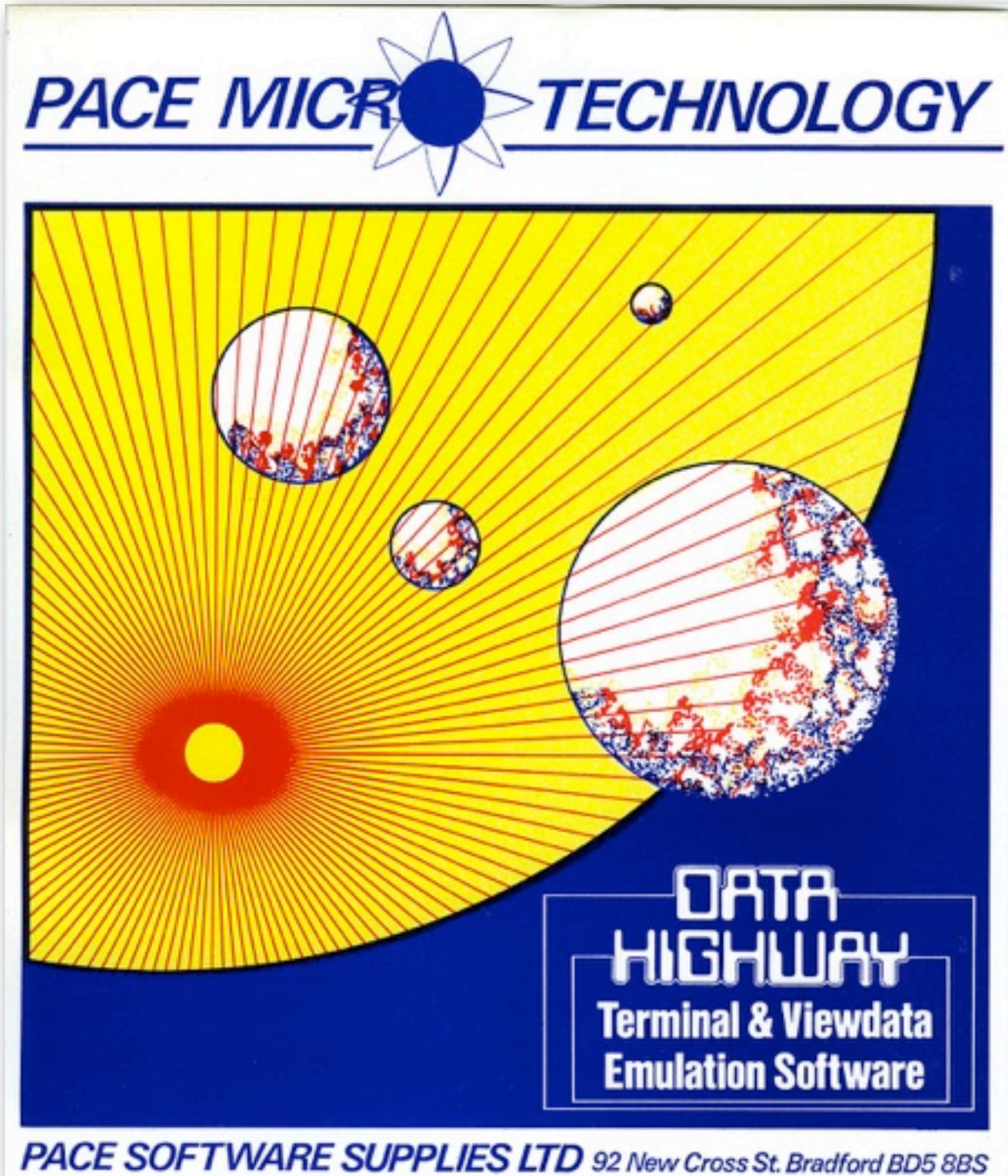




Apple® IIGS

# Antelope Program Manual



---

## Notes on the Freeware Edition

Data Highway™, my first commercial telecommunications program, was published by PACE Software, back in 1984. A major update was issued in 1985, but as the world moved on, PACE eventually ceased to publish Data Highway™. At the time, they gave me an agreement that I could release it under a different name, through the Apple2000 User group.

Thus Antelope was born.

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Antelope

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# Welcome to Antelope

## What Is Antelope ?

Originally released as Data Highway™ on a copy-protected DOS 3.3 disk, and then when commercial sales dried up, Data Highway™ was renamed as Antelope, and sold by Apple2000 on an unprotected DOS 3.3 disk.

Antelope is an integrated communications program running under the DOS 3.3 disk operating system for the Apple II, IIe, and IIc computers. When used in conjunction with a suitable serial interface and modem, it will allow you to use your Apple computer as a general ASCII Communications or Viewdata Terminal.

Using Antelope, subscribers will be able to make full use of Prestel and Telecom Gold. It also enables the use of other Viewdata systems, bulletin boards and public data networks and systems which utilise the DEC VT100 standard. Antelope's user-to-user communication capability is exceptional, and the user friendliness of the program is unrivalled.

Antelope supports transmission of file transfers either by spooling, Xon/Xoff flow control or by Xmodem protocol. It also has a large storage buffer to capture and preserve incoming and outgoing data. There are a host of features which may be configured to individual user requirements. The configuration of the program is saved to a disk file and is restored the next time the program is run.

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# Preface



---

## How To Use The Manual

You will find that all of the commands within The Antelope are available with just one or two keystrokes and each is fully described in this manual under the appropriate section. Once each of these functions has been mastered this manual will serve simply as a reference guide. Note that in many places we refer to the Nightingale modem and accessory board and their various controls. The Antelope will of course work with many other modems whose controls may be different. For example, the Nightingale 'Modem connect' switch may be referred to as 'Online' on other modems.

*A note on notation!* : Throughout this manual, the following abbreviations have been used to represent keys on the Apple keyboard :

<CR> = CARRIAGE RETURN  
<SP> = SPACE bar  
<ESC> = ESC  
<CTRL-RESET> = RESET

The left and right carets themselves are represented as '<' and '>'.





# Chapter 1



---

## Introduction to Communications

### 1.1 Communications software.

A 'terminal' program is the means by which a micro-computer can be used as a terminal to another computer. It provides the software interface that works in conjunction with the communications hardware to allow meaningful communications to take place. In addition to a general program, The Antelope includes a specific form of terminal program which enables your Apple to emulate a Prestel terminal.

### 1.2 Communications hardware.

A serial interface converts parallel data from your computer into a form which makes it suitable for transmission over longer distances than would otherwise be possible. Some form of 'protocol' is required to ensure that each computer knows how to interpret the signals it receives from the other. The Antelope provides the protocols necessary for communications with a variety of other computers.



# Chapter 2

## Getting Started

### 2.1 System requirements.

The Antelope programs will run on any of the following minimum systems :

- 1) Any standard Apple II+ microcomputer with at least 64k RAM (ie. a 16k RAM card must be present), and a single disc drive.
- 2) An Apple II/e with a single disc drive.
- 3) An Apple II/c.

In addition to the above you will require a modem which will operate at 1200/75 and/or 300/300 baud rates and, when using a II+ or II/e, a serial card which also supports these rates. The following cards are currently supported :

1. PACE Mastercard
2. PACE Mastercard II
3. Apple Super Serial Card or Cirtech Champion card
4. CCS7710A

**Note:** Some modems carry out what is known as speed buffering. This means that they can talk to the computer at say, 1200/1200 baud full duplex, but communicate with the remote system at a different rate e.g. 1200/75. This allows you to use split rates on a serial interface that is not capable of offering them directly.

### 2.2 System configuration.

Before you can use The Antelope you must first configure it to suit your particular Apple system. Place a copy of the master disc in drive 1 and boot it in the normal manner (switch on from cold or use PR#6). The first display you will see is a hi-res title page and copyright message. Normally, once you have configured the program, the next display will be the main menu:

```
-----
          **      THE ANTELOPE      **
-----

SYSTEM MENU
1) COMMUNICATIONS PROGRAM
2) VIEWDATA PROGRAM
3) UTILITIES
4) SYSTEM CONFIGURATION
5) EXIT TO BASIC
SELECT ?

-----

CONFIGURATION :
SYSTEM          :APPLE II/e 80 COLUMN
DISPLAY         :MONOCHROME DISPLAY
SERIAL CARD     :MASTERCARD II
DIALLER         :MANUAL DIAL
PRINTER        :NOT IN USE
-----
```

---

However, as your program is not yet configured, option 4 for SYSTEM CONFIGURATION will be automatically selected.

Before configuration commences ensure that you have a suitable serial card installed (the //c has a built-in equivalent of the Super Serial card). Cards which are known to function correctly are as follows:

### **1) Pace Mastercard.**

The Pace Mastercard allows software selection and switching of the baud rates used and the The Antelope software has been written to take full advantage of this feature. It is not necessary to alter any of the links on the card from their factory settings.

### **2) Pace Mastercard II**

The main difference between this card and Mastercard is the addition of a parallel 'user port' which facilitates auto-dialling with the Nightingale modem when fitted with the accessory board. You should ensure that the parallel cable from the Nightingale Accessory board is correctly connected to the card if you intend using the The Antelope auto-dial option.

### **3) Apple Super Serial card or Cirtech Champion card.**

The Apple Super Serial card is not capable of operating true split baud rates but can be made to operate correctly under software control. In order that The Antelope can do this, it is important that two switches on the Super Serial card be 'ON' before using the card to access Prestel. These are switch 7 on the left-hand switch block (SW1) and switch 6 on the right-hand bank (SW2). These switches enable the card to receive and handle the interrupts which are necessary for the program to work. Note that when using the Super Serial card, The Antelope buffers keyboard input. This means that there will be a delay before you see the characters that you have typed.

The Antelope is easily configured by answering a series of questions about other equipment you have fitted such as 80 column cards etc. It is very simple to follow most questions requiring a Yes or No answer. This section describes ALL the possible questions that might be asked. Remember that some of these questions will not be relevant to your particular system and The Antelope may not ask all of them.

#### **1) 80 column card selection (II+, //e)**

If you are using an Apple II+, the first question you will see refers to 80 column capability. If you have an 80 column card fitted press <Y>, otherwise enter <N>. If you type <N> you will see the question:

```
CAN YOU READ THIS (Y/N) ? "Hello"
```

If the word hello appears as garbage this is because your machine cannot display lower case so answer N to the question and The Antelope will not attempt to display in lower case.

On an //e The Antelope will automatically recognise an Apple or look-a-like 80 column card. If no card is present you will still be asked if you have one fitted in case you have a non-standard card that The Antelope cannot recognise.

On a //c 80 columns will be used automatically if the 80 column switch is set to 80 columns before boot.

#### **2) Colour display selection (II+, //e, //c)**

When a Pace Prestel Colour Palette is fitted in a II+ or a //e, this will automatically be detected by the software and you will be asked if you wish to make use of it:

```
USE COLOUR PALETTE (Y/N) ?
```

Answer Y or N appropriately.

---

Alternatively, if you have either a //e with an extended 80 column card (ie. 128K RAM in total) or a //c, you will be able to display Viewdata frames in 'double hi-res' colour on a suitable monitor (TV). You will therefore be asked:

HI-RES COLOUR DISPLAY (Y/N) ?

If you are using a monochrome display you should answer <N> to this question, otherwise press <Y>. It is NOT possible to obtain double hi-res on a II+. If you do not have an extended 80 column card fitted on a //e, the question will not appear.

### **3) Serial card selection (II+, //e).**

You must now select which serial card you are using. A menu of the cards currently supported will appear with the number of the currently selected card highlighted in inverse video. You may use any of the cursor keys to alter the selection (up & left move up, down & right move down). When the appropriate card is highlighted press <Y> to accept the selection.

The //c has a built-in Super Serial card and this is automatically selected.

### **4) Serial card slot (II+, //e).**

Having selected a serial card you must now select the slot it occupies. This will normally be slot 2. Enter <Y> to accept this or a new slot number to change it.

### **5) Auto-dialler selection (II+, //e)**

If you are using Mastercard II you will be asked whether or not you wish to use the Nightingale Accessory board. Answer <Y> or <N> accordingly.

### **6) Printer selection (II+, //e, //c).**

If you are using a printer you must set the slot number. Enter <Y> to accept the current slot, a new slot number or <N> to de-select the printer option.

### **7) Speed buffered modem.**

Answering <Y> to this option will allow you to use a modem which carries out speed conversion.

When configuration is complete, the details will be written back to the Master disc and the main menu will be displayed. The bottom half of this display reflects the configuration that you have described. You can at this point Write-protect the disc if you wish, but you will have to remove the Write protect tab when you need to save other configuration information.



# Chapter 3



---

## The Viewdata Program

### 3.1 Introduction to Viewdata.

There are significant differences between the way in which Prestel and standard ASCII systems construct their screen displays. The normal method of displaying data on a screen involves scrolling. Data is first displayed at the top of the screen which fills downwards. When the screen is full it is scrolled. However, the Prestel protocols involve the use of graphics as well as ASCII text. A complete character set has been developed which is used to build frames in 'block' text and graphics. No scrolling is carried out and when a screen is full it is completely cleared before a new frame is displayed.

Within a frame, which has 24 lines of 40 columns, each line is built up of normal ASCII characters and special control codes. The resulting display for a particular line (and often the rest of the screen), depends upon all the control codes used within that line i.e. if a code is missing or corrupted the whole screen can be affected. This will occasionally become evident if you encounter a bad or noisy telephone connection.

