A-STILE

USER GUIDE

RELEASE 2.0

CONTENTS

DISCLAIMER

I hope you will like A-STILE and enjoy using it as much as I have enjoyed creating it, BUT . . .

While every effort has been made to thoroughly test and verify all functions incorporated into the A-STILE software, please note that it is supplied on an "as is" basis and without warranty of any kind. You use the A-STILE software at your own risk. The author and designer will not in any event be held liable for any improper operation of the A-STILE software, improper operation in conjunction with the A-TRACK system, or interference with any other program or equipment, nor be held liable for any incidental or consequential damages of any sort arising out of its use.

Make back-up copies of all your important files
                        - BEFORE you start to use A-STILE.

Terry Chamberlain

1   INTRODUCTION

A-STILE (**A**-TRACK **S**tandalone **T**ool for **I**tem **L**ist **E**diting) is a utility program for the Atari XL/XE range of computers designed to complement the A-TRACK program. A-TRACK implements the Digital Command Control (DCC) system for the operation of model railroads.

A-TRACK supports the full range of features defined in the DCC Standards and Recommended Practices issued by the National Model Railroad Association and, with the addition of a hardware interface box (the DCC Interface Unit, DIU) to link the computer to the track, will provide total control over a model railroad layout from your Atari computer keyboard. A-TRACK also supports the use of remote, handheld controllers which will let you operate up to eight locomotives on the track at the same time

DCC allows the simultaneous operation of almost any number of model locomotives on complex track layouts without the use of conventional block switching, ie. each locomotive does not have to be controlled within a single section of track allocated specifically to it. The speed and direction of each locomotive can be set independently regardless of where it is on the track (a feature, naturally, which has to be used with care!). Control can also be exercised over multiple locomotives treated as a single unit (MUs or consists) and over accessories such as lighting, signalling, and points (turnouts).

The operation of A-TRACK is based around the use of an Item List in which each Item contains a description and operational parameters for one of the locomotives, consists, or accessories to be controlled on the model railroad layout. The user can view the Item List and select any individual Item in order to control it or to amend its operational parameters. Item Lists are loaded from disk and, when updated, can be saved back to disk for future use. This ability is a major advantage of A-TRACK over current commercial DCC systems, where the operating characteristics of your locomotives are stored within the equipment itself, and there is generally no provision for maintaining a back-up copy of all the parameters.

However, each Item List may only contain a maximum of 64 Items and, although use of the editing facilities in A-TRACK does provide some scope for adding, deleting, and moving Items from one Item List to another, the limit of 64 Items can prove restrictive when trying to handle the full roster of locomotives in a Club, for example.

A-STILE provides a more flexible set of Item List editing facilities and the ability to handle Lists containing up to 128 Items on a standard Atari 800XL computer, 640 Items on a 130XE, and more than 1600 Items on any Atari machine with a 256KB memory extension. Item Lists can be merged, Items sorted and edited, and then saved selectively to smaller Lists which can be used with A-TRACK to give you, for example, the right set of Items you need for a particular operating session.

A-STILE also allows you to print a hard copy, on an attached printer, of any Item List or of the operational parameters of any selected individual Item.

2   SYSTEM OVERVIEW

A-STILE requires either an Atari 800XL or 130XE fitted with a disk drive. The program itself, plus the ability to handle Item Lists of up to 128 Items, requires only the basic 64K of memory. Any extended memory fitted can be used either to hold larger Item Lists, or as a ramdisk if desired (see your Atari documentation for further explanation if necessary). If operating under SpartaDOS, it is also possible to allocate the first 64K of extended memory for use by A-STILE, and utilise the remainder as a ramdisk.

Optionally, A-STILE can utilise an attached printer to print copies of Item Lists and of the parameters (Configuration Variables) of any individual Item. Note that output is in the form of strings of ASCII characters, and uses the standard ASCII Carriage Return (CR) and Line Feed (LF) characters to terminate each line, rather than the Atari-specific End-of-Line character ($9B, 155 decimal). A-STILE will not print correctly, therefore, on any of the (obsolete) Atari direct-connect printers.

Note that A-STILE uses the sound capabilities of the Atari XL/XE to generate audible alarms in response to various errors or fault conditions which can occur. You should, therefore, ensure that the audio output of whatever monitor or TV set you are using for the display screen is set to a suitable volume.

A-STILE works with a software list of controlled Items where each Item contains a description and operational parameters for one of the locomotives, consists, or accessories to be controlled on the model railroad layout. The user can view the Item List and select any individual Item in order to amend its operational parameters. Item Lists are loaded from disk and, when updated, can be saved back to disk for future use.

As mentioned in the Introduction, although each A-TRACK Item List may only contain a maximum of 64 Items, the editing facilities in A-STILE allow several Lists to be merged and Items to be sorted, added, or deleted, and Item parameters to be entered or amended. The amalgamated Item List can then be saved as a working archive, or sets of Items can be selected and saved to disk as specific Item Lists for use with A-TRACK in a model railroad operating session.

Selection of an Item List or Item is performed using either the computer keyboard or a mouse (or a combination of both). The various screen displays show the results of any action and the current state of the selected Item(s). A-STILE uses the same character font as A-TRACK to improve readability and to allow the use of several special characters in the displays.

While A-STILE provides the facilities to allow the full range of decoder parameters (known as Configuration Variables or CVs) defined in the DCC standards, as well as the Item address, to be set up and amended as required, it does not include any facility to program Item Decoders directly. Such Decoder programming must be performed using A-TRACK and its associated DIU hardware, as described fully in Sections 7 and 10 of the A-TRACK User Guide. General guidance on Item and Configuration Variable editing using A-STILE is given in Sections 5 and 6 of this document.

3   GETTING STARTED

This User Guide assumes that you are familiar with the normal operation of an Atari XL/XE computer, and with reading and writing files to and from a disk drive. You will still be able to use A-STILE without this knowledge, but may find some of the descriptions and explanations a little difficult to follow. Refer to your Atari computer documentation for guidance on basic operating procedures - a summary of the sequences which may be required during A-STILE operation can be found in Section 9 towards the end of the User Guide.

A-STILE will operate with either the Atari DOS 2.5 disk operating system (or any of its derivatives) or with SpartaDOS. Since the program makes only legal calls to the inbuilt (ROM) operating system and to DOS, it should work with any other DOS (such as MyDOS, for example) without any problems, providing the DOS does not occupy too much of the computer's memory space. The address of the bottom of free memory (MEMLO) must be kept below $1E00 (hexadecimal, 7680 decimal) - the address at which the A-STILE program loads.

A-STILE is written entirely in Assembler (machine code). The program uses all of the machine's available memory (from $1E00 to $BFFF) including that normally occupied by the built-in XL/XE BASIC language interpreter. BASIC is automatically disabled when A-STILE is loaded.

The A-STILE Master disk contains a complete set of files necessary to load and run the program, and to demonstrate its various features and operating modes. Side A contains the files in DOS 2.5 format (and a copy of DOS 2.5XL which loads the **DUP.SYS** file into the RAM under the OS ROM) and Side B holds the same files formatted under SpartaDOS 3.2d. Ensure that both write-disable tabs are present on the Master disk (covering the notches on the edges), then copy the files you need to use to a Working disk before attempting to run A-STILE. (See Section 9 if you are in doubt about what to do). The Working disk should already have been formatted by, and contain, whatever variety of DOS you wish to use. Store the Master disk away in a safe place (and well away from the magnetic fields of power transformers and locomotive motors !).

The minimum set of files A-STILE expects to find present on Drive D1: for correct program load and initialisation is -

> **ASTILE.COM**   System Initialisation and Loader
> **ASTILE.OVL**   Main A-STILE Program (Overlays part of Loader)
> **ASTILE.CFG**   Configuration Parameters
> **ATRACK.FNT**   Text & Special Character Font

If you are using Atari DOS 2.5 then rename **ASTILE.COM** to **AUTORUN.SYS** in order to allow A-STILE to load automatically when the system is booted. Alternatively, you may load and run **ASTILE.COM** manually using the DOS Menu 'L' function.

If using SpartaDOS, copy **STARTUP.BAT** to the Working disk as well. This gives you a minimal start-up file containing the following commands -

> **DATE**

```
TIME
BASIC OFF
ASTILE
```

Entering today's date and time at the **DATE** and **TIME** prompts is only necessary if you wish to have an accurate time-stamp on any files you make changes to, then save (such as Item Lists or the system Configuration) - but it has no other effect on the operation of A-STILE at all. You can expand on this simple start-up batch file if you wish, to add a ramdisk, for example, but do not add any utility which takes MEMLO above $1F00. Do **NOT** use the time/date display utility **TDLINE.COM**, since its use of interrupts, etc., will clash with A-STILE.

On first loading, A-STILE is configured to prompt you to load a demonstration Item List, **ASTLDEMO.ITA**, so that this file should also be copied to the Working disk, for practice until you become familiar with A-STILE operations.

Note that the extension **.ITA** given to this file is intended to signify an 'Item Archive' in contrast to the normal extension of **.ITL** usually given to an Item List for use with A-TRACK. This is purely a convention which may help to distinguish Item Lists with more than 64 Items, which can be handled with A-STILE but not by A-TRACK. You are free to use whatever filenames and extensions you wish, and which you find convenient (provided they comply with the rules of the particular DOS you are using). Neither A-STILE nor A-TRACK attach any significance to specific combinations of letters or numbers in filenames or extensions.

4   LOADING

4.1   *INITIAL SEQUENCE*

Before loading the A-STILE program, ensure that all plug-in cartridges are removed from the Atari XL/XE. Switch on disk drive D1:, insert your Working disk into the drive, and switch on the Atari XL/XE. It is not necesssary to disable the internal BASIC by holding down the **OPTION** key during switch-on, since the A-STILE loader will do this automatically. Note that the **BASIC OFF** command in the **STARTUP.BAT** file is only there to tell SpartaDOS that the internal BASIC has been disabled, since it cannot, apparently, figure this out for itself.

If you are using Atari DOS 2.5, and have renamed **ASTILE.COM** to **AUTORUN.SYS** on your Working disk, then A-STILE will load automatically. Otherwise you can load the program manually from DOS by typing '**DOS**' at the '**READY**' prompt, then selecting option '**L**'. Type '**ASTILE.COM**' as the program to load and press the **RETURN** key.

Using SpartaDOS 3.2 with a **STARTUP.BAT** file as described should also load A-STILE automatically, but you can load it manually from the '**D1:**' prompt by typing '**BASIC OFF** [**RETURN**]' followed by '**ASTILE** [**RETURN**]'.

The A-STILE Loader will display an initial banner on the screen before it loads the main A-STILE program. Any errors which might occur during the loading phase are reported on-screen using the normal Atari error codes. If an error does occur, you then have the option to restart the boot process by pressing the **RETURN** key, or to return to DOS by pressing **BREAK**.

The A-STILE Loader detects the presence of any extended memory fitted to the Atari XL/XE and asks whether you wish to use it (to hold long Item Lists). Press the **Y** key to let A-STILE use all of the available extended memory, or the **N** key to restrict A-STILE memory usage. Any other key presses are ignored, other than the **BREAK** key which will return you to DOS.

If you have pressed **N**, and the computer has more than 64K of extended memory, then the A-STILE Loader displays a further prompt asking whether you want to use just the first 64K of extended memory. Restricting A-STILE usage to this amount would allow you to use the remaining extended memory as a ramdisk under SpartaDOS (by placing the command **RD.COM /E** in the **STARTUP.BAT** file *before* the **ASTILE** command).

Press the **Y** key to let A-STILE use this limited extended memory, or the **N** key to force A-STILE to use only the normal Atari XL/XE memory (64K).

In all cases, the A-STILE Loader then displays the maximum number of Items which it can fit into the available memory, and then continues with loading the main A-STILE program. The possible Item List sizes are as follows -

No Extended Memory (Standard 800XL)	128 Items
64K Extended Memory (Standard 130XE)	640 Items

128K Extended Memory	1152 Items
192K Extended Memory	1664 Items

Note that A-STILE does not check for more than 192K of extended memory since it is impractical to generate very large Item Lists for a couple of reasons. Firstly, the power of the Atari XL/XE computers is limited, so that sorting large Lists, for example, gets very slow, and secondly, the capacity of Atari single-sided disks to save Item Lists is limited. Nominal maximum disk capacities, which you should bear in mind when creating your 'Item Archives', are as follows -

Atari DOS Single-Density	677 Items
Atari DOS Enhanced-Density	973 Items
SpartaDOS Single-Density	700 Items
SpartaDOS Double-Density	1413 Items

After a successful program load, A-STILE displays its operational screen format where the screen is divided into a number of areas, each with their own function, and each consisting of one or more screen rows.

The top two rows form the Menu Area which (as you might surmise) is used to display a series of menus providing access to most of the program's functions. After initialisation, the Menu Area just shows the program name, description, and version number (Black text on a White background). Below this is the single row of the Title Area (White text on a Blue background) which will be used to display captions relating to the Item data shown below it, in the following 20 screen rows of the List Area (Green text on a Black bacground).

At this point the List Area shows the A-STILE banner, and the Title Row shows '**No Item List Loaded**' together with, at the right-hand end of the row, two characters ('**o**', and '**↑**') representing the status of the following program parameters -

Text Edit Mode

> **o** = Overwrite   - Typed character replaces character under cursor

> **i** = Insert   - Typed character is inserted into string at the cursor position, and existing characters to the right of the cursor move one place right

The state of Text Edit Mode is only relevant when editing strings of text or numbers on the Status Row (see below) and has no effect on keystrokes in other parts of the program. When editing a text string the state of Text Edit Mode is toggled (changed to the other state) by pressing the **INSERT** (**SHIFT->**) key.

Text Case

> **↑** = Upper case letter entry

> **↓** = Lower case letter entry

Like Text Edit Mode, Text Case is only relevant when editing text strings and has no effect on keystrokes in other parts of the program, where the case of a letter key is disregarded. The state of Text Case is toggled by pressing the **CAPS** key. Note that, in either Text Case state when editing text, holding down the **SHIFT** key allows you to enter letters in the opposite case. Use of **CAPS** has no effect on the number, punctuation, symbol, or function keys. **SHIFT** or **CONTROL** is used with these keys to produce the relevant shifted character or control function without reference to the state of Text Case (but see the note later in Section 5.1 regarding the use of the Arrow keys).

If an appropriate mouse was plugged into Joystick Port 1 (on the right-hand side of the computer) before the Atari XL/XE was switched on, you will note the appearance of the Mouse Cursor (a Mauve arrow) towards the bottom left corner of the List Area.

When A-STILE is performing some function which takes an appreciable time to execute, the Mouse Cursor will change to an hourglass shape as an indication that you should wait for the function to be completed. A rotating marker will also be displayed at such a time, at the left-hand end of the Title Row, for the benefit of users without a mouse.

Finally, on the bottom screen row, the Status Area (Black text on a Yellow background) is used to display messages and prompts to the user, and is where you will enter text and data values to A-STILE when necessary. When error messages or alarms are displayed the Status Area colours change to Black text on a Red background.

4.2   PROMPTS

After program load, a prompt is displayed on the Status Row, offering you the opportunity to load the demonstration Item List, **ASTLDEMO.ITA**. The file name can be changed, as described in Section 5.3, to allow the loading of any other Item List but, for now, just press the **RETURN** key to load **ASTLDEMO**, and the A-STILE banner will be replaced with a display of the first 20 Items from the Item List.

Do not be alarmed at the temporary disappearance of the colours of the various Screen Areas as the load proceeds. This is a quirk of the way in which the Atari XL/XE computers handle their input/output processes.

4.3   ERROR HANDLING

If the Atari XL/XE detects some fault during the above (or subsequent) sequence of events it will be reported as an error at this point. The error code (or an explanation) will be displayed (as Black Text on Red) on the Status Row, and a 'beep' will sound to attract your attention. The error display is cleared by pressing either the Escape (**ESC**) key or the Right Mouse Button (RMB).

If an error does occur in this situation, then you will need to check carefully that all parts of the Atari XL/XE system are connected and/or set up correctly, and try again. A list of possible error codes, and their causes, is given in Section 9.3.

5   LIST SCREEN, CURSORS, KEYBOARD, AND MOUSE

5.1   GENERAL OPERATIONS

A-STILE can be operated entirely through the keyboard, but also offers the option of using a mouse. Either an Atari ST or Commodore Amiga mouse can be used, plugged into Joystick Port 1 on the right-hand side of the Atari XL/XE before the computer is switched on, and the program automatically detects whether a mouse is present - although it cannot determine the mouse type. The default configuration is for an Atari mouse, and use of a Commmodore mouse requires the A-STILE Configuration to be altered (see Section 8 of this User Guide). Note that neither a PC Serial nor PS/2 mouse is usable with the Atari XL/XE ports.

