ASCII EXPRESS ™

Instruction Manual

A Complete Telecommunications Package

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T A B L E   O F   C O N T E N T S

1. INTRODUCTION

ASCII Express "The Professional" is a communications software
program for the Apple II, Apple II Plus, Apple //e and Apple-
compatible computers using DOS (Disk Operating System) 3.3,
or a close variation.

We believe that once you begin using AE PRO (that's its
"nickname"), you will discover what we already know: AE PRO
is the finest, most sophisticated communications software
available for the Apple computer. There is none better --
anywhere!

This new release of AE PRO has more advanced features than
any other Apple communications program, including:

   o On-line Help menus and descriptions at your command.
   o Support for Baud rates up to 9600.
   o Error-free Protocol Transfers of files of any type or
     size to compatible programs.
   o Macros with the most ability and sophistication ever.
     A Macro, a pre-stored set of commands and data, can
     log you on to another computer and even perform on-
     line tasks, such as downloading a file from an
     information service, while you watch. A "Turnkey"
     Macro can dial another computer, log you on, trans-
     fer files and save data, log you off, and exit the
     program -- all without a keystroke!
   o Unattended Operation keeps your computer "up" while
     you're away. This password-protected mode allows
     others to call your computer and perform inter-
     active tasks, such as error-free file transfers and
     viewing and copying ASCII text files.
   o Data Buffer of 18,000 (18K) bytes with a 48K Apple and
     28K with a 64K (or greater) Apple. With Auto-save,
     you can save any amount of incoming ASCII text.
   o Versatile built-in Editor to create or modify standard
     ASCII text in AE PRO's Data Buffer.
   o Complete Terminal Emulation of other computers when
     using an 80-column board or an external terminal.

o User-friendly Install program to customize AE PRO to
   perform many of the above features -- and many more
   -- automatically at run-time.

AE PRO supports popular hardware for the Apple: internal and
external modems, display devices such as Apple's 40-column
screen and 80-column boards and external terminals compatibly
interfaced, and standard printer interfaces, including paral-
lel, serial communications types and Pascal 1.1 standard TYPE
6. AE PRO supports other printer interfaces with additional
configuration to the program.

We have made every effort to make this manual as clear,
accurate and informative as possible. It is impossible,
however, to cover every aspect of communications in this
manual. If you desire additional information on communica-
tions, we recommend the following books:

     Shapiro, Neil L., The Small Computer Connection. New
          York: Micro Text Publications, Inc., McGraw-Hill
          Book Company.

     Derfler, Frank J., Microcomputer Data Communication
          Systems. Englewood Cliffs, New Jersey: Prentice-
          Hall, Inc.

In particular, The Small Computer Connection uses AE PRO in
many of its examples. It's available at most computer
stores.

     IMPORTANT: Before using AE PRO, you should:
          1. Save your sales receipt or proof-of-purchase.
          2. Copy the AE PRO diskette with any standard copy
             program and use the copy.

1.1. ACKNOWLEDGMENTS

We would like to extend a special thanks to all the BETA test
site members for their participation and outstanding assist-
ance and cooperation throughout this project.

BETA testing is an important step in software development,
and the responses and views of the participants have played
significant roles in refining many of AE PRO's features.

1.1.1. Customer response

Your responses -- suggestions, ideas and features you'd like
to see, all contribute to the ongoing development of this
software. We encourage you to send us your comments and
suggestions for the improvement of the program and its
manual.

1.2. HARDWARE REQUIREMENTS

To use AE PRO, you must have the following hardware:

- o An Apple II, Apple II Plus, Apple //e or Apple compat-
    ible computer that uses DOS 3.3 and that has at
    least 48K of Random Access Memory (RAM).

- o At least one disk drive. Two disk drives or more are
    recommended, especially if you plan to transfer
    large files. AE PRO and associated programs must
    remain in the booted drive for many functions of
    the program, and this may restrict the size of
    files that the AE PRO disk can accommodate.

- o An Apple-compatible communications device that uses an
    RS-232 asynchronous serial interface.

1.2.1. Optional Equipment

Other than additional disk drives, the following optional
equipment may enhance the performance of AE PRO:

- o A RAM card of 16K or greater installed in Slot Ø.
  This can increase AE PRO's data buffer capacity by
  1ØK.

- o An Apple-compatible lower-case chip or a keyboard
  enhancer.

- o An Apple-compatible 8Ø-column card or external termi-
  nal serially interfaced in a slot on the Apple's
  motherboard. This can enable the complete terminal
  emulation of other terminals and may increase the
  speed at which data is displayed on your monitor.

1.3. HOW TO USE YOUR MANUAL

This instruction manual was written for those of you who have
at least a basic knowledge of the operation of your Apple and
accompanying peripheral devices. We assume that you are
familiar with the command structure of Apple DOS 3.3 and know
how to control disk drives and the interface slots on the
Apple motherboard. If you do not, please familiarize your-
self with the computer's documentation.

This manual has been divided into sections designed to help
you learn AE PRO at your own pace. The sections are:

Tutorial: Getting Started

Part 1: Basic Operation

Part 2: Advanced Operation

Advanced Programming and Utilities

Tutorial: Getting Started, Part 1: Basic Operation and cer-
tain chapters of Part 2: Advanced Operation should be consid-
ered required reading, but we recommend that you read the
entire manual. AE PRO has many sophisticated features;
you've invested in a superior product -- get your money's
worth.

1.4. UP CLOSE

Tutorial: Getting Started: This section is designed to step
    you through your first session with AE PRO. It will
    take you through the required installation, teach you
    some of the basic -- and most frequently used -- AE PRO
    commands, and show you how to dial your first computer.

Part 1: Basic Operation: This section contains chapters that
    will show you how to use AE PRO for basic communica-
    tions, from an introduction to communications to de-
    scriptions of many of AE PRO commands and features.

Part 2: Advanced Operation: This section contains many of
    the features that make AE PRO an advanced and sophisti-
    cated program. Don't shy away from this section because
    of the "advanced" label. Each chapter is written with
    the newcomer in mind. Included are chapters on topics
    such as Advanced Install, Macros, Protocol Transfers,
    Unattended Operation, Editor and Terminal Emulation.
    These are some of the features that push AE PRO far
    above the competition.

Advanced Programming and Utilities: This section contains
    information for those of you who may want to take advan-
    tage of advanced programming techniques with AE PRO. It
    also contains Utility programs to assist your handling
    of files, such as file conversion and file merging.

All AE PRO features contribute to this superior product, but there are three chapters in Part 2 that you should read: "Advanced Install," "Macros" and "Protocol File Transfers." "Advanced Install" should be a priority; it contains much of the "behind-the-scenes" workings of AE PRO, and it will allow you to select many of AE PRO's run-time configurations.

"Macros" will show you how to program your computer to perform interactive tasks while on-line with another computer quickly, efficiently and automatically. "Protocol File Transfers" will show you how to perform file transfers with complete accuracy -- the hallmark of professional communications software.

1.5.   DISKETTE CONTENTS

The AE PRO program and associated files and Utility programs comprise two sides of a diskette. Here is a brief description of each file:

AE PRO Program Side

Type	Name	Description
T	HELLO	A file EXEC'd upon boot. It can perform many different set-up steps. See the Advanced Programming chapter.
B	AE	AE PRO itself. Can be BRUN at any time.
S	AE.HLP	Help descriptions file used by AE.
B	INSTALL	AE PRO's installation program. Can be BRUN at any time.
B	BDOS	A Library file used by INSTALL.
T	MACRO.LIB	The macro library file. Keeps track of the other various macro files for quick loading and access from within the main program.

S	STPMS.MAC ONLINE.MAC SOURCE.MAC MNET.MAC HAYES.MAC	These are macro data files, which contain special configurations and macro strings for their specific applications. Their use is optional, and they also can be used to help design similar macro files. STPMS.MAC is for the PMS Santee (Calif.) Bulletin Board; ONLINE.MAC is for use when calling a computer using ONLINE terminal software; SOURCE.MAC is for The SOURCE; MNET.MAC is for MicroNet or CompuServe, and HAYES.MAC is for use with a Hayes Smartmodem.
B	DDMOVER	A program used to relocate DOS into a RAM card that may be present in Slot $\emptyset$ to take advantage of the extra memory.

The AE PRO program itself relies only on HELLO and any necessary macro files to operate normally. Therefore, you can produce diskettes that contain only HELLO, AE and associated macro files to allow you the largest possible disk space.

To be able to use AE PRO's On-line Help, you must include AE.HLP on the diskette. To be able to use the additional space a RAM card affords, you must include DDMOVER on the diskette. To be able to operate INSTALL from within AE PRO, you must include INSTALL and BDOS on the diskette.

AE PRO Utilities Side

Type	Name	Description
B	CHFORM	A utility program that changes the FORMAT of a DOS text file to that of Pascal or CP/M. Use this to prepare a file for a protocol transfer between AE PRO and and another compatible protocol program using Pascal or CP/M operating systems.

Also included are options to view and
merge ASCII text files. Use the merge
option to combine ASCII files that may
have been saved separately with the
Auto-save function. See the Utilities
chapter.

A   SPACECRUNCH   A program that removes all nonessen-
tial spaces and other text from a Basic
program file.

B   IEC.O   A file used by SPACECRUNCH.

B   AP/BIN TO TEXT   A utility program that produces a
TEXT file from an Applesoft block of
data or a Binary block of data.

T   MPF.A   An EXEC file that produces a TEXT file
of an Applesoft Basic program in stan-
dard ASCII format.

A   PFM.A   A file used by MPF.A internally.

T   MPF.I   An EXEC file that produces a TEXT file
of an Integer Basic program in standard
ASCII format.

I   PFM.I   A file used by MPF.I internally.

A   HELLO   A file EXEC'd at run-time that displays
a description of Diversi-DOS, the DOS
used by AE PRO, and contains various
options on the Diversi-DOS menu.

B   ASMDIV   The Diversi-DOS program. When the Util-
ities diskette side is booted, or the
HELLO program, above, is RUN, licensing
information and details are displayed.
If you plan to use Diversi-DOS outside
of AE PRO, with another program, for
example, read the restrictions first.

1.6.1. Key Abbreviations

Throughout the program and manual, the following abbrevia-
tions for keys and characters may be used:

c/r	Carriage Return key
<c/r>	Press Carriage Return key
BS	Backspace character (^H, or left-arrow)
RUB	RUBout character
ESC	ESCape character
^	Control character
^#	RUBout character (screen display only)

Also, the HEX value of an ASCII character may be indicated in
the form of $xx, where a dollar sign precedes the HEX value
(xx) of the character. Control-Q, for example, would be
indicated by $11. Consult the ASCII character chart found at
the back of this manual for character-hex-decimal
conversions.

1.6.2. Visual Aid

In the manual, prompts that AE PRO displays on your monitor,
such as:

          Filename?_

are printed in **Bold** type when contained within text, as in
Filename?. Also, the cursor position on your monitor will be
indicated in the manual by an underscore character, as in _,
and as displayed above, to the right of the **Filename?** prompt.

1.6.3. Program Default Conditions

When using AE PRO, certain conditions always can be assumed:

1. AE PRO's **Command Level Prompt** will indicate your
   "connect" status. -> indicates that you are off-
   line, and +> indicates that a connection is estab-
   lished.

2. AE PRO's **Terminal Escape Key** is Control-Q (^Q). You always must use this when you are on-line and you want to issue an AE PRO command. From terminal mode, entering ^Q will place you at AE PRO's on-line Command Level Prompt (+>), where you can issue most AE PRO commands.

3. When you issue most AE PRO commands from the on-line +> Command Level Prompt, AE PRO will return you automatically to terminal mode upon completion.

   Some Command exceptions:

           1 = View Main Command Menu
           2 = View Secondary Command Menu
           Y = Editor
           U = Update/Create Macros
           Z = Run INSTALL

   Commands 1 and 2 return you to the +> prompt because AE PRO assumes you want to issue another command. Commands Y, U and Z place you at input positions within their own sections because AE PRO assumes you want to perform specific functions at that level. To return to terminal mode, exit the particular section with its exit command, usually **X**.

4. If you do not want to enter a command at the on-line Command Level Prompt (+>), or if you reached the +> prompt accidentally, you can re-enter terminal mode by pressing the space bar.

5. AE PRO's **Terminal Prefix Key** is Control-W (^W). This
   key is the first of a two-key sequence, and it has
   two functions:
> 1) to send Macro elements from terminal mode,
>   as in ^W1 to send element 1 of the loaded
>   macro, and
> 2) to enter or send special ASCII characters
>   that are not found on the Apple keyboard
>   and are defined in the Character Substi-
>   tution Table in Install.

   An Apple //e, however, will need the Terminal Pre-
   fix Key to send Macro elements only, because its
   keyboard contains a full ASCII character set. For
   further discussion on the Terminal Prefix Key, see
   Advanced Install and Macros chapters.

6. In response to a **Filename?** prompt, your options are:
> 1) Entering the name of a file from the logged
>   disk, followed by c/r (carriage return). You
>   can include one or more optional drive param-
>   eters, such as Slot (S), Drive (D) and Volume
>   (V), by using the DOS command syntax of:
>
>   **Filename,Sx,Dx,Vx**
>
>   where x is an appropriate, legal number.
> 2) Pressing c/r (carriage return) alone will dis-
>   play a catalog of the logged disk.
> 3) Pressing the **User Abort Key** (normally the ESCape
>   key, but definable in Install) immediately
>   exits this or any other prompt.

7. Additionally, in response to a prompt that requires
   string input (more than one character, as in re-
   sponse to **Filename?**), your options are:
> 1) Entering the string of characters, followed
>   by c/r (carriage return).
> 2) Entering Control-X (^X) will erase any
>   input to that point and lets you start
>   your input again.
> 3) Entering the slash character (/) alone,
>   followed by a c/r, recalls the last file-
>   name or command issued.

8. During the viewing of text from the buffer, a file, or from within the editor, pressing the space bar will pause the viewing; pressing the space bar again will resume the viewing. Pressing the < (,) and > (.) keys unshifted will slow (<) or speed (>) the display. Pressing c/r or the User Abort Key will terminate the viewing.

9. If carrier signal from another computer is lost while in terminal mode, or during the execution of a Macro, AE PRO returns you to the -> prompt.

10. If carrier is lost during a protocol transfer, it will not be recognized until its loss produces nine consecutive errors and aborts.

11. With computers using the auto-start ROM, pressing the Reset key at any time will return you to the command menu associated with the level within which you are operating. If you were anywhere in the main part of the program, you will be returned to the Command Level Prompt. If you were in the Editor, you will be returned to edit input level.

    If you press Reset while you are connected to a host computer and you are using a modem or serial card that supports DTR/DSR (Data Terminal Ready/ Data Set Ready) and that is plugged directly into an Apple motherboard slot, your connection will be terminated. This is not a function of AE PRO, but of the hardware of the modem or serial card.

12. Do not use disk utility programs that "fix file sizes" on the AE PRO diskette. Permanent damage to the disk or its contents may result.

13. If AE PRO has been run and exited while still con-
    nected to a host computer, the next time it is run
    (assuming your computer has not been turned off)
    many modem related defaults will be the same as the
    previous run. These defaults will be utilized for
    most direct dialing modems (those that plug in
    directly to the Apple motherboard and connect to
    the phone line). Included are baud rate, Novation
    Apple-Cat internal/external port designation, par-
    ity, etc. They will remain in effect until changed
    by the operator manually, or by loading and exe-
    cuting a macro file.

14. When AE PRO prompts for a specific response, such as
    Y (Yes) or N (No), a default response usually is
    assumed if c/r is entered. The default usually
    will be indicated as **def=y** (for Yes) or **def=n** (for
    No). Whatever is indicated by **def=** will be assumed
    if c/r alone is entered.

1.6.4. Control of AE PRO Boot

As packaged, AE PRO assumes that under cold boot conditions,
it will try to load the memory management system (DDMOVER
file) immediately, if a 16k ram card is present in slot zero
and then BRUN itself. You may want to perform certain other
steps, however, before AE PRO is actually run. You can
control the exact boot procedure with the HELLO file. See
the Advanced Programming chapter for options and details.

1.7. TRADEMARKS

Trademark name	Registered by
ASCII EXPRESS	United Software Industries, Inc.
ADDS, Viewpoint	Applied Digital Data Systems Inc.
Apple-Cat	Novation Co., Inc.
Apple II, Apple II Plus, Apple //e, Apple ///	Apple Computer Inc.
Auto Dial 212A	U.S. Robotics Inc.
BIT-3 Dual Comm Plus	BIT-3 Corporation
CP/M	Digital Research Inc.
CPS	Mountain Computer Inc.
DEC	Digital Equipment Corp.
LYNX	Emtrol Systems, Inc.
MBI VIP Card	Micro Business Industries Corp.
MicroConnection	MicroPeripherals Corp.
MicroModem II	Hayes Microcomputer Products Inc.
Modem II	Multi-Tech Systems, Inc.
Smart Cat	Novation Co., Inc.
Smart-term	Advanced Logic Systems
Smartmodem	Hayes Microcomputer Products Inc.
SSM	Solid State Music Corp.
SSM Transmodem	Solid State Music Corp.
Sup-R-Term	M & R Products
Touch-Tone	Bell Labs, Inc.
VersaCard	Prometheus Inc.
WordStar	MicroPro International

2.　TUTORIAL: AN INTRODUCTION

The Getting Started Tutorial is designed to take you through your first session with AE PRO. You will learn how to install AE PRO on your computer, get a feel for the program with some basic commands, then call a dial-up computer.

It should take you about 15 minutes to install AE PRO and become comfortable with some basic commands. Illustrations are provided at each step to guide you.

2.1.　GETTING STARTED: THE FIRST STEP

The first step that you should take is to make a backup copy of each side of the AE PRO diskette. Any DOS copying program will work.

To use Apple's COPYA program, for example, boot the Apple System Master diskette on Drive 1. At your computer's command prompt (], > or *), enter

        RUN COPYA<c/r>

Follow the displayed instructions to copy each side of the AE PRO diskette. When you are finished copying, place the original AE PRO diskette in a safe place and use the copies. You cannot be too careful when handling or using diskettes. If the copies are damaged, you have the original AE PRO diskette from which to copy.

2.2.　INSTALLATION

You now are ready to install AE PRO on your computer. For the first few times you use AE PRO, you should need only the AE PRO Program side of the diskette, which includes the Install program you are about to use. The other side of the diskette, the Utilities side, contains various utility programs that you probably won't need right away.

Insert your copy of the AE PRO program side of the diskette
in Drive 1 and boot the disk. After a few seconds, the
Install program is displayed in a 40-column format:

                ASCII EXPRESS "THE PROFESSIONAL"
                     INSTALLATION PROGRAM
                     FOR AE VERSION 4.xx
                          (C) 1984 BY
                  UNITED SOFTWARE INDUSTRIES

        CAN YOU DISPLAY LOWER CASE? (Y/N) _

Install always uses your Apple's 40-column display -- even if
you use an 80-column card or external terminal with the
AE PRO program.

        NOTE: Install is run automatically the first time you
        boot AE PRO because the program must be initially con-
        figured to your specific system hardware. You can run
        Install again at any time to make further changes (see
        the Advanced Install chapter).

Before proceeding further, Install needs to know the display
capabilities of your screen. If you can display lower case
characters on the display device with which you will use
AE PRO, whether Apple's 40-column display, an 80-column card
or an external terminal, enter Y. If you cannot, enter N.
Install displays:

            CAN YOU DISPLAY IT NOW? (Y/N) _

If your 40-column display uses an optional lower-case adapter
chip, or if you are using an Apple //e or an Apple-compatible
computer that displays lower case all the time, enter Y. If
you cannot display lower case now, enter N. Install dis-
plays:

            Insert disk with file "AE". Press
            RETURN to continue or ESC to abort. _

The Install and AE PRO programs are packaged on the same side
of the disk, so you should be able to press c/r (RETURN) to
continue with the Install process. There may later be
instances where the two programs are on different sides of a
diskette. If this is the case, insert the disk containing the
file "AE", then press c/r. Install displays:

COMMUNICATION DRIVERS

You MUST select 1 of the following:

    1 Novation Apple CAT
    2 Hayes Assoc. Micromodem][or][e
       Multi-Tech Modem II
    3 CCS 7710A/D or 7711
       SSM AIO, AIO II, ASIO
       Apple Comm-card or ALS Dispatcher
       Prometheus VersaCard
    4 Mountain Computer CPS
    5 ESI Lynx
    6 MPC Microconnection
    7 Apple Super Serial or Videx PSIO
       Basis 108 Microcomputer (Slot 1)
    8 INTRA PSIO Serial Card
    9 Apple /// Serial Port (Slot 7)
   10 BIT-3 Dual-Comm Plus
   11 SSM ModemCard
   12 MBI VIP Card
   99 Install "BDOS.xxxx" Driver
    X Exit to main Install menu

Current Communication Selection: 1
New or RETURN to retain Current: _

19

umber listed for your modem or your modem's inter-
then c/r. For example, if you have a Novation
enter 1, then c/r. If the **Current Communication**
is correct, press c/r alone. Install displays:

:urrent Slot (Range 1-7): 2
lew or RETURN to retain Current: _

number of the slot in which your modem or modem
:ard is installed, then c/r. If the **Current Slot**
press c/r alone. Install displays:

.re you sure? (y/n) _

lections for communications device and slot are
ter **Y**. If they are not, enter **N**, then reconfigure
:tly. When you enter **Y**, Install displays:

nsert disk with file "BDOS". Press
ETURN to continue or ESC to abort. _

ile is packaged on the same diskette side with
d AE PRO, so you should be able to press c/r to
[here may be instances where BDOS is on another
:his is so, insert that diskette, then press c/r.
plays:

nstalling Communications Driver!

Install configures AE PRO for your modem, then displays:

```
CONSOLE TYPES

Ø = Auto
1 = Comm-card
2 = Apple Serial or 8Ø column card
3 = Type 6 (Pascal 1.1 standard)
4 = //e with Apple 8Ø column text card
5 = Omni-Vision 8Ø column card
6 = Force Apple 4Ø column screen
      Apple /// screen
7 = Basis 1Ø8 built-in 8Ø col. screen

X = Exit this menu

Current Selection: Ø      Slot: 3

Choice? _
```

AE PRO can identify most popular console (display) devices (located in the specified slot, below) automatically at run-time, including Apple's 4Ø-column screen, 8Ø-column cards, and external terminals. The Auto, Ø, option sets the automatic mode and should be selected unless you are using an Apple //e (option 4), or an Apple /// (option 6).

> NOTE: The options for the other types of displays should be selected only if, after running the program, AE PRO cannot identify your console device (symptoms may be a display that is split or that appears "frozen"). See the Advanced Install chapter for more details.

At the Choice? prompt, enter Ø (or the appropriate number only if you know now that you must select an option other than Ø). Install displays:

```
Slot of console device (1-7)?
Current: 3      New: _
```

Enter the number of the slot in which your console device is
installed.   If the Current: selection is correct, press c/r
alone.   Install displays the CONSOLE TYPES menu again and
updates it with your selections.

> NOTE: If you choose Console types 4 (Apple //e), 6
> (Force Apple 40-column screen or Apple /// screen), or 7
> (Basis 108), the Slot of console device? step is by-
> passed.   Selection 4 automatically selects slot 3, and
> selections 6 and 7 automatically select slot 0.

Enter X to exit this menu.

Install displays:

```
              MAIN INSTALL MENU
              ---- ------- ----

     C = Character Suppression
     E = Editor Keys and Parameters
     F = Macro Action Characters
     I = Install AE Communications Driver
     L = Local Console Selection
     P = Printer Interface/Driver Select
     T = Prefixed Terminal Keys
     U = Unattended/Remote Parameters

     1 = System Defaults (Menu 1)
     2 = System Defaults (Menu 2)
     3 = System Defaults (Menu 3)
     4 = System Defaults (Menu 4)
     5 = System Defaults (Menu 5)

     A = Abandon Install
     R = Install another AE
     S = Save changes and run AE
     X = Save changes and remain in Install

     Choice? _
```

This is the Main Install Menu. It contains options that, when chosen, display their own submenus or sets of options. How you set these options determine most of AE PRO's run-time defaults and basic operating parameters.

You already have used two of the options:

> I = Install AE Communications Driver
> L = Local Console Selection

Install automatically chose them initially (first run only) to define your communication and console devices. On subsequent runs of Install, these options are bypassed, and you are placed at the Main Install Menu.

You can choose any of the options of the Main Install Menu, including I and L. Feel free to explore the various submenus, and exit each submenu with its X option.

> NOTE: Don't make further changes now, unless you have a printer (see below), or have an ASCII-commanded external modem, such as the Hayes Smartmodem, the Novation Smart Cat, the U.S. Robotics Auto Dial 212A, or the SSM Transmodem (see Advanced Install chapter, System Defaults' Menu 4). AE PRO is packaged for most popular configurations, and you should leave the settings as they are until you need to make specific changes (see Advanced Install chapter).

If you do not have a printer, advance to the subsection entitled First Run: AE PRO. If you do have a printer, complete the next subsection to make sure AE PRO is configured properly.

2.3.   PRINTER INSTALLATION

The P option of the Main Install Menu contains parameter and
default options for your printer.   At the Choice? prompt,
enter P.   Install displays:

```
        PRINTER SETUP

        A = Printer Msg. Terminator...^@ ($ØØ)
        H = Hi bit sent to Printer........OFF
        I = Install Printer Driver..........Ø
          Ø = Auto
          1 = User routine (PRINTER.USER.xxxx)
          2 = Comm-card type
          3 = Apple Serial card
          4 = Apple Parallel card
                Basis 1Ø8 parallel port (Slot 1)
          5 = TYPE 6 (Pascal 1.1 standard)

        L = Line feed strip (Y/N)...........NO
        P = Message:
        S = Printer interface slot...........1

        X = Exit

        Choice? _
```

Two options of the PRINTER SETUP submenu with which you need
to be concerned now are:

```
        I = Install Printer Driver...........Ø
        S = Printer interface slot...........1
```

The other options are explained in the Advanced Install
chapter.

2.3.1. I = Install Printer Driver

At the **Choice?** prompt, enter I. Install displays:

        Current Ø   New: _

This option works similarly to the Console Types submenu.
AE PRO can identify most popular printer interface cards
automatically. The Auto, Ø, option selects the automatic
mode and should be selected first.

>   NOTE: The options for other printer interface types,
    including user routine drivers for printer interfaces
    not listed above, should be selected only if, after
    running the program, AE PRO cannot identify your print-
    er's interface card. If your printer interface type is
    not listed, you may need to select the 1 = **User routine**
    option and install a printer routine driver from the
    Utilities side of the diskette (see the Advanced Install
    chapter for more details).

At the **New:** prompt, enter Ø. Install displays the PRINTER
SETUP submenu again and updates the I option with your
choice.

2.3.2. S = Printer Interface Slot

At the **Choice?** prompt, enter S. Install displays:

        Ø   No printer installed
        1-7 Printer interface slot

        Choice? 1 _

Enter the slot in which your printer interface card is in-
stalled. If the **Choice?** selection is correct, press c/r
alone. Install displays the PRINTER SETUP submenu again and
updates the S option with your slot number.

Enter X to exit this menu and re-enter the Main Install Menu.

2.4. FIRST RUN: AE PRO

You now are ready to complete your first Install and run
AE PRO for the first time.

The bottom third of the Main Install Menu contains options to
exit the Install program. They are:

>   A = Abandon Install
>   R = Install another AE
>   S = Save changes and run AE
>   X = Save changes and remain in Install

At the Choice? prompt, enter S (Save changes and run AE).
Install displays:

>   OK TO SAVE? (DEF=N) _

Enter Y (Yes). Install displays:

>   Insert disk with file "AE". Press
>   RETURN to continue or ESC to abort.

Because the AE and Install programs are on the same side of
this disk, press c/r. (Entering ESCape here aborts this step
only and returns you to the Main Install Menu. It does not
abort the Install program or erase parameters defined to this
point.) Install displays:

>   Running AE. Switch to
>   selected output device now.

Install configures AE PRO to your computer and runs the
AE PRO program. AE PRO automatically should select the con-
sole device located in the specified slot. You may need to
switch to that display device now.

>   NOTE: The next time you boot the AE PRO program disk,
>   Install will be bypassed, and AE PRO will be run.

When AE PRO is completely loaded, it displays:

                    ASCII EXPRESS "The Professional"
                         Version 4.xx (c) 1984 by
                        United Software Industries

        ->_

AE PRO has arrived! The title and version number are dis-
played, and your cursor is placed to the right of AE PRO's
Command Level Prompt (->).

> NOTE: When you are not connected to another computer and
> off-line, AE PRO's Command Level Prompt is ->. When you
> are on-line, the Command Level Prompt is +>. Thus ->
> indicates off-line; +> indicates on-line.

If you are using an ASCII-commanded external modem that
may maintain a permanent "carrier" and you have selected
the Smartmodem option in System Defaults Menu 4 of
Install (see Advanced Install chapter), AE PRO will
place you in Terminal Mode after displaying the title
page. Modems such as these have only one AE PRO Command
Level Prompt (+>) because they always are on-line,
though they always may not be connected to another
computer.

The Command Level Prompt (-> or +>) is the entry point for
most AE PRO commands. After the execution of most commands,
AE PRO returns you to the Command Level Prompt (->) only if
you are off-line. If you are on-line (as you always will be
with an ASCII-commanded external modem that maintains perma-
nent carrier), AE PRO enters Terminal Mode, drops your cursor
one line and displays:

        AE: Term -->

> NOTE: If AE PRO's Brief Mode is ON, the AE: Term -->
> message is not displayed, but AE PRO still returns you
> to terminal mode (see Secondary Commands chapter).

2.4.1. Commands -- The AE PRO Way

Now let's become familiar with some of AE PRO's commands and
display characteristics. Two commands that you probably will
use often are 1, to display AE PRO's **Main Command Menu**, and
2, to display AE PRO's Secondary **Command Menu**.

2.4.2. Main Command Menu

To view the Main Command Menu, enter 1 at the Command Level
Prompt (-> or +>). AE PRO displays:

                ASCII EXPRESS "PRO" MENU 1

        ! = Display program status
        C = Clear buffer
        D = Dial or connect
        G = Get file from host (protocol)
        H = Hang up
        I = Disk commands
        J = View disk file
        L = Load file to buffer
        M = Macro select/review
        P = Printer on-off   OFF
        R = Copy buffer on-off   OFF
        S = Send a file
        V = View buffer
        W = Write buffer to disk
        X = Exit program
        - = Display prefixed characters
        2 = Display menu 2
        ? = Help request
        ^ = Apple-Cat port switch   INT

            ->_

This depicts a 40-column display. 80-column monitors display
this menu in two blocks, side by side.

NOTE: The ^ = Apple—Cat port switch command is displayed only if you have a Novation Apple—Cat modem installed. Its use is explained in the Modem Differences chapter.

When you call for the Main Command Menu, AE PRO displays the menu, then places you at the Command Level Prompt (-> or +>).

AE PRO's Main Command Menu displays many of the frequently used commands. As examples, the commands to Dial (D) a phone number and to Hang up (H) are included, as is the command to request Help (?).

2.4.3. Secondary Command Menu

To view the Secondary Command Menu, enter 2 at the Command Level Prompt (-> or +>). AE PRO displays:

```
              ASCII EXPRESS "PRO" MENU 2
              --------------------------

      A = Show control characters on-off  OFF
      B = Baud rate                       300
      E = Echo duplex full/half           FULL
      K = Terminal chat mode on-off .     OFF
      N = Set delay (transfer)            0
      O = Auto-Save on-off                OFF
      T = Transpose ^H/RUB on-off         OFF
      U = Update/display macros
      Y = Editor
      Z = Screen format on-off            OFF
      1 = Display main menu
      : = Auto-disconnect on-off          ON
      + = Auto answer (data)
      " = Keyclick on-off                 OFF
      / = Do CRC
      $ = Emulation on-off                ON
      # = Brief mode on-off               OFF
      % = Run INSTALL program
      ' = Auto-Answerback on-off          OFF
      ? = Help request

      ->_
```

This depicts a 40-column display. 80-column monitors display
this menu in two blocks, side by side.

As with the Main Command Menu, when you view the Secondary
Command Menu, AE PRO places you at the Command Level Prompt
(-> or +>).

The Secondary Command Menu displays some of the more advanced
and less used AE PRO commands.

Understand that these command menus are for your visual aid
only. You do not have to view either of them to select an
AE PRO command. Any of these menu commands can be selected
anytime from the Command Level Prompt (-> or +>).

2.4.4. Need Help?

If you need help with any commands on these menus, enter ? at
the Command Level Prompt (-> or +>). AE PRO displays:

        Help on: _

Enter any of the commands listed on AE PRO's command menus.
AE PRO displays a brief explanation of that command, then
returns you to terminal mode if you are on-line, or to the
Command Level Prompt (->) if you are off-line.

For example, if you need help with the D (Dial) command,
enter ? at the Command Level Prompt. AE PRO displays:

        Help on: _

Enter D, and AE PRO displays:

    "D" allows you to input a phone number or macro selected
    phone number for dialing by the installed modem,
    assuming that modem has a dialing capability.

Use this procedure to view the help description for any
command. The Editor and Macros sections of AE PRO also con-
tain help menus (see the Editor and Macros chapters).

2.5.   DIALING A NUMBER

Now let's dial another computer. You should know the number
of a computer to call, or if you want to call an information
service, such as The SOURCE, CompuServe, or many others, you
must have an account with that service. If you have an
ASCII-commanded external modem that maintains a permanent
carrier, such as a Smartmodem, Smart Cat or Auto Dial 212A,
your dialing procedure varies slightly. See the note below.

At the Command Level Prompt (->), enter D. AE PRO displays:

        Number? _

Enter the telephone number of the computer you want to call,
followed by c/r. If you make a mistake, backspace and retype
the correct number. If you change your mind, or if you enter
this command accidentally, enter your User Abort key (normal-
ly ESCape) to return to the Command Level Prompt (->).

> NOTE: AE PRO's default User Abort key is the ESCape key,
> but you can redefine it in Install. If you use the
> ESCape key for case-shifting, you must assign another
> character to be the User Abort key. See Advanced
> Install chapter.

After entering the number, AE PRO displays:

        AE: Dialing: 8531212

AE PRO displays each number as it dials it. When the dialing
is completed, AE PRO displays:

        AE: Waiting for connect..

AE PRO waits for the other computer to answer and send its
"carrier" signal. If carrier is not detected within 40
seconds, AE PRO disconnects from the phone line and displays:

        AE: Connection terminated
        ->_

AE PRO places you at the Command Level Prompt. If carrier
was detected, AE PRO clears your monitor, then displays in
the upper-left corner:

        AE: Term-->

You now are in terminal mode! Anything you type is sent to
the computer that is on-line with you.

On-line computers have different greetings, and some have
none at all. Some computers prompt you for information, and
others expect you to know their to log-on procedure. Many
computers require that you send one or more carriage returns
to activate them. Whichever is the case, this activity can
begin after AE PRO displays the AE: Term—> message.

> NOTE: To dial a number with an ASCII-commanded external
> modem, you first need to get your modem's attention to
> give a dial command. For the Smartmodem, for example,
> you must enter:
>
>   AT D T 8531212
>
> AT gets the Smartmodem's attention, D gives it the dial
> command, T specifies the Touch-Tone dialing method, and
> the telephone number 8531212 is entered as above. See
> the operator's manual supplied with your external modem
> for more details.

If the characters that you are typing while in terminal mode
are not displayed on your monitor, or if each character you
type in terminal mode is displayed twice on your monitor, you
are using the wrong duplex (full or half). For discussions
on duplex, see the Telecommunication and Secondary Commands
chapters.

2.6. A KEY TIP

When you are on-line with another computer in terminal mode,
you still can perform AE PRO commands, but you must exit
terminal mode and return to AE PRO's Command Level Prompt.
To do this, enter AE PRO's Terminal Escape Key, Control-Q.
AE PRO displays:

          +>_

This is the on-line Command Level Prompt as described
earlier, and AE PRO displays it on your monitor only. At
this prompt you can issue most AE PRO commands.

For this example, we'll view the Main Command Menu. At the
+> prompt, enter 1. AE PRO displays the Main Command Menu on
your monitor only (remember, you have left terminal mode),
then returns you to the on-line prompt (+>). At this point
you could issue another AE PRO command, but for this example
we want to return to terminal mode. To do this, press the
space bar.

> NOTE: Whenever you are at the on-line +> prompt, you can
> return to terminal mode by pressing the space bar once.

Anything you type now in terminal mode is sent to the on-line
computer.

Practice this control. While in terminal mode, enter Con-
trol-Q (Terminal Escape Key). At the +> prompt, press the
space bar. AE PRO returns you to terminal mode. Practice
this while you are not exchanging data. If you attempt this
while the host computer is sending data to you, you won't
lose your connection, but you may lose data, depending on
AE PRO's Interrupt status (see Interrupts chapter).

2.7. HANG UP

When you complete your session with the host computer, enter
Control-Q (Terminal Escape Key). At the +> prompt, enter H
(Hang up command). AE PRO displays:

>   Disconnect? (def=n) _

Enter Y (Yes), and AE PRO disconnects and displays:

>   AE: Connection terminated
>   ->_

AE PRO returns you to the Command Level Prompt.

If you enter a key other than Y, AE PRO returns you to termi-
nal mode. If Brief Mode is ON, AE PRO bypasses the
Disconnect? prompt and disconnects automatically.

Also, if carrier is lost, either because the host computer hangs up on you, or your connection is disconnected for any reason, AE PRO displays:

        AE: Connection terminated
        ->_

NOTE: If you are using an ASCII-commanded external terminal, you must get your modem's attention before you can hang up. To begin a hang-up sequence with the Smartmodem, for example, pause briefly, then enter:

        +++

This sequence forces the Smartmodem back to its local command state, where it responds with "OK". At the OK prompt, enter in upper case:

        AT H

AT prepares the Smartmodem for a command. H directs the Smartmodem to hang-up.

See your modem's manual for more details.

2.8. COPYING DATA TO THE BUFFER

Now that you can dial another computer, let's call the same computer again, but this time we will copy the actual session into AE PRO's data buffer.

At the Command Level Prompt, enter R. This turns ON AE PRO's Copy (data) buffer, and AE PRO displays:

        AE: Copy ON
        ->_

You now are ready to copy or record a session with an on-line computer.

At the Command Level Prompt, enter D (Dial). AE PRO displays:

>   Number? _

Because we are dialing the same computer as before, enter /, then c/r. The slash (/) directs AE PRO to redial the last number exactly as you entered it. Thus AE PRO displays:

>   AE: Dialing: 8531212

As before, AE PRO displays each number as it dials it.

When carrier is detected, AE PRO clears your monitor and displays AE: Term-->. Log onto that computer as you did before. When you have finished logging on, leave the other computer temporarily by entering Control-Q (Terminal Escape Key). At the +> prompt, enter V (View Buffer command). AE PRO displays (on your monitor only) the complete recording of your log-on procedure -- sort of an instant replay. After AE PRO displays the contents of the buffer, it returns you to terminal mode.

>   When you are ready to hang up, enter Control-Q, then H at the +> prompt, then Y at the Disconnect? (def=n) prompt. AE PRO displays:

>   AE: Connection terminated
>   ->_

Now, enter R again to turn OFF the Copy buffer. AE PRO displays:

>   AE: Copy OFF
>   ->_

The R command is one of several AE PRO commands that toggles
a function ON or OFF. In this example, we used AE PRO's data
buffer to copy the log-on session. More likely, you will
want to copy only portions of your on-line session. You can
do so by turning the copy buffer ON and OFF by entering ^QR
(Control-Q, then R) at the appropriate times.

2.9. TAKING COMMAND

You can use most AE PRO commands while on-line or off. As
you become familiar with AE PRO, most commands will become
second nature to you.

For example, while you were on-line with the other computer a
minute ago, you could have checked the amount of data in
AE PRO's data buffer by entering ^QF (Control-Q, then F).
AE PRO would have displayed something like:

           AE: Used- 456, Free- 25123
           AE: Term-->

This means that there are 456 characters in the buffer and
that there is room for 25123 more. The Free number depends
on your Apple's Random Access Memory (RAM) and the type of
modem or serial card you are using. When you issue this
command when you are on-line, AE PRO returns you to terminal
mode.

Another command that you could have entered when you were on-
line is the C (Clear Buffer) command. After entering ^QC
(Control-Q, then C), AE PRO would have displayed:

           OK to Clear? (def=N) _

You could have entered Y (Yes), and AE PRO would have cleared
the buffer, then displayed:

           AE: Buffer Cleared
           AE: Term-->

If you had entered a character other than Y, AE PRO would
have aborted the C command and returned to terminal mode. If
Brief Mode is ON when you issue the C command, AE PRO by-
passes the OK to Clear? prompt, clears the buffer automatic-
ally, and returns to terminal mode without displaying the
AE: Term--> message.

Remember, you can use most AE PRO commands while on-line or
off, and the above commands are just a sampling. All com-
mands are explained in the Main Commands and the Secondary
Commands chapters.

2.10.   EXITING AE PRO

When you are ready to end your first session with AE PRO,
exit the program when you are off-line. AE PRO does not
terminate your connection if you exit it while still con-
nected to a computer.

At the -> prompt, enter X (Exit command). AE PRO displays:

        OK to exit? (def=n) _

Enter Y (Yes). AE PRO displays:

        AE: Goodbye..

AE PRO returns you to whatever display device you were using
when AE PRO was run, and places you at your computer's prompt
( ] or >). If Brief Mode is ON, AE PRO exits automatically
and places you at your computer's prompt.

NOTE: If you are using an 80-column board and had run
AE PRO from a cold boot, AE PRO returns to 40 columns
upon exiting. You will see the AE: Goodbye.. message,
and your keyboard and screen will appear to be "frozen".
They are not! Switch your video to 40 columns, or type
"PR#3" (or the appropriate slot number) to reinstate
your 80-column display. If you want AE PRO to remain in
80 columns upon exiting, you should place a "PR#3" in
the "HELLO" EXEC file. See details in the Advanced
Programming chapter.

2.11.   NEXT RUN

AE PRO is now set to run on your computer without further
installation. The next time you run AE PRO you will bypass
Install and enter the program at the title page.

If you need to make additional changes with Install, you can
do so at any time, even while on-line. From within AE PRO,
enter the % (Run Install) command. Or, from your computer's
prompt ( ], > or *), enter BRUN INSTALL. (See Advanced
Install chapter.)

2.12.   GROWING WITH AE PRO

The more you use AE PRO, the more accomplished you will
become with it. Unless you are very experienced with
computer communications, you shouldn't try to rush through
the program. If you were learning how to swim, you wouldn't
jump in the deep end until you were ready for it.

AE PRO has many sophisticated features, and so far you just
have learned to float in shallow water. Become familiar with
your new surroundings. When you are ready to advance, AE PRO
will be there with the powerful features to be your spring-
board to professional communications.

When you feel comfortable with what you've learned so far,
proceed to Part 1 of this manual, which follows immediately.
All of AE PRO's Main Commands and Secondary Commands are
explained there.

3. PART 1: AN INTRODUCTION

Part 1 is the introductory course of AE PRO. It contains the
fundamental information you need to use AE PRO as a basic
communications program.

The main topics in this introductory course are:

- o Telecommunication Made Simple
    - Baud rates
    - Duplex
    - Telephone network protocols: 103, 202, 212, 3400
    - Data Word Format (Parity)
- o Main Commands
- o Secondary Commands
- o Data Buffer
- o Simple File Transfers
- o Troubleshooting

4. TELECOMMUNICATION MADE SIMPLE

Although it is not the purpose of this manual to describe
telecommunications in detail, a basic background is provided
here for your information.

4.1. AN INTRODUCTION

A modem acts as a translator between your computer and the
telephone network. Your computer and the telephone network
speak different languages and thus are incompatible. A com-
puter transmits a digital signal or binary code, a series of
zeroes and ones. The telephone network transmits an analog
signal, a series of different tones.

When you transmit data over telephone lines with your
computer, your modem converts your computer's digital signal
to the telephone network's music-like, analog signal. When
you receive data over telephone lines with your computer,
your modem converts the telephone network's analog signal to
your computer's digital signal.

It is a simple principle, and telecommunicating would be easy
if all computers spoke precisely the same digital language.
They don't, however, and that's where telecommunicating can
become frustrating.

If everyone in the United States spoke precisely the same
English, communications could be easy. But some people speak
with a New York accent, others speak with a Southern accent,
and then some people speak faster than others. So it is with
computers. They speak digital, but they do so in varying
ways and speeds. So you must make sure your computer's
digital language conforms to that of other communicating
computers.

You can do so with a basic knowledge of Baud rates, Duplex,
and Data Word Format. These topics and others will be ex-
plained in this chapter.

4.2. BAUD RATES

Modems transmit data over telephone lines at constant speeds, or Baud rates. Baud rate is the speed at which data is transmitted, and it is expressed in bits per second (bps).

There are different baud rates. Common ones are 300 and 1200. 300 baud transmits 300 bits per second, or about 30 characters a second. 1200 baud transmits 1200 bits per second, or about 120 characters a second. Each character usually contains 10 or 11 binary data bits (zeroes and ones).