Prestel makes extensive use of the \* and # symbols within these commands. For example to call up page 258 (the Viewfax title page) you would enter:

\*258#

On pressing <\*> the bottom line of the display will clear and the \* will be displayed. The numbers you typed are interpreted as the desired page number. Finally, the # denotes the end of the command and Prestel will then recall and transmit the specified page. Any page may be retrieved by this method and because it is used so frequently, The Antelope re-maps the <:> and <,> keys on the Apple keyboard to produce the same effect as <\*>. This avoids unnecessary use of the SHIFT key. Similarly, <CR> is re-mapped to generate the code for #, so, for the example above you could type: 258<CR>

The important point to remember is that when using The Antelope, <,> and <:> are equivalent to '\*' and <CR> is equivalent to <#>. To send an actual <CR> use <CTRL-D> (see section 3.7).

There is a quick-start guide to the program at the end of this chapter.

### 3.2 Logging on for the first time

From the main menu select option 2 to load and run the Viewdata program.

Hint: If you know when you boot the program which option you intend using, in this case option 2, you may press the option number as soon as the hi-res title page has been displayed. You do not have to wait for the menu to appear.

Initially the screen will clear and a title page will be displayed while the program is loaded. When loading is complete one of two things can happen.

Usually the Viewdata 'title page' will be displayed. The presence of this page indicates that The Antelope is in a state of readiness and is waiting for the Prestel 'inquiry sequence'. The message 'Waiting..' will appear in flashing letters at the bottom right of the screen. Alternatively, if you are using a Nightingale fitted with auto-dial board, the program will take you straight to the Nightingale Dialling menu. To reach the main Viewdata menu from here you should press the <ESC> key.

---

Even if you are not yet a subscriber to Prestel you can try out the system by logging onto their demonstration database.

Check first that your modem and serial card are correctly connected and that the modem is set up for Receive 1200/Send 75 baud operation. If you are using the Nightingale accessory board, the baud rate will be selected automatically by The Antelope so that the position of the baud-rate selection switches does not matter. It is a good idea, even if you have the auto-dialler fitted, to try logging on manually to begin with.

All that is now required to initiate an on-line session to Prestel, is to dial up the number of the local Prestel computer and wait for the carrier signal (a high pitched whistle) before connecting the modem. After connecting the modem and waiting for the carrier to 'lock' (the line-hold LED on Nightingale will illuminate) you may replace the telephone handset.

When the modem has locked onto the carrier, the remote Viewdata system will transmit an 'inquiry sequence' (usually CTRL-E), which you will not see but The Antelope will recognise. The message:

Press <SP> to Logon

will be displayed at the bottom of the screen. Pressing <SP> will clear the screen and initiate the logon sequence. The first frame you will see is the Welcome frame which allows you to enter your Customer Identity. If you have a valid subscription enter your 10-digit Customer Identity number now. Each number you type will appear on the screen as a '-'. Note that you do not have to press <CR> after the last digit. If you do not have an account simply type 4444444444 (ten 4's). This will allow you to access a demonstration area.

If you make a mistake while you are entering the number type \*\*, this will clear the line and allow you to start again from the beginning.

The next page will request your 4-digit personal password. Once again just type your password if you have one, or 4444 for the demonstration area.

Assuming you succeed in getting into the system just follow the prompts. If you already know how to use Prestel all of the usual commands will operate normally. Functions which are peculiar to The Antelope are detailed in the remainder of this section. If you have never used Prestel before, the demonstration area will give you some idea of what to do. Once you are familiar with the Prestel system you will be in better position to understand how The Antelope works.

### **3.3 Viewdata Configuration**

The method of logging on described in the previous section was entirely manual. The Antelope will allow you to automate logon to a certain extent by providing the facility to store your Customer Identity and/or password on the disc. They may then be transmitted automatically when the modem has been connected. In addition to these it is also possible to configure various other features which make it more convenient to use Viewdata systems.

---

To install your Customer Identity number on your Antelope disc, boot-up the Viewdata program so that the title page is displayed. Now press <ESC> followed by <G> in quick succession. This will display the page shown below:

```
-----
                **  The Antelope  **
-----
Viewdata Configuration

Customer Identity :
Printer in slot 1
Enter printer control codes :
1 Micronet main index      800
2 Apple main pages        80011010
3 Prestel menu             1
4 Prestel index            199
5 Apple Source             8104230
6 Viewfax                  258
Mailbox response frame    75
<ESC> to finish
-----
```

This page is simply a questionnaire and the first item to be completed is your Customer Identity number. Initially this will be blank but you are allowed to enter up to 10 characters for the Identity number and you may then append your 4-digit password if you wish. In fact up to 16 characters are allowed in total for the 'auto-signon sequence', normally only the first 10 (or 14 with the password), will be used by Prestel or other Viewdata systems.

It is not compulsory to enter either of these items, you will simply have to enter them manually each time you logon to Prestel if you leave them blank.

If you have a printer interface card fitted the slot number will be displayed and you may enter a sequence of control codes to initialise the printer. Some printer cards are capable of graphics dumps, others can only be used to print the text from a Viewdata screen. A typical control sequence to initiate a graphic dump might be <CTRL-I>G. This will be displayed by The Antelope as: ^IG.

If you do not have a printer attached to your system, the message 'No printer selected' will be displayed.

If you have a colour display, using either the double hi-res graphics or the Prestel Colour Palette, it will not be possible to obtain a full graphics dump directly from the screen, you will only be able to dump text. In this case the control sequence that you enter may be used to simply switch the printer into a particular printing mode such as condensed or expanded text.

Pressing <CR> will cause the program to assume that you do not want a graphics dump and the software will then ensure that any graphics characters in a frame are replaced by spaces during printing. If you have previously configured the system for a graphics printer and are now using a non-graphics printer, pressing <SP> as the first character will erase the previous contents of this field.

The next six lines allow you to define six regularly used page numbers within Prestel that may be called up instantly during an on-line session by pressing <ESC> followed by a number from 1 to 6. These are referred to as the 'Auto-recall' numbers.

To alter the default values to include your own favourite pages, type in a short description of the page (up to 22 characters), followed by <CR> and then the page number and <CR>. Any or all of the six items may be changed or removed. The descriptions that you enter here will be used to form a menu that is displayed when you press <ESC> while you are on-line.

---

The final item on the page which may be altered is the Mailbox Response Frame number which by default refers to page 75. Normally this will not require changing because the offline editor in The Antelope is designed to edit this type of 'line oriented' frame. Other types of response frame should be used only while you are online.

When all items have been configured to your satisfaction, pressing <ESC> will display the prompt :

```
Save Configuration (Y/N) ?
```

Answering (Y) will save the details you have just entered to the disc so that you do not have to go through the configuration procedure every time you use the system. Answering <N> will just hold the details in memory and they will be lost when you exit the program.

It may be that for security reasons you do not wish your password and/or your identity number to be recorded on the disc. In this case you will not have incorporated a full auto-signon sequence in the configuration and the first frame you encounter will either be the introductory frame requesting your Customer Identity number or the frame which requests your personal password. Either of these may be entered directly to Prestel by typing on the keyboard as described earlier.

### 3.4 Command mode.

There are a number of commands within the Viewdata program which can be executed while you are online to a remote system. These carry out such functions as obtaining a disc catalog, saving a Viewdata frame to disc etc. To access these commands press <ESC> while you are online. This will put the program into 'command' mode and after a short delay the Auto-recall menu will be displayed. The space bar may then be used to toggle between this and the command menu. The Auto re-call menu appears as follows (assuming that you have left the default values unchanged) :

```
-----
                ** The Antelope **
-----
Viewdata Auto-recall menu

<1> Micronet main index
<2> Apple main pages
<3> Prestel menu
<4> Prestel Index
<5> Apple Source
<6> Viewfax

<SP> Command Menu
<?> Help Pages
-----
```

The use of the <ESC> key to take you into command mode in this way means that only two keystrokes, <ESC> + option, are required to access any of the menu commands. Pressing <ESC> does NOT take you offline, it simply tells The Antelope to expect a keyboard command.

All available commands are described in the following sections. Some of these will leave you in command mode on completion, others will put you back online.

<CR> may be used to put you back online from either the command or auto recall menu.

Notice also that typing <?> from either menu will allow access to command help pages that are stored on disc. These provide a brief summary of the Viewdata program commands for reference purposes. Make sure that the Master disc is in the working drive before you attempt to look at them.

---

### 3.5 Using Auto page-recall.

The descriptions on the auto-recall menu correspond to those that you set up during Prestel configuration. To use them, type <ESC> followed by a number between 1 and 6. This will call up the Prestel page which you entered for that number.

**Note:** It is not necessary to wait for the menu to be displayed after pressing <ESC>. Typing <ESC> and a number in quick succession will recall the relevant page without you having to wait for the menu which is simply intended as a 'help' page.

### 3.6 The Command menu.

Pressing <SP> from the Auto-recall menu (or <ESC><SP> whilst online), will display the command menu:

```
-----
                ** THE ANTELOPE **
-----
Viewdata Command menu

<A>utodial menu
<C>atalog disc
<D>isplay page route
<E>dit mailbox frame
<G>o to config
<H>ang up modem
<L>oad frame
<P>rint frame (No printer)
<Q>uit/Reboot
<R>estart program
<S>ave frame
<T>ransmit file
<W>orking drive  S6,D1

<SP>  Auto-recall menu
<?>  Help pages
-----
```

All of the commands listed above may now be accessed by typing the appropriate letter. For example, pressing <S> will save a copy of the Viewdata frame that was displayed before you pressed <ESC>, into a file on disc. Once you know the commands well you would simply press <ESC> and <S> in quick succession rather than waiting for the menu to appear.

Note: If you press any key that is not configured as a command key whilst in command mode, it will send its normal ASCII value to Prestel. For example, <ESC><ESC> will send an ASCII 27 (ESC) to Prestel. Valid commands operate as described in the following sections.

#### 3.6.1 <A>utodial menu

This option is only available if you have the Nightingale modem fitted with the auto-dial accessory board AND Mastercard II. It will allow you to dial-up and Logon to Viewdata systems automatically, without the use of a telephone.

---

If you have not specified during configuration that an accessory board is present, the message "No Dialler" will be displayed at the main menu. If you have the accessory board, pressing <A> will display the following menu :

```
-----
                **  THE ANTELOPE  **
-----
NIGHTINGALE DIALLING MENU

<1>  618 PRESTEL GENERAL
<2>  01-248-4242 Dryden
<3>  01-248-6641 Kipling
<4>  01-681-7841 Enterprise
<5>  021-643-7712 Dickens
<6>  021-643-7132 Keats
<D>ial
<E>dit an entry
<M>anual mode
<R>edial
<S>ave config

SELECT  ?

<ESC>  =  Stop Dialling
<CR>   =  Exit to Main menu
-----
```

As you can see, the telephone numbers for up to 6 remote Viewdata systems may be stored on this menu and facilities are provided for you to edit them, when necessary.

To dial one of the numbers in the menu just type the number next to the entry. You must ensure that the Nightingale connect button is depressed but the settings of the other switches do NOT matter, the auto-dial board will automatically configure Nightingale to operate at RX1200/TX75.

If the number is answered with a carrier, Nightingale will take the line and The Antelope will switch into On-line mode. If you have included in the Viewdata configuration your Customer Identity and password strings these will automatically be transmitted.

Remember that this menu can only contain the numbers of Viewdata systems, a separate dialling menu is provided in the Terminal program for non-Viewdata hosts.

There are four other commands related to dialling which operate as follows:

<D>ial

Pressing <D> from the auto-dial menu will allow you to dial a number directly from the keyboard. You will see the prompt :

```
NUMBER TO DIAL  ?
```

This refers to the telephone number, NOT the menu number. The option is provided so that you can easily make one-off calls to systems that you do not use on a regular basis without having to put the number in the menu.

In reply to the prompt type the number of the remote system that you wish to contact, remembering to include the dialling code and any prefixes for obtaining 'outside lines' etc. Pressing <CR> will start the dialling. Once again ensure that the modem connect button is depressed.

---

Normally The Antelope will wait until it has received 128 characters from the viewdata host before proceeding to send logon strings. If you try to access a system which expects an immediate response from you, pressing <CR> after connecting will force The Antelope to go online immediately.

Pressing <ESC> during dialling will abort back to the menu.

#### *<E>dit an entry*

The E command allows you to Edit an existing entry in the dialler menu and prompts with:

EDIT WHICH ENTRY ?

You will then be asked for the NEW NUMBER ?. Enter this (without pressing <CR>) and follow it with a description of the system. The description should be separated from the number by at least one <SP>. Embedded letters, spaces and full stops in the number will be ignored. Hyphens (-) and hashes (#) will give a pause in the dialling.

Should you decide to leave the entry unaltered, pressing <CR> on its own will exit editing without altering the existing value.

#### *<M>anual mode*

This command simply resets the modem to operate under manual control via the front panel switches. A message will be displayed to indicate this.

#### *<R>edial*

If for some reason a connection is not established following dialling, the <R>edial command will redial the last number.

#### *<S>ave Config*

When you have filled the dialling menu with your own set of regularly used Viewdata numbers, the Save option can be used to store it permanently on your working disc. If you do not use this option, any changes you make during the current session will be lost when you exit the program. You may of course alter any of the numbers again later.