For those users familiar with normal Atari computer keyboard conventions, note that A-STILE incorporates its own keyboard handler which deals with some keystrokes in a slightly different way from normal Atari operation in order to provide an easier interface for the selection of command and control functions.

As you have already seen, the **RETURN** key operates in its normal fashion to complete an action, such as loading a file. Generally, the **ESC** key performs the opposite function, allowing you to cancel or abandon an operation. If, for example, the **ESC** key had been pressed at the prompt to load **ASTLDEMO.ITA**, the file load would not take place and you would be presented with a blank List Area and the Title Row continuing to show '**No Item List Loaded**'.

Assuming that the **ASTLDEMO** Item List has been loaded and displayed, you will note that each screen row in the List Area contains an Item which is either a Locomotive, a Consist, a Locomotive assigned to a Consist, or an Accessory.

The Title Row displays headings for each column of the List Area, identifying Item parameters, together with two additional function indicators. The first indicator, displayed at the left end of the Title Row shows the current Sort Direction for Items, as follows -

       ↑ = Low-to-High, ie. 0 to 9, A to Z

       ↓ = High-to-Low, ie. 9 to 0, Z to A

The ways in which the Item List can be sorted, and how to perform the Sort operations, are described in detail in Section 5.4 below.

The other indicator, placed towards the right-hand end of the Title Row, is the List Position, a four-digit counter which shows where the particular Item highlighted by the List Cursor is located within the Item List.

The List Cursor is the Green bar currently placed at the top left-hand corner of the List Area. Since the Cursor is positioned initially on the first Item in the Item List, the List Position is shown as **0001**.

The column headings on the remainder of the Title Row are as follows -

S   Selected - The Item has been marked by the user

A set of Selected Items can be saved to another Item List, for example.

E   Edited - The Item has been changed since the Item List was loaded

P   Configuration Variables in the Item have been changed but not yet programmed into a Decoder.

Note that A-STILE has no facilities for Decoder programming - this has to be done by A-TRACK after loading it with the Item List containing the changed Item.

T   Item Type

L	= Locomotive
C	= Consist
A	= Accessory
M	= Locomotive Assigned to Consist

PrAd Item Primary Address - as programmed into the Item Decoder

Primary Addresses are shown as 3 decimal digits with allowed ranges of values within A-STILE (and A-TRACK) of -

Loco Primary Address	001 - 111
Consist Address	001 - 111
Accessory Address	001 - 511

The displayed Primary Address of a Locomotive Assigned to Consist is that of the associated Consist rather than that of the Locomotive itself.

ExtAd Item Extended Address - as programmed into the Item Decoder

Only Locomotives can have an Extended Address, with an allowed range of values within A-STILE (and A-TRACK) of 0001 - 9999.

The Address selected for use with the Locomotive (Primary or Extended), by appropriate programming of Configuration Variable 29 (see Section 6.2), is indicated by a preceding @ symbol, to show that it is the 'active' address. For consistency (and the author's own programming convenience), an @ symbol is also placed before Consist and Accessory Primary Addresses.

Description   Text String describing the Item (22 characters maximum)

Looking at the List Area, you will see that the first 5 characters of the first (top) Item are shown as a Green bar. This marks the position of the List Cursor as mentioned previously. The cursor can be moved, to select an Item for editing of its parameters, or to initiate an Item List Sort, by using the Left, Right, Up, and Down Arrow keys (←, →, ↑, ↓). Unlike conventional Atari usage, these operate without having to hold down the **CONTROL** key at the same time, since A-STILE uses the Arrow functions

much more frequently than the symbols **+**, *****, **−**, and **=**. If you do want to enter any of these four symbols into a text string, then you can do so by holding down the **CONTROL** key and pressing the required symbol key. The other symbols on the Arrow keys (****, **^**, **_**, **|**) can be entered as normal with the **SHIFT** key.

Pressing the Right Arrow key will move the List Cursor right, highlighting each of the other four fields of the Item row in turn, showing them as Black text on a Green background. The cursor can then be returned to the leftmost Item field with the Left Arrow key. The cursor is moved up or down one row at a time with the Up or Down Arrow keys. Note, as you press the Up and Down Arrow keys, that the List Position counter changes to show you where you are currently in the Item List.

Pressing the **TAB** key will move the cursor to the last (bottom) row of the List Area, while pressing **SHIFT-TAB** (ie. pressing **TAB** while **SHIFT** is held down) brings it back to the first (top) List Area row. If the cursor is on the last row of the List Area, the Down Arrow key will cause the Item List to scroll up by one row to reveal the next Item in the List. Alternatively, pressing **TAB** when the cursor is on the last row will scroll the Item List by a complete page (19 Items) so that what was the bottom Item now appears on the top row of the List Area. **SHIFT-TAB** has the opposite effect to the **TAB** key. Note how the List Position of the Item under the cursor is continually displayed on the Title Row.

The best way to understand the action of the cursor control keys is to use them yourself to move up and down the demonstration Item List. You cannot do any damage to the program or the computer by pressing any of the keys mentioned so far. In general, A-STILE will not accept any keystroke other than those defined as valid for the section of the program currently being executed. The worst that can happen if you press a valid, but inappropriate, key combination is that the Item List in memory gets corrupted - and it is easy to recover to the last saved version by means of the Menu File functions (see Section 7.2 for details).

With the List Cursor placed over any field of an Item, pressing **RETURN** will take you to the Item Edit Screen, with the **ESC** key returning you to the List Screen. The functions and operations associated with the Item Edit Screen are described in Section 6 later in the User Guide. Press **ESC** to return to the List Screen.

If, instead of pressing **RETURN** with the List Cursor placed over any field of an Item, you press the **SPACE** bar, a **>** symbol appears in the **S** column of the highlighted Item. This signifies that the Item is 'marked' or 'selected'. A-STILE allows you to select any set of items you wish from the current Item List in this fashion, one at a time, and then to save the selected set to a new Item List on disk. Details of how to save Item Lists are covered later in Section 5.3 below, and more fully in Section 7.2.

Note that after selection, the List Cursor moves downwards to the next Item, so that you can quickly select a contiguous group of Items by repeatedly pressing the **SPACE** bar, or just by holding it down and letting the Atari automatic key-repeat function do the selection for you.

Note also, that the counter in the '**Status: OK**' message on the Status Row increments each time you select an Item, keeping a running total. The main purpose of this counter is to help you ensure that, if you create an Item List for use

with A-TRACK by selecting Items, you keep the number of Items to the allowable 64, or less.

If you make a mistake, or change your mind about selecting an Item, just move the List Cursor back to any field of that Item, press **SPACE** again, and the **>** select marker will disappear.

Instead of using the keyboard, the List Cursor can be moved with the mouse, assuming that you have it plugged in and operational - if not (and you wish to use the mouse), then plug the mouse into Joystick Port 1 and either reboot the computer or change the A-STILE Configuration via the Menu functions (see later in Sections 7 and 8 for details) to enable mouse operations.

The List Cursor can be moved to any selected Item field by positioning the Mouse Cursor (an arrow shape) over that field and pressing the left mouse-button (LMB). This operation of positioning the Mouse Cursor over a screen field and pressing the LMB is commonly referred to as 'clicking the mouse', or just 'clicking'.

Clicking on the selected (inverse text) field will, in most cases, perform the same function as the **RETURN** key, taking you to the Item Edit Screen. The action of clicking once to select a field, then again to invoke an action, is usually called 'double-clicking'. In the same way as the LMB acts like the **RETURN** key, the right mouse-button (RMB) generally mimics the action of the **ESC** key. Hence, if you 'double-click' the LMB on the **Description** field of any Item, A-STILE will take you to the Item Edit screen, from which you can return to the List Screen by a single 'click' of the RMB.

However, there are several special usages of the mouse-buttons on the List Screen of which you need to be aware -

- A double-click of the LMB on the first (leftmost) field of an Item will select that Item. The List Cursor then moves downwards to the next Item, where a single click of the LMB on the newly highlighted field will select that Item in turn.

- A double-click of the RMB on any field of an Item (or a single click if the field is already highlighted by the List Cursor) will perform a Sort of all the Items in the List, using the highlighted column as the primary sort key. The complexities of sorting the Item List are described in detail in Section 5.4 and, although you cannot do any harm by initiating a Sort operation, it is suggested that you avoid this function until you are fully familiar with the remainder of the keyboard and mouse operations.

- You can click the LMB on the Status Row to scroll the Item List up by one row to reveal the next Item on the List. Conversely, if you click on the Title Row, the Item List will scroll back down by one row - unless, of course, the first Item is already shown on the top row, in which case the action is ignored.

- Clicking with the RMB rather than the LMB on either the Status or Title Rows acts like the **TAB** or **SHIFT-TAB** keystrokes, respectively, scrolling the Item List up or down by a complete page (19 rows).

Try out the various keyboard and mouse operations described above until you are comfortable with the way A-STILE works on the List Screen.

5.2   EDITING THE ITEM LIST

As well as being able to select and save a subset of the Item List to disk, the loaded Item List can be edited, to add new Items or delete those which are no longer required, or to rearrange the order of Items for your own convenience.

An Item is deleted from the Item List by moving the List Cursor to the Item's position (any field) then pressing the **DELETE** key (**SHIFT-BACKSPACE**). The deleted Item is not destroyed but will be moved to the Delete Buffer (a reserved area of the Atari XL/XE's memory). You are presented with the option on the Status Row to either Append the Item to the existing contents of the Delete Buffer, if any (press the **A** key), or to Overwrite the Buffer contents, ie. place the Item at the start of the Delete Buffer and lose whatever it contained previously (press the **O** key). The highlighted Item disappears from the display and the following Items move up one row to fill the gap.

The Delete Buffer can hold a maximum of 8 Items and, once it is filled, no further 'Delete and Append' operations can be performed. No mechanism is provided to empty the Delete Buffer other than the 'Delete and Overwrite' operation which leaves the last deleted Item in the Buffer on its own.

One or more Items can be inserted into the Item List at the List Cursor position by pressing the **INSERT** key (**SHIFT->**). If the Delete Buffer contains Items previously deleted, you are given the option on the Status Row of inserting (copying) the contents of the Buffer into the Item List (press the **Y** key). Otherwise, if the Buffer is empty, or you decline the copy option (press the **N** key), a single Blank Item is inserted at the List Cursor position. The Item which was highlighted by the List Cursor, and the Items which follow it, move down one row to accommodate the Items copied from the Delete Buffer, or the new Blank Item. This process can be repeated as often as required until the Item List contains the maximum number of Items which can be held in the available memory. See the later Section 6.5 for details of how to turn a Blank Item into one which is properly defined and ready for use on your layout.

The final Item List editing key is **CLEAR** (**SHIFT-<**) which removes the Item List from memory. Note carefully that **NO** recovery is possible from the Clear operation - the Items are **NOT** moved to the Delete Buffer. If the Item List has been changed in any way since it was loaded, you will be given the option of saving it to disk. Pressing **N** at this point will erase the Item List immediately, whereas pressing **Y** will result in the current Item List's filename appearing on the Status Row. The filename can be edited, as explained in the next section, to allow you to save the altered List to a different disk file, or you may simply press **RETURN** or the LMB to overwrite the existing file. The Item List is then cleared from the computer's memory. Pressing **ESC** or the RMB at any point in the Clear sequence causes the operation to be abandoned and leaves the Item List as it was.

When the Item List is cleared, the Delete Buffer and its current contents are left intact. These can now be directly inserted on to the blank List Screen to form a new Item List, or you may load another Item List from disk and add the saved Items into

it. This facility allows you to make minor amendments to Item Lists. However, A-STILE allows much more flexible manipulation of the contents of your Item Lists through the saving of selected sets of Items, as mentioned previously, and an ability to merge, or combine, several Item Lists already stored on disk into a new single List appropriate to whatever operational scenario you require. These operations are described later in Section 7.2.

Although not used for editing, there is another key active when the List Screen is displayed. This is the **INVERSE** (◨) key (located bottom-right on the keyboard and sometimes referred to as the Atari key, since it used to carry the Atari 'fuji' logo on the older 400/800 machines). Pressing the **INVERSE** key activates the A-STILE Menu at the top of the screen and gives you direct access to a range of program functions, including those to save and retrieve Item List files to and from disk. Refer to Section 7 and the Menu descriptions later in this User Guide for detailed operating instructions.

Clicking on the Menu Area performs the same action as the **INVERSE** key and reveals the top Menu level. In either case a press of the **ESC** or **INVERSE** keys, or of the RMB, lets you exit from the Menu back to the List Area.

5.3   EDITING FILENAMES, TEXT STRINGS, AND NUMERICAL VALUES

At various points in the A-STILE program you will have to enter text in the form of a filename, or an Item description, or numeric values to set an Item parameter. All alphanumeric entry is done on the Status Row and several editing keys are available to make the process as easy as possible. The best way to understand the operation of the various keystrokes is to work through an example.

Let us assume that you have the demonstration Item List **ASTLDEMO.ITA** on the screen. Delete some Items by selecting each of them in turn and pressing the **DELETE** (**SHIFT-BACKSPACE**) key. Selecting the Append option (**A**) when you are prompted will ensure that the deleted Items are all saved in the Delete Buffer. Now insert the Buffer contents back into the Item List at a different place from where you performed the deletions (just so you will be able to recognise the Item List as different from **ASTLDEMO**) by moving the List Cursor and pressing the **INSERT** key (**SHIFT->**). Answer **Y** to the '**Insert from Delete Buffer?**' query.

Now press **CLEAR** (**SHIFT-<**) and answer **Y** to the prompt '**Item List Changed – Save File?**'. The Status Row should now show '**Save>D1:ASTLDEMO.ITA**' followed by the Text Cursor (a black block character). The Text cursor can be moved with the Left and Right Arrow keys to highlight any character in the filename string, but note that it cannot be moved beyond the start- or end-points of the string. Pressing **SHIFT-TAB** moves the Text Cursor to the start of the string and the **TAB** key moves it back to the end of the string.

Now move the Text Cursor left into the body of the string, to highlight the '**D**' of '**ATRKDEMO**', for example. You will see, from the Text Edit Mode and Text Case indicators at the right-hand end of the Title Row ('**o**' and '**↑**'), that the program is currently set to Overwrite and Upper Case (the normal Atari screen editor defaults). Hence, pressing any letter or number key at this point will replace the '**D**' character with the upper-case version of the selected key. Try it and note that the Text Cursor

moves to the right. As you type further characters you will see that they replace the existing characters until you get to the end of the string - at which point you will start adding new characters and the string gets longer. The absolute maximum string length is 34 characters after which any further character input is ignored. Depending on where you are in the A-STILE program the permissible maximum string length may be set to less than 34. For example, when entering or editing Item Configuration Variable values only 3, 4, or 5 characters can be accepted.

Entered characters can be removed with the **BACKSPACE** key. Used at the end of the string, **BACKSPACE** deletes the last character and reduces the overall string length. However, if you first move to a position in the body of the string using the Left or Right Arrow keys, a press of **BACKSPACE** still deletes the character to the left of the Text Cursor and moves the Cursor left, but it now leaves a Space (blank) character at the former Cursor position and the string length stays the same. Alternatively, you can use **DELETE** (**SHIFT**-**BACKSPACE**) to remove the character under the Text Cursor. Now all the characters to the right of the Cursor position move one place left to fill the gap left by the deleted character, and the string length is reduced by one character. Pressing **DELETE** at the end of the string has no effect on the string or its length.

If you change the Text Edit Mode from Overwrite to Insert, by pressing the **INSERT** (**SHIFT**-**>**) key (changing the Text Mode indicator to '**i**'), you will find that **BACKSPACE**, used within the body of the string, now operates differently. It now removes the character to the immediate left of the Text Cursor and moves the rest of the string characters left to fill up the gap, thus decrementing the string length. The operation of the **DELETE** key remains the same as in Overwrite mode. You can see which Mode you are in at any time by looking at the program status indicators on the Title Row.

In Insert Mode pressing an alphanumeric key while positioned within the body of the character string puts the selected character into the string at the Cursor position, moves the rest of the string one place to the right, and increments the string length - unless this would take the length beyond the set maximum value. In this case the character input is ignored. The only way, then, to insert new characters into the body of the string is to delete some of the existing characters first.

The **CLEAR** (**SHIFT**-**<**) key will erase all of the string characters on the Status Row and leave you with a clean slate on which to enter a new character string.

If you wish to input lower case characters you can either press the **CAPS** key to toggle the Text Case (the indicator changes to '⬇') or simply use **SHIFT** with the required letter key. For filename entry, characters should be in upper case for Atari DOS, although SpartaDOS 3 will accept filenames in either upper or lower case.

For those DOS types, such as SpartaDOS and MyDOS, which allow the use of subdirectories, the maximum string length of 34 characters lets you enter pathnames including at least two levels of subdirectory should you wish to do so.

