SynFile+™

### The Ultimate Filing System

By Daniel Moore and Steve Ahlstrom
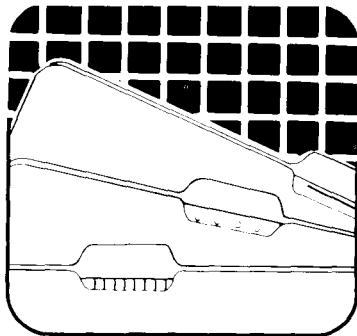
**Requires ATARI Home Computer
with minimum 48K RAM memory
and disk drive. Optional: printer,
Axlon 128K Rampower,™
Mosaic 64K Select.™**

synapse

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SynFile+

SynFile + ™ is an easy to use computer program for storing and retrieving information. It can help you turn record keeping from dull business into a satisfying experience. At the very least, you'll find that using *SynFile +* will give you a sense of control as it helps you manage your data.

SynFile + has been carefully designed for clarity and flexibility. With standard English prompts and simple to follow menus, you can design your own data structure, alphabetize your information, make calculations, print attractive reports, and manipulate the data that *SynFile +* has stored. *SynFile +* is also compatible with *SynCalc™*, *SynTrend™*, and *AtariWriter™*, thereby providing a complete applications package to the ATARI home computer user.

How To Use This Manual

This manual has been divided into six sections. These sections are designed to give a clear presentation of the material and easy access to the information you need to run the program. We've included illustrations in order to make the instructions and examples clear.

Whether you are a computer novice or a seasoned data-processing professional, you will find this manual easy to use and understand. It takes the form of a tutorial. We found, after extensive testing, that the best way to introduce a program is through a step-by-step creation of a demonstration database.

As you read the instructions, please try all the examples as they are described (even if you are not sure that you will be using them). This will familiarize you with the overall operation of the program, making the routine functions quick and easy.

SECTION ONE contains an overview of *SynFile +* and what equipment you should have to use the program. It also covers starting the program and explains some of the special keys that *SynFile +* uses.

SECTION TWO begins by presenting what you need to know to define the organization of your own datafile. It goes on to describe, step by step, how to prepare a disk so that it can be used by the system.

SECTION THREE describes how to input data into your file. After you've entered records, this section will show you a wide variety of ways to retrieve specific information.

SECTION FOUR will tell you how to send your data from your datafile to a printer, disk or screen. This also covers how to refine the appearance of your report with titles and headings.

SECTION FIVE covers the operations that perform general functions such as merging files with *SynCalc*, *SynTrend*, and AtariWriter, as well as copying, renaming, and deleting files.

SECTION SIX is the Appendix and contains a glossary, error messages with recovery suggestions, information on what to do if *SynFile +* won't load,

<div align="right">SynFile +</div>

capacities, and a page index.

Section 6 also contains a list of the error messages in *SynFile +*. It explains messages and warnings which may appear on your screen while you are using the program. It also includes suggestions on how to correct a situation which caused the error message.

Before starting, it is a good idea to take a look through the Glossary in Section 6. Please read through the definitions to make sure that the words are used in the same way to which you are accustomed. Every effort has been made to keep the language as close to spoken English as possible. If you should encounter any unfamiliar words or do not understand a particular function while using the program, the Glossary can be a handy reference.

The Index at the back of this manual alphabetically lists subjects and their page numbers to help you quickly locate information.

Overview Of The Program

SynFile + is a completely menu-driven database management program with many applications and features. Prompts at the top and bottom of the command screens clearly indicate what the next entry should be.

MAIN MENU

FILES	RECORDS	REPORTS
OPEN file		
(Create, Edit)	ENTER	LISTS*
CLOSE file	(print, delete, calculate)	
COPY file	UPDATE ALL*	LABELS*
SUBFILE file*	DELETE ALL*	
MERGE files*	RE-INDEX	
RENAME file	RETRIEVE*	
DELETE file	(print, delete, calculate)	
DIF>SynFile	(edit a record)	
SynFile>DIF	(scan all records)	
DENSITY disk		
FORMAT disk		
	*asks for search	
	criteria	

The Menus of the *SynFile +* Program

Working with *SynFile +* is essentially a three-step process. First, you determine how the information will be organized and define this for the system. Second, you create a datafile into which you enter your data. Finally, you can selectively retrieve the information you want. During the retrieval portion, you can decide what kind of report you want and look at it on your screen, send it to your printer, or send it to a disk file for merging with AtariWriter.

You can merge files or generate as many reports as you want. You may even decide to display the same data on two or more different types of reports. This can give you a different perspective of the same information.

As with any database application, start by clarifying your objectives. What information do you have at hand now and on what information will you wish to select? How are you going to report the data? What kind of information will you

want to add at some future time? You might try to picture an index card, invoice, or some other form you are familiar with.

Decide how you are going to label the parts of the information. Give some thought also to how you want to set up and name your datafiles. We'll give you guidelines for these steps. Good planning will save you a lot of time and help ensure that everything will be entered properly.

What You Will Need

1. An ATARI home computer.
2. An ATARI disk drive (up to 4).
3. The program diskette, enclosed in the inside front cover of the manual.
4. At least 48K RAM.
5. A TV set or other video monitor. A black and white set will work.
6. A set of blank diskettes for storing data.

OPTIONAL: ATARI printer for obtaining hard copy versions of reports. You can also use the Axlon Rampower 128k or Mosaic 64k Select to increase your computer's capacity.

The ATARI Keyboard

The ATARI keyboard is very similar to a typewriter keyboard, although the placement of special characters in some instances is different. The shift key on the ATARI keyboard works like the typewriter shift key. That is, you hold down (SHIFT) in order to obtain uppercase letters when you are in the lowercase mode or to type characters that appear on the top line of a key that has more than one character on it. For example, to type $, you hold down

(SHIFT) and hit the key on the top row with the 4 and the $ on it. Note that unlike the typewriter keyboard, the characters * and + do not require the shift key.

A Word On Diskettes

You cannot be too careful when it comes to handling diskettes. Each diskette is a small magnetically coated plastic disk sealed in a protective square cover. Through the oval cut-out in the square cover, you can see the magnetic surface of the actual diskette.

Take careful note of the following guidelines for the handling of diskettes:
1. NEVER TOUCH THE EXPOSED MAGNETIC SURFACE with your fingers or any implement.
2. Protect the diskette from dust by storing it in the paper sleeve it comes in.
3. Keep it at least six inches from magnetic fields, such as those generated by a TV.
4. Extremes of temperature (such as in a car trunk on a warm day) could destroy a diskette, and you would lose your data, or the program.
5. Don't bend, staple or write on the square cover with a hard pen or pencil (use only soft felt tip pens).

Loading The Program

You need two disks to run *SynFile +* : the program disk (which is provided) and a separate floppy disk to store your information. If you are going to store a lot of data, you may need to have several floppy disks on hand. Format the blank disks using the format option in *SynFile +* (the procedure for this is explained later in this manual under Formatting a Data Disk).

Always insert the program disk into drive 1. Your procedure will include swapping the program disk and the data disk back and forth from drive 1 as needed.

The Write Enable Notch on a Disk

Disks have a "write enable" notch on the side of the jacket which, when covered with tape, prevents the disks from being written on. Do not cover the notch with a write protect tab on the data disks unless you are certain you do not wish to store any more data on the disk.

Starting the System

Remove any cartridges and check the disk drive(s). Make sure that the busy light is not on. Open the door on each disk drive (if you have more than one) and remove any diskette that might be present. Leave the drive door(s) open for the time being. You will insert the program diskette later.

If your equipment is turned off, begin by turning on your TV set or monitor. Next, turn on your disk drive. The drive motor will start up and run for a few seconds. When it stops, the BUSY light will go out, but the power light will remain lit.

Take the program diskette from the pocket on the inside front cover of the manual. Remove it from the paper sleeve and grasp the diskette by the label edge with the label side up. Carefully insert it into drive 1, with the label edge entering last (see illustration). Gently push the diskette all the way in. Close the drive door until you hear the door click shut.

Disk inserted in drive.
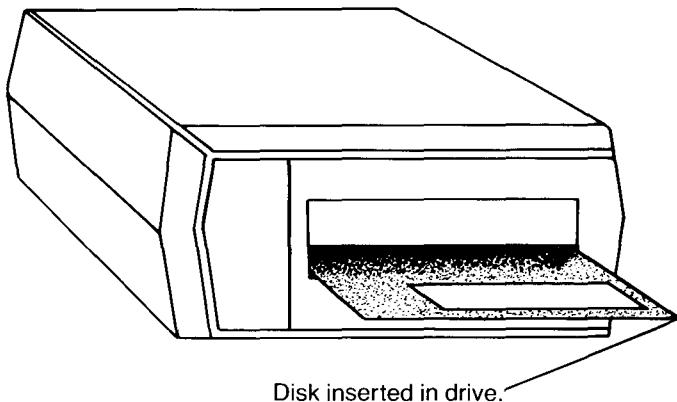
REMEMBER: Programs will load from a disk drive with a DRIVE CODE number of 1. See your disk drive manual for details on setting the DRIVE CODE number.

Now, turn the computer on by pushing the computer's power switch to the ON position.

If your computer was already on, turn it off, pause a moment then turn it back on. The drive takes about a minute to load the program.

Here's a summary of the starting procedure:

1. Turn on your disk drive.
2. Insert the *SynFile +* program disk in drive 1 and close the latch.
3. Make sure any cartridges are removed from the cartridge slot.
4. Turn on your display screen.
5. Turn on your computer.

The Main Menu

When *SynFile +* is loaded properly, the first thing it does is display the Main Menu. It looks like this:

```
            SYNFILE+

    By Daniel Moore and Steve Ahlstrom
  (C) 1983  SYNAPSE SOFTWARE CORPORATION


     Developed Exclusively for ATARI (R)




     FILES      RECORDS     REPORTS
```
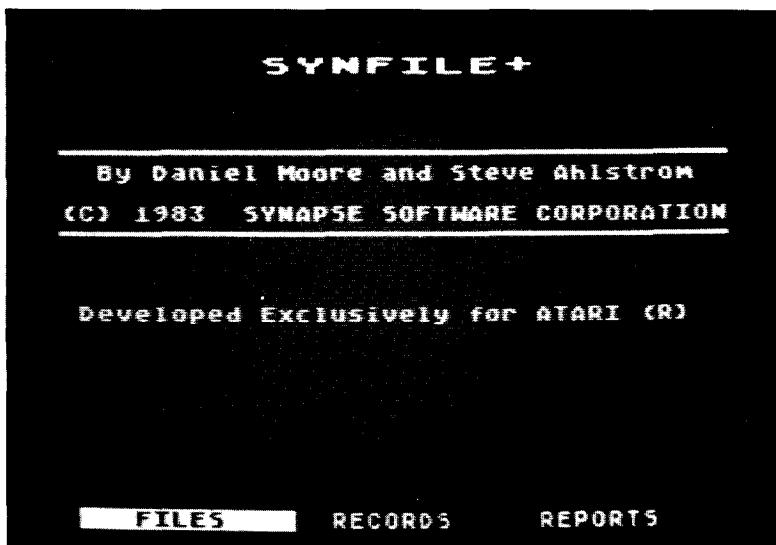
If your screen does not look like this, remove your program disk from the drive. Turn off the computer and start over, using the same instructions above.

When the program has loaded correctly and the BUSY light has gone dark, you can open the drive door and gently remove your program disk. Put it back in its sleeve (label showing). Keep it handy as you will need to swap back and forth between your program disk and your data disk. If you do not have an ATARI DOS II formatted disk, insert a blank disk or one with information you no longer want to keep. We will step through the procedure for formatting a data disk for use with *SynFile +* shortly.

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If you have an Axlon 128K Rampower or Mosaic 64K
select boards, a message will appear indicating the
amount of available memory.
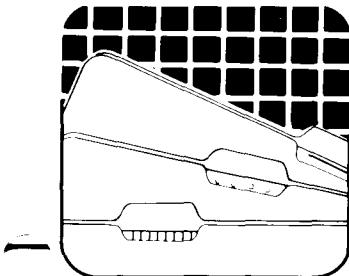
Selecting From The Main Menu Screen

Once the Main Menu appears on the screen, you are in a position to select one of three options. Choose from operations involving: FILES, RECORDS, or REPORTS. The FILES operations allow you to create a form for the file, open, close, merge, or otherwise manipulate whole datafiles. The RECORDS operations deal with entering data, retrieving specific records, updating information, deleting a record, and specifying a new index for the record. The final selection, REPORTS, provides output functions like printing lists, printing labels and providing information to AtariWriter™.

Moving the Cursor

Whenever you need to make a selection from several choices, *SynFile+* will display, in a sub-menu, all the possibilities available to you. You indicate your selection by moving the cursor so that it is highlighting the appropriate option using (CTRL) and the arrow keys. Finally, when the cursor is highlighting the correct option, press the (RETURN) key to enter your selection.

Take a moment to play with the arrow keys and move the white cursor back and forth between FILES, RECORDS, and REPORTS. Experiment with this now:

Hold (CTRL) down and press each of the arrow keys: (→) (←) (↑) (↓).

Notice that only the (←) and (→) arrow keys work on this screen. The up and down arrows will come into use later.

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The FILES menu selection is the path to defining the organization of your file. It also is the path to the Format option. You might think of formatting as preparing the surface of a disk.

Formatting a Data Disk

Before you can use a disk for the first time, you must format it. This process gets a disk ready for subsequent storage of data.

With the cursor on the FILES option:
PRESS (RETURN).

You'll see this sub-menu immediately:
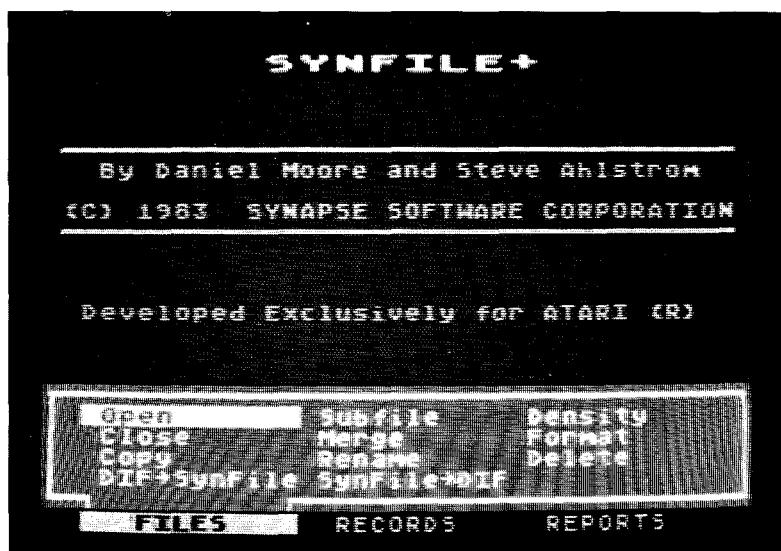
The Density Option

SynFile + allows you to choose from 3 disk density options when formatting your disk. To use the higher density

feature, disks must be formatted by *SynFile +* once set in the proper density mode. If you use the 1050 density, you must execute this command each time you use the program.

If you have an ATARI 1050™ (Dual) or double-density disk drive, use (CTRL) and the arrow keys to move the cursor so that it's highlighting the Density option.
PRESS (RETURN).
Use (CTRL) and the arrow keys to select Double or 1050.
PRESS (RETURN).

You will be returned to the Main Menu screen with the cursor positioned over Files. Press (RETURN) and use (CTRL) and the arrow keys to move the cursor so that it's highlighting the Format option. When the Format option is highlighted
PRESS (RETURN).

A new sub-menu will appear:

```
         S Y N F I L E +


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       Developed exclusively for ATARI


    ┌─────────────────────────────────
    │ No          Yes
    │ Format drive #1
  ┌─┴────────────┐
  │   FILES      │  RECORDS     REPORTS
```

SynFile +   *13*
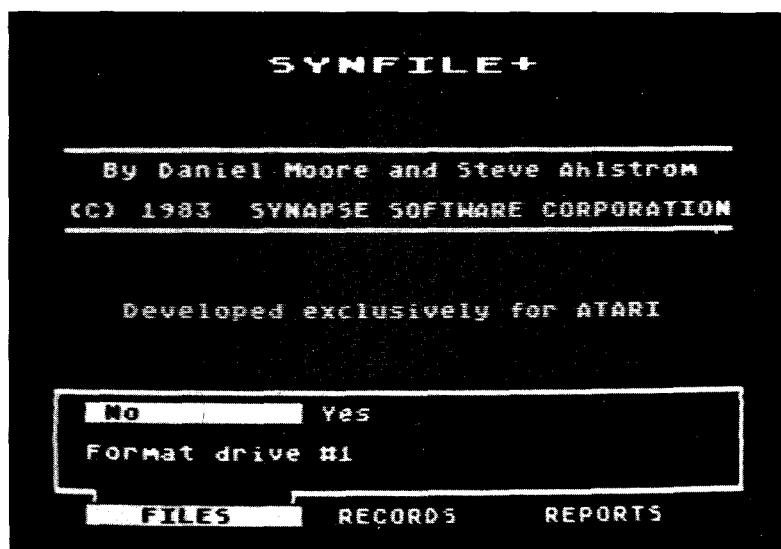
The default response is No because the program wants you to think twice about erasing the disk. The formatting operation can only be performed in drive 1.