### **3.6.2 <C>atalog disc.**

A catalog of the disc may be obtained at any time during a Prestel session by using the <C> command. The working drive may be set to S6,D1 or S6,D2 by the <W> command. Alternatively, if you wish to specify a file which is not resident on the working drive you may append the filename with the drive number (D1 or D2), the slot number (1-7) and volume number (0-254).

When you have finished with the catalog, any key may be used to return you to the menu.

### **3.6.3 <D>isplay page route.**

This command displays a list of up to 31 page numbers, along with the cost of each page, showing the route which you have taken through the Viewdata system. To return to one of the pages type \*page-no# where page-no is the number of the page you wish to retrieve. When you have finished examining the list, press any key to go back online.

### **3.6.4 <E>dit mailbox frame.**

When sending messages to a Prestel mailbox you may like to prepare the message before hand. Option <E> allows you to do this for the mailbox response frame of the type found on Prestel page 75.

On entering the command an 'empty' mailbox frame will be displayed. <CTRL-C> may be used at any time to abandon the editing and return to the command menu.

The first item to be entered is the mailbox number of the person to whom the message is addressed. This is a nine digit number (letters are not allowed). Following the mailbox number you may enter the text of

---

the message a line at a time, ending each line with <CR>. If the message does not fill the page remaining lines may be completed with <CR>'s.

When the last line has been entered you will be prompted for the filename of the file in which you wish to store the message frame:

Filename ?

Enter a suitable filename and press <CR>. The message:

Screen Saving:

is then displayed at the bottom of the screen. All message frame filenames are automatically prefixed with 'T:' so that if you called the file 'MYMESSAGE', in the disc catalog it would appear as 'T:MYMESSAGE'. If you just press <CR> for the filename, The Antelope will automatically allocate a letter starting at 'A' and incrementing through the alphabet for each subsequent file (after 'Z', 'A' will be re-used!). It is important to ensure that there is sufficient space remaining on the working disc as any faults will result in loss of data that you have just entered.

Message frames created by this method can be recalled for sending at any time during a Prestel session, by using the <T> command from the menu.

### **3.6.5 <G>o to config**

The <G> option may be used to display the Prestel configuration menu for editing purposes. Any of the values may be temporarily changed or saved for later use.

### **3.6.6 <L>oad frame**

This command is the means by which frames saved by the <ESC><S> command may be re-loaded for viewing and/or subsequent printing. You will be prompted for the name of the file to be loaded and the frame will then be displayed in its original form.

### **3.6.7 <P>rint frame.**

A printed hard copy of frames may be obtained using the <P> command. The precise form of the printout will depend upon the printer/interface that you are using and also upon the type of display you have configured. If, during configuration you defined an appropriate escape/control sequence for switching your printer into graphics mode, a full hi-res graphics screen dump of the frame will be printed. Alternatively, your printer may not be capable of graphics printing in which case all graphics characters in the desired frame will be printed as spaces and a straight ASCII dump will result.

If the command entry in the menu has the message "NO PRINTER!" next to it on the menu, this indicates that you have specified that no printer is currently attached to the system and the command is not therefore available. Pressing <P> will in this case have no effect.

When using the Prestel Colour Palette, text only will be sent to the printer. If you need a graphics dump it is possible to save the required frame/s to disc and then reconfigure The Antelope to operate in monochrome. You may then re-load the frame and print as usual with the requisite printer control codes.

### **3.6.8 <Q>uit/Reboot**

When you have finished using Prestel and have logged off, you may return to the main menu by using the <Q> command. This will ask you for confirmation before rebooting the disc in slot 6, drive 1. If you leave the The Antelope disc in the drive the main menu will be displayed as usual.

### **3.6.9 <R>estart program.**

If you have been using the Viewdata program offline to edit mailbox response frames, you may return to the title page with the "Waiting.." message by typing <ESC><R>. The program will now be expecting to receive the Prestel inquiry sequence and logon again automatically. Alternatively, if you have configured for the accessory board the Autodial menu will be displayed.

---

### 3.6.10 <S>save frame.

Pressing <S> will save a hi-res screen image of the current frame on disc in compressed binary format. You will be prompted for a filename.

If you choose not to allocate a name (by just pressing <CR>, a letter will be used, starting at 'A', incrementing for each page through 'Z' and back to 'A' again. Also, filenames of all frames saved in this way are prefixed with P:.

The <ESC><L> command may be used to re-load and display the frame at a later time.

### 3.6.11 <T>ransmit file.

Having edited a mailbox frame using the off-line editor it may be 'delivered' to the Prestel mailbox frame by using the <T> command. You will be prompted for the filename of the file which contains the frame to be sent. The Antelope will then proceed to transmit the file obeying all the necessary protocols. It will take some time to complete the transmission.

Before pressing any keys you should wait until the SAVE message has been displayed. After this you may verify that the message has been sent correctly by pressing the '>' key and cycling through each line of the message with <CR>. It is still possible at this stage to edit any of the lines as you examine them.

Following successful transmission there should be a message at the bottom of the screen something like:

KEY 1 TO SEND, KEY 2 NOT TO SEND

Select 1 or 2 appropriately and you will be returned back to on-line mode. You may use <ESC> to abort during the sending of a file if you wish.

### 3.6.12 <W>orking drive.

The drive used for the loading and saving of data (the working drive) can be set to whichever slot and drive you wish to specify. For example, specifying S6,D2 would select Slot 6, Drive 2 as the current working drive.

## 3.7 Control commands.

When accessing Prestel, a number of other facilities are available which are not shown on the command menus. These are obtained by pressing the appropriate keys (listed below) in conjunction with the <CTRL> key. To use them simply press down and hold the <CTRL> key and then press the appropriate option key. Most of these commands are designed to give you access to characters which are not normally available from the Apple's keyboard or which are being used by the program. You may want to use these characters in messages you send. Those that require further explanation are described in the sections 3.7.1 to 3.7.5, the table below gives a full list :

Command	Effect
-----	-----
<CTRL-B>	Inverse display.
<CTRL-C>	Clears the screen.
<CTRL-D>	Sends <CR>. (ASCII 13)
<CTRL-E>	Send logon string.
<CTRL-F>	Recalls flagged page.
<CTRL-R>	Toggles reveal/conceal.
<CTRL-S>	Send macro file.
<CTRL-T>	Download program.
<CTRL-Z>	Flag (Zap) page.
'<'	Re-displays the previous page.
'>'	Re-displays the current page.

---

Apple II plus only:

<CTRL-A>	Toggles upper/lower case.
<CTRL-G>	Sends a vertical bar (ASCII 124)
<CTRL-N>	Sends a 1/2 symbol (ASCII 92)
<CTRL-O>	Sends a 1/4 symbol (ASCII 123)
<CTRL-P>	Sends a left arrow (ASCII 91)
<CTRL-V>	Sends a backspace/delete (ASCII 127)
<CTRL-W>	Sends an '@' character (ASCII 64)
<CTRL-X>	Sends a right arrow (ASCII 93)
<CTRL-Y>	Sends an up arrow (ASCII 94)

### 3.7.1 <CTRL-B> - Inverse display.

Normally, when constructing frames in monochrome, The Antelope uses inverse video whenever a background colour is in force. Generally this gives a very good representation of the frame. However, under certain circumstances it can be distracting and may detract from the clarity of the display. For this reason <CTRL-B> may be used to switch inverting OFF. Pressing <CTRL-B> again will re-instate inverse.

When using double hi-res colour on the //e or //c this command will cause all text to be displayed in either black or white depending on the background.

The command will have no effect if you are using the Prestel Colour Palette. One other point to note when using the Palette is that pressing ESC <I> when online to a viewdata system will toggle the screen interlace. Interlace is ON by default, you may find the quality of your picture better with it OFF.

### 3.7.2 <CTRL-F> - Recall flagged page.

Using <CTRL-Z> you may Zap or 'flag' up to 16 pages. The <CTRL-F> command may then be used to display the list of pages which have been flagged in this manner. To recall a page you would only have to press (No)<CR> and The Antelope will request the frame. Pressing <CR> by itself will abort the operation and return you to on-line mode.

### 3.7.3 <CTRL-R> - Toggle Reveal/Conceal.

Some Prestel frames, are created in such a way that some items of text are initially 'hidden'. The Antelope allows concealed data to be revealed by typing <CTRL-R> on-line. The current Prestel frame will then be re-displayed with previously hidden text now visible. Typing <CTRL-R> again will re-conceal the text.

### 3.7.4 <CTRL-T> - Telesoftware download

Telesoftware is available for 'downloading' from a variety of sources including Micronet and Viewfax on the Prestel database.

To initiate a download you must locate yourself at the first page of the file sequence which can be reached by following the prompts provided by the system. This page will contain the header block which appears as a series of odd looking characters at the bottom of the screen. There will normally be some numbers, some vertical bars and the program name. When you have reached this point all that is necessary to start the downloading process is to type <CTRL-T>. The Antelope's telesoftware downloader will then proceed to call the program pages one by one and store them on disc. It is important to ensure that there is sufficient space remaining on the disc in the working drive to receive the file, any normally INITialised disc will suffice.

After all pages have been successfully received, a message:

TEXT FILE SAVED ON DISC

will be displayed and you will be returned to on-line mode.

You may abort downloading at any time by pressing <ESC> or <CTRL-RESET> and as soon as the current 'cycle' is complete you will be returned to on-line mode.

---

### 3.7.5 <CTRL-Z> - Zap page

Pressing <CTRL-Z> will add the number of the current frame to the flagged page list. A message will be displayed on completion of the operation :

\*    Page Flagged    \*

This provides a simple means of returning to pages of particular interest without having to remember their numbers. Up to sixteen pages may be tagged in this way and any of them may be recalled using the <CTRL-F> command.

### 3.8 Getting started quickly

The purpose of this section is to enable those users who are already well-versed in the field of communications, to get to grips with The Antelope Viewdata program almost immediately. The procedures used to set-up the system and then logon to Prestel are described very briefly, any additional information should be obtained from the relevant chapter in this manual. It is assumed that you are already familiar with the operation of your modem and serial card, have some knowledge of the Prestel system itself AND that you have correctly configured The Antelope as described in section 2.3. It is also assumed that you are dialling manually.

- 1) Boot the The Antelope disc (switch on from cold or type PR#6).
- 2) After a few seconds delay you will normally be presented with a menu from which you select option 2 to run the Viewdata program.
- 3) A title page will be displayed with the message 'Waiting..' at the bottom right corner. If you have configured both your serial card and modem correctly for Prestel use, dial up your local Prestel computer and connect the modem when the carrier is present. When prompted press the space bar and The Antelope will respond to the Prestel signon sequence.
- 4) The first page you see will request your Customer identity number. As you type this it will appear as a series of dashes on the screen. The next page will ask for your password. Once these have been correctly entered (you may correct mistakes by typing \*\* but you will have to re-type the complete number again), the title page of any CUG of which you are a member, or the Prestel title page itself, will be displayed.
- 5) At this point you are on your own. The <\*> and <#> keys have their normal function but the return key <CR> is also programmed to act as (#) and the <:> and <;> keys will generate <\*>. To go to a particular page type \*page-no# or follow the prompts on the screen.
- 6) To exit the system type \*90#, wait until the frame is complete and then disconnect the modem.

# Chapter 4

## The Terminal program

### 4.1 Introduction

In order to access Viewdata systems, special software is required, in this case the Antelope Viewdata program. Communication with character based, non-Viewdata systems, is generally less complex in terms of display but can be more complex in other ways, particularly file handling. The Antelope's Terminal program has been designed to cater for virtually all of the common requirements (and some not so common). It is ideal for use with Telecom Gold, One to One, Knowledge Index and other systems of this type. Similarly it caters for communication with other Apples, other types of micro or virtually any type of computer.

At its simplest level the function of a terminal program is to read incoming data from the outside world (via a serial interface) and display it on your screen. Conversely, it must read characters typed at your keyboard and transmit them to the host. In addition to this seemingly simple task, there are many housekeeping functions to be carried out such as loading and saving files, providing error checks and ensuring that timing of data transfers is maintained.

The Antelope terminal program offers all of these facilities and many more. As with the Viewdata program emphasis has been placed on flexibility combined with ease of use. All features are fully described in the following sections and within the program 'help' menus are available at all times.

### 4.2 Getting started

To run the terminal program (assuming you have already configured your machine as described in section 2.3), select option 1 from the main menu. After a few seconds the Terminal command menu for the program will be displayed indicating that the program is ready to use. If you are working in 40 columns, the screen will appear as follows:

```
-----
                **  The Antelope  **
-----
Terminal Command Menu

Autosave .....OFF  Copy to buffer...ON
Duplex .....FULL   Echo .....OFF
Linefeeds .....OFF Macro active....NO
Printer .....OFF   XON/OFF.....OFF
<B>uffer reset      <L>oad buffer
<O>utput buffer     <S>ave buffer
<V>iew buffer       <W>ipe buffer
<A>utodial          <C>atalog disc
<D>elete file       <E>dit message
<F>ile transfer     <G>o to install
<H>angup modem      <M>acro load
<P>rinter ON/OFF    <Q>uit program
<R>emote mode       <T>erminal mode

Command >
```

---

If you are using an 80 column screen the full width will be used and consequently the format of this menu will be somewhat different although its content will be the same.

At the very bottom of the screen you will see the command prompt. This indicates that the program is ready to accept commands from the keyboard. Above this is the Command menu and at the very top of the screen the Status panel.