To return to our current example, once you are happy that you understand the ways the editing keys operate, edit the displayed filename to something like '**D1:ASTLEDIT.ITL**'. You can, of course, enter any valid filename you like or

change the disk drive number, but do not leave it at '**D1:ASTLDEMO.ITA**' unless you really want to overwrite the demonstration Item List. Remember to preserve the correct filename format which is -

D(disk drive number)(colon)(File Title)(period)(File Type)

- where the File Title (or File Name) can have up to eight letters or numbers (but must start with a letter), and the File Type (or Extension) consists of up to three letters or numbers. Here '**ITL**' is used for the File Type to remind you that the file is an Item List, but you can use any letter-number combination that you wish.

Now press **RETURN** (or the LMB) to write the revised Item List to disk - the position of the Text Cursor in the string does not matter - or press **ESC** (or the RMB) to abandon the entire operation.

Any error conditions which might arise because the disk in the drive is full or write-protected - or not there at all - are reported on the Status Row, and can be cleared by pressing the **ESC** key or the RMB. This also results in the Save operation being abandoned.

As the Item List file is being saved you will probably observe that, as when loading an Item List, the colours of the various Screen Areas disappear and all text appears in the same colour as the List Area. This happens because the way in which Atari screen colours are manipulated would otherwise interfere with the handling of the disk drive - for the technically-minded, Display List and Timer interrupts are temporarily disabled. Screen colours are restored as soon as the disk operations are completed (See Section 7.2 for more details on saving and loading Item List files).

After the changed Item List is saved to disk, the Clear operation is completed, the Items disappear from the List Area, and the Title Row changes to show '**No Item List Loaded**'

Now press **INSERT (SHIFT->)**, answer **Y** to the prompt '**Insert from Delete Buffer?**', and note that the Items you previously put into the Delete Buffer appear in the List Area. These Items can form the basis of a new Item List and be saved to disk under their own filename.

Alternatively, after clearing the Item List, you could load a new Item List. This operation is fully described in Section 7 on the Menu but, to continue this example, press **CLEAR (SHIFT-<)** again to get rid of the inserted Items (and **N** to ignore the Save prompt). Now press the **INVERSE (◤)** key, followed by **F**, **L**, and **R**, which will bring the filename you just edited (to save the previous (changed) Item List), on to the Status Row. You can hit **RETURN** to reload this Item List, or edit the filename to load **ASTLDEMO.ITA** again. Once an Item List is displayed on the screen, the contents of the Delete Buffer can be inserted into the List at any selected point by positioning the List Cursor there and pressing **INSERT (SHIFT->)**.

As a more flexible alternative to using the Delete Buffer, you can also Select any desired subset of the loaded Item List by using the **SPACE** bar as described earlier in Section 5.1, then save your selection as a new Item List. Select some Items in this way then save them by pressing the **INVERSE (◤)** key, followed by **F**, **S**, and **S** again, which will bring the current filename on to the Status Row. Edit this to save

the selected Items to a new file, then clear the Item List and reload your newly-created file (using the key sequence described above) to check that it now contains the set of Items you selected.

These Delete, Insert, Select, Save, and Load operations can be repeated as often as necessary to generate Item Lists with their content exactly tailored to your specific requirements. Experiment until you are happy you have a clear understanding of the process. File management is dealt with more fully in Section 7 on the A-STILE Menu.

5.4   *SORTING THE ITEM LIST*

As mentioned in passing in Section 5.1 above, the Items in the loaded Item List can be placed in almost any order you wish by use of the inbuilt Sort facility. Apart from getting a nice tidy List, the principal purpose in displaying Items in a specified order on the screen is to let you check whether you have duplicate Items or, more particularly, whether you have more than one Item with the same Primary or Extended Address - a situation which could definitely cause problems when you come to operate the real programmed Locomotives and Consists on your layout.

You can sort the Item List in two distinct ways, either according to how Items have been Selected or Edited, or with reference to the Parameters of the Items themselves.

Dealing first with sorting on Item Parameters, to sort the Item List into a particular order, you first have to specify up to four 'Sort Keys' ie. which of the Item fields you want to use first to perform the Sort, followed by the priority of the remaining fields. For example, if we would like to place the Items in order according to their Primary Address, we select the **PrAd** field as the first key. Then, for all Items with the same Primary Address, we could specify the **ExtAd** field as the second key, which would put this little group of Items with the same Primary Address into order according to their Extended Address. Similary, we could add **Description** and **Type** as the third and fourth sort keys to further refine the ordering of similar Items if necessary.

Together with the sort keys, you can also specify the direction of sorting. This can either be Low-to-High, with Item fields being placed in normal numeric (0 to 9) or alphabetic (A to Z) order, or High-to-Low where fields will end up in reverse numeric (9 to 0) or alphabetic (Z to A) order. As described in Section 5.1 an indicator, displayed at the left end of the Title Row, shows the current Sort Direction, as follows -

⬆ = Low-to-High, ie. 0 to 9, A to Z   ⬇ = High-to-Low, ie. 9 to 0, Z to A

Although this all sounds rather complicated, actually sorting the Item List is a fairly simple operation to perform. It can be done either via the Menu, or by using the mouse, or directly from the keyboard, and is best shown by working through an example.

Load the **ASTLDEMO.ITA** Item List again, either by rebooting the computer, or by going through the File Load sequence described in the previous Section above. You should note that the Sort Direction is in its default state of Low-to-High (⬆). Now

use the Arrow keys to place the List Cursor over the Primary Address field (**PrAd**) of any Item, then press **SHIFT**-**RETURN** (both **SHIFT** and **RETURN** simultaneously).

A rotating indicator temporarily replaces the Sort Direction symbol at the left end of the Title Row to show that sorting is in progress (and the mouse cursor, if present, changes to the hourglass shape). A-STILE will sort at a rate of somewhere between 1 and 4 Items a second, depending on how thoroughly the List is out of order to start with, so the time taken complete the sort operation can be estimated from the length of the Item List. The List Screen is not updated until the Sort is completed.

Once sorting is finished you can see, firstly, that the first character of the **PrAd** field has been highlighted on the Title Row to show that it is the first sort key, and, secondly, by scrolling down the List, that the Items have been put in the order of their Primary Address. Where Items have the same Primary Address, they are then in order of their Extended Address. This is because A-STILE uses a default ordering of sort keys. Choosing to sort by highlighting the **PrAd** field in this way automatically selects **ExtAd** as the second key, followed by **T** and **Description** as third and fourth keys, respectively. The four default sets of sort keys used by A-STILE are shown in the following table -

Set	First Key ►	Second Key ►	Third Key ►	Fourth Key
1	T	PrAd	ExtAd	Description
2	PrAd	ExtAd	T	Description
3	ExtAd	PrAd	T	Description
4	Description	T	PrAd	ExtAd

If you now highlight any **Description** field and press **SHIFT**-**RETURN** again, you should end up with an Item List sorted firstly according to Description, then by Type, Primary Address, and finally by Extended Address. This time the first character of the **Description** field is highlighted on the Title Row to show the first key. Note that only the *first three* characters of the **Description** text string are compared between Items in order to sort them into order - the other 19 are ignored. If you want to make best use of the Sort facility then you should make sure that you choose these initial 3 Description characters carefully to distinguish between Items. Characters are sorted in the order of Atari internal character codes which are listed in Section 9.4 for your information.

If the last Sort did not produce the desired result, or you had performed it by mistake, then it is possible to carry out a 'Undo Sort' operation, returning the Item List to its state before the Sort, by pressing **CONTROL**-**RETURN** (both **CONTROL** and **RETURN** simultaneously). If you have followed the example through as above, then you should be back to an Item List ordered by its Primary Addresses. Unfortunately, you cannot perform a further Undo, to get back to the original unsorted Item List, since the Undo operation only works for the *immediately* preceding Sort operation. A-STILE physically rearranges the order of the Items in the computer's memory, and can only restore the immediately prior order. This is an important limitation to bear in mind. Try it and see.

So far, all of the Sorts have been done in the order Low-to-High. However, if you perform a Sort using the same first key as you selected for the immediately previous Sort, then the Sort Direction automatically changes to the opposite direction. Try this by highlighting the **ExtAd** field of any Item and pressing **SHIFT**-**RETURN**. The List should be sorted in order of Extended Address, starting from the lowest value. Now press **SHIFT**-**RETURN** again, and the List should be resorted, starting from the highest value of Extended Address. (Note, in passing, that this second sort takes A-STILE the longest time to perform, for a given size of Item List, since the position of every Item has to be changed - unless there is an odd number of Items, of course, when the middle Item in the List stays where it was).

You can also change the Sort Direction manually, at any time, by pressing **SHIFT**-**CAPS**, and the Title Row indicator will change accordingly to show the opposite direction. Note, however, that you should only use this if you are going to sort using a different first key than you used on the previous Sort. Otherwise, the A-STILE automatic process, seeing the same first key, will simply flip the Sort Direction back again, before it tries to sort, and no sorting action will take place !

There may be occasions where none of the default sort key combinations achieve the result you want. In this case you can define your own ordering of the four Item

Parameter sort keys. Press **CONTROL**-**S** (the **CONTROL** and **S** keys together) to bring up the following prompt on the Status Row -

> ```
> Order,Dir'n - T/P/E/D,L/H ? PETD,L
> ```

This shows, in the six-character text string on the right, a default key ordering of Primary Address (**P**), Extended Address (**E**), Type (**T**), and Description (**D**), with a Sort Direction of Low-to-High (**L**). Simply edit the text string to show the four letters representing the sort keys in the order you want, followed by a comma (**,**) and the required Sort Direction (**L** or **H**), then press **RETURN** or the LMB to start sorting. If you make an error in editing, such as entering an incorrect letter, then A-STILE will ignore it and wait for you to type a valid combination. As usual, you can abandon entry of your customised Sort key order by pressing **ESC** or the RMB at any time.

As noted at the beginning of this Section, as well as sorting with reference to the Item Parameter fields, you can also sort the Item List using the Items' Selected / Edited status. This type of Sort is initiated (and Undone) in exactly the same way as an Item Parameter Sort, although to see it in action you obviously need to Select some Items first. Do this by using either the **SPACE** bar, or clicking the LMB on the **SEP** (leftmost) field, for a random set of Items in the List.

It will also help the demonstration by setting the Edited and Program status for some Items (both Selected and non-Selected). Without going into the details of editing Item Parameters (which are covered in Section 6 which follows), you can set both Edit and Program status for any Item which has one of its fields highlighted, using the following sequence of key presses -

> **RETURN**, **RETURN**, **RETURN**, **ESC**, **Y**

Setting the Edit status alone requires a slightly longer sequence of key presses -

> **RETURN**, **TAB**, **TAB**, **RETURN**, **RETURN**, **ESC**, **Y**

Use of these key sequences on a number of Items picked at random from the List should give you a set of Items which are Selected, Edited, or (Not) Programmed in various combinations. Some of the Items in **ASTLDEMO.ITA** already have Program status set without you having to take any action. Now place the List Cursor in the **SEP** field of any Item, ensure that the Sort Direction is Low-to-High (↑), by pressing **SHIFT**-**CAPS** if necessary, and press **SHIFT**-**RETURN**.

When the Sort is complete you will see that all Items which have been Selected have been brought together into a single group at the top of the Item List. Items which have Edited and/or Program status set have also been moved towards the top of the List. Selected takes precedence over Edited, and Edited over Program status. The order of Items within each group with a particular set of status values will otherwise remain as it was before the Sort operation - so perform any sorting you want to do on Item Parameters before you sort on Item Status.

If you immediately repeat the Item Status Sort, by pressing **SHIFT**-**RETURN** again, the complete order of the Item List (as you might expect) is reversed, with all of the Selected Items being moved to the end.

As mentioned previously, you can use the mouse to perform the basic Sort operations instead of the keyboard. Just double-click with the RMB on the field (of any Item) that you wish to use as the first sort key. The order of the remaining sort keys is then as shown in the table above. A Sort on the Item Status (leftmost or **SEP**) field, of course, does not use any other keys. After the Sort is complete, an RMB click on the same field will re-sort the List in the opposite direction, or you can double-click the RMB in another List column to perform an alternative Sort.

Unfortunately, it is not possible to Undo a Sort, or to define a customised order of sort keys, by use of the mouse. These operations have to be done via the keyboard, or by using the Menu as described in Section 7.3.

5.5   SCREEN SAVER - ATARI 'ATTRACT' MODE

While working through the User Guide with an A-STILE display on the screen you may find that, after about 9 minutes without any keyboard or mouse activity (11 minutes on a PAL machine), the computer starts to change the screen colours in a random sequence every 8 to 10 seconds. This is the standard Atari 'attract' mode intended to safeguard your screen from possible damage due to having a static pattern displayed on it, at high brightness, for a long time.

You can exit from 'attract' mode at any time by pressing a key or by moving the Mouse Cursor vertically. You should take care regarding which key you press, because it will be acted upon by the program. The safest key is probably one of the Arrow Keys since they have no immediate, direct effect on any program functions.

6   ITEM EDIT SCREEN

6.1   OPERATION SETUP

As with the description of List Screen operation in the previous section, before continuing you may find it helpful to ensure that the displayed Item List is **ASTLDEMO.ITA** (reboot the computer if necessary) so that the examples given will match what is on the screen.

With the List Cursor positioned over any field, of any Item, pressing the **RETURN** key will take you to the Item Edit Screen. This can also be done by clicking with the LMB on a highlighted field, other than the first (leftmost), of the Item. From the Item Edit Screen you can edit the contents of all Decoder Configuration Variables for the selected Item, set the Item Type, and enter or edit the Item Description. The edited values can then be saved in the Item List for later transfer via the A-TRACK program, and an attached DIU, to the Decoder in the real Item.

Using Item 0018 (Loco GN Doodlebug 2321) as an example, move the List Cursor to one of its fields and press **RETURN**, or just double-click the LMB on an appropriate field, to get you to the Item Edit Screen. Here you will see that the Menu Area is the only area of the screen which remains the same as on the List Screen. The Item Number is still displayed towards the right end of the Title Row, as are also the Text Edit Mode and Case status indicators. The rest of the Title Row now shows that the List Area contains entries for each of 96 definable Decoder Configuration Variables in the format 'CV Number-Current Value'. In the List Area, below the Configuration Variable values, are the Item Type and (enclosed between '<' and '>' symbols) the Item Description.

The Edit Cursor is located over Configuration Variable 01, and the Status Row displays the description relating to that CV, which is the Decoder Primary Address. Note carefully that, although the CV Numbers are shown as decimal numbers (01 to 96), their assigned values are displayed in hexadecimal. This is not done to confuse you but rather to allow each value, which can range from 0 to 255 (decimal), to be displayed as two characters on the screen (00 to FF). In this example, the highlighted CV01 has the value $15, equivalent to 021 decimal. For certain of the CVs, where individual bits of the 8-bit value are used to control Decoder functions, it is also a little easier (at least for those of us who are familiar with hexadecimal-binary conversions) to see which bits are set or not from the hexadecimal representation. However, do not worry - you do not have to understand hexadecimal or binary notation in order to use A-STILE since, as we will see shortly, you can view and enter all data as normal decimal values.

6.2   EDITING CONFIGURATION VARIABLES

Selection of a particular CV is done either by using the Arrow keys or the mouse as on the List Screen. To illustrate this, press the Down Arrow key several times and note that, as the Edit Cursor moves down, the message on the Status Row is updated to show the description of the currently-highlighted CV. Where a particular CV does not have a function assigned by the NMRA (such as CV14) the description is shown as 'NMRA Undefined'. These CV values are often used by the manufacturers of Decoders to hold parameters relating to unique functions built into their specific Decoder type. You will need to refer to the specifications of your

own Decoders to identify the functions of all CVs other than the standard assignments. You should also be aware that in some types of Decoder the usage of CVs from 33 upwards can differ from the NMRA definitions - again, check the Decoder specifications carefully.

When moved by the Arrow keys, the Edit Cursor "wraps around" so that, for example, when you move to the bottom of a column of CV values the next Down Arrow key press will take you back to the top of the column. This feature operates in all directions, and the best way to appreciate how the Cursor moves is to experiment by holding down each Arrow key in turn. In addition, to speed up selection of a particular CV from the keyboard you can move the Cursor directly to its screen location by typing the two digits of the CV Number.

Note that the mouse RMB on the Edit Screen acts exactly like the **ESC** key, causing the current operation to be abandoned. At this point on the Edit Screen, a press on **ESC** or on the RMB will result in an exit back to the List Screen.

Once a CV has been selected via the keyboard or by clicking on it with the mouse LMB, you can proceed to amend its value by pressing **RETURN** or by clicking on it again with the LMB. The CV value is then displayed, as three decimal digits, next to its description on the Status Row and can be edited using the set of editing keystrokes described previously in Section 5.3.