Move the cursor over to YES with the (CTRL) (→) and: **PRESS** (RETURN).

Formatting takes about one minute. When the disk drive busy light goes out and the sub-menu disappears, the formatting operation is complete.

It's a good idea to label a blank disk right away. Remove the disk from the drive and apply the label to the jacket. Be careful not to touch the exposed magnetic surface of the disk itself.

Once again, these are the steps for formatting a disk:
1. Select Files from the Main Menu. Press (RETURN).
2. Choose Dual or Double Density, if applicable.
3. Select Format from the Files sub-menu. Press (RETURN).
4. Remove the program disk from drive 1.
5. Insert the blank disk in drive 1 and close the latch.
6. Move the cursor so that it's highlighting the YES option.
7. Press (RETURN)

The next section will begin by having you again select the FILES option, but this time, you'll go down the path toward creating a form.

Since you will need a formatted disk on which to save the form that you'll create in the next section, keep it handy.

Remove the newly formatted disk if you have not already done so, and put the program disk back into drive 1.

Creating the File Layout

SynFile + makes possible the management of many kinds of information, from small pieces in address lists to long ones that may be hundreds of characters. You have control over the layout that your information takes. *SynFile +* has what is known as a free format; that is, you get to design the layout of your record form.

At this point, a few definitions will help. A "file" is a group of related pieces of information; for example, a recipe file. A "record" is a discrete piece of that file, like a recipe for spaghetti. Traditionally, a record is built of a series of fields. For a recipe, the fields might be these: the name of the recipe, how many people it serves, the name of the person you got it from, and the date you got it. Ingredients and instructions would probably be two more fields and they'd have to be relatively long.

File of Recipes:

A File, A Record, and Six Fields

Name of Recipe → Spaghetti

Date received → 12/25/83   Mama Luigi   ← Who
Servings → 8   gave it

Ingredients → Water, salt, pasta, tomato sauce,
hamburger, spices

Instructions → 1. Boil 2 quarts of water.
2. Add 1 tsp of salt.
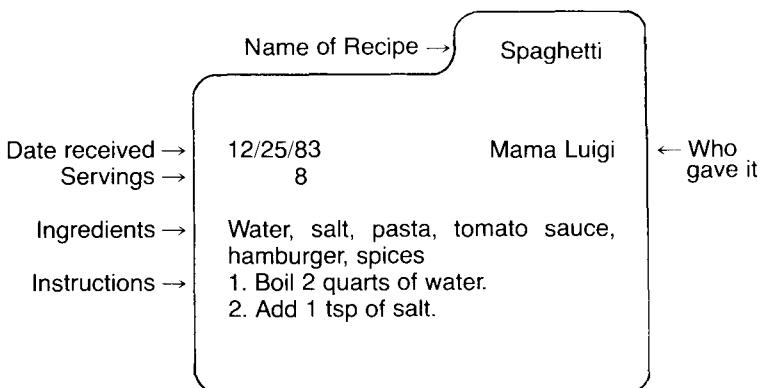
When you design your form for the file, you get to determine what fields will exist, what they'll be called and what type of information they'll contain. You will also get to determine how long a field will be. In other words, you determine the name, type, and length of each field.

In the recipe file, you might use field names like Name, Date, Servings, Received From, Ingredients, and Instructions. The type of information that these fields hold, for the most part, is called Text; you'll learn more about field types a little later.

Field length is the number of characters reserved for that item. For example, a phone number typically gets a length of 13 so that it can take the familiar (303)555-1212 format.

A field can be very long, up to 255 characters. In fact, all the information in this paragraph could fill a single field if you specify a very large number for field length.

Before you go on, keep two suggestions in mind. Use relatively short, clear names. This will keep you from being slowed down by typing errors. Second, make sure each field is long enough to easily contain the information you want. However, for the sake of speed and efficiency, don't make fields excessively large. A file of long fields may fill the disk prematurely. That is, more short records can fit on a disk than long ones.

Once you've determined the layout of the information, you can create a file that contains actual data that you can search through, manipulate, and print. The file that contains this information is known by two interchangeable names, either "datafile" or "database."

If you started *SynFile+* as described in the previous
section, you are now looking at the Main Menu screen of
the program.

The cursor will be highlighting FILES. Creating a form is a
file operation and lies down the FILES path, so:
PRESS (RETURN).

You'll see this familar sub-menu immediately:

```
No file loaded
                SYNFILE+




      Open          Subfile     Density
      Close         Merge       Format
      Copy          Rename      Delete
      DIF→SynF e    SynFile→DIF
      FILES         RECORDS     REPORTS
```
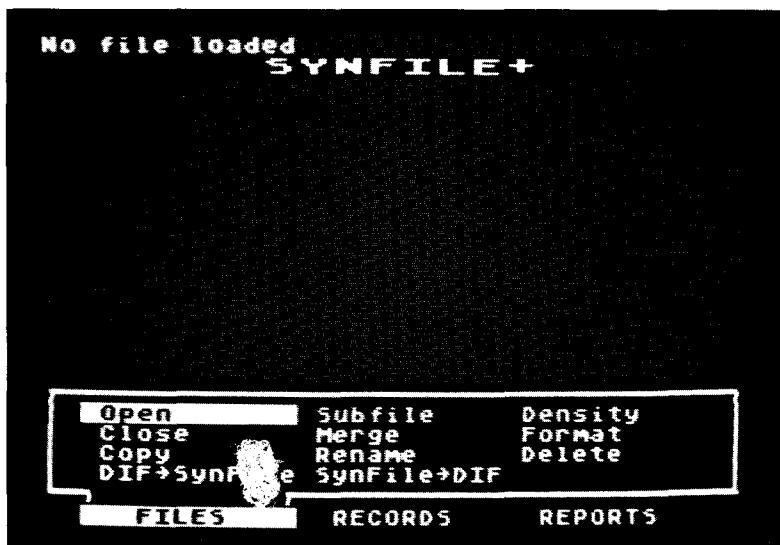
The cursor will be positioned over the Open option. If
you've used *SynFile+* before and datafiles exist, when
you select Open, a listing of all *SynFile+* files in drive 1
will appear in the upper section of the menu. That is, you'll
see a list of files there. At that point, you'll be able to select
the datafile with which you want to work.

One important note: the first disk of a datafile must always
be opened from drive 1. If your datafile grows beyond the

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capacity of one disk, you will be prompted to furnish additional formatted disks up to 16 per file.

When you first begin to use *SynFile +*, there won't be any datafiles listed and the only choice available to you is the Create option. The very first thing to do, then, is to create a form for information. (Later, you'll enter information and create the actual database.)

Select Open by pressing (RETURN).

The screen will now look like this:
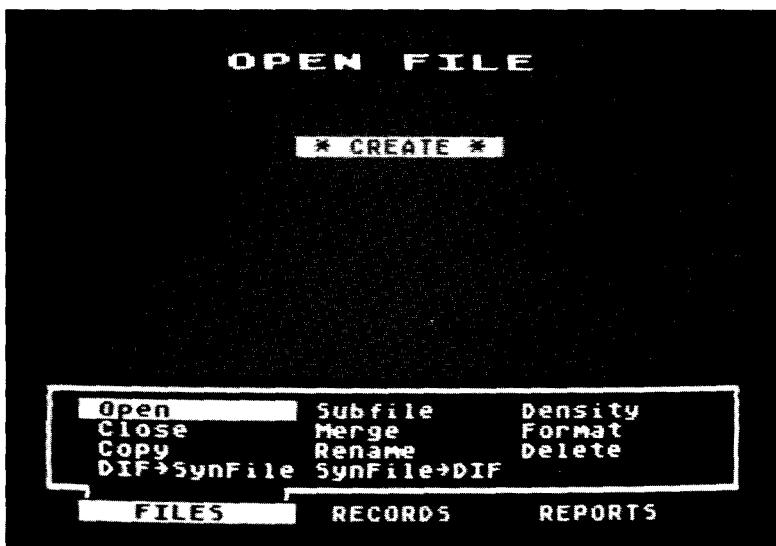
The cursor is resting over Create, the center field is gray, and the bottom sub-menu is blue. This color may vary according to your particular monitor or TV screen.

The Steps

In general, the steps shown below sketch what you need to do to create the form for each record in a file. This guide will take you through each step. In fact, you'll go through this loop for every field that you want in the record.
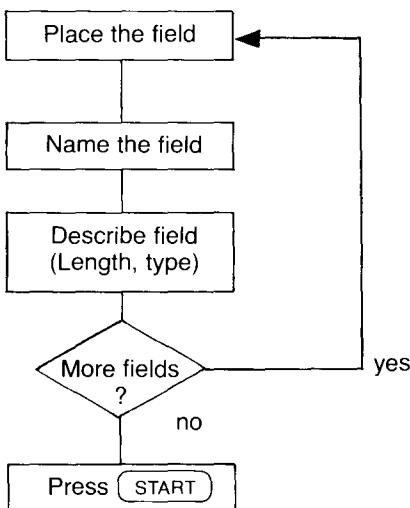
And this is how you begin ...

Selecting the Create Function

This session shows you how to describe the organization of the datafile for the *SynFile +* program. This is known as "creating the form".

Make sure your program disk is in drive 1.

Since the cursor is resting over Create at the top of the screen, simply:
PRESS (RETURN).

If you forgot to insert your program disk in drive 1, *SynFile +* will prompt you to insert it. You can exit this operation by pressing (ESC).

You'll notice right away that there seems to be a lot of activity in your disk drive. This is because Create is a program module that is separate from the main program that you've been running so far. *SynFile +* has to read it in from the program disk and set it running. **Remember, whenever you want to use the Create function, you must have the program disk in drive 1.**

When things quiet down and the Create module has been loaded successfully, you'll see the display change to this:

Throughout the remainder of this guide, we're going to be using a demonstration file that you will build from the beginning. This demonstration file is used for all the functions of *SynFile +*. Let's assume you run a small

business that vends skin-care products and that you would like to keep track of your sales.

Providing a Data Disk

Now that you've entered the Create program, the form that you create will be put on your data disk. To begin, provide the program with a blank, formatted disk.

Remove the program disk from drive 1 and insert a blank formatted disk in its place. Be sure to handle the disks carefully and to close the drive door completely.
PRESS ⌈ RETURN ⌉ to select the Create Form option.

Naming the Datafile

Let's start by creating the form for your datafile and naming your datafile INVLST. In response to the prompt "Enter Datafile Name":
ENTER: INVLST
PRESS ⌈ RETURN ⌉.

INVLST will become the name of your datafile. It is the name of a file that *SynFile+* will later put on your data disk. Since it is a file name, it has to follow a few rules. Under *SynFile+*, a file name:
1. Can be up to 8 characters long. Those characters can be letters or numbers. You can use uppercase letters only.
2. Must start with a letter from A to Z.
3. If you try to enter an invalid file name, *SynFile+* will automatically reject it by changing the character to a legal entry such as 0, A, or Z.

Right after you press ⌈ RETURN ⌉ and enter the file name into the system, notice that the sub-menu disappears and a new indicator appears on your screen.

The Cursor Position

On the top line, you'll be able to see the following prompt displayed:

Start = Save   Option = Cancel   Col:01   Row:01

The Column and Row indicator tells you the current position of the cursor on your screen in terms of a column and row number. The top of the screen is row 1 and the far left position is column 1. (You'll have 21 rows and 80 columns to play with.) Throughout the session with the *SynFile +* program, you'll always be able to locate where the cursor is on the screen — exactly!

The prompt "Start = Save" means that after the form has been created, you will press (START) to save it to your data disk. Do not press (START) yet. If you wish to leave the Create form operation, you can do so by pressing (OPTION).

Creating A Form

SynFile + goes directly to the next task: creating the form. You'll see that, except for the title, prompt lines, and the FILES/RECORDS/REPORTS Menu, the entire screen is empty. You can think of this as a blank slate, waiting for you to indicate where you want the information to be placed. You may enter up to 66 fields on your form.

Use (CTRL) and the arrow keys to move the cursor around to wherever you want to begin entering a field. You will be entering the name of the field; contents will come later.

Let's put the first field in the upper left corner. Check that the cursor is at Col:01 Row:01, then simply:

ENTER: The word "DATE" by typing it from your keyboard.
PRESS (RETURN).

A colon will appear after the word "DATE"

At this point, you have typed and entered a field name. Here are the rules for forming a field name. A field name:

1. Can be up to 31 characters long
2. Can include all numbers and upper or lowercase letters.
3. Can include any of the special symbols (except parentheses). Blank spaces between words are legal. Trailing blank spaces should be avoided as well as field names that are subsets of other field names. For example: "DATE OF BIRTH" and "DATE" should not be used as field names in the same form since "DATE" is a subset of "DATE OF BIRTH."

NOTE: Plus sign, minus sign, slash, asterisk, less than, or greater than symbols are not recommended as field names for numeric fields. This is because *SynFile +* may try to read them as mathematical operations. These symbols are best used in text field names.

These are some examples of legal field names:

Date
Quantity
Phone#
AN.EXCEEDINGLY.LONG.FIELD.NAME

If you make an error in typing the field name before you press (RETURN), you can edit it by backspacing over the error and then type the correct characters. After you've

finished changing a field name, remember to press
(RETURN) to send it to the computer.

If you have not yet pressed (RETURN), you can exit from the
enter field name mode by pressing (ESC). This will erase
your current field name and allow you to reposition the
cursor and re-enter the field name.

Looking at the Field Types

After you've entered the name of the field, DATE, and
pressed (RETURN), you'll see something new flash up on
your screen. SynFile+ is asking what kind of information
this field will contain. It displays the following blue sub-
menu:
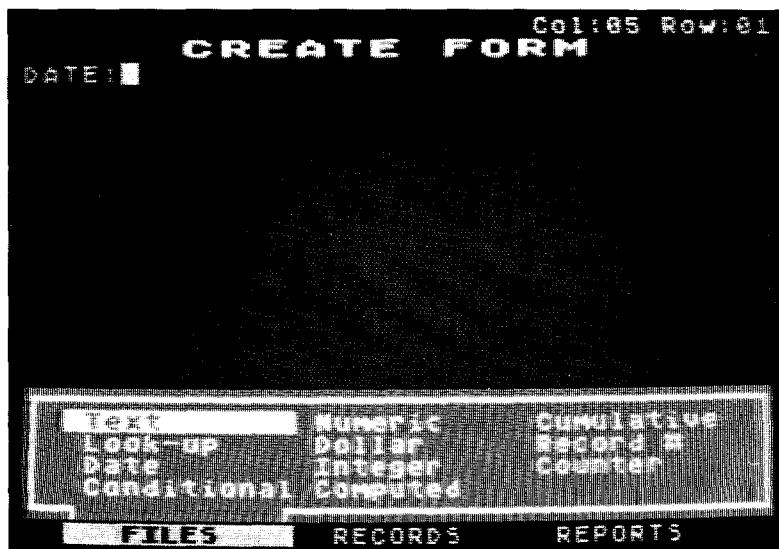
This screen presents the various field types from which
you can choose. The field type indicates how the computer
interprets the information in the field.

The field type tells the computer how to use the data in the field. For example, you can do math on the contents of a numeric field such as a field that contains the number of servings. (Number of servings multiplied by recipe measurement equals required ingredient amount.)

You can think of a field as if it were a column in a table where one column contains numbers and another names. For example, the column (field) that is going to contain the ages of your friends might have a field type of NUMERIC or INTEGER; the field type of the column containing their names would probably be TEXT.

Field Types and Definitions

Text
Tells *SynFile+* that you will be entering text into this field. Whatever you type will be taken literally. If you type an A, the computer will store an A. If you type a space, the computer will store a space.

Examples of Text entries:

Jean LaBeau
New York
Bake at 400 degrees for 45 minutes.

Numeric
Numbers will be entered in this field and you may perform arithmetic functions on these numbers. *SynFile+* will ask you if you want it left or right justified within the displayed field and the number of digits to the right of the decimal point to display if you do not specify floating format. The numbers can have a decimal portion and can range from -9×10^{97} to 9×10^{97}.

Examples of Numeric entries:

100.3
145.98
3.14159265

Remember to leave enough space when defining field length to account for a decimal place. Numbers less than one receive a "0" placed before the decimal point, so remember to leave enough room for it as well.