When the command prompt is present any of the commands shown in the menu can be executed by pressing the appropriate letter (shown in the angle brackets). For example, to activate File transfer you would press the letter <F>. On completion, many of the commands return you to the command menu and prompt, others require you to take some action to return such as pressing the <ESC> key.

If you need to re-display the command menu (for instance when it has scrolled off the screen but the Command > prompt is still present), press <ESC> once. This will leave you in command mode but it will redisplay the full command menu.

The purpose of the status panel at the top of the screen is to display the current settings of the various options. You may change the setting of any of these options by using the <G> command (section 4.5.6) and each of the options themselves are described in section 4.6.

The default conditions of those features of the Terminal program which can be altered, have been chosen to suit the commonest type of host system, the bulletin board. In addition, other features such as screen width and 'character echo' are fairly standard and will not need to be altered often.

So, without making further changes you should now be in a position to access a bulletin board. Don't worry if the array of commands and options in the menu appear confusing, each of them is explained later and the more you use the system the greater will be your understanding of how each of them works. This section of the manual concentrates on getting you up and running and logged on to a bulletin board.

First, check that the command prompt is present at the bottom of your screen. If this is not the case try pressing <ESC> or <CTRL-RESET>.

Now press <T> to take you into Terminal mode. The Command > prompt will simply be replaced by Terminal > with the cursor positioned on the line below. The Antelope is now expecting to receive data from, or transmit data to the outside world. <T> is the command you should always use when you wish to communicate interactively with a remote system via the keyboard.

A simple way to test that everything is functioning correctly at this point, is to set your modem up for 300 baud 'self-test mode' (if this is possible). If you now connect the modem and type at the keyboard, the characters you type should appear on your screen.

If you have problems when trying to carry out this test, check that the modem is connected properly and also that your serial card is configured appropriately. Don't immediately assume that your equipment is faulty!, it is very easy to overlook something simple.

If everything works OK press <ESC>. This will switch the program out of Terminal mode and re-display the command prompt on the next line of the screen. Notice that after a short delay the screen will clear and the full help menu with the command prompt below it will be re-displayed.

When you exit terminal mode to carry out a command it is not necessary to wait for the menu to be re-displayed, if you know the command letter press it immediately following <ESC> and the command will still be executed normally. The Antelope operates in this way so that once you are familiar with the available commands, pressing <ESC> and the appropriate command letter in quick succession will activate the desired command without having to display the menu first. If you are not sure of the command the menu will return to help you after a short delay.

---

Hint: If you exit terminal mode by pressing <ESC> in order to execute a command, The Antelope will put you back into Terminal mode on completion of the command (when this is appropriate). If you wish to stay in command mode simply press <ESC><ESC> in quick succession. This will display the full command menu immediately and ensure that you remain in command mode after the execution of the required command.

If everything is working satisfactorily in self-test you might now try logging on to a bulletin board. Take your modem out of self-test mode and put The Antelope into terminal mode by pressing <T>. Now dial the number of the bulletin board that you wish to access.

When you hear the carrier tone (a high-pitched whistle), connect your modem and replace the telephone handset. With the carrier present the bulletin board will start transmitting. It is important when you have finished that you log off by using the correct procedure. This is often achieved through a Goodbye or Terminate command. At this point you may disconnect your modem.

Hopefully you should have encountered no problems, if you did then refer to the section on troubleshooting and check once again that your equipment is set up as required. Even if you were successful you may have noticed that odd characters occasionally appear on the screen or that text is missing. Remember that it is quite possible to get a 'bad' line just as you can with a spoken telephone conversation and data can be corrupted easily, sometimes with very odd effects.

### 4.3 The Communications buffer

A buffer is a temporary storage area in which data may be held before or after being processed. When The Antelope is being used to transfer data in terminal mode, it buffers the data. In fact as much free memory as is available on a 64k Apple is used for the buffer giving over 22k of space. If the buffer is in use i.e. switched ON (see section 4.6.3), a copy of every incoming character is placed in the buffer as well as being displayed on the screen. Note that outgoing data is NOT placed in the buffer.

At boot-up the buffer is empty and the full amount will be available for use. When using commands to operate on the buffer or its contents you will see messages such as:

```
500 chars used    22540 free
```

These messages are displayed for information purposes and the actual figures will of course reflect the amount of data in the buffer. If you specifically need to know the amount of used or free space you should use the <B>uffer reset command detailed in section 4.4.1.

There are on the Command menu, six separate commands which operate solely on the buffer or its contents and two configuration options which affect the way in which it is used. Since the use of buffering can be very important for many applications, you should read the following sections carefully.

## 4.4 Buffer commands

### 4.4.1 <B>uffer reset

When The Antelope is manipulating data in the buffer, for example when you use the View command, it maintains pointers to the start and end of the data. If you interrupt such a command these pointers will be left pointing to a position in the middle of the data. This means that next time you use View or Output, only the data after the point at which you stopped before, will be available. If you need to operate on all of the data in the buffer you must 'reset' the pointers using the <B> command. The command takes effect instantaneously and will terminate by displaying a message indicating the amount of used and free space in the buffer.

### 4.4.2 <L>oad buffer

This command allows you to load a DOS TEXT file from the currently logged disc drive into the buffer, usually for the purpose of transmitting it to a remote system or perhaps simply to examine it. The file must be an ASCII text file created on a suitable word processor or text editor. Non-ASCII files will not display

---

correctly. Files that do not contain <CR>'s or have lines longer than 80 characters should be <V>iewed (section 4.4.5) prior to transmission.

When you press <L> from command mode you will be asked for the filename. Enter the name of the file that you wish to load and press <CR>. Pressing <CR> by itself in response to the Filename ? prompt will abort the command.

If the filename is valid and the file exists as a TEXT file, it will be loaded into the buffer. The command will terminate by displaying a message indicating the new values for free and used space in the buffer.

Note that the operation of loading the buffer will OVERWRITE it's previous contents so that they cannot be recovered. If you need the current buffer contents save them to disc with the <S> command before proceeding to load a new file.

#### 4.4.3 <O>utput buffer

This is the simplest means of transmitting a file to a remote system although no error protection is provided and only pure ASCII files can be sent using this command.

The current contents of the buffer are simply passed a character at a time to the serial card for transmission at the operating baud rate. On pressing <O> you will be presented with the prompt :

Use buffer codes (Y/N)?

This refers to a system of 'buffer control' codes which are recognised by a number of systems. Thus, answering <Y> to this option will cause The Antelope to precede the transmission with an open buffer code (CTRL-R by default) and terminate the transmission with the close buffer code CTRL-T). The idea behind these codes is that automatic opening and closing of the remote buffer at the correct times reduces the risk of spurious characters from entering the buffer before or after the transfer.

After selecting Y or N a message:

Sending, <CR> to stop.

is displayed and the program proceeds to output the data.

Note: when using this command to send files to systems such as Telecom Gold or One to One, you must ensure that the XON/XOFF option described in section 4.6.17 is ON.

#### 4.4.4 <S>ave buffer

You may choose to save the contents of the buffer to disc at any time by using the <S> command. You will be prompted for the filename and on entering this the entire contents will be saved in a file of that name on the currently logged drive. On completion of the operation the contents of the buffer are left intact and the amount of used and free space is displayed.

If you have the Autosave option ON (section 4.6.1), a <S>ave command will automatically be carried out when the buffer is full.

#### 4.4.5 <V>iew buffer

You may examine the contents of the buffer at any time from command mode by pressing <V>. This will list the buffer contents to the screen and then return you to command mode.

An initial line:

<SP> to pause, <CR> to end

will be displayed indicating that you may pause or terminate the listing at any time by using <SP> or <CR> respectively.

---

The speed of viewing can be altered by using the left (or down) and right (or up) cursor keys, the cursor left key will reduce the speed, cursor right will increase the speed.

If the printer is ON, viewing the buffer will allow you to obtain a hard copy. The file will not appear on the screen unless an 'echo' of each character is provided by the printer interface card. Also, the first time that you select Printer ON, The Antelope will display the message :

```
SWITCH on printer
```

Note that when viewing a file The Antelope will automatically 'word wrap' to suit the screen width. This formatting operation is carried out on the file before viewing commences and the feature could therefore be used to format a file prior to transmission. The actual effect of formatting is to insert a <CR> at the end of each line. This is particularly useful when communicating with systems like Telecom Gold which cannot accept an input string longer than 100 characters without a <CR>. If you use the <S> option to Save the buffer it will be saved complete with formatting. It is not necessary to actually View the whole file, using <CR> to exit viewing will still leave the entire buffer formatted.

#### 4.4.6 <W>ipe buffer

Pressing <W> from command mode will allow you to completely erase the current contents of the communications buffer. You will be asked to confirm that this is really what you wish to do :

```
Wipe buffer (Y/N)?
```

Answering <Y> will cause The Antelope to proceed with the option, answering <N> will simply return you to Terminal mode and leave the buffer contents intact.

The action is instantaneous and the buffer status line will be re-displayed with the amount of used and free space correctly calculated.

### 4.5 Terminal Mode Commands (Non-buffer)

#### 4.5.1 <A>utodial

The Autodial option is only applicable if you have the Nightingale fitted with accessory board AND the Manual mode (section 4.6.11) option is OFF. In this case Autodial ON will be displayed at the command menu. If no dialler is present or Manual Mode is ON, the menu entry will appear as Autodial OFF.

Press A now and the dialling prompt is displayed :

```
<R>edial, <C>onnect or Number :
```

If you now enter a telephone number and press <CR>, The Antelope will dial the remote system via the auto-dial board. Remember that the modem connect button must be depressed (if it is not a message will be displayed requesting you to do so) but that the settings of the other modem switches do not matter as the software will override them.

Various messages indicating the state of dialling will be displayed :

```
'Dialling..' 'Ringing Out'
and 'No Answer - dropping line..wait'
or 'Carrier detected'
```

When carrier is detected The Antelope will switch into Terminal mode. If no carrier is present you will be returned to the Command > prompt in which case pressing <A> then <R> will repeat the number last dialled. (Note: automatic repeat dialling can be carried out using Macros).

---

If you have difficulty getting through to a number or if The Antelope fails to recognise that the modem connect button is depressed, it may be necessary to 'reset' the modem by going to the configuration menu and switching to Manual mode and then back into auto-dial mode.

The <C>onnect option allows you to go online without dialling, for instance when you have established a voice connection and wish to go into terminal mode to chat to the other system. Without the <C>onnect option you would have to press <ESC> to go back to the main menu and <T> to go into terminal mode.

#### 4.5.2 <C>atalog disc

This carries out the normal DOS catalog operation so that you may examine the contents of the current working drive. Pressing <CR> in the middle of a catalog will terminate the command and return you to the command prompt. Pressing the space bar will temporarily pause the listing, pressing any other key will resume.

At the end of the catalog listing the amount of free space remaining on the disc will be displayed. This will still be displayed even if you terminate the catalog by pressing <CR>.

Remember that when specifying any filename you may append the slot, drive and volume number e.g. FILENAME,S6,D2,V250.

Note: 00 is the 'wildcard' for the volume number and is used by default. If a volume number is specified (1-254 only the volume number on the disc must match this otherwise an I/O error will be generated as the disc will not be found.

#### 4.5.3 (D)delete file.

It is very easy to build up a large number of files if you are saving the buffer at various stages, preparing macro files and downloading programs. The normal DOS delete file operation is provided via the <D> command. You will be asked for the filename in the usual manner and you may abort the command by just pressing <CR>.

#### 4.5.4 <E>dit message

It is often useful when uploading messages or other text to a remote system, to be able to prepare the message beforehand and send it as a complete file using the <O>utput buffer command or the File transfer (Standard) option. This not only saves time but also allows more freedom to correct spelling and typing mistakes before sending the message.

The edit message option allows you to enter text directly into the buffer. Press <E> now and prepare a short message. The first thing that happens is that you are asked for the line width:

```
Edit message, <ESC> to end:
Line width?
```

Enter the maximum number of characters that you want on a line. If you press <CR> the default width of 63 characters will be used.

After choosing a width the cursor will drop down to the next line on the screen and you may begin typing your message. As you approach the end of each line a warning bell will sound. If a word is too long to fit on the current line automatic word-wrap will occur and the word will be re-positioned at the beginning of the next line.

During entry, cursor-left or CTRL-H may be used to delete characters up to the beginning of the current line. Once a new line has been started the previous line may NOT be changed.

When editing a message in this way, if there is already data in the buffer you will be asked :

```
Wipe buffer (Y/N) ?
```

---

If you reply <N>, the new message will be appended at the end of the existing buffer contents. Replying <Y> will remove existing data and allow you to create a completely new message.

When you have completed your message, pressing <ESC> will terminate the editing session and ask you for a filename. Entering a valid file name will now allow you to save a copy of the message to disc. Alternatively just pressing <CR> will return you to command mode leaving the message in the buffer ready for transmission using the <O> command.

You could of course save the message to disc and send it using the File transfer command providing that the host has compatible file transfer capability.

#### 4.5.5 <F>ile transfer

The File transfer option offers the ability to transfer, to or from another standard XMODEM package ANY type of DOS file using XMODEM error checking protocols. Individual DOS files or complete DOS, CP/M, ProDos or Pascal discs can also be transferred between two Antelope or Data Highway systems by using an enhanced version of the XMODEM protocol.

In addition, individual DOS TEXT files can be transferred without error checking. In this case they are simply transmitted or received as a continuous stream of ASCII characters.