As an example, select CV01, the Primary Address, and press **RETURN** or the LMB to display its current value of 021, followed by the Text Cursor, on the Status Row. The value can be changed by using **BACKSPACE** to delete the existing digits and then typing in a new value, or you can use Left and Right Arrow keys to move the Text Cursor over a digit and then type a replacement value. The latter works in the default Text Edit Mode, Overwrite (**o**), but if you change to Insert Mode (**i**) with the **INSERT** (**SHIFT->**) key, and have three digits displayed, you will find that all alphanumeric input will be ignored. This is because the CV value in this case cannot have more than three digits, and you will have to delete one or more before you can add new digits to the string. It is probably easier to leave the Text Edit Mode in Overwrite for numeric entry. Editing of the CV value can be abandoned at any time, and the original value preserved, by pressing the **ESC** key or the RMB.

CV values can be entered to the Status Row in either decimal or hexadecimal digits. Hex values are specified by making the first digit of the string a '$' character - most easily achieved by using the **SHIFT-TAB** key to move to the start of the string and typing '$' followed by the two required hexadecimal digits. Hex digits A to F can be entered in either upper or lower case. Note that you do not have to enter a full string of three characters (decimal or hexadecimal) - it is quite acceptable to enter one, two, or three characters to make up the desired value, although entry of a cleared or empty string will be treated like **ESC**, leaving the existing CV value intact.

When you are happy with any edits you wish to make, press **RETURN** (or the LMB) to enter the new value. A-STILE then checks that the value is valid in either decimal or hexadecimal format since, during the edit on the Status Row, the program will actually accept any letter or symbol key as input. Decimal values greater than 255 will be converted modulo-256, ie. multiples of 256 are subtracted from the entered value until it is less than 256. Any character in the string which is not a valid decimal or hexadecimal digit (including '$' if it is not the first character) will

generate an error message on the Status Row (Error 202 - Invalid Data). This can be cleared by pressing **ESC**, or the RMB, which will return you to the List Area with the selected CV value unchanged.

It is important to appreciate that A-STILE only checks that the entered values are valid numbers in the range 000 to 255. It does not check that the entry is an allowable, or sensible, value for the selected CV. In the case of CV01, for example, permissible Primary Addresses range from 001 to 111 ($01 to $6F) and the results of attempting to program any value outside this range into your Decoder are somewhat unpredictable.

After pressing **RETURN** or the LMB with a valid data entry (even if you did not actually alter any of the digits on the Status Row) you will see that the separator character between the Number and the Value of the selected CV changes from '–' to '*'. This 'mark' serves as a note to A-STILE (and yourself) that one of the Item CVs has been edited. A "**P**" symbol has also now appeared in the bottom right-hand corner of the List Area to show that the Item parameters have been entered or edited but not yet sent out to program the Item's Decoder. Note that, after editing or marking a CV value, the Screen Cursor is moved on to the next CV position. This makes the editing of a sequence of CV values a little easier.

Most of the Loco CVs have, like the Primary Address, single-byte values. An exception is the pair, CV17 and CV18, which contain between them the Loco's 14-bit Extended Address. Selecting either of CV17 or CV18 will give you a 5-digit numeric string to edit on the Status Row (02321 in this case). You can enter up to 5 decimal digits or up to 4 hexadecimal digits preceded by the '$' character, then press **RETURN** or the LMB, and leave it up to A-STILE to sort the value out between the two CVs. Again, the entered value is checked to confirm that it is a valid number, but not that the value lies within A-STILE's allowable range of Decoder Extended Addresses, ie. 00001 to 09999 ($0001 to $270F). In all cases A-STILE will set the top two bits of CV17, as required by the defined DCC address format, and will mark both CV17 and CV18.

The most important Configuration Variable is CV29 in which each bit controls a different feature of the Decoder's operation. To help you set things up correctly, when you select CV29 to edit its value, A-STILE presents you with a series of questions to answer regarding the desired modes and features, and then constructs the necessary value automatically. If you are unsure whether to answer **Y** or **N** to any question then simply press **RETURN** or the LMB to retain the default (or previously edited) setting. Pressing **ESC** or the RMB at any point during the CV29 edit allows you to abandon the complete operation and leave the value of CV29 unchanged. For further details regarding the function of CV29 you should refer in the first instance to your Decoder's documentation and then, for more general guidance, to the NMRA DCC Recommended Practice RP 9.2.2.

This Recommended Practice, RP 9.2.2, also contains default values for several of the Configuration Variables for Locomotive Decoders. These values, listed below, may already be already programmed into a new Decoder and they are a good starting point for setting up the operating parameters for a new Loco Item. Remember that, even if you leave all of the other values alone, you should reprogram the Primary Address (CV01) from the default to some distinct value (like the last two digits of the Loco's number) before you operate the Loco on your layout. This ought to ensure

that you do not end up with two Locos with the same address on the same track, each responding to commands you are trying to send to the other !

CV01	Primary Address		003
CV02	V Start		007
CV03	Acceleration Rate		000
CV04	Deceleration Rate		000
CV05	V High		001
CV06	V Mid		001
CV09	Total PWM Period		000
CV25	Cab Speed Step	001	
CV31	Configuration Data #2		000
CV32	Configuration Data #3		000
CV66	Forward Trim		128
CV95	Reverse Trim		128

If you delve into RP 9.2.2 you will find that it is possible for Locomotives to have Configuration Variables numbered from 1 to 512. In practice, the only CV numbers greater than 96 that are currently used are CV105 and CV106 which hold the two User Identity values (you are free to put any numbers in them that you like - to identify the decoder as your own). A-STILE actually displays CV105 and CV106 as CV15 and CV16 on the Program/Verify Screen since the real CV15 and CV16 are reserved by the NMRA at present, and should not be used by the decoder manufacturer (or yourself) for any purpose. This makes the screen format tidy although it has the down-side that the real CV15 and CV16 cannot be edited within A-STILE (or programmed from A-TRACK) - this has not raised any practical problems to date.

The example Item chosen (Loco GN Doodlebug 2321) has had all of its CV values set up properly, including the entry of a full 28-Step Speed Table (CV65 to CV94), but you may like to alter a few of them as a little practical exercise. This will not do any harm as long as you do not transfer them to a working Item List and program them into the real Item's Decoder using A-TRACK - and probably not even then, although it might cause the Loco to behave a little unpredictably.

Having edited some CV values, if you press **ESC** or the RMB you will be prsented with the prompt '**Update Item with Changes ?**' on the Status Row. Pressing **N** will cause all of your edits to be ignored, and will take you back to the List Screen without making any alterations to the highlighted Item. On the other hand, pressing **Y** will copy all of your changes into the Item, and will show this on the List Screen by displaying a '*****' symbol next to the Item in the **E** column to show its status is now Edited, together with a '**+**' symbol in the **P** column to indicate that CV values have been changed but not yet programmed into a Decoder.

If you now return to the Item Edit Screen, by pressing **RETURN**, you will see that, although the "**P**" symbol still shows in the bottom right-hand corner of the List Area, the CV 'marks' have not been preserved after you left the Item Edit Screen. Hence, when you save this edited Item to a 'real' Item List for use with A-TRACK, you will have to 'mark' the edited CVs again (plus any others that are relevant) before they can be programmed into the real Decoder. Refer to the A-TRACK User Guide for details.

The Item's Program status is retained when you copy the Item to another Item List (unlike its Selected and Edited status) to remind you, when in A-TRACK, to program the new CV values into the Decoder.

6.3   ITEM TYPE & DESCRIPTION

As well as letting you set the Item Configuration Variables, the Item Edit Screen gives you access to the Item Type definition and allows you to edit the Item Description. Picking Item 0004 (Loco Union Pacific 722) as an alternate example, select one of the fields and press **RETURN**, or just double-click the LMB on an appropriate righthand field to get you to the Item Edit Screen.

Press the **TAB** key once to move the Edit Cursor to the Item Type Field, then again to move to the Description Field. From here another press of **TAB** will take you back to the Configuration Variable Area at the point you left it, or you can press **SHIFT-TAB** to move back to the Type Field, and **SHIFT**-**TAB** again to return to the Configuration Variable Area. Selecton can also be done as usual (and probably more conveniently in this case) by using the mouse and clicking on the required Field. Once you have highlighted either of the Type or Description Fields, a click of the RMB (or pressing **ESC**) will return you from either Field to the Configuration Variable Area.

Pressing **RETURN** with the Type Field highlighted, or simply double-clicking on it, displays a prompt on the Status Row offering the option of selecting the Item as a Locomotive, Consist, Accessory, or None by typing the appropriate initial letter (**L**, **C**, **A**, **N**). Pressing **ESC** or the RMB takes you back to the Type Field without making any changes. Note that Item Type 'None' is only included for completeness and serves no useful function other than preventing you from sending control commands to the Item.

If a Type is selected, then it is displayed in the Type Field and you are returned to the Configuration Variable Area, but with the Edit Cursor highlighting CV29 rather than the CV at which it was positioned before you selected the Item Type. Depending on the Type allocated, the value of CV29 may have been changed to identify the corresponding Decoder type, and CV29 is marked. Having possibly changed the Item Type (if, for example, you are editing an existing Item definition to produce a new Item entry) you can then press **RETURN** to amend the other bit-settings within CV29 to match the requirements of the new Item - and then proceed to update any other CVs which are affected.
For this example, abandon any changes you may have made to the Item Type, or to CV29, by pressing **ESC** or clicking the RMB, answer **N** to the Item Update prompt, then return to the Item Edit Screen by pressing **RETURN**.

Now, proceed to edit the Item Description via the keystrokes **TAB**, **TAB**, and **RETURN**, or by double-clicking on the Description Field, which will present you with the Item Description string on the Status Row. All of the text-editing keys are active as for the filename edit described in Section 5.3. Note, however, that the Item Description has a fixed length of 22 characters, including any trailing spaces (as you can see from the position of the Text Cursor in our example - 5 character positions beyond '722'), and you cannot insert any new characters into the string without deleting some of the existing characters first - although you can, of course, overwrite them. Let us change the Description to 'Southern Pacific 722' by deleting

the 5 trailing spaces with **BACKSPACE**, moving to the start of 'Union' with the Left Arrow key (or **SHIFT**-**TAB**), overwriting it by typing 'South', then changing to Insert Mode by pressing **INSERT** (**SHIFT**-**>**) and adding 'ern'. Lower-case letters are entered either by pressing **CAPS** first, or holding down the **SHIFT** key while typing them. When you are happy with the edited Item Description press **RETURN** or the LMB to accept it, and take you back to the Configuration Variable Area at the CV position at which you left it.

Press **ESC** or the RMB, followed by **Y** as answer to the Item Update prompt on the Status Row. This time you will note that the List Screen displays only a '*****' symbol next to the Item in the **E** column, to show its status is now Edited, without a '**+**' symbol in the **P** column, indicating that an Item parameter has been altered, but that no CV values have been changed. If you now return to the Item Edit Screen, by pressing **RETURN**, you will also see that no "**P**" symbol is displayed, ie. there are no changes which have to be programmed into the Item's Decoder.

6.4   *ACCESSORY CONFIGURATION VARIABLES*

Accessory Decoders contain a different, and smaller, set of Configuration Variables from those Decoders intended for fitting to Locomotives, although they are set up in exactly the same way, via the Item Edit Screen.

Within the NMRA DCC Recommended Practice RP 9.2.2, Accessory Decoder Configuration Variables are actually numbered from 513 to 1024, although only CV513 to CV521, plus CV541, have defined functions. To simplify the display format these are shown by A-STILE as CV01 to CV09, plus CV29 (add 512 to get the real CV number). Similarly to Locomotive Decoders, any of the first 96 Accessory Decoder CVs (CV513 to CV608) can be programmed or verified, although the response you obtain will depend on the specification of the particular Accessory Decoder being used. Again, A-STILE displays the two User Identity values CV105 and CV106 (CV617 and CV618) as CV15 and CV16 on the Item Edit Screen.

As an example, select Item 0088 (Turnouts SM-104), which is the only Accessory in the demonstration Item List, and go to the Item Edit Screen. This has already had some CV values edited, but not programmed, so that its Program status is set, with the "**P**" symbol displayed in the bottom right-hand corner of the List Area. If you move the Edit Cursor down the first column of CV Number-Values you will see that only CV01 to CV09 have functions defined by the NMRA DCC RP 9.2.2. The only other active CV is CV29 which has the fixed value of $80 (128) to signify that this is an Accessory Decoder. Although you can set the values held in all CVs from 01 to 09 (and any others which might be allocated by the manufacturer of your particular Accessory Decoder) you cannot edit CV29 - as you will find if you highlight it and press **RETURN**, or double-click on it.

The 9-bit Decoder address for an Accessory is split between CV01 and CV09, with the 6 least-significant bits being placed in CV01 and the remaining 3 bits in CV09. Selecting either of these CVs for edit on the Status Row will present you with a four-digit value for amendment - 0260 in the case of our chosen example. As before, you can enter from 1 to 4 decimal digits, or a '$' symbol followed by 1 to 3 hexadecimal digits, as the desired address then press **RETURN** or the LMB. A-STILE then automatically assigns the address bits between CV01 and CV09, and marks both CVs to show that their values have been edited. Remember, however, that A-STILE

only checks that your edited value is a valid number, and not that the address lies within the allowable range for an Accessory of 0001 to 0511 ($001 to $1FF).

For details of the meaning and usage of the other Accessory CVs you should refer in the first instance to your Decoder's documentation and then, for more general guidance, to RP 9.2.2. In the latter document only CV09 is defined to have a default value (000).

Editing of the Item Type and Description, and then exit from the Item Edit Screen and update of the Item record, is handled exactly as for Locomotive Decoders as described in Sections 6.2 and 6.3 above.

6.5   *SETTING UP BLANK ITEMS*

When a Blank Item is inserted into the Item List, using the **INSERT** key (**SHIFT-➤**) as described in Section 5.2, you will see that its Type is 'None', it has no valid address (address 00 is reserved for broadcast commands to be sent to, and acted upon, by all Decoders), and its Description is "_Undefined". The first thing to do with it, therefore, (and certainly before attempting to program a real Decoder with it, or send it any commands) is to allocate it a Type and a valid Address. Thereafter, you will need to give it a meaningful Description, set its CVs to sensible values, and eventually program all the CV data into the real Item's Decoder.

It is probably easiest to follow the sequence of actions if you are working with a real example, so, with the Item List displayed, insert a Blank Item into the List at any convenient point by pressing **INSERT** (**SHIFT-➤**). You can always delete it later, either to remove it completely, or to move it to a different place in the Item List.

Ensure the List Cursor is on one of the Blank Item fields and press **RETURN** (or just double-click on any field except the leftmost) to get to the Item Edit Screen.

Set the Item Type first by pressing the **TAB** key followed by **RETURN**, or by a double-click on the Type Field, and select Loco, Consist, or Accessory by pressing '**L**', '**C**', or '**A**' followed by **RETURN** (leaving the Item at 'None' is not a very useful choice). This action will move the Edit Cursor to CV29. Now, for a Loco or Consist, press **RETURN** again, or click on CV29, and answer the queries presented on the Status Row. As mentioned previously in Section 6.2, if you are unsure of the 'correct' answer to any question you can just press **RETURN** or the LMB to assign the default value. A-STILE will then set the appropriate value into CV29.

Next, set one or more valid address values for the Item, bearing in mind the allowable address ranges quoted previously, and the need to give this new Item an address which is different from other Items in the List. For a Loco you need to enter a Primary Address to CV01 and, if Extended Addressing was enabled in the setting of CV29, an Extended Address value in CV17 and CV18. A Consist only requires a Primary Address in CV19 (see Section 7.8 below), while an Accessory should have its Address loaded to CV01 and CV09.

Once these steps are completed the Item is 'safe' in that, once its real Decoder is programmed, commands can be sent to it without risk of interfering with other Items under control. You can then set up those remaining CV values required to operate the type of Decoder fitted to the Item itself whenever is convenient - and

with reference to the maufacturer's documentation. You should also edit the "Undefined" string to give the new Item a meaningful Description.

Complete the Item initial setup by pressing **ESC** or the RMB, answer **Y** to the query '**Update Item with Changes ?**', and check that the new Item parameters shown are as intended.

Before you quit A-STILE you will need to save the revised Item List, or a Selected part of it, to preserve the results of your editing - otherwise your new Item, and all other changes to the Item List, will be lost. Saving files and quitting the program requires the use of the Menu, and such topics are dealt with in Section 7 which follows.

6.6   CONSISTS

Whereas Locomotives and Accessories are reasonably straightforward to deal with, some aspects of Consists may be a little more difficult to grasp. The main point to appreciate is that a Consist does not actually exist as a physical object in its own right. When we talk about a Consist, we are really dealing with two or more Locomotives each with its own Decoder, and where each Decoder has been programmed with Configuration Variable (CV) parameters to suit the characteristics of the particular Locomotive in which it has been installed. One of these Loco parameters - the Consist Address in CV19 - is virtually the only physical existence that the Consist enjoys at all. If we deactivate the Consist, by sending an appropriate DCC command to each Loco currently in the Consist - which removes the Consist Address from each of the Loco Decoders - then that Consist disappears immediately from the track.