AE PRO supports these baud rates and many more, including rates of up to 9600. The baud rates you may use, however, depend on your modem and other associated hardware.

4.3. DUPLEX

Duplex (or echo-plex) is the manner in which communicating computers talk to each other. There are two kinds of duplex: full and half. A computer in full duplex echoes each character it receives to the originating (sending) computer. A computer in half duplex does not echo characters it receives from the originating computer.

In full duplex, characters that you type on your keyboard are sent to your monitor by the receiving computer. If you type an A, the receiving computer receives the A, then echoes it to your computer, where it is displayed on your monitor. For example, if you type "HELLO CHARLIE" on your keyboard, these characters would be sent to your monitor by the echo of the receiving computer.

This has a built-in advantage: when "HELLO CHARLIE" is displayed on your monitor, you can tell immediately that the receiving computer received the correct data. Conversely, if your computer receives an echo that spells "HELLO CKGRAPKI", you would know immediately that something went wrong during sending or receiving, but not exactly when. (If your computer receives an echo that spells "HELLO CHARLOTTE", you may want to save telecommunications for another day!)

In half duplex, characters that you type on your keyboard are sent directly to your monitor in addition to being sent to the receiving computer. If you type a B, the B is displayed on your monitor and also sent to the host computer. The receiving computer, however, does not echo the B. For example, if you type "HELLO CHARLIE" on your keyboard, "HELLO CHARLIE" is displayed on your monitor directly -- not by an echo from the receiving computer.

This procedure has a built-in disadvantage: when "HELLO CHARLIE" is displayed on your monitor, it is no guarantee that the receiving computer received the correct data.

Either duplex can achieve a quality transmission, but full duplex provides the advantage of enabling you to "see" your transmission, which means you immediately can monitor the quality of your transmission.

4.3.1. EECCHHOO!!

Sometimes, when unlike duplexes are used between computers, you may encounter display problems. Consider the results of using unlike duplexes half-to-full and full-to-half:

Half-to-full -- Your computer is in half duplex and the receiving computer is in full duplex: Each character that you type on your keyboard will be displayed on your monitor twice. Thus if you type the word APPLE, it will appear on your monitor as AAPPPPLLEE. What has happened is that your half-duplex computer sends each character that your type to your monitor because it does not expect an echo. The full-duplex receiving computer, however, automatically sends an echo of each character it receives. To resolve this problem, switch your duplex to full (see Secondary Commands chapter).

Full-to-half -- Your computer is in full duplex and the receiving computer is in half duplex: Any character that you type on your keyboard will not be displayed on your monitor -- like typing in the dark. What has happened is that your full-duplex computer does not send the character to your monitor because it expects the character to be echoed. The half-duplex receiving computer, however, does not echo characters. To resolve this problem, switch your duplex to half.

4.4. TELEPHONE NETWORK PROTOCOLS

The telephone network uses a series of internal protocols that, among other things, limit the speed at which data can travel across its lines.

Protocols commonly used with microcomputers are Bell 1Ø3, Bell 212a and Vadic 3400.

  1Ø3: Allows baud rates of up to 3ØØ at full or half duplex.

  212: Allows 12ØØ baud at full or half duplex.

(Another 12ØØ protocol that is less used is Bell 2Ø2. It allows 12ØØ baud transmission at half duplex only. AE PRO does not support Bell 2Ø2 protocol.)

To use AE PRO, your modem must use a two-way, asynchronous protocol, the category into which Bell 1Ø3 and 212, and Vadic 3400 fall. These protocols are the most popular because of their full duplex capability.

4.5. DATA WORD FORMAT

Data Word Format (FSW or parity) is the bit structure of each character in binary (zeroes and ones) form and accompanying verifying bits.

An explanation of word format could cover many pages. It is
brought to your attention here to illustrate its importance
to successful data transmissions. A thorough understanding
of word format is not necessary, however, to use AE PRO under
most circumstances.

Most computers can accept 8-bit data -- characters that com-
prise a series of 10 or 11 binary bits (zeroes and ones).
Eight-bit characters are preceded by a start bit and followed
by one or two stop bits.

Data word format, then, is important to establish a like mode
of communication. Sometimes a parity bit can be used to help
achieve correct communication. A parity bit takes the place
of the eighth data bit and will make the sum of each charac-
ter's bits come out even or odd. Even parity, then, makes
the sum of a character's bits come out even; odd parity makes
the sum of a character's bits come out odd. Using a parity
bit, however, does not guarantee error-free transmission and
often is unnecessary for use with microcomputers.

There are several data word formats, but the most common is
8-N-1. It means 8 character bits, no parity bit, and 1 stop
bit (a start bit is assumed). You should use the 8-N-1 word
format all of the time unless you need another one for a
specific purpose. You can choose among the different data
word formats (in the Macros section and in Install), but
stick with 8-N-1 unless you know why you are changing it.

5. MAIN COMMAND MENU

The Main Command Menu, also known as Menu 1, displays some of
the most frequently used AE PRO commands. You may display
this menu anytime, whether on-line or off, by entering 1 at
AE PRO's Command Level Prompt (-> or +>). Remember, to get
to the Command Level Prompt (+>) while on-line, you must
enter the Terminal Escape Key (Control-Q, or as defined in
Install. See Advanced Install chapter.)

When you enter 1, AE PRO displays:

                    ASCII EXPRESS "PRO" MENU 1

              ! = Display program status
              C = Clear buffer
              D = Dial or connect
              F = Free buffer space
              G = Get file from host (protocol)
              H = Hang-up
              I = Disk commands
              J = View disk file
              L = Load file to buffer
              M = Macro select/review
              P = Printer on-off   OFF
              R = Copy buffer on-off   OFF
              S = Send a file
              V = View buffer
              W = Write buffer to disk
              X = Exit program
              - = Display prefixed characters
              2 = Display menu 2
              ^ = Apple-Cat port switch   INT

              ->_

This depicts an Apple 40-column display. 80-column monitors
display this menu in two blocks, side by side.

   NOTE: The ^ = Apple-Cat port switch command is displayed
   only if you have a Novation Apple-Cat modem installed.

5.1.   MAIN MENU COMMAND DESCRIPTIONS

To help explain the Main Commands, we have divided it into
two groups. The first group contains commands that you are
likely to use first or early on with AE PRO. Becoming famil-
ier with these commands should help you understand more
easily the second group of commands, which are described
later in this chapter. The first group contains:

              D = Dial or connect
              H = Hang-up
              I = Disk commands
              J = View disk file
              L = Load file to buffer
              P = Printer on-off   OFF
              R = Copy buffer on-off   OFF
              V = View buffer
              X = Exit program

5.2.   D = DIAL OR CONNECT

The Dial command is used to dial another computer. The
command can include the phone number of the computer you want
to call, subcommands with which you can specify specific
directions, or a combination of both. A telephone number can
be entered in direct response to the Dial command. A subcom-
mand can be entered as additional directions to AE PRO, or in
lieu of a number itself. The uses of numbers or subcommands
are described below.

When you enter D, AE PRO responds:

              Number? _

Enter a phone number, a subcommand, or combination of both,
then c/r. All dialing numbers are valid, including the # and
* characters on the telephone touchpad when using Touch-Tone
dialing. If your modem is incapable of dialing, AE PRO
ignores this command.

Example:
Number? **8531212<c/r>** (spaces or hyphens not needed)

NOTE: The D command is ignored when AE PRO is used with
serial interface cards, or any other installation that
does not include a direct-dialing modem installed in an
Apple slot. To dial with an ASCII-commanded external
modem, you need to send commands to that modem from
terminal mode manually or from macros. See the opera-
tor's manual for your modem for command details, and the
Macros and ASCII Modems chapter of this manual.

5.2.1. Dial Subcommands

Subcommands can be entered at the Dial command's **Number?**
prompt in a number string, or in lieu of a number.

The following subcommands can be entered in lieu of a number:

    / - Repeat last sequence. Entering **/** as the only char-
        acter, followed by c/r, directs AE PRO to repeat
        the exact sequence executed from the last D (Dial)
        command (such as 8531212, above), if the last se-
        quence was not a macro dial request (see Macros
        chapter). If you previously had not used the D
        command during the current session with the pro-
        gram, AE PRO ignores the **/**.

        Example:
        Number? **/<c/r>** (dials 8531212)

/x or // - Repeat last sequence x times. Entering /x
   (/5, for example) as the only characters, followed
   by c/r, directs AE PRO to repeat the last sequence
   up to x times (5 times in the example).   Entering
   // as the only characters, followed by c/r, directs
   AE PRO to repeat the last sequence indefinitely.
   Use this option to auto-redial busy systems. When
   connection is made, AE PRO sounds the number of
   beeps (bells) specified in Install. If a high num-
   ber of beeps are specified, you can stop them by
   pressing any key. If you previously had not used
   the D command during the current session with
   AE PRO, AE PRO ignores the /x or //.

      Examples:
         Number? /5<c/r> (dials 8531212 up to 5 times)
         Number? //<c/r> (dials 8531212 indefinitely)

M - Dial current Macro number. Entering M as the only
   character, followed by c/r, directs AE PRO to dial
   the number contained in the currently selected
   macro. Auto-logging commences upon detecting car-
   rier if so indicated in that macro (see Macros
   chapter).

      Example:
         Number? M<c/r> (dials current macro number)

Mx- Dial current Macro number, auto-log with element x.
   Entering Mx (or M5, for example) as the only cha-
   racters, followed by c/r, directs AE PRO to dial the
   phone number of the currently selected macro, then
   auto-log with macro element x (element 5 in our
   example) instead of a macro element previously
   assigned.

      Example:
         Number? M5<c/r> (dials loaded macro and auto-
                          logs with macro element 5)

Entering a space instead of element x directs
AE PRO to cancel auto-logging if an auto-log in-
struction was assigned to the macro.

Example:
Number? M <c/r> (dials loaded macro and ig-
nores any auto-log directive)

The following subcommands can be entered within the number
string:

A - Autosearch. Entering A as the only character, fol-
lowed by c/r, directs AE PRO to go on-line and
search between answer and originate modes until it
finds a valid carrier. Use this when a voice
connection already has been made, and you want to
switch to a data connection. AutoSearch ends the
need to know which mode you are in when using a
modem that may need to be switched between answer
and originate modes.

Example:
Number? A<c/r>

C - Carrier wait. (Novation Apple-Cat only.) Entering C
within a number string directs AE PRO to stop the
dialing at that point and wait for a second car-
rier, or steady tone, before proceeding with the
rest of the string. This is useful when using a
common carrier telephone service, such as MCI or
Sprint, with its accompanying account number.

Example: (spaces are used for clarity only)
Number? 2330233 C 12345 6198531212<c/r>

AE PRO automatically waits for the first dialtone
when starting a dialing sequence.

H - **Hold for keypress.** Entering H within a number string directs AE PRO to halt the dialing sequence at that point. When AE PRO encounters the H, it displays:

>   AE: Spacebar to continue, ESC to abort

Pressing the spacebar resumes the dialing sequence. This would be useful when there is no way to detect carrier, or if there is no carrier to detect during the dialing of a number string, but whose output needs to be controlled. A banking service, for example, may request a code number with a recorded message, rather than a carrier signal. You would need to monitor the audio of the connection by listening on an extension or with a modem's speaker, then press the spacebar at the appropriate time to continue the output of your dialing string.

>   Example:
>   Number? 8531212 H 98765<c/r>

If the call did not go through correctly, you could abort the dialing string by entering the Abort Key.

P - **Set pulse mode.** (Touch-Tone-dialing modems only) Entering P directs AE PRO to switch to conventional pulse dialing instead of Touch-Tone dialing (the default, but definable in Install).

>   Example:
>   Number? P 8531212<c/r>

T - **Set tone mode.** (Touch-Tone-dialing modems only) Entering T directs AE PRO to return to Touch-Tone dialing if previously set to pulse, or switch to Touch-Tone instead of pulse dialing (if it is the default).

>   Example:
>   Number? T 8531212<c/r>

: - **Delay character.** Entering : directs AE PRO to pause
  dialing for approximately two seconds. Use this
  for timing delays in the output of your dialing
  string. This may be useful to pace the output of
  your string if AE PRO is unable to detect a partic-
  ular signal for more input, such as a beep (AE PRO,
  with an Apple-Cat modem, can detect steady tones
  with the C subcommand, above). Use the : in multi-
  ples for longer delays.

  Example:
  Number? 8531212 c 6192330233 : 3212345<c/r>

  This example could be used with ITT's carrier tele-
  phone service, which sends a second dial tone (C
  subcommand) to prompt you for the destination num-
  ber, then sends a beep to prompt you for your
  access code. By entering one : delay subcommand,
  your access code would be sent after a two-second
  delay, which should more than compensate for the
  short duration of the beep.

+ - **Receiver on.** (Apple-Cat only) Entering + within a
  number string directs AE PRO to turn ON the Apple-
  Cat earpiece of a handset so that you can monitor
  the phone line. It does not enable the mouthpiece.
  The earpiece stays ON until a carrier is detected.

  Example:
  Number? + 8531212 C 12345<c/r>

  Entering + as the first character directs AE PRO to
  turn ON the receiver immediately when it goes on-
  line.

Enter voice mode. (Apple-Cat only) Entering & at
the end of a dialing string directs AE PRO to enter
voice mode immediately after dialing. This allows
you to place a two-way voice call using a handset
with the Apple-Cat.

   Example:
      Number? 8531212 &<c/r>

Entering & during AE PRO's Waiting for carrier
message directs AE PRO to enter voice mode, and you
then can converse as if you were talking on a
standard telephone by using a handset with an
Apple-Cat. This also can be useful if you dial the
number of another computer, but a person or answer-
ing machine answers.

= HANG UP

enter H, AE PRO hangs up the phone if your modem is
 auto-dialing. When BRIEF mode is OFF, AE PRO asks
mation to hang up.

  from a phone line your modem must support the DTR
inal Ready) serial interface circuit. Most modems
R, so you most likely will not have to be concerned
If your modem does not support DTR, AE PRO will
H command. For further discussion of DTR -- and
that can be taken to enable your modem to hang up
anced Install and Modem Differences chapters.

   To use the H command with an ASCII-commanded
nal modem that maintains permanent carrier, you
to send your modem its terminal escape sequence, an
t n command, then a hang-up command. See your
   manual for details (also see Macros and ASCII
s chapter).

5.4.   I = DISK COMMANDS

When you enter I, AE PRO displays:

    C)atalog or D)elete? _

Your options: C, D, Abort key

To CATALOG any disk, enter C.   To DELETE a file on a disk,
enter D. To abort the command, enter your User Abort key (as
defined in Install. See Advanced Install chapter.)

If you choose C, AE PRO displays the current slot, disk drive
and volume:

        Current   :S6 D1 V∅
        RETURN/New:_

If the current slot, drive and volume listing is correct,
press c/r alone. If you want to make changes, enter them in
standard DOS format, such as S5,D2 (slot 5, drive 2), then
press c/r. Only changes need to be entered, and they can be
entered in any order, with or without punctuation. AE PRO
lists the catalog of that disk and calculates the space
remaining in sectors and bytes. Bytes remaining are rounded
to the nearest 1k. There are 256 bytes in a sector.

AE PRO displays a catalog one screen page at a time.   To
continue to the next page, press the space bar. To abort a
catalog in progress, press c/r or your Abort key.

If you choose D, AE PRO displays:

        Filename? _

Your options: filename, /, c/r, Abort key

To DELETE a file, enter the filename, including any optional
drive parameters, and c/r. To DELETE the last file specified
during the current session with AE PRO, enter /, then c/r.
To CATALOG your logged disk, press c/r alone. To abort the
command, enter your Abort key.

If you press c/r alone, AE PRO displays the catalog of the
disk, then displays the Filename? prompt again. If you type
a filename that is not on the disk, AE PRO responds:

>   AE: No such file
>   ->_

then places you at the Command Level Prompt (->), or re-
turns you to terminal mode if you are on-line.

5.5.   J = VIEW DISK FILE

When you enter J, AE PRO displays:

>   Filename? _

Your options: filename, /, c/r, Abort key

This command displays any standard DOS sequential text file.
To view a file, enter the filename, including any optional
drive parameters, then c/r. To view the last file specified
during the current session with AE PRO, enter /, then c/r. To
CATALOG your logged disk, press c/r alone. To abort the
command, enter your Abort key.

While viewing a file, you may stop or start the display by
entering any key except c/r or your Abort key. To abort the
viewing, press c/r or your Abort key.

You can slow the viewing speed of the display by entering the
< key (unshifted). The unshifted < key has 14 "positions",
starting at 4 (but definable in Install), and you can slow
the display speed further by entering additional < keys. To
reverse the slowing effect, enter one > character (unshifted)
for each < entered. Raise or lower the display speed to suit
your needs.

If the P (Printer) command is ON, AE PRO also sends text to
your printer (see P command).

5.6. L = LOAD FILE TO BUFFER

When you enter L, AE PRO displays:

Filename? _

Your options: filename, /, c/r, Abort key

To load a standard DOS sequential text file into the data buffer, enter its filename, including any optional drive parameters, then c/r. To load the last file specified during the current session with AE PRO, enter /, then c/r. To CATALOG your logged disk, enter c/r alone. To abort the command, enter your User Abort key.

After entering a filename (or /) and c/r, if the buffer already contains data, AE PRO displays:

N)ew or A)ppend? _

If you choose N)ew, AE PRO deletes the contents of the buffer before loading the new file. If you choose A)ppend, the new file is appended to the current contents of the buffer.

If, while a file is being loaded, the buffer reaches its limit, AE PRO gives you the option of aborting the load and restoring the buffer to its condition before the L command, or to accept the data that has been loaded so far, but no more. If the latter is chosen, the buffer is full.

5.7. P = PRINTER ON-OFF

Entering P toggles (ON or OFF) AE PRO's communication link to your printer. When this command is turned ON, AE PRO first sends the initializing string (if any) defined in Install to your printer. From this point on, data viewed with the J and V (View buffer, below) commands and all activity in terminal mode also is sent to your printer. When this command is OFF, no data is sent to your printer from any mode.

NOTE: AE PRO activates or deactivates the signal to your
printer. It does not control power to your printer.
You still must turn ON your printer and make sure it is
in a "selected", or on-line, state.

For most printer interfaces, an internal 256 byte "ring"
buffer is in effect automatically. The ring buffer holds
data until the printer can accept it. This is useful for
printers, such as the Epson MX or FX series, that cannot
handle a constant flow of data at all times.

5.8. R = COPY BUFFER ON-OFF

When you enter R, you toggle (ON or OFF) AE PRO's data
buffer. When this command is ON, all data displayed on your
monitor while in terminal mode also is stored in your buffer.

If the buffer reaches its capacity, AE PRO displays:

           BUFFER-FULL-COPY-OFF

and sounds one beep. AE PRO then turns OFF the copy command.
If you want to receive data larger than the buffer capacity,
use the O (Auto-save) command. See the O command in the
Secondary Commands chapter.

5.9. V = VIEW BUFFER

Entering V directs AE PRO to display the contents of the data
buffer. You can adjust the display speed with the < and >
keys (unshifted).

If the P (Printer) command is ON, AE PRO also sends this text
to your printer.

5.10. X = EXIT PROGRAM

Entering X directs AE PRO to exit to the operating system in
effect when AE PRO was run. If BRIEF mode is OFF, AE PRO
asks for confirmation to exit.

If you exit AE PRO while on-line to a host computer, AE PRO
will not disconnect the line. If this is not desirable, make
sure you disconnect first with the H (Hang-up) command, then
exit AE PRO.

There are times when you may want to exit AE PRO while still
on-line. For example, to consult another program, you can
exit AE PRO, run the program needed for consultation, exit
that program, then rerun AE PRO to resume your session.
AE PRO will "remember" the modem values used while on-line
last (or currently), as long as you do not power down, or
boot into a different operating system, such as CP/M or
Pascal.

A DOS text file may be optionally EXEC'd when AE PRO is
exited. If the appropriate option is set in Install, and the
text file "AEX" exists on the AE PRO boot diskette, the
contents of that file will be executed. Use this to run
other programs after leaving AE PRO.

5.10.1. The Remaining Commands

```
! = Display program status
C = Clear buffer
F = Free buffer space
G = Get file from host (protocol)
M = Macro select/review
S = Send a file
W = Write buffer to disk
- = Display prefixed characters
2 = Display menu 2
^ = Apple-Cat port switch            INT
```

5.11. ! = DISPLAY PROGRAM STATUS

When you enter !, AE PRO displays:

```
AE: Used- Ø, Free- 26771
AE: Interrupts OFF
AE: Control show OFF
AE: Baud select 3ØØ
AE: Transpose OFF
AE: Emulation ON
AE: Format OFF
AE: Copy OFF
AE: Printer OFF
AE: Auto-save OFF
AE: Answer-back OFF
AE: Auto-disconnect ON
AE: Keyclick OFF
AE: Chat OFF
AE: Cat INT
AE: Brief mode OFF
AE: Duplex FULL
```

This display gives a status report of all pertinent condi-
tions of AE PRO. To view this report at any time, enter ! at
the Command Level Prompt (-> or +>). To view this report
from terminal mode, enter the Terminal Escape Key (Control-
Q), then !.

5.12. C = CLEAR BUFFER

Entering C directs AE PRO to clear the data buffer. Any data
currently in the buffer is deleted. When BRIEF mode is OFF,
AE PRO asks for confirmation to clear the buffer.

5.13.   F = FREE BUFFER SPACE

Entering **F** directs AE PRO to display the number of bytes
currently in the data buffer and the available space in
bytes:

        AE: Used - 456, Free - 25004
        ->_

AE PRO then places you at the Main Command Prompt (->), or
returns you to terminal mode if you are on-line.

5.14.   G = GET FILE FROM HOST (protocol)

This command is used to receive a file through AE PRO's
special protocol transfer mode. It uses a protocol that
incorporates error-checking during transmission to ensure
error-free transfers. **You should know how to perform a
protocol transfer before selecting this command** (see Protocol
File Transfers chapter).

When you enter **G**, AE PRO displays:

        Filename? _

Your options: filename, /, c/r, Abort key

To prepare AE PRO to receive a file from another computer,
enter the filename under which it will be stored, include any
optional drive parameters, then c/r. To use the last file-
name specified during the current session with AE PRO, enter
/, then c/r. To CATALOG your logged disk, press c/r alone.
To abort the command, enter your Abort key.

If you press c/r alone for CATALOG, you can interrupt the
cataloging at any time with c/r or your Abort key. AE PRO
returns you to the **Filename?** prompt.

If you need to receive an ASCII text file, you can capture
the text, whether in the form of a file, a message or mail,
with the R (Copy buffer) command previously described.   To
save the captured data to disk, use the W (Write) command
(described below).   The next two chapters, The Data Buffer
and ASCII Text File Transfers, describe how to capture and
send ASCII text files.

5.15.   M = MACRO SELECT/REVIEW

When you enter M, AE PRO displays:

        Select? (A-Z,/,?) _

Your options: macro index character (A-Z), /, ?, Abort key

To select a macro group, enter the macro index character
representing that macro group (A-Z).   To display the macro
groups from which to choose, enter /, then c/r.   To display
the contents of a currently selected macro, enter ?.   To
abort the command, enter your Abort key. (See the Macros
chapter.)

5.16.   S = SEND A FILE

This command offers two ways to send a file: Standard and
Protocol.   The Standard method is explained in the Text File
Transfers chapter.   The Protocol method is explained in the
Protocol File Transfers chapter.

Briefly, when you enter S, AE PRO displays:

        Filename? _

Your options: M, filename, /, c/r, Abort key

4

To send the current contents of the data buffer, also known as memory, enter M, then c/r. To send a disk file, enter the name of that file, including any optional drive parameters, then c/r. To send the last filename specified during the current session with AE PRO, enter /, then c/r. To CATALOG your logged disk, press c/r alone. To abort the command, enter your User Abort key.

If you enter M, AE PRO sends the contents of the data buffer. The contents can be data previously loaded from a disk (L command), created by AE PRO's editor, captured from another computer, or any combination.

After entering a filename at the Filename? prompt, AE PRO displays:

> S)tandard or P)rotocol? _

> NOTE: If you entered M at the Filename? prompt to send memory, this S)tandard or P)rotocol? prompt is bypassed because memory can be sent in Standard mode only.

If you choose S)tandard (remember, sending memory selects S)tandard automatically), AE PRO displays the following questions, one at a time:

> L)ine or C)haracter at a time? _
> Prompt to look for? (c/r for none) _

How to respond to these questions is explained in the description of the Standard file transfer method in the ASCII Text File Transfers chapter.

If you choose P)rotocol, AE PRO begins a protocol file transfer, and you must know how to use that method to perform the transfer. (See Protocol File Transfers chapter.)

5.17. W = WRITE BUFFER TO DISK

When you enter W, AE PRO displays:

        Filename? _

Your options: filename, /, c/r, Abort key

To write the entire contents of the data buffer to disk,
enter a filename, including any optional drive parameters,
then c/r. To write the contents of the data buffer to disk
by using the last filename specified during the current
session with AE PRO, enter /, then c/r. To CATALOG your
logged disk, press c/r alone. To abort the command, enter
your User Abort key.

Once data in the buffer has been written successfully to a
disk, AE PRO clears the data buffer.

5.18. - = DISPLAY PREFIXED CHARACTERS

When you enter -, AE PRO displays:

        ^W,   [
        ^W.   ]
        ^W^O   ^
        ^WO   _
        ^W/   \
        ^W?   ^]
        ^W^H   ^#
        ^W! |
        ^W=   ~
        ^W({
        ^W)   }
        ^W'   ^\

This command displays the special characters (in the second
column) that you can produce in conjunction with your Ter-
minal Prefix key. These characters may not normally be found
on your keyboard and can be produced by entering AE PRO's
Terminal Prefix Key (Control-W), followed by the accompanying
character in the first column.

For example, to produce the [(open bracket), enter ^W,
(Control-W) and ,. These special prefixed characters can be
defined in Install (see the Advanced Install chapter).

> NOTE: An Apple //e can produce the characters shown
> above on its keyboard. Thus an Apple //e does not need
> the Terminal Prefix Key (^W) to produce special charac-
> ters. The Terminal Prefix Key, however, still is needed
> to send Macro elements (see Macros chapter).

5.19. 2 = DISPLAY MENU TWO

When you enter 2, AE PRO displays the Secondary Command Menu.
(See Secondary Commands chapter.) You can display this menu
at any time from the Command Level Prompt (-> or +>).

5.20. ^ = APPLE-CAT PORT SWITCH

This command is displayed on the Main Command Menu only if
you have a Novation Apple-Cat modem installed. It is used to
interface an external modem to the Apple-Cat's serial port.
Do not use this command unless you understand its function.
(See Modem Differences chapter.)

)6. SECONDARY COMMAND MENU

The Secondary Command Menu, also known as Menu 2, contains
some of the more sophisticated or less often used AE PRO
commands. You can display this menu at·any time, whether on-
line or off, by entering 2 at the Command Level Prompt (->
or +>). Remember, to reach the on-line Command Level Prompt
(+>), you must enter the Terminal Escape Key (Control-Q, or
as defined in Install. See Advanced Install chapter).

When you enter 2, AE PRO displays:

```
                ASCII EXPRESS "PRO" MENU 2
                ---------------------------

         A = Show control characters on-off  OFF
         B = Baud rate                       300
         E = Echo  duplex full/half          FULL
         K = Terminal chat mode on-off       OFF
         N = Set delay (transfer)            0
         O = Auto-Save on-off                ON
         T = Transpose ^H/RUB on-off         OFF
         U = Update/display macros
         Y = Editor
         Z = Screen format on-off            OFF
         1 = Display main menu
         : = Auto-disconnect on-off          ON
         + = Auto answer (data)
         " = Keyclick on-off                 OFF
         / = Do CRC
         $ = Emulation on-off                ON
         # = Brief mode on-off               OFF
         % = Run INSTALL program
         ' = Answerback on-off               OFF
         ? = Help request

         -> _
```

This depicts a 40-column display. 80-column monitors display
this menu in two blocks, side by side.

6.1. SECONDARY MENU COMMAND DESCRIPTIONS

6.2. A = SHOW CONTROL CHARACTERS ON-OFF

Entering A toggles (ON or OFF) AE PRO's ability to display
control characters. When this command is ON, control charac-
ters, which normally are not shown on your monitor, appear as
the control symbol (^) followed by the upper-case equivalent
of the character. Thus control-A is displayed as ^A on your
monitor. A RUBout is displayed as ^#. Linefeeds are shown
only if they are not preceded directly by carriage returns.

You can use this command as a diagnostic tool to monitor the
"hidden" characters another computer may be sending. If a
particular computer upsets your display or printer, you could
turn ON this command, monitor the results, then create an
emulation table in the Macros section of the program (see
Macros chapter) or a suppression table in Install (see Ad-
vanced Install chapter) to convert or suppress these charac-
ters. You also could monitor incoming characters to identify
useful prompt characters to aid your file transfers.

6.3. B = BAUD RATE

When you enter B, AE PRO displays:

            Ø = Deaf (45.5 BAUDOT)   4 = 300
            1 = 5Ø   5 = 12ØØ
            2 = 75   6 = 24ØØ
            3 = 11Ø   7 = 48ØØ
                                          8 = 96ØØ

            Current: 4_

To choose a baud rate, enter the corresponding number from
this menu. If the Current selection is correct, press c/r
alone. A new selection becomes the default during the cur-
rent session with AE PRO until you change it again, or load
and execute a macro file that contains a different baud rate.

All of these rates, however, may not be displayed or be available to you. Your modem or interface card determines the display and which rates actually are available.

6.4. E = ECHO DUPLEX FULL-HALF

Entering E toggles (FULL or HALF) AE PRO's duplex mode. When you select FULL duplex, characters you originate are not displayed on your monitor unless they are echoed by the host computer. When you select HALF duplex, AE PRO displays on your monitor characters you originate because it does not expect an echo from the other computer. If your monitor displays two of each character or no characters at all, toggling this command may solve the problem.

6.5. K = TERMINAL CHAT ON-OFF

Entering K toggles (ON or OFF) AE PRO's interactive terminal chat mode. When this command is ON, AE PRO is placed in HALF duplex, characters you originate are displayed on your monitor, and AE PRO adds a linefeed after each carriage return you send. You should use this mode to "chat" or type to another computer also in terminal mode, or to type to another computer that requires a linefeed after each carriage return. See further discussion in Protocol File Transfers chapter.

Additionally, when Chat is ON during an ASCII text file send (non-protocol mode), AE PRO adds a linefeed after each carriage return sent. You may find that if linefeeds are needed during keyboard (chat) communication, they probably are needed also during ASCII text file transfers.

6.6. N = SET DELAY (0-9)

When you enter N, AE PRO displays:

                    Current = 0, set to: _

Your options: 0-9, c/r

Enter the number representing the interval AE PRO waits after
sending a line in non-prompted send mode. If the Current
number is acceptable, press c/r alone. Valid numbers are Ø
(minimum delay) through 9 (maximum delay). The standard
setting is Ø, which corresponds to a delay of approximately
6Ø milliseconds during 3ØØ baud operation. If you are send-
ing to a computer that loses characters at the beginning of
each line, and prompted send mode is not possible, adjust
this delay upward. As a guide, increase this number by one
for each character the other computer appears to lose. The
new setting becomes the default until changed again, or until
you rerun AE PRO. You also can set this default in Install.

When in prompted send mode, AE PRO waits this interval after
receiving each prompt.

6.7.   O = AUTO-SAVE ON-OFF

Entering O toggles (ON or OFF) AE PRO's automatic file saving
mode.

Entering this command when Auto-save is OFF directs AE PRO to
display:

          Filename? _

Your options: filename, c/r, /, Abort key

To prepare AE PRO to save captured data automatically under a
specific filename, enter that filename, including any option-
al drive parameters, and c/r. To use the last Auto-save or
Answer-back filename specified during the current session of
AE PRO, enter /, then c/r. To CATALOG a disk, press c/r
alone. To abort this command, enter your Abort key.

After you enter the filename, AE PRO turns ON this command
and also the copy buffer (R command).

As AE PRO captures data from another computer, it constantly monitors the space status of the data buffer. When the captured data fills the buffer to within 1K (one thousand bytes) of capacity, AE PRO performs the following steps automatically:

1. Sends the XOFF character (the number of times it is defined to do so in Install) to direct the host computer to stop sending data.
2. Writes the contents of the buffer to disk using the specified filename and appending to it a .AEx filename extension (see below).
3. Clears the data buffer.
4. Beeps to signal that it is starting another save sequence.
5. Sends the XON character (the number of times it is defined to do so in Install) to the host computer to resume sending.

This process can be repeated indefinitely and is limited only by disk space. Each time AE PRO writes the captured data to disk, it appends a .AEx extension to your specified filename. The first save is indicated with a .AE1 extension, the second, with a .AE2 extension, etc.

You can exchange disks between saves. If you remove the AE PRO program disk from the logged drive, however, be ready to reinsert it if you enter a command that requires AE PRO overlays. AE PRO informs you if this is necessary.

If a disk becomes full during a save, AE PRO beeps and displays a message to that effect. You may change disks or log to another drive. When you are ready to resume the saving operation, write the contents of the buffer to disk with the Write command (W) and enter / to specify the last filename used. This keeps your filename progression (.AE1, .AE2, etc.) intact. When the save is completed, you must manually send your XON character to direct the host computer to resume sending. AE PRO then returns to the automatic saving operation. A disk-full situation is the only time you will have to perform these steps.

NOTES: The filename buffer for Auto-save and Answer-back
is different from the buffer for all other filename
options. Thus using a / filename recall character re-
calls the last name used in the associated buffer.

AE PRO is packaged with Control-Q (^Q) as the default
XON character. AE PRO's Terminal Escape Key also is
defined as ^Q. Normally, if you enter ^Q during termi-
nal mode, AE PRO returns you to the Command Level Prompt
(+>). To send an XON character (^Q) manually, you
must precede the XON character with AE PRO's Terminal
Prefix Key (^W). Thus enter ^W^Q. AE PRO's Terminal
Prefix Key allows you to send reserved characters de-
fined in Install.

After an Auto-save operation, if you want all of the individ-
ual .AEx file segments in one file, you can merge them with
the CHFORM Utility program on the Utilities side of the
AE PRO disk.

6.8. T = TRANSPOSE ^H/RUB ON-OFF

Entering T toggles (ON or OFF) AE PRO's Transpose mode. When
this command is ON, AE PRO converts the left-arrow key on
your Apple's keyboard to a RUBout character. Normally your
left-arrow key sends the backspace (BS) character, which
instructs the other computer to backspace one character.
Some computers, however, require the RUBout character to
perform this operation. Although the RUBout character is
unavailable on your Apple keyboard, there are two ways to
produce it.

1. You can define it in the character substitution
table. For example, you can define ^W^H (Terminal Pre-
fix Key, then Control-H) to send it. This would retain
the integrity of your current left arrow key.

2. Or, you can turn ON the Transpose mode, which will
send the RUBout when you press the left-arrow key.
Also, when Transpose is ON, ^W^H produces ^H instead of
RUBout.

6.9. U = ENTER MACRO UPDATE/DISPLAY SECTION

When you enter U, AE PRO enters its Macro section and dis-
plays the Macro section's menu. See the Macros chapter.

6.10. Y = EDITOR

When you enter Y, AE PRO enters its Editor section, displays
the Editor's menu (if Brief mode is OFF), and places you in
the data entry mode.

The Editor uses the data buffer as its work area. You can
use the Editor to create ASCII text, or to modify previously
written or captured data. When entering the Editor, any data
that already may be in the data buffer remains intact.
AE PRO always displays the buffer status and places you at
the first available buffer line. See the Editor chapter.

6.11. Z = SCREEN FORMAT ON-OFF

Entering Z toggles (ON or OFF) AE PRO's Screen Format mode.
When this command is ON, AE PRO displays incoming data ac-
cording to the Format Type setting in Install. There are two
formats:

Truncate: AE PRO forces a line break with a c/r when
incoming data reaches the right margin column (as de-
fined in Install). Any data (on the screen only) that
exceeds the right margin is discarded. This may be
useful when receiving data at baud rates higher than 300
without interrupts and the time a display device would
take to wrap lines exceeding its right margin would
cause data to be lost. All data, however, will be
received intact in the data buffer.

Wrap: AE PRO adds a linefeed at the right margin (de-
fined in Install) for each incoming line that exceeds
the right margin. Some display devices, such as the ALS
Smartterm, do not automatically scroll when data exceed
the right margin.

When this command is OFF, AE PRO disregards the above format
options.   OFF is the normal setting and is mandatory when
terminal emulation is being performed.

6.12. 1 = DISPLAY MAIN MENU

When you enter 1, AE PRO displays the Main Command Menu. See
Main Commands chapter.

6.13. : = AUTO DISCONNECT ON-OFF

Entering : toggles (ON or OFF) AE PRO's automatic discon-
necting mode. When this command is ON, AE PRO disconnects
your modem from the phone line shortly after it loses car-
rier.   ON is the normal setting. When this command is OFF
AE PRO does not disconnect from the phone line when it loses
carrier, but instead places you at the Command Level Prompt
(+>).

This mode should be OFF if you have an unstable connection,
and there are momentary losses of carrier. To return to
terminal mode (if carrier is present), press the space bar.
If the other computer hangs up (carrier is lost), AE PRO will
not allow you to re-enter terminal mode. To terminate your
phone connection, you must enter the Hang-up command (H).

6.14. + = AUTO-ANSWER (data)

When you enter +, AE PRO enters its unattended remote opera-
tion mode, which allows another computer to call your compu-
ter. You can use this mode only with an internal modem that
can answer an incoming call, or with an external modem that
can answer independently of your computer and control the DCD
(data carrier detect) line to indicate carrier. See the
Unattended Operation chapter.

6.15. " = KEYCLICK ON-OFF

Entering " toggles (ON or OFF) AE PRO's keyclick mode. When
this command is ON, AE PRO uses your Apple's speaker to sound
one "click" for each character you type on your keyboard.
You can set the duration (apparent volume) of the click in
Install.

6.16. / = DO CRC

When you enter /, AE PRO displays:

        Filename?

Your options: filename, /, c/r, Abort key

To perform a Cyclic Redundancy Check (CRC) to verify the
accuracy of a transfer, or to determine if two files with the
same name on different disks are the same, enter a filename,
then c/r. To perform a CRC on the last filename used in a
disk access, enter /, then c/r. To CATALOG a disk, press c/r
alone. To abort this command, enter your User Abort key.

After entering a filename, AE PRO checks the file and
displays the 16-bit HEX number representing that file's CRC.

AE PRO performs this same check automatically at the end of a
Christensen protocol transfer (see Protocol File Transfers
chapter). A CRC may not be performed accurately on a random
text file after the transfer. It is correct, however, when
performed automatically during a transfer.

6.17. $ = EMULATION ON-OFF

Entering $ toggles (ON or OFF) AE PRO's emulation mode. When
this command is ON, AE PRO consults the terminal emulation
table (defined in Macros section, U Command above) each time
it receives an incoming screen control character to see if it
should be converted to the defined function in the emulation
table. You can use this command to direct your 80-column
board or external terminal to emulate screen display charac-
teristics of another kind of terminal. ON is the normal
setting.

If you do not want conversion to take place, or if you are
communicating with a computer that does not send a linefeed
after each carriage return, turn OFF this command. Emulation
usually can not be performed with a host computer that does
not send a linefeed after each carriage return.

6.18. % = RUN INSTALL PROGRAM

When you enter %, AE PRO runs its Install program. Install
operates with the Apple 40-column display only.

If you are using an 80-column display device, AE PRO will
display:

              Running INSTALL (40 columns)
              Wait for beep - then press RESET

After you hear the beep, and after the disk drive stops,
press Reset. You will be placed at your computer's 40-column
display and the screen title page of Install.

You can run Install at any time, even if you need only to make quick changes. If Brief mode is OFF, AE PRO asks for confirmation to run Install. See Advanced Install chapter.

6.19. ' = ANSWER-BACK ON-OFF

Entering ' toggles (ON of OFF) AE PRO's Answer-back mode. When this command is ON, AE PRO works with the Auto-Answer command (+) to operate as an unattended mail receive mode for computer-forwarded DDD and TWX messages, such as a Telex message.

When Answer-back is ON, AE PRO writes files to disk much like the Auto-save command (O). A filename you select with the Auto-save command applies to Answer-back, including the file-naming procedure (.AE1, .AE2, etc.) when AE PRO writes the buffer to disk. If you do not specify a filename, AE PRO uses the default Answer-back filename defined in Install. If Answer-back is OFF, AE PRO's standard Unattended Remote mode will be in effect. See the Unattended Operation chapter.

6.20. # = BRIEF MODE ON-OFF

Entering # toggles (ON or OFF) AE PRO's Brief message mode. When this command is ON, AE PRO executes various commands immediately. When this command is OFF, AE PRO asks for confirmation before executing various commands. Some commands affected by the Brief mode are:

```
C = Clear buffer
H = Hang up
M = Macros (affects options display only)
X = Exit AE PRO program
Y = Editor (affects menu display only)
% = RUN Install
```

For example, when Brief mode is OFF and you enter the Clear
buffer command (C) at the Command Level Prompt (-> or +>),
AE PRO displays:

                    OK to Clear? (def=n) _

Enter Y (Yes) if you want to clear the buffer, or any other
key if you do not. When Brief mode is ON, AE PRO bypasses
this step and executes your command immediately. We recom-
mend, however, that you operate AE PRO with the Brief mode
OFF until you become familiar with the program and can antic-
ipate its prompts for confirmation.

6.21.   ? = HELP REQUEST

When you enter ?, AE PRO displays:

            Help on: _

Enter any appropriate AE PRO command letter or symbol that
can be executed at that level. AE PRO will display a de-
scription of that command.

The ? Help Request command also can be used in the Editor and
Macros sections of AE PRO.

7. THE DATA BUFFER

AE PRO has a built-in data buffer that you can use as a temporary storage area, or as a work area.

The capacity of the data buffer depends on the Random Access Memory (RAM) of your Apple. If you have an Apple with 48K of RAM, the capacity of the data buffer is approximately 18,000 bytes (18K). If your Apple has a RAM card of 16K or greater in Slot 0, the capacity of the data buffer is increased approximately 10K. Also, when you use AE PRO's Editor in the Expanded Memory Mode, the capacity is increased further approximately 7K. Using a memory board larger than 16K will not increase further the buffer's capacity.

You can use AE PRO's data buffer for many reasons. Two are:

  1) **Copy Buffer:** To capture data while you are on-line with another computer.
  2) **Work Area:** To create ASCII text with AE PRO's Editor, modify captured data, or load the contents of a file from a disk for various purposes.

When using the buffer to copy data while on-line, all characters that you or the other on-line computer send to each other are saved. The copy buffer, then, "records" your on-line session. When on-line or off, you can review the contents, save them to a disk, or both.

When using the buffer as a work area, you can use AE PRO's Editor to create text or alter a previously written file, or you can load contents of a file into it to be used as Memory (see D command) to send to a host computer.

The above uses can be mixed in any way. For example, if you logged-on to The SOURCE, you could copy a news letter, append a file from disk to it with the L (Load) command, edit the contents, then send the buffer contents to another SOURCE subscriber through The SOURCE's electronic mail.

At any time, you can write (W command) the buffer contents to disk.

7.1. PRACTICAL USES OF THE DATA BUFFER

Time and Money: AE PRO's data buffer can help you in many ways. In addition to creating text while you are off-line, it can save you time by capturing mail, advertisements, airline schedules, or reviews from information services, such as The SOURCE, CompuServe, Delphi, BRS After Dark, Newsnet and many others. Plus it can save you money on connect charges. Dial a computer, capture information with the data buffer, log off from that computer, then review the captured data at your own convenience and pace.

Receive an ASCII File: You also can use the data buffer to capture or receive an ASCII text file. See the next chapter, ASCII Text File Transfers, for details.

7.2. TAKING COMMAND OF THE DATA BUFFER

The following AE PRO Main Commands allow you to control the data buffer:

    C = Clear buffer
    F = Free buffer space
    L = Load file to buffer
    R = Copy buffer on-off
    V = View buffer
    W = Write buffer to disk

NOTE: AE PRO's Editor also uses the data buffer as a work area. (See the Editor chapter and also the Y command in the Secondary Commands chapter.)

Each of the above Main Commands is described in the Main Commands chapter. A brief description of each is repeated here for your convenience.

Most commands can be entered at the Command Level Prompt (-> or +>). If you are on-line with a host computer and you are not exchanging data, you must leave terminal mode momentarily by entering the Terminal Escape Key (Control-Q) to return to the Command Level Prompt (+>). A recap of the commands:

C - Clears the buffer completely.

F - Displays the status of the buffer, including the number of bytes currently in the buffer and space remaining.

L - Loads a file from disk into the buffer. Enter the name of the file at the Filename? prompt, then c/r. If data already exists in the buffer, AE PRO gives you the option of appending the new file to it, or replacing its contents with the new file.