The Ward Christensen protocols used in XMODEM file transfer have been enhanced to include the ability to send file type information with the data but compatibility is maintained with other standard XMODEM systems.

Using File transfer

```
S = SEND FILE
R = RECEIVE FILE
D = DISK TRANSFER
SELECT ?
```

These are the three main options, to send or receive a single DOS file or to transfer a whole disc. Following any one of these options will lead to further choices. For example, you may send a file with or without error checking protocols. When communicating with another The Antelope you should always use protocols. This may not be possible when talking to a bulletin board.

#### **Sending files.**

Any single DOS file may be transferred by selecting <S> or <R> at this point. If it is a complete disc that you wish to transfer (and bear in mind that it could take some time!), select <D>. Let's see how you would send a file. Press <S> and you will be presented with a further choice :

```
S = STANDARD
P = PROTOCOL (Apple)
X = PROTOCOL (non_Apple)
SELECT ?
```

Both the <P> and <X> options use XMODEM error checking. The difference lies in the fact that the <P> option includes the enhancement to XMODEM which allows the transfer of file type information along with the data. This option should be used between two Antelopes, Data Highway or ASCII Express. The <X> option is standard XMODEM and should be used between The Antelope and other standard packages such as Commstar (BBC). The STANDARD file transfer option may only be used to transfer ASCII files but is useful for uploading files to bulletin boards or other non-XMODEM systems.

You cannot send a file using protocols if the receiving system is not capable of using those protocols.

Having selected <S> for send, type <P> for Protocol (Apple) and you will be asked for the name of the file that you wish to send. At this point you should ensure that your data connection is established in readiness for the transfer i.e. both modems are correctly configured and ready to connect. Enter the

---

filename, press <CR> and activate your modem. The program will now access the disc and open the file. A message:

```
File type: nn  x blocks  y mins
Waiting.
```

is displayed (only the file type is displayed when transferring at speeds other than 300 or 1200 baud). A further dot <.> is displayed for each one second wait before the transfer starts. The File type nn will be 00 (Text), 01 (Binary) 02 (Applesoft). This is followed by the number of blocks (x) and the approximate time to transfer (y mins). The program then waits for a signal from the receiving terminal to say that it is ready to receive. a wait period of 10 seconds for file transfer and 1 minute for whole discs is allowed before a Timeout error. The program will allow up to 10 timeouts before aborting the transfer.

Upon receipt of the appropriate signal, the transfer will commence and a new message:

```
Sending..
```

is displayed, followed by information relating to the current status of the transfer e.g.

```
Block:  1
Error:  0   Tries:  1   Naks:  0
```

This indicates the sequential number of the current block, how many errors have been detected, how many times the current block has been sent and how many NAK's (No Acknowledge signals) have been returned from the receiver.

Note that if you use the <P> option to send a file to a system other than The Antelope or ASCII Express, errors may occur at the very beginning of the transfer because the receiving program does not recognise the header block. This should not cause any problems and the transfer should complete normally with the exception that the person receiving the file will have to be informed of the correct addressing information for the file i.e. the load and execution addresses and the file type. Ideally you should use the standard XMODEM option <X>.

When the last block has been sent further messages are displayed:

```
Transfer completed.
TX CRC:  $7654
```

for example. This means that the transfer was completed successfully and the checksum of the transmitted data was as indicated. At the receiving Apple a checksum is also generated and transmitted back to the sender so that a final message:

```
RX CRC:  $7654
```

will be displayed. The actual checksum numbers will of course be different for different files. If the send and receive checksums are different from each other for a particular transfer it is possible that errors have crept through undetected, although in mathematical terms this is extremely unlikely.

In the event of an error occurring and being detected during the transfer, the display will be updated to reflect the number of errors, blocks and NAK's that have occurred.

The Error count indicates the total number of blocks in which errors have occurred.

When a transfer has completed you will be automatically returned to Terminal mode.

---

### **Sending a file without protocols**

Although it is possible to upload message files to some bulletin boards using the <O>utput buffer function, it may occasionally be necessary to transmit files which will not fit in the buffer or to send files to systems which require 'line mode' input. The <S>tandard file transfer option has been designed specifically to satisfy this need in cases when the remote system does not support XMODEM.

To use the option press <F> for file transfer and then follow the prompts selecting <S> for send file and <S> for standard. You will now be asked for the filename. Enter the name of the file that you wish to send and press <CR>. The file will be opened ready for sending but the program will display a further prompt :

```
Line mode (Y/N) ?
```

Line mode is provided to cater for bulletin boards which expect line by line input of messages. They will usually prompt for each new line by sending a particular character such as a '?'. If you select <L> now you will be asked to specify the prompt character to which The Antelope should respond. Type the appropriate character (without pressing <CR>). The Antelope will now proceed to transmit characters from the file up to and including the first <CR> character. It will then cease transmission and wait for the receiving system to prompt for the next line with the specified prompt character. This process will continue until the complete file has been transmitted at which point you will be returned to terminal mode. Should the transmission 'stick' at any time (due to loss or corruption of the prompt character), you may issue the required prompt from the keyboard to initiate sending of the next line.

If you reply <N> to Line mode, the file will be transmitted one character at a time in the same manner as data would be output from the buffer. You may find it necessary in some situations to slow down the output of the file by increasing the value for Nulls in the configuration menu. This is because some host systems, particularly those which do not support XON/XOFF flow control, are incapable of receiving a continuous stream of data at a given baud rate. Inserting extra NULLS in the output stream effectively slows down the true data rate and gives the host time to deal with the input correctly.

### **Receiving files**

When you wish to receive a file from another system you must select the File transfer option to suit that being used by the sender. When transferring from another Antelope both users should always use File transfer with protocols (option <P> at both ends). If you are connected to a system other than The Antelope such as a bulletin board, you may have to use transfer without protocols.

The process for receiving files with protocols is very similar to that described for sending using protocols. From command mode select <F> followed by <R> and <P> for receive and use protocols respectively. You will then be prompted for the file name into which the received data is to be placed. Enter the filename and activate your modem. A message indicating that The Antelope is ready to receive the file will be displayed :

```
Receiving:
Block:  1
Error:  0   Tries:  1   Naks:  0
```

As each block is successfully or unsuccessfully received the status display is updated. If an error occurs it will be reported on the screen and the block will be requested again.

The end of a successful transfer will be reported with the message:

```
Transfer Completed
RX CRC $nnnn
```

indicating the checksum (nnn) as calculated by the receiving computer. If this is different than that generated by the sending machine you should examine the file for errors and re-transmit if there are obvious problems. The disc file is automatically closed and no further action is necessary before the file can be used.

---

If you have received a file from a source that does not include a file type/address header block in the transfer (EG> Commstar), it will be treated as a TEXT file by The Antelope, regardless of its original form. You may have to use a proprietary disc editor to convert the catalog entry for the file into the correct form.

### Receiving files without protocols

When the host system does not support XMODEM file transfers, it is usual to transfer the file as a stream of ASCII characters, in the same way that The Antelope does in the Output buffer function. Many systems however, use what is known as 'line mode entry'. This means that the file is sent a line at a time and that the host system waits after each line for a prompt from the receiving system. The standard prompt character (as used by most bulletin board systems) is "?" and The Antelope will in fact issue a ? after each <CR> that it receives in a non-protocol transfer. The end of this type of transfer is recognised when a blank line is received i.e. two consecutive <CR>'s are issued by the host.

### Sending complete discs

The process of transferring complete discs is, at the time of writing, only possible between Data Highway or Antelope systems. When sending complete DOS or other discs, the process and messages which occur are similar to those for individual file transfer but the status information given refers to tracks and sectors as well as blocks :

```
Block: 1   Track: 0   Sector: 1
Error: 0   Tries: 1   Naks: 0
```

In the example above, block 1 is being transferred and this is derived from track 0, sector 1 of the disc in the sending machine.

The XMODEM protocols are always used for full disc transfer so all that it is necessary for you to do is to follow the prompts to select the appropriate type of disc.

```
WHOLE DISC TRANSFER :
S = SEND DISC
R = RECEIVE DISC
Select ? S

SEND WHOLE DISC:
D = NORMAL DOS
P = PASCAL / PRODOS
C = CP/M
SELECT ? D
```

If you are SENDING a DOS disc you will be asked if you wish to send DOS tracks:

```
SEND WHOLE DOS DISC:
INCLUDE DOS TRACKS (Y/N) ? Y
```

You will then be asked if you wish to initialise the receiving disc. The disc must either be initialised this way or have been initialised already from a previous (but unsuccessful) attempt at transfer. The reason for this is that if the VOL numbers of the sending and receiving discs do not correspond the newly received disc may not boot correctly.

If you say no to Initialise, you will be asked for the start track. This must be entered as a two byte Hex number after the <\$> prompt. This option allows you to continue to send a disc that may have been interrupted for some reason. It is important to make a note of the last successfully transferred track/sector in case you do have to re-start.

Disc transfer will take some time, typically 15-40 minutes at 1200 baud (using one modem at 1200/75 and the other at 75/1200), it is not advisable to send at 300 baud. It is also better to send 'clean discs', with only the files you need on them. Remember all data on the disc is sent, only 'zeroed sectors' are ignored.

---

It is always better to initialise a fresh disc, and copy only the files you wish to send. Protected discs which cannot be read by normal DOS cannot be transferred.

If a disc has many blank sectors, the sending drive will need to scan for these so you may have to wait while this happens.

### **Receiving complete discs**

When receiving a complete disc from another The Antelope system there are a number of guidelines to follow.

Firstly, ensure that you have a number of blank, uninitialised discs available. The sender will be able to initialise these from within The Antelope if necessary and a message:

```
Warning - the disc in the receiving drive
          will be overwritten
```

will be displayed. Make sure that you place the disc to be used in the currently selected working drive.

Follow the prompts pressing <F> for file transfer, <D> for whole disc and <R> for receive.

During the transfer you will see a status display similar to that for receiving a single file but with the addition of track/sector information. Once transfer has started you need take no further action until it is complete.

#### *4.5.6 <G>oto Install*

Pressing <G> from command mode will clear the screen and display the terminal mode installation menu. This menu, along with those features which can be configured from it, are detailed in section 4.6.

To Return to the Command menu press <ESC>.

#### *4.5.8 <M>acro Load*

Many remote systems require the user to enter an identity string and/or password in the same way that Prestel does. A macro is simply a prepared file containing a string of commands which may be executed automatically.

When a macro table or string sequence is loaded in preparation for sending this will be reflected in the status panel with Macro active = Yes. If no macro is present it will be set to NO.

Macros may be prepared using the option in the utilities section called Communications Macros and to operate correctly they must adhere to a strict format which is also described in section 5.1.

To send a macro, type <ESC> to get the Command prompt, and then the number of the macro (1-8). The Antelope will then send the contents of the selected macro, obeying any commands which you included.

The kind of use to which macros can be put include the automatic logon to a bulletin board e.g. Your name and the town in which you live etc. Since you may also set up the baud rate and data format, and carry out auto-dialling from within a macro, they can be extremely useful.

#### *4.5.9 <P>rinter ON/OFF*

By switching this option ON, input from the serial card may be copied to a printer. Note that this applies only to Terminal mode, Remote mode and the View buffer command i.e. it will not print incoming data during File transfer. No echo is passed to the screen unless your printer interface supports this itself.

Before using this option you should refer to the section on Printer setup (section 4.6.12).

The first time that you switch the printer option ON a warning message will be displayed to ensure that you also switch the printer itself on.

---

When the printer is ON, XON/XOFF protocols may be used in order to avoid the situation where the computer hangs because the serial communications card buffer is full. Problems of this type are particularly acute when either the printer is very slow or the baud rate is high.

#### 4.5.10 <Q>uit program

Pressing <Q> from command mode will quit the Terminal program and re-boot the boot drive. You will be asked for confirmation :

```
Are you sure (Y/N) ?
```

If the The Antelope disc is still in the boot drive the effect will be to re-display the main menu.

#### 4.5.11 <R>emote mode

Remote mode is designed to allow The Antelope running on your Apple to be controlled from a remote location. In order to do this you will require a Nightingale modem fitted with the Accessory board. It will also function with modems which generate true Carrier Detect and which will connect/disconnect from the telephone line by themselves. When The Antelope is operating in remote mode, input from the serial card will be treated as commands. The Antelope will in fact behave in the manner of a bulletin board with you as the Sysop.

Assuming that you have put The Antelope into remote mode, the keyboard will remain active. <ESC> will take you out of Remote mode and <CTRL-C> will toggle the machine into 'chat mode'. Chat mode simply allows you to chat (on the screen) with the remote user.

When you first enter Remote mode The Antelope will hang up the phone and then display the message:

```
Waiting for ring..
```

When a connection has been established The Antelope then responds with:

```
Password:
```

The remote user must then wake up The Antelope by pressing <CR><CR> and then enter the correct password as defined using the <Z> option (section 4.6.18) on the configuration menu. The default password is PACE. Up to six attempts at entering the password are allowed before The Antelope will drop the line.

If you are successful the following menu will be displayed:

```
Welcome to The Antelope
<^C>hat to sysop      <G>oodbye
<H>elp menu          <K>atalog disc
<L>eave message      <N>ew drive
<T>ransfer files     <V>iew file
R>
```

The R> prompt indicates that The Antelope is ready to accept remote commands. The functions of these commands are explained below:

<^C> switches the remote user into or out of chat mode. On pressing <CTRL-C> the Apple at the host end will sound the bell (ie. CTRL-G), three times to alert the sysop who may or may not respond. Pressing CTRL-C again will take you out of chat mode.