Nevertheless, within A-TRACK, an Item defined as a Consist can be dealt with in exactly the same way as you handle a real Loco Item - and within A-STILE you can edit and manipulate a Consist just as described for Locos in the preceding sections.

Before you attempt to assign two or more Locos to form a Consist, you will first have to set up the Consist as an Item in its own right. The method of doing this is straightforward, as described below, but to let you see how things work, **ASTLDEMO** contains several examples of Consists already set up for use. Looking near the beginning of the Item List - press **ESC** to exit from the Item Edit Screen if necessary - the first three are Items 0010, 0019, and 0023 (IC Consist 4023/4026, IC Consist 5060/5061, and Illinois Central MU2). If you scroll the List Screen down by 6 or 7 Items then you will be able to see all three examples on the screen at once.

In each case, the two Items following the Consist are the Locos which are (or will be) assigned to the Consist. In the first example, Items 0011 and 0012 (Locos Illinois Central 4023 and Illinois Central 4026) are intended to be assigned to the Consist Item 0010 (IC Consist 4023/4026). However, as the Item definitions stand, currently they are both independent Locos, showing their Item Type as **L**, and their own Primary Addresses (023 and 026) which differ from that of the associated Consist (041). This is also true for the second example, involving Items 0019, 0020, and 0021. If you examine the Configuration Variables for each of the four Locos, you will also note that the contents of the Consist Address, CV19, is $00 (000) in each case.

A Consist is activated, ie. it has one or more Locos assigned to it, by sending an 'Activate Consist' command to each of the Locos concerned, containing the Address of the Consist to which you wish to assign them. This has the effect which you see in the third example on screen, where two Locos, Items 0024 and 0025, have been assigned to the Consist Item 0023. The Item Type is changed to **M**, and you can see that the displayed Primary Address (and the DCC speed and direction command Address to which these Locos will now respond on the track) for each assigned Loco is now that of the Consist, rather than their own Primary Address (as held in CV01). If you look at the Configuration Variables for either of these Locos, you will also see that CV19 now contains the Consist Address.

Be particularly aware, when setting up Consists, that DCC commands do not distinguish between Consist Addresses and Loco Primary Addresses. So, if you are not using Extended Addresses for any of your Locos on the track, ensure that their Primary Addresses are all different from any Addresses you wish to allocate to Consists for a specific operating session.

Unfortunately, it is not sufficient simply to place the required Consist Address in CV19, using A-STILE, in order to assign a Loco to a Consist. Doing this will not affect the way the Loco reacts to commands on the track. Assignment to a Consist must be done via a live 'Activate Consist' command issued to the Loco on the track using A-TRACK. See the A-TRACK User Guide for further details.

If you look at either of Items 0011 or 0019 on the Item Edit Screen you will see that their Configuration Variables are generally blank except for CV19, the Consist Address. Item 0019 does have data in two other locations, CV21 and CV22, which are used to specify that the Consist will respond to Function Commands on behalf of the assigned Locos, and both have values set in CV29, Configuration Data. However, it is important to appreciate that setting any values in a Consist Item Configuration Variable will have no effect on the real Locos assigned to the Consist. The only Consist CV value which is ever transferred to a real Loco Docoder is CV19, the Consist Address. You can set values in CV21 and CV22 to specify the response to Function Commands of Locos assigned to the Consist, but CV21 and CV22 have to be programmed into each Loco Decoder (by A-TRACK) *before* the Loco is assigned to the Consist, and they form part of the Loco Item definition, not the Consist. Any CV values you put into a Consist Item (other than CV19) are there solely for your own information. For details of the usage of the CVs relating to Consists you should refer to the NMRA Recommended Practice RP 9.2.2. since Consists may not be covered in your Decoder's documentation.

As a final point on programming, note that any number of Locos can be assigned to a Consist(or removed from it) at any time. However, to make a practical Consist, the speed characteristics of each assigned Loco will have to to be adjusted to be the same as the others in the Consist. This can be done using various CV values, including CV02 - CV06, CV23 - CV25, CV65, CV66, and CV95, together with a full 28-step Speed Table in CV67 - CV94, depending on the features supported by each particular Decoder. As said above, all of these adjustments are made in the Loco Item CV values and not in those held in the Consist Item.

7   MENU

7.1   ACCESSING THE MENU STRUCTURE

The Menu provides the means to invoke those A-STILE functions and operations which are not otherwise accessible directly from the Item List and Item Edit Screens covered up to this point (as well as some that are). You can only call up the Menu from the List Screen and, as mentioned previously in Section 5.3, this is done either by pressing the **INVERSE** (◢) key (located bottom-right on the keyboard) or by clicking on the Menu Area with the mouse. In either case a press of the **ESC** or **INVERSE** keys, or of the RMB, lets you exit from the Menu back to the List Area.

When you access the Menu Area, the Top Menu, consisting of -

```
File     Edit     Config  Quit
```

- appears on the first screen row, with '**File**' highlighted by the Menu Cursor. The second screen row displays the next level of the Menu structure - in this case the File Menu, consisting of -

```
New      Load     Save     Print    Dir
```

If you move the Menu Cursor progressively to the right by pressing the Right Arrow key you will see the contents of the second screen row change to display first the Edit Menu, namely -

```
Sort     C'Vars   Mark     Delete   Insert
```

- followed by the Configuration Menu -

```
Load     Save     Amend    Def'lt
```

When you reach the last entry on the Top Menu, '**Quit**', you will note that this does not have a lower level menu and, therefore, represents an 'action'. The action of '**Quit**', obviously, is to let you exit from A-STILE (the only way out, in fact - apart from switching the computer off), and is invoked by pressing **RETURN** or by clicking on the highlighted '**Quit**' with the mouse.

When you do this, a message appears on the Status Row asking you to confirm that you wish to exit from A-STILE, preceded, if you have changed the Item List in any way, by a prompt to save the altered List file to disk (as you may have already encountered when using the Clear function in Section 5.2). Note that, every time you Load an Item List, A-STILE removes all operating commands which were saved to the Item List by A-TRACK the last time it was used, and adds an internal sequence number to each Item for use with Sort operations. A-STILE thereby changes the Item List - hence you will see the prompt even if you have not made any changes yourself to the List, or the Items it contains. For now, answer **N** to either or both prompts, returning you to the Menu with '**Quit**' highlighted.

Any of the other Top Menu entries can be highlighted again by using the Left Arrow key or by clicking on them. You may also use **TAB** to move to the last (rightmost) Menu entry, or **SHIFT**-**TAB** to move to the first (leftmost) Menu entry.

Select '**File**' and then move to the File Menu either by pressing **RETURN** or clicking once more on '**File**'. The Menu Area should now show the File Menu on the first screen row, with '**New**' highlighted, and a blank second row - indicating that '**New**' is an 'action'. If you check the other File Menu entries, by moving the Menu Cursor to them, you will find that they all present their own lower-level menus except the last, '**Dir**', which is another 'action'.

Press **ESC** to return to the Top Menu with '**File**' highlighted. If you select the Edit Menu by moving the Menu Cursor right and pressing **RETURN**, or by double-clicking on '**Edit**', you will find that, except for the first, '**Sort**', all of the entries are 'actions'. Press **ESC** again to get back to the Top Menu, this time with '**Edit**' highlighted (and showing how the **ESC** key - or the RMB - lets you retrace your steps up the Menu structure), and repeat the exercise with the next entry, '**Config**', bringing up the Configuration Menu where all of the entries are 'actions'. Details of the Configuration Menu, which allows you to set up some A-STILE features to suit your own preferences, are dealt with separately in Section 8.

Back out of the depths of the Menu structure with the **ESC** key or RMB, with the final key press removing the Menu display and returning you to the Item List on the List Screen.

Whenever the Menu is activated by the **INVERSE** key or by clicking on the Menu Area, you can use the initial letter of any entry shown on the first screen row as a short-cut to invoke that action or to display the next lower-level menu. This is certainly quicker than using cursor-control keys followed by **RETURN**, but you may still find it easier to double-click on the desired entry with the mouse. Experiment to establish your own preferences.

The full structure of the A-STILE Menu is shown in the diagram overleaf, where 'actions' are identified by an asterisk (*****) -

A-STILE MENU STRUCTURE

Top

```
┌─────────────┐
│ File    >   │────────────────────┐
│ Edit    >   │──────────────┐     │
│ Config  >   │──────┐       │     │
│ Quit    *   │      │       │     │
└─────────────┘      │       │     ▼
                     │       │   *File*
                     │       │   ┌──────────────┐
                     │       │   │ New     *    │
                     │       │   │ Load    >    │──────────────────┐
                     │       │   │ Save    >    │──────────┐       │
                     │       │   │ Print   >    │────┐     │       ▼
                     │       │   │ Dir     *    │    │     │    *Load*
                     │       │   └──────────────┘    │     │   ┌──────────┐
                     │       ▼                       │     │   │ Replce * │
                     │    *Edit*                     │     │   │ Merge  * │
                     │    ┌──────────────┐           │     │   │          │
                     │    │ Sort    >    │──────┐    │     │   └──────────┘
                     │    │ C'Vars  *    │      │    │     │
                     │    │ Mark    *    │      │    │     ▼
                     │    │ Delete  *    │      │  *Save*
                     │    │ Insert  *    │      │  ┌──────────┐
                     │    └──────────────┘      │  │ All    * │
                     ▼                          │  │ Select * │
                  *C'fig*                       │  │          │
                  ┌──────────────┐              │  └──────────┘
                  │ Load    *    │              │
                  │ Save    *    │              │
                  │ Amend   *    │              ▼
                  │ Def'lt  *    │           *Print*
                  └──────────────┘           ┌──────────┐
                                             │ AllLst * │
                                             │ SelLst * │
                                             │ CurItm * │
                                             └──────────┘
                     *Sort*
                     ┌──────────────┐
                     │ Order   *    │
                     │ Select  *    │
                     │ Undo    *    │
                     └──────────────┘
```
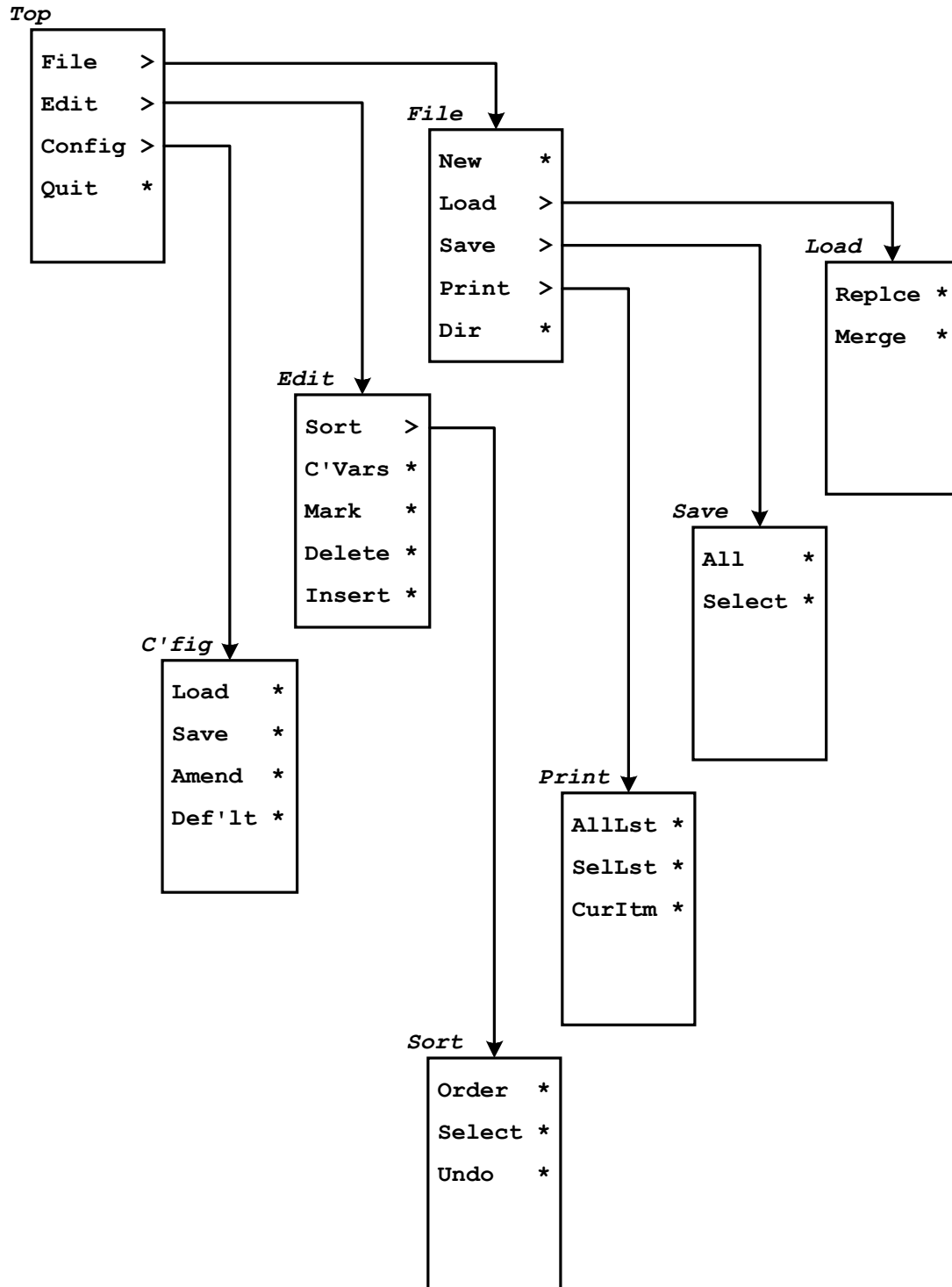
Having explored the available Menu structure, we can now look at what happens when you select and execute a particular 'action'.

7.2   FILE MENU

New   Clears the current Item List after offering you the opportunity to save the List if it has been changed. If you are given the option to save the Item List then you can abandon the whole operation by pressing **ESC** or the RMB - otherwise the Item List is cleared instantly - beware !

Load   Loads an Item List from disk after allowing you to save the current List if it has been changed. A Sub-Menu is presented -

   Replce   Merge

7.2.1   File Load Sub-Menu

   Replce   Loads an Item List to replace the currently loaded List.

   Merge   Loads an Item List which is added to the end of the currently loaded List.

   A prompt to save the current List appears, if it has been changed. Press **Y** to save the current List, **N** to skip the Save operation, or **ESC** or the RMB to abandon the complete Load operation. After any Save is completed or skipped, the filename of the most-recently loaded Item List appears on the Status Row and can be edited as required to specify the full filename (drive + directory (if appropriate) + filename) of the Item List you wish to load into A-STILE (**Replce**), or wish to add to the end of the currently loaded Item List (**Merge**). Press **RETURN** or the LMB to load the specified Item List file from disk, or press **ESC** or the RMB to abandon the operation and leave the existing Item List as it was. After a successful Load, the specified Item List either replaces the previously loaded List, or is added to the end of the previously loaded List. In either case the List Cursor is reset to display the first Item of the replacement or merged List, at the top of the List Area.

Save   Saves an Item List to disk. A Sub-Menu is presented -

   All   Select

7.2.2   File Save Sub-Menu

   All   Saves all Items of the currently loaded Item List.

   Select   Saves all Selected Items of the currently loaded Item List.

   The filename of the most-recently loaded Item List appears on the Status Row and can be edited as required to specify the full filename (drive + directory (if relevant) + filename) under

which you wish to save either the complete current Item List (**All**), or the set of Items from the current Item List which have been selected (marked) (**Select**). Using the filename extension **.ITL** for Lists with 64 Items or less, and **.ITA** for larger Lists, will help distinguish those Item List files which can be handled by A-TRACK from those which can not. Where significant changes have been made to an Item List, you are strongly recommended **NOT** to overwrite the existing Item List - either Save with a new filename or to a different floppy disk. You should also make back-up copies of your Item Lists to guard against accidents, and give you some hope of recovery.

Print   Sends a text version of the Item List, or of the currently highlighted Item, to an attached printer. A Sub-Menu is presented -

   AllLst   SelLst   CurItm

7.2.3   *File Print Sub-Menu*

AllLst   Outputs a text string, similar to that shown on the List Screen, for every Item of the currently loaded Item List.

SelLst   Outputs a text string, similar to that shown on the List Screen, for every Selected Item of the currently loaded Item List.

A prompt appears on the Status Row requesting the number of Items to be printed per page (one per line). You should enter this as decimal (or hexadecimal) digits in the same manner as explained for the entry of CV values in Section 6.2. The range of acceptable values is from 1 to 255, with a default setting of 50 Items/page. Decimal values greater than 255 will be converted modulo-256, ie. multiples of 256 are subtracted from the entered value until it is less than 256. However, an entered value of 0 (zero) will be treated as 256 Items/page.

