confirm with 'YES' or 'NO'.
At the 'GA SUBJ/MSG' prompt type the subject of the message on its own line and then enter the text of the message.

At the end of the message send 'NNNN' on a new line. 'NNNN' embedded in text is ignored. After sending 'NNNN' wait for a new 'GA' prompt to enter a new command.

Identify your station at regular intervals by sending your identification after a 'GA' prompt. Any character sequence that is not a valid command is ignored by the system.

If you have already sent a partial command line and want to cancel the line just send three or more '/'s in a row anywhere on the line. That line will be ignored. This only works on command lines. /// embedded in a message will be passed on to the addressee.

While transmitting a message and before sending the 'NNNN' you may cancel the message with the command 'CNCN' on a new line.

After you have transmitted a message you may cancel it with the 'CANCEL (number)' command. This is normally used to remove a bulletin you have placed in the system, but it may be used to remove any message you have previously sent.

(File: HELP5) MESSAGE LIST EXPLANATION

Message List Explanation

The format for the message list is similar to that of commonly used packet BBS programs. The symbols for type and status are consistent with the packet system.

Msg = Message number (assigned by the system)

T = Message type as follows:

- P - A private message, may only be read by the addressee, originator or sysop
- B - A bulletin
- T - An NTS message

S = Status as follows:

- N - Message not yet accessed forwarded to the addressee
- + - Same as 'N' except over 24 hours old

++ - Same as 'N' except over 48 hours old
Y - Message forwarded

TO = Call of addressee

AT = Call of addressee's BBS (followed by a period when hierarchical routing is used.

FROM = Call of originator

FILED = Date/Time message was entered into the originating BBS

SUBJECT = The subject line of the message

(File: HELP6) LISTING MESSAGES

Listing Messages

There are several commands for listing messages that are in the system. The 'LTO (call)', and 'LFM (call)' ('List To' and 'List From') default to the call of the user logged into the system if no argument is given.

The 'L', and 'LB' commands when given without arguments will list only messages not previously listed for you. You may override this feature by adding a number following the 'L', or 'LB'. The argument 0 will list all the messages in the category.

NTS messages that are waiting to be delivered may be listed with the 'NTS' command. This is the preferred way to list NTS traffic. The 'LT' command will also list NTS traffic but includes traffic that has already been accepted.

Messages that have been cancelled will not appear on the message list even though they may still be in the system.

Messages that are type 'private' will only appear on lists for the addressee and originator of the message.

Read the help files named 'System Maintenance' and 'Message List Explanation'.

(File: HELP7) SYSTEM MAINTENANCE

System Maintenance

The maintenance routines for this system are typically run once a day by the sysop. At that time the following rules apply to all message files:

1. All messages marked cancelled are removed.
2. All messages marked as forwarded for more than 24 hours are removed.
3. All messages except bulletins that are over 21 days old are removed.

(File: HELP8) AMTOR PORT OPERATING HINTS

AMTOR Port Operating Hints

If you have been sitting idle for a few seconds before typing a command, type CR/LF just before issuing the command. This clears any stray leading characters from the buffer that may have been received in error during the idle period.

If you get a long file started and would like to abort, simply seize the link, wait for idle status on your AMTOR controller, and type 'A(CR/LF)'. The system will return a 'BK GA' prompt and accept a new command from you.

Remember that the first line of a message will appear on the message list as the subject. Make it meaningful to someone scanning the list.

(File: HELP9) USING 'EXPERT' MODE

Using 'EXPERT' Mode

An 'EXPERT' mode has been added. It is toggled by the AMTOR user by entering the command 'EXPERT'. The expert mode shortens the exchange when entering a new message. When on, the beginning of a message looks like this:

```
From user:  SP W1ABC AT WA8DRZ.=NOCAL.CA
From system: SP W1ABC at WA8DRZ.=NOCAL.CA GA Subj/Msg+?
```

If there is a hit in the response the user must type the 'CNCN' command to kill the message and start over. NNNN, of course, files the message. CNCN may be typed anywhere in the message on a line by itself.