Cumulative   Specifies that a field is going to be used to keep a running total of the values contained in other fields. Cumulative fields are only updated during a calculate operation.

Example:

If you specify a new value for field N1 as 100, specify a new value for field N2 as 200, and have defined the field TOTAL as a cumulative field (N1 + N2) whose current value is 400, when you calculate, the cumulative field TOTAL will equal 700 (400 + 100 + 200 = 700).

Look-Up   Tells the computer that this field will contain an entry from a table of text data. With a Look-Up field, you define the table of valid data entries. At the time you enter data into your form, *SynFile +* will require you to enter data which appears in your previously

defined table. This prevents unwanted data entries from being accidentally entered.

Example:

You can specify states, months, colors, or other like items for look-up. An example of how this operates has been included in the tutorial under "A Few Final Details About Tables and Formulas."

NOTE: Entries are limited to 34 characters and are automatically right justified. A total of 2000 characters are allowed for look-up table entries and formulas.

Dollar   Says that the value in this field is a dollar amount. *SynFile+* will right justify the amount in the displayed field and supply the dollar sign and decimal point. The maximum value this field can have is $999,999,999.00 without going into exponential notation. When determining the length, be sure to allow enough room for the decimal point.

Record #   This type of field will contain an ascending, sequential number. The computer automatically will supply the value and it will be stored in the record itself that is kept on disk. The record number is initialized to 1 and can go up to 32767, incremented by 1 for each new record added.

Date   Will contain the month, day, and year in this format: mm/dd/yy where the system will supply the slashes and you will replace mm

with a number from 1 to 12, dd with a number from 1 to 31, and yy with a number from 01 to 99. For convenience, your most currently entered date will automatically appear as you enter records. The date defaults to 03/01/00 if no date entry is made.

Integer   Says that you will be putting whole numbers in this field. *SynFile+* will ask you if you want it left or right justified within the displayed field. The numbers will not have a decimal portion and can range from −32768 to +32767.

Counter   This field type will contain an ascending, sequential number. The computer will supply the value and it will be stored in the record itself that is kept on disk. This field type is very similar to record number, except that the user supplies the starting number (between 0 and 999) and the value by which to increment (1-100). *You may only have one counter field per file.*

Conditional   Designates a field that will contain a particular text entry based on a conditional relationship that you define in another place. For example, you might define a status field as a conditional field which would contain the message "In the Black" if the field Balance was greater than zero and "In the Red" if the Balance was negative.

Example: Create a numeric or calculated field ASSETS of length 3 and another numeric or calculated field LIABILITIES of length 3. Now specify a third field BALANCE

and designate it a conditional field in the following manner:
PRESS (RETURN).
Use the arrow keys to select Conditional:
PRESS (RETURN).

You are now asked to specify a field length. This length should be long enough for the conditional message. In this case it should be 6 characters to contain the word "PROFIT."
PRESS (START) to save the form.

A screen pops up asking you to Enter Table Data. You would:
ENTER PROFIT
PRESS (RETURN).
ENTER LOSS
PRESS (RETURN).

Next you are given the option of viewing the table data. Enter either Yes or No depending on whether you wish to view it or not.

Then you are asked to Enter Comparison. Here you would type in ASSETS>LIABILITIES and press (RETURN).

If you were to enter 100 in the ASSETS field and 200 in the LIABILITIES field, the BALANCE field would show "LOSS" since ASSETS are not greater than LIABILITIES.

Note: Entries are limited to 34 characters and cannot contain blanks.

Computed   Tells *SynFile +* that it will fill this field based on a formula that you define. *SynFile +* will ask you if you want it left or right justified within the displayed field. Make sure to leave

enough room for decimal points and the resulting number from large calculations.

Example: In our tutorial there is an example of this function. Quantity (QTY), PRICE, and extension (EXT) fields are entered onto the form. The EXT fields are defined as computed using the formula QTY*PRICE (quantity multiplied by price).

Entering the Field Type

After you specify the location and name, *SynFile+* wants you to enter the field type. To go further in our demonstration, select the field type Date for the field named DATE. To do this:
PRESS (CTRL) and (↓) twice, until the cursor is highlighting the Date option. Then:
PRESS (RETURN).

The sub-menu disappears. *SynFile+* will display __/__/__ to the right of the field name Date. It then waits for you to move the cursor into position for the next field.

Entering the Next Field Name

To enter the next field, as you did with the first field, you need to position the cursor, type the field name, and press (RETURN). So, to start:
PRESS (CTRL) and (→).

Continue to press it until the cursor position indicator reads Col:25 Row:01. This upcoming field will be in the same row as DATE. However, it'll be on the right side of your screen. At Col:25,Row:01,
ENTER: INVOICE# (Feel free to use upper and lower case; if you like, use (SHIFT) (3) for the # symbol.)

When you've finished typing it:
PRESS (RETURN).

Once again, the program will supply the colon. Your screen will look like this, with the cursor at the far right:
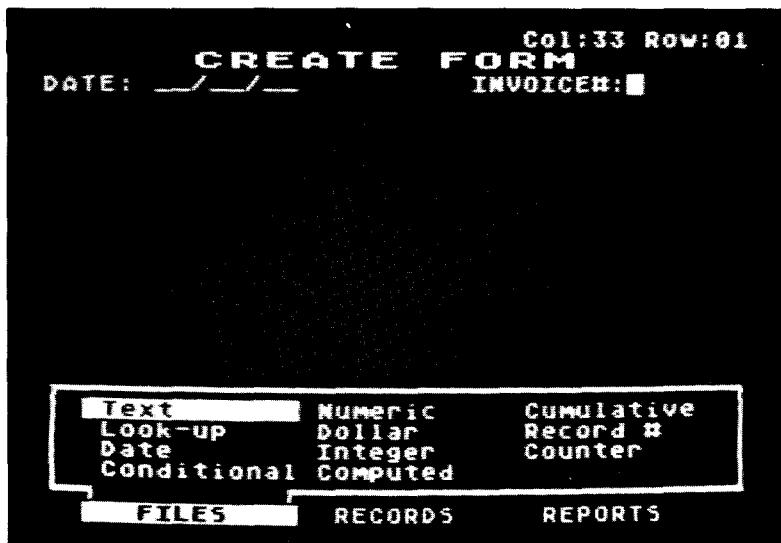
When the sub-menu for field type appears, move the cursor to the field type named Record #. To do this,
PRESS (CTRL) and the (→) twice, and
PRESS (CTRL) and the (↓) once.

When the cursor is highlighting Record#:
PRESS (RETURN).

Entering More Fields

To enter the next field,
PRESS (CTRL) and (↓) twice.
PRESS (CTRL) and (←) until the cursor position indicator reads Col:01 Row:03.

This field will be on the left margin and in the third line. Now you can start typing:

ENTER: NAME
PRESS (RETURN)

Once again, the program will supply the colon. When the sub-menu for field type appears, since it is already over the "Text" field type and this is what is appropriate, you don't have to move the cursor. Simply:
PRESS (RETURN).

The next sub-menu is asking about justifying the text in the field; *SynFile +* wants to know whether it should display it to the left or right in the field.

```
                              Col:05 Row:03
         CREATE   FORM
DATE: __/__/__          INVOICE#: _____
NAME: ■




        ┌─────────────────────────────────────┐
        │  Left Just   Right Just              │
        └──┬──────────────────────────────────┘
           │  FILES      RECORDS     REPORTS
```
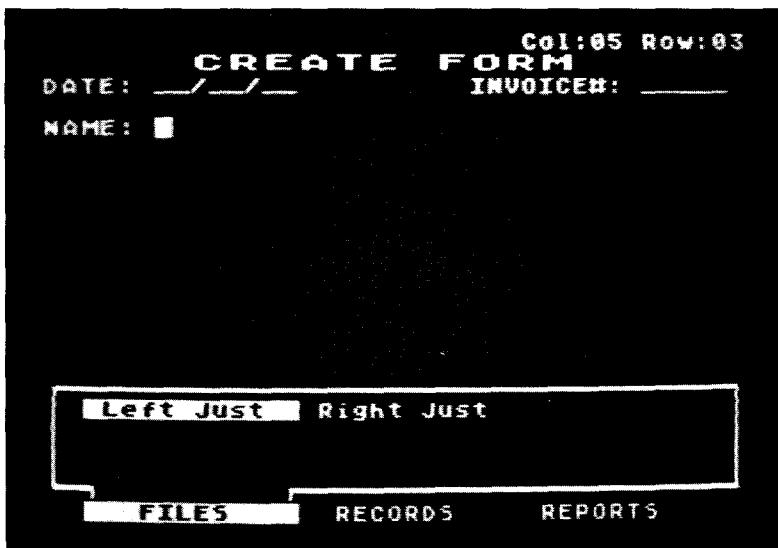
The bar cursor is highlighting Left. Since this is what we want, simply:
PRESS (RETURN).

You'll see the display change to:

```
                          Col:05 Row:03
        CREATE  FORM
DATE: __/__/__           INVOICE#: _____
NAME: █




  ┌──────────────────────────────────────┐
  │ Length of field?: █__                 │
  │                                        │
  └─┐                                      │
    │                                      │
 ┌──┴──────┐                               │
 │  FILES   │   RECORDS      REPORTS      │
```
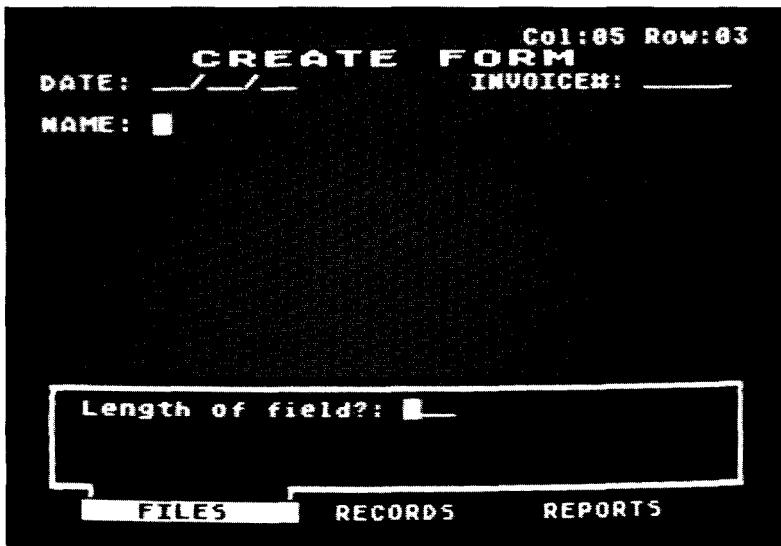
SynFile + is asking about the maximum number of characters that you will want to put into the Name field.
ENTER: 40
PRESS (RETURN).

The program will draw a 40-character line. This line disappears off the right of the screen. Don't worry about that; when you enter information into this field, the area will be "scrolled" so that what you are typing will always be visible to you.

In fact, if you wanted to put a field to the right of Name, you could use the (→) key to move past the now visible portion. You could then create another field to the right.

Entering the Rest of the Fields

The finished form for the INVLST file will look like this:

```
Start=Save Option=Cancel   Col:01 Row:19
            CREATE  FORM
DATE: __/__/__          INVOICE#: _____
NAME: _____
ADDRESS: _____
CITY: _____ STATE: __
TELEPHONE: _____

QTY S: __    PRICE S:$____    EXT S: __
QTY M: __    PRICE M:$____    EXT M: __
QTY L: __    PRICE L:$____    EXT L: __
                                   TOTA
 ■

        FILES        RECORDS    REPORTS
```

Notice that it is too large to fit completely on your monitor. If you want to view the entire form, use the arrow keys to scroll across the screen and bring the rest of the form into view.

For the rest of the fields, use the following values. They'll tell you where to place the cursor, what to name the field, the type, and the length. Remember, press (RETURN) every time you want to enter a completed item.

By the way, you can also use the (TAB) key to move the cursor ten characters to the right. (CTRL) (TAB) is the "reverse" tab, that is, it lets you move the cursor back ten characters.

If you have any trouble, go back to the section entitled "Entering the Next Field Name." You'll find the answer to your difficulty there. Just follow those instructions step by step and remember to use these values:

Put the cursor at: Col:01 Row:05

Name the field: ADDRESS
Specify the type as: Text
Justify it to the: Left
Provide a length of: 40

Put the cursor at: Col:01 Row:07

Name the field: CITY
Specify the type as: Text
Justify it to the: Left
Provide a length of: 20

Put the cursor at: Col:29 Row:07

Name the field: STATE
Specify the type as: Look-up
Provide a length of: 2

Put the cursor at: Col:41 Row:07
(Notice that the screen will be scrolled left for you)

Name the field: ZIP
Specify the type as: Text
Justify it to the: Right
Provide a length of: 5

The reason the zip is a text field and not an integer field is that it is always 5 characters long and so can be correctly handled as a text field. Also integers are limited to the numbers −32768 to +32767, which is too restrictive a range to handle many zip codes.

Put the cursor at: Col:01 Row:09

Name the field: TELEPHONE
Specify the type as: Text
Justify it to the: Left
Provide a length of: 13
                     (This will allow it to take the form:
                     (nnn)nnn-nnnn.)

Put the cursor at: Col:01 Row:12

Name the field: QTY S (Small.)
Specify the type as: Integer
Justify it to the: Right
Provide a length of: 3

Put the cursor at: Col:15 Row:12

Name the field: PRICE S
Specify the type as: Dollar
Provide a length of: 5

Put the cursor at: Col:32 Row:12

Name the field: EXT S
Specify the type as: Computed
                     (We'll enter the formula later.)
Justify it to the: Right
Provide a length of: 7
Specify: Fixed point
Decimal Places: 2

Put the cursor at: Col:01 Row:14

Name the field: QTY M (Medium.)
Specify the type as: Integer
Justify it to the: Right
Provide a length of: 3

Put the cursor at: Col:15 Row:14

Name the field: PRICE M
Specify the type as: Dollar
Provide a length of: 5

Put the cursor at: Col:32 Row:14

Name the field: EXT M
Specify the type as: Computed
Justify to the: Right
Provide a length of: 7
Specify: Fixed point
Decimal Places: 2

Put the cursor at: Col:01 Row:16

Name the field: QTY L (Large.)
Specify the type as: Integer
Justify it to the: Right
Provide a length of: 3

Put the cursor at: Col:15 Row:16

Name the field: PRICE L
Specify the type as: Dollar
Provide a length of: 5

Put the cursor at: Col:32 Row:16

Name the field: EXT L
Specify the type as: Computed
Justify to the: Right
Provide a length of: 7
Specify: Fixed point
Decimal Places: 2

Hang in there. You're getting close now. This is the last field that you have to enter:

Put the cursor at: Col:37 Row:18

Name the field: TOTAL
Specify the type as: Computed
(We'll enter the formula later.)
Justify it to the: Right
Length of Field: 10
Specify: Fixed point
Decimal Places: 2

Editing Fields

SynFile + lets you do several kinds of editing while you're creating a form. Let's look at erasing a field first.

Erasing a Field

To erase a field that you've entered, position the cursor on the first character of the field and press (RETURN). A sub-menu pops up allowing you to select from five options: Move, New Name, New Type, New Length, and Delete. Since we want to delete the field, move the cursor so that it is positioned over Delete and press (RETURN). You will see another screen asking to confirm the deletion.

The cursor defaults over "NO". Move the cursor over "YES" and press ⎡RETURN⎤. The field is removed from your worksheet.˙

Moving a Field

To move a field that you've already defined, all you have to do is position the cursor on the first character of the field name and press ⎡RETURN⎤. The same sub-menu pops up with the cursor highlighting MOVE.
PRESS ⎡RETURN⎤.

You'll see the field turn into a big inverse block, exactly as long as the field name and length you've specified. Then, with ⎡CTRL⎤ and the arrow keys you can move the field around to its new location. When it's where you want it:
PRESS ⎡RETURN⎤ to "drop" it.

When you're moving a field, you'll notice that the field can be moved over another field while it's in transit. The program will not allow you to stack your fields on top of one another.

Changing Name, Type, or Length

The other options on the sub-menu work in much the same way. When you select New Name, the field you have indicated with your cursor will go blank and you will be able to type in a new name.

When you select New Type, you will be prompted through the same sequence you went through when you created the field to specify a new field type.

When you select New Length, the line next to the field you have indicated with your cursor will go blank and you will be prompted to fill in the number of characters you want the new line to be.

Saving The Form

This next step is very simple, yet very important. We've given it its own heading so that you can find it readily when you need it. When you're done entering the fields, simply:
PRESS (START) to save your form to disk.