A second prompt then appears to request whether you wish to print to a file on disk, instead of to an actual printer. Press the 'N' key to send text to an attached printer, or 'Y' to print to a file. In the latter case, either the default filename, '**D1:ASTILE.PRN**', or the filename of the most-recently specified print file, appears on the Status Row and can be edited as required to specify the full filename (drive + directory (if relevant) + filename) to which you wish to print either every Item from the current Item List (**AllLst**), or the set of Items from the current Item List which have been selected (marked) (**SelLst**). Using filename extensions such as **.PRN**, **.ASC**, or **.TXT** will help distinguish print files from Item List files, etc.

When printing, A-STILE outputs each Item line as a string of plain ASCII characters, terminated by the standard **CR,LF**

character pair. Each page has basic formatting, with a top margin of three blank lines, followed by the current Item List filename, one blank line, a line of column headings similar to those of the List Screen Title Row, then a further blank line preceding the set number of lines each containing details of a single Item. Each line of text begins with 10 '**Space**' characters to form a left margin, followed by a 4-digit sequence number indicating the position of the Item in the List, then the details of the Item itself.

CurItm Outputs an annotated text listing of the Configuration Variables, and their current contents, of the Item currently highlighted on the List Screen.

A prompt appears on the Status Row requesting whether you wish to print to a file on disk instead of to an actual printer. Press the '**N**' key to send text to an attached printer, or '**Y**' to print to a file. In the latter case, either the default filename, '**D1:ASTILE.PRN**', or the filename of the most-recently specified print file, appears on the Status Row and can be edited as required to specify the full filename (drive + directory (if relevant) + filename) to which you wish to print the parameters of the current Item. Using filename extensions such as **.PRN**, **.ASC**, **.TXT** or will help distinguish print files from Item List files, etc.

When printing, A-STILE outputs details of the Configuration Variables of the current Item as strings of plain ASCII characters, each terminated by the standard **CR**,**LF** character pair. All of the Item CV details are contained on a single page with basic formatting. The page has a top margin of three blank lines, followed by the current Item List filename, another blank line, than a line showing the 4-digit sequence number of the current Item in the List, followed by the Item details in a format similar to that of the List Screen. A further blank line precedes headings for two major columns, each containg details of 48 CVs. The value of each CV is shown in both hexadecimal and decimal, together with a description of its function where defined by the NMRA standards. Each line of text begins with 10 '**Space**' characters to form a left margin.

For all of the Print Sub-Menu options, the appearance of the printed page will depend on the font type and size, the line-spacing, and any other page formatting set for the attached printer. You will have to set these up for yourself, by reference to the printer manual, since A-STILE does not incorporate any facilities to perform detailed printer set-up. Alternatively, if you print to a file, you can then import this (as a plain ASCII text file) into any suitable word processor, and reformat the text as you wish. This also allows you to add any extra notes or information to the final printout as required.

Note that A-STILE output is in the form of strings of ASCII characters, and uses the standard ASCII Carriage Return (**CR**) and Line Feed (**LF**) characters to terminate

each line, rather than the Atari-specific End-of-Line character ($9B, 155 decimal). Hence, if you use an Atari word processor, such as TextPro, you will need to replace each **CR**,**LF** ($0D,$0A) character pair with an End-of-Line character in order to get a properly formatted listing on the screen before doing any further editing. Alternatively, if you can transfer the output file to an IBM-compatible PC, you should be able to edit the print file directly with any text editor or word processor.

Dir   Displays a directory of files on disk. The directory to be displayed is defined by the current path which is set to '**D1:*.***' by default. The path is displayed on the Status Row and can be edited to specify whichever path you require. The edited path then becomes the default path which will be displayed in future. Press **RETURN** or the LMB to display the first 18 lines of the directory listing in the List Area. If there are more than 18 lines in the listing, press **RETURN** or the LMB again to display the next 18 lines. **ESC** or the RMB can be pressed at any time to abandon the directory display and return to the Item List. When the directory listing has been completely displayed, a further press of **RETURN** or the LMB allows you to edit the path again to look at another directory. Press **ESC** or the RMB to end the operation.

Whenever a Load, Save, or Print operation is performed, including the reading of a disk directory, it is necessary for A-STILE to suspend its normal screen formatting. All of the Atari XL/XE computer resources have to be dedicated to servicing the transfer of data to or from the disk drive and, as has been noted previously in Section 5.3, you will see the normal screen colours disappear temporarily.

7.3   *EDIT MENU*

Sort   Sorts the current Item List according to a chosen set of Sort Keys. A Sub-Menu is presented -

    Order   Select Undo

7.3.1   File Sort Sub-Menu

Order   Enables entry of the order of Item Parameters for use as Sort Keys together with the direction of sorting. Directly equivalent to pressing **CONTROL**-**S** (see Section 5.4).

Select   Sorts the Item List according to each Item's Selected, Edited, and Program status, in the currently defined Sort Direction. Directly equivalent to pressing **SHIFT**-**RETURN** with the List Cursor in the **SEP** field of any Item (see Section 5.4).

Undo   Returns the order of Items in the List to that present before the immediately prior Sort operation. Directly equivalent to pressing **CONTROL**-**RETURN** (see Section 5.4).

C'Vars Takes you to the Item Edit Screen to edit the Configuration Variables, Type, and Description of the currently selected Item. Equivalent to highlighting an Item and pressing **RETURN**, or double-clicking on the highlighted field (other than the leftmost) of an Item.

Mark   Marks the Items at the current Item List Cursor position as Selected. Directly equivalent to pressing the **SPACE** bar, or double-clicking the mouse LMB on the leftmost field of the Item.

Delete Deletes the currently selected Item. Directly equivalent to pressing the **DELETE** key (**SHIFT**-**BACKSPACE**).

Insert Inserts one or more Items at the current Item List Cursor position. Directly equivalent to pressing the **INSERT** key (**SHIFT**-**>**).

8   PROGRAM CONFIGURATION

A-STILE provides the facility, through the Configuration Sub-Menu, for you to adjust some of its characteristics to suit your own preferences. You can select whether to use a mouse (and which type of mouse) and select colours for the various screen areas and cursors. Since the Configuration section of the program has been transferred directly from A-TRACK, it also asks you to define whether to use a particular variety of handheld controller. This can be ignored as far as A-STILE is concerned, but has the advantage that the Configuration file for A-STILE (**ASTILE.CFG**) is identical to that for A-TRACK (**ATRACK.CFG**).

Access the Configuration Sub-Menu via the keystrokes **INVERSE** (◄) and **C** or, with the mouse, click on the Menu Area and then double-click on **Config**. This should give you a display on the first screen row of the four Configuration Sub-Menu 'action' entries, namely -

 Load   Save   Amend   Def'lt

Leaving **Amend** aside for the moment, highlighting any of the other three and pressing **RETURN**, or pressing any of their initial letters, or clicking on the entry with the mouse, will achieve the following -

Load   Loads an A-STILE Configuration File from disk and sets the program configuration according to its contents. The filename of the most-recently loaded Configuration File appears on the Status Row (probably **D1:ASTILE.CFG**) and can be edited as required to specify the full filename (drive + directory (if relevant) + filename) of the Configuration File you wish to load into A-STILE. Press **RETURN** or the LMB to load the Configuration File, or press **ESC** or the RMB to abandon the operation.

Save   Saves the current Configuration settings to a disk file in the correct Configuration File format. The filename of the most-recently loaded Configuration File appears on the Status Row (probably **D1:ASTILE.CFG**) and can be edited as required to specify the full filename (drive + directory (if relevant) + filename) under which you wish to save the current Configuration. Using the filename extension **.CFG** will help distinguish Configuration Files from other file types, but is not mandatory.

Def'lt   Sets the current A-STILE Configuration to the program's default values, which are -

          Atari Mouse Enabled
          Normal Mouse Buttons
          No Handheld Controllers
          Screen Colours as described in Section 4.1

Note that you can generate and keep as many Configuration Files as you like - perhaps each user may like to have his or her own - but A-STILE expects to find, and to load, a Configuration File named **ASTILE.CFG** from drive D1: when you boot the computer, or load and run **ASTILE.COM**. It will ignore any other Configuration

File and, if it does not find **ASTILE.CFG**, it will use the program's in-built Default Configuration instead.

Selection of the fourth Configuration Sub-Menu entry, **Amend**, allows you to change the current program settings. A series of prompts appears on the Status Row beginning with the following two -

"**Mouse Selected ?**"   **N** = Mouse Disabled
                               A = Atari ST Mouse
                               C = Commodore Amiga Mouse

"**Swap M'Buttons ?**"   **Y** = Mouse Buttons Reversed (LMB = **ESC**)
                               N = Mouse Buttons Normal   (LMB = **RETURN**)

Reply to the prompts by typing the appropriate letter key, or simply hit **RETURN** or the LMB to retain the current setting. Pressing **ESC** or the RMB at any time will abandon the amendment of the configuration parameters completely, leaving them unaltered.

Note that, if you choose to swap the mouse buttons - to make things easier for youself if you are left-handed, for example - then you will have to read RMB for LMB, and vice versa throughout this User Guide.

The third prompt allows you to enable the use of a particular type of Handheld Controllers with A-TRACK. This Configuration parameter is ignored by A-STILE, but allows the Configuration to be saved (as a file named **ATRACK.CFG**) and used, with a saved operational Item List, for example, with the A-TRACK program -

"**Handheld Type ?**"   **N** = Handheld Controllers Disabled
                               P = Atari Paddles
                               H = A-TRACK Handhelds

The next set of prompts relates to screen area colour selection. The colours are presented (for ease of programming by the author rather than to make life easy for you, the user!) as a set of hexadecimal values which you can edit to suit yourself. (See Sections 5.3 and 6.2 for more details on editing numeric strings on the Status Row).

Standard Atari colour values are used,as given in the list below, but the colour descriptions given can be a little confusing since the perceived colour (hue) depends very much on the associated intensity (brightness) setting. Colour 0, for example, called 'Black', is actually bright White at the maximum intensity level of E (14), and this change applies to most of the other colours such as the Blues (colours 6 to 9) which tend towards white at high intensity.

Black	0	Medium Blue	8
Rust	1	Dark Blue	9
Red-Orange	2	Blue-Grey	A
Dark Orange	3	Olive Green	B
Red	4	Medium Green	C
Dark Lavender	5	Dark Green	D
Cobalt Blue	6	Orange-Green	E
Ultramarine	7	Orange	F

Each intensity (brightness) setting used to define a screen colour must be an even number ranging from 0 to E (hexadecimal, equivalent to 0 to 14 decimal), ie. there are eight possible intensities of each hue.

The first two screen colour prompts, for the Mouse and Speed Bar Cursors, respectively, require you to enter two hex digits. Note that A-STILE does not have a Speed Bar Cursor - the prompt refers to A-TRACK usage only. The first hex digit required is the colour (hue) value, followed by the intensity value. The default values appear as -

"**Mouse Curs Clr ? : Value> $4C**"   Red (Mauve),   Intensity 12

"**Speed Curs Clr ? : Value> $FC**"   Orange (Yellow),   Intensity 12

If you do not wish to change the displayed value then just press **RETURN** or the LMB to preserve it as it is. Otherwise enter your new values, deleting or overwriting the old ones. Any alterations that you make do not appear as screen colour changes until all the colour choice prompts have been answered - which makes it sensible to change just one or two colours or intensities at a time, and observe the result before making further adjustments.

The next series of prompts relate to the Screen Areas and require the entry of three hex digits, representing the intensity of the text characters, the colour value for the area, and the intensity of the background, respectively. These are displayed in the prompt as the three final digits of the current value. The first digit is always zero and should remain so. The default values appear as -

"**Menu Area TxBk ? : Value> $000C**"   Black   Text Intensity   00
                                          (White)   Backgnd Int'y   12

"**Title Row TxBk ? : Value> $0E76**"   Ultramarine   Text Intensity   14
                                          (Blue)   Backgnd Int'y   06

"**List Area TxBk ? : Value> $0AB0**"   Olive-Green   Text Intensity   10
                                          (Green)   Backgnd Int'y   00

"**Status Rw TxBk ? : Value> $00EC**"   Orange-Green   Text Intensity   00
                                          (Yellow)   Backgnd Int'y   12

"**Error Row TxBk ? : Value> $0038**"   Dark Orange   Text Intensity   00
                                          (Red)   Backgnd Int'y   08

Make any change you require (or wish to try out), then press **RETURN** or the LMB to enter them, or to move on to the next prompt without changes. Once all the colour prompts have been presented the screen colours will be updated to reflect any changes you have made, and you will be given the option to accept the new colours, to cancel the complete edit, or to go back to the start and revise your updated values. Press the appropriate option key ('**A**', '**C**', or '**R**') or hit **ESC** or the RMB to abandon the configuration process (and ignore any changes which have been entered).

When you are satisfied with your revised A-STILE Configuration you can call up the Configuration Menu again and save the new settings to a Configuration File on disk. It is recommended that you do **NOT** overwrite any existing **ASTILE.CFG** file without saving a copy. The new file can subsequently be renamed to **ASTILE.CFG** and copied to your Working Disk so that your revised Configuration is loaded every time you start the program - if you do not wish to load it directly yourself. You can always return to the default settings via the Configuration Menu, or by restoring a copy of the original **ASTILE.CFG** from the Master Disk.

9   ATARI COMPUTER BASICS

9.1   DISK DRIVES AND OPERATIONS

This section of the User Guide is intended to get you started if you are unfamiliar with the Atari XL/XE computer systems, although you should also read the documentation which came with your system. Before applying power you should ensure that the Atari system is connected together correctly.

The minimum set of items you require is -

> Atari 800XL Computer
> Atari 1050 Disk Drive (it is possible to use the older 810 drive as well)
> Atari AC Power Adapters for the Computer and Disk Drive
> Atari Serial I/O Cable to connect Computer to Disk Drive
> TV or Monitor with appropriate cable to connect to the Computer

Follow these steps to connect up the system -

1   Make sure the Power ON/OFF switches of your Atari XL/XE Computer (located on the rear panel towards the left side - seen looking at the keyboard) and of the 1050 Disk Drive (located on the front panel) are in the OFF position.

2   Plug one end of the Serial I/O Cable into the jack marked PERIPHERAL on the rear panel of the computer console. Then plug the other end of the cable into one of the two jacks marked I/O CONNECTOR located on the back of the disk drive as shown in the diagram below.

WARNING: Your Atari 1050 Disk Drive should be placed 12 inches or more from your television or monitor. Your TV creates a strong magnetic field that could affect the information recorded on your disks.
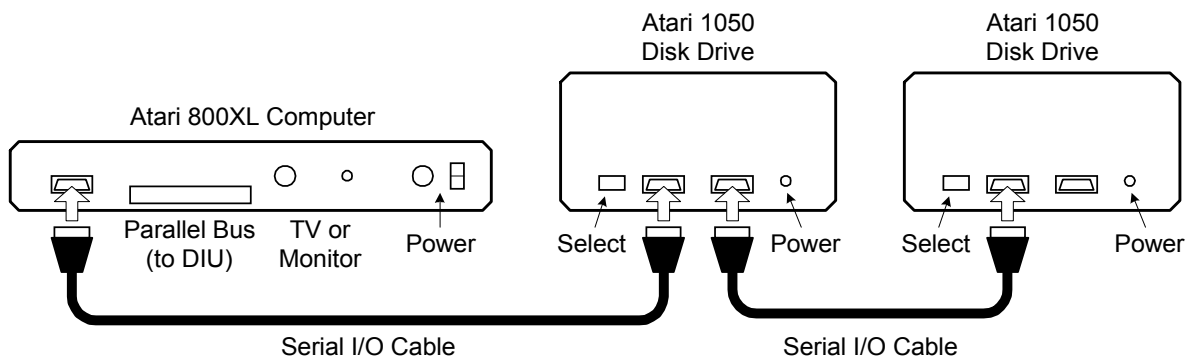
3   You can attach up to four Atari Disk Drives, in addition to Atari Printers, Program Recorders or other components, to your Atari Computer. Multiple disk drives (and other components) are connected to each other in a daisy chain, using the Serial I/O Cables supplied with each component. Connection to a second disk drive is shown above, using the two I/O CONNECTOR jacks on the back of each disk drive and another Serial I/O Cable from the remaining I/O CONNECTOR on the first drive to either I/O CONNECTOR on the second drive. Connect any additional components in the same way.