<G> is used to Terminate the online session. You will be asked for confirmation before The Antelope hangs up the phone and prepares for the next caller.

<K> gives a Catalog listing of the currently logged drive.

---

<L> Logs a message to disc. This is similar to leaving a message on a bulletin board. You will be asked who the message is for, this will then be used as the filename provided that a file of that name does not already exist. If all is well you will be allowed to enter your message text. When you have finished type <CTRL-C> twice in succession and The Antelope will save the input and close the file. A message 'File written to disc' will confirm this.

<N> Allows you to change the working drive on the host The Antelope machine to a valid alternative as specified by the remote access option on that machine.

<T> This command will select the file transfer option on the host The Antelope system. Files/discs may be sent or received using XMODEM. Alternatively individual files may be received using the Line entry mode.

<V> Allows you to view a text file from the working drive of the host computer. The Antelope will ask for the filename and then <L>oad the file (if it exists) into the buffer and <O>utput the buffer. Carriage Return may be used to halt the listing.

#### 4.5.12 <T>erminal mode

When operating in terminal mode (selected by pressing <T> from command mode), The Antelope will respond to text entering the computer via the serial card by displaying it on the screen. In addition, all keyboard input except <ESC> is routed to the serial card for transmission to the remote system. This is often referred to as 'Chat' or On-line mode and it is essentially an interactive state.

When using an Apple II+, CTRL-A will toggle upper/lower case allowing lower case to be generated by the keyboard when a lower case display chip is fitted. If a shift-mod is also present, the SHIFT key will then operate as expected.

Three additional features available in Terminal mode are accessed via <CTRL-B>, <CTRL-L> and <CTRL-X>.

Pressing <CTRL-B> will transmit a 'break' level to the remote system. This is not an ASCII character but a particular line state which some remote systems interpret as a command to 'escape from current action'. A break level lasting approximately 270ms will be generated.

You may clear the screen in Terminal mode by pressing <CTRL-L>. The cursor will be HOME'd to the top left corner.

<CTRL-X> characters issued in Terminal mode will send an <ESC> to the host.

As previously discussed, ASCII characters entering the machine via the serial port are displayed on your screen. In addition, some of the Control characters will operate as normal on both 80 and 40 column screens. These include :

```
CTRL-H : Backspace/delete
CTRL-K : Clear to end of screen from cursor
CTRL-L : Home cursor and clear screen
CTRL-J : Clear to end of line
CTRL-Y : Home cursor without clearing screen
CTRL-_ : Move cursor up one line
```

These commands are recognised by most 80 column cards and have been implemented by The Antelope on the 40 column screen as well. Some terminals may use different CTRL commands to obtain the same effects. If this is the case you may be able to accommodate them by editing the look-up tables as described in section 5.3 on utilities.

---

## 4.6 Terminal mode configuration

Pressing <G> from command mode switches The Antelope to its install menu. This allows you to alter the settings of the various configuration features that are available.

The format of the 40 column install menu is illustrated below:

```
-----
The Antelope - Terminal installation
-----
<A>utosave      OFF <B>aud      300/300
<C>opy to buffr  ON  <D>uplex    FULL
<E>cho          OFF <F>ormat    8+N+1
<G> Save config  <H> Delete char ( )
<I>nitialise a disc <L>ine feeds  OFF
<M>anual mode    ON  <N>ulls     0
<O>ld defaults   <P>rinter setup
<Q> XON char     ^Q <S>  XOFF char  ^S
<R> Open buffr   ^R <T> Close buffr ^T
<W>ork drive S6,D1 <X>ON/OFF      OFF
(Z) Remote access/passwd 6

<CR> to accept, <ESC> to exit
Change which ?
```

Each of these options are described in the following sections.

### 4.6.1 <A>utosave

When the buffer is switched on during an online session to a system such as a bulletin board, it can quickly become full. The Autosave option will automatically warn you when this occurs and in addition it will attempt to stop the host system from transmitting further data by sending an XOFF character. The Antelope will then save the contents to disc in a file called DATA FILE A where the suffix letter is incremented each time the buffer is saved. Hence the first file will be called DATA FILE A, the second DATA FILE B and so on (in cases where the file already exists the letter used to suffix the name will be incremented until an unused filename is found).

If the host system responds correctly to the XOFF signal then no data will be lost. In cases where the host system does not recognise XON/XOFF a certain amount of data will be lost while the current contents of the buffer are being saved.

To switch Autosave ON, press <A> from the install menu. Pressing <A> again will switch it OFF once more. When Autosave is OFF you will still be warned when the buffer becomes full but the stored data is not saved unless you choose to do so manually with the <S>ave buffer command. Alternatively you may choose to simply <W>ipe the buffer of its contents so that it is no longer full.

### 4.6.2 <B>aud rate

The first item in the list which you have not already encountered is the <B>aud rate. As you will see this is set to 300/300 by default as this is the rate which most bulletin boards use and is often the only full duplex rate available on home modems.

Using the right and left cursor keys you may step through the available baud rates in sequence until the desired setting is reached. When this has been done pressing <CR> will select the new rate and return you to the 'Change which ?' prompt.

Note that the first of the two rates shown is the receive rate so that 75/1200 means receive at 75 baud and transmit at 1200 baud.

---

If you are using The Antelope via the Nightingale (with or without the accessory board) you will only be able to use 300/300, 1200/75 and 75/1200 despite the displayed rate. Most of the other rates will only be useful for hard wired transfers to other Apples or micros.

Note also that selecting 300/300 baud with the accessory board fitted will always set the modem to Originate mode. If you wish to use 300/300 Answer select 150/150 (Manual mode must be OFF) and Data will interpret this as meaning 300/300 Answer.

#### 4.6.3 <C>opy to Buffr

Normally The Antelope defaults to buffer ON and incoming data is stored in the memory buffer as well as being displayed on your screen.

To switch the buffer OFF (assuming that you are in command mode) press <G> to go to the configuration menu and then press <C>. The current state of the buffer will be toggled so it should now be OFF. Since this is all you need to change for the moment press <ESC> to go back to command mode. You should see that the Copy to buffer option is now indicated as being OFF in the status panel at the top of the screen.

From this point on, all incoming data during an on-line session will be played but NOT copied into the buffer ie. it will be lost for good once it has been displayed.

To switch the buffer ON again <G>o to install and press <C> followed by <ESC>.

#### 4.6.4 <D>uplex

The Duplex option is set by default to FULL. What this means is that only incoming data is displayed on the screen. Characters that you type are not displayed directly by The Antelope and must therefore be echoed by the host. This method is very common.

When the option is switched to HALF duplex both input and output will be displayed. To do this press <G> from the command prompt to display the configuration menu. Then press <D> followed by <ESC> to return you to command mode. You will notice the Duplex is now set to Half.

The current status of the Duplex option is shown in the status panel above the command menu when you are in command mode

#### 4.6.5 <E>cho

Normally, when a terminal communicates with a remote system, every character typed on the keyboard is transmitted via the serial card to the host which then sends an 'echo' of that character back for display. Alternatively, the terminal may provide its own echo for display purposes. The exact requirement will depend upon the particular system with which you are communicating.

When Echo is ON, The Antelope will act as a host and will echo all incoming characters back to the remote system. If Echo is OFF The Antelope will not send an echo and the remote system must provide its own.

#### 4.6.6 <F>ormat

Standard RS232 and compatible interfaces are capable of transmitting and receiving data in a variety of formats. Thus the number of data bits may be 7 or 8, parity may be EVEN, ODD or not used and there may be one or two stop bits.

---

The reasons for using different formats vary. The fact is however that these variations exist and in order to successfully send and receive data you must be aware of the format that the remote computer is using. The table below gives a list of the formats that The Antelope will allow:

Word Length	Parity	Stop bits
7	Even	1
7	Odd	1
7	Even	2
7	Odd	2
8	None	1
8	None	2
8	Even	1
8	Odd	1

The default setting is 8 data bits, no parity and 1 stop bit (shown as 8+N+1). To alter this select <F>. As usual, the top line of the screen is used to show the current setting and allow you to select a new value using the cursor keys.

```
-----  
Use cursor keys to alter >      8+N+1  
-----
```

When the correct new value is shown, press<CR> to select it. The install page should now reflect the change and <ESC>will return you to command mode.

If you select the wrong format for the host that you intend using you may find that incoming data appears as garbage.

#### 4.6.7 <G> Save config

This will save the current values of all the program variables onto the system disc. These values will in effect become the 'old defaults' which will be used at the next boot up. Before using this option ensure that your master program disc is in the current working drive and is NOT Write Protected.

#### 4.6.8 <H> Delete char

Most computers use ASCII character 127 (\$7F) as the DELETE character and this usually performs the dual operation of backspacing and deleting. However, the Apple uses ASCII 8 (\$08) which backspaces on other computers but does not delete. For this reason, The Antelope interprets the delete key on the Apple keyboard to mean ASCII 127 instead of ASCII 8 and therefore maintains compatibility with non-Apple systems. Similarly, all incoming ASCII 128's will be converted into backspaces for display on the Apple. If you find that things are not as they should be, and the remote host sees visible delete characters (a block shape) on the screen, then you may reset this to ASCII 8 from the configuration menu.

#### 4.6.9 <I>initialise a disc

This command performs a DOS init routine but does NOT place DOS on the disc. Discs initialised in this way should only be used as data discs. As with the Delete file and Catalog disc option the command is provided purely for convenience. You will be prompted for the slot and drive, and may change these if you wish. Pressing <CR> will leave them in their present settings.

#### 4.6.10 <L>linefeeds

The Apple will automatically generate a Linefeed (ASCII 10) on the display whenever it prints a Carriage-Return (ASCII 13). Some systems however, require a Linefeed to be provided for them. For this reason the Linefeeds option may be turned ON or OFF appropriately.

When the Linefeeds option is ON, The Antelope will send a Linefeed character after every Carriage-Return, when it is OFF no Linefeed will be sent.

---

The default value is Line feeds OFF, the selected value is shown in the status panel. To alter this press <G> (from Command mode) to Go to install and then press <L>. <ESC> will return you to Command mode.

#### 4.6.11 <M>anual mode

If you have the Nightingale accessory board fitted and The Antelope configured to use it, the <M> option will disable the dialler (temporarily) so that you may use the modem manually. Using <M> again will re-instate the auto-dial feature.

#### 4.6.12 <N>ulls

Some terminals are often slow and as a result require a delay after each <CR> that they receive so that they can complete a line before more characters are received. Such a delay is often provided by sending a number of NULL characters after each <CR> in the output stream. The alternative method used by The Antelope is to insert an actual time delay between each character transmitted and a correspondingly increased delay following <CR>'s.

Since you would normally expect to be communicating with a faster device i.e. another computer, the delay factor is set to 0 by default. To alter this select <N>. The title line will clear and display the message :

```
-----  
Nulls, use cursor keys to alter >      0  
-----
```

Any value in the range 0 to 15 may be selected (using the left cursor from 0 will wraparound to 15). When the appropriate number is displayed press <CR> to select it and <ESC> to return to command mode.

#### 4.6.13 <O>ld defaults

This command will restore all options and variable settings to those values which were present at boot-up.

Remember that you may save the current setting to disc at any time for use when you next boot the system.

#### 4.6.14 <P>rinter setup

If you have a printer connected you may enter a setup string which will be sent to the printer when you activate it using the Printer ON/OFF command. This string may consist of the <ESC> and <CTRL> sequence required to switch the printer into a specific operating mode such as condensed print or it may simply be a text message to be printed as a header.

Press <P> from the configuration menu and you will be asked to specify the required string :

```
-----  
Enter init string:  
-----
```

For example, to set up an Epson FX80 to use condensed mode printing, a typical sequence would be <ESC><CTRL-O>. This will be displayed as:

```
^{}^O
```

Pressing <CR> will terminate the string and return presenting a prompt for the next stage of setup :

```
-----  
Enter restore string:  
-----
```

In order to restore your printer to its power-up condition you may also define a 'restore printer' control sequence. This will then be sent to the printer on exit from Data Highway using the <Q>uit option.

---

A typical restore string would be <ESC><CTRL-@> as used by the Epson FX80. This would appear on the screen as `^@`.

Printers are usually capable of printing either 80 or 132 columns (10" and 15" carriage widths). The width required (in characters) may be specified in answer to the next prompt:

```
-----  
Width (cursor keys to alter) 132  
-----
```

If you are using an 80 column printer the default value of 132 need not be altered as the width count is zeroed whenever a Carriage Return is detected in the print stream. In fact, it is not usually necessary to alter this value unless you wish to print less than 80 columns.

Finally, most printers allow hardware switching of Line feeds on Carriage Return. i.e. your printer may or may not supply a Line feed after printing a Carriage Return. The Antelope can be configured to have the same effect in software. If Printer Line have the same effect in software. If Printer Line feeds are OFF, The Antelope will send Carriage Returns without Line feeds, if they are ON then a Line feed will be sent following every carriage Return. The prompt appears as below :

```
-----  
Line feeds to printer (Y/N) ?  
-----
```

#### 4.6.15 `^Q` XON char & `^S` XOFF char

These options allow you to specify the characters which are to be interpreted as XON and XOFF respectively. When an XON or XOFF character is required in the output stream the specified value will be sent and similarly XON/XOFF characters received from a host will be acted upon appropriately.