If, in the form creation process, you specified certain field types, *SynFile+* will ask you for additional information. If you specified a field type of Look-up, it will ask you to type in the table that it will search through. If you specified Computed, it asks for the formula that is to be used. For a field type of Conditional, it lets you enter the relational statement it will use for the test. And finally, if you told it that a field is to be a counter, the program will ask you what number to start counting from and what increment (or step) to use.

A Few Final Details About Tables and Formulas

Since the demonstration was designed to step you through a large variety of functions, when you press (START), the program will begin prompting you for the additional information. The first thing it asks you to fill in is the look-up table for the State field. You'll see this display, with the top status line indicating the field requiring a formula or conditional value.

```
Field: STATE
         CREATE  FORM




    Enter table data
    ■

    FILES       RECORDS     REPORTS
```
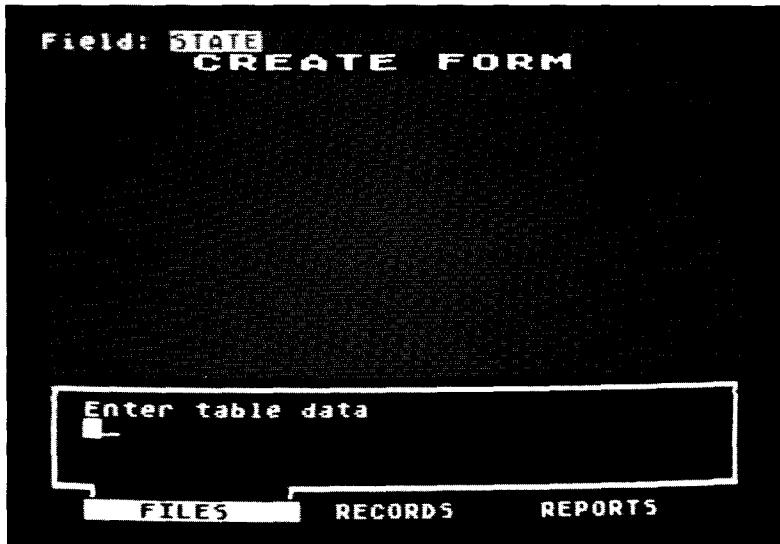
In the sub-menu area, below the prompt "Enter table data," enter the abbreviations for the seven western states. First type the code, then press (RETURN). You'll see SynFile + clear the lower display so you can enter the next item. When you're done, press (START).

Type the following:

AZ   (and press (RETURN))
CA   (and press (RETURN))
ID   (and press (RETURN))
NE   (and press (RETURN))
OR   (and press (RETURN))
UT   (and press (RETURN))
WN   (and press (RETURN))

Notice that SynFile + paints the numbers of the entries on the screen and moves your entry from the sub-menu area into the center area each time you press (RETURN). **PRESS** (START).

SynFile +   *41*

When the program asks "Review Table Data?", check that
the cursor is over Yes and:
PRESS (RETURN).

The table data will reappear on your screen and you'll see
this sub-menu:
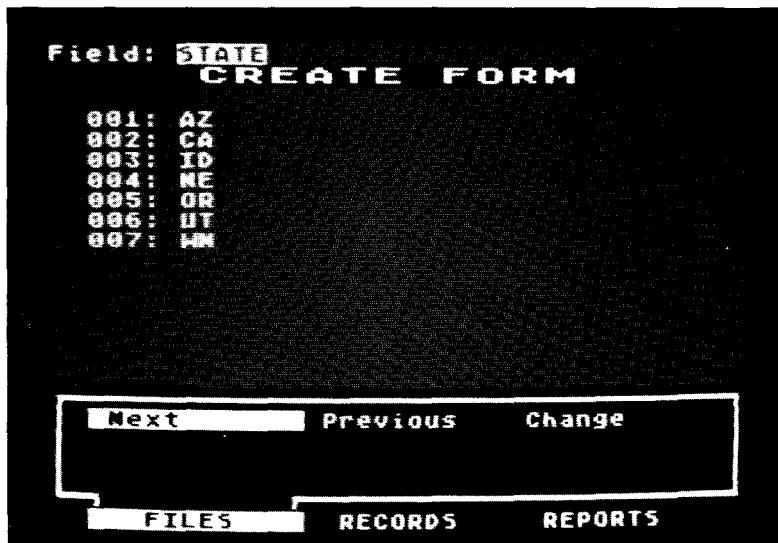
Move the cursor to the Change option. We're going to
change the abbreviation for Nevada from NE to NV.
PRESS (RETURN).

When the program asks "Edit what entry?",
ENTER: 4 indicating the fourth entry (NE) on the display.
PRESS (RETURN).

You'll see that the fourth entry is highlighted. At this point,
type in the correct abbreviation:
ENTER: NV
PRESS (RETURN).

If you wanted to indicate no change in an item, simply:
PRESS (RETURN).

The Next and Previous options are used to see subsequent and prior pages in very long tables. You will also use Next after you made all your changes and are ready to go on. So, go ahead, and with the cursor highlighting Next:
**PRESS** (RETURN).

Computed Fields

When the program displays "Field: EXT S" in inverse video, you'll see the first 30 fields in your data form listed in three columns on your screen. You'll be able to see only the first 10 characters of long field names. You'll also be able to see a prompt asking you to "Enter formula."

When you enter the formula for a computed value based on the contents of fields, you must type the field names accurately; use exactly the same upper and lower case letters that you used when you initially named the field. If you type a variation, like TOTAL for Total, *SynFile +* will reject it. *SynFile +* will perform addition, subtraction, multiplication and division. The symbol for addition is +, the symbol for subtraction is −, the symbol for multiplication is *, and the symbol for division is /. In addition, *SynFile +* supports the following functions: ABS, SQRT, LOG, LOG10, EXP, and EXP10. The argument of each of these functions must be enclosed in parentheses as in SQRT(TOTAL).

For our example, we will need to multiply quantity and price to get the extension value and then add the three extensions to get the total. The field whose formula you are entering will appear in the upper-left corner of the screen. To do this:

ENTER: QTY S*PRICE S
PRESS (RETURN).
ENTER: QTY M*PRICE M
PRESS (RETURN).
ENTER: QTY L*PRICE L
PRESS (RETURN).
**ENTER:** EXT S + EXT M + EXT L
PRESS (RETURN).

You are now presented with the Create Form Menu.
Position your cursor over *SynFile+* , insert the
program disk in Drive 1, and:
PRESS (RETURN).

The next chapter will show you how to enter data into your
newly created form.

Backing Up Data Disks

Saving your work periodically on diskette is only the first
step in protecting your time and calculations. A diskette
is a safe and reliable medium for storing information.
However, a diskette can be harmed even in ordinary use.
It could be scratched or it may pick up grease or dust. It
may be damaged by heat, exposed to a magnetic field or
accidentally be re-formatted, thus erasing its contents.
Diskettes will eventually wear out. The average lifetime of
a diskette is about 40 hours of use (when the disk drive
BUSY light is on, the diskette is in use). To protect
yourself, you should always make extra copies of your
important files on separate backup diskettes. This can be
done using the Copy function in *SynFile+* as explained
later or by using the Duplicate Disk function of DOS.
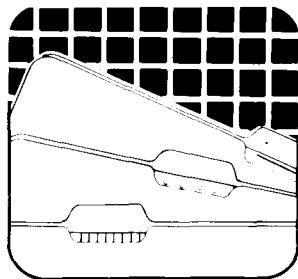
This chapter takes you step-by-step through the procedures for entering, finding, and looking at specific records.

To begin, you'll be entering several records that will go onto a single data disk. *SynFile +* is hardly fazed by this; it can handle a single datafile that extends over 16 disks.

Opening A File

If you're continuing directly from the previous chapter, you should be looking at the Main Menu:

```
No file loaded
            SYNFILE+




    FILES       RECORDS      REPORTS
```
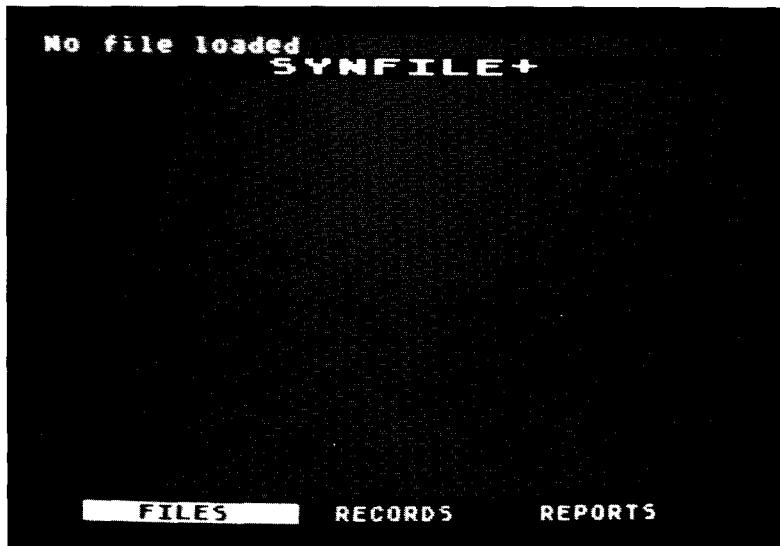
The cursor is highlighting the FILES option. In order to start entering our records, we need to get to the RECORDS sub-menu. If you interrupted the previous

session, bring up *SynFile* + again by following the section
called Loading the *SynFile* + Program in the first chapter.

The "NO FILE LOADED" message in the upper-left corner
is a reminder that no file has been opened.

Insert your data disk in drive 1.

When the cursor is highlighting FILES in inverse video:
PRESS (RETURN).

The FILES sub-menu appears and looks like this:
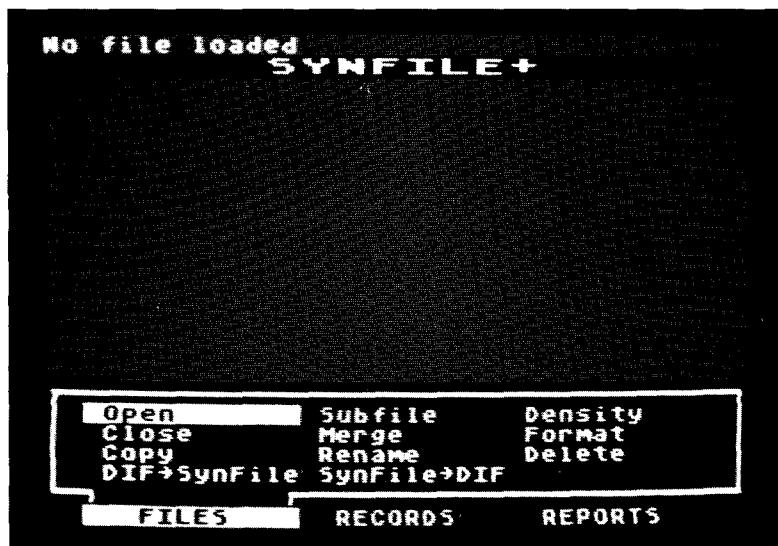
Before data can be entered, the file must be opened.
Therefore, with the cursor highlighting OPEN:
PRESS (RETURN).

The program will display the names of all the files that are
on the current disk in drive 1. The only datafile we've
created is INVLST, so only INVLST's name will be

displayed and highlighted. (When there are several files, simply move the cursor to indicate to *SynFile+* which one you want.)

A reminder: To facilitate multiple drives/disks per file, drive 1 is always used to open a file. Files are selected using (CTRL) and the arrow keys and (RETURN).

PRESS (RETURN) to select INVLST.

Choosing The Index

When you enter data into your file, *SynFile+* tabulates the necessary information it needs to maintain your records in index order. However, since we have just created the datafile, we have not yet specified the index fields. Let's see how this works.

Your screen will display a listing of all the fields in your form as follows:
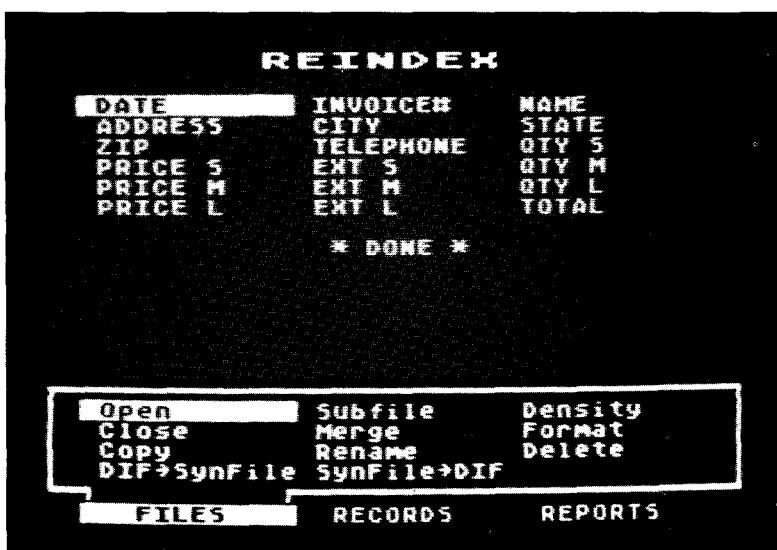
The cursor is resting over DATE which is the first field entered. You can select any of your first 39 fields as an index by simply positioning the cursor over the field with the arrow key and pressing (RETURN). In fact, you can index on up to 16 fields. The maximum index length will vary with the number and types of index fields selected. You will be prompted, if needed, to specify the index length for each selected index field. Some fields, like date fields, are automatically assigned a default length. For the purposes of this tutorial, we will select DATE for the index field. With the cursor resting over DATE simply press (RETURN).

Now use the down arrow key to step through the field listing so that the cursor is resting over *DONE* and:
PRESS (RETURN).

A sub-screen will pop up and you can request *Syn-File+* to sort in ascending or descending alphabetical or numeric order. Ascending is A to Z or 1 to 10 and descending is Z to A or 10 to 1. Select Ascending with your cursor and:
PRESS (RETURN).

This will open the INVLST file, create the index, and display the status screen.

```
              SYNFILE+
     ┌─────────────┬────────────────────┐
     │   Datafile: INVLST  │ Records:  0    │
     │ Index length: 2     │ Capacity: 1507 │
     ├─────────────────────┴──────┬─────────┤
     │ Index field                │ Length  │
     │ DATE                       │ 2       │
     └────────────────────────────┴─────────┘


       ┌────────────┐
       │   FILES    │    RECORDS     REPORTS
       └────────────┘
```
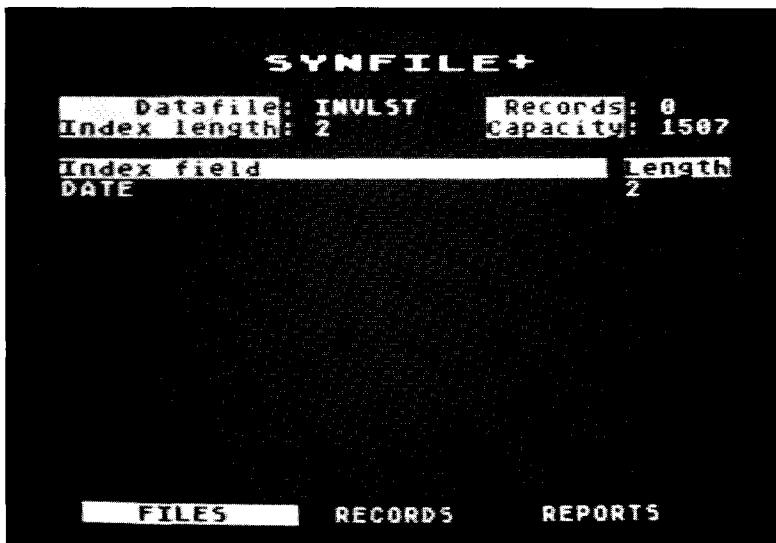
The status screen indicates the current open file, number of active records in the file, index length, capacity of the file, and the index fields and their corresponding lengths. This status screen will be displayed anytime you return to the Main Menu with a file loaded.

Selecting A Record Operation: The Enter Option

The Enter function is down the RECORDS path. To get the RECORDS sub-menu to display, simply move the cursor so that the RECORDS option is highlighted.
PRESS (RETURN).