R - Toggles (ON or OFF) the copy buffer. By using the R command, you can selectively copy data while on-line. If you want to save something, turn ON the buffer. When that data has been saved, turn OFF the buffer. When you want to save something else, turn ON the buffer again.

V - Displays the entire contents of the buffer.

W - Writes the entire contents of the buffer to a disk. Enter the name of the file at the Filename? prompt, then c/r.

7.2.1. Copy Buffer Command Performance

To illustrate how to take command of the buffer, consider this scenario: As a favor to a friend, you are reading the chapters of his first attempt at writing a mystery novel. As he completes each chapter, he uploads the text of the chapter to The SOURCE, then sends a copy of the file to your SOURCE mailbox. You have just completed reading his latest chapter, you have inserted comments with AE PRO's Editor, and you are ready to send the chapter with your comments to his SOURCE mailbox. The name of the file on your disk is "COMMENTS". Proceed as follows:

Before connecting to The SOURCE, load the file of the
chapter into AE PRO's data buffer. Enter the L (Load
disk file) command. At AE PRO's Filename? prompt, enter
COMMENTS, then c/r, and AE PRO loads "COMMENTS" into the
buffer. Now, make sure your copy buffer is OFF by
checking the program statuses with the ! command. If
the copy buffer is ON, enter R to toggle it OFF.

Dial The SOURCE number and log-on. Use use The SOURCE's
commands to prepare a file for mailing to your friend.
When The SOURCE prompts you for the text of the mail,
perform the following steps:

    1. Enter the Terminal Escape Key (^Q). At AE PRO's
    +> prompt, enter S to send an ASCII text file. At
    the Filename? prompt, enter M to send the contents
    of the buffer, then c/r.

    2. At AE PRO's L)ine or C)haracter at a time?
    prompt, enter L to send the buffer line by line.

    3. At AE PRO's Prompt to look for? prompt, press
    c/r alone to begin sending the buffer contents to
    The SOURCE mail file.

    4. When the buffer has been sent completely, AE PRO
    will beep. That's your signal to use the appro-
    priate SOURCE command to send the mail file on its
    way to your friend.

Now check to see if you have mail in your SOURCE mailbox
by using the SOURCE's mail check command. The SOURCE
informs you that you have one piece of mail, and you
recognize the mail's subject line as being a copy of the
next chapter of your friend's novel. You want to down-
load the mail file to your buffer, but first you have to
perform a couple of AE PRO commands. Proceed as
follows:

Your buffer contains the file "COMMENTS", but be-
cause you already have sent a copy of the file to
your friend, you no longer need the text in the
buffer. (Remember, you have the original file on
disk.) Clear your buffer so that you can download
the new chapter from The SOURCE. Enter the Termi-
nal Escape Key (^Q). At AE PRO's +> prompt, enter
C to clear the buffer. AE PRO responds, AE: OK to
clear? (because BRIEF mode is OFF). Enter Y (yes),
and AE PRO responds with AE: Buffer cleared, then
returns you to terminal mode.

You are almost ready to download the new chapter.
But first you need to turn ON your copy buffer.
Enter ^QR to turn ON the buffer. AE PRO returns
you to terminal mode. Now you are ready.

Enter the SOURCE's commands to read your mail.
While your mail is being displayed, AE PRO also is
capturing the data in its buffer.

After the mail file is displayed, turn OFF the copy
buffer by entering ^QR. AE PRO returns you to
terminal mode.

To make sure you received the chapter, view the
beginning contents of your buffer while still on-
line. Enter ^QV. When you are satisfied that you
received the file (the first few lines should be
sufficient proof), abort the listing by pressing
c/r or entering your Abort key. AE PRO returns you
to terminal mode.

Now, log off from The SOURCE and hang up with the H
command. To hang up, enter ^QH.

Now that you are off-line, you can write the contents of
the buffer to a disk file. But first, check the size of
the buffer contents to make sure you can accommodate the
file on the logged disk. Enter the F (Free buffer
space) command. AE PRO responds:

    AE: Used - 51Ø5, Free - 2ØØ25

This tells you that your buffer contains slightly more
than 5K of data. Check to see if you can accommodate a
5K file on your disk. Use the I (Disk) command, then
choose the C)ATALOG option. At the end of the CATALOG,
AE PRO displays the unused space on the disk. If the
disk does not have enough space, insert a disk that
does.

Enter the W (Write) command at AE PRO's -> prompt. At
AE PRO's Filename? prompt, enter NEWCOMMENTS to repre-
sent the name of the new chapter, then c/r. AE PRO
writes the new chapter, "NEWCOMMENTS", to your disk,
then automatically clears your buffer.

That's it! You've just completed an exercise in sending a
file and retrieving electronic mail with AE PRO's copy buf-
fer. Now you can review the new chapter at your leisure.
And you won't spend a cent more in hook-up charges while
you're doing it!

8. ASCII TEXT FILE TRANSFERS

AE PRO supports two methods of transferring files:

Standard and Protocol.

A **Standard** transfer sends ASCII text files to another computer one line at a time in full or half duplex, or one character at a time in full duplex only.

A **Protocol** transfer sends or receives all types of DOS files in "blocks" while performing verifying checks with the host computer to ensure error-free transmission. Protocol transfers are explained in the Protocol File Transfers chapter.

Only Standard transfers are explained in this chapter so that you can get started with AE PRO more quickly. The Standard method is reliable for most text file transfers, but you always should check to make sure your file arrived safely.

The Standard transfer method also is the only mode that can be used to transfer ASCII text files to bulletin-board computers, information services and most mail systems. We recommend, however, that you also learn the Protocol method, which incorporates error-checking and correction during transmission.

The S command of AE PRO's Main Command Menu uses the Standard and Protocol methods to send files to another computer. It was introduced in the previous chapter, Main Commands.

8.1. SEND A TEXT FILE

When you enter S, AE PRO displays:

Filename? _

Your options: M, filename, /, c/r, Abort key

To send the current contents of the data buffer (memory), enter M and c/r. To send a disk file, enter the name of that file, including any optional drive parameters, then c/r. To send the last filename specified during the current session with AE PRO, enter /, then c/r. To CATALOG the logged disk, press c/r alone. To abort the command, enter your Abort key.

If you enter M alone, AE PRO sends the contents of the data buffer. The contents can be data previously loaded from a disk (L command), created by AE PRO's editor, captured from another computer, or any combination. Memory can be sent only by the Standard method described here, and a Standard send is selected automatically when M (memory) is given in response to the Filename? prompt.

After entering a filename after the Filename? prompt, AE PRO displays:

        S)tandard or P)rotocol? _

(Remember, only the S)tandard method is explained here.)

> NOTE: If the Chat mode (K command) is ON and you are using the Standard send mode, a linefeed is added after each carriage return of the outgoing text. This would be useful, for example, if you were sending to a "dumb" terminal or printer (see Secondary Commands chapter).

After entering S)tandard at the above prompt, or after specifying memory (M) send at the Filename? prompt, AE PRO displays:

        L)ine or C)haracter at a time? _

To send the file one line at a time, the preferred mode, enter L. To send the file one character at a time, enter C. In the character mode, AE PRO sends each character of your file one at a time and waits for an echo from the other computer signaling that it has received that character. AE PRO does not send subsequent characters until it receives an echo for the previous character sent. This method is available only with hosts operating in full duplex (echo).

After you enter L or C, AE PRO displays:

Prompt to look for? (c/r for none) _

If you press c/r alone, AE PRO sends your file in a contin-
uous stream. If you have set a delay after each c/r with the
N (Set Delay) command, a delay is added after each c/r (see
Secondary Commands chapter). AE PRO is packaged with the N
command set to Ø (no delay).

If you enter a character after Prompt to look for?, AE PRO
waits for that character before sending each subsequent line
of the file. For example, if you are sending a file to a
bulletin-board system that prompts with a ? for each line,
enter ?. AE PRO sends the first line, waits for the ? prompt,
then sends the second line, and so on until finished.

If you enter an incorrect prompt character, AE PRO will send
one line, then "hang" while waiting for the non-existent
prompt. You can abort the transfer by pressing c/r, or you
can continue the transfer by entering that prompt character
on your keyboard. AE PRO then sends the line as if it re-
ceived the prompt character from the other computer. You
have to repeat this process, however, for each subsequent
line.

The prompted send mode also is subject to any delay set with
the N (Set delay) command. If a delay is defined, it will
occur after the prompt is received. This is useful for
sending to a host computer whose prompt does not always indi-
cate accurately when it is ready to receive more data.

During any Standard Line mode transmission, you may slow the
rate of data output by entering the < character (unshifted).
This usually is unnecessary, but some computers cannot accept
data at the full specified baud rate.

NOTE: The < key in this mode has six "positions". If you slow the speed with <, that speed will be in effect the next time you send a file during the current session with AE PRO. To reverse the slowing effect during any file transfer, enter one > character (unshifted) for each < entered.

If, during any Standard transmission, the receiving computer sends an XOFF character to your computer, AE PRO suspends the transfer of your file until it receives an XON character from the receiving computer. Make sure the file you are sending does not contain ^S characters. If it does, the host may echo them and "trick" AE PRO into thinking it got an XOFF. As a result, the transmission will "hang" indefinitely. Manually sending an XON character (^Q) will release a hung state.

NOTE: If your XON character and Terminal Escape Key both are defined as Control-Q (^Q), you will need to precede the XON character with the Terminal Prefix Key (^W), as in ^W^Q, or else you will be placed at AE PRO's on-line prompt (+>). See Advanced Install and Macro chapters.

You can abort a file send by pressing c/r.

8.2.   RECEIVE A TEXT FILE

You can receive an ASCII text file from another computer by capturing it with AE PRO's data buffer. This method requires that you turn ON AE PRO's data buffer (R command) to receive a file and OFF after you have received the complete file.

While on-line with another computer, find the file that you want to receive in that computer's directory. When you are ready to receive, turn ON the data buffer with the R command (^QR). Use that computer's command to view or display the file. While the file is being displayed on your monitor, AE PRO's data buffer captures all of it.

After the file has been displayed completely, turn OFF the copy buffer (^QR). As long as the file does not exceed the capacity of the data buffer, the complete file is captured in your buffer. (Also see the O Auto-save command in the Secondary Commands chapter. With the Auto-save command, you can receive any size ASCII text file, as long as you have the necessary disk space.)

> NOTE: Some host computers are capable of controlling the ON and OFF statuses of the calling computer's copy buffer, and AE PRO can recognize copy ON (^R) and copy OFF (^T) commands sent by a host computer, if defined as such in Install. They also can be disabled in Install if you prefer (see Advanced Install chapter). Also, individual file "segments" that may result from this alternate Copy ON-Copy OFF action can be merged with the CHFORM utility program (see the Utilities chapter).

While on-line or off, you can view (V command) the contents of the buffer or write (W command) the contents to a disk. If you are on-line, you must use the Terminal Escape Key (Control-Q) to get to the Command Level Prompt (+>) before issuing commands such as V and W.

If you choose to write the buffer contents to a disk with the W command, enter a filename after the Filename? prompt, then c/r. AE PRO writes the contents of the buffer to disk using that filename. If you did not want to save the contents, you can clear the buffer with the C command.

8.2.1. Handle With Care

Depending on when you turn the copy buffer ON and OFF, you may pick up stray characters at the beginning of the file, or at the end, or both. You can remove them easily with AE PRO's built-in Editor, or with a word processing program.

Although this file receiving method is practical for ASCII text files, it is not recommended for Basic program files or binary files. BASIC and binary program files should be sent by protocol method because they are 8-bit in nature.

If, for whatever reason, you want to send a BASIC or binary
program to another computer with a standard send, you should
convert your BASIC or binary file to ASCII text with the
AP/BIN TO TEXT file conversion utility program (see Utilities
chapter).

ASCII files also can be sent by protocol transfer if absolute
accuracy of transfer is required. In fact, if the protocol
transfer method is available, there never is any reason to
transfer in ASCII mode.

9. TROUBLESHOOTING

Various problems can occur from time to time. If you experi-
ence what appears to be a problem with AE PRO, there is
usually a solution. This chapter addresses some apparent
problems associated with communications and provides probable
solutions.

These problems are grouped into four categories to help you
find the solution quickly.

1) **Connection:** Problems making contact with other
   computers.
2) **Communication:** Problems with network protocol or
   other setups while on-line.
3) **Transmission:** Problems occurring during file
   transfers.
4) **Command:** Problems occurring because of improper
   commands.

When reviewing these problems and solutions, it is assumed
you have passed the stage of making sure that all cables and
interface cards are connected properly and that your computer
and disk drives are working properly.

9.1. CONNECTION PROBLEMS

Problem – The computer you are calling does not answer or
respond, and your computer eventually disconnects from
the phone line.

Solution – The destination computer may be busy, not answer-
ing or currently out of service. If your modem has a
speaker or earpiece receiver, listen to the connection
to find out if the host computer is still ringing or is
busy, or is sending a carrier tone. If it is sending a
tone, you may be using the wrong baud rate or incorrect
parameters. Check with the system operator of the host
computer for these specifics.

Problem - The destination computer answers your call, but you receive garbled instructions or random characters.

Solution - You may have a noisy connection. If so, try calling again. Also, the two computers may be using different baud rates, different word formats, or both. Check with the system operator of the host computer for the proper settings, or experiment with the different settings -- you may find one that works.

9.2. COMMUNICATION PROBLEMS

Problem - You have connected to another computer, but none of the characters you enter on your keyboard is displayed on your monitor.

Solution - You may be in full duplex (echo), and the receiving computer is in half duplex (no echo). Your computer expects an echo, but the receiving computer doesn't echo characters. Change your duplex to half.

Problem - Each character you enter on your keyboard is displayed twice on your monitor.

Solution - You are in half duplex (no echo), and the receiving computer is in full duplex (echo). Your computer does not expect echoed characters, so it sends characters to your monitor. The receiving computer, however, echoes characters, and thus you see two of everything.

9.3. TRANSMISSION PROBLEMS

Problem – While sending a text file, the receiving computer misses or loses some characters, particularly ones at or near the beginning of a line.

Solution – Even though you are using the proper baud rate, some computers cannot keep up with all of the transmitted data at all times. Try the prompted send mode to send each line. If that doesn't work, or if there is no prompt, send a delay after each carriage return with the N (Set delay) command (see Secondary Commands chapter). Or, if the host computer is in full duplex, try sending in character mode.

Problem – While sending a text file, the receiving computer receives typos in words or whole words that are garbled.

Solution – There could be one or more problems here. There may be noise on the phone line; noise accounts for most data errors. Try redialing and then sending again, or send at another time. If noise is not the problem, the two computers may be using different word formats. They should be the same. Try selecting different word formats. If these solutions don't work, try slowing the transmission with the < character (unshifted). See the ASCII Text File Transfers chapter.

Problem – The file you have sent arrives at the receiving computer with double linefeeds after each line.

Solution – The problem is at your (sending) end. Check to see if you are in Chat mode (see K command in Secondary Command chapter). If you send a text file in the Standard transfer method with Chat mode ON, a linefeed is added after each carriage return of your file. Many computers automatically add a linefeed to each incoming carriage return, but others do not require linefeeds at all. "Dumb" terminals require that you send a linefeed after each carriage return.

Problem - While sending a file to another computer, the
transmission is stopped unexpectedly.

Solution - If you have not lost connection, the receiving
computer probably has sent the XOFF character to your
computer. AE PRO recognizes this and waits for the XON
character before resuming the transmission. Make sure
the file you are sending does not contain ^S characters.
If it does, the host may echo them back, and AE PRO may
"think" it received XOFF. The result is that your
transmission will "hang" indefinitely. To release this
hung state, manually send the XON character (^Q, or ^W^Q
if your Terminal Escape Key also is Control-Q; thus send
the Terminal Prefix Key, ^W, followed by the XON charac-
ter, ^Q). Pressing c/r will abort the send. Or, if you
are sending in prompt mode, the specified prompt was not
sent, or it became garbled on its way to your computer.
Try entering the expected prompt character.

9.4.   COMMAND PROBLEMS

Problem - You have entered an improper command or have
entered a command by accident.

Solution - Enter your Abort key (usually the ESCape key, but
definable in Install. See Advanced Install chapter.).

Problem - While on-line, you have entered AE PRO's Terminal
Escape Key (Control-Q) by accident.

Solution - Press the space bar to return to terminal mode.

Problem - You have manually entered the XOFF character
(Control-S) to stop the other computer momentarily, but
by entering what you thought was the XON character
(Control-Q) to resume the other computer's output, you
are placed, instead, at AE PRO's Command Level Prompt
(+>).

Solution - First, press the space bar to return to terminal
mode. To send the XON character (usually Control-Q),
you must enter AE PRO's Terminal Prefix Key (Control-W),
then the XON character (Control-Q). Thus ^W^Q (Control-
W, Control-Q) sends the XON character. Remember,
Control-Q alone is AE PRO's Terminal Escape Key.

Problem - The computer you are on-line with ignores AE PRO's
 Break key, ^W^B (Control-W, Control-B).

Solution - Listen to the phone line while you enter the Break
 key. If the Break is sent, you will hear a 1/4 to 1/2
 second shift of the tone. That Break, however, may need
 to be longer. Try lengthening the time of the Break in
 Install. (See Advanced Install chapter.)

10.   PART 2: AN INTRODUCTION

Part 2 is the more advanced course of AE PRO. It contains
explanations on many of the advanced and sophisticated fea-
tures that make AE PRO a truly professional communications
program.

Perhaps the most important topic in Part 2 is discussed in
the Advanced Install chapter. This chapter reveals many of
the behind-the-scenes workings of AE PRO and shows you how to
use the Install program to create your own customized AE PRO.

Advanced Install should be considered must reading. Even if
you don't have plans now to customize AE PRO, this chapter at
least will show you what the Install program and AE PRO
together can do for you. You are sure to discover features
that never occurred to you, and your new knowledge may in-
spire you to make AE PRO do even more than you ever imagined.

Beyond Advanced Install are chapters on the Editor, Macros,
Protocol Transfers, Unattended Operation and others. Not
only are these sophisticated features, but they are instru-
mental members of AE PRO's repertoire, and it's hard to
imagine anyone using AE PRO without .them.

Some of AE PRO's more technical aspects are found in the
chapters on Terminal Emulation, Interrupts and Modem Differ-
ences. You may not have use for these topics now, but again,
it may be helpful to know they exist and what they may afford
to you. In the least, you should read any special notations
on your modem in the Modem Differences chapter.

The topics discussed in Part 2 are:

    o Advanced Install
    o Editor
    o Macros
    o Macros and ASCII Modems
    o Protocol File Transfers
    o Unattended Operation
    o Terminal Emulation
    o Interrupts
    o Modem Differences

2. From your computer's prompt (], > or *), enter:

    ]BRUN INSTALL <c/r>

Install is designed to operate with your 4Ø-column Apple
display only, because during an installation process little
may be known about your hardware or configuration.

  NOTE: If you are using an 8Ø-column display when you
  call on Install, AE PRO displays:

        Running INSTALL (4Ø columns)
        Wait for beep - then press RESET

  After you hear the beep, and after the disk drive stops,
  press Reset. You will be placed at your computer's 4Ø-
  column display and the screen title page of Install,
  show below.

After Install has been executed (and after pressing Reset to
switch to 4Ø columns if you had to), Install displays:

                ASCII EXPRESS "THE PROFESSIONAL"
                    INSTALLATION PROGRAM
                    FOR AE VERSION 4.xx
                        (C) 1984 BY
                UNITED SOFTWARE INDUSTRIES

            CAN YOU DISPLAY LOWER CASE? (Y/N) _

This is the beginning of Install. It greeted you the first
time you ran AE PRO. As before, Install needs to know dis-
play characteristics of your display(s) before proceeding.
If you can display lower case characters on the display
device with which you will use AE PRO, whether Apple's 4Ø-
column display, an 8Ø-column board or an external terminal,
enter Y. If you cannot, enter N. Install displays:

            CAN YOU DISPLAY IT NOW? (Y/N) _

If your 40-column display uses an optional lower-case chip,
or if you are using an Apple //e or an Apple-compatible
computer that is capable of displaying lower case all the
time, enter **Y**. If you cannot display lower case now, enter
N. This question affects only the case display of Install's
menus. Install displays:

> Insert disk with file "AE". Press
> RETURN to continue or ESC to abort. _

The Install and AE PRO programs are packaged on the same side
of the disk, so you should be able to press c/r (RETURN) to
continue the Install process. There may be some instances
where the two programs are on different sides of a diskette.
If this is the case, insert the disk containing the file
"AE", then press c/r.

When the disk stops, Install displays its Main Install Menu:

> MAIN INSTALL MENU
> ------------------
>
>   C = Character suppression
>   E = Editor keys and parameters
>   F = Macro action characters
>   I = Install AE communication driver
>   L = Local console selection
>   P = Printer interface/driver select
>   T = Prefixed terminal keys
>   U = Unattended / remote parameters
>
>   1 = System defaults (menu 1)
>   2 = System defaults (menu 2)
>   3 = System defaults (menu 3)
>   4 = System defaults (menu 4)
>   5 = System defaults (menu 5)
>
>   A = Abandon install
>   R = Install another AE
>   S = Save changes and run AE
>   X = Save changes and remain in Install
>
>   Choice? _

The top group of options on the Main Install Menu contains
the major groups of special functions that you can define or
assign defaults.   Each selection has a submenu.

The middle group contains groups of conditions that you may
set as system defaults of AE PRO.   Each selection has a
submenu.

The last group contains options on how to save changes or
exit Install.

When you ran AE PRO the first time and Install was run auto-
matically, you had to choose your communication and console
devices.   Now (and each time you rerun Install) Install
bypasses those steps, but you can reselect those options from
the Main Install Menu.   They are:

              I = Install AE Communications Driver
              L = Local Console Selection

All of the Main Install Menu options can be entered at the
Choice? prompt.   When that selection's submenu is displayed,
you will have additional choices.

Many AE PRO and Install functions use a specific character to
perform a particular task.   When you select many of these
submenu options, Install displays:

          Current: $xx   New: _

This is Install's request for the specific character.   The
ASCII Hex value ($xx) of the current default character is
listed.   At the New: prompt, enter the character to be used
to perform that particular function.   Sometimes a c/r also is
required after entering your selection, depending on the
option.

If you are unable to enter a character that normally is not found on your keyboard, such as] (close square bracket), enter the ASCII HEX value ($xx) of that character, preceded by a dollar sign ($). Consult the ASCII Character chart at the back of this manual for proper HEX values. The ASCII character], for example, has a HEX value of $5D. Thus you enter $, followed by the ASCII HEX value, 5D.

If the Current character displayed is correct, press c/r alone.

To exit each submenu and return to the Main Install Menu, enter X.

11.2. MAIN INSTALL MENU DESCRIPTIONS

The following describe each selection and corresponding sub-menu of the Main Install Menu:

11.3. C = CHARACTER SUPPRESSION

When you enter C from the Main Install Menu, Install displays:

              CHARACTER SUPPRESSION

              Control characters to suppress:

              ^O ($ØF)   ^@ ($ØØ)
              ^# ($7F)

              A)dd   D)elete   Z)ero
              S)uppress all   e(X)it? _

These options allow you to define all unwanted incoming characters for AE PRO to suppress when receiving data from another computer. Characters defined here are discarded by AE PRO while in the terminal or macro modes. For example, ^N or ^O, which may cause specific actions with certain 80-column cards, such as selecting inverse video mode, or ^Q, which upsets the Apple //e text card and certain printers, may be defined as characters to be suppressed. AE PRO is packaged with ^O, Null (^@) and Rubout (^#) suppressed, but you can add or delete characters to these selections, or delete any or all of them.

11.3.1. A)dd characters

When you enter A)dd, Install displays:

          Char. to add to suppress table: _

Enter the character or the ASCII HEX value ($xx) of the character you want to add to the suppression table, then c/r.

11.3.2. D)elete characters

When you enter D)elete, Install displays:

          Char. to delete from suppress table: _

Enter the character or the ASCII HEX value ($xx) of the character you want to delete from the suppression table, then c/r.

11.3.3. Z)ero table

When you enter Z)ero, all characters on the suppression table are deleted. When you "Zero" the list, no characters are suppressed.

11.3.4. S)uppress all

When you enter S)uppress all, AE PRO suppresses all non-essential control characters from incoming data, except carriage returns, linefeeds not preceded by carriage returns, and backspaces. When all characters are suppressed, Install displays:

>   CHARACTER SUPPRESSION
>
>   Control characters to suppress:
>   [ALL]
>
>   U)nsuppress all e(X)it

11.3.5. U)nsuppress all

When you enter U)nsuppress, Install returns to the suppression table all characters that were displayed before you entered the S)uppress all command during the current Install session.

11.4. E = EDITOR KEYS AND PARAMETERS

When you enter E from the Main Install Menu, Install displays:

           EDITOR KEYS AND PARAMETERS

           A = Cursor forward 1 char......^D ($Ø4)
           B = Cursor forward 1 word......^F ($Ø6)
           C = Cursor back 1 char.........^S ($13)
           D = Cursor back 1 word.........^A ($Ø1)
           E = Cursor to line begin.......^X ($18)
           F = Cursor to line end.........^C ($Ø3)
           G = Edit Insert mode on/off....^V ($16)
           H = Edit mode prefix char......^P ($1Ø)
           I = Edit line recall char......^R ($12)
           J = Edit line delete char......^Z ($1A)
           K = Editor default line width........78

           X = Exit

           Choice? _

These options allow you to define the cursor control and
function keys used with the edit mode of AE PRO's Editor and
the macro editing mode. WordStar users will recognize most
of them.

We recommend that you keep these keys defined the way they
are for now. You may find later, after using them, that you
would prefer other characters to perform these functions, or
that you have to accommodate hardware limitations of certain
8Ø-column boards. For example, the function to move the
cursor back one word (^A) may conflict with certain 8Ø-
column board commands if 8Ø-column board firmware options are
selected in Install (System Defaults Menu 3).

Be careful not to give a second assignment to a key previous-
ly assigned. Some keys already assigned are:

>   Terminal Prefix Key (Control-W)
>   Terminal Escape Key (Control-Q)
>   User Abort Key (ESCape key)
>   Shift Toggle (ESCape key, if hardware shift option is
>   NOT selected in Install, System Defaults Menu 2)

Note that the Terminal Prefix Key (^W) for producing special
characters also is in effect in the edit mode and when re-
sponding to Prompt to look for? in a Standard file send, but
cannot be defined in this submenu. Do not assign ^W as a
editing function key unless you have redefined the Terminal
Prefix Key in System Defaults Menu 3 of the Install program.

When you select options from this submenu, Install displays:

>   Current: $xx   New: _

Enter the character for that particular function, or the
ASCII HEX value ($xx) as described previously.

11.4.1. A = Cursor forward one character

This character (default is ^D) moves the cursor forward one
character on a line, but does not erase the character at the
new position. If the cursor is at the end of line, it does
not move.

11.4.2. B = Cursor forward one word

This character (default is ^F) moves the cursor to the next
word or character sequence after the next space, but does not
erase any characters. If no spaces are left in a line, the
cursor moves to the end of the line.

11.4.3. C = Cursor back one character

This character (default is ^S) moves the cursor back one
character, but does not erase any character. If the cursor
is at the beginning of a line, it does not move.

11.4.4. D = Cursor back one word

This character (default is ^A) moves the cursor to the begin-
ning of the first word or character sequence that follows the
closest space to the left of the cursor, but does not erase
any characters. If no spaces precede the cursor on the line,
the cursor moves to the beginning of the line.

11.4.5. E = Cursor to line begin

This character (default is ^X) moves the cursor to the begin-
ning of the current line.

11.4.6. F = Cursor to line end

This character (default is ^C) moves the cursor to the end of
the current line.

11.4.7. G = Insert mode on/off

This character (default is ^V) toggles (ON or OFF) the Text
Insert mode. When ON and in the line edit mode, each charac-
ter entered is inserted before the character at the cursor
position. If OFF, each character entered at the cursor
overwrites the character at that position. If the cursor is
at the end of the current line, new text will be added re-
gardless of ON or OFF status of Insert.

When in Insert mode, AE PRO displays the Insert ON status above the line being edited. Toggling Insert in Edit mode, however, does not update the status line. Instead, one beep will indicate the changed status.

11.4.8. H = Edit mode prefix character

This character (default is ^P) allows you to enter any of the editor function characters as actual characters. The character immediately following this prefix character is taken literally. For example, if you wanted to enter a ^P into text, enter ^P^P. Another character that can be taken literally is ^W, which normally is AE PRO's Terminal Prefix Key. If you enter ^W without preceding it with ^P, you could enter one of the characters from the Substitution Table.

11.4.9. I = Edit mode line recall

This character (default is ^R) reinstates the line being edited to its original form when editing began. If you make a mistake while editing the line and would rather start over than fix it, enter this character.

11.4.10. J = Edit line delete character

This character (default is ^Z) deletes the line being edited. If you need to delete a complete line, for whatever reason -- perhaps because you want to start your input over -- enter ^Z. You may recall the original line with the line recall character (^R).

11.4.11. K = Editor default line width

The number at this setting is the default for the Editor's right margin. It can be changed from within the program anytime with the Editor's .M command or modified here.

When you enter K, Install displays:

>   Current: 78   New: _

Enter the number to set the right margin (default is 78) of
AE PRO's Editor, then c/r. If Current: is correct, press c/r
alone. The range of right margins is 1∅ through 25∅.

11.5. F = MACRO ACTION CHARACTERS

When you enter F from the Main Install menu, Install dis-
plays:

>   MACRO ACTION CHARACTERS
>
>   C = Slow speed character....... ? ($3F)
>   D = Delay character............ * ($2A)
>   H = Handshake request char..... % ($25)
>   I = Internal command char...... \ ($5C)
>   J = String search begin char... < ($3C)
>   K = String search end char..... > ($3E)
>   L = Literal send character..... @ ($4∅)
>   S = Macro CR character......... ' ($27)
>   T = Macro border char.......... | ($7C)
>   U = Macro conditional char..... ~ ($7E)
>   W = Wildcard handshake......... = ($3D)
>   X = Exit
>
>   Choice? _

These options allow you to define macro command characters.
These characters, when placed within a macro string, cause
AE PRO to perform particular functions. See the Macros chap-
ter for further explanation of how to use these characters.

NOTE: If you are operating Install in upper case only, an Apple II cannot display certain characters. These characters, instead, are displayed as their upper-case counterpart. The characters below on the left are displayed as their upper-case counterpart on the right.

```
{   =   [
|   =   \
}   =   ]
~   =   ^
```

If this is a display problem, you can assign another character for that macro command function. Be careful to select a character that will not be used in the contents of your macro strings.

When you select options of this submenu, Install displays:

        Current: $xx   New: _

Enter the character for that particular function, or the ASCII HEX value ($xx) as described previously.

11.5.1. C = Slow speed character

This character (default is ?), when placed as the first character of a macro string, directs AE PRO to execute the rest of the macro at approximately 1/3 of normal speed. If ? is not the first character of a macro, AE PRO regards it as ASCII text.

11.5.2. D = Delay character

This character (default is *), when placed in a macro string, directs AE PRO to wait approximately 1/2 second before resuming execution of the macro. You can enter this character in multiples for longer delays.

11.5.3.   H = Handshake request character

This character (default is %), when placed in a macro string, directs AE PRO to halt execution of the macro until it receives the character following the % in the macro string.

11.5.4.   I = Internal command character

This character (default is \), when placed in a macro string, directs AE PRO to take the next character(s) as an AE PRO internal command.   The various internal command characters are described in the Macros chapter.

11.5.5.   J = String search begin character

This character (default is <), when placed in a macro string, directs AE PRO to halt execution of the macro until it receives the exact string (word, phrase, or characters) following the < and preceding the >.   To perform this search function properly, this character must be used in conjunction with the > character, described next.

11.5.6.   K = String search end character

This character (default is >), when placed in a macro string immediately following a string to be searched, delimits the end of the string for which AE PRO waits before resuming output of a macro. It must be used in conjunction with the < character, described above.

11.5.7.   L = Literal send character

This character (default is @), when placed in a macro string, directs AE PRO to take the next character literally. Use this to send a character normally used as a command to AE PRO. For example, to send **Z**, enter **@Z** in the macro string. Thus this character allows you to place in a password string, for example, a character that normally would be a Macro Action character (?, *, Z, \, <, >, @, ', |, ~, =, or as defined in this section).

11.5.8.   S = Send macro carriage return

This character (default is ') , when placed in a macro string, directs AE PRO to send a carriage return. Carriage returns can be placed anywhere within a macro, providing the other computer can act upon it at that point.

AE PRO automatically assumes a c/r at the end of a macro string. If ' is the last character of a macro string, AE PRO suppresses the implied final c/r.

11.5.9.   T = Macro border character

This character (default is |) may be placed in a macro string to help you visualize the steps of a macro string. Do not place this character is a command sequence unless it plays a role in handshaking. AE PRO does not send the | unless preceded by the literal send character (@).

11.5.10. U = Macro conditional character

This character (default is ~), when placed in a macro string,
acts as a conditional handshake character and directs AE PRO
to take one of two possible steps, depending on which charac-
ter it receives. You would specify the two character possi-
bilities as ~xynz. If AE PRO received x, it would proceed
with the rest of the macro element after yn, in this case
resuming at z. If AE PRO received y, it would execute macro
element n. See further discussion in Macros chapter.

11.5.11. W = Wildcard handshake character

This character (default is =), when placed in a macro string,
directs AE PRO to halt execution of the macro until it re-
ceives an incoming character, regardless of what it is.

11.6. I = INSTALL AE COMMUNICATION DRIVER

When you enter I from the Main Install Menu, Install dis-
plays:

        COMMUNICATION DRIVERS

        1 Novation Apple CAT
        2 Hayes Assoc. Micromodem][
             Multi-Tech Modem II
        3 CCS 7710A/D or 7711
             SSM AIO, AIO II, ASIO
             Apple Comm-card or ALS Dispatcher
             Prometheus VersaCard
        4 Mountain Computer CPS
        5 ESI Lynx
        6 MPC Microconnection
        7 Apple Super Serial or Videx PSIO
             Basis 1Ø8 Microcomputer (Slot 1)
        8 INTRA PSIO Serial Card
        9 Apple /// Serial Port (Slot 7)
        10 BIT-3 Dual-Comm Plus
        11 SSM ModemCard
        12 MBI VIP Card
        99 Install "BDOS.xxxx" Driver
         X Exit to main Install menu

        Current Communication Selection: 1
        New or RETURN to retain Current: _

This submenu allows you to identify the communication device
installed in your computer. When you ran AE PRO the first
time, this was the first menu from which you had to choose.
At that time, the Current Communication Selection displayed
should have been Ø. Now your communication device is listed.

At the prompt, enter the number that represents your modem or
your modem's interface card. If the Current Communication
Selection is correct, press c/r alone. Install displays:

        Current Slot (Range 1-7): 2
        New or RETURN to retain Current: _

Enter the number of the slot in which your modem or modem interface card is installed. If the **Current Slot** is correct, press c/r alone. Install displays:

>   Are you sure? (y/n) _

If your selections for communications device and slot are correct, enter Y, then c/r. If they are not, enter N, then configure them correctly. When you enter Y, Install displays:

>   Insert disk with file "BDOS". Press
>   RETURN to continue or ESC to abort. _

The BDOS file is packaged on the same diskette side with Install and AE PRO, so you should be able to press c/r to proceed. There may be instances where BDOS is on another disk. If this is the case, enter that disk, then enter c/r. Install displays:

>   Installing Communications Driver!

Install writes the selected driver code into the AE PRO program and returns you to the Main Install Menu.

> NOTE: While using AE PRO, if you are unable to hang up or disconnect from the phone line, it may be because you are using a serial interface for your modem that does not support the DTR (Data Terminal Ready) circuit. Most cards, however, can be modified to support DTR if they don't already. See further details in the Modems Differences chapter.

11.7.   L = LOCAL CONSOLE SELECTION

CONSOLE TYPES

Ø = Auto
1 = Comm-card
2 = Apple Serial or 8Ø column card
3 = Type 6 (Pascal 1.1 standard)
4 = //e with Apple 8Ø column text card
5 = Omni-Vision 8Ø column card
6 = Force Apple 4Ø column screen
      Apple /// screen
7 = Basis 1Ø8 built-in 8Ø col. screen

X = Exit this menu

Current Selection: Ø   Slot: 3

Choice? _

This submenu allows you to identify the kind of console (display) device installed in your computer. AE PRO can identify most popular console devices (located in the specified slot, below) automatically at run-time, including Apple's 4Ø-column screen, 8Ø-column cards and external terminals. The Auto, Ø, option sets the automatic mode and should be selected, unless you are using an Apple //e (option 4) or an Apple /// screen (option 6).

NOTES: With the exception of the Apple //e and Apple /// displays, you should not select an option other than Ø unless, after running the program, AE PRO cannot identify your console device (symptoms may be a display that is split or that appears "frozen").

One other immediate exception is if you want to use Apple's 4Ø-column screen even though you have a console card in slot 3, you must choose option 6.

At the **Choice?** prompt, enter the number that represents your console device. To retain the **Current Selection**, press c/r alone. (See descriptions of options ∅ through 7 below.) Install displays:

>   Slot of console device (1-7)?
>   Current: 3   New: _

Enter the number of the slot your console device is in, then c/r. If the **Current** listing is correct, press c/r alone.

In rare cases, you may have to set AE PRO for a specific device regardless of what it thinks it finds. This might occur with a new card that it may not be able to identify correctly. If this is the case, select the number that corresponds to your type of console device (see below). In all cases, if no card is in the specified slot, all output goes to the 4∅-column display, regardless of what option you may have selected.

> **∅. Auto.** This selects AE PRO automatic identifying mode. AE PRO automatically configures itself to your console device card in the specified slot. **Do not use this for an Apple //e (use option 4 described below) or an Apple /// (use option 6 described below).**

> **1. Comm-card.** This selection encompasses all cards using a 685∅ chip, such as SSM AIO, CCS 771∅, Apple Comm-card (including those modified for higher baud rates). These may be used for external terminal drivers and can be set to as high as 19.2K baud. AE PRO does not use these cards' firmware, except for identification.

> **2. Apple Serial Card or 8∅-column board.** Selects a standard serial type of card. The Apple Serial Card itself is not recommended for this choice because it operates only in half duplex (send or receive, but not both simultaneously). Most older 8∅-column boards are supported here: M&R's Sup-R-Term with version 2.2 firmware or older and the Videx Videoterm with version 2.2 firmware or older. All these cards, however, are recognized by the auto (∅) option.

3. Special firmware mode. This is for Type 6 Firmware, a firmware protocol developed by Andy Hertzfeld of Apple Computer, Inc. It is used by most of the newer display cards: Videx Videoterm with 2.3 firmware or newer, M&R Sup-R-Term with 2.5 firmware or newer, ALS Smart-term II, Videx Ultraterm and many others.

> NOTE: AE PRO will automatically configure itself for the display cards listed in options 2 and 3 when the ∅ option is selected.

4. //e with Apple 8∅ column text card. This option installs special high speed drivers for this card. Baud rates of up to 48∅∅ may be used with most modem interfaces. The //e's 8∅-column card also can be treated as options ∅ or 6, but with significantly degraded performance. **Option 4 must be selected for best results.**

5. Omni-Vision 8∅ column card. AE PRO cannot recognize this type of card because it does not have built-in firmware. Selecting this option installs special drivers unique to Double-Vision and Omni-Vision cards.

6. Force Apple or Apple /// 4∅ column screen. This option directs AE PRO to disregard another console device that may be installed and force a 4∅-column display. This is the only suitable option for an Apple /// in emulation mode.

7. Basis 1∅8. The Basis 1∅8's 8∅-column screen does not support ASCII control codes for direct cursor movement or screen control. This is the only option to use unless a separate 8∅-column card is installed in slot 3. Option 7 also selects certain keyboard options unique to the Basis computer.

11.8.   P = PRINTER INTERFACE/DRIVER SELECT

When you enter **P** from the Main Install Menu, Install displays:

```
PRINTER SETUP

A = Printer Msg. Terminator....^@ ($ØØ)
H = Hi bit sent to Printer..........OFF
I = Install Printer Driver............Ø
   Ø = Auto
   1 = User routine (PRINTER.USER.xxxx)
   2 = Comm-card type
   3 = Apple Serial card
   4 = Apple Parallel card
        Basis 1Ø8 parallel port (Slot 1)
   5 = TYPE 6 (Pascal 1.1 standard)

L = Line feed strip (Y/N)............NO
P = Message:
S = Printer interface slot............1

X = Exit


Choice? _
```

This submenu allows you to define most aspects of standard printer operation.

11.8.1. A = Printer message terminator

This character (default is ^@ -- Control-Shift-P in an Apple][or Apple][Plus; Control-Shift-2 in an Apple //e), when entered, exits the Printer message string mode (see **P = Message**, below). By using a character other than the carriage return (^M) to exit the printer message string, you can enter carriage returns within the string if required. You must be able to enter this character on your keyboard, just as with any other string entry mode in Install.

11.8.2. H = Send Hi bit to printer

Entering H toggles (ON or OFF) whether AE PRO sends the High
bit of each character to the printer. The ASCII alphabet
uses seven of the eight possible data bits that form patterns
for each byte of data. The eighth (or High) bit is used to
signal some printers to enter or exit a special print mode.
Usually this bit is set to OFF. Consult your printer or
interface card manual for further information. If still in
doubt, leave it OFF.

11.8.3. I = Install printer driver

When you enter I, Install displays:

               Current: X   New: _

This option allows you to choose one of six printer driver
categories listed under this selection of the Printer Setup
menu. The options are:

               Ø = Auto
               1 = User routine (PRINTER.USER.xxxx)
               2 = Comm-card type
               3 = Apple Serial card
               4 = Apple Parallel card
                   Basis 1Ø8 parallel port (Slot 1)
               5 = TYPE 6 (Pascal 1.1 standard)

AE PRO can identify many popular printer interface cards
(located in the specified slot, S option below) automatical-
ly. The Auto, Ø, option sets the automatic mode and should
be selected first, unless you are certain that you must
select another option, such as for the PRINTER.USER FIRMWARE
driver (described below) for a specific printer.

To retain the Current: Ø setting, press c/r alone.

There are many printer interface cards for the Apple. Some
of them may not be compatible with the more popular card
addressing techniques. This is not to say that these cards
are in any way inferior. AE PRO supports the major groups of
printer drivers. Cards not listed may or may not work cor-
rectly. AE PRO's Utilities disk contains PRINTER.USER files.
Catalog the disk, and if a file for your printer is listed,
select it with option 1 below. If your printer is not list-
ed, see the Advanced Programming chapter to create a printer
driver (or contact us first to see if a PRINTER.USER file is
available for your card).

Ø = Auto. This selects AE PRO's automatic identifying
mode. AE PRO automatically identifies your printer
interface card in the specified slot, including most
cards that fall into categories 2 through 5.

1 = User routine (PRINTER.USER.xxxx). To install a cus-
tom printer driver, enter 1. Install instructs you to
insert the disk containing PRINTER.USER files (the
Utilities side of the AE PRO disk) into the logged
drive, then displays:

Filename: PRINTER.USER._

Enter the name of your printer if listed as a
PRINTER.USER file on the Utilities disk, then c/r.
Install loads that file and configures AE PRO for your
printer. To abort this option, press c/r alone.

2 = Comm-card type. This option is for an interface
card that uses a 685Ø chip. Some examples are the SSM
AIO and ASIO boards, the CCS 771Ø series, the MPC Serial
card, and the standard Apple Communications card modi-
fied as a printer driver. AE PRO does not use the
firmware on these cards.

3 = Apple HS Serial card. This option is for the Apple
High Speed Serial card only. AE PRO uses some of this
card's firmware, but not for linefeeds or handshaking.

4 = Apple Parallel card / Basis 1Ø8 parallel port. This
is probably the most popular, as well as most copied,
interface. Most low-cost parallel printer cards fall
into this category. Included are: Microtek, MPC and
Epson parallel cards and many others.

5 = TYPE 6 (Pascal 1.1 standard). This selection is for
any card that uses Type 6 Firmware protocol. Included
are the Apple SSC board, the GRAPPLER, the Micro-Buffer
and others.

11.8.4. L = Linefeed strip

Entering L toggles (YES or NO) whether AE PRO strips (dis-
regards) incoming linefeed characters. Normally, AE PRO
passes linefeeds to the printer at all times. This default
is usually independent of printer interface options, but is
dependent on printer switch settings.

If your printer gives double-linefeeds all the time when
driven by AE PRO, set this default to YES. Otherwise, always
set it to NO.

11.8.5. P = Printer message

When you enter P, Install displays:

        Current printer setup message:

        Enter new message or RETURN:

If you need to send your printer a series of initialization
characters, perhaps to change to a condensed type or a bold-
face type, enter them here. These should not include se-
quences that are designated as firmware initialization, such
as those beginning with ^I (^I8ØN, ^IK, etc.), unless you are
using the PRINTER.USER FIRMWARE driver.

Enter the message string, or press c/r alone to exit this
option. You can enter any control characters from your
keyboard. When you have finished, exit the message mode with
the Printer Message Terminator character listed at the A
option above.

Each time you enable your printer from within AE PRO, these
initialization characters are sent.