4   If your system includes more than one disk drive, you must set the drive codes using two small switches on the back of each drive. These switches tell the computer which drive you're referring to in your programs and commands. To set the switches turn the drives around so that you can see the DRIVE SELECT window on the back of each drive. Inside the window is a black switch and, behind it, a white switch. Using a pen or a small screwdriver, set the switches in the window to match the patterns shown here for Drive 1, Drive 2, and so forth. You must always have one drive set as Drive 1.
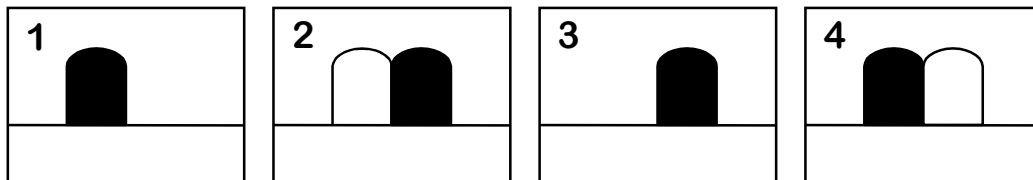
Once you have set the drive switches, be sure to label each disk drive with its number so that you will not mistake one drive for another when using DOS.

5   Plug the smaller end of the Disk Drive AC Power Adapter cord into the hole marked POWER IN on the back of the disk drive (each drive will require its own AC Adapter). Similarly, plug the 7-pin DIN connector of the Computer AC Power Adapter into the POWER IN (DC) socket next to the ON/OFF switch on the rear panel. Then plug both AC Power Adapters into suitable wall sockets. Plug your TV or monitor into another AC wall socket and switch it on.

6   Turn on the disk drive(s). Both the POWER light (next to the ON/OFF switch) and the BUSY light (above the switch) will go on. When the BUSY light goes off, you are ready to insert a disk.

Your disk drive is now ready to receive the A-STILE Master Disk. It is recommended that you read the next section carefully before proceeding.

Taking Care of Your Disks

Atari disk drives use 5.25" double-sided, double-density (DSDD) disks which have a nominal capacity of 360 Kbytes. However, the Atari disk drives only record on one side of the disk at a time, and use single-density recording, so that they store only 90 Kbytes per side (in 720 sectors each of 128 bytes). The 1050 disk drive can also store at enhanced-density, which manages 128 Kbytes on each side.

The surface of a disk is coated with a sensitive magnetic material that stores your data. To ensure the long life and reliability of your disks, you must handle them properly and with care.

Each disk is permanently enclosed in a black protective envelope and is normally stored in a paper sleeve. Most disks have a small write-protect notch on one edge of the black protective envelope. By covering this notch with one of the small adhesive rectangular tabs provided by the disk manufacturer, you can avoid accidentally erasing or writing over any data on a disk.

Remember these rules for the proper care and handling of disks:

♦ Never turn your disk drive on or off with a disk in the drive, and never leave a disk in the drive while it's turned off.
♦ Never wet or wash a disk. Use a soft brush or compressed air from a spray can to remove any dust from the surface.
♦ Do not bend your disks - they must turn freely in the protective envelope. Handle them with care when loading or unloading.
♦ Store disks in their paper sleeves standing on edge.
♦ Store your disks away from your television set or monitor. The strong magnetic fields produced by these devices can partially erase the data stored. Keep your disks away from electrical devices, including the telephone.
♦ Do not store your disks in direct sunlight. Keep them away from any excessive heat.
♦ Because a disk turns inside its envelope, damage to the envelope can result in damage to the disk.
♦ Do not write on your disks with a pencil or ball-point pen. The sharp point of a pencil or ball-point pen can score the surface of a disk. Use a felt-tip pen to mark the disk label or write on the label before you put it on the disk.
♦ Do not use erasers on disk labels. Eraser dust is abrasive and will damage disks.
♦ Do not attach paper clips to your disks.
♦ Never touch a disk where it is exposed through the disk envelope. Fingerprints can damage the magnetic medium.

Most disks come with labels already affixed to one corner of the black protective envelope or with a set of labels that you can attach to each disk. Be sure to label every disk on which you copy or store programs and files.

9.2 ATARI DOS 2.5

Your Atari computer's memory retains the information and instructions you enter through its keyboard. However, the computer's memory is limited in size, and without a storage device like the 1050 Disk Drive, its contents are erased each time you turn off the computer.

Your disk drive enables you to store and manage large amounts of information in separate files on disks. Through the disk drive, you can call up your files by name, copy or erase them, and manage them in many other ways.

To store information on disks you need software that allows your computer and disk drive to communicate with each other about your files. That is where the Disk Operating System - DOS (pronounced "doss") for short - fits into the picture. DOS is a program that enables your computer and disk drive to work together in storing, retrieving, and otherwise managing your disk files. The rest of this chapter deals with the laest version of DOS developed by Atari, DOS 2.5. Other DOS programs from third-party suppliers, such as SpartaDOS or MyDOS, can be used with A-STILE, since it is fully DOS-independent, but it is assumed that users of such alternative DOSs will be fully familiar with their modes of operation, and do not require further guidance.

Atari DOS 2.5 itself is organized in two files contained on the A-STILE Master Disk, **DOS.SYS** and **DUP.SYS**.

DOS must be loaded into your computer before it can work with your disk drive. This is done automatically when you switch the computer on with a disk, containing the DOS files, loaded into the disk drive. DOS performs many essential tasks, such as preparing blank disks to store your files, for example, and to make backup copies of important files and disks.

At this stage you should have your Atari system connected up with the TV or monitor and the disk drive switched on and with the BUSY light off.

CAUTION: Never insert a disk into your drive, or remove a disk from it, while the BUSY light is on.

Turn the latch on the front of whichever disk drive is set to be Disk Drive 1 to the open (horizontal) position. Remove your A-STILE Master Disk from its protective paper sleeve and insert it in your drive, with the label facing up and toward you, until it clicks into place. Then turn the latch clockwise to the closed (vertical) position. The drive will make a whirring sound and the BUSY light comes on. After a few seconds, the noise should stop and the BUSY light go off.

Turn on your computer. The disk drive's BUSY light will come on again as DOS loads into your computer, and the drive makes a clicking sound. If you turn up the sound volume on your TV or monitor, you should hear a series of beeps as DOS loads.

If all goes well, you will see the **READY** prompt appear on the TV or monitor screen, showing that the Atari BASIC programming system is active. Now type '**DOS**' (three letters) on the keyboard and press **RETURN** to bring up the Atari DOS 2.5XL Menu.

Since you do not need BASIC to handle your disk files or operate the A-STILE program, you can prevent it loading by holding down the **OPTION** key (to the right of the keyboard) as you switch on the computer - press **OPTION** before turning the Power Switch to ON, and keep it held down until text appears on the screen. If you do this, the DOS Menu will appear immediately loading is complete.

Note that it is not actually necessary to hold down the **OPTION** key before loading DOS and A-STILE, since the loader program **ASTILE.COM** will disable BASIC automatically as one of the first actions it performs.

Boot Errors

Loading a program into a computer when you first turn it on is called "booting up". If a problem occurs when booting up your system, the prompt **BOOT ERROR** appears on your screen. This can happen for a number of possible reasons -

♦ The inserted disk does not have DOS on it.
♦ The disk was inserted incorrectly.
♦ The disk has been scratched, warped, or marred. In this case, use another disk.
♦ The disk is an enhanced-density disk in an Atari 810 Disk Drive.

The following conditions will also cause a boot error, but no indication of it will appear on the screen -

♦ The disk drive was turned on after the computer was turned on.
♦ The disk drive is not properly connected to the computer console.
♦ The Power Adapter plug has loosened from its wall socket.
♦ The Power Adapter plug has loosened from the disk drive POWER IN socket.
♦ The drive code setting is not correct.

If you have checked and found none of these problems, take the following steps:

1 Insert an Atari DOS 2.5 Master Disk or System Disk (one with a working copy of DOS 2.5 which you should have received with your Atari system) into Drive 1 and reboot the system.

2 Remove the DOS disk.

3 Reinsert the problem disk and save any accessible files on another disk using the process for copying files (see **C. COPY FILE**, later in this Section).

4 With the problem disk in Drive 1, use the **D. DELETE FILE(S)** function to erase all the files.

5 Try using the disk again. If this fails, the disk will have to be reformatted (see **I. FORMAT DISK**, later in this Section) or discarded.

The DOS Menu

Once you've loaded DOS into your computer and, if necessary, typed **DOS** and pressed **RETURN**, the DOS Menu appears on your TV or monitor screen. The menu presents a list of DOS functions. The prompt below the menu invites you to make a selection. You choose the function you want to use by pressing the letter corresponding to your selection and pressing **RETURN**.

DOS then asks you for the information it needs to proceed (see "Prompts and Responses," later in this section).

The DOS 2.5 Menu options presented on the screen have the following purposes -

A.   DISK DIRECTORY
This option allows you to call up a complete or selective list of the files on a disk, showing the filenames, extenders (if any), the number of sectors allocated to each file, and the number of free sectors still available on the disk.

B.   RUN CARTRIDGE
This option allows you to return control of your system to the built-in BASIC Programming System (provided you have not disabled it with the **OPTION** key - in this case re-boot the computer).

C.   COPY FILE

Use this option when you have two or more disk drives and you want to copy files from one disk to another. Also use this option to copy a file on the same disk, assigning a second name to the copy.

D.   DELETE FILE(S)
This option lets you erase a file from a disk, increasing the available space on the disk.

E.   RENAME FILE
Use this option when you want to change the name of a file.

F.   LOCK FILE
This option can be used to prevent you - or anyone else - from changing, renaming, or accidentally erasing a file. You will still be able to read the file, but will not be able to write to it. When the directory is displayed, an asterisk is placed in front of the filename to indicate that the file is locked.

G.   UNLOCK FILE
This removes the asterisk from in front of the filename and allows you to make changes to the file, rename it, or delete it.

H.   WRITE DOS FILES
Use this option to add the DOS files (**DOS.SYS** and **DUP.SYS**) from your Master Disk or System Disk to a disk in any disk drive.

I.   FORMAT DISK
This option is used to format a blank disk, which is necessary before you can record any information on it. Be sure you do not have any files you want to keep on a disk before formatting it. This option will format a disk in enhanced density provided you are using a 1050 Disk Drive - otherwise, it will format in single density.

J.   DUPLICATE DISK
This is the option you choose when you want to create an exact duplicate of a disk. This option will automatically format the destination disk.

K.   BINARY SAVE
With this option you can save the contents of specified memory locations to a disk file. (Used when developing assembly language programs.)

L.   BINARY LOAD
This option lets you retrieve an object file from a disk. It is the reverse function of BINARY SAVE. (Used when developing assembly language programs.)

M.   RUN AT ADDRESS
With this option you can enter the hexadecimal starting address of an object (assembly language) program, after it has been loaded into memory (RAM) with a BINARY LOAD, and start it executing.

N.   CREATE MEM.SAV
This option allows you to reserve space on a disk for the program in RAM to be stored while the **DUP.SYS** file is being used (Amongst other functions, **DUP.SYS** is

responsible for the display of the DOS Menu you are currently viewing on the screen). This option is not required with DOS 2.5XL which uses an otherwise wasted area of memory to hold **MEM.SAV**.

O.   DUPLICATE FILE
This option enables you to copy a file from one disk to another, even if you have only a single disk drive.

P.   FORMAT SINGLE
Use this option when you want to format a disk in single density using a 1050 Disk Drive.

Prompts and Responses

The questions and requests that DOS displays on your screen are called prompts. The answers you type into your computer are responses. DOS always prompts you for the information it needs to carry out your wishes. You will soon become familiar with the most common DOS prompts and, since DOS requires the same kind of information for many of its functions, it won't be long before many of your responses become almost automatic. As you use each function of DOS, the program lists its successive prompts and your responses on your screen as you proceed.

After typing a response into your computer, you must press **RETURN** to confirm your response. (Pressing **RETURN** only in response to certain prompts tells DOS to supply a preselected, or default, response as explained below. Many prompts require a simple 'yes' or 'no' answer. To answer 'yes', type **Y** and press **RETURN**. To answer 'no', type **N** and press **RETURN**.

If you make a mistake while typing in a response, press **DELETE-BACKSPACE** to erase the error, then type in the correct information. To delete an entire response before you confirm it, press **SHIFT** and **DELETE-BACKSPACE** simultaneously.

Looking at a Disk Directory

Each disk you use to store information has a disk directory that keeps track of the files stored on the disk, how much room they take up, and how much free space is left on the disk for storing more information. The DISK DIRECTORY selection on the DOS Menu allows you to check what files you have on your disks.

Since your A-STILE Master Disk itself contains files, you can try out the function by looking at the directory of those files. Ensure that you still have the A-STILE Master Disk in Drive 1 then, with the DOS Menu on your screen, type **A**, then press **RETURN** twice.

A list of files on the A-STILE Master Disk should appear as follows -

```
* DOS      SYS 037
* DUP      SYS 042
* ATRACK   FNT 009
* ASTILE   CFG 001
* ASTILE   COM 042
* ASTILE   OVL 130
* ASTLDEMOITA 114
* REALINITITL 031
301 FREE SECTORS
```

The three-digit numbers in the right-hand column indicate how many sectors each file occupies on the Master Disk - don't worry if some of the numbers on the screen differ from those above - A-STILE and its associated files are being updated fairly frequently ! The line below the last file description tells you how many sectors remain for storing additional information on the disk. The asterisk preceding each file name indicates that the files are locked, so that they are protected from being altered or erased, but can still be read or copied.

DOS.SYS and **DUP.SYS** are the files that execute the standard DOS functions.

The other files listed are associated with the A-STILE system as described in Section 3. **REALINIT.ITL** is an A-TRACK Item List containing actual DCC Decoder parameters used by the author for program development.

Duplicating a Disk

With the DUPLICATE DISK option on the DOS 2.5 Menu, you can create an exact replica of a disk. This function copies everything from your original, or source, disk onto another, or destination, disk. It also formats your destination disk.

CAUTION: The DUPLICATE DISK function erases or writes over any information that may already be on a destination disk. Never use a destination disk that contains valuable files.

To learn how the DUPLICATE function works, make a duplicate of your A-STILE Master Disk. This is also an important safeguard. You should use your duplicate as your working copy of A-STILE, and keep the Master Disk itself as a backup copy.

Then you can use A-STILE without worrying about accidental damage to your working disk.

As your destination disk, use a new, blank disk and, to prevent accidents, ensure that the write-protect tabs (the small self-adhesive foil rectangles attached to the edges of the disk near the label) are firmly in place on the Master Disk (but **NOT** on the blank disk).

If You Have One Disk Drive -

 1 With the DOS Menu on your screen, type **J** and press **RETURN**. The prompt **DUP DISK-SOURCE,DEST DRIVES?** appears.

 2 Type **1,1** and press **RETURN**. The prompt **INSERT SOURCE DISK, TYPE RETURN** appears.

 3 Place the disk you want to duplicate in the drive - in this case, your A-STILE Master Disk - and press **RETURN**. The disk drive begins to "read" the information contained on your source disk. Then DOS prompts you to **INSERT DESTINATION DISK, TYPE RETURN**.

 4 Remove your source disk from the disk drive and insert the blank disk (formatted or unformatted), then press **RETURN**. DOS writes the information it has read from your source disk to your destination disk, first formatting the destination disk.

How many times DOS prompts you to insert your source and destination disks in your disk drive will depend on how much data is recorded on the source disk and the amount of RAM in your computer system. When the prompt **SELECT ITEM OR RETURN FOR MENU** appears, the duplication process is complete.

If You Have Two Disk Drives -

 1 With the DOS Menu on your screen, type **J** and press **RETURN**. The prompt **DUP DISK - SOURCE, DEST DRIVES?** appears.

 2 Type **1,2** and press **RETURN**. The prompt **INSERT BOTH DISKS, TYPE RETURN** appears.

 3 Place your source disk in Drive 1 - in this case, your original A-STILE Master Disk - and a blank disk (formatted or unformatted) in Drive 2, then press **RETURN**.

 4 DOS duplicates all the information from your source disk on your destination disk, first formatting the destination disk.

When the prompt **SELECT ITEM OR RETURN FOR MENU** appears, the duplication process is complete.

Label your new copy of A-STILE clearly - something like " A-STILE Working Disk". Attach a write-protect tab to it, folded over the notch in the edge of the disk, to

prevent your disk drive from writing information over any of the files that you have just copied there, then use it as your working copy of A-STILE from now on. Store your original A-STILE Master Disk in a safe place - well away from any stray magnetic fields.

The DUPLICATE DISK function is sometimes confused with the COPY FILES function of DOS. The COPY FILES function copies only the files you specify from a source disk. The DUPLICATE DISK function is more efficient when you want to make complete backup copies of data disks containing several files.

Formatting a Disk

Unless they're preformatted, the disks you buy to store your files must be prepared to record information from your computer. This process is called formatting, or initializing, a disk. Formatting organizes the surface of a disk into tracks and sectors so that your computer can store and retrieve information on it in an orderly way.

CAUTION: Formatting a disk erases any information that may already be recorded on it. Never format your Master Disk or a data disk that contains valuable files.