The display now includes this list of operations that you
can perform on the datafile:
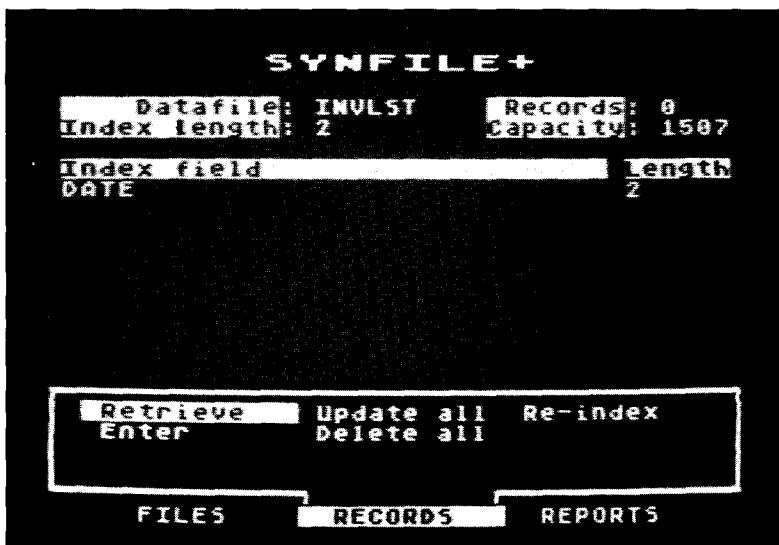
Retrieve, Enter, Update all, Delete all, and Re-index are all
operations having to do with RECORDS. We'll show you
Entering first.

Entering Your First Record

Order of Entry

SynFile+ will prompt you for data starting at the upper-left
corner of your form and proceeding left to right, top to
bottom. Even if you rearrange the placement of fields,
SynFile+ will continue to read the form left to right and top
to bottom to make your data entry easier.

Entering Data

To summon the Enter function, so that you're in position to start entering actual data, move the cursor until Enter is highlighted. Then:
PRESS (RETURN).

Notice that the screen title changes to Enter Records and contains the form you just created waiting for you to fill in the blanks.

Are you wondering about the field that *SynFile +* is displaying in inverse video? Fields displayed in inverse video are fields that you indicated as your primary and subordinate index fields.

When entering a date, notice that *SynFile +* supplies the slashes; you have to type only the numbers. Type the 1 as "01" or as "space 1" otherwise the program will wait for the second digit.

Enter a date in the form mm/dd/yy, for example:
ENTER: 12/01/84
PRESS (RETURN).

Correcting an Entry

Everybody makes typing errors. You can correct them immediately or after you've entered all the information. If you have not yet pressed (RETURN), the backspace key or (CTRL) (←) will allow you to retype the entry.

You can also correct a typing error on a second pass. After you have filled in the last field in a record and press (RETURN), *SynFile+* will put the cursor in the first field again. Press (RETURN) until the cursor is positioned on the field with the error; then retype and use the arrow keys to correct the data. More about this in a moment.

If you want to clear a field, simply place the cursor in the desired field and press (SHIFT) (CLEAR) or (CTRL) (CLEAR).

If you make a system error, the sub-menu will change color and display an error number. The status line will let you know that you can press (RETURN) to continue. When you press a key, for example, the (SPACE BAR), its normal color returns.

Now, assuming that you've corrected any errors and are satisfied with the field entry, press (RETURN). When you press (RETURN), the date is entered, the program automatically supplies the next available invoice number, and the cursor jumps to the next field (NAME). The last date entered is carried forward for your convenience.

Go ahead and fill in the remaining fields. You only need to enter the first letter for each state entry. The look-up table provides the remaining state name. We'd like you to type at least two records exactly as they're written here. Later, we'll try to access them. It will be less confusing to you if you follow these instructions and are able to see the results of a retrieval command.

So, enter the following:

GIFFORD	(and press (RETURN))
1069 PERALTA	(and press (RETURN))
ALBANY	(and press (RETURN))
CA	(and press (RETURN))
94706	(and press (RETURN))
(415)777-1111	(and press (RETURN))

Calling Up Table Entries

It is possible to call up the table entries while you are in enter data mode. The table entries for this tutorial were the states that we had you enter earlier after creating the form. If you have forgotten the states you entered, this feature allows you to quickly review them.

To do this, simply position the cursor on the table look-up field (STATE) and repeatedly press the ATARI Key or Inverse Video key to page through your table.

Incidentally, the look-up information is case-sensitive. If you used all lowercase letters when inputting the state names in the table, use lowercase letters for the data in the records as well.

NOTE: Entering all blank spaces in the look-up field as search criteria cannot be accepted by *SynFile +*.

For the quantities and prices for the small (S) product, type:

5	(and press (RETURN))
2	(and press (RETURN))

The program justifies the values and will fill in the extension, EXT S, automatically since it's a computed field.

And for the remaining quantities and prices (medium [M] and large [L] products), enter:

8	(and press (RETURN))
5	(and press (RETURN))
1	(and press (RETURN))
12	(and press (RETURN))

The TOTAL and EXT fields are also computed fields so the program won't allow you to enter values.

Checking the Entire Record

After you've finished entering the information, check the screen carefully. Are there any typographical errors? If so, skip down to the field that has a mistake using (RETURN). To skip up (or back) to a field, use (CTRL) and (↑).

Now you can type over the incorrect entry. If you like, you may also use the arrow keys to pass over to the error and retype only the incorrect characters. When you're happy with the correction, press (RETURN) to enter it. Once again, if you want to clear out a field entry, simply position the cursor in the selected field and use (SHIFT) (CLEAR) or (CTRL) (CLEAR).

The final keystroke in saving a record is the (START) key. This tells *SynFile+* that you've checked all the fields and are satisfied with their values. Do this now:
PRESS (START).

The program will write this information to the disk in the file INVLST. It will also look up any table values, increment the counter values, and calculate any computed fields. You'll be able to hear the disk drive whir and see the BUSY signal light up.

Before you go on, give yourself a pat on the back! You've created your first real data record.

Other Options: Print, Calculate, and Delete

When a record has been entered or retrieved and is displayed on the screen, you may press (OPTION) to view the additional operations Print, Calculate, and Delete. The Print option allows you to output the record to a printer. The field names and the data are printed.

The Calculate option permits previewing the calculated and conditional fields before saving them to disk. Normally, when you simply save the record, the results of calculated and conditional fields are not displayed before being saved to disk.

The Delete option gives you the power to delete the current record from the datafile. Selecting Delete will prompt you to confirm your selection, giving you one last chance to exit. Selecting YES will cause the record to be deleted.

Entering More Records

The show must go on. *SynFile +* is hungry for more records and will paint a fresh, new form on the screen. We'd like you to enter several more records so that you have a selection of information. This will make it more interesting, maybe even fun, as you learn more functions of the program.

Here's another record for you to enter:

11/11/83
MORGOL   (and press (RETURN))
14 HOBBIT HILL   (and press (RETURN))
AJO   (and press (RETURN))
AZ   (and press (RETURN))
85715   (and press (RETURN))
(602)101-0000   (and press (RETURN))

For the quantities and prices, type:

3	(and press (RETURN))
32	(and press (RETURN))
18	(and press (RETURN))
3	(and press (RETURN))
4	(and press (RETURN))
1	(and press (RETURN))

Check over your values and then, to save the record:
PRESS (START).

Here's another record for you to enter. Remember, at this point, the object is simply to have a handful of different records. If you're going to enter random keystrokes, keep this in mind: the program will want numbers in the date, quantity, and price fields. It will complain if you try to key in a state that is not in the look-up table.

02/14/83	
LUVLEE	(and press (RETURN))
5 STRAWBERRY RD	(and press (RETURN))
SHORTCLIFF VILLAGE	(and press (RETURN))
OR	(and press (RETURN))
21001	(and press (RETURN))
(714)625-7915	(and press (RETURN))

For the quantities and prices, type:

4	(and press (RETURN))
8	(and press (RETURN))
2	(and press (RETURN))
5	(and press (RETURN))
9	(and press (RETURN))
2	(and press (RETURN))

Check over your values and then, to save the record:
PRESS (START).

Leaving the Enter Function

Have you had quite enough of filling up records? When the task looks like one that you've mastered and you've had your fill, there is a "clean" way to return to the Main Menu: **PRESS** (SELECT).

Make sure you've pressed (START) to save the last record you entered and then press (SELECT). SELECT exits the entry mode without entering the currently displayed record. Any data on the screen is lost.

After pressing (SELECT), you'll find yourself looking at the Main Menu. The screen will also display Datafile, Index Length, Records, Capacity and Index fields and length as it did before. The cursor will still be positioned on the RECORDS option.

Closing A File

The way to save changes and additions (like additional records in your datafile) to avoid re-entering information is to save it on one of your disks. To save information, you must use the Close option. Close transfers a copy of the data in memory to a disk.

At the Main Menu, move the cursor to highlight the FILES option:
PRESS (RETURN).

The FILES sub-menu reappears:

Move the cursor to Close:
PRESS (RETURN).

You'll be able to see the title line change to CLOSE FILE, reporting that the file is being closed. Then the program returns to the Main Menu.

Selecting A Record: The Retrieve Option

The retrieval capabilities of *SynFile +* are very powerful. To understand the power that was designed into the program, go through this section carefully. It will tell you how to search a field or record, and how to find unindexed information as well as indexed information. It will tell you how to search on the basis of text strings or numeric comparisons.

Once the program has searched for the desired data, you can read through them on the screen, moving forward one record at a time. When you're done, you can abandon the search readily by pressing (ESC) or (SELECT).

When you want to search through your datafiles, make sure the "NO FILE LOADED" message is not in the upper-left corner. A file must be opened prior to retrieving records. If INVLST is closed now, open it again:

Select the FILES option, press (RETURN).
Select the Open function, press (RETURN).
Select the INVLST datafile, press (RETURN).

Now, at the Main Menu, move the cursor to the RECORDS option and press (RETURN). Then, select the Retrieve option from this sub-menu. The program will display the

now familiar fresh record form. However, this time you'll
see that the title has changed to:
RETRIEVE RECORDS

The new form is now a template where you indicate
the criteria of the search. To retrieve a particular record,
just type in the search criteria. That is, move the cursor to
the field you want searched and enter the data that
corresponds to the records you wish to retrieve.

For example, to retrieve records with a STATE field of OR:
PRESS (RETURN) until the cursor is in the state field.
ENTER: OR
PRESS (START).

You could have also used the ATARI Logo or Inverse Video
key to page through the table entries until OR appeared.

SynFile + will search the disk and display the first record it finds from Oregon. At that point, you could go ahead and edit it if you wanted to change some of its information. (It won't go on to the next record until you press (START).)

By pressing (OPTION) you can engage a sub-menu which will allow you to print, delete, or calculate the record.

Multiple Search Criteria

You just had *SynFile +* look for records based on a single search criterion. Actually, you can type in several search criteria. For instance, enter perhaps 5 characters in a field, then enter a numeric comparison in a second field, and even limit the search to an exact match in a table. You can have up to 16 search fields and the total number of characters that you type in as search criteria cannot exceed 190. If you search only on index fields, the search criteria for a given field cannot exceed the current index length for that field.

If you choose to search on more than one field, you may also select whether it must meet all criteria (and) or any of the criteria (or).

Because of the way the record retrieval is set up, retrieving a record using the index field is almost instantaneous. If you retrieve a record using some other field, the process will be slower. In order to find a record with only an unindexed search criterion, *SynFile +* must read through much of the file, record by record. For this reason, it's a good idea to specify the field on which you'll be searching as an index field.

Editing Information

Try a little editing now. Put the cursor on the Name field
and change it by typing:
ENTER: Coralee Reeves
PRESS (RETURN).
PRESS (START).

SynFile + will put the corrected record away. It then
continues searching. When it finds the next record using
the current search criteria, it will display it and go on after
you press (START). When there are no more matches, it will
display the message, "No more matches" in the upper-left
corner and return to the Main Menu.

Comparing Values

If you wanted to do a range search, as an example, for all
the records that have a QTY S value that is less than or
equal to 4, enter the relational expression in the
corresponding field. For instance, select the RECORDS
option and then the Retrieve function.

Place the cursor in the QTY S field and type: <4

Notice that the comparison operator "<" appears in the
blank space between the colon and the beginning of the
data field.
PRESS (START).

If you entered into your datafile the exact values indicated
in the tutorial, you'll be able to see two records. Press
(START) to go on and view each record that passes this
numeric test.

You can do the following comparisons on values in any fields:

Less than or equal to $<$
Greater than or equal to $>$
Not equal to   \#

To base the search on the criterion of being equal to the entered value, just type the value itself in the blank field. For an exact match, don't use any comparison operator.

Searching Text Fields

There is another way to search a field that you specified as "text." *SynFile* + recognizes the * (asterisk) symbol and interprets it to mean "any string of letters." You can then use this as a "wildcard" to tell the program what to search for. For example, to see the first record that you entered:

Select the RECORDS option. Select the Retrieve function. Put the cursor on the NAME field.
ENTER: G*
PRESS (START).

After you've experimented with this, press the (START) key again. If there is another match, it'll be displayed on the screen. If not, you'll see the message "No more matches" and return to the Main Menu. (If you entered additional records with names that start with G, those records will be displayed now; continue to press (START) until you're back at the Main Menu.)

You can do the following wildcard comparisons on the contents of text fields. To minimize data entry errors, all searches are automatically insensitive to upper versus

lower case. These are three ways you can use the *
wildcard:

Ending with a particular character string:
ENTER: *string

Starting with a certain character string:
ENTER: string*

Having a certain character string anywhere in
the middle:
ENTER: *string*

For example, "*ing" will return all these as matches:
reading, writing, and substring. "M*" will match: Morgan,
MGA, and M (a single character). And, "*a*" will match:
water, flame, air, and terra (an "a" in any position).

Scanning the Records in the Datafile

You may have already begun to use this operation. At any
rate, here it is again. Whenever you want to go through all
of the records in your datafile, select the Retrieve option
and then press the (START) key. It is not necessary
to specify any search criteria. Continue to press (START)
after *SynFile +* displays the next record.

When you've found the desired record and are done with
it, you can return to the Main Menu by pressing (ESC).

Re-indexing

At any point, you can go into the RECORD sub-menu and
change your index fields. *SynFile +* can keep track of as
many as 16 index fields. The maximum index length will
vary with the number and type of index fields selected. You

may choose to index on any of the first 39 fields in your form.

Every time you re-index, *SynFile*+ rebuilds and re-sorts the file index.

The newly specified index determines the order in which the next search is done. *SynFile*+ will look first at the primary index, then at the secondary index if you specified one, etc. — in the order that you specified. It'll look for matches there first. When it finds a match there, it'll continue on and do a comparison on any additional subfields. If a record doesn't match the primary index criteria, it skips the second index criteria. Again, no matter what field you're searching, the program searches the records in the order that the index was specified.

To re-index, select the RECORDS option. When the sub-menu appears, move the cursor to Re-index.

When it's highlighting Re-index:
PRESS (RETURN).

The center portion of your screen will be painted with the names of the fields in your form. The display will be divided into three columns. Longer field names will be truncated so that only the first 10 characters are displayed and only the first 39 fields are listed.

For example, the fields of INVLST look like this:

```
          REINDEX
  DATE        INVOICE#     NAME
  ADDRESS     CITY         STATE
  ZIP         TELEPHONE    QTY S
  PRICE S     EXT S        QTY M
  PRICE M     EXT M        QTY L
  PRICE L     EXT L        TOTAL

            * DONE *


    Retrieve    Update all   Re-index
    Enter       Delete all


      FILES      RECORDS      REPORTS
```
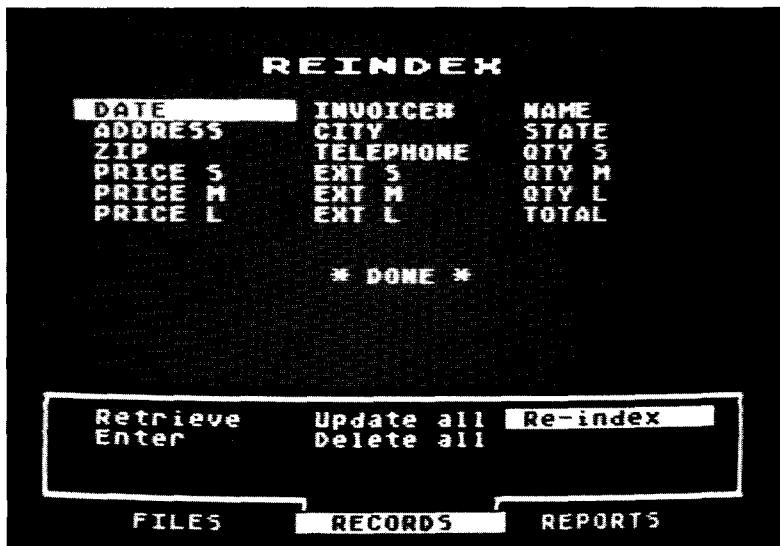
You'll see that the cursor is over the DATE field.

To select another field, for example, the NAME field, move the cursor to NAME:
PRESS (RETURN).

Just above the sub-menu area, *SynFile +* will ask you how many characters of that field it should consider when it's sorting the index. When you see the prompt "How many characters :
ENTER: 5
PRESS (RETURN).

SynFile + will put an arrow by the field you've just specified for the index.