The default value for XON is <CTRL-Q>, displayed as `^Q` which is the standard value. Similarly the standard value for XOFF is <CTRL-S>. Either of these may be changed by pressing Q or S and entering the new value.

```
-----  
XON now ^Q, enter new value >  
-----
```

Press <CR> to select the new value and exit to the prompt.

In a similar way the character recognised as XOFF may be changed. This time press <S> and enter the new value. The default is <CTRL-S> which once again is the standard value.

#### 4.6.16 `^R` - Open buffer & `^T` - Close buffer

It was discussed earlier under the section on the <O>put buffer command that an option to use buffer control codes is available. The standard codes used by bulletin boards are <CTRL-R> and <CTRL-T> to open and close the buffer respectively.

Incoming buffer control codes will be ignored by The Antelope if the Copy buffer option is ON. This avoids the situation where you have switched the buffer ON and noise on the line generates a buffer OFF code switching the buffer OFF so that you lose data. If you wish The Antelope to respond to incoming codes you should leave the Copy to buffer option OFF and let the remote system take control.

It is possible that other systems use different things. If this is the case you may alter the values that The Antelope uses to suit the remote system. Press <T> or <R> as appropriate and enter the new value in the same way as for XON and XOFF described above.

---

#### 4.6.17 <W>ork drive

The default or 'working' drive used by The Antelope for loading and saving files can be set using this command. Press <W> from the install menu and the prompt line at the top of the screen will request the new slot and drive number.

The slot and drive number may also be specified at any time when you are entering a filename. In addition, you may append the volume number of the disc to the filename. Hence the file DATA1 in drive 2 of slot 6 with a volume number of 230 would be specified with :

```
DATA1,S6,D2,V230
```

#### 4.6.18 <X>ON/XOFF

In order to ensure that data is transferred correctly between two computers, a number of protocols both simple and complex have been developed. One of these involves the use of XON/XOFF flow control. This method does not provide any form of error checking on the data, it is merely an attempt to ensure that a receiving system is always ready to accept data from a host (and therefore prevent loss of data as opposed to detecting data corruption).

When a system which utilises XON/XOFF is receiving data, and wishes to access one of its discs, it will interrupt the sending terminal by transmitting an XOFF signal (CTRL-S) in an attempt to prevent further transmission. If the sender recognises the XOFF it will suspend its output until it receives an XON from the receiving system. When the background task in the receiver is complete it will send the required XON and allow the communication to resume.

When XON/XOFF is ON, The Antelope will recognise and respond to XON/XOFF signals from a host system and will also generate XON/XOFF signals when required. The default condition is OFF, to switch it ON type <G><X><ESC> from command mode. i.e. Go to configuration, toggle XON/XOFF and return to command mode. The current state is indicated in the status panel.

The standard XON and XOFF characters are <CTRL-Q> and <CTRL-S> and The Antelope will use these by default. If you are communicating with a non-standard system you may use the Q and S options on the install menu to select alternative characters to represent XON/XOFF

#### 4.6.19 (Z) Remote access

When you set The Antelope up in remote mode so that other users can access your files, leave messages etc. you may wish to limit their access capability to a particular drive. This can be achieved by limiting the slots which they are allowed to address.

Initially the line:

```
Remote access 6
```

will be displayed indicating that remote users are currently allowed Read/Write access to drives in slot 6 only with no access to other slots. Selecting Z from the configuration menu will allow you to define any of the slots as No Access, Read only access or Read/Write access.

Press Z now and you will be prompted with:

```
-----  
<CR> or Slot # ?  
-----
```

Enter the number of the slot that you wish to alter and a further prompt will appear :

```
-----  
<CR> <R>ead only or <N>o access ?  
-----
```

---

Pressing <CR> will allow full Read/Write access for the slot specified. Pressing <R> will select Read Only access and pressing <N> will lock out a previously available slot.

Assuming that you have decided to allow Read only access to slot 5 and full access to slot 6, the Remote slots line would appear as illustrated below:

```
Remote access/passwd 5* 6
```

The asterisk next to the 5 indicates that slot 5 is locked for Read only.

Having specified slot access you may define a password which must be entered by every remote user before they can use your system. The default password is PACE but this can be changed to any string up to 6 characters long. Pressing <CR> at the <CR> or Slot # prompt will display the password prompt.



# Chapter 5

## The Antelope Utilities

This manual has so far covered only the 'on-line' aspects of using The Antelope to access Prestel or other remote computer systems. There are however included on the program disc, some useful utilities for creating and editing 'macro' files and Configuring The Antelope. To use one of the utilities select option 3 from the main menu. You will be presented with a further menu:

```
-----
                **  THE ANTELOPE  **
-----

UTILITY MENU
1. Communications Macros
2. Viewdata Macros
3. Edit Look-up Tables
4. Configure Auto-Boot
5. Exit
SELECT ?
```

Now select the number for the utility that you require.

### 5.1 Communications macros

This powerful and versatile option will allow you to create command sequences called 'macros' for use with bulletin boards or similar systems. These may be sent automatically from within the The Antelope terminal program by pressing <ESC> from terminal mode followed by the number (from 1 to 8 of the required macro.

To create a macro, select option 1 from the utilities menu to load the macro editor.

```
-----
THE ANTELOPE  :  COMMUNICATIONS MACROS
-----

SEE MANUAL FOR FULL DETAILS
BUILD FROM THE FOLLOWING PAIRS:
*#  **  *B  *D  *F  *H  *I  *R  *S  *W
*1  TO  *8
*E  TO  END  MACRO
-----
FILE TO EDIT OR <CR> ?
```

Macro's consist of sequences of Commands which are normally held in a file. These sequences can be loaded into memory and executed at any time while you are on-line just as if the equivalent commands were being typed at the keyboard. The Antelope allows up to 8 macro sequences to be defined and called up from within the Terminal program once the 'macro table' (in which the macros are stored) has been loaded using the <M>acro load command.

---

Each element of a macro consists of the command (an asterisk followed by the command character) and optionally some data. Any combination of the commands described below may be used and macros can even include Hayes-like commands for controlling intelligent modems.

*\*D (telephone number)*

The D command allows auto-dialling (if you have the accessory board fitted) to be carried out from within a macro. The telephone number may only include digits and hyphens. Hyphens are used to insert a pause in the dialling

*\*E*

Signifies the end of the macro sequence.

*\*B*

Sends a 'break' level to the host system

*\*F (baud rate/data format)*

Allows you to set the Baud rate and data Format from within a macro sequence. The values used should be selected according to the following tables:

Baud Rate	Data Format
1 = 300/300	0 = 7 Even 1
2 = 600/600	1 = 7 Odd 1
3 = 1200/1200	2 = 7 Even 2
4 = 1200/75	3 = 7 Odd 2
5 = 75/1200	4 = 8 None 1
6 = 2400/2400	5 = 8 None 2
7 = 4800/4800	6 = 8 Even 1
8 = 9600/9600	7 = 8 1

For example, \*F40 would select Receive 1200/Send 75 baud with a 7 bit word, even parity and 1 stop bit.

*\*H*

This will execute the Hang up phone command from within a macro sequence.

*\*I {text}*

Text which follows an <I> command (up to the next command or end of the macro), will be sent out immediately, exactly as you have entered it.

*\*R {telephone number}*

This is the same as for the D option but it will repeatedly dial the specified number until a carrier is detected, or the cows come home! Use this option with CARE and be SURE the telephone number you enter is correct.

*\*S {text}*

This command will cause The Antelope to 'search' for the specified text string in the incoming data before it continues to execute the next command in the macro sequence. The search string may be up to one line long but in practice will rarely be longer than 5 or 6 characters.

*\*W {character}*

Causes The Antelope to wait until it has received the character specified after the \*W before it continues to execute the next element in the macro.

*\*# sd*

The \*# command allows you to set the working slot and drive number from within a macro sequence. To select slot 5, drive 2 you would use \*#52.

---

*\*n*

*where n is a number from 1 to 8, will cause the current macro to execute another macro, number n. This means that macros can be recursive i.e. they can call each other (or even themselves if you feel like getting in a tangle!)*

Any character may be used in a macro including control characters, but commands are only recognised in upper case.

Any single macro may be up to 63 characters in length and to terminate it you should use the \*E pair. If you wish to use an asterisk itself in a macro then simply use \*\*.

Having entered a macro you must then save it to disc with a filename of your choice. If the file already exists you will be prompted with:

```
FILE EXISTS - OVERWRITE (Y/N) ?
```

Type Y or N appropriately. The file can be edited later, but it will be locked for safety, you must either manually unlock it, or specify another filename. Remember that a <CR> is not sent automatically, and must be entered where required.

The example below shows how John Smith might log on to a bulletin board:

```
*W^EJohn;Smith^M*W?Y*W:Password^M*E
```

The first <\*W> means wait for receipt of the succeeding character, in this case <Ctrl-E> (the usual ENQ character sent out by bulletin boards), from the host before transmitting the macro string. Bulletin Boards will send one at the start of transmission or when asking for your name. Most boards will accept first and last names separated by a semicolon, so <John;Smith^M> will be sent, that is the first name, a semicolon, last name and a <Ctrl-M> (Carriage Return). The macro will then wait <\*W> for a <?> to be encountered, this is usually the board asking if the details of where you live are correct, a <Y> without a <CR> is sufficient at this point. The macro will then wait <\*W> for a colon to be sent, this would be the bulletin board asking

for your password, this will then be sent, with a <Ctrl-M>

to finish it all off. Up to 63 characters in all may be used in a single macro string but this may be extended by linking to another macro with a \*nE sequence. If a macro is less than 63 characters, the <\*E> sequence will pad it out to full length with spaces which will be ignored for transmission purposes.

The following example shows how you might access Telecom Gold via PSS:

```
Macro #1:
*R{tel no}*I^M^MD1^M^M*W?{NUI}^M*W?{ADD}^M*2*E
```

```
Macro #2 :
*IID {ID number}^M*W:{password}^M*E
```

These two sequence perform the following operations :

```
Macro #1
Repeat dial Telecom Gold
Send <CR><CR>D1<CR><CR>
Wait for incoming ?
Send your NUI followed by <CR>
Wait for incoming ?
Send your ADD followed by <CR>
Call Macro number 2
End Macro
```

---

```
Macro #2 :  
Send your ID followed by <CR>  
Wait for incoming :  
Send your password followed by <CR>  
End macro
```

Once loaded, a macro will be active and only need be started with the required number from Command level. You may halt a macro during execution by typing 0 and restart it again with the macro number.

While a macro is being executed the keyboard remains active so that, for example, if PSS does not wake-up immediately you may enter <CR><CR>D1<CR><CR> from the keyboard and then let the macro take over again.

## 5.2 Viewdata Macros

With practice, you will be able to proceed through the maze of Prestel frames with little difficulty. If however you tend to use particular 'routes' on a regular basis you will find it convenient to prepare a 'macro' file containing all the appropriate routing commands that will take you to the desired frame. This saves you having to type them in each time you access the system or to remember page numbers which might be 10 or more digits long.

The Viewdata macro editor may be run by selecting option 2 from the utility menu and following the prompts.

```
-----  
          **   THE ANTELOPE   **  
-----  
VIEWDATA MACROS  
  
STARTWITH  *PAGE-NO#  
END WITH  <CR>  
FOR 10 SECOND DELAY USE <.>  
FOR 1 SECOND DELAY USE <->  
-----
```

The first item in a viewdata macro file must usually be a valid page command of the form \*page-no#, thus a simple macro might contain the following as its first command :

```
*258#
```

Note that the return key will generate <#> when using the editor.

Following this, intermediate pages that require only a single key response are simply entered as the required character. The sequences you use will be the same as those you would use if you were actually logged on to the system. There is a slight complication in that some pages do not allow you to enter new routing commands until the previous is complete. In these cases you will have to incorporate delays into the macro file. Two delay commands are provided by The Antelope and these are represented by hyphen (-) and full stop (.).

Any <->'s found in a macro file will cause a delay of 1 second before the next routing command is issued. Similarly a full stop <.> may be used to induce a 10 second delay.

---

If you include invalid sequences or illegal characters in a macro sequence you are liable to obtain error messages such as :

```
PAGE UNAVAILABLE
```

or

```
MISTAKE OR TELL US ON *36.
```

when you try to use them.

When you have finished entering a macro, press <ESC>. You will be prompted for a filename which will be used to store the macro.

To send the macro, type <CTRL-S> when you are in Viewdata mode and enter the filename of the required macro in response to the prompt. The contents of the macro file will then be sent automatically, just sit back and watch!

### 5.3 Edit Look-up tables

This is the third option on the utility menu and is designed to provide an extra degree of flexibility when using the terminal program.

Whenever a character is entered at the keyboard for transmission to the remote system, it is first checked against a look-up table in memory. The corresponding character in the table is then transmitted. Similarly, incoming characters are checked against another table and the appropriate character displayed on the screen.

As an example most systems use ASCII 127 to mean DELETE but the Apple uses ASCII 8. By default when you type <DEL> on the Apple keyboard, the equivalent look-up table entry is ASCII 127 and this is sent to the host. Conversely, incoming ASCII 127 characters are displayed as ASCII 8's on your screen.