To clear the printer message, enter the message-terminating
character listed at the A option as the only character.

11.8.6. S = Printer interface slot

When you enter S, Install displays:

                Ø   No printer installed
                1-7 Printer interface slot

                Choice? Ø _

Enter the slot number that your printer interface card is in,
usually 1. If you do not have a printer card, select Ø.

11.9. T = PREFIXED TERMINAL KEYS

When you enter T from the Main Install Menu, Install dis-
plays:

PREFIXED TERMINAL KEYS

Prefixed key	Output character
, ($2C)	[($5B)
. ($2E)	] ($5D)
^O ($ØF)	^_ ($1F)
O ($4F)	_ ($5F)
/ ($2F)	\ ($5C)
? ($3F)	^] ($1D)
^H ($Ø8)	^# ($7F)
^# ($7F)	^H ($Ø8)
! ($21)		($7C)
= ($3D)	~ ($7E)
(($28)	{ ($7B)
) ($29)	} ($7D)
' ($27)	^\ ($1C)

A)dd D)elete e(X)it? _

These options allow you to produce ASCII characters that
normally cannot be typed on some keyboards, such as ~, {, }
and |. AE PRO allows you to type these characters and others
with help from its Terminal Prefix Key (default is ^W, but
you can assign another key to it in System Defaults, Menu 3).

> NOTE: The Apple //e, Basis 108 and Franklin computers
> don't need to use this option because their keyboards
> contain a full complement of ASCII characters.

In the prefix table, the characters in the right column can
be produced from your keyboard by entering the Terminal
Prefix Key (^W) followed by the character in the left column.
Thus ^W, (Control-W, comma) produces [.

NOTE: If you are operating Install in upper-case display only, your Apple II cannot display certain characters. These characters (in left column, below) are displayed as their upper-case counterpart:

$$\{ \quad = \quad [$$
$$\} \quad = \quad]$$
$$| \quad = \quad \backslash$$
$$\sim \quad = \quad \hat{}$$

If you use an upper-case-only Apple II 4Ø-column display, you still can produce {, }, ~ and |, but they won't be displayed properly.

You can assign a maximum of 16 characters to be produced with the Terminal Prefix Key (^W). AE PRO is packaged with the above defaults, but you can make substitutions here anytime.

11.9.1. A)dd Character

When you enter A)dd, Install displays:

    Prefixed Key: _

Enter the keyboard character you will type after the Terminal Prefix Key (^W) to produce the new character, then c/r. Install displays:

    Output Character: _

Enter the character you want to produce with the ^W sequence, or the ASCII HEX value ($xx) of that character, then c/r. Install returns you to the table and includes your selection.

11.9.2. D)elete Character

When you enter D)elete, you can delete a character from the above table using the same method as with the A option above. If no match is found, Install ignores your request. Install returns you to the table, minus your deletion.

11.10.   U = UNATTENDED REMOTE PARAMETERS

When you enter U from the Main Install Menu, Install displays:

               UNATTENDED/REMOTE PARAMETERS

               C = Ring count before answer.........1

               D = Unattended answer on boot.......NO
               O = On-line run (see manual)........NO

               R = Remote password: .AE.
               S = Slots remotely accessible:
                   4 5 6
               W = Read Welcome file in remote....YES

               X = Exit

               Choice? _

This submenu allows you to define very important aspects of
unattended remote use of AE PRO. How you set these options
determines the degree of access for an outside caller, or the
way AE PRO operates as a Turnkey system.

11.10.1. C = Ring Count Before Answer

When you enter C, Install displays:

               Current: 1   New: _

Enter the ring count on which you want AE PRO to answer a
call. Valid numbers are 1 through 9.

11.10.2. D = Unattended Answer On Boot

Entering D toggles (ON or OFF) whether AE PRO defaults to the Auto-Answer (+ command) mode when booted. This option can be used only with an internal modem that can answer an incoming call, or with an external modem that can answer independently of your computer and control the DCD (data carrier detect) line to indicate carrier.

When ON, any other default parameters, such as baud rate and data word format, will be in effect, as will other run-time options, such as Answer-back. See the Unattended Operation chapter for further details.

11.10.3. 0 = On-line Run

Entering O toggles (ON or OFF) whether AE PRO can be run remotely from another program that currently is on-line. AE PRO can be run from communications programs such as ONLINE or PMS and others, but will retain an on-line status only if this option is ON.

When ON, this option also turns ON the **Unattended answer on boot** option (D, above). When AE PRO is run from another on-line program, it immediately will enter at its Remote Command Prompt ((>)). The caller then would have the standard operating functions normally available at this prompt. When carrier is lost, or AE PRO times out because of a caller's inactivity, it will hang-up and EXEC the file "AEX" and exit. It then may rerun the program that called it.

Additional programming must be done for this option to work correctly. See the Advanced Programming chapter for further details. Also, see the description of the Read Welcome file option, below.

11.10,4. R = Remote Password

When you enter R, Install displays:

New password: _

Enter the sequence of characters (the password) a caller must
enter to gain access to your computer. All alphanumeric
characters, including control characters, are legal, except
^M (c/r), ^H (backspace) and ^J (linefeed). You can enter a
maximum of six characters, and the case of alpha characters
is unimportant. To save your password, press c/r.

When AE PRO receives a call in unattended mode and detects
carrier, it displays to the caller:

Entry: _

To gain access to your computer, the caller must enter the
exact password. AE PRO ignores the caller unless the exact
characters are entered. If the number of characters entered
exceeds 20, or if a total of five retries are entered, AE PRO
hangs up. These characters are not echoed to the caller.

11.10.5. S = Disk Slots Remotely Accessible

When you enter S, Install displays:

Change Slot (1-7): _

Enter the slot or slots of your computer to which a remote
caller can have access. Install will list it in this menu
under the S option. If a caller enters a command involving
an unlisted slot, AE PRO ignores it. To delete a slot from
the listing, enter that number, and Install will remove it.

11.10.6. W = Read Welcome File in Remote

Entering W toggles (YES or NO) whether AE PRO displays to a
remote caller a "Welcome" file upon successful log-on.

When this option is set to YES, AE PRO displays the ASCII
text file "AE.WELCOME", if it is on the same side of the
diskette with the AE PRO program.   "AE.WELCOME" may be
created with AE PRO's Editor, or with a compatible 7-bit
ASCII text editor or word processor.   It may contain any
message with which you may want to greet callers.   The
length of the file is limited only by disk space, although a
lengthy message may be an annoyance to some callers.   The
only prerequisite is that the filename be "AE.WELCOME".   A
sample "AE.WELCOME" file is included on the disk.

When the welcome message has been displayed, AE PRO proceeds
to its Remote Command Prompt ((>)).   If "AE.WELCOME" is not
found, AE PRO bypasses the message step and proceeds to the
(> prompt.

When this option is set to NO, AE PRO bypasses the welcome
message, regardless of whether a "AE.WELCOME" file is on
disk, and immediately proceeds to the (> prompt.

See the Unattended Operation chapter for more information.

11.11. SYSTEM DEFAULT MENUS

The five System Default menus below contain the run-time
default conditions of many AE PRO commands, options and
parameters.

Any of the values in these five default menus that also can
be controlled by a macro file may be superseded by that macro
when loaded or executed.

11.12. 1 = SYSTEM DEFAULTS (Menu 1)

When you enter 1 from the Main Install Menu, Install dis-
plays:

        SYSTEM PARAMETERS MENU 1

            B = Auto-disconnect...................ON
            C = Copy.............................OFF
            D = Duplex..........................FULL
            E = Emulation........................ON
            F = Data word format................8N1
            G = Screen formatting...............OFF
            H = Chat............................OFF
            I = Baud rate.......................300
            J = Apple CAT using aux port........NO
            K = Keyclick........................OFF
            L = Hang-up delay (1Ø=1 sec.).........2
            N = XON character..............^Q ($11)
            O = XOFF character.............^S ($13)
            P = Printer.........................OFF
            S = Control-show....................OFF
            T = Transpose ^H/RUB...............OFF

            X = Exit

        Choice? _

11.12.1. B = Auto-disconnect

Entering B toggles (ON or OFF) the run-time default of the Auto-disconnect command (:).

11.12.2. C = Copy

Entering C toggles (ON or OFF) the run-time default of the Copy command (R).

11.12.3. D = Duplex half/full

Entering D toggles (HALF or FULL) the run-time default of the Duplex command (E).

11.12.4. E = Emulation

Entering E toggles (ON or OFF) the run-time default of the Emulation command ($).

11.12.5. F = Data word format

When you enter F, Install displays:

Ø	7 Bits + Even Parity + 2 Stop
1	7 Bits + Odd Parity + 2 Stop
2	7 Bits + Even Parity + 1 Stop
3	7 Bits + Odd Parity + 1 Stop
4	8 Bits + 2 Stop (no parity)
5	8 Bits + 1 Stop (no parity)
6	8 Bits + Even Parity + 1 Stop
7	8 Bits + Odd Parity + 1 Stop

        Currently: #5   New: _

This selection determines the run-time default data word format (word length, parity and number of stop bits) for your modem.

Enter your choice of data word format. Install returns you
to Menu 1 and displays your selection. If the current choice
is acceptable, press c/r alone. 8N1 is normally standard and
should be tried first. Other popular settings are 7E1, 701,
or 7E2 for 110 baud.

11.12.6. G = Screen format default

Entering G toggles (ON or OFF) the run-time default of the
Screen Format command (Z).

11.12.7. H = Chat

Entering H toggles (ON or OFF) the run-time default of the
Chat command (K).

11.12.8. I = Baud Rate (0-8)

When you enter I, Install displays:

0 = Deaf (45.5 BAUDOT)		4 = 300
1 = 50		5 = 1200
2 = 75		6 = 2400
3 = 110		7 = 4800
		8 = 9600

         Current: 4   New: _

This selection determines the run-time default of the baud
rate for your modem. All baud rates displayed may not be
supported by all modems or interfaces. Consult the manual of
your modem or interface for valid baud rates.

Enter your choice of baud rate. Install returns you to Menu
1 and displays your selection. If the Current choice is
acceptable, press c/r alone.

11.12.9. J = Apple CAT using AUX port

Entering **J** toggles (YES or NO) the run-time default of the Apple-Cat Port Switch command (^) if a Novation Apple-Cat modem is installed. (This command is not displayed if an Apple-Cat is not installed.) NO means AE PRO uses the internal hardware modem. YES means AE PRO directs all input and output through the external port. See an explanation of the Apple-Cat port in the Modem Differences chapter.

11.12.10. K = Keyclick

Entering **K** toggles (ON or OFF) the run-time default of the Keyclick command (").

11.12.11. L = Hang-up delay

When you enter **L**, enter the number to represent the interval AE PRO takes to complete a hang-up process. Most modems will not need this option because they disconnect from the phone line immediately when the signal from the DTR (Data Terminal Ready) serial interface circuit is dropped.

A few modems, such as the SSM Transmodem, may require a slight delay to completely disconnect from the line. If your modem supports DTR, but does not disconnect immediately from the phone line when you issue the Hang-up command (H), you may need to adjust this delay option accordingly. A value of 10 is equal to one second. Valid numbers are 0 through 255. See further discussion in the Modem Differences chapter.

11.12.12. N = XON character

When you enter **N**, Install displays:

                Current: $11   New: _

This option sets the run-time default XON character.

AE PRO uses the XON character during Auto-save and receive mode to direct the host computer to resume sending after AE PRO had stopped it with the XOFF character, described next. The conventional XON character is ^Q (Control-Q).

Enter the character to represent the XON character, or ASCII HEX value ($xx) of the character as discussed previously. Install returns you to Menu 1 and displays your selection. If the **Current** choice is correct, press c/r alone.

11.12.13. O = XOFF character

When you enter O, select the run-time default XOFF character. AE PRO uses the XOFF character during Auto-save and receive modes to stop the host computer from sending. The conventional XOFF character is ^S (Control-S).

AE PRO sends these XOFF and XON characters to a host computer to direct it to stop sending (XOFF) when AE PRO's printer or interrupt buffers become full and to direct the host to resume sending (XON) when the buffers can accept more data. Additionally, AE PRO responds to these XON and XOFF characters from the host computer during the ASCII send mode. See the S (Send File) command in the Main Commands chapter.

11.12.14. P = Printer mode

Entering **P** toggles (ON or OFF) the run-time default of the Printer command (P).

11.12.15. S = Control-show

Entering **S** toggles (ON or OFF) the run-time default of the Control-show command (A).

11.12.16. T = Transpose ^H/RUB

Entering **T** toggles (ON or OFF) the run-time default of the Transpose command (T).

11.13. 2 = SYSTEM DEFAULTS (Menu 2)

When you enter 2 from the Main Install Menu, Install displays:

```
              SYSTEM PARAMETERS MENU 2

              B = Prefixed break key.........^B ($02)
              C = Break send time.............300ms
              D = Dial mode...................TONE
              E = Screen clear character.....^L ($0C)
                     Lead-in char.............NONE
              F = Screen clear delay...............0
              G = Backspace key..............^H ($08)
              H = Copy on character..........^@ ($00)
              I = Copy off character.........^@ ($00)
              J = Literal send mode.................ON
              K = Keyclick duration................20
              L = Pre-sub case insensitive........YES
              N = Forward arrow sends........^U ($15)
              Q = Brief message mode..............OFF
              S = Shift key hardware mod...........NO
              V = View speed........................4
              W = Screen formatting width.........79
              Y = Format type (Truncate/Wrap).......W

              X = Exit

              Choice? _
```

For many of these options, Install displays:

    Current: $xx   New: _

Enter a character or the ASCII HEX value ($xx) of that char-
acter, then c/r. Install returns you to Menu 2 and displays
your selection. If the **Current** character is correct, enter
c/r alone.

11.13.1. B = Prefixed break key

When you enter **B**, enter the character to represent the BREAK
character (default is ^B). The BREAK character is the second
of a two-keystroke sequence typed in AE PRO's terminal mode.

A BREAK signal normally is sent to a host computer to indi-
cate that you want to abort, or "break", the process current-
ly being performed. The result of a BREAK, however, depends
on how the host computer is set to react to it.

To send a BREAK, enter the Terminal Prefix Key (default is
^W), then the BREAK character. Thus ^W^B (Control-W, Con-
trol-B) in terminal mode sends a BREAK.

11.13.2. C = BREAK send time

When you enter **C**, Install displays:

    Current: 3   New x 100 ms: _

Enter the number that, when multiplied by 100, produces the
length of your BREAK signal in milliseconds. The standard
BREAK time is 250ms, but some computers may require a BREAK
as long as 500ms (1/2 second). Try the BREAK as packaged
(300ms) first. If you think it is not working reliably with
a particular computer, adjust it accordingly.

11.13.3. D = Dial mode default

Entering **D** toggles (TONE or PULSE) the run-time default
dialing mode of your Novation Apple-Cat or other Touch-Tone
dialing modem.

11.13.4. E = Screen clear characters

When you enter **E**, Install displays:

>   Current: $ØC   New: _

Enter the correct single character or second character of a
two-character sequence that clears your display (default is
^L). Install displays:

>   Do you need a lead-in char.? _

If you do not need a lead-in character to work with the clear
screen character, enter **N** (No). Install returns you to Menu
2 and displays your selection.

If you need a lead-in character, enter **Y**. Install displays:

>   Current: $ØØ   New: _

Enter the first of a two-character sequence to represent the
lead-in character (default is ^@, or none), then c/r.
Install returns you to Menu 2 and displays your selections.

> NOTE: These clear screen characters serve a different
> purpose than the similar function in the Terminal emula-
> tion table. The emulation table converts incoming char-
> acters to those required by your display device.
> AE PRO uses these clear screen characters to clear the
> local screen only for internal operations such as dis-
> playing a command menu.

The actual screen clear character or sequence serves an additional function if you use AE PRO in the 40-column display mode. When received in terminal mode, it will cause your screen to clear. The Apple 40-column screen uses ^L for this purpose.

11.13.5. F = Screen clear delay

When you enter **F**, Install displays:

              Current: 0   New: _

Enter the number corresponding to a delay in milliseconds (default is 0) after a clear screen character, then c/r. If the **Current** value is acceptable, press c/r alone. Install returns you to Menu 2 and displays your selection.

Some external terminals may require a small "settling" time after a clear screen before they can accept further data accurately.

11.13.6. G = Backspace character

When you enter **G**, enter the character to represent a backspace (default is ^H), then c/r. Install returns you to Menu 2 and displays your selection.

When you send this character to your display device, the cursor moves back one space, but does not erase the character at the new cursor position. Do not confuse this with the left-arrow key on your keyboard. That always will be the backspace key. Very few terminals require a character other than ^H to perform this action. **Do not** change this character for local 40- or 80-column usage.

11.13.7. H = Copy ON character

When you enter **H**, enter the character that, when received in
terminal mode, turns ON AE PRO's copy buffer (default is ^@
-- disabled), then c/r. Install returns you to Menu 2 and
displays your selection. The conventional Copy ON character
is ^R.   AE PRO is packaged with this option disabled, how-
ever, to prevent a host computer from controlling AE PRO's
copy buffer without your "consent". To enable this function,
redefine this character to ^R.

11.13.8. I = Copy OFF character

When you enter **I**, enter the character that, when received in
terminal mode, turns OFF AE PRO's copy buffer (default is ^@
-- disabled), then c/r.   Install returns you to Menu 2 and
displays your selection. The conventional Copy OFF character
is ^T. As with the Copy ON character, AE PRO is packaged
with this option disabled. To enable this function, redefine
this character to ^T.

11.13.9. J = Literal send mode

When you enter **J**, you toggle (ON or OFF) the run-time default
of the Literal Send Mode.   When this option is ON, AE PRO
sends blank lines literally during a non-protocol send. When
this option is OFF, AE PRO converts a blank line (c/r alone)
to space-c/r.

Some computers take a blank line as a command.   During a
standard file send, if a blank line is sent and Literal mode
is ON, the host computer may change data modes, which may
result in loss of data.   Examples are The SOURCE Editor and
many bulletin board systems in the message entry mode.

The setting of this mode does not modify the appearance of
the text.

11.13.10. K = Keyclick duration

When you enter K, Install displays:

            Current: 20   New: _

Enter the number to represent the duration of AE PRO's key-
click sound, which is emitted from your Apple's speaker, then
c/r. The effective range of numbers is 1 through 40. The
higher the number, the longer (or apparently louder) the
duration of the click.

11.13.11. L = Pre-sub case insensitive

Entering L toggles (YES or NO) AE PRO's case insensitivity to
prefixed characters. "Pre-sub case insensitive", or Prefixed
Substitution Character Case Insensitivity, determines whether
AE PRO ignores character case when a prefixed character is
typed. Prefixed characters are those characters, defined in
the Prefixed Terminal Keys section of Install, that are
produced with help from the Terminal Prefix Key (^W). For
example, if you define ^WA to send ^A, this option determines
if you must type a capital A after ^W, or if character case
is ignored. If YES, you can type the A in either case. If
NO, you can enter only an upper case A (in this example) to
send the prefixed character. In other words, if this option
is set to NO, you must type the case of the character exactly
as defined in the Prefixed Terminal Keys section of Install.

11.13.12. N = Forward arrow sends

When you enter M, enter the character to send when you press
the forward arrow key (default is ^U) on your keyboard. This
actually redefines the ^U character, not the forward-arrow
key, which is hardwired to produce ^U. (Also see the G
option of System Defaults Menu 3.)

11.13.13. Q = Brief AE PRO

Entering Q toggles (ON or OFF) the run-time default of the Brief command (#).

11.13.14. S = Shift key hardware modification

Entering S toggles (YES or NO) whether you have a shift key modification in your Apple. You can convert the "shift" key of your Apple II to work the way a shift key does on a typewriter, thus producing upper-case characters from lower-case mode: connect a wire from pin 24 of your Apple II keyboard's piggyback board (Revision 7 Apples and newer) to pin 4 of the game I/O connector. This jumper wire normally is used with an 80-column card, but also can be used with the Apple 40-column display to allow AE PRO to use the Apple shift key for case shifting. For an Apple //e, Basis and Frankling computer, this option must be set to yes.

11.13.15. V = View Speed

When you enter V, Install displays:

        Current: 4   New: _

Enter the number of the default view speed of all commands that display text on your monitor, then c/r. The view speed can be adjusted during a viewing command with the unshifted < and > keys. Commands affected are View Buffer (V), View Disk File (J) and the list command (.L) within AE PRO's Editor. Its range is from 0 to 14, with 0 being no delay or the fastest view speed.

11.13.16. W = Screen formatting width

When you enter W, Install displays:

           Current: 79   New: _

Enter the margin number of the forced width (default is 79)
of the display device when the Screen command (Z) is ON. Use
this option for terminals or 8Ø-column boards that cannot
perform their own screen wrap if a line exceeds its screen
width. See the Format Type (Y) option below.

11.13.17. Y = Format Type (Truncate/Wrap)

Entering Y toggles (TRUNCATE or WRAP) the default Format
mode.

The setting of this option is enabled only when the Screen
Format command (Z) is ON. This option can be useful for
display devices that may not be able to perform line wrap,
or, in rare cases, when receiving data at 12ØØ baud or higher
without interrupts and a display device's processing would
cause data to be lost.

When this option is set to T (Truncate), AE PRO discards
display characters that exceed the right margin set by the
Format Width (W) option above. This would be useful in the
rare instance of receiving data at a high baud rate without
interrupts and the time a display device would take to wrap
lines exceeding its right margin would cause data to be lost.
With Truncate, AE PRO discards characters (on the display
only) that exceed the right margin. All data, however, will
be received intact in the data buffer.

When this option is set to W (Wrap), AE PRO automatically
issues a carriage return at the (W) Format Width above. This
would be useful with a display device, such as the ALS Smart-
term, that does not scroll automatically when characters
exceed the right margin.

11.14.   3 = SYSTEM DEFAULTS (Menu 3)

When you enter 3 from the Main Install Menu, Install displays:

```
SYSTEM PARAMETERS MENU 3

B = Beeps after connect.................3
C = Case toggle key............^[ ($1B)
E = Terminal escape key........^Q ($11)
F = 8Ø col. firmware function.......YES
G = Deaf letter set key........^U ($15)
H = Videx Enhancer installed.........NO
I = Half-duplex auto line feed.......NO
J = Program run from hard disk.......NO
K = Expand tabs.....................YES
R = Block mode send rate..............Ø
S = Send LINE delay (x1ØØms.).........Ø
T = Terminal prefix key........^W ($17)
U = XON/XOFF flow control...........YES
V = No. times to send XON/XOFF........1
W = Ack/Enq protocol.................NO

X = Exit

Choice? _
```

11.14.1. B = Beeps after connect

When you enter B, Install displays:

```
Current: 3                 New: _
```

Enter the number of beeps you want AE PRO to sound (default
is 3) on your computer after making connection with another
computer during auto-redial, then c/r. If the Current number
is acceptable, or you don't plan to use this option, press
c/r alone.

This option is used by AE PRO only when you select the Dial
command (D) plus an auto-redial subcommand (either /x or //).
Use the auto-redial to try to connect with a computer that
may be busy frequently. When connection is made, AE PRO
sounds the number of beeps you specify. Valid numbers are Ø
through 255. If you specify a high number of beeps, you may
abort the beeping by pressing any key.

11.14.2. C = Case toggle key

When you enter C, enter the character to be the upper- and
lower-case toggle key (default is ^[, ESCape) when in the 4Ø-
column mode of AE PRO, then c/r. Lower case is the starting
default. When you press this key once, the next character
only is entered in upper case. If you press this key twice
in a row, it acts as a shift lock. When you press this key
once again, you are returned to lower case. We recommend the
ESCape key for this toggle. Also see discussion for the 8Ø-
column board firmware option (option F) below.

> NOTE: This assignment may conflict with the User Abort
> Key (A option of Menu 4). It will supersede the Abort
> Key option when a lower-case entry is possible.

11.14.3. E = Terminal Escape Key

When you enter E, enter the character to be the Terminal
Escape Key (default is ^Q), then c/r. The Terminal Escape
Key is used to leave the host computer temporarily to perform
various AE PRO commands, such as turning the Copy Buffer (R)
or Printer (P) ON or OFF, or checking program status (!).
When you enter the Terminal Escape Key from terminal mode,
AE PRO places you at its on-line Command Level Prompt (+>).
The complete key sequence to turn ON the Copy Buffer, for
example, is ^Q^R.

11.14.4. F = 80-column board firmware

Entering F toggles (YES or NO) whether firmware in your 80-
column board processes characters entered from your Apple
keyboard. If you do not want to use some of the features of
these boards, set this option to NO. Bypassing the firmware
of your 80-column board also bypasses shifting and conversion
capabilities, as well as board firmware trapping certain
characters, such as ^A or ^N. Instead, AE PRO processes
these characters according to its shift mode and shift toggle
options. When this option is set to YES, AE PRO operates
with all "features" of an 80-column board in effect.

Overall, you have three options from which to choose in
Install when configuring AE PRO for case-shifting. Your
options from Systems Defaults Menu 3 are:

    Option C = Case toggle key
    Option F = 80-column board firmware

Additionally, you have one option in System Defaults Menu 2:

    Option S = Shift key hardware mod

Options S and C are used together. If you are using a 40-
column screen and S is set to ON, AE PRO assumes your shift
key has been electrically connected to the game port in the
way that is used by most 80 column boards. This allows true
shift key operation for upper and lower case. Shift lock
will then be accomplished by typing shift-escape.

If S is OFF, AE PRO assumes it will do the case conversion
itself, and the key that will act as a shift key is defined
with the C option (usually the ESCape key).

If you are using an external terminal with AE PRO, none of
these shifting options is used, as most terminals have a full
character complement and the proper shifting abilities.
Option F, however, should be enabled.

All but one or two 80-column boards automatically use the electrical shift key interconnection. Additionally, there are certain repercussions when using the built-in firmware of a card for shifting and other character processing: other control character conversions take place that cannot be made optional. A Control-K may be changed to "[", etc. This is where the F option is used.

The F option decides whether the 80-column board firmware processes characters typed on the keyboard. If set to OFF, you can support case shifting in the same way as the card would have done itself, but without the extra processing it may perform on characters such as ^A (shift toggle), ^Y (home cursor), ^K (clear to end of screen) and others. Thus if you want the F option OFF, remember to set the S option to ON.

If you prefer, use the software shifting mode with the ESCape key, even if you are using an 80-column board. Set F and S to OFF and define your software case toggle (as ESCape or another key) with the C option.

If you prefer the functions your 80 board performs, set F to ON. Under this condition, how the S and C options are set then will not matter. Make any necessary character substitutions in the editor cursor key definition table (such as redefining the cursor-back-one-word character, ^A) to suit what you have available.

Through AE PRO's prefix key system, the full ASCII character set is available even without help from your 80-column board's firmware.

11.14.5. G = Deaf letter set key

When you enter G, enter the character to be the Deaf Letter
Set key (default is ^U, the right arrow key on your Apple
keyboard), then c/r. When you are in the BAUDOT (deaf) mode
of operation with the Novation Apple-Cat modem or the INTRA
Computer ASIO board, AE PRO normally does it own letter-
figure shifting automatically. If the modes somehow get out
of sync, this key sets the LETTERS mode on your end only.

11.14.6. H = Videx Enhancer installed

Entering B toggles (YES or NO) whether AE PRO configures to a
Videx keyboard Enhancer if installed. When this option is
set to YES, you may take full advantage of your Enhancer.
The YES option disables all internal AE PRO case shifting
conversions and takes input directly from the keyboard, as-
suming all character processing is performed before reaching
AE PRO. Use this mode for the Apple //e, Basis 108, Franklin
Ace and other Apple-compatible computers that have full-
function keyboards as standard. Also, this mode is set
automatically when the Apple //e or the Basis 108 Console
options of Install are selected.

11.14.7. I = Half-duplex auto linefeed

Entering I toggles (YES or NO) whether AE PRO supplies a
linefeed to your monitor after each carriage return you type
in half-duplex terminal mode. When YES, AE PRO assumes that
the other computer is not echoing characters and that AE PRO
must handle your screen scrolling. When NO, AE PRO assumes
that the other computer sends a linefeed after each carriage
return it receives from you. When YES and the other computer
does send linefeeds, double linefeeds are sent to your moni-
tor. This option affects display only.

11.14.8. J = Run from hard disk

Entering J toggles (YES or NO) the way AE PRO manages DOS
volumes during load, save and catalog operations. When NO,
the default disk volume is Ø, allowing you to exchange disks
freely without concern for volume parameters. When YES, the
volume from which AE PRO is run becomes the default for
further internal operations. Volume parameters for further
load, save and catalog operations default to that volume,
unless a volume parameter is indicated otherwise, as you
would for slot or drive selections.

The hard disk option also may apply to 8" single- and double-
density or any multi-volume disk systems in which volume
parameters are significant.

11.14.9. K = Expand tabs

Entering K toggles (YES or NO) AE PRO's ability to respond to
TAB characters (^I) sent by another computer.

Most 8Ø-column display boards and external terminals respond
correctly to a TAB character when received from another
computer and move the cursor to the next Tab position MOD 8
(column 1, 9, 17, 25, etc.) on the monitor.

Some 8Ø-column boards (such as Videx's Videoterm), external
terminals (such as ADDS's Viewpoint) and the Apple 4Ø-column
display ignore an incoming TAB character. If this happens,
display formatting can look strange and uneven.

When YES, AE PRO converts incoming TAB characters to an
appropriate number of spaces, based on the current cursor
position, and moves your cursor to that position.

    NOTE: If this option is set to YES, we recommend that
    you use AE PRO with Interrupts ON to help prevent the
    possible loss of incoming data during TAB expansion.

11.14.10. R = Block mode send rate

When you enter R, Install displays:

>   ASCII mode send rate (0-7)?:
>   Current: ∅   New: _

Enter the number to represent the default rate at which
AE PRO sends characters out the modem port in all send modes
except C)haracter and P)rotocol. Valid numbers are ∅ (full
speed) through 7 (very slow).

You also may vary speed during the sending by entering the
unshifted < and > keys.

11.14.11. S = Send LINE delay

When you enter S, Install displays:

>   Send LINE delay (0-9):
>   Current: ∅   New: _

Enter the number to represent the run-time default of the Set
Delay command (N). If the Current value is acceptable, press
c/r alone. This option determines the interval, if any,
AE PRO waits after sending each line in non-prompted send
mode, or the delay after receiving a prompt in prompted mode.
Valid numbers are ∅ (no delay) to 9 (maximum delay, approxi-
mately 1 second).

11.14.12. T = Terminal Prefix Key

When you enter T, enter the character to be the Terminal
Prefix Key (default is ^W), then c/r. The Terminal Prefix
Key is used to send macro elements and to produce characters
normally not found on the Apple keyboard.

11.14.13. U = XON/XOFF flow control

Entering U toggles (YES or NO) whether AE PRO uses XOFF and
XON characters to control high speed data flow when the
printer or interrupt buffers are near capacity. When YES,
AE PRO sends the XOFF character to the host if either of
these buffers comes within 60 characters of being full, then
sends the XON character to the host when the buffers become
empty.

A filling interrupt buffer may occur in one of the following
situations:

    1. When the Terminal Escape Key (^Q) has been entered,
    but the host is still sending, or

    2. When using very high baud rates with a display device
    that is unable to handle the constant flow at all times.

A filling printer buffer may occur when a host is sending
data at a speed too fast for a printer to handle it. An
Epson MX or FX series printer on-line with a host sending
data at 1200 baud would be a good example. The printer's
effective processing is about 300 baud. This option, if
enabled, would pace the host according to the printer's
ability to receive data.

This option does not affect XON/XOFF use during Auto-Save or
file send modes.

11.14.14. V = No. times to send XOFF/XON

When you enter V, Install displays:

            # of times to send XOFF/XON (0-9):
            Current: 1   New: _

Enter the number of consecutive XOFF and XON characters
(default is 1) AE PRO sends to a host computer. If the
Current number is acceptable, press c/r alone.

AE PRO uses the XON/XOFF characters when receiving ASCII text
in Auto-save and several other modes. When AE PRO needs to
stop the host computer, it sends the XOFF character to direct
it to stop sending. When AE PRO is ready to receive data
again, it sends the XON character to the host to direct it to
resume sending. This option allows you to set the number of
consecutive XOFF/XON characters AE PRO sends as a precaution
(perhaps 3 times) in case the host computer misses one or
more of them.

11.14.15. W = Ack/Enq protocol YES/NO

Entering W toggles (YES or NO) whether AE PRO uses the
Ack/Enq protocol used by Hewlett-Packard computers during a
file transfer. This is a special provision for HP computers
only and should be set to YES only if you are using a HP
computer for transfers. During a transfer, the sending HP
sends a Control-F (Ack) after sending a block of characters,
then waits for the receiving computer to send Control-E (Enq)
before continuing to send the next block.

> NOTE: If this option is set to YES, the Control-E "here
> is" character will not work. It will act as if it is
> being stripped out.

11.15.   4 = SYSTEM DEFAULTS (Menu 4)

When you enter **4** from the Main Install Menu, Install dis-
plays:

```
          SYSTEM PARAMETERS MENU 4

          A = User defined abort key.....^[ ($1B)
          C = Permanent carrier.................NO
          D = Hayes Smartmodem installed.......NO

          E = Here-is character..........^@ ($ØØ)
          G = Here-is rubout key.........^@ ($ØØ)
          H = Here-is msg. terminator....^@ ($ØØ)
          I = Here-is Message:
              THIS IS AE PRO^M^J
          J = Auto-save........................OFF
          K = Answer-back.....................OFF
          L = Resend char. with bell...........NO
          N = Wait after bell time..........1ØØms
          P = Console output w/pass-thru......YES
          U = Update Macro immediately.........NO

          X = Exit

          Choice? _
```

11.15.1. A = User defined abort key

When you enter **A**, enter the character to be your program
abort key (default is ^[, ESCape) then c/r. Use this key to
"escape" from any command and return to the level from where
you entered the command. This key may be entered when AE PRO
prompts you for input, or after you have begun to respond
with input.

11.15.2. C = Permanent carrier

Entering C toggles (YES or NO) the way AE PRO handles carrier
reporting from your modem or interface card. When NO, AE PRO
responds to the carrier detect status of your modem or serial
card. When YES, AE PRO responds as if it is always on-line.

This option is used best with ASCII-commanded external mo-
dems, such as the Hayes Smartmodem, the Novation Smart-Cat,
the U.S. Robotics Auto Dial 212A, the SSM Transmodem, and
certain acoustic modems with which AE PRO must maintain per-
manent communication. If you use this kind of modem, you
must be able to command it directly in terminal mode with
ASCII characters, so this option must be set to YES.

11.15.3. D = Hayes Smartmodem installed

Entering D toggles (YES or NO) a special internal mode used
with the Hayes Smartmodem and other ASCII-commanded external
modems. You must set this option to YES if you want to use
these kinds of modems in the unattended remote mode. If a
permanent carrier is present from an ASCII-commanded modem,
unattended operation will not work correctly; AE PRO will
think it is always connected. Thus, to be able to use unat-
tended operation, set this option to YES and enable auto-
answer on your modem, either by toggling the appropriate
switch, or by changing the modem's register (see your modem's
manual for further details). The C option above also must be
ON and will be turned ON automatically with this option.

11.15.4. E = Here-is character

When you enter E, enter the character to be the here-is character (default is Ø -- disabled), then c/r. The "here-is" character is the one that, when received by AE PRO in terminal mode or in remote Answer-back mode, instructs AE PRO to send its here-is identification string (defined with the I option, below). Many computers send this character to determine if a valid user is on-line. The conventional here-is character is ^E. To disable this function, enter zero.

11.15.5. G = Here-is RUBout key

When you enter G, enter the character that will produce the here-is RUBout key (default is Ø -- disabled) while writing the Here-is Message (I option, below), then c/r. When dealing with computers that use the here-is character and resulting string sent, certain characters may be required within that string that cannot be produced on an Apple keyboard. One such character is the RUBout, which is commonly used in here-is strings. Define a key here that, when entered, actually produces the RUBout character. For example, assign Control-A to produce the RUBout character. Then when you enter ^A while writing the Here-is Message (below), a RUBout character, displayed as ^#, will be placed in the string.

11.15.6. H = Here-is message terminator

When you enter H, enter the character that is used to exit the here-is message writing mode (default is ^@ -- Control-Shift-P on an Apple][; Control-Shift-2 on an Apple //e), then c/r. Here-is messages usually include carriage returns. By defining a different terminator character, carriage returns (^M) may be included as standard text.

11.15.7. I = Here-is message

When you enter I, Install displays:

>   Current here-is message:
>   THIS IS AE PRO^M^J
>
>   Enter new message or RETURN: _

Enter the message AE PRO sends when it receives the here-is
character, then c/r. If the Current here-is message dis-
played is acceptable, press c/r alone. You can imbed car-
riage returns and RUBouts according to the settings of the G
and H options above. AE PRO displays control characters as
^X, where X is the character. RUBout is displayed as ^#.

A carriage return-linefeed sequence (^M^J) usually is re-
quired at the end of a here-is message. Also some host
computers require a ^M^J sequence at the beginning of the
string as well.

To clear the current here-is message, enter the here-is
message terminator (H option above) as the only character.

11.15.8. J = Auto-save

Entering J toggles (ON or OFF) the run-time default of the
Auto-save command (O).

When you select this option to turn it ON, Install displays:

>   Autosave file: TEMP
>   New name or RETURN: _

Enter the default filename AE PRO should use if not otherwise
instructed in the Auto-save mode when writing files to disk,
then c/r. If the Autosave file displayed is acceptable,
press c/r alone. Install then enables this option.

Although AE PRO defaults to this filename, you can supersede it with the Auto-Save command (O) at the Command Level Prompt (-> or +>), which will prompt you for a new filename.

11.15.9. K = Answer-back

Entering K toggles (ON or OFF) the run-time default of the Answer-back command (').

When you select this option to turn it ON, Install prompts you for a filename as above in the Auto-save option (the default filename is the same as the Auto-save option), then enables the option.

This mode is used to receive unattended DDD or TWX forwarded mail and messages.

Although AE PRO defaults to this filename, you may supersede it with the Auto-Save command (O), but only when the Answer-back command (') is ON.

> NOTE: The auto-save and answer-back filename is separate from other filename references throughout AE PRO. Thus the / filename recall option recalls the last filename used in the associated buffer.

11.15.10. L = Resend char. with bell

Entering M toggles (YES or NO) whether AE PRO resends a character if the host computer echoes a bell (^G) instead of the character just sent. This option is for the character send mode only.

Some time-share computers send a bell when they cannot re-
ceive further data. When you are uploading a file this can
cause data to be lost. When ON, AE PRO checks the echo of
each character to see if a bell (^G) instead of the proper
character echo has been sent. If AE PRO detects a bell, it
resends the last character until it receives the proper echo
instead of a bell. You can define the interval between each
resend with the N option below.

11.15.11. N = Wait after bell time

When you enter N, Install displays:

        Current: 1   New X 100ms: _

Enter the number that, when multiplied by 100 milliseconds,
represents the default delay AE PRO uses with the M option to
pace character resends after receiving a bell (default is 1),
then c/r. The recommended valid numbers are 1 (100ms)
through 10 (1000ms, one second).

11.15.12. P = Console output w/pass-thru

Entering P toggles (YES or NO) the way AE PRO handles
printer/screen operation when being turned ON and OFF from
within the Terminal Emulation control modes. If emulation
sequences activate your printer, this option determines
whether subsequent output also goes to your monitor while
going to your printer. If YES, output will go to your print-
er and monitor. If NO, output will go to your printer only.
This option is in effect only when your printer (P) is ON.

11.15.13. U = Update macro immediately

Entering U toggles (YES or NO) whether AE PRO updates param-
eters from a macro immediately when loaded. Usually when you
load a macro file, its element strings are loaded into
AE PRO's memory, but its parameters are not activated. This
is to prevent improper parameters from being used in case you
dial a number other than the macro. AE PRO configures itself
to those parameters after you complete a Dial command (D), or
specify the Update command (U) from within the configuration
section, or when updated under macro control. This may be
fine if you have a dialing modem, but if you have a modem
that does not dial, such as an acoustic modem, or connect
directly to a host interface, set this option to YES. Then
when a macro file is loaded its parameters are activated
immediately.

11.16. 5 = SYSTEM DEFAULTS (Menu 5)

When you enter 5 from the Main Install Menu, Install dis-
plays:

                 SYSTEM PARAMETERS MENU 5

                 A = Auto dial from boot.............OFF

                 B = Default boot macro group.......NONE

                 C = # times to redial on boot.........Ø
                 D = Dial after loading macro.........NO
                 E = Non-dialing boot macro (Ø-;)...NONE

                 F = EXEC "AEX" after ending AE.......NO

                 G = Override S,D,V upon boot.........NO
                 H = Override Slot.....................6
                 I = Override Drive....................1
                 J = Override Volume...................Ø
                 X = Exit

                 Choice? _

11.16.1. A = Auto dial from boot

When you enter A, you toggle (ON or OFF) whether AE PRO
automatically dials the number of a macro when loaded at run-
time. This option does not affect macro dialing in any other
way. Also see the D option below.

11.16.2. B = Default boot macro group

When you enter B, Install displays:

              Default macro group (A-Z)
                 or Ø for no macro group: _

Enter the index letter (A-Z) of the macro group to be loaded
at run-time. To disable auto-load, enter Ø.

11.16.3. C = # times to redial on boot

When you enter C, Install displays:

              Current: Ø   New: _

Enter the number of times AE PRO redials a macro number (if
busy) at run-time if the Auto dial from boot option (A,
above) is ON, then c/r. If the Current number is acceptable,
press c/r alone.

11.16.4. D = Dial after loading macro

Entering D toggles (YES or NO) whether AE PRO dials a macro
number immediately after a macro is loaded manually. When
YES, AE PRO dials the macro number as soon as the macro file
is loaded manually anytime after run-time. This option does
not determine the dialing status of a macro loaded at run-
time.

11.16.5. E = Non-dialing boot macro (0-;)

When you enter E, Install displays:

>   Non-dialing boot macro
>   (∅-;) or RETURN for none: _

Enter the macro element number (∅-;) that AE PRO executes
after a macro is loaded at run-time. Use this option for
non-dialing modems, hardwire interfaces to a host computer,
or for a modem set-up that may require permanent carrier.

11.16.6. F = EXEC "AEX" after ending AE

Entering F toggles (YES or NO) whether AE PRO EXECutes the
filename "AEX" after exiting AE PRO. When YES, control is
passed to an EXEC file, which can go on to run another pro-
gram.

11.16.7. G = Override S,D,V upon boot

Entering G toggles (YES or NO) whether AE PRO defaults to a
Slot (S), Drive (D) or Volume (V) -- other than the drive
from which it was run or booted at run-time -- to read and
write files. Use this option in conjunction with the next
three options (H, I and J, below). When YES, AE PRO defaults
to the settings of the H, I and J options, but AE PRO program
overlays will continue to come from the booted drive. When
NO, AE PRO ignores the settings of the H, I and J options and
defaults to the drive from which it was run or booted.

>   NOTE: Understand the significance of these override
>   options before using them. Two applications could be:

>   1. To direct Auto-save operations to be written to
>   a drive different than the booted drive, and

2. To define further parameters to be used with a Turnkey system for Unattended Operation. Thus, along with appropriate settings in the Unattended/Remote Parameters section of Install, you can set a default drive and slot automatically at run-time, for example, to protect and ensure the integrity of your program on the booted drive.

11.16.8. H = Override Slot

When you enter H, Install displays:

Current: 6   New: _

Enter the number of the slot AE PRO will default to at run-time only if the G option above is set to YES, then c/r. If the Current setting is acceptable, press c/r alone.

11.16.9. I = Override Drive

When you enter I, Install displays:

Current: 1   New: _

Enter the number of the drive AE PRO will default to at run-time only if the G option is set to YES, then c/r. If the Current setting is acceptable, press c/r alone.

11.16.10. J = Override Volume

When you enter J, Install displays:

Current: Ø   New: _

Enter the number of the disk volume AE PRO will default to at run-time only if the G option is set to YES, then c/r. If the Current setting is acceptable, press c/r alone.

EXITING THE MAIN INSTALL MENU

the Install program, or to save changes, enter one of
lowing options at the Main Install Menu's Choice?

A = ABANDON INSTALL

ı enter A, you exit the Install program. No changes
ined. Install displays:

    OK to run AE (def=n) _

if you want run AE PRO, or N if you do not. When you
Install places you at your Apple's prompt (] or >).

R = INSTALL ANOTHER AE PRO

ı enter R, Install displays:

    Insert disk with file "AE". Press
    RETURN to continue or ESC to abort.

:ion is used when a differently configured copy of
eeds to be modified by Install. Insert the new disk
ıng AE PRO into the logged drive and press c/r.
will place you at the Main Install Menu. You then
eed by selecting from Install's options.

rs that may have been changed on a previous installa-
a different copy of AE PRO do not affect subsequent
tıons of AE PRO on another disk.

S = SAVE CHANGES AND RUN AE PRO

enter S, Install displays:

    ınsert disk with file "AE". Press
    RETURN to continue or ESC to abort.

Insert into the logged drive the copy of AE PRO on which you
want to record the changes you may have made during Install.
If the copy of AE PRO to be installed is already in the
logged drive, press c/r alone. Install writes all changes
you may have made to disk and runs AE PRO. Changes you may
have made on previous runs of Install are reflected in sub-
sequent runs of Install.

11.21. X = SAVE CHANGES AND REMAIN IN INSTALL

When you enter X, Install displays:

>   Insert disk with file "AE". Press
>   RETURN to continue or ESC to abort.

Insert the copy of AE PRO on which you want to record the
changes you may have just made during Install into the logged
drive, then press c/r. If the copy of AE PRO to be installed
is already in the logged drive, press c/r alone. Install
records any changes on that copy of AE PRO, then returns you
to the Main Install Menu. You then can Install other copies
of AE PRO, or exit Install with the Abandon Install option
(A).

12. THE EDITOR

AE PRO contains a built-in Editor that you can use, whether
on-line or off, to create or modify a standard DOS sequential
text file.

The Editor combines features of line-oriented editing, for
displaying text, and screen-oriented editing, for modifying
text anywhere in any line of a file. The Editor has its own
set of commands and cursor control keys.

AE PRO's data buffer is the Editor's work area. The size of
the buffer depends on your Apple's Random Access Memory
(RAM). The data buffer of a 48K Apple is approximately 18K.
You can use the Editor interactively with the data buffer,
except as noted in the Editor's Expanded Memory Mode (see the
Editor's .R mode below). You can call on the Editor at any
time to modify captured data or a loaded text file. When you
exit the Editor, the contents of the buffer remain intact.

When you enter the Editor with the Y command from the Command
Level Prompt (-> or +>), AE PRO loads the Editor's "over-
lay" code from disk if not previously loaded in memory. The
code remains loaded, even if you exit the Editor, until you
enter another command that needs that area. Even if the
Editor overlay is overwritten, no changes to text in the
buffer will be made.

12.1. EXPANDED BUFFER

Although the Editor normally shares the data buffer, you can
select a special mode that enlarges the buffer by approxi-
mately 7K. The Expanded Memory Mode can be used to modify
text files that are larger than the capacity of the main data
buffer. In the Expanded Memory Mode, however, the Editor's
buffer is not common to the main data buffer, and the two may
not coexist.

12.2.   EDITOR COMMANDS

The Editor uses DOT (.) commands to perform various func-
tions, such as loading a file from disk or writing a file to
disk. A DOT command is a command that begins any line with a
DOT (.) and is followed immediately by an appropriate letter
command, as in .G. These commands must be entered at the
beginning of any buffer line that is not being edited with
the .E Edit command.   You can display the menu of DOT com-
mands at any time with the .H command.

The Editor's DOT commands are:

                .A = Alter case
                .C = Clear buffer
                .D = Delete lines
                .E = Edit line
                .F = Free space/buffer status
                .G = Get file from disk
                .H = Display this menu
                .I = Insert lines
                .L = List lines
                .M = set right Margin
                .O = Output to printer
                .P = Put buffer to disk
                .R = Reset to maximum memory
                .S = (.) String search
                .X = eXit editor
                .Z = Fill text to margin
                .? = Help request

Any line that you begin without a DOT is accepted as text and
added to the current buffer. If you begin a line with a DOT,
and the second character of that line is an invalid command
character, AE PRO ignores the DOT, but accepts the following
characters as text. For example:

    .This is a line of text

produces   .

    This is a line of text

because .T is an invalid command.

Another example:

    .Love those onions

directs AE PRO to list the buffer's contents because .L is a
valid command. AE PRO ignores the text following the .L.

If you need to enter a line whose text begins with a DOT, you
must enter two DOTs at the beginning of the line. For exam-
ple:

    ..5Ø (as in 50 cents)

produces

    .5Ø

12.3.   USING THE EDITOR

When you enter Y to call the Editor from the Command Level
Prompt (-> or +>) and Brief mode is OFF,   AE PRO displays:

              .A = Alter case (AL AM AU <xx,yy>)
              .C = Clear buffer (C<y>)
              .D = Delete lines (Dxx,<yy>)
              .E = Edit line (Exx)
              .F = Free space/buffer status
              .G = Get file from disk (G filename)
              .H = Display this menu
              .I = Insert lines (Ixx<n>)
              .L = List lines (Lxx,<yy><n>)
              .M = set right Margin (Mxx)
              .O = Output to printer (Oxx,<yy><n>)
              .P = Put buffer to disk (P filename)
              .R = Reset to maximum memory
              .S = (.) String search (S string<:xx>)
              .X = eXit editor
              .Z = Fill text to margin
              NON-dot commands taken as text input

              AE: Used- Ø, Free- 25678 (or your remaining buffer)

              >Ø
              _

AE PRO always places you at the end of any data in the buf-
fer. If the buffer contains data, the Used and Free numbers
are adjusted appropriately, and AE PRO places you at the
first buffer line after the current contents instead of at
the first line, Ø.

If you are using an 8Ø-column display, the cursor control
keys, as defined in Install, are displayed on the right half
of the screen.

The following describe the Editor's DOT commands.

12.3.1. .Ax = ALTER CASE (.AL .AM .AU <xx,yy>)

When you enter **.Ax,** where **x** is **L** (all lower), **U** (all upper) or **M** (mixed), AE PRO displays:

    AE: Range? (x,y) _

To change the case of a line as specified above as in **.AL** (change to lower case), enter the number of the line, then c/r. To change the case of a range of lines, enter the range of lines from x to y, as in 5,10, then c/r.

If you specify **.AL**, the line or range of lines is changed to all lower case. If you specify **.AU**, the line or range of lines is changed to all upper case. If you specify **.AM**, the line or range of lines is changed to lower case, except for first letters of sentences and certain keywords and phrases, which are changed to proper upper case.

You can anticipate the **Range?** prompt by entering the complete command, as in **.AL** 5,10, then c/r.

12.3.2. .C = Clear Buffer (.C<y>)

When you enter **.C**, AE PRO displays:

    AE: OK to clear? (def=n) _

To clear the buffer of all data and reset the buffer-pointer to line Ø, enter Y. Any other key aborts the command. Once you become accustomed to this process, you can anticipate AE PRO's prompt to confirm by entering **.CY**, then c/r.

12.3.3. .D = Delete lines (.Dxx,<yy>)

When you enter **.D**, AE PRO displays:

    AE: Range? (x,y) _

To delete one line of data from the buffer, enter the line
number, then c/r. To delete a range of lines, say lines 4
through 6, enter 4,6, then c/r. You can anticipate AE PRO's
prompt for range by entering .D4,6, then c/r.

If you enter a FROM (x) number out of range, AE PRO displays:

          AE: FROM: range error

If you enter a TO (y) number out of range low (below FROM),
AE PRO displays:

          AE: TO: range error

After either error message, AE PRO aborts the command. Re-
enter the command, then enter the correct line numbers.

If you enter a TO (y) number that is out of range high (above
TO), AE PRO deletes all lines from the FROM (x) number to the
end of the buffer. For example, if you entered .D4,2Ø, but
the buffer's highest line number was 1Ø, AE PRO deletes lines
4 through 1Ø (the end of the buffer).

Because the Editor is line-oriented, it assumes that each
line is ended with a carriage return. If a line does not end
with a c/r, the next line number remains the same as for the
line above it.

This typically could occur after capturing data in the buffer
with the Copy command (R). The last character of the cap-
tured data occurs where the Copy command (R) was turned OFF.
It's likely that character won't be a carriage return. Thus
when you list the buffer contents with the Editor, the cur-
rent line number is the same as the last line of the con-
tents.

If you try to delete this last line, AE PRO displays a FROM:
range error. To resolve this so that AE PRO recognizes the
last line, enter a blank line by pressing c/r. The new line
prompt will increase by one. Delete the new blank line with
the .D command. The last line of the contents then will end
with a c/r, and the line numbers will be displayed properly.

12.3.4. .E = Edit line (.Exx)

When you enter .E, AE PRO displays:

Line #? _

Enter the number of the line you want to edit, then c/r. If you enter a valid line number, AE PRO displays it, and you can edit, insert, delete or move your cursor anywhere within the line with the cursor control keys.

The characters that control cursor movement under the .E command are described below. You may redefine some of the characters in Install, but we recommend that you try them as packaged first.

The examples that accompany the cursor control key descriptions use the following symbols:

^ = Current or old cursor position   ↑ = New cursor position

Control-D: Cursor forward one character. This key moves the cursor forward one character, but does not erase the character at the new position. If you are at the end of a line, the cursor does not move. The right-arrow key on your Apple keyboard produces the same result, but cannot be redefined.

   Example:
   This is a line of text.
   ^↑

Control-F: Cursor forward one word. This key moves the cursor to the first character of the next word or character sequence after the next space, but does not erase any characters. If no spaces are left in a line, the cursor moves to the end of the line.

   Example:
   This is a line of text.
        ^   ↑

Control-C: Cursor to line end. This key moves the cursor to
the end of the current line.

Example:
This is a line of text.
$\uparrow$

Control-S: Cursor back one character. This key moves the
cursor back one character, but does not erase any
character. If the cursor is at the beginning of a
line, it does not move.

Example:
This is a line of text.
$\uparrow$

Control-A: Cursor back one word. This key moves the cursor
to the beginning of the previous word or character
sequence following a space to the left of the
cursor, but does not erase any characters. If no
spaces precede the cursor on the line, the cursor
moves to the beginning of the line.

Examples:
This is a line of text.
$\uparrow$
This is a line of text.
$\uparrow$

Control-X: Cursor to line begin. This key moves the cursor
to the beginning of the line.

Example:
This is a line of text.
$\uparrow$

Control-G: Gobble character. This key deletes the character
at the cursor position. The delete forward charac-
ter cannot be redefined.

Example:
        This is a line of text.
                     ^

        This is a ine of text.
                  ↑

Control-H: Delete left character.   This key deletes the
           character to the left of the cursor.   The left-
           arrow key on your Apple keyboard and the RUBout key
           on an external terminal produce the same effect.
           These keys cannot be redefined.

    Example:
        This is a line of text.
             ^

        Tis is a line of text.
          ↑

Control-Z: Zap current line. This key deletes the line being
           edited. You can recall the original line with the
           line recall character (^R).

Control-R: Recall original line. This key reinstates the
           condition of the current line before editing began.
           If you err while editing the line and would rather
           start over than fix it, enter this key.

Control-V: Toggle insert mode. This key toggles (ON or OFF)
           the text insert mode. When ON, each character
           entered is inserted before the character at the
           cursor position. When OFF, each character entered
           at the cursor overwrites the character at the
           cursor position. If the cursor is at the end of
           existing text, new text will be added regardless of
           Insert's ON or OFF status. Each time you toggle
           the Insert mode, AE PRO sounds one beep from your
           output display device, or your Apple's speaker if
           you are using the 40-column display.   The Insert
           status line above the line being edited, however,
           does not change.

Control-P: Edit mode prefix character. This key allows you
to enter any of the editor function characters as
actual characters. The character directly
following this prefix character is acted upon
literally. For example, if you wanted to enter a
^P into text, enter ^P^P.

Control-W: Substitution prefix character. This key allows
you to enter any of the special characters defined
in the Character Substitution Table in Install,
which also can be displayed with the Display Pre-
fixed Characters command (-). The character di-
rectly following this prefix character would pro-
duce its counterpart in the Substitution Table.
Use this prefix character to produce characters
normally not typable, just as you would in terminal
mode. This editing function is not needed with an
Apple //e.

AE PRO accepts any character other than one of these editing
characters as new data and places it at the cursor position.

To exit the Edit mode, press c/r alone. AE PRO accepts the
displayed contents of that line as part of the buffer, re-
gardless of cursor position when you press c/r.

12.3.5. .F = Free space/buffer status

When you enter .F, AE PRO displays:

    AE: Used- 0, Free- 25678 (or your remaining buffer)

Used represents the number of characters in the buffer. Free
represents the character space left in the buffer.

12.3.6. .G = Get file from disk (.G filename)

When you enter .G, AE PRO displays:

          Filename? _

Your options: filename, /, c/r, drive parameters, Abort key

To load a sequential text file from a disk, enter a filename,
including any optional drive parameters, then c/r. To load
the last filename specified during the current session of
AE PRO, enter /, then c/r. To CATALOG a disk, press c/r
alone. To abort this command, enter your User Abort key.

You can anticipate AE PRO's prompt for filename by entering
.Gfilename, including any optional drive parameters, then
c/r. You do not need a space between .G and filename, but
any number of spaces is OK.

Also, at the Filename? prompt, you can enter ,Sx,Dx,Vx (slot,
drive and volume parameters in any order) instead of a file-
name. If a comma is the first character, the new drive will
be logged and cataloged.

When you press c/r alone for a CATALOG, AE PRO displays the
disk directory one screen page at a time. Any key except c/r
or ESCape continues to the next page of the directory. A c/r
or ESCape alone aborts the CATALOG and returns you to the
Filename? prompt.

After entering a filename, AE PRO checks the status of the
buffer. If the buffer already contains data, AE PRO dis-
plays:

          N)ew file or A)ppend? (def=n)

Entering any key except A clears the buffer before AE PRO
loads the new file. If the file being loaded exceeds the
capacity of the buffer, AE PRO displays:

          Buffer overflow! Restore original? (def=y)

Entering any key except **N** directs AE PRO to disregard what-
ever it had just loaded into the buffer. If you enter **N**,
whatever part of the file that was able to be loaded into the
buffer remains. The buffer, however, is completely full.

12.3.7. .H = Help

When you enter **.H**, AE PRO displays the Editor's command
menu.

12.3.8. .I = Insert lines (.I<xx><n>)

When you enter **.Ix**, AE PRO enters into a recursive insert
loop at whatever line number you specify, represented by **x**.
If you do not specify a line number, AE PRO assumes your
current line position, which usually is at the end of the
file if not already in insert mode. At the end of a file,
the Insert lines mode status makes no difference. Text is
added to the end of the buffer.

If you do not specify a line number and you already are in
the Insert lines mode, you remain in that mode at the current
line number. If you specify a line number that is higher
than the total number of buffer lines, AE PRO defaults to the
highest line number of the buffer's contents.

In the Insert lines mode, the Editor's prompt, which usually.
is >x, where x is the line number, is indicated by >x>. You
can remain in this mode as long as you like. All Editor DOT
commands are legal.

The Insert command also has an **N** option. If you include **N** at
the end of the Insert command, as in **.IN** or **.IxN**, where **x** is
the line number, AE PRO turns OFF the Editor's line number
prompts. This is known as the Blind Insert mode. You can
turn OFF the Blind Insert mode by entering **.I**. To turn it ON
again, enter **.IN**.

12.3.9. .L = List lines (.Lxx,<yy><n>)

When you enter .L, AE PRO displays the entire buffer, line by
line. To start the listing at a specific line, enter .Lx,
where x is the number of the buffer line, then c/r. To list
a range of lines, enter .Lx,y, where x is the starting line
number and y is the ending line number.

During a listing, AE PRO displays the number of each line.
To turn OFF the line numbering, enter N anywhere after the .L
command, as in .L5,20N.

AE PRO displays listed lines at approximately 120 characters
per second. You can slow or speed the display with the < or
> keys (unshifted). The "speed" keys have 14 "positions".
Enter < to slow the display, > to speed the display. Your
last "rate" of display becomes the default for the next
listing, either in the Editor, or with another AE PRO viewing
command.

12.3.10. .M = Set right Margin (.Mxx)

When you enter .M, AE PRO displays:

        AE: Now: 78, set: _

Enter the number to set the right margin of the Editor's
line, then c/r. If the Now number is correct, press c/r
alone. AE PRO accepts data in a line only up to this right
margin setting. If you try to add characters at this margin
setting, or insert characters within a "full" line, AE PRO
sounds one beep. Valid margin numbers are 10 through 250.
The default right margin can be defined in Install.

12.3.11. .O = Output to printer (.Oxx,<yy><n>)

When you enter .O, AE PRO sends the entire contents of the
buffer to your printer. You can print single lines, or a
range of lines. All options available with the .L command
apply for the .O command, except varying the display speed.

Line numbers normally are not sent to the printer, unlike the
.L command.   To print the buffer lines, add N after the .O,
as in .ON and .O5,2ØN.   The "N" option works in the reverse
manner from the .L command.

Whenever you use the .O command or any other printer command,
AE PRO first sends the printer set-up string, as defined in
Install.

12.3.12.   .P = Put file to disk (.P filename)

When you enter .P, AE PRO displays:

          Filename? _

Your options: filename, /, c/r, drive parameters, Abort key

To write the contents of the buffer to disk, enter a file-
name, including any optional drive parameters, then c/r.   To
use the last filename specified during the current session of
AE PRO enter /, then c/r.   To CATALOG a disk, press c/r
alone.   To abort this command, enter your Abort key.

As with the .G command, at the Filename? prompt, you can
enter the ,Sx,Dx,Vx drive parameters instead of a filename.
When a comma is the first character, the new drive is logged
and cataloged.

If you enter the name of a file already on disk, AE PRO
displays:

          File exists! Overwrite? (def=n) _

Entering Y only directs AE PRO to overwrite the disk file
with the contents from the buffer.   Entering any other key
returns you to the Filename? prompt.   When overwriting,
AE PRO first deletes the old file, then writes the new file.

After a successful write, AE PRO displays:

          Lock it? _

Entering **Y** only directs AE PRO to lock the file on the disk. Entering any other key leaves the file unlocked on the disk and returns you to the current buffer line.

All options available for the .G command apply to the .P command.

12.3.13. .R = Reset maximum memory

When you enter .R, AE PRO expands the data buffer's capacity by approximately 7K. AE PRO makes room for this Expanded Memory Mode by overwriting certain areas of its own program. You can use this mode, while on-line or off, to load a file larger than the normal buffer. The Editor's expanded buffer and AE PRO's main data buffer, however, cannot coexist. Whenever you enter or exit this mode, the data buffer must be empty.

For example, if you want to edit a 30K text file, but your normal buffer size is 28K, enter the .R command from within the Editor to increase the buffer to approximately 35K. Load the 30K file into the expanded buffer with the .G command, then use the Editor as usual. When finished editing, write the buffer contents back to disk with the .P command (use the / option to keep the same filename), then clear the buffer (.C command). Only then can you exit the expanded buffer with the .X command.

Another example would be if you wanted to use the expanded mode to edit a buffer full of data just captured, or perhaps append another file to it. You first would write the captured data to disk, clear the buffer, and enter the .R command. Then you can load any sequential text file (with the .G command), then proceed as usual. Remember, to exit the Expanded Memory Mode, you first must clear (.C command) or save (.P command) the contents of the buffer.

When you exit this mode, AE PRO automatically restores the portion of its program that had been overwritten.

12.3.14. .S = (.) String search (.S string<:xx>)

When you enter .S, AE PRO displays:

        Name it: _

Enter the string or series of characters -- they can be
words, phrases or characters -- then c/r. AE PRO searches
the buffer for the string of characters. When a match is
found, AE PRO displays the entire line on which the match
occurs. To search for the next occurrence of the string,
enter . (DOT), then c/r. AE PRO displays the line on which
the next match occurs.

If AE PRO cannot find the exact string, whether on the first
search or with a . command, it displays:

        AE: Nothing

To edit a line on which an occurrence of the string was
found, enter .E (but do not specify a line number), then c/r.
AE PRO places the cursor at the end of the matched string
within the line, and you can edit the line with the cursor
control keys. End the editing by pressing c/r. Then enter
the . command again to find the next occurrence of the
string. This process can continue until no further string
matches occur.

If you enter any other command during a recursive string
search, AE PRO cancels the search mode. If you wanted to
find further occurrences of the string, you would have to
restart the .S command and respecify the string.

You can designate a starting point for AE PRO's search by
adding the line number after the search string. For example,
to search for all occurrences of the word "Apple" after line
25 in your buffer, enter Apple:26, then c/r.

You can anticipate AE PRO's Name it: prompt by entering, for
example, .SApple or .SApple:26. The case of characters,
upper or lower, is not a factor in search strings.

12.3.15. .X = eXit Editor

When you enter .X, AE PRO exits the Editor and returns you to
the Command Level Prompt (-> or +>). If you were using the
.R Expanded Memory Mode, you cannot exit if the buffer con-
tains data.

You can move back and forth between the main program and the
Editor with no changes to the buffer contents, except as
noted with the .R Expanded Memory Mode.

12.3.16. .Z = Fill text to margin

When you enter .Z, AE PRO displays:

        AE: Range (x,y)? _

Enter the FROM (x) and TO (y) lines of the buffer to be
filled to the right margin specified with the .M command.
AE PRO places as many words without breaks as will fit on
that line up to the right margin. When the fill is complete,
AE PRO displays the adjusted current line number.

This command does not justify, hyphenate or pad lines -- just
places as many whole words or phrases on a line as possible.
Here are some examples:

Let's say that you have just captured the following informa-
tion from an ad on your favorite information service. It was
displayed by the service in 40 columns, and that is how it
now appears in AE PRO's data buffer:

        If you want to know how to write your
        own success story overnight, keep
        reading. It is really very simple. All
        that you need is your computer, a modem
        and a special telecommunications
        software program called ASCII Express
        "The Professional".

Now you want to fill this data to your buffer's right margin
set with the .M command to 55.   After entering the .Z fill
command, the ad will appear in your buffer as:

    If you want to know how to write your own success story
      overnight, keep reading. It is really very simple.
      All that you need is your computer, a modem and a
      special telecommunications software program called
      ASCII Express "The Professional".

Now let's say that you wanted to fill this ad within narrower
margins. With the .M command, change the margin to, say 3∅.
Now enter the .Z command again. The ad will appear in your
buffer as:

      If you want to know how to
      write your own success story
      overnight, keep reading. It
      is really very simple. All
      that you need is your
      computer, a modem and a
      special telecommunications
      software program called ASCII
      Express "The Professional".

The data in your buffer often may contain paragraphs.   To
maintain paragraphs when using the .Z command, precede each
paragraph with one blank line (c/r).

12.3.17.   . = Search for next occurrence

When you enter ., AE PRO searches for the next defined string
of characters if . or .S was the previous command. See the
.S String Search command above.

12.3.18.   .?x = Request help

When you enter .?x, where x is a legal editing command as
displayed with the .H command, AE PRO displays a description
of that command.

13. MACROS: AN INTRODUCTION

An AE PRO macro is a two-key sequence, usually executed from
terminal mode, that sends a string or series of characters or
AE PRO commands that you design to execute various host or
internal AE PRO commands while on-line. It can be thought of
as a mini-program that, when executed manually or automatic-
ally, sends characters (which could be commands themselves)
to an on-line computer, or enacts AE PRO commands on your
computer as if you were typing them yourself.

These characters and AE PRO commands typically are ones you
would use to log-on to a computer, such as The SOURCE, Compu-
Serve, BRS After Dark, Delphi, Newsnet or other timesharing
systems or bulletin boards. Instead of manually repeating a
log-on sequence each time you connect, you can create a macro
that does the repetitive work for you.

Some telephones use simple macros. All of us have numbers we
dial every day: home, work, a friend, mom and dad. If you
have a telephone equipped with a small memory, you can pro-
gram it to dial these numbers automatically. For example,
you can designate two numbers to represent your home phone
number. To call home, you would press the two numbers repre-
senting "home", and the telephone and its memory do the
dialing for you.

Similarly, an AE PRO macro can dial a phone number, but it
can do much more, too. Once a macro has connected you to an
on-line computer, it can perform a simple task, such as
sending your name when the that computer asks for it, or it
can perform a complete interactive log-on, sending your pass-
word, name and address. A more complex macro can log you on,
request certain files to be sent, turn ON the copy buffer to
save the incoming data, turn OFF the copy buffer, log you off
and hang-up -- automatically!

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We don't need macros, really. We don't need cars, either.
But if you want to go to the grocery store a mile away and be
back in 10 minutes, you can run like a cheetah, or you can
ride in a car.   If you want to telecommunicate efficiently
with your computer, you can type 360 words a minute (at 300
baud) without making a mistake, or you can pay dearly for on-
line time with some computers . . . Or you can use macros.
Macros perform at maximum speed, and they do so without
mistake. The result? Improved efficiency. And that means
saving time and money.

13.1. MACROS: A CLOSER LOOK

An AE PRO macro file can have up to 12 elements, each of
which are labeled by a numeral, $\emptyset$ through 9, or by the colon
(:) or semicolon (;). Element 1 could be your name; element
2 could be your address. It's up to you. (A subsection of
this chapter, "Macro Element Field Examples," explains macro
elements in detail.)

Each element can be executed manually while on-line with help
from AE PRO's Terminal Prefix Key (Control-W, or as defined
in Install). The Terminal Prefix Key is like a manual clutch
on a car. You must depress the clutch before you can shift a
gear. When using a macro manually, you must depress ^W (but
don't hold it down) before selecting an element of a macro
($\emptyset$-9, : or ;). Sending a macro element manually is a two-
keystroke sequence: entering the Terminal Prefix Key, then
the macro element. Thus ^W1 would execute element 1 of a
macro, sending your name perhaps.

> NOTE: The Terminal Prefix Key (Control-W) is also used
> for character substitution.

To create a macro, you need to know the exact order of your
keystrokes during a log-on session. You also need to learn a
few flow characters that AE PRO uses to control the output of
your macro. These flow characters are like traffic signals
that tell AE PRO when or how to continue with your macro. You
wouldn't type your name to a computer before it asked you to
-- it wouldn't know what to do with the wrong information.
Likewise, an AE PRO macro shouldn't send your name until the
other computer prompts it.

There are three ways you can use an AE PRO macro:

    1. Manual -- Send macro elements one at a time while on-
        line (e.g., your name).

    2. Automatic -- Complete log-on to another computer,
        from dialing the number to providing the entire
        log-on sequence (e.g., signing on to a timesharing
        system).

    3. Turnkey -- A macro that is executed automatically and
        immediately after running or booting AE PRO. An
        execution of a turnkey macro depends on how certain
        default values in Install are set. It combines
        turnkey operation with all of the features of auto-
        matic macro operation (above).

You need to use the Terminal Prefix Key (^W) to initiate all
manual macros and some automatic macros. Automatic macros
also can be executed with the Dial command (D) and may not
need to be initiated by the Terminal Prefix Key (see D com-
mand in Main Commands chapter). True turnkey macros don't
use the Terminal Prefix Key because they are executed imme-
diately after AE PRO has dialed and connected to a computer.

13.2. CUSTOM MACROS

You can create a custom macro file for each computer you
call. Each macro file contains parameters for that computer,
such as baud rate, duplex and data word format, and it con-
figures your terminal according to your specifications.

Each macro file you create is written on a disk as an "S"
(system) file unique to AE PRO. Its filename can be the name
of a dial-up computer, or an arbitrary name. You can design
as many macro files as you like, or as disk space allows.

To keep track of macro files on disk, AE PRO has a library
file called MACRO.LIB, which can display and index up to 26
macro systems. It can be reviewed at any time, on-line or
off. And keeping it up to date is easy with AE PRO's built-
in Editor.

By the end of this chapter, you should be able to understand
and use simple and complex macros. A macro such as:

        ***'*'%Ahp26%@c 30138%>id tcb117 password

no longer will appear to you as a string of typos. You will
recognize it, instead, as the intelligent mini-program it
really is.

AE PRO macros can be powerful. To use and understand them
fully, you should be familiar with AE PRO's Main and Second-
ary Commands.

    NOTE: AE PRO macros have special significance when used
    with the Hayes Smartmodem, the Novation Smart-Cat, the
    U.S. Robotics Auto Dial 212A, the SSM Transmodem and
    other ASCII-commanded external modems. Also see the
    Macros and ASCII Modems chapter for further details.

13.3. MACRO COMMAND MENU

The Update/Display Macros command (U) enters AE PRO's Macro
section and places you at the Macro Command Menu, which has
its own command and parameter options. Each macro file you
create uses the settings of these options as its reference
library. When you select a macro file to dial that computer,
AE PRO configures itself according to those parameters.

When you enter U from the Command Level Prompt (-> or +>),
AE PRO displays:

>   Current loaded: <current macro>
>   Phone: <current macro phone #>
>
>   B = Baud rate   300
>   D = Display/edit macros
>   E = Duplex   FULL
>   F = Data word format   8N1
>   K = Chat mode   OFF
>   L = Load macro from disk
>   N = XON character $11=^Q
>   O = XOFF character $13=^S
>   P = Change macro phone #
>   S = Set terminal parameters
>   T = Transpose ^H/RUB   OFF
>   U = Update from current macro
>   W = Write macro to disk
>   X = Exit to command level
>   Z = Format screen   OFF
> $ = Emulation mode   ON
>   ^ = Apple CAT port   INT
>   - = Printer-Host XON/XOFF   OFF
>   ? = Help request
>
>   Choice? _

This depicts a 40-column display. 80-column monitors display
this menu in two blocks, side by side.

13.4. MACRO MENU COMMAND DESCRIPTIONS

The Macro Command Menu allows you to set defaults for a macro
file. With this menu, you can create macro files for each
computer you call, or you can modify a macro file that al-
ready may be loaded in AE PRO's memory.

The parameters assigned to a macro file and displayed in this
menu affect AE PRO's configuration only at the following
times:

    1. After loading a system's macro file into AE PRO's
       memory, you use it to dial a computer.

    2. After loading a macro file, you update the macro's
       parameters with the Update From Current Macro com-
       mand (U), or from within a command string.

13.5. B = BAUD RATE

When you enter B, AE PRO displays:

```
        Ø = Deaf (45.5 BAUDOT)   4 = 3ØØ
        1 = 5Ø                   5 = 12ØØ
        2 = 75                   6 = 24ØØ
        3 = 11Ø                  7 = 48ØØ
                                 8 = 96ØØ

        Choice: 4_
```

Enter the number of the baud rate for the current macro. If
the Choice selection is acceptable, press c/r alone. All of
the above baud rates may not be available to you. Your modem
or interface determines which ones you can use, and the
display is changed accordingly.

13.6. D = DISPLAY/EDIT MACROS

When you enter D, AE PRO displays:

```
#0 off'Z@\h
#1 hp26
#2 c 30138
#3 id tcb117 xxxx
#4 mail read*\c\r
#5
#6
#7
#8
#9 ***'*'ZA\u1Z@\u2Z>\u3'
#: ***'*'ZAhp26'Z@c 30138'Z>id tcb117 xxxx
#;

Macro to edit? (C=Clear) _
```

These are the elements (0-9, : and ;) of a macro file that
can be executed with the Terminal Prefix Key (^W). The above
example is the macro file for The SOURCE that is included on
the AE PRO disk. If no macro file had been loaded when you
entered this command, all element fields above would have
been blank and only the macro element numbers and symbols in
the left column would be displayed.

To display any element line individually for writing or
editing, enter that element symbol (0-9, : or ;). If you
enter 9, for example, AE PRO displays:

```
#9 ***'*'ZA\u1Z@\u2Z>\u3'
```

Element 9 is an auto-logging macro that is explained later in
this chapter. If you wanted to edit or erase this macro, you
could do so by using the Editor's cursor movement and edit
keys (see the Editor chapter).

When you are finished writing or editing an element, press
c/r -- just as you would to enter a finished line in the
Editor. If you exceed the maximum buffer size while adding
or editing a macro element, AE PRO beeps once as you press
c/r. The new line is rejected, and you have to try again.
There is sufficient buffer space for very large macro groups,
but if you constantly run out of room, you may be structuring
the elements inefficiently. But as you learn how to write
macro elements, efficient element structures will become more
obvious to you. Macro elements, for example, can execute
other elements in the same macro file. They also can load
and execute other macro files.

Other options at the **Macro to edit?** prompt:

    C: Clear all of the element fields,
    c/r (Carriage return): Return to Macro Command Menu.

13.7.   E = DUPLEX FULL/HALF

Entering E toggles (FULL or HALF) the default duplex mode for
the current macro.

13.8.   F = DATA WORD FORMAT

When you enter F, AE PRO displays:

Ø	7 bits + even parity + 2 stop
1	7 bits + odd parity + 2 stop
2	7 bits + even parity + 1 stop
3	7 bits + odd parity + 1 stop
4	8 bits + 2 stop
5	8 bits + 1 stop
6	8 bits + even parity + 1 stop
7	8 bits + odd parity + 1 stop

    Choice: 5_

Enter the number of the data word format for the current
macro. If the Choice selection is correct, press c/r alone.

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Specify data word length, parity and stop bits here just as
you would in Install.

13.9. K = CHAT MODE

Entering K toggles (ON or OFF) the default Chat mode for the
current macro. OFF is the normal setting.

13.10. L = LOAD A MACRO FROM DISK

When you enter L, AE PRO displays:

    Macro name? _

Your options: filename, /, c/r, Abort key

To load a previously created macro file, enter the filename
(AE PRO appends a .MAC extension to all macro files, but you
do not have to type the .MAC), then c/r. To load the last
.MAC filename specified during the current session of AE PRO,
enter /, then c/r. To CATALOG a disk, press c/r alone. To
abort this command, enter your User Abort key.

AE PRO assumes the .MAC extension for any filename you enter.
If you enter the .MAC extension, AE PRO ignores it. Macro
files can be loaded or saved only on the disk containing
AE PRO.

When a .MAC has been loaded, subsequent displays (Macro D
command) of the Macro Command Menu will reflect the defaults
for that macro file. These values do not modify AE PRO's
main set-up unless you select the Update From Current Macro
command (U), or use the macro to dial a number.

A note to owners of a previous version of AE PRO: If you have
macro files from an earlier version of AE PRO and you'd like
to use with your new AE PRO, you can transfer them from your
old AE PRO disk to your new AE PRO disk. This process, which
eliminates the need to rebuild a macro file, uses this Load
(L) command and the Write (W) command, detailed below.

To update your new AE PRO disk with an old macro file, proceed as follows:

1. With your new AE PRO disk in the logged drive, enter the Macros section with the U command (Update/Create Macros).
2. When the disk drive stops and the Macro Menu is displayed, remove your new AE PRO disk from the drive and insert your old AE PRO disk containing the old macro file to be transferred.
3. Enter L (Load command).
4. At the Macro name? prompt, enter the filename of the old macro file, then c/r. You can CATALOG the old AE PRO disk by pressing c/r at this prompt, then enter the old macro filename when the Macro name? prompt is redisplayed. AE PRO will load your old macro file into memory.
5. Remove your old AE PRO disk from the drive, and reinsert the new AE PRO disk into the drive.
6. Make any necessary changes to the macro parameters or macro elements.
7. Now write the macro parameters in memory to the new AE PRO disk. Use the W (Write) command, described below, and use the / (slash) to retain the old filename, or enter a new filename.

Your new AE PRO disk now should be updated with the old macro file. This same process can be used within AE PRO's editor to move the MACRO.LIB library file.

13.11.   N = XON CHARACTER

When you enter N, AE PRO displays:

          XON Character
          Current: $11   New: _

Enter the character or its ASCII HEX value ($xx) to represent the XON character for the current macro, then c/r. If the Current character is correct, press c/r alone. Control-Q (^Q) is the conventional XON character.

AE PRO uses the XON character during Auto-save mode to direct
the host computer to resume sending after it had stopped it
with the XOFF character to write data to disk. A macro's XON
character must be compatible with the computer system for
which it is configured.

13.12.   O = XOFF CHARACTER

When you enter O, AE PRO displays:

>   XOFF Character
>   Current: $13   New: _

Enter the character or its ASCII HEX value ($xx) to represent
the XOFF character, then c/r. If the Current character is
correct, press c/r alone. Control-S (^S) is the conventional
XOFF character.

AE PRO uses the XOFF character during Auto-save mode to
direct the host computer to stop its sending temporarily to
write data to disk. A macro's XOFF character must be compat-
ible with the computer for which it is configured.

> NOTE: The XON/XOFF characters also play a role in the
> Printer-Host buffer control (- command, below) and file
> send (S command) XON/XOFF control.

13.13.   P = CHANGE MACRO PHONE NUMBER

When you enter P, AE PRO displays:

>   Enter new number: _

Enter the telephone number of the computer for which the
macro file is configured. Enter the number as you would with
the Dial command (D). You can use any dialing option (see
Dial command in Main Commands chapter).

> Example: 619-233-0233 would dial the San Diego area
> Telenet number.

To direct the macro to auto-log after connecting to a computer, add an exclamation point (!), followed by the macro element (∅-9, : or ;) at the end of the number. This directs AE PRO to execute the specified macro element as soon as it receives carrier from the host computer.

> Example: 619-233-∅233!7 would execute element 7 of the loaded macro when it receives carrier from the computer. If the selected element is unassigned, AE PRO ignores the ! directive.

13.14. S = SET TERMINAL PARAMETERS

A macro file can configure your terminal to emulate another terminal when you are on-line. You should be familiar with terminal emulation and ASCII HEX value tables. (See Emulation chapter.)

When you enter S, AE PRO displays:

Terminal Emulation Selection

∅	No emulation	1	Adds Regent series or Viewpoint
2	Hazeltine 15∅∅	3	Televideo 912 and ADM-31
4	Soroc IQ-12∅	5	Datamedia (8∅ col. bds.)
6	DEC VT-52	7	Dow Jones
8	ADM-3A	9	IBM 31∅1
10	Hazeltine 151∅	11	Heath H19

Current input terminal: 6
Current output terminal: 5

A = Select a terminal from above list
B = Change single emulation parameter
X = Exit

Choice? _

These options allow you to set terminal emulation parameters
for the loaded macro. There are three items worthy of atten-
tion right now:

1. If you are using a 4Ø-column display, AE PRO ignores
   your request to use this option because 4Ø-column
   monitors are incapable of terminal emulation.

2. If you do not want to emulate any terminal, set all
   values of the table to Ø when prompted for input
   and output terminal selection, as described below,
   or turn OFF the macro's Emulation mode ($ command,
   below).

3. AE PRO's Help Request (?) command is legal here for
   help with these options, even though the command
   itself is not displayed.

13.14.1. A = Select a terminal

The A option allows you to select a terminal type from the
above table for input or output. The input terminal is the
one you emulate; the output terminal is what you use (your
terminal) to do the emulation.

For example, you have an 8Ø-column board (Datamedia config-
uration) in your computer and want to communicate with a
computer that is configured to communicate with a Soroc IQ
series terminal -- in other words, you want to make the host
computer "think" your terminal is a Soroc IQ type. Take the
following steps:

Enter A. AE PRO displays:

        I)ncoming or O)utgoing? _

Enter I to select the Incoming terminal. AE PRO displays:

        Terminal selection? (Ø-11) _

Enter 4 (Soroc IQ-12Ø), then c/r. AE PRO returns you to the above display and updates Current input terminal with 4.

Enter A again. AE PRO displays:

        I)ncoming or O)utgoing? _

Enter O to select the Outgoing terminal. AE PRO displays:

        Terminal selection? (Ø-11) _

Enter 5 (Datamedia), then c/r. AE PRO returns you to the above display and updates Current output terminal with 5 (if it already had not been set to 5).

>NOTE: The DOW JONES option (7) is for the DOW JONES stock computer. It is a special display mode for that system, and you can use that selection for input only. Enter the appropriate choice for your output terminal.

13.14.2. B = Change single parameters

The B option allows you to make single changes to existing terminal tables, or to create new ones. You can define input and output parameters. Use this also to redefine specific parameters for emulation of or with terminal types not listed above (you may need to consult the operator's manual of your terminal device for specific parameters).

Any character or sequence of characters defined in the output side of the Emulation table is special. It can be sent only as a result of input-to-output conversions. If that character sequence appears in the standard data being received, AE PRO will discard it. This prevents the "double emulation" effect where two sets of character sequences can perform the same function.

Also, if a character sequence is defined in the input side of
the Emulation table, and the corresponding function of the
output table is set to zero, AE PRO will discard that se-
quence. This function might be used for "trapping" offensive
character sequences (instead of just single character
trapping offered by the suppression table.

When you enter B, AE PRO displays:

    Terminal Definition section

    Function   Incoming   Outgoing

    A XY Coord offset   2Ø   2Ø
    B XY Xmit order   YX   XY
    C Lead-in   1B   ØØ
    D Clear screen   ØC   ØC
    E Clear to EOS   CA   ØB
    F Clear to EOL   CB   1D
    G Hi-lite   ØØ   ØE
    H Lo-lite   ØØ   ØF
    I Home cursor   C8   19
    J Address cursor   D9   1E
    K Cursor up   C1   1F
    L Cursor forward   C3   1C
    M Cursor down   C2   ØA
    N Extra   ØØ   ØØ
    O Extra   ØØ   ØØ
    P Printer on   ØØ   ØØ
    Q Printer off   ØØ   ØØ

I = Incoming parameter change
O = Outgoing parameter change
X = Exit

Choice? _

The I option allows you to select the terminal type you are
emulating for the loaded macro.

The O option allows you to select (your) terminal type that
is doing the emulation for the loaded macro.

The Help Request (?) command is legal here, also.

The values displayed above for the input terminal are for the DEC VT-52. The values displayed for the output terminal are for the Datamedia (80-column board). Values always are displayed in HEX.

You can make minor changes to existing terminal parameters with the Input and Output options. When you enter either, AE PRO displays:

        Current: $xx   New: _

Enter the character or the ASCII HEX value ($xx) of that character for the particular function, then c/r. If the Current character is correct, press c/r alone. AE PRO updates the table with your selection. When you are finished defining these parameters, enter X to exit this submenu and return to the Terminal Emulation Selection submenu.

When you change a parameter for the input or output terminals, AE PRO places <Modified> to the right of the appropriate listing, as in:

        Current input terminal: 6 <Modified>

AE PRO's emulation tables also have special assistance features:

1. If a host computer sends characters that disrupt your terminal or 80-column card, for example, you can use the emulation tables to disable these characters -- AE PRO can receive these characters and discard them. Define offending characters in the Input parameters section, but set the corresponding Output parameters to 0. You can use this disabling feature for any Input parameter, except printer pass-through or address cursor.

The difference between this approach to character
suppression and that of the actual Character Sup-
pression Table defined in Install is twofold. First,
it allows multiple character sequences to be trapped.
Second, it will trap characters or sequences on their
way to the display from any source, such as   an
Editor listing, viewing the buffer, etc., whereas the
Character Suppression Table works only on incoming
data while in terminal mode.

2. If a host's "Home" cursor character positions your
   cursor in the lower-left corner of the display in-
   stead of the upper-left corner, set the output side
   parameter to $FF. This simulates GOTOxy∅,∅, which
   positions your cursor in the upper-left corner. An
   ADDS Viewpoint terminal is one in which this would
   apply.

13.15.   T = TRANSPOSE ^H/RUB

Entering T toggles (ON or OFF) the default Transpose mode of
the loaded macro. (See the Secondary Commands chapter.)

13.16.   U = UPDATE FROM CURRENT MACRO

When you enter U, AE PRO configures itself to the parameters
of the loaded macro file. Macro files can be loaded anytime
-- even while on-line to a host computer -- but its param-
eters are not put into effect until this U command or Dial (D
command) from macro command is executed.

You also can use this command while on-line to update macro
file parameters. For example, if your computer were set to
the improper data word format, you could:

1. Exit terminal mode with the Terminal Escape Key (^Q);
2. Enter U from the Command Level Prompt (+>);
3. Enter F from the Macro Command Menu and select an-
   other word format;
4. Enter U to update the parameters, and

5. Enter X to exit the Macro Command Menu.   AE PRO re-
   turns you to terminal mode.

Be sure to write the newly configured macro file to disk (see
below) if you want to save the parameters.

13.17. W = WRITE MACRO TO DISK

When you enter W, AE PRO displays:

        Macro Name? _

Your options: filename, /, c/r, Abort Key

Enter the filename to represent this macro (AE PRO assumes a
.MAC extension to a macro filename, regardless of whether you
add it), then c/r. To use the last macro filename specified
during the current session of AE PRO, enter /, then c/r.   To
CATALOG a disk, press c/r alone. To abort this command,
enter your Abort key.

Only .MAC files written to disk by the Macro Command Menu's W
(Write) command can be loaded automatically under control of
the "MACRO.LIB" library file, or the L command (see above).

    NOTE: Remember, AE PRO can use macro files that are
    written to disk only with this W command. All macro
    files written to disk in this manner are written on the
    AE PRO program disk and must remain there to be used.

If you are a previous owner of AE PRO, see explanation under
L Load) command for transferring old macro files from a
previous version of AE PRO to your new AE PRO disk.

X = EXIT TO COMMAND LEVEL

When you enter X, you exit the Macro Command Menu and return
to the Command Level Prompt (->), or to terminal mode if
on-line. All data remains intact, and you can re-enter the
Macro section anytime with the Update/Create Macro command
(U).

13.18. Z = SCREEN FORMATTING

Entering Z toggles (ON or OFF) the default Screen Formatting
mode for the loaded macro. (See the Secondary Commands
chapter.)

13.19. $ = EMULATION MODE

Entering $ toggles (ON or OFF) the default Emulation mode of
the loaded macro. (See the Secondary Commands chapter.)

13.20. ^ = APPLE CAT PORT SWITCH

Entering ^ (only when the Novation Apple-Cat modem is in-
stalled) toggles (INT or EXT) the default Apple-Cat port
switch mode for the loaded macro. (See the Modem Differences
chapter.)

13.21. - = PRINTER-HOST XON/XOFF

Entering - toggles (ON or OFF) the default Printer/Host
XON/XOFF character mode for the loaded macro.

This is a special option for cases where a slower printer or display device is used on-line with a host computer. In most hardware cases, AE PRO uses a built-in 256-byte printer and interrupt buffer to compensate for a printer or display device that may be processing data slower than the host is sending. In cases where the host is operating considerably faster than even a buffered printer or display device can accommodate, extra flow control is needed.

The Printer-Host XON/XOFF option, when enabled (ON), sets the extra flow control. When the balance of data in the printer or interrupt buffer comes within 6∅ bytes of capacity, AE PRO sends XOFF to the host to direct it to stop sending, waits for the printer or display device to process all of the buffer contents, then sends XON to the host to direct it to resume sending.

13.22.   ? = HELP REQUEST

When you enter ?, AE PRO displays:

          Help on: _

Enter any legal option on the Macro Command Menu for a description of that command.

14. THE MACRO.LIB LIBRARY FILE

The MACRO.LIB Library File is a display and indexing file of
the .MAC macro files on disk that were created by AE PRO.
The MACRO.LIB file can help you select a macro file to load
into AE PRO's memory.

To display the library file, enter M (Macro Select/Review
command) at the Command Level Prompt (-> or +>). AE PRO
displays:

        Select? (A-Z,/,?) _

The slash (/) option at this prompt is used to display the
library file. Enter /. AE PRO displays:

        A   PMS Santee   stpms
        D   Source   source
        F   Online   online
        I   MicroNet   mnet
        J   Smartmodem   hayes

        ->_

This display is contained on the library file on the AE PRO
program disk. The first column contains the index character
for each macro file. The second column contains the name of
the computer for which each macro file is configured.   The
third column contains the filename of each macro file (the
macro file .MAC extensions are implied). After displaying
the library file, AE PRO returns you to the Command Level
Prompt (->), or to the terminal mode if on-line.

To load a macro file into memory, enter M again at the
Command Level Prompt. At the Select? (A-Z,/,?) prompt, enter
the index character (A-Z) of the macro file you want to
select. For example, to load the "STPMS" macro file, enter
A, the index character of that file. "STPMS" is a macro file
for PMS Santee, a bulletin-board computer in Santee, Calif.
AE PRO loads the "STPMS" macro file, then displays:

        PMS Santee <Macro loaded>

If you enter an index character not displayed by the library file, AE PRO ignores your request and returns you to the Command Level Prompt, or to the terminal mode if on-line.

If the dial after loading macro option is selected in Install, the macro will proceed to dial the number of that computer (a dialing modem must be installed).

14.1.   Creating MACRO.LIB

The MACRO.LIB file is a DOS sequential text file that you can create or modify with AE PRO's Editor.   Enter the Editor (Y command) and load the MACRO.LIB file included on the AE PRO program disk with the Editor's .G command.

AE PRO loads the file into the data buffer and displays:

            AE: Used- 87, Free- 25678 (or your remaining space)

            >6

            —

List the contents of the buffer (the MACRO.LIB file) with the Editor's .L command.   AE PRO displays:

            0>
            <c/r>
            1>
            a/PMS Santee/stpms
            2>
            d/Source/source
            3>
            f/Online/online
            4>
            i/MicroNet/mnet
            5>
            j/Smartmodem/hayes
            >6

            —

    NOTE: The first line should be c/r alone.

The library file in the Editor is displayed much the way it would be with the Macro Select/Review command (M), except that the "fields" in each line are separated by a slash (/).

The first field of each line contains the index character:

>   a/PMS Santee/stpms
>   d/Source/source
>   f/Online/online
>   i/MicroNet/mnet
>   j/Smartmodem/hayes

It can be any alphabetical character (upper or lower case is unimportant), and the characters do not have to be in sequential order. Punctuation characters or numbers are not allowed in this field.

The second field contains the name of the computer for which each macro file is configured:

>   a/**PMS Santee**/stpms
>   d/**Source**/source
>   f/**Online**/online
>   i/**MicroNet**/mnet
>   j/**Smartmodem**/hayes

The third field contains the filename of the macro file:

>   a/PMS Santee/**stpms**
>   d/Source/**source**
>   f/Online/**online**
>   i/MicroNet/**mnet**
>   j/Smartmodem/**hayes**

Enter the lines of your MACRO.LIB file by listing each "field" in this manner, using / between each field. Do not use / within the actual text. In all fields, character case affects display only.

NOTE: When a macro file is loaded by specifying an index
character (A-Z), AE PRO searches the disk for the macro
filename found in the third column of that entry of the
MACRO.LIB file. Therefore, you must enter the exact
filename of the macro (minus the .MAC extension) in the
third field of the MACRO.LIB file when creating or
modifying MACRO.LIB. If you misspell the filename in
the third field, or if you leave it blank, when you try
to select a macro file with its index character, AE PRO
sends you an error message and returns you to the
Command Level Prompt, or to the terminal mode if on-
line. Nothing will be loaded.

14.1.1. The Current Library

Now that you've seen how to structure the MACRO.LIB file, you
can update it easily to include the macro files for your
favorite dial-up computers.

For example, let's say you already have created a macro file
for a bulletin board system you like to call, and you gave
that macro file the filename "BULLET". You'll use that
"BULLET" filename to help update the library file, which we
loaded earlier. Proceed as follows:

1. If you are not at Line 6 of the buffer, list the
   contents with the .L command. The MACRO.LIB file as
   displayed earlier will be redisplayed, and you will
   be placed at Line 6, the first available line of the
   buffer:

        >6
        —

2. On Line 6, structure the three fields of your macro
   listings as described above. Enter an index char-
   acter, the name of the computer and macro filename,
   such as:

        >6
        n/Bulletin/bullet<c/r>

After pressing c/r, AE PRO should place you at Line
7 of the buffer.

3. Now to save the updated MACRO.LIB file to disk, enter
   the Editor's .P command and use the slash (/) option
   to use the last filename specified, MACRO.LIB, as in:

   >7
   .P/<c/r>

   AE PRO writes the new contents to disk and returns
   you to Line 7.

4. Exit the buffer with the Editor's .X command. AE PRO
   returns you to the Command Level Prompt (->).

Now let's view the revised library file. At the -> prompt,
enter M (Macro Select/Review command). AE PRO displays:

        Macro to edit? (A-Z,/,?) _

Enter / to display the library file. AE PRO displays:

        A   PMS Santee   stpms
        D   Source   source
        F   Online   online
        I   MicroNet   mnet
        J   Smartmodem   hayes
        N   Bulletin   bullet

        ->_

Now you can see that the MACRO.LIB file is up to date. You
can load your new "BULLET" macro file by using the M (Macro
Select/Review command). At the Macro to Edit? prompt, enter
N, the index character of the Bulletin computer. AE PRO
loads the file into memory and displays:

        Bulletin <Macro loaded>

        ->_

This message indicates that AE PRO successfully found and loaded the "BULLET" macro file. You now could use this loaded macro to dial that bulletin board computer.

14.2. WRITING A MACRO

By now, you should have a good understanding of how to configure a macro system file to suit another computer and how to manage the library file. Now let's look at the macro element strings themselves.

As we've already mentioned, macro strings can be simple text, such as a password, or they can be complex directions, such as logging on to a computer system. First, let's look at some examples of simple text macros. Your name could be one; your city and state could be another:

    #1 Harry Jones
    #2 Los Angeles, CA.

These two strings could be elements 1 and 2 of a macro file. When connected to a host that prompted for your name, you could send element 1 by entering the Terminal Prefix Key (^W), followed by 1. Thus ^W1 sends Harry Jones. When the host prompted for your address, you could send element 2 by entering ^W2, which sends Los Angeles, CA.

You should be able to see, now, how a macro could expedite a log-on for you. Instead of entering each letter of your name and address, using ^W and the element number for each string easily could save you 2Ø keystrokes for these two elements alone. Now consider that you could design these strings so that they could be sent automatically in response to specific prompts sent by a host computer, and you can see how a macro can save you time, too.

This is where AE PRO's macro flow characters come into play. A macro can include special symbols that control output of a string of characters, or perform internal commands on AE PRO itself, such as turning ON the copy buffer at a precise time to capture data.

14.3. Macro Flow Characters

AE PRO's macro flow and command characters can be thought of as the brains of a macro. When you place them properly in your macro strings, they can bring your macros to life and can be extremely powerful. The flow and command characters, which also can be redefined in Install, are:


```
              * = Delay
              ' = Carriage Return
              % = Handshake
        <xyz> = String Handshaking
            ~ = Conditional handshake
            = = Wildcard handshake
            @ = Literal
            ? = Slow
            | = Border character
            \ = AE PRO command character
```


14.3.1. * = Delay

This character (default is *), when placed in a macro string, directs AE PRO to wait approximately 1/2 second before resuming execution of the macro string. You can enter this character in multiples for longer delays.

14.3.2. ' = Carriage Return

This character (default is '), when placed in a macro string, directs AE PRO to send a carriage return. Carriage returns can be placed anywhere within a macro, providing the other computer can act upon it at that point.

There is always an implied carriage return at the end of any
macro string, so do not use this character there if you want
a carriage return sent.

If you want to suppress the implied carriage return normally
sent at the end of a macro string, end the string with the
c/r (') character. This is the only time a ' withholds a
carriage return.

14.3.3. % = Handshake

This character (default is %), when placed in a macro string,
directs AE PRO to halt execution of the macro until it re-
ceives the character following the % in the macro string.

This is a key macro command. It controls, or "paces," your
macro element(s) so that they are sent precisely at the
correct time. For example, if during a log-on process a host
prompted for your name with a question mark (?), you would
"handshake" like this:

        %?Harry Jones

Thus when AE PRO receives, or handshakes, with the "?", it
sends your name.

A macro is in a "held" state when waiting for handshaking.
If you wanted to abort this "held" state, thus aborting the
macro element (perhaps the host did not send the prompt you
expected), you can press c/r or ESCape. AE PRO does not
indicate this aborting visually, but it is not necessary to
repeat this process. The held macro can be "tripped" by
entering the character it is waiting for manually from the
keyboard. The macro will then continue its execution just as
if the character had come from the host computer.

14.3.4. <xyz> = String Handshaking

These characters (words or character strings), when placed in a macro string, direct AE PRO to halt execution of the macro until it receives the string of characters within the angle brackets (< and >). You can direct AE PRO to handshake on whole words or phrases, as in:

    <name?>Harry Jones

14.3.5. ~ = Conditional Handshake

This character (default is ~), when placed in a macro string, directs AE PRO to take one of two possible steps, depending on which character it receives. You would specify the two character possibilities. It is similar to the Z handshake, but has a more specific format. Programmers may think of it as IF THEN ELSE IF THEN logic.

The conditional macro format is:

        [macro string]~xyn[continued macro string]

    ~   begins the conditional handshake sequence.
    x   is the character that, if received, continues   the
        rest of the macro starting after the yn.
    y   is the character that, if received, aborts the macro
        string in progress, then executes element n of the
        loaded macro file.

See "Macro Element Field Examples" below for specific examples.

14.3.6. = = Wildcard handshake

This character (default is =), when placed in a macro string, directs AE PRO to halt the execution of the macro string until the next character is received, whatever it is.

14.3.7. @ = Literal

This character (default is @), when placed in a macro string, directs AE PRO to take the next character in the macro string literally. You can use this to send a character that normally is used as a command to AE PRO. For example, to send a %
(normally a handshake command character) in a log-on password string, enter @% in the macro string. The @ will not be sent, but the % will. To send a @, enter @@.

This character is considered literal except when it is the object of a conditional handshake logic.

14.3.8. ? = Slow Macro

This character (default is ?), when placed as the first character of a macro string, directs AE PRO to execute the rest of the macro string at approximately 1/3 speed. Some computers cannot accept data at the full selected baud rate.

If the host computer appears to be losing data during macro sends, try this character. When used as a slowing character, AE PRO does not send the ?. The slow macro character must be the first character of a macro element. If it is placed elsewhere, AE PRO will consider it standard text.

14.3.9. | = Border character

This character (default is |) can be placed in a macro string for visual aid. It can help you visualize the steps of a macro string. For example:

              |%>|your name'|%>|password'|~$#9|read

The | borders or frames command sequences to show where one
macro segment ends and the next begins. In this example, the
first segment is a handshake, the second sends your name, the
third is a handshake, the fourth sends your password, and the
fifth is a conditional handshake that looks for a $ or a #.
If it receives a $, it sends the sixth segment, "read." If
it receives a #, it executes macro element 9.

> NOTE: AE PRO does not send the border character unless
> it is preceded by the literal (@) character. Do not
> place it within a command sequence unless it is involved
> in handshaking from the host computer.

14.3.10.   \ = AE PRO Internal Command

This character (default is \), when placed in a macro string,
directs AE PRO to take the next character(s) in the string as
an AE PRO command to be executed on your computer.

The valid commands are:

    B: Send BREAK
    C: Clear AE PRO data buffer
    EF: Set duplex to Full
    EH: Set duplex to Half
    Ftp<filename>!: Forward <filename> to host. Use t as a
        designator for L)ine or C)haracter (t position=C
        for Character mode -- anything else in that
        position assumes Line mode). Use p as prompt for
        send. (Use space in this position for no prompt --
        or else any other character entered will be the
        prompt itself). If this is not the last command of
        a particular macro element, the ! character can
        terminate the filename.
    Gx<filename>:Get macro file <filename> (do not use .MAC
        extension) and when loaded, execute element x.
        This command must be at the end of a macro element.

H: Hang up phone

Ix: Set Baud rate to **x**, where **x** represents the baud rate appropriate for your modem. If you select a baud rate too low for your modem, then next highest legal rate is selected. If you select a baud rate too high for your modem, the next lower legal rate is selected. The number to use corresponds to those in the Baud rate (B command) display.

K, K+, K-: Turn Chat mode ON (K or K+) or OFF (K-)

Lx: Link to macro element **x**. Go to element **x** and execute it from its beginning.

Mx: Multiple Re-send of current macro, then execute element **x**, which represents a string match. Use this when a particular character or string (or other sequence of commands) needs to be sent repeatedly until a certain other string match is found. See examples.

P, P+, P-: Turn Printer ON (P or P+) or OFF (P-)

R, R+, R-: Turn Copy Buffer ON (R or R+) or OFF (R-)

S: Set current macro parameters. This is synonymous with the Update From Current Macro (U) command of the Macro section. This can be useful after using the Gx<filename> command above to update AE PRO with the parameters of the newly loaded macro.

T, T+, T-: Turn Transpose mode ON (T or T+) or OFF (T-)

Ux: Use macro element **x** as a subroutine

W: Write Buffer to disk. This is an extension of the Auto-save mode. The contents of the buffer are written to disk using the Auto-save filename and the next logical extension in the Auto-save progression (.AE1, .AE2, etc.). If the buffer is empty, AE PRO ignores the command.

X: Exits AE PRO immediately. If the EXEC file on exit option in Install had been set, it will be executed just as if a standard program exit had occurred.

Z, Z+, Z-: Turn Screen Format ON (Z or Z+) or OFF (Z-)

14.4. MACRO ELEMENT FIELD EXAMPLES

Each macro string element must be carefully configured.
There are sample files on the AE PRO program disk. Here is
an example for The SOURCE dialing through Telenet. It can be
found on your disk as SOURCE.MAC:

```
#0  off'%@\h
#1  hp26
#2  c 30138
#3  id tcb117 xxxx
#4  mail read*\c\r
#5
#6
#7
#8
#9  ***'*'%A\u1%@\u2%>\u3'
#:  ***'*'%Ahp26'%@c 30138'%>id tcb117 xxxx
#;
```

Each element can be executed with the Terminal Prefix Key
(^W) from terminal mode. The 9 and : elements are auto-log
elements of this macro file. Element 9 uses other elements
as subroutines (\u1, \u2, \u3), and element : contains the
entire log-on string sequence. They perform identically.
Either can be sent with the Terminal Prefix Key (^W) or
configured to be sent automatically (see below). If you
enter ^W, followed by the macro element you want to execute,
AE PRO sends the macro elements at the current baud rate
unless there is a slow (?) character at the beginning of an
element.

The breakdown for each macro element above is as follows:

```
#0 off'%@\h
     off': Send "off" followed by "'" (c/r).
     %@: Wait for "@" (sent by Telenet).
     \h: When "@" is received, direct AE PRO to hang up.
#1 hp26: Send  "hp26", a code Telenet uses to identify
     your terminal type.  "D1" also may be used.
```

#2 c 30138: Instruct Telenet to connect to System 30138
   (actually system 38 in Area Code 301), which is the
   code for System 11 of The SOURCE.
#3 id tcb117 xxxx: Send your ID number and password.
#4 mail read*\c\r
   mail read: Send command to The SOURCE to display
      your mail.
   *: Delay output of macro for 1/2 second.
   \c: Clear AE PRO's data buffer.
   \r: Turn ON AE PRO copy buffer.
#5 Unused element
#6 Unused element
#7 Unused element
#8 Unused element
#9 ***'*'ZA\u1Z@\u2Z>\u3': Auto-log using elements 1, 2
   and 3 as subroutines (see description below).
#: ***'*'ZAhp26'Z@c 30138'Z>id tcb117 password: This is
   the auto-log macro element (see description below).

14.4.1. Auto-log Macro Element

Element ":" of the above macro is the auto-log element of the
SOURCE macro example:

   #: ***'*'ZAhp26'Z@c 30138'Z>id tcb117 password

It can be executed by ^W from terminal mode, or you can
direct AE PRO to execute it automatically after dialing the
phone number and receiving carrier from Telenet. (See the
Change Macro Phone Number command (P) in the Macro section.)

Here is a breakdown:

   ***': Wait three time periods and send "c/r".
   *': Wait one time period and send "c/r".
   ZA: Wait for Telenet to send the "A" character in the
      "TERMINAL=" request it sends.
   hp26': Send "hp26" and "c/r" to identify your terminal
      type.
   Z@: Wait for Telenet to send its command prompt "@".
   c 30138': Instruct Telenet to connect to System 30138
   Z>: Wait for The SOURCE to send its sign-on prompt ">".

id tcb117 xxxx: Send your ID and password. There is no
  ′ (c/r) because this is the last instruction of a
  macro element, and the final "c/r" is implied.

14.4.2. Subroutine Macros

Element 9 in the example is an auto-logging element that uses
data in earlier elements from which to build:

    #9 ***′*′ZA\u1Z@\u2Z>\u3′

With this macro structure, you can change certain macro
information in one field, and the other references to it will
be updated automatically.

Here is a breakdown:

  ***′: Wait three time periods and send "c/r".
  *′: Wait one time period and send "c/r".
  ZA\u1: Wait for Telenet to send the "A" character in the
      "TERMINAL=" request it sends, then execute element
      1 as a subroutine (send "hp26"), then return to
      resume this element.
  Z@\u2: Wait for Telenet to send its command prompt "@",
      then execute element 2 as a subroutine (send
      C 3Ø138), then return to resume this element.
  Z>\u3′: Wait for The SOURCE to send its sign-on prompt
      ">", then execute element 3 as a subroutine (send
      ID and password), then return to resume this ele-
      ment, where the implied c/r is suppressed because
      one is sent at the end of element 3, and a second
      one would not be needed.

NOTE: The \U option allows subroutine nesting of one
level only. A macro called as a subroutine cannot
successfully call yet another macro then return to the
original calling macro. If you attempt this, AE PRO
forgets the original macro.

14.4.3. Conditional Macros

A conditional macro, as described previously, is programmed
to execute one of two possible options, depending on which of
the two following specified characters it receives. The
following macro element logs you on to a PMS bulletin-board
system, then executes one of the two following possibilities:
reads mail if you have it,, or scans messages if you don't.

    %^J'%:N'%?Your name'%?City, State'%?phone'%?y'~)?7y'

Here is a breakdown:

    %^J: Handshake request for "^J" (linefeed).. This is one
         of the first characters PMS sends when called.
         AE PRO waits for it before sending the next
         character.
    ': Send carriage return. This "wakes up" PMS and starts
       log-on procedure.
    %:: Wait for the ":" colon.. PMS sends this when it asks
        if you have a USER ID.
    N': Send "N" and "c/r" to tell it you do not.
    %?: Wait for the first question mark (?). PMS asks for
        your name.
    Yourname': Send "your name" and "c/r".
    %?: Wait for the second question mark (?). PMS asks for
        your city and state.
    City,St.': Send your "city, state" and "c/r".
    %?: Wait for the third question mark (?). PMS asks for
        your phone number.
    number': Send your "phone number" and "c/r".
    %?: Wait for the fourth question mark (?). PMS asks if
        the information you have sent is correct.
    y': Send "y" (for yes) and "c/r". PMS then continues
        the log-on procedure.

~)?7: A conditional macro sequence. Wait for either the
")" or "?". If you have mail waiting for you, PMS
sends a message that displays a ")". If you have
no mail, PMS places you at its command prompt, the
"?". If the ")" is sent, AE PRO skips the
remainder (?7) of this sequence and continues with
the rest of the macro string. If the "?" is sent,
AE PRO links to macro element 7, which would exe-
cute a PMS command to scan messages.

y': If the ")" was sent in the above conditional macro,
AE PRO skips to this command, which sends a "y"
(for yes) and suppresses the final "c/r". This
tells PMS that you want to read your mail.

14.4.4. String Handshaking

The string handshaking command, which enables AE PRO to hand-
shake on a word or phrase rather than a character, can be
very useful when seeking to handshake on a word or a string
of characters that is unique.

Here is an example of an auto-log element for CompuServe,
which incorporates the <ok> string handshake into the string
because "OK" is CompuServe's command prompt:

***^CZ:70315,1305'Z:password'<ok>r maug

Here is a breakdown:

***^C: Waits three time periods, then sends a Control-C,
to "wake-up" CompuServe.
Z:: Waits for the : (colon) before sending CompuServe
your account number.
70315,1305': Sends account number, then a "c/r".
Z:: Waits for next : before send your password.
password': Sends your password, followed by a "c/r".
<ok>: Waits for the "OK" string sent by CompuServe
(assuming you have your CompuServe defaults set to
exit the menu driven mode) before sending the next
command.

r maug: When the macro is released by the above string
handshake, sends the "r maug" command to CompuServe
to Run the Micronet Apple Users Group bulletin
board.

Be careful when using the string handshake command. When
AE PRO receives the string, the macro is released or
triggered. Using a common word as your handshake string may
cause your macro to be triggered unexpectedly.

NOTE: If your CompuServe password consists of two words
separated by a character and that character also is a
macro action character, such as % or *, you must precede
that character with AE PRO's literal macro character
(@). Thus if your password is "big*apple," write your
password in the macro element as "big@*apple."

14.4.5. Macro Controlled File Send

Standard ASCII files can be sent under control of a macro
series. In the following fragment, a file by the name of
FOON is sent:

    \fL?foon!

The breakdown:

    \f: Tells AE PRO to forward a file.
    L: Designates L)ine send mode.
    ?: Sets ? as the handshaking prompt
    foon: is the name of the file to send.

The actual filename may be terminated in one of two ways: by
a ! following the filename, or by the implied c/r if that
filename is the last command in a given macro. Slot, drive
and volume parameters also may be specified in the filename
in standard DOS 3.3 syntax.

14.4.6. Repeat Until Condition Macros

The Repeat until macro is a special type. It would be used
with host computers that require repeated "wake-up" attempts,
such as a system where you would enter c/r repeatedly until
it responded in a particular way. The macro elements:

> #1 '\m2
> #2 <welcome>your log-on sequence starts here

would send a c/r (indicated by the ' character in element 1,
which is the initiator) and link to element 2 to search for
the string "welcome". If that string was not found in 1 1/2
seconds, element 1 would be re-executed. This cycle would be
repeated indefinitely until the "welcome" string was found.
Then the remainder of element 2 would be executed. A repeat
until macro of this type must use two distinct macro elements
to work.

14.4.7. Mix and Match

All macro commands and options can be mixed to perform
interactive procedures with another computer. But be sure to
visualize complete macro segments thoroughly.

Take notes during a manual log-on sequence to refer to when
creating a macro. Or, better still, capture a log-on session
with AE PRO's copy buffer, then examine it when you are off-
line to help cut on-line charges.

Also, there are two AE PRO commands (preceded by the Terminal
Escape Key, ^Q) that can help you solve an on-line problem:

> Control-show command (A)
> and
> Update Macro command (U)

With the Control-show command (A) you can view the control
characters being sent by the host computer. Normally, you
wouldn't want them cluttering your display. With the A com-
mand ON, you may be able to find a control character that may
be causing a problem. If you find the guilty character - and
it is a character your display device can live without - you
could define it in Install as a character to be suppressed.

With the Update From Current Macro command (U), you can
experiment with configurations. When you find the right com-
bination, write the new macro configuration to disk while on-
line, or later when you hang up.

Remember: Any time your macro "hangs", you can press c/r to
abort the active element. It is your safety valve. You then
can take over manually, or try another macro element.

15. MACROS AND ASCII-COMMANDED MODEMS

This chapter is intended only for owners of ASCII-commanded
external modems. Among the modems in this category are the
Hayes Smartmodem, the Novation Smart Cat, the U.S. Robotics
Auto Dial 212A, the SSM Transmodem, the Multi-Tech MT212ad,
Bizcomp Versamodem, and others.

ASCII-commanded external modems are becoming increasingly
popular because of their indiscriminate taste in computers:
they rely only on an RS-232 serial interface to perform.
This means they can work with any computer that has an RS-232
serial port.

This versatile advantage carries with it what could be consi-
dered an inconvenience as far as AE PRO is concerned: this
type of modem cannot be commanded in ways similar to other
modems. This is because it is controlled by ASCII commands
that are sent to it through the same RS-232 line that is used
for communicating.

Two AE PRO commands, for example, that will not work as
described elsewhere in this manual are the Dial (D) and Hang-
up (H) commands, unless the DTR/DSR (Data Terminal Ready/Data
Set Ready) serial interface circuits are supported by your
interface card.

Though this may appear to be a problem for AE PRO, we will
see how AE PRO's powerful Macros can be used to command these
modems in addition to commanding a host computer and certain
functions of AE PRO as described previously.

To understand the significance of this chapter, it is neces-
sary that you read and understand the previous chapter on
Macros. Also you must know the specific command procedures
and parameter defaults of the modem as outlined in the opera-
tor's manual of your external modem. If you are unfamiliar
with these subjects, take time to learn them before contin-
uing to read this chapter.

15.1.   SOME GROUND RULES

To use these modems correctly with AE PRO, it is necessary to
set two defaults in the Install's System Default Menu 4.
These options, Permanent Carrier and Smartmodem Installed,
need to be set to YES. The Permanent Carrier option is
necessary to be able to send commands to an ASCII-commanded
external modem at any time. The Smartmodem Installed option
applies to all modems of this type and is necessary to prop-
erly enable remote Unattended Operation.

To command these modems when they are not connected to a host
computer, you must send them an attention sequence or charac-
ter. To command them when a connection is established, you
must send them an escape sequence or character.

The exact sequences may vary for each modem. The Smartmodem
and the Auto Dial 212A use similar command sequences, and we
usually will look at these modems together. The Smart Cat's
command sequences, however, are different and must be dealt
with separately. Keep in mind that if you are using another
similar type of modem, you may have to adjust your commands
accordingly.

15.2.   DIALING A NUMBER

When not connected to a computer, you first must get the
modem's attention before being able to perform a function.
The attention sequence for the Smartmodem and the Auto Dial
212A is:

            AT

To begin a dialing sequence, you must enter the modem's dial
command:

            D

Then you would enter the phone number of the computer, as in:

        619-555-1212<c/r>

In string form, it would appear as:

        AT D 619-555-1212<c/r>

Spaces, hyphens and parentheses are ignored, so:

        AT D 619-555-1212
        AT D (619) 555-1212
        ATD6195551212

all are legal.

If you want to dial a number with Touch-Tone, you may need to enter the Touch-Tone command in the number string because the Smartmodem and Auto Dial may default to pulse dialing mode. Thus to dial the above number in Touch-Tone, the attention sequence and the dial command would be:

        AT D T 619-555-1212<c/r>

The number will be dialed, then the modem will wait 3Ø seconds for the other computer to connect. If no connection is made, the modem will display:

        NO CARRIER

If connection is made, the modem will display:

        CONNECT

and enter DATA mode. From this point on, you can send and receive data with the host computer for as long as you are connected. AE PRO's Terminal Escape Key (^Q) can be used to issue most commands that normally could be used while on-line, including the Copy buffer (R), sending (S) a file and receiving a file by protocol (G).

The Smart Cat's attention and dial command sequence is:

        %D I619-555-1212<c/r>

The Z is its attention character. The D is its dial command.
The Smart Cat, unlike the Smartmodem and Auto Dial, requires
a space immediately following the D, or any other command,
before a command argument or string can be continued. The I
sets the Touch-Tone dialing mode, then the number follows.

After dialing, the Smart Cat displays:

        ZRING

for each ringback it detects. When the call is answered and
connection is made, the Smart Cat displays:

        ZREADY

This is its signal that it is in DATA mode, and you can send
and receive data as normal with the host computer.

15.3. HANGING UP

To disconnect a call with the Smartmodem and Auto Dial, you
cannot use the AT attention sequence because it would be
taken for actual data. Instead, you must issue an escape
string. For some modems, it consists of a slight pause
followed by the default escape string:

        +++

The Smartmodem and Auto Dial will respond with:

        OK

Then you can enter the attention sequence, followed by the
modem's hang-up command:

        AT H

The modem should hang up and display: OK.

230

To disconnect the Smart Cat, enter its attention character, followed by its hang-up command:

>   %H

The Smart Cat should hang up and display: %OK.

> NOTE: For your modem to disconnect from the phone line, your interface card must support the DTR/DSR (Data Terminal Ready/Data Set Ready) serial interface circuits. See the Modem Differences Chapter for an explanation.
>
> Also, a few modems, such as the SSM Transmodem, may require a delay during the hang-up procedure to disconnect properly. If this is necessary, set a hang-up time delay in Install's System Defaults Menu 1.

15.4. USING MACRO STRINGS

Now that you've seen some string commands issued with these modems, you should be able to see how AE PRO's macros can perform them.

15.4.1. Macros to Dial and Connect

A simple macro to dial the Smartmodem and Auto Dial would be:

    AT D T 555-1212

If the Smartmodem or Auto Dial receive a carrier from the host computer, they will respond with CONNECT. If no carrier is detected after 30 seconds, they will respond with NO CARRIER. Knowing this and also that the Smartmodem and Auto Dial usually respond with OK when a command is issued, you can build control macros that "handshake" with these modems.

To perform an auto-logging procedure when you connect to a
host after a dialing sequence you could use:

        AT D T 555-1212'<CONNECT>[then use your log-on here]

<CONNECT> is an AE PRO string handshake on "CONNECT".

Thus if you place this macro example directly in front of an
auto-logging element, such as one described in the previous
chapter, then you can see how the two macro strings can
combine to control the modem and the host.

A macro example for the Smart Cat needs extra care because
the Smart Cat's attention character (%) is the same as
AE PRO's default macro handshake character. (%).   To send the
Smart Cat's attention character in a macro, you must precede
it with AE PRO's literal macro character (@). Thus:

        @%D I555-1212'<READY>[then use your log-on here]

If the literal macro character were not used here, the macro
would wait for a "D" that would not come and thus would
"hang" indefinitely until you aborted it with a c/r.

<READY> is an AE PRO string handshake on "READY", which the
Smart Cat sends when it connects to a host.

15.4.2. Macros to Hang Up

If you are connected to a host computer that does not termi-
nate the connection on its own when you log-off, such as
Telenet and many others, you need to direct the Smartmodem
and Auto Dial to drop the connection for you. The following
macro will perform this function only if you are currently
online to a host computer:

    *+++<OK>*AT H

Note the important pause leading the macro. This is necessary to provide a timing reference. Here is a breakdown:

*	.5-second wait interval
+++	ESCAPE character sequence
<OK>	Handshake with the "OK" displayed to signal it it has responded to the "+++" attention request and is ready for a command
*AT H	Wait 1/2 second, then hang up the line.

Log-off commands and modem hang-up commands can be intermixed to allow one macro entry to perform your entire log-off procedure. An example can be borrowed from the preceding chapter to log off from The SOURCE and disconnect from Telenet. We'll then modify it to tell the modem to hang up:

   off'%@*+++<OK>AT H

The breakdown:

off'	log-off command for The SOURCE and c/r
%@	handshake on Telenet's @ command prompt
*+++	wait a single time period, followed by the "+++" ESCAPE sequence
<OK>	handshake on the "OK" response indicating the modem received the "+++" attention sequence
AT H	tell modem to hang up

For the Smart Cat, a macro to log-off from The SOURCE, disconnect from Telenet, then hang up is:

   off'%@@%H

The breakdown:

off'   log-off command for The SOURCE and c/r

Z@   handshake on Telenet's @ command prompt

@ZH   the macro literal character (@) allows the Z
              to be sent as the Smart Cat's attention char-
              acter, then H hangs up the modem

15.4.3. A Macro to Answer the Phone

The Smartmodem can be directed to monitor the phone line for
an incoming call. A macro could be:

    AT SØ=2'<OK>*AT S5=130

    AT SØ=2' Uses the S command to alter registers in
              Smartmodem. In this particular case you're
              setting register zero to 2, which directs
              Smartmodem to pick up the phone after re-
              ceiving two rings. If you used SØ=1Ø instead,
              Smartmodem would auto-answer after 1Ø rings.
              SØ=Ø or AT Z (modem reset) would direct Smart-
              modem to exit the auto answer mode.

    <OK>   Handshakes on the "OK" before continuing

    *AT S5=130 Disables Smartmodem's recognition of the
              backspace character as recommended in the
              Antidotes sheet included with the Smartmodem
              manual.

Executing this macro gets the Smartmodem ready to receive
calls. Entering ^Q+ places AE PRO in its Unattended Opera-
tion mode. From this point on, the Unattended mode will
perform exactly as it would with any other modem.

> NOTE: There is a switch selectable option in Smartmodem
> that must be specifically set to operate correctly in
> unattended mode. That is SW6 just behind the front
> panel on the left side. It must be in the UP position
> to enable proper carrier detect operation. See further
> technical details in the Smartmodem manual section
> eight, note B, and how to gain access to the switches in
> section two.

The Auto Dial is packaged to go into auto-answer mode when it
is powered on. Entering ^Q+ places AE PRO in its Unattended
Operation mode. From this point on, the Unattended mode will
perform exactly as it would with any other modem.

The Smart Cat enters auto-answer mode when powered up if its
Switch 4 is ON. Entering ^Q+ places AE PRO in its Unattended
Operation mode. From this point on, the Unattended mode will
perform exactly as it would with any other modem.

15.5.   SMARTMODEM EXAMPLES MACRO FILE

The HAYES.MAC "S" file on the disk contains some Smartmodem
command strings that may be used directly or as subroutines.
Its contents are:

```
#0      ***+++<OK>**AT H
#1      \u9 555-1212'your autolog sequence
#2
#3
#4
#5
#6
#7
#8
#9      AT S11=60'<OK>*AT D T'
#:      AT Z
#;      AT SØ=1'<OK>*S5=130
```

Element Ø is a sequence (^WØ) that would force the Smartmodem
to disconnect the line.

Element 1 uses element 9 as a subroutine to start the dialing sequence, then return to dial the number in its own string. A standard auto-logging sequence may be added, or a link to another macro element could be performed if needed.

Element 9 is the starting sequence to start the Smartmodem dialing an undefined number (this element is designed to be called as a subroutine) at its fastest Touch-Tone dialing rate.

Element : is a RESET macro that directs the Smartmodem to do a complete reinitialization.

Element ; is an auto-answer set-up macro that would be issued before the ^Q+ command in AE PRO. When issued in this order, the Smartmodem and AE PRO perform standard unattended mode operations with or without the answer-back option enabled.

16. PROTOCOL TRANSFERS

AE PRO's Protocol Transfer allows you to transfer any type or
size Apple DOS file to another AE PRO, or to another computer
with a compatible protocol program. AE PRO uses Christensen
protocol, which incorporates error-checking and correction,
to ensure that your transfers arrive error-free.

Christensen protocol, which was created by Ward Christensen,
is a popular file transfer protocol, and it is used by many
CP/M attended and unattended terminal programs.

16.1. A BRIEF DESCRIPTION

Christensen protocol transfers 8-bit files by sending 128-
byte sequentially-numbered blocks with a checksum byte ap-
pended to each block. A receiving computer using a compat-
ible protocol, whether AE PRO or another program, receives an
incoming block of data, performs its own checksum, then
compares it with the checksum of the sending computer. If
both match, the receiving computer sends the ASCII Acknowl-
edge character, ACK (Control-F). Then the next block of data
is sent, then checked, and so on.

If the checksums of a block do not match, the receiving
computer sends the ASCII Negative Acknowledge character, NAK
(Control-U), and the complete block is re-sent. At the end
of the re-send, the block is checked again. Then the next
block is sent, then checked, and so on.

This block sending and checking -- and any necessary re-
sending -- continues until the complete file is sent.

> NOTE: During a Christensen protocol transfer, AE PRO
> automatically selects a data word format of 8 bits. An
> exception may be an ASCII-commanded external terminal,
> such as the Novation Smart Cat, that has a factory-set
> data word format default other than 8 bits (such as 7).
> If this is the case, you must type the appropriate
> command to the modem to switch to an 8-bit format.

The error-checking in Christensen protocol catches 99% of all
transmission errors. Although a 99% accuracy rating may be
hard to beat, AE PRO further performs a Cyclic Redundancy
Check (CRC -- same as / Secondary Command) after a transfer.
If two AE PRO's are used for the transfer, the sending and
receiving CRC checksums are performed automatically. If they
match, it is a perfect transfer. If you are transferring to
or from a non-AE PRO computer using a compatible protocol,
you may have to direct the other computer to perform a CRC.
Then if the two numbers match, you know you have a perfect
transfer.

Transfers are performed in 16-block segments. A block con-
tains 128 bytes of data.

  NOTE: One Apple DOS sector contains 256 bytes, so one
  sector can accommodate two blocks. Thus AE PRO uses 8
  Apple DOS sectors for each group of 16 data blocks.
  This can be helpful for determining if you have enough
  disk space to accommodate a file transfer.

During a transfer, AE PRO displays a block-by-block update,
including the receive or send status and messages to indicate
any errors that may occur, to keep you informed of the trans-
fer's progress. If anything goes wrong, you'll have a visual
account of the problem. And, in most cases, AE PRO corrects
problems automatically. These messages and correction meas-
ures are explained later in this chapter.

16.2. SENDING AND RECEIVING

When you use AE PRO to call another computer for a protocol
transfer, you must control both sides of the transfer. If
someone at another computer calls your computer, that person
must control both sides of the transfer. The lone exception
would be if you are "chatting" with the operator of the other
computer; then each operator may control his own end. See
details on how to "Chat" later in this chapter.

Whenever you call a computer capable of a compatible protocol
transfer, such as another AE PRO, or a Remote CP/M (RCP/M)
computer using XMODEM, you must issue commands from that
computer's point of view. In other words, as the caller, you
must put yourself in the answering computer's shoes: to
receive a file, you must instruct that computer to send you a
file; to send a file, you must instruct the answering compu-
ter to receive a file. The exact procedure may vary from
system to system, but once you understand the basic proce-
dure, you should have no problem.

16.3. TRANSFER FROM AE PRO TO AE PRO

To illustrate protocol transfers, we'll simulate transfers
from your AE PRO to another AE PRO, including sending and
receiving procedures. Remember, you can transfer a file with
another program using a compatible protocol, but by illus-
trating AE PRO-to-AE PRO transfers, you'll not only become
more familiar with AE PRO, you'll also be able to tell others
what to expect when they call your AE PRO.

In the following examples, we'll assume that you already have
dialed and made connection. After a successful connection,
AE PRO clears your display as it enters terminal mode.

When you call another AE PRO, it answers by displaying at the
upper-left corner of your display:

        Entry:

You must enter the answering AE PRO's password exactly. If
the total characters entered exceeds 2Ø, if there are five
retries to enter the password, or if complete log-on is not
achieved within one minute, AE PRO disconnects. When enter-
ing the password, AE PRO does not echo the characters to you
and gives no indication if the wrong password is entered.
AE PRO is packaged with the password set to .AE., but it can
be changed in Install. Only when the correct password is en-
tered will AE PRO indicate the proper log-on by displaying:

        <>_

This is AE PRO's Remote Command Prompt. When you receive
this prompt, you must issue one of the commands below within
about two minutes, or AE PRO will disconnect.

AE PRO's Remote Commands are:

            C = Copy Incoming Data
            D = Directory of Logged Disk
            H = Hang Up
            L = Log Drive
            R = Receive a file (protocol)
            S = Send a file (protocol)
            V = View text file
            ? = Help (displays this list of commands)

    NOTE: These commands are described in detail in the
    Unattended Operation chapter.

16.3.1. Want to Chat?

You also can "chat" with the host computer's operator, as
long as the host is set to chat. The host computer's opera-
tor must enable the chat mode. If the host computer is using
AE PRO, the operator enters Control-Q (^Q) from the Remote
Command Prompt ((>). AE PRO will exit the remote mode and
enter normal interactive terminal mode with Chat ON.

This change in terminal status will not be indicated to the
calling computer, so the host operator then should type a
message indicating that he is in chat mode and that the
calling computer's operator should enter his chat mode. If
the calling computer is using AE PRO, the operator enters the
Terminal Escape Key (Control-Q), followed by the K (Chat)
command. Thus entering ^QK turns ON Chat for the calling
AE PRO. Chatting can continue until the connection is termi-
nated or until the host computer's operator exits chat mode.

To return to the Remote Command Prompt, the host computer
operator must exit chat mode by entering the Terminal Escape
Key (^Q), followed by the + (Auto-answer) command. Thus ^Q+
returns AE PRO to the Remote Command Prompt ((>).

The calling computer's operator then will be returned to the
Remote Command Prompt ((>). The host AE PRO then will act
only on any of the above Remote Commands issued by the opera-
tor of the calling computer and ignore all other characters.
The calling computer will still be in chat mode, however, and
its operator should exit that mode. If the calling computer
is using AE PRO, the operator exits chat mode by entering the
Terminal Escape Key (^Q), followed by K. Thus ^QK turns OFF
Chat mode.

16.3.2. Remote Command

When calling another AE PRO, you first should look at the
contents of the currently logged drive. At the (>, enter D.
The answering AE PRO displays the contents of that disk,
includes the number of free sectors, then returns you to the
(> prompt to await another command.

You should look at the currently logged drive to find the
file you want to receive, or to see if the disk has the space
to accommodate the file you want to send it. If the direc-
tory becomes especially long and you do not want to view all
of it, press c/r. The answering AE PRO returns you to its (>
prompt.

16.3.3. Sending a File

To send a file to the answering AE PRO, instruct it to re-
ceive (R) a file. Remember, you must enter commands at the
(> prompt from the answering AE PRO's point of view. You are
sending, but the answering AE PRO is receiving (R). For
example, you want to send an Applesoft file called ORANGES.
After checking the answering AE PRO's directory (D) and disk
space, enter R at the (> prompt.

The answering AE PRO displays:

          Receive: _

Enter the filename that the answering AE PRO will use to
write your file on its disk, then c/r. "ORANGES" may be a
good filename here so that, when the transfer is complete,
both computers will have the same filename for the same file.

The answering AE PRO ckecks its disk to see if it contains a
duplicate filename. If it does, the answering AE PRO indi-
cates so by displaying:

>   File exists
>   (>_

The answering AE PRO then recycles to its (> prompt. If your
filename is acceptable, the answering AE PRO displays:

>   Ready to receive

You now have about two minutes to start sending your ORANGES
file, or the answering AE PRO times out and recycles to its
(> prompt.

Here's a review of what you've done so far:

>   1. Established connection.
>   2. Enter D to display the directory.
>   3. Enter R to prepare the remote AE PRO to receive the
>   file you are about to send.
>   4. Enter ORANGES, then c/r at the Receive: prompt, and
>   the remote AE PRO responds with Ready to receive.

Now you must begin sending your ORANGES file. Leave the
remote AE PRO momentarily by entering your AE PRO's Terminal
Escape Key (Control-Q). Your AE PRO displays:

>   +>_

Enter S (Send File Command). AE PRO displays:

>   Filename? _

Enter the filename you want to send, in this case ORANGES, then c/r. AE PRO displays:

          S)tandard or P)rotocol? _

Enter P to send a protocol file. AE PRO prepares that file for transfer, then displays:

          Ready to send xxxx blocks
          Waiting...

AE PRO displays the number (xxxx) of 128-byte blocks it is ready to send (the number of blocks depends on file size).

The rest of this process is automatic. The two computers, in this case two AE PROs, begin "talking" to each other, and the exchange displayed on your monitor looks something like:

          S   <#1>
          S   <#2>
          S   <#3> (... etc.)

The "S" indicates the sending of block <#x>, where x is the number of the block. The "S" messages, though shown consecutively here, actually overprint each other, and each block number increases accordingly.

To determine the approximate transfer time at 300 baud, multiply the number of blocks about to be transferred by 4.5 to get total seconds, then divide by 60 to get total minutes. At 1200 baud, one block takes approximately 1.1 seconds to be transferred, instead of 4.5 seconds.

Various error messages may be displayed during the transfer. Don't worry about them. AE PRO automatically re-sends bad blocks until they are transferred correctly.

When all blocks have been transferred, assuming all data was sent correctly, your AE PRO displays:

          Successful Transfer - xxxx

displays a four-character HEX number (xxxx) that rep-
 the CRC (Cyclic Redundancy Check) of the file, then
 to terminal mode.

ile, the answering (receiving) AE PRO saves the remain-
 the file it just received to disk and displays its own
 If the two numbers match, your file arrived intact.
 he answering AE PRO recycles to its () prompt to await
 r command.

. Receiving a File

eive a file from an answering AE PRO, you must instruct
 send you a file. The steps are similar as above.

 answering AE PRO's () prompt, enter D to display the
 ory to look for the file you want to receive and check
 le's size in sectors to make sure your disk can accom-
 it.

looking at the directory, enter S at the () prompt to
 t the answering AE PRO to send you a file. The an-
 g AE PRO displays:

    Send: _

the name of the file you want to receive, then c/r.
 mote AE PRO prepares that file for transfer, then
 ys:

    Ready to send xxxx blocks

 e ve the remote AE PRO momentarily by entering your
 s Terminal Escape Key (Control-Q). Your AE PRO dis-

    +>_

Enter G (Get File Command).   AE PRO displays:

        Filename? _

Enter the filename you will use to write the received file to
your disk, then c/r.   (Though recommended, you don't have to
assign the file the same name as that of the file being
sent.) AE PRO prepares to receive a file under that file-
name, then displays:

        Ready to receive

The two AE PRO's start "talking" again and begin the trans-
fer. The rest is automatic, and your display looks something
like:

              R   <#1>
              R   <#2>
              R   <#3> (...etc.)

The "R" indicates the receiving of a block. After the rest
of the file's blocks are transferred, the answering (sending)
AE PRO displays its CRC. Meanwhile, your AE PRO writes the
remaining blocks to your disk, then performs its own CRC. If
the CRC numbers match, you have a perfect transfer. Your
AE PRO returns you to terminal mode, and the answering AE PRO
recycles to its (> prompt.

You then could issue another command, including AE PRO's
Remote Hang-up Command (H).

16.3.5. Apple DOS Filetypes

The first actual block of data sent between AE PROs (but not
block #1, which is the first actual data block of the file)
is a special one. It contains certain information about the
file that is about to be transferred. The receiving AE PRO
takes that information, makes the necessary adjustments, and
displays the TYPE of file it is about to receive.

Apple DOS has eight types of files. They are:

ØØ	T - Text file (sequential or random)
Ø1	I - Integer basic
Ø2	A - Applesoft basic
Ø4	B - Binary data
Ø3	S - Special file
1Ø	R - Relocatable code
2Ø	A - Special file
4Ø	B - Special file

Certain types of files aren't always allocated sequentially
on the original diskette. If this is the case for the file
about to be transferred, the answering AE PRO sends a special
information packet indicating so, and your receiving AE PRO
makes the necessary adjustments automatically. The special
packet mode most likely would be used before transferring a
random text file, but it would not be limited to this file-
type.

When a special information packet is being sent, the blocks
displayed on the receiving end only are ALPHA characters (A,
B, etc.) instead of numbers. This continues until the regu-
lar data blocks of your file begin to transfer.

16.3.6. An Apple DOS Eccentricity

When a file of any type is put to disk under the same name as
a previous save and the new file is smaller than the previous
one, DOS does not update the sector count on the disk catalog
and does not update the current track-sector list for that
file. The track-sector list associated with that file always
reflects the largest file saved under that name, unless the
original filename is deleted before being resaved.

When a file of this type is being transferred, all of the
sectors ever allocated to that filename are transferred.
This won't harm the transferred file or its resulting opera-
tion, but it makes the transfer longer, and the file received
will occupy more disk space than it requires. So you should
be careful with your disk filenames. If, for example, you
use the same filename daily for your company's news brief,
you may want to delete that file when it becomes outdated (or
save necessary information by RENAMEing the file). Then
create the "daily" filename again as if you were using that
filename for the first time. During any write to disk,
however, AE PRO will inform you if you are attempting to
overwrite an existing file. If you continue, AE PRO first
will delete the old file before writing the new.

16.4. PROTOCOL ERRORS AND DISPLAY STRUCTURE

During a transfer, various messages are likely to be dis-
played on your monitor, such as indicating the block being
transferred, the one during which an error occurred, the one
being re-sent, and the error count. A typical send to a
remote computer may look something like:

```
S    <#1>        (Send block #1)
S    <#2>        (Send block #2)
NAK <ERR# 1-1> (Receiving  computer  did  not  send ASCII
                Acknowledge [ACK] for block #2 and instead
                sent Negative Acknowledge [NAK]).
S    <#2>        (Re-sent block #2)
S    <#3>        (Send block #3 and continue)
WB  <ERR# 2-1> (Someone got confused and sent wrong block)
WB  <ERR# 3-1> (Still confused)
S    <#3>        (Trouble fixed, re-send block #3 and continue)
etc..
```

In an error counter (<ERR# n-n>), the first of two numbers
indicates the total errors during the transfer, and the
second number indicates consecutive errors. If more than
nine consecutive errors occur, the transfer will be aborted.

16.4.1. Possible Messages and Errors

The possible messages and error messages that may be dis-
played on your monitor during a protocol transfer are:

    S   <#n>   Send a block.
    R   <#n>   Receive a block
    T   <ERR#n-n> Timeout error (no activity within x time)
    NAK <ERR#n-n>Block sent, not acknowledged as OK by
                    remote computer.
    CS   <ERR#n-n> Checksum error. Received total not what
                    was sent.
    BS   <ERR#n-n> Bad start. Improper data format, usually.
    WB   <ERR#n-n> Wrong Block # received.
    FT   <ERR#n-n> Filetype specified invalid.
    SYNC ERROR!   Irrecoverable synchronization error.
    SP   <ERR#n-n> Wrong data received during a special
                    packet.

Regardless of the messages that may appear during a transfer,
if a transfer is completed successfully and checksums match,
it is a good transfer.

16.5.   TRANSFERS FROM AE PRO TO NON-AE PRO

The most popular systems that use Christensen protocol are
CP/M dial-up systems. RCP/M systems may be run on many
different kinds of computers, including an Apple computer.

When calling such a system, you usually have the option of
actually operating the system just as if you were in control
of your own. Standard CP/M commands, such as DIR
(directory), REN (rename), ERA (erase) and others may be
available. The system operator, however, may have changed
the structure of his system so that those commands may have
been altered or are no longer available.

These systems usually have one thing in common -- they use
the XMODEM program (currently version 4.3) to produce a
Christensen protocol transfer with a compatible receiving
program, such as AE PRO.

A remote XMODEM system works similarly to a remote AE PRO: to
receive a file, you must instruct XMODEM to send you a file,
and to send a file, you must instruct it to receive a file.

In the following examples, we'll assume you have dialed and
connected to a remote computer and are at the remote system's
prompt, which probably identifies the drive, such as A>.

Any type of file may be transferred to or from an AE PRO, but
it may be unusable in the Apple DOS environment. Generally,
CP/M files, except ASCII text, are unusable in Apple DOS,
unless you receive a file to forward to another non-AE PRO
system.

You must post-process any CP/M ASCII file you receive with
the CHFORM utility on the AE PRO Utilities diskette before
you can use it properly in Apple DOS (see the Utilities
chapter). Conversely, you must pre-process an Apple DOS
ASCII file before you send it to a non-DOS system, such as
CP/M. The CHFORM utility converts the internal data format
of a DOS ASCII text file to the operating system (CP/M or
Pascal) of the destination computer.

16.5.1. Sending a File

To send a file to XMODEM, you must instruct it to receive.
For example, you want to send a file called BIGAPPLE. At the
answering system's remote prompt, enter XMODEM R BIGAPPLE,
then c/r. The remote system displays:

XMODEM V4.3

This is its message to indicate it is ready to receive.
Leave the answering system momentarily by entering the Termi-
nal Escape Key (Control-Q). AE PRO displays:

          +>_

Enter S (Send File Command). AE PRO displays:

          Filename? _

Enter the filename you want to send, in this case BIGAPPLE,
then c/r. AE PRO displays:

         S)tandard or P)rotocol? _

Enter P for protocol transfer. AE PRO prepares to transfer
that file, then displays:

         Ready to send
         Waiting...

Then the two computers begin "talking," and, if all is well,
the rest is automatic. At the end of a transfer, AE PRO
displays:

         Successful Transfer - xxxx

AE PRO performs its CRC on the file just sent and displays it
as **xxxx**, then returns to terminal mode.

Meanwhile, XMODEM writes the remaining blocks to its disk,
then returns you to its remote prompt.

XMODEM does not perform a CRC automatically, but most systems
have an executable program available called CRCK.COM. To
verify that the remote system received what you sent accu-
rately, enter at the system's remote prompt, CRCK BIGAPPLE,
then c/r. The remote system performs its own CRC on the
BIGAPPLE file and displays the result. If both CRC numbers
match, your file was transferred perfectly.

Sometimes the CRC numbers will disagree because a file stored
on your DOS disk contains a different number of blocks than
the file on the CP/M system. DOS stores files in 256-byte
sectors, and CP/M stores files in 128-byte blocks.

16.5.2. Receiving a File

To receive a file from XMODEM, you must instruct it to send.
For example, you want to receive a file called WHATSUP.DOC.
At the system's remote prompt, enter XMODEM S WHATSUP.DOC,
then c/r. The remote system displays:

>   File open, xxxx blocks

The answering system indicates that it is ready to send you a
file and displays the number (xxxx) of blocks to be sent.

Now, leave the answering system momentarily by entering the
Terminal Escape Key (Control-Q). AE PRO displays:

>   +>_

Enter G (Get File Command). AE PRO displays:

>   Filename? _

Enter the filename that you want to use to write the file to
your disk, in this case WHATSUP.DOC, then c/r. AE PRO dis-
plays:

>   Ready to receive

Then the computers transfer the file automatically as before.

.7.   UNATTENDED OPERATION

AE PRO's Unattended Operation mode allows you to use your
Apple as a password-protected unattended computer.   In this
mode, a caller with the proper password can gain access to
your computer and send or receive files.

Any kind of computer may call AE PRO in this mode, and you
decide the extent of access a caller can have by setting the
Unattended/Remote Parameters in Install, including the pass-
word and the slots accessible (see Advanced Install chapter).

In addition, when the caller is using AE PRO, or another
program using a compatible protocol, files of any size or
type can be transferred with the error-free Christensen pro-
tocol.   When files are transferred between unlike operating
systems, such as Apple DOS to CP/M, they first must be pre-
processed or post-processed with AE PRO's CHFORM utility (see,
the Utilities chapter).   CHFORM converts the format of a DOS
file to the destination computer's operating system.   It does
not, however, read CP/M or Pascal diskettes.

.7.1.   A REMOTE CHOICE

There are two ways to use AE PRO in unattended mode:

1. **Remote Auto-Answer:** Allows those who know the pass-
   word you have assigned in Install to call your
   computer and perform interactive tasks, such as
   sending or receiving files, or viewing your disk
   files, through AE PRO's Remote Commands.

2. **Remote Answer-back:** Allows mail-forwarding computers
   to call your computer and send limited-sized ASCII
   text files, DDD messages and TWX mail.   Answer-back
   normally would be used for computer-to-computer
   mail forwarding.

17.2. REMOTE AUTO-ANSWER

To enter AE PRO's Remote Auto-Answer mode, enter + (Auto-answer command) at the Command Level Prompt (->). AE PRO displays:

                AE: Calls received: Ø
                AE: Waiting for ring..

The Calls received number indicates the number of calls received during the current session of AE PRO. AE PRO remains in its Waiting for ring state until it receives a call, then answers the call on the ring count specified in Install. To exit this mode and return to the Command Level Prompt, enter your Abort key.

To direct AE PRO to pick up the phone line and listen for carrier instead of a ring, enter a second +. AE PRO displays:

                AE: Calls received: Ø
                AE: Waiting for connect..

This is useful if a two-way voice call already had been established and both parties wanted to transmit data with their computers without hanging up. When the other party's computer sends carrier, the two computers would begin to "talk" to each other.

>   NOTE: If you previously had selected 12ØØ baud operation
>   with the Novation Apple-Cat modem equipped with the 212A
>   upgrade, AE PRO searches between 3ØØ and 12ØØ baud and
>   selects the baud rate of the caller.

If you enter + while connected to another computer, AE PRO bypasses its Waiting for ring mode and goes directly to its Remote Command Prompt ((>). At this point the remote computer must be able to take control of AE PRO. To exit this mode, enter ^Q, which places you in interactive Chat mode (see discussion of Chat in Protocol File Transfers chapter). A second ^Q takes you to the Command Level Prompt (+>).

17.2.1. Entry Level

When someone calls your computer, AE PRO answers and waits
for carrier. When it detects carrier, it sends the caller:

                    Entry: _

This is AE PRO's remote "entry" prompt. To gain access to
your computer, the caller must enter the exact password as
defined in Install (AE PRO is packaged with the password set
to .AE.). AE PRO gives the caller no indication of incorrect
password and does not echo characters to the caller. If the
total characters entered exceed 20, or if there are five
retries to enter the password, or if the caller does not
complete log-on within one minute, AE PRO hangs up and re-
cycles to its Waiting for ring state.

17.2.2. Welcome . . . to AE PRO

When a caller enters the correct password, AE PRO grants
entry to that person. The degree of access a caller can have
with your computer depends on how you set options in the
Unattended Remote Parameters section of Install.

Upon successful entry, AE PRO greets the caller in one of two
ways:

  1. Welcome Message: AE PRO "welcomes" the caller with a
       custom message, then proceeds to its Remote Command
       Prompt ((>), or

  2. Remote Command Level: AE PRO proceeds immediately to
       its Remote Command Prompt ((>).

The Welcome Message can contain any greeting you want,
whether it explains who you are, gives an update of your
service, or describes AE PRO's remote operation (described
below). You can create the message in AE PRO's Editor, or in
any compatible 7-bit ASCII text editor or word processor. It
can be any length, depending on disk space, but keep your
caller in mind -- make your message bright and brief.

For the welcome massage to be displayed, the Read Welcome
File option in Install must be set to YES. Also, the file-
name of the message must be "AE.WELCOME", and it must be on
the program disk (a sample "AE.WELCOME" file is included on
the AE PRO disk). If the Welcome option is enabled, but the
"AE.WELCOME" file is not on the program disk, AE PRO will
bypass this step and act as if the option is disabled (set to
NO).

During the display of the welcome message, a caller can abort
the message by entering ESCape.

When the message mode is ended, either because the file has
been displayed completely, or because the caller aborted it
with ESCape, AE PRO proceeds to its Remote Command Prompt
(()).

If the Welcome option in Install is disabled (NO), AE PRO
proceeds directly to its Remote Command Prompt.

17.2.3. Remote Control

At AE PRO's Remote Command Prompt,

          ()_

the caller can issue any of the eight commands below. If the
caller is inactive for two minutes, AE PRO times out and
disconnects.

AE PRO's Remote Commands are:

          C = Copy Incoming Data
          D = Directory of Logged Disk
          H = Hang-up
          L = Log Drive
          R = Receive File (protocol)
          S = Send File (protocol)
          V = View ASCII Text File
          ? = Help (displays this list of commands)

17.3. REMOTE COMMANDS

The following describe the AE PRO Remote Commands available to a caller.

17.3.1. C = Copy Incoming Data

To send AE PRO an ASCII text file, a caller enters C. AE PRO displays:

>   Copy:

The caller enters the filename AE PRO will use to write the incoming data to disk, then c/r. Disk drive parameters may be included with the filename if they are within the range specified in Install. If the parameters are out of range, AE PRO ignores the command and recycles to its (> prompt.

After entering a filename, AE PRO checks its logged disk for a duplicate filename. If the filename exists, AE PRO displays:

>   File exists
>   (>_

and recycles to its (> prompt. If the filename is acceptable, AE PRO displays:

>   ! _

The exclamation point (!) is AE PRO's signal to a caller to begin sending. AE PRO can accept text data dumps at full speed (baud rate) and without regard to carriage returns, carriage return linefeed sequences, or delays. A caller also could type a message at the ! prompt. AE PRO does not echo incoming text in this mode.

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The caller has two legal options during copy mode:

1. **Two Control-Cs** (^C^C) in a row: When AE PRO receives two ^Cs in a row, it closes its copy mode and writes received data to disk under the filename specified by the caller (above). If the copy buffer becomes full before two ^Cs are received, AE PRO turns OFF its copy mode, writes to disk the data received to that point, then recycles to its (>) prompt. No further data is accepted in this manner until the caller enters the C command again.

2. **Two Control-Ds** (^D^D) in a row: When AE PRO receives two ^Ds in a row, it aborts the copy mode and returns to its (>) prompt. AE PRO clears its buffer of any data received to that point, but does not write to disk.

The capacity of AE PRO's buffer depends on your Apple's Random Access Memory (RAM). If someone calls regularly to send especially large ASCII text files, you may want to inform him of your buffer's capacity so that he can divide extra large files into smaller ones, or have him use the Protocol transfer mode (R and S commands, below). If the caller is using AE PRO, transfers always should be in protocol mode.

17.3.2. D = Directory

Entering D displays a directory, or catalog, of the currently logged drive. While AE PRO is displaying the catalog, a caller may abort an especially long listing by pressing c/r or ESCape. AE PRO returns to its (>) prompt.

17.3.3. H = Hang Up

Entering H directs AE PRO to disconnect the caller.

17.3.4. L = Log Drive

Entering L enables a caller to log to another legal drive, as defined in Install. AE PRO displays:

              Current   :S6 D1 VØ
              RETURN/New:_

This is the listing of the logged disk's parameters, including the Slot (S), Drive (D), and Volume (V). If the **Current** parameters are acceptable, the caller can press c/r alone. The caller may change the parameters of the **Current** listing by using the standard DOS format, then c/r. The order of the commands is not essential, and they can be entered with or without punctuation.

Some valid examples are:

              RETURN/New:S5
              RETURN/New:D2
              RETURN/New:S5,D2
              RETURN/New:D2,S5
              RETURN/New:S5,D1,V1
              RETURN/New:V2,S6,D2

If the caller enters a slot parameter that has been defined in Install as not accessible, AE PRO will display a catalog of the currently defaulted drive, and recycle to its (>) prompt. If drive or volume parameters out of range are entered, AE PRO may send one of the following error messages:

              I/O Error
              Volume Mismatch Error

It is possible to inhibit access to particular drives or volumes of your system. This is done by placing a special DOS text file on any drive or volume you want no or limited access to.

If a file by the name of @AE.NOACCESS is found on a drive or
volume during access request, AE PRO will attempt to read
that file. If it has no contents (just a blank line), that
drive or volume will be effectively locked out from any
access. If the file contains data besides a blank line, that
data will become an access password to gain access to that
drive or volume.

@AE.NOACESS files on each drive or volume are unique from
each other. Some may contain passwords (which may be diff-
erent from one another) while others may contain none, which
will prohibit access altogether.

@AE.NOACCESS can be quickly created in AE PRO's editor
module. One blank line (enter c/r once) in the editor will
produce an @AE.NOACCESS file that prohibits access to what-
ever drive or volume it is saved on.

By using the Slot lockout option of Install, in combination
with the flexibility of @AE.NOACCESS files, you can create a
truly secure remote operating system.

17.3.5. R = Receive File (protocol)

To send any type file of any size to AE PRO with Christensen
protocol, a caller must enter R to instruct AE PRO to receive
a file. This receive mode follows the rules of Christensen
protocol as described in the Protocol File Transfers chapter.

When a caller enters R, AE PRO displays:

          Receive: _

The caller enters the filename AE PRO will use to write the
received data to disk, including any optional valid drive
parameters as defined in Install, then c/r. If the filename
exists on the logged disk, AE PRO displays:

          File exists
          ()_

and recycles to its () prompt.

If the filename is acceptable, AE PRO prepares to receive the
file and displays:

          Ready to receive

The caller then has two minutes to begin sending a file
(another AE PRO caller would use the S Command) with
Christensen protocol (see Protocol File Transfers chapter).

17.3.6. S = Send File (protocol)

To receive any type or size file from AE PRO with Christensen
protocol, a caller must enter S to instruct AE PRO to send a
file. This send mode follows the rules of Christensen proto-
col as described in the Protocol File Transfers chapter.
Before entering this command, the caller should look at the
directory of AE PRO's disk with the D command.

When a caller enters S, AE PRO displays:

          Send: _

The caller enters the name of the file he wants to receive, including any optional valid drive parameters, then c/r. If the filename does not exist, AE PRO displays:

>   No such file
>   ()_

and recycles to its () prompt.

If the filename is acceptable, AE PRO prepares that file for sending and displays:

>   Ready to send xxxx blocks

The caller has two minutes to begin receiving the file (another AE PRO caller would use the G Command) with Christensen protocol (see Protocol File Transfers chapter).

17.3.7. V = View ASCII Text File

To view or receive any standard DOS sequential text (T) file, the caller enters V. AE PRO displays:

>   View: _

The caller enters the name of the text file he wants to view or receive, including any optional valid drive parameters, then c/r. If the filename does not exist, AE PRO displays:

>   No such file
>   ()_

and recycles to its () prompt.

If the filename is acceptable, AE PRO displays the file at the full baud rate. A caller can abort the display by entering ESCape or c/r. AE PRO then recycles to its () prompt.

17.3.8. ? = Display Remote Commands

Entering ? displays a short list of the Remote Commands:

C)opy incoming, D)irectory, L)og drive,
R)eceive file, S)end file, V)iew file,
H)ang-up

17.4. REMOTE ANSWER-BACK

AE PRO's Remote Answer-back mode is a special unattended mode
to receive forwarded DDD text messages or TWX mail.

When Answer-back mode is in effect, another computer calls
AE PRO and sends the "here-is" polling character, usually
Control-E (but definable in Install). AE PRO responds by
sending its "here-is" identifying string, also defined in
Install. If the calling computer is set to recognize your
computer by this string, it forwards the data. After the
data is sent, the calling computer hangs up. When AE PRO
discovers that carrier is no longer present, it writes the
data received in its buffer to disk with the default Answer-
back filename, or filename specified with the O (Auto-save)
command.

To enter Answer-back mode (if not set as a default in
Install), use the appropriate AE PRO commands, all of which
are entered at the Command Level Prompt (->). The commands
are:

´ = Turns ON Answer-back mode.
O = (Optional) Assigns an Auto-save filename.
+ = Enters Unattended mode.

Assuming that the default Answer-back and Auto-Answer modes
are set to OFF in Install, enter the ' and + commands. The O
(Auto-save) command is optional, because you may (ON) or may
not (OFF) want to override the default filename (defined in
Install) that Answer-back assigns received data. If you use
Answer-back often, you may want to use an Auto-Save filename
to help manage your files.

> NOTE: If the default Answer-back mode is set to ON in
> Install, you would need only to use the + command, as
> this would direct AE PRO to enter Answer-back mode auto-
> matically. You also could set the default Auto-Answer
> mode to ON in Install, thereby creating a "turnkey" disk
> that immediately would enter the Unattended mode after
> running AE PRO (see Advanced Install chapter).

17.4.1. A Receiving Line

To place AE PRO in the Remote Answer-back mode, enter ' at
the Command Level Prompt. AE PRO displays:

            AE: Answerback On
            ->_

Then enter +. AE PRO displays:

            Calls received: Ø
            Waiting for ring...

The Calls received number indicates the number of calls
received during the current session of AE PRO. AE PRO re-
mains in its Waiting for ring state until it receives a call
and answers on the ring count specified in Install. You may
exit this mode and return to the Command Level Prompt by
entering your Abort key.

After answering a call, AE PRO waits for carrier, then the "here-is" polling character (^E) from the calling computer. If AE PRO does not receive the "here-is" character after about one minute, it times out and disconnects. After receiving the "here-is" character, AE PRO sends its "here-is" identifying string (the default is THIS IS AE PRO).

Meanwhile, to indicate that a computer has gained access to your computer, AE PRO displays:

Access Gained

on your monitor and clears its data buffer to receive incoming text.

The calling computer should recognize your computer by this string and sends its data. AE PRO writes to disk all of the data received when the other computer hangs up, or when its data buffer reaches capacity, whichever occurs first. AE PRO saves the data under the default Answer-back filename or the filename specified with Auto-save. AE PRO then recycles to its Waiting for ring state.

When writing Answer-back or Auto-save data to a disk, AE PRO appends an ".AEx" extension to each save in incremental order. For example, if the default Answer-back filename were TEST, the first Answer-back save during a current session of AE PRO would be TEST.AE1, the second save would be TEST.AE2, and so on.

17.4.2. Protect your Files

Be careful with your filenames. If you rerun AE PRO and use the default Answer-back filename (TEST), you may want to rename or delete any existing TEST.AEx filenames, because AE PRO will restart the .AEx extension numbering process at .AE1. Thus if a previously written file with a .AE1 filename extension were still on the logged disk, it would be overwritten during the first Answer-back save of that session.

18. TERMINAL EMULATION

Emulation is the ability of one kind of terminal to imitate
another, and AE PRO can emulate other terminal types when
using an 8Ø-column card or external terminal. Though you
normally won't need to deal with emulation when using AE PRO,
this chapter is included to provide you with technical as-
sistance should you need it.

Different terminals, by their own design, use different codes
to perform certain display tasks. A DEC VT52 terminal, for
example, uses an ESCape-H sequence to "Home" or position its
cursor in the upper-left corner of the display. A Datamedia
terminal (a terminal type that standard 8Ø-column boards for
an Apple resemble during emulation) uses Control-Y to "Home"
its cursor. Other terminal types may have many different
code sequences to perform this function.

That's where AE PRO's Emulation Tables step in. If you have
an 8Ø-column board (a Datamedia setup) and you are communica-
ting with a computer whose display format is that of a DEC
VT52, you could assign values in the Emulation Tables that
convert incoming codes for a DEC VT52 to the proper codes for
your 8Ø-column board. Thus when your computer receives a DEC
VT52 ESCape-H sequence code to "Home" your cursor, AE PRO's
Emulation Tables convert that sequence to your 8Ø-column
board's Control-Y sequence code to "Home" its cursor. AE PRO
positions your cursor at the upper-left corner of your dis-
play, where the sending computer intended it to be. Various
screen display functions are converted in much the same way.

There are two parts to the terminal emulation tables: Input
and Output. Input is the incoming code, the code another
computer sends to a terminal to which it "thinks" it is
talking. Output is the code AE PRO converts an input code to
for use by your display.

AE PRO's Emulation Tables may be found in the Macro section
(**U** command). The **S** option of the Macro Menu allows you to
select terminal types for emulation and assign input and
output codes.

This chapter describes in detail the display conversions that
AE PRO can perform. It is best used to learn more about how
the conversion tables work and how to customize tables for a
terminal type that is not listed in the Emulation Tables.
For general information, see the Emulation section in the
Macros chapter.

18.1.   TERMINAL EMULATION TABLE

The following emulation table example receives Input codes
for a DEC VT52 terminal and converts them into Output emula-
tion codes for a Datamedia terminal (equivalent to most 80-
column boards). All values are in ASCII HEX.

BYTE	Function	DEC VT52 Input	Datamedia Output
1	Cursor Offset	20	A0
2	Lead-in or 0=none	1B	00
3	Clear Screen	0C	0C
4	Clear to End of Screen	CA	0B
5	Clear to End of Line	CB	1D
6	Hi-lite 0=none	00	00
7	Lo-lite 0=none	00	00
8	Home Cursor	C8	19
9	Address Cursor	D9	1E
10	Cursor Up	C1	1F
11	Cursor Forward	C3	1C
12	Cursor Down	C2	0A
13	Extra	00	00
14	Extra	00	00
15	Printer On	00	00
16	Printer Off	00	00

The Terminal Emulation Tables in the Macros section of AE PRO
are similar to this example.

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The ASCII Character chart at the back of this manual may help
you understand relationships in this table, especially when
we talk about the high bit of a HEX value.

18.2.   EMULATION COMMAND DESCRIPTIONS

The following describe the function of each Emulation com-
mand.

18.2.1.   BYTE 1: Cursor Offset

Cursor offset has to do with the ASCII values used to direct
the cursor during a GOTOxy sequence. Such a sequence usually
is comprised of four characters, but certain terminals may
require only three. The sequence may start with the lead-in
character, followed by the address cursor character (entry
9). The next two bytes after that are the x and y coor-
dinates, usually transmitted in y x order.

))

Most terminals use ASCII 2Ø HEX as the "base" or Øth row and
column at the upper-left corner of the screen. That is the
space character (space bar). As you add positions from
there, you increment up the ASCII chart for different loca-
tions on the screen.

Because the Ø,Ø coordinates normally start at 2Ø HEX, the
offset is said to be 2Ø HEX. This is important because all
terminals do not use the same offset. When converting from
one type of terminal to another, this offset must be known
for both terminals. They may be compared in the chart, their
difference analyzed and a new offset produced.

The Cursor Offset byte has two uses. By keeping the high bit
clear, AE PRO assumes a normal sequence of YX. If the high
bit is set, however, that terminal requires the sequence in
XY order. When AE PRO compares the two entries, it notes
only whether the high bits in the input and output tables are
different. If they are the same, AE PRO passes the XY coor-
dinates through as is. If they are different, AE PRO sends
the coordinates in reverse order of that received.

For example, the Input and Output values for Byte 1 indicate a cursor offset of 2Ø HEX, but the Output one, AØ HEX (actually 2Ø HEX with the high bit set), indicates that the coordinates need to be sent in reverse order.

18.2.2. BYTE 2: Lead-in Character

Many terminals use a lead-in character (also sometimes called an ESCape character) to indicate that following characters may be screen functions. This character may precede one of several function characters. By using a lead-in, many screen functions can be built into a device without using more ASCII characters. A typical lead-in character is ESCape (1B HEX). When a function requires a lead-in character, its high bit should be set in the table.

18.2.3. BYTE 3: Clear Screen

In the example, the Input and Output clear screen characters are ØC HEX (^L). Whenever these locations are the same, the same results can be produced by setting both to ØØ, which indicates no modification. Thus the ^L is passed through as is. In a Soroc IQ-12Ø terminal, the clear screen character shown is AA HEX. This corresponds to an asterisk (*) character with its high bit set. Because the high bit is set (that is, a lead-in character is required), the resulting sequence to clear the screen of a Soroc IQ-12Ø is ESCape-*.

18.2.4. BYTE 4: Clear to End of Screen
18.2.5. BYTE 5: Clear to End of Line

These characters, when received, clear text from the terminal's cursor position to the end of screen or line. These characters follow the same conventions as described for Byte 3, the Clear Screen character. These functions are not available in all terminals. If they are unavailable, set Input and Output values to ØØ.

18.2.6.   BYTE 6: Hi-Lite On
18.2.7.   BYTE 7: Hi-Lite Off

These characters, when received, cause the terminal to go in or out of a highlighted or inverse video mode.   These characters follow the same conventions as Byte 3.

18.2.8.   BYTE 8: Home Cursor

This character, when received, causes the terminal's cursor to move to the "Home" position, usually the upper-left corner of the screen.   It follows the same conventions as Byte 3.

In some terminals this character sends the cursor to the lower-left corner.   If the input terminal "Homes" to the upper-left corner, but the output terminal "Homes" to lower-left corner, set the output parameter to FF HEX ($FF).   This directs a GOTOxy$\emptyset$,$\emptyset$ to be performed on the output terminal if the input terminal's "Home" sequence is received.

18.2.9.   BYTE 9: Address Cursor

This character is part of a GOTOxy sequence.   It tells the terminal to look to the next two characters as the xy coordinates for positioning.   It follows the same conventions as Byte 3.

18.2.10.   BYTE 10: Cursor Up

This character, when received, causes the terminal's cursor to move up one line without erasing any characters.   It follows the same conventions as Byte 3.

18.2.11. BYTE 11: Cursor Forward

This character, when received, causes the terminal's cursor
to move forward one character without erasing any character.
It follows the same conventions as Byte 3.

18.2.12. BYTE 12: Cursor Down

This character, when received, causes the terminal's cursor
to move down one line without erasing any characters. It
follows the same conventions as Byte 3.

18.2.13. BYTE 13: Extra
18.2.14. BYTE 14: Extra

These characters are extra functions. You can define them to
code conversions for functions not covered.

18.2.15. BYTE 15: Printer On

This character or sequence, when received, turns ON your
printer.

18.2.16. BYTE 16: Printer Off

This character, when received, turns OFF your printer.

18.3. SOME INS AND OUTS OF EMULATION

Here are two tips to help you with emulation:

    1. If two terminals require the same character sequences
    to execute a particular function (except for Bytes 1 and
    2), you can assign values of $ØØ for Input and Output to
    allow the original sequence to go through unaltered.

2. In any entry of the emulation tables, if the input
value is set, but the corresponding output value is ØØ,
AE PRO discards the incoming sequence. Use this to
suppress functions that cannot be converted directly.

Also, consult the chart on the next page, which contains the
emulation codes for most popular terminals.

18.4. TERMINAL EMULATION VALUES

When you select terminal types for input and output in the Macro section (U command) of the AE PRO program, AE PRO configures itself automatically to emulate those terminals. The following chart contains the terminals and functions that AE PRO can emulate automatically.

```
Heath H19_____
Hazeltine 151Ø_____ |  |
IBM 31Ø1_____ |   |  |
ADM-3A_____ |   |   |  |
Dow Jones_____ |   |   |   |  |
DEC VT52 (Standard)_____ |   |   |   |   |  |
Datamedia (8Ø col.)_____ |   |   |   |   |   |  |
Soroc IQ-12Ø_____ |   |   |   |   |   |   |  |
Televideo 912, ADM-31_____ |   |   |   |   |   |   |   |  |
Hazeltine 15ØØ_____ |   |   |   |   |   |   |   |   |   |  |
ADDS Regent, Viewpt. |   |   |   |   |   |   |   |   |   |   |  |
                     |   |   |   |   |   |   |   |   |   |   |  |
```

Function	ADDS Regent Viewpt.	Hazeltine 15ØØ	Televideo 912 ADM-31	Soroc IQ-12Ø	Datamedia (8Ø col.)	DEC VT52 (Standard)	Dow Jones	ADM-3A	IBM 31Ø1	Hazeltine 151Ø	Heath H19
Cursor Offset	2Ø	ØØ	2Ø	2Ø	2Ø	2Ø	ØØ	2Ø	2Ø	ØØ	2Ø
XY Xmit Order	YX	XY	YX	YX	XY	YX	YX	YX	YX	XY	YX
Lead-in	1B	7E	1B	1B	ØØ	1B	ØØ	1B	1B	1B	1B
Clear Screen	ØC	9C	AA	AA	ØC	ØC	1C	1A	CC	9C	C5
Clear to EOS	EB	98	D9	D9	ØB	CA	ØØ	ØØ	CA	98	CA
Clear to EOL	CB	8F	D4	D4	1D	CB	ØØ	ØØ	C9	8F	CB
Hi-lite	ØØ	99	A9	A9	ØE	ØØ	ØØ	ØØ	ØØ	99	ØØ
Lo-lite	ØØ	9F	A8	A8	ØF	ØØ	ØØ	ØØ	ØØ	9F	ØØ
Home Cursor	Ø1	92	1E	1E	19	C8	1E	1E	C8	92	C8
Address Cursor	D9	91	BD	BD	1E	D9	ØØ	BD	D9	91	D9
Cursor Up	1A	8C	ØB	ØB	1F	C1	ØØ	ØB	C1	8C	C1
Cursor Forward	Ø6	1Ø	ØC	ØC	1C	C3	ØØ	ØC	C3	1Ø	C3
Cursor Down	ØA	ØA	ØA	ØA	ØA	C2	ØA	ØA	C2	ØA	C2
Extra	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ
Extra	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ
Printer On	B3	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ
Printer Off	B4	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ	ØØ

19. INTERRUPTS

The ability of Apple's 6502 chip to halt during certain
circumstances the processing of one operation temporarily to
perform another, then return to the original operation where
it left off is known as an interrupt. You may not have to
deal with interrupts if you normally communicate at 300 baud,
but if you use 1200 baud with the 40-column screen or an 80-
column board, interrupts are mandatory. Some modem devices
support interrupts automatically, but others need minor modi-
fications to do so. This chapter is included to provide you
with technical assistance should you need to modify your
modem's hardware to support interrupts.

AE PRO can support interrupts fully, and the big advantage is
preventing the loss of incoming data. An example:

> While viewing a schedule of flights from New York to
> Chicago, you want to make sure AE PRO's copy buffer is
> ON and saving the schedule. The quickest way to do this
> is to leave terminal mode temporarily by entering the
> Terminal Escape Key (^Q), followed by !, the Display
> Program Status command. You may think that this proce-
> dure could cause you tp miss, or lose, a portion of the
> schedule. Not so in AE PRO's Interrupt mode. AE PRO
> responds to your command, displays the status (you
> learn, for example, that the copy buffer is ON), then
> returns to terminal mode and resumes viewing (and sav-
> ing) the schedule -- without losing a flight number!

This is how it works: When you enter ^Q! to check the pro-
gram status, AE PRO leaves terminal mode and "processes" your
request. But the host computer, unaware of your action,
continues to send. Where does the data go? AE PRO receives
the data -- in its interrupt buffer -- but halts its flow to
your monitor while it processes the status display. When it
finishes that task, AE PRO returns to terminal mode, "re-
leases" the data held in its interrupt buffer to your display
device and catches up with the current data being sent.

With interrupts enabled, you can pause during terminal opera-
tions as often as you like without losing data. In the above
example, if the copy buffer status had been OFF, you could
have re-entered the Terminal Escape Key (^Q), followed by R
to toggle ON the copy buffer. AE PRO would have returned to
terminal mode and placed you where you left off -- without
losing data while you were "away." If the copy buffer had
been OFF, however, AE PRO would not have begun to capture the
data in its buffer until you had turned ON the copy buffer.

Interrupts also can accommodate other various AE PRO com-
mands, too, such as turning your printer ON or OFF, checking
free buffer space, clearing your buffer, or displaying a
command menu. Issuing AE PRO commands while on-line is just
one application of an interrupt. And, frankly, issuing a
command such as ^QR to turn the copy buffer ON or OFF, is
hardly going to test AE PRO's interrupt mode; entering ^QR
takes a split-second, or a second at the most. The inter-
rupts function hardly would be noticeable then, but it still
would be working.

A more valuable application is when AE PRO uses the interrupt
mode to "pace" a host computer during times when your display
device may be too slow to process a constant data flow at all
times, say at 1200 baud. This process will be described
shortly.

19.1. INTERRUPT-ABILITY

Most modem devices or serial interfaces are able to generate
interrupts under certain conditions. The most significant
condition is when a character is received from the host
computer. Incoming data, therefore, takes precedence over
another processor operation in progress.

The effect on your communications will vary based on your
usage. If you ever have lost incoming characters because of
the host sending a ^G (bell) character, or, when using an 80
column board, lost 3 to 6 characters when your board cleared
its screen while on-line, or erratically lost characters when
your printer was ON, you'll like the advantage of interrupts.

Interrupts are a life (data) saver. During an interrupt process, AE PRO collects incoming data with its 256-byte capacity interrupt buffer. When the interrupting operation is completed, AE PRO passes the buffered data along to your display device and catches up with the current incoming data.

If the interrupt buffer becomes filled with 125 bytes, AE PRO sends the XOFF character (as defined in Install, including the number of times the character is sent) to direct the host to stop sending. AE PRO "releases" the data in its interrupt buffer when your display device can handle it, then sends the XON character (also as defined in Install) to direct the host to resume sending. Thus no incoming data is lost, even with the slowest of display devices.

There are limitations, however: DOS disables interrupt mode during a disk access. Therefore, you cannot perform disk access operations, such as load, save or catalog, and expect incoming data to be intact. If you attempt a disk access while receiving data, some incoming data may be lost.

Also, Interrupts may not be available to you. Some modem devices do not support interrupts as shipped and need minor modifications to operate in an interrupts mode. There are a few modem devices that do not support interrupts at all.

We recommend that when possible you use interrupts. At lower baud rates, you can live without them if you don't want to make modifications to your hardware. But at baud rates of 1200 and up, interrupts are mandatory if you use the Apple 40-column screen or any 80-column board. These devices cannot handle the constant data flow at all times and will tie up your processor needlessly while writing to their screens.

An external terminal generally will not need interrupts, but we recommend that you use them anyway unless you have a specific reason not to.

19.2.   PRACTICAL INTERRUPTS

The popular modem devices below are broken into interrupt-compatibility groups. They are modem devices that:

   o support interrupts automatically
   o support interrupts only if minor hardware modifications are made
   o do not support interrupts

19.2.1.   Interrupt-ready

The following modem devices are among those shipped ready to operate in an interrupt mode and do not need hardware modifications. AE PRO enters the interrupt mode automatically with these devices:

   BIT-3 Dual-Comm Plus
   CCS 7710 series
   Hayes MicroModem IIe
   Intra Computer PSIO Serial card
   MicroPeripherals Corp. ASIO board
   Novation Apple-Cat (including add-on 212A card)
   Prometheus VersaCard
   Videx PSIO card

19.2.2.   Interrupts, With Modifications

The following modem devices are among those that can support interrupts only if a hardware modification (or the changing of switch's position) is made. If you are unfamiliar with soldering and working with interface cards, have an experienced technician make any necessary changes. **Modifying hardware may void your modem device's warranty.** Check your owner's manual for more details.

   ALS Dispatcher Card: Install a jumper wire from pin 7 of the 6850 socket to pin 30 of the card edge connector. This installs the interrupt line.

Apple Communications Card: Install a jumper wire between pin 7 of the 6850 chip and pin 30 of the card edge connector. AE PRO will make any other changes necessary to complete the interrupt mode.

Apple Super Serial Card: This card is interrupt ready and automatically compensated for by AE PRO at run-time. The only prerequisite is that the enable switch (switch 1, position 6) be set appropriately. See further details in your SSC owner's manual.

Hayes MicroModem II: Install a jumper wire between the two large "eyes" on the board directly below or slightly to the right of the "II" in "MICROMODEM II". This modification (only) completes the interrupt line allowed for in the original design and does not void the card's warranty.

There is one drawback with this line enabled. Another line is tied to this one and originates from the ring detect circuitry. If you had your phone line installed to the modem, and were running a program not designed to handle interrupts, and a ring came in, your program may be interrupted at that time. Because there would be no interrupt service loop installed to handle that mode, the current program could perform an unwelcomed interrupt of its own and may not be recoverable short of a power down.

There are solutions. You could disconnect the phone line during these times, but that can be a nuisance. You could install a switch on the modem that would be used instead of the wire jumper to switch the interrupt capability on or off.

Another solution would be to disable the ring in-
terrupt completely, because no software that we
know of uses it anyway. This can be accomplished
by cutting the trace on the board that feeds the
leftmost eye from pin eight of U1. This is the
ring interrupt line and can be lifted separately
from the regular line. **Changes involving trace
modifications may void your warranty.**

MBI VIP Card: The interrupts pin (pin 26) on chip U3
(between crystal X1 and chip U5) may be folded
under the chip. If so, reinsert this pin to enable
interrupts mode. There are known disadvantages to
this modification: some older versions of VisiCalc
will not boot with this pin inserted. Also, you
must be very kind to such a pin; chip pins are not
known for flexibility when it comes to being bent
back and forth.

Micro-Peripheral's MicroConnection: Install a jumper
wire from pin 7 of the 6850 socket to pin 30 of the
card edge connector. This installs the interrupt
line of the 6850 to the IRQ line of the Apple II.

Mountain Computer's CPS Card: Install a jumper wire from
pin 14 of the 2651 chip (U1), to pin 30 of the card
edge connector. This connects the interrupt line.

Multi-Tech Modem II: Install a jumper wire from pin 30
of the card edge connector to the solder "eye"
closest to it to the left as you look at the cir-
cuit side of the card with the edge connector at
bottom right. This connects the interrupt line.

SSM AIO Board: There are two little "eyes" on the compo-
nent side of the card close to the edge contacts
labeled "R". Install a jumper wire between these
two eyes. This connects the interrupt line.

Videx PSIO Card: This card is interrupt ready and automatically compensated for by AE PRO at run-time. The only prerequisite is that Dip switch 4 be ON. See further details in your PSIO owner's manual.

19.2.3. Sorry, No Interrupts

The following modem device does not support Interrupts. With it, AE PRO cannot be used in an interrupt-driven mode:

ESI Lynx

20. MODEM DIFFERENCES

AE PRO is compatible with all Apple-compatible modems and
cards used to interface modems. Modems and peripheral de-
vices often differ in their design and features. To accommo-
date the various modems and interfaces, AE PRO changes some
of its own operating procedures, depending on which modem is
interfaced to your computer.

These internal changes should not affect your use of AE PRO,
except as noted in the special characteristics and behavior
of the popular modems and interfaces listed below.

20.1.   NOVATION APPLE-CAT II

The Novation Apple-Cat II is one of the most sophisticated
modems with which AE PRO is compatible and is responsible for
many new features previously unattainable in terminal soft-
ware. Some of which are:

- Touch-Tone dialing
- Accurate dialtone detection in call cycles
- Optional external modem port (printer port)
- Conversive voice mode, with dialing
- Conversive in BAUDOT, the DEAF TTY standard
- Conversive in 1200 baud in a limited fashion

20.1.1. The Apple-Cat Port Switch

The 25-pin port at the top of the Apple-Cat originally was
designed to be used as a printer port for the modem. With
AE PRO, that port can be enabled by the Apple-Cat Port Switch
command (^) to route all input and output through it instead
of the internal modem of the card. This has one big advan-
tage: you could install a separate stand-alone modem, such
as a BELL 212A or VADIC 1200 baud modem, and use the Apple-
Cat as a driver for it.

With the proper interfacing, the card will detect carrier and other normal modem operations properly. Ring detecting external modems can also work in the Auto-answer (+) mode by the carrier detecting line of the modem. AE PRO knows automatically when this applies.

Because this external port was originally intended only to service a printer, however, all of the lines necessary for proper operation are not included at the CAT RS-232 interface connector box provided optionally by Novation. Consequently, you must prepare a cable that must be hardwired to the serial connector row (J2) of the Apple-Cat. The wiring diagram shown below should work for most standard modems.

20.1.2. Apple-Cat Port to External Modem

Apple-Cat J2	Connect to modem RS-232 line
1	2
2	3
3	8
4	7
8	20

20.1.3. Apple-CAT Baudot Operation

The Apple-Cat can operate at the five-level (ASCII 5-bit) BAUDOT (DEAF TTY) mode. This means that an Apple with AE PRO can communicate with five as well as eight level (ASCII) systems with its own built-in hardware.

When you select the DEAF mode in the Baud rate chart(s), many internal parameters of AE PRO are changed.

All carrier detecting capabilities are defeated, as well as
the ability to send files or macros, or use the protocol
transfer mode. This may seem to be very limited, but in
actual use it is not. Because this mode is used primarily as
a terminal, the only flexibility needed is with the saving or
printing of incoming data. Therefore, the printer (P) and
copy (R) modes and associated parameters remain operational.

AE PRO also incorporates its own type-ahead keyboard buffer.
It is in effect all the time, but at higher baud rates it may
not be noticed, except by the fastest typists. At BAUDOT
speeds (approximately 45.5 baud) it is very useful.

In BAUDOT operation, AE PRO behaves much the same as any
other terminal mode, except when you dial a number. Instead
of displaying the usual Waiting for Carrier message, AE PRO
immediately drops into terminal mode (AE: Term-->) and waits
for any incoming message from the called host.

BAUDOT is half-duplex, one-way communication and is not in-
teractive. Therefore, you can type to the called system only
when it is not typing to you. If this is not observed, data
may be lost or garbled.

20.1.4. Baudot Letter/Figure Shifting

Because letters and figures share the same code within the
BAUDOT character set, an additional "shift" key is used by
many TTY's. You set it to send figures and release it to
send letters as with a regular shift key. This is a neces-
sary part of BAUDOT communications.

AE PRO does this shifting automatically. When a figure is
entered and the character typed before it was not a figure,
AE PRO automatically will include the shift code. The same
is true if a letter were typed and the character typed before
it were not another letter. Typing the ESCape key at any
time in terminal mode will SET the letter mode.

20.1.5. The Baudot Answer Mode

The answer mode of AE PRO differs somewhat when in the un-
attended (or attended) answer mode, because there is not a
stable carrier to use to detect the presence of a calling
computer.

Consequently, when AE PRO is in the BAUDOT mode, and the
Auto-answer (+) is selected, other internal changes are made
within the program. AE PRO displays the usual Waiting for
Ring message, but when the phone is answered the call is
handled differently.

When AE PRO answers a call, one of the annunciator ports on
the Apple is activated. This could be connected to an exter-
nal control device to enable a light or some other visual
indicator to a deaf user that someone has called his system
and is waiting for a response.

The annunciator port used is AN1, which normally is a binary
low (about zero volts), even after a power-up or reset. When
the system is handling an incoming call, this port will go
binary high (about five volts). This port is at pin 14 of
the game I/O connector.

The host operator has two minutes to respond with any key-
board activity to reset the internal timer. Each keystroke
resets the timer to zero count. AE PRO allows two minutes of
keyboard inactivity at anytime before it will hang up and
recycle.

Meanwhile, even though there is no local keyboard activity,
the caller may enter a message. In this BAUDOT answer mode,
the Copy buffer (R) is enabled automatically, so all incoming
data will be saved. At hang up, the annunciator port that
drives the external light will extinguish the light to indi-
cate no one is on the line.

When the local operator returns home, he can view (V command) messages within the buffer on the screen, save them to disk (W command), or print them (P command). He also can return his calls with the BAUDOT mode (45.5 baud) of AE PRO.

20.1.6. Apple-Cat Modifications: Baudot

Some Apple-Cat cards may require an external jumper installed on the card to allow the BAUDOT mode to operate correctly. If this jumper is not installed, there may be a tendency to lose incoming data, or to receive data inaccurately. It is a simple procedure, but should be done only by those comfortable with soldering. If in doubt, have the changes performed by a qualified technician. There are no drawbacks to this modification.

Connect a single jumper wire from chip Z2, pin 29 to chip Z3, pin 15. This line is necessary for the modem to "lock" onto a BAUDOT carrier quickly enough to resolve that character.

20.2. HAYES ASSOCIATES MICROMODEM II

This modem is a very reliable, high-quality communications device with all the basic functions a modem should have. It is missing a few of the Apple-Cat features: Touch-Tone dialing, voice modes, 1200 baud, BAUDOT and the ability to accurately resolve carriers not necessarily those of other modems.

It works nicely otherwise with AE PRO. Most commands work the same except the Dial (D command) mode does not wait for a stable dialtone before beginning to dial, but instead waits an arbitrary delay after the phone is taken off-hook. Because the MicroModem is limited to pulse dialing, you can use common-carrier services such as Sprint, ITT or MCI only when the dialing is completed manually on an external telephone or automatic dialer before AE PRO directs the modem to pick up the phone.

In certain areas of the country, however, when placing local
calls that may be frequently busy, the MicroModem will false-
ly take the busy signal briefly as a carrier. This will
cause AE PRO, if in an automatic redial loop (Dial subcom-
mands /x or //) to think there is carrier and go into termi-
nal mode. A half second or so later, AE PRO realizes there
is no carrier and aborts terminal mode. It is not a major
problem, but it can inconvenience some users.

There is a factory modification for this problem. Contact
Hayes Microcomputer Products for details.

20.3. HAYES ASSOCIATES MICROMODEM IIe

A quality full featured modem with all the advantages of the
MicroModem II, but with the addition of interrupt capability,
Touchtone dialing, improved false signal response, and single
board (no external microcoupler) plug-in operation. The only
thing this modem lacks, is 1200 baud operation!

20.4. ASCII-COMMANDED EXTERNAL MODEMS

An ASCII-commanded external modem, such as the Hayes Smart-
modem, the Novation Smart Cat, the U.S. Robotics Auto Dial
212A, the SSM Transmodem, Multi-Tech MT212ad, Bizcomp Versa-
modem 1200, and others, is a completely independent commu-
nications device that is interfaced to an Apple II or any
other computer through a standard RS-232 port.

There are pluses and minuses to this method. The biggest
advantage of this kind of modem is its ability to operate
with any computer. The biggest disadvantage is that the
command structure gnerally is incompatible to existing soft-
ware and cannot be talked to by conventional (direct port
access) means.

These modems are commanded with ASCII text strings sent to it
through the RS-232 line while in terminal mode of standard
software. Therefore, they need some extra attention before
many of AE PRO's commands can be used.

To solve this, an "attention sequence" must be sent to the
modem followed by a series of characters to tell the modem
what to do. This can be a powerful technique though cumber-
some on most existing terminal software. Your modem's opera-
tor's manual should contain the attention sequence and the
various available commands that follow.

You can command the modem with two basic ways. First, you
can command it manually while in terminal mode by typing
appropriate attention sequences and command strings. Or se-
cond, you can prepare a set of Macros that contain all the
necessary sequences to command it properly.

See the Macros and ASCII Modems chapter for explanations and
specific examples of how to use this powerful commanding
technique.

20.5. MICRO-PERIPHERALS MICROCONNECTION

The Micro-Peripherals MicroConnection is a manually selected
originate/answer modem capable of dialing and answering a
phone. Operation is supported in 3ØØ baud only.

It behaves similarly to the Hayes MicroModem. Because the
answer/originate mode must be selected manually, you must be
careful when making operational changes within AE PRO (such
as going from an outgoing call mode to an answer mode) to
include the appropriate external changes to the modem.

The Baud rate (B command) option in AE PRO is ignored when
this modem is installed.

There are a couple of other things about this modem of which
you should be aware. First, it is always best to power it up
(it is externally powered) before powering up your computer.
Occasionally, if this procedure is not followed the modem
will not be initialized correctly and may produce strange,
unpredictable results. Second, in certain areas of the coun-
try, the modem may have trouble recognizing an incoming ring
pulse. This is an internal component tolerance problem. If
you experience a situation where the modem seems to ignore an
incoming ring signal, contact Micro-Peripherals Corporation.

20.6. ESI LYNX

AE PRO performs correctly with Emtrol Systems, Inc.'s LYNX,
and no changes are necessary other than a specific setting in
Install. The LYNX, however, does not support interrupts.

20.7. MOUNTAIN COMPUTER CPS CARD

The Mountain Computer CPS Card is capable of a few clever
things when dealing with phantom slotting (see the CPS manual
for more details on this) and using the card's own firmware.
AE PRO talks directly to the hardware addresses of whatever
card resides in the specified communications slot.

The card works nicely with AE PRO. It supports all standard
baud rates for communication: 11Ø, 3ØØ and 12ØØ. To AE PRO
it behaves as any other intelligent interface card with
carrier detect ability.

20.8. SSM AIO BOARD

The SSM AIO Board behaves basically as a standard carrier
detecting card, so long as the DCD (data carrier detect) line
is properly interfaced to the modem. Consult the SSM AIO
manual for interfacing and wiring examples.

If the board is not interfaced properly, AE PRO will behave as if a host is never connected. If the modem used does not support this line, it will be necessary to connect it to a point on the RS-232 card that represents a HIGH signal, or +12 volts.

The baud rate selected by the switch on the card determines the HI speed baud rate default of AE PRO. If the AE PRO LO baud rate option is selected, the effective rate will be roughly 1/4 speed. So 1200 would become 300, and 300 would become 75.

20.9. CCS 7710 SERIES CARD

The CCS 7710 series cards behave as standard carrier detecting cards as long as the proper lines are interfaced to the modem, or connected in a specific way to force the cards to think they are set for a particular operation. Refer to the CCS 7710 A or D manual for a complete discussion of this card. Previous discussion in the SSM AIO board section also applies here.

When using one of these cards, there are wiring changes that must be made in the RS-232 interface cable. These changes, described next, are necessary because the standard wiring on the 7710 cards is primarily intended for interfacing with printers or terminals instead of modems.

20.9.1.   7710 Wiring Interface Chart

RS-232 card pins		Connect to modem cable
1	\<optional\>	1
2		3
3		2
7		7
5		2Ø
4 --| 6 --|	Jumper	
8 --| 2Ø -|	Opt. Jumper	8

The baud rate selected by the switch on the card determines
the HI speed baud rate default of AE PRO. If the AE PRO LO
baud rate option is selected, the effective rate will be
roughly 1/4 speed. So 12ØØ would become 3ØØ, and 3ØØ would
become 75.

20.10.   APPLE COMPUTER COMMUNICATIONS CARD

The Apple Computer Communications Card is the only card
supported by AE PRO that does not support carrier detect or
11Ø baud. As a result, you will enter or remain in terminal
mode at all times regardless of whether the system is con-
nected to a host computer. Exit terminal mode manually in
the usual way with the Terminal Escape Key (^Q). You cannot,
however, hang up with this card without modifications.

Follow instructions in the card's operator's manual for fur-
ther information or interfacing instructions.

20.11.   APPLE COMPUTER SSC CARD

The Apple Computer SSC (Super Serial Card) can be used as a
printer driver or terminal driver, and can handle an external
modem.

AE PRO fully supports the card in any of its modes with no changes, except those necessary to the card itself, as discussed in its operator's manual.

20.12.   6850 SERIAL CARDS

The serial cards that use a 6850 chip can be used to interface a modem to your computer. A disadvantage of using this type of card for this purpose is that it does not support DTR (Data Terminal Ready) as packaged. However, AE PRO can support DTR ready modems by connecting the modems DTR line (usually pin 20) to the interface cards RTS line. This will enable AE PRO to cause these types of modems to hang up under direct program control. See below.

These cards are listed in the Communications Drivers menu of Install as Option 3. They are:

> ALS Dispatcher
> Apple Comm-card
> CCS 7710A/D or 7711
> Prometheus VersaCard
> SSM AIO, AIO II, ASIO
> MicroPeripherals Corp. ASIO

All of these cards, except the Apple Comm-card, can be modified to support a hang-up with AE PRO. If you are uncomfortable with soldering, get a qualified technician to perform the modifications for you. The modifications are:

> Connect RTS (usually pin 5) of the card's serial interface to DTR (usually pin 20) of the modem's serial interface. This will enable the card to perform as if it supported DTR, thus be able to hang-up.

The Apple Comm-card cannot be modified in this manner. If you must use this card for modem communications, you will either have to power down your computer each time you want to disconnect from the phone line, or you will need to make other modifications.

21. ADVANCED PROGRAMMING

The AE PRO disk can be programmed to perform customized
operations with various hardware, such as a display device, a
hard disk, or a printer. This chapter is intended for those
of you who may want to perform customized steps when you use
AE PRO.

21.1. MODIFYING BOOT PARAMETERS

AE PRO, as packaged, performs a multi-stage boot operation.
DURING the boot, AE PRO's built-in Memory Management System,
Diversi-DOS, relocates DOS to upper memory if a RAM card is
present in your computer. If no RAM card is found, standard
DOS locations are used.

When DOS is completely loaded into memory, the HELLO file is
EXECuted. The HELLO file is a standard DOS sequential text
file that can be modified easily with AE PRO's built-in
Editor. It may be considered a command file that will per-
form specific operations before running AE PRO itself.

The Memory Management System is not required, but the advan-
tages are important. With it, the relocation of DOS to a
higher memory gives you a much larger data buffer for captur-
ing or editing data -- approximately 28K. Without the memory
management, the data buffer size is approximately 18K.

Certain hardware conditions may exist, however, such as a
hard disk system, that may conflict with memory management.
Also, because AE PRO reinstalls upon exit whatever display
device was present at the initial run, it may be necessary to
initialize your 8Ø-column board or other display system so
that it can be re-enabled. With special conditions, such as
these, you may want to customize the boot process to suit
your needs.

21.1.1. The Hello File

The HELLO file defines all the steps performed at boot. It
decides whether to load special drivers or perform INIT
sequences at this time. Because it is a standard DOS sequen-
tial text file, it can be loaded into AE PRO's buffer with
the L command and modified with the Editor (Y command) by
using the edit commands.

The contents of the HELLO file, as packaged, include:

         BRUN DDMOVER   (relocates DOS to higher memory)
         BRUN AE   (actual running of AE PRO)

AE PRO is packaged to return to Apple's 4∅-column display
upon exit. If you wanted your 8∅ column board to be initial-
ized at boot so it would become a default standard when
AE PRO is exited, modify the HELLO file to read:

         PR#3   (assuming your display is in slot 3)
         BRUN DDMOVER
         BRUN AE

If you want to initialize your 8∅-column board and also
connect your hard disk or other special device driver that
may exist as a separate program on the disk and that also may
conflict with the Memory Management System, modify the HELLO
file to read:

         PR#3
         RUN HDCON   (Run the Hard Disk connect program)
         BRUN AE

You can perform as many steps as you want to suit your needs.
When you are finished, save the HELLO file back to disk with
the W command and use the slash (/) option when prompted for
a filename.

21.2.   ON-LINE REMOTE RUN

AE PRO can be run remotely by a caller from another program
that is active during a connection.   Most users won't find
this useful, but for those of you who could use it and want
to use it, you have the option of allowing your callers to
run AE PRO from another communications program, such as
ONLINE, PMS and others.

The On-line run option in the Unattended/Remote Parameters of
Install must be enabled (YES) to make AE PRO accessible to
callers when using another program.   A caller may run AE PRO
only after carrier and password security are established.

If ONLINE or PMS are used, the AE PRO diskette must be booted
because these programs destroy vectors that AE PRO uses.
Also, certain values must be POKEd into memory before running
AE PRO so it can assume the proper baud rate and format
defaults.

The POKEs are inserted into the HELLO program on the AE PRO
diskette BEFORE the BRUN AE command.   For example, the POKEs
for a Hayes MicroModem II in slot 2 operating at 3ØØ baud and
a data word format of 8 bits, no parity and one stop bit
(8N1) are:

    POKE 1146,39: POKE 1274,99: POKE 14Ø2,139: POKE 153Ø,5
    POKE 1658,4 : POKE 1786,Ø : POKE 1914,1 : POKE 2Ø42,1

When this sequence is entered, AE PRO will drop to its remote
command loop "()" when run.   When carrier is lost, or a
caller's inactivity times it out, AE PRO will EXEC the file
"AEX" when it exits, which should rerun the program that
called it originally. That program will be off-line at this
point.

21.3. USING PRINTER DRIVERS

AE PRO supports only standard printer interface card types
internally. Those recognized are Apple parallel-like, stan-
dard serial (such as the Apple Hi-speed serial card), com-
munications type (cards using the 6850 UART), or Pascal 1.1
standard TYPE 6 (such as Orange Micro Grappler). AE PRO
accommodates these types of cards automatically when the Auto
(0) option of the Printer Setup section of Install is se-
lected.

Any printer interface card that is not properly recognized by
the Auto (0) option in Install will need to have a special
PRINTER.USER file installed, which will become the driver for
that printer. The PRINTER.USER files on the Utilities side
of the disk are:

    PRINTER.USER.APIO   (for the SSM APIO board using port b)
    PRINTER.USER.CPS-PA   (for the Mountain Computer CPS card
                            using the parallel port)
    PRINTER.USER.7728   (for the CCS 7728 Parallel board)
    PRINTER.USER.6522   (for the Sandy Tiedeman 6522 board)
    PRINTER.USER.AXIOM   (for the Axiom IMP series printers)
    PRINTER.USER.INTRA   (for the Intra Computer serial card;
                            also see the special notes on this
                            driver)
    PRINTER.USER.MBI   (for the MBI VIP card)
    PRINTER.USER.DUMPLING (for the Apple Dumpling card)
    PRINTER.USER.FIRM   (for direct use of the resident
                            card's built-in firmware for driving
                            the printer; also see the special
                            notes on the use of firmware printer
                            driver.)

Any of the above PRINTER.USER files can be installed by
selecting the PRINTER.USER option of the Printer Setup sec-
tion of Install. Follow Install's prompting, and enter the
appropriate PRINTER.USER file for your printer's interface.

Other PRINTER.USER files will be written as new interface
cards appear on the market.

Two of the PRINTER.USER files included on the AE PRO disk --
the firmware driver and the Intra driver -- require special
explanations.

21.3.1. Using the PRINTER.USER.FIRM Driver

Under most conditions, AE PRO communicates directly with the
hardware registers of any given printer interface card. This
technique has many advantages, but one disadvantage: you
cannot take advantage of certain enhancements a particular
manufacturer's firmware may offer. Features such as perfora-
tion skip, auto-left margin adjust, etc., are not accessible.
On the other hand, interference between screen display and
print action, printer slowness and loss of characters are
practically eliminated, as are forced line width carriage
returns and others.

There may be times, however, when you would prefer the opera-
tion to go through firmware. We have allowed for this by use
of the PRINTER.USER.FIRM driver. Installing this in Install
will instruct AE PRO to talk directly with the printer card's
firmware and take advantage of certain features it may offer.

To prevent conflict between screen display and printer out-
put, it is necessary to set appropriate initialization
strings in the printer message option of the Printer Setup
section of Install. The ^I80N (or appropriate column width)
standard of card initialization will be needed to prevent
interference between the firmware and AE PRO. Remember,
though, that such a column-width string is necessary only if
PRINTER.USER.FIRM is installed. Consult the printer inter-
face card manual for specific initialization sequences. You
must use command sequences that would normally turn OFF the
local Apple screen.

21.3.2. Using the PRINTER.USER.INTRA Driver

The PRINTER.USER.INTRA driver is ready to operate at its
internal speed default of 1200 baud operation, using an
eight-bit data word format with no parity. If you want to
operate this card at different baud rates or at a different
word-length or parity setting, it will be necessary to BLOAD
this file and modify two or three bytes.

When BLOADed, the file will exist at $8000 in memory. The
first nine bytes ($8000-$8008) are jump vectors into the
remainder of the code for the various routines used and are
described in the subsection, Writing a PRINTER.USER Driver.
The following two bytes, $8009 and $800A are the speed speci-
fiers, SPDBYT1 and SPDBYT2. The third byte, $800B, is the
specifier FORMATBYT, which sets the parity and word length.
These values may be changed to suit your needs by consulting
the following table:

BAUD ─>	110	300	600	1200	2400	4800	9600
($8009) SPDBYT1	$8A	$AA	$D5	$6B	$35	$1B	$0D
($800A) SPDBYT2	$04	$01	00	00	00	00	00

PAR/WRD LNGTH─>	7E2	702	7E1	701	8N2	8N1	8E1	802
($800B) FRMTBYT	$1E	$0E	$1A	$0A	$07	$03	$1B	$0F

When the necessary changes have been made, BSAVE the file
back to disk, using the DOS command:

        ]BSAVE PRINTER.USER.INTRA,A$8000,L$4E.

21.3.3. Writing a PRINTER.USER Driver

If you have an interface card that is unlike any card type
listed under the AUTO option and an appropriate PRINTER.USER
file for your card is not on the disk, one will have to be
written. Before writing a printer driver, check with us to
see if one for your interface card has been written already.
New PRINTER.USER files will be supplied as needed as new
hardware becomes available.

The programming details provided next are intended for ma-
chine language programmers to design and implement their own
driver files for custom printer cards.

PRINTER.USER driver specifications:

   1. Can be assembled in practically any standard 6502
      assembler.

   2. Must be ORG'd at $8A4 and the object code placed at
      $8000.

   3. Total code must be less than $5F bytes including all
      jump vectors and defined storage.

   4. A three-position JMP table must exist at the begin-
      ning of the file. The first jump must point to the
      actual INIT routine, the second jump to the STATUS
      routine, and the third to the routine that actually
      does the WRITE DATA.

   5. Upon entrance to any of the three routines, the Y
      register will always contain the slot location of
      the printer interface card (as specified in the
      Install program) in $N0 format, suitable for stan-
      dard indexing techniques.

   6. Upon entrance to the WRITE routine, the X register
      will contain the character ready to be output. The
      high bit of this character will always be CLEAR.

7. None of the registers in any of these routines need
    to be preserved.

8. If status reporting is not possible in a particular
    card, three RTS instructions should appear as place
    holders instead of the second jump instruction,
    which normally corresponds to the status routine
    vector in the front jump table.

9. If status reporting is possible, the printer status
    must be returned in the MINUS (N register) flag.
    If MINUS is set, printer is BUSY, else printer is
    READY.

More information can be learned by examining the PRINTER.USER
drivers included on the AE PRO diskette. One of the simpler
ones that makes for a good example of file structure is the
PRINTER.USER.CCS7728. Slightly more complex drivers are the
PRINTER.USER.AXIOM or PRINTER.USER.INTRA. Each of these
files can be BLOADED and studied. The code when BLOADED will
be found at $8ØØØ.

22. THE UTILITY PROGRAMS

AE PRO's Protocol Transfer facilities can send or receive a
file of any type or size to or from another computer using a
Christensen-compatible protocol.   There may be times, how-
ever, when the computer to which you are transferring a file
in Christensen protocol uses another operating system, such
as CP/M or Pascal. There may be times, also, when the compu-
ter to which you want to send a file cannot accommodate a
Christensen protocol transfer, such as The SOURCE.   It is for
these cases that we have included a set of Utility programs
on the diskette to facilitate the transfer of these files.

There are two basic purposes for which the Utility programs
are used:

   1. To change the form of a file from one operating
       system to that of another, such as DOS to CP/M.
       The program used to accomplish this is:

       CHFORM

       (CHFORM also includes options for the merging and
       viewing of ASCII text files.)

   2. To convert Applesoft Basic or binary files to trans-
       ferable ASCII text.   The programs used to accom-
       plish these conversions are:

              AP/BIN TO TEXT (converts Applesoft Basic pro-
                             grams or binary data files to
                             ASCII text)

              MPF.A   (converts Applesoft programs to
                             a literal ASCII file)

              MPF.I   (converts Integer programs to a
                             literal ASCII file)

SPACECRUNCH   (strips all unnecessary spaces
                   and punctuation from a file
                   created from a program by one
                   of the above two utilities)

22.1. THE CHFORM UTILITY

CHFORM (CHange FORMat) is used to change the format of an
ASCII text file that you need to send by protocol transfer to
a computer that uses an operating system other than DOS.
This is necessary because other operating systems, such as
CP/M and Pascal, store ASCII text differently on disk.

CHFORM does not alter your original file, but uses that
file's data to create a new file. This new file, containing
the operating system format of the destination computer, then
is sent by protocol. CHFORM can change ASCII formats from
DOS to CP/M or Pascal, or from CP/M or Pascal to DOS.

Other options of CHFORM allow ASCII text merging and viewing.

To run CHFORM, insert the Utilities diskette into the logged
drive (or another drive, but include the drive parameters),
and enter at your computer's prompt (] or >):

        BRUN CHFORM<c/r>

When CHFORM is completely loaded, it displays:

               ASCII EXPRESS "THE PROFESSIONAL"
                    FILE CONVERSION PROGRAM
                        VERSION 4.Ø
                         (C) 1984 BY
                   UNITED SOFTWARE INDUSTRIES

               CONVERT MENU

               Ø = APPLE DOS TO CP/M
               1 = CP/M TO APPLE DOS
               2 = APPLE DOS TO PASCAL
               3 = PASCAL TO APPLE DOS
               4 = DOS FILE APPEND FUNCTION
               5 = VIEW A TEXT FILE TO SCREEN

               X = EXIT CONVERSION PROGRAM

               CHOICE? _

22.1.1. Changing a Format

To change the format of an ASCII text file from DOS to CP/M
or Pascal, or vice versa, use the appropriate option (Ø, 1,
2, or 3).

For example, you want to send a (DOS) text file created in
AE PRO's Editor to a computer that is using Z-Term "The
Professional," which is designed for CP/M. Before sending
the file by protocol transfer, you must change the file to a
CP/M format, so the receiving computer will know how to
handle it. Take the following steps:

     At the CHOICE? prompt, enter Ø. CHFORM displays:

               OUTPUT FILE TO CREATE: _

Enter the name of the new file, including any optional
drive parameters, that will contain the format of the
destination computer, followed by c/r. CHFORM displays:

INPUT FILE: _

Enter the ASCII text filename to be changed, including
any optional drive parameters, then c/r. To CATALOG the
disk, enter c/r alone (after a CATALOG, CHFORM redis-
plays the above prompt). After entering the filename,
CHFORM displays:

INPUT AND OUTPUT FILES OPENED

CHFORM performs the format change, then displays:

DOS --> CP/M CONVERSION - COMPLETED!

PRESS ANY KEY TO CONTINUE _

Press any key to return to the Convert Menu. You then could
change the format of another file, or select another option.
Options 1, 2 and 3 follow the same procedure as above.

During the formatting process, CHFORM appends a filename
extension to the new file. In the above example, CHFORM
would append to the filename a .DC extension -- short for DOS
to CP/M. This is useful for you to see at a glance the
format of the new file during a catalog display.

CHFORM appends extensions to each new file it creates, and
the extension depends on the specific format change. Here
are the possible extensions:

.DC	DOS	-->	CP/M
.CD	CP/M	-->	DOS
.DP	DOS	-->	Pascal
.PD	Pascal	-->	DOS

When you are sending (S command) the new file to the destina-
tion computer, you must include the extension when prompted
for a filename to send.

The various conversion options are available in case you receive a file in CP/M or Pascal format during a protocol transfer. The transfer will be fine, but DOS won't be able to use it. Change the file's format appropriately, from CP/M to DOS or Pascal to DOS.

> NOTE: There is no provision to change a CP/M file directly to a Pascal file, or vice versa; such changes would be useless to DOS. But if you were acting as a middleman by downloading a CP/M ASCII file from one computer to forward to a Pascal computer, you could convert the CP/M file to Pascal with a two-step process: Change CP/M to DOS, then change DOS to Pascal.

22.1.2. Appending DOS Files

Option 4 enables you to merge DOS files into one file. This could be used, for example, to combine file segments created during an Auto-save function. Auto-save appends a .AEx extension to the designated filename after each automatic save segment, where x is the number of the save (filename.AE1, filename.AE2, etc.). Also, you could use this to append files that together are too large for AE PRO's Editor buffer.

To append DOS files, take the following steps:

Enter 4 at the Convert Menu's CHOICE? prompt. CHFORM displays:

OUTPUT FILE TO CREATE: _

Enter the new filename that eventually will contain all of the merged file segments, followed by c/r. CHFORM displays:

INPUT FILE (ESC TO QUIT): _

Enter the filename of the file to be placed at the beginning of the new OUTPUT file above, then c/r. CHFORM writes the data to the new filename, then redisplays:

    INPUT FILE (ESC TO QUIT): _

Enter the filename of the file to be appended to the above file segment, then c/r.

Continue this process until you have appended your last file. After entering that last filename, CHFORM writes that data to the bottom of the OUTPUT file, then redisplays:

    INPUT FILE (ESC TO QUIT): _

Because you have no more files to append, enter ESCape to complete the operation. CHFORM returns you the Convert Menu.

22.1.3. Viewing a Text File

Option 5 allows you to view an ASCII text file on your monitor. This could be used, for example, to view text files to help you decide which ones -- or in which order -- to merge with the Append option.

To view an ASCII text file, take the following steps:

Enter 5 at the Convert Menu's CHOICE? prompt. CHFORM displays:

    FILE TO VIEW: _

Enter the filename of the text file you want to view, followed by c/r. To CATALOG the disk, press c/r alone (after a catalog display, CHFORM redisplays the above prompt). After entering the filename, CHFORM displays the complete file on your monitor. You can adjust the speed with the < and > keys unshifted. When the viewing display is completed, CHFORM displays:

PRESS ANY KEY TO CONTINUE _

Press any key to return to the Convert Menu.

You can use any of CHFORM's options as many times as you want. When you are finished with CHFORM, exit the program by entering X at the CHOICE? prompt.

22.2. FILE CONVERSION UTILITIES

The file conversion utilities are used to convert Applesoft Basic program files or binary data into ASCII text for sending to a computer that cannot accommodate a protocol transfer.

A typical use for this would be sending a program file to someone in another part of the country through a public time-sharing service, such as The SOURCE or CompuServe. After uploading the converted file to the time-sharing service for temporary storage, a friend or business associate could download the file. Once back to an Apple, the file could be EXEC'd into memory, then saved appropriately to disk. There is no limit as to how many times the file can be transferred, or how many times the file may be passed through unlike systems to get to the destination.

22.2.1. AP/BIN TO TEXT

The AP/BIN TO TEXT file on the AE PRO disk can be used to create tokenized ASCII text files from Applesoft Basic program files or binary data files. To run the AP/BIN TO TEXT program, enter at your computer's prompt ( ] or >):

    ]BRUN AP/BIN TO TEXT<c/r>

When the program is loaded into memory, it displays:

        MENU

        B - BINARY TO TEXT

        A - APPLESOFT TO TEXT

        C - CATALOG

        Q - QUIT

            PICK ONE -> _

B - Binary to Text

To convert a binary data file to ASCII text, enter B at the PICK ONE -> prompt. The utility displays:

        INSERT DISK CONTAINING FILE & PRESS CR

Insert the disk containing the binary file to be converted, then press c/r. The utility displays:

        FILENAME:_

Enter the name of the binary file to be converted, for example, "BINTEST," then press c/r. While the program converts your file, it displays:

TEXTNAME: BINTEST.T

then returns to its menu.

The new text filename of BINTEST.T indicates the converted file on the disk. Your original BINTEST binary data file remains on the disk unchanged.

Your new BINTEST.T file is now converted to ASCII text and ready to be sent to another computer using an ASCII file send.

A - Applesoft to Text

To convert an Applesoft Basic program file to tokenized ASCII text, enter A at the PICK ONE -> prompt. The utility performs exactly the same as does the B option above. Your new converted file will have a .T filename extension. As with the B option, your original Applesoft Basic program file remains on the disk unchanged.

C - Catalog

To catalog a disk in the logged drive, enter C at the PICK ONE -> prompt. The utility will display the catalog listing of the disk one screen page at a time. When the catalog is finished, press any key to return to the program menu.

You can exchange disks in the logged drive as often as you like when the program menu is displayed.

Q - Quit

To exit the AP/BIN TO TEXT utility program, enter Q at the PICK ONE -> prompt. You will be returned to your computer's prompt ( ] or >).

22.2.2. MPF.A: Applesoft --> Text

MPF.A is an Applesoft file utility that creates readable ASCII files of Applesoft Basic programs. The difference between a readable program file and a tokenized file, is that a readable file would look just like the program listing if you used the LIST command from Basic. The tokenized file would be an ASCII list of HEX TOKENS which actually comprise the program itself. A tokenized file is smaller and would be the preferred method of transfer in most cases (other than Protocol). However, if you wanted to transfer a Basic program to another TYPE of computer, you would use the ASCII readable method.

To create an ASCII readable text file from an Applesoft Basic program, enter FP, the LOAD the program from disk. Once loaded, enter EXEC MPF.A. (This must be done while booted in standard DOS 3.3 operating system. No special relocated DOS's should be used at this stage)

> NOTE: MPF.A is an EXEC file that manipulates internal Applesoft program pointers and then LOADS PFM.A, which is the program that actually does the file writing. PFM.A cannot be run directly - it can be used only by MPF.A

When MPF.A has been EXEC'd, it displays:

NAME OF FILE TO CREATE? _

Enter the filename that will contain the new ASCII
version of your Applesoft file, then c/r.   MPF.A
displays:

    TO SLOT (DEF=6)? _

Enter the destination slot for the new file, then c/r.
If DEF=X is correct, enter c/r alone. MPF.A displays:

    TO DRIVE (DEF=1)? _

Enter the destination drive for the new file, then c/r.
If DEF=X is correct, enter c/r alone. MPF.A displays:

    C/R WHEN READY _

If you need to change disks, do so now. When you are
ready to proceed, enter c/r. MPF.A writes the new ASCII
file, then displays:

    CRUNCH IT? _

If you want MPF.A to strip all unnecessary spaces and
punctuation from the new ASCII file, enter Y. Any other
key will end the program. By CRUNCHing a file, you can
reduce the file size by up to 35%. This can reduce the
transfer time by the same amount. You should always
CRUNCH the file, unless it was not created from an
Applesoft program. If you enter Y, MPF.A RUNs the
SPACECRUNCH utility program, then displays:

              S P A C E C R U N C H E R

        MAXIMUM LINE LENGTH (DEF=160)? _

The maximum line length of the new file will depend on
the computer to which you will send the file. If you
are sending to another Apple, you can enter 255. If you
are sending to The SOURCE, enter 140 – the maximum legal
line length the SOURCE's editor can accomodate. Enter
the number, then c/r. If the DEF= line length is
correct, enter c/r alone.

SPACECRUNCH does not cut off the lines if they are too long. It keeps track of which lines exceed the line length specified and by how much. If you want to modify the line lengths, you will have to load the file into the Editor and make changes accordingly.

After entering the line length, SPACECRUNCH displays:

C/R WHEN READY (OR 'END') _

When you are ready to perform the CRUNCH, enter c/r. After CRUNCHing is completed, SPACECRUNCH displays:

>>>>>>>>>>   D O N E !!   <<<<<<<<<<

I HAVE JUST PROCESSED XX LINES
THE LONGEST LINE = XXX CHARACTERS

TOTAL NUMBER OF CHARACTERS = XXXX

SPACECRUNCH displays this report, which includes the final number of characters the new ASCII file contains. If you like, compare this to the number of characters in the original file to determine your savings.

After the CRUNCH report is displayed, you are placed back at the Applesoft Prompt].

A CRUNCHed file's filename will display in the catalog with a /C appended to it.

22.2.3. MPF.I: Integer --> text

MPF.I is an Integer Basic to text file converter. The MPF.I and PFM.I files to the same for Integer Basic programs as MPF.A and PFM.A do for Applesoft programs, except that the CRUNCH is not built into it. Otherwise, operation is the same. A CRUNCHed Integer file will not create quite the savings as will an Applesoft file, but it still is significant.

22.2.4. Spacecrunch

SPACECRUNCH is a utility program that removes all unnecessary spaces from a file. It can be used to crunch previously uncrunched files, or to crunch Integer files.

Note: Do not CRUNCH Binary files!
Enter RUN SPACECRUNCH at your Apple's prompt ( ] or >).
When the program is loaded, SPACECRUNCH displays:

FILENAME TO READ? _

Enter the name of the file to be crunched, then press c/r.
SPACECRUNCH displays:

FILENAME TO CREATE? _

Enter the name of the file to be created by SPACECRUNCH, then press c/r. SPACECRUNCH displays:

S P A C E   C R U N C H E R

MAXIMUM LINE LENGTH (DEF=160)? _

The maximum line length of the new file will depend on the computer to which you will send the file. If you are sending to another Apple, you can enter 255. If you are sending to The SOURCE, enter 140 -- the maximum legal line length the SOURCE's editor can accommodate. Enter the number, then c/r. If the DEF= line length is correct, press c/r alone.

SPACECRUNCH does not cut off lines if they are too long. It keeps track of which lines exceed the line length and by how much. If you want to modify the line lengths, you will have to load the file into the Editor and modify the lines accordingly.

After entering a line length and c/r, or c/r alone, SPACE-
CRUNCH displays:

>   IS THIS PROGRAM A/S OR INT (DEF=A/S)? _
>   (Applesoft or Integer)

Enter A if the file to be crunched is an Applesoft file, or I
if the file is an Integer file, then press c/r. SPACECRUNCH
displays:

>   FROM: SLOT (DEF=6)? _

Enter the slot number of the file to be crunched, then press
c/r. SPACECRUNCH displays:

>   DRIVE (DEF=1)? _

Enter the drive number of the file to be crunched, then press
c/r. SPACECRUNCH displays:

>   TO: SLOT (DEF=6)? _

Enter the destination slot number of the new crunched file,
then press c/r. SPACECRUNCH displays:

>   DRIVE (DEF=1)? _

Enter the destination drive number of the new crunched file,
then press c/r. SPACECRUNCH displays:

>   C/R WHEN READY (OR 'END') _

When you are ready to perform the crunch, press c/r. After
the crunch is completed, SPACECRUNCH displays:

>   >>>>>>>>>>   D O N E !!   <<<<<<<<<<
>
>   ·I HAVE JUST PROCESSED XX LINES
>   THE LONGEST LINE = XXX CHARACTERS
>
>   TOTAL NUMBER OF CHARACTERS = XXXX

SPACECRUNCH displays this report, which includes the final
number of characters the new ASCII file contains. If you
like, compare this to the number of characters in the origi-
nal file to determine your crunch savings.

After the crunch report is displayed, you are placed at your
Apple's prompt ( ] or >).

The filename of a crunched file will appear with a /C append-
ed to it during a catalog display.

23.   ASCII CHART

PEOPLES' MESSAGE SYSTEM, SANTEE, CA
(619) 561-7277

Full ASCII Character Chart

```
 Ø $ØØ 128 $8Ø NUL^@   32 $2Ø 16Ø $AØ SPC   64 $4Ø 192 $CØ @    96 $6Ø 224 $EØ `
 1 $Ø1 129 $81 SOH^A   33 $21 161 $A1 !     65 $41 193 $C1 A    97 $61 225 $E1 a
 2 $Ø2 13Ø $82 STX^B   34 $22 162 $A2 "     66 $42 194 $C2 B    98 $62 226 $E2 b
 3 $Ø3 131 $83 ETX^C   35 $23 163 $A3 #     67 $43 195 $C3 C    99 $63 227 $E3 c
 4 $Ø4 132 $84 EOT^D   36 $24 164 $A4 $     68 $44 196 $C4 D   1ØØ $64 228 $E4 d
 5 $Ø5 133 $85 ENQ^E   37 $25 165 $A5 %     69 $45 197 $C5 E   1Ø1 $65 229 $E5 e
 6 $Ø6 134 $86 ACK^F   38 $26 166 $A6 &     7Ø $46 198 $C6 F   1Ø2 $66 23Ø $E6 f
 7 $Ø7 135 $87 BEL^G   39 $27 167 $A7 '     71 $47 199 $C7 G   1Ø3 $67 231 $E7 g
 8 $Ø8 136 $88 BS ^H   4Ø $28 168 $A8 (     72 $48 2ØØ $C8 H   1Ø4 $68 232 $E8 h
 9 $Ø9 137 $89 HT ^I   41 $29 169 $A9 )     73 $49 2Ø1 $C9 I   1Ø5 $69 233 $E9 i
1Ø $ØA 138 $8A LF ^J   42 $2A 17Ø $AA *     74 $4A 2Ø2 $CA J   1Ø6 $6A 234 $EA j
11 $ØB 139 $8B VT ^K   43 $2B 171 $AB +     75 $4B 2Ø3 $CB K   1Ø7 $6B 235 $EB k
12 $ØC 14Ø $8C FF ^L   44 $2C 172 $AC ,     76 $4C 2Ø4 $CC L   1Ø8 $6C 236 $EC l
13 $ØD 141 $8D CR ^M   45 $2D 173 $AD -     77 $4D 2Ø5 $CD M   1Ø9 $6D 237 $ED m
14 $ØE 142 $8E SO ^N   46 $2E 174 $AE .     78 $4E 2Ø6 $CE N   11Ø $6E 238 $EE n
15 $ØF 143 $8F SI ^O   47 $2F 175 $AF /     79 $4F 2Ø7 $CF O   111 $6F 239 $EF o

16 $1Ø 144 $9Ø DLE^P   48 $3Ø 176 $BØ Ø     8Ø $5Ø 2Ø8 $DØ P   112 $7Ø 24Ø $FØ p
17 $11 145 $91 DC1^Q   49 $31 177 $B1 1     81 $51 2Ø9 $D1 Q   113 $71 241 $F1 q
18 $12 146 $92 DC2^R   5Ø $32 178 $B2 2     82 $52 21Ø $D2 R   114 $72 242 $F2 r
19 $13 147 $93 DC3^S   51 $33 179 $B3 3     83 $53 211 $D3 S   115 $73 243 $F3 s
2Ø $14 148 $94 DC4^T   52 $34 18Ø $B4 4     84 $54 212 $D4 T   116 $74 244 $F4 t
21 $15 149 $95 NAK^U   53 $35 181 $B5 5     85 $55 213 $D5 U   117 $75 245 $F5 u
22 $16 15Ø $96 SYN^V   54 $36 182 $B6 6     86 $56 214 $D6 V   118 $76 246 $F6 v
23 $17 151 $97 ETB^W   55 $37 183 $B7 7     87 $57 215 $D7 W   119 $77 247 $F7 w
24 $18 152 $98 CAN^X   56 $38 184 $B8 8     88 $58 216 $D8 X   12Ø $78 248 $F8 x
25 $19 153 $99 EM ^Y   57 $39 185 $B9 9     89 $59 217 $D9 Y   121 $79 249 $F9 y
26 $1A 154 $9A SUB^Z   58 $3A 186 $BA :     9Ø $5A 218 $DA Z   122 $7A 25Ø $FA z
27 $1B 155 $9B ESC^[   59 $3B 187 $BB ;     91 $5B 219 $DB [   123 $7B 251 $FB {
28 $1C 156 $9C FS ^\   6Ø $3C 188 $BC <     92 $5C 22Ø $DC \   124 $7C 252 $FC |
29 $1D 157 $9D GS ^]   61 $3D 189 $BD =     93 $5D 221 $DD ]   125 $7D 253 $FD }
3Ø $1E 158 $9E RS ^^   62 $3E 19Ø $BE >     94 $5E 222 $DE ^   126 $7E 254 $FE ~
31 $1F 159 $9F US ^_   63 $3F 191 $BF ?     95 $5F 223 $DF _   127 $7F 255 $FF
```

^ = Control
First two columns of each group are dec & hex ascii value with hi bit off.
Second two columns each group are dec & hex values with hi bit on.

24. SUBJECT INDEX

ASCII EXPRESS "The Pro"

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