If you want to specify a second field, move the cursor to the field that you want for a secondary index, press

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$\boxed{\text{RETURN}}$, and answer the request for length.

As you select your index fields, the current index length is displayed at the top of the screen next to the L:. The file capacity is shown by the second number after the R:. The first number following the R: is current number of records in the file.

When you're done specifying all the fields that you want as index fields move the cursor to DONE:
PRESS $\boxed{\text{RETURN}}$.

You must next specify the sorting direction as Ascending or Descending. Select Ascend by pressing $\boxed{\text{RETURN}}$.

The program will build and re-sort the index. You will hear the drive whirring and finally you will return to the Main Menu.

Deleting an Individual Record

There may come a time when you would like to delete an individual record from the datafile. To delete a record, you must first retrieve it. Once you have it displayed on the screen:
PRESS $\boxed{\text{OPTION}}$.

Pressing Option brings up a sub-menu that allows you to print the record out, calculate it, or delete it. Pressing $\boxed{\text{OPTION}}$ will also remove the menu, returning you to Retrieve or Enter Records.
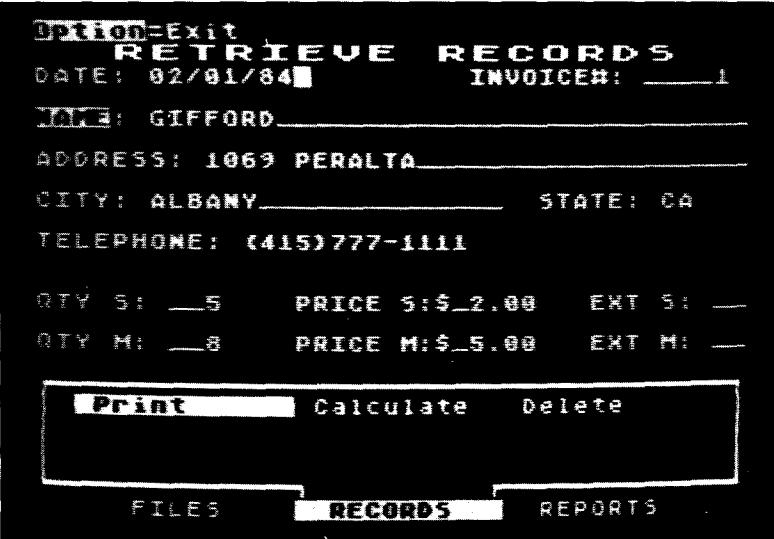
To delete the record that displayed on your screen, check that the cursor is positioned on "Delete," and:
PRESS (RETURN).

You will be asked to confirm your selection. To complete the deletion, position the cursor over YES and:
PRESS (RETURN).

Deleting a Class of Records: Delete All

This function allows you to delete all records that meet your search criteria. To summon this function, first select the RECORDS option. When the sub-menu appears, move the cursor so that it's highlighting "Delete all."

When it's highlighting the Delete all option:
PRESS (RETURN).

The center portion of your screen will be painted with the now familiar "Enter Search Criteria." As with the Retrieve function described earlier, enter the search criteria that you want *SynFile+* to use. The program will display on the screen each record that meets the search criteria as it finds them so you'll know which records are being deleted from the disk.

Next you'll be prompted whether or not to continue. Since this option can erase many records at once, *SynFile+* wants you to be sure you want to continue. If you are certain you want to perform this operation, move the cursor to YES and:
PRESS (RETURN).

WARNING: Specify at least one search criterion or you will delete ALL your records.

Updating a Class of Records:

Selecting this function will bring you to the search criteria screen again where you set all of the search parameters. Then, you will be presented with another blank form for the replacement information. All the records that meet the criteria will be processed before you are allowed to enter any other instructions. This type of processing is known as "batch" updating.

To summon this function, first select the RECORDS option. When the sub-menu appears, move the cursor so that it's highlighting "Update all"
PRESS (RETURN).

The message "Enter search criteria, START = CONT" will appear across the top line of the screen and the center portion of your screen will be painted with the now familiar

empty forms screen for specifying the search criteria. As with the Retrieve function described earlier, enter the text and numeric tests that you want *SynFile +* to do. After you type in the search criteria:
PRESS (START).

The program will put a second blank form on your display screen, and the message "Enter Replacement Data, START = CONT" will appear in the top line of the screen. Fill it in with the replacement information. You may type up to 190 characters of replacement data in up to 16 fields. Again, after you've specified the replacement data:
PRESS (START).

You'll be asked to confirm this operation by selecting "YES".

Here is an example. Let's change all records containing a STATE field of CA to AZ.

Select the RECORDS path. Select the Update all function.
PRESS (RETURN).

Position the cursor on the State field:
ENTER: CA
PRESS (START).

You will then be asked to specify the replacement data.

Position the cursor on the State field again:
**ENTER:** AZ
PRESS (START).

You will see a screen asking you to indicate "NO" or
"YES" for updating all your records. If you want to go
through with the operation, move the cursor to "YES" and
PRESS (RETURN).

SynFile + will display the record it's correcting; then it will
display the corrected version as it writes it to disk. The
program will display on the screen each record that meets
the search criteria.

When the operation is complete, the program will once
again display the Main Menu.

Remember, whenever you add or change information, you should Close the file to save your work. In addition be careful not to enter asterisks as Replacement Data since this may lead to unexpected results.
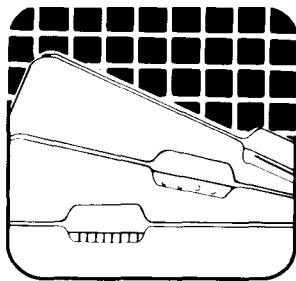
The report generation option of *SynFile +* gives you a choice of formats for displaying any combination of information in your files. The first is like a columnar table and is engaged by selecting the Lists option. The second is free-form; you get to design the actual layout by selecting the Label option.

When formatting your reports, remember to bear in mind the width of your display and/or printer. Reports to the screen will show only the first 40 characters. If you attempt to print a report on your printer which exceeds the width of the printer, the output will wrap around to the next line. *SynFile +* can generate reports up to 232 characters wide.

To generate either a columnar or free-form report, first check that you are looking at the Main Menu where the cursor is highlighting FILES.

It's very important to double-check that you've opened your datafile.

If you need to open INVLST, here's a summary of the command sequence. From the Main Menu:
1. Select the FILES option.
2. Select the Open function.
3. Move the cursor to the name of the file you want to open — in this case, INVLST.
4. Press (RETURN).

In order to request a report, you need to get to the sub-menu of the REPORTS option:

When the cursor is highlighting REPORTS:
PRESS (RETURN).

The REPORTS sub-menu appears and looks like this:
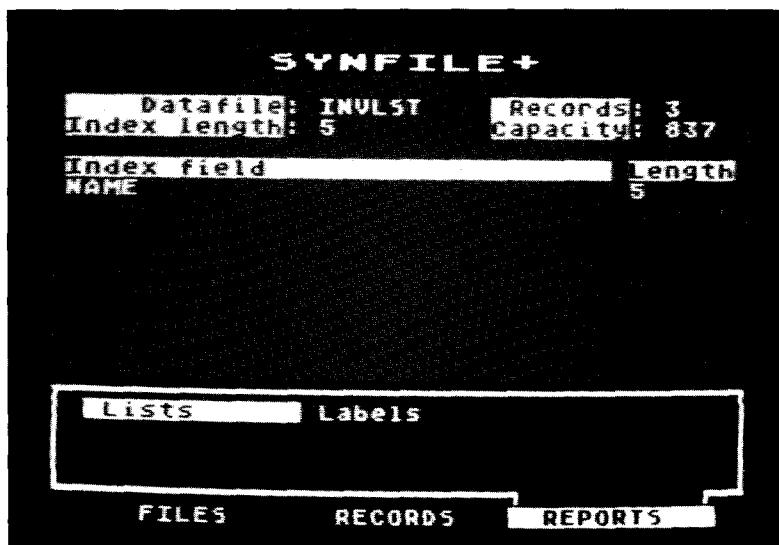
The Lists Option

Lists produces a columnar report. Each record is put into its own row and its fields are tabbed into tidy columns. For example, if you wanted to produce a telephone list from the INVLST database, you would specify one column for the names and one column for the telephone numbers. The program would print the information from each record in a table that looks like this:

NAME   TELEPHONE

Name1   Telephone1

Name2   Telephone2

Name3   Telephone3

Name4   Telephone4

You can have up to 40 columns of field data which, when combined, cannot exceed 232 characters. Output can be to disk (drive 1 or 2), or printer. If output to disk with 1 drive, the output file is put on the originating data disk to minimize disk swapping. Disk files so created can be merged with AtariWriter™. A trailing " + " symbol on a field name produces column totals.

Remember that if you select to output to drive 1, the List will be written to your data disk, reducing the amount of available disk space.

When you select the Lists option, the only artistic license it offers you is how far apart to place the fields. The next task is to create a report using the Lists option.

The screen indicates that INVLST is open and the Lists option is being highlighted by the cursor. To select this function:
PRESS (RETURN).

You'll see the title change to LISTS. The center portion of your screen will be painted with the names of the first 30 fields that you specified in the forms creation. The display will be divided into three columns. Longer field names will be truncated so that only the first 10 characters are displayed.

For example, the fields of INVLST look like this:

Notice the numbered bar in the middle portion of your
screen. This is called the print format line.

Using the Print Format Line

The print format line is a template where you indicate the
horizontal layout of your report. The location of the field
names under the print format line determines the
horizontal placement of the columns. You may enter up to
40 field names (columns) up to a total of 232 characters.

The field names you type become the column headings;
you must type them in exactly as you specified them when

the form was created. The first ten characters of each field name are displayed to remind you how you entered them. You must spell them correctly. If you used field names that are less than 10 characters, you'll be able to see the entire field name.

When you want an indented margin, move the cursor to the right several spaces. For example, when you want a margin of 7, skip in 7 spaces. Right now, let's ask for a listing of the fields NAME, STATE, and TELEPHONE.
PRESS (CTRL) (→) three times or
PRESS (SPACE BAR) three times.

The cursor is under the "4." This is where the left edge of the report will start.
ENTER: NAME
PRESS (RETURN).

The cursor will then jump to the space immediately following the NAME field. At this point, you can begin typing the TELEPHONE field name. *SynFile +* defaults to the length of the field name or field length, whichever is greater and moves adjacent fields if necessary. Let's put 5 spaces between the two columns to improve the. readability:
PRESS the (SPACE BAR) 5 times.
ENTER: TELEPHONE
PRESS (RETURN).
PRESS the (SPACE BAR) 5 times.
ENTER: STATE
PRESS (RETURN).

At this point, the print format line looks like this.
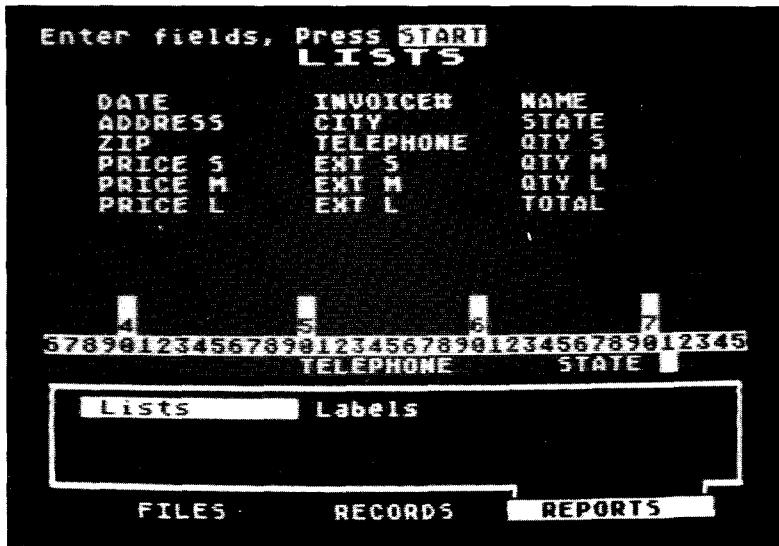
The other fields are not immediately visible because they are positioned further to the right.

Special Features

You can use (TAB) to skip the cursor across the print-format line quickly. When you want to issue a "reverse TAB," use (CTRL) (TAB).

You can use (CTRL) (INSERT) key combination to insert spaces between field names and to insert a field in the middle of the format. *SynFile +* will adjust all the spacing for you; that is, it will move the fields that are to the right and ensure that their relative spacing is retained.

To get *SynFile+* to calculate and print a column total, put
a plus symbol (+) after the name of the field. This is
permitted on fields that have a field type of numeric,
integer, computed, cumulative, or dollar.

When would you use a feature such as the column total?
In the tutorial, perhaps it would be useful to find the total
income. You could build a print format line something like
this:

PRESS (START).

You will then be prompted to select Printer, Disk or Screen.
If you have a printer, select "Printer". If not, then select
"Screen."

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Entering Search Criteria

You will then be able to set the record selection criteria for the list.

PRESS (START) to select all records.

If you choose to send the list to screen, the report will immediately begin printing on the screen without your having to enter titles or page length. Remember, you will only be able to see the first forty columns.

Entering Titles and Headings

If you elected to send the list to printer or disk, you'll also be prompted for total page length, that is, the number of lines per page. A minimum of 9 lines per page is necessary since *SynFile +* uses 6 or 8 lines for field names and totals.

When you see "Total Page Length":
ENTER: 50
PRESS (RETURN).

If you simply press (RETURN) without specifying the length, you get the default of 65 lines.

SynFile + prompts you next for the title of the report. The title will be printed, once only, at the top of the first page of the report. When you see the prompt "Enter report title:",
ENTER: MY LITTLE BLACK BOOK
PRESS (RETURN).

Simply pressing (RETURN) without specifying a title will give
a blank title.

SynFile + will accept titles that are up to 37 characters
long. In addition, you should limit your report to the width
of your printer or screen as appropriate.

SynFile + will ask you to "Enter Search Criteria" — just as
it did for the Retrieve function. You have the same
comparisons available to you. When you have entered the
search criteria:
PRESS (START).

To print all records, simply press (START) without entering
any search criteria.

When the listing is finished, you are returned to the Printer,
Disk, Screen menu so the list can be reprinted to another
device. If LISTS are sent to disk, they can be included as a
text file in AtariWriter™. See Section 5 on Sharing
Information for more details.

The Labels Option

To generate the free-format report, start at the Main Menu: —

Select the REPORTS option. When the cursor is highlighting REPORTS in inverse video:
PRESS (RETURN).

When you see the REPORTS sub-menu appear,
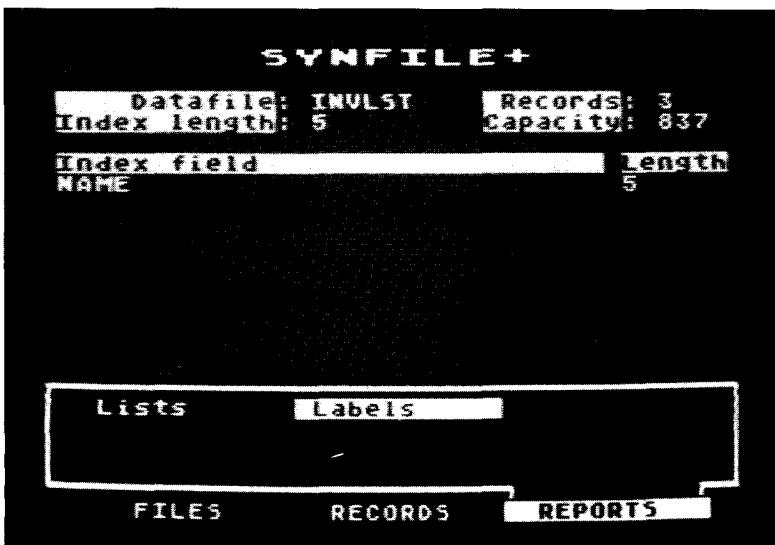
move the cursor from the Lists option to the Labels option
and then simply:
PRESS (RETURN).

You'll go directly to the Labels screen.

When you select the Labels function, *SynFile+* gives you
a screen that is very similar to the create form screen.
You'll see the cursor in the upper-left corner and that the
rest of the screen is a blank slate. You can move the
cursor anywhere on the screen and position fields
wherever you like.