It is possible that some remote systems use other non-standard codes, often for cursor positioning or other 'on-screen' features. If this is the case you may edit the send or receive look-up tables accordingly by using option 3 on the utility menu.

```
-----
          **  THE ANTELOPE  **
-----
EDIT LOOK-UP TABLES

(TERMINAL PROGRAM ONLY)
1. EDIT SEND TABLE
2. EDIT RECEIVE TABLE
3. RESTORE DEFAULT TABLES
4. EXIT
SELECT ?
```

Select option 1 or 2 appropriately, the top line will clear and the following prompt will be displayed:

```
-----
ENTER ASCII VALUE OF CHARACTER
-----
```

As an example type 65 (ASCII letter 'A'). The display will change to:

```
-----
KEY A NOW A, NEW ASCII VALUE:
-----
```

---

In other words, when you type an 'A' at the keyboard in terminal mode, a character 'A' is sent to the host. You would not normally wish to change this particular character but the same can be applied to the full ASCII set. In theory you could completely re-map the Apple keyboard.

Beware of using this facility if you are not sure of what you are doing - it can become very confusing. If you do make a mess of things the Restore defaults option may be used to re-instate the standard look-up tables.

In order that the ASCII ESC character may be transmitted, CTRL-X is normally mapped to give ESC instead. You may, of course, change this if you wish.

When you exit back to the menu the new table values will be saved to disc automatically.

#### 5.4 Auto-boot configuration

The Antelope can be configured to automatically run in certain modes when the master disc is booted. This is set up from the Auto-boot menu shown below :

```
-----
          **  THE ANTELOPE  **
-----
AUTO-BOOT MENU

1. Auto-boot Terminal
2. Auto-boot Viewdata
3. Auto-boot Remote
4. Set Terminal Auto-boot Macro
5. Deselect Auto-boot
6. Exit

Currently 5
SELECT ?
```

These options are self-explanatory but note the following:

If you are auto-booting into Terminal mode and you have used option 4 from the above menu to select a macro file to be used, the first macro in the file is executed automatically following the boot. If you have the accessory board fitted, Auto-booting into the Viewdata program will automatically dial the first number in the telephone list. If you do not wish to dial automatically do not complete the first number in the telephone list.

Once auto-booting has been chosen you will not be given the opportunity to use System configuration (option 4), from the main menu. You may need to do this to switch OFF auto-booting in which case you should press <ESC> while the main menu is loading. This will override auto-booting so that you may then use option 4 to deselect the auto-boot.



# Appendices



---

## APPENDIX A

### TROUBLESHOOTING

#### Viewdata mode

It was discussed in Chapter 3 that the construction of a Prestel frame is such that the corruption or removal of even one character can result in a screenful of garbage.

This type of corruption may occur for one of several reasons. When using a serial card which has to be 'flipped' between send and receive (such as the Super Serial card), typing before the current screen is complete, can result in the loss of data. Similarly, a noisy or 'bad' telephone line can easily cause corruption of data. In either of these cases the screen display will be corrupted and this is the reason for the inclusion of the re-display page command '>' in The Antelope. In most cases it is worthwhile to repeat the command.

If this type of problem is persistent it is worthwhile to check that:

- a) You have followed the configuration procedures correctly.
- b) Your modem is properly installed.
- c) Your serial card is correctly set-up.
- d) If using an acoustic modem, the handset is correctly seated in the rubber cups.
- e) All connections are clean and firm.
- f) You have a good telephone connection, especially if calling long distance.
- g) None of the peripheral cards you have fitted conflict with slot space or switch off access to other slots.

Remember also that many of the Prestel pages were conceived in colour and use the juxtaposition of coloured text and backgrounds to achieve their affect and these may not appear quite as originally intended when using a monochrome display.

#### Terminal mode.

When operating in terminal mode many of the guidelines given above still apply. Corruption of incoming characters will not generally cause the same amount of screen disruption as would occur with a viewdata frame. However, it is still possible that line noise will generate unwanted control codes and their resultant effects. There is very little that can be done to counteract this other than to ensure that you are using a reasonably 'good' line.

Once again check that the modem is correctly configured and connected and that you have set your software to use the correct baud rate and word format. If problems are persistent on a particular call it is often better to switch off and start again.

---

## APPENDIX B

### AN OVERVIEW OF XMODEM

#### Xmodem Transfer

Xmodem protocol describes a form of error-free file transfer developed by Ward Christensen. The Xmodem system of protocol transfer virtually assures perfect data transfer even under extreme conditions such as temporary loss of carrier or excessive line noise.

Files which are sent or received under Xmodem are broken down into sequentially numbered 128 or 1024 byte blocks for transmission purposes. This action is totally transparent to the user.

Either an 8-bit checksum or a 16-bit Cyclic Redundancy Check (CRC) is calculated for each block and is sent with the data. This check is re-calculated at the receiving terminal and compared with the original. If the two checks are different it is assumed that corruption of data has occurred and re- transmission of the block in question is requested. A number of re-tries are allowed for a particular block before the transfer process is aborted.

A Cyclic Redundancy Check (CRC) is requested at the start of each transfer, and if acknowledged by the host, is then used instead of the normal checksum.

Xmodem file transfer can only be used in conjunction with other systems which support Xmodem transfer. This includes some bulletin boards and host systems such as Telecom Gold and Compuserve.

The actual Format of the 128 byte data block under Xmodem is as follows:

<SOH>	- Start of Header
decimal <01>	- to start each block
Block number	- one byte
255 block number	- block number EOR 255
128 data bytes	- the actual block of data
Data checksum	- 1 byte, carry discarded
or CRC	- 2 bytes Cyclic Redundancy Check

---

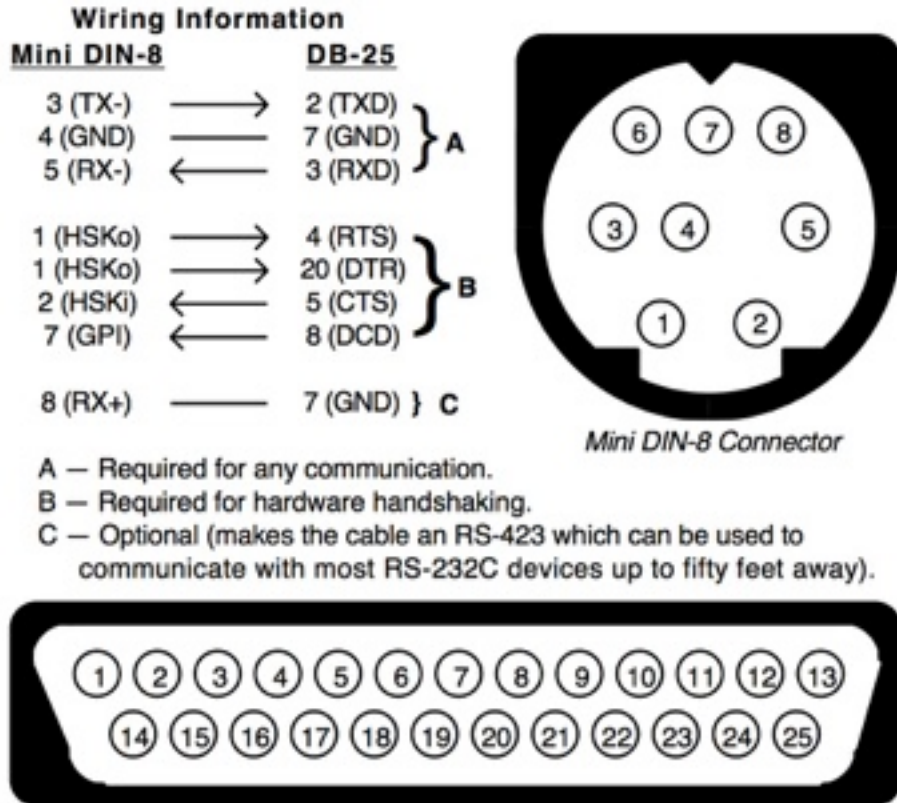
## Appendix C

### Modem Cable Wiring

Although all “IIs to Modem” cables look alike (they all have a circular 8-pin connector on one end and a rectangular 25-pin connector on the other), the internal wiring can be quite different.

However, to support “hardware handshaking” and other advanced features found in today’s high speed modems, you need a special cable that has several more wires connected. Naturally, those wires must connect the proper pins on each end of the cable or it will not function correctly.

Unfortunately there are several “standard” wiring designs for high speed cables. This is the cable standard for high speed telecommunications:



*The high speed modem cable standard supported by Antelope and other high-speed telecommunications programs such as Spectrum™ for the Apple IIs*

---

## Appendix D

# Common Hayes Commands

Spectrum works with Hayes-compatible modems, which use a common command language.

When you first turn on the modem it is in “command mode” (ready to accept commands). When you connect to another computer the modem switches to “data mode” (all characters are transferred to/from the modem without it trying to interpret the characters as commands).

To get back into “command mode” the modem must not receive data for a certain length of time, then it must receive three “modem escape codes,” then it must not receive data for a certain length of time (see Registers 2 and 12). When this occurs the modem will respond “OK” and will be ready to accept commands.

While in command mode, the modem ignores spaces (or any characters not defined as part of its command set). To be recognized as a command, the line must begin with AT. All commands must be typed in uppercase. Multiple modem commands can be included on the same line, provided the line does not exceed 40 characters. The modem does not act on the command until Return is pressed.

The following list only describes the most basic Hayes modem commands (there are many others available). Refer to your modem’s manual for more information about these and other modem commands.

Some commands require a number or some other parameter. These parameters are shown as lowercase, italic letters. For example, in the command *En*, *E* is the command, and *n* can be Ø or 1 (in actual use, *EØ* or *E1* would be used...not *En*).

Command	Parameters	Description
AT		Attention code; precedes all command lines
A		Answers call immediately (takes the modem “off hook” and attempts to connect)
Ds		Dials a telephone number. <i>s</i> can be one or more of the following characters:
	T	use touch tone dialing
	P	use pulse dialing
	,	pause for [Register 8] seconds
	;	stay in command mode after dialing
	Ø–9	numbers
	* and #	when using touch tone dialing, produces the same tones as the * and # buttons on the phone
<i>En</i>	<i>n=Ø</i>	do not echo characters while in command mode
	<i>n=1</i>	echo back all characters while in command mode
<i>Fn</i>	<i>n=Ø</i>	half duplex
	<i>n=1</i>	full duplex
<i>Hn</i>	<i>n=Ø</i>	on hook; hangup
	<i>n=1</i>	off hook
<i>Mn</i>	<i>n=Ø</i>	speaker off always
	<i>n=1</i>	speaker on until carrier detected

	$n=2$	speaker on always
O		Return to online state (data mode)
$Qn$	$n=\emptyset$	result codes sent
	$n=1$	result codes not sent
$Sn=x$	$n=\emptyset, 2-15$ $x=\emptyset-255$	sets Register $n$ to value $x$
$Sn?$	$n=\emptyset-16$	modem sends value of Register $n$ to Spectrum as a number from $\emptyset-255$
$Vn$	$n=\emptyset$	Hayes numeric result codes
	$n=1$	Hayes verbal result codes (OK, CONNECT, RING, NO CARRIER, ERROR)
Z		Causes a software reset and applies all default values (possibly as configured by switches on the modem)

The  $Sn=x$  command is used to set the contents of a “Register” in the modem, and the  $Sn?$  command can be used to read the current value of a particular Register. The following list describes only the most commonly-used Registers.

Register	Range Units	Default (means)	Description
$\emptyset$	$\emptyset-255$ rings	$\emptyset$ or 1	number of rings to answer on ( $\emptyset$ =no automatic answer)
1	$\emptyset-255$ rings	$\emptyset$ ( $\emptyset$ rings)	number of rings that have been detected (read only)
2	$\emptyset-127$ ASCII	43 (+)	character the modem recognizes as the escape code
3	$\emptyset-127$ ASCII	13 (return, ^M)	character the modem recognizes as carriage return
4	$\emptyset-127$ ASCII	1 $\emptyset$ (down arrow, ^J)	character the modem recognizes as line feed
5	$\emptyset-32, 127$ ASCII	8 (left arrow, ^H)	character the modem recognizes as backspace
6	2–255 seconds	2 (2 seconds)	time to wait for a dial tone
7	1–255 seconds	3 $\emptyset$ (3 $\emptyset$ seconds)	after dialing or answering, time to wait for carrier detect
8	$\emptyset-255$ seconds	2 (2 seconds)	when dialing, pause this long for each comma
9	1–255 1/1 $\emptyset$ seconds	6 (.6 seconds)	carrier detect response time
1 $\emptyset$	1–255 1/1 $\emptyset$ seconds	7 (.7 seconds)	delay time between loss of carrier and hangup
11	5 $\emptyset-255$ 1/1 $\emptyset\emptyset$ seconds	7 $\emptyset$ (.7 seconds)	duration and spacing of touch tones
12	2 $\emptyset-255$ 1/5 $\emptyset$ seconds	5 $\emptyset$ (1 second)	modem escape code guard time



# Extras



---

## Problems

Hopefully you will have none, but if you do, and they cannot be answered by reading these notes, please contact me on:

[spectrumdaddy@speccie.co.uk](mailto:spectrumdaddy@speccie.co.uk)

## Other information

If you do not already know about my other software, please drop by my home pages and read more. Amongst other titles there you will find Spectrum™ aHgs telecommunications program, SAM2 an email client, SAFE2 an FTP client, and SNAP a Usenet news reader..

You will also find on my web site regular updates to my own programs, PDF manual versions to many of them, as well as many other files that you might find useful:

<http://www.speccie.co.uk>

Someone once said to me, 'Spectrum™ does everything!'

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