The DOS 2.5 Menu offers you two options for formatting disks. When used with a 1050 Disk Drive, Option **I. FORMAT DISK**, will format the disk in enhanced density. If DOS finds, when executing this function, that the drive you have specified for formatting is an 810, it will proceed to format the disk in single density. Option **P. FORMAT SINGLE**, formats only in single density. It should be used when you want to format a disk in single density on a 1050 Disk Drive.

Note that the A-STILE Master Disk is formatted in single density so that it can be read in any Atari drive. You can copy its files to, and use them from, an enhanced density disk if you so wish without any problems.

To get acquainted with the formatting procedure, with the DOS Menu on your screen, format two blank disks (to use when doing the exercises described below) as follows -

 1 To format in enhanced density on a 1050 Disk Drive, type **I** and press **RETURN**, **OR**, to format in single density, type **P** and press **RETURN**. The prompt **WHICH DRIVE TO FORMAT?** appears.

 2 Type the number of the disk drive in your system in which you want to format the disk. The prompt **TYPE "Y" TO FORMAT DISK n** (where **n** is the number of the drive you specified) appears. This gives you a chance to make sure that the specified drive contains a disk that you want to format - remember, formatting erases any files already contained on a disk.

 3 Place the disk to be formatted in the drive you have specified. Type **Y** and press **RETURN**. The BUSY light goes on as the drive begins to format the disk.

When the prompt **SELECT ITEM OR RETURN FOR MENU** appears, formatting is complete. You can now store files or write DOS Files on the formatted disk.

Now repeat the procedure with another disk.

Naming and Referring to Files

To manage your files with DOS, you have to give each file a distinctive filename. You also have to use a device code to tell your computer what part of your system - for example, Disk Drive 1 - you want to handle the file at any particular time. Taken together, the device code and the filename that you specify make up a filespec (short for "file specification"). Here is what a typical filespec looks like -

<div align="right">

D 1 : D E M O 1 2 9 A . I T L

</div>

Device Name

Device Number (Optional)

Required Colon

Filename (Up to 8 Characters)

Period Required if Extender Used

Extender (Optional - Up to 3 Characters)
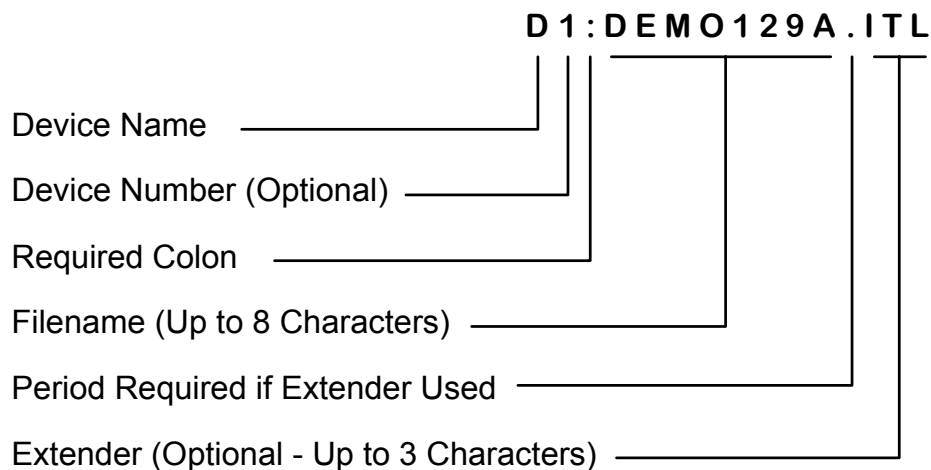
Defaults

For your convenience, DOS 2.5 provides default responses to several of its own prompts.

Since most DOS users have only one disk drive, for example, one of the more convenient defaults in DOS is **D1:** - Disk Drive 1 of your computer system. You have seen how DOS defaults to this device when you press **RETURN** in response to a **DIRECTORY- SEARCH SPEC, LIST FILE** prompt. DOS also defaults to **D1:** as a source and destination device - provided that you press **RETURN** in response to the appropriate prompts - when you are using most other DOS functions.

If you have only one disk drive, you do not have to specify a drive number when entering the device code for it. DOS understands **D:** to mean Drive 1.

Filenames

Each file stored on a given disk must have a unique filename; otherwise, your computer system will not know which file you want to work with.

Filenames may be up to eight characters in length, followed if you wish by a period and an extender of up to three characters. Except for the period that separates the filename proper from the optional extender, all the characters in a filename must be letters or numbers, not punctuation marks or other symbols. Hence, you could use -

    These filenames - **PROGRAM.6J**   But not these - **PROG.6J.BAS**
                         ACCT4321   **ACCOUNT4321**
                         LETTER1

If you try to enter an invalid filename, DOS refuses to accept it and displays **ERROR 165** on your screen.

Extenders, sometimes called file types or extensions, can be useful when you're naming related but distinct files that you might want to manage as a group (see "Wild Cards" below). For example, you could use **BAS** as an extender when naming all programs you write in Atari BASIC, eg. **PROGRAM1.BAS**, **PROGRAM2.BAS**, and so on.

You might use **LETTER.BUS** to identify a business letter, and **LETTER.SIS** for a letter to your sister. If you were writing a book with a word processing program, you might store the various chapters on disk as **CHAPTER.1**, **CHAPTER.2**, and so forth.

Wild Cards

In a game of poker, wild cards are valuable because they stand for any card you choose. Similarly, DOS recognizes special wild card symbols that can stand for any character or combination of characters in a filename. A major convenience, wild cards enable you to refer to a group of files rather than to each one individually.

The two wild cards recognized by DOS are the question mark (**?**), which stands for any single character, and the asterisk (*****), which stands for any combination of characters in a filename proper or in an extender. Working with the files listed below, for example, you could use **PROGRAM?.*** to specify all the program files, including **PROGRAM1.PIL**. The file **LETTER?.BUS** would refer to all the business letter files - but not to the letter to your sister.

        PROGRAM1.BAS   **LETTER1.BUS**
        PROGRAM2.BAS   **LETTER2.BUS**
        PROGRAM3.BAS   **LETTER3.BUS**
        PROGRAM1.PIL   **LETTER.SIS**

You can now understand the entire default filespec used by DOS in a DISK DIRECTORY procedure. When you press **RETURN** in response to the **DIRECTORY –SEARCH SPEC, LIST FILE** prompt, DOS understands your response as **D1:*.***. The **D1:**, as you know, is the default device code (Disk Drive 1), and the ***.*** stands for all files on the disk you want to check, inserted in Drive 1.

Copying Files

With the COPY FILE and DUPLICATE FILE options on the DOS Menu, you can copy your files from one disk to another. You can also make a backup copy of a file on the same disk as the original, provided you give the copy a different filename.

NOTE: You cannot copy the files that make up DOS - **DOS.SYS** and **DUP.SYS** - using either COPY FILE or DUPLICATE FILE. Instead, use Option **H. WRITE DOS FILES**, to copy these files. Normally, if you wish to put the DOS files on a disk (so that you can boot the computer from it) you would do this immediately after formatting the disk, and before copying any other program or data files to it.

The easiest way to learn how to copy files is to use the existing files on the A-STILE Working Disk which you should have created as part of the DUPLICATE DISK exercise described previously.

Which of the two copying options you should use depends on how many disk drives you have and whether you want to copy a file from one disk to another, or to replicate it on the same disk.

From One Disk to Another With One Disk Drive -

 1 With the DOS Menu on your screen, type **O** for DUPLICATE FILE and press **RETURN**. The prompt **NAME OF FILE TO MOVE?** appears.

 2 Type the name of one of the A-STILE files - say, **ASTILE.COM** - and press **RETURN**. The prompt **INSERT SOURCE DISK, TYPE RETURN** appears.

 3 Place the disk containing the file you want to duplicate in the drive and press **RETURN**. The disk drive begins to read the specified file on your source disk. Then DOS prompts you to **INSERT DESTINATION DISK, TYPE RETURN**.

 4 Remove your source disk from the disk drive and insert one of your formatted (blank) disks, then press **RETURN**. DOS writes the file it has read from your source disk to your destination disk.

How many times DOS prompts you to insert your source and destination disks in your disk drive will depend on how large your original file is. Try copying a large file like **ASTILE.OVL** to see the effect - be careful not to get source and destination disks confused. If you do manage to swap source and destination disks at any stage you will appreciate the precaution of placing a write-protection tab on the source disk. When the prompt **SELECT ITEM OR RETURN FOR MENU** appears, the copying process is complete.

From One Disk to Another With Two Disk Drives -

1 With the DOS Menu on your screen, type **C** for COPY FILE and press **RETURN**. The prompt **COPY - FROM, TO?** appears.

2 Type the complete filespec for the file you want to copy, a comma, and the filespec for the copy itself. To copy the practice file **ASTILE.COM**, you could type -**D1:ASTILE.COM,D2:ASTILCOM.CPY** - or simply use the same filespec for the copy.

3 Make sure that the disk containing your original file is in Drive 1 and the disk to which you are copying is in Drive 2. Then press **RETURN**.

DOS copies the specified file from the disk in Drive 1 to the disk in Drive 2. When the prompt **SELECT ITEM OR RETURN FOR MENU** appears, the copying process is complete.

Backing Up a File on the Same Disk

Whether you have one drive or two, you use the COPY FILE option on the DOS Menu to make a backup copy of a file on the same disk. Follow the steps outlined above for the two-drive copy, but type the same drive code for both the FROM and the TO filespecs and remember to give the file a different name in the TO filespec. For example, if you are copying the file **ASTILE.COM** on Drive 1, you might type -**D1:ASTILE.COM,D1:ASTILE.BAK**.

Using Wild Cards to Copy a Group of Files

Suppose you want to make backup copies of all three of the A-STILE files - **ASTILE.COM**, **ASTILE.OVL**, and **ASTILE.CFG**. You can use wild cards to copy all three at once - a time-saving alternative to copying them one at a time.

To use wild cards to copy all your practice files, follow the same procedure you use to copy one file on your system, but use wild cards when typing your **FROM** filespec (when using COPY FILE) or your **NAME OF FILE TO MOVE** (when using DUPLICATE FILE). To copy all three files, for example, you would type **ASTILE.*** as the name of the files to be copied - using the * to stand for the extenders in all three filenames. If you are using the DUPLICATE FILE option, DOS will tell you as it copies each file.

Erasing Files

You can erase a file from a disk with the DELETE FILE(S) function on the DOS Menu. Erasing out-of-date files, of course, opens up space on your data disks for storing more information. After a file is erased from a disk, its filename disappears from the directory for that disk.

CAUTION: Use the DELETE FILE(S) function with care - it may be permanent.

For practice, try erasing the copy you made of your **ASTILE.COM** file. Place the data disk containing the file in your disk drive. Then follow these steps:

1   With the DOS Menu on your screen, type **D** and press **RETURN**. The prompt **DELETE FILESPEC** appears.

2   Type **D1:ASTILE.COM** if your data disk is in Drive 1, or **D2:ASTILE.COM** if it is in Drive 2, then press **RETURN**. The prompt **TYPE "Y" TO DELETE...** appears - this is a verification prompt, allowing you a chance to change your mind about erasing the file.

3   Type **Y** and press **RETURN** to erase the file.

With wild cards in your filespec, you can erase as many files as you wish in one operation. To try this, copy a number of files to one of your disks, all with **.BAK** as an extender. Follow the same procedure you use to erase one file, but when your computer prompts you to enter the **DELETE FILESPEC**, type **D1:*.BAK** (or **D2:*.BAK** if you are using Drive 2).

As DOS displays each filename matching your filespec, type **Y** and press **RETURN** to delete that file. When you want to erase several but not all of the files in a group that you specify with wildcards, simply type **N** and press **RETURN** as the name of each file that you want to preserve appears. This operation takes less time than going through the entire DELETE FILE(S) procedure for several individual files.

9.3   ATARI ERROR CODES

As well as the error codes specific to A-TRACK (201 through 206) you may occasionally see some errors on the Status Row reported directly by the Atari XL/XE operating system, particularly when performing File operations or during the load of the A-STILE program itself. A full list of the error codes which can be generated by the more-common Atari disk operating systems (Atari DOS 2.5, MyDOS, and SpartaDOS) are given below (with the A-TRACK codes for completeness).

003	Last Byte of File	**161**	Too Many Open Files
128	Break Abort	**162**	Disk Full
129	Input/Output Control Block (IOCB) Already Open	**163**	Read Fail/Illegal Wildcard in Filename
130	Non-Existent Device Specified	**164**	File Link Fail/Erase Protected
131	File/IOCB Write Only	**165**	Invalid Characters in File Name
132	Invalid Handler/IOCB Command	**166**	Invalid POINT Command Request
133	Device/File Not Open	**167**	File/Directory Locked
134	Invalid IOCB Number	**168**	Invalid Command/IOCB
135	File/IOCB Read Only	**169**	Directory Full/Disk Write Locked
136	End of File	**170**	File Not Found
137	Truncated Record (>256 Bytes)	**171**	IOCB/POINT Invalid
138	Device Timeout (No Drive Found	**172**	Duplicate File/Directory Name
139	Device Not Acknowledged (No Disk - Wrong DOS)	**173**	Disk Bad/Format Fail
140	Serial Framing Error	**174**	Directory Not Found/ Duplicate Filename
141	Cursor Out of Range	**175**	Directory Not Empty/Bad Load
142	Serial Bus Data Frame Overrun	**176**	Incompatible Format
143	Serial Bus Data Frame Checksum Bad	**177**	Disk Structure Damaged
144	Device I/O Error (Disk Bad or Write Protected)	**180**	Not Binary File
145	Read After Write Error	**181**	Invalid Address Range
146	Function Not Implemented		
147	Insufficient Memory		
148	Not SpartaDOS Disk	**201**	Unable to Generate DCC Command
149	Not SpartaDOS 2.X Disk	**202**	Invalid Data Entered
150	Directory Not Found	**203**	DIU Not Enabled
151	File/Directory Already Exists	**204**	DIU/PBU Not Active
152	Not Binary File	**205**	DCC Command Block Not Output
160	Invalid Drive Number	**206**	DIU Not in Program Mode

Usually the cause of the error is fairly obvious - equipment not connected or switched on, no disk (or the wrong disk) in the drive, disk not formatted, or a simple typing error in the filename, etc. - and can be easily rectified. However, if a careful check of connections followed by a system reload does not fix the problem, you should check your Atari equipment on its own, running some other (known good) software, to try to identify whether it is the Atari kit or A-STILE which is at fault before looking for further assistance.

9.4   ATARI INTERNAL CHARACTER CODES

Sort operations described in Section 5.4 use the numerical values of the Atari internal character codes to compare the first three characters of the Description text string. The hexadecimal values, and hence order, of all A-STILE characters are shown below.

Note that characters 40 to 5A, and 7C are Atari graphics characters which cannot be easily shown here in a text font. Refer to your Atari computer documentation for details of the actual graphics character shapes.

00	{Space}	20	@	40	■	60	©
01	!	21	A	41	□	61	a
02	"	22	B	42	□	62	b
03	#	23	C	43	□	63	c
04	$	24	D	44	□	64	d
05	%	25	E	45	□	65	e
06	&	26	F	46	□	66	f
07	'	27	G	47	□	67	g
08	(	28	H	48	□	68	h
09	)	29	I	49	□	69	i
0A	*	2A	J	4A	□	6A	j
0B	+	2B	K	4B	□	6B	k
0C	,	2C	L	4C	□	6C	l
0D	–	2D	M	4D	□	6D	m
0E	.	2E	N	4E	□	6E	n
0F	/	2F	O	4F	□	6F	o
10	0	30	P	50	▣	70	p
11	1	31	Q	51	□	71	q
12	2	32	R	52	□	72	r
13	3	33	S	53	□	73	s
14	4	34	T	54	●	74	t
15	5	35	U	55	□	75	u
16	6	36	V	56	□	76	v
17	7	37	W	57	□	77	w
18	8	38	X	58	□	78	x
19	9	39	Y	59	□	79	y
1A	:	3A	Z	5A	□	7A	z
1B	;	3B	[	5B	∈	7B	£
1C	<	3C	\	5C	↑	7C	□
1D	=	3D	]	5D	↓	7D	Ⓟ
1E	>	3E	^	5E	←	7E	◄
1F	?	3F	_	5F	→	7F	►

10   CHANGE HISTORY

10.1   RELEASE 1.6

1   First release for evaluation.

10.2   RELEASE 2.0

1   Implementation of Print functions. In order to make sufficient memory available for these routines, MEMLO has been lowered by 256 bytes to $1E00.

2   The action of various List editing and function keys (including **RETURN**, **TAB**, etc.) and the mouse buttons, has now been inhibited when no Item List is loaded. Previously, inadvertent key presses after clearing the current Item List could crash the program, or open the Item Edit screen to display a non-existent Item .

11 AFTERWORD

A-STILE is still a work in progress. Any comments, criticisms, or suggestions regarding any aspect of the operation, functions, or useability of the program are welcome and will be given careful consideration.

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8 November, 2003