The Labels function is used primarily for generating
mailing labels, though it can create a variety of other
formats. An example of three across mailing labels would
look like this:

SynFile+   *83*

NAME1	NAME2	NAME3
ADDRESS1	ADDRESS2	ADDRESS3
CITY1 STATE1 ZIP1	CITY2 STATE2 ZIP2	CITY3 STATE3 ZIP3

You are allowed any arrangement of fields on an 80 column by 21 line form. Up to 32 such forms can be printed across the page. The left margin can be set between 0-999 (default is 0), lines between labels can be set to 0-999 (default is 1), and the columns between labels can be set from 0-999 (default is 1). You can have output to the screen (first 40 columns), disk (drive 1 or 2), or printer. *SynFile +* allows up to 32 fields to be displayed in a label. If you are outputting to disk with one drive, the output file is put on the originating data disk to minimize disk swapping. Disk files created with fields starting at the left margin and no blank lines between either field or labels can be merged with AtariWriter™. A trailing "," concatenates adjacent field data and prints a comma and a space. A trailing "<" concatenates adjacent field data and puts a space between the data.

Examples:

The label layout:

LAST NAME, FIRST NAME
ADDRESS
CITY, STATE< ZIP
would produce labels like this:
MOORE, DAN
4444 FORTH ST
FORTHVILLE, CO 80313

AHLSTROM, STEVE
280 Z ST.
BOULDER, CO 80324

Notice that the program has supplied the commas and moved the first name data close to the end of the last name data. Likewise, the zip data has been moved up close to the state data, separated by one blank space.

Remember that if you output your report to drive 1, the output will be to your data disk, thereby reducing your storage capacity.

To position a field, use (CTRL) and the arrow keys and move the cursor around to wherever you want to begin entering your first field. When the cursor is positioned, type in the field name (accurately, so it matches an already defined field name) and press (RETURN). Your field data will begin at the first character position of the entered field name.

When you press (RETURN), the same thing will happen that happened with the Lists option. *SynFile +* defaults to the field name length or the length of the field, whichever is greater. If the field length is shorter than the field name, the name will be truncated to match the specified field length. If the field length is longer than the space you allocated, *SynFile +* will move adjacent field names to make room for the data. In either case, this is where the data will be printed when the record for a label is printed.

Let's try an example. Beginning with the cursor in the upper-left corner (position Row: 01 COL: 01), type in the following label format:

NAME
ADDRESS
CITY, STATE< ZIP

After entering this label format:
PRESS (START).

The next screen asks you to indicate whether the label output should be to Printer, Disk or Screen. If you do not have a printer connected to your system, indicate Screen. **PRESS** (RETURN).

You'll be asked "How many across:". This is how many records you want positioned across the page. This information allows you to print the records side by side.
ENTER: 2
PRESS (RETURN).

Then you are asked, "Where is the left margin:"
ENTER: 0 for a flush left margin.
PRESS (RETURN).

Next question is, "How many spaces between labels:
ENTER: 1 to give you one space between each label going across the page.
PRESS (RETURN).

Then, "How many lines between labels:"
ENTER: 1 to give you one line between each label going down the page.
**PRESS** (RETURN).

SynFile + will ask you to "Enter search criteria" — just as it did for the Retrieve function. You have the same tests available to you. For now, simply:
PRESS (START).

The "Printer Disk Screen" prompt comes up when you are finished allowing you to send labels to another device if you wish to do so.

Please note that if your printer is turned off, you will receive the error message "Printer Not Online." If, however, your printer is deselected or offline, no error message will be issued.
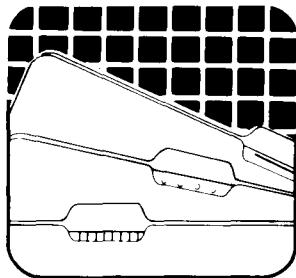
Sharing Information

SynFile + has been designed to allow the sharing of information with *SynCalc, SynTrend,* VisiCalc*, and AtariWriter. Specifically, data in *SynFile +* can be utilized by *SynTrend, SynCalc,* and AtariWriter.

SynFile +	—— Lists or Labels ——▶	AtariWriter
	—— DIF Format ——▶	SynCalc/Visicalc
	▶	SynTrend
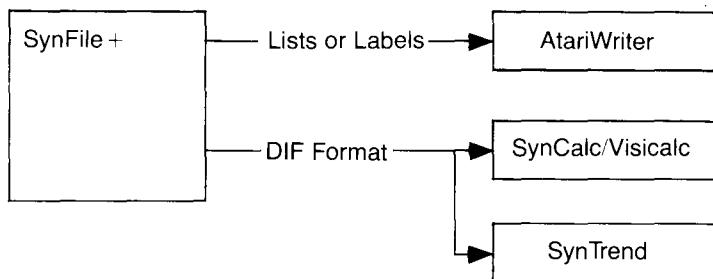
Data from *SynCalc* and VisiCalc stored in DIF™ format can be converted and made ready by *SynFile +* .

*VisiCalc is a registered trademark of VisiCorp.

```
┌─────────────────┐
│     SynCalc     │────DIF Format────▶  SYNFILE+
└─────────────────┘

┌─────────────────┐
│     Visicalc    │────DIF Format────▶
└─────────────────┘
```
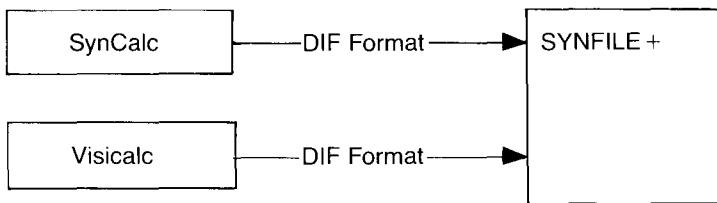
Let's look at these one at a time.

SynFile+ To AtariWriter

Text Merge

Reports, in the form of LISTS or LABELS, output to disk
can be immediately included as a text file in AtariWriter.
This permits you to include things like illustrative lists
within the body of your documents. Text merge will move
complete reports to AtariWriter with all the headings.
Position the cursor where you want the text to appear in
your AtariWriter file. Press (OPTION) (L), type "D:" and
supply the SynFile+ file name you wish to merge to
AtariWriter adding a ".TXT" extender (for example,
D1:INVLIST.TXT). When completed, press (RETURN) to
load the file into AtariWriter.

Database Merge

The second type of merge is called a Database Merge.
This is used to include actual field data in specific
locations in the body of your document, such as mail
merges to letters and mailings. Since this function of
AtariWriter is not covered in the AtariWriter manual, we will
explain how to utilize this function.

The first step in performing a Database Merge is to go to
the REPORTS sub-menu and select LABELS.

Next, format a label with the following characteristics:
1. Begin each new line of merge data in the first column of
   the label form.
2. Do not skip any lines in setting up your label form. You
   should begin at the top-most line. (Column 1, Row 1).
3. Multiple fields can be placed on the same line of the
   form using "," or "<" if you like, but such data will be
   merged as one piece.
4. Output the labels to disk with a left margin of 0, 1 label
   across, with 0 line between labels to disk.

AtariWriter will interpret this form in the following manner:
Each line of your special label format will be read as a
string of characters to be merged at a specific point in your
document. After processing this line of your label, the next
merge will take place from the next line of your label. As
you output the labels to disk, remember the file name you
used, and the number of lines in your label format.

From within AtariWriter you must specify where you would
like the merged data to appear. To do this, position the
cursor where you would like the first piece of data from the
special label format to appear.

While **PRESSING** [OPTION],
PRESS [INSERT].

This will cause a special symbol to appear on your screen. Repeat this procedure as many insertions as desired.

Next, go to the Print Preview option by
PRESSING [OPTION] [P].

When asked "Preview Entire Document" type "Y".

When the "MAKE ENTRY, PRESS RETURN" prompt appears, AtariWriter is asking for the merge data. To do this:
PRESS [CTRL] [V].
ENTER: FILENAME (D1:FILENAME.TXT)
PRESS [RETURN].

FILENAME should be the name of the file to which you output your special labels and must include the "Dn:" prefix and ".TXT" where n is your drive number (for example D1:INVLIST.TXT). The merge data will then be read from the specified file, one line of the label inserted at each of your specified points. If you choose to print multiple copies, successive lines of label data will be read and merged. This allows you to create a form letter and print copies addressed to selected people in your *SynFile+* database file.

Data Interchange Format

On the Files sub-menu there are two options: DIF to *SynFile* and *SynFile* to DIF. These options allow you to use a data disk which was created by another program with *SynFile+*, and to use a data disk you created with *SynFile+* with a compatible program.

DIF to *SynFile +*

This option allows you to use a datafile created with another program with *SynFile +* .

From the Files sub-menu use (CTRL) and the arrow keys to select DIF to *SynFile +* and press (RETURN). You will be asked to supply the file name of the DIF file to convert. Select the file with (CTRL) and the arrow keys and press (RETURN). Enter the name of the destination file and press (RETURN). Next, indicate the destination disk drive number and press (RETURN).

If you are using one disk drive, your destination disk for DIF must be the same as your source disk. If you are using two disk drives, your destination disk for DIF must be a different disk from your source disk.

Each row of the DIF matrix will be converted to a record with each column entry a field. The form will be established by the first record and the default field names of "A," "B," "C," etc. are assigned as needed and positioned at the left margin. This limits your file to 21 fields each of up to 75 characters. The minimum length of a text field on conversion is 16 characters.

By using the Edit form option of the Create module, you can assign new field names, change field types, or otherwise modify your converted file. You may have to merge your file into your customized form depending on the types of changes you implement.

SynFile+ to *SynCalc*, VisiCalc and *SynTrend*

SynCalc and VisiCalc

By using the *SynFile+* to DIF utility, you can create a DIF file that can be read by *SynCalc* or VisiCalc. During the conversion process, each *SynFile+* record is converted to a row in the DIF matrix.

SynCalc/VisiCalc to *SynFile+*

Spreadsheet data from *SynCalc* and VisiCalc can be converted to a *SynFile+* database file. The first step is saving the spreadsheet data in DIF format. Consult your *SynCalc* or VisiCalc manual for details on performing this function. Once the DIF file has been created, the DIF to *SynFile+* utility in *SynFile+* can be used to convert it to a database file.

SynTrend

By using the *SynFile+* to DIF utility, you can create a DIF file that can be read by *SynTrend*. During the conversion process, each *SynFile+* record is converted to a row in the DIF matrix.

SynFile + to DIF

This option will format a datafile that you created with *SynFile +* so that it can be loaded into another program.

From the Files sub-menu use (CTRL) and the arrow keys to select *SynFile +* to DIF and press (RETURN). You will be asked to select the file to convert. Use (CTRL) and the arrow keys to make your selection and press (RETURN). Next, indicate the destination file name and then the destination drive number.
**PRESS** (RETURN).

If you are using one disk drive, your destination disk for DIF must be the same as your source disk. If you are using two disk drives, your destination disk for DIF must be a different disk from your source disk.

File Utilities

This section covers the utility routines that are supplied
with the *SynFile +* program. Their purpose is to carry out
specific, vital functions allowing the manipulation of entire
data files. These include operations such as copying,
merging, and deleting data files.

Each of these functions is selected from the sub-menu that
the FILES option gives you. Start by looking at the Main
Menu with the bar cursor highlighting the FILES option:
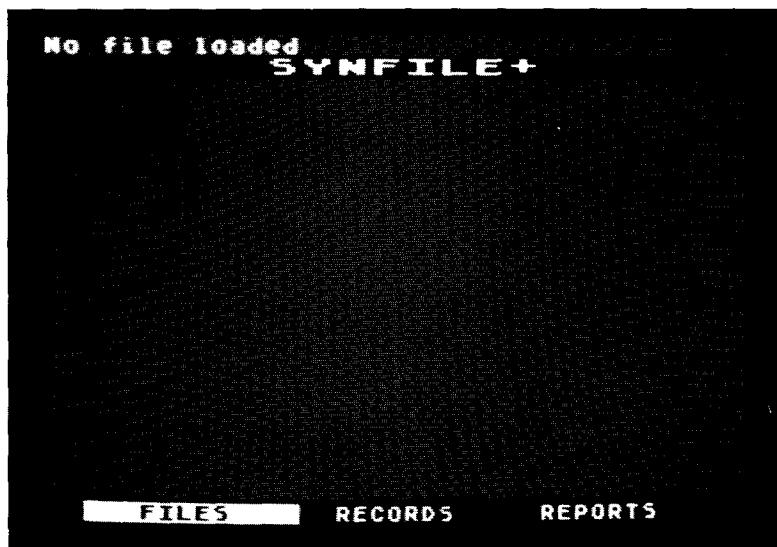
To request the sub-menu that contains the utility routines:
PRESS (RETURN).

Notice that the cursor is highlighting the Open option.
We've already covered Open, Close, and Format in
Chapter 3. This chapter will describe the remaining
functions on this sub-menu, starting with Copy.

You do not have to open a file first in order to use these utilities.

The Copy Routine

If you have multiple drives, you can make a copy of a file directly from a source disk to a destination disk. If you have only one drive, *SynFile+* will tell you when to insert the source and the destination disks in the drive. In drive 1, the source and destination disks can be the same or different disks.

The copy routine will be performed in just a few moments. When using one drive it is recommended that you use unique file names for your source and destination disks.

Put a data disk in a disk drive and the cursor on Copy:
PRESS (RETURN).

One Disk Drive

First select the file you are going to copy by moving the cursor over it and:
PRESS (RETURN).

Next a sub-screen pops up asking you to supply the destination file name. Do so, and:
PRESS (RETURN).

SynFile+ then asks you to indicate the number of the destination disk drive. Since we are using only one disk drive, the source and destination drives are the same, so:
ENTER: 1
PRESS (RETURN).

The next sub-screen asks you to indicate if the source and destination disks are the same. Use the arrow keys to

move the cursor from No to Yes if you are copying the file onto the same disk and press (RETURN). Leave the cursor over No and press (RETURN) if the destination disk is different from the source disk.

If the destination disk is different from the source disk, *SynFile +* will prompt you to insert the destination disk in the drive. Do so, and:
PRESS (RETURN).

Next you will be asked if the new disk needs to be formatted. Remember, formatting erases everything currently on the disk. Use the arrow keys to indicate whether you want the new disk formatted or not, and:
PRESS (RETURN).

Two Disk Drives

First select the file you are going to copy by moving the cursor over it and:
PRESS (RETURN).

Next a sub-screen pops up asking you to supply the destination file name. Do so, and:
PRESS (RETURN).

SynFile + then asks you to indicate the number of the destination disk drive. Since we are using two disk drives, the source and destination drives are not the same, so:
ENTER: 2
PRESS (RETURN).

Next you will be asked if the destination disk needs to be formatted. Remember, formatting erases everything currently on the disk. Use the arrow keys to indicate whether or not you want the new disk formatted, and:
PRESS (RETURN).

The copy routine will then proceed.

The Subfile Routine

The Subfile option will allow you to create a subset database of a particular file based on search criteria. It's basically an extract and copy function. Your selection limits are the same as those of search criteria, (maximum of 255 characters can be specified).

After selecting the subfile option from the FILES sub-menu, *SynFile +* will display the list of all your files. Move the cursor to the file you want to subfile and:
PRESS (RETURN).

You'll then be prompted for the name of your destination file. Enter the destination file name and:
PRESS (RETURN).

Next, you will be asked to supply the destination drive number. The subfile source disk must be in drive 1 but the destination drive can be drive 1 or 2. Enter 1 or 2 depending on which applies:
PRESS (RETURN).

The destination disk can be the same disk or a different disk. If you entered 1 as your destination drive, you will be asked if your source and destination disks are the same.

Next you must specify your search criteria and:
PRESS (START).

The program extracts the records from the source file that meet your search criteria and writes them to the destination file.

The subfile option is an important feature of *SynFile +*. It allows you to create separate subset data files which can be written to separate data disks. When using the List or Label functions to disk with one disk drive, it is advisable to first subfile the selected records to a separate data disk. Now when you output your report to disk (your data disk), no room on your original data disk will be consumed.

The Merge Routine

The Merge option allows you to combine two datafiles which have identical field names. The fields can have different locations in each file. If the lengths differ, the program will take the length specified in B. If merging A to B then the final datafile assumes B's format. If A has a field name not in B, the data is ignored. If B has a field name not in A, the field is filled with a null entry. Source disks for the merge must be in drive 1. Destination disks can be in either drive 1 or 2 and may be a different disk than the source disk.

The merge operation is important for yet another reason. After creating a file and entering records, you may find that you forgot a field in your form or that you no longer need a field in your form. How can you make these changes in your form without affecting all of the data you have entered? The answer lies in the Merge function.

The general steps involved are as follows:
1. Go to the Create module to edit your form.
2. Make the necessary changes in your form (adding, deleting, changing length, etc.).
3. Save the edited form under a new file name.

4. Go to *SynFile+* and Open the new file.
5. Specify the index fields.
6. Select the Merge operation.
7. Merge the old database into the newly created form.

This can save you from re-entering records when you change your form and is one of the powerful features of *SynFile+*. The Merge operation is necessary anytime you perform the following changes to your form:
1. Adding fields.
2. Deleting fields.
3. Changing field types.
4. Changing field length of text fields.

The following edit changes do not require merging:
1. Changing field names.
2. Changing field locations.
3. Changing field lengths of non-text fields.

During a Merge operation, both data files are open simultaneously. As a result, you may encounter an Out of Memory error when merging large data files.

The Rename Routine

The Rename option allows you to change the name of your data file. The file to be renamed must be in drive 1.

The Format Routine

The Format routine formats disks in drive 1 only. Additional data disks can be formatted as needed in drives other than 1 if necessary for the expansion of the datafile to multiple drives. *SynFile+* will prompt you when needed to see if you want to format another drive (in Copy, Subfile, and Merge).

Disk formatting is performed in the currently selected
density. The 1050 density format is not compatible with
ATARI DOS III, although it does provide enhanced storage.

The Delete Routine

The Delete option allows you to erase a file from the disk
in drive 1. As with all the "destructive" commands, there's
a safety prompt. Your choices look like this:
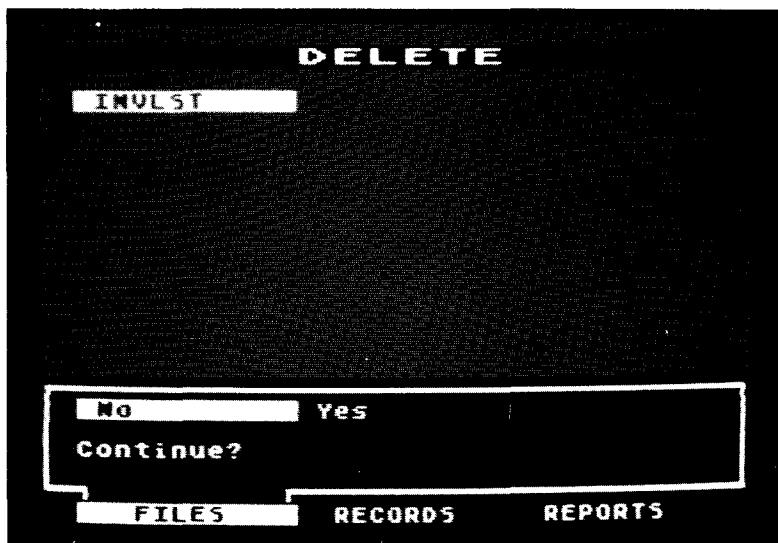
Selecting No, the default condition, will cancel the Delete
operation; your file will escape unscathed. Select Yes and
the delete operation begins. To erase your file from the
disk, simply move the cursor to Yes and press (RETURN).

The Density Routine

This allows you to select the density of your disk. All disk drives and data disks must be of the same density. The 1050 density option will give you about 1-1/2 times the capacity of a single density formatted disk by modifying the resident ATARI DOS II. The *SynFile +* 1050 format is not compatible with ATARI DOS III.
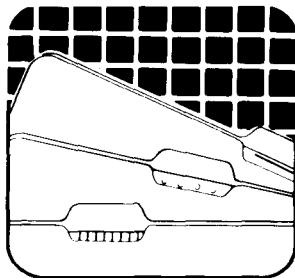
Glossary

This glossary includes terms that appear in this manual as well as some you may encounter in other SYNAPSE publications. The first time you run across a new term, it's a good idea to start by looking for its definition here.

Alphanumeric: The capital letters A-Z and the numbers 0-9, and the space character. Specifically excludes graphic symbols, punctuation marks, and other special characters.

Backing up: The process of making a copy of a file or a disk to another file or another disk.

Characters: Letters of the alphabet, numbers, punctuation marks, graphic symbols or any combination thereof.

Control Characters: Also called printer-control characters, these special control characters are needed by the printer to select special fonts. See your documentation for the printer you are using.

Create Form: The selection of field locations, names, types, and lengths that will make up your record form.

Cursor: A marker or symbol displayed on the screen that marks where your next action will take effect or where the next character typed from the keyboard will appear.

Data: Information of any kind.

Data Disk: The disk upon which your data is stored.

Delete: Erasing data in a file or files on a disk.

Default: Condition which exists when no instructions to the contrary are given.

Disk: The 5¼ inch magnetic storage medium on which data is stored.

Disk Jacket: A permanent protective covering for a disk, usually made of black paper or plastic; the disk is never removed from the jacket, even when inserted into a disk drive. This is not the same as the disk envelope.

Diskette: Another name for disk.

Enter Record: Operation for inputting, deleting, or updating individual parts of datafile.

Error Message: Any of a number of warnings which appear on your screen when you have attempted a function out of its proper order, pressed the wrong key or tried to fill a field incorrectly.

Field: A field is an item of information in a record. The fields in the demonstration file are NAME, ADDRESS, TELEPHONE, etc.

Field Name: A field name is the label for the information in a field. For example: FIRST NAME is a field name that describes the information "JOHN." Each field name can be 1-31 characters long.

File: A file is a collection of records all using the same form. Categories of information are kept in files and include things like: recipes, phone lists, payroll, etc. A single file can extend over 16 disks.

File Name: A file name is the label for a file which gives some indication of the file's contents. For example, INVLST is the name of the demonstration file.

Form: A form is the template for entering data into a file and specifying search criteria.

Format: (1) The format is the form in which information is organized or presented. (2) To format a disk is to prepare it to receive information by mapping its surface into tracks and sectors; also called Initialize. Formatting a disk causes any information on that disk to be overwritten effectively erasing it.

Index: The field upon which the contents of a file is sorted and accessed. For example, a primary index might be Last Name and a secondary index, First Name.

Initialize: To prepare a disk to receive information by mapping its surface into tracks and sectors; also Format.

Integer: A whole number, with no fractional part ranging from − 32768 to + 32767.

K: A unit used to measure capacity in computers. One kilobyte is a little more than a thousand characters of information, 1024; its abbreviation is 1 K.

Labels: To report records in mailing label format or other generalized record output.

List: To produce a columnar report of records.

Memory: The area of the computer where the information is to be temporarily stored.

Menu: A list of choices presented by a program, usually on the display screen from which you can select operations.

Open: To load an existing file into the system for changes, modifications, printing, or retrieval.

Operation: The practical application of various options of the software, i.e., Re-index, Search, Create Form, etc.

Output: The transfer of data from the computer to an outside device such as a printer.

Program: A set of instructions describing actions for a computer to perform to accomplish some task, conforming to the rules and conventions of a particular programming language.

Prompt: Cues which appear on your screen, requesting information or action from you.

RAM: (acronym for RANDOM ACCESS MEMORY) The memory in which the contents of individual locations can be referenced in a random order. This term is often used incorrectly to refer to read/write memory. But, strictly speaking, both read-only and read/write memory can be accessed in random order.

Read: To transfer information from a source external to the computer (such as a disk drive) or into the computer's processor from a source external to the processor (such as the keyboard or main memory)

Record: A logical block of data in a file corresponding to one filled in form.

Re-index: Changing the field on which a file is sorted.

Save: To transfer data from memory to the disk for long term storage.

Select: The process of specifying which group of records you wish to retrieve or which computer function you wish to choose.

Update: To change a record already entered in a file. Also called Edit.

Write: The transfer of data to a storage medium such as magnetic disk. *SynFile+* writes out records as they are entered.

Write-protect: The act of putting a write-protect tab over the write-enable notch of a disk so that the computer will not write any information on it. Since "writing" often means overwriting, this protects the data that is currently on the disk.

Error Messages And Recovery Suggestions

The following error messages coincide with those in your ATARI DOS and BASIC manuals.

Error	Indicates	Explanations and Suggestions
131	IOCB Write-Only	You have attempted to read from a file opened for Write-Only. Open the file for read or update (read/write).
133	Device/File Not Open	You have not opened this file or device. Check your OPEN statement or file I/O statement for a wrong file specification.
136	End of file	Premature ending of file encountered possibly due to a media failure.
138	Device Timeout	The disk drive or printer did not respond in time. Check connecting cables to the peripherals and see that they are powered up. Check the drives to be sure the drive# codes are properly set. This error could also be caused by a hardware failure.
139	Device NAK	The disk drive or printer is not responding. This could be caused by a hardware failure.
140	Serial Frame Error	One of the peripheral devices is sending garbage. This error is quite rare and if it persists, have your equipment checked.

142	Serial Bus Overrun	The peripheral is sending data too fast to the computer. If the problem persists, have your equipment checked.
143	Checksum Error	Indication of bad data which could be caused by either hardware or software.
144	Device Done Error	Generally a disk read/write error which could be caused by:

144 — Device Done Error

1. Media failure.
2. Writing to a write-protected disk.
3. Reading/Writing to a disk formatted in another density.

160	Drive Number Error	Check to see that the power to your disk drive is on and the disk is loaded properly. Also check that the drive door is properly latched.
161	Too Many Open Files	You have attempted to open too many files at once.
162	Disk Full	The disk has accepted as much data as it can handle. This should not occur since *SynFile +* can handle a field that stretches over 16 disks.
164	File Number Mismatch	Sector links, internal file number, or VTOC are bad. You may need a program like FIXDISK from the ATARI Program Exchange to repair the damage. Possibly caused by a media failure.

165	File Name Error	Check that you typed the file name correctly. See your ATARI DOS manual for more detailed information on valid FILESPECS.
167	File Locked	You tried to write to a file that was locked. Unlock the file and then try the function again.
169	Directory Full	You've got enough files on this disk; time to use another one.
170	File Not Found	You've tried to access a file and it doesn't exist on this disk. Check that you've picked up the right disk.
173	Unable To Format Disk	During the formatting operation, bad sectors were discovered on your disk. Try to format it again; if you get the same error, it's a good idea to discard that particular disk. If the error occurs over more disks, have your equipment checked. This problem can also be caused by a write-protect tab on the disk.

The following are the *SynFile+* error messages occurring in the Create module:

| Not A Numeric Field | A non-numeric field was entered in a formula for a computed field (also cumulative and conditional). The only field types that can be used in formulas are Numeric, Dollar, Integer, Computed, Cumulative, Date, Counter, and Record #. |

Field Not Found	A field name listed in a formula could not be found in the list of field names. (Remember that field names must be entered exactly as they were originally entered, including Upper/Lower case).
Illegal Math Function	An illegal function was entered in the formula. The legal functions are LOG, LOG10, EXP, EXP10, ABS, and SQRT.
Missing Parenthesis	There are more right parentheses than left. There should be an equal number of each, or more left than right.
Wrong Number Of Comparisons	You have the wrong number of comparison operators $(<,>,<=,>=,<>)$ in the formula.
Special Table Overflow	The total length of all look-up, computed, conditional and cumulative fields is too long. The most common cause of this is very large look-up tables (a large number of long entries). The solution is to reenter your look-up tables with shorter entries. Only 2000 characters are available to store the look-up tables and the formulas.
Duplicate Field Name	The field name just entered is the same as another field name. All field names must be unique.
Field Name Too Long	You attempted to enter a field name of more than 31 characters in length.
Not In Range	The number entered is outside the allowable range.

The following are the database error messages.

Out Of Memory	This is a FATAL error. The database is closed and you return to the Main Menu. This occurs when you attempt to load a database with an index too large for the computer (e.g. a database created on a 96K computer may not work on a 48K computer). Try loading the database on a computer with more memory and re-indexing with a shorter index. This can also occur when merging two large data files.
Number Input Error	The number entered is not legal. It either starts with a non-numeric character (e.g. "A") or is too large ($> 1.E+97$) or too small ($<1.E-97$).
Integer Input Error	The number is not a legal integer value. The number must be between -32768 and $+32767$.
Printer Not Online	The printer is either not connected or not turned on.
Must Re-Index File First	You attempted to Merge, Copy, Subfile or SynFile→DIF on a database which has no index file. You must open the file, re-index it, then close the file before you continue.
FP Stack Error	A stack error occurred during the execution of a formula. This probably was caused by too many parentheses (more than 40 in a row) in the original formula. If this error occurs often, you should edit the database and re-enter the formula with fewer parentheses.

No Match In Table	The data entered in the field does not match any of the look-up table entries. If you do not know what the legal entries are, press the ATARI Logo Key or Help to display them one at a time.
Illegal Day Illegal Month	The date entered is not legal. The month must be 1 to 12, and the day must be legal for that month. (February can never have 30 days, but April can.)
Too Many Disks	An attempt to expand a database onto a 17th disk has been made. A database can only have 16 disks. If this occurs you should break the database into smaller pieces.
Number Out Of Range	The number entered is either too large or too small.
Too Many Records For DIF	Attempted to convert more than 255 records to DIF format. Perform a subfile operation first to select fewer records.
No Matching Fields	Attempted to merge two files which had no field names in common.
Too Many Tuples	Attempted to convert a DIF file containing more than 21 tuples. Try making the file smaller from within the originating program.

SynFile+ won't load, check the following:

1. All cartridges have been removed from the cartridge slot.
2. Check that all cables are properly in place.
3. At least 48K of RAM must be installed.

SynFile+ Capacities

Fields per Record: 1-66

Form Size: 80 characters by 21 lines inclusive of field names.

Field Names: 1-31 Characters
Valid characters: All ASCII except "(" and ")"

Records/File: Limited by RAM and index length.

Disks/File: 1-16

Sorts: Up to 16 fields. The maximum length will vary depending on the number and length of the index fields selected. Each field can be selected only once. The index can be re-defined at any time.

Searches: Up to 16 fields of search criteria for a total of up to 255 characters total. Wild cards are allowed: A*, *A, *A*. Leading range specifiers: > for greater than or equal to, < for less than or equal to, # for not equal to.

Index

1   If you do not have an ATARI 600/800XL™ computer, insert a *BASIC Cartridge* in the *Cartridge Slot.*

2   Insert the *Tutorial Disk* in *Drive I.*

3   Turn on your computer.

The tutorial will load in less than 30 seconds. If left unattended for several minutes, the tutorial will automatically proceed.

SynFile+™

To select a function, move the cursor using (CTRL) and the arrow keys and press (RETURN).
To return to the Main Menu, press (ESC).

Main Menu

Files   Allows selection of operations to manipulate whole datafiles and to load the Create/Edit Form module.

Records   Contains all operations for the entering, deleting, updating, calculating, retrieving, printing and re-indexing of records.

Reports   Permits output of data in columnar format (List) or generalized form output (Labels) to printer and/or AtariWriter.™

Files Sub-menu

Open   Load an existing datafile, its form, and its index. Close any currently open files.

Close   Close the current datafile, saving the index.

Copy   Copy a datafile to a new file.

Subfile   Extract and copy a portion of a datafile to a new datafile.

Merge   Combine separate datafiles with similar field names.

Rename   Change the name of an existing datafile.

Format   Erase disk contents and format to prepare for data entry.

Delete   Erase a file from the disk.

Density   Change the density of all drives. Do this before formatting and at the beginning of each session.

DIF→SynFile   Convert DIF™ file to SynFile+ file.

SynFile→DIF   Convert SynFile+ file to DIF file.

Records Sub-menu

Retrieve Recall records based on search criteria. Legal tests include:
< less than or equal to,
> greater than or equal to,
not equal to.
∗String: Ending with string.
String∗: Beginning with string.
∗String∗: Contains string anywhere in the data field.

You can type the exact match or leave it blank (retrieves all).
To go on to the next record, press (START) . To delete, print, or
calculate displayed record, press (OPTION) .

Enter Type data into blank record form.

Update All Make specified changes to record data on all records meeting
the search criteria.

Delete All Delete all records meeting the search criteria.

Re-Index Establish new index fields and lengths, select ∗DONE∗, to exit.

Reports Sub-menu

Lists Produce columnar report of data.

Labels Produce generalized form (mailing label) report of data.

Some Common Terms

field Each of the named input segments in a record form.

file A collection of data records.

form A blank template consisting of named fields and associated
blank entry lines.

formatting Erasure process which prepares a disk for the acceptance
of data.

index Field(s) selected for sorting the datafile.

record A single, filled-in data form.

Field Types and Specifications

text   accepts letters, numbers, symbols, and spaces literally.

numeric   accepts real numbers, numbers with decimal portion.
($-2*10$ to 97th power to $+2*10$ to the 97th power.)

cumulative   serves as bucket to collect a running total of values contained in other fields in the record. Updated only by pressing (OPTION) and selecting Calculate.

look-up   entries will be validated against a table that you define.

dollar   accepts numbers and decimal points and displays in dollar format: $999.99.

record #   serves as register to contain an ascending, sequential number. Initialized to 1 and incremented by 1 for each record entered.

date   accepts numbers, in mm/dd/yy format.

integer   accepts whole numbers, no decimal portion.
(-32768 to $+32767$)

counter   serves as register to contain an ascending, sequential number. Can specify starting value and increment.

conditional   retains specified text entry based on the true or false status of your comparison formula.

computed   calculates the results of a formula that you specify in the record form.